



TRANSMITTAL

To: Zaida Roshandel
Massachusetts School Building Authority
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From: Kenneth J. Guyette
STRATEGIC BUILDING SOLUTIONS
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Client: Berkshire Hills Regional School District (BHRSD)

Project: Monument Mountain Regional High School

Attached you will find the following items:

Item #:	# of Copies:	Dated:	Description:
1	2	6/11/2013	Schematic Design Submission – Hard Copies
2	1	6/11/2013	Schematic Design Submission – Electronic Copy on CD

These are transmitted as checked below:

- | | | |
|--|--|--|
| <input checked="" type="checkbox"/> For Approval | <input type="checkbox"/> For Review & Comment | <input type="checkbox"/> Approved as Noted |
| <input type="checkbox"/> As Requested | <input type="checkbox"/> Copies for Distribution | <input type="checkbox"/> Approved as Submitted |
| <input type="checkbox"/> For Your Use | <input type="checkbox"/> Returned as Noted | <input type="checkbox"/> Rejected as Noted |

Remarks: Ms. Roshandel
Enclosed are the hard copies, and electronic copy of the Schematic Design Submission. Please feel free to contact me if you have any questions / comments. Thank you.

Signed: 
Kenneth J. Guyette

Date: June 11, 2013



June 11, 2013

Ms. Zaida Roshandel
Senior Project Manager
Massachusetts School Building Authority
40 Broad Street, 5th Floor
Suite 500
Boston, MA 02109

**Subject: *Berkshire Hills Regional School District
OPM Approval of Designer Submission – Schematic Design***

Dear Ms. Roshandel:

Strategic Building Solutions, LLC (SBS) has reviewed and coordinated the materials provided by the Design Team of SMMA Architects for the Schematic Design Phase for the Berkshire Hills Regional School District Project. The District has also approved the material for submission to the MSBA. Based on our conversations with the MSBA and our review of the raw materials assembled and included in the attached package, we hereby certify the completeness of this submission.

As requested, we have included the following information per MSBA Module 4 for Monument Mountain Regional High School:

- (2) Copies of Schematic Design Binder which will also include:
 - Project Manual
 - Schematic Design Drawings
- (1) Electronic Copy of All Documents on CD.

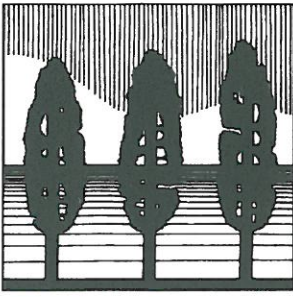
Please feel free to contact me with any questions or additional requests.

Sincerely,

A handwritten signature in black ink, appearing to read 'Jonathan Winikur', with a horizontal line underneath.

Jonathan Winikur
Principal

CC: Peter Dillon, Superintendent



BERKSHIRE HILLS REGIONAL SCHOOL DISTRICT

GREAT BARRINGTON • STOCKBRIDGE • WEST STOCKBRIDGE

50 MAIN STREET • P.O. BOX 617 • STOCKBRIDGE, MA 01262 • (413) 298-4017

May 10, 2013

Katie M. Loeffler, Project Field Coordinator
Massachusetts School Building Authority
40 Broad Street, Suite 500
Boston, MA 02109
Katie.Loeffler@MassSchoolBuildings.org

Zaida Roshandel, Senior Project Manager
Massachusetts School Buildings Authority
40 Broad Street, Suite 500
Boston, MA 02109
Zaida.Roshandel@MassSchoolBuildings.org

Dear Katie and Zaida,

It is my great pleasure to write this letter on behalf of our school community. Over the past year, the School Building Committee, the Berkshire Hills Regional School District School Committee, colleagues, families and community members have collaborated with our design team, SMMA and SBS, crafting and refining plans to build on the successes of Monument Mountain Regional High School. We have grappled with the pressing concerns about the use of existing classroom space, renovated and expanded CVTE Programs, security and safety, and gross square footage. We have listened carefully, responded to feedback, pushed our designers and ourselves to be creative and financially disciplined. This letter captures our collective vision for the School District and the urgency for moving that vision forward through a thoughtful renovation and addition project.

Our high school is forty-six years old and the building simply cannot support 21st Century programming and instructional methodologies for students who need these skills to compete and succeed in a global society. The infrastructure of the school is outdated, inadequate and limits program development.

The project design's emphasis is on providing a high school facility that both supports preparing our students well for post-secondary education, training, employment, and engaging students in meaningful and rigorous work on a daily basis. Embedded in our design is a commitment to a sense of flexibility. We know that education may shift dramatically in the coming years, and we see a range of spaces affording us opportunities to continue to evolve as learners and educators.

Our work at Monument Mountain is to provide powerful learning for all and foster an intellectually challenging and supportive education. We strive to expand academic and career opportunities beyond the school walls. Monument Mountain has a proud legacy of providing educational opportunities that are student-centered, collaborative and innovative yet its physical deficiencies, particularly in science and technology,

prevent it from becoming the best it can be. Premier high schools provide exceptional classroom, CVTE, lab and collaborative spaces. They are technology rich with extensive resources for on-line learning and widespread use of integrated technology. They value the arts, research and physical education. They support connections to the outdoors and to the broader community. Monument Mountain does much of this despite our forty-six year old classrooms, labs, CVTE and collaborative spaces. While the students, faculty and community have not allowed the school building to limit their vision of a premier education, intentionally developing and renovating spaces to better support student growth and success, and providing resources comparable to those our students will encounter in colleges and workplaces will facilitate both our mission and our charge.

We appreciate your support in helping us aim high and, in return, we will continue to create exceptional opportunities for students, staff, families and our communities.

Sincerely,



Peter Dillon, Ed. D.
Superintendent

cc: Jon Winikur, SBS
Stephen Bannon, Chair, BHRSD School Committee
Richard Coons, Chair BHRSD Building Committee
Marianne Young, Principal, MMRHS

SCHEMATIC DESIGN BINDER

-MSBA SUBMISSION-

Monument Mountain Regional High School
Great Barrington, Massachusetts

MAY 31, 2013—MSBA SUBMISSION

Submitted by,

SMMA

Symmes Maini & McKee Associates
Cambridge, MA


MARGO JONES
Architects

SMMA No. 12029.00

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ATTACHMENTS:

- A. Schematic Design Space Summary
- B. Hazardous Materials Testing Reports, CDW
- C. Preliminary Radon Testing, CDW
- D. Geotechnical Report, OTO
- E. Building Code Analysis
- F. Preliminary LEED Scorecard
- G. Construction Cost Estimate, PM+C
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SECTION ONE INTRODUCTION

1.1 SUMMARY OF PREFERRED OPTION

The Berkshire Hills Regional School District (District) and the Monument Mountain Regional High School Building Committee (Committee), after careful review, discussion and consideration, voted Renovation Option 2D.4 as the Preferred Alternative and on September 27, 2012, the District submitted the Preferred Schematic Study Report to the Massachusetts School Building Authority (MSBA).

On October 17, 2012, the District presented the Preferred Alternative to the MSBA Facilities Assessment Subcommittee, and on October 24, 2012 the District had a follow-up conference call with the MSBA to review preliminary comments from the Preferred Schematic submittal as well as questions that arose from the FAS Meeting. On November 6, 2012, MSBA staff formally provided comments on the report to the District. On November 2, 2012, and December 4, 2012 the District submitted additional information requested at the MSBA Facilities Assessment Subcommittee and in the MSBA staff comments.

Renovations include upgrading the existing building plumbing, HVAC, electrical and technology systems and providing for full fire sprinklering. The existing windows are to be replaced and the roof is to be replaced with new membrane roofing and insulation. The asbestos is abated through-out and new finishes provided. The significant accessibility issues throughout are addressed, as well as life safety and egress code issues.

On November 14, 2012, the MSBA Board of Directors voted to approve the District to proceed into Schematic Design for the addition and renovation of the Monument Mountain Regional High School.

1.2 OVERVIEW OF COMMUNITY OUTREACH

The School Building Committee and the District are providing information regarding the feasibility and schematic design process on a project website:

<http://www.mmrhsproject.org/pages/MMRHSP>.

The website includes an overview, project schedule, copy of the PDP, photographs of existing conditions at the high school, certain approved MSBA documents, and current documents under consideration or which have been approved by the School Building Committee. The towns' and the District's websites provide links to the high school project website where there is an email contact link.

The School Building Committee held a Green Charrette on December 18, 2012.

The local media is invited to all meetings and events. When they are not able to be present, they are provided with a meeting summary for them to make available in the local newspaper. Additionally, local reporters are engaged to provide them information for articles, updates and breaking news that only appears in the online version of the publication.

1.3 PROJECT BUDGET AND SCHEDULE

The Project Budget for the renovations and additions to the Monument Mountain Regional High School (MMRHS) is \$55,817,124 as defined in the completed 3011 Project Budget Form, dated June 5, 2013 prepared by the Owner's Project Manager (OPM), Strategic Building Solutions (SBS). The budget is included in Section 2.19 of this report and represents the District's not to exceed Total Project Budget.

The Construction Budget was defined as \$46,972,002, in the detailed construction estimate, dated March 25, 2013 prepared by PM+C. Simultaneously, an independent estimate was also completed by A.M. Fogarty, the Owner's cost estimator, dated March 26, 2013, which defined the Construction Budget as \$48,643,100. Both estimates were reconciled with each other through an intensive review meeting with the entire design team, the OPM and the cost estimators. The resulting reconciled Construction Budget was set at \$48,102,000. Value Engineering recommendations were developed by the OPM and accepted by the School Building Committee which resulted in a revised Construction Budget of \$41,728,813 which aligns with the Construction Budget on the attached 3011 Project Budget Form.

All detailed construction cost estimates and reconciled costs are appended at the end of this section.

The cost estimates will be continually refined throughout the design process, to maximize the potential of a renovation and addition project, upgrading of major building systems, and site work.

Additionally, the design phase includes a cost estimating and value engineering period during the Design Development Phase, a constructability review, cost estimating and budget validation period during the Construction Document Phase, to ensure the project remains within the approved budget.

The project schedule anticipates MSBA Board of Director's approval of the Project Scope and Budget Agreement at their July 31, 2013 meeting. District-wide appropriation voting will occur in the month of November 2013.

Following the District voting, the Design Documents will be developed, leading to construction commencement in the fall of 2014 and project completion in the fall of 2017.

1.4 LOCAL APPROVAL PROCESS

Throughout this process, the Monument Mountain Regional High School Building Committee has endeavored to maintain a public, transparent and open process. The Committee has attempted to reach out to as many residents as possible in an effort to gain input and feedback, through open public forums, the District's website newsletters, cable television, and email list services.

Design alternatives have been developed through an open public process with significant School Building Committee and community participation. The Committee has sponsored public forums to the community to review and discuss the renovation/additions alternatives and the new construction alternatives. Additionally, the Committee has engaged in formal and informal dialog with representatives of town constituent groups, representing a wide spectrum of the general public.

The School Building Committee's approval to submit the Schematic Design is located in Section Three of this report.

1.5 PROJECT DESCRIPTION

Option 2D.4 is an addition/renovation option consisting of the construction of a new one-story Science lab wing to the east, including one multifunctional Science Dry Lab that would also function as a large group instruction space. The main entrance is relocated to the northern façade, facing the parking lot, and receiving the automobile traffic. Bus drop-off would relocate to the Western drive circle, but a new sidewalk at the west will connect it to the new north-facing Main Entrance, the new entry point for the facility.

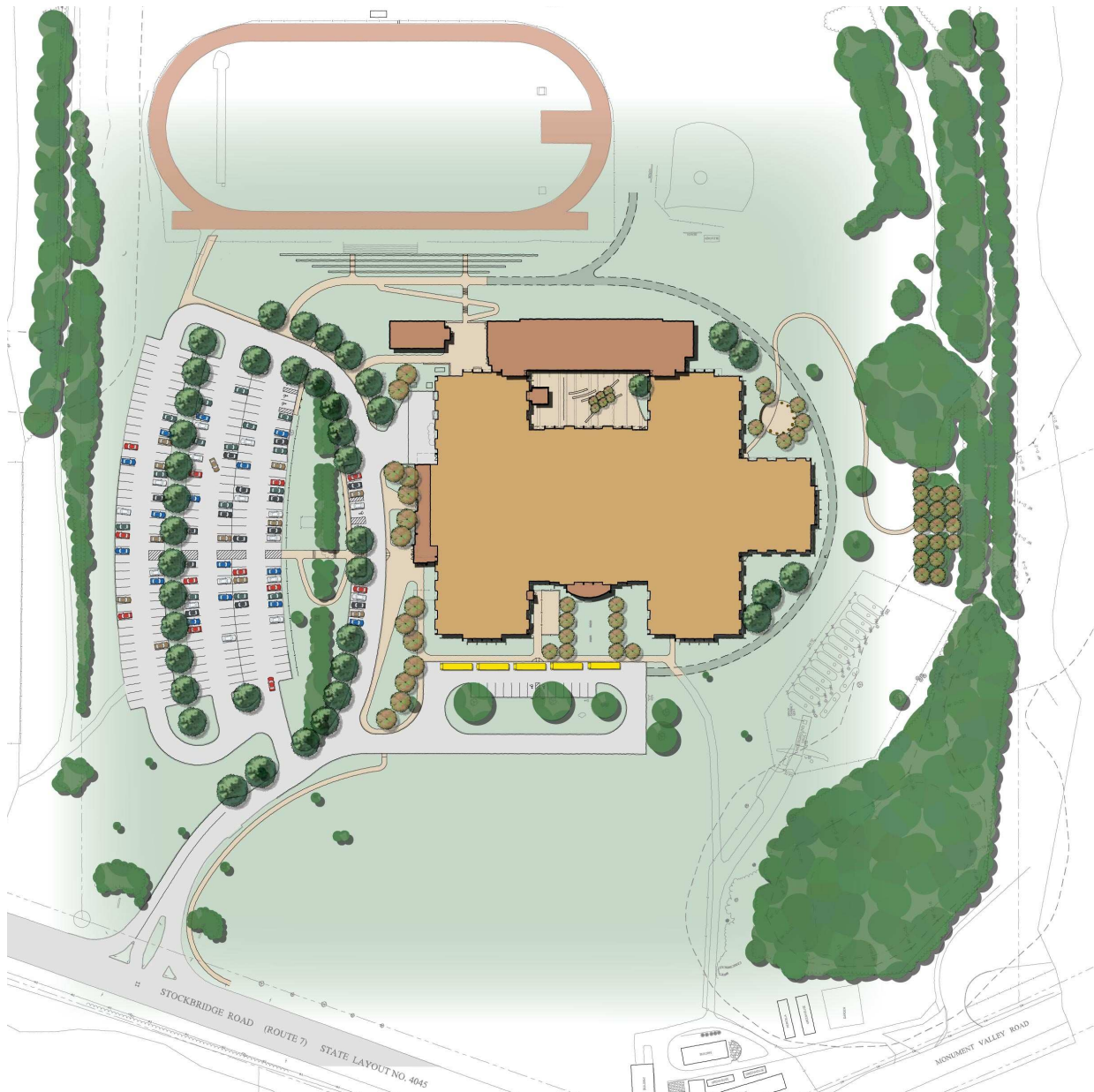
The central cross corridor running east/ west between the gymnasium and auditorium will be a dynamic space connecting the Library/ Media Center and the open Dining Commons, moving the Student Center to the area currently containing the Band Room. The new Science addition will link STEM spaces—vocational technology to the north, and the math academic classrooms in the B-wing. In general, existing smaller classroom sizes are maintained, due to smaller class sizes at Monument Mountain Regional High School. A new large group instruction space is created out of formerly "landlocked" interior classrooms, to be day lit from roof monitors above. The agricultural program, currently housed in the greenhouse spaces at the western corner of the site—along Route 7, is relocated to the main building with separate public access at the northeast corner of the building (A wing). The early childhood education vocational daycare classroom is located in the G-wing to the northwest, with its own dedicated, secure entrance, and adjacent play area. Food/culinary vocational technical classroom space is adjacent to Early Childhood, to enhance overlapping learning opportunities. Much needed alternative PE spaces are created in the C-wing including: a new Multi-Purpose Room, Cardio and Weight Room spaces.

The existing building plumbing, HVAC, electrical and technology systems are fully upgraded, including providing for full fire sprinklering. The existing windows are replaced and the minimally insulated brick masonry may require insulation on the interior. The roof is replaced with new roofing and insulation, and the mansard roof will be re-clad to reflect a more functional, well insulated, and aesthetically pleasing function. The asbestos is abated through-out and new finishes are provided. The existing accessibility issues throughout are addressed, as well as life safety and egress code issues.

The site work addresses the existing entrance confusion and provides a more visually inviting presence to the main road. The worn and deteriorating vehicular lanes and parking lot will be refurbished, as required; and utility services will be upgraded. Site accessibility is addressed including a new right-turn only bypass lane onto Route 7, Stockbridge Road.

1.6 SCHEMATIC DESIGN IMAGES

The following Schematic Design images are included in a CD bound with this Schematic Design Report.



Proposed Overall Site Plan



Proposed First Floor Plan



Proposed Entry View- North Facade



Proposed New Science Addition- East Facade



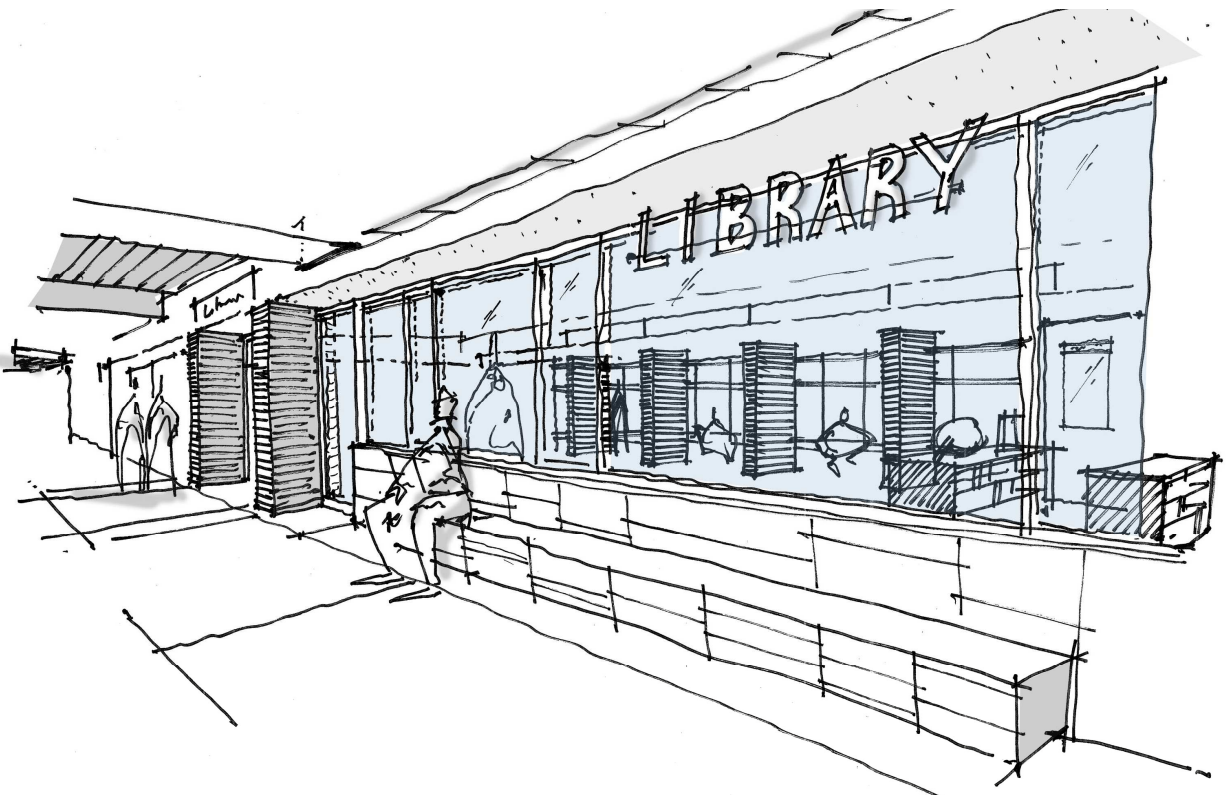
Proposed new Library/ Media Center Addition- West Facade



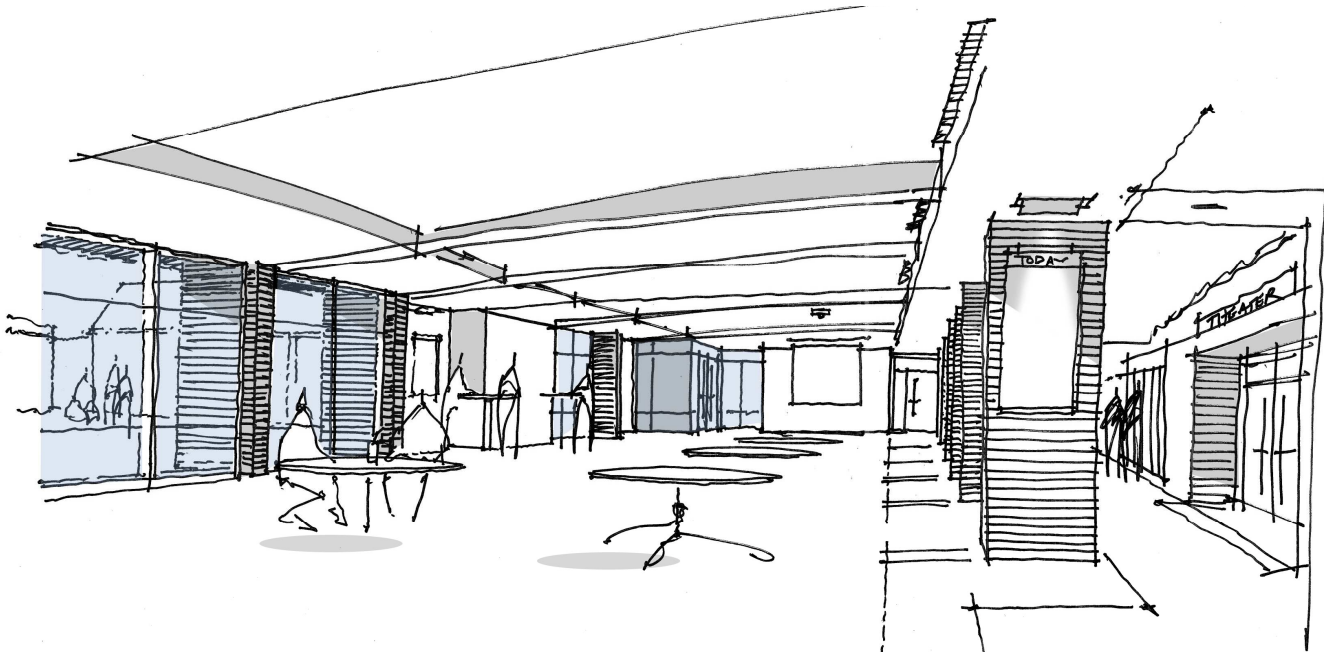
Proposed New Building- Aerial View



Interior View- Main Corridor at Entry Lobby



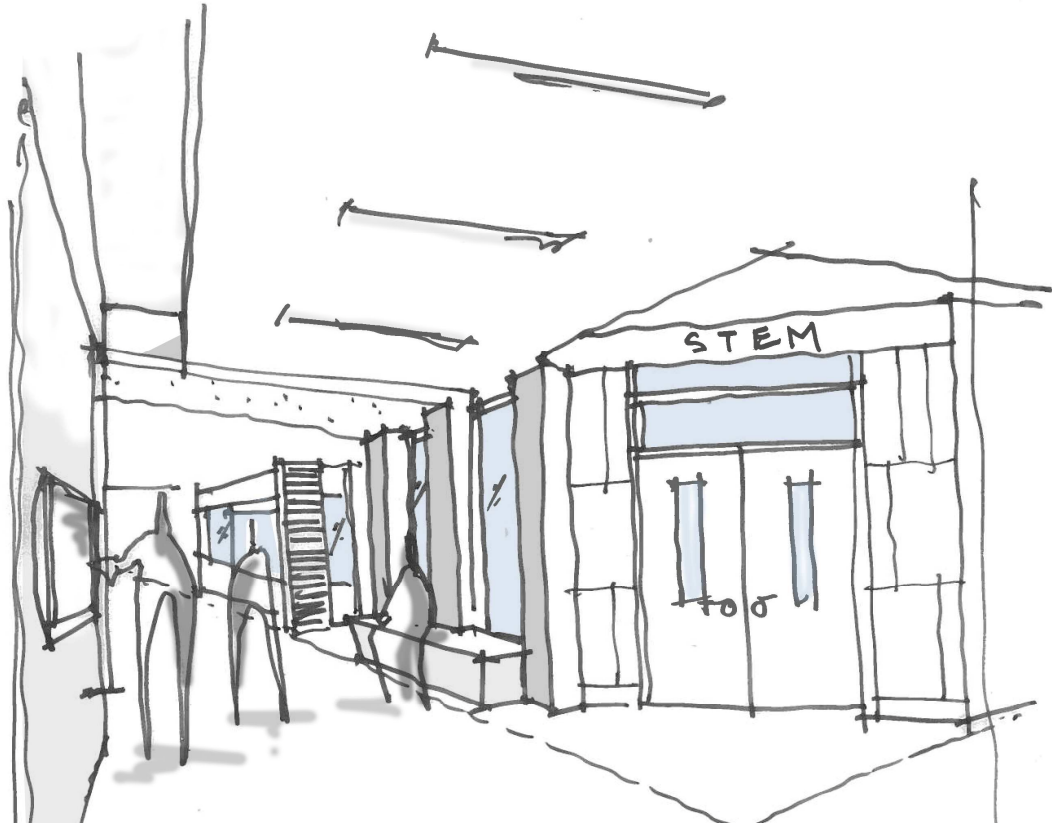
Interior View- Main Corridor at Library/ Media Center



Interior View- Dining Commons



Interior View- Corridor at Art Gallery- F-Wing



Interior View- Corridor outside of STEM Lab/ LGI



Interior View- STEM Lab/ LGI

SECTION TWO FINAL DESIGN PROGRAM

2.1 ARCHITECTURAL CHARACTERISTICS

The renovations and additions to the Monument Mountain Regional High School seek to reinvent the antiquated educational facility. By adding a new science wing on the East side of the site, linking the existing Vocational wing and the Math wing, the administration's goals to seek greater cross curricular and STEM collaboration in spaces capable of supporting the project based learning objectives will be achieved. Removing the Band rooms at the center of the building will create an open cross corridor running East to West through the building while also creating a new Student Center at the heart of the new school. This cross corridor will also serve to connect the central Dining Commons/ Cafeteria with the Library/ Media Center. As a result, the high school will now be organized to support and connect not only the social and academic programs associated with the school but clarify and improve the public and community use aspect of this important civic institution for the three towns. Stylistically and materially the new building components and the renovated facades complement a simple building using new materials to complement the existing brick and re-cladding the outdated, and deteriorating metal panel roof mansards to add a fresh, modern look. Lastly, the building plan seeks to correct years of confusion by relocating the main entrance towards the parking lot on the north side of the site where most students currently enter the building, while also addressing security concerns of multiple entry points into the building.

2.2 SPACE SUMMARY

The Space Summary was developed to address the goals and vision of the Educational Program through a series of interviews with the District administration and the High School administration, teachers, staff, and students.

The following lists minor deviations between the Space Summary included in the Preferred Schematic Report and the Schematic Design Space Summary:

Core Curriculum:

- a. Large Group Instruction Classroom – reduced in square footage from 1,800 SF to 1,600 SF whereas the 7th Science Lab Classroom grew from 1,300 SF to 1,600 SF. The over square footage for Core Curriculum spaces is slightly less than the approved Preferred Schematic space summary.
- b. Science Prep Rooms - are designed as three Prep Rooms in lieu of four Prep Rooms listed in the PSR, same total net square feet meets the Science lab initiative room requirements.

- c. Central Chemical Storage - The school uses limited chemicals and will use 100 sq ft of the space from the basic prep rooms.

SPED:

Through further programming, existing building constraints, and design efforts required for the DESE submission refinements were made to the spaces in the SPED program. Net total space has decreased from 4,740 SF to 4,485, but with improved program adjacencies and shared resources.

- a. 9/10 Learning Lab –745 v. 850
- b. 11/12 Learning Lab – 740 v. 850
- c. Autism (Spectrum) – 540 v. 500
- d. Tutoring – 300 v. 200- moved from existing building to new addition
- e. Testing – 100 v. 190
- f. Small Group Room – 470 v. 500
- g. One 60 SF Toilet Room was deleted from the program

Art & Music:

Through further programming and existing building constraints the net total space has decreased from 6,525 SF to 6,400.

- a. Band Room – 1,550 v. 1,500- as a result of existing building configuration
- b. Chorus Room – 1,250 v. 1,500- a smaller room was desired by the District given the number of students in the program and the preference for a larger Band Room.
- c. An additional 75 SF Practice Room was requested by the District. The existing building currently has two Practice Rooms. These new Practice Rooms and Storage Room will also help to provide acoustical separation between the spaces in addition to being shared spaces between both Band and Chorus Rooms.

Vocations & Technology:

Through further programming and existing building constraints the net total space has decreased from 6,600 SF to 6,350.

- d. Computer Repair Classroom – 750 v. 1,000 due to existing building constraints

Vocations & Technology (Chapter 74 Programs):

Through further programming the net total space has increased from 6,915 SF to 7,575.

- a. Auto Shop – 2,530 v. 2,100 due to new building configuration and the addition of a hand washing/ locker room area
- b. Auto Shop Classroom – 840 v. 735 due to new building reconfiguration. A larger classroom would allow for potential shared classroom space between other vocational programs.
- c. Agriculture/ Horticulture Classroom/ Lab/ Storage Spaces– 1700 v. 2000 due to further programming and existing building constraints
- d. Agriculture/ Horticulture Greenhouse remains 2,000 SF and becomes a detached structure
- e. Agriculture/ Horticulture Conservatory is a new program element adding 425 SF. This allows for connection and interaction with the interior courtyard and potential cross-curriculum learning opportunities.

Health & Physical Education:

Through further programming the net total space has decreased from 16,792 SF to 15,570.

- a. PE Alternative- Multi-Purpose Room – 1,650 v. 2,000 due to existing building constraints.
- b. PE Alternative- Weight and Cardio Rooms – Two spaces totalling 1,340 v. One space at 1,500- due to the addition of the building entrance to be used exclusively for the athletes. Additional building constraints were also a factor in the overall reduction in square footage.
- c. Gym/PE Storage Rooms – One combined space at 540 v. two spaces at 800 due to existing building constraints. The new square footage is slightly more space than the existing building and should be adequate.

Media Center:

Proposed square footage has not changed.

Auditorium:

Through further programming the net total space has decreased from 8,503 SF to 8,303.

- a. Make-up/ Dressing Rooms – 400 v. 600 due to existing building constraints.

Dining and Food Service:

Through existing building constraints the net total space has decreased from 6,020 SF to 5,990.

The Space Summary for the Schematic Design is appended to the end of this section.

2.3 EDUCATIONAL PROGRAM

The Schematic Design meets the Educational Program. The Educational Program has been developed to meet the needs of the twenty-first century learner. The Berkshire Hills Regional School District has agreed to participate in this process with the goal of becoming the school of choice for a broader range of students. The Superintendent of Schools and high school principal and staff met extensively with members of the design team to develop the Educational Program. The team affirms that the program supports the existing instructional program while mindful of the needs of the twenty-first century learner.

2.4 INSTRUCTIONAL TECHNOLOGY

The Berkshire Hills Regional School District has recently invested both funds and other resources to the development of education technology at the high school. The FY12 refresh equipped all teachers with new computers; outfitted technology labs and the library with new computers; upgraded computers in the art rooms and the audio visual (AV) room; upgraded the entire LAN infrastructure throughout the building; and opened the wireless access for students, staff and guests.

However, there is still a need to upgrade existing hardware at the high school, unlike at the other two schools.

The Schematic Design reinforces the Educational Program by providing a technology infrastructure to support teacher and student needs well into the future. The infrastructure will be multi-platformed and will include a wireless campus network that will support one student to one device (1:1) computing in the future.

The administration and school committee have proactively moved to combine some separate computer program/labs together such as the on-site TV studio editing lab and the vocational computer lab which will be located adjacent to the Library/Media Center to further strengthen these programs.

2.5 FUNCTIONAL RELATIONSHIPS

To sustain MMRHS's mission and goals, the facility should:

- support 21st century teaching and learning
- integrate technology in all areas of the building
- provide vibrant, flexible teaching and learning spaces
- facilitate student and teacher initiative and engagement
- ensure safety and security
- welcome the community and educational partners

The Schematic Design reinforces the Educational Program above by clustering science classroom / labs in the proposed addition and renovating the other wings to provide more cohesive departmental centers, while also providing for easy access and cross-disciplinary interactions. The classroom arrangements

provide for better collaboration and communication, critical components for increasing interdepartmental curricular activities. The STEM Lab and Large Group Instruction classrooms allow for combining two academic classrooms while providing opportunities for larger, interactive academic sessions and projects. The central location of these 2 spaces allow for greater access and visibility to the back of the “pods” which currently are a concern for staff and administration. Common teacher planning areas are also centrally located near the departments’ classrooms.

The schematic design reinforces the goals of integrating the STEM related programs through inclusion of the Agricultural/Horticultural program at the back of the school adjacent to the Sciences and Vocational Wing. This program will also be connected to the School’s kitchen and will be linked by growing fresh produce and herbs and processing compost.

The cafeteria/student commons is centrally located in the existing portion of the building. By creating the new central corridor/Student Center where the current Band room is located, circulation throughout the building is greatly improved, helping to further the district’s intent of fostering a strong sense of community with improved passive socialization spaces.

The Art classrooms will be appropriately relocated with the Music and humanities pod.

2.6 SECURITY AND VISUAL ACCESS

Teaching and learning in a safe environment is of critical importance in the member communities. The 40 exterior doors found in the current school design impede security and safety protocols. There is no access control system, i.e. doorbell or buzzer mechanism, managing school day entrance into the building. The current main office design does not provide a view of the main entrance doorways.

The Schematic Design reinforces the functional and spatial relationships established by the Educational Program by creating a secure single point of entry with administration immediately adjacent to the main entrance. The number of exterior doors has also been reduced.

2.7 SITE DEVELOPMENT

The existing Monument Mountain Regional High School is located at 600 Stockbridge Road (Route 7) in Great Barrington, MA. It is shown as Assessors Map #39, Parcel 19 and is located within the R4 Large Acreage Residential zoning district. The site is not located within any special zoning overlay districts. The site is bound by Stockbridge Road to the west, Monument Valley Road and Muddy Brook Regional Elementary School to the southwest, district-owned land to the north and land to the east and southeast owned by the Commonwealth of Massachusetts. The eastern property line follows the Konkapot Brook, identified as a perennial stream on the 2009 U.S. Geological

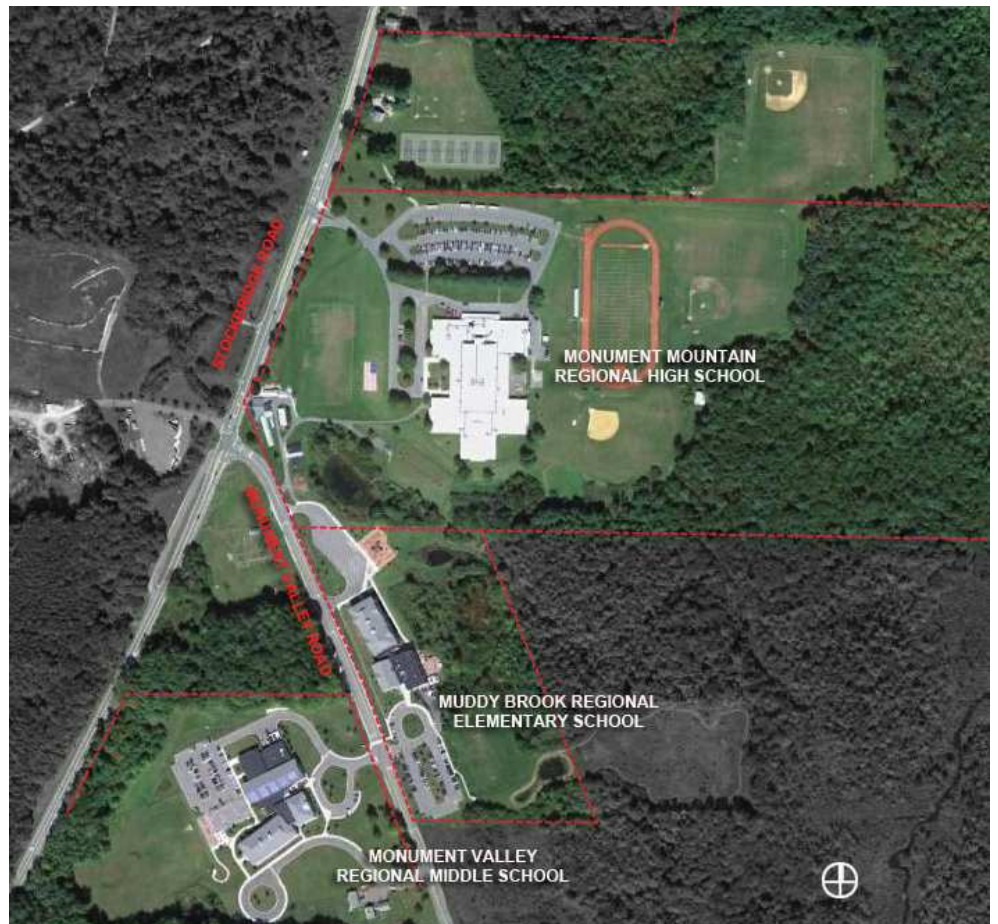
Survey quadrangle maps.

The site measures approximately 86 acres, 40 acres of which make up the developed and western region of the site. The existing high school building is centrally located within the developed area. There is also a farmhouse building with accessory greenhouse structures located on the western corner of the site, at the intersection of Stockbridge Road and Monument Valley Road. The Muddy Brook Regional Elementary School and Monument Valley Regional Middle School are accessed by Monument Valley Road and are directly south of the High School site.

A track and field complex with bleachers and a press box are to the east of the existing school building, along with practice field space and baseball and softball fields. The site accommodates parking for approximately 270 vehicles mostly concentrated in a large parking lot to the north of the school building. The rest of the site, approximately 46 acres, is densely wooded and undeveloped. There is at-grade loading area on the northwest corner of the building.

Topography on the project site ranges significantly from the southwest corner at elevation 864 where the greenhouse building exists up to elevation 896 where the high school exists and down to a rough elevation of 830 along the east side of the property at the Brook. The school is one story with the same floor elevation generally throughout the building. In general, the site slopes away from the high school building in all directions as steep as 3h:1v.

The primary consideration in developing the conceptual site plan was to improve on-site vehicular circulation. In particular, addressing concerns over queuing lengths that back up into the site during peak hours and providing safe bus and pedestrian circulation.



Existing Site Plan

The proposed site plan includes reconfiguration of the existing driveway at Stockbridge Road to allow for a right turn only exit lane. By providing this additional lane, turning vehicles are able to exit the site without entering the queue of left turning vehicles. The driveway reconfiguration continues into the site providing clear circulation for bus and parent activities. In addition, the parent drop-off and pick-up queue has been elongated to provide more area for students to safely exit and enter vehicles.

The proposed site plan will generally maintain existing parking configuration and number of parking spaces, for approximately 270 vehicles. The majority of parking spaces to the north and west will be maintained, and 7 new accessible spaces will be constructed closest to the new entrance as required by MAAB and ADA.

The parking lot and driveways will include limited new vertical granite curb and bituminous berm, milling and overlay of existing pavement where feasible, landscaping, exterior lighting and ADA walkway connections to the building.

Additional site improvements include a new concrete plaza at the new primary entrance to the building, ADA compliant walkways to the building and athletic facilities, adequate parking lot lighting, and limited landscaping. The site plan

was developed to maintaining the existing ballfields and athletic facilities, as upgrades to these facilities are not part of this project.

2.8 AESTHETIC FEATURES

The new portions of the school will include a brick/CMU base course to complement the brick on the existing building. The existing mansard of both the upper and lower roofs will be re-clad in a composite metal panel to improve the building's efficiency as well as complement the new aesthetic of the exterior. Glazing will be new throughout and shall be clear. Window patterns are designed to maximize daylight throughout and limit opening sizes for improved building security. Roof screens have been added to block acoustical noises and limit views of the rooftop mechanical equipment. The new entrance is designed in curtain-wall to maximize its' intension to serve as the new beacon and symbol for the revitalized school.

2.9 TRAFFIC ANALYSIS

The Schematic Design addresses the issues defined in the Traffic Impact Analysis, dated September 2012 prepared by Bryant Associates and contained in the Preliminary Design Program Report.

The analysis indicates typical delays and congestion at peak morning and afternoon hours.

By providing an elongated dedicated right turn lane for northbound traffic leaving the site, the circulation is improved and will alleviate some peak morning and afternoon vehicular congestion. In addition, the proposed driveway realignment will improve and organize to vehicular circulation. Signage will also be incorporated to better direct vehicular circulation.

2.10 EXISTING BUILDING ASSESSMENT

Destructive testing and investigation for suspect hazardous materials were undertaken during the Schematic Design Phase. CDW Consultants, Inc. undertook destructive testing and inspection of suspect asbestos containing waterproofing mastic behind the existing exterior brickwork and at existing roofing and flashing membranes. They performed destructive testing and inspection at the interior expansion joints found to have PCB containing caulk. They also performed preliminary radon testing. The details of the findings are defined in the reports by CDW Consultants, Inc. dated May 3, 2013, and March 14, 2013 appended to the end of this section. The cost impact to remediate the hazardous materials is included in the Schematic Design estimate.

2.11 GEOTECHNICAL ANALYSIS

Geotechnical investigation was undertaken by O'Reilly, Talbot & Okun, Associates to ascertain the subsurface soil, bedrock and groundwater conditions and to develop preliminary foundation design recommendations. Conditions for construction appear favorable; groundwater was not

encountered at any exploration. Soil material was found to be generally suitable to construct foundations. The details of the findings are defined in the report by O'Reily, Talbot & Okun, Associates, dated March 26, 2013, appended to the end of this section.

2.12 CODE ANALYSIS

The building will be designed in accordance with the 8th edition of the Massachusetts State Building Code based on the 2009 IBC and the Massachusetts Amendments, the Existing Building Code 2009 IEBC and the Massachusetts Amendments, the Massachusetts Architectural Access Board (MAAB) and the 2010 ADA Guidelines, the 2009 IECC and the Massachusetts Amendments, the Massachusetts Elevator Regulation and ASMA A17.1 Safety Code for Elevator and Selected NFPA Standards as referenced in 780 CMR. The Code Analysis is appended to the end of this section.

The Town of Great Barrington is a Green Community and has adopted the Massachusetts Stretch Energy Code. The requirements for these programs will be included in with the LEED for Schools requirements in order to determine the overall energy performance goals for this project.

SITE PLAN REVIEW

The project will require Site Plan Approval from the Planning Board in accordance with Section 10.5 of the Town of Great Barrington Zoning By-Laws. The parcel is located within the R4 Large Acreage Residential zoning district. Educational Uses are allowed by right in this zoning district per Section 3.1.4.B (7).

The site plan review procedure requires a final decision from the Planning Board within 60 days of permit application. The final decision has a 20 day appeal period.

It is assumed that the District, as the applicant, will participate in all public hearings and that the application for Site Plan Approval will be submitted at the completion of the Design Development Phase.

ZONING BOARD OF APPEALS

The parcel is considered in compliance with the Great Barrington Zoning Bylaws and will most likely not require filing with the Zoning Board of Appeals.

CONSERVATION COMMISSION

The project will most likely not require a filing with the Great Barrington Conservation Commission if the proposed work is outside of resource areas on the site.

DEPARTMENT OF ENVIRONMENTAL PROTECTION/BOARD OF HEALTH

The project will likely require some involvement with the Department of Environmental Protection (DEP) for the water supply and wastewater systems. It has been confirmed the existing systems were designed for a greater population than the future enrollment, but it is not anticipated these systems will be expanded. The Great Barrington Board of Health will not take jurisdiction over these systems.

The project will likely require a Food Service permit for the new kitchen from the Great Barrington Board of Health.

MASSACHUSETTS ENVIRONMENTAL POLICY ACT (MEPA)

MEPA review is applicable to projects that receive state funding and exceed certain defined environmental thresholds. If one or more of the thresholds is exceeded MEPA review is required.

Since the project will receive state funding we have reviewed the MEPA regulations and determined that the project will not exceed any of the defined thresholds.

MASSACHUSETTS HISTORICAL COMMISSION (MHC)

SMMA visited Massachusetts Historical Commission (MHC) on May 31, 2012 and confirmed that the school and greenhouse buildings and site are currently not listed on the Inventory of Archaeological and Historic Assets of the Commonwealth and the State Register of Historic Places. Therefore, no approvals from the MHC are required for the project.

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION (Mass DOT)

The project may require filing an Access Permit with Mass DOT because the project is accessed from a state roadway. The permit type will likely be a Category I – Minor Vehicle Access Permit for a Commercial Driveway, and multiple submissions may be reviewed by Mass DOT. This work will most likely be completed in coordination with the project's traffic consultant Bryant Associates.

MASSACHUSETTS ENDANGERED SPECIES ACT (MESA)

The project site includes some area of Priority and Endangered Habitats, located on the eastern side of the undeveloped portion of the site. The project will not alter any of these habitats; therefore, a filing with MESA is not required.

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION (Mass DEP)

It is anticipated that a subsurface recharge system will be installed as part of the proposed storm water management design. Mass DEP classifies storm water recharge systems as Class V wells and registration is required through the Underground Injection Program. The registration would be filed before the system is installed.

2.13 UTILITY ANALYSIS

The site is currently served by a public water supply well, wastewater treatment plant and storm drainage. According to available record and design plans, the water supply well was constructed in 2002 and the wastewater treatment plant was constructed in 2004.

The supply well is located approximately 1,600 feet east of the existing building. A 4-inch ductile iron water line runs from the well north to a pump house vault located southwest of the existing building. There are separate tanks for domestic and fire protection utilities. The school's domestic service is fed by a 4-inch ductile iron line from the domestic storage tank.

A 12-inch fire protection line also services three existing hydrants from the fire suppression tanks in the vault. These hydrants are located adjacent to the existing building to the west, northwest, and northeast. There is a stub within the existing driveway for a future feed to the building.

The sanitary sewer service consists of two 6-inch gravity lines that exit the west side of the building to a septic tank northwest of the building, and gravity flow to the wastewater treatment plant on the Middle School site. The treatment plant currently handles waste flow from the High, Middle and Elementary Schools and a small school-related office.

Design documents of the existing sanitary sewer lines indicate they were constructed of vitrified clay pipe. This type of pipe may contain asbestos materials; therefore, special handling and disposal may be required for any removal or disruption of these utilities.

The existing storm drainage system consists of a series of shallow catch basins and manholes located in the main parking lot that collect storm water runoff from paved surfaces and the existing building rooftop. The piped drainage system flows in the northerly direction and daylights to low areas of the site to the north. The rest of the site flows overland off the property.

Underground electrical and telecommunication services are provided from the existing overhead services in Stockbridge Road.

Due to the age of the existing utilities serving the site, most of the services for the new building will be replaced as described below:

Water Distribution System

The existing water distribution system will be maintained where possible. In general, the domestic service will be extended to the new water room located within the main addition. All new water distribution piping will consist of Class 52 cement-lined ductile iron (CLDI) mains.

The fire protection main will be extended from the exiting stub to the fire protection room located within the new building addition. It was confirmed the existing fire pump located within the underground vault has adequate capacity

to serve the proposed fire protection demand. The main will also extend around the south side of the building to provide a hydrant at the southeast corner of the school. New fire hydrants will be provided around the perimeter of the building at approximately 300 foot intervals. The fire protection service will include a post indicator valve, as required by NFPA.

The fields are not currently irrigated. The project does not include any new irrigation.

Sanitary Sewer System

The project will utilize the existing wastewater treatment plant, located on the Monument Valley Middle School property. The system was built in 2004 and was designed to be used by the High, Middle, Elementary Schools, and a small district office. It was confirmed the design capacity of the system is greater than the future enrollment of the High School.

The sanitary waste systems for the proposed addition will connect to the existing underslab plumbing prior to discharging to the existing septic tank, located on the northwest side of the building. In addition, lab waste will be collected and treated in an acid-waste neutralization pit located within the proposed addition.

A new 3,000 gallon precast concrete grease trap will be provided to treat wastes generated from the new kitchen and culinary arts spaces; in accordance with the Plumbing Code and Title V.

A new gas/oil separator manhole structure, conforming to the Massachusetts State Plumbing Code will be provided for the Automotive Maintenance shop garage bay drains. Separator vents will be routed back into the building per Code.

Storm Drain System

The proposed storm drain system will likely utilize the existing system whenever possible. Existing catch basins may be retrofitted with oil and grease hoods to provide storm water treatment. Water quality units will be installed where feasible to provide storm water treatment prior to discharge. New storm drain pipe will consist of corrugated polyethylene pipe (CPE).

A subsurface recharge system will be installed as part of the storm water management design. This system will be below grade and will consist of pre-molded plastic chambers.

Electricity/Telecommunications

The project will require an upgrade in electrical and telecommunication services to the building, as discussed in Section 2.15 – Electrical Systems.

Natural Gas

The project will require a new gas service as discussed in Section 2.15 – Plumbing Systems. The existing service onto the site will be maintained and extended where required.

2.14 MASSING STUDY

The existing high school is characterized by its very low continuous mansard roof form – renovations to the existing building will maintain the existing mansard form while adding new, energy-efficient, modern cladding.

The new additions with their shed forms compliment the mansard form while also echoing the mountain forms within the landscape. The existing building has multiple entry points that are not articulated through the massing of the building, thus creating a very disorienting experience as well as increasing security concerns. The new entry tower addition will create a beacon and be visible and easily accessible from the entry road and parking lot while creating a more secure single point of main entry into the building.

The new science wing creates an open courtyard that will allow for exterior classroom and dining space. The new Library/ Media Center addition complements the existing low mansard form while also gaining some interior ceiling height in the Library reading room and as well as opening up views to Monument Mountain. New roof monitors over LGI, Art and interior corridors are angled to maximize the daylight in these important spaces while also helping to screen rooftop mechanical equipment.

2.15 DESCRIPTION OF SYSTEMS

STRUCTURAL SYSTEMS

Foundations

The new additions will require a 16" thick reinforced, cast-in-place concrete walls, with an 8" brick shelf, on a minimum of 24" to 36" wide continuous strip footing, around the perimeter of the building extending at least 4'-0" below finished grade, for footings resting on compacted structural fill or undisturbed soils, and 2'-0" below grade for footings resting on ledge.

As the grade slopes away from the existing building, it is anticipated that a portion of the walls will need to be designed as retaining walls and step down as they extend from the existing structure.

Cast-in-place concrete for all foundations and slabs are to contain a 33% minimum percentage of recycled and regional materials. Recycled content will consist of fly ash or similar appropriate recycled content.

At the new additions, individual spread footings at columns with allowable bearing pressures as recommended in the "Geotechnical Engineering

Recommendations" report for the "Monument Mountain Regional High School Renovations and Additions by O'Reilly, Talbot & Okun Associates, dated February 22, 2013. (Based on this preliminary report the footings will most likely rest on natural soils or compacted structural fill with an allowable bearing value of 4500 psf).

A typical interior footing supporting a roof only will be approximately 4'-6"x4'-6"x18" deep. Approximate footing reinforcing will be 5 to 6psf.

Interior grade beams will be required between interior braced frame columns and footings. These beams will be approximately 24" wide x 18" to 24" deep with approximately 25lbs of reinforcing per linear foot. These grade beams will be required at new construction.

In at the existing structure at the existing braces, additional grade beams will not likely be required, as the majority of existing braces are either on exterior walls, or above a continuous wall footing. However, if new braces are required on the interior (at locations where braces do not currently exist, and) where a continuous footing does not exist, it may be necessary to add a grade beam and/or increase the existing footing sizes. Typically, the existing column footings are 4'-0" square and 1'-4" deep and will need to be increased by approximately 12" all around, creating a overall footing size of 6'-0"x6'-0".

Lowest Level

At the addition, the new floor will consist of a cast-in-place concrete slab, 5" thick minimum at the classroom areas of the addition, and 6" thick at electrical and mechanical room. All slabs shall be reinforced with 6x6-W2.9xW2.9 welded wire fabric (1 layer in the 5" slab and 2 layers in the 6" slab), placed over a minimum of 2" of rigid insulation and a vapor barrier over a base course of approximately 8" of compacted gravel fill. The exact details of the slab-on-grade subgrade preparation will be determined from the recommendations set forth in the Final Geotechnical Engineering Evaluation Report.

Roof Construction

Existing Structure:

The existing roof framing was designed to support a 40 pound per square foot (psf) live load. The current version of the Massachusetts State Building Code has updated the snow loading requirements such that the flat roof snow loading is closer to 50psf. Many of the existing steel members have some additional capacity to resist greater loads, and perhaps can claim some more so if the existing roofing is replaced with a lighter product. A preliminary review has indicated that there appears to be just enough capacity so that roof areas that require reinforcement will likely be limited to localized areas.

In addition to the increased flat roof snow loads, the current code includes provisions for drifting snow loads, in which there are obvious areas of the existing roof that will need to be upgraded to meet this criteria. The most

extensive portion of roof area that will require reinforcing occurs where the main roof meets the high walls of the Gymnasium and Auditorium. Snows drifts as long as 15 feet can occur around the perimeter of this high roof. On the East and West sides of these walls, the existing wide flange beams appear to have additional capacity for the drifting snow, however, the existing roof deck in these areas do not, and will need replacement. On the North and South sides of the high walls, both the existing roof joists and deck will require reinforcement or replacement. Additional areas where the effects of snow drifting will be considered include areas adjacent to the proposed new clearstory light monitors, and new mechanical units.

New the vertical support for new clearstory light monitor is intended to be new HSS columns posted up above locations of existing columns. The roofs will be framed with wide flange beams and girders. The new steel for these areas is anticipated to be 8psf for these areas. The drifted snow loads may be as much as 100psf where the monitor meets the main roof, and the drifts may taper away as much as 12 feet.

At the locations on the existing roof where new large mechanical units are proposed, a concrete pad or roof slab is required beneath them. This will require removing the existing roofing and metal deck, and providing new supplemental structural steel framing, and a composite floor deck to support a new 6" topping slab. The topping slab shall extend 2'-0" to 5'-0" beyond the footprint of the unit. A portion of these areas may coincide with the roof areas that require attention due to the drifting snow loads in order to minimize the scope of roofing work. There will be approximately 2250 sq. ft. of new composite deck and topping slab required. In addition, approximately 400 sq. ft. of new 1.5" x 20 gage galvanized metal roof deck will be required around the units for patching. There will be approximately 10 new concrete pads for the HVAC units with an average size of 225 sq. ft. To support the units and concrete pads, approximately 15 tons of supplemental steel beams will be required in addition to 4 tons of girder cover plate reinforcing.

New Addition:

Typical new roof construction for the proposed addition will be 1.5" x 20 gage galvanized "Type B" metal roof deck, supported on "K" Series Steel Bar Joists at the classroom wing. The joists will in turn be supported by wide flange steel girders and square HSS steel columns. The approximate material weights for the bar joists will be 4 psf. The material quantities for the girders and columns will be approximately 4 to 5 psf.

It has been proposed that a large portion of the roof of the new addition be Photovoltaic (PV) ready for future solar panels. All new roofs in these PV ready areas shall have an 18 gage roof deck and an additional 1 to 1.5psf of additional structural steel.

The roof area under the new mechanical rooftop units at the addition will be a minimum 6" thick normal weight concrete slab on 1.5" x 20 gage galvanized

composite metal deck extending at least 2'-0" to 5'-0" beyond the footprint of the unit on all sides. The composite slab here will be supported on wide flange steel beams and girders instead of the typical bar joists. The approximate material weights for the wide flange beams in this area will be 6 psf. The material quantities for the girders will be 4 psf.

Lateral Load Resisting System

Due to the extent of proposed renovations, the lateral force resisting system will need to be evaluated and analyzed to resist wind and seismic forces. Currently, there are diagonal steel rods and plates in many of the walls that were designed to resist these forces. However, the proposed renovations involve reconfiguring many of the interior spaces, with some that require alternations of the existing lateral system. In addition, the proposed additional roof top units contribute to a larger building mass that will affect seismic calculations. As a result, some of the existing braces may need to increase in size, and it is likely that some new steel braced frames will need to be incorporated in the building. A complete structural analysis will determine the requirements for the size and extent of these frames, which will be coordinated with the architectural layout to minimize their visibility. In order to avoid extensive foundation work within the existing building, it may be more feasible to install a series of closely spaced braced frames. If the new architectural layout is such that this cannot be achieved, then in some cases the new frames will require the existing foundations to be upgraded in areas of the existing building.

Also, as part of the requirements to existing buildings, the condition of any existing masonry walls that are scheduled to remain will need to be reviewed. The building code requires that these walls be adequately braced to resist minimal out of plane seismic loads. Existing walls that are to remain will likely need to be bolted to new steel angles that are attached to the existing structural steel.

At the new additions, the typical lateral load resisting system will be concentric steel braced frames, comprised of hollow structural steel sections. The approximate material quantities for the braced frames in new construction are 1 to 1.5 psf.

PLUMBING SYSTEMS

The following is the Plumbing systems narrative, which defines the scope of work and capacities of the Water, Piping and Fixtures and Gas Systems as well as Basis of Design. The Plumbing systems shall be designed for LEED, with a goal of 30% water efficiency.

Water, Piping and Fixtures System

Cold Water

The cold water supply system will be extended 10'-0" outside the building and connected to the underground yard main system. The service entrance will be

equipped with a duplex arrangement of parallel, approved, master-reduced pressure principle backflow preventers.

A separate non-potable cold water system will be provided for the Science room sinks and equipment, including backflow preventers.

Domestic cold water piping will be copper, insulated and distributed throughout the building serving all fixtures and equipment requiring cold water such as kitchen appliances, boilers, and ice machines. Wall hydrants shall be provided around the building.

Hot Water

Hot water for all kitchen, classroom sinks, and toilet rooms will be provided by two ASME gas-fired condensing water heaters in parallel. Each heater will be sized to provide 66% of the demand. Water will be heated to 140 deg. F. for delivery to the kitchen. A central, bronze, master thermostatic mixing valve will reduce the temperature to 120 deg. F. for delivery to hand wash lavatories, classroom sinks, showers, and kitchenette sinks. Digital mixing valves shall be provided in lieu of mechanical types. Lavatories will have integral temperature limit stops and / or point-of-use mixers to provide 110 deg. F. maximum temperature. A separate non-potable hot water distribution system will be required for the Science room sinks.

All hot water supply systems will be copper, insulated, circulated using bronze circulating pumps, and controlled by immersion aqua stats.

Waste and Vent

Waste and vent piping shall be cast iron and will exit the building and connect by gravity to the site sanitary sewer system 10'-0" outside the building.

A separate kitchen waste system shall be provided to collect waste from all kitchen sinks and equipment that would discharge grease. A point-of-use grease trap will be provided to receive the waste discharge at the triple pot sink, dishwasher and other grease producing equipment/floor drains. The unit at the triple pot sink will be floor recessed, PDI and ASSE approved, supplied with a flush floor access plate, and equipped with automatic draw-off hose. Kitchen waste will be piped separately by gravity to 10'-0" outside the building to an exterior grease trap structure. Kitchen waste and vent piping will be cast iron.

A new Massachusetts State Plumbing Code compliant exterior gas/oil separator manhole structure will be provided for the Automotive Maintenance shop garage bay drains. Separator vents will be routed back into the building per Code. The waste from this structure will extend and connect to the site sanitary drainage system.

All vent piping on the roof shall be kept at least 25 feet away from the HVAC air intakes to eliminate sewer gases from entering the building. Trap primers shall be provided on all floor drains.

Roof Drainage System

Roof drains will be cast iron construction, heavy duty, with flashing clamp for membrane roofing, under deck clamping device, and aluminum domes. Storm drain piping shall be cast iron and extend 10'-0" outside the building and connect to the site storm water system. Insulation will be applied to storm water piping and roof drain bodies within the building to prevent condensation.

Fixtures

Water Closets shall be institutional grade, white vitreous china, wall hung, elongated bowl, low flow (1.28gpf) type, with exposed, sensor-operated, battery-powered/solar re-charged flush valves, and open front white plastic seat and self-sustaining check hinge. Urinals shall be institutional grade, white vitreous china, wall hung, low flow (0.1gpf) urinals with exposed, sensor-operated, battery-powered flush valves.

Multi-lavatory units shall be molded synthetic stone, multi-user units with sensor-operated, battery-powered/solar re-charged, above deck mixing and metering faucets. These fixtures will be located in the central toilet rooms for student use. Single lavatories shall be institutional grade, white vitreous china, and wall-hung type, with front overflow. Fixtures are to be provided with sensor-operated, battery-powered/solar re-charged, above deck mixing and metering faucets. Lavatories will include open grid drains, supplies with loose key stops, and "P" traps.

The flushometers and automatic faucets shall be battery-powered self-recharging (solar) type. Each fixture shall be connected to the piping with separate isolation valves for ease of maintenance. Batteries in self-recharging devices can last between 5-10 years depending on frequency of use.

Natural Gas System

Natural gas will be brought to the building by the gas company, and shall include a meter and primary pressure regulator as needed on the exterior of the building. From the outlet of the meter / regulator set, natural gas piping will be extended throughout the building and serve all equipment requiring gas service. Gas pressure within the building will be low pressure, under ½ psig. The primary gas utilization equipment will be boilers, make-up air units, rooftop HVAC equipment, kitchen cooking appliances, and central domestic water heaters.

FIRE PROTECTION SYSTEMS***Fire Sprinkler System***

The proposed school building is to be protected throughout with Wet sprinkler systems. The system shall be hydraulically calculated in accordance with NFPA requirements. Sprinkler mains shall be equipped with control valves, inspector test stations, and flow switches. Sprinkler spacing shall comply with NFPA-13 requirements.

Sprinklers for areas with ceilings will be recessed type, chrome plated. Mechanical rooms and other unfinished areas are to be provided with brass finish, exposed sprinklers, protected by sprinkler guards. Sprinklers for areas subject to freezing shall be dry type.

Areas of the building that will not be provided with wet-pipe type sprinkler protection are: the main electrical room, and emergency electrical closets, which will be 2-hour rated construction.

The new fire main shall enter the water service room on the perimeter of the building. An approved type double check valve assembly will be provided on the fire service.

The system will include Class 1 (2 ½ inch) fire department valves at the exits from the Auditorium. Fire department connections shall be provided at the building's main entrance and the water service room entrance. The fire department connection and hose connections will match Fire Department requirements.

Standpipes

The building will be protected throughout with combination standpipe / sprinkler systems. The fire main will enter the water service room on the perimeter of the building. An approved type double check valve assembly will be provided on the fire service.

The standpipes shall be located in the stairwells (where applicable), and be equipped with Class 1 (2 ½ inch) fire department valves, complete with National Hose Thread (NHT) threads. The standpipes shall be interconnected by fire mains on the lowest level. Intermediate standpipes will be provided throughout the one-story areas to accommodate Fire Department requirements. Fire department connections will be provided at the building's main entrance and the water service room entrance. The fire department connection will be 5 inch Storz connections, in accordance with local Fire Department standards.

HVAC SYSTEMS

The following is a summary of the basis of design for the Heating, Ventilating and Air Conditioning Systems as well as the Building Automation System. The HVAC systems shall be designed to support the proposed LEED certification of the project, including the achievement of the building being 20% more energy efficient than the current energy code.

The preliminary concept for the HVAC system described below incorporates system types that will meet or exceed current energy code requirements. Energy modeling will be used during the Schematic Design Phase to consider selected design alternatives that would offer cost effective opportunities to optimize the overall energy efficiency of the school.

The heating system will be a gas-fired condensing hot water boiler system, optimized for operating efficiency through design of a high-delta-T terminal

heating system. Each boiler will have a dedicated constant-volume primary pump to serve a primary loop. The secondary loop will include two (2) pumps (one as primary and one standby) with VFD control to serve the variable volume building load, which will use two-way modulating valves for temperature control for each terminal unit; a modulating differential bypass control valve will be installed to ensure minimum flow is maintained to the boilers at low-load conditions. The hot water system will be 30% propylene glycol for freeze protection. The boiler system and all ancillary components will be located in the mechanical room. The heating system (boilers, pumps, and controls) will be on emergency power.

Terminal heating units will be hot water based and will include cabinet unit heaters in vestibules, and corridors; unit heaters in back-of-house spaces; and radiant panels for classroom spaces and other occupied areas.

The various program spaces of the school will be separated into distinct zones according to whether the space is air conditioned or not and based also on occupancy, schedule of use and space size and configuration. The following table summarizes the proposed zoning.

HVAC System Zones			
Zone/Spaces	A/C	H&V	Comments
Classrooms		✓	
PODS A, B, C, F, G		✓	
New STEM Wing		✓	Lab (Fume Hood) Exhaust
STEM Lab	✓		
LGI	✓		
Library & Computer Labs	✓		
Stage	✓		
Administration	✓		
Auditorium	✓		
Gymnasium	✓		
Band & Chorus		✓	

Nursing	✓		
Guidance	✓		
Locker Rooms		✓	
Commons		✓	
Teacher Dining		✓	
Kitchen/Servery		✓	Hood Exhaust w/MAU
Mechanical		✓	

A/C – Air Conditioning

H&V – Heating and Ventilating

The following additional spaces will be served as noted.

- Tel/Data Closets will be served with ductless split air conditioning units. Condensate pumps will be provided where gravity drains are not feasible.
- Stairwells will be heated with first-floor cabinet unit heaters.
- Greenhouse will be heated and ventilated using gas fired unit heaters and sidewall propeller exhaust fans.

HVAC SYSTEMS DESCRIPTIONS

Hot Water Heating System

The heating system will be a central, gas-fired condensing hot water boiler system, optimized for operating efficiency through the design of a high-delta-T terminal heating system. The pumping will be primary/secondary. Each boiler will have a dedicated constant-volume primary pump to serve a primary loop. The secondary loop will include two (2) pumps (primary and standby) with VFD control to serve the variable volume building load, which will use two-way modulating valves for temperature control for each terminal unit. A modulating differential bypass control valve will be installed to ensure minimum flow is maintained to the boilers at low-load conditions.

- The hot water system will be 30% propylene glycol for freeze protection.
- The boiler system and all ancillary components will be located in the mechanical room.
- The heating system (boilers, pumps, and controls) will be on emergency power.

Terminal heating units will be hot water based and will include cabinet unit heaters in vestibules, egress stairs; unit heaters in storage and back-of-house spaces, gas fired for greenhouse; and VAV fan powered boxes with hot water reheats for classroom spaces and similar occupied areas.

Cooling System

Cooling will be provided to the programmed air conditioned spaces through air handling units serving zone single-duct VAV boxes and fan powered VAV boxes. The fan powered boxes will include ECM motor driven fans with acoustic attenuation.

- The gym, auditorium and stage units will be single zone constant volume type units.

Split System Air Conditioning Systems

For spaces that must be served independently, split systems will be provided. The split systems will incorporate roof-mounted condensing units with refrigerant piped directly to indoor evaporator units that will be either ceiling-mounted or wall-mounted type.

AIR SYSTEMS

ERU – Energy Recovery Units (Heating and Ventilating only)

Energy recovery units will be provided to serve the ventilation requirements of the zones served. These ERUs will provide 100% outdoor air and will exhaust air from the same spaces in order to maintain space pressurization.

The ERU's will be provided with the following components:

Supply Air Section:

- Outdoor air intake hood
- OA isolation damper
- MERV 7/13 Filter Bank
- Energy Recovery Wheel with bypass dampers
- Hot water heating coil
- Centrifugal supply fan w/VFD control

Exhaust Air Section:

- Exhaust air intake damper
- MERV 7 filter bank

- Centrifugal exhaust fan w/VFD control
- Common Energy Recovery Wheel
- Exhaust outlet isolation damper
- Exhaust outlet hood
- 24" roof curb with spring isolation

The ERU systems will provide the required air to VAV terminal boxes configured with hot water reheat coils for perimeter space heating. The exhaust will be provided to the classrooms as plenum exhaust through the corridor ceiling plenum, with transfer ducts provided from the rooms to the corridor.

The VAV terminal boxes will be controlled as on/off for the classroom spaces based on the scheduled operation (via BAS) or based on signal from the room occupancy sensors.

Air Conditioning Systems

The majority of the air conditioned occupied spaces will be served from roof-mounted air handling units with serving a system of VAV boxes or VAV fan powered boxes. VAV boxes will be provided for cooling-only interior zones and VAV fan powered boxes are provided for perimeter zones requiring heating and air conditioning.

The air handling units (RTU's) will be configured as follows:

- Return air opening w/isolation damper
- Return fan w/VFD control
- Mixed air section with economizer control
- Outdoor air intake hood
- OA isolation damper
- MERV 7/13 Filter Bank
- Hot water heating coil
- DX cooling coil
- Centrifugal supply fan w/VFD control
- 24" roof curb with spring isolation

Make-Up Air Units

A gas-fired make-up air unit will serve the kitchen together with the kitchen hood exhaust fan(s).

The make-up air unit will be configured as follows:

- Outdoor air intake hood
- Outdoor air isolation damper
- Outdoor air intake plenum
- MERV 7/13 filter section
- Centrifugal Supply fan w/VFD control
- Supply plenum with modulating gas-fired furnace section
- 24" roof curb with spring isolation

General Exhaust Fans: Roof-mounted exhaust fans will be provided for general exhaust of spaces that are not served by exhaust through energy recovery units. Include 24" roof curb.

Kitchen Hood Exhaust Fans: Roof-mounted exhaust fan configured to meet the requirements of NFPA 96 for use with grease exhaust systems. Include 24" roof curb.

Dishwasher Exhaust Fans: Roof-mounted exhaust fan configured to serve dishwasher exhaust function. Include 24" roof curb.

Laboratory Hood Exhaust Fans: Roof-mounted, laboratory exhaust fans, configured to provide dedicated exhaust to proposed Science Room fume hoods in compliance with ANSI Z9.5.

HVAC Equipment Summary			
Equipment	Qty	Capacity	Comments
Boilers	3	2,000 MBH	Gas Fired, Condensing
HW Primary Pumps	3	125 GPM	Constant volume
HW Secondary Pumps	2	270 GPM	Variable volume control
RTU-1	1	3,500 CFM (12 Ton)	STEM Lab
RTU-2	1	3,500 CFM (12 Ton)	Large Group Instruction
RTU-3	1	3,500 CFM (20 Ton)	Library & Computer Labs
RTU-4	1	3,200 CFM (20 Ton)	Stage
RTU-5	1	6,300 CFM (30 Ton)	Administration
RTU-6	1	8,000 CFM (30 Ton)	Auditorium
RTU-7	1	12,500 CFM (40 Ton)	Gymnasium
ERU-1	1	8,000 CFM	POD A
ERU-2	1	8,000 CFM	POD B
ERU-3	1	8,000 CFM	POD C
ERU-4	1	8,000 CFM	POD F
ERU-5	1	8,000 CFM	POD H
ERU-6	1	8,000 CFM	Chorus and Band
ERU-7	1	8,000 CFM	New STEM Wing

MAU-1	1	7,000 CFM, 640 MBH	Kitchen Exhaust Make-up
EF-1 thru 3	3	Totaling 8,000 CFM	Kitchen Hood Exhaust
EF-4	1	600 CFM	Dishwasher Exhaust
EF-X thru EF-X	10	500 CFM Each	Miscellaneous General Exhaust
Single-duct VAV boxes	--	300-1,000 CFM	To interior zones of air conditioned spaces; 2 offices per zone.
Fan powered VAV boxes with hot water reheat	--	750-1,200 CFM	Serving classroom spaces and common area; 1 per classroom; 1 per 800 sf for Commons
Split AC units	5	1 Ton Each	Serving Electrical and IDF Rooms
Cabinet Unit Heaters	3	40 MBH (HW) Each	Serving entry vestibules; stairwells
Unit Heaters	2	40 MBH (Gas)	Serving Greenhouse
Sidewall Propeller Fan	1	1,000 CFM	Ventilating Greenhouse
Fume Hood Exhaust Fans	3	1,000 CFM	
Finned tube radiation	--	--	Serving storage spaces or areas with floor-to-ceiling glazing

Acoustics

The acoustic criteria for the various occupied zones will be achieved through the use of duct silencers between the ducted supply, return and exhaust distribution that is proposed for the project. The various air-side terminal units (e.g., VAV fan powered boxes) will be provided with duct silencers if warranted to achieve the required acoustic criteria for the classrooms and other similar spaces.

Exterior sound levels will be maintained through the use of acoustic attenuation measures for the various HVAC equipment (e.g., acoustic screening).

Building Automation System

The facility will be provided with a web-accessible, microprocessor-based, direct digital control (DDC), building automation system (BAS). The BAS will consist of programmable equipment level controllers and building level controllers that communicate via a local area network (LAN) to an operator workstation. Each controller will be capable of full, stand-alone operation and have integral permanent memory to maintain control and set points in case of network or power failure.

Where feasible, the BAS will be common to other automation systems serving the school, providing a shared network and control system for a range of school applications.

Individual room CO2 sensors will be provided for demand control ventilation requirements throughout the facility.

MEASUREMENT AND VERIFICATION

A measurement and verification system will be provided to measure electrical consumption, gas consumption and water consumption of various systems and to measure capacity delivered by selected systems. The system will be used for evaluating the performance of the various building systems. This system will be fully interfaced with the BAS.

Measurement & Verification Approach		
System	Measured Values	
	Energy Consumed	Delivered Energy
HW Heating System	Electricity & Gas	BTU
Air Handling Units	Electricity	BTU (Airflow + Temp)
DHW Systems	Electricity & Gas	BTU, Temperature
Domestic Water	Water	

NOTE: The Berkshire Hills Regional School District will be provided with proprietary access to all installed software systems associated with the installed systems.

Enhanced Commissioning

The mechanical systems will be fully commissioned by an independent third-party commissioning agent.

Approximate Space Loads

The total estimated heating load for the facility is 5,000 MBH.

The total estimated cooling load for the air conditioned spaces is approximately 180 tons for the project.

ELECTRICAL SYSTEMS

The following is the Electrical systems narrative, which defines the scope of work and capacities of the Power, Lighting, Fire Alarm, Security and Technology systems as well as Basis of Design. The Electrical systems will be designed in accordance with LEED for Schools rating criteria.

Electrical Service and Distribution

Existing school building electrical service originates from an existing National Grid high voltage line installed overhead along the Stockbridge Road (Route 7), on opposite side from school building. The existing service is crossing Route 7 underground and extends towards the school building via two underground concrete-encased conduits and one underground handhole. In our preliminary electrical service design we are proposing to intercept the existing underground primary wiring at school side of Route 7 and split it in a new underground splice box, such that both services, new and existing, could temporarily coexist during building construction and renovation phases. The existing primary service shall be modified and re-routed as shown on electrical site plan. It will continue to support only a portion of the building during construction and renovation phases and upon completion it will be disconnected and removed entirely, including building vault transformer and associated primary wiring and metering arrangement. The new branch of the primary service will extend towards the new pad-mounted transformer via underground concrete encased conduits. If required by the National Grid, pre-cast manhole(s) will be installed to facilitate pulling of the primary feeder. Utility company will furnish and install a primary feeder cable from the riser pole to the pad-mounted transformer. The proposed primary service modifications will be reviewed with National Grid and finalized.

The new electrical service step down transformer with secondary voltage of 480Y/277 volts will be furnished, installed, owned and maintained by National Grid, and it will be located adjacent to school building addition, The recommended distance from the transformer to the building is at least 10 ft. Concrete pad and grounding grid for the pad-mounted transformer will be provided by the Contractor. Transformer will be sized by the utility company based on the load data provided by Symmes, Maini & McKee Associates. Utility service metering will be at the transformer's secondary voltage.

Transformer secondary feeder of the copper conductors will be installed underground in the duct bank of (6) conduits from the pad-mounted transformer to the main electrical switchboard located in the new main electrical room.

The main electrical switchboard rated 2,000 Amperes at 480Y/277 volts, 3 phase will be of standard NEMA1 indoor type construction with a fixed mounted main power circuit breaker 100% rated and panel mounted molded case circuit breakers. In general, molded case circuit breakers will be of thermal-magnetic type, but electronic type circuit breakers will be furnished for the devices 250 Amp and larger. The switchboard will include a service entrance transient voltage surge protection device (SPD) and digital metering unit to monitor voltage, current, power factor and demand kW. The switchboard's short circuit rating shall be at least 65 KAIC.

New electrical service and the main switchboard shall be built in Phase1 construction. The existing electrical service including a portion of underground primary feeder, 120/208 volt 3 phase utility transformer and switchboard will continue to serve the existing loads that require remain operational until the end of the project construction.

Preliminary connected load:

Site Lighting	15 KVA
Interior Lighting	130 KVA
Performance Lighting	50 KVA
HVAC loads (including ventilation, heating, partial A/C and exhaust	500 KVA
Plumbing equipment	30 KVA
Kitchen equipment (full service)	75 KVA
Computer and small power	200 KVA
Auto shop	50 KVA
Woodshop and dust collector	50 KVA
Tech Culinary	30 KVA
Miscellaneous power	30 KVA
Existing Fields lighting and Press Box	40 KVA

Total Connected Load is 1,200 KVA or 1,445 Amps at 277/480 volts 3 phase 4 wire system.

New interior building 277/480 volt 3 phase power distribution system includes the power panels that will serve building HVAC loads (roof top units, AHUs, pumps, fans, etc.) and lighting panels. The dry-type energy efficient transformers will be provided to reduce 480 volt 3 phase interior distribution voltage to 208Y/120 volts for small and kitchen equipment power requirements, classroom power and convenience outlets. The panels and transformers will be located in the main electrical room and in the electrical closets. Where required to accommodate computer equipment and other non-linear type loads, the k13-rated transformers will be provided.

New electrical panels will be furnished with aluminum tin-plated phase and neutral busses, copper ground bus and molded case circuit breakers. SPD

device will be specified for the panels serving sensitive electronic equipment (computers, Head end room, etc.).

In general, wiring will be insulated copper conductors installed in the concealed metal raceways in the finished areas or running exposed in the unfinished areas such as a storage rooms, gymnasium, mechanical and electrical rooms. Metal clad MC type cable may be used for branch circuit wiring in the above suspended ceiling spaces and in the dry wall partitions where it is allowed by Massachusetts Electrical Code. Minimum wire size for power and lighting circuits will be # 12 AWG.

Underground conduits and conduits installed under a concrete slab will be PVC Schedule 40. Conduits exposed to weather, and penetrating foundation and concrete slabs will be rigid steel.

Emergency Power Systems

A packaged diesel engine-generator system will be provided to supply power to both emergency (Life Safety) and standby building loads upon loss of the normal electric utility power source. A skid-based fuel tank of the diesel-generator set will be sized for 24 hours of the unit operation without re-fueling. Fuel tank will be of double-wall construction with a leak detection system. Three automatic transfer switches (ATS) will be used for transfer generator power to building dedicated emergency "life-safety" and emergency "standby" loads. The generator unit shall start automatically on loss of normal power and transfer emergency loads to the generator power within 10 seconds.

The proposed generator power system loads are:

Life safety emergency loads:

- Emergency exit and egress lighting (interior and exterior)
- Fire alarm system
- Communication systems (telephone and public address systems)

Standby power loads:

- Heating system boilers with the associated pumps
- Boiler control panel and DDC panels
- Kitchen equipment and kitchen are lighting
- Gymnasium, locker rooms, adjacent corridors and bathrooms lighting
- Cafeteria, adjacent corridors and bathrooms lighting
- Administration area lighting, receptacles and small power
- Nurse/medical areas lighting, receptacles and small power
- Domestic water system equipment and pumps
- Security system equipment
- Handicap door operators and lifts
- Sewage pump systems or stations, if any

- HVAC equipment (air supply and exhaust) serving the cafeteria, kitchen, gymnasium, locker rooms, administration and nurse/medical area, telephone/data rooms and closets
- Remaining lighting in the corridors and lobbies within “Shelter area”
- Site/access road lighting (selective lights, to be finalized)

The proposed generator set will be located outdoor, adjacent to the utility pad-mounted transformer. The unit will be in a weatherproof and sound-attenuated enclosure. The estimated size of the generator set – 400 kW at 277/480 volt 3 phase.

Emergency “life safety” power distribution equipment including ATS, panels and feeders shall be installed in 2-hour fire-rated closets and shafts in compliance with the requirements of the Massachusetts Electrical Code. Emergency ATS, main emergency power distribution panel, a lighting panel and dry-type transformer/panel will be located in the main emergency room. Remote emergency power electrical closets will be provided in the building to minimize length of the branch circuits, the feeders from the main emergency room to these closets will be MI type cables, UL listed for 2-hour fire rating.

The panels and dry-type transformers to serve the emergency “standby” loads will be located in the “normal power” electrical closets.

Lighting Systems

The overall intent of the lighting design is to provide a visual environment for the students, faculty, and community that is supportive of the educational activities within the building. Lighting system will comply with Massachusetts Building Code (latest edition) and the LEED requirements. Complete interior lighting system with the illumination levels per IES recommended value for applicable activity type will utilize the efficient fluorescent and LED fixtures to achieve the overall building lighting power density lower than stated in IECC.

In general, high-efficiency interior lighting fixtures will utilize fluorescent low-mercury energy-efficient T5 and T8 Super lamps, compact fluorescent lamps and the electronic ballasts.

Classroom lighting will be direct / indirect, pendant-mounted, fluorescent fixtures with high efficiency T8 lamps and electronic ballasts, controlled by the local switches and occupancy sensor. Lighting within the classrooms will be designed to approximately 45 -55 FC. Lighting within 15 feet of exterior windows will be equipped with electronic dimming ballasts and wired to a ceiling mounted lighting sensor that will dim light fixtures according to the amount of daylight entering the room. Daylight dimming will be in compliance with LEED.

The gymnasium lighting will use 2X4 high efficiency 6 lamp T5HO fluorescent high bay fixtures. The gymnasium lighting level will be approximately 45 -55 FC.

Corridor lighting will consist of fluorescent, ceiling-recessed, and LED down lighting. Corridor lighting will be designed to approximately 20 FC. Lighting in the administration areas, nurse's offices, teacher support areas, and in the similar areas will be fluorescent recessed of the direct/indirect type. Lighting in the kitchen, locker rooms, preparation rooms, storage rooms, and in the similar areas will be fluorescent recessed with prismatic lens.

Multi-level lighting control will be an energy-efficient and cost effective method to provide multiple illumination levels as required for the different working tasks and time of the day. Local switches and occupancy sensors will be provided for lighting control in all classrooms, labs, private offices, conference rooms, etc.

Daylight sensors will be installed in the areas where daylight harvesting is available. These sensors in conjunction with the fluorescent dimming type ballasts will result in the substantial energy savings.

For the areas without occupancy sensors a low-voltage programmable lighting control system will be furnished to facilitate automatic lighting shutoff on a scheduled basis with an occupant override in compliance with the Energy Code. This system will be tied into the Building Management System (BMS) for monitoring and overrides.

Emergency LED type exit signs and egress lighting fixtures will be connected to "life-safety" emergency power distribution system to provide illumination level required by Code for safe emergency egress in a case of the normal utility power failure. Egress lighting will not stay energized during the night unoccupied hours but will be automatically turned on in a case of normal utility power failure or fire alarm in the building. Egress lighting will also turn on automatically upon alarm signal from security and fire alarm systems, and also manually by 'emergency override" switch. Auditorium "performance" lighting dimming system will be furnished with emergency transfer cabinet to transfer house lighting to the "life safety" emergency distribution system upon loss of normal power.

Exterior building lighting will consist of building mounted LED (at egress doors) and pole mounted with two-level LED full cut-off fixtures for parking lot, roadways, and walkways. Exterior lighting will be time switched by the low-voltage programmable lighting control system to facilitate automatic lighting shutoff on a scheduled basis. Additionally, the pole mounted lights will be controlled via photocell. Light fixtures and lighting levels will be designed in accordance with IESNA and LEED.

Fire Alarm System

Addressable, non-coded, Class A supervised type fire detection and alarm system will be provided to meet the requirements of the Massachusetts Building Code, NFPA-72, and local Fire Department requirements. Fire alarm system will consist of two new fire alarm control panels (FACP) – FACP No.1 (“Master”) and FACP No.2 (“Sub-panel”), a remote annunciator, automatic smoke and heat detectors, manual pull stations, audible and visible alarm signals, connections to automatic fire suppression systems and means for transmitting alarm signals to the local Fire Department.

The new FACP No.1 will be installed in the first construction phase, and the existing “old” zoned-type fire alarm panel will be disconnected from Fire Department and temporarily re-wired to FACP No.1 as a single zone named “old fire alarm panel”. The existing fire alarm panel shall remain operational during all construction and renovation phases to cover the existing (not renovated yet) areas. The new FACP No.1 will transmit alarm and trouble signals to Fire Department via two dedicated telephone lines, or via radio box or will be hard-wired via an exterior master box (concept to be reviewed and finalized with Fire Department). The FACP No.2 will be installed in later construction phase and connected to FACP No.1.

FACP’s will provide an alarm and annunciation capability in case of activation of any manual fire alarm station, smoke detector, heat detector, duct smoke detector, sprinkler water flow switch or kitchen fire suppression system. Remote annunciator will be located in the vestibule at the main entrance.

Both panels will be provided with an amplifier, microphone, and zone selector for speaker alarm annunciation by Fire Department. Audible (speakers) and visual (high intensity strobes) alarm devices will be installed per NFPA-72. Speaker/strobe units will be used in the entire school building. Auditorium performance sound system will be automatically shut down and auditorium house lights will be automatically turned ON upon the building fire alarm initiation.

Area type smoke detectors will be installed in the main electrical room, electrical closets, data/telephone rooms, school corridors, storage rooms/closets and at the top of the stairways to mezzanines. Addressable type duct smoke detectors will be installed in supply and return air ducts as required by NFPA-90A. Heat detectors (fixed and rate-of-rise type) will be used for release of the Auditorium fire curtain. Stage roof hatches will be released by the fusible links.

An automatic fire detection (smoke or heat detectors) in classrooms, labs, offices, bathrooms, Gymnasium, Auditorium, Cafeteria, multi-purpose rooms, library, art rooms, computer rooms, and similar learning spaces is not required in the schools with fire protection system (sprinklers) and will not be provided unless specifically requested by the local Fire Department.

Security Systems

The proposed IESS “integrated electronic security system” consists of 3 sub-systems – Intrusion, CCTV and access control. The CCTV system consists of computer servers with management software, computer monitors and IP based closed circuit TV cameras. The head end server shall be located in the head end MDF room and will be rack mounted. The system can be accessed by credentialed users from any PC within the facility or externally via an IP address. Each camera can be viewed independently. The network video recorders NVR’s will record all cameras and store this information for 30 days. To balance the amount of NVR storage with the number of devices on the system, CCTV camera frame rates will be programmed to record at variable speeds – fewer frames per second during off-hours with automatic frame rate increase up to 30 frames per second when an event is detected. CCTV camera coverage will include corridors, Cafeteria and Gymnasium spaces, building entrances, exterior building locations where students will congregate, site access roads, the bus drop-off area and parking lots. All cameras shall be fixed-type. The system shall fully integrate with the access control system to allow viewing of events from a single alarm viewer. Camera images and recorded video shall be linked to the access system to allow retrieval of video that is associated with the event.

The Intrusion system consists of security system control panel, keypads, motion detectors and door contacts. The system is designed so that each perimeter classroom will have motion detectors along the exterior wall and door contacts at each exterior door. The system can be partitioned into eight zones. Therefore, it is possible to use the Gym area while the remainder of the school remains alarmed.

The system shall be addressable which means that each device will be identified when an alarm occurs. The system shall include remote release buttons in offices that will allow the person to release the door locking mechanism from their desk. A digital communicating transmitter shall be provided to summons the local police department in the event of an actual alarm condition in the facility after hours.

The Access Control System shall include a card access control panel and proximity card readers. The electrical hardware for each door is provided by the hardware contractor. Proximity readers will be located at various locations as shown on the security drawings. The purpose is to only allow access to authorized personnel at predetermined times. Each proximity reader will have a distinctive code to identify the user and a log will be kept in memory. The log within the panel can be accessed through a computer. The alarm condition shall also initiate real time recording on the integrated CCTV System that is included as part of this proposed system. The system is programmed with graphic maps allowing the end-user to quickly identify alarm conditions and lock/unlock doors.

The system shall be tested and complete documentation shall be provided to the Owner on the operational and programming functions available. The

system may be easily expanded to accommodate any additional devices that may be added in the future.

The system is included with a site license to accommodate future expansion to include the entire district. This will allow the School Department to have a centralized solution that may be managed at a central location. This will insure consistency in all school/district buildings.

Technology Systems

During construction, the existing communications service feeds to the building will be maintained to allow the school to continue operations without interruption. A new concrete encased underground communications duct bank will be provided with individual conduits to deliver telephone, CATV, fiber optic cabling and a spare duct for future services. The new duct bank will originate in the vicinity of the new electrical service duct bank on Stockbridge Road (Route 7) and extend to a new entrance facility that will be built next to the new Main Electric Room. Pre-cast manhole(s) will be installed if required to accommodate the distance and number of bends in the cable path to facilitate cable pulling. The Communications Service Providers will furnish and install trunk cables from the riser pole to cross-connection equipment in the new Entrance Facility.

A secure, dedicated Communications Entrance Facility will be provided to receive fiber optic, CATV and Telephone services. A fiber optic, coaxial cable and multi-pair copper backbone network will be provided to connect the (MDF) main distribution frame with the services at the Communications Entrance Facility. The (IDF) Intermediate Distribution Frames will connect to the (MDF) over a fiber optic and multi-pair copper backbone network.

Cable raceways and power will be provided in all educational spaces to support future interactive white board installations.

A voice and data distribution system will be provided consisting of Category 6 unshielded twisted pair (UTP) cabling systems and work area outlets for local area network (LAN) and voice communications. Outlets will be provided in all classrooms, offices, media center, computer lab, cafeteria, auditorium, and as additionally required. The entire building will be designed to support wireless access to the data network.

A video distribution head end system will be provided to receive local CATV programming from the local Service Provider. CATV programming will be distributed to all educational spaces over the IP network.

A GPS based wireless clock and program system will be provided for originating and distributing time and time correction signals, and for programming and initiating audible program signals. The system will consist of a master control unit, indicating clocks, and connections to the public address and music system. The master control unit will transmit wirelessly to the secondary clocks. Each secondary clock acts as a transceiver and syncs up with all other clocks. Clock correction is set for 1 second.

The Public Address System will be completely replaced and will include new head end equipment, ceiling mounted two-way talk back speakers each classroom and speakers with volume control will be provided in all other spaces. The volume control will be provided with override contacts so that emergency pages by-pass volume controls that are on the low or off position.

Each educational space or group space will be cabled for video distribution system connectivity. The video system is to be bi-directional to allow the distribution of selected cable TV channels to the learning spaces and in-house broadcasts from the learning spaces. System will consist of a head end equipment rack with distribution components, outlets, splitters, trunk and branch cabling. All wiring, outlets and terminations will be installed to comply with local CATV company standards.

The cable television system head end will to allow programming to be distributed throughout the school and on to the community access channel. Remote connection for transmitting cameras, audio and intercom signals from the auditorium, gymnasium and library will be provided.

Select public sites, including cafeteria and main circulation areas, will be wired for digital signage and HDTV reception. The television units will be furnished and installed under the Technology Equipment contract.

Local sound systems will be provided for the Auditorium, Cafeteria, Large Group Instruction Room, STEM Lab, Band Room, Chorus Room, P.E. Multi-Purpose Room and Gymnasium for sound amplification from microphone, audio CD and portable audio sources via auxiliary input jacks. The systems will provide high quality sound reproduction for use during meetings, lectures, theatrical productions and public functions, and will be interconnected with the fire alarm system so fire alarm notification circuits override the local sound system.

The auditorium, large group instruction spaces and all academic classrooms will be wired for LCD projectors. Projectors in classrooms will be furnished under the Technology contract; and will be sized to accommodate the conditions of each location. High resolution, DLP projectors will be provided as part of the base bid in the Auditorium, Cafeteria and Large Group Instruction Room and STEM LAB.

All classrooms will be prepared for interactive presentation systems by installation of conduit, back boxes and pull strings. Interactive projectors, including installation and wiring, will be provided under the Technology contract.

Pending Owner approval, an optional Data Acquisition System (DAS) with a large interactive display monitor and graphic user interface for public viewing will be provided. The DAS takes readings from the Building Management System to monitor and interactively display power, water, and heat usage in the School and to provide comparative models with other buildings. The system will include integrated weather monitoring provided by a third party service to

allow local weather conditions to be factored into the system display. The system will also be accessible over the local area network for classroom applications.

Pending Owner approval, an optional Media Server will be provided. The Media Server will be an IP video system that provides a complete infrastructure for delivering secure video to every desktop and display within the School. The system will be capable of recording any source and deliver live or recorded content, or video on demand. The system will allow administrators granular control over the media within a facility and a harmonized experience for all users.

Pending direction from the AHJ, the School will also be equipped with a Neutral-Host Distributed Antenna System capable of supporting Wireless Service Providers (WSP) and Public Safety Networks (PSN). The components of the system include: Donor Antennas, Coverage Antennas, Coax Cable, Coax Connectors, Splitters, Combiners, Couplers, Fiber-Optic Cable, Fiber-Optic Connectors, and Fiber-Optic Jumpers, Bi-Directional Amplifiers (BDA), Fiber-Optic Master Unit and Fiber-Optic Remote Units.

2.16 LEED SCORE CARD

The Monument Mountain Regional High School will be designed and constructed in accordance with the principles and criteria of the LEED for Schools 2009 Reference Guide, published by the U.S. Green Building Council. The project will strive to meet the threshold of 50 points, equivalent to a Silver Certification.

A preliminary LEED scorecard is appended at the end of this section. This scorecard identifies the project design criteria and associated credits which are under consideration for this project.

This is an acknowledgement that the Berkshire Hills Regional School District has identified a goal of 2% additional reimbursement from the MSBA High Efficiency Green School Program. As their Designer, we have submitted this completed LEED Scorecard showing 50 attempted points, which will meet this goal.

The scope of work for this project will include the construction elements and performance tasks to achieve that goal, and all subsequent documents, including but not limited to, specifications, drawings, cost estimates will match the scope of work indicated in the submitted scorecard.

Specifications will include instructions to Contractor regarding waste management and waste diversion goals (95%), material procurement goals, and construction indoor air quality goals.

Sustainable design considerations and goals that are in the current cost evaluation and are anticipated to be in the project are:

SUSTAINABLE SITES (SS)

- Sidewalks and walkways connect to a public way and bike racks for 5% of building occupants.
- Low-emitting and fuel-efficient vehicle preferred parking spaces will be set aside
- Impervious surfaces limited as much as is practical on site to retain the current open space.
- Roof shall be designed to reduce heat island effect by using a light colored roof membrane.
- Exterior light fixtures and layout are to meet ANSI/ASHRAE/IESNA 90.1-2007 and “dark sky” requirements.
- Full cut-off, cut-off and glare-free exterior fixtures will reduce light spillage from the site (light pollution reduction).
- High efficiency, long-life LED will be used to illuminate school parking lots, access roads and walkways. LED fixtures will be reviewed for use as an exterior building-mounted option.
- Community shared recreational space.

WATER EFFICIENCY (WE)

- No irrigation for landscaped and lawn areas.
- No irrigation for new athletic fields.
- Drought resistant plants to minimize irrigation demand.
- Sensor operated toilets, urinals and lavatory faucets.
- Low flow urinals, toilets, showerheads and faucets.

ENERGY AND ATMOSPHERE (EA)

- The goal for total building energy consumption will be a 25% reduction over the ANSI/ASHRAE/IESNA Standard 90.1-2007. High performance building components including but not limited to Building enclosure, HVAC and Electrical systems will contribute to achieving the project goal.
- Ventilation rates per ASHRAE 62.1 – 2007.
- No CFC refrigerants in any HVAC or refrigeration system.
- CO₂ monitors and controls to provide demand ventilation.
- Combination of mechanical and natural ventilation (operable windows) in classrooms.
- Energy recovery at air handling units where applicable.

- High-efficiency (90% to 95%) condensing boilers.
- High-efficiency domestic water heaters.
- Variable frequency drives for air and hot water distribution systems
- Radiant panels providing quiet, efficient heating and no loss of floor space.
- Unoccupied setback for classroom airflow.
- Building management system to control and monitor energy use, HVAC system components, lighting systems, security systems.
- Third party commissioning of Electrical, HVAC, Plumbing systems and building enclosure, provided by MSBA.
- High-efficiency interior lighting fixtures with energy-saving lamps and ballasts. High performance T8 fluorescent lamps.
- Extensive automatic lighting control system consisting of programmable relay systems, occupancy and daylight control devices. Dedicated groups of lighting fixtures will turn off when spaces are not occupied. Dedicated groups of lighting fixtures will be dimmed or turned off when appropriate daylight levels are achieved.
- Low Light Power Density (LPD): less than 1.0 watt/square foot for the entire building and approximately 0.85 watts/square foot for the classrooms.
- High-efficiency high bay fluorescent lights in gymnasium.
- Facility staff training on Operations and Maintenance for Electrical, HVAC, and Plumbing systems.
- High-performance building envelope:
 - Higher R-value insulation at roofs and walls. R-18 at walls and R-25 at roof.
 - High-performance glazing system selection, Assembly U-value:0.42or better, Glazing U-value:0.29 or better, SHGC:0.38 or better.
- Require Energy Star equipment and appliances.
- Solar PV-ready roof with optimal South exposure. Includes increased superstructure for future weight of panels, conduit, and dedicated space for electrical inverters.

MATERIALS AND RESOURCES (MR)

- Designated recycling collection areas and recycling separation area.
- 95% minimum diversion goal for construction and demolition waste.
- Sealed concrete in art and technology classrooms.
- Linoleum tack boards, which are rapidly renewable as well as a highly functional product.

- Maximal use of high recycled content materials and finishes, such as acoustical ceiling panels.
- Forest Stewardship Council certified wood for 50% or more of wood and wood products.
- Use of regional materials (extracted/harvested/recovered and manufactured within 500 miles) for 10% or more of materials.

INDOOR ENVIRONMENTAL QUALITY (IEQ)

- Indoor Air Quality plan developed and implemented during construction to minimize contamination, including best practices such as using containment barriers, sealing ducts and protecting building materials from moisture and mold.
- Permanent indoor air quality design features such as walk-off mats and isolation of areas of chemical use using partitions and negative air pressure.
- Building (new sections) oriented to optimize daylighting in classrooms.
- Daylight modeling.
- Skylights, clerestories and/or interior glazing to introduce daylight to central rooms and spaces.
- Optimize access to views for all regularly occupied spaces.
- All classrooms and other learning spaces will have a high performance lighting system consisting of direct/indirect high efficiency glare-free pendant lights, local “general” and “task” switches, occupancy and daylight sensors – to enable automatic and manual adjustments to suit individual task needs and performances.
- Ventilation rates per ASHRAE 62.1-2007.
- Electronic ignitions for all gas-fired equipment.
- Air intakes located away from contaminant sources.
- No fossil-fuel burning equipment permitted indoors.
- Comply with thermal comfort standards per ASHRAE 55 – 2004.
- Low VOC (volatile organic compound) materials selected for interior paints, coatings, adhesives, sealants, resilient flooring and adhesives, carpet and adhesives, floor finishes, tile setting adhesives and grout, acoustical wall and ceiling panels, wall board, cabinetry and furniture.
- Formaldehyde-free, low-VOC particleboard and composite wood products.
- Pollutant control through the use of high efficiency MERV filters (MERV 13 or better).
- Building ventilation flush-out performed prior to occupancy.
- HEPA vacuuming prior to substantial completion.

- High performance acoustical design for classrooms.
- Operable windows in classrooms and offices.
- Individual temperature and lighting controls for each classroom and all other learning spaces. Consideration of individual temperature controls for 50% of office spaces.

INNOVATION IN DESIGN (ID)

- School bus anti-idling measures.
- Curriculum and features to teach about the innovative environmental elements of the school.
- Exemplary performance in acoustical design of classrooms (NC 35).
- Exemplary performance in construction waste management (95% diversion from landfill).
- Low mercury content lamps.
- Green Housekeeping policies.

REGIONAL PRIORITY (RP)

The LEED for School rating system rewards teams already pursuing specific LEED criteria with considerable regional environmental impact. Additional points are awarded for the following credits within Great Barrington's zip Code:

- MRc1.1 - Building Re-use
- SSc6.2 – Storm water quality control
- SSc3 – Brownfield Redevelopment (Asbestos)
- Renewable Energy (1%)

Utility Incentives Programs

The project will pursue an applicable utility incentives program. National Grid is the electrical utility and Berkshire Gas is the natural gas utility. We will meet with each utility division to address the utility incentive program process and support and obtain optimal incentives aligned with the project's energy efficiency goals.

2.17 ACCESSIBILITY ANALYSIS

The building will be designed in accordance with the Massachusetts Architectural Access Board and the 2010 ADA Guidelines. The existing change of levels throughout the existing building will be addressed by means of ramps or wheel chair lifts. At least 60% of building entrances will be accessible.

2.18 ANTICIPATED REIMBURSEMENT

The Anticipated Reimbursement Rate with Incentive Points is calculated to be 48.53% as defined in the spreadsheet prepared by Strategic Building Solutions (SBS). This spreadsheet is appended to the end of this section.

2.19 PROJECT BUDGET

The Project Budget is \$55,817,124 as defined in the completed 3011 Project Budget Form, dated June 5, 2013 as prepared by Strategic Building Solutions (SBS). The budget is appended to the end of this section and represents the District's not to exceed Total Project Budget.

2.20 CONSTRUCTION COST ESTIMATE

The Construction Budget was defined as \$46,972,002, in the detailed construction cost estimate, dated March 25, 2013 prepared by PM+C.

The cost estimates will be continually refined throughout the design process, to maximize the potential of a renovation and addition project, upgrading of major building systems, and site work.

Additionally, the design phase includes a cost estimating and value engineering period during the Design Development Phase, a constructability review, cost estimating and budget validation period during the Construction Document Phase, to ensure the project remains within the approved budget.

2.21 INDEPENDENT CONSTRUCTION COST ESTIMATE

Simultaneously, an independent estimate was also completed by A.M. Fogarty, the Owner's cost estimator, dated March 26, 2013, which defined the Construction Budget as \$48,643,100. Both estimates were reconciled with each other through an intensive review meeting with the entire design team, the OPM and the cost estimators. The resulting reconciled Construction Budget was set at \$48,102,000.

Value Engineering recommendations were developed by the OPM and accepted by the School Building Committee which resulted in a revised Construction Budget of \$41,728,813 which aligns with the Construction Budget on the attached 3011 Project Budget Form.

2.22 TECHNOLOGY AND FFE BUDGETS

The Technology budget was developed thru a series of meetings with the District Administration, Director of IT and School Administration. The budget has been established at \$684,000. The listing of the proposed Technology Equipment and Budget is appended to the end of this section.

The FFE budget was developed thru a series of meetings with the District Administration and School Administration. The budget has been established at \$784,000. The proposed FFE and Budget is appended to the end of this section.

2.23 CASH FLOW

The Cash Flow has been developed based on the Project Budget developed by the OPM. The Cash Flow is appended to the end of this section.

2.24 PRELIMINARY LISTING OF INELIGIBLE SPACE

The Preliminary Listing of Ineligible Space was developed thru a series of meetings with the District Administration, the MSBA and the OPM. The District understands that the existing auditorium space that exceeds the MSBA guidelines is an ineligible cost. This ineligible space is 1,430 square feet.

2.25 UPDATED WORK PLAN

The Work Plan has been updated to reflect the tasks scheduled and completed during the Schematic Design Phase. The Work Plan is appended to the end of this section.

2.26 PROJECT SCHEDULE

The project schedule anticipates MSBA Board of Director's approval of the Project Scope and Budget Agreement at their July 31, 2013 meeting. District-wide appropriation voting will occur immediately following in October of 2013. The project schedule is appended to the end of this section.

2.27 OPM DESIGN AND VE REVIEW

The design documents have been reviewed and evaluated by the OPM. The OPM team has been contributing comments and observations regarding the design. As the design has evolved and detail has been developing, the OPM has been seeking ways to keep the concepts and materials chosen in line with commonly used and applied practices in school construction. The OPM team has identified Value Engineering options for District to review and consideration. The OPM Design Review and VE Review are appended to the end of this section.

2.28 DESE APPROVAL

The District has submitted the required documents defining the special education program requirements to DESE on April 26, 2013 for approval. DESE approval is pending as of the date of this submission.



CDW CONSULTANTS, INC.
CIVIL & ENVIRONMENTAL ENGINEERS

May 3, 2013

Mr. Daniel Ruiz
Symmes Maini & McKee Associates
1000 Massachusetts Avenue
Cambridge, MA

RE: Preliminary Asbestos & Hazardous Materials Report
Monument Mountain High School
600 Stockbridge Road
Great Barrington, Massachusetts

Dear Mr. Ruiz:

CDW Consultants, Inc. (CDW) is pleased to present this letter report summarizing the findings of the preliminary suspect asbestos-containing materials (ACM), lead-based paint (LBP), polychlorinated biphenyls (PCBs) and hazardous materials inspection of the Monument Mountain High School ("Site") located in Great Barrington, Massachusetts. The scope of work was to conduct a preliminary (non-destructive) inspection to identify and quantify suspect ACM, LBP and hazardous materials located in visible and accessible spaces within the Site building.

Methodology

Asbestos

The survey was conducted by walking through the inside and outside of the building and visually identifying suspect ACM. Suspect ACM were grouped into homogenous areas. By definition, a homogenous area is an area that is similar in color, texture and date of application. The asbestos inspection was conducted in accordance with United States Environmental Protection Agency (USEPA) Asbestos Hazardous Emergency Response Act (AHERA) regulations located at Title 40 CFR, Part 763, Subpart E. A total of 128 bulk samples were collected and submitted for laboratory analysis. The suspect ACM was categorized by type, location and quantity.

Samples of suspect ACM were submitted to ESML Laboratory located in Woburn, Massachusetts for analysis using polarized light microscopy (PLM) with dispersion staining using USEPA Method 600/R-93/116.

Lead-Based Paint (LBP)

CDW collected samples from different color paints on various types of building component substrates. Samples were submitted to EMSL Laboratories in Cinnaminson, New Jersey for analysis via Atomic Absorption Spectrometry (AAS).



Polychlorinated Biphenyls (PCBs)

CDW collected samples suspect PCB containing building materials including interior and exterior window caulk, exterior door caulk, and exterior expansion joint. Samples were submitted to Phoenix Environmental Laboratories in Manchester, Connecticut for analysis via USEPA Soxhlet 3540C/8082.

Mercury

CDW collected a bulk sample of suspect mercury containing building material (rubber flooring on ramp in library). The sample was submitted to EMSL Laboratories in Cinnaminson, New Jersey for analysis via USEPA 7471B.

Hazardous Materials

CDW visually inspected the Site building for universal, special and hazardous wastes associated with building materials. These included but were not limited to the following:

- Mercury-containing devices (fluorescent light tubes, thermostats, gauges, etc.);
- Polychlorinated bi-phenyl (PCB)-containing articles, equipment and devices (light ballasts, transformers, electrical switches, etc.);
- Chlorofluorocarbon (CFC)-containing equipment (refrigerants, air conditioners/HVAC equipment, water bubblers, etc.)
- Tritium-containing devices (Exit signs);
- Lead-Acid batteries (emergency lights, etc.); and
- Pressurized-cylinders (fire extinguishers, etc.).

Findings

Asbestos

CDW identified the following ACMs within the Site building:

- 4-inch diameter white pipe fitting insulation located in boiler room, behind wet walls, pipe chases and mechanical rooms;
- 12" diameter orange painted pipe fitting in the boiler room;
- Boiler breeching, insulation, roping and interior boiler components in boiler room;
- Gray flex connectors located throughout the school's mechanical rooms;



- 2"-inch diameter white fittings on fiberglass pipe associated with suspended heating units, boiler room, wet walls, pipe chases and mechanical rooms;
- Yellow carpet glue in the auditorium;
- Gray sink undercoating in admin office, staff rooms, library break room and art rooms;
- 12" x 12" and 9" x 9" floor tiles (various types);
- Brown door sidelight window glaze in library;
- Gray interior window glaze in office A-08;
- Exterior gray window caulk;
- Exterior pink/red door frame caulk;
- Cementitious plant tables in greenhouse;
- Interior window caulk and glaze in the greenhouse;
- Transite panels in boiler room;
- Hidden pipe insulation in inaccessible areas;
- Boiler firebrick under boilers in boiler room;
- Office door window glaze in admin office;
- Cementitious fume hood in science rooms;
- Wood panel and chalk board glue in library and classrooms;
- Kiln firebrick in art room, and;
- Walk in refrigerator and freezer coating in kitchen.

The analytical results are presented in Table 1, Attachment A. The asbestos laboratory analytical report is located in Attachment F.



Lead-Based Paint

The analytical results of the LBP sampled indicate that the tan paint on metal panels at roofline and red paint on red metal entry doors at the front entrance is coated with LBP. The tan metal door assembly paint in the hallways and greenhouse house white paint contain concentrations below the LBP level of 0.5% by weight.

The analytical results of lead in paint are summarized in Table 2, Attachment B. A copy of the lead paint laboratory analytical report is provided in Attachment G.

Polychlorinated biphenyls

The analytical results are compared to the USEPA standard of 50 parts per million (ppm), which is the threshold for bulk product waste, as defined by USEPA 40 CFR § 761.3, and regulated under the Toxic Substances Control Act. None of the suspect PCB building materials contained PCBs greater than 50 ppm.

The PCB analytical results are summarized in Table 3, Attachment C. A copy of the PCB laboratory report is provided in Attachment H.

Mercury

The mercury analytical result was compared to Toxicity Characteristic Leaching Procedure (TCLP) threshold of 0.2 milligrams-per-liter (mg/L). The total concentration of mercury in the rubber flooring is less 20 times the TCLP limit, therefore the mercury level in the rubber ramp floor tread in the library is non-hazardous.

The mercury analytical results are summarized in Table 4, Attachment D. A copy of the mercury laboratory report is provided in Attachment I.

Hazardous Materials

The visual survey for hazardous materials identified mercury-containing light tubes and PCB-containing light ballasts. An inventory of these items is included in Table 5, Attachment E. No hazardous materials sampling or analysis was conducted as part of this preliminary survey.

Recommendations

Asbestos

Prior to disturbance, the ACM identified must be abated by a Commonwealth of Massachusetts-licensed asbestos abatement contractor following all federal, state & local regulations governing asbestos abatement. A copy of the asbestos Waste Shipment record must be received within 45 days of removal from the Site. Asbestos air quality sampling must be conducted under USEPA AHERA regulations following asbestos abatement and prior to re-occupancy of the spaces.



Lead-Based Paint

Based upon the presence of lead in paint on metal coated surfaces, the metal entry door and panels at the roofline should be removed intact, segregated from the general waste stream and recycled off-site at a facility capable of recapturing lead. Based upon the presence of LBP on a metal building component, the waste stream does not have to be segregated and tested for TCLP to determine if there are any there are special hazardous waste disposal requirements.

PCBs

The café interior window caulk contains > 1 and < 50 ppm PCBs. Since this caulking appears to be part of the original construction, this caulking has been determined to meet the definition of an Excluded PCB Product per 40 CFR 761.3, whereas, “*The products or source of the products containing < 50 ppm concentration PCBs were legally manufactured, processed, distributed in commerce, or used before October 1, 1984*”. The < 50 ppm PCB material (interior café window caulk) is not suspect ACM containing (silicone-type), however the café interior window caulk needs to be disposed of at a landfill that is licensed to accept the subject material or may remain in place.

Hazardous Materials

The light tubes, ballasts, compact florescent bulbs, lead and tritium batteries, thermostats and switches will require proper handling, removal, transportation and off-site recycling/reclamation. Hydraulic oil from the automobile lift and refrigerants will require handling and disposal in accordance with regulations. Any sludge in the science sink traps will need to be tested for lead and mercury via TCLP to determine proper disposal requirements. Laboratory chemicals should be properly stored, in their original containers, and are recommended for re-use.

Limitations

The conclusions are limited to the information available at the time of the field survey and the scope of services, as defined. No subsurface soil or groundwater testing was performed. Where access to portions of the Site or to structures on the site was unavailable or limited, CDW renders no opinion as to the presence of hazardous material or the presence of indirect evidence related to hazardous material in that portion of the site or structure. The testing performed forms the basis for conclusions expressed and areas inaccessible for testing limits those conclusions. No other conclusions, interpretations or recommendations are contained or implied in this report other than those expressed. No other use of this report is warranted without the written consent of CDW Consultants, Inc.



CDW appreciates the opportunity to provide our services to you on this project.

Very truly yours,

CDW CONSULTANTS, INC.

A handwritten signature in black ink, appearing to read 'Susan Cahalan'.

Susan Cahalan, PG
Project Manager

APPENDICES

- Appendix A: Table 1. Summary of Asbestos Analytical Results
- Appendix B: Table 2. Summary of Lead Analytical Results
- Appendix C: Table 3: Summary of PCB Analytical Results
- Appendix D: Table 4: Summary of Mercury Analytical Results
- Appendix E: Table 5: Summary of Other Hazardous Materials
- Appendix F: Asbestos Laboratory Report
- Appendix G: Lead Laboratory Report
- Appendix H: PCB Laboratory Report
- Appendix I: Mercury Laboratory Report

Appendix A

Table 1. Summary of Asbestos Analytical Results

**Table 1. Summary of Asbestos Analytical Results
Monument Mountain School
Great Barrington, MA
May 2013**

HA No.	Material Description	NESHAP Cat.	Location	Condition	Est. Quantity	Units	Comments
MM-1	4" Diameter Pipe Fitting Insulation	Friable ACM	Boiler Room, Wet Walls, Plumbing Chases, Throughout School	Good	750	LF	
MM-2	4" Diameter Gray Paper Pipe Insulation Cover	Non-ACM, Sampled	Boiler Room	Good	700	LF	Over Fiberglass Pipe Insulation
MM-3	12" Diameter Pipe Fitting Insulation	Friable ACM	Boiler Room	Good	8	EA	Painted Orange on Black Painted Pipe
MM-4	4" Diameter Pipe Insulation	Non-ACM, Sampled	Boiler Room	NA	200	LF	Orange Painted Fiberglass Insulation
MM-5	Boiler Insulation	Friable ACM	Boiler Room	Good	3600	SF	
MM-6	Interior Boiler Insulation	Friable ACM	Boiler Room	Damaged	880	SF	Inaccessible/Boilers Operation at Time of Inspection
MM-7	Boiler Breeching	Friable ACM	Boiler Room	Damaged	1200	SF	
MM-8	Black Berm	Non-ACM, Sampled	Boiler Room	Good	80	SF	Lining in Berm in Front of Boilers
MM-9	Interior Window Glaze	Non-ACM, Sampled	Boiler Room Office	Good	48	LF	
MM-10	Small Boiler Interior Insulation	Non-ACM, Sampled	Boiler Room	Damaged	150	SF	Unused/No Longer In Service?
MM-11	Small Boiler Roping	Non-ACM, Sampled	Boiler Room	Damaged	100	LF	Unused/No Longer In Service?
MM-12	Small Metal Plate Roping	Non-ACM, Sampled	On Floor in Boiler Room	Good	12	LF	Unused Metal Floor Plates
MM-13A	12" x 12" Light Tan Floor Tile	Non-ACM, Sampled	Hall Outside Boiler Room, Cafeteria, B-Wing Halls, F-Wing Halls, G-Wing Halls, H Wing Halls	Good	43400	SF	Throughout Except Ceramic Tile Areas, Gym Floor, Auditorium, Concrete Floor Areas
MM-13B	Associated Black Floor Tile Mastic	Non-ACM, Sampled	Hall Outside Boiler Room, Cafeteria, B-Wing Halls, F-Wing Halls, G-Wing Halls, H Wing Halls	Good	43400	SF	Throughout Except Ceramic Tile Areas, Gym floor, Auditorium, Concrete Floor Areas
MM-14	Interior Door Window Glaze	Non-ACM, Sampled	Hall Door Assembly, Located throughout	Good	600	LF	

**Table 1. Summary of Asbestos Analytical Results
Monument Mountain School
Great Barrington, MA
May 2013**

HA No.	Material Description	NESHAP Cat.	Location	Condition	Est. Quantity	Units	Comments
MM-15	Yellow/White Sheetrock & Paper	Non-ACM, Sampled	Hallways Throughout	Good	12000	SF	Above CMU Block Wall
MM-16A	Brown Cove Base	Non-ACM, Sampled	Hallways Throughout	Good	6000	LF	
MM-16B	Yellow Cove Base Mastic	Non-ACM, Sampled	Hallways Throughout	Good	6000	LF	
MM-17	2' x 2' Gray Suspended Ceiling Tile	Non-ACM, Sampled	Hall Outside Boiler Room, Classroom Wing Halls - Wing H, Wing F, Wing B, Wing K	Good	35000	SF	
MM-18	12" x 12" Gray/White Pinhole Spline-Set Ceiling Tile	Non-ACM, Sampled	Cafeteria, Administrative Area, Back of Auditorium, H Wing Classrooms, F Wing Classrooms, B Wing Classrooms, K Wing Classrooms, G Wing Classrooms	Good	48800	SF	
MM-19	Yellow/White Sheetrock & Paper	Non-ACM, Sampled	Hallways Throughout	Good	Same as MM-15	SF	Above CMU
MM-20	Gray Interior Window Caulk	Non-ACM, Sampled	Cafeteria	Good	150	LF	Inside Cafeteria Windows Only
MM-21	Cementitious Vent Hood Panels	Non-ACM, Sampled	Kitchen	Good	250	SF	Associated with Cooking Vent Hoods
MM-22A	Blue Ceramic Wall Tile	Non-ACM, Sampled	Kitchen	Good	1200	SF	
MM-22B	Ceramic Wall Tile Grout	Non-ACM, Sampled	Kitchen	Good	1200	SF	
MM-23A	Red Ceramic Floor Tile	Non-ACM, Sampled	Kitchen	Good	1100	SF	
MM-23B	Ceramic Floor Tile Grout	Non-ACM, Sampled	Kitchen	Good	1100	SF	
MM-24	Interior Door Frame Caulk	Non-ACM, Sampled	Kitchen	Good	24	LF	
MM-25	Interior Window Glaze	Non-ACM, Sampled	Kitchen Office	Good	24	LF	
MM-26	Interior Door Window Glaze	Non-ACM, Sampled	Kitchen Office	Good	4	LF	
MM-27	Gray/Yellow Heating Unit Insulation	Non-ACM, Sampled	Custodial Break Room	Good	60	SF	Suspended Heating Unit

**Table 1. Summary of Asbestos Analytical Results
Monument Mountain School
Great Barrington, MA
May 2013**

HA No.	Material Description	NESHAP Cat.	Location	Condition	Est. Quantity	Units	Comments
MM-28	Gray/White Flex Connector on Heating Unit	Friable ACM	Throughout Mechanical Rooms	Good	20	EA	
MM-29	2" Diameter Pipe Fitting Insulation Associated with Heating Unit	Friable ACM	Boiler Room, Mechanical Rooms	Damaged	1500	LF	
MM-30	White Hard Ceiling	Non-ACM, Sampled	Upstairs Gym Announcement Booth, Kitchen, Janitor Closets, Room G10, Storage Rooms Throughout	Good	3000	SF	
MM-31	White Hard Ceiling	Non-ACM, Sampled	Upstairs Gym Announcement Booth, Kitchen, Janitor Closets, Room G10, Storage Rooms Throughout	Good	Same as MM-30		
MM-32	Wood Dust & Mastic	Non-ACM, Sampled	Gym Floor	Good	8400	SF	
MM-33	Interior Door Insulation	Non-ACM, Sampled	Boiler Room	Good	1	EA	Metal Door
MM-34	Interior Door Insulation	Non-ACM, Sampled	Kitchen	Good	10	EA	Wood Door
MM-35	12" x 12" Spline-Set Ceiling Tile	Non-ACM, Sampled	Rear Wall, Auditorium	Good	1000	SF	
MM-36	Yellow Fiberglass Insulation With Black Coating	Non-ACM, Sampled	Rear Wall, Auditorium	Good	1000	SF	
MM-37	White/Gray Ceiling Plaster	Non-ACM, Sampled	Auditorium	Good	5000	SF	Includes Samples 37A, 37B, 37C, 37D
MM-38	Yellow Carpet Glue	Cat. 2 Non-friable ACM	Auditorium	Good	1500	SF	Carpet is Considered Asbestos-Contaminated for the Purpose of Removal.
MM-39	Tar Paper	Non-ACM, Sampled	Beneath Stage, Auditorium	Good	1800	SF	
MM-40	Red Stage Curtain	Non-ACM, Sampled	Above Catwalk, Auditorium	Good	1	EA	
MM-41	Black Stage Curtain	Non-ACM, Sampled	Auditorium Stage	Good	1	EA	
MM-42	Sheetrock Panels	Non-ACM, Sampled	Catwalk Center Auditorium	Good	600	SF	Painted Black
MM-43	Duct Flex Connector	Friable ACM	Upper Auditorium Mechanical Room	Damaged	Same as MM-28	EA	

**Table 1. Summary of Asbestos Analytical Results
Monument Mountain School
Great Barrington, MA
May 2013**

HA No.	Material Description	NESHAP Cat.	Location	Condition	Est. Quantity	Units	Comments
MM-44	2" Pipe Fitting Insulation	Friable ACM	Boiler Room, Wet Walls, Mechanical Rooms, Throughout School	Good	1500	LF	Fiberglass-Insulated Pipe
MM-45	Asphalt Roof Shingle and Felt	Non-ACM, Sampled	Greenhouse House	Good	1200	SF	
MM-46	Wicking Material	Non-ACM, Sampled	Exterior Masonry Weep Hole	Good	50000	SF	
MM-47	Carpet Glue and Remnant Mastic	Non-ACM, Sampled	Admin and Carpet Halls	Good	17000	SF	Remnant Floor Tile Mastic
MM-48	Interior Door Window Glaze	Non-ACM, Sampled	Red Door, Main Entrance	Good	4	EA	Metal Entry Doors
MM-49	Door Side Light Window Glaze	Non-ACM, Sampled	Main Entrance; Red Door	Good	60	LF	Metal Entry Doors
MM-50	Interior Window Glaze	Non-ACM, Sampled	Admin Windows	Good	120	LF	
MM-51	12" x 12" Suspended Ceiling Tile	Non-ACM, Sampled	Admin Area	Good	2800	SF	Spline Set No Glue
MM-52	Sheetrock with Paper	Non-ACM, Sampled	Hallways Throughout	Good	Same as MM-15	SF	
MM-53	Gray Sink Undercoating	Cat. 2 Non-friable ACM	Admin Office Kitchen, Staff Rooms, Library Break Room, Art Rooms	Good	30	EA	
MM-54	Door Window Glaze	Non-ACM, Sampled	Admin Office	Good	2	EA	AP Offices
MM-55A	12" x 12" Dark Tan Floor Tile	Cat. 1 Non-friable ACM	Nurse Area	Good	1500	SF	Tile Different from Hallways/Dark Tan
MM-55B	Associated Black Floor Tile Mastic	Non-ACM, Sampled	Nurse Area	Good	1500	SF	
MM-56A	Pink Cove Base	Non-ACM, Sampled	Nurse Area	Good	200	LF	
MM-56B	Associated Brown Cove Base Mastic	Non-ACM, Sampled	Nurse Area	Good	200		
MM-57A	9" x 9" Tan Floor Tile	Cat. 1 Non-friable ACM	Mechanical Room G-12	Good	150	SF	

**Table 1. Summary of Asbestos Analytical Results
Monument Mountain School
Great Barrington, MA
May 2013**

HA No.	Material Description	NESHAP Cat.	Location	Condition	Est. Quantity	Units	Comments
MM-57B	Associated Black Floor Tile Mastic	Non-ACM, Sampled	Mechanical Room G-12	Good	150	SF	
MM-58A	9" x 9" Tan Floor Tile	Cat. 1 Non-friable ACM	Band Room	Good	2400	SF	
MM-58B	Associated Black Floor Tile Mastic	Non-ACM, Sampled	Band Room	Good	2400	SF	
MM-59A	Brown Cove Base	Non-ACM, Sampled	Band Room	Good	300	LF	
MM-59B	Associated Yellow Cove Base Mastic	Non-ACM, Sampled	Band Room	Good	300	LF	
MM-60	Laminate Countertop	Non-ACM, Sampled	Library Office/Break Room	Good	50	SF	
MM-61	Yellow Carpet Glue	Non-ACM, Sampled	Library Office/Break Room	Good	2800	SF	
MM-62	Gray Sink Undercoating	Cat. 2 Non-friable ACM	Admin Office Kitchen, Staff Rooms, Library Break Room, Art Rooms	Good	Same as MM-53	EA	
MM-63	Brown Door Sidelight Glaze	Cat. 2 Non-friable ACM	Library Entrance	Good	60	LF	
MM-64	Rubber Ramp Tread Glue	Non-ACM, Sampled	Library	Good	150	SF	
MM-65	White Joint Compound/Sheet Rock Mix	Non-ACM, Sampled	H Wing Classrooms-Window Side Only	Good	1000	SF	Also Includes Sample #65A and 65B
MM-66	Gray Floor Leveling Compound	Non-ACM, Sampled	H-Wing Hall	Good	4500	SF	Under Light Tan 12" x 12" Floor Tiles
MM-67	Door Window Glaze	Non-ACM, Sampled	H-Wing Hall Wood Door Assembly	Good	1	EA	
MM-68	Door Glaze	Non-ACM, Sampled	H-Wing Classrooms	Good	18	EA	On Main Door of Classrooms
MM-69	Interior Door Frame Caulk	Non-ACM, Sampled	H-Wing Classrooms	Good	360	LF	
MM-70A	9" x 9" Light Tan Floor Tile	Cat. 1 Non-friable ACM	H-Wing and B-Wing Classrooms	Good	11000	SF	

**Table 1. Summary of Asbestos Analytical Results
Monument Mountain School
Great Barrington, MA
May 2013**

HA No.	Material Description	NESHAP Cat.	Location	Condition	Est. Quantity	Units	Comments
MM-70B	Associated Black Floor Tile Mastic	Non-ACM, Sampled	H-Wing and B-Wing Classrooms	Good	Included in Quantity for MM-70A	SF	
MM-71A	9" x 9" Dark Tan Floor Tile	Cat. 1 Non-friable ACM	H-Wing and B-Wing Classrooms	Good	17800	SF	
MM-71B	Associated Black Floor Tile Mastic	Non-ACM, Sampled	H-Wing and B-Wing Classrooms	Good	Same as 71A	SF	
MM-72A	12" x 12" Gray/Tan Floor Tile	Cat. 1 Non-friable ACM	H-Wing and B-Wing Classrooms	Good	6000	SF	
MM-72B	Associated Black Floor Tile Mastic	Non-ACM, Sampled	H-Wing and B-Wing Classrooms	Good	Same as 71A	SF	
MM-73A	9" x 9" Red Floor Tile	Cat. 1 Non-friable ACM	H-Wing Classroom H-08	Good	1200	SF	Only Classroom with Red floor Tile
MM-73B	Associated Black Floor Tile Mastic	Non-ACM, Sampled	H-Wing Classroom H-08	Good	Same as 73A	SF	
MM-74	Countertop Laminate	Non-ACM, Sampled	H-Wing Classroom H-08	Good	10	SF	
MM-75	2' x 2' Textured Suspended Ceiling Tile	Non-ACM, Sampled	H-Wing Classroom H-08	Good	1200	SF	
MM-76A	Black/Brown Cove Base	Non-ACM, Sampled	H-Wing Hall and Classrooms	Good	1200	LF	
MM-76B	Associated Cove Base Mastic	Non-ACM, Sampled	H-Wing Hall and Classrooms	Good	Same as 76A	LF	
MM-77	Black Science Table	Non-ACM, Sampled	F-Wing Science Classrooms	Good	4800	SF	
MM-78	Black Science Table	Non-ACM, Sampled	F-Wing Science Classrooms	Good	Same as MM-77	SF	
MM-79	Black Science Table	Non-ACM, Sampled	F-Wing Science Classrooms	Good	Same as MM-77	SF	
MM-80	Black Science Table	Non-ACM, Sampled	F-Wing Science Classrooms	Good	Same as MM-77	SF	
MM-81	White Joint Compound Sheet Rock Mix	Non-ACM, Sampled	F-Wing Classrooms	Good	1000	SF	Also Includes Samples 81A and 81B

**Table 1. Summary of Asbestos Analytical Results
Monument Mountain School
Great Barrington, MA
May 2013**

HA No.	Material Description	NESHAP Cat.	Location	Condition	Est. Quantity	Units	Comments
MM-82A	12" x 12" Red Floor Tile	Cat. 1 Non-friable ACM	F-Wing Classrooms F-02, F-04, F-05, F-06 and F-10	Good	3500	SF	
MM-82B	Associated Black Floor Tile Mastic	Non-ACM, Sampled	F-Wing Classrooms F-02, F-04, F-05, F-06 and F-10	Good	Same as 82A	SF	
MM-83A	9" x 9" Tan/Brown Floor Tile	Cat. 1 Non-friable ACM	F-Wing Classrooms F-07, F-11, F-17, F-21 and F-25	Good	4200	SF	
MM-83B	Associated Black Floor Tile Mastic	Non-ACM, Sampled	F-Wing Classrooms F-07, F-11, F-17, F-21 and F-25	Good	Same as MM-83A	SF	
MM-84	Gray/Yellow Door Glaze	Non-ACM, Sampled	F-Wing Classroom Doors	Good	15	EA	
MM-85	12" x 12" Suspended Pinhole Ceiling Tile	Non-ACM, Sampled	F-Wing - Outer Classrooms with Windows Only	Good	8500	SF	Spline Set, no Glue
MM-86	12" x 12" Suspended Pinhole Ceiling Tile	Non-ACM, Sampled	F-Wing - Outer Classrooms with Windows Only	Good	Same as MM-85	SF	Spline Set, no Glue
MM-87A	Black Cove Base	Non-ACM, Sampled	F-Wing Hall and Classrooms	Good	1600	LF	
MM-87B	Associated Brown Cove Base Mastic	Non-ACM, Sampled	F-Wing Hall and Classrooms	Good	Same as 87A	LF	
MM-88	Tan Vinyl Wall Covering	Non-ACM, Sampled	Classrooms F, G, & H Wing	Good	15000	SF	
MM-89	Tan Vinyl Wall Covering	Non-ACM, Sampled	Classrooms F, G, & H Wing	Good	Same as MM-88	SF	
MM-90	Tan Vinyl Wall Covering	Non-ACM, Sampled	Classrooms F, G, & H Wing	Good	Same as MM-88	SF	
MM-91A	12" x 12" Beige Floor Tile	Cat. 1 Non-friable ACM	A-Wing Hall	Good	1600	SF	
MM-91B	Associated Black Floor Tile Mastic	Non-ACM, Sampled	A-Wing Hall	Good	Same as 91A	SF	
MM--92	Gray Interior Window Glaze	Cat. 2 Non-friable ACM	A-08 Office	Good	48	LF	
MM-93	Gray Sidewalk Expansion Joint	Non-ACM, Sampled	Main Entrance	Good	150	LF	

**Table 1. Summary of Asbestos Analytical Results
Monument Mountain School
Great Barrington, MA
May 2013**

HA No.	Material Description	NESHAP Cat.	Location	Condition	Est. Quantity	Units	Comments
MM-94	Exterior Gray Window Caulk	Cat. 2 Non-friable ACM	All Windows	Damaged	3500	LF	Sides of Windows Only, Lintel on top, Rubber at Bottom, Rubber Glaze
MM-95	Exterior Pink/Red Door Frame Caulk	Cat. 2 Non-friable ACM	All Exterior Doors	Damaged	520	LF	
MM-96A	Ceramic Floor Tile	Non-ACM, Sampled	Restrooms - G Wing	Good	1000	SF	
MM-96B	Gray Ceramic Floor Tile Grout	Non-ACM, Sampled	Restrooms - G Wing	Good	1000	SF	
MM-97A	White Ceramic Wall Tile	Non-ACM, Sampled	Restrooms - B Wing	Good	1000	SF	
MM-97B	Tan Ceramic Wall Tile Grout	Non-ACM, Sampled	Restrooms B Wing	Good	1000	SF	
MM-98A	Gray Ceramic Floor Tile	Non-ACM, Sampled	Girl's Locker room	Good	2000	SF	Girls and Boys Locker Room
MM-98B	Gray Ceramic Floor Tile Grout	Non-ACM, Sampled	Girl's Locker room	Good	Same as 98A	SF	
MM-99A	White Ceramic Wall Tile	Non-ACM, Sampled	Girl's Locker room	Good	20000	SF	
MM-99B	Gray Ceramic Wall Tile Grout	Non-ACM, Sampled	Girl's Locker room	Good	Same as 99A	SF	
MM-100	Black Paper Under Gym Floor	Non-ACM, Sampled	Gym	Good	8400	SF	
MM-101	Tan Exterior Weeping Material	Non-ACM, Sampled	Behind Masonry - Wing A, Wing G, Wing H, Wing F and Wing B	Good	Same as MM-46	SF	Tan Insulation Type Fluffy Wicking Material. Includes Samples 101A-101D
MM-102	Boiler Roping	Assumed ACM	Boiler Room	NA	1000	LF	
MM-G-1	Laminate Countertop	Non-ACM, Sampled	Greenhouse House	Good	40	SF	
MM-G-2	12" x 12" Spline-Set Ceiling Tile	Non-ACM, Sampled	Greenhouse House	Damaged	1500	SF	
MM-G-3	Cementitious Plant Tables	Cat. 2 Non-friable ACM	Greenhouse	Good	1000	SF	

**Table 1. Summary of Asbestos Analytical Results
Monument Mountain School
Great Barrington, MA
May 2013**

HA No.	Material Description	NESHAP Cat.	Location	Condition	Est. Quantity	Units	Comments
MM-G-4	Black Counter/Sink	Non-ACM, Sampled	Greenhouse House	Good	1	EA	
MM-G-5	Black Paper Behind Yellow Fiberglass Insulation	Non-ACM, Sampled	Greenhouse House	Good	1200	SF	
MM-G-6	Multi-Colored Nail-Set Sheet Flooring	Non-ACM, Sampled	Greenhouse House	Good	600	SF	
MM-G-7	Window Caulk	Cat. 2 Non-friable ACM	Greenhouse	Damaged	480	LF	
MM-G-8	Interior Window Glaze	Cat. 2 Non-friable ACM	Greenhouse	Damaged	3380	LF	
MM-Roof-1	Roof Core	Non-ACM, Sampled	Main Roof	Good	120000	SF	Roofing was Replaced in 1996. Rubber with Yellow Insulation. No Tar.
MM-Roof-2	Roof Core	Non-ACM, Sampled	Main Roof	Good	Same as MM-Roof-1	SF	
MM-Roof-3	Roof Core	Non-ACM, Sampled	Main Roof	Good	Same as MM-Roof-1	SF	
MM-Roof-4	Roof Core	Non-ACM, Sampled	Main Roof	Good	Same as MM-Roof-1	SF	
MM-Roof-5	Black Chimney Penetration Flashing	Non-ACM, Sampled	Main Roof	Good	Same as MM-Roof-1	SF	C Wing Roof
MM-Roof-6	Roof Core	Non-ACM, Sampled	Gym Roof	Good	Same as MM-Roof-1	SF	
MM-Roof-7	Red/Gray Silicone Metal Panel Caulk	Non-ACM, Sampled	Roof Edge	Good	500	LF	
MM-Roof-8	Metal Panel Backing - Brown Wood Fiberboard	Non-ACM, Sampled	Roof Edge	Good	3500	SF	
MM-Roof-9	Asphalt Roof Shingle	Non-ACM, Sampled	Shed	Good	300	SF	Roof Shingle Over Wood, No Tar or Paper
MM-103	Remnant Hidden Roofing Materials	Assumed ACM	Main Roof	NA	10000	SF	
MM-104	Hidden Pipe Insulation	Assumed ACM	Hidden/Inaccessible Areas	NA	3000	LF	

**Table 1. Summary of Asbestos Analytical Results
 Monuement Mountain School
 Great Barrington, MA
 May 2013**

HA No.	Material Description	NESHAP Cat.	Location	Condition	Est. Quantity	Units	Comments
MM-105	Firebrick Under boilers	Assumed ACM	Boilers	Good	1120	CF	
MM-106	Transite	Assumed ACM	Boiler Room, AHERA3-Year Re-inspection Report by O'Reilly, Talbot & Okun, Dated May 20, 2010	Good	1000	SF	
MM-107	Transite Fume Hoods	Assumed ACM	Science	Good	400	SF	
MM-108	Glue Behind Wood Paneling in Library and Chalk Boards	Assumed ACM	Library	NA	5000	SF	
MM-109	Firebrick Associated With 2 Kilns	Assumed ACM	Art	NA	20	SF	
MM-110	Walk in Refrigerator and Freezer Coating	Assumed ACM	Kitchen	NA	2	EA	
MM-111	Hidden Transite	Assumed ACM	Behing Unit Vents, Mechanical Rooms	NA	2000	SF	
MM-112	Interior Boiler Components - Burn Chamber	Assumed ACM	Boilers	NA	500	SF	

Appendix B

Table 2. Summary of Lead Analytical Results

**Table 2. Summary of Lead Based Paint Analytical Results
Mounument Mountain High School
Great Barrington, Massachusetts
May 2013**

Sample #	Material Description	Analytical Result (% Weight)
LP-1	Paint on metal Panels at Roofline	0.96
LP-1A	Paint on metal Panels at Roofline	1.2
LP-1B	Paint on metal Panels at Roofline	1.0
LP-3	Tan Door Assembly Paint - Hallways	0.46
LP-4	Red Paint on Entry Doors	1.3
LP-5	Greenhouse House - White Paint	<0.010

Bold = Conatins lead above 0.5% by Weight

Appendix C

Table 3. Summary of PCB Analytical Results

**Table 3. Summary of PCB Analytical Results
 Monument Mountain School
 Great Barrington, Massachusetts
 May, 2013**

Sample #	Material Description	Analytical Result (mg/Kg)
PCB-1	Café Interior Window Caulk	2.8
PCB-2	Exterior Window Caulk	ND
PCB-2A	Exterior Window Caulk	0.34
PCB-2B	Exterior Window Caulk	ND
PCB-3	Exterior Door Caulk	ND
PCB-3A	Exterior Door Caulk	ND
PCB-4	Exterior Expansion Joint	ND
PCB-5	Greenhouse Caulk	ND
PCB-6	Greenhouse Glaze	ND

* mg/Kg = milligrams per Kilogram

ND = Not Detected

Appendix D

Table 4. Summary of Mercury Analytical Results

**Table 4. Summary of Mercury Analytical Results
Monument Mountain High School
Great Barrington, Massachusetts
May 2013**

Sample #	Material Description	Analytical Result (% Weight)
1	Rubber Floor Tread - Library Ramp	0.092

Appendix E

Table 5. Summary of Other Hazardous Materials

**Table 5. Other Hazardous Materials
Monument Mountain High School
Great Barrington, Massachusetts
May 2013**

Material Description	Location	Est. Quantity	Units	Comments
Ballasts (PCBs)	Throughout	3000	EA	Ballasts Located in A Wing, C Wing & Classroom Wings; Classrooms with Windows Only.
Compact Fluorescent Bulbs	Throughout	50	EA	
Fluorescent Bulbs (Mercury)	Throughout	6000	Tubes	
Thermostats and Switches (Mercury)	Throughout	75	Ampules	
Emergency Light Batteries (Lead)	Throughout	50	EA	
Refrigerants Associated with Window-Mounted AC Units	Throughout	50	EA	
Hydraulic Oil Associated With Auto Lifts	Not Marked - No PCBs	100	GAL	
Lead-Based Paint	Paint on Panels at Roofline, Paint on Metal Doors	NA	NA	TCLP likely unnecessary, Recycle
Refrigerants Associated with Water Bubblers	Throughout	30	EA	
Exit Signs (Tritium)	Throughout	40	EA	
Chemicals (Mercury and Lead)	Science Sink Traps	NA	NA	TCLP Laboratory Analytical Costs
Laboratory Chemicals	Science Labs	NA	NA	Reuse Recommended
Fire Extinguishers (Compressed Gas)	Throughout	30	EA	Reuse Recommended

Appendix F

Asbestos Laboratory Report



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Analysis Date: 3/14/2013
Collected:

Project: **Monument Mountain HS**

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 and/or EPA 600/M4-82-020 Method(s) using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
MM-1 131300928-0001	Boiler Room - 4" 0 Hard Fitting; White/Grey	Gray Fibrous Heterogeneous		45% Non-fibrous (other)	55% Chrysotile
MM-1A 131300928-0002	Boiler Room - 4" 0 Hard Fitting; White/Grey				Stop Positive (Not Analyzed)
MM-1B 131300928-0003	Boiler Room - 4" 0 Hard Fitting; White/Grey				Stop Positive (Not Analyzed)
MM-2 131300928-0004	Boiler Room - 4" 0 PI Paper over Fiberglass; Grey	White Fibrous Heterogeneous	70% Glass	30% Non-fibrous (other)	None Detected
MM-2A 131300928-0005	Boiler Room - 4" 0 PI Paper over Fiberglass; Grey	White Fibrous Heterogeneous	70% Glass	30% Non-fibrous (other)	None Detected
MM-2B 131300928-0006	Boiler Room - 4" 0 PI Paper over Fiberglass; Grey	White Fibrous Heterogeneous	70% Glass	30% Non-fibrous (other)	None Detected
MM-3 131300928-0007	Boiler Room - 1' 0 Hard Fitting Painted Black on Orange FG Pipe	Gray Non-Fibrous Heterogeneous	45% Glass	53% Non-fibrous (other)	2% Amosite
MM-3A 131300928-0008	Boiler Room - 1' 0 Hard Fitting Painted Black on Orange FG Pipe				Stop Positive (Not Analyzed)

Analyst(s)

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
MM-3B 131300928-0009	Boiler Room - 1' 0 Hard Fitting Painted Black on Orange FG Pipe				Stop Positive (Not Analyzed)
MM-4 131300928-0010	Boiler Room - 4' 0 Orange Pipe Insulation	Black/Orange Fibrous Heterogeneous	45% Cellulose 20% Glass	35% Non-fibrous (other)	None Detected
MM-5 131300928-0011	Boiler Room - Boiler Insulation; Grey/White	Gray Non-Fibrous Heterogeneous	35% Glass	20% Non-fibrous (other)	45% Chrysotile
MM-5A 131300928-0012	Boiler Room - Boiler Insulation; Grey/White				Stop Positive (Not Analyzed)
MM-5B 131300928-0013	Boiler Room - Boiler Insulation; Grey/White				Stop Positive (Not Analyzed)
MM-5C 131300928-0014	Boiler Room - Boiler Insulation; Grey/White				Stop Positive (Not Analyzed)
MM-5D 131300928-0015	Boiler Room - Boiler Insulation; Grey/White				Stop Positive (Not Analyzed)
MM-6 131300928-0016	Boiler Room - Insulation on Boiler Ribs under Boiler; Grey	Gray Fibrous Heterogeneous	30% Glass	25% Non-fibrous (other)	45% Chrysotile

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
MM-6A 131300928-0017	Boiler Room - Insulation on Boiler Ribs under Boiler; Grey				Stop Positive (Not Analyzed)
MM-6B 131300928-0018	Boiler Room - Insulation on Boiler Ribs under Boiler; Grey				Stop Positive (Not Analyzed)
MM-7 131300928-0019	Boiler Room - Boiler Breeching; Grey	White Fibrous Heterogeneous		35% Non-fibrous (other)	65% Chrysotile
MM-7A 131300928-0020	Boiler Room - Boiler Breeching; Grey				Stop Positive (Not Analyzed)
MM-7B 131300928-0021	Boiler Room - Boiler Breeching; Grey				Stop Positive (Not Analyzed)
MM-8 131300928-0022	Boiler Room - Black Bern Lining in Front of Boiler	Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-9 131300928-0023	Boiler Room - Office Window Glaze	Gray Non-Fibrous Heterogeneous		100% Non-fibrous (other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
MM-10 131300928-0024	Boiler Room; Unused Boiler - Grey Insulation Inside Old Unused Boiler	White Fibrous Heterogeneous	98% Glass	2% Non-fibrous (other)	None Detected
MM-11 131300928-0025	Boiler Room; Old Unused Boiler - Boiler Roping; Grey	White Fibrous Heterogeneous	98% Glass	2% Non-fibrous (other)	None Detected
MM-12 131300928-0026	Boiler Room; Sm Metal Plates on Floor - Roping; Grey	White Fibrous Heterogeneous	98% Glass	2% Non-fibrous (other)	None Detected
MM-13 FT 131300928-0027	Hall near Boiler Room - 1x1 Tanish Grey FT	Tan Non-Fibrous Heterogeneous		100% Non-fibrous (other)	None Detected
MM-13 Mastic 131300928-0028	Hall near Boiler Room - Black Mastic	Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-13A FT 131300928-0029	Hall near Boiler Room - 1x1 Tanish Grey FT	Tan Non-Fibrous Heterogeneous		100% Non-fibrous (other)	None Detected
MM-13A Mastic 131300928-0030	Hall near Boiler Room - Black Mastic	Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
MM-13B FT 131300928-0031	Hall near Boiler Room - 1x1 Tanish Grey FT	Tan Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-13B Mastic 131300928-0032	Hall near Boiler Room - Black Mastic	Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-14 131300928-0033	Door Assembly Outside Boiler Room Hall - Window Glaze on Door	Gray Non-Fibrous Heterogeneous		100% Non-fibrous (other)	None Detected
MM-15 131300928-0034	Hall Outside Boiler Room - Sheetrock & Paper above CMU; Yellow/White	White Fibrous Heterogeneous	65% Cellulose	35% Non-fibrous (other)	None Detected
MM-15A 131300928-0035	Hall Outside Boiler Room - Sheetrock & Paper above CMU; Yellow/White	White Fibrous Heterogeneous	45% Cellulose	55% Non-fibrous (other)	None Detected
MM-15B 131300928-0036	Hall Outside Boiler Room - Sheetrock & Paper above CMU; Yellow/White	Gray/Tan Fibrous Homogeneous	65% Cellulose	35% Non-fibrous (other)	None Detected
MM-15C 131300928-0037	Hall Outside Boiler Room - Sheetrock & Paper above CMU; Yellow/White				Not Submitted

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
MM-16 CB 131300928-0038	Hall Outside Boiler Room - Brown Covebase	Brown Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-16 Glue 131300928-0039	Hall Outside Boiler Room - Yellow Glue	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-17 131300928-0040	Hall Outside Boiler Room - 2x2 Grey SAT	Gray/W hite Fibrous Heterogeneous	40% Cellulose 40% Min. Wool	20% Non-fibrous (other)	None Detected
MM-18 131300928-0041	Cafeteria - 1x1 Suspended Pinhole Ceiling Tile; Grey/W hite	Gray Fibrous Homogeneous	70% Min. Wool	30% Non-fibrous (other)	None Detected
MM-18A 131300928-0042	Cafeteria - 1x1 Suspended Pinhole Ceiling Tile; Grey/W hite	Gray Fibrous Homogeneous	70% Min. Wool	30% Non-fibrous (other)	None Detected
MM-18B 131300928-0043	Cafeteria - 1x1 Suspended Pinhole Ceiling Tile; Grey/W hite	Gray Fibrous Homogeneous	70% Min. Wool	30% Non-fibrous (other)	None Detected
MM-18C 131300928-0044	Cafeteria - 1x1 Suspended Pinhole Ceiling Tile; Grey/W hite	Gray Fibrous Homogeneous	70% Min. Wool	30% Non-fibrous (other)	None Detected

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Initial report from 03/14/2013 18:26:06



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Project: **Monument Mountain HS**

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 and/or EPA 600/M4-82-020 Method(s) using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
MM-18D 131300928-0045	Cafeteria - 1x1 Suspended Pinhole Ceiling Tile; Grey/White	White Fibrous Heterogeneous	65% Glass	35% Non-fibrous (other)	None Detected
MM-19 131300928-0046	Cafeteria - Sheetrock w/ Paper above CMU; Yellow/White	Tan/White Fibrous Heterogeneous	70% Cellulose	30% Non-fibrous (other)	None Detected
MM-19A 131300928-0047	Cafeteria - Sheetrock w/ Paper above CMU; Yellow/White	White Fibrous Heterogeneous	70% Cellulose	30% Non-fibrous (other)	None Detected
MM-19B 131300928-0048	Cafeteria - Sheetrock w/ Paper above CMU; Yellow/White	White Fibrous Heterogeneous	65% Cellulose	35% Non-fibrous (other)	None Detected
MM-20 131300928-0049	Cafeteria Inside of Exterior Window - Grey Window Caulk	Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-21 131300928-0050	Kitchen - Cementitious Material @ Fume Hood	Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-22 WT 131300928-0051	Kitchen - Wall Tile; Blue	Green Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected

Analyst(s)

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Steve Grise (80)

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
MM-22 Grout <i>131300928-0052</i>	Kitchen - Grout	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-23 FT <i>131300928-0053</i>	Kitchen - Floor Tile; Red	Red Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-23 Grout <i>131300928-0054</i>	Kitchen - Grout	Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-24 <i>131300928-0055</i>	Kitchen - Door Frame Caulk	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-25 <i>131300928-0056</i>	Kitchen Office Window - Window Glaze	Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-26 <i>131300928-0057</i>	Kitchen Office Door - Window Glaze	Tan Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-27 <i>131300928-0058</i>	Custodial Break Room - Heating Unit Insulation; Grey & Yellow	Gray/Yellow Fibrous Heterogeneous	90% Cellulose	10% Non-fibrous (other)	None Detected
MM-28 <i>131300928-0059</i>	Custodial Break Room - Flex Connector Heating Unit; Grey/White	Gray Fibrous Homogeneous	30% Synthetic	30% Non-fibrous (other)	40% Chrysotile

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
MM-29 131300928-0060	Custodial Break Room - Hard Fitting on Heating Unit	Gray Fibrous Homogeneous		30% Non-fibrous (other)	70% Chrysotile
MM-30 131300928-0061	Upstairs Gym Announcement Booth - Hard Ceiling; White	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-31 131300928-0062	Kitchen - Hard Ceiling; White	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-32 131300928-0063	Gym Floor - Mastic Mixed with Wood Dust	Tan Fibrous Homogeneous	95% Cellulose	5% Non-fibrous (other)	None Detected
MM-33 131300928-0064	Boiler Room Door - Insulation Inside Door	Non-Fibrous Homogeneous	98% Glass	2% Non-fibrous (other)	None Detected
MM-34 131300928-0065	Kitchen; Material in Door - Door Insulation	Yellow Non-Fibrous Homogeneous	85% Cellulose	15% Non-fibrous (other)	None Detected
MM-35 131300928-0066	Auditorium; Back Wall - 1x1 Acoustical Ceiling Tile	White Fibrous Heterogeneous	65% Glass	35% Non-fibrous (other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
MM-36 131300928-0067	Auditorium; Back Wall - Insulation with Black Coating	Black/Yellow Fibrous Heterogeneous	60% Glass	40% Non-fibrous (other)	None Detected
MM-37 131300928-0068	Auditorium - Ceiling Plaster	Gray Non-Fibrous Heterogeneous		100% Non-fibrous (other)	None Detected
MM-37A 131300928-0069	Auditorium - Ceiling Plaster	Gray Non-Fibrous Heterogeneous		100% Non-fibrous (other)	None Detected
MM-37B 131300928-0070	Auditorium - Ceiling Plaster	Gray Non-Fibrous Heterogeneous		100% Non-fibrous (other)	None Detected
MM-37C 131300928-0071	Auditorium - Ceiling Plaster	Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-37D 131300928-0072	Auditorium - Ceiling Plaster	Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-38 131300928-0073	Auditorium - Carpet Glue; Yellow	Brown Non-Fibrous Heterogeneous		100% Non-fibrous (other)	None Detected
MM-38A 131300928-0074	Auditorium - Carpet Glue; Yellow	Brown Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
MM-38B 131300928-0075	Auditorium - Carpet Glue; Yellow	Brown/Yellow Non-Fibrous Heterogeneous		98% Non-fibrous (other)	2% Chrysotile
MM-39 131300928-0076	Auditorium under Stage - Sheet Material beneath Stage	Black Non-Fibrous Heterogeneous	20% Cellulose	80% Non-fibrous (other)	None Detected
MM-40 131300928-0077	Auditorium above Catwalk - Red Curtain	Red Fibrous Heterogeneous	100% Synthetic	0% Non-fibrous (other)	None Detected
MM-41 131300928-0078	Auditorium Stage - Black Curtain	Red/Black Fibrous Heterogeneous	98% Cellulose	2% Non-fibrous (other)	None Detected
MM-42 131300928-0079	Catwalk Center Auditorium - Black Painted Sheetrock Panels	Gray Non-Fibrous Heterogeneous		100% Non-fibrous (other)	None Detected
MM-42A 131300928-0080	Catwalk Center Auditorium - Black Painted Sheetrock Panels	White Non-Fibrous Heterogeneous	15% Glass	85% Non-fibrous (other)	None Detected
MM-42B 131300928-0081	Catwalk Center Auditorium - Black Painted Sheetrock Panels	White Fibrous Homogeneous	10% Glass	90% Non-fibrous (other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
MM-43 131300928-0082	Mech Room off Upper Auditorium - Flex Connector	White Fibrous Heterogeneous	15% Glass	20% Non-fibrous (other)	65% Chrysotile
MM-44 131300928-0083	Mech Room off Upper Auditorium - 2" Hard Fitting on Fiberglass Pipe	Gray Fibrous Heterogeneous		35% Non-fibrous (other)	65% Chrysotile
MM-45 131300928-0084	Greenhouse House - Roof Shingle & Felt	Black Fibrous Heterogeneous	15% Glass	85% Non-fibrous (other)	None Detected
MM-46 131300928-0085	Exterior Masonry Weephole - Wicking Material	White Fibrous Heterogeneous	65% Glass	35% Non-fibrous (other)	None Detected
MM-47 131300928-0086	Admin & Carpet Halls - Carpet Glue & Remnant Mastic	Brown Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-47A 131300928-0087	Admin & Carpet Halls - Carpet Glue & Remnant Mastic	Brown Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-47B 131300928-0088	Admin & Carpet Halls - Carpet Glue & Remnant Mastic	Brown Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
MM-47C 131300928-0089	Admin & Carpet Halls - Carpet Glue & Remnant Mastic	Brown Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-47D 131300928-0090	Admin & Carpet Halls - Carpet Glue & Remnant Mastic	Brown Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-48 131300928-0091	Main Entrance; Red Door - Glaze on Door Window	Red Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-49 131300928-0092	Main Entrance; Red Door - Glaze on Door Side Light	Tan Non-Fibrous Heterogeneous		100% Non-fibrous (other)	None Detected
MM-50 131300928-0093	Admin Windows - Interior Window Glaze	Brown Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-51 131300928-0094	Admin - 1x1 Suspended Ceiling Tile	White Non-Fibrous Heterogeneous	65% Glass	35% Non-fibrous (other)	None Detected
MM-52 131300928-0095	Hall Lockers above Hall near Admin - Sheetrock with Paper	Gray Non-Fibrous Heterogeneous	15% Cellulose	85% Non-fibrous (other)	None Detected

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			% Fibrous	% Non-Fibrous	% Type
MM-52A 131300928-0096	Hall Lockers above Hall near Admin - Sheetrock with Paper	Gray Non-Fibrous Heterogeneous	15% Cellulose	85% Non-fibrous (other)	None Detected
MM-52B 131300928-0097	Hall Lockers above Hall near Admin - Sheetrock with Paper	Gray Non-Fibrous Heterogeneous	15% Cellulose	85% Non-fibrous (other)	None Detected
MM-52C 131300928-0098	Hall Lockers above Hall near Admin - Sheetrock with Paper	Gray Fibrous Homogeneous	15% Cellulose	85% Non-fibrous (other)	None Detected
MM-52D 131300928-0099	Hall Lockers above Hall near Admin - Sheetrock with Paper	Gray Fibrous Homogeneous	15% Cellulose	85% Non-fibrous (other)	None Detected
MM-53 131300928-0100	Admin - Grey Sink Coating	Gray Non-Fibrous Heterogeneous		85% Non-fibrous (other)	15% Chrysotile
MM-54 131300928-0101	Admin Office - Door Window Glaze	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-55 FT 131300928-0102	Nurse Area - 1x1 Light Tan FT	Tan Non-Fibrous Heterogeneous		95% Non-fibrous (other)	5% Chrysotile

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			% Fibrous	% Non-Fibrous	% Type
MM-55 Mastic 131300928-0103	Nurse Area - Black Mastic	Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-56 CB 131300928-0104	Nurse Area - Pink Covebase	Pink Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-56 Glue 131300928-0105	Nurse Area - Glue	Brown Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-57 FT 131300928-0106	Mechanical Rm G-12 - 9x9 Tan FT	Tan Non-Fibrous Heterogeneous		97% Non-fibrous (other)	3% Chrysotile
MM-57 Mastic 131300928-0107	Mechanical Rm G-12 - Black Mastic	Black/Yellow Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-58 FT 131300928-0108	Band Room - 9x9 Tan FT	Tan Non-Fibrous Heterogeneous		98% Non-fibrous (other)	2% Chrysotile
MM-58 Mastic 131300928-0109	Band Room - Black Mastic	Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-59 CB 131300928-0110	Band Room - Brown Covebase	Brown Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected

Analyst(s)

Kevin Pine (23)

Steve Grise (80)

Renaldo Drakes (75)

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Project: **Monument Mountain HS**

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 and/or EPA 600/M4-82-020 Method(s) using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
MM-59 Glue 131300928-0111	Band Room - Glue	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-60 131300928-0112	Library Office/Break Room - Laminate Counter	Gray/White Non-Fibrous Heterogeneous	15% Cellulose	85% Non-fibrous (other)	None Detected
MM-61 131300928-0113	Library Office/Break Room - Carpet Glue	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-62 131300928-0114	Library Office/Break Room - Grey Sink Coating	Gray Non-Fibrous Homogeneous		90% Non-fibrous (other)	10% Chrysotile
MM-63 131300928-0115	Library Entrance Door - Side Light Glaze	Brown Non-Fibrous Homogeneous		95% Non-fibrous (other)	5% Chrysotile
MM-64 131300928-0116	Rubber Ramp Library - Rubber Tread Glue	Brown Non-Fibrous Heterogeneous		100% Non-fibrous (other)	None Detected
MM-65 131300928-0117	H Wing Classrooms - Joint Compound/Sheetrock ck	Non-Fibrous Heterogeneous		100% Non-fibrous (other)	None Detected

Sheetrock-Like Material

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
MM-65A 131300928-0118	H Wing Classrooms - Joint Compound/Sheetrock	White Non-Fibrous Heterogeneous		100% Non-fibrous (other)	None Detected
			Sheetrock-Like Material.		
MM-65B 131300928-0119	H Wing Classrooms - Joint Compound/Sheetrock	White Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (other)	None Detected
			Sheetrock-Like Material.		
MM-66 131300928-0120	H Wing Hall Tiles - Levelastic under Hall Tiles	Gray Non-Fibrous Heterogeneous		100% Non-fibrous (other)	None Detected
MM-67 131300928-0121	H Wing Door Assembly - Glaze on Window Door	Brown Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-68 131300928-0122	H Wing - Classroom Door Glaze	Brown Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-69 131300928-0123	H Wing - Classroom Door Frame Caulk	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-70 FT 131300928-0124	H Wing Classrooms - 9x9 Light Tan FT	Gray Non-Fibrous Homogeneous		95% Non-fibrous (other)	5% Chrysotile

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
MM-70 Mastic 131300928-0125	H Wing Classrooms - Black Mastic	Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-71 FT 131300928-0126	H Wing Classrooms - 9x9 Dark Tan FT	Gray Non-Fibrous Homogeneous		95% Non-fibrous (other)	5% Chrysotile
MM-71 Mastic 131300928-0127	H Wing Classrooms - Black Mastic	Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-72 FT 131300928-0128	H Wing Hall - 1x1 Grey/Tan FT	Tan Non-Fibrous Homogeneous		95% Non-fibrous (other)	5% Chrysotile
MM-72 Mastic 131300928-0129	H Wing Hall - Black Mastic	Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-73 FT 131300928-0130	H Wing Classroom H08 - 9x9 Red FT	Brown Non-Fibrous Homogeneous		95% Non-fibrous (other)	5% Chrysotile
MM-73 Mastic 131300928-0131	H Wing Classroom H08 - Black Mastic	Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-74 131300928-0132	H Wing Room H08 - Laminate Counter Top	Brown/White Non-Fibrous Homogeneous	15% Cellulose	85% Non-fibrous (other)	None Detected

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Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 and/or EPA 600/M4-82-020 Method(s) using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
MM-75 131300928-0133	Room H08 - Textured SAT	White Fibrous Homogeneous	70% Min. Wool	30% Non-fibrous (other)	None Detected
MM-76 CB 131300928-0134	H Wing - Black/Brown Covebase	Brown Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-76 Glue 131300928-0135	H Wing - Glue	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-77 131300928-0136	Room F02 - Black Science Table	Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-78 131300928-0137	Room F24 - Black Science Table	Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-79 131300928-0138	Room F04 - Black Science Table	Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-80 131300928-0139	Room F21 - Black Science Table	Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-81 131300928-0140	F Wing Classrooms - Joint Compound Sheetrock	White Fibrous Homogeneous	5% Cellulose 2% Glass	93% Non-fibrous (other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
MM-81A 131300928-0141	F Wing Classrooms - Joint Compound Sheetrock	White Fibrous Homogeneous	5% Cellulose 2% Glass	93% Non-fibrous (other)	None Detected
MM-81B 131300928-0142	F Wing Classrooms - Joint Compound Sheetrock	Gray Fibrous Heterogeneous	10% Cellulose	90% Non-fibrous (other)	None Detected
MM-82 FT 131300928-0143	F Wing Classrooms - 1x1 Red FT	Brown Non-Fibrous Homogeneous		95% Non-fibrous (other)	5% Chrysotile
MM-82 Mastic 131300928-0144	F Wing Classrooms - Black Mastic	Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-83 FT 131300928-0145	F Wing Classroom F07 - 9x9 Tan/Brown FT	Tan Non-Fibrous Homogeneous		97% Non-fibrous (other)	3% Chrysotile
MM-83 Mastic 131300928-0146	F Wing Classroom F07 - Black Mastic	Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-84 131300928-0147	F Wing Classroom - Door Glaze	Gray/Yellow Non-Fibrous Heterogeneous		100% Non-fibrous (other)	None Detected
MM-85 131300928-0148	F Wing Ceiling - 1x1 Suspended Pinhole Ceiling Tile	White Fibrous Homogeneous	70% Min. Wool	30% Non-fibrous (other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
MM-86 131300928-0149	F Wing Ceiling - 1x1 Suspended Pinhole Ceiling Tile	White Fibrous Homogeneous	70% Min. Wool	30% Non-fibrous (other)	None Detected
MM-87 CB 131300928-0150	F Wing Hall - Black Covebase	Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-87 Glue 131300928-0151	F Wing Hall - Glue	Brown Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-88 131300928-0152	Classroom H,F & G - Vinyl Wall Covering	Tan Fibrous Homogeneous	25% Cellulose	75% Non-fibrous (other)	None Detected
MM-89 131300928-0153	Classroom H,F & G - Vinyl Wall Covering	Tan Fibrous Homogeneous	25% Cellulose	75% Non-fibrous (other)	None Detected
MM-90 131300928-0154	Classroom H,F & G - Vinyl Wall Covering	Tan Fibrous Homogeneous	25% Cellulose	75% Non-fibrous (other)	None Detected
MM-91 FT 131300928-0155	A Wing Hall - 1x1 FT	Beige Non-Fibrous Homogeneous		97% Non-fibrous (other)	3% Chrysotile
MM-91 Mastic 131300928-0156	A Wing Hall - Black Mastic	Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
MM-92 131300928-0157	A-08 Office - Interior Window Glaze	Gray Non-Fibrous Homogeneous		98% Non-fibrous (other)	2% Chrysotile
MM-93 131300928-0158	Main Entrance Exterior Concrete - Expansion Joint Walkway	Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-94 131300928-0159	Exterior Windows - Grey Caulk	Gray Non-Fibrous Homogeneous		98% Non-fibrous (other)	2% Chrysotile
MM-94A 131300928-0160	Exterior Windows - Grey Caulk				Stop Positive (Not Analyzed)
MM-94B 131300928-0161	Exterior Windows - Grey Caulk				Stop Positive (Not Analyzed)
MM-94C 131300928-0162	Exterior Windows - Grey Caulk				Stop Positive (Not Analyzed)
MM-94D 131300928-0163	Exterior Windows - Grey Caulk				Stop Positive (Not Analyzed)
MM-94E 131300928-0164	Exterior Windows - Grey Caulk				Stop Positive (Not Analyzed)

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
MM-94F <i>131300928-0165</i>	Exterior Windows - Grey Caulk				Stop Positive (Not Analyzed)
MM-95 <i>131300928-0166</i>	Exterior Doors - Door Frame Caulk; Pink/Red	Red Non-Fibrous Homogeneous		98% Non-fibrous (other)	2% Chrysotile
MM-95A <i>131300928-0167</i>	Exterior Doors - Door Frame Caulk; Pink/Red				Stop Positive (Not Analyzed)
MM-95B <i>131300928-0168</i>	Exterior Doors - Door Frame Caulk; Pink/Red				Stop Positive (Not Analyzed)
MM-95C <i>131300928-0169</i>	Exterior Doors - Door Frame Caulk; Pink/Red				Stop Positive (Not Analyzed)
MM-95D <i>131300928-0170</i>	Exterior Doors - Door Frame Caulk; Pink/Red				Stop Positive (Not Analyzed)
MM-96 FT <i>131300928-0171</i>	Bathroom Typical - Floor Tile	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-96 Grout <i>131300928-0172</i>	Bathroom Typical - Grout	Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected

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Project: **Monument Mountain HS**

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 and/or EPA 600/M4-82-020 Method(s) using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
MM-97 WT 131300928-0173	Bathroom Typical - Wall Tile	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-97 Grout 131300928-0174	Bathroom Typical - Grout	Tan Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-98 FT 131300928-0175	Locker Room - Floor Tile	Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-98 Grout 131300928-0176	Locker Room - Grout	Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-99 WT 131300928-0177	Locker Room - Wall Tile	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-99 Grout 131300928-0178	Locker Room - Grout	Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-100 131300928-0179	Gym Floor - Material under Gym Floor	Black Fibrous Homogeneous	70% Cellulose	30% Non-fibrous (other)	None Detected
MM-101 131300928-0180	Behind Masonry Exterior - Weeping Material	Tan Fibrous Homogeneous	70% Cellulose	30% Non-fibrous (other)	None Detected

Analyst(s)

Kevin Pine (23)

Steve Grise (80)

Renaldo Drakes (75)

Renaldo Drakes, Laboratory Manager
or other approved signatory

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Samples analyzed by EMSL Analytical, Inc. Woburn, MA NVLAP Lab Code 101147-0, CT PH-0315, MA AA000188, RI AAL-10773 and VT AL357102

Initial report from 03/14/2013 18:26:06



EMSL Analytical, Inc.

7 Constitution Way, Suite 107, Woburn, MA 01801

Phone/Fax: (781) 933-8411 / (781) 933-8412

bostonlab@emsl.com

EMSL Order: 131300928

CustomerID: CDWC26

CustomerPO:

ProjectID:

Attn: **Susan Cahalan**
CDW Consultants
40 Speen Street
Suite 301
Framingham, MA 01701

Phone: (508) 875-2657
Fax:
Received: 03/08/13 12:35 PM
Analysis Date: 3/14/2013
Collected:

Project: **Monument Mountain HS**

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 and/or EPA 600/M4-82-020 Method(s) using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
MM-101A <i>131300928-0181</i>	Behind Masonry Exterior - Weeping Material	Tan Fibrous Homogeneous	70% Cellulose	30% Non-fibrous (other)	None Detected
MM-101B <i>131300928-0182</i>	Behind Masonry Exterior - Weeping Material	Tan Fibrous Homogeneous	70% Cellulose	30% Non-fibrous (other)	None Detected
MM-101C <i>131300928-0183</i>	Behind Masonry Exterior - Weeping Material	Tan Fibrous Homogeneous	70% Cellulose	30% Non-fibrous (other)	None Detected
MM-101D <i>131300928-0184</i>	Behind Masonry Exterior - Weeping Material	White Fibrous Heterogeneous	70% Synthetic	30% Non-fibrous (other)	None Detected
MM-G-1 <i>131300928-0185</i>	Greenhouse & Attached House - Laminate Counter	Brown/White Non-Fibrous Homogeneous	15% Cellulose	85% Non-fibrous (other)	None Detected
MM-G-2 <i>131300928-0186</i>	Greenhouse & Attached House - 1x1 Tile Ceiling above New Susp Tile	Brown/White Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (other)	None Detected
MM-G-3 <i>131300928-0187</i>	Greenhouse & Attached House - Transite Plant Tables	Gray Non-Fibrous Homogeneous		85% Non-fibrous (other)	15% Chrysotile

Analyst(s)

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Phone: (508) 875-2657
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 Received: 03/08/13 12:35 PM
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 Collected:

Project: **Monument Mountain HS**

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 and/or EPA 600/M4-82-020 Method(s) using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
MM-G-4 131300928-0188	Greenhouse & Attached House - Black Counter & Sink	Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MM-G-5 131300928-0189	Greenhouse & Attached House - Black Paper behind Insulation	Black Fibrous Homogeneous	20% Glass	80% Non-fibrous (other)	None Detected
MM-G-6 131300928-0190	Greenhouse & Attached House - Sheet Flooring; Multi Color	White Fibrous Homogeneous	20% Cellulose 5% Glass	75% Non-fibrous (other)	None Detected
MM-G-7 131300928-0191	Greenhouse & Attached House - Window Caulk; Greenhouse	Tan Non-Fibrous Homogeneous		97% Non-fibrous (other)	3% Chrysotile
MM-G-7A 131300928-0192	Greenhouse & Attached House - Window Caulk; Greenhouse				Stop Positive (Not Analyzed)
MM-G-8 131300928-0193	Greenhouse & Attached House - Window Glaze; Greenhouse	Tan Non-Fibrous Homogeneous		95% Non-fibrous (other)	5% Chrysotile
MM-G-8A 131300928-0194	Greenhouse & Attached House - Window Glaze; Greenhouse				Stop Positive (Not Analyzed)

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Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 and/or EPA 600/M4-82-020 Method(s) using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
MM-Roof-1 <small>131300928-0195</small>	Roof; Main School - Roof Core	Brown/Black/Yellow Fibrous Heterogeneous	60%	Cellulose	40% Non-fibrous (other) None Detected
MM-Roof-2 <small>131300928-0196</small>	Roof; Main School - Roof Core	Brown/Black/Yellow Fibrous Heterogeneous	30%	Cellulose	70% Non-fibrous (other) None Detected
MM-Roof-3 <small>131300928-0197</small>	Roof; Main School - Roof Core	Black/Yellow Fibrous Heterogeneous	25%	Cellulose	75% Non-fibrous (other) None Detected
MM-Roof-4 <small>131300928-0198</small>	Roof; Main School - Roof Core	Brown/Black/Yellow Fibrous Heterogeneous	60%	Cellulose	40% Non-fibrous (other) None Detected
MM-Roof-5 <small>131300928-0199</small>	Curb at Chimney Roof - Curb	Black Non-Fibrous Homogeneous			100% Non-fibrous (other) None Detected
MM-Roof-6 <small>131300928-0200</small>	Roof over Gym - Roof Core	Brown/Black/Yellow Fibrous Heterogeneous	35%	Cellulose	65% Non-fibrous (other) None Detected
MM-Roof-7 <small>131300928-0201</small>	At Metal Roof Panels - Caulk; Red/Grey	Gray Non-Fibrous Homogeneous			100% Non-fibrous (other) None Detected

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Initial report from 03/14/2013 18:26:06



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EMSL Order:	131300928
CustomerID:	CDWC26
CustomerPO:	
ProjectID:	

Attn: Susan Cahalan CDW Consultants 40 Speen Street Suite 301 Framingham, MA 01701	Phone: (508) 875-2657 Fax: Received: 03/08/13 12:35 PM Analysis Date: 3/14/2013 Collected:
Project: Monument Mountain HS	

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 and/or EPA 600/M4-82-020 Method(s) using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
MM-Roof-8 <i>131300928-0202</i>	Under Metal Panels - Backing Material	Brown Fibrous Homogeneous	40% Cellulose	60% Non-fibrous (other)	None Detected
MM-Roof-9 <i>131300928-0203</i>	Shed - Roof Shingle	Brown/Black Fibrous Homogeneous	15% Glass	85% Non-fibrous (other)	None Detected

Analyst(s) _____

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Asbestos Bulk Building Material Chain of Custody

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EMSL Analytical, Inc.
Suite 107
7 Constitution Way
Woburn, MA 01801
PHONE: (781) 933-8411
FAX: (781) 933-8412

Company: CDW Consultants		EMSL-Bill to: <input checked="" type="checkbox"/> Same <input type="checkbox"/> Different <small>If Bill to is Different note instructions in Comments**</small>	
Street: 40 Speen Street Suite 301		<small>Third Party Billing requires written authorization from third party</small>	
City: Framingham	State/Province: MA	Zip/Postal Code: 01701	Country: United States
Report To (Name): susan cahalan		Telephone #: 5088752657	
Email Address: scahalan@cdwconsultants.com		Fax #:	Purchase Order:
Project Name/Number: MM		Please Provide Results: <input type="checkbox"/> Fax <input checked="" type="checkbox"/> Email <input type="checkbox"/> Mail	
U.S. State Samples Taken: MA		CT Samples: <input type="checkbox"/> Commercial/Taxable <input type="checkbox"/> Residential/Tax Exempt	

Turnaround Time (TAT) Options* - Please Check

3 Hour
 6 Hour
 24 Hour
 48 Hour
 72 Hour
 96 Hour
 1 Week
 2 Week

*For TEM Air 3 hr through 6 hr, please call ahead to schedule. *There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide.

<p>PLM - Bulk (reporting limit)</p> <p><input checked="" type="checkbox"/> PLM EPA 600/R-93/116 (<1%) 2 3/8/13</p> <p><input type="checkbox"/> PLM EPA NOB (<1%)</p> <p>Point Count <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%)</p> <p>Point Count w/Gravimetric <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%)</p> <p><input type="checkbox"/> NIOSH 9002 (<1%)</p> <p><input type="checkbox"/> NY ELAP Method 198.1 (friable in NY)</p> <p><input type="checkbox"/> NY ELAP Method 198.6 NOB (non-friable-NY)</p> <p><input type="checkbox"/> OSHA ID-191 Modified</p> <p><input type="checkbox"/> Standard Addition Method</p>	<p>TEM - Bulk</p> <p><input type="checkbox"/> TEM EPA NOB - EPA 600/R-93/116 Section 2.5.5.1</p> <p><input type="checkbox"/> NY ELAP Method 198.4 (TEM)</p> <p><input type="checkbox"/> Chatfield Protocol (semi-quantitative)</p> <p><input type="checkbox"/> TEM % by Mass - EPA 600/R-93/116 Section 2.5.5.2</p> <p><input type="checkbox"/> TEM Qualitative via Filtration Prep Technique</p> <p><input type="checkbox"/> TEM Qualitative via Drop Mount Prep Technique</p> <p style="text-align: center;">Other</p> <p><input type="checkbox"/></p>
---	--

Check For Positive Stop - Clearly Identify Homogenous Group Date Sampled: 2/19-2/20/2013

Samplers Name: Susan Cahalan Samplers Signature: *[Signature]*

1 MM-
2 "
3 "
4 "
5 "
6 "
7 "
8 "
9 "
10 "

Sample #	HA #	Sample Location	Material Description
1		Boiler Room	4" Ø Hard fitting white/grey
1A		Boiler Room	4" Ø Hard fitting white/grey
1B		Boiler Room	4" Ø Hard fitting white/grey
2		Boiler Room	4" Ø RT-paper over fiber glass grey
2A		Boiler Room	" " "
2B		Boiler Room	" " "
3		Boiler Room	7" Ø hard fitting Painted black on orange FG pipe
3A		Boiler Room	" " "
3B		Boiler Room	" " "
4		Boiler Room	4" Ø orange Pipe insulation

Client Sample # (s): _____ Total # of Samples: 203

Relinquished (Client): *[Signature]* Date: 3/7/2013 Time: _____

Received (Lab): _____ Date: _____ Time: _____

Comments/Special Instructions:
MM = Monument Mountain HS

FedEx# 7949 1450 8969

RECEIVED

MAR 08 2013

By SA 1235



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Monument Mountain

**Asbestos Bulk Building Material
Chain of Custody**

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131300928

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Suite 107
7 Constitution Way
Woburn, MA 01801
PHONE: (781) 933-8411
FAX: (781) 933-8412

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Sample #	HA #	Sample Location	Material Description
11 MM- 5		Boiler Room	Boiler Insulation / gray / white
12 " 5A		Boiler Room	" "
13 " 5B		Boiler Room	" "
14 " 5C		Boiler Room	" "
15 " 5D		Boiler Room	" "
16 " 6		Boiler Room	Insulation on boiler ribs ^{Boiler gray} underneath
17 " 6A		Boiler Room	" "
18 " 6B		Boiler Room	" "
19 " 7		Boiler Room	Boiler breeching gray
20 " 7A		Boiler Room	" "
21 " 7B		Boiler Room	" "
22 " 8		Boiler Room	Black berm lining in front of boiler
23 " 9		Boiler Room	Boiler Room office window glaze
24 " 10		Boiler Room - ^{unused} Boiler	Inside insulation ^{old unused} gray boiler
25 " 11		Boiler Room ^{old unused} Boiler	Boiler roping - gray
26 " 12		Boiler Room - ^{Small metal plates} lying on floor	Roping - gray
27-28-29-30-31-32 " 13		Hall near boiler room	1'x1' tanish gray FT and ^{Black} mastic
" 13A		Hall near boiler room	" "
" 13B		Hall near boiler room	" "
33 " 14		Door Assembly outside ^{Hall} boiler room	Window glaze on door
34 " 15		Hall outside Boiler Room	Sheetrock + paper above cmu ^{yellow -} white
35 " 15A		Hall outside Boiler Room	" "
36 " 15B		Hall outside Boiler Room	" "
37 " 16		Hall outside Boiler Room	" "

*Comments/Special Instructions:
MM = Monument Mountain HS

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 By JK 12:35



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Monument Mountain
Asbestos Bulk Building Material
Chain of Custody

EMSL Order Number (Lab Use Only):

1313 00928

EMSL Analytical, Inc.
Suite 107
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Woburn, MA 01801
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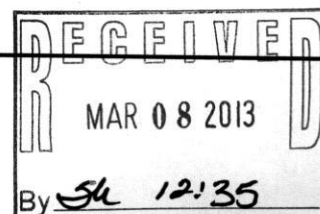
Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Sample #	HA #	Sample Location	Material Description
38-39 MM	16	Hall outside boiler room	Brown concrete + yellow glue
40 "	17	Hall outside Boiler Room	2'x2' gray SAT
41 "	18	Cafeteria	1'x1' pinhole ceiling tile ^{gray-white} suspended
42 "	18A	Cafeteria	" "
43 "	18B	Cafeteria	" "
44 "	18C	Cafeteria	" "
45 "	18D	Cafeteria	" "
46 "	19	Cafeteria	Sheet rock with ^{yellow-white} paper above CMU
47 "	19A	Cafeteria	" "
48 "	19B	Cafeteria	" "
49 "	20	Cafeteria inside of exterior window	Gray window caulk
50 "	21	Kitchen	Cementitious material @ fume hood
51-52 "	22	Kitchen	Wall tile + grout - Blue
53-54 "	23	Kitchen	Floor tile + grout - Red
55 "	24	Kitchen	Door frame caulk
56 "	25	Kitchen office window	window glaze
57 "	26	Kitchen office door	Window glaze
58 "	27	Custodial break room	Heating unit insulation ^{gray + yellow}
59 "	28	Custodial break room	flex connector or heating unit ^{gray white}
60 "	29	Custodial break room	Hard fitting on heating unit
61 "	30	Upstairs Gym announcement booth	Hard ceiling upstairs gym white
62 "	31	Kitchen	Hard ceiling white
63 "	32	Gym floor	Mastic mixed with wood dust
64 "	33	Boiler room door	Insulation inside door

*Comments/Special Instructions:

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Page 3 of 9 pages





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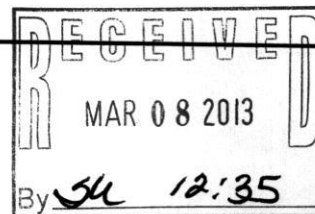
Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Sample #	HA #	Sample Location	Material Description
65 mm-34		Kitchen- material in Door	2 Door insulation (inside)
66 35		Auditorium Back Wall	1'x1' Acoustical Ceiling Tile
67 36		Auditorium Back wall	Insulation with black Coating
68 37		Auditorium	Ceiling plaster
69 37A		Auditorium	" "
70 37B		Auditorium	" "
71 37C		Auditorium	" "
72 37D		Auditorium	" "
73 38		Auditorium	Carpet glue - yellow
74 38A		Auditorium	" "
75 38B		Auditorium	" "
76 39		Auditorium under stage	Sheet Material beneath stage
77 40		Auditorium above Catwalk	Red Curtain
78 41		Auditorium Stage	Black Curtain
79 42		Catwalk Center auditorium	Black painted Sheetrock Panels
80 42A		" "	" "
81 42B		" "	" "
82 43		Mech Room off upper auditorium	flex connector
83 44		Mech Room off upper auditorium	2" Hard fitting on fiberglass pipe
84 45		Greenhouse House	Roof Shingle + felt
85 46		Exterior Masonry weephole	Wicking Material
86 47		Admin + Carpet Halls	Carpet glue + Remnant Mastic
87 47A		Admin + Carpet Halls	" "
88 47B		Admin + Carpet Halls	" "

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Page 4 of 9 pages





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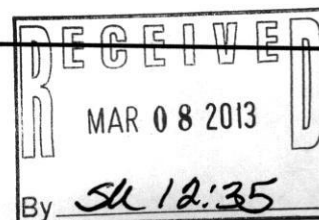
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Sample #	HA #	Sample Location	Material Description
89 MM- 47C		Admin + Carpet Halls	Carpet glue + Lemmon Mastic
90 47D		Admin + Carpet Halls	" " "
91 48		Main Entrance Red Door	Glaze on Door window
92 49		Main Entrance Red Door	Glaze on Door Sidelight
93 50		Admin windows Interior	Window glaze interior
94 51		Admin	1'x1' ceiling tile suspended
95 52		Hall Lockers Above Hall Near Admin	Sheet Rock with paper
96 52A		" "	" "
97 52B		" "	" "
98 52C		" "	" "
99 52D		" "	" "
100 53		Admin	Gray Sink Coating
101 54		Admin office	Door window glaze
102-103 55		Nurse Area	1'x1' Light Tan floor tile + Black Mastic
104-105 56		Nurse Area	Pink Covebase + Glue
106-107 57		Mechanical Room 6-12	9" x 9" Tan FT + Black Mastic
108-109 58		Band Room	9" x 9" Tan FT + Black Mastic
110-111 59		Band Room	Brown Covebase + glue
112 60		Library office/break room	Laminate Counter
113 61		Library office/break room	Carpet glue
114 62		Library office/break room	Gray Sink Coating
115 63		Library Entrance door	Sidelight glaze
116 64		Rubber Ramp Library	Rubber Tread glue
117 65		H wing classrooms	JOINT Compound/Sheet Rock

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Asbestos Bulk Building Material Chain of Custody

EMSL Order Number (Lab Use Only):

131300928

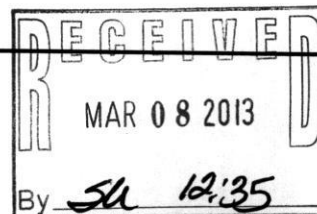
EMSL Analytical, Inc.
Suite 107
7 Constitution Way
Woburn, MA 01801
PHONE: (781) 933-8411
FAX: (781) 933-8412

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Sample #	HA #	Sample Location	Material Description
118 MM-		H wing classrooms	Joint compound / Sheet rock
119		" "	Joint compound / Sheet rock
120		levelastic under Hall Tiles H wing	levelastic under hall tiles
121		H wing door Assembly	Glaze on window Door
122		H wing	Classroom Door glaze
123		H wing	Classroom Door frame caulk
124-125		H wing classrooms	9"x9" light tan FT + Black mastic
126-127		H wing classroom	9"x9" Dark Tan FT + Black mastic
128-129		H wing Hall	1'x1' gray/tan FT + Black mastic
130-131		H wing classroom Ho8	9"x9" Red FT + Black mastic
132		H wing Room Ho8	Laminate Counter top
133		Room Ho8	Textured SAT
134-135		H wing	Black/Brown Onobase + glue
136		Room F22	Black Science table
137		Room F24	Black Science table
138		Room F24	Black Science table
139		Room F21	Black Science table
140		F wing classrooms	Joint compound Sheet rock
141		F wing classrooms	Joint compound Sheet rock
142		F wing classrooms	Joint compound Sheet rock
143-144		F wing classroom	1'x1' Red FT + Black Mastic
145-146		F wing classroom fo-7	9"x9" tan/Brown streaked FT + Black mastic
147		F wing Classroom Door glaze	Door glaze
148		F wing ceiling Ceiling	1'x1' pinhole suspended ceiling tile

*Comments/Special Instructions:
MM = Monument Mountain HS

Page 6 of 9 pages





EMSL ANALYTICAL, INC.
LABORATORY-PRODUCTS-TRAINING

Asbestos Bulk Building Material Chain of Custody

EMSL Order Number (Lab Use Only):

131300928

EMSL Analytical, Inc.

Suite 107

7 Constitution Way

Woburn, MA 01801

PHONE: (781) 933-8411

FAX: (781) 933-8412

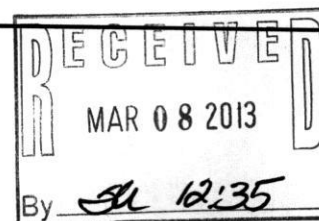
Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Sample #	HA #	Sample Location	Material Description
149 MM-	86	F wing ceiling	1'x1' pinhole suspended ceiling tile
150-151	87	F wing Hall	Black Covebase + glue
152	88	Classroom A + F + G wing	Vinyl wall covering
153	89	" "	" "
154	90	" "	" "
155-156	91	A wing Hall	1'x1' FA + Black mastic
157	92	A-08 office	Interior window glaze
158	93	Main entrance exterior Concrete	expansion joint walkway
159	94	Exterior windows	Gray Caulk
160	94A	" "	" "
161	94B	" "	" "
162	94C	" "	" "
163	94D	" "	" "
164	94E	" "	" "
165	94F	" "	" "
166	95	Exterior Doors	Door frame Caulk - Pink Red
167	95A	" "	" "
168	95B	" "	" "
169	95C	" "	" "
170	95D	" "	" "
171-172	96	Bathroom typical	Floor tile + grout
173-174	97	Bathroom typical	Wall tile + grout
175-176	98	Locker room	Floor tile + grout
177-178	99	Locker room	Wall tile + grout

*Comments/Special Instructions:

MM = Monument Mountain HS

Page 7 of 9 pages





EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Bulk Building Material Chain of Custody

EMSL Order Number (Lab Use Only):

131300928

EMSL Analytical, Inc.
Suite 107
7 Constitution Way
Woburn, MA 01801
PHONE: (781) 933-8411
FAX: (781) 933-8412

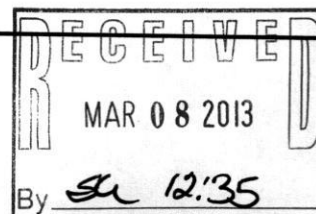
Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Sample #	HA #	Sample Location	Material Description
179 MM-100		Gym floor	Material under gym floor
180		Behind masonry exterior	weeping material
181		" " "	" "
182		" " "	" "
183		" " "	" "
184		" " "	" "
185		Greenhouse + Attached house	Laminate counter
186		" "	1' X 1' tile ceiling Above ^{new} suspended tile
187		" "	"transite" plant tables
188		" "	Black counter + sink
189		" "	Black paper behind insulation
190		" "	Sheet flooring ^{Multi color}
191+19		" "	Window caulk greenhouse
192		" "	Window caulk greenhouse
193		" "	Window glaze greenhouse
194		" "	Window glaze greenhouse
195		Roof, Main School	Roof core
196		" "	Roof core
197		" "	Roof core
198		" "	Roof core
199		Curb at chimney roof	Curb
200		Roof over gym	Roof core
201		Caulk @ metal roof panels	Caulk - red/gray
202		Roof under metal panels	Backing material

*Comments/Special Instructions:

MM = Monument Mountain HS

Page 8 of 9 pages



Appendix G

Lead Laboratory Report

**EMSL Analytical, Inc.**

200 Route 130 North, Cinnaminson, NJ 08077

Phone/Fax: (856) 303-2500 / (856) 786-5974

<http://www.emsl.com>cinnaminsonleadlab@emsl.com

EMSL Order: 201302216

CustomerID: CDW/C26

CustomerPO:

ProjectID:

Attn: **Susan Cahalan**
CDW Consultants
40 Speen Street
Suite 301
Framingham, MA 01701

Phone: (508) 875-2657
 Fax:
 Received: 03/12/13 9:51 AM
 Collected: 2/26/2013

Project: **Monument Mountain HS****Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B*/7000B)**

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
LP-1 Site: Paint on Metal Panels @ Roofline	0001	2/26/2013	3/12/2013	0.96 % wt
LP-1A Site: Paint on Metal Panels @ Roofline	0002	2/26/2013	3/12/2013	1.2 % wt
LP-1B Site: Paint on Metal Panels @ Roofline	0003	2/26/2013	3/12/2013	1.0 % wt
LP-2 Site: Tan Paint on Gym Door	0004	2/26/2013	3/12/2013	4.2 % wt
LP-3 Site: Tan Door Assembly Paint	0005	2/26/2013	3/12/2013	0.46 % wt
LP-4 Site: Red Paint on Entry Doors	0006	2/26/2013	3/12/2013	1.3 % wt
LP-5 Site: White House Paint-Attached to Greenhouse	0007	2/26/2013	3/12/2013	<0.010 % wt

Julie Smith - Laboratory Director
 NJ-NELAP Accredited:03036
 or other approved signatory

Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. The QC data associated with these results included in this report meet the method QC requirements, unless specifically indicated otherwise. Unless noted, results in this report are not blank corrected. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. * slight modifications to methods applied. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NELAP Certifications: NJ 03036, NY 10872, PA 68-00367, AIHA-LAP, LLC ELLAP 100194, A2LA 2845.01

Initial report from 03/13/2013 13:42:36



EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Chain of Custody
EMSL Order Number (Lab Use Only):

201302216

Cinnaminson, NJ 08077
PHONE: 1-800-220-3675
FAX: (856) 786-5974

Company : cdw consultants		EMSL-Bill to: <input checked="" type="checkbox"/> Same <input type="checkbox"/> Different If Bill to is Different note instructions in Comments**	
Street: 40 speen street		Third Party Billing requires written authorization from third party	
City: framingham	State/Province: MA	Zip/Postal Code: 01756	Country: United States
Report To (Name): susan cahalan		Telephone #: 5088752657	
Email Address: scahalan@cdwconsultants.com		Fax #:	Purchase Order:
Project Name/Number: Monument Mountain HS		Please Provide Results: <input type="checkbox"/> FAX <input checked="" type="checkbox"/> E-mail <input type="checkbox"/> Mail	
U.S. State Samples Taken: MA		Connecticut Samples: Commercial Residential	

Turnaround Time (TAT) Options* - Please Check

- 3 Hour
 6 Hour
 24 Hour
 48 Hour
 72 Hour
 96 Hour
 1 Week
 2 Week

*For RUSH TAT's Please Call Ahead to Confirm Lab Hours and Availability. Not all TAT options are valid for every test. Materials Science and IAQ TATs are in Business Days rather than Hours (i.e. 24 Hour = End of Next Business Day)

Asbestos

PCM - Air <input type="checkbox"/> NIOSH 7400 <input type="checkbox"/> w/ 8hr. TWA TEM - Air <input type="checkbox"/> 4-4.5hr TAT(AHERA ONLY) <input type="checkbox"/> AHERA 40 CFR, Part 763 <input type="checkbox"/> NIOSH 7402 <input type="checkbox"/> EPA Level II <input type="checkbox"/> ISO 10312 TEM - Water Fibers ≥10µm <input type="checkbox"/> Waste <input type="checkbox"/> Drinking All Fiber Sizes <input type="checkbox"/> Waste <input type="checkbox"/> Drinking	PLM - Bulk <input type="checkbox"/> PLM EPA 600/R-93/116 <input type="checkbox"/> PLM EPA NOB (<1%) <input type="checkbox"/> NYS 198.1 (friable-NY) <input type="checkbox"/> NYS 198.6 (non-friable-NY) Point Count <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%) Point Count w/ Gravimetric <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%) TEM - Dust <input type="checkbox"/> Microvac - ASTM D 5755 <input type="checkbox"/> Wipe-ASTM D6480	TEM - Bulk <input type="checkbox"/> TEM EPA NOB <input type="checkbox"/> NYS NOB 198.4 (non-friable-NY) <input type="checkbox"/> Chatfield SOP Soil/Rock/Vermiculite <input type="checkbox"/> PLM CARB 435 - A (0.25% sensitivity) <input type="checkbox"/> PLM CARB 435 - B (0.1% sensitivity) <input type="checkbox"/> TEM CARB 435 - B (0.1% sensitivity) <input type="checkbox"/> EPA Reg. 1 Screening Protocol (Qualitative) Other:
--	---	--

Lead (Pb)

Materials Science

Flame Atomic Absorption <input checked="" type="checkbox"/> Chips SW846-7000B or AOAC 974.02 <input type="checkbox"/> Soil SW846-7000B/7420 <input type="checkbox"/> Air NIOSH 7082 <input type="checkbox"/> Wastewater SM3111B or SW846-7000B/7420 <input type="checkbox"/> ASTM Wipe SW846-7000B/7420 <input type="checkbox"/> non ASTM Wipe SW846-7000B/7420 <input type="checkbox"/> TCLP SW846-1311/7420/SM 3111B Graphite Furnace Atomic Absorption <input type="checkbox"/> Soil SW846-7421 <input type="checkbox"/> Wastewater EPA 200.9 <input type="checkbox"/> Air NIOSH 7105 <input type="checkbox"/> Drinking Water EPA 200.9	ICP <input type="checkbox"/> Air NIOSH 7300 Modified <input type="checkbox"/> non ASTM Wipe SW846-6010B or C <input type="checkbox"/> ASTM Wipe SW846-6010B or C <input type="checkbox"/> Soil SW846-6010 B or C <input type="checkbox"/> Waste Water SW846-6010B or C <input type="checkbox"/> TCLP SW846-6010B or C Other: <input type="checkbox"/>	<input type="checkbox"/> Common Particle ID (large particles) <input type="checkbox"/> Full Particle ID (environmental dust) <input type="checkbox"/> Basic Material ID (solids) <input type="checkbox"/> Advanced Material ID <input type="checkbox"/> Physical Testing (Tensile, Compression) <input type="checkbox"/> Combustion-by-products (soot, char, etc.) <input type="checkbox"/> X-Ray Fluorescence (elem. analysis) <input type="checkbox"/> X-Ray Diffraction (Crystalline Part.) <input type="checkbox"/> MMVF's (Fibrous glass, RCF's) <input type="checkbox"/> Particle Size (sieve/microscopy/laser) <input type="checkbox"/> Combustible Dust <input type="checkbox"/> Petrographic Examination Other: <input type="checkbox"/>
--	--	--

Microbiology

Wipe and Bulk Samples <input type="checkbox"/> Mold & Fungi - Direct Examination <input type="checkbox"/> Mold & Fungi Culture (Genus Only) <input type="checkbox"/> Mold & Fungi Culture (Genus & Species) <input type="checkbox"/> Bacterial Count & ID (Up to Three Types) <input type="checkbox"/> Bacterial Count & ID (Up to Five Types) <input type="checkbox"/> MRSA <input type="checkbox"/> Pseudomonas aeruginosa Water Samples <input type="checkbox"/> Total Coliform & E.coli (P/A) <input type="checkbox"/> Fecal Coliform (SM 9222D) <input type="checkbox"/> Sewage Screen <input type="checkbox"/> Heterotrophic Plate Count (SM 9215)	Air Samples <input type="checkbox"/> Mold & Fungi (Spore Trap) <input type="checkbox"/> Mold & Fungi Culture (Genus Only) <input type="checkbox"/> Mold & Fungi (Genus & Species) <input type="checkbox"/> Bacterial Culture & ID (Up to Three Types) <input type="checkbox"/> Bacterial Culture & ID (Up to Five Types) <input type="checkbox"/> Endotoxin Testing Real Time Q-PCR (See Analytical Guide for Code) Code: Legionella <input type="checkbox"/> Level 1 <input type="checkbox"/> Level 2 <input type="checkbox"/> Level 3 <input type="checkbox"/> Level 4 Other: <input type="checkbox"/>	IAQ Nuisance Dust NIOSH <input type="checkbox"/> 0500 <input type="checkbox"/> 0600 Airborne Dust <input type="checkbox"/> PM10 <input type="checkbox"/> TSP Silica Analysis: <input type="checkbox"/> All Species Silica Analysis - Single Species <input type="checkbox"/> Alpha Quartz <input type="checkbox"/> Cristobalite <input type="checkbox"/> Tridymite <input type="checkbox"/> HVAC Efficiency <input type="checkbox"/> Carbon Black <input type="checkbox"/> Airborne Oil Mist Radon Testing: Call for Kit and COC Other: <input type="checkbox"/>
--	---	--

****Comments/Special Instructions:**

Client Sample #'s	Date: 3/11/13	Total # of Samples:
Relinquished (Client):	Date: 3/18/13	Time:
Received (Lab):		Time: 9:51

Analysis Completed in Accordance with EMSL's Terms and Conditions located in the Analytical Price Guide

RECEIVED
 MAR 22 A 9:51
 CINNAMINSON, NJ

Appendix H

PCB Laboratory Report



Friday, March 15, 2013

Ms. Kathy Campbell, PE, LSP, LEED, AP
CDW Consultants, Inc
40 Speen Street
Suite 301
Framingham, MA 01701

Project ID: MONUMENT MOUNTAIN HS
Sample ID#s: BD45269 - BD45277

This laboratory is in compliance with the NELAC requirements of procedures used except where indicated.

This report contains results for the parameters tested, under the sampling conditions described on the Chain Of Custody, as received by the laboratory.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

If you have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext. 200.

Sincerely yours,

A handwritten signature in black ink that reads "Phyllis Shiller". The signature is written in a cursive style.

Phyllis Shiller
Laboratory Director

NELAC - #NY11301
CT Lab Registration #PH-0618
MA Lab Registration #MA-CT-007
ME Lab Registration #CT-007
NH Lab Registration #213693-A,B

NJ Lab Registration #CT-003
NY Lab Registration #11301
PA Lab Registration #68-03530
RI Lab Registration #63
VT Lab Registration #VT11301



Environmental Laboratories, Inc.

587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

March 15, 2013

FOR: Ms. Kathy Campbell, PE, LSP, LEED, AP
CDW Consultants, Inc
40 Speen Street
Suite 301
Framingham, MA 01701

Sample Information

Matrix: SOLID
Location Code: CDW-PCB
Rush Request: Standard
P.O.#:

Custody Information

Collected by:
Received by: SW
Analyzed by: see "By" below

Date

02/26/13
03/12/13

Time

0:00
15:50

Laboratory Data

SDG ID: GBD45269
Phoenix ID: BD45269

Project ID: MONUMENT MOUNTAIN HS
Client ID: PCB-1 CAULK AT BOTTOM WINDOW CAFE

Parameter	Result	RL/ PQL	Units	Date/Time	By	Reference
Percent Solid	100	1	%	03/12/13		E160.3
Caulk Extraction for PCB	Completed			03/12/13	PP/K	SW3540C

PCB (Soxhlet)

PCB-1016	ND	0.3	mg/Kg	03/14/13	AW	3540C/8082
PCB-1221	ND	0.3	mg/Kg	03/14/13	AW	3540C/8082
PCB-1232	ND	0.3	mg/Kg	03/14/13	AW	3540C/8082
PCB-1242	ND	0.3	mg/Kg	03/14/13	AW	3540C/8082
PCB-1248	ND	0.3	mg/Kg	03/14/13	AW	3540C/8082
PCB-1254	ND	0.3	mg/Kg	03/14/13	AW	3540C/8082
PCB-1260	2.8	0.3	mg/Kg	03/14/13	AW	3540C/8082
PCB-1262	ND	0.3	mg/Kg	03/14/13	AW	3540C/8082
PCB-1268	ND	0.3	mg/Kg	03/14/13	AW	3540C/8082

QA/QC Surrogates

% DCBP	76		%	03/14/13	AW	30 - 150 %
% TCMX	89		%	03/14/13	AW	30 - 150 %

Parameter	Result	RL/ PQL	Units	Date/Time	By	Reference
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RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

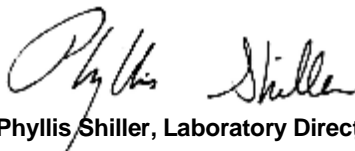
Comments:

%SOLIDS ASSUMED 100%

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

This report must not be reproduced except in full as defined by the attached chain of custody.



Phyllis Shiller, Laboratory Director

March 15, 2013

Reviewed and Released by: Deb Lawrie, Project Manager



Environmental Laboratories, Inc.

587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

March 15, 2013

FOR: Ms. Kathy Campbell, PE, LSP, LEED, AP
CDW Consultants, Inc
40 Speen Street
Suite 301
Framingham, MA 01701

Sample Information

Matrix: SOLID
Location Code: CDW-PCB
Rush Request: Standard
P.O.#:

Custody Information

Collected by:
Received by: SW
Analyzed by: see "By" below

Date Time

02/26/13 0:00
03/12/13 15:50

Laboratory Data

SDG ID: GBD45269
Phoenix ID: BD45270

Project ID: MONUMENT MOUNTAIN HS
Client ID: PCB-2 CAULK AT EXT WINDOWS

Parameter	Result	RL/ PQL	Units	Date/Time	By	Reference
Percent Solid	100	1	%	03/12/13		E160.3
Caulk Extraction for PCB	Completed			03/12/13	PP/K	SW3540C

PCB (Soxhlet)

PCB-1016	ND	0.29	mg/Kg	03/14/13	AW	3540C/8082
PCB-1221	ND	0.29	mg/Kg	03/14/13	AW	3540C/8082
PCB-1232	ND	0.29	mg/Kg	03/14/13	AW	3540C/8082
PCB-1242	ND	0.29	mg/Kg	03/14/13	AW	3540C/8082
PCB-1248	ND	0.29	mg/Kg	03/14/13	AW	3540C/8082
PCB-1254	ND	0.29	mg/Kg	03/14/13	AW	3540C/8082
PCB-1260	ND	0.29	mg/Kg	03/14/13	AW	3540C/8082
PCB-1262	ND	0.29	mg/Kg	03/14/13	AW	3540C/8082
PCB-1268	ND	0.29	mg/Kg	03/14/13	AW	3540C/8082

QA/QC Surrogates

% DCBP	64		%	03/14/13	AW	30 - 150 %
% TCMX	70		%	03/14/13	AW	30 - 150 %

Parameter	Result	RL/ PQL	Units	Date/Time	By	Reference
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RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

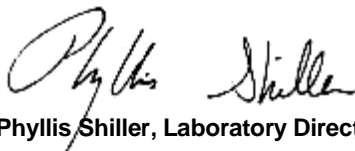
Comments:

%SOLIDS ASSUMED 100%

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

This report must not be reproduced except in full as defined by the attached chain of custody.



Phyllis Shiller, Laboratory Director

March 15, 2013

Reviewed and Released by: Deb Lawrie, Project Manager



Environmental Laboratories, Inc.

587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
 Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

March 15, 2013

FOR: Ms. Kathy Campbell, PE, LSP, LEED, AP
 CDW Consultants, Inc
 40 Speen Street
 Suite 301
 Framingham, MA 01701

Sample Information

Matrix: SOLID
 Location Code: CDW-PCB
 Rush Request: Standard
 P.O.#:

Custody Information

Collected by:
 Received by: SW
 Analyzed by: see "By" below

Date

02/26/13
 03/12/13

Time

0:00
 15:50

Laboratory Data

SDG ID: GBD45269
 Phoenix ID: BD45271

Project ID: MONUMENT MOUNTAIN HS
 Client ID: PCB-2A CAULK AT EXT WINDOWS

Parameter	Result	RL/ PQL	Units	Date/Time	By	Reference
Percent Solid	100	1	%	03/12/13		E160.3
Caulk Extraction for PCB	Completed			03/12/13	PP/K	SW3540C

PCB (Soxhlet)

PCB-1016	ND	0.3	mg/Kg	03/14/13	AW	3540C/8082
PCB-1221	ND	0.3	mg/Kg	03/14/13	AW	3540C/8082
PCB-1232	ND	0.3	mg/Kg	03/14/13	AW	3540C/8082
PCB-1242	ND	0.3	mg/Kg	03/14/13	AW	3540C/8082
PCB-1248	ND	0.3	mg/Kg	03/14/13	AW	3540C/8082
PCB-1254	ND	0.3	mg/Kg	03/14/13	AW	3540C/8082
PCB-1260	0.34	0.3	mg/Kg	03/14/13	AW	3540C/8082
PCB-1262	ND	0.3	mg/Kg	03/14/13	AW	3540C/8082
PCB-1268	ND	0.3	mg/Kg	03/14/13	AW	3540C/8082

QA/QC Surrogates

% DCBP	68		%	03/14/13	AW	30 - 150 %
% TCMX	73		%	03/14/13	AW	30 - 150 %

Parameter	Result	RL/ PQL	Units	Date/Time	By	Reference
-----------	--------	------------	-------	-----------	----	-----------

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

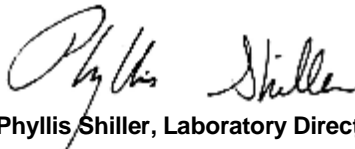
Comments:

%SOLIDS ASSUMED 100%

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

This report must not be reproduced except in full as defined by the attached chain of custody.



Phyllis Shiller, Laboratory Director

March 15, 2013

Reviewed and Released by: Deb Lawrie, Project Manager



Environmental Laboratories, Inc.

587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

March 15, 2013

FOR: Ms. Kathy Campbell, PE, LSP, LEED, AP
CDW Consultants, Inc
40 Speen Street
Suite 301
Framingham, MA 01701

Sample Information

Matrix: SOLID
Location Code: CDW-PCB
Rush Request: Standard
P.O.#:

Custody Information

Collected by:
Received by: SW
Analyzed by: see "By" below

Date Time

02/26/13 0:00
03/12/13 15:50

Laboratory Data

SDG ID: GBD45269
Phoenix ID: BD45272

Project ID: MONUMENT MOUNTAIN HS
Client ID: PCB-2B CAULK AT EXT WINDOWS

Parameter	Result	RL/ PQL	Units	Date/Time	By	Reference
Percent Solid	100	1	%	03/12/13		E160.3
Caulk Extraction for PCB	Completed			03/12/13	PP/K	SW3540C

PCB (Soxhlet)

PCB-1016	ND	0.3	mg/Kg	03/14/13	AW	3540C/8082
PCB-1221	ND	0.3	mg/Kg	03/14/13	AW	3540C/8082
PCB-1232	ND	0.3	mg/Kg	03/14/13	AW	3540C/8082
PCB-1242	ND	0.3	mg/Kg	03/14/13	AW	3540C/8082
PCB-1248	ND	0.3	mg/Kg	03/14/13	AW	3540C/8082
PCB-1254	ND	0.3	mg/Kg	03/14/13	AW	3540C/8082
PCB-1260	ND	0.3	mg/Kg	03/14/13	AW	3540C/8082
PCB-1262	ND	0.3	mg/Kg	03/14/13	AW	3540C/8082
PCB-1268	ND	0.3	mg/Kg	03/14/13	AW	3540C/8082

QA/QC Surrogates

% DCBP	65		%	03/14/13	AW	30 - 150 %
% TCMX	64		%	03/14/13	AW	30 - 150 %

Parameter	Result	RL/ PQL	Units	Date/Time	By	Reference
-----------	--------	------------	-------	-----------	----	-----------

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

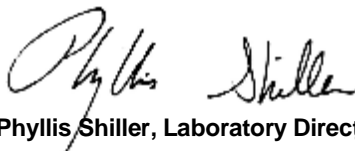
Comments:

%SOLIDS ASSUMED 100%

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

This report must not be reproduced except in full as defined by the attached chain of custody.



Phyllis Shiller, Laboratory Director

March 15, 2013

Reviewed and Released by: Deb Lawrie, Project Manager



Environmental Laboratories, Inc.

587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

March 15, 2013

FOR: Ms. Kathy Campbell, PE, LSP, LEED, AP
CDW Consultants, Inc
40 Speen Street
Suite 301
Framingham, MA 01701

Sample Information

Matrix: SOLID
Location Code: CDW-PCB
Rush Request: Standard
P.O.#:

Custody Information

Collected by:
Received by: SW
Analyzed by: see "By" below

Date Time
02/26/13 0:00
03/12/13 15:50

Laboratory Data

SDG ID: GBD45269
Phoenix ID: BD45273

Project ID: MONUMENT MOUNTAIN HS
Client ID: PCB-3 EXT DOOR CAULK

Parameter	Result	RL/ PQL	Units	Date/Time	By	Reference
Percent Solid	100	1	%	03/12/13		E160.3
Caulk Extraction for PCB	Completed			03/12/13	PP/K	SW3540C

PCB (Soxhlet)

PCB-1016	ND	0.3	mg/Kg	03/14/13	AW	3540C/8082
PCB-1221	ND	0.3	mg/Kg	03/14/13	AW	3540C/8082
PCB-1232	ND	0.3	mg/Kg	03/14/13	AW	3540C/8082
PCB-1242	ND	0.3	mg/Kg	03/14/13	AW	3540C/8082
PCB-1248	ND	0.3	mg/Kg	03/14/13	AW	3540C/8082
PCB-1254	ND	0.3	mg/Kg	03/14/13	AW	3540C/8082
PCB-1260	ND	0.3	mg/Kg	03/14/13	AW	3540C/8082
PCB-1262	ND	0.3	mg/Kg	03/14/13	AW	3540C/8082
PCB-1268	ND	0.3	mg/Kg	03/14/13	AW	3540C/8082

QA/QC Surrogates

% DCBP	70		%	03/14/13	AW	30 - 150 %
% TCMX	78		%	03/14/13	AW	30 - 150 %

Parameter	Result	RL/ PQL	Units	Date/Time	By	Reference
-----------	--------	------------	-------	-----------	----	-----------

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

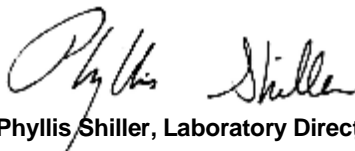
Comments:

%SOLIDS ASSUMED 100%

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

This report must not be reproduced except in full as defined by the attached chain of custody.



Phyllis Shiller, Laboratory Director

March 15, 2013

Reviewed and Released by: Deb Lawrie, Project Manager



Environmental Laboratories, Inc.
 587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
 Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

March 15, 2013

FOR: Ms. Kathy Campbell, PE, LSP, LEED, AP
 CDW Consultants, Inc
 40 Speen Street
 Suite 301
 Framingham, MA 01701

Sample Information

Matrix: SOLID
 Location Code: CDW-PCB
 Rush Request: Standard
 P.O.#:

Custody Information

Collected by:
 Received by: SW
 Analyzed by: see "By" below

Date	Time
02/26/13	0:00
03/12/13	15:50

Laboratory Data

SDG ID: GBD45269
 Phoenix ID: BD45274

Project ID: MONUMENT MOUNTAIN HS
 Client ID: PCB-3A EXT DOOR CAULK

Parameter	Result	RL/ PQL	Units	Date/Time	By	Reference
Percent Solid	100	1	%	03/12/13		E160.3
Caulk Extraction for PCB	Completed			03/12/13	PP/K	SW3540C

PCB (Soxhlet)

PCB-1016	ND	0.29	mg/Kg	03/14/13	AW	3540C/8082
PCB-1221	ND	0.29	mg/Kg	03/14/13	AW	3540C/8082
PCB-1232	ND	0.29	mg/Kg	03/14/13	AW	3540C/8082
PCB-1242	ND	0.29	mg/Kg	03/14/13	AW	3540C/8082
PCB-1248	ND	0.29	mg/Kg	03/14/13	AW	3540C/8082
PCB-1254	ND	0.29	mg/Kg	03/14/13	AW	3540C/8082
PCB-1260	ND	0.29	mg/Kg	03/14/13	AW	3540C/8082
PCB-1262	ND	0.29	mg/Kg	03/14/13	AW	3540C/8082
PCB-1268	ND	0.29	mg/Kg	03/14/13	AW	3540C/8082

QA/QC Surrogates

% DCBP	70		%	03/14/13	AW	30 - 150 %
% TCMX	64		%	03/14/13	AW	30 - 150 %

Parameter	Result	RL/ PQL	Units	Date/Time	By	Reference
-----------	--------	------------	-------	-----------	----	-----------

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

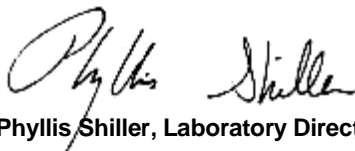
Comments:

%SOLIDS ASSUMED 100%

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

This report must not be reproduced except in full as defined by the attached chain of custody.



Phyllis Shiller, Laboratory Director

March 15, 2013

Reviewed and Released by: Deb Lawrie, Project Manager



Environmental Laboratories, Inc.
 587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
 Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

March 15, 2013

FOR: Ms. Kathy Campbell, PE, LSP, LEED, AP
 CDW Consultants, Inc
 40 Speen Street
 Suite 301
 Framingham, MA 01701

Sample Information

Matrix: SOLID
 Location Code: CDW-PCB
 Rush Request: Standard
 P.O.#:

Custody Information

Collected by:
 Received by: SW
 Analyzed by: see "By" below

Date	Time
02/26/13	0:00
03/12/13	15:50

Laboratory Data

SDG ID: GBD45269
 Phoenix ID: BD45275

Project ID: MONUMENT MOUNTAIN HS
 Client ID: PCB-4 EXTERIOR EXP JOINT

Parameter	Result	RL/ PQL	Units	Date/Time	By	Reference
Percent Solid	100	1	%	03/12/13		E160.3
Caulk Extraction for PCB	Completed			03/12/13	PP/K	SW3540C

PCB (Soxhlet)

PCB-1016	ND	0.31	mg/Kg	03/14/13	AW	3540C/8082
PCB-1221	ND	0.31	mg/Kg	03/14/13	AW	3540C/8082
PCB-1232	ND	0.31	mg/Kg	03/14/13	AW	3540C/8082
PCB-1242	ND	0.31	mg/Kg	03/14/13	AW	3540C/8082
PCB-1248	ND	0.31	mg/Kg	03/14/13	AW	3540C/8082
PCB-1254	ND	0.31	mg/Kg	03/14/13	AW	3540C/8082
PCB-1260	ND	0.31	mg/Kg	03/14/13	AW	3540C/8082
PCB-1262	ND	0.31	mg/Kg	03/14/13	AW	3540C/8082
PCB-1268	ND	0.31	mg/Kg	03/14/13	AW	3540C/8082

QA/QC Surrogates

% DCBP	62		%	03/14/13	AW	30 - 150 %
% TCMX	70		%	03/14/13	AW	30 - 150 %

Parameter	Result	RL/ PQL	Units	Date/Time	By	Reference
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RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

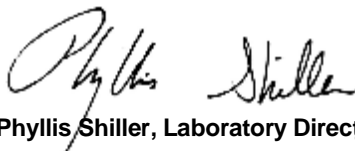
Comments:

%SOLIDS ASSUMED 100%

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

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Phyllis Shiller, Laboratory Director

March 15, 2013

Reviewed and Released by: Deb Lawrie, Project Manager



Environmental Laboratories, Inc.

587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

March 15, 2013

FOR: Ms. Kathy Campbell, PE, LSP, LEED, AP
CDW Consultants, Inc
40 Speen Street
Suite 301
Framingham, MA 01701

Sample Information

Matrix: SOLID
Location Code: CDW-PCB
Rush Request: Standard
P.O.#:

Custody Information

Collected by:
Received by: SW
Analyzed by: see "By" below

Date Time
02/26/13 0:00
03/12/13 15:50

Laboratory Data

SDG ID: GBD45269
Phoenix ID: BD45276

Project ID: MONUMENT MOUNTAIN HS
Client ID: PCB-5 GREENHOUSE CAULK

Parameter	Result	RL/ PQL	Units	Date/Time	By	Reference
Percent Solid	100	1	%	03/12/13		E160.3
Caulk Extraction for PCB	Completed			03/12/13	PP/K	SW3540C

PCB (Soxhlet)

PCB-1016	ND	0.3	mg/Kg	03/15/13	AW	3540C/8082
PCB-1221	ND	0.3	mg/Kg	03/15/13	AW	3540C/8082
PCB-1232	ND	0.3	mg/Kg	03/15/13	AW	3540C/8082
PCB-1242	ND	0.3	mg/Kg	03/15/13	AW	3540C/8082
PCB-1248	ND	0.3	mg/Kg	03/15/13	AW	3540C/8082
PCB-1254	ND	0.3	mg/Kg	03/15/13	AW	3540C/8082
PCB-1260	ND	0.3	mg/Kg	03/15/13	AW	3540C/8082
PCB-1262	ND	0.3	mg/Kg	03/15/13	AW	3540C/8082
PCB-1268	ND	0.3	mg/Kg	03/15/13	AW	3540C/8082

QA/QC Surrogates

% DCBP	69		%	03/15/13	AW	30 - 150 %
% TCMX	53		%	03/15/13	AW	30 - 150 %

Parameter	Result	RL/ PQL	Units	Date/Time	By	Reference
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RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

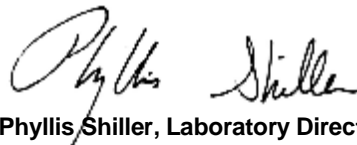
Comments:

%SOLIDS ASSUMED 100%

* For PCBs, in order to reach the desired RL, multiple cleanup steps were performed. The extract was cleaned up with a combination of sulfuric acid, potassium permanganate, copper powder and additional florasil.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.
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Phyllis Shiller, Laboratory Director

March 15, 2013

Reviewed and Released by: Deb Lawrie, Project Manager



Environmental Laboratories, Inc.

587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

March 15, 2013

FOR: Ms. Kathy Campbell, PE, LSP, LEED, AP
CDW Consultants, Inc
40 Speen Street
Suite 301
Framingham, MA 01701

Sample Information

Matrix: SOLID
Location Code: CDW-PCB
Rush Request: Standard
P.O.#:

Custody Information

Collected by:
Received by: SW
Analyzed by: see "By" below

Date Time

02/26/13 0:00
03/12/13 15:50

Laboratory Data

SDG ID: GBD45269
Phoenix ID: BD45277

Project ID: MONUMENT MOUNTAIN HS
Client ID: PCB-6 GREENHOUSE GLAZE

Parameter	Result	RL/ PQL	Units	Date/Time	By	Reference
Percent Solid	100	1	%	03/12/13		E160.3
Caulk Extraction for PCB	Completed			03/12/13	PP/K	SW3540C

PCB (Soxhlet)

PCB-1016	ND	0.31	mg/Kg	03/15/13	AW	3540C/8082
PCB-1221	ND	0.31	mg/Kg	03/15/13	AW	3540C/8082
PCB-1232	ND	0.31	mg/Kg	03/15/13	AW	3540C/8082
PCB-1242	ND	0.31	mg/Kg	03/15/13	AW	3540C/8082
PCB-1248	ND	0.31	mg/Kg	03/15/13	AW	3540C/8082
PCB-1254	ND	0.31	mg/Kg	03/15/13	AW	3540C/8082
PCB-1260	ND	0.31	mg/Kg	03/15/13	AW	3540C/8082
PCB-1262	ND	0.31	mg/Kg	03/15/13	AW	3540C/8082
PCB-1268	ND	0.31	mg/Kg	03/15/13	AW	3540C/8082

QA/QC Surrogates

% DCBP	75		%	03/15/13	AW	30 - 150 %
% TCMX	58		%	03/15/13	AW	30 - 150 %

Parameter	Result	RL/ PQL	Units	Date/Time	By	Reference
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RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

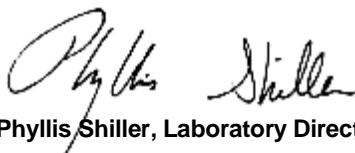
%SOLIDS ASSUMED 100%

* For PCBs, in order to reach the desired RL, multiple cleanup steps were performed. The extract was cleaned up with a combination of sulfuric acid, potassium permanganate, copper powder and additional florasil.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

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Phyllis Shiller, Laboratory Director

March 15, 2013

Reviewed and Released by: Deb Lawrie, Project Manager



Environmental Laboratories, Inc.
 587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
 Tel. (860) 645-1102 Fax (860) 645-0823

QA/QC Report

March 15, 2013

QA/QC Data

SDG I.D.: GBD45269

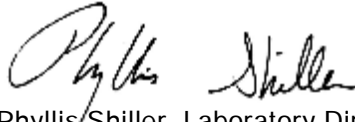
Parameter	Blank	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 223216, QC Sample No: BD45269 (BD45269, BD45270, BD45271, BD45272, BD45273, BD45274, BD45275, BD45276, BD45277)									
Polychlorinated Biphenyls - Solid									
PCB-1016	ND	86	79	8.5				40 - 140	20
PCB-1221	ND							40 - 140	20
PCB-1232	ND							40 - 140	20
PCB-1242	ND							40 - 140	20
PCB-1248	ND							40 - 140	20
PCB-1254	ND							40 - 140	20
PCB-1260	ND	80	81	1.2				40 - 140	20
PCB-1262	ND							40 - 140	20
PCB-1268	ND							40 - 140	20
% DCBP (Surrogate Rec)	67	65	69	6.0				30 - 150	20
% TCMX (Surrogate Rec)	77	77	76	1.3				30 - 150	20

Comment:

A LCS and LCS Duplicate were performed instead of a matrix spike and matrix spike duplicate.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

- RPD - Relative Percent Difference
- LCS - Laboratory Control Sample
- LCSD - Laboratory Control Sample Duplicate
- MS - Matrix Spike
- MS Dup - Matrix Spike Duplicate
- NC - No Criteria
- Intf - Interference


 Phyllis Shiller, Laboratory Director
 March 15, 2013

Sample Criteria Exceedences Report

GBD45269 - CDW-PCB

SampNo	Acode	Phoenix Analyte	Criteria	Result	RL	Criteria	RL	Analysis Units
--------	-------	-----------------	----------	--------	----	----------	----	----------------

*** No Data to Display ***

Phoenix Laboratories does not assume responsibility for the data contained in this report. It is provided as an additional tool to identify requested criteria exceedences. All efforts are made to ensure the accuracy of the data (obtained from appropriate agencies). A lack of exceedence information does not necessarily suggest conformance to the criteria. It is ultimately the site professional's responsibility to determine appropriate compliance.

CHAIN OF CUSTODY RECORD

587 East Middle Turnpike, P.O. Box 370, Manchester, CT 06040
 Email: info@phoenixlabs.com Fax (860) 645-0823



Client Services (860) 645-8726

Data Delivery:
 Fax #:
 Email: scandra.lan@clw.com
CONSULTANTS.COM

Project P.O.: Monument Mountain HS
 Phone #: _____
 Fax #: _____

Customer: Clw Consultants
 Address: 40 Spear St, Suite 301
Framingham, MA

Project: Monument Mountain HS
 Report to: Susan Cahalan
 Invoice to: Clw

Analysis Request: MS SOX/1320C

Phoenix Sample #	Customer Sample Identification	Sample Matrix	Date Sampled	Time Sampled
45269	PCB-1 CAULK BOTTOM WINDOWS CASE	S	2/20/13	-
45270	PCB-2 CAULK EXTERIOR WINDOWS	S	-	-
45271	PCB-2A CAULK EXTERIOR WINDOWS	S	-	-
45272	PCB-2B CAULK EXTERIOR WINDOWS	S	-	-
45273	PCB-3 EXTERIOR	S	-	-
45274	PCB-3A EXTERIOR	S	-	-
45275	PCB-4 EXTERIOR	S	-	-
45276	PCB-5 GREENHOUSE	S	-	-
45277	PCB-6 GREENHOUSE	S	-	-

Relinquished by: [Signature] Accepted by: [Signature]

Date: 3/10/13 Time: 10:15

Date: 3/12/13 Time: 1550

Turnaround: 1 Day* 2 Days* 3 Days* Standard Other

* SURCHARGE APPLIES

CT/RI: RCP Cert GW Protect GA Mobility GB Protection SW Protection Res. Vol. Ind. Vol. Res. Criteria Other

MA: MCP Certification GW-1 GW-2 GW-3 S-1 S-2 S-3 MWRA eSMART Other

Data Format: Excel PDF GIS/Key EQUIS Other

Data Package: ASP-A NJ Reduced Deliv. * NJ Hazsite EDD Phoenix Std Report Other

State where samples were collected: MA

Comments, Special Requirements or Regulations:

TSOA Detection Unit

Appendix I

Mercury Laboratory Report



EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Phone: (856) 303-2500 Fax: (856) 858-4571 Email: jsmith@emsl.com

Attn:

**Susan Cahalan
CDW Consultants
40 Speen Street
Suite 301
Framingham, MA 01701**

3/19/2013

Phone: (508) 875-2657

Fax:

The following analytical report covers the analysis performed on samples submitted to EMSL Analytical, Inc. on 3/12/2013. The results are tabulated on the attached data pages for the following client designated project:

Monument Mounta

The reference number for these samples is EMSL Order #011300965. Please use this reference when calling about these samples. If you have any questions, please do not hesitate to contact me at (856) 303-2500.

Reviewed and Approved By:

Julie Smith - Laboratory Director



The test results contained within this report meet the requirements of NELAC and/or the specific certification program that is applicable, unless otherwise noted.
NELAP Certifications: NJ 03036, NY 10872, PA 68-00367

The samples associated with this report were received in good condition unless otherwise noted. This report relates only to those items tested as received by the laboratory. The QC data associated with the sample results meet the recovery and precision requirements established by the NELAP, unless specifically indicated. All results for soil samples are reported on a dry weight basis, unless otherwise noted. This report may not be reproduced except in full and without written approval by EMSL Analytical, Inc.

**EMSL Analytical, Inc.**

200 Route 130 North, Cinnaminson, NJ 08077

Phone/Fax: (856) 303-2500 / (856) 858-4571

<http://www.emsl.com>jsmith@emsl.com

EMSL Order: 011300965

CustomerID: CDWC26

CustomerPO:

ProjectID:

Attn: **Susan Cahalan**
CDW Consultants
40 Speen Street
Suite 301
Framingham, MA 01701

Phone: (508) 875-2657
 Fax:
 Received: 03/12/13 9:40 AM
 Collected: 2/26/2013

Project: **Monument Mounta****Analytical Results****Client Sample Description** Floor Tread**Collected:** 2/26/2013 **Lab ID:** 0001

<i>Method</i>	<i>Parameter</i>	<i>Result</i>	<i>RL</i>	<i>Units</i>	<i>Prep Date</i>	<i>Analyst</i>	<i>Analysis Date</i>	<i>Analyst</i>
7471B	Mercury	0.092	0.052	mg/Kg	3/19/2013	JS	3/19/2013	JS

Definitions:

ND - indicates that the analyte was not detected at the reporting limit

RL - Reporting Limit



CDW CONSULTANTS, INC.
CIVIL & ENVIRONMENTAL ENGINEERS

March 14, 2013

Mr. Daniel Ruiz
Symmes Maini & Mckee
1000 Massachusetts Avenue
Cambridge, MA 02138

RE: Preliminary Radon Assessment Report
Monument Mountain High School
600 Stockbridge Road
Great Barrington, Massachusetts

Dear Mr. Ruiz:

CDW Consultants, Inc. (CDW) is pleased to present this letter report summarizing the findings of the preliminary radon testing at Monument Mountain High School (“Site”) in the town of Great Barrington, Massachusetts. The Site is located in an United States Environmental Protection Agency (USEPA) Radon Zone 2 county. USEPA zone 2 counties in Massachusetts have a predicted average indoor radon screening level between 2 and 4 pCi/L (picoCuries per liter).

CDW collected three short term passive air samples following USEPA protocols (minimum of 48 hours duration) between February 19 through 22, 2013. The three air samples containers were placed in the boiler room, in the administrative area and the exterior of the front entrance. The sample containers were placed within the breathing zone. The purpose of the short term testing was to determine if radon gas was present in indoor air. The exterior air sample was collected to determine “background” radon concentrations, if present. The three samples were transported under chain of custody to Pro-Lab of Weston, Florida for analysis of radon-222 via EPA Method 402-R-92-004. The sample descriptions and results are presented in the below table.

Radon Analytical Results

Sample Identification	Location	Result	Recommended EPA Standard
Basement Storage	Boiler Room Near Sunken Basement	2.4 pCi/L	4 pCi/L
First Floor Office	Near Admin Area	1.4 pCi/L	4 pCi/L
Background	Outside Near Front Entrance	ND	4 pCi/L

pCi/L = picoCuries per liter, ND = Not Detected



The results of the short term tests indicate radon gas is present below USEPA recommended guidance level of 4 pCi/L. Since the initial analytical result is below the EPA guidance level, repeat testing is not recommended. The laboratory analytical reports are provided in Attachment A.

Limitations

The conclusions and recommendations are limited to the information available at the time of the field survey and the scope of services as defined. No subsurface soil or groundwater sampling was performed. Where access to portions of the Site or to structures on the site was unavailable or limited, CDW renders no opinion as to the presence of hazardous material or the presence of indirect evidence related to hazardous material in that portion of the site or structure. No other conclusions, interpretations or recommendations are contained or implied in this report other than those expressed. No other use of this report is warranted without the written consent of CDW Consultants, Inc.

CDW appreciates the opportunity to provide our services for your project.

Very truly yours,

CDW CONSULTANTS, INC.

A handwritten signature in black ink, appearing to read "Susan Cahalan", written in a cursive style.

Susan Cahalan, PG
Project Manager

ATTACHMENT A

TEST ID NUMBER: 763797
DATE RECEIVED: 03/05/2013
REPORT DATE: 03/07/2013

SUSAN CAHALAN CDW CONSULTANTS
40 SPEEN STREET
FRAMINGHAM, MA 01701

TEST LOCATION
600 STOCKBRIDGE ROAD
BERKSHIRE
GREAT BARRINGTON, MA 01230

This is a confidential report of the radon samples that were submitted to our laboratory for measurements of radon-222 levels. The results represent the amount of radon that was present in the air during the time of sampling. The radon is measured in our laboratory using the liquid scintillation method (EPA 402-R-92-004). This report will not be released to anyone without your permission except as required by individual state laws and guidelines.

HERE ARE YOUR TEST RESULTS

<u>VIAL #</u>	<u>ROOM TESTED</u>	<u>DATE OPENED</u>	<u>DATE CAPPED</u>	<u>DATE ANALYZED</u>	<u>RADON LEVEL</u>
3119992	1ST FLOOR OFFICE	Feb 19, 2013 8:00 AM	Feb 22, 2013 9:00 AM	Mar 07, 2013 5:40 AM	1.4 pCi/L
3154254	1ST FLOOR OFFICE	Feb 19, 2013 8:00 AM	Feb 22, 2013 9:00 AM	Mar 07, 2013 5:51 AM	1.4 pCi/L

UNDEREXPOSED: The test device was exposed for less than 94 hours. Conduct another test to ensure accuracy.

THE EPA RECOMMENDS THAT YOU FIX YOUR HOME IF THE RADON LEVEL IS 4 PICOCURIES (PCi/L) OR HIGHER.

Please read the EPA Citizen's Guide to Radon at www.epa.gov/radon/pubs/citguide.html. Residents of New Jersey should read "Radon Testing and Mitigation: The Basics" at <http://njradon.org/download/mitbas.pdf>. Radon levels less than 4 pCi/L still pose a risk. You may want to take additional measurements because radon levels can vary with the seasons. You may also want to consider doing a long term test to determine the average radon concentrations over a longer period of time. If the radon level is 4.0 pCi/L or higher you should perform either a long-term test or a second short-term test. If the radon level is higher than 10 pCi/L you should perform a second short-term test immediately. If you would like to know more about radon mitigation, or have other questions, please contact your state radon office.

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Malissa Sears, RMS

NEHA-NRPP CERT# 104126RT
AARST ID#779



James E. McDonnell IV

NEHA-NRPP ID# 103456RT
AARST ID#558

TEST ID NUMBER: 763796
DATE RECEIVED: 03/05/2013
REPORT DATE: 03/07/2013

SUSAN CAHALAN CDW CONSULTANTS
40 SPEEN STREET
FRAMINGHAM, MA 01701

TEST LOCATION
600 STOCKBRIDGE ROAD
BERKSHIRE
GREAT BARRINGTON, MA 01230

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HERE ARE YOUR TEST RESULTS

<u>VIAL #</u>	<u>ROOM TESTED</u>	<u>DATE OPENED</u>	<u>DATE CAPPED</u>	<u>DATE ANALYZED</u>	<u>RADON LEVEL</u>
3120061	BASEMENT STORAGE	Feb 19, 2013 8:00 AM	Feb 22, 2013 9:00 AM	Mar 07, 2013 4:58 AM	2.4 pCi/L
3185991	BASEMENT STORAGE	Feb 19, 2013 8:00 AM	Feb 22, 2013 9:00 AM	Mar 07, 2013 5:08 AM	1.2 pCi/L

** The results fall below the minimum detection level. Please repeat the test to ensure accuracy.

UNDEREXPOSED: The test device was exposed for less than 94 hours. Conduct another test to ensure accuracy.

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Malissa Sears, RMS

NEHA-NRPP CERT# 104126RT
AARST ID#779



James E. McDonnell IV

NEHA-NRPP ID# 103456RT
AARST ID#558

TEST ID NUMBER: 763798
DATE RECEIVED: 03/05/2013
REPORT DATE: 03/08/2013

SUSAN CAHALAN CDW CONSULTANTS
40 SPEEN STREET
FRAMINGHAM, MA 01701

TEST LOCATION
600 STOCKBRIDGE ROAD
BERKSHIRE
GREAT BARRINGTON, MA 01230

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HERE ARE YOUR TEST RESULTS

<u>VIAL #</u>	<u>ROOM TESTED</u>	<u>DATE OPENED</u>	<u>DATE CAPPED</u>	<u>DATE ANALYZED</u>	<u>RADON LEVEL</u>
3154222	3RD FLOOR BACKGROUND	Feb 19, 2013 8:00 AM	Feb 22, 2013 9:00 AM	Mar 08, 2013 9:51 AM	**
3137136	3RD FLOOR BACKGROUND	Feb 19, 2013 8:00 AM	Feb 22, 2013 9:00 AM	Mar 08, 2013 10:02 AM	**

UNDEREXPOSED: The test device was exposed for less than 94 hours. Conduct another test to ensure accuracy.

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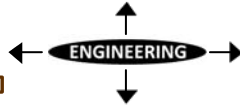
Malissa Sears, RMS

NEHA-NRPP CERT# 104126RT
AARST ID#779



James E. McDonnell IV

NEHA-NRPP ID# 103456RT
AARST ID#558



J2354-01-01
March 26, 2013

Mr. John C. Hart, P.E.
Symmes Maini & McKee Associates
1000 Massachusetts Avenue
Cambridge, Massachusetts 02138

Re: Revised Geotechnical Engineering Recommendations
Monument Mountain Regional High School Renovations and Additions
Great Barrington, Massachusetts

Dear Mr. Hart:

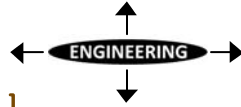
We are pleased to provide this letter report summarizing our revised geotechnical engineering recommendations for the proposed renovations and addition to the Monument Mountain Regional High School, located at 600 Stockbridge Road in Great Barrington, Massachusetts. This report supersedes our previous report dated February 22, 2013. A Site Locus is provided as Figure 1. A Site Plan is provided as Figure 2.

Our geotechnical study is based upon eight soil borings and eight test pits. Our services consisted of the full-time observation of the borings and test pits, review of the logs and soil samples, engineering analyses, and preparation of this report. This report is subject to the attached limitations.

PROJECT DESCRIPTION

Project plans call for the renovation of, and additions to, the Monument Mountain Regional High School building located in Great Barrington, Massachusetts. We understand that the project includes a new science wing, conservatory area, and greenhouse building to be constructed on the east side of the existing school building, renovations and improvements inside the existing building, and improvements to landscaping, pavements and drainage.

The proposed science wing and conservatory consist of additions on the eastern side of the building with approximately 16,000 and 400 square foot footprints, respectively. The proposed greenhouse building consists of a 2,275 square foot structure, located to the northeast of the existing building. Each structure will be one story and slab- on-grade, with a slab elevation of 896.2 feet. This slab elevation is near that of the existing building. We assume that the additions will be brick and steel framed structures, to match the existing structure. The ground surface in the vicinity of the proposed additions is covered with topsoil or asphalt pavement. The proposed construction is shown on Figure 2.



The existing school building sits at the top of a hill with a parking area located to the north and athletic fields located to the east. The ground surface slopes downward from the west towards Stockbridge Road (elevation 871 feet); to the south towards wooded and vacant land (elevation 857 feet); and to the east and athletic fields (elevation 876 feet). These slopes vary from between 2.5 horizontal on 1 vertical to greater than 5 horizontal on 1 vertical. The topography also slopes gently downward to the parking area to the north of the building. Ground surface topography is shown on Figure 2.

In the vicinity of the proposed construction, the ground surface ranges from 897 to 890. Based upon slab elevation of 896.2 feet, we expect cuts and fills up to six feet to construct the footings and building pads of the science addition and greenhouse building. Cuts on the order of two to three feet will be needed to construct the building pad of the conservatory addition. In addition, cuts and fills will be needed to construct earth slopes along the eastern side of the proposed science addition and greenhouse building. The proposed earth slope will generally slope on the order of 2.5 to 3H:1V. We understand that the final design may include retaining walls to accommodate grade transitions.

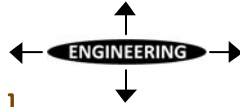
SUBSURFACE EXPLORATIONS

Subsurface explorations consisted of soil borings and test pits. Soil borings MM-3 and MM-5 through MM-8 and test pits TP-4 and TP-5 were performed to the east of the existing building, within or near the footprint of the proposed science addition. Borings MM-1 and MM-2 were performed to the north of the building, and boring MM-4 was performed to the west in the existing main entrance area. Test pits TP-2 and TP-6 were performed to the north and west of the existing building and test pits TP-1, TP-7 and TP-8 were performed in the parking area to the north and along the entranceway. Boring and test pit locations are shown on Figure 2.

Soil Borings

Eight soil borings (MM-1 through MM-8) were performed on November 29 and 30, 2012 by Seaboard Drilling of Chicopee, Massachusetts. The borings were performed using a Mobile B-53 truck mounted rig equipped with hollow stem augers, and were completed to a depth of between 6 and 19.5 feet below existing ground surface. An O'Reilly, Talbot & Okun Associates, Inc. (OTO) field engineer observed and logged each boring. Boring locations are shown on Figure 2. Boring logs are attached.

In general, soil samples were collected on a continuous basis from the ground surface to a depth of 7 feet, at 10 feet and every five feet thereafter. In some instances, samples were collected on a continuous basis throughout the boring. Soil samples were collected using a 2-inch diameter split spoon sampler driven 24-inches with a 140 pound hammer falling 30 inches (American Society for Testing and Materials Test Method D1586-99 "Standard Test Method for Penetration Test and Split-Barrel Sampling of Soils"). The number of blows required to drive the sampler each 6 inches was recorded. The standard penetration resistance, or N-value, is the number of blows required to drive the sampler the middle 12 inches. Soil properties, such as strength and density, are related to the SPT blow count. After drilling, boreholes were backfilled with soil cuttings.



The headspace of each soil sample was screened in the field using a photo ionization detector (PID). PID screening provides a qualitative assessment of volatile organic content of the samples. PID readings are provided on the boring logs. In summary, the readings were 1 ppm or below the instrument detection limit. These readings are indications of natural, background conditions.

Upon the request of the client, a groundwater monitoring well was installed at boring location MM-2. The well was constructed of two inch diameter PVC pipe and installed to approximately 15 feet below grade with a ten foot well screen at the bottom 10 feet. The annulus between the well and boring sidewall was filled with filter sand. A bentonite seal was placed above the sand and the well was finished with a steel curb box at grade. Details of the well installation are shown on the boring logs. Note that groundwater was not encountered during drilling.

Test Pits

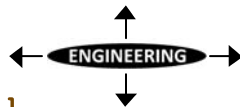
Eight test pits were performed on November 30, 2012 by Wilkinson Excavating of Sheffield, Massachusetts. The test pits were performed using a John Deere 310SG backhoe equipped with a ¼ cubic yard bucket. The test pits extended to a depth of 8 to 10 feet below ground surface and were terminated upon dense soil conditions. An OTO field engineer observed and logged each test pit. Test pit locations are shown on Figure 2. Test pit logs and photographs are attached.

SUBSURFACE CONDITIONS

Subsurface conditions were interpreted based upon the soil borings and test pits. In general, the soils encountered were similar between borings and are favorable for the proposed construction. Subsurface conditions consist of a surficial topsoil or asphalt layer underlain by granular soils.

In each of the borings and test pits, 6 to 10 inches of topsoil or 3 to 4 inches of asphalt pavement was encountered at the ground surface. The surficial soil layer was underlain by medium dense to dense, fine sand with little to trace amounts of silt and trace amounts of medium, coarse sand and gravel with the exception of TP-8, this layer extended to the maximum depth explored. Trace amounts of debris (slag, coal) was encountered within the upper portions of this layer in boring MM-6 and test pit TP-4. In many of the borings and test pits, the upper three to five feet of the sand and gravel layer appeared to be reworked native soils, likely placed during the construction of existing structure and associated improvements. Numerous cobbles and boulders were encountered.

In test pit TP-8, which was located adjacent to Stockbridge Road, fine sand with little silt was encountered at a depth of 2.5 feet below ground surface (approximate elevation 888.5 feet). This layer extended to the maximum depth explored.



The test pits were terminated within the dense soil layer, at a depth of between 8 and 10 feet below ground surface. Boring MM-7 encountered shallow refusal upon boulders and cobbles at a depth of two feet, corresponding to elevation 891 feet. This boring was off-set two additional times where refusals were encountered at a depth of three and six feet, corresponding to elevation of 890 and 877 feet, respectively. The remaining borings encountered drilling refusal at a depth of between 10 to 19.5 feet below ground surface, corresponding to an elevation of between 885 and 874.5 feet. The refusals were most likely upon large boulders and cobbles. Each refusal was below slab elevation. Refusal depths, encountered during drilling, are shown in Table 1.

Groundwater was not encountered during the time of drilling or in the test pits. Therefore, groundwater is not expected to be encountered during construction or during the service life of the building.

Table 1
Depth to Refusal, Soil Borings

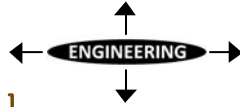
Boring/ Test Pit	Ground Surface Elevation (feet)	Depth to Refusal (feet)	Elevation of Refusal (feet)	Notes
MM-1	894	13.5	880.5	3
MM-2	893	15.5	877.5	3
MM-3	894	15	879	3
MM-4	895	17	878	4
MM-5	895	17	878	3
MM-6	894	19.5	874.5	3
MM-7	893	6	887	3,5
MM-8	895	10	885	3

Notes:

1. Elevations estimated by referring to site plan provided to OTO in electronic format. Data shown in this table should be considered approximate to the degree(s) implied by the methods used.
2. Depth to refusal measured from existing ground surface
3. Refusal encountered upon likely large boulders and cobbles
4. Refusal upon dense soil conditions
5. Auger refusal at shallow depth upon boulders and cobbles

GEOTECHNICAL ISSUES

The significant geotechnical issues for the proposed construction addressed in this report are foundation bearing capacity and settlement, seismic design considerations, earth slope considerations, and the suitability of on-site materials for use in engineered fills.



DESIGN RECOMMENDATIONS

The following recommendations are provided for the assumed construction.

Foundations

The proposed structures can be founded on normal spread footing foundations. Any debris fill encountered should be removed from beneath footings and replaced with sand and gravel fill. Footing subgrades should be densified prior to placement of footing concrete. Provided these recommendations are followed, a maximum allowable bearing pressure of 4,500 pounds per square foot may be used for the design of footings.

We estimate that settlement of footings and slabs bearing on the dense native soils or compacted fill should be small and largely elastic in nature. Maximum settlements should be less than 1/2 inch, and should occur relatively quickly after load application (during construction). We recommend that the structural engineer assume 1/2 inch of differential settlement between the existing building and the addition.

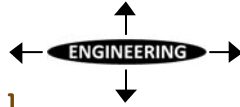
We recommend that exterior footings be embedded a minimum of 48 inches below the lowest adjacent grade for frost protection. Strip footings beneath the bearing walls should be at least 18 inches wide. Isolated column footings should be at least 24 inches wide. All other applicable requirements of the Massachusetts State Building Code (MSBC) should be followed.

If winter construction occurs, footings should not be placed on frozen soils. Footing excavations should be free of loose or disturbed materials. Any boulders or cobbles larger than 4 inches in diameter should be removed from within one foot of the bottom of the footings and replaced with sand and gravel fill. As recommended above, the footing subgrades should be densified with at least three passes with a vibrating plate compactor. If loose materials are present in the excavations, they shall be recompacted to form a firm, dense, bearing surface.

Seismic Considerations

Earthquake loadings must be considered under requirements in Section 1613 and 1806 of the 8th Edition (February 2011) Massachusetts State Building Code (MSBC). The 8th Edition of the MSBC is based upon the International Code 2009 with Massachusetts amendments.

Section 1613 covers lateral forces imposed on structures from earthquake shaking. Per Table 1604.11, the maximum considered earthquake spectral response acceleration at short periods (S_s) and at 1-sec (S_1) was determined to be 0.22 and 0.066, respectively, for Great Barrington Massachusetts. In addition, the Site Class was determined to be Class C based upon preliminary soil data collected. Furthermore, the Site coefficients F_a and F_v were determined according to Tables 1613.5.3(1) and 1613.5.3(2), using both the S_s and S_v values and the Site Class. For this Site, F_a and F_v were determined to be 1.2 and 1.7, respectively.



Section 1806.4 relates to the liquefaction potential of the underlying soils. Based upon the observed density and silt content of the granular soils at the Site and no observed groundwater during the time of drilling, liquefaction is not a concern.

If the project is to include retaining walls, the walls should be designed to resist dynamic lateral earth forces in accordance with Section 1610.2 of the MSBC. The seismic earth forces should be applied as an inverted triangle over the height of the wall and added to the static lateral pressures. The seismic pressures should be modeled as an inverted triangle with a maximum value of $11xH$ at the top of the wall (where H is the vertical height of the wall). For purposes of the calculation, a total unit weight of 125 pounds per cubic foot should be used for the backfill against the retaining wall.

Lateral Earth Pressures Retaining Walls/Footings

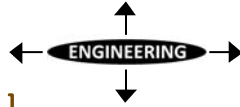
We understand that new retaining walls may be incorporated into the final design. The size and type of wall is unknown at this time. However, we have assumed that the retaining wall will consist of either a traditional concrete retaining wall or a segmented block wall (such as a Versa-Loc Wall). A traditional concrete retaining wall should be designed by the structural engineer based upon the recommendations provided below. A segmented block wall should be designed consistent with the manufacturer's recommendations. Normally, these types of walls are designed by the installer's engineer. Note that internal and global stability of proposed retaining walls will need to be reviewed during final design.

Static lateral earth pressures will be imposed on the rear of the retaining wall and against footings. For the retaining wall, we have assumed that the top of the wall is free to deflect inward (cantilevered). Therefore, we recommend that an active lateral earth pressure equal to a fluid pressure of 35 pounds per cubic foot (pcf) be used for the computation of lateral forces acting behind the wall. If the wall is structurally braced and not free to deflect, we recommend that a pressure of 55 pcf be used. If passive lateral earth pressures are used against the sides of footings extending below a depth of four feet or against interior footings not subject to frost, we recommend an equivalent fluid pressure for shallow foundation walls of 275 pounds per cubic foot be used to compute passive resistance. A coefficient of friction of 0.45 is recommended to evaluate frictional resistance to sliding along the base of the wall and footings. These values apply to unsaturated soil conditions.

The soil against retaining walls should not be over-compacted, since this would greatly increase lateral loads against the wall. To prevent over-compaction, this fill should not be compacted beyond 92 percent of the maximum dry density as determined by the Modified Proctor Test, ASTM D1557 Method C.

Concrete Slabs

We recommend that concrete floor slabs bear on at least 6 inches of compacted sand and gravel to provide uniform support and a capillary moisture break. The subgrade should also be free of large boulders or cobbles. The sand and gravel fill beneath the



concrete slabs should meet the grain size distribution characteristics for sand and gravel outlined in Table 3.

The subgrade within the footprint of the proposed addition should be stripped of topsoil or asphalt and thoroughly densified to treat any loose areas present. Fill supporting slabs should be placed in accordance with the recommendations for gradation and compaction provided below. The slab may be designed using a vertical subgrade modulus of 200 tons per cubic foot.

Slope Stability

As described above, the existing school building sits on top of a large hill with earth slopes located to the east, south and west of the proposed building. We understand that the earth slope located to the east will be impacted by the proposed project. The upper portion of this hill side, adjacent to the existing building, will be filled in order to construct the proposed building pads. The lower portions will then be graded to match existing grades of the athletic fields. Presently, this earth slope ranges in slope angle of between 2 to 5 horizontal to 1 vertical. Based on proposed grading plans, the final slope angle will be similar to the existing slope angle; however cuts and fills will be needed to achieve final grades. We understand that a soil bench will be located approximately half way up the slope. The proposed grades are shown on Figure 2.

Assuming that topography is re-grading using the existing on site sand and gravel, we recommend that the proposed slope be graded to a maximum slope of 3 vertical to 1 horizontal. Given the length of the slope, erosion is a significant design issue. To address erosion issues, we recommend the soil bench approximately half way up the slope includes features to channel surface water runoff away from the slope face. Drainage improvements should be incorporated at the top of the hill to prevent water from running onto the slope.

Surface Water Control

Temporary erosion control materials (such as straw erosion control mats) will be required until the permanent vegetation layer is established. The establishment of a vegetative layer will be an important factor in the long term effectiveness of the sloped area. A good vegetative cover will promote infiltration of rainfall and minimize surface run-off and local erosion. The reinforcing effect of a well developed root system of small bushes and trees can significantly improve the stability of shallow soils. We recommend that the vegetative layer consist of grasses and/or small shrubs. The grass mixtures should be specifically designed for use on hill sides and should contain a mixture of quick growing varieties and varieties that develop extensive root systems.

Pavement Recommendations

We understand that the project may involve the construction of parking areas for passenger vehicles and light trucks, and roadways that will experience heavy traffic loads from buses and delivery vehicles. The proposed flexible asphalt design sections are provided in Table 2.

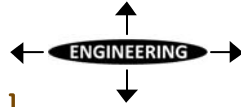


Table 2
Pavement Design Sections

Layer	Thickness	
	Parking Areas	Heavy Vehicles
Asphalt Finish Course	1 inch	1-1/2 inches
Asphalt Binder Course	1-1/2 inches	1-1/2 inches
Gravel Base Course	6 inches	8 inches
Sand & Gravel	6 inches	6 inches

Table 3 presents recommendations for gradation requirements for the gravel base course and sand and gravel sub-base materials. Please note that the Sand and Gravel specification approximately matches that for Massachusetts DPW M1-03.0, Type A Sand-Gravel.

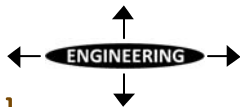
Earthwork Considerations

We anticipate that earthwork for this project will include cuts for footings and fills to form the building pads, and cuts and fills to re-grade the eastern earth slope.

Three fill types are recommended: Sand and Gravel for use as engineered fill within 12 inches beneath floor slabs and footings and beneath pavements; Gravel Base Course for use beneath pavements; and Granular Fill for use at depths greater than 12 inches (if needed) and as miscellaneous fill along the exterior of the building footprints. Grain size distribution requirements are presented in Table 3. The granular site soils excavated from the cut areas may be suitable for re-use as fill. We recommend that testing be performed on excavated materials to confirm that fill requirements are met. The contractor should note that boulders and cobbles were encountered in the borings. Oversize materials will need to be removed, if on site soils are to be used as fill.

Table 3
Grain Size Distribution Requirements

Size	Sand and Gravel	Gravel Base Course	Granular Fill
Percent Finer by Weight			
4 inch	100	100	100
1/2 inch	50-85	50-80	---
No. 4	40-75	40-75	---
No. 10	---	30-60	30-90
No. 40	10-35	10-35	10-70
No. 100	---	5-20	---
No. 200	0-8	2-10	0-15



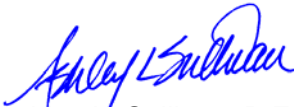
Any organic soils, asphalt or debris should not be re-used as fill beneath structures. To avoid point loads, any cobbles or boulders larger than 4 inch diameter encountered at the subgrade for slabs-on-grade should be removed and replaced with compacted sand and gravel fill. It should be noted that boulders and large cobbles were encountered during drilling. These should be removed at least to a depth of one foot below footings or floorslabs, if present. Large excavations may result from the removal of boulders.


Fill placed beneath footings, floor slabs and pavements should be densified to at least 95% of the Modified Proctor dry density as defined in ASTM D1557, Method C. Fill should be placed in lifts of no more than 12-inches and compacted with at least four passes with a vibrating drum roller (minimum of 3,000 pound weight). To facilitate compaction, the moisture content of the on-site material should be maintained at or near the optimum moisture content.

The contractor should note that silty soils were encountered in some areas. These fine grained soils are susceptible to moisture, due to the high percentage of fines within the soil mass. If these soils become wet during construction, they will become soft and easily disturbed. During winter construction periods, the silty soils will tend to remain wet and can not be easily dried or stabilized. It may be necessary to remove the disturbed soils and replace the materials with compacted sand and gravel. To avoid this potential issue, the contractor should establish and maintain proper drainage of soil surfaces.

We appreciated the opportunity to be of service on this project. If you have any questions, please call the undersigned.

Sincerely yours,
O'Reilly, Talbot & Okun Associates, Inc.

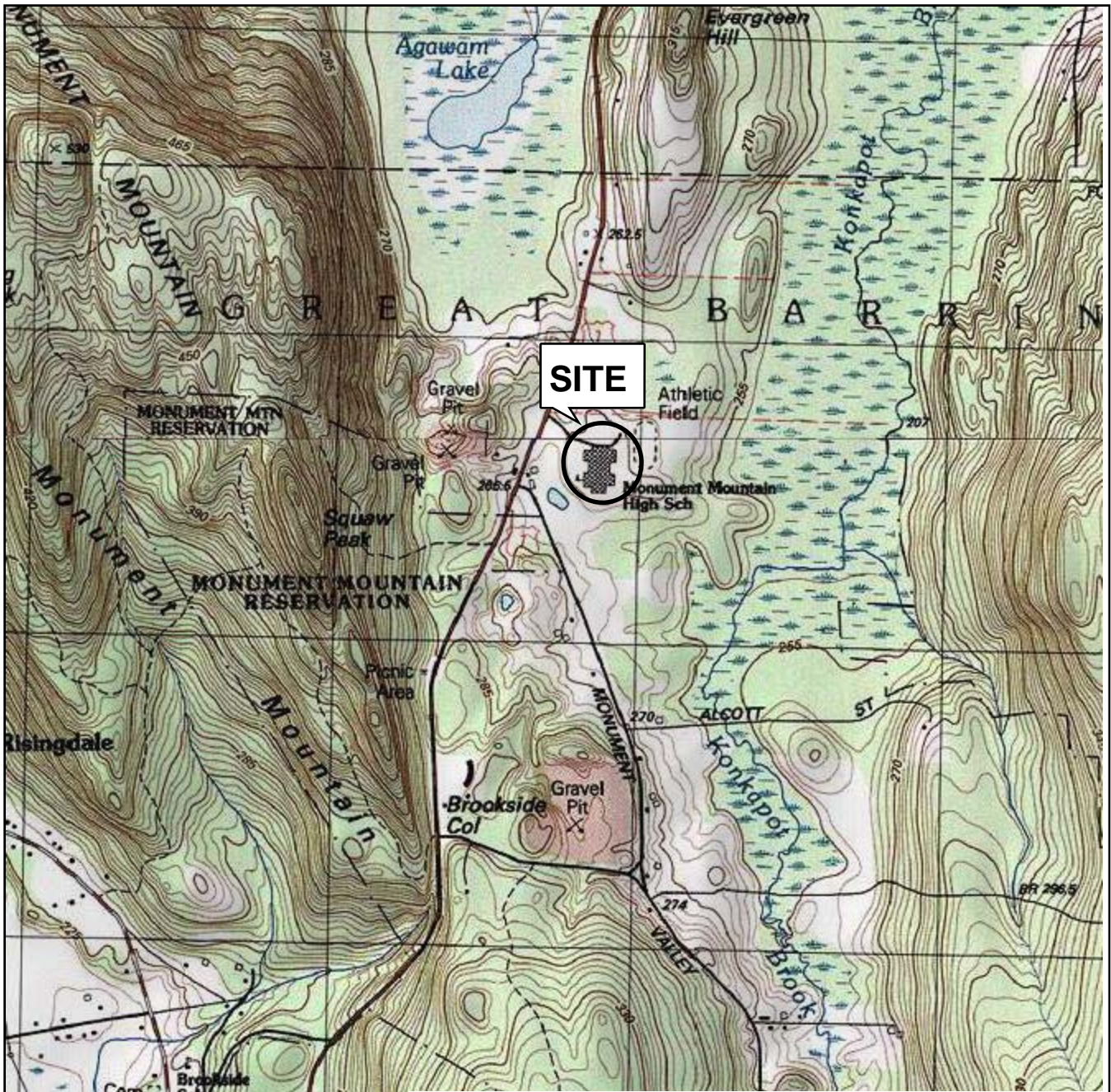

Ashley L. Sullivan, P.E.
Project Manager


Michael J. Talbot, P.E.
Principal

Attachments: Limitations, Site Locus, Site Plan, Boring Logs, Test Pit Logs, Test Pit Photographs

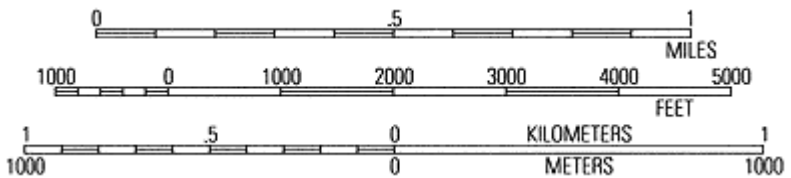
LIMITATIONS

1. The observations presented in this report were made under the conditions described herein. The conclusions presented in this report were based solely upon the services described in the report and not on scientific tasks or procedures beyond the scope of the project or the time and budgetary constraints imposed by the client. The work described in this report was carried out in accordance with the Statement of Terms and Conditions attached to our proposal.
2. The analysis and recommendations submitted in this report are based in part upon the data obtained from widely spaced subsurface explorations. The nature and extent of variations between these explorations may not become evident until construction. If variations then appear evident, it may be necessary to reevaluate the recommendations of this report.
3. The generalized soil profile described in the text is intended to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized and have been developed by interpretations of widely spaced explorations and samples; actual soil transitions are probably more erratic. For specific information, refer to the boring logs.
4. In the event that any changes in the nature, design or location of the proposed structures are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and conclusions of this report modified or verified in writing by O'Reilly, Talbot & Okun Associates Inc. It is recommended that we be retained to provide a general review of final plans and specifications.
5. Our report was prepared for the exclusive benefit of our client. Reliance upon the report and its conclusions is not made to third parties or future property owners.

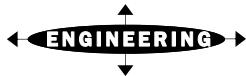


Topographic Map Quadrant: Great Barrington, MA
Map Version: 1997
Current as of: 1997

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O'Reilly, Talbot & Okun
[ASSOCIATES]



293 Bridge Street, Suite 500
Springfield, Massachusetts 01103

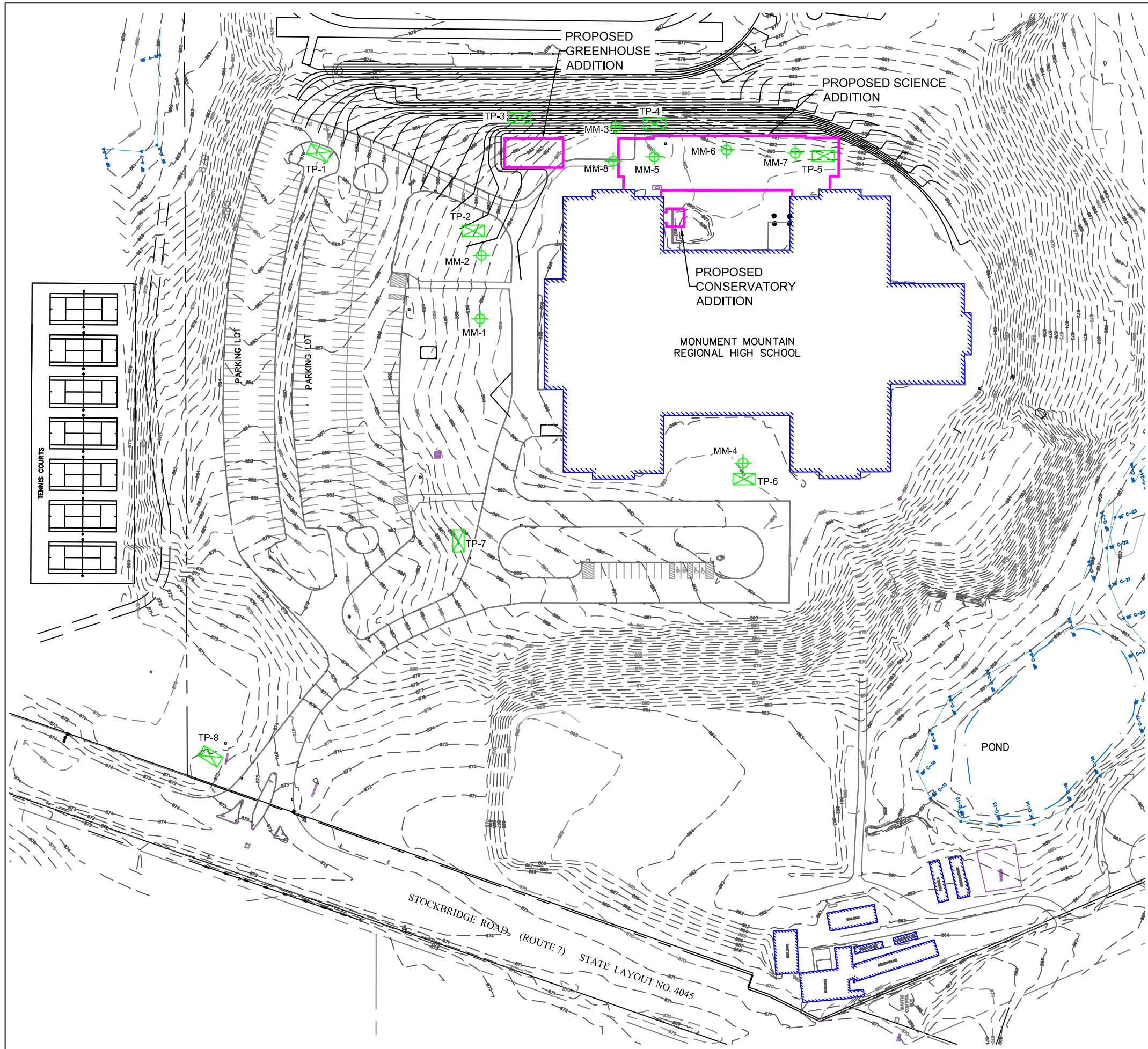
Phone: 413-788-6222
www.oto-env.com

Monument Mountain Regional High School
600 Stockbridge Road
Great Barrington, Massachusetts



SITE LOCUS

February, 2013

Figure 1



LEGEND:

-  SOIL BORING PERFORMED BY SEABOARD DRILLING ON 11/29-11/30/2012, OBSERVED BY OTO
-  TEST PIT PERFORMED BY WILKINSON EXCAVATING ON 11/30/2012, OBSERVED BY OTO

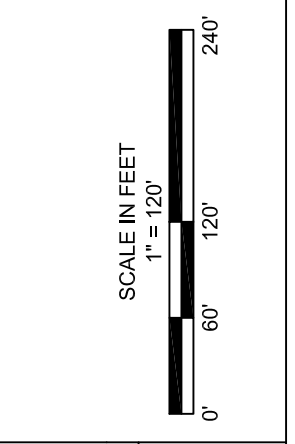
NOTES:

1. BASE MAP PROVIDED TO OTO IN ELECTRONIC FORMAT.
2. SAMPLE LOCATIONS ARE SHOW ACCORDING TO TAPED MEASUREMENTS TAKEN FROM EXISTING SITE FEATURES.
3. ALL DATA IS TO BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHOD(S) USED IN THE DEVELOPMENT OF THIS PLAN.

DESIGNED BY: ALS
 DRAWN BY: CDA
 CHECKED BY: MJT
 DATE: JANUARY, 2013

O'REILLY, TALBOT & OKUN
 ASSOCIATES
 ENGINEERING

293 BRIDGE STREET
 SUITE 500
 SPRINGFIELD, MA 01103
 PHONE: (413) 788-6222
 EMAIL: OFFICE@OTO-ENV.COM



MONUMENT MOUNTAIN REGIONAL HIGH SCHOOL
 GREAT BARRINGTON, MASSACHUSETTS

SITE PLAN

PROJECT No.
J2354-01-01

FIGURE No.
2

O'REILLY, TALBOT & OKUN ASSOCIATES, INC.
 ENVIRONMENTAL AND GEOTECHNICAL ENGINEERING CONSULTANTS

LOG OF BORING MM-1

Page 1 OF 1

PROJECT : Monument Mountain Regional High School, 600 Stockbridge Road		LOCATION: Great Barrington, MA		PROJECT NO. : 2354-01-01	
DRILLING CONTRACTOR Seaboard Environmental Drilling		FOREMAN Jeff HELPER Hector		DATE STARTED 11/29/2012	
DRILLING EQUIPMENT B-53 Truck Mounted Rig		COMPLETION DEPTH 13.5'		GROUND SURFACE ELEV. DATUM 894'	
TYPE BIT Hollow Stem Auger		SIZE &TYPE OF CORE BARREL Rod		No. Samples 6	
CASING		DROP		TIME	
CASING HAMM.		WEIGHT		WATER LEVEL (FT.)	
SAMPLER: 2" O.D. Split Spoon		Rod A 1 5/8" O.D.		None encountered	
SAMPLER HAMMER Safety		WEIGHT 140 lbs.		DROP 30" (Wire Line)	
		BORING North side of existing school building		LOCATION	
		ENGINEER/GEOLOGIST Steve McLaughlin			

SAMPLES	DEPTH FT.	SAMPLES			DESCRIPTION	FIELD MEASUREMENTS (PID)	SOIL DESCRIPTION	REMARKS
		PENETR. RESIST. BL/6 IN.	REC. IN.	TYPE/ NO.				
X	0	3/6/7/7	7/24	S-1 (0'-2')	Medium dense, dark brown, fine SAND, little silt, trace organics (roots), trace(-) gravel, trace(-) coarse sand, dry (TOPSOIL)	0.0	TOPSOIL FINE SAND	
X	2	7/8/6/7	12/24	S-2 (2'-4')	Medium dense, brown, fine SAND, little silt, trace gravel, trace(-) medium sand, moist	0.9		
X	4	6/13/23/29	20/24	S-3 (4'-6')	Top 2": Dense, brown, fine SAND, little silt, trace(-) medium sand, moist Bottom 18": Dense, light brown to white, fine SAND, trace(+) silt, dry	0.4		
X	6	35/44/ 50 for 4"	10/24	S-4 (6'-8')	Very dense, light brown to white, fine SAND, trace(+) silt, dry	0.0		
X	8	25/39/49 50 for 5"	14/24	S-5 (8'-10')	Very dense, light brown to white, fine SAND, trace(+) silt, dry	0.0		
X	10	50/47/42/ 50 for 5"	12/24	S-6 (10'-12')	Very dense, light brown to white, fine SAND, trace(+) silt, trace(-) gravel (limestone pieces), dry	0.0		
X	12							
X	14	50 for 1"		S-7 (13.5'-15.5')	Auger refusal at 13.5' upon large boulder - No Recovery			2. 3.
X	16							
X	18							
X	20							
X	22							
X	24							
X	26							
X	28							
X	30							

Remarks:

1. Soil screened in field using MiniRae 3000 photoionization detector (PID) referenced to benzene in air. Readings in parts per million by volume. "ND" indicates none detected
2. Auger grinding 12.5' - 13.5' auger stopped progressing at 13.5'
3. Spoon bouncing

O'REILLY, TALBOT & OKUN ASSOCIATES, INC.
 ENVIRONMENTAL AND GEOTECHNICAL ENGINEERING CONSULTANTS

LOG OF BORING MM-2

PROJECT : Monument Mountain Regional High School, 600 Stockbridge Road		LOCATION: Great Barrington, MA	PROJECT NO. : 2354-01-01
DRILLING CONTRACTOR Seaboard Environmental Drilling		DATE STARTED 11/29/2012	DATE FINISHED 11/29/2012
DRILLING EQUIPMENT B-53 Truck Mounted Rig		COMPLETION DEPTH 15.5'	GROUND SURFACE ELEV. DATUM 893'
TYPE BIT Hollow Stem Auger		SIZE & TYPE OF CORE BARREL Rod	No. Samples 7
CASING		TIME	UNDIST.
CASING HAMM.		WEIGHT	DROP
SAMPLER: 2" O.D. Split Spoon		WEIGHT 140 lbs.	DROP 30" (Wire Line)
SAMPLER HAMMER Safety		BORING LOCATION North side of existing school building	
		ENGINEER/GEOLOGIST Steve McLaughlin	

SAMPLES	DEPTH FT.	SAMPLES			DESCRIPTION	FIELD MEASUREMENTS (PID)	SOIL DESCRIPTION	WELL CONSTRUCTION	
		PENETR. RESIST. BL/6 IN.	REC. IN.	TYPE/ NO.					
	0	2/2/3/3	11/24	S-1 (0'-2')	Loose, dark brown, fine SAND, little silt, trace(+) organics(roots), in upper 8", trace medium sand, dry	1.0	TOPSOIL FINE SAND	2'	3'
	5	4/8/10/12	13/24	S-2 (2'-4')	Medium dense, brown, fine SAND, little silt, trace gravel, trace(-) medium sand, moist	0.0		3'	5'
	10	8/12/12/14	14/24	S-3 (4'-6')	Medium dense, brown to light brown, fine SAND, trace(+) silt, trace(+) gravel, trace (-) medium sand, dry	0.0		3'	5'
	15	25/25/24/29	13/24	S-4 (6'-8')	Dense, light brown, fine SAND, trace(+) silt, trace(+) gravel, trace coarse sand, dry	0.0		3'	5'
	20	16/18/25/22	11/24	S-5 (8'-10')	Dense, light brown, fine SAND, trace(+) silt, trace(+) gravel, trace coarse sand, dry	0.0		3'	5'
	25	17/28/38/49	12/24	S-6 (10'-12')	Very dense, brown to light brown, fine SAND, trace(+) silt, trace(+) gravel, trace coarse sand, dry	0.0		3'	5'
	30	50 for 5"	1/24	S-7 (15'-17')	Rock fragment (Limestone) Auger refusal at 15.5' upon larger boulder or bedrock			15'	

Remarks:

1. Soil screened in field using MiniRae 3000 photoionization detector (PID) referenced to benzene in air. Readings in parts per million by volume. "ND" indicates none detected
2. Auger grinding at 4' - 5', 6' - 10'
3. Possible granular fill material
4. Auger grinding at 15' - 15.5'
5. Installed well on 11/30/2012, screen 10'-15', riser to surface, sand pack 5'-15', bentonite 2'-3', fill 0-2', curb box at surface

O'REILLY, TALBOT & OKUN ASSOCIATES, INC.
 ENVIRONMENTAL AND GEOTECHNICAL ENGINEERING CONSULTANTS

LOG OF BORING MM-3

Page 1 OF 1

PROJECT : Monument Mountain Regional High School, 600 Stockbridge Road		LOCATION: Great Barrington, MA		PROJECT NO. : 2354-01-01	
DRILLING CONTRACTOR Seaboard Environmental Drilling		FOREMAN Jeff HELPER Hector		DATE STARTED 11/29/2012	
DRILLING EQUIPMENT B-53 Truck Mounted Rig		COMPLETION DEPTH 15'		GROUND SURFACE ELEV. DATUM 894'	
TYPE BIT Hollow Stem Auger		SIZE &TYPE OF CORE BARREL Rod		No. Samples 6	
CASING		DROP		TIME	
CASING HAMM.		WEIGHT		WATER LEVEL (FT.)	
SAMPLER: 2" O.D. Split Spoon		Rod A 1 5/8" O.D.		None encountered	
SAMPLER HAMMER Safety		WEIGHT 140 lbs.		DROP 30" (Wire Line)	
				BORING East side of existing school building	
				LOCATION	
				ENGINEER/GEOLOGIST Steve McLaughlin	

SAMPLES	DEPTH FT.	SAMPLES			DESCRIPTION	FIELD MEASUREMENTS (PID)	SOIL DESCRIPTION	REMARKS
		PENETR. RESIST. BL/6 IN.	REC. IN.	TYPE/ NO.				
X	0	2/5/5/5	8/24	S-1 (0'-2')	Medium dense, dark brown, fine SAND, little silt, trace(+) organics(roots), trace(-) gravel, trace(-) medium sand, dry (TOPSOIL)	0.0	TOPSOIL FINE SAND	
X	2	4/4/4/4	0/24	S-2 (2'-4')	No Recovery	--		
X	4	5/5/11/12	10/24	S-3 (4'-6')	Medium dense, brown, fine SAND, little silt, trace gravel, trace(-) medium sand, moist	0.0		
X	6	14/19/22/18	17/24	S-4 (6'-8')	Top 2": Dense, brown, fine SAND, little silt, trace gravel, trace(-) medium sand, moist Bottom 5": Dense, light brown, fine SAND, trace(+) silt, trace gravel, trace(-) medium sand, dry	0.0		2.
X	10	11/15/14/20	13/24	S-5 (10'-12')	Medium dense, light brown, fine SAND, trace(-) silt, trace gravel, dry	0.0		3.
X	15	37/ 50 for 4"	3/24	S-6 (15'-17')	Very dense, light brown to white, fine SAND, trace(+) silt, trace(+) gravel, (limestone fragments), dry Auger refusal at 15' upon boulder or bedrock			4.,5.
	20							
	25							

Remarks:

1. Soil screened in field using MiniRae 3000 photoionization detector (PID) referenced to benzene in air. Readings in parts per million by volume. "ND" indicates none detected
2. Auger grinding at 7.5'
3. Auger grinding at 10, 12' - 14'
4. Auger grinding at 15'
5. Auger refusal at 15' upon boulder or bedrock

O'REILLY, TALBOT & OKUN ASSOCIATES, INC.
 ENVIRONMENTAL AND GEOTECHNICAL ENGINEERING CONSULTANTS

LOG OF BORING MM-4

PROJECT : Monument Mountain Regional High School, 600 Stockbridge Road		LOCATION: Great Barrington, MA	PROJECT NO. : 2354-01-01
DRILLING CONTRACTOR Seaboard Environmental Drilling		FOREMAN Jeff HELPER Hector	DATE STARTED 11/29/2012
DRILLING EQUIPMENT B-53 Truck Mounted Rig		COMPLETION DEPTH 17'	GROUND SURFACE ELEV. DATUM 895'
TYPE BIT Hollow Stem Auger		SIZE &TYPE OF CORE BARREL Rod	No. Samples 5
CASING		TIME	FIRST COMPL. HR.
CASING HAMM. WEIGHT DROP		WATER LEVEL (FT.) None encountered	
SAMPLER: 2" O.D. Split Spoon Rod A 1 5/8" O.D.		BORING West side of school, near main entrance	
SAMPLER HAMMER Safety		LOCATION	
WEIGHT 140 lbs. DROP 30" (Wire Line)		ENGINEER/GEOLOGIST Steve McLaughlin	

SAMPLES	DEPTH FT.	SAMPLES			DESCRIPTION	FIELD MEASUREMENTS (PID)	SOIL DESCRIPTION	REMARKS
		PENETR. RESIST. BL/6 IN.	REC. IN.	TYPE/ NO.				
X	0	2/3/6/10	14/24	S-1 (0'-2')	Top 8": Loose, dark brown, fine SAND, little silt, trace medium sand, trace organics(roots), dry (TOPSOIL) Bottom 6": Loose, light brown, fine SAND, trace(+) silt, trace gravel, dry	0.0	TOPSOIL FINE SAND	
X	5	9/11/11/13	13/24	S-2 (2'-4')	Medium dense, light brown, fine SAND, trace(+) silt, trace gravel, dry	0.0		2.
X	10	15/24/24/ 50 for 5"	21/24	S-3 (5'-7')	Dense, brown, fine SAND, trace(+) to little silt, trace gravel, trace(-) medium sand, dry	0.0		3.
X	15	28/28/40/ 50 for 5"	22/24	S-4 (10'-12')	Very dense, brown, fine SAND, trace(+) to little silt, trace gravel, trace(-) medium sand, moist	0.0		4.
X	20	50 for 0"	0/24	S-5 (15'-17')	No Recovery	--		5.
X	25	35/ 50 for 4"	5/24	S-6 (17'-19')	Very dense, brown, fine SAND, trace(+) silt, trace gravel, trace(-) medium sand, moist Auger refusal at 17' upon dense soil conditions	0.0		

Remarks:

1. Soil screened in field using MiniRae 3000 photoionization detector (PID) referenced to benzene in air. Readings in parts per million by volume. "ND" indicates none detected
2. Auger grinding at 5', 6' - 7'
3. Auger grinding at 10', 13'
4. Spoon bouncing
5. Auger refusal at 17' upon dense soil conditions, very slow auger progress

O'REILLY, TALBOT & OKUN ASSOCIATES, INC.
 ENVIRONMENTAL AND GEOTECHNICAL ENGINEERING CONSULTANTS

LOG OF BORING MM-5

PROJECT : Monument Mountain Regional High School, 600 Stockbridge Road		LOCATION: Great Barrington, MA	PROJECT NO. : 2354-01-01
DRILLING CONTRACTOR Seaboard Environmental Drilling		FOREMAN Jeff HELPER Hector	DATE STARTED 11/30/2012
DRILLING EQUIPMENT B-53 Truck Mounted Rig		COMPLETION DEPTH 17'	GROUND SURFACE ELEV. DATUM 895'
TYPE BIT Hollow Stem Auger		SIZE & TYPE OF CORE BARREL Rod	No. Samples 6
CASING		TIME	FIRST
CASING HAMM.		WEIGHT	DROP
SAMPLER: 2" O.D. Split Spoon		Rod A 1 5/8" O.D.	WATER LEVEL (FT.)
SAMPLER HAMMER Safety		WEIGHT 140 lbs.	DROP 30" (Wire Line)
		BORING LOCATION	ENGINEER/GEOLOGIST Steve McLaughlin
		West side of school building	

SAMPLES	DEPTH FT.	SAMPLES			DESCRIPTION	FIELD MEASUREMENTS (PID)	SOIL DESCRIPTION	REMARKS
		PENETR. RESIST. BL/6 IN.	REC. IN.	TYPE/ NO.				
X	0	11/11/25/11	5/24	S-1 (0'-2')	4": ASPHALT Dense, brown, fine SAND, little silt, trace(+) coarse sand, trace gravel, trace medium sand, dry	0.0	ASPHALT FINE SAND	
X	2	12/14/10/9	13/24	S-2 (2'-4')	Medium dense, brown, fine SAND, trace(+) to little silt, trace gravel, trace medium sand, moist	0.0		
X	5	4/3/3/4	4/24	S-3 (5'-7')	Loose, brown, fine SAND, little silt, trace medium sand, trace(-) coarse sand, moist	0.0		2.
X	8	8/14/14/10	10/24	S-4 (7'-9')	Medium dense, light brown, fine SAND, trace(+) silt, trace gravel, trace(-) medium sand, dry	0.0		3.
X	10	7/17/16/36	16/24	S-5 (10'-12')	Dense, light brown, fine SAND, trace(+) to little silt, trace(-) gravel, trace(-) medium sand, dry	0.0		
X	15	36/31/37/ 50 for 4"	11/24	S-6 (15'-17')	Very dense, light brown to white, fine SAND, trace(+) silt, trace gravel, (limestone fragments), dry	0.0		
					Auger refusal at 17'			

Remarks:

1. Soil screened in field using MiniRae 3000 photoionization detector (PID) referenced to benzene in air. Readings in parts per million by volume. "ND" indicates none detected
2. Rock in tip
3. Auger grinding at 8' - 9'

O'REILLY, TALBOT & OKUN ASSOCIATES, INC.
 ENVIRONMENTAL AND GEOTECHNICAL ENGINEERING CONSULTANTS

LOG OF BORING MM-6

PROJECT : Monument Mountain Regional High School, 600 Stockbridge Road		LOCATION: Great Barrington, MA		PROJECT NO. : 2354-01-01	
DRILLING CONTRACTOR Seaboard Environmental Drilling		FOREMAN Jeff HELPER Hector		DATE STARTED 11/30/2012	
DRILLING EQUIPMENT B-53 Truck Mounted Rig		COMPLETION DEPTH 19.5'		GROUND SURFACE ELEV. DATUM 894'	
TYPE BIT Hollow Stem Auger		SIZE &TYPE OF CORE BARREL Rod		No. Samples 7	
CASING		DROP		TIME	
CASING HAMM.		WEIGHT		WATER LEVEL (FT.)	
SAMPLER: 2" O.D. Split Spoon		Rod A 1 5/8" O.D.		BORING West side of school building	
SAMPLER HAMMER Safety		WEIGHT 140 lbs.		LOCATION	
		DROP 30" (Wire Line)		ENGINEER/GEOLOGIST Steve McLaughlin	

SAMPLES	DEPTH FT.	SAMPLES			DESCRIPTION	FIELD MEASUREMENTS (PID)	SOIL DESCRIPTION	REMARKS
		PENETR. RESIST. BL/6 IN.	REC. IN.	TYPE/ NO.				
X	0	2/5/8/10	13/24	S-1 (0'-2')	Top 6": Medium dense, dark brown, fine SAND, little silt, trace organics(roots), trace(-) medium sand, dry (TOPSOIL) Bottom 7": Medium dense, brown, fine SAND, little silt, trace(-) medium sand, trace(-) debris(slag), moist	0.0	TOPSOIL FINE SAND	
X	5	5/5/11/6	7/24	S-2 (2'-4')	Medium dense, brown, fine SAND, little silt, trace(+) medium sand, trace gravel, dry	0.0		2.
X	10	13/9/8/8	11/24	S-3 (5'-7')	Medium dense, brown, fine SAND, trace(+) to little silt, trace(+) gravel, trace medium sand, dry	0.0		
X	15	13/16/19/22	11/24	S-4 (7'-9')	Dense, brown to little brown, fine SAND, trace(+) to little silt, trace gravel, dry	0.0		3.
X	20	55/53/28/34	14/24	S-5 (10'-12')	Very dense, brown to light brown, fine SAND, trace(+) silt, trace(+) gravel, (limestone fragments), dry	0.0		
X	25	24/30/44/50 for 5"	8/24	S-6 (15'-17')	Very dense, light brown to white, GRAVEL, (limestone fragments some fine SAND, trace(+) silt, dry	0.0		
X	30	28/50 for 5"	3/24	S-7 (19.5'-21.5')	Very dense, light brown, fine SAND, little gravel (limestone fragments), trace (+) silt, moist Auger refusal at 19.5' upon likely boulder	0.0		4.

Remarks:

1. Soil screened in field using MiniRae 3000 photoionization detector (PID) referenced to benzene in air. Readings in parts per million by volume. "ND" indicates none detected
2. Auger grinding at 4'
3. Auger grinding at 8'
4. Auger grinding at 19.5', no progress, sample at 19.5'
5. Auger refusal at 19.5' upon likely boulder

O'REILLY, TALBOT & OKUN ASSOCIATES, INC.
 ENVIRONMENTAL AND GEOTECHNICAL ENGINEERING CONSULTANTS

LOG OF BORING MM-7

Page 1 OF 1

PROJECT : Monument Mountain Regional High School, 600 Stockbridge Road		LOCATION: Great Barrington, MA		PROJECT NO. : 2354-01-01	
DRILLING CONTRACTOR Seaboard Environmental Drilling		FOREMAN Jeff HELPER Hector		DATE STARTED 11/30/2012	
DRILLING EQUIPMENT B-53 Truck Mounted Rig		COMPLETION DEPTH 6'		GROUND SURFACE ELEV. DATUM 893'	
TYPE BIT Hollow Stem Auger		SIZE &TYPE OF CORE BARREL Rod		No. Samples 2	
CASING		DROP		TIME	
CASING HAMM.		WEIGHT		WATER LEVEL (FT.)	
SAMPLER: 2" O.D. Split Spoon		Rod A 1 5/8" O.D.		BORING East side of school building	
SAMPLER HAMMER Safety		WEIGHT 140 lbs.		LOCATION	
		DROP 30" (Wire Line)		ENGINEER/GEOLOGIST Steve McLaughlin	

SAMPLES	DEPTH FT.	SAMPLES			DESCRIPTION	FIELD MEASUREMENTS (PID)	SOIL DESCRIPTION	REMARKS
		PENETR. RESIST. BL/6 IN.	REC. IN.	TYPE/ NO.				
X	0	4/8/11/10	12/24	S-1 (0'-2')	Top 6": Medium dense, dark brown, fine SAND, little silt, trace(-) organics, dry (TOPSOIL) Bottom 6": Medium dense, light brown to white, fine SAND, trace(+) silt, trace gravel, trace(-) medium sand, dry	0.0	TOPSOIL FINE SAND	2.
X	2	12/17/22/17	10/24	S-2 (2'-4')	Dense, light brown, fine SAND, trace(-) silt, trace(+) coarse sand, trace gravel, dry	0.0	↓	
X	5	49/ 50 for 1'	0/24	S-3 (5'-7')	No Recovery		↓	3.
	6				Auger refusal at 6'			
	10							
	15							
	20							
	25							

Remarks:

1. Soil screened in field using MiniRae 3000 photoionization detector (PID) referenced to benzene in air. Readings in parts per million by volume. "ND" indicates none detected
2. Auger grinding at 1.5', refusal at 2', move boring 2' north, auger to 5'
3. Auger refusal at 6', move boring 3' north, auger to 10', auger refusal at 3'

O'REILLY, TALBOT & OKUN ASSOCIATES, INC.
 ENVIRONMENTAL AND GEOTECHNICAL ENGINEERING CONSULTANTS

LOG OF BORING MM-8

Page 1 OF 1

PROJECT : Monument Mountain Regional High School, 600 Stockbridge Road		LOCATION: Great Barrington, MA		PROJECT NO. : 2354-01-01	
DRILLING CONTRACTOR Seaboard Environmental Drilling		FOREMAN Jeff HELPER Hector		DATE STARTED 11/30/2012	
DRILLING EQUIPMENT B-53 Truck Mounted Rig		COMPLETION DEPTH 10'		GROUND SURFACE ELEV. DATUM 895'	
TYPE BIT Hollow Stem Auger		SIZE & TYPE OF CORE BARREL Rod		No. Samples 5	
CASING HAMM.		WEIGHT		DROP	
SAMPLER: 2" O.D. Split Spoon		Rod A 1 5/8" O.D.		BORING East side of school building	
SAMPLER HAMMER Safety		WEIGHT 140 lbs.		DROP 30" (Wire Line)	
				ENGINEER/GEOLOGIST Steve McLaughlin	

SAMPLES	DEPTH FT.	SAMPLES			DESCRIPTION	FIELD MEASUREMENTS (PID)	SOIL DESCRIPTION	REMARKS
		PENETR. RESIST. BL/6 IN.	REC. IN.	TYPE/ NO.				
		9/10/15/13	11/24	S-1 (0-2)	3": ASPHALT Top 3": Medium dense, brown, fine SAND, little medium sand, trace(+) silt, trace coarse sand, trace(-) gravel, dry Bottom 8": Medium dense, brown to light brown, fine SAND, trace(+) to little silt, trace coarse sand, trace medium sand, dry	0.0	ASPHALT FINE SAND	
		18/15/10/10	8/24	S-2 (2'-4')	Medium dense, brown to light brown, fine SAND, trace(+) to little silt, trace coarse sand, trace(-) medium sand, trace(-) gravel, dry	0.0		
	5	10/11/9/10	11/24	S-3 (4'-6')	Medium dense, brown to light brown, fine SAND, trace(+) to little silt, trace medium sand, moist	0.0		
		13/30/37/35	3/24	S-4 (6'-8')	Very dense, brown, fine SAND, trace(+) to little silt, trace medium sand, moist	0.0		
	10	22/24/24/25	0/24	S-5 (8'-10')	No Recovery	--		
		50 for 4"	1/24	S-6 (10'-12')	Rock fragment (Limestone) End of exploration at 10'	--		
	15							
	20							
	25							

Remarks:
 1. Soil screened in field using MiniRae 3000 photoionization detector (PID) referenced to benzene in air. Readings in parts per million by volume. "ND" indicates none detected

TEST PIT LOG

O'Reilly, Talbot & Okun Associates, Inc. 293 Bridge Street, Suite 500 Springfield, Massachusetts 01103 (413) 788-6222	PROJECT		Test Pit No. TP-1
	Description:	Monument Mountain Regional High School	Job No.: 2354-01-01
	Location:	Great Barrington, MA	Date: 11/30/2012

Engineer/Geologist: Steve McLaughlin	Contractor: Wilkinson Excavating	Ground Elev: 882 feet
Weather: Cloudy, 30s	Backhoe: John Deere 310 SG	Start: 8:27 a.m.
Operator: Chad	Capacity: 1/4 yard ³	Finish: 8:42 a.m.

DEPTH (ft.)	SOIL DESCRIPTION	EXCAV. EFFORT	BOULDER COUNT	REMARKS
	Top 7": Dark brown, fine SAND, little to some silt, trace(+) organics(roots), dry (TOPSOIL)	E	0	
			~20	
	Brown, fine SAND, trace(+) to little silt, trace(+) gravel, trace medium sand, moist	M	6" diam.	
	Numerous cobble and boulders (fragmented rock pieces)		~15	
5			8" - 12" diam.	
	Brown, fine SAND, little to some silt, trace(+) gravel, trace medium sand, dry	M	~2	
	Occasional boulders		8" - 12" diam.	
	End of exploration at 8'			
10				

REMARKS:

PLAN	LEGEND	EFFORT
		E = Easy M = Moderate D = Difficult

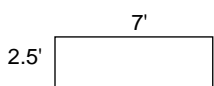

TEST PIT LOG

O'Reilly, Talbot & Okun Associates, Inc. 293 Bridge Street, Suite 500 Springfield, Massachusetts 01103 (413) 788-6222	PROJECT Description: Monument Mountain Regional High School Location: Great Barrington, MA	Test Pit No. TP-2 Job No.: 2354-01-01 Date: 11/30/2012
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Engineer/Geologist: Steve McLaughlin Weather: Cloudy, 30s Operator: Chad	Contractor: Wilkinson Excavating Backhoe: John Deere 310 SG Capacity: 1/4 yard ³	Ground Elev: 892 feet Start: 9:00 a.m. Finish: 9:27 a.m.
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DEPTH (ft.)	SOIL DESCRIPTION	EXCAV. EFFORT	BOULDER COUNT	REMARKS
	Top 8": Dark brown, fine SAND, little silt, trace organics(roots), dry(TOPSOIL)	E	0	
	Brown, fine SAND, trace(+) to little silt, trace gravel, trace(-) medium sand, trace(-) organics (roots), dry	E	0	
5	Light brown, fine SAND, trace(+) silt, trace gravel, trace(-) medium sand, dry Numerous boulders, occassional cobbles	M	~10 12"+ diam. ~8 6" - 8" diam.	
10	End of exploration at 9'			

REMARKS:

PLAN 	LEGEND 	EFFORT E = Easy M = Moderate D = Difficult
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TEST PIT LOG

O'Reilly, Talbot & Okun Associates, Inc. 293 Bridge Street, Suite 500 Springfield, Massachusetts 01103 (413) 788-6222	PROJECT Description: Monument Mountain Regional High School Location: Great Barrington, MA	Test Pit No. TP-3 Job No.: 2354-01-01 Date: 11/30/2012
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Engineer/Geologist: Steve McLaughlin Weather: Cloudy, 30s Operator: Chad	Contractor: Wilkinson Excavating Backhoe: John Deere 310 SG Capacity: 1/4 yard ³	Ground Elev: 887 feet Start: 9:35 a.m. Finish: 9:50 a.m.
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DEPTH (ft.)	SOIL DESCRIPTION	EXCAV. EFFORT	BOULDER COUNT	REMARKS
	Top 10": Dark brown, fine SAND, little silt, trace organics(roots), dry(TOPSOIL)	E	0	
	Brown, fine SAND, little silt, trace gravel, dry	E	0	
5	Light brown, fine SAND, trace(+) silt, trace(+) gravel, trace medium sand, dry Occasional cobbles and boulders	M	~6 6" - 8" diam. ~3 12" diam.	
10	End of exploration at 8.5'			

REMARKS:

PLAN 	LEGEND 	EFFORT E = Easy M = Moderate D = Difficult
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TEST PIT LOG

O'Reilly, Talbot & Okun Associates, Inc. 293 Bridge Street, Suite 500 Springfield, Massachusetts 01103 (413) 788-6222	PROJECT	Test Pit No. TP-4
	Description: Monument Mountain Regional High School	Job No.: 2354-01-01
	Location: Great Barrington, MA	Date: 11/30/2012

Engineer/Geologist: Steve McLaughlin	Contractor: Wilkinson Excavating	Ground Elev: 894 feet
Weather: Cloudy, 30s	Backhoe: John Deere 310 SG	Start: 10:20 a.m.
Operator: Chad	Capacity: 1/4 yard ³	Finish: 10:40 a.m.

DEPTH (ft.)	SOIL DESCRIPTION	EXCAV. EFFORT	BOULDER COUNT	REMARKS
	Top 8": Dark brown, fine SAND, little silt, trace organics(roots), dry (TOPSOIL)	E	0	
	Brown, fine SAND, little silt, trace gravel, trace(-) medium sand, trace(-) debris(coal), dry	E	~5	
	Occassional boulders		8" - 12" diam.	
5				
	Light brown, fine SAND, trace(+) silt, trace(+) gravel, trace medium sand, dry	M	~5	
	Occassional cobbles and boulders		6" diam.	
			~3	
			8" diam.	
10				
	End of exploration at 10'			

REMARKS:

PLAN	LEGEND	EFFORT
		E = Easy M = Moderate D = Difficult

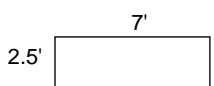
TEST PIT LOG

O'Reilly, Talbot & Okun Associates, Inc. 293 Bridge Street, Suite 500 Springfield, Massachusetts 01103 (413) 788-6222	PROJECT Description: Monument Mountain Regional High School Location: Great Barrington, MA	Test Pit No. TP-5 Job No.: 2354-01-01 Date: 11/30/2012
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Engineer/Geologist: Steve McLaughlin Weather: Cloudy, 30s Operator: Chad	Contractor: Wilkinson Excavating Backhoe: John Deere 310 SG Capacity: 1/4 yard ³	Ground Elev: 893.5 feet Start: 11:17 a.m. Finish: 11:30 a.m.
--	---	--

DEPTH (ft.)	SOIL DESCRIPTION	EXCAV. EFFORT	BOULDER COUNT	REMARKS
	Top 6": Dark brown, fine SAND, little silt, trace organics(roots), dry (Topsoil)	E	0	
	Brown, fine SAND, little silt, trace gravel, trace medium sand, trace(-) coarse sand, moist. Occassional cobbles	E	~2 6" diam.	
5	Brown to light brown, fine SAND, trace(+) to little silt, trace(+) gravel (limestone fragments), trace(-) medium sand, moist Numerous cobbles and boulders	M	~15 6" - 8" diam. ~7 8" - 12" diam.	
10	End of exploration at 8.5'			

REMARKS:

PLAN 	LEGEND N →	EFFORT E = Easy M = Moderate D = Difficult
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TEST PIT LOG

O'Reilly, Talbot & Okun Associates, Inc. 293 Bridge Street, Suite 500 Springfield, Massachusetts 01103 (413) 788-6222	PROJECT	Test Pit No. TP-6
	Description: Monument Mountain	Job No.: 2354-01-01
	Location: Regional High School Great Barrington, MA	Date: 11/30/2012

Engineer/Geologist: Steve McLaughlin	Contractor: Wilkinson Excavating	Ground Elev: 895 feet
Weather: Cloudy, 30s	Backhoe: John Deere 310 SG	Start: 12:48 p.m.
Operator: Chad	Capacity: 1/4 yard ³	Finish: 1:04 p.m.

DEPTH (ft.)	SOIL DESCRIPTION	EXCAV. EFFORT	BOULDER COUNT	REMARKS
	Top 10": Dark brown, fine SAND, little silt, trace organics(roots), dry (Topsoil)	E	0	
5	Brown to light brown, fine SAND, trace(+) silt, trace(+) gravel, trace(-) medium sand, dry Numerous cobbles, occassional boulders	M	~10 6" diam. ~6 8" - 12" diam.	
	End of exploration at 7.5' upon boulders			
10				

REMARKS:

PLAN	LEGEND	EFFORT
		E = Easy M = Moderate D = Difficult

TEST PIT LOG

O'Reilly, Talbot & Okun Associates, Inc. 293 Bridge Street, Suite 500 Springfield, Massachusetts 01103 (413) 788-6222	PROJECT	Test Pit No. TP-7
	Description: Monument Mountain Regional High School	Job No.: 2354-01-01
	Location: Great Barrington, MA	Date: 11/30/2012

Engineer/Geologist: Steve McLaughlin	Contractor: Wilkinson Excavating	Ground Elev: 888 feet
Weather: Cloudy, 30s	Backhoe: John Deere 310 SG	Start: 1:15 p.m.
Operator: Chad	Capacity: 1/4 yard ³	Finish: 1:36 p.m.

DEPTH (ft.)	SOIL DESCRIPTION	EXCAV. EFFORT	BOULDER COUNT	REMARKS
	Top 10": Dark brown, fine SAND, little silt, trace(+) organics(roots), trace(-) medium sand, dry (TOPSOIL)	E	0	
	Brown, fine SAND, little silt, trace gravel, trace(-) coarse sand, dry	M	0	
5	Light brown to white, fine SAND, trace(+) silt, trace(+) gravel, (limestone fragments), trace coarse sand, dry Numerous boulders, occassional cobbles	M	~10 8" - 12" diam. ~6 6" diam.	
10	End of exploration at 8'			

REMARKS:

PLAN 	LEGEND 	EFFORT E = Easy M = Moderate D = Difficult
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Test Pit TP-1



Test Pit TP-2



Test Pit TP-3



Test Pit TP-4



Test Pit TP-5



Test Pit TP-6



Test Pit TP-7



Test Pit TP-8

Building Code Analysis

Project Name: Monument Mountain Regional High School

Project Location: Great Barrington, Massachusetts

PROJECT DESCRIPTION:

The project is an addition and renovation to the existing High School, consisting of the construction of a new one-story academic wing. The proposed building has a total area of 134,000 square feet and an existing footprint area of 113,705 square feet. The proposed/existing construction type of the building is Type IIB. Proposed Building will be fully sprinklered. The building area and construction type will be confirmed during design development.

APPLICABLE CODES:

New Buildings - Massachusetts State Building Code, (780 CMR) 8th Edition, based on 2009 IBC and the Mass Amendments

Existing Buildings – 2009 IEBC and the Mass Amendments

Accessibility – Mass Architectural Access Board, (521 CMR) and 2010 ADA Guidelines

Energy – 2009 IECC, and the Mass Amendments, Mass Stretch Energy Code, ASHREY 90.1

Electrical – Mass Electrical Code, (527 CMR)

Mechanical – 2009 IMC

Plumbing – Mass Fuel Gas AND Plumbing Code, (248 CMR)

Elevators – Mass Elevator Regulation, (524 CMR) and ASME A17.1 Safety Code for Elevators

Fire Prevention – Mass Fire Prevention Regulations, (527 CMR)

Others– Selected NFPA Standards as referenced by 780 CMR

CHAPTER 3; USE AND OCCUPANCY CLASSIFICATION:

302.1 General. Buildings or portions of buildings shall be classified with respect to occupancy in one or more of the use groups listed in this section. The spaces that are intended to be occupied for different purposes shall comply with requirements of all uses. Buildings that is for specific use, and not listed in the code under one of the group occupancy, shall be classified in the occupancy group (with agreement of local authorities), that most nearly resembles occupancy, base on the hazard and fire safety.

The building is designed using the mixed occupancy non-separated use option and contain the following occupancy groups.

Occupancy group classification	Uses
A-1 Assembly	Auditorium
A-2 Assembly	Cafeteria, Servery, Staff Dining
A-3 Assembly	Library, Locker Rooms, Multipurpose Athletic Rooms
A-4 Assembly	Gymnasium (with spectator seating)
B-Business	Offices, Teachers’ Work Rooms, Kitchen
E-Educational	Classrooms and Instructional Lab Areas

F-1 and F-2, Industrial
S-1 and S-2, Storage

Mechanical and Electrical spaces, Kiln Room
Storage Rooms, Loading Dock

CHAPTER 4; SPECIAL REQUIREMENTS BASED ON USE AND OCCUPANCY:

The requirements in this chapter apply to special uses, occupancies, and special construction as defined in various sections in this chapter. For this project review the Sections:

410.0 Stages and Platforms: The provisions of Section 410.1 through 410.7 shall apply to all part of buildings those contain stages or platforms. Emergency ventilation of not less than 5% is required for stages larger than 1,000 sq. ft.

CHAPTER 5; GENERAL BUILDING HEIGHTS AND AREAS:

502.1 Definitions:

Building Area: Building area shall include exterior areas below projections of roofs or floors above.

Grade Plane: A reference plane is average finished ground level adjoining the building at exterior walls.

Building Height: Building height is the vertical distance from the grade plane to the highest roof surface.

The proposed building is single story with a maximum floor area of approximately 137,662 square feet. For the purposes of height and area limitations the building is classified as a mixed occupancy building containing predominately group E-Education and A-1, A-2r, A-3 and A-4 Assembly occupancy spaces and incidental use areas. A non-separated use approach is being applied.

503.1 Allowable Building Height: For occupancy use, a fully sprinkled building of construction type IIB, the tabular (Table 503) allowable building height is 2 stories and 55' and can be increased to 3 stories and 75'. The proposed building is 1 story with Gymnasium and Auditorium roof at approximately 30' high.

504.2 Height Increase: Fully sprinkler building height can be increase by 20' and 1 additional story.

506.1 Allowable Building Area: For occupancy use, and construction type IIB, the tabular (Table 503) allowable building area is 14,500 sf. The proposed maximum single floor area is 137,662 square feet.

506.2 Area Increase for Frontage: Where a building has more than 25% of its perimeter on a public way or open space having a minimum width of 20', the frontage formula increase is $I = (F/P - 0.25) W/30$ where: I = frontage increase; F = building perimeter that front on open space; P = total building perimeter; W = width of open space.

$$(.66-.25) 30/30 = .41$$

$$.41 (14,500) = 5,945 \text{ SF}$$

506.3 Area Increase for Sprinklers: Fully sprinkler building area limitation in Table 503 is permitted to be increased an additional 300% for one story buildings.

$$\text{Tabular area} = 14,500 \text{ SF (+1)}$$

$$\text{Additional increase permitted for one story fully sprinklered buildings: } 300\% (+3) = 43,500 \text{ SF}$$

(+1) + (+3) = 14,500 SF + 43,500 SF = 58,000 SF

Total Allowable Building Area- Including all Area Increases:

14,500 + 43,500 + 5,945 = **63,945 SF**

Therefore, the proposed 137,662 SF building would need to be separated, at a minimum, into 3 buildings with a maximum individual building square footage of 63,945 SF.

507.1 Unlimited Area Buildings: The area of buildings can be unlimited if all requirements bellow apply:

- The building is equipped with an automatic sprinkler system.
- Have construction type IA or IB, that is applicable for most occupancies.
- The building is surrounded by increased open space, usually 60' in width.
- The buildings are limited to 1 or 2 stories above grade plane.

For one-story buildings in Use Group E- all classrooms shall have 2 means of egress with at least 1 means of egress being a direct access to the exterior of the building.

This exception does not apply to the proposed building.

CHAPTER 6; TYPE OF CONSTRUCTION:

Table 601 Fire Resistance rating requirements of building elements, for Construction Type IIB:

Building Element	Fire Resistance Rating (Hours)
Primary structural frame	0
Bearing walls, Exterior/Interior	0
Nonbearing walls, Exterior	0
Nonbearing walls and Partitions, Interior	0
Floor construction and secondary members	0
Roof construction and secondary members	0

- a. Fire-resistance ratings of primary structural frame and bearing walls are permitted to be reduced by 1 hour where supporting a roof only.
- b. Except in F-1, H, M and S-1 occupancies, fire protection of structural members not required where the roof construction is 20' above the floor below.
- c. The heavy timber is allowed where a 1 hour is required.

Table 602 Fire Ratings for exterior wall based on fire separation distance:

Fire Separation Distance = X (feet)	Type of constr.	Occupancy F-1, M, S-1g	Occupancy A, B, E, F-2, I, R, S-2g, Ub
X < 5c	All	2	1
5 X < 10	IA/Others	2/1	1/1

10 < 10 < 30	AI, IB/IIB, VB/Others	1/0/1	1d/0/1d
X > 30	All	0	0

- a. Load-bearing exterior walls shall comply with the fire-resistance rating requirements of Table 601.
 - b. For special requirements for U occupancy, see Section 406.1.2.
 - c. See Section 706.1.1 for party walls.
 - d. Open parking garages complying with Section 406 not required a fire-rating.
 - g. For special requirements for S aircraft hangars, see Section 412.4.1.
- Exterior walls with a fire separation of 10' or less should be rated from both sides (interior and exterior).

CHAPTER 7; FIRE AND SMOKE PROTECTION FEATURES:

705.8 Openings: Unprotected openings in the exterior walls are limited based on the fire separation distance to the property or centerline of a public street on the building fronts.

The Table 705.8 outlines the maximum area of openings for a fully sprinkler building:

Fire separation distance (feet)	% of Allowable openings
0 to 3	Not permitted
>3 to 5	15% Unprotected
>5 to 10	25% Unprotected
>10 to 15	45% Unprotected
>15 to 20	75% Unprotected
> 20	Unlimited

705.1 Exterior Walls: Exterior walls of an exit enclosure should comply with requirements of Section 705 for exterior walls. Where nonrated walls or unprotected openings (glass) enclosure the exterior of stairway and the walls or openings are exposed by other parts of the building at an angle of less than 180 degrees, the building exterior walls within 10' horizontally of the nonrated wall or unprotected opening should be constructed as required for a minimum of 1 hour fire resistance rating with ¾ hour opening protection. This construction should extend vertically from the ground to a point 10' above the topmost landing of the stairway or the roof line, whichever is lower.

706.1 Fire Wall: Fire walls serve to create the separated buildings for the purpose of allowable building area and type of construction requirements. A fire-resistance-rated wall having protected openings, which restricts the spread of fire and extend continuously from the foundation to the roof, with sufficient structural stability to allow collapse of construction on either side without allowing the wall to collapse shall be provided.

708.1 Shaft Enclosures: Floor openings are required to be protected in shafts enclosure, unless they meet exceptions in this section. Required shaft enclosure required for elevators, stairs and mechanical shafts.
 Exception 3: Penetration by pipe, conduct and vents protected in accordance with 713.4
 Exception 4: Penetration by ducts protected in accordance with 716.6.

Exception 7: Opening does not connect more than 2 stories.

Opening is not part of the required means of egress, except as permitted by Section 1022.

Opening is separated from other floor openings serving other floors by required shaft enclosures.

Exception 11: Unenclosed stairs in accordance with Exception 3 or 4 in Section 1016.1

CHAPTER 8; INTERIOR FINISHES:

801.1 Scope: Provisions of this chapter shall govern the use of materials used as interior finishes, trim and decorative materials.

The Table 803.9 Interior Wall and Ceiling Finish Requirements by Occupancy:

Occupancy	Exit enclosures	Corridors	Rooms and enclosure spaces
A-1 & A-2	B	B	C
A-3f, A-4, A-5	B	B	C
B, E, M, R-1	B	C	C

CHAPTER 9; FIRE PROTECTION SYSTEMS:

901.1 Scope: The provisions of this chapter shall specify where fire protection system is required and shall apply to design, installation and operation of fire protection systems.

Building is equipped throughout with quick response sprinklers fire alarm and detection systems.

903.2 Exempt locations (MA Amendment): Sprinklers may be omitted in some rooms/spaces with the electrical equipment. The rooms/spaces should be separated by required fire-rated construction from the rest of building and protected by fire detection system.

Main electric room and emergency electric room will be in a 2h enclosure to avoid any water pipe within the room.

905.8 Standpipes (MA Amendment): If the building’s highest story is located more 30’ above the lowest level of fire department vehicle access, standpipe system should be installed in the building. The exit stairways should be equipped with a standpipe riser with the hose outlets.

907.0 Fire Alarm and Detection Systems: Fire alarm and detection systems for the building should be designed in accordance with NFPA 72.

The building will include an emergency voice/alarm system; actuation of the sprinkler system should actuate the building fire alarm system. Audible and visible alarm notification appliances should be provided in accordance with NFPA 72.

912.0 Fire Department Connections: Fire department connection and standpipe systems should be installed in accordance the NFPA standards, with automatic water supply of an adequate pressure and capacity.

906.1 Portable Fire Extinguishers: Portable fire extinguishers should be provided in accordance NFPA 10.

CHAPTER 10; MEANS OF EGRESS:

Table 1004.1.1 Maximum Floor Area Allowances per Occupant

Occupancy	Factor (sq. ft./occupant)
Assembly, fixed seating	Number of fixed seats

Assembly, standing space	5 net
Assembly, chairs only	7 net
Assembly, table and chairs, Stage, Meeting rooms	15 net
Gym, Gym with spectator seating	15 net
Classrooms, small group instruction, Prep rooms	20 net
Mercantile	30 gross
Library reading rooms	50 net
Labs, Shops, Art and Vocational classrooms	50 net
Exercise rooms w/equipment, Locker rooms	50 gross
Office/work area areas, Library stack area	100 net
Kitchen area	200 gross
Storage and Mechanical equipment rooms	300 gross

The minimum required width for any egress element is determined based upon the occupant load it serves and a corresponding egress width factor.

1003.2 Ceiling Height: The means of egress shall have a ceiling height of not less than 7'-6".

1004.5 Egress Convergence: Where means of egress from floor above and below converge at an intermediate level, the capacity of the means of egress from the point of convergence shall not be less than the sum of the two floors.

1005.1 Minimum Egress Width (MA Amendment): The egress width factor is 0.2" per person for stairs in fully sprinkler building and voice alarm communication system; and 0.15" per person for doors, ramps and corridors.

Section 1006 Means of Egress Illumination: The means of egress, including the exit discharge, shall be illuminated at all times when buildings are occupied. The means of egress illumination level shall not be less than 1 f.c. at the walking surface. In the event of power supply failure, an emergency electrical system shall illuminate the means of egress.

1008.1.1 Size of Doors. The minimum width of each door opening shall be sufficient for the occupant load thereof and shall provide a clear width of 32".

1018.1 Corridors: The exit corridors should be design to provide sufficient width for the occupancy load and have a minimum clear width of 44". **Education occupancy corridors should be a minimum 72" wide.**

Occupant Loads and Egress Capacity Analysis:

A preliminary occupant load and egress analysis was performed on the building to determine if adequate egress capacity is provided. Life safety code drawings and room classifications are provided for more in depth and complete occupant load calculation.

The below lists the calculated floor occupancies with door & stair egress capacities.

First Floor Exit Capacity:

First Floor Occupant Load: xxx Occupants

Total Exterior Exit Door widths 770" = xxx Capacity

For the purpose of this analysis it is assumed that a standard 36" wide door provides 33" of clear width.

Exit door capacity factor 0.15" per occupant.

Minimum Number of Exits for Occupant Load:

Table 1015.1 Spaces with One Exit: Two exits from any space should be provided where the occupant load exceeds 50 people (Occupancy A, B, E, F, M, and U) and 30 people (Occupancy S).

Table 1021.1 Number of Exits: Each floor of the building should be served by a minimum of 2 exits. Where the occupant load is greater than 500 occupants, in room, space or floor, a minimum of 3 exits should be provided. Where the occupant load is greater than 1,000 a minimum of 4 exits should be provided.

1015.2.1 Two Exit Doors: Where 2 exits are required, the exit doors should be placed not less than 1/3 of the overall diagonal of the served area in fully sprinkler buildings.

1007.1 Accessible Means of Egress: At least 1 accessible means of egress is required from an accessible room or space. When more than 1 means of egress required from a floor, room or space at least 2 accessible means of egress are required. Accessible means of egress should provide a continuous path of travel to a public way.

The fully sprinkler building, as configured with enclosed exit stairways, complies with the accessible means of egress provisions of the code.

Table 1016.1 Travel Distance Requirement: Exits should be located such that the maximum length of exit access travel, measured from the most remote point to an exit along the natural and unobstructed line of travel does not exceed the following distances.

Occupancy Classification	Maximum Travel Distance (feet)
Occupancy A, E, F-1, S-1	250 feet
Occupancy B	300 feet
Occupancy F-2, S-2	400 feet

1014.3 Common Path of Egress Travel: The common path of travel to point where access to 2 independent exits is provided should not exceed 75 feet, except in occupancy B, F and S, where the maximum common path of travel is permitted to be 100 feet.

1018.4 Dead End: In occupancies B, E, F, I-1, M, R-1, 2 & 4, S and U, in fully sprinkler building, the length shall not exceed 50 feet.

CHAPTER 11; ACCESSIBILITY:

1101.1 Scope: All public buildings shall be designed to be accessible to physically disabled persons, and conform to requirements of 521 CMR.

Accessible route is provided to the building from transportation stops and accessible parking areas.

The main entrance to the buildings must be accessible and 60% of building entrances must be accessible. At least one route shall serve all accessible levels of the multistory buildings. All toilet rooms are accessible. Elevator/chair lifts shall be accessible. Hardware for operable windows shall be accessible.



LEED 2009 for Schools New Construction and Major Renovations

Project Checklist

Monument Mountain Regional HS

Preliminary 3/28/2013

11 1 12 Sustainable Sites Possible Points: 24

Y	?	N	
Y			Prereq 1 Construction Activity Pollution Prevention
Y			Prereq 2 Environmental Site Assessment
1			Credit 1 Site Selection 1
			Credit 2 Development Density and Community Connectivity 4
1			Credit 3 Brownfield Redevelopment 1
			Credit 4.1 Alternative Transportation—Public Transportation Access 4
1			Credit 4.2 Alternative Transportation—Bicycle Storage and Changing Rooms 1
2			Credit 4.3 Alternative Transportation—Low-Emitting and Fuel-Efficient Vehicles 2
2			Credit 4.4 Alternative Transportation—Parking Capacity 2
1			Credit 5.1 Site Development—Protect or Restore Habitat 1
1			Credit 5.2 Site Development—Maximize Open Space 1
1			Credit 6.1 Stormwater Design—Quantity Control 1
1			Credit 6.2 Stormwater Design—Quality Control 1
1			Credit 7.1 Heat Island Effect—Non-roof 1
1			Credit 7.2 Heat Island Effect—Roof 1
1			Credit 8 Light Pollution Reduction 1
1			Credit 9 Site Master Plan 1
1			Credit 10 Joint Use of Facilities 1

6 2 2 Water Efficiency Possible Points: 11

Y			Prereq 1 Water Use Reduction—20% Reduction
4			Credit 1 Water Efficient Landscaping 2 to 4
1			Credit 2 Innovative Wastewater Technologies 2
2			Credit 3 Water Use Reduction 2 to 4
1			Credit 3 Process Water Use Reduction 1

12 6 15 Energy and Atmosphere Possible Points: 33

Y			Prereq 1 Fundamental Commissioning of Building Energy Systems
Y			Prereq 2 Minimum Energy Performance
Y			Prereq 3 Fundamental Refrigerant Management
8	4	7	Credit 1 Optimize Energy Performance 1 to 19
1	6		Credit 2 On-Site Renewable Energy 1 to 7
2			Credit 3 Enhanced Commissioning 2
1			Credit 4 Enhanced Refrigerant Management 1
1	1		Credit 5 Measurement and Verification 2
			Credit 6 Green Power 2

7 3 2 Materials and Resources Possible Points: 13

Y			Prereq 1 Storage and Collection of Recyclables
1	1		Credit 1.1 Building Reuse—Maintain Existing Walls, Floors, and Roof 1 to 2
1			Credit 1.2 Building Reuse—Maintain 50% of Interior Non-Structural Elements 1
2			Credit 2 Construction Waste Management 1 to 2

Materials and Resources, Continued

Y	?	N	
			Credit 3 Materials Reuse 1 to 2
2			Credit 4 Recycled Content 1 to 2
1	1		Credit 5 Regional Materials 1 to 2
			Credit 6 Rapidly Renewable Materials 1
1			Credit 7 Certified Wood 1

10 7 2 Indoor Environmental Quality Possible Points: 19

Y			Prereq 1 Minimum Indoor Air Quality Performance
Y			Prereq 2 Environmental Tobacco Smoke (ETS) Control
Y			Prereq 3 Minimum Acoustical Performance
1			Credit 1 Outdoor Air Delivery Monitoring 1
			Credit 2 Increased Ventilation 1
1			Credit 3.1 Construction IAQ Management Plan—During Construction 1
			Credit 3.2 Construction IAQ Management Plan—Before Occupancy 1
3	1		Credit 4 Low-Emitting Materials 1 to 4
1			Credit 5 Indoor Chemical and Pollutant Source Control 1
1			Credit 6.1 Controllability of Systems—Lighting 1
1			Credit 6.2 Controllability of Systems—Thermal Comfort 1
			Credit 7.1 Thermal Comfort—Design 1
			Credit 7.2 Thermal Comfort—Verification 1
1	1	1	Credit 8.1 Daylight and Views—Daylight 1 to 3
			Credit 8.2 Daylight and Views—Views 1
1			Credit 9 Enhanced Acoustical Performance 1
			Credit 10 Mold Prevention 1

5 1 Innovation and Design Process Possible Points: 6

1			Credit 1.1 Innovation in Design: Low mercury (Hg) 1
1			Credit 1.2 Innovation in Design: Green housekeeping or TBD Pilot Credit 1
1			Credit 1.3 Innovation in Design: Certified Wood 95% or CWM 95% 1
1			Credit 1.4 Innovation in Design: Exemplary Performance-SSc5.2 1
1			Credit 2 LEED Accredited Professional 1
			Credit 3 The School as a Teaching Tool 1

1 3 Regional Priority Credits Possible Points: 4

1			Credit 1.1 Regional Priority: MRC1.1 Building Re-use (75%) 1
			Credit 1.2 Regional Priority: SSc6.2 Storm water quality control 1
			Credit 1.3 Regional Priority: SSc3 Brownfield Redevelopment (Asbestos) 1
			Credit 1.4 Regional Priority: Renewable Energy (1%) 1

52 23 33 Total Possible Points: 110

Certified 40 to 49 points Silver 50 to 59 points Gold 60 to 79 points Platinum 80 to 110



Schematic Design Estimate

**Monument Mountain Regional High School
Design Options**

Great Barrington, MA

Prepared for:

SMMA/ Margo Jones

March 25, 2013



Monument Mountain Regional High School
 Design Options
 Great Barrington, MA

25-Mar-13

Schematic Design Estimate

MAIN CONSTRUCTION COST SUMMARY

		Gross Floor Area	\$/sf	Estimated Construction Cost
RENOVATION AND ADDITIONS				
RENOVATE EXISTING HIGH SCHOOL		113,705	\$199.71	\$22,707,812
ADDITIONS TO HIGH SCHOOL		21,107	\$275.59	\$5,816,902
GREENHOUSE and CONSERVATORY		2,860	\$331.81	\$948,976
REMOVE HAZARDOUS MATERIALS TO HS - Per CDW Report				\$2,015,800
SITWORK				\$2,755,312
SUB-TOTAL		137,672	\$248.74	\$34,244,802
DESIGN AND PRICING CONTINGENCY	10%			\$3,424,480
SUB-TOTAL		137,672	\$273.62	\$37,669,282
GENERAL CONDITIONS ¹		36 mnths	\$90,000	\$3,240,000
GENERAL REQUIREMENTS	2.5%			\$941,732
PHASING PREMIUM - Included in Estimate	0%			\$0
ESCALATION - Construction Start Fall 2014 (4% per year)	6%			\$2,260,157
SUB-TOTAL				\$44,111,171
BONDS	0.65%			\$286,723
INSURANCE	1.25%			\$551,390
PERMIT				NIC
SUB-TOTAL				\$44,949,284
GMP Contingency	1.5%			\$674,239
OVERHEAD AND FEE	3.0%			\$1,348,479
TOTAL OF ALL CONSTRUCTION		137,672	\$341.19	\$46,972,002
Alternates (Including Markups)				
1. Granite terraced seating area at track			ADD	\$413,740
2. Assisted Listening			ADD	\$84,255

¹ Based on C. 149a CM at risk.



Monument Mountain Regional High School

Design Options

Great Barrington, MA

25-Mar-13

Schematic Design Estimate

This cost estimate was produced from Schematic Design drawings and narratives, dated March 5, 2013 prepared by SMMA/Margo Jones Architects and their design team.

This estimate includes all direct construction costs, general contractor's overhead and profit and design contingency. Cost escalation assumes start dates indicated.

Bidding conditions are expected to be public bidding under Chapter 149a of the Massachusetts General Laws to pre-qualified construction managers, and pre-qualified sub-contractors, open specifications for materials and manufactures.

The estimate is based on prevailing wage rates for construction in this market and represents a reasonable opinion of cost. It is not a prediction of the successful bid from a contractor as bids will vary due to fluctuating market conditions, errors and omissions, proprietary specifications, lack or surplus of bidders, perception of risk, etc. Consequently the estimate is expected to fall within the range of bids from a number of competitive contractors or subcontractors, however we do not warrant that bids or negotiated prices will not vary from the final construction cost estimate.

ITEMS NOT CONSIDERED IN THIS ESTIMATE

Items not included in this estimate are:

- All professional fees and insurance
- Building Permit costs
- Land acquisition, feasibility, and financing costs
- All Furnishings, Fixtures and Equipment
- Items identified in the design as Not In Contract (NIC)
- Items identified in the design as by others
- Owner supplied and/or installed items (e.g. draperies, furniture and equipment)
- Rock excavation; special foundations (unless indicated by design engineers)
- Utility company back charges, including work required off-site
- Work to City streets and sidewalks, (except as noted in this estimate)



CONSTRUCTION COST SUMMARY

<i>BUILDING SYSTEM</i>	<i>SUB-TOTAL</i>	<i>TOTAL</i>	<i>\$/SF</i>	<i>%</i>
RENOVATION				
A10 FOUNDATIONS				
A1010 Standard Foundations	\$28,575			
A1020 Special Foundations	\$0			
A1030 Lowest Floor Construction	\$368,270	\$396,845	\$3.49	1.7%
B10 SUPERSTRUCTURE				
B1010 Upper Floor Construction	\$30,000			
B1020 Roof Construction	\$807,622	\$837,622	\$7.37	3.7%
B20 EXTERIOR CLOSURE				
B2010 Exterior Walls	\$259,746			
B2020 Windows/Curtainwall	\$569,955			
B2030 Exterior Doors	\$89,462	\$919,163	\$8.08	4.0%
B30 ROOFING				
B3010 Roof Coverings	\$3,536,024			
B3020 Roof Openings	\$61,783	\$3,597,807	\$31.64	15.8%
C10 INTERIOR CONSTRUCTION				
C1010 Partitions	\$1,113,148			
C1020 Interior Doors	\$556,135			
C1030 Specialties/Millwork	\$658,886	\$2,328,169	\$20.48	10.3%
C20 STAIRCASES				
C2010 Stair Construction	\$5,000			
C2020 Stair Finishes	\$0	\$5,000	\$0.04	0.0%
C30 INTERIOR FINISHES				
C3010 Wall Finishes	\$852,299			
C3020 Floor Finishes	\$777,074			
C3030 Ceiling Finishes	\$710,789	\$2,340,162	\$20.58	10.3%
D10 CONVEYING SYSTEMS				
D1010 Elevator	\$60,000	\$60,000	\$0.53	0.3%
D20 PLUMBING				
D20 Plumbing	\$1,249,079	\$1,249,079	\$10.99	5.5%
D30 HVAC				
D30 HVAC	\$4,112,901	\$4,112,901	\$36.17	18.1%
D40 FIRE PROTECTION				
D40 Fire Protection	\$528,500	\$528,500	\$4.65	2.3%
D50 ELECTRICAL				
D5010 Electrical Systems	\$3,865,511	\$3,865,511	\$34.00	17.0%



Schematic Design Estimate

GFA 113,705

CONSTRUCTION COST SUMMARY

<i>BUILDING SYSTEM</i>	<i>SUB-TOTAL</i>	<i>TOTAL</i>	<i>\$/SF</i>	<i>%</i>
RENOVATION				
E10 EQUIPMENT				
E10 Equipment	\$900,300	\$900,300	\$7.92	4.0%
E20 FURNISHINGS				
E2010 Fixed Furnishings	\$700,005			
E2020 Movable Furnishings	NIC	\$700,005	\$6.16	3.1%
F10 SPECIAL CONSTRUCTION				
F10 Special Construction	\$0	\$0	\$0.00	0.0%
F20 SELECTIVE BUILDING DEMOLITION				
F2010 Building Elements Demolition	\$866,748			
F2020 Hazardous Components Abatement	\$0	\$866,748	\$7.62	3.8%
TOTAL DIRECT COST (Trade Costs)		\$22,707,812	\$199.71	100.0%



Schematic Design Estimate

GFA 113,705

	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
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RENOVATION

GROSS FLOOR AREA CALCULATION

Ground Floor	110,141
First Floor Mechanical Spaces	3,564

TOTAL GROSS FLOOR AREA (GFA)	113,705 sf
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A10 FOUNDATIONS

A1010 STANDARD FOUNDATIONS

Column footings 4'-6" x 4'-6" x 1'-6" - within existing footprint

Excavation	102	cy	25.00	2,550
Store on site for reuse	102	cy	6.00	612
Backfill with existing fill	88	cy	15.00	1,320
Formwork	324	sf	10.00	3,240
Re-bar	1,680	lbs	1.10	1,848
Concrete material; 3,000 psi	14	cy	115.00	1,610
Placing concrete	14	cy	150.00	2,100
Set anchor bolts grout plates	12	ea	150.00	1,800

New interior grade beams

Excavation	133	cy	25.00	3,325
Store on site for reuse	133	cy	6.00	798
Backfill with existing fill	119	cy	15.00	1,785
Formwork	360	sf	10.00	3,600
Re-bar	252	lbs	1.10	277
Concrete material; 3,000 psi	14	cy	115.00	1,610
Placing concrete	14	cy	150.00	2,100

SUBTOTAL				\$28,575
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A1020 SPECIAL FOUNDATIONS

No work in this section

SUBTOTAL

A1030 LOWEST FLOOR CONSTRUCTION

Cut and Patching

Patch existing slab	1,132	sf	15.00	16,980
Patch/level Existing slab on Grade at Lower level	90,316	sf	2.50	225,790
New Slabs for plumbing etc. at restrooms	3,475	sf	15.00	52,125
New ramps at band/chorus; including railings etc.	2	loc	20,000.00	40,000
Mechanical pit infill	935	sf	25.00	23,375

Miscellaneous Items

Equipment pads	1	ls	10,000.00	10,000
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SUBTOTAL				\$368,270
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TOTAL - FOUNDATIONS				\$396,845
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B10 SUPERSTRUCTURE

B1010 FLOOR CONSTRUCTION

Work at control booth	1	ls	30,000.00	30,000
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SUBTOTAL				\$30,000
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Schematic Design Estimate

GFA

113,705

	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
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RENOVATION

55	B1020 ROOF CONSTRUCTION						
56	<u>Roof Structure at Dining/Servery</u>						
57	Remove existing deck and structure	7,145	sf	5.00	35,725		
58	Steel beams and columns	43	tns	3,800.00	163,400		
59	3" 20 Ga. galvanized Metal Roof Deck	7,145	sf	3.00	21,435		
60	Added spray fireproofing				NIC		
61	WWF	8,217	sf	1.00	8,217		
62	Concrete Fill to metal deck; 6" thick; normal weight	139	cy	120.00	16,680		
63	Place and finish concrete	7,145	sf	2.50	17,863		
64	<u>Roof Structure at RTUs</u>						
65	Remove existing deck	5,050	sf	2.00	10,100		
66	Steel beams and columns	15	tns	3,800.00	57,000		
67	Girder cover plate reinforcing	4	tns	5,000.00	20,000		
68	1-1/2" galvanized Metal Roof Deck	5,050	sf	3.00	15,150		
69	Added spray fireproofing				NIC		
70	WWF	4,399	sf	1.00	4,399		
71	Concrete Fill to metal deck; 6" thick; normal weight	74	cy	120.00	8,880		
72	Place and finish concrete	3,825	sf	2.50	9,563		
73	<u>Dog-house Restructure</u>						
74	Steel beams and columns	14	tns	3,800.00	53,200		
75	New galvanized Metal Roof Deck	3,400	sf	3.00	10,200		
76	Reinforcing at dog-house perimeter	11,600	sf	5.00	58,000		
77	<u>New Light Monitor</u>						
78	Steel beams and columns	2	tns	3,800.00	7,600		
79	New galvanized Metal Roof Deck	540	sf	3.00	1,620		
80	Reinforcing at light monitor perimeter	1,728	sf	5.00	8,640		
81	<u>Reinforcing for snow loading at Gym and Aud</u>						
82	Replace roof deck around gym and auditorium	8,250	sf	5.00	41,250		
83	Reinforce roof structure around gym and auditorium - North and South	3,840	sf	5.00	19,200		
84	<u>Miscellaneous</u>						
85	Roof screen support	20	tns	3,500.00	70,000		
86	New steel for bracing etc. - 0.375 lbs per sf	21	tns	4,500.00	94,500		
87	New openings for large skylights	3	loc	5,000.00	15,000		
88	New openings for skylights	20	loc	2,000.00	40,000		
89	SUBTOTAL					\$807,622	

TOTAL - SUPERSTRUCTURE	\$837,622
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B20 EXTERIOR CLOSURE

96	B2010 EXTERIOR WALLS						
97	<u>Exterior skin</u>						
98	Clean existing brick	11,130	sf	2.00	22,260		
99	Perform misc. exterior repairs to deteriorating/cracked wall components (brick and mortar, sills, sealant joints, etc.) and address any water ingress issues. - assumed 15% of exterior wall to receive repointing/repairs	1,670	sf	25.00	41,750		
102	<u>New Light Monitor and dog houses</u>						
103	Composite metal panel	2,736	sf	45.00	123,120		



Schematic Design Estimate

GFA

113,705

	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST	
RENOVATION								
104	6" MS	2,736	sf	7.50	20,520			
105	Spray Foam insulation to new exterior cavity	2,736	sf	3.00	8,208			
106	Sheathing	2,736	sf	2.00	5,472			
107	Air barrier	2,736	sf	6.00	16,416			
108	<u>Miscellaneous</u>							
109	Infill openings	200	sf	60.00	12,000			
112	Staging to exterior wall	1	ls	10,000.00	10,000			
113	SUBTOTAL						\$259,746	
114								
115	B2020 WINDOWS/CURTAINWALL							
116	Replace existing window/storefront systems	6,190	sf	75.00	464,250			
117	New clerestory windows at mansard	17	ea	2,475.00	42,075			
118	New clerestory windows at doghouses and light monitor	36	ea	1,200.00	43,200			
119	Backer rod & double sealant	2,043	lf	6.00	12,258			
120	Wood blocking at openings	2,043	lf	4.00	8,172			
121	SUBTOTAL						\$569,955	
122								
123	B2030 EXTERIOR DOORS							
124	Replace glazed entrance doors including frame and hardware; double door	7	pr	6,500.00	45,500			
125	Replace glazed entrance doors including frame and hardware; single door	6	ea	3,300.00	19,800			
126	ADA door openers	1	loc	4,000.00	4,000			
126	HM Doors and frames	1	pr	2,500.00	2,500			
127	New overhead doors, 10' x 10'	3	ea	5,000.00	15,000			
128	Backer rod & double sealant	242	lf	6.00	1,452			
129	Wood blocking at openings	242	lf	5.00	1,210			
130	SUBTOTAL						89,462	
131								
132	TOTAL - EXTERIOR CLOSURE							\$919,163
133								
134								
135	B30 ROOFING							
136								
137	B3010 ROOF COVERINGS							
138	<u>Flat roofing</u>							
139	Replace Roof System with new PVC roofing, 9" insulation	110,141	sf	16.44	1,810,718			
140	Replace exterior soffits at overhangs with composite metal panels	6,395	sf	45.00	287,775			
141	5" spray foam insulation at exterior soffits	6,395	sf	6.00	38,370			
100	Remove and replace metal mansard at perimeter with composite metal panels	9,135	sf	40.00	365,400			
101	Remove and replace metal mansard at high roof with composite metal panels	15,020	sf	40.00	600,800			
109	Vapor barrier at Mansard	24,155	sf	4.50	108,698			
110	Insulation, 4"	24,155	sf	2.50	60,388			
110	Reframing at existing mansard framing for new clerestory	17	loc	5,000.00	85,000			
142	Acoustic roof screen	3,975	sf	45.00	178,875			
143	SUBTOTAL						\$3,536,024	
144								
145	B3020 ROOF OPENINGS							
146	New skylights, 9'-6" x 9'-6"	3	ea	9,927.50	29,783			



Schematic Design Estimate

GFA 113,705

	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
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RENOVATION

147	New skylights, 4' x 4'	20	ea	1,600.00	32,000		
148	SUBTOTAL					\$61,783	
TOTAL - ROOFING							\$3,597,807

C10 INTERIOR CONSTRUCTION

C1010 PARTITIONS

156	New angle at existing CMU partitions	1,854	lf	25.00	46,350		
157	New CMU partitions, 8"	13,832	sf	22.00	304,304		
158	Seismic clips to new and existing CMU	711	ea	120.00	85,320		
159	Extend existing GWB partitions to deck	1,688	lf	50.00	84,400		
160	New GWB partitions	33,152	sf	12.00	397,824		
161	New GWB chase wall	1,638	sf	15.00	24,570		
162	Patch existing walls	1	ls	25,000.00	25,000		
163	Infill door opening	53	ea	500.00	26,500		
164	Glazed walls and borrowed lights	1,128	sf	60.00	67,680		
165	Vestibule glazing	640	sf	80.00	51,200		
166	SUBTOTAL					1,113,148	

C1020 INTERIOR DOORS

169	Glazed entrance vestibule doors including frame and hardware; double door	4	pr	6,000.00	24,000		
170	New door, frame and hardware, double	42	pr	3,200.00	134,400		
171	New door, frame and hardware, single	140	ea	1,670.00	233,800		
172	Sidelights	431	sf	55.00	23,705		
172	ADA door openers	2	loc	4,000.00	8,000		
171	Fire shutter doors	10	ea	7,000.00	70,000		
172	Overhead security grilles	10	ea	3,500.00	35,000		
173	Paint doors and frames	224	ea	90.00	20,160		
174	Backer rod & double sealant	1,010	lf	4.00	4,040		
175	Wood blocking at openings	1,010	lf	3.00	3,030		
176	SUBTOTAL					\$556,135	

C1030 SPECIALTIES / MILLWORK

179	Toilet Partitions						
180	ADA	8	ea	1,800.00	14,400		
181	Standard	14	ea	1,400.00	19,600		
182	Urinal screen	8	ea	600.00	4,800		
183	Toilet Accessories						
184	Gang bathroom	8	rms	3,000.00	24,000		
185	Individual bathroom	14	rms	600.00	8,400		
186	Shower stalls	10	ea	2,500.00	25,000		
187	Backer panels in electrical closets	1	ls	1,000.00	1,000		
188	Markerboards, 8' per classroom	4,800	sf	20.00	96,000		
189	Tackboard, 4' per classroom	2,784	sf	18.00	50,112		
190	Tackstrip, 40' per classroom	1,560	lf	8.00	12,480		
191	Building directory	1	loc	3,000.00	3,000		



Schematic Design Estimate

GFA 113,705

	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST	
RENOVATION								
192	Bronze dedication plaque	1	loc	2,500.00	2,500			
193	Staff mailboxes/casework	1	ls	5,000.00	5,000			
194	Room Signs	52	loc	120.00	6,240			
195	Fire extinguisher cabinets	38	ea	350.00	13,300			
196	Athletic lockers	100	loc	280.00	28,000			
197	PE lockers	80	loc	250.00	20,000			
198	Locker benches	140	lf	20.00	2,800			
199	Replace lockers	570	opes	180.00	102,600			
200	Staff lockers	6	opes	220.00	1,320			
201	New library shelving	1	ls	50,000.00	F,F&E			
202	New library reception counter	1	ls	25,000.00	25,000			
203	New admin reception counter	1	ls	20,000.00	20,000			
204	Display cases	1	ls	65,000.00	65,000			
205	Suspended pipe grid support system	1	ls	6,000.00	6,000			
206	Miscellaneous metals throughout building	113,705	sf	0.25	28,426			
207	Miscellaneous sealants throughout building	113,705	sf	0.65	73,908			
208	SUBTOTAL						\$658,886	
209								
210	TOTAL - INTERIOR CONSTRUCTION							\$2,328,169
211								
212								
213	C20 STAIRCASES							
214								
215	C2010 STAIR CONSTRUCTION							
216	Stairs at band/chorus	2	loc	2,500.00	5,000			
217	SUBTOTAL						\$5,000	
218								
219	C2020 STAIR FINISHES							
220	No work in this section							
221	SUBTOTAL							
222								
223	TOTAL - STAIRCASES							\$5,000
224								
225								
226	C30 INTERIOR FINISHES							
227								
228	C3010 WALL FINISHES							
229	Paint to walls	113,705	gsf	1.70	193,299			
230	Porcelain wall tile; wainscot	20,000	sf	16.00	320,000			
231	Ceramic wall tile	10,000	sf	14.00	140,000			
232	Wood wall panels; miscellaneous	1	ls	20,000.00	20,000			
233	<i>Auditorium</i>							
234	Wood/Acoustic panels	1	ls	130,000.00	130,000			
235	<i>Band/Chorus</i>							
236	Fabric wrapped acoustic wall panels	800	sf	25.00	20,000			
237	<i>LGI/STEM Lab</i>							
238	Fabric wrapped acoustic wall panels	200	sf	25.00	5,000			
239	<i>Gym</i>							
240	Acoustic wall panels	1,000	sf	20.00	20,000			
241	<i>Multi-Purpose Room</i>							
242	Acoustic wall panels	200	sf	20.00	4,000			
243	SUBTOTAL						\$852,299	
244								



Schematic Design Estimate

GFA

113,705

	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
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RENOVATION

245 **C3020 FLOOR FINISHES**

246	Porcelain tile at lobby	2,275	sf	16.00	36,400		
247	Porcelain tile dining commons and servery	4,475	sf	16.00	71,600		
247	Linoleum	17,965	sf	7.00	125,755		
247	Replace gymnasium wood floor	8,350	sf	16.00	133,600		
248	Wood athletic floor at multi-purpose room	1,675	sf	16.00	26,800		
249	Refinish wood floor at stage	1,950	sf	4.00	7,800		
250	VCT	34,150	sf	3.75	128,063		
251	Rubber at Locker Rooms	1,945	sf	9.00	17,505		
252	Ceramic tile - thinset	3,475	sf	13.00	45,175		
253	Carpet	11,776	sf	4.60	54,170		
254	Carpet at Auditorium	1,910	sf	4.60	8,786		
255	Sealed Concrete	15,502	sf	1.20	18,602		
256	Epoxy flooring	2,338	sf	10.00	23,380		
257	Porcelain base	641	lf	13.00	8,333		
258	Ceramic tile base	1,257	lf	12.00	15,084		
259	Rubber Cove Base	17,007	lf	3.00	51,021		
260	Lines in Gym	1	ls	5,000.00	5,000		
261	Moisture mitigation				NIC		
262	SUBTOTAL						\$777,074

264 **C3030 CEILING FINISHES**

265	ACT; 2 x 2	60,404	sf	4.00	241,616		
266	ACT; 2 x 4 washable	2,338	sf	4.25	9,937		
267	ACP; 4 x 4	2,790	sf	12.00	33,480		
268	GWB	6,586	sf	12.00	79,032		
269	GWB at Auditorium	5,230	sf	14.00	73,220		
270	GWB soffits	1	ls	50,000.00	50,000		
271	Wood slat ceiling	1,600	sf	20.00	32,000		
272	Acoustical ceiling at Band/Chorus/Practice	3,183	sf	10.00	31,830		
273	Ceiling at Auditorium	5,230	sf	20.00	104,600		
274	Paint to GWB	11,816	sf	1.00	11,816		
275	Paint exposed structure - gym	8,350	sf	2.50	20,875		
276	Paint to exposed ceilings	17,906	sf	1.25	22,383		
277	SUBTOTAL						\$710,789

TOTAL - INTERIOR FINISHES

\$2,340,162

D10 CONVEYING SYSTEMS

284	Install H/C lift in auditorium at Orchestra Pit	1	ls	30,000.00	30,000		
285	Install H/C lift in auditorium at Control Booth	1	ls	30,000.00	30,000		
286	SUBTOTAL						60,000

TOTAL - CONVEYING SYSTEMS

\$60,000

D20 PLUMBING

D20 PLUMBING, GENERALLY
 Equipment



Schematic Design Estimate

GFA 113,705

	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST	
RENOVATION								
295	Plumbing equipment	113,705	sf	1.00	113,705			
296	<u>Plumbing Fixtures</u>							
297	Water closet	50	ea	1,000.00	50,000			
298	Lavatory	16	ea	700.00	11,200			
299	Lavatory molded three bowl	8	ea	2,800.00	22,400			
300	Urinal	12	ea	1,200.00	14,400			
301	Shower with valve & drain	10	ea	1,000.00	10,000			
302	Mop sink	1	ea	900.00	900			
303	Miscellaneous plumbing fixtures	113,705	sf	0.80	90,964			
304	<u>Domestic Water Type L Copper Pipe</u>							
305	Domestic water pipe with fittings & hangers	113,705	sf	2.30	261,522			
306	Rough-in & connection to kitchen equipment	1	ls	10,000.00	10,000			
307	<u>Pipe insulation</u>							
308	Pipe insulation	113,705	sf	1.30	147,817			
309	<u>Sanitary Waste And Vent Pipe w/ Hangers</u>							
310	Existing under slab to be reused							
311	Sanitary waste & vent pipe with fittings & hangers	113,705	sf	1.85	210,354			
312	Connection to existing pipe	1	ea	10,000.00	10,000			
313	Rough-in & connection to kitchen equipment	1	ls	10,000.00	10,000			
314	<u>Storm Drainage, Hubless Cast Iron Pipe</u>							
315	Existing under slab to be reused							
316	Storm water pipe with fittings & hangers	113,705	sf	0.85	96,649			
317	Connection to existing pipe	1	ea	10,000.00	10,000			
318	<u>Gas And Fuel Distribution Pipe</u>							
319	Gas pipe schedule 40 steel							
320	Gas pipe with fittings & hangers	113,705	sf	0.35	39,797			
321	Rough-in & connection to kitchen equipment	1	ls	5,000.00	5,000			
322	<u>Condensate drain Type L Copper Pipe</u>							
323	Condensate drain pipe with fittings & hangers	113,705	sf	0.10	11,371			
324	<u>Reimbursable</u>							
325	Phasing	1	ls	50,000.00	50,000			
326	Demolition	1	ls	15,000.00	15,000			
327	Coordination & management	1	ls	23,000.00	23,000			
328	Coring & patching	1	ls	8,000.00	8,000			
329	Testing and sterilization	1	ls	15,000.00	15,000			
330	Fees & permits	1	ls	12,000.00	12,000			
331	SUBTOTAL					1,249,079		
332								
333	TOTAL - PLUMBING						\$1,249,079	
334								
335								
336	D30 HVAC							
337								
338	D30 HVAC, GENERALLY							
339	<u>HVAC equipment</u>							
340	Cabinet unit heaters	3	ea	750.00	2,250			
341	<u>Air Distribution</u>							
342	RTU 12 ton with hot water heating coil, DX cooling	2	ea	22,500.00	45,000			
343	RTU 20 ton with hot water heating coil, DX cooling	2	ea	37,500.00	75,000			



Schematic Design Estimate

GFA

113,705

	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST	
RENOVATION								
344	RTU 30 ton with hot water heating coil, DX cooling	2	ea	56,250.00	112,500			
345	RTU 40 ton with hot water heating coil, DX cooling	1	ea	75,000.00	75,000			
346	ERU 8000 CFM with hot water heating coil & VFD	6	ea	75,000.00	450,000			
347	VAV / Fan powered boxes with hot water reheats	35	ea	2,500.00	87,500			
348	Make-up air unit gas fired 7000 CFM	1	ea	21,000.00	21,000			
349	Sound attenuation	1	ls	200,000.00	200,000			
349	<u>Ductless Split AC Systems</u>							
350	Ductless split AC unit 1 ton	5	ea	3,000.00	15,000			
351	<u>Exhaust fan</u>							
352	Grease exhaust fan 8000 CFM	3	ea	17,000.00	51,000			
353	fume hood exhaust fan 1000 CFM	6	ea	1,750.00	10,500			
354	Dishwasher exhaust fan 600 CFM	1	ea	900.00	900			
355	Misc. exhaust fan 500 CFM	10	ea	750.00	7,500			
356	<u>Sheetmetal & Accessories</u>							
357	Ductwork	113,705	lbs	9.50	1,080,198			
358	Ductwork insulation	68,491	sf	4.00	273,964			
359	RGD's allowance	760	ea	125.00	95,000			
360	Misc. sheetmetal & accessories	113,705	sf	0.55	62,538			
361	<u>Piping</u>							
362	Hot water pipe with fittings & hangers	113,705	sf	4.00	454,820			
363	<u>Piping Insulation</u>							
364	<u>Controls</u>							
365	Automatic temperature controls DDC	113,705	sf	3.50	397,968			
366	<u>Balancing</u>							
367	System testing & balancing	113,705	sf	1.00	113,705			
368	<u>Miscellaneous</u>							
369	Phasing	1	ls	157,000.00	157,000			
370	Demolition	1	ls	25,000.00	25,000			
371	Coordination & management	1	ls	67,000.00	67,000			
372	Coring & patching	1	ls	5,000.00	5,000			
373	Equipment start-up and inspection	1	ls	5,000.00	5,000			
374	Commissioning support	1	ls	27,000.00	27,000			
375	Rigging & equipment rental	1	ls	25,000.00	25,000			
376	SUBTOTAL					4,112,901		
377								
378	TOTAL - HVAC							\$4,112,901
379								
380								
381	D40 FIRE PROTECTION							
382								
383	D40 FIRE PROTECTION, GENERALLY							
384	Alarm check valve	1	ea	4,500.00	4,500			
385	Fire department connection valve	1	ea	1,200.00	1,200			
386	Zone control valve station	3	ea	1,800.00	5,400			
387	Sprinkler head	947	ea	110.00	104,170			
388	Branch sprinkler piping with fittings & hangers	11,365	lf	22.00	250,030			
389	Main sprinkler piping with fittings & hangers	3,700	lf	26.00	96,200			
390	Standpipe with fittings & hangers	1,000	lf	32.00	32,000			



Schematic Design Estimate

GFA 113,705

	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
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RENOVATION

391	<u>Miscellaneous</u>						
392	Demolition	1	ls	5,000.00	5,000		
393	Coordination & management	1	ls	10,000.00	10,000		
394	Hydraulic calculations	1	ls	4,500.00	4,500		
395	Coring & patching	1	ls	3,000.00	3,000		
396	Commissioning of system	1	ls	5,000.00	5,000		
397	Fees & permits	1	ls	7,500.00	7,500		
398	SUBTOTAL					\$528,500	

TOTAL - FIRE PROTECTION						\$528,500
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D50 ELECTRICAL

D5010 SERVICE & DISTRIBUTION

406	<u>Normal Power</u>						
407	Meter provisions	1	ea	350.00	350		
408	SPD	7	ea	850.00	5,950		
409	2000A main switchboard	1	ea	65,000.00	65,000		
410	60A distribution panelboard	1	ea	1,500.00	1,500		
411	400A distribution panelboard	7	ea	10,000.00	70,000		
412	250A distribution panelboard	5	ea	8,500.00	42,500		
413	225A double tub panelboard	1	ea	3,800.00	3,800		
414	150A panelboard with shunt trip	1	ea	2,850.00	2,850		
415	150A panelboard	2	ea	2,150.00	4,300		
416	125A panelboard with shunt trip	2	ea	2,450.00	4,900		
417	100A panelboard	6	ea	1,850.00	11,100		
418	75KVA transformer	6	ea	7,500.00	45,000		
419	45KVA transformer	4	ea	5,400.00	21,600		
420	30KVA transformer	1	ea	4,600.00	4,600		
421	400A disconnect switch	1	ea	4,800.00	4,800		
422	200A disconnect switch	3	ea	2,200.00	6,600		
423	Grounding	1	ls	5,000.00	5,000		
424	<u>Feeders</u>						
425	600A feed	30	lf	153.00	4,590		
426	400A feed	1,050	lf	102.00	107,100		
427	250A feed	80	lf	60.00	4,800		
428	225A feed	200	lf	50.00	10,000		
429	150A feed	600	lf	38.00	22,800		
430	125A feed	350	lf	31.00	10,850		
431	100A feed	900	lf	23.00	20,700		
432	60A feed	20	lf	17.00	340		
433	<u>Emergency Power</u>						
434	400KW diesel emergency generator set with WP cover (allowance)	1	ls	200,000.00	200,000		
435	400KW diesel emergency generator (Labor only)	1	ls	9,500.00	9,500		
436	Remote annunciator	1	ea	2,500.00	2,500		
437	400A ATS	2	ls	7,875.00	15,750		
438	260A ATS	1	ea	6,700.00	6,700		
439	SPD	4	ea	850.00	3,400		



Schematic Design Estimate

GFA

113,705

	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
RENOVATION							
440	400A distribution panelboard	3	ea	10,000.00	30,000		
441	250A distribution panelboard with shunt trip	1	ea	10,000.00	10,000		
442	250A distribution panelboard	1	ea	8,500.00	8,500		
443	225A panelboard	2	ea	2,350.00	4,700		
444	150A panelboard	1	ea	2,150.00	2,150		
445	125A panelboard with shunt trip	1	ea	2,450.00	2,450		
446	100A panelboard	7	ea	1,850.00	12,950		
447	75KVA transformer	2	ea	7,500.00	15,000		
448	45KVA transformer	5	ea	5,400.00	27,000		
449	30KVA transformer	2	ea	4,600.00	9,200		
450	<u>Feeders</u>						
451	400A feed	90	lf	102.00	9,180		
452	250A feed	220	lf	60.00	13,200		
453	225A feed	220	lf	52.00	11,440		
454	150A feed	20	lf	38.00	760		
455	125A feed	150	lf	31.00	4,650		
456	100A feed	1,000	lf	23.00	23,000		
457	60A feed	40	lf	17.00	680		
458	<u>Equipment wiring</u>						
459	MAU feed, connection, & safety switch WP	1	ea	3,500.00	3,500		
460	RTU feed, connection, & safety switch WP	13	ea	3,500.00	45,500		
461	Split unit feed, connection, & safety switch WP	5	ea	2,500.00	12,500		
462	CUH feed and connection, & MS	3	ea	850.00	2,550		
463	Exhaust fan feed and connection	10	ea	1,100.00	11,000		
464	Misc. equipment wiring	113,705	sf	1.00	113,705		
465	<u>Kitchen Equipment Wiring</u>						
466	Kitchen equipment wiring	1	ea	20,000.00	20,000		
467	Hood fan feed and connection	6	ea	850.00	5,100		
468	Grease exhaust fan feed and connection	3	ea	1,200.00	3,600		
469	Dishwasher exhaust fan feed and connection	1	ea	1,200.00	1,200		
470	SUBTOTAL					\$1,122,395	
471							
472	D5020 LIGHTING & POWER						
473	<u>Lighting</u>						
474	General lighting	113,705	sf	3.50	397,968		
475	<u>Lighting controls</u>						
476	Lighting controls switches and sensors	113,705	sf	0.50	56,853		
477	Automated lighting and daylight harvesting control system	113,705	sf	0.50	56,853		
478	<u>Branch Devices</u>						
479	Duplex & GFI receptacle	1,500	ea	26.00	39,000		
480	Back box	3,000	ea	28.00	84,000		
481	<u>Branch circuitry</u>						
482	3/4" EMT	3,000	lf	7.50	22,500		
483	#12 THHN	15,000	lf	0.65	9,750		
484	12-3 MC	47,000	lf	2.90	136,300		
485	12-2 MC	10,000	lf	3.70	37,000		
486	SUBTOTAL					\$840,224	
487							
488	D5030 COMMUNICATION & SECURITY SYSTEMS						



Schematic Design Estimate

GFA

113,705

	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
RENOVATION							
489	<u>Fire alarm</u>						
490	New control panel	1	ea	12,000.00	12,000		
491	Initiating devices and cabling	113,705	sf	2.00	227,410		
492	<u>Tel/Data</u>						
493	Rough In (Backboxes conduit and cable tray)	113,705	sf	1.00	113,705		
494	Devices and cabling	113,705	sf	2.00	227,410		
495	MDF closet	1	ea	7,500.00	7,500		
496	IDF closet	4	ea	4,500.00	18,000		
497	Backbone cable	1,500	lf	12.00	18,000		
498	<u>Public Address/Clock System</u>						
499	Master clock/PA system head-end	1	ls	25,000.00	25,000		
500	Speakers, clocks, backboxes and cabling	21,107	ea	1.00	21,107		
501	<u>Gymnasium, wiring only</u>						
502	Scoreboards and shot clocks	1	ls	6,000.00	6,000		
503	Motorized backboard	4	ea	1,500.00	6,000		
504	Motorized divider curtain	1	ea	1,500.00	1,500		
505	<u>Security / Card Access System</u>						
506	Control panel	1	ls	55,000.00	55,000		
507	Auto door operator and push button	3	ea	2,500.00	7,500		
508	CCTV camera	92	ea	1,100.00	101,200		
509	Card reader	21	ea	450.00	9,450		
510	Door contact	27	ea	200.00	5,400		
511	Back box	143	ea	120.00	17,160		
512	3/4" EMT	7,500	lf	7.50	56,250		
513	Cabling	8,000	lf	1.10	8,800		
514	<u>Audio/Visual</u>						
515	Conduit and backboxes only	8	loc	7,500.00	60,000		
516	A/V equipment (Projectors)	4	loc	10,000.00	40,000		
517	A/V equipment Audio Systems						
518	Gymnasium sound system	1	ls	30,000.00	30,000		
519	Auditorium sound system	1	ls	65,000.00	65,000		
520	Dining commons sound system	1	ls	20,000.00	20,000		
520	LGI/STEM Lab	2	ea	15,000.00	30,000		
521	Multi-purpose room PE sound system	1	ls	15,000.00	15,000		
522	Band/Chorus room sound system	1	ls	10,000.00	10,000		
109	<u>Site Security</u>						
110	CCTV camera WP	80	ea	2,200.00	176,000		
111	Circuitry	3,000	lf	12.00	36,000		
523	<u>Auditorium Specialty Lighting</u>						
524	Performance/stage/lighting with dimming system	1	ls	100,000.00	100,000		
525	<u>Lightning Protection</u>						
526	Lightning protection system	1	ls	51,000.00	51,000		
527	SUBTOTAL					\$1,577,392	
528							
529	D5040 OTHER ELECTRICAL SYSTEMS						
530	<u>Phasing</u>						
531	Phasing	1	ls	113,000.00	113,000		
532	<u>Miscellaneous</u>						
533	Seismic restraints	1	ls	7,500.00	7,500		
534	Coordination study and testing	1	ls	10,000.00	10,000		



Schematic Design Estimate

GFA 113,705

	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST	
RENOVATION								
96	Utility Co. charges (allow)	1	ls	50,000.00	50,000			
535	<u>Demolition</u>							
536	Demolition and make safe	1	ls	50,000.00	50,000			
537	<u>Temporary services</u>							
538	Temporary power and lights	1	ls	60,000.00	60,000			
539	<u>Fees & Permits</u>							
540	Fees & permits	1	ls	35,000.00	35,000			
541	SUBTOTAL					\$325,500		
542								
543								
544	TOTAL - ELECTRICAL							\$3,865,511

E10 EQUIPMENT

E10 EQUIPMENT, GENERALLY

550	Theatrical Equipment Stage curtains, rigging and controls	1	ls	100,000.00	100,000			
552	Gym wall pads	1	ls	20,000.00	20,000			
552	Scoreboard and shot clocks	2	ea	5,000.00	10,000			
553	Basketball backstops; swing up; electric operated	4	ea	9,800.00	39,200			
554	Basketball backstops; swing up; manual	2	ea	5,000.00	10,000			
555	Gymnasium dividing net; electrically operated	1	ls	45,000.00	45,000			
556	Volleyball net and standards	1	ea	2,000.00	2,000			
556	Auto tech equipment	1	ls	25,000.00	25,000			
557	Property management equipment	1	ls	25,000.00	25,000			
557	Dust collection system	1	ls	15,000.00	15,000			
558	Dark room	1	ls	10,000.00	10,000			
558	Refrigerator	2	ea	1,200.00	2,400			
559	Microwave	2	ea	400.00	800			
559	Culinary arts equipment	1	ls	165,000.00	165,000			
560	Dishwasher	2	ea	600.00	1,200			
561	New kitchen equipment	1	ls	385,000.00	385,000			
562	Electrically operated projection screens							
563	Auditorium	1	ea	10,000.00	10,000			
564	Dining Commons	1	ea	8,000.00	8,000			
565	LGI/STEM Lab	2	ea	5,000.00	10,000			
566	Library	1	ea	5,000.00	5,000			
567	Gymnasium	1	ea	8,000.00	8,000			
568	Conference Room	1	ea	2,500.00	2,500			
569	Manually operated screens	2	ea	600.00	1,200			
570	SUBTOTAL					\$900,300		
571								
572	TOTAL - EQUIPMENT							\$900,300

E20 FURNISHINGS

E2010 FIXED FURNISHINGS

578	Entry mats & frames - recessed with carpet/rubber strips	450	sf	45.00	20,250		
579	Fixed seats at auditorium; fully upholstered	600	seat	290.00	174,000		
551	Replace gymnasium bleachers with accessible system	300	seats	125.00	37,500		



Schematic Design Estimate

GFA 113,705

	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
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RENOVATION

580	Window blinds	6,190	sf	6.00	37,140		
552	Agricultural lab	1	rms	40,000.00	40,000		
581	Art classroom casework	2	rms	25,000.00	50,000		
582	Counters, base cabinets, tall storage in classrooms and other rooms	113,705	gsf	3.00	341,115		
583	SUBTOTAL						\$700,005

E2020 MOVABLE FURNISHINGS

586	All movable furnishings to be provided and installed by owner						
587	SUBTOTAL						NIC

TOTAL - FURNISHINGS

\$700,005

F10 SPECIAL CONSTRUCTION

F10 SPECIAL CONSTRUCTION

No items in this section
 SUBTOTAL

TOTAL - SPECIAL CONSTRUCTION

F20 SELECTIVE BUILDING DEMOLITION

F2010 BUILDING ELEMENTS DEMOLITION

604	Demolition of all ceilings (floors in Haz Mat removal)	113,705	gsf	0.75	85,279		
605	Demolition of CMU partitions	1,510	lf	50.00	75,500		
606	Demolition of GWB partitions	3,230	lf	15.00	48,450		
607	Remove windows (In Haz Mat)						Haz Mat
608	Remove mansard roof	24,155	sf	4.00	96,620		
609	Remove roofing (In Haz Mat)						Haz Mat
610	Remove exterior soffits	6,395	sf	4.00	25,580		
611	Remove existing deck and structure	7,145	sf	5.00	35,725		
611	Remove roof structure for new work at dog houses and new light monitor	3,940	sf	10.00	39,400		
37	Sawcut slab for new footings/grade beams	456	lf	15.00	6,840		
38	Remove existing slabs	1,132	sf	10.00	11,320		
612	Remove gymnasium wood floor	8,350	sf	2.00	16,700		
612	Remove doors	83	ea	150.00	12,450		
613	New door opening in existing partition	28	ea	300.00	8,400		
111	Form openings in exterior wall for new additions	2,100	sf	15.00	31,500		
614	Remove existing kitchen equipment	1	ls	15,000.00	15,000		
615	Remove interior casework and specialties	113,705	sf	0.50	56,853		
616	Remove bus canopy	3,400	sf	10.00	34,000		
616	Temporary partitions	1	ls	75,000.00	75,000		
617	Miscellaneous protection dust control etc.	1	ls	50,000.00	50,000		
618	MEP demolition (dispose off site)	113,705	sf	1.25	142,131		
619	SUBTOTAL						\$866,748

F2020 HAZARDOUS COMPONENTS ABATEMENT

See summary



Monument Mountain Regional High School
Design Options
Great Barrington, MA

25-Mar-13

Schematic Design Estimate

GFA 113,705

	<i>DESCRIPTION</i>	<i>QTY</i>	<i>UNIT</i>	<i>UNIT COST</i>	<i>EST'D COST</i>	<i>SUB TOTAL</i>	<i>TOTAL COST</i>
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RENOVATION

623
624
625

SUBTOTAL

TOTAL - SELECTIVE BUILDING DEMOLITION							\$866,748
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CONSTRUCTION COST SUMMARY					
<i>BUILDING SYSTEM</i>		<i>SUB-TOTAL</i>	<i>TOTAL</i>	<i>\$/SF</i>	<i>%</i>
NEW ADDITIONS TO HIGH SCHOOL					
A10	FOUNDATIONS				
A1010	Standard Foundations	\$355,216			
A1020	Special Foundations	\$0			
A1030	Lowest Floor Construction	\$210,754	\$565,970	\$26.81	9.7%
A20	BASEMENT CONSTRUCTION				
A2010	Basement Excavation	\$0			
A2020	Basement Walls	\$0	\$0	\$0.00	0.0%
B10	SUPERSTRUCTURE				
B1010	Upper Floor Construction	\$0			
B1020	Roof Construction	\$385,106	\$385,106	\$18.25	6.6%
B20	EXTERIOR CLOSURE				
B2010	Exterior Walls	\$368,550			
B2020	Windows	\$686,600			
B2030	Exterior Doors	\$45,870	\$1,101,020	\$52.16	18.9%
B30	ROOFING				
B3010	Roof Coverings	\$519,899			
B3020	Roof Openings	\$19,200	\$539,099	\$25.54	9.3%
C10	INTERIOR CONSTRUCTION				
C1010	Partitions	\$227,372			
C1020	Interior Doors	\$75,290			
C1030	Specialties/Millwork	\$113,123	\$415,785	\$19.70	7.1%
C20	STAIRCASES				
C2010	Stair Construction	\$0			
C2020	Stair Finishes	\$0	\$0	\$0.00	0.0%
C30	INTERIOR FINISHES				
C3010	Wall Finishes	\$54,158			
C3020	Floor Finishes	\$146,954			
C3030	Ceiling Finishes	\$82,340	\$283,452	\$13.43	4.9%
D10	CONVEYING SYSTEMS				
D1010	Elevator	\$0	\$0	\$0.00	0.0%
D20	PLUMBING				
D20	Plumbing	\$382,433	\$382,433	\$18.12	6.6%
D30	HVAC				
D30	HVAC	\$996,613	\$996,613	\$47.22	17.1%



Monument Mountain Regional High School
 Design Options
 Great Barrington, MA

25-Mar-13

Schematic Design Estimate

GFA 21,107

CONSTRUCTION COST SUMMARY					
<i>BUILDING SYSTEM</i>		<i>SUB-TOTAL</i>	<i>TOTAL</i>	<i>\$/SF</i>	<i>%</i>
NEW ADDITIONS TO HIGH SCHOOL					
D40 FIRE PROTECTION					
D40	Fire Protection	\$95,820	\$95,820	\$4.54	1.6%
D50 ELECTRICAL					
D5010	Service & Distribution	\$122,381			
D5020	Lighting & Power	\$186,586			
D5030	Communication & Security Systems	\$252,907			
D5040	Other Electrical Systems	\$16,000	\$577,874	\$27.38	9.9%
E10 EQUIPMENT					
E10	Equipment	\$51,150	\$51,150	\$2.42	0.9%
E20 FURNISHINGS					
E2010	Fixed Furnishings	\$422,580			
E2020	Movable Furnishings	NIC	\$422,580	\$20.02	7.3%
F10 SPECIAL CONSTRUCTION					
F10	Special Construction	\$0	\$0	\$0.00	0.0%
F20 HAZMAT REMOVALS					
F2010	Building Elements Demolition	\$0			
F2020	Hazardous Components Abatement	\$0	\$0	\$0.00	0.0%
TOTAL DIRECT COST (Trade Costs)			\$5,816,902	\$275.59	100.0%



Schematic Design Estimate

GFA

21,107

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
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NEW ADDITIONS TO HIGH SCHOOL

GROSS FLOOR AREA CALCULATION

Ground Floor 21,107

TOTAL GROSS FLOOR AREA (GFA) 21,107 sf

A10 FOUNDATIONS

A1010 STANDARD FOUNDATIONS

Strip footings to exterior walls - 3'-0" x 1'-0"

Excavation	1,110	cy	10.00	11,100
Store on site for reuse	1,110	cy	6.00	6,660
Backfill with existing fill	1,010	cy	8.00	8,080
Formwork	1,712	sf	10.00	17,120
Re-bar	1,798	lbs	1.10	1,978
Concrete material; 3,000 psi	100	cy	115.00	11,500
Placing concrete	100	cy	45.00	4,500

Foundation walls at exterior - 16" thick

Formwork	4,928	sf	12.00	59,136
Re-bar	9,856	lbs	1.10	10,842
Concrete material; 4,000 psi	127	cy	120.00	15,240
Placing concrete	127	cy	45.00	5,715
Dampproofing foundation wall and footing	3,696	sf	3.00	11,088
Foamed plastic insulation, 2"	2,464	sf	2.00	4,928
Form shelf	616	lf	8.00	4,928

Retaining wall at East Wall of addition; assumed 8ft high

Formwork	3,840	sf	12.00	46,080
Re-bar	7,680	lbs	1.10	8,448
Concrete material; 4,000 psi	99	cy	120.00	11,880
Placing concrete	99	cy	45.00	4,455
Dampproofing foundation wall and footing	1,920	sf	3.00	5,760
Foamed plastic insulation, 2"	1,920	sf	2.00	3,840
Form shelf	240	lf	8.00	1,920

Column footings 6' x 6' x 1'-7" - Perimeter

Excavation	423	cy	8.00	3,384
Store on site for reuse	423	cy	6.00	2,538
Backfill with existing fill	343	cy	8.00	2,744
Formwork	1,365	sf	10.00	13,650
Re-bar	4,000	lbs	1.10	4,400
Concrete material; 3,000 psi	80	cy	115.00	9,200
Placing concrete	80	cy	45.00	3,600
Set anchor bolts grout plates	36	ea	150.00	5,400

Column footings 4'-6" x 4'-6" x 1'-6" - Interior

Excavation	220	cy	8.00	1,760
Store on site for reuse	220	cy	6.00	1,320
Backfill with existing fill	155	cy	8.00	1,240
Formwork	832	sf	10.00	8,320
Re-bar	3,900	lbs	1.10	4,290
Concrete material; 3,000 psi	65	cy	115.00	7,475
Placing concrete	65	cy	45.00	2,925
Set anchor bolts grout plates	13	ea	150.00	1,950

Miscellaneous

Form key in footing	856	lf	4.00	3,424
Structural fill to bottom of footings	308	cy	30.00	9,240



Schematic Design Estimate

GFA 21,107

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
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NEW ADDITIONS TO HIGH SCHOOL

56	Piers/Pilasters; 24" x 12"						
57	Formwork	784	sf	12.00	9,408		
58	Re-bar	1,350	lbs	1.00	1,350		
59	Concrete material; 3,000 psi	15	cy	115.00	1,725		
60	Placing concrete	15	cy	45.00	675		
61	SUBTOTAL					\$355,216	

A1020 SPECIAL FOUNDATIONS

No Work in this section

SUBTOTAL

A1030 LOWEST FLOOR CONSTRUCTION

62							
63							
64							
65							
66							
67							
68	New Slab on grade						
69	Structural fill to bring up levels	613	cy	30.00	18,390		
70	Gravel fill, 12"	782	cy	28.00	21,896		
71	Foamed plastic insulation, 2"	21,107	sf	1.87	39,470		
72	Vapor barrier	21,107	sf	0.50	10,554		
73	Compact existing sub-grade	21,107	sf	0.50	10,554		
74	Mesh reinforcing 15% lap	24,273	sf	0.80	19,418		
75	Concrete - 5" thick; 4,000 psi	308	cy	120.00	36,960		
76	Concrete - 6" thick; 4,000 psi	43	cy	120.00	5,160		
77	Placing concrete	308	cy	45.00	13,860		
78	Finishing and curing concrete	21,107	sf	1.50	31,661		
79	Control joints - saw cut	21,107	sf	0.10	2,111		
80	Isolation joints at columns	288	lf	2.50	720		
81	SUBTOTAL					\$210,754	

TOTAL - FOUNDATIONS

\$565,970

A20 BASEMENT CONSTRUCTION

A2010 BASEMENT FILL

No Work in this section

SUBTOTAL

A2020 BASEMENT WALLS

No Work in this section

SUBTOTAL

TOTAL - BASEMENT CONSTRUCTION

B10 SUPERSTRUCTURE

92							
93							
94							
95							
96							
97							
98							
99							
100		9	lbs/sf		-		
101	B1010 FLOOR CONSTRUCTION	90	tns		-		
102	No Work in this section						
103	SUBTOTAL						
104							
105	B1020 ROOF CONSTRUCTION						
106	Roof Structure - Steel:						
107	Bar joists, 4 lbs per sf	38	tns	3,300.00	125,400		



Schematic Design Estimate

GFA

21,107

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
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NEW ADDITIONS TO HIGH SCHOOL

108	Girders and columns, 4 lbs per sf	38	tns	3,500.00	133,000		
109	New steel for bracing etc. - 1.5 lbs per sf	14	tns	3,500.00	49,000		
110	<u>Roof Structure</u>						
111	1-1/2" 20 Ga. galvanized Metal Roof Deck	18,902	sf	3.00	56,706		
112	<u>Miscellaneous</u>						
113	Roof screen support	4	tns	3,500.00	14,000		
114	Additional steel at RTUs	2	tns	3,500.00	7,000		
115	Fire proofing to columns, beams and deck				NIC		
116	SUBTOTAL					\$385,106	
TOTAL - SUPERSTRUCTURE							\$385,106

B20 EXTERIOR CLOSURE

B2010 EXTERIOR WALLS

124	<u>Exterior skin</u>	5,329	sf		-		
125	Brick exterior	1,864	sf	35.00	65,240		
126	Stone to new entry tower	500	sf	65.00	32,500		
127	New metal mansard	2,965	sf	40.00	118,600		
128	6" MS	5,329	sf	7.50	39,968		
129	Spray Foam insulation to new exterior cavity; 5" thick	5,329	sf	4.60	24,513		
130	Sheathing	5,329	sf	2.90	15,454		
131	Air barrier	5,329	sf	6.00	31,974		
132	GWB to interior face	5,329	sf	2.50	13,323		
133	<u>Miscellaneous</u>						
134	Staging to exterior wall	13,489	sf	2.00	26,978		
135	SUBTOTAL					\$368,550	

B2020 WINDOWS

137		8,160	sf		-		
138	Windows/storefront	7,150	sf	75.00	536,250		
139	Curtainwall at media room	1,010	sf	95.00	95,950		
140	Backer rod & double sealant	5,440	lf	6.00	32,640		
141	Wood blocking at openings	5,440	lf	4.00	21,760		
142	SUBTOTAL					\$686,600	

B2030 EXTERIOR DOORS

145	Glazed entrance doors including frame and hardware; double door	6	pr	6,500.00	39,000		
146	Replace glazed entrance doors including frame and hardware; single door	1	ea	3,300.00	3,300		
147	HM doors, frames and hardware- Double	1	pr	2,000.00	2,000		
148	Backer rod & double sealant	157	lf	6.00	942		
149	Wood blocking at openings	157	lf	4.00	628		
150	SUBTOTAL					\$45,870	

TOTAL - EXTERIOR CLOSURE

\$1,101,020

B30 ROOFING

B3010 ROOF COVERINGS

158	<u>Flat roofing</u>						
159	PVC roof membrane fully adhered	21,107	sf	6.50	137,196		
160	Insulation; 9" per drawings (spec calls for 5")	21,107	sf	7.00	147,749		
161	Insulation tapered	1	ls	5,000.00	5,000		
162	Cover board	21,107	sf	0.75	15,830		
163	1/2" dens-deck protection board	21,107	sf	1.50	31,661		



Schematic Design Estimate

GFA

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CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST	
NEW ADDITIONS TO HIGH SCHOOL								
164	Reinforced vapor barrier	21,107	sf	0.45	9,498			
165	Rough blocking	7,140	lf	6.00	42,840			
166	<u>Miscellaneous Roofing</u>							
167	Acoustic roof screen	765	sf	45.00	34,425			
168	Canopy	650	sf	80.00	52,000			
169	Roof edge	1,190	lf	30.00	35,700			
170	Roof ladder	1	ls	3,000.00	3,000			
171	Walk pads	1	ls	5,000.00	5,000			
172	SUBTOTAL					\$519,899		
173								
174	B3020 ROOF OPENINGS							
175	New skylights, 4' x 4'	12	ea	1,600.00	19,200			
176	SUBTOTAL					\$19,200		
177								
178	TOTAL - ROOFING							\$539,099
179								
180								
181	C10 INTERIOR CONSTRUCTION							
182								
183	C1010 PARTITIONS							
184	New CMU partitions, 8"	2,296	sf	22.00	50,512			
185	Seismic clips	41	ea	120.00	4,920			
186	New GWB partitions	12,460	sf	12.00	149,520			
187	New GWB chase wall	308	sf	15.00	4,620			
188	Glazed walls and borrowed lights	1	ls	5,000.00	5,000			
189	Vestibule glazing	160	sf	80.00	12,800			
190	SUBTOTAL					\$227,372		
191								
192	C1020 INTERIOR DOORS							
193	Glazed entrance vestibule doors including frame and hardware; double door	4	pr	6,000.00	24,000			
194	New door, frame and hardware, single	25	ea	1,670.00	41,750			
195	Sidelights	63	sf	55.00	3,465			
196	Paint doors and frames	25	ea	90.00	2,250			
197	Backer rod & double sealant	425	lf	6.00	2,550			
198	Wood blocking at openings	425	lf	3.00	1,275			
199	SUBTOTAL					\$75,290		
200								
201	C1030 SPECIALTIES / MILLWORK							
202	Toilet Partitions							
203	ADA	2	ea	1,800.00	3,600			
204	Standard	4	ea	1,400.00	5,600			
205	Urinal screen	1	ea	600.00	600			
206	Toilet Accessories							
207	Gang bathroom	2	rms	3,000.00	6,000			
208	Markerboards	800	sf	20.00	16,000			
209	Tackboard, 4' per classroom	112	sf	18.00	2,016			
210	Tackstrip, 40' per classroom	240	lf	8.00	1,920			
211	Acoustical wall panels	1	ls	5,000.00	5,000			
212	Room Signs	25	ea	120.00	3,000			
213	Fire extinguisher cabinets	7	ea	350.00	2,450			
214	Misc. metal Support to counters and casework etc.	1	ls	20,000.00	20,000			



Schematic Design Estimate

GFA 21,107

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST	
NEW ADDITIONS TO HIGH SCHOOL								
215	Display cases	1	ls	10,000.00	10,000			
216	Miscellaneous metals throughout building	21,107	sf	1.00	21,107			
217	Miscellaneous sealants throughout building	21,107	sf	0.75	15,830			
218	SUBTOTAL					\$113,123		
219								
220	TOTAL - INTERIOR CONSTRUCTION							\$415,785
221								
222								
223	C20 STAIRCASES							
224								
225	C2010 STAIR CONSTRUCTION							
226	No Work in this section							
227	SUBTOTAL							
228								
229	C2020 STAIR FINISHES							
230	No Work in this section							
231	SUBTOTAL							
232								
233	TOTAL - STAIRCASES							
234								
235								
236	C30 INTERIOR FINISHES							
237								
238	C3010 WALL FINISHES							
239	Paint to GWB	22,982	sf	0.65	14,938			
240	Paint to CMU walls	4,592	sf	1.25	5,740			
241	Porcelain wall tile	1,116	sf	16.00	17,856			
242	Ceramic wall tile	1,116	sf	14.00	15,624			
243	SUBTOTAL					\$54,158		
244								
245	C3020 FLOOR FINISHES							
246	Porcelain tile at lobby	500	sf	16.00	8,000			
247	Porcelain tile dining commons and servery		sf	16.00				
248	Linoleum	2,640	sf	7.00	18,480			
249	Rubber athletic flooring at Cardio and Weight Room	1,566	sf	8.00	12,528			
250	VCT	10,320	sf	3.75	38,700			
251	Ceramic tile - thinset	410	sf	13.00	5,330			
252	Carpet	788	sf	4.60	3,625			
253	Sealed Concrete	1,420	sf	1.20	1,704			
254	Porcelain base	120	lf	13.00	1,560			
255	Ceramic tile base	120	lf	12.00	1,440			
256	Rubber Cove Base	2,681	lf	3.00	8,043			
257	Moisture mitigation, epoxy fluid applied membrane	11,886	sf	4.00	47,544			
258	SUBTOTAL					\$146,954		
259								
260	C3030 CEILING FINISHES							
261	ACT; 2 x 2	14,308	sf	4.00	57,232			
262	ACP; 4 x 4	860	sf	12.00	10,320			
263	GWB	410	sf	12.00	4,920			
264	GWB soffits	1	ls	7,500.00	7,500			
265	Paint to GWB	410	sf	1.00	410			
266	Paint to exposed ceilings	1,566	sf	1.25	1,958			
267	SUBTOTAL					\$82,340		
268								
269	TOTAL - INTERIOR FINISHES							\$283,452
270								
271								
272	D10 CONVEYING SYSTEMS							
273								



Schematic Design Estimate

GFA

21,107

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
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NEW ADDITIONS TO HIGH SCHOOL

274 **D1010 ELEVATOR**
 275 **No Work in this section**
 276 **SUBTOTAL**

TOTAL - CONVEYING SYSTEMS

D20 PLUMBING

D20 PLUMBING, GENERALLY

284	<u>Equipment</u>						
285	Plumbing equipment	21,107	sf	2.50	52,768		
286	<u>Plumbing Fixtures</u>						
287	Science room sinks	39	ea	1,500.00	58,500		
288	Emergency eye wash	6	ea	2,500.00	15,000		
289	Water closet	7	ea	1,000.00	7,000		
290	Lavatory molded two bowl	2	ea	2,200.00	4,400		
291	Urinal	3	ea	1,200.00	3,600		
292	Water cooler	1	ea	3,800.00	3,800		
293	Miscellaneous plumbing fixtures	21,107	sf	3.00	63,321		
294	Acid waste system	1	ls	25,000.00	25,000		
295	<u>Domestic Water Type L Copper Pipe</u>						
296	Copper pipe type L with fittings & hangers	21,107	sf	2.00	42,214		
297	<u>Pipe insulation</u>						
298	Pipe insulation	21,107	sf	1.00	21,107		
299	<u>Sanitary Waste And Vent Pipe w/ Hangers</u>						
300	Sanitary waste & vent pipe with fittings & hangers	21,107	sf	1.50	31,661		
301	<u>Storm Drainage, Hubless Cast Iron Pipe</u>						
302	Storm water pipe with fittings & hangers	21,107	sf	0.50	10,554		
303	<u>Natural Gas Pipe</u>						
304	Black steel pipe with fittings & hangers	21,107	sf	0.35	7,387		
305	Gas turrets	78	ea	150.00	11,700		
306	<u>Condensate Drain Pipe</u>						
307	Copper pipe type L with fittings & hangers	21,107	sf	0.20	4,221		
308	<u>Miscellaneous</u>						
309	Coordination & management	1	ls	5,000.00	5,000		
310	Commissioning support	1	ls	3,000.00	3,000		
311	Coring & patching	1	ls	2,000.00	2,000		
312	Testing and sterilization	1	ls	7,500.00	7,500		
313	Fees & permits	1	ls	2,700.00	2,700		
314	SUBTOTAL					\$382,433	

TOTAL - PLUMBING \$382,433

D30 HVAC

D30 HVAC, GENERALLY

322	<u>HVAC equipment</u>						
323	Gas fired condensing boiler 2,000 MBH	3	ea	36,000.00	108,000		
324	Expansion tank	2	ea	2,000.00	4,000		
325	Air separator	1	ea	600.00	600		
326	Bypass control valve assembly	1	ea	10,000.00	10,000		
327	Glycol system	1	ea	12,000.00	12,000		
328	Miscellaneous ancillary components	1	ls	15,000.00	15,000		
329	Cabinet unit heaters	4	ea	700.00	2,800		
330	Unit heater	4	ea	455.00	1,820		



Schematic Design Estimate

GFA

21,107

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST	
NEW ADDITIONS TO HIGH SCHOOL								
331	Miscellaneous HVAC equipment	21,107	sf	5.00	105,535			
332	<u>Pumps</u>							
333	Primary hot water pump 125 GPM	3	ea	3,500.00	10,500			
334	Secondary hot water pump 270 GPM	2	ea	6,800.00	13,600			
335	VFD's	3	ea	3,000.00	9,000			
336	<u>Air distribution</u>							
337	ERU 8000 CFM with hot water heating coil & VFD	1	ea	75,000.00	75,000			
338	VAV / Fan powered boxes with hot water reheats	6	ea	2,500.00	15,000			
339	VAV boxes with hot water reheats	6	ea	1,800.00	10,800			
340	Miscellaneous air distribution equipment	21,107	sf	2.00	42,214			
341	<u>Sheet metal & Accessories</u>							
342	Ductwork	21,107	lbs	9.00	189,963			
343	Duct insulation	12,664	sf	4.00	50,656			
344	Boiler flue and combustion air	1	ls	20,000.00	20,000			
345	RGD's	140	ea	75.00	10,500			
346	Miscellaneous sheetmetal accessories	1	ls	10,000.00	10,000			
347	<u>Piping</u>							
348	<u>Hot Water Pipe</u>							
349	Hot water heating pipe with fittings & hangers	21,107	sf	3.50	73,875			
350	Valves	21,107	sf	0.85	17,941			
351	<u>Refrigerant Pipe</u>							
352	Refrigerant pipe with fittings & hangers	21,107	sf	0.50	10,554			
353	Valves	21,107	sf	0.15	3,166			
354	<u>Piping Insulation</u>	21,107	sf	1.25	26,384			
355	<u>Automatic temperature controls</u>							
356	Automatic temperature controls DDC	21,107	sf	3.50	73,875			
357	<u>Balancing</u>							
358	System testing & balancing	21,107	sf	0.75	15,830			
359	<u>Miscellaneous</u>							
360	Coordination & management	1	ls	18,000.00	18,000			
361	Coring & patching	1	ls	5,000.00	5,000			
362	Equipment start-up and inspection	1	ls	3,000.00	3,000			
363	Commissioning support	1	ls	10,000.00	10,000			
364	Vibration & seismic supports	1	ls	10,000.00	10,000			
365	Rigging & equipment rental	1	ls	12,000.00	12,000			
366	SUBTOTAL					\$996,613		
367	TOTAL - HVAC							\$996,613

D40 FIRE PROTECTION

D40 FIRE PROTECTION, GENERALLY

374	Double check valve assembly	1	ea	7,500.00	7,500		
375	Wet alarm valve	1	ea	4,000.00	4,000		
376	Fire department connection	1	ea	1,100.00	1,100		
377	Zone control valve assembly	1	ea	1,500.00	1,500		
378	Miscellaneous valves	1	ls	3,000.00	3,000		
379	Sprinkler head	176	ea	75.00	13,200		
380	Branch sprinkler piping with fittings & hangers	2,120	lf	16.00	33,920		
381	Main sprinkler piping with fittings & hangers	700	lf	20.00	14,000		
382	Standpipe with fittings & hangers	200	lf	30.00	6,000		
383	<u>Miscellaneous</u>						



Schematic Design Estimate

GFA 21,107

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
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NEW ADDITIONS TO HIGH SCHOOL

384	Coordination & management	1	ls	1,600.00	1,600		
385	Hydraulic calculations	1	ls	3,500.00	3,500		
386	Coring & patching	1	ls	2,500.00	2,500		
387	Commissioning support	1	ls	3,000.00	3,000		
388	Fees & permits	1	ls	1,000.00	1,000		
389	SUBTOTAL					\$95,820	
TOTAL - FIRE PROTECTION							\$95,820

D50 ELECTRICAL

D5010 SERVICE & DISTRIBUTION

Normal Power

398	225A panelboard	1	ea	2,350.00	2,350		
399	225A feed	420	lf	50.00	21,000		
400	Miscellaneous gear and distribution	21,107	ea	2.00	42,214		
<u>Emergency Power</u>							
402	100A panelboard	1	ea	1,850.00	1,850		
403	100A feed	420	lf	23.00	9,660		
<u>Equipment wiring</u>							
405	VFD's connection only	6	ea	850.00	5,100		
406	ERU feed, connection, & safety switch WP	1	ea	3,500.00	3,500		
407	Pump feed, connection, safety switch	5	ea	1,200.00	6,000		
408	Boiler feed, connection, & safety switch	3	ea	1,200.00	3,600		
409	CUH feed and connection, & MS	4	ea	850.00	3,400		
410	UH feed and connection, & MS	4	ea	650.00	2,600		
411	Misc. equipment wiring	21,107	sf	1.00	21,107		
412	SUBTOTAL					\$122,381	

D5020 LIGHTING & POWER

Lighting

416	Classroom lighting	17,754	sf	3.50	62,139		
417	PE Spaces and Tower lighting	2,235	sf	6.00	13,410		
418	Library / Media Center Lighting	1,118	sf	9.00	10,062		
419	Lighting controls	19,989	sf	0.50	9,995		
420	Lighting controls (Library)	1,118	sf	2.00	2,236		
421	Automated lighting and daylight harvesting control system	21,007	ls	0.50	10,504		
<u>Branch Devices</u>							
423	Duplex & GFI receptacle	140	ea	26.00	3,640		
424	Back box	500	ea	28.00	14,000		
<u>Branch circuitry</u>							
426	3/4" EMT	3,000	lf	6.50	19,500		
427	#12 THHN	15,000	lf	0.70	10,500		
428	12-3 MC	8,000	lf	2.90	23,200		
429	12-2 MC	2,000	lf	3.70	7,400		
430	SUBTOTAL					\$186,586	

D5030 COMMUNICATION & SECURITY SYSTEMS

Fire alarm

434	Make connection and test at existing control panel	1	ls	2,500.00	2,500		
435	Initiating devices and cabling	21,107	ea	1.50	31,661		
<u>Tel/Data</u>							
437	Rough In (Backboxes conduit and cable tray)	21,107	sf	1.00	21,107		



Schematic Design Estimate

GFA 21,107

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST	
NEW ADDITIONS TO HIGH SCHOOL								
438	4' EMT							
439	Devices and cabling	21,017	sf	2.00	42,034			
440	Backbone cabling	500	lf	12.00	6,000			
441	New IDF closet	1	ls	5,500.00	5,500			
442	Entrance facility closet	1	ls	3,500.00	3,500			
443	Closet grounding	1	ls	500.00	500			
444	<u>Public Address/Clock System</u>							
445	Make connection and test at existing head end panel	1	ls	2,500.00	2,500			
446	Speakers, clocks, backboxes and cabling	21,107	ea	1.00	21,107			
447	<u>Security / Card Access System</u>							
448	CCTV camera	8	ea	1,350.00	10,800			
449	Card reader	3	ea	450.00	1,350			
450	Door contact	4	ea	200.00	800			
451	Back box	15	ea	120.00	1,800			
452	3/4" EMT	1,000	lf	6.50	6,500			
453	Cabling	1,200	lf	1.10	1,320			
454	<u>Audio/Visual</u>							
455	Conduit and backboxes only	21,107	sf	1.00	21,107			
456	A/V equipment projectors and sound systems	21,107	sf	3.00	63,321			
457	<u>Lightning Protection</u>							
458	Lightning protection system	1	ls	9,500.00	9,500			
459	SUBTOTAL					\$252,907		
460								
461	D5040 OTHER ELECTRICAL SYSTEMS							
462	<u>Temporary services</u>							
463	Temporary power and lights	1	ls	10,000.00	10,000			
464	<u>Fees & Permits</u>							
465	Fees & permits	1	ls	6,000.00	6,000			
466	SUBTOTAL					\$16,000		
467								
468	TOTAL - ELECTRICAL						\$577,874	
469								
470								
471	E10 EQUIPMENT							
472								
473	E10 EQUIPMENT, GENERALLY							
474	Fume hood, double sided	3	ea	12,000.00	36,000			
475	Chemical storage cabinets	3	ea	1,500.00	4,500			
476	Refrigerator	3	ea	800.00	2,400			
477	Freezer	3	ea	800.00	2,400			
478	Ice machine	3	ea	350.00	1,050			
479	Dishwasher	3	ea	600.00	1,800			
480	Goggle sterilizer	6	ea	500.00	3,000			
481	SUBTOTAL					\$51,150		
482								
483	TOTAL - EQUIPMENT						\$51,150	
484								
485								
486	E20 FURNISHINGS							
487								
488	E2010 FIXED FURNISHINGS							
489	Entry mats & frames - recessed with carpet/rubber strips	836	sf	45.00	37,620			
490	Window blinds	8,160	sf	6.00	48,960			



Schematic Design Estimate

GFA

21,107

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST	
NEW ADDITIONS TO HIGH SCHOOL								
491	Science lab casework	6	ea	50,000.00	300,000			
492	Prep room casework	3	ea	12,000.00	36,000			
493	SUBTOTAL					\$422,580		
494								
495	E2020 MOVABLE FURNISHINGS							
496	All movable furnishings to be provided and installed by owner							
497	SUBTOTAL						NIC	
498								
499	TOTAL - FURNISHINGS							\$422,580
500								
501								
502	F10 SPECIAL CONSTRUCTION							
503								
504	F10 SPECIAL CONSTRUCTION							
505	No items in this section							
506	SUBTOTAL							
507								
508	TOTAL - SPECIAL CONSTRUCTION							
509								
510								
511	F20 SELECTIVE BUILDING DEMOLITION							
512								
513	F2010 BUILDING ELEMENTS DEMOLITION							
514	See main summary for demolition of existing buildings							
515	SUBTOTAL							
516								
517	F2020 HAZARDOUS COMPONENTS ABATEMENT							
518	See main summary for HazMat allowance					See Summary		
519	SUBTOTAL							
520								
521	TOTAL - SELECTIVE BUILDING DEMOLITION							



CONSTRUCTION COST SUMMARY					
<i>BUILDING SYSTEM</i>		<i>SUB-TOTAL</i>	<i>TOTAL</i>	<i>\$/SF</i>	<i>%</i>
NEW GREENHOUSE and CONSERVATORY					
A10 FOUNDATIONS					
A1010	Standard Foundations	\$90,527			
A1020	Special Foundations	\$0			
A1030	Lowest Floor Construction	\$34,298	\$124,825	\$43.65	13.2%
A20 BASEMENT CONSTRUCTION					
A2010	Basement Excavation	\$0			
A2020	Basement Walls	\$0	\$0	\$0.00	0.0%
B10 SUPERSTRUCTURE					
B1010	Upper Floor Construction	\$0			
B1020	Roof Construction	\$960	\$960	\$0.34	0.1%
B20 EXTERIOR CLOSURE					
B2010	Exterior Walls	\$117,282			
B2020	Windows	\$199,200			
B2030	Exterior Doors	\$11,270	\$327,752	\$114.60	34.5%
B30 ROOFING					
B3010	Roof Coverings	\$233,626			
B3020	Roof Openings	\$0	\$233,626	\$81.69	24.6%
C10 INTERIOR CONSTRUCTION					
C1010	Partitions	\$50,728			
C1020	Interior Doors	\$13,627			
C1030	Specialties/Millwork	\$12,970	\$77,325	\$27.04	8.1%
C20 STAIRCASES					
C2010	Stair Construction	\$0			
C2020	Stair Finishes	\$0	\$0	\$0.00	0.0%
C30 INTERIOR FINISHES					
C3010	Wall Finishes	\$9,252			
C3020	Floor Finishes	\$5,474			
C3030	Ceiling Finishes	\$1,456	\$16,182	\$5.66	1.7%
D10 CONVEYING SYSTEMS					
D1010	Elevator	\$0	\$0	\$0.00	0.0%
D20 PLUMBING					
D20	Plumbing	\$25,212	\$25,212	\$8.82	2.7%
D30 HVAC					
D30	HVAC	\$66,584	\$66,584	\$23.28	7.0%



Monument Mountain Regional High School
 Design Options
 Great Barrington, MA

25-Mar-13

Schematic Design Estimate

GFA 2,860

CONSTRUCTION COST SUMMARY					
<i>BUILDING SYSTEM</i>		<i>SUB-TOTAL</i>	<i>TOTAL</i>	<i>\$/SF</i>	<i>%</i>
NEW GREENHOUSE and CONSERVATORY					
D40	FIRE PROTECTION				
D40	Fire Protection	\$19,350	\$19,350	\$6.77	2.0%
D50	ELECTRICAL				
D5010	Service & Distribution	\$14,100			
D5020	Lighting & Power	\$21,375			
D5030	Communication & Security Systems	\$13,385			
D5040	Other Electrical Systems	\$2,900	\$51,760	\$18.10	5.5%
E10	EQUIPMENT				
E10	Equipment	\$0	\$0	\$0.00	0.0%
E20	FURNISHINGS				
E2010	Fixed Furnishings	\$5,400			
E2020	Movable Furnishings	NIC	\$5,400	\$1.89	0.6%
F10	SPECIAL CONSTRUCTION				
F10	Special Construction	\$0	\$0	\$0.00	0.0%
F20	HAZMAT REMOVALS				
F2010	Building Elements Demolition	\$0			
F2020	Hazardous Components Abatement	\$0	\$0	\$0.00	0.0%
TOTAL DIRECT COST (Trade Costs)			\$948,976	\$331.81	100.0%



Schematic Design Estimate

GFA 2,860

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
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NEW GREENHOUSE and CONSERVATORY

GROSS FLOOR AREA CALCULATION

Ground Floor 2,860

TOTAL GROSS FLOOR AREA (GFA)	2,860 sf
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A10 FOUNDATIONS

A1010 STANDARD FOUNDATIONS

Strip footings to exterior walls - 3'-0" x 1'-0"

Excavation	406	cy	10.00	4,060
Store on site for reuse	406	cy	6.00	2,436
Backfill with existing fill	369	cy	8.00	2,952
Formwork	626	sf	10.00	6,260
Re-bar	657	lbs	1.10	723
Concrete material; 3,000 psi	37	cy	115.00	4,255
Placing concrete	37	cy	45.00	1,665

Foundation walls at exterior - 16" thick

Formwork	2,504	sf	12.00	30,048
Re-bar	5,008	lbs	1.10	5,509
Concrete material; 4,000 psi	65	cy	120.00	7,800
Placing concrete	65	cy	45.00	2,925
Dampproofing foundation wall and footing	1,878	sf	3.00	5,634
Foamed plastic insulation, 2"	1,252	sf	2.00	2,504
Form shelf	313	lf	8.00	2,504

Miscellaneous

Rock removal at knoll	1	ls	10,000.00	10,000
Form key in footing	313	lf	4.00	1,252

SUBTOTAL \$90,527

A1020 SPECIAL FOUNDATIONS

No Work in this section

SUBTOTAL

A1030 LOWEST FLOOR CONSTRUCTION

New Slab on grade

Structural fill to bring up levels	272	cy	30.00	8,160
Gravel fill, 12"	106	cy	28.00	2,968
Foamed plastic insulation, 2"	2,860	sf	1.87	5,348
Vapor barrier	2,860	sf	0.50	1,430
Compact existing sub-grade	2,860	sf	0.50	1,430
Mesh reinforcing 15% lap	3,289	sf	0.80	2,631
Concrete - 5" thick; 4,000 psi	47	cy	120.00	5,640
Placing concrete	47	cy	45.00	2,115
Finishing and curing concrete	2,860	sf	1.50	4,290
Control joints - saw cut	2,860	sf	0.10	286

SUBTOTAL \$34,298

TOTAL - FOUNDATIONS	\$124,825
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A20 BASEMENT CONSTRUCTION

A2010 BASEMENT FILL



Schematic Design Estimate

GFA 2,860

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
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NEW GREENHOUSE and CONSERVATORY

56 No Work in this section
 57 SUBTOTAL

58
 59 **A2020 BASEMENT WALLS**
 60 No Work in this section
 61 SUBTOTAL

TOTAL - BASEMENT CONSTRUCTION

B10 SUPERSTRUCTURE

62
 63
 64
 65
 66
 67
 68 **B1010 FLOOR CONSTRUCTION**
 69 No Work in this section
 70 SUBTOTAL

71
 72 **B1020 ROOF CONSTRUCTION**
 73 No Work in this section
 74 Roof Structure

75 1-1/2" 20 Ga. galvanized Metal Roof Deck 320 sf 3.00 960
 76 SUBTOTAL \$960

TOTAL - SUPERSTRUCTURE \$960

B20 EXTERIOR CLOSURE

81
 82
 83 **B2010 EXTERIOR WALLS**
 84 Exterior skin 1,252 sf -
 85 Brick @ end wall 525 sf 35.00 18,375
 86 Brick stem wall 1,252 sf 35.00 43,820
 87 CMU back up, 8 1,777 sf 22.00 39,094
 88 Spray Foam insulation to new exterior cavity 1,777 sf 3.00 5,331
 89 Air barrier 1,777 sf 6.00 10,662
 90 SUBTOTAL \$117,282

91
 92 **B2020 WINDOWS** 3,320 sf -
 93 Greenhouse glazing 3,320 sf 60.00 199,200
 94 SUBTOTAL \$199,200

95
 96 **B2030 EXTERIOR DOORS**
 97 Glazed entrance doors including frame and hardware; 2 pr 3,500.00 7,000
 double door
 98 Glazed entrance doors including frame and hardware; 1 ea 1,500.00 1,500
 single door
 99 HM doors, frames and hardware- Double 1 pr 2,000.00 2,000
 100 Backer rod & double sealant 77 lf 6.00 462
 101 Wood blocking at openings 77 lf 4.00 308
 102 SUBTOTAL \$11,270

TOTAL - EXTERIOR CLOSURE \$327,752

B30 ROOFING

103
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 109 **B3010 ROOF COVERINGS**
 110 Greenhouse Roof



Schematic Design Estimate

GFA 2,860

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST	
NEW GREENHOUSE and CONSERVATORY								
111	Greenhouse glazing	3,203	sf	70.00	224,210			
112	<u>Flat roofing</u>							
113	PVC roof membrane fully adhered	320	sf	6.50	2,080			
114	Insulation, 9"	320	sf	7.00	2,240			
115	1/2" dens-deck protection board	320	sf	1.50	480			
116	Reinforced vapor barrier	320	sf	0.45	144			
117	Rough blocking	312	lf	6.00	1,872			
118	<u>Miscellaneous Roofing</u>							
119	Roof fascia/cornice	52	lf	50.00	2,600			
120	SUBTOTAL					\$233,626		
121								
122	B3020 ROOF OPENINGS							
123	No Work in this section							
124	SUBTOTAL							
125								
126	TOTAL - ROOFING							\$233,626
127								
128								
129	C10 INTERIOR CONSTRUCTION							
130								
131	C1010 PARTITIONS							
132	New CMU partitions, 8"	784	sf	22.00	17,248			
133	Seismic clips	14	ea	120.00	1,680			
134	Glazed walls	530	sf	60.00	31,800			
135	SUBTOTAL					\$50,728		
136								
137	C1020 INTERIOR DOORS							
138	Glazed entrance vestibule doors including frame and hardware; double door	2	pr	3,500.00	7,000			
139	Glazed entrance vestibule doors including frame and hardware; single door	1	ea	1,500.00	1,500			
140	New door, frame and hardware, single	3	ea	1,500.00	4,500			
141	Paint doors and frames	3	ea	90.00	270			
142	Backer rod & double sealant	51	lf	4.00	204			
143	Wood blocking at openings	51	lf	3.00	153			
144	SUBTOTAL					\$13,627		
145								
146	C1030 SPECIALTIES / MILLWORK							
147	Toilet Accessories							
148	Individual bathroom	14	rms	600.00	8,400			
149	Marker boards/tackboards, allow	1	ls	1,000.00	1,000			
150	Room Signs	3	ea	120.00	360			
151	Fire extinguisher cabinets	1	ea	350.00	350			
152	Miscellaneous sealants throughout building	2,860	sf	1.00	2,860			
153	SUBTOTAL					\$12,970		
154								
155	TOTAL - INTERIOR CONSTRUCTION							\$77,325
156								
157								
158	C20 STAIRCASES							
159								
160	C2010 STAIR CONSTRUCTION							
161	No Work in this section							
162	SUBTOTAL							
163								
164	C2020 STAIR FINISHES							
165	No Work in this section							



Schematic Design Estimate

GFA 2,860

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
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NEW GREENHOUSE and CONSERVATORY

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SUBTOTAL

TOTAL - STAIRCASES							
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C30 INTERIOR FINISHES

C3010 WALL FINISHES

Paint to CMU walls	1,152	sf	1.25	1,440		
Ceramic wall tile	558	sf	14.00	7,812		
SUBTOTAL						\$9,252

C3020 FLOOR FINISHES

Ceramic tile - thinset	112	sf	13.00	1,456		
Sealed Concrete	2,748	sf	1.20	3,298		
Ceramic tile base	60	lf	12.00	720		
Moisture mitigation, epoxy fluid applied membrane					NIC	
SUBTOTAL						\$5,474

C3030 CEILING FINISHES

GWB	112	sf	12.00	1,344		
Paint to GWB	112	sf	1.00	112		
SUBTOTAL						\$1,456

TOTAL - INTERIOR FINISHES						\$16,182
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D10 CONVEYING SYSTEMS

D1010 ELEVATOR

No Work in this section
 SUBTOTAL

TOTAL - CONVEYING SYSTEMS							
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D20 PLUMBING

D20 PLUMBING, GENERALLY

<u>Equipment</u>							
Electric water heater under sink allowance	2	ea	355.00	710			
Hose bibbs allowance	4	ea	650.00	2,600			
Miscellaneous plumbing equipment	2,860	sf	0.70	2,002			
<u>Plumbing Fixtures</u>							
Water closet	2	ea	1,000.00	2,000			
Lavatory	2	ea	650.00	1,300			
Miscellaneous plumbing fixtures	2,860	sf	0.50	1,430			
<u>Domestic Water Type L Copper Pipe</u>							
Domestic water pipe with fittings & hangers	2,860	sf	2.00	5,720			
<u>Pipe insulation</u>							
Pipe insulation	2,860	sf	1.00	2,860			
<u>Sanitary Waste And Vent Pipe w/ Hangers</u>							
Sanitary waste & vent pipe with fittings & hangers	2,860	sf	1.50	4,290			
<u>Storm Drainage, Hubless Cast Iron Pipe</u>							
NIC					NIC		
<u>Miscellaneous</u>							
Coordination & management	1	ls	500.00	500			
Coring & patching	1	ls	1,000.00	1,000			
Testing and sterilization	1	ls	500.00	500			
Fees & permits	1	ls	300.00	300			
SUBTOTAL						\$25,212	



Schematic Design Estimate

GFA 2,860

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
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NEW GREENHOUSE and CONSERVATORY

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TOTAL - PLUMBING							\$25,212
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D30 HVAC

D30 HVAC, GENERALLY

HVAC equipment

Gas fired unit heater 2 ea 825.00 1,650

Miscellaneous HVAC equipment 2,860 sf 4.00 11,440

Air distribution

Green house ventilation fan 1 ea 2,000.00 2,000

Sheet metal & Accessories

Ductwork 2,860 lbs 8.50 24,310

Duct insulation 1,716 sf 3.50 6,006

Miscellaneous air distribution equipment 2,860 sf 2.00 5,720

Piping

Hot Water Pipe

NIC -

Piping Insulation

Automatic temperature control 2,860 sf 2.25 6,435

Balancing

System testing & balancing 2,860 sf 0.55 1,573

Miscellaneous

Coordination & management 1 ls 1,200.00 1,200

Equipment start-up and inspection 1 ls 1,000.00 1,000

Commissioning support 1 ls 1,200.00 1,200

Vibration & seismic supports 1 ls 800.00 800

Coring & patching 1 ls 750.00 750

Rigging & equipment rental 1 ls 2,500.00 2,500

SUBTOTAL \$66,584

TOTAL - HVAC							\$66,584
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D40 FIRE PROTECTION

D40 FIRE PROTECTION, GENERALLY

Double check valve assembly 1 ea 4,000.00 4,000

Alarm check valve 1 ea 2,500.00 2,500

Fire department connection valve 1 ea 1,050.00 1,050

Zone control valve station 1 ea 1,500.00 1,500

Sprinkler head 22 ea 75.00 1,650

Branch sprinkler piping with fittings & hangers 300 lf 16.00 4,800

Main sprinkler piping with fittings & hangers 100 lf 20.00 2,000

Miscellaneous

Coordination & management 1 ls 350.00 350

Hydraulic calculations 1 ls 1,000.00 1,000

Coring & patching 1 ls 300.00 300

Fees & permits 1 ls 200.00 200

SUBTOTAL \$19,350

TOTAL - FIRE PROTECTION							\$19,350
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D50 ELECTRICAL

D5010 SERVICE & DISTRIBUTION

Normal Power



Schematic Design Estimate

GFA 2,860

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST	
NEW GREENHOUSE and CONSERVATORY								
287	100A panelboard	1	ea	2,200.00	2,200			
288	100A feed	150	lf	23.00	3,450			
289	<u>Equipment wiring</u>							
290	UH FSS, feed and connection	3	ea	1,200.00	3,600			
291	Green house ventilation feed and connection	1	ea	2,000.00	2,000			
292	Misc. equipment wiring	2,850	sf	1.00	2,850			
293	SUBTOTAL					\$14,100		
294								
295	D5020 LIGHTING & POWER							
296	<u>Lighting</u>							
297	Lighting fixtures	2,850	sf	3.50	9,975			
298	Lighting controls	2,850	sf	0.50	1,425			
299	<u>Branch Devices</u>							
300	Branch devices	2,850	sf	0.50	1,425			
301	<u>Branch circuitry</u>							
302	Branch circuitry	2,850	sf	3.00	8,550			
303	SUBTOTAL					\$21,375		
304								
305	D5030 COMMUNICATION & SECURITY SYSTEMS							
306	<u>Fire alarm</u>							
307	Devices and cabling	2,850	sf	2.00	5,700			
308	<u>Tel/Data</u>							
309	Devices, cabling and rough-in	2,850	sf	1.50	4,275			
310	<u>Security / Card Access System</u>							
311	Card reader	2	ea	450.00	900			
312	Door contact	2	ea	200.00	400			
313	Back box	4	ea	120.00	480			
314	3/4" EMT	200	lf	6.50	1,300			
315	Cabling	300	lf	1.10	330			
316	SUBTOTAL					\$13,385		
317								
318	D5040 OTHER ELECTRICAL SYSTEMS							
319	<u>Temporary services</u>							
320	Temporary power and lights	1	ls	2,500.00	2,500			
321	<u>Fees & Permits</u>							
322	Fees & permits	1	ls	400.00	400			
323	SUBTOTAL					\$2,900		
324								
325	TOTAL - ELECTRICAL						\$51,760	
326								
327								
328	E10 EQUIPMENT							
329								
330	E10 EQUIPMENT, GENERALLY							
331	No Work in this section							
332	SUBTOTAL							
333								
334	TOTAL - EQUIPMENT							
335								
336								
337	E20 FURNISHINGS							
338								
339	E2010 FIXED FURNISHINGS							
340	Entry mats & frames - recessed with carpet/rubber strips	120	sf	45.00	5,400			
341	SUBTOTAL					\$5,400		
342								
343	E2020 MOVABLE FURNISHINGS							



Schematic Design Estimate

GFA 2,860

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
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NEW GREENHOUSE and CONSERVATORY

344 All movable furnishings to be provided and installed
 by owner

345 SUBTOTAL

NIC

TOTAL - FURNISHINGS							\$5,400
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349 **F10 SPECIAL CONSTRUCTION**

352 **F10 SPECIAL CONSTRUCTION**

353 No items in this section

354 SUBTOTAL

TOTAL - SPECIAL CONSTRUCTION							
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359 **F20 SELECTIVE BUILDING DEMOLITION**

361 **F2010 BUILDING ELEMENTS DEMOLITION**

362 See main summary for demolition of existing buildings

363 SUBTOTAL

365 **F2020 HAZARDOUS COMPONENTS ABATEMENT**

366 See main summary for HazMat allowance

See Summary

367 SUBTOTAL

TOTAL - SELECTIVE BUILDING DEMOLITION							
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Schematic Design Estimate

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
SITEWORK							
G SITEWORK							
G10 SITE PREPARATION & DEMOLITION							
	Site construction fence/barricades	3,400	lf	8.00	27,200		
	Demolish existing paving/curbs	125,000	sf	1.00	125,000		
	Miscellaneous demolition	1	ls	30,000.00	30,000		
	<u>Site Earthwork</u>						
	Strip topsoil, store	1,852	cy	12.00	22,224		
	Cuts/Fills	5,122	cy	9.00	46,098		
	Import material for regrading	3,354	cy	15.00	50,310		
	Ledge removal	1	ls	20,000.00	20,000		
	Silt fence/erosion control, wash bays, stock piles	3,400	lf	10.00	34,000		
	Silt fence maintenance and monitoring	1	ls	5,000.00	5,000		
	Dust control/sweeper & water truck	1	ls	10,000.00	10,000		
	<u>Hazardous Waste Remediation</u>						
	Dispose/treat contaminated soils/water					NIC	
	SUBTOTAL						369,832
G20 SITE IMPROVEMENTS							
	<u>Resurface Roadways and Parking Lots</u>						
	Resurface bituminous concrete	57,282	sf		-		
		6,365	sy	16.00	101,840		
	<u>New Bituminous Paving</u>						
	Bituminous concrete paving	86,930	sf		-		
	gravel base; 12" thick	3,220	cy	26.00	83,720		
	bituminous concrete; 3-1/2" thick	9,659	sy	22.00	212,498		
	Granite curbs; 6" x 18"	3,885	lf	28.00	108,780		
	Bituminous berm	1,010	lf	8.00	8,080		
	Reinforced turf emergency access drive	11,344	sf		-		
	gravel base; 12" thick	420	cy	26.00	10,920		
	Reinforced turf	11,344	sf	6.00	68,064		
	Single solid lines and space numbering, 4" thick	263	space	25.00	6,575		
	Handicap parking with hatching, 4" thick	7	space	300.00	2,100		
	<u>Pedestrian Paving</u>						
	Concrete paving	18,720	sf				
	gravel base; 8" thick	465	cy	26.00	12,090		
	5" concrete paving	18,720	sf	6.00	112,320		
	Bituminous concrete paving	16,210	sf		-		
	gravel base; 8" thick	402	cy	26.00	10,452		
	bituminous concrete	1,801	sy	20.00	36,020		
	Concrete ramp	1,590	sf				
	gravel base; 8" thick	39	cy	26.00	1,014		
	5" concrete paving	1,590	sf	6.00	9,540		
	Site stairs	1	ls	30,000.00	30,000		
	Concrete plaza	745	sf				
	gravel base; 8" thick	18	cy	26.00	468		
	Bituminous concrete paving	83	sy	20.00	1,660		
	Railing at stairs/ramp	460	lf	150.00	69,000		
	New traffic signs	1	ls	15,000.00	15,000		
	Screen wall	70	lf	500.00	35,000		
	Seat wall; granite; radius	50	lf	240.00	12,000		
	Boulders	1	ls	5,000.00	5,000		
	Miscellaneous site improvements; benches, trash receptacles etc.	1	ls	10,000.00	10,000		
	Flagpole	1	ea	3,500.00	3,500		



Schematic Design Estimate

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
SITEWORK							
55	Bike racks, loops	18	ea	500.00	9,000		
56	New play surface	1,155	sf	12.00	13,860		
57	New play equipment	1	ls	30,000.00	30,000		
58	Ornamental fence at playground	155	lf	80.00	12,400		
59	Chainlink fence at parking, 42"	312	lf	40.00	12,480		
60	New building entrance signs	2	ea	15,000.00	30,000		
61	Terrace seating with concrete steps						
62	Granite seating blocks; 2' x 3'	1,044	lf	250.00		ALT 1	
63	Trench drain					NIC	
64	Concrete steps	8	loc	2,000.00		ALT 1	
65	Grading and backfill	1	ls	25,000.00		ALT 1	
66	Courtyard paving/planting	10,000	sf	15.00	150,000		
67	<u>Landscaping</u>						
68	Respread and augment topsoil	1,852	cy	12.00	22,224		
69	Landscaping allowance	1	ls	100,000.00	100,000		
70	SUBTOTAL						1,345,605
71							
72	G30 CIVIL MECHANICAL UTILITIES						
73	<u>Water supply</u>						
74	Fire protection, 12"	920	lf	120.00	110,400		
75	Domestic water, 4"	450	lf	54.00	24,300		
76	Hydrants	3	ea	1,900.00	5,700		
77	Gate valves	1	ls	2,500.00	2,500		
78	<u>Sanitary sewer</u>						
79	8" PVC	573	lf	30.00	17,190		
80	SMH	5	loc	3,500.00	17,500		
81	Grease trap; 3,000 gallon	1	loc	7,000.00	7,000		
82	<u>Storm Sewer</u>						
83	Drainage line	2,019	lf	40.00	80,760		
84	Manhole	14	loc	3,500.00	49,000		
85	Trench drain	100	lf	120.00	12,000		
86	Catch basins	16	loc	2,600.00	41,600		
87	Stormceptor, allowance	2	ea	15,000.00	30,000		
88	Connect to existing line	1	loc	3,000.00	3,000		
89	Subsurface infiltration	6,000	sf	22.00	132,000		
90	<u>Gas</u>						
91	Trenching for gas	395	lf	25.00	9,875		
92	SUBTOTAL						542,825
93							
94	G40 ELECTRICAL UTILITIES						
95	<u>Primary Ductbank</u>						
96							
97	Manhole	2	ea	8,500.00	17,000		
98	2-4" PVC conduits (Concrete encased)	630	lf	90.00	56,700		
99	Padmount transformer provided by UC					By N-GRID	
100	Transformer pad	1	ls	2,500.00	2,500		
101	<u>Secondary Ductbank</u>						
102	2000A secondary service	170	lf	575.00	97,750		
103	<u>Generator Ductbank</u>						
104	400A feed	280	lf	110.00	30,800		
105	250A feed	140	lf	70.00	9,800		
106	<u>Telecommunications</u>						
107	Handhole	2	ea	1,500.00	3,000		
108	4-4" PVC conduits (Concrete encased)	500	lf	120.00	60,000		
109	New ductbank for fiber service (spare)	1,000	lf	40.00	40,000		



Schematic Design Estimate

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST	
SITework								
110	Handhole	2	ea	1,500.00	3,000			
110	<u>Demolition</u>							
111	Demolish existing site lighting	17	ea	250.00	4,250			
112	Reconnect existing field lighting	1	ls	15,000.00	15,000			
113	<u>Site Lighting</u>							
114	Pole light (Single head)	27	ea	3,000.00	81,000			
115	Pole light (Double head)	8	ea	3,500.00	28,000			
116	Pole base	35	ea	350.00	12,250			
117	Circuitry	3,000	lf	12.00	36,000			
118	SUBTOTAL					497,050		
119	TOTAL - SITE DEVELOPMENT							\$2,755,312
120								

Monument Mountain High School
Great Barrington, MA

26-Mar-13

CM AT RISK - (CHP 149 A)

RENOVATION AND ADDITION

	GSF		COST PER S.F.	TOTAL
ADDITION	23,957	SF	\$292.39	\$7,004,898
RENOVATION	113,705	SF	\$196.53	\$22,346,642
PHASING AND LOGISTICS				INC.
SITWORK				\$2,811,629
TEMPORARY TRAILERS				NIC
HAZARDOUS WASTE REMOVAL		ALLOW		\$2,015,800

		TOTAL DIRECT COST		\$34,178,969
CM AT RISK:				
GENERAL CONDITIONS	36	MOS	\$92,000	\$3,312,000
GENERAL REQUIREMENTS		3%		\$1,124,729
BUILDING PERMIT		0%		\$0
P&P BOND & INSURANCE		2%		\$772,314
FEE		3%		\$1,181,640
DESIGN CONTINGENCY		10%		\$4,056,965
GMP CONTINGENCY		3%		\$1,338,799
ESCALATION (bid fall 2014)		6%		\$2,677,597

		TOTAL CONSTRUCTION COST		\$48,643,013
		COST PER SF		\$353.35

ALTERNATES:

ALTERNATE NO. 1 - ADD GRANITE TERRACE SEATING WITH
 CONCRETE STAIRS \$370,198

PROJECT: Monument Mountain High School
 LOCATION: Great Barrington, MA
 CLIENT: Strategic Building Solutions
 DATE: 26-Mar-13

NO. OF SQ. FT.: 113,705
 COST PER SQ. FT.: \$196.53

	<u>RENOVATION</u>		
	<u>TOTAL</u>	<u>PERCENT OF PROJECT</u>	<u>COST PER SF</u>
SUMMARY			
A. SUBSTRUCTURE			
A10 - FOUNDATIONS			
A1010 STANDARD FOUNDATIONS	25,000	0%	0.22
A1020 SPECIAL FOUNDATIONS	0	0%	0.00
A1030 SLAB ON GRADE	369,860	2%	3.25
A20 - BASEMENT CONSTRUCTION			
A2010 BASEMENT EXCAVATION	0	0%	0.00
A2020 BASEMENT WALLS	0	0%	0.00
B. SHELL			
B10 - SUPERSTRUCTURE			
B1010 FLOOR CONSTRUCTION	30,000	0%	0.26
B1020 ROOF CONSTRUCTION	836,588	4%	7.36
B20 - EXTERIOR ENCLOSURE			
B2010 EXTERIOR WALLS	275,920	1%	2.43
B2020 EXTERIOR WINDOWS	577,094	3%	5.08
B2030 EXTERIOR DOORS	71,680	0%	0.63
B30 - ROOFING			
B3010 ROOF COVERINGS	3,619,884	16%	31.84
B3020 ROOF OPENINGS	40,200	0%	0.35
C. INTERIORS			
C10 - INTERIOR CONSTRUCTION			
C1010 PARTITIONS	1,188,455	5%	10.45
C1020 INTERIOR DOORS	529,075	2%	4.65
C1030 FITTINGS	646,605	3%	5.69
C20 - STAIRS			
C2010 STAIR CONSTRUCTION	5,440	0%	0.05
C2020 STAIR FINISHES	442	0%	0.00
C30 - INTERIOR FINISHES			
C3010 WALL FINISHES	891,778	4%	7.84
C3020 FLOOR FINISHES	828,827	4%	7.29
C3030 CEILING FINISHES	682,163	3%	6.00
D. SERVICES			
D10 - CONVEYING			
D1010 ELEVATORS & LIFTS	45,000	0%	0.40
D1010 ESCALATORS & MOVING WALKS	0	0%	0.00
D1090 OTHER CONVEYING SYSTEMS	0	0%	0.00
D20 - PLUMBING			
D2010 PLUMBING	896,653	4%	7.89

Monument Mountain High School - Renovation

	<u>TOTAL</u>	<u>PERCENT OF PROJECT</u>	<u>COST PER SF</u>
D30 - HVAC			
D3010 HVAC	4,263,173	19%	37.49
D40 - FIRE PROTECTION			
D4010 FIRE PROTECTION	477,561	2%	4.20
D50 - ELECTRICAL			
D5010 ELECTRICAL	3,512,039	16%	30.89
E. EQUIPMENT & FURNISHINGS			
E10 - EQUIPMENT			
E1010 COMMERCIAL EQUIPMENT	0	0%	0.00
E1020 INSTITUTIONAL EQUIPMENT	0	0%	0.00
E1030 VEHICULAR EQUIPMENT	0	0%	0.00
E1090 OTHER EQUIPMENT	997,498	4%	8.77
E20 - FURNISHINGS			
E 2010 FIXED FURNISHINGS	560,390	3%	4.93
E2020 MOVABLE FURNISHINGS	0	0%	0.00
F. SPECIAL CONSTRUCTION & DEMOLITION			
F10 - SPECIAL CONSTRUCTION			
F1010 SPECIAL STRUCTURES	0	0%	0.00
F1020 INTEGRATED CONSTRUCTION	0	0%	0.00
F1030 SPECIAL CONSTRUCTION SYSTEMS	0	0%	0.00
F1040 SPECIAL FACILITIES	0	0%	0.00
F1050 SPECIAL CONTROLS & INSTRUMENTATION	0	0%	0.00
F20 - SELECTIVE BUILDING DEMOLITION			
F2010 BUILDING ELEMENTS DEMOLITION	975,318	4%	8.58
F2020 HAZARDOUS COMPONENTS ABATEMENT	0	0%	0.00
G. BUILDING SITEWORK			
G10 - SITE PREPARATION			
G1010 SITE CLEARING	0	0%	0.00
G1020 SITE DEMOLITION & RELOCATIONS	0	0%	0.00
G1030 SITE EARTHWORK	0	0%	0.00
G1040 HAZARDOUS WASTE REMEDIATION	0	0%	0.00
G20 - SITE IMPROVEMENTS			
G2010 ROADWAYS	0	0%	0.00
G2020 PARKING LOTS	0	0%	0.00
G2030 PEDESTRIAN PAVING	0	0%	0.00
G2040 SITE DEVELOPMENT	0	0%	0.00
G2050 LANDSCAPING	0	0%	0.00
G30 - SITE MECHANICAL UTILITIES			
G3010 WATER SUPPLY	0	0%	0.00
G3020 SANITARY SEWER	0	0%	0.00
G3030 STORM SEWER	0	0%	0.00
G3040 HEATING DISTRIBUTION	0	0%	0.00
G3050 COOLING DISTRIBUTION	0	0%	0.00
G3060 FUEL DISTRIBUTION	0	0%	0.00
G3090 OTHER SITE MECHANICAL UTILITIES	0	0%	0.00
G40 - SITE ELECTRICAL UTILITIES			
G4010 ELECTRICAL DISTRIBUTION	0	0%	0.00
G4020 SITE LIGHTING	0	0%	0.00

Monument Mountain High School - Renovation	<u>TOTAL</u>	<u>PERCENT OF PROJECT</u>	<u>COST PER SF</u>
G4030 SITE COMMUNICATIONS & SECURITY	0	0%	0.00
G4090 OTHER SITE ELECTRICAL UTILITIES	0	0%	0.00
G90 - OTHER SITE CONSTRUCTION			
G9010 SERVICE AND PEDESTRIAN TUNNELS	0	0%	0.00
G9090 OTHER SITE SYSTEMS	0	0%	0.00

TOTAL	22,346,642	100%	196.53

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
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A. SUBSTRUCTURE

A10 - FOUNDATIONS

A1010 STANDARD FOUNDATIONS

033000 CAST IN PLACE CONCRETE

Grade Beam at New Brace Frame: Allowance as necessary	1	LS	25,000.00	25,000
				----- 25,000

A1020 SPECIAL FOUNDATIONS		N/A		0
				----- 0

A1030 SLAB ON GRADE

033000 CAST IN PLACE CONCRETE

Remove and Replace Slab at :				
New toilet/shw rms	3,650	SF	12.00	43,800
Existing toilet rm 50%	1,675	SF	12.00	20,100
New Kitchen/culinary class	2,500	SF	12.00	30,000
New Art class rooms (2 EA)	2,900	SF	12.00	34,800
Auditorium	1	LS	10,000.00	10,000
Patch slab	90,000	SF	2.00	180,000
Misc. slab patching - allowance	1	LS	10,000.00	10,000
Geofoam fill w/ 4" Concrete Topping:				
Music Rm ramp	438	SF	30.00	13,140
Mech pit infill	934	SF	30.00	28,020
				----- 369,860

TOTAL A10 FOUNDATIONS				394,860
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A20 - BASEMENT CONSTRUCTION N/A

A2010 BASEMENT EXCAVATION		NOT USED		----- 0
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DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
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TOTAL A20 - BASEMENT CONSTRUCTION				0
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B. SHELL

B10 - SUPERSTRUCTURE

B1010 FLOOR CONSTRUCTION

051200 STRUCTURAL STEEL FRAMING

Rework existing for new lift	1	LS	30,000.00	30,000

				30,000

B1020 ROOF CONSTRUCTION

051200 STRUCTURAL STEEL FRAMING

Skylights:

Reframe clerestory window	17	EA	1,500.00	25,500
Reframe skylight opening	23	EA	1,500.00	34,500

Clerestory Roof Monitor:

Frame new roof	536	SF	25.00	13,400
Brace frame (.375 lb/sf)	21	TONS	4,250.00	89,250
Allow to relocate existing columns	5	EA	10,000.00	50,000

Dining Common Roof:

New roof framing (10 lbs/sf)	31	TONS	3,600.00	111,600
1 1/2"x20Ga deck	6,165	SF	3.50	21,578
3" Conc. deck fill	6,165	SF	4.00	24,660

New Roof at Mech Unit:

New roof framing (10 lbs/sf)	11.25	TONS	3,600.00	40,500
1 1/2"x20Ga deck	2,250	SF	4.50	10,125
3" Conc. deck fill	2,250	SF	5.00	11,250

10 New Concrete Mech Pads:

Supplemental beam support	15	TONS	3,800.00	57,000
Girder cover plate	4	TONS	3,800.00	15,200
3" Conc. deck fill	2,250	SF	5.00	11,250

Repalce metal deck	8,250	SF	5.00	41,250
Reinforce existing for snow load	3,840	SF	25.00	96,000
Dog House Roof Framing	4,881	SF	25.00	122,025

Galv. TS Roof Equipment screen	15	TON	4,100.00	61,500
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DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL

				836,588
TOTAL B10 SUPERSTRUCTURE				866,588

B20 - EXTERIOR ENCLOSURE

B2010 EXTERIOR WALLS

042001 MASONRY*

Infill sgl dr open (5 EA)	160	SF	75.00	12,000
Infill servery wall	200	SF	75.00	15,000
Masonry restoration	1	LS	25,000.00	25,000
Power wash ext brick	11,130	SF	2.00	22,260

054000 LIGHT GUAGE FRAMING

Exterior wall framing (complete)	2,736	SF	15.00	41,040
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071000 DAMPPROOF., WATERPROOF. & CAULKING*

Misc. Sealants	1	LS	30,000.00	30,000
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METAL PANEL

Re-clad clerestory doghouse (5 EA)	2,736	SF	45.00	123,120
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090009 PAINTING*

Misc. Exterior painting	1	LS	7,500.00	7,500
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275,920

B2020 EXTERIOR WINDOWS

061000 ROUGH CARPENTRY

7 1/2" P.T. - perim. blocking	3,371	LF	5.00	16,855
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071000 DAMPPROOF., WATERPROOF. & CAULKING*

Window and door caulking	3,371	LF	9.00	30,339
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080005 METAL WINDOWS*

Alum. window	6,070	SF	75.00	455,250
Clerestory window (17 ea)	442	SF	75.00	33,150
Doghouse clerestory window (40 ea)	520	SF	75.00	39,000

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DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
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089100 LOUVERS

Alum. louvers - allow	1	LS	2,500.00	2,500

				577,094

B2030 EXTERIOR DOORS

061000 ROUGH CARPENTRY

7 1/2" P.T. - perim. blocking	44	LF	4.10	180
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081100 METAL DOORS AND FRAMES

Ext. HM Frame, Door, Hdw, Glass & Glazing: Receiving - dbl	1	EA	2,500.00	2,500
Shop - sgl	1	EA	1,500.00	1,500

083300 COILING GRILLES & DOOR

OH door - shop	3	EA	4,000.00	12,000
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084000 ENTRANCES, STOREFRONTS & CURTAIN WALLS

Exist. Opening Alum. Doors, Frames, Glass, Glazing & Hdw:				
Alum. storefront @ entries		w/ windows		
Alum Entry Door - dbl	2	EA	7,500.00	15,000
Alum Courtyard - dbl	2	EA	7,500.00	15,000
Alum Entry - sgl	6	EA	3,500.00	21,000
Auto opener	1	EA	4,500.00	4,500

				71,680

TOTAL B20 - EXTERIOR ENCLOSURE				924,694
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B30 - ROOFING

B3010 ROOF COVERINGS

061000 ROUGH CARPENTRY

Skylight blocking	465	LF	25.00	11,625
Clerestory window blocking	17	EA	300.00	5,100
Perim. blocking	3,800	LF	18.00	68,400
Roof blocking @ mech equip.	1	LS	7,500.00	7,500
Reframe clerestory window	40	EA	300.00	12,000

070002 ROOFING AND FLASHING*

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Metal Mansard Roofing:				
4" Rigid insulation	22,422	SF	4.75	106,505
Adhered air/vapor barrier	22,422	SF	3.25	72,872
Vapor retarder	22,422	SF	0.65	14,574
Alucobond panel	22,422	SF	40.00	896,880
Spray foam @ soffit	3,000	SF	5.00	15,000
New PVC Roofing System:				
1/2" Underlayment "Dens Deck"	110,923	SF	2.05	227,392
Vapor retarder	110,923	SF	0.65	72,100
PVC Membrane w/ Insul. 9" ave.	110,923	SF	15.00	1,663,845
Membrane flashing	1	LS	25,000.00	25,000
Walkway pads - allow	1	LS	10,000.00	10,000
Aluminum Flashing:				
Mansard coping	2,476	LF	25.00	61,900
Base flashing	1,578	LF	24.00	37,872
Misc. flashing	1	LS	25,000.00	25,000
Alum. soffit panel	3,000	SF	18.00	54,000
Acoustical mechanical roof screen (16' high)	4,224	SF	55.00	232,320

*Roofing & flashing removal is included in F2010

3,619,884

B3020 ROOF OPENINGS

077200 ROOF ACCESSORIES

Roof Skylight:				
Alum. skylight 4'x4'	21	EA	1,200.00	25,200
Alum. skylight 10'x10'	2	EA	7,500.00	15,000
				----- 40,200

TOTAL B30 ROOFING	3,660,084
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C. INTERIORS

C10 - INTERIOR CONSTRUCTION

C1010 PARTITIONS

042001 MASONRY*

8" CMU Partition:				
Locker Room/MP room	10,234	SF	20.00	204,680
Mech, show/receiving area	2,193	SF	20.00	43,860
*Excludes glazed block				

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Cut & patch @ mep	113,705	GSF	0.35	39,797
Cut & patch @ structural	113,705	GSF	0.50	56,853
Add locker wing wall	8	LOC	500.00	4,000
Infill dbl dr open - gym	2	EA	2,000.00	4,000
Cut in /repair corr., dr open	6	EA	1,250.00	7,500
Exposed brick repairs		NIC		
Patch, chases and misc masonry	113,705	GSF	0.25	28,426
<u>050001 MISCELLANEOUS & ORNAMENTAL IRON*</u>				
Angle brace frame - 4' OC	222	EA	98.00	21,756
Loose lintels	96	LF	22.00	2,112
<u>061000 ROUGH CARPENTRY</u>				
Misc. Rough Carpentry	113,705	GSF	1.00	113,705
<u>092900 GYPSUM BOARD ASSEMBLIES</u>				
Corridor Partition	14,749	SF	10.00	147,490
Typical Interior Partition	20,271	SF	10.00	202,710
Music rm partition	1,180	SF	18.00	21,240
Chase partition - 1 side	6,577	SF	8.00	52,616
Infill dr open	13	EA	300.00	3,900
Cut in/repair dr open	16	EA	400.00	6,400
Misc. Drywall Partition	113,705	GSF	2.00	227,410

				1,188,455
<u>C1020 INTERIOR DOORS</u>				
<u>081113 HOLLOW METALWORK</u>				
<u>081416 WOOD AND PLASTIC DOORS</u>				
Interior Door, Frame, Hardware, Glass & Glazing				
Kitchen - sgl	2	EA	725.00	1,450
Kitchen - dbl	1	EA	1,500.00	1,500
Toilet rm - sgl user	16	EA	600.00	9,600
Toilet/locker rm - sgl	14	EA	1,000.00	14,000
Dressing rm - sgl	2	EA	1,000.00	2,000
Dark rm - sgl	1	EA	1,000.00	1,000
Stage - sgl	2	EA	1,300.00	2,600
Stage - dbl	1	EA	2,200.00	2,200
Gym - sgl	2	EA	2,000.00	4,000
Gym - dbl	4	EA	3,500.00	14,000
Alt. PE gym - dbl	2	EA	3,500.00	7,000
Auditorium - dbl	4	EA	3,500.00	14,000
Typ. classroom - sgl	38	EA	1,200.00	45,600
Classroom - dbl	4	EA	2,000.00	8,000
Interconnecting classroom - sgl		N/A		

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Storage - sgl	12	EA	700.00	8,400
Storage - dbl	8	EA	1,350.00	10,800
Mech/elec. - sgl	11	EA	700.00	7,700
Office - sgl	30	EA	850.00	25,500
Office - dbl	4	EA	1,600.00	6,400
Aud. control booth - sgl	1	EA	1,000.00	1,000
Music rm - dbl	2	EA	1,600.00	3,200
Music rm - sgl	7	EA	1,400.00	9,800
Corridor - dbl	1	EA	4,000.00	4,000
Media center - dbl	2	EA	2,500.00	5,000
LGI/stem lab - dbl	8	EA	2,500.00	20,000
Small group - sgl	4	EA	1,200.00	4,800
Receiving - dbl	1	EA	1,600.00	1,600

Interior HM Windows, Sidelites and Transoms (Incl. Glass):

Aud. control booth wind	32	SF	75.00	2,400
Locker rm wind (4 EA)	48	SF	60.00	2,880
7' Sidelite typ	431	SF	60.00	25,860
Gen. class sidelite - (25 EA)	350	SF	60.00	21,000

083326 OVERHEAD COILING GRILLES

Overhead fire grill corridor	10	EA	8,000.00	80,000
Security grill	10	EA	4,500.00	45,000
Dish drop ctr grille	1	LS	3,000.00	3,000
8' Kitchen servery grille	168	SF	115.00	19,320

084000 ENTRANCES, STOREFRONTS & CURTAIN WALLS

Alum Vestibule Door - dbl	4	EA	7,200.00	28,800
Aluminum storefront sidelight and transom	720	SF	70.00	50,400

083100 ACCESS DOORS AND PANELS

Access panels	1	LS	5,000.00	5,000
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090009 PAINTING*

Paint HM frame - dbl	42	EA	50.00	2,100
Paint HM frame - sgl	142	EA	30.00	4,260
Paint HM sidelite frame	781	SF	5.00	3,905

*Excludes prefinished wood doors

529,075

C1030 FITTINGS

050001 MISCELLANEOUS & ORNAMENTAL IRON*

Renovation:

Clg grid equip support stem lab	1	RM	4,000.00	4,000
Clg grid equip support art class	2	RM	4,000.00	8,000
Music rm guardrail	48	LF	165.00	7,920

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Music rm wall railing	73	LF	110.00	8,030
Auditorium railing - stage access	40	LF	225.00	9,000
Control booth railings	1	LS	5,000.00	5,000
Misc. metals	113,705	GSF	0.25	28,426
*Excludes auditorium seating rails and catwalk				
<u>062000 FINISH CARPENTRY</u>				
Utility and Closet shelving	1	LS	5,000.00	5,000
<u>071000 DAMPPROOF., WATERPROOF. & CAULKING*</u>				
Joint sealants	113,705	GSF	0.65	73,908
<u>102113 TOILET COMPARTMENTS</u>				
Solid Plastic Toilet Partitions:				
Std. partition	26	EA	1,200.00	31,200
HC partition	8	EA	1,350.00	10,800
Urinal screen	12	EA	275.00	3,300
Shw partition/dr	2	EA	1,800.00	3,600
<u>102813 TOILET ROOM ACCESSORIES</u>				
Toilet Accessories Multi-user Rm:				
Elec hand dryer		NIC		
Paper towel dispenser/disposal	24	EA	250.00	6,000
Toilet tissue dispenser	50	EA	45.00	2,250
San. product disposal	22	EA	40.00	880
Grab bars	48	EA	95.00	4,560
Soap dispenser	32	EA	45.00	1,440
Mirror (6'x4')	8	EA	550.00	4,400
Tilt mirror	16	EA	300.00	4,800
Coat hook	50	EA	15.00	750
Towel hook	10	EA	15.00	150
Shower rod & curtain	10	EA	35.00	350
Shower seat	4	EA	450.00	1,800
Shower grab bar	4	EA	95.00	380
Janitor shelf	2	EA	200.00	400
Misc. locker rm accessories	1	LS	1,000.00	1,000
Misc. class rm accessories		N/A		
<u>101100 VISUAL DISPLAY BOARDS</u>				
Classroom:				
Marker board - 12'	41	EA	864.00	35,424
Marker board - 8'	82	EA	576.00	47,232
Tack Board - 4'	82	EA	220.00	18,040
Tack Board - 8'	41	EA	400.00	16,400
Tack strip	41	EA	225.00	9,225
General Area:				
Tack Board - 4'	10	EA	220.00	2,200

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Marker board - 8'	10	EA	576.00	5,760
Smart board - 6'		NIC		
<u>105113 METAL LOCKERS</u>				
Corridor locker 15"x12"x72" dbl	276	EA	265.00	73,140
72" Kitchen locker - sgl tier - allow	6	EA	200.00	1,200
Gym PE locker 15"x15"x72"	80	EA	245.00	19,600
Team locker 15"x15"x72"	100	EA	245.00	24,500
Coach locker 15"x15"x72" - allow	10	EA	235.00	2,350
12" Bench attached	136	LF	75.00	10,200
Typ 12" bench (4 EA)	16	LF	75.00	1,200
<u>042000 MASONRY</u>				
CMU base corridor locker	346	LF	32.00	11,072
CMU base gym locker	248	LF	32.00	7,936
Allowance:				
Display case (4 loc)	86	LF	750.00	64,500
Office reception desk	25	LF	450.00	11,250
Mail box unit	8	LF	750.00	6,000
Rad circ desk	13	LF	800.00	10,400
<u>104400 FIRE PROTECTION SPECIALTIES</u>				
Fire extinguisher and cabinet	6	EA	375.00	2,250
<u>101400 SIGNAGE</u>				
Int. ADA signage	113,705	GSF	0.08	9,096
<u>109000 MISCELLANEOUS SPECIALTIES</u>				
9' Op. partition w/pass dr AG class	203	SF	95.00	19,285
Health office cubicle w/track	3	EA	2,000.00	6,000
Misc. specialties	1	LS	5,000.00	5,000

				646,605
TOTAL C10 - INTERIOR CONSTRUCTION				2,364,134

C20 - STAIRS

C2010 STAIR CONSTRUCTION

050001 MISCELLANEOUS & ORNAMENTAL IRON*

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
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AAB Stair Hall Modifications:
 *Excludes stage stair replacement

N/A

New Metal Stairs (inc. conc fill):
 Music rm stair (2 ft)

34	LFR	160.00	5,440

			5,440

C2020 STAIR FINISHES

090006 RESILIENT FLOORING*

Music rm stair tread	34	LF	13.00	442

				442

TOTAL C20 - STAIRS				5,882
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C30 - INTERIOR FINISHES

C3010 WALL FINISHES

090003 TILE*

Ceramic Wall Tile - Full Ht. Clg.:

Shower		w/Plumbing		
Servery	950	SF	15.00	14,250
Café		NIC		
Typ toilet rm wall	10,000	SF	15.00	150,000

Porcelain Tile 6'8" Wainscot:

Main corridors	20,000	SF	15.00	300,000
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062000 FINISH CARPENTRY

Auditorium Wall finish	1	LS	130,000.00	130,000
Lobby paneling & trim allow	500	SF	30.00	15,000
Misc. wood trim work	1	LS	25,000.00	25,000

FRP Panel:

Janitor closet	352	SF	8.00	2,816
Dish room	464	SF	8.00	3,712
Dry storage	384	SF	8.00	3,072

098413 ACOUSTIC PANELS

Band/chorus rm (2 EA)	300	SF	25.00	7,500
Music practice room (2EA)	300	SF	25.00	7,500
Ensemble room (1 EA)	300	SF	25.00	7,500
Cafeteria	300	SF	25.00	7,500

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Auditorium Back wall		inc. above		
Tectum wall panel - gym	1,500	SF	18.00	27,000
Tectum wall panel - PE/MP room	500	SF	18.00	9,000
<u>090009 PAINTING*</u>				
Renovation:				
Interior painting walls	113,705	GSF	1.60	181,928

				891,778
 C3020 FLOOR FINISHES				
<u>090003 TILE*</u>				
Ceramic Floor Tile (Thin-set New Toilet Rm):				
Ceramic wall base	1,200	LF	7.50	9,000
Marble threshold	26	EA	55.00	1,430
Ceramic floor tile	3,505	SF	15.00	52,575
ADA shw receptor		w/Plumbing		
Std. shw receptor		w/Plumbing		
Janitor Room (1 EA):				
Marble threshold	1	EA	55.00	55
Ceramic floor tile	123	SF	15.00	1,845
Porcelain Tile:				
Wall base	1	LS	10,000.00	10,000
Lobby - allow	2,275	SF	18.00	40,950
Café/teachers dining	3,580	SF	18.00	64,440
Servery	1,448	SF	18.00	26,064
<u>090006 RESILIENT FLOORING*</u>				
Linoleum				
Resilient wall base	1	N/A LS	12,000.00	12,000
Corridor:				
Sheet Linoleum	20,489	SF	6.50	133,179
VCT:				
Classrooms	35,905	SF	3.25	116,691
Admin	3,622	SF	3.25	11,772
Storage rm	1,314	SF	3.25	4,271
Rubber flooring:				
Locker rm	2,028	SF	8.00	16,224
Ramps - music rm	266	SF	8.00	2,128
Epoxy Resinous Flooring:				
Kitchen & dish rm	1,175	SF	9.00	10,575

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
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096500 WOOD FLOORING

Wood athletic flr - PE/MP	1,662	SF	16.50	27,423
New Gym floor	8,361	SF	16.50	137,957
New stage flr	2,566	SF	13.00	33,358

096813 CARPETING

Carpet - media ctr (33/sy mat)	1,007	SY	42.00	42,294
Carpet - admin (33 sy/mat)	1,092	SY	42.00	45,864
Carpet tile - auditorium	220	SY	42.00	9,240
Carpet - student center risers	76	SY	42.00	3,192
Floor Prep - allow	1	LS	5,000.00	5,000

033000 CAST IN PLACE CONCRETE

Seal existing concrete slab:				
Mech/elec rm (seal conc.)	1,662	SF	1.00	1,662
Auditorium seating	2,680	SF	1.00	2,680
Custodial, shop & storage	6,960	SF	1.00	6,960

828,827

C3030 CEILING FINISHES092900 GYPSUM BOARD ASSEMBLIES

Gyp ceiling - toilet rm	3,648	SF	8.00	29,184
Gyp ceiling - LGI & stem	3,188	SF	8.00	25,504
Auditorium ceiling system	5,146	SF	20.00	102,920
Gyp Ceiling - 15% lobby	340	SF	9.00	3,060
Gyp Ceiling - 50% library	1,343	SF	9.00	12,087
Gyp Ceiling - 50% café	1,886	SF	9.00	16,974
Misc. gyp soffits	113,705	GSF	1.00	113,705

095100 ACOUSTICAL CEILINGS*

4x4 ACT library - 50%	1,342	SF	12.00	16,104
2x2 ACT 85% lobby	1,932	SF	4.25	8,211
2x2 ACT - 50% café	1,886	SF	4.25	8,016
2x2 ACT - typ	55,960	SF	4.25	237,830
2x4 MR ACT kitchen, dish rm & cul.class	2,453	SF	5.50	13,492
2x2 ACT music practice/class	3,637	SF	4.25	15,457
Wd slat servery clg	1,448	SF	20.00	28,960

090009 PAINTING*

Paint gyp ceiling	15,551	SF	1.00	15,551
Paint exposed struct. mech/ elec, storage & shop	10,058	SF	1.30	13,075
Paint exposed structure stage	1,992	SF	1.30	2,590

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Paint exposed structure locker rm	2,028	SF	1.30	2,636
Paint exposed structure gym	8,361	SF	1.30	10,869
Paint exposed structure art rm	2,906	SF	1.30	3,778
Paint exposed structure MP/PE	1,662	SF	1.30	2,161

				682,163
TOTAL C30 - INTERIOR FINISHES				2,402,769

D. SERVICES

D10 - CONVEYING

D1010 ELEVATORS & LIFTS

142424 HYDRAULIC ELEVATORS*

Wheelchair lift at corridor		N/A		
Stage lift	1	EA	20,000.00	20,000
Aud. control booth lift	1	EA	25,000.00	25,000

				45,000

D1010 ESCALATORS & MOVING WALKS

N/A

D20 - PLUMBING

D2010 PLUMBING

220000 PLUMBING*

Fixtures:				
P-1 Water closet	26	EA	1,850.00	48,100
P-1A Water closet - handicapped	24	EA	1,850.00	44,400
P-2 Urinal	8	EA	1,425.00	11,400
P-2A Urinal - handicapped	4	EA	1,425.00	5,700
P-3 Lavatory	8	EA	1,175.00	9,400
P-3A Lavatory - handicapped	16	EA	1,175.00	18,800
P-4 Drinking fountain	6	EA	3,350.00	20,100
P-5 Mop receptor	2	EA	1,600.00	3,200
P-6B Sink - art rooms	4	EA	2,100.00	8,400
P-6C Sink - handicapped - art rooms	2	EA	2,100.00	4,200
P-7 Shower	6	EA	1,800.00	10,800
P-7A Shower - handicapped	4	EA	1,975.00	7,900
Band Rm Sink	1	EA	1,500.00	1,500
Health Office Sink	2	EA	1,500.00	3,000
Classroom kitchen sink	2	EA	1,500.00	3,000
Staff Kitchen sink	2	EA	1,500.00	3,000
Classroom laundry connection	2	EA	360.00	720

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Hose Bib	5	EA	375.00	1,875
Fixture rough in	117	EA	2,200.00	257,400
Kitchen Rough in	1	LS	25,000.00	25,000
Culinary Rough-in	1	LS	10,000.00	10,000
Dark Rm Rough-in	1	LS	5,000.00	5,000
Tech shop Plumbing - allowance	1	LS	10,000.00	10,000
Temp valves	1	EA	3,000.00	3,000
Sensor Valves	86	EA	450.00	38,700
Gas Pipe:				
New roof top equip gas conns.	1	LS	50,000.00	50,000
Water service				
Replace roof drainage	1	LS	50,000.00	50,000
Gas fired water heater, pump & connection				
Cut Cap and drop	113,705	GSF	0.50	56,853
Misc. plumbing	113,705	GSF	1.00	113,705

				896,653

TOTAL D20 - PLUMBING	\$7.89	/sf	896,653	
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D30 - HVAC

D3010 HVAC

230000 HVAC*

Renovation - HVAC	113,705	GSF	37.49	4,263,173

				4,263,173

TOTAL D30 - HVAC		/SF	4,263,173	
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D40 - FIRE PROTECTION

D4010 FIRE PROTECTION

210000 FIRE SUPPRESSION

New wet system Fire Pump	113,705	GSF NIC	4.20	477,561

				477,561

TOTAL D40 - FIRE PROTECTION	\$4.20	/SF	477,561	
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DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
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D50 - ELECTRICAL

D5010 ELECTRICAL

260000 ELECTRICAL*

Renovation - Electrical	113,705	GSF	30.89	3,512,039

				3,512,039

TOTAL D50 - ELECTRICAL		/SF		3,512,039
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E. EQUIPMENT & FURNISHINGS

E10 - EQUIPMENT

E1010 COMMERCIAL EQUIPMENT

113100 APPLIANCES

Commercial Ice Maker:

Trainers rm	1	EA	1,200.00	1,200
Health office	1	EA	1,200.00	1,200

Class Laundry Appliances (NIC Kitchen & Gym):

Washer	2	EA	1,500.00	3,000
Dryer	2	EA	1,500.00	3,000

Teacher work rm appliances

Health office lockable refrigerator	1	EA	2,500.00	2,500
Staff dining appliances	1	LS	2,500.00	2,500
Kitchenette main office appliances	1	LS	2,500.00	2,500

SPED Classroom Appliance:

Wall oven	1	EA	1,500.00	1,500
Cooktop	1	EA	650.00	650
Refrigerator	1	EA	2,000.00	2,000
Microwave	1	EA	500.00	500

Early Childhood Ed Kit Appliance:

Refrigerator	1	EA	2,000.00	2,000
Microwave	1	EA	500.00	500

116623 GYMNASIUM EQUIPMENT

Scoreboard - allow	2	EA	15,000.00	30,000
Shot clock	2	EA	2,500.00	5,000
7' Gym wall padding		Existing		
Divider curtain (99' x 28')	2,352	SF	24.00	56,448
Basketball backboard	6	EA	9,500.00	57,000

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DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
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Volley ball net & flr sleeves	1	LS	1,500.00	1,500
Exercise equip - pull-up bar	4	LOC	2,000.00	8,000
Climbing wall		N/A		

115213 PROJECTION SCREENS

Projection Screen - Manual - Allow: Classroom w/no smartboard		NIC		
Music rm	2	EA	4,500.00	9,000

Elec. Op. Projection Screen:				
Stage	1	EA	10,000.00	10,000
Cafeteria	1	EA	10,000.00	10,000
Library	1	EA	7,500.00	7,500
Stem/large group instruction	2	EA	5,000.00	10,000
Admin conf. rm	1	EA	5,000.00	5,000

114000 FOOD SERVICE EQUIPMENT

Culinary class equipment & casework	1	LS	165,000.00	165,000
Kitchen equipment & casework	1	LS	385,000.00	385,000

119000 MISC. EQUIPMENT

Agriculture lab equipment	1	LS	40,000.00	40,000
Auto tech equipment	1	LS	25,000.00	25,000
Property Management	1	LS	25,000.00	25,000
Metal storage shelving		NIC		
Theater rigging and curtains	1	LS	100,000.00	100,000
Hydro therapy whirlpool		NIC		
Kiln		NIC		
Dark room equipment	1	LS	10,000.00	10,000
Library equipment		NIC		
Dust collection sys.	1	LS	15,000.00	15,000

997,498

TOTAL E10 - EQUIPMENT				997,498
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E20 - FURNISHINGS

E 2010 FIXED FURNISHINGS

126100 FIXED AUDIENCE SEATING

Auditorium Seating - allow	600	EA	275.00	165,000
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126600 TELESCOPING STANDS

Elec op bleachers - allow	750	SEAT	125.00	93,750
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DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
<u>123000 CASEWORK</u>				
Administration Area:				
Base/wall cab w/ctr	18	LF	300.00	5,400
Dressing Rm (2 EA):				
Counter	44	LF	135.00	5,940
Trainer Room - Allow:				
Base/wall cab w/ctr	9	LF	300.00	2,700
Early Childhood Ed w/Kitchen:				
Adj shelving	12	LF	25.00	300
Base cab w/ctr	8	LF	275.00	2,200
Wall cab	10	LF	150.00	1,500
SPED Life Skills w/Kitchen (1 EA):				
Class 3' tall storage	3	EA	1,500.00	4,500
Class work ctr	10	LF	150.00	1,500
Wall oven cab	1	EA	1,500.00	1,500
Adj shelving	12	LF	25.00	300
Base cab w/ctr	20	LF	275.00	5,500
Wall cab	26	LF	150.00	3,900
Admin Kitchenette (1 EA):				
Base cab w/ctr	11	LF	275.00	3,025
Wall cab	11	LF	150.00	1,650
Health Office:				
Base cab w/ctr	21	LF	275.00	5,775
Wall cab	24	LF	150.00	3,600
Guidance/Career Center:				
Work ctr	25	LF	175.00	4,375
Allowance:				
Solid surface lav ctr		N/A		
Aud. Control booth ctr	13	LF	175.00	2,275
Aud. AV desk w/ low wall	6	LF	200.00	1,200
Staff lunch rm base/wall cab	9	LF	400.00	3,600
Art Class (2 EA) - Allow:				
Student table		NIC		
3' Tall storage		NIC		
Wall cab	50	LF	150.00	7,500
Base cab	50	LF	275.00	13,750
Library:				
Comp. work sta - 1 side	10	LF	250.00	2,500
Comp. work sta - 2 side	16	LF	350.00	5,600
Band (1 EA) - Allow:				
Base cab w/ctr	6	LF	275.00	1,650

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Wall cab	6	LF	150.00	900
Music storage casework	36	LF	500.00	18,000
3' Tall Storage:				
LGI (2 EA)	2	EA	1,500.00	3,000
Stem lab (2 EA)	2	EA	1,500.00	3,000
Typ class (2 EA)	66	EA	1,500.00	99,000
Support class (1 EA)	5	EA	1,500.00	7,500
<u>122400 WINDOW SHADES</u>				
Manual roller shades - typ.	6,000	SF	4.50	27,000
Vert. blinds @ int. offices	1	LS	3,000.00	3,000
Horiz. blinds	3,000	SF	7.00	21,000
<u>124813 ENTRANCE FLOOR MATS & FRAMES</u>				
Surface mat - allow	5	EA	1,000.00	5,000
Vestibule grill (2 EA)	500	SF	45.00	22,500

				560,390
E2020 MOVABLE FURNISHINGS		N/A		

				0
TOTAL E20 - FURNISHINGS				560,390

F. SPECIAL CONSTRUCTION & DEMOLITION

F10 - SPECIAL CONSTRUCTION

F1010 SPECIAL STRUCTURES N/A

0

F20 - SELECTIVE BUILDING DEMOLITION

F2010 BUILDING ELEMENTS DEMOLITION

024116 STRUCTURE DEMOLITION

Roof:

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Remove membrane roof	110,923	SF	w/ haz mat	
Remove metal panels	22,422	SF	2.00	44,844
Remove café roof structure	6,165	SF	7.50	46,238
Remove roof struct. @ mech	2,250	SF	7.50	16,875
Cut-in clerestory window	17	EA	1,000.00	17,000
Cut-in skylight	23	EA	750.00	17,250
Clerestory doghouse wall cladding	2,500	SF	1.50	3,750
Cut-in clerestory window	40	EA	200.00	8,000
Exterior Wall:				
Remove window system	6,070	SF	w/ haz mat	
Alum Door - dbl	4	EA	200.00	800
Alum Door - sgl	6	EA	100.00	600
Shop/receiving door - dbl	1	EA	200.00	200
Shop/receiving door - sgl	2	EA	95.00	190
Shop OH door - sgl	2	EA	200.00	400
Remove Existing Slab at New Plumbing and Rework:				
Art room (2 EA)	2,900	SF	2.50	7,250
New toilet/shw rm	3,650	SF	2.50	9,125
New Kitchen/culinary class	2,500	SF	2.50	6,250
Interior - Remove Existing:				
Choral risers	870	SF	4.00	3,480
Gym equipment & bleachers	1	LS	5,000.00	5,000
Auditorium seating & finishes	5,142	SF	6.00	30,852
Boiler rm stair (5 risers)	2	FLT	750.00	1,500
Media ctr stair (5 risers)	2	FLT	750.00	1,500
Casework (incl. built-in closet)	1,215	LF	15.00	18,225
Corridor lockers	376	LF	20.00	7,520
Door & frame - sgl	188	EA	85.00	15,980
Door & frame - dbl	49	EA	135.00	6,615
Door & frame - sgl w/SL	14	EA	150.00	2,100
Corr. Door & frame - dbl w/ SL	20	EA	200.00	4,000
Toilet/shw rm fixtures, part & access.	3,350	GSF	7.00	23,450
Locker rm equipment	3,050	GSF	5.00	15,250
Remove Selective Interior Partition:				
Typ. 6" partition	52,800	SF	2.15	113,520
12" Corridor partition	10,700	SF	4.00	42,800
Remove Finish Ceiling and Lighting:				
Auditorium		Above		
Stage		N/A		
Toilet/shw rm	3,350	SF	1.50	5,025
Locker rm	3,050	SF	1.50	4,575
Kitchen	2,100	SF	1.50	3,150
Café	3,230	SF	1.50	4,845
Corridor	22,800	SF	1.50	34,200
Mech room		N/A		
Gym		N/A		
Media ctr	2,840	SF	1.50	4,260
Balance class/admin	58,350	SF	1.50	87,525
Remove Floor Finish:				

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Auditorium	5,142	SF	0.50	2,571
Stage	2,064	SF	1.50	3,096
Toilet/shw rm	3,350	SF	3.00	10,050
Locker rm	3,050	SF	1.00	3,050
Kitchen	2,100	SF	2.00	4,200
Café	3,230	SF	w/ haz mat	
Corridor	22,800	SF	w/ haz mat	
Mech room		N/A		
Gym	8,361	SF	2.00	16,722
Media ctr	2,840	SF	1.00	2,840
Balance class/admin	58,350	SF	w/ haz mat	
Remove general interiors	113,705	GSF	0.30	34,112
Remove MEP	113,705	GSF	1.50	170,558
Temporary partition	5,000	SF	15.00	75,000
*See other sections for selective demo				
Addition/Building Tie-Remove Existing:				
Science Classroom:				
Entry sgl w/sidelite & transom (2 loc)	90	SF	5.00	450
10'Window sys (2 loc)	210	SF	5.00	1,050
Misc. demo @ bldg tie	100	LF	50.00	5,000
Conservatory:				
10'Window sys (1 loc)	110	SF	5.00	550
Misc. demo @ bldg tie	13	LF	50.00	650
Weight/Cardio Rm:				
10' Masonry wall @ connector dr	110	SF	10.00	1,100
Bus drop off area paving	3,138	SF	2.00	6,276
Bus drop off canopy	1	LS	10,000.00	10,000
Misc. demo @ bldg tie	101	LF	50.00	5,050
Main Entry:				
Storefront entry dbl w/sidelite (1 loc)	130	SF	5.00	650
Transformer rm dr & ext. wall	60	SF	5.00	300
Bldg tie	31	LF	50.00	1,550
Reading Room:				
10' Masonry wall	160	SF	5.00	800
10" Window	330	SF	5.00	1,650
Misc. demo @ bldg tie	78	LF	50.00	3,900

				975,318

F2020 HAZARDOUS COMPONENTS ABATEMENT

022820 ASBESTOS REMEDIATION

Hazardous waste removal

see summary page

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
				0
TOTAL F20 - SELECTIVE BUILDING DEMOLITION				975,318

PROJECT: Monument Mountain High School
 LOCATION: Great Barrington, MA
 CLIENT: Strategic Building Solutions
 DATE: 26-Mar-13

NO. OF SQ. FT.: 23,957
 COST PER SQ. FT.: \$292.39

No.: 13023

	<u>ADDITION</u>		
	<u>TOTAL</u>	<u>PERCENT OF PROJECT</u>	<u>COST PER SF</u>
<u>SUMMARY</u>			
A. SUBSTRUCTURE			
A10 - FOUNDATIONS			
A1010 STANDARD FOUNDATIONS	417,061	6%	17.41
A1020 SPECIAL FOUNDATIONS	0	0%	0.00
A1030 SLAB ON GRADE	249,842	4%	10.43
A20 - BASEMENT CONSTRUCTION			
A2010 BASEMENT EXCAVATION	0	0%	0.00
A2020 BASEMENT WALLS	0	0%	0.00
B. SHELL			
B10 - SUPERSTRUCTURE			
B1010 FLOOR CONSTRUCTION	0	0%	0.00
B1020 ROOF CONSTRUCTION	468,210	7%	19.54
B20 - EXTERIOR ENCLOSURE			
B2010 EXTERIOR WALLS	511,183	7%	21.34
B2020 EXTERIOR WINDOWS	731,235	10%	30.52
B2030 EXTERIOR DOORS	99,800	1%	4.17
B30 - ROOFING			
B3010 ROOF COVERINGS	732,833	10%	30.59
B3020 ROOF OPENINGS	36,840	1%	1.54
C. INTERIORS			
C10 - INTERIOR CONSTRUCTION			
C1010 PARTITIONS	356,503	5%	14.88
C1020 INTERIOR DOORS	98,500	1%	4.11
C1030 FITTINGS	79,132	1%	3.30
C20 - STAIRS			
C2010 STAIR CONSTRUCTION	0	0%	0.00
C2020 STAIR FINISHES	0	0%	0.00
C30 - INTERIOR FINISHES			
C3010 WALL FINISHES	140,335	2%	5.86
C3020 FLOOR FINISHES	180,665	3%	7.54
C3030 CEILING FINISHES	123,043	2%	5.14
D. SERVICES			
D10 - CONVEYING			
D1010 ELEVATORS & LIFTS	0	0%	0.00
D1010 ESCALATORS & MOVING WALKS	0	0%	0.00
D1090 OTHER CONVEYING SYSTEMS	0	0%	0.00
D20 - PLUMBING			
D2010 PLUMBING	478,157	7%	19.96

Monument Mountain High School - Addition	<u>TOTAL</u>	<u>PERCENT OF PROJECT</u>	<u>COST PER SF</u>
D30 - HVAC			
D3010 HVAC	898,227	13%	37.49
D40 - FIRE PROTECTION			
D4010 FIRE PROTECTION	101,817	1%	4.25
D50 - ELECTRICAL			
D5010 ELECTRICAL	739,967	11%	30.89
E. EQUIPMENT & FURNISHINGS			
E10 - EQUIPMENT			
E1010 COMMERCIAL EQUIPMENT	0	0%	0.00
E1020 INSTITUTIONAL EQUIPMENT	0	0%	0.00
E1030 VEHICULAR EQUIPMENT	0	0%	0.00
E1090 OTHER EQUIPMENT	78,050	1%	3.26
E20 - FURNISHINGS			
E 2010 FIXED FURNISHINGS	483,500	7%	20.18
E2020 MOVABLE FURNISHINGS	0	0%	0.00
F. SPECIAL CONSTRUCTION & DEMOLITION			
F10 - SPECIAL CONSTRUCTION			
F1010 SPECIAL STRUCTURES	0	0%	0.00
F1020 INTEGRATED CONSTRUCTION	0	0%	0.00
F1030 SPECIAL CONSTRUCTION SYSTEMS	0	0%	0.00
F1040 SPECIAL FACILITIES	0	0%	0.00
F1050 SPECIAL CONTROLS & INSTRUMENTATION	0	0%	0.00
F20 - SELECTIVE BUILDING DEMOLITION			
F2010 BUILDING ELEMENTS DEMOLITION	0	0%	0.00
F2020 HAZARDOUS COMPONENTS ABATEMENT	0	0%	0.00
G. BUILDING SITEWORK			
G10 - SITE PREPARATION			
G1010 SITE CLEARING	0	0%	0.00
G1020 SITE DEMOLITION & RELOCATIONS	0	0%	0.00
G1030 SITE EARTHWORK	0	0%	0.00
G1040 HAZARDOUS WASTE REMEDIATION	0	0%	0.00
G20 - SITE IMPROVEMENTS			
G2010 ROADWAYS	0	0%	0.00
G2020 PARKING LOTS	0	0%	0.00
G2030 PEDESTRIAN PAVING	0	0%	0.00
G2040 SITE DEVELOPMENT	0	0%	0.00
G2050 LANDSCAPING	0	0%	0.00
G30 - SITE MECHANICAL UTILITIES			
G3010 WATER SUPPLY	0	0%	0.00
G3020 SANITARY SEWER	0	0%	0.00
G3030 STORM SEWER	0	0%	0.00
G3040 HEATING DISTRIBUTION	0	0%	0.00
G3050 COOLING DISTRIBUTION	0	0%	0.00
G3060 FUEL DISTRIBUTION	0	0%	0.00
G3090 OTHER SITE MECHANICAL UTILITIES	0	0%	0.00
G40 - SITE ELECTRICAL UTILITIES			
G4010 ELECTRICAL DISTRIBUTION	0	0%	0.00
G4020 SITE LIGHTING	0	0%	0.00

Monument Mountain High School - Addition

	<u>TOTAL</u>	<u>PERCENT OF PROJECT</u>	<u>COST PER SF</u>
G4030 SITE COMMUNICATIONS & SECURITY	0	0%	0.00
G4090 OTHER SITE ELECTRICAL UTILITIES	0	0%	0.00
G90 - OTHER SITE CONSTRUCTION			
G9010 SERVICE AND PEDESTRIAN TUNNELS	0	0%	0.00
G9090 OTHER SITE SYSTEMS	0	0%	0.00

TOTAL	7,004,898	100%	292.39

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
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A. SUBSTRUCTURE**A10 - FOUNDATIONS**

A1010 STANDARD FOUNDATIONS

033000 CAST IN PLACE CONCRETE

Wall Footing 1' X 3' (1186 LF): 4000 psi, NW, (incl. placement)	132	CY	158.00	20,856
Formwork	2,372	SFCA	6.50	15,418
Rebar	7,840	LBS	1.12	8,781
<i>*unit cost \$341.32</i>				

Column Footing 4'x4'x1'4" (79 ea): 4000 psi, NW, (incl. placement)	62	CY	160.00	9,920
Formwork	2,528	SFCA	8.00	20,224
Rebar	4,185	LBS	1.12	4,687
<i>*unit cost \$561.79</i>				

Foundation Frost Wall 1'-4" x 4'-0" deep (1179 lf): 4000 psi, NW, (incl. placement)	233	CY	162.00	37,746
Formwork	9,432	SFCA	12.00	113,184
Brick shelf	1,129	LF	15.00	16,935
Reinforcing steel	31,500	LBS	1.12	35,280
<i>*unit cost \$871.87</i>				

Thicken slab @ existing	34	CY	250.00	8,500
Acid waste pit	1	EA	4,000.00	4,000

072100 THERMAL INSULATION

Dampproof frost wall	4,716	SF	1.90	8,960
2" Rigid int. found. insul	4,716	SF	3.10	14,620
Neutralization pit waterproofing	1	EA	4,000.00	4,000

310000 EARTHWORK

Bldg:				
Foundation excavation	3,500	CY	6.50	22,750
Foundation backfill (on site mat'l)	3,100	CY	8.00	24,800
Foundation drain (tie into existing)	1,300	LF	28.00	36,400
Ledge removal	1	LS	10,000.00	10,000

				417,061

A1030 SLAB ON GRADE

033000 CAST IN PLACE CONCRETE

6" Slab on grade - mech/elec.	3,698	SF	6.20	22,928
5" Avg. slab on grade - additions	20,050	SF	4.90	98,245

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Slab on grade admixture	23,748	SF	1.00	23,748
Vapor barrier - 15 mils	23,748	SF	0.35	8,312
072100 THERMAL INSULATION				
2" Rigid slab insul	23,748	SF	2.90	68,869
310000 EARTHWORK				
12" Gravel base - addition	880	CY	23.00	20,240
Allow for utility trenching	1	LS	7,500.00	7,500
Radon mitigation		N/A		
				----- 249,842

TOTAL A10 FOUNDATIONS 666,903

A20 - BASEMENT CONSTRUCTION

N/A

A2010 BASEMENT EXCAVATION

NOT USED

0

0

TOTAL A20 - BASEMENT CONSTRUCTION 0

B. SHELL

B10 - SUPERSTRUCTURE

B1010 FLOOR CONSTRUCTION

NOT USED

0

B1020 ROOF CONSTRUCTION

033000 CAST IN PLACE CONCRETE

3" Concrete deck fill	400	SF	6.00	2,400
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051200 STRUCTURAL STEEL

T.S. brace frame (1.5 lbs/sf)	17	TONS	3,850.00	65,450
Wide flange beam/column (5 lbs/SF)	55	TONS	3,400.00	187,000
Bar joist (4/lbs/sf)	44	TONS	2,900.00	127,600
Supplmental steel at green house	1	LS	25,000.00	25,000

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
<u>053100 STEEL DECK</u>				
1 1/2"x20Ga roof deck - flat	21,700	SF	2.80	60,760
<u>072000 INSULATION</u>				
Spray on fireproofing		NIC		-----
				468,210
TOTAL B10 SUPERSTRUCTURE				468,210

B20 - EXTERIOR ENCLOSURE

B2010 EXTERIOR WALLS

042001 MASONRY*

Stone veneer	310	SF	50.00	15,500
Brick veneer	4,900	SF	30.00	147,000
Masonry flashing	300	LF	9.00	2,700
Precast trim	1	LS	30,000.00	30,000

054000 COLD FORMED METAL FRAMING

Ext. Wall:

6"x18 Ga stud @ 16" oc-tyl wall	4,450	SF	8.50	37,825
8" CMU Back up	1,800	SF	22.00	39,600
Entry soffit framing	684	LF	7.00	4,788
Eave soffit frame	264	SF	10.00	2,640
1/2" Dens glass	5,398	SF	2.70	14,575

055001 METAL FABRICATIONS*

Misc. Metals	1	LS	20,000.00	20,000
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071000 DAMPPROOF., WATERPROOF. & CAULKING*

Spray-on air & vapor barrier	7,198	SF	3.25	23,394
Joint sealants	1	LS	15,000.00	15,000
Expansion joint to existing	120	LF	23.00	2,760

072100 THERMAL INSULATION

4 1/2" Rigid wall insul.	7,198	SF	4.15	29,872
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092116 GYPSUM BOARD ASSEMBLIES

1 Lyr 5/8" gyp at ext	5,500	SF	2.15	11,825
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074000 METAL WALL PANELS

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Metal fascia panel	995	SF	50.00	49,750
Metal soffit panel	684	SF	20.00	13,680
Sun screen	109	LF	350.00	38,150
<u>09009 PAINTING</u>				
Misc. exterior painting	1	LS	5,000.00	5,000
<u>101400 SIGNAGE</u>				
24" Alum. bldg mtd letter - allow	19	EA	375.00	7,125

				511,183
B2020 EXTERIOR WINDOWS				
<u>085113 ALUMINUM WINDOWS</u>				
Alum. window system	5,203	SF	75.00	390,225
Alum. entry storefront	479	SF	75.00	35,925
Curtain wall	900	SF	90.00	81,000
Greenhouse Glazing:				
Conservatory wall	834	SF	60.00	50,040
Greenhouse wall	2,700	SF	60.00	162,000
<u>061000 ROUGH CARPENTRY</u>				
P.T. perim blocking	1,100	LF	3.95	4,345
<u>071000 DAMPPROOF., WATERPROOF. & CAULKING*</u>				
Exterior sealants - perim	1,100	LF	7.00	7,700

				731,235
B2030 EXTERIOR DOORS				
<u>081100 METAL DOORS AND FRAMES</u>				
Ext. HM Frame, Door, Hdw, Glass & Glazing: Mech rm - dbl	1	EA	1,800.00	1,800
<u>085113 ALUMINUM ENTRANCE AND STOREFRONT</u>				
Alum. Doors, Frames, Glass, Glazing & Hdw.:				
Courtyard - dbl	2	PR	7,200.00	14,400
Main entry - dbl	8	PR	7,200.00	57,600

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Auto opener	2	EA	4,500.00	9,000
Greenhouse door - dbl	1	EA	6,000.00	6,000
Greenhouse door - sgl	2	EA	2,500.00	5,000
Conservatory door - dbl	1	EA	6,000.00	6,000

				99,800
TOTAL B20 - EXTERIOR ENCLOSURE				1,342,218

B30 - ROOFING

B3010 ROOF COVERINGS

070002 ROOFING & FLASHING*

New PVC Roofing System:

PVC Membrane w/ 9" Insul.	21,700	SF	15.00	325,500
Vapor retarder	21,700	SF	0.65	14,105
1/2" Cover bd "Dens Deck"	21,700	SF	1.85	40,145
Membrane flashing	1	LS	20,000.00	20,000
Walkway pads - allow	1	LS	5,000.00	5,000

Aluminum Flashing:

Gravel stop	1,129	LF	35.00	39,515
Base flashing	522	LF	36.00	18,792

061000 ROUGH CARPENTRY

Metal fascia	264	LF	15.00	3,960
Metal soffit	528	SF	15.00	7,920
Roof blocking	1,129	LF	12.00	13,548
Base flash blocking	522	LF	9.00	4,698
Roof blocking @ mech equip	1	LS	2,500.00	2,500

079500 EXPANSION CONTROL

Exp. jt assemblies	522	LF	75.00	39,150
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Greenhouse Glazing:

Conservatory wall	500	SF	60.00	30,000
Greenhouse wall	2,800	SF	60.00	168,000

732,833

B3020 ROOF OPENINGS

077200 ROOF ACCESSORIES

Acoustical mechanical roof screen panel - 8' high	408	SF	55.00	22,440
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DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Roof Skylight: Alum. skylight (4'x4')	12	EA	1,200.00	14,400
				----- 36,840
TOTAL B30 ROOFING				769,673

C. INTERIORS

C10 - INTERIOR CONSTRUCTION

C1010 PARTITIONS

042001 MASONRY*

8" CMU:				
Greenhouse	1,120	SF	20.00	22,400
Gym area	1,131	SF	20.00	22,620
Mech rm	2,783	SF	20.00	55,660

055001 METAL FABRICATIONS*

Loose lintel	56	LF	24.00	1,344
Misc. metals	23,957	GSF	1.00	23,957

061000 ROUGH CARPENTRY

Interior blocking	23,957	GSF	0.30	7,187
Misc. rough carpentry	23,957	GSF	1.00	23,957

078400 FIRESTOPPING

Firestopping	23,957	GSF	0.22	5,271
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071000 DAMPPROOF., WATERPROOF. & CAUL

Joint sealants	23,957	GSF	0.60	14,374
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080001 METAL WINDOWS*

Aluminum Storefront:				
Weight rm - 8'	280	SF	72.00	20,160
Vestibule / entry - 9'	160	SF	70.00	11,200
Reading rm - 8'	287	SF	70.00	20,090
Misc. storefront	200	SF	70.00	14,000

092116 GYPSUM BOARD ASSEMBLIES

1 Lyr 5/8" gyp @ ext. wall frame		w/B2010		
Drywall Partitions: Furr and Gyp at CMU	800	SF	7.00	5,600

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Typical interior	8,368	SF	9.50	79,496
Plumbing	470	SF	7.00	3,290
Cement board at CWT	1,176	SF	1.65	1,940
Misc. GWB assemblies	23,957	GSF	1.00	23,957
*Partitions include sound attenuation, tape & joint compound finish				

				356,503

C1020 INTERIOR DOORS

081113 HOLLOW METALWORK
081416 WOOD AND PLASTIC DOORS

Interior Door, Frame, Hdw, Glass & Glazing

Reading rm - sgl	1	EA	1,500.00	1,500
Greenhouse- sgl	4	EA	1,000.00	4,000
Weight rm -dbl	3	EA	3,000.00	9,000
Weight rm - sgl	1	EA	1,000.00	1,000
Toilet rm - sgl	2	EA	1,000.00	2,000
Mech - sgl	6	EA	750.00	4,500
Prep rm - sgl	6	EA	1,000.00	6,000
Classroom - sgl	6	EA	1,100.00	6,600
Office - sgl	3	EA	1,000.00	3,000

Interior HM Windows, Sidelites and Transoms (Incl. Glass):

Class sidelite - (6 EA)	63	SF	55.00	3,465
Misc, sidelight/window - allow	200	SF	55.00	11,000

080001 METAL WINDOWS*

Aluminum (Frame, Door, Glass, Glazing and Hdw):

Vest - dbl	3	PR	7,200.00	21,600
Greenhouse/conservatory - dbl	2	EA	6,000.00	12,000

091000 PAINTING*

Paint HM frame - dbl	3	EA	50.00	150
Paint HM frame - sgl	29	EA	30.00	870
Paint HM sidelite frame	263	SF	5.00	1,315

*Excludes prefinished wood doors

083100 ACCESS DOORS AND PANELS

Access panels	30	EA	350.00	10,500

				98,500

C1030 FITTINGS

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
<u>055001 METAL FABRICATIONS*</u>				
Misc. metals	23,957	GSF	1.00	23,957
<u>062000 FINISH CARPENTRY</u>				
Utility & closet shelving - allow	1	LS	2,500.00	2,500
Solid surface window sill/apron	428	LF	28.00	11,984
<u>104413 FIRE EXTINGUISHER CABINETS</u>				
Corridor fire extinguisher and cab -allow	3	EA	450.00	1,350
Science rm fire extinguisher & access	9	EA	450.00	4,050
<u>105113 METAL LOCKERS</u>				
6' Corridor lockers - DBL TIER		N/A		
<u>102113 TOILET COMPARTMENTS</u>				
Solid Plastic Toilet Partitions:				
Std. partition	4	EA	1,200.00	4,800
HC partition	2	EA	1,350.00	2,700
Urinal screen	1	EA	275.00	275
<u>102813 TOILET ROOM ACCESSORIES</u>				
Toilet Accessories (4 Multi-user Rm):				
Elec hand dryer		NIC		
Paper towel dispenser/disposal	2	EA	250.00	500
Toilet tissue dispenser	6	EA	45.00	270
San. product dispenser	1	EA	200.00	200
San. product disposal	4	EA	40.00	160
Grab bars	4	EA	95.00	380
Soap dispenser	2	EA	45.00	90
Mirror (6'x4')	2	EA	525.00	1,050
Coat hook	6	EA	15.00	90
Janitor shelf	1	EA	200.00	200
Science lab towel dispenser	6	EA	65.00	390
<u>109000 MISCELLANEOUS SPECIALTIES</u>				
Wall & corner guards - allow	1	LS	5,000.00	5,000
<u>101100 VISUAL DISPLAY BOARDS</u>				
Marker board - 12'	6	EA	864.00	5,184
Marker board - 8'	6	EA	576.00	3,456
Tack Board - 4'	12	EA	220.00	2,640
Smart board - 6'		NIC		
<u>101400 SIGNAGE</u>				

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Int. ADA signage	23,957	GSF	0.08	1,917
<u>109000 MISCELLANEOUS SPECIALTIES</u>				
Misc. specialties	23,957	GSF	0.25	5,989
				----- 79,132
TOTAL C10 - INTERIOR CONSTRUCTION				534,135

C20 - STAIRS

C2010 STAIR CONSTRUCTION		N/A		----- 0
C2020 STAIR FINISHES		N/A		----- 0
TOTAL C20 - STAIRS				0

C30 - INTERIOR FINISHES

<u>C3010 WALL FINISHES</u>				
<u>062000 FINISH CARPENTRY</u>				
Lobby wood wall panel - allow	500	SF	35.00	17,500
Media Center paneling - allow	200	SF	30.00	6,000
Misc. wood trim work	1	LS	15,200.00	15,200
<u>093013 CERAMIC TILING*</u>				
Porcelain wall tile - 7' corridor	1,929	SF	15.00	28,935
Ceramic Wall Tile:				
Toilet rm wall 7'0"	1,176	SF	14.00	16,464
Janitor closet wall 7'0"	200	SF	14.00	2,800
<u>091000 PAINTING*</u>				
Interior painting - walls	23,957	GSF	1.50	35,936
<u>098413 ACOUSTIC PANELS</u>				
Fitness rm	500	SF	25.00	12,500

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
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Reading rm	200	SF	25.00	5,000

				140,335

C3020 FLOOR FINISHES

033000 CAST IN PLACE CONCRETE

Sealed concrete - mech/elec rm	3,698	SF	1.20	4,438
Sealed concrete - greenhouse/conservatory	2,648	SF	1.20	3,178

093013 CERAMIC TILING*

Porcelain Tile:

Entry lobby	1,527	SF	18.00	27,486
Tile base	450	LF	8.50	3,825

Ceramic Floor Tile (Thin-set New Toilet Rm):

Marble threshold	4	EA	60.00	240
Ceramic floor tile	527	SF	16.00	8,432
Ceramic base	168	LF	9.00	1,512

096500 RESILIENT FLOORING*

VCT:

Classroom	9,175	SF	3.50	32,113
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Corridor:

Sheet Linoleum	2,535	SF	6.50	16,478
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Athletic flooring weight rm

4" Rubber wall base	1,617	SF	10.00	16,170
Moisture mitigation @ resilient	2,000	LF	2.20	4,400
	13,327	SF	4.00	53,308

096813 CARPETING

Carpet - reading rm	1,015	SF	4.25	4,314
Carpet - planning	647	SF	4.25	2,750
Carpet - small group	476	SF	4.25	2,023

180,665

C3030 CEILING FINISHES

092116 GYPSUM BOARD ASSEMBLIES

2 Hr. gyp ceiling - mech/elec.		N/A		
Gyp ceiling - toilet rm	527	SF	8.00	4,216
Gyp ceiling - allow	2,000	SF	8.00	16,000
Gyp soffits & light cove	1	LS	15,000.00	15,000

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
095100 ACOUSTICAL CEILINGS*				
Reading rm ceiling system	864	SF	15.00	12,960
2x2x3/4" ACT	14,846	SF	4.25	63,096
091000 PAINTING*				
Paint gyp ceiling	2,527	SF	0.75	1,895
Paint Exposed Structure:				
Mechanical	3,698	SF	1.50	5,547
Greenhouse	2,386	SF	1.50	3,579
Conservatory	500	SF	1.50	750

				123,043
TOTAL C30 - INTERIOR FINISHES				444,042

D. SERVICES

D10 - CONVEYING

D1010 ELEVATORS & LIFTS		N/A		

				0
TOTAL D10 - CONVEYING				0

D20 - PLUMBING

D2010 PLUMBING

220001 PLUMBING*

Fixtures:				
Water closet	4	EA	1,950.00	7,800
Water closet ADA	4	EA	1,950.00	7,800
Urinal	2	EA	1,600.00	3,200
2 Bay lav.	2	EA	3,800.00	7,600
Jan. sink	1	EA	1,550.00	1,550
Drinking fountain w/ water bottle refill	2	EA	3,300.00	6,600
Science rm sink (6/ rm)	36	EA	1,750.00	63,000
Science prep rm sink (1/rm)	3	EA	1,750.00	5,250
Emergency eye wash	8	EA	2,600.00	20,800
Fixture rough-in	62	EA	2,800.00	173,600

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Floor drain	10	EA	1,500.00	15,000
Wall hydrant	4	EA	1,200.00	4,800
Roof drain	9	EA	3,500.00	31,500
Gas turret	78	EA	650.00	50,700
Master valve box	6	EA	1,500.00	9,000
Gas piping	1	LS	25,000.00	25,000
Acid waste system	1	LS	15,000.00	15,000
Misc. Items:				
Mixing valve	3	EA	1,500.00	4,500
Balance valve	1	EA	1,500.00	1,500
Misc. Plumbing	23,957	GSF	1.00	23,957

				478,157
TOTAL D20 - PLUMBING	\$19.96	/sf		478,157

D30 - HVAC

D3010 HVAC

230000 HVAC*

230000 HVAC*

Roof Top Air Handling Unit (HW Heater, DX Cooling):

Stem lab	3,500	CFM	6.25	21,875
Large group	3,500	CFM	6.25	21,875
Library/computer lab	3,500	CFM	6.25	21,875
Stage	3,200	CFM	6.25	20,000
Admin	6,300	CFM	6.25	39,375
Auditorium	8,000	CFM	6.25	50,000
Gym	12,500	CFM	6.25	78,125

ERV Unit:

Pod A	8,000	CFM	10.00	80,000
Pod B	8,000	CFM	10.00	80,000
Pod C	8,000	CFM	10.00	80,000
Pod F	8,000	CFM	10.00	80,000
Pod H	8,000	CFM	10.00	80,000
Chorus	8,000	CFM	10.00	80,000
Stem	8,000	CFM	10.00	80,000

Vibration isolation	1	LS	26,000.00	26,000
Sound attenuator (supply & return)	198,000	CFM	0.55	108,900

Gas Direct Fired Make-Up Air Unit:

MAU-1	7,000	CFM	4.00	28,000
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Boiler:

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
B-1 (2000 mbh)	1	EA	38,000.00	38,000
B-2 (2000 mbh)	1	EA	38,000.00	38,000
B-3 (2000 mbh)	1	EA	38,000.00	38,000
Air separator	1	EA	3,500.00	3,500
Expansion tank	2	EA	3,200.00	6,400
PH Neutralization	1	LS	3,500.00	3,500
6"	50	LF	125.00	6,250
8"	50	LF	145.00	7,250
Chem feed system	1	LS	7,500.00	7,500
Boiler valve and trim	1	LS	22,000.00	22,000
Pump:				
P-1, 2 , 3 boiler in-line	3	EA	3,500.00	10,500
P-4,5 secondary hw	2	EA	15,000.00	30,000
VFD Drive - 20 hp	2	EA	5,500.00	11,000
Hydraunic Equipment:				
CUH	3	EA	3,500.00	10,500
UH	2	EA	1,100.00	2,200
CC (convector)	4	EA	1,800.00	7,200
Science lab exhaust	3	EA	8,500.00	25,500
Kitch. exhaust fan	3	EA	5,000.00	15,000
Dishwash exhaust fan	1	EA	4,000.00	4,000
Air Devices:				
Exh fan	10	EA	2,500.00	25,000
FPB (fan pwr box)	75	EA	1,750.00	131,250
VAV box	75	EA	1,400.00	105,000
VRF System:				
Air Cooled Condensing Unit	5	EA	3,500.00	17,500
ACU-small	5	EA	3,200.00	16,000
Refrigerant piping	100	LF	28.00	2,800
HVAC Pipe:				
HVAC pipe	137,662	GSF	3.00	412,986
Supply				
Registers:				
Grilles/registers	225	EA	230.00	51,750
Flexible connection	120	EA	85.00	10,200
Dampers:				
Volume damper	100	EA	225.00	22,500
MOD	2	EA	1,500.00	3,000
Supply Ductwork:				
Galvanized	65,000	LBS	9.00	585,000
1' Duct Insul	50,000	SF	4.10	205,000
Return:				
Registers				
Grilles/registers	150	EA	165.00	24,750
Volume damper	100	EA	225.00	22,500
Return Ductwork:				
Galvanized	65,000	LBS	9.00	585,000

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Alum ductwork - dishwash	500	LBS	12.00	6,000
Welded kitchen exhaust	500	LBS	18.00	9,000
2 Hr duct wrap	350	SF	8.00	2,800
Automatic Temperature Control:				
Auto temp control	137,662	SF	3.50	481,817
Test and Balance	137,662	SF	0.55	75,714
Phasing Premium - 3%	1	LS	121,736.76	121,737
Subtotal				5,161,400
Total SF: 137,662 Cost/SF: \$37.49				
Addition - HVAC	23,957	GSF	37.49	898,227
				898,227
TOTAL D30 - HVAC \$37.49 /SF				898,227

D40 - FIRE PROTECTION

D4010 FIRE PROTECTION

210001 FIRE PROTECTION*

Sprinkler system	23,957	SF	4.25	101,817
				101,817
TOTAL D40 - FIRE PROTECTION \$4.25 /SF				101,817

D50 - ELECTRICAL

D5010 ELECTRICAL

260000 ELECTRICAL*

POWER DISTRIBUTION

MAIN SWITCHBOARD

2000 AMP 1 EA 70,000.00 70,000

PANELBOARDS

120-208 Volt 100% Neutral:

REMOTE LIGHTING CONTROL PANEL

125 AMP main lug 4 EA 1,427.00 5,708

Three Phase:

150 AMP main brkr 6 EA 2,209.00 13,254

250 AMP main brkr 1 EA 5,022.00 5,022

120-208 Volt 200% Neutral:

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
100 AMP main brkr	3	EA	2,060.00	6,180
150 AMP main brkr	1	EA	2,493.00	2,493
250 AMP main brkr	6	EA	4,775.00	28,650
277-480 Volt 100% Neutral:				
Main Lug:				
100 AMP	14	EA	1,918.00	26,852
225 AMP	2	EA	2,020.00	4,040
400 AMP	7	EA	2,243.00	15,701
Main Breaker:				
125 AMP main brkr	1	EA	2,487.00	2,487
225 AMP main brkr	1	EA	2,538.00	2,538
250 AMP main brkr	1	EA	3,112.00	3,112
400 AMP main brkr	2	EA	3,112.00	6,224
METERING				
Single can meter socket	1	LS	500.00	500
Emon Demo metering monitor	1	LS	2,500.00	2,500
100% NEUTRAL FEEDERS				
EMT - THREE PHASE:				
60 AMP	40	LF	14.25	570
100 AMP	210	LF	23.60	4,956
125 AMP	100	LF	26.25	2,625
150 AMP	450	LF	30.25	13,613
225 AMP	200	LF	52.50	10,500
225 AMP	150	LF	59.75	8,963
400 AMP	2,130	LF	103.60	220,668
PVC - UNDERGROUND - THREE PHASE				
100 AMP	30	LF	19.80	594
250 AMP	30	LF	51.85	1,556
400 AMP	60	LF	95.85	5,751
2000AMP	30	LF	498.50	14,955
MINERAL INSULATED FEEDERS				
100 AMP	1,590	LF	46.05	73,220
SPARE OR EMPTY RACEWAYS				
PVC - UNDERGROUND				
4"	70	LF	21.05	1,474
GENERATOR SIGNAL - UNDERGROUND				
Annunciator circuits	30	LF	14.40	432
GENERATOR SIGNAL - EMT RACEWAY				
Annunciator circuits	50	LF	11.75	588
GROUNDING				
Building grounding system	137,662	SF	0.10	13,766
EMPTY CONDUIT/CABLE TRAY/SLEEVES				
Empty raceway system	137,662	SF	0.65	89,480
DISCONNECT SWITCHES - 3 POLE				
HEAVY DUTY - TO 600 VOLTS				
200 AMP F	3	EA	1,079.00	3,237

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
400 AMP F	1	EA	2,182.00	2,182
TRANSFORMERS				
DRY TYPE - NON K RATED				
45 KVA	6	EA	6,808.00	40,848
75 KVA	1	EA	9,024.00	9,024
DRY TYPE - K13 RATED				
30 KVA	3	EA	7,448.00	22,344
45 KVA	1	EA	9,291.00	9,291
75 KVA	6	EA	13,235.00	79,410
HVAC HOOKUP				
HVAC wiring and equipment	137,662	SF	1.00	137,662
DIESEL GENERATORS				
400 KW	1	EA	150,000.00	150,000
SPECIAL ENCLOSURES				
250-500 KW	1	EA	50,000.00	50,000
Add MI cable for above slan ER feeds	1	LS	25,000.00	25,000
AUTOMATIC TRANSFER SWITCH				
260 AMP	1	EA	5,250.00	5,250
400 AMP	2	EA	6,324.00	12,648
WIRING DEVICES				
Non lighting control wiring devices	137,662	SF	1.75	240,909
FIRE ALARM				
Addressable with voice	137,662	SF	1.15	158,311
AUDIO-VIDEO SYSTEM				
Auditorioum AV	1	LS	75,000.00	75,000
Cafeterira	1	LS	30,000.00	30,000
LGI	2	EA	25,000.00	50,000
Media Center		FFE		
Gymnasium	1	LS	30,000.00	30,000
Band Room	1	LS	20,000.00	20,000
Multi purpose	1	LS	10,000.00	10,000
Assisted listening device		NIC		
Gym Scoreboard wiring	1	LS	7,500.00	7,500
TELECOMMUNICATIONS				
TEL-COM/CLOCK/PA SYSTEM				
Complete telcom sys	137,662	SF	2.45	337,272
STRUCTURED CABLING				
Backbone cabling	137,662	SF	2.65	364,804
SECURITY SYSTEM				
Security/access system	137,662	SF	3.20	440,518
SECURITY SYSTEM				
Site CCTV camera	80	EA	2,200.00	176,000
LIGHTING FIXTURES				
Interior lighting	137,662	SF	3.50	481,817

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Lighting controls	137,662	SF	1.15	158,311
Theatrical Lightng and Dimming	1	LS	100,000.00	100,000
Kitchen wiring	1	LS	50,000.00	50,000
Lightning protection	1	LS	50,000.00	50,000
Demolition	113,705	SF	0.50	56,853
Short circuit/co-ordination study	1	LS	20,000.00	20,000
Temporary electric	1	LS	10,000.00	10,000
Permit	1	LS	5,000.00	5,000
Electric backcharge	1	LS	50,000.00	50,000
Premium for Phasing - 3%	1	LS	123,844.82	123,845
Subtotal				4,252,006
Total SF:		137,662	Cost/SF:	\$30.89
Addition Electrical	23,957	GSF	30.89	739,967
				739,967
TOTAL D50 - ELECTRICAL		\$30.89	/SF	739,967

E. EQUIPMENT & FURNISHINGS

E10 - EQUIPMENT

E1090 OTHER EQUIPMENT

115300 LABORATORY EQUIPMENT

Chemical storage cab	6	EA	1,500.00	9,000
Goggle sterilization cab	6	EA	1,500.00	9,000
Fire blanket	6	EA	500.00	3,000
Dishwasher - prep rm	3	EA	1,200.00	3,600
Refrigerator- prep rm	3	EA	1,200.00	3,600
Freezer- prep rm	3	EA	1,200.00	3,600
Icemaker- prep rm	3	EA	750.00	2,250
Misc. lab equipment	1	LS	5,000.00	5,000
Science fume hood	6	EA	6,500.00	39,000

119000 EQUIPMENT

Library equipment		NIC		
Metal storage shelving		NIC		
				78,050

TOTAL E10 - EQUIPMENT				78,050
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DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
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E20 - FURNISHINGS

E 2010 FIXED FURNISHINGS

129000 MISCELLANEOUS FURNISHINGS

Recessed vestibule mat (3 EA)	300	SF	48.00	14,400
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122000 WINDOW TREATMENTS

Manual roller shades - typ.	5,200	SF	5.50	28,600
Meco shade elec at reading rm	900	SF	20.00	18,000

123020 MANUFACTURED CASEWORK

Allowance:				
Display cases	1	LS	10,000.00	10,000
SPED small group rm	1	EA	5,000.00	5,000
Science room	6	EA	60,000.00	360,000
Prep room	3	EA	15,000.00	45,000
Teacher planning	1	EA	2,500.00	2,500

483,500

E2020 MOVABLE FURNISHINGS

NIC

0

0

TOTAL E20 - FURNISHINGS				483,500
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F. SPECIAL CONSTRUCTION & DEMOLITION

F10 - SPECIAL CONSTRUCTION

F1010 SPECIAL STRUCTURES

N/A

0

TOTAL F10 - SPECIAL CONSTRUCTION				0
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F20 - SELECTIVE BUILDING DEMOLITION

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DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
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F2010 BUILDING ELEMENTS DEMOLITION

024116 BUILDING DEMOLITION SEE RENOVATION & SUMMARY PAGE

0

F2020 HAZARDOUS COMPONENTS ABATEMENT SEE SUMMARY PAGE

0

TOTAL F20 - SELECTIVE BUILDING DEMOLITION **0**

PROJECT: Monument Mountain High School
 LOCATION: Great Barrington, MA
 CLIENT: Strategic Building Solutions
 DATE: 26-Mar-13

No.: 13023

SUMMARY

SITework

	<u>TOTAL</u>	<u>PERCENT OF PROJECT</u>	<u>COST PER SF</u>
G. BUILDING SITEWORK			
G10 - SITE PREPARATION			
G1010 SITE CLEARING	138,970	5%	0.00
G1020 SITE DEMOLITION & RELOCATIONS	131,508	5%	0.00
G1030 SITE EARTHWORK	126,275	4%	0.00
G1040 HAZARDOUS WASTE REMEDIATION	0	0%	0.00
G20 - SITE IMPROVEMENTS			
G2010 ROADWAYS	571,791	20%	0.00
G2020 PARKING LOTS	0	0%	0.00
G2030 PEDESTRIAN PAVING	392,719	14%	0.00
G2040 SITE DEVELOPMENT	293,834	10%	0.00
G2050 LANDSCAPING	189,850	7%	0.00
G30 - SITE MECHANICAL UTILITIES			
G3010 WATER SUPPLY	129,705	5%	0.00
G3020 SANITARY SEWER	52,036	2%	0.00
G3030 STORM SEWER	311,940	11%	0.00
G3040 HEATING DISTRIBUTION	0	0%	0.00
G3050 COOLING DISTRIBUTION	0	0%	0.00
G3060 FUEL DISTRIBUTION	9,875	0%	0.00
G3090 OTHER SITE MECHANICAL UTILITIES	0	0%	0.00
G40 - SITE ELECTRICAL UTILITIES			
G4010 ELECTRICAL DISTRIBUTION	346,937	12%	0.00
G4020 SITE LIGHTING	116,190	4%	0.00
G4030 SITE COMMUNICATIONS & SECURITY	0	0%	0.00
G4090 OTHER SITE ELECTRICAL UTILITIES	0	0%	0.00
G90 - OTHER SITE CONSTRUCTION			
G9010 SERVICE AND PEDESTRIAN TUNNELS	0	0%	0.00
G9090 OTHER SITE SYSTEMS	0	0%	0.00
TOTAL	2,811,629	100%	0.00

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
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G. BUILDING SITEWORK

G10 - SITE PREPARATION

G1010 SITE CLEARING

311000 SITE PREPARATION & CLEARING

Erosion control - allow	3,500	LF	4.10	14,350
Drain inlet protection - allow	10	EA	50.00	500
Construction fence	4,500	LF	11.50	51,750
Strip and stack top soil	4,500	CY	7.50	33,750
Cut and cap utilities	1	LS	15,000.00	15,000
Construction entrance and staging	1	LS	500.00	500
Saw cut bit. drive	780	LF	4.00	3,120
Remove trees and shrubs	1	LS	20,000.00	20,000

				138,970

G1020 SITE DEMOLITION & RELOCATIONS

311000 SITE PREPARATION & CLEARING

Remove Existing:				
Pavement and curb-drive	89,241	SF	0.77	68,716
Bit walk	39,269	SF	0.90	35,342
Conc. walk	2,000	SF	1.00	2,000
Light pole	17	EA	250.00	4,250
Bench	6	EA	200.00	1,200
Misc. site demolition	1	LS	20,000.00	20,000

				131,508

G1030 SITE EARTHWORK

310000 EARTHWORK

Site cut	3,100	CY	4.75	14,725
Site fill (on site matl)	3,100	CY	5.50	17,050
Site fill (supply)	3,400	CY	14.00	47,600
Site rough grading	24,000	SY	0.60	14,400
Ledge removal - allowance	500	CY	45.00	22,500
Excavate/backfill site amenities	1	LS	10,000.00	10,000

*Site utilities include excavation & backfill

126,275

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
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G1040 HAZARDOUS WASTE REMEDIATION

*Hazardous waste removal on Grand Summary

0

TOTAL G10 - SITE PREPARATION				396,753
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G20 - SITE IMPROVEMENTS

G2010 ROADWAYS

320000 PAVEMENT, CURBING & EDGING

Mil top layer	57,090	SF	0.45	25,691
Concrete pavement	3,837	SF	4.25	16,307
Parking/drive 2" bind & 2" top	9,407	SY	26.00	244,582
Overly exist. parking	6,284	SY	13.00	81,692
12" Gravel@ drive / parking	3,136	CY	22.00	68,992
Street patch @ utilities		N/A		
Granite curb - straight	2,900	LF	30.50	88,450
Granite curb - radial	1,056	LF	32.00	33,792
Berm	1,014	LF	2.50	2,535
Tactile warning paver at HC Cut	7	EA	250.00	1,750
Parking/traffic signage	1	LS	3,000.00	3,000
Misc. pavement markings	1	LS	5,000.00	5,000

*Bit entry drive - remains - 8,443 SF

*Reset curbing @ overlay area - N/A

571,791

G2020 PARKING LOTS

*Included with G2010

0

G2030 PEDESTRIAN PAVING

320000 PAVEMENT, CURBING & EDGING

5" Conc pavement - walk	13,645	SF	5.10	69,590
Courtyard paving and ammenitites	1	LS	150,000.00	150,000
Bit Pavement at 1/2 courtyard area	1,520	SF	3.00	4,560
3 1/2" Bituminous walk	1,537	SY	23.50	36,120
Entry plaza 5" colored conc - walk	1,500	SF	8.50	12,750
6" Conc ramp w/reinf edge	1,158	SF	9.00	10,422
Conc entry stoop (4 EA)	434	SF	10.00	4,340
8" Gravel base @ walks	993	CY	22.00	21,846

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Reinforced Turf Emergency Drive:				
12" Gravel base	403	CY	24.00	9,672
Turf pavers	10,877	SF	6.75	73,420

				392,719

G2040 SITE DEVELOPMENT

323100 SITE IMPROVEMENTS

Granite Seat Wall (2'x2'): Science addition	50	LF	265.00	13,250
Screen wall - loading area	72	LF	500.00	36,000
Site stair (4 ft) cast tread	140	LFT	90.00	12,600
Seating boulder	9	EA	400.00	3,600
Courtyard seating - allow	1	LS	5,000.00	5,000
Granite landscape edger (1'x1'6")		N/A		
Radial ramp guardrail	32	LF	275.00	8,800
Ramp guardrail	332	LF	175.00	58,100
Site stair guardrail (4 ft)	86	LF	150.00	12,900
6" Concrete dumpster pad - allow	100	SF	10.00	1,000
Dumpster enclosure		N/A		
Masonry site sign - replace exist.	2	EA	15,000.00	30,000
Bollards @ transformer	7	EA	550.00	3,850
Vehicular access gate		N/A		
Bike rack - loop	18	EA	450.00	8,100
Bench - allow	5	EA	1,800.00	9,000
Trash & recycle receptacle - allow	3	EA	1,250.00	3,750
40' Flag pole	1	EA	4,500.00	4,500
Loading dock		N/A		
3'6" Chain link fence - parking lot (shown orn.)	313	LF	28.00	8,764
Ornamental fence - play yard	160	LF	90.00	14,400
Sgl ornamental gate - play yard	1	EA	1,500.00	1,500
Play structure	1	LS	30,000.00	30,000
Play surface - resilient rubber	1,200	SF	15.00	18,000
8" Gravel base @ play surface	30	CY	24.00	720
Misc. site improvements	1	LS	10,000.00	10,000

				293,834

G2050 LANDSCAPING

329000 LANDSCAPING

Planting allowance	1	LS	100,000.00	100,000
Courtyard planting/lawn 20%		see above		
Respread and augment existing loam - 8"	4,500	CY	12.50	56,250
Rake seed and fertilize	24,000	SY	1.40	33,600
Irrigation system		NIC		

				189,850

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
TOTAL G20 - SITE IMPROVEMENTS				1,448,194

G30 - SITE MECHANICAL UTILITIES

G3010 WATER SUPPLY

330000 UTILITIES (NOT SHOWN)

Street connection	1	EA	2,500.00	2,500
4" Domestic	450	LF	51.00	22,950
12" Main	920	LF	98.00	90,160
Hydrant	3	EA	2,450.00	7,350
6" Hydrant gate valve	3	EA	875.00	2,625
8" Gate valve - allow	2	EA	1,300.00	2,600
6" Gate valve - service fire	1	EA	850.00	850
4" Gate valve - service dom	1	EA	670.00	670

				129,705

G3020 SANITARY SEWER

330000 UTILITIES

Pump station		N/A		
Acid waste tight tank		W /BLDG		
Grease trap (3,000 gal)	1	EA	6,500.00	6,500
8" PVC Sanitary main	507	LF	48.00	24,336
Kitchen sanitary line	40	LF	65.00	2,600
6" Cast iron - science - allow	40	LF	90.00	3,600
Sanitary manhole	5	EA	2,500.00	12,500
CTE site manhole	1	EA	2,500.00	2,500

				52,036

G3030 STORM SEWER

330000 UTILITIES

Site Drainage :				
Connect to exist. site manhole	1	EA	1,500.00	1,500
Oil/sand trap		N/A		
Trench drain @ loading dock		N/A		
Drainage manhole	11	EA	2,500.00	27,500
Catch basin	16	EA	2,500.00	40,000
Dbl catch basin	2	EA	2,500.00	5,000
Outlet control structure -allow	2	EA	4,500.00	9,000
Flared end w/rip rap	1	EA	2,700.00	2,700
Clean out	1	EA	1,200.00	1,200
8" CPP @ downspout	8	LF	50.00	400
12" CPP	1,930	LF	48.00	92,640
18" CPP		N/A		

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
15" CPP		N/A		
Water quality structure - allow	2	EA	12,000.00	24,000
Infiltration basin	6,000	SF	18.00	108,000

				311,940
G3060 FUEL DISTRIBUTION				
<u>330000 UTILITIES</u>				
Fuel Distribution:				
Gas main trenching and backfill	395	LF	25.00	9,875

				9,875
G3090 OTHER SITE MECHANICAL UTILITIES				
		N/A		

				0
TOTAL G30 - SITE MECHANICAL UTILITIES				503,556

G40 - SITE ELECTRICAL UTILITIES

G4010 ELECTRICAL DISTRIBUTION

260000 ELECTRICAL*

POWER DISTRIBUTION

PANELBOARDS

120-208 VOLT 100% NEUTRAL

THREE PHASE - MAIN BREAKER

100 AMP greenhouse panel

1 EA 935.00 935

100% NEUTRAL FEEDERS

PVC - UNDERGROUND - THREE PHASE

100 AMP

50 LF 19.80 990

200 AMP

100 LF 51.85 5,185

400 AMP

200 LF 95.85 19,170

Elec. manholes

2 EA 5,000.00 10,000

Reconnect feed to playing field

1 LS 15,000.00 15,000

SPARE OR EMPTY RACEWAYS

PVC UNDERGROUND

4" 4,530 LF 21.05 95,357

GENERATOR SIGNAL - UNDERGROUND

Annunciator circuits 100 LF 14.40 1,440

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
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330000 UTILITIES

Elec. manhole	2	EA	8,500.00	17,000
Tele. manhole		N/A		
Comm manhole		N/A		
Transformer pad	1	EA	4,000.00	4,000
Tele data duct from elem school	1,000	LF	45.00	45,000
Tele data hand hole	2	EA	1,500.00	3,000
Emergency generator pad	1	EA	4,000.00	4,000
Conc. duct bank	652	LF	55.00	35,860
Lighting trenching	5,000	LF	18.00	90,000
*Primary cabling - By Others				

				346,937

G4020 SITE LIGHTING

260000 ELECTRICAL*

GROUNDING ROD

3/4" X 10'	4	EA	149.00	596
BARE COPPER WIRE				
#4/0	100	LF	5.80	580

LIGHTING FIXTURES

Roadway:				
250 Watt 1"D 25'P - 1 head LED	14	EA	2,784.00	38,976
250 Watt 1"D 25'P - 2 head LED	8	EA	3,556.00	28,448
12" Post 50W LED	13	EA	2,180.00	28,340

033000 CAST IN PLACE CONCRETE

Precast light pole base	35	EA	550.00	19,250

				116,190

G4030 SITE COMMUNICATIONS & SECURITY w/G4010 & G4020

0

G4090 OTHER SITE ELECTRICAL UTILITIES

N/A

0

0

TOTAL G40 - SITE ELECTRICAL UTILITIES				463,127
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G90 - OTHER SITE CONSTRUCTION

N/A

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
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TOTAL G90 - OTHER SITE CONSTRUCTION				0
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PROJECT: Monument Mountain High School
 LOCATION: Great Barrington, MA
 CLIENT: Strategic Building Solutions
 DATE: 26-Mar-13

No.: 13023

ALTERNATES

ALTERNATE NO. 1 - ADD GRANITE TERRACE SEATING WITH CONCRETE STAIRS 370,198

Monument Mountain High School - Alternates 3/26/2013

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
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ALTERNATE NO. 1 - ADD GRANITE TERRACE SEATING WITH CONCRETE STAIRS

Add:				
Site prep	14,000	SF	0.50	7,000
Site grading	1,565	SY	0.85	1,330

Terrace Seating - Athletic Field:

Cast stair	100	LFT	95.00	9,500
Conc. landing	193	SF	10.00	1,930
Granite block 2'x2'	994	LF	250.00	248,500
Bituminous 5' landing (1 loc)	171	SY	24.00	4,104
Gravel base	232	CY	24.00	5,568

Loam & seed 5' landing	380	SY	3.00	1,140
Loam & seed disturbed area	1	LS	2,500.00	2,500

SUBTOTAL				281,572
GENERAL CONDITIONS		0 %		0

SUBTOTAL				281,572
DESIGN CONTINGENCY		12 %		33,789

SUBTOTAL				315,361
GMP CONINGENCY		3 %		9,461

SUBTOTAL				324,822
GENERAL REQUIREMENTS		3 %		9,745

SUBTOTAL				334,566
PERMIT, P&P BOND & INS		3 %		10,037

SUBTOTAL				344,603
ESCALATION		5 %		17,230

SUBTOTAL				361,834
FEE		2.5 %		8,364

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
TOTAL ALTERNATE NO. 1				370,198

**Berkshire Hills
Monument Mountain High School
SD Estimate Analysis
3/26/13**

		A	B	C	D	E	F
\$(000) except \$/GSF	Budget 2D.4 9/19/12	AM Fogarty 3/19/13	PM&C 3/19/13	Difference AMF less PMC	REVISED AM Fogarty 3/26/13	REVISED PM&C 3/25/13	Reconciled Estimates
New Construction GSF		23,957	23,967	(10)	23,957	23,967	23,967
Renovations GSF		113,705	113,705	0	113,705	113,705	113,705
TOTAL GSF	153,580	137,662	137,672	(10)	137,662	137,672	137,672
Total Construction\$/GSF	\$ 265.37	\$ 337.80	\$ 328.43	\$ 9.37	\$ 337.80	\$ 328.43	\$ 349.40
I. Construction Costs RENOVATION							
A. SUBSTRUCTURE							
1 Foundations	1,041.6	131.0	291.1	(160.1)	394.9	396.9	396.0
A1010 Standard Foundations		25.0	28.6	(3.6)	25.0	28.6	
A1020 Special Foundations		0.0	0.0	0.0	0.0	0.0	
A1030 Slab on Grade		106.0	262.5	(156.5)	369.9	368.3	
2 Basement Construction	0.0	0.0	0.0	0.0	0.0	0.0	0.0
A2010 Basement Excavation		0.0	0.0	0.0	0.0	0.0	
A2020 Basement Walls		0.0	0.0	0.0	0.0	0.0	
B. SHELL							
1 Superstructure	1,183.9	716.7	943.9	(227.2)	866.6	837.6	853.0
B1010 Floor Construction		10.0	40.0	(30.0)	30.0	30.0	
B1020 Roof Construction		706.7	903.9	(197.2)	836.6	807.6	
2 Exterior Closure		651.7	2,120.8	(1,469.1)	924.7	919.2	922.0
B2010 Exterior Walls	1,192.9	62.5	1,396.2	(1,333.7)	275.9	259.7	
B2020 Exterior Windows	1,708.7	529.5	631.9	(102.4)	577.1	570.0	
B2030 Exterior Doors	155.2	59.7	92.7	(33.0)	71.7	89.5	
3 Roofing	2,527.5	3,632.8	2,377.5	1,255.3	3,660.1	3,597.8	3,629.0
B3010 Roof Coverings		3,592.6	2,315.7	1,276.9	3,619.9	3,536.0	
B3020 Roof Openings		40.2	61.8	(21.6)	40.2	61.8	
C. INTERIORS							
1 Interior Construction	2,739.4	2,161.6	2,185.4	(23.8)	2,364.2	2,328.1	2,347.0
C1010 Partitions		1,211.2	1,113.1	98.1	1,188.5	1,113.1	
C1020 Interior Doors		633.7	457.7	176.0	529.1	556.1	
C1030 Fittings		316.7	614.6	(297.9)	646.6	658.9	
2 Staircases	0.0	24.4	0.0	24.4	5.8	5.0	6.0
C2010 Stair Construction		24.0	0.0	24.0	5.4	5.0	
C2020 Stair Finishes		0.4	0.0	0.4	0.4	0.0	
3 Interior Finishes	2,525.4	2,555.1	2,612.8	(57.7)	2,402.8	2,340.2	2,372.0
C3010 Wall Finishes		775.4	860.7	(85.3)	891.8	852.3	
C3020 Floor Finishes		1,131.6	901.7	229.9	828.8	777.1	
C3030 Ceiling Finishes		648.1	850.4	(202.3)	682.2	710.8	
D. SERVICES							
1 Conveying Systems	30.0	45.0	60.0	(15.0)	45.0	60.0	53.0
D1010 Elevators & Lifts		45.0	60.0	(15.0)	45.0	60.0	
D1020 Escalators & Moving Walks		0.0	0.0	0.0	0.0	0.0	
D1090 Other Conveying Systems		0.0	0.0	0.0	0.0	0.0	
2 Plumbing	1,026.7	894.7	1,405.9	(511.2)	896.7	1,249.1	1,073.0
3 HVAC	3,752.0	4,095.4	4,107.2	(11.8)	4,263.2	4,112.9	4,189.0
4 Fire Protection	631.4	477.5	528.5	(51.0)	477.6	528.5	504.0
5 Electrical	3,676.5	3,159.5	3,888.0	(728.5)	3,512.0	3,865.5	3,689.0
E. EQUIPMENT & FURNISHINGS							
1 Equipment	511.4	782.5	867.8	(85.3)	997.5	900.3	949.0
E1010 Commercial Equipment		782.5	867.8	(85.3)	997.5	900.3	
E1020 Institutional Equipment		0.0	0.0	0.0	0.0	0.0	
E1030 Vehicular Equipment		0.0	0.0	0.0	0.0	0.0	
E1090 Other Equipment		0.0	0.0	0.0	0.0	0.0	
2 Furnishings	1,027.2	803.7	736.2	67.5	560.4	700.0	631.0
E2010 Fixed Furnishings		803.7	736.2	67.5	560.4	700.0	
E2020 Movable Furnishings		0.0	0.0	0.0	0.0	0.0	
I. Construction Costs ADDITION & GREENHOUSE							
A. SUBSTRUCTURE							
1 Foundations	included above	656.9	680.8	(23.9)	666.9	690.8	679.0
A1010 Standard Foundations		407.1	435.7	(28.6)	417.1	445.7	
A1020 Special Foundations		0.0	0.0	0.0	0.0	0.0	
A1030 Slab on Grade		249.8	245.1	4.7	249.8	245.1	
2 Basement Construction		0.0	0.0	0.0	0.0	0.0	0.0
A2010 Basement Excavation		0.0	0.0	0.0	0.0	0.0	
A2020 Basement Walls		0.0	0.0	0.0	0.0	0.0	
B. SHELL							
1 Superstructure		501.4	479.7	21.7	468.2	386.1	428.0
B1010 Floor Construction		0.0	0.0	0.0	0.0	0.0	
B1020 Roof Construction		501.4	479.7	21.7	468.2	386.1	
2 Exterior Closure		1,341.3	1,428.9	(87.6)	1,342.2	1,428.9	1,386.0
B2010 Exterior Walls		484.0	485.9	(1.9)	511.2	485.9	
B2020 Exterior Windows		757.5	885.8	(128.3)	731.2	885.8	
B2030 Exterior Doors		99.8	57.2	42.6	99.8	57.2	
3 Roofing		629.4	772.7	(143.3)	769.6	772.7	772.0
B3010 Roof Coverings		592.6	753.5	(160.9)	732.8	753.5	
B3020 Roof Openings		36.8	19.2	17.6	36.8	19.2	
C. INTERIORS							
1 Interior Construction		534.1	478.1	56.0	534.1	493.1	514.0
C1010 Partitions		356.5	278.1	78.4	356.5	278.1	

**Berkshire Hills
Monument Mountain High School
SD Estimate Analysis
3/26/13**

	Budget 2D.4 9/19/12	A		B		C		D		E		F
		AM Fogarty 3/19/13		PM&C 3/19/13		Difference AMF less PMC	REVISED AM Fogarty 3/26/13		REVISED PM&C 3/25/13		Reconciled Estimates	
C1020 Interior Doors		98.5		85.4		13.1	98.5		88.9			
C1030 Fittings		79.1		114.6		(35.5)	79.1		126.1			
2 Staircases			0.0		0.0	0.0		0.0		0.0		0.0
C2010 Stair Construction		0.0		0.0		0.0	0.0		0.0			
C2020 Stair Finishes		0.0		0.0		0.0	0.0		0.0			
3 Interior Finishes			463.0		419.7	43.3		444.1		299.7		372.0
C3010 Wall Finishes		140.3		151.7		(11.4)	140.4		63.5			
C3020 Floor Finishes		199.7		182.2		17.5	180.7		152.5			
C3030 Ceiling Finishes		123.0		85.8		37.2	123.0		83.7			
D. SERVICES												
1 Conveying Systems			0.0		0.0	0.0		0.0		0.0		0.0
D1010 Elevators & Lifts		0.0		0.0		0.0	0.0		0.0			
D1020 Escalators & Moving Walks		0.0		0.0		0.0	0.0		0.0			
D1090 Other Conveying Systems						0.0						
2 Plumbing		418.5	418.5	297.4	297.4	121.1	478.2	478.2	407.6	407.6		443.0
3 HVAC		862.9	862.9	1,016.9	1,016.9	(154.0)	898.2	898.2	1,063.2	1,063.2		981.0
4 Fire Protection		101.8	101.8	115.2	115.2	(13.4)	101.8	101.8	115.2	115.2		109.0
5 Electrical		665.7	665.7	657.9	657.9	7.8	740.0	740.0	629.7	629.7		685.0
E. EQUIPMENT & FURNISHINGS												
1 Equipment			78.1		56.6	21.5		78.1		56.6		68.0
E1010 Commercial Equipment		78.1		56.6		21.5	78.1		56.6			
E1020 Institutional Equipment		0.0		0.0		0.0	0.0		0.0			
E1030 Vehicular Equipment		0.0		0.0		0.0	0.0		0.0			
E1090 Other Equipment		0.0		0.0		0.0	0.0		0.0			
2 Furnishings			483.5		422.6	60.9		483.5		422.6		454.0
E2010 Fixed Furnishings		483.5		422.6		60.9	483.5		422.6			
E2020 Movable Furnishings		0.0		0.0		0.0	0.0		0.0			
F. SPECIAL CONSTRUCTION & DEMOLITION												
1 Special Construction (Temporary condi	377.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
2 Existing Building Demolition	722.4	1,102.8	1,102.8	632.8	632.8	470.0	975.3	975.3	866.7	866.7		921.0
3 In-Bldg Hazardous Material Abatement	1,655.8	500.0	500.0	1,655.8	1,655.8	(1,155.8)	1,655.8	1,655.8	1,655.8	1,655.8		1,656.0
4 Asbestos Cont'g Floor Mat'l Abatement	360.0	0.0	0.0	360.0	360.0	(360.0)	360.0	360.0	360.0	360.0		360.0
5 Other Hazardous Material Abatement	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
G. BUILDING SITEWORK												
1 Site Preparation	208.4		420.7		359.8	60.9		396.8		369.8		384.0
G1010 Site Clearing		139.0		0.0		139.0	139.0					
G1020 Site Demo & Relocations		155.4		182.2		(26.8)	131.5					
G1030 Site Earthwork		126.3		177.6		(51.3)	126.3					
G1040 Hazardous Waste Remediation		0.0		0.0		0.0	0.0					
2 Site Improvements	1,625.5		1,432.5		1,422.9	9.6		1,448.2		1,345.6		1,397.0
G2010 Roadways		585.3		557.5		27.8	571.8					
G2020 Parking Lots		included		included		0.0	0.0					
G2030 Pedestrian Paving		293.0		161.1		131.9	392.7					
G2040 Site Development		344.5		604.3		(259.8)	293.8					
G2050 Landscaping		209.7		100.0		109.7	189.9					
3 Site Civil/ Mechanical Utilities	389.3		698.1		412.1	286.0		503.5		542.8		524.0
G3010 Water Supply		321.3		20.0		301.3	129.7					
G3020 Sanitary Sewer		55.0		46.7		8.3	52.0					
G3030 Storm Sewer		311.9		345.4		(33.5)	311.9					
G3040 Heating Distribution		0.0		0.0		0.0	0.0					
G3050 Cooling Distribution		0.0		0.0		0.0	0.0					
G3060 Fuel Distribution		9.9		0.0		9.9	9.9					
G3090 Other Site Mechanical Utilities		0.0		0.0		0.0	0.0					
4 Site Electrical Utilities	340.3		715.3		680.8	34.5		463.1		497.1		481.0
G4010 Electrical Distribution		287.1		523.5		(236.4)	346.9					
G4020 Site Lighting		428.2		157.3		270.9	116.2					
G4030 Site Communications & Security		w/ site electr		w/ site electr		0.0	w/ site electr					
G4090 Other Site Electrical Utilities		0.0		0.0		0.0	0.0					
5 Other Site Construction			0.0		0.0	0.0		0.0		0.0		0.0
G9010 Service & Pedestrian Tunnels		0.0		0.0		0.0	0.0					
G9090 Other Site & Equipment		0.0		0.0		0.0	0.0					
Construction Trades Subtotal	29,408.5		31,737.6		34,475.8	(2,738.2)		34,179.1		34,245.1		34,227.0
H. Contingencies (Design and Pricing)	3,651.6	12.00%	4,613.3	8.00%	2,758.0	1,855.3	10.00%	4,057.0	10.00%	3,424.5	AVE	3,741.0
1. GMP Contingency & Fees	882.3	3.00%	1,291.7	1.50%	658.5	633.2	3.00%	1,338.8	1.50%	674.2	AVE	1,007.0
I. Sub-Contractor Bonds	232.9	2.00%	724.7	0.65%	280.0	444.7	2.00%	772.3	0.65%	286.7	AVE	530.0
J. Insurance	447.9		included	1.25%	538.5	(538.5)		included	1.25%	551.4	AVE	552.0
K. General Conditions	3,780.0	32 mos	2,944.0	36 mos	3,240.0	(296.0)	36 mos	3,312.0	36 mos	3,240.0	AVE	3,276.0
1. Phasing & Logistics			500.0		included in trades	500.0		included in trades		included in trades		
2. General Requirements		3.00%	1,055.5	2.00%	744.7	310.8	3.00%	1,124.7	2.50%	941.7	AVE	1,034.0
3. Building Permit		1.00%	362.4		not included	362.4		not included		0.0	AVE	0.0
L. Overhead & Profit	588.2	3.00%	1,119.7	1.50%	658.5	461.2	3.00%	1,181.6	3.00%	1,348.5	AVE	1,266.0
M. Escalation to Mid-Point of Construction	1,764.5	5.00%	2,152.9	5.00%	1,861.7	291.2	6.00%	2,677.6	6.00%	2,260.0	AVE	2,469.0
TOTAL Markups	11,347.4		14,764.2		10,739.9	4,024.3		14,464.0		12,727.0		13,875.0
Markup %			50.0%		30.0%			42.3%		37.2%		40.5%
Subtotal GC Construction Costs	40,755.9		46,501.8		45,215.7	1,286.1		48,643.1		46,972.1		48,102.0
Prepurchased Equipment	n/a		n/a		n/a			not included		not included		0.0
Total Construction Costs	40,755.9		46,501.8		45,215.7	1,286.1		48,643.1		46,972.1		48,102.0

**Berkshire Hills
Monument Mountain High School
SD Estimate Analysis
3/26/13**

		A	B	C	D	E	F
\$(000) except \$/GSF	Budget 2D.4 9/19/12	AM Fogarty 3/19/13	PM&C 3/19/13	Difference AMF less PMC	REVISED AM Fogarty 3/26/13	REVISED PM&C 3/25/13	Reconciled Estimates
<i>Difference from Budget (Over)/Under</i>		(5,745.9)	(4,459.8)		(7,887.2)	(6,216.2)	(7,346.1)
II. Alternates							
A. Granite Terrace Seating w/ Concrete Stairs		408.5	267.2	141.3	370.2	413.7	392.0
B. Assisted Listening				0.0		84.3	85.0
C.				0.0			
D.				0.0			
E.				0.0			
F.				0.0			
Total Alternates	0.0	408.5	267.2	141.3	370.2	498.0	477.0
Recommended VE							0.0
<i>Resulting Difference from Budget (Over)/Under</i>							<i>(7,346.1)</i>

**Symmes Maini & McKee Associates
Technology Equipment Estimate
Monument Mountain Regional High School**

Monument Mountain Regional High School
Great Barrington
Massachusetts

Project: SMMA - 12029

DRAFT

Date: 6/10/2013

SUMMARY SHEET

	Description	Qty	Mat. Unit
	Computer and Classroom Equipment	1	\$ 641,900.00
	Video and A/V Equipment	1	\$ 165,000.00
	Network Equipment	1	\$ 429,000.00
			\$ 1,235,900.00
	Budget		
	Difference		\$ (1,235,900.00)

Additional Items:			
		\$	-

MEMORANDUM

To: Daniel Ruiz/Phil Poinelli Date: 3/21/2013
From: Patrick Weygint Project No.: 12029.00
Project: Monument Mountain High School
Re: Technology Equipment Procurement Scope of Services
Distribution: (MF)

The following is SMMA's proposal for Technology Equipment Procurement consulting services for the Monument Mountain High School building project.

1. Project Description

SMMA understands that the Monument Mountain High School project is planned to accommodate grades 9 through 12 in a single educational facility including academic wings comprised of classrooms, science and computer labs, core facilities such as administration, pupil support, library, physical education, cafeteria/kitchen, auditorium, gymnasium and large group assembly rooms. The school is planned for an enrollment of 570 students. The budget for Technology will be developed in the Schematic Phase outlined below. SMMA recommends setting the Technology Equipment budget at approximately \$1,800/student which amounts to \$1,026,000 total. The following outline describes the scope of services for this phase of the project.

2. Scope of Services - Technology Equipment Procurement

SMMA will provide a program outlining the Technology Equipment Procurement services for the above noted project. Our basic services will include:

- 2.0 Feasibility Study (FS) Phase—Meet with the High School Administration and Information Technology Staff to develop a preliminary set of standards and goals for the Technology Equipment package.
- 2.1. Schematic Design (SD) Phase
 - a. Consult with Monument Mountain High School Technology Committee comprised of Administration, Department Heads and Information Technology Staff to establish the Educational Technology equipment performance criteria. The Technology Equipment package will address the entire school including all areas identified in SMMA's Educational Specification as well as the Technology Program.
 - b. Develop a budget for the Educational Technology including hardware and integration services.
 - c. Includes up to four meetings to establish the basis of design.
- 2.2 Design Development (DD) Phase
 - a. Kick-off meeting to establish the Technology Equipment Sub-Committee and define schedule.

To: **Daniel Ruiz/Phil Poinelli**
Date: 3/18/2013

- b. Reconfirmation of SD approach and, budget and installation schedule with Technology Sub-Committee. Establish procurement methods (public, state contract, etc.). Note: State contract is the recommended bid method for most Technology Equipment purchases.
- c. Identify any equipment that the Town may elect to lease (i.e. printer/copiers, VoIP system). Revise SD approach as required based on meeting outcome.
- d. Prepare recommendations and budgets for network installation and integration support services to be provided within the context of the project.
- e. Develop initial systems configuration and specifications. Includes network electronics (servers, switches, wireless access points, related components), classroom technologies equipment (mobile labs and stationary computers, printers, digital display systems, related peripherals).
- f. Update technology equipment list and coordinate with the Architect and/or Furniture Consultant.
- g. Assemble outline equipment specifications from manufactures illustrating equipment being proposed for the project.
- h. Develop room list indicating equipment deployment for each designated space.
- i. Provide quantities and the specifications of hardware to be purchased for the School's approval.
- j. Meet with Technology Sub-Committee and review DD progress
- k. Adjust Technology scope and estimate as required
- l. Technology Sub-Committee review period
- m. Final DD review and Sign-off
- n. Includes up to four meetings.

2.3 Construction Document Phase

- a. Technology Equipment procurement activities on hold in order to allow product developments to evolve. This holding period helps ensure acquiring the most recent features available at the time the school is occupied.
- b. Prepare functional and detailed specifications for the technology equipment to be bid. The specifications will include:
 - 1. Instructions to bidders;
 - 2. Project Description;
 - 3. Product specifications including warranty requirements'
 - 4. Specific installation requirements and criteria;
 - 5. Training and ongoing maintenance and support requirements.
- c. Finalize room list indicating equipment deployment for each designated space.
- d. Prepare contract documents bidding purposes. Provide equipment cut sheets and updated itemized cost estimate. Revise documents according to School and/or Architect.
- e. Technology Sub-Committee review period
- f. Coordinate technology equipment space and connectivity requirements with Architect and FF&E consultant.
- g. Meet with Technology Sub-Committee to discuss review comments
- h. Adjust bid documents as required.
- i. Meet with Meet with Technology Sub-Committee to establish bidding procedures and products that will be solicited from State Contracts or Public Bid.
- j. Includes up to three meetings.

To: **Daniel Ruiz/Phil Poinelli**
Date: 3/18/2013

2.4 Bidding Phase

- a. Coordination of bid process; provide bid documents to selected bidders; forward addenda to potential bidders. Record related expenses to be reimbursed at cost by the Owner. Prepare technical documentation for Owner to include in public bid advertisements.
- b. Respond to vendor requests for information.
- c. Attend bid opening, tabulate and record bids.
- d. Review all bids for compliance with contract documents, and make recommendations for the awarding of equipment contracts.
- e. Summarize all awards by category and by successful vendor.
- f. Award notifications distributed
- g. Town issues Purchase Orders
- h. Includes up to two meetings.

2.5 Pre-installation Phase

- a. Conduct on-site pre-installation meeting with Vendors and Technology Sub-Committee.
- b. Review project schedule with vendors. Note–Network and VoIP systems will be installed early in this phase as they are interdependent and necessary for other building systems testing and operations.
- b. Update vendors as to scheduling changes and/or conflicts.
- c. Coordinate installation with other building trades and Owner's service providers arranged by including:
 1. Furniture and other equipment installations.
 2. CATV services.
 3. WAN services.
 4. Telephone services.
- d. Includes one meeting.

2.6 Installation Phase

- a. Inspect installations with Technology Sub-Committee and vendors as each system comes on line during installation phase. Write minutes and distribute to attendees, Owner and Architect.
- b. Review and take action on vendor information requests.
- c. Advise the School Building Committee and the Architect with regard to communication and technology related equipment purchases and contracts with vendors to ensure completeness and conformity with bidding documents, specifications, and budgets.
- d. Prepare initial punch list and notify the Vendor, Owner and Owner's Representatives with regard to any deficiencies or failure on the part of vendors to comply with contract requirements and provide assistance to the school in resolving any non-compliance issues.
- e. Perform follow-up inspection for final approval and acceptance of all work, issue punch lists and re-inspect work to verify completion of punch list work.
- f. Review and approve all required or necessary guarantees, manuals, manufacturer's instructions, signed certificates of compliance, on or before completion of work by vendors and supply them to the school. Advise School Representatives with regard to project closeout and punch list items and in closing out the project.
- g. Review and take action on all vendor pay requisitions and final requisitions.

To: **Daniel Ruiz/Phil Poinelli**
Date: 3/18/2013

- h. Schedule training of designated owner personnel on all technology equipment and systems specified and ensure training has occurred.
- i. Oversee sign-off and closeout
- j. Includes up to seven meetings.

3. Technology Equipment Procurement Schedule

A Technology Equipment Procurement Schedule will be developed in accordance with the Construction schedule. The schedule will serve as a set of milestones based on the outline of the phases described above.

4. Services not included

- a. Inventorying existing equipment or systems
- b. Receipt and inventory of new equipment
- c. Site visits in excess of those listed in the accompanying procurement time line
- d. Punch lists in excess of two
- e. Delivery coordination
- f. Contracting services with Owner's service providers
- g. Assisting with specification of Owner leased equipment

5. Additional Services

- 5.1. Additional Services: Services requested by the Owner beyond those described in the above Scope of Services shall be considered additional services that will be charged as time and expenses after Owner approval. Categories for additional services include exceeding the number of meetings listed in a given phase, revising design documents after sign-off, week end work, revisions to the original building contract documents to accommodate Technology Equipment decisions.



MEMORANDUM - **DRAFT**

DATE 22 April 2013
TO Daniel Ruiz, SMMA
FROM Marcy Stefura, SAI
RE Monument Mountain Regional High School
FF+E Scope of Services Summary

1. PROJECT DESCRIPTION

The Monument Mountain Regional High School (MMRHS) project is planned to accommodate grades 9 through 12 in a single educational facility including academic wings comprised of classrooms, science and computer labs, core facilities such as administration, pupil support, library, physical education, cafeteria/kitchen, auditorium, gymnasium and large group assembly rooms. The new school will be comprised of 110,000 square feet of renovated space and 25,000 square feet of new construction. The completion of the renovated/new facility will be phased as outlined in *2.Scope of Services – FF+E Design and Procurement and F Contract Administration Phases*.

MMRHS is planned for an enrollment of 570 students. The current budget for FF+E has been determined by the MMRHS as being \$1,500.00/student, for a total of \$855,000.00. The reuse of a portion of existing FF+E is anticipated. The following outline describes the scope of services for each phase of the project.

2. SCOPE OF SERVICES - FF+E DESIGN AND PROCUREMENT

A SCHEMATIC DESIGN PHASE

Scope of Work Included:

1. SAI will meet with MMRHS Administration to obtain programmatic information relating to the fixtures, furniture and equipment; room layouts, capacities, type of furniture and equipment requirements; sketches showing typical classroom layouts will be provided to illustrate potential room layouts
2. Document and issue meeting minutes
3. Prepare preliminary list of furniture, fixtures and equipment (FF+E) anticipated as being required in each of the listed spaces; list will be prepared in a spreadsheet format in Microsoft Excel



Memorandum

Monument Mountain Regional High School, FF+E Scope of Services

22 April 2013

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4. Prepare preliminary FF+E budget based upon feedback from school administration
5. Conduct a follow-up meeting with MMRHS and SMMA to confirm programming documentation and FF+E budget
6. Submit digital file of preliminary FF+E budget to SMMA for inclusion in the *Schematic Design* submission.

Scope of Work Not Included:

- Meetings with individual departments
- Meetings in excess of the (2) included.

B FF+E INVENTORY

Scope of Work Included:

1. SAI will attend an initial walk through with MMRHS to determine the level of reuse required
2. SAI will conduct an inventory of all existing FF+E that MMRHS has deemed suitable for reuse; each item planned for reuse will be tagged for identification purposes
3. SAI will document the inventory, recording each piece intended for reuse; each of these items will be documented in photographic form, tag number, dimensions, finish and condition at time of the inventory walk through.

Scope of Work Not Included:

- Work related to the refurbishment of furniture scheduled for reuse

C DESIGN PHASE

Scope of Work Included:

1. SAI will attend a design kick-off meeting with MMRHS and SMMA to confirm and fine-tune information collected during the *Schematic Design Phase*
2. SAI will fine-tune the furniture plans and FF+E budget based upon any updated information provided to us by MMRHS and/or SMMA, as well as SMMA's final building design
3. SAI will meet with the individual user groups to finalize program and space requirements
4. SAI will prepare the preliminary furniture selections to present to MMRHS and SMMA based on *A Schematic Design*; amended or supplemented by *C Design Phase*
5. FF+E budget and furniture plans will be updated for final approval
6. SAI will present fine-tuned selections to MMRHS for final approval; furniture finishes, coordinated with the approved architectural finishes, will also be presented



Memorandum

Monument Mountain Regional High School, FF+E Scope of Services

22 April 2013

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7. SAI will arrange for samples of furniture products, as available, to be delivered and retrieved from MMRHS
8. SAI will provide a template document (excel format) of equipment products for MMRHS's use in creating an equipment request list for the following areas:
 - a. Science equipment
 - b. Phys Ed, cardio and weight room equipment
 - c. Vocations equipment including Robotics; CAD and Business Labs; 2D and 3 D Art; Graphics; Family & Consumer Science
 - d. Music including piano; instruments; uniform rack; freestanding storage
 - e. Kitchen (small wares only)
 - f. Special Education
 - g. Loose combination locks for lockers – usually SMMA
 - h. Health Office
 - i. Building Storage
 - j. Custodial and grounds equipment
 - k. Miscellaneous Equipment
9. MMRHS will be responsible for providing detailed information on equipment products such as manufacturer, model number and quantity; SAI will provide contact information for a minimum of two suppliers/vendors frequently utilized by Massachusetts public schools and provide budget allowance for equipment; MMRHS to determine how equipment allowance is allocated by department and/or program
10. SAI will incorporate equipment information received from MMRHS into the bid documents; equipment lists will be finalized and bid in accordance with the installation schedule outlined in *F Contract Administration Phases*
11. SAI will facilitate and attend (4) Client meetings during this phase of work, with final sign-off of furniture and equipment by the end of the fourth meeting
12. SAI will provide a document summarizing all final furniture, finish and equipment selections approved by MMRHS; any additional FF+E requests or changes after approval will be considered work-in-addition.

Scope of Work Not Included:

- Meetings in excess of the (4) included
- Selection and specification of equipment, (re: C8, C9 and C10)
- Work related to the space planning and furniture placement within temporary spaces.



Memorandum

Monument Mountain Regional High School, FF+E Scope of Services

22 April 2013

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D DOCUMENTATION PHASE

Scope of Work Included:

1. SAI will prepare the bid package for all FF+E, including equipment, and issue to the Owner
2. SAI will prepare pricing packages for State Contract purchases
3. The bid package will include the following:
 - a. Full specifications (manufacturer, make/model, description and quantity)
 - b. Keyed furniture plans, including existing inventory scheduled for reuse
 - c. General Conditions that include instructions to bidders and delivery and installation criteria (Note: SAI will provide a draft of the General Conditions document to the Owner for their review and comment)
 - d. SAI will issue the bid package in electronic format
 - e. Affidavits of Compliance and Non-Collusion
4. The Owner will be responsible for advertising the public bid and posting electronic bid documents.

Scope of Work Not Included:

- Printed hard copies of bid packages
- Work related to the phasing of bid/pricing packages, if required
- Meetings and/or site visits.

E BIDDING PHASE

Scope of Work Included:

1. SAI will answer questions from vendors and issue any required addenda during the bid period
2. SAI will attend the bid opening and record results
3. SAI will prepare an evaluation of all bid responses and make recommendations on awards
4. Should substitutions be presented, SAI will evaluate on the basis equivalency to specifications and compliance with bid requirements; the evaluations will be documented
5. SAI will provide award letters for all FF+E, including equipment, to the District, by bid package/State Contract vendor, for use in issuing Purchase Orders; letters include a summary of conditions and the awarded bid form; it is the responsibility of the District to issue all Purchase Orders for all FF+E.

Scope of Work Not Included:

- Preparation and issue of Purchase Orders
- Work related to the phasing of bid/pricing packages, if required
- Meetings in excess of the (1) included.

F CONTRACT ADMINISTRATION PHASES



Memorandum
Monument Mountain Regional High School, FF+E Scope of Services
22 April 2013
Page 5 of 6

Scope of Work Included:

1. SAI will review all submittals, installation/shop drawings and finish samples
2. SAI will track progress of furniture production
3. SAI will prepare a schedule for installation based upon dates provided by the General Contractor, MMRHS and various vendors
4. SAI will attend one pre-installation meeting with the General Contractor, vendors and MMRHS to review FF+E installation coordination
5. SAI will conduct and issue one punchlist walk-through upon completion of the furniture installation
6. SAI will prepare and issue the punchlist to the vendors and MMRHS
7. SAI will conduct one follow-up punchlist once all vendors have confirmed work is complete
8. SAI will review invoices from vendors and make recommendations on payments
9. SAI will conduct a post installation review meeting with MMRHS and SMMA to summarize any additional FF+E requirements
10. There are a total of four (4) meetings and/or site visits per each of the six (6) installation phases as follows:

PHASE	INSTALLATION DATE	AREAS
1B - Science Wing	February 2016	Science Classrooms
2 - F Wing; A, B & G Wings	June 2016	General Classrooms Vocational; Art; LGI; Cafeteria Band/Chorus
3 - H Wing	September 2016	General Classrooms; Sped Classrooms
3 - S	October 2016	Auditorium; Gym; Student Commons
4 - L Wing	February 2017	Media Center; Computer Labs
5 - C & G Wings; H Wing	September 2017	Administration; Guidance; Nurse; Locker Rms; Weight Rm; Multi-purpose;



Memorandum

Monument Mountain Regional High School, FF+E Scope of Services

22 April 2013

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Scope of Work Not Included:

- Temporary installation phases; SAI recommends that existing furniture be used for temporary furniture installations as follows:

PHASE	INSTALLATION DATE	AREAS
Phase 1A- A, B & G Wings	September 2015	General Classroom Vocational; Temp Art; Cafeteria
2 - F Wing	February 2016	Temp Media Center; Culinary; Comp Classrm
3- H Wing	September 2016	Temp Administration

- Daily on-site delivery coordination
- Receiving, checking contents and/or punchlist of equipment items
- Site visits in excess of the (24) included.

G ADDITIONAL SERVICES

Services requested by the Owner beyond those described in this scope of services shall be considered additional services. Should these services be authorized, they will be completed and billed on a time and expense basis in accordance with our current hourly rates.

1. Casework
2. Any equipment requiring data connection including, but not limited to, library book security system, computers, smart boards, scanners, printers and photocopiers
3. Kitchen design and implementation; commercial kitchen equipment
4. Kitchen appliances (residential-type)
5. Walk-off mats that are part of a recessed entry walk-off system (roll-out mats are included in SAI's scope of work)
6. Design and documentation of custom-built furniture
7. Selection, design and specification of window treatment
8. Design and coordination of signage
9. Architectural or custom lighting research, design, selection or specification
10. As-built documentation
11. Post Occupancy Evaluation and
12. Meetings and/or trips to MMRHS other than those noted in this proposal.

As reported on the school district's most recent three End of Year Pupil and Financial Reports schedule 1, please report sources of revenue in the fields below.

	FY10 End of Year Financial Report						FY11 End of Year Financial Report						FY12 End of Year Financial Report									
	Regular Day	Special Education	C74 Occupational Day	Adult Education	Other Programs	Undistributed	Total	Regular Day	Special Education	C74 Occupational Day	Adult Education	Other Programs	Undistributed	Total	Regular Day	Special Education	C74 Occupational Day	Adult Education	Other Programs	Undistributed	Total	
A. Revenue from Local Sources																						
Assessments received by Regional Schools	-	-	-	-	-	15,883,949	15,883,949	-	-	-	-	-	16,322,520	16,322,520	-	-	-	-	-	16,774,411	16,774,411	
E&D Fund Appropriations	-	-	-	-	-	150,000	150,000	-	-	-	-	-	-	-	-	-	-	-	-	300,000	300,000	
Tuition from Individuals	-	-	-	-	-	8,575	8,575	-	-	-	-	-	8,036	8,036	-	-	-	-	-	21,658	21,658	
Tuition from Other Districts in Comm.	-	-	-	-	-	874,743	874,743	-	-	-	-	-	935,291	935,291	-	-	-	-	-	812,091	812,091	
Tuition from Districts in Other States	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Previous Year Unexpended Encumbrances (Carry Forward)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Transportation Fees	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Earnings on Investments	-	-	-	-	-	21,736	21,736	-	-	-	-	-	9,894	9,894	-	-	-	-	-	9,673	9,673	
Rental of School Facilities	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Other Revenue	-	-	-	-	-	11,860	11,860	-	-	-	-	-	87,057	87,057	-	-	-	-	-	20,287	20,287	
Medical Care and Assistance	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Non Revenue Receipts	-	-	-	-	-	64,002	64,002	-	-	-	-	-	94,600	94,600	-	-	-	-	-	64,950	64,950	
Total Revenue From Local Sources	-	-	-	-	-	17,014,865	17,014,865	-	-	-	-	-	17,457,398	17,457,398	-	-	-	-	-	18,003,070	18,003,070	
B. Revenue from State Aid																						
School Aid (Chapter 70)	-	-	-	-	-	2,807,290	2,807,290	-	-	-	-	-	2,643,288	2,643,288	-	-	-	-	-	-	-	
Mass School Building Authority - Construction Aid	-	-	-	-	-	1,214,759	1,214,759	-	-	-	-	-	1,214,759	1,214,759	-	-	-	-	-	2,657,478	2,657,478	
Pupil Transportation (Ch. 71, 71A,71B,74)	-	-	-	-	-	546,395	546,395	-	-	-	-	-	523,056	523,056	-	-	-	-	-	1,214,759	1,214,759	
Charter Tuition Reimbursements & Charter Facilities Aid	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	548,205	548,205	
Circuit Breaker	-	-	-	-	-	140,195	140,195	-	-	-	-	-	128,534	128,534	-	-	-	-	-	188,128	188,128	
Foundation Reserve	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total Revenue From State Aid	-	-	-	-	-	4,708,639	4,708,639	-	-	-	-	-	4,509,637	4,509,637	-	-	-	-	-	4,608,570	4,608,570	
C. Revenue from Federal Grants																						
ESE Administered Grants	142,388	595,419	15,000	-	-	84,721	837,528	139,609	474,810	-	-	-	614,419	614,419	-	-	-	-	-	187,074	187,074	
Direct Federal Grants	-	-	-	-	-	-	-	-	-	-	-	-	14,190	14,190	-	-	-	-	-	180,001	180,001	
Total Revenue Federal Grants	142,388	595,419	15,000	-	-	84,721	837,528	139,609	474,810	-	-	-	14,190	628,609	-	-	-	-	-	367,075	367,075	
D. Revenue from State Grants																						
ESE Administered Grants	-	-	-	-	-	63,800	63,800	-	-	-	-	-	63,070	63,070	-	-	-	-	-	62,134	62,134	
Other State Grants	-	14,406	-	-	-	57,820	72,226	-	-	-	-	-	88,445	88,445	58,160	14,400	-	-	-	-	72,560	
Total Revenue From State Grants	-	14,406	-	-	-	121,620	136,026	-	-	-	-	-	151,515	151,515	58,160	14,400	-	-	-	62,134	134,694	
E. Revenue - Revolving & Special Funds																						
School Lunch Receipts	-	-	-	-	-	494,278	494,278	-	-	-	-	-	490,481	490,481	-	-	-	-	-	412,913	412,913	
Athletic Receipts	-	-	-	-	-	23,047	23,047	-	-	-	-	-	52,275	52,275	-	-	-	-	-	46,901	46,901	
Tuition Receipts - School Choice	1,340,600	134,923	35,000	-	-	-	1,510,523	1,315,600	146,200	25,000	-	-	-	1,486,800	1,337,900	164,691	34,700	-	-	-	1,537,291	
Tuition Receipts - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Other Local Receipts	-	-	-	-	-	408,478	408,478	-	-	-	-	-	7,605	7,605	-	-	-	-	-	19,066	19,066	
Private Grants	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3,000	3,000	
Total Revenue Revolving & Special Funds	1,340,600	134,923	35,000	-	-	925,803	2,436,326	1,315,600	146,200	25,000	-	-	550,361	2,037,161	1,337,900	164,691	34,700	-	-	481,880	2,019,171	
Total Revenue All Sources	1,482,988	744,748	50,000	-	-	22,855,648	25,133,384	1,455,209	621,010	25,000	-	-	22,683,101	24,784,320	1,396,060	179,091	34,700	-	-	23,522,729	25,132,580	

Category	FY10 2009-2010		FY11 2010-2011		FY12 2011-2012		Change from Previous Year		Post-Construction Budget		New Facility vs. Current	
	Staff (FTE)	Expenditure	Staff (FTE)	Expenditure	Staff	Expenditure	Staff (FTE)	Expenditure	Staff	Budget	Staff (FTE)	Budget
Salaries												
Administration												
Admin. Secretary	9.80	294,205	9.80	313,640	10.00	336,862	0.20	23,222	10.00	357,376	0.00	20,515
Assistant Principal	2.00	181,767	2.00	183,334	2.00	182,696	0.00	(638)	2.00	193,822	0.00	11,126
Business Office	4.20	204,177	4.20	206,030	4.00	216,741	-0.20	10,711	4.00	229,941	0.00	13,200
Curriculum Director/Coord.	1.00	97,644	0.50	44,000	1.00	78,799	0.50	34,799	1.00	83,598	0.00	4,799
Custodians/Maintenance Staff	15.00	590,738	14.00	579,865	15.00	612,293	1.00	32,428	15.00	649,582	0.00	37,289
Executive Secretary	1.00	51,812	1.00	48,254	1.00	49,882	0.00	1,628	1.00	52,920	0.00	3,038
Facilities Manager	1.00	82,618	1.00	86,166	1.00	88,680	0.00	2,514	1.00	94,080	0.00	5,401
Guidance	0.00	-			0.00	-	0.00	-	0.00	-	0.00	-
Adjustment Counselor	1.00	63,920	1.00	70,355	1.00	72,541	0.00	2,186	1.00	76,959	0.00	4,418
Guidance Counselors	5.00	309,489	4.00	269,620	4.00	282,192	0.00	12,572	4.00	299,378	0.00	17,186
Guidance Director	0.10	3,130	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Legal	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Nurse	3.00	138,446	3.00	162,519	3.00	193,029	0.00	30,510	3.00	204,785	0.00	11,755
Other	4.30	182,913	6.24	160,558	6.24	186,513	0.00	25,955	6.24	197,871	0.00	11,359
Principal	3.00	237,533	3.00	310,273	3.00	288,032	0.00	(22,241)	3.00	305,573	0.00	17,541
Special Education Admin	1.00	79,277	1.00	81,335	1.00	84,241	0.00	2,906	1.00	89,371	0.00	5,130
Superintendent/Asst. Superintendent	1.00	123,120	1.00	129,750	1.00	134,613	0.00	4,863	1.00	142,810	0.00	8,198
Transportation	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Treasurer	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Total Administration	52.40	2,640,787	51.74	2,645,699	53.24	2,807,114	1.50	161,415	53.24	2,978,067	0.00	170,953
Instruction - Teaching Services												
Arts	5.00	320,108	5.00	334,460	5.00	290,776	0.00	(43,684)	5.00	308,485	0.00	17,708
Business	1.00	60,364	1.00	63,454	1.00	65,234	0.00	1,780	1.00	69,207	0.00	3,973
Communications			0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Coping Instructor	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Culinary Arts	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
ELL	2.50	113,727	2.00	86,375	2.00	93,234	0.00	6,860	2.00	98,912	0.00	5,678
English Language	10.83	623,453	8.83	526,138	8.63	484,314	-0.20	(41,823)	8.63	513,809	0.00	29,495
Family Consumer Services	1.00	71,105	1.00	74,257	1.00	76,485	0.00	2,228	1.00	81,143	0.00	4,658
Foreign Language	6.75	439,494	6.00	426,054	6.00	439,216	0.00	13,162	6.00	465,965	0.00	26,748
Health Services	1.50	84,019	1.50	90,654	1.50	93,836	0.00	3,182	1.50	99,550	0.00	5,715
History & Social Science	9.00	517,475	8.00	463,215	9.00	464,939	1.00	1,724	9.00	493,254	0.00	28,315
Instructional Assistant/Paraprofessionals	34.04	584,051	30.80	614,969	34.00	530,977	3.20	(83,993)	34.00	563,313	0.00	32,336
Library/Media	3.00	182,050	2.00	127,694	2.00	137,908	0.00	10,214	2.00	146,307	0.00	8,399
Mathematics	11.00	552,617	8.00	498,693	8.00	517,810	0.00	19,117	8.00	549,345	0.00	31,535
MCAS	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Music	5.00	279,597	5.00	292,732	5.00	302,270	0.00	9,538	5.00	320,678	0.00	18,408
Other	30.00	1,491,660	32.00	2,083,013	32.00	2,125,157	0.00	42,144	32.00	2,254,579	0.00	129,422
Physical Education	7.00	345,314	6.70	363,020	6.80	360,612	0.10	(2,407)	6.80	382,574	0.00	21,961
Reading	2.00	155,011	1.00	58,987	1.00	61,042	0.00	2,055	1.00	64,759	0.00	3,717
School Adjustment Counselor	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Science	11.20	702,779	9.20	653,847	10.20	615,996	1.00	(37,851)	10.20	653,510	0.00	-
Biology	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Botany	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Chemistry	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Geology	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Physics	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Special Education	18.80	1,216,143	16.80	1,141,760	16.80	1,157,114	0.00	15,353	16.80	1,227,582	0.00	70,468
Substitute Teachers	0.00	228,580	0.00	153,938	0.00	265,988	0.00	112,050	0.00	282,186	0.00	16,199
Technology	4.50	264,901	3.50	203,016	3.50	213,799	0.00	10,783	3.50	226,820	0.00	13,020
Vocational Tech.	1.80	114,356	1.80	120,877	1.80	121,644	0.00	767	1.80	129,053	0.00	7,408
Total Instruction - Teaching Services	165.92	8,346,803	150.13	8,377,152	155.23	8,418,352	5.10	41,199	155.23	8,931,029	0.00	512,678
Total Salaries Administration & Instruction	218.32	10,987,590	201.87	11,022,851	208.47	11,225,465	6.60	202,614	208.47	11,909,096	0.00	683,631
Employee Benefits												
All employee-related fringe (health insurance, retirement etc)		4,186,080		4,468,320		4,289,550		(178,771)		4,418,236		128,686

Category	2009-2010		2010-2011		2011-2012		Change from Previous Year		Post-Construction Budget		New Facility vs. Current	
	Staff (FTE)	Expenditure	Staff (FTE)	Expenditure	Staff	Expenditure	Staff (FTE)	Expenditure	Staff	Budget	Staff (FTE)	Budget
Materials & Services												
Materials												
Audio-Visual Materials		4,545		4,885		4,835		(50)		4,835		-
Culinary Arts Materials		-		-		-		-		-		-
General Office Supplies		63,179		97,505		99,993		2,488		99,993		-
Information technology		-		-		-		-		-		-
Hardware		78,452		76,767		103,911		27,144		103,911		-
Software		34,387		49,862		74,048		24,186		74,048		-
Library Materials		13,184		14,041		14,971		931		14,971		-
Non info-tech equipment		-		-		-		-		-		-
Testing Materials & Supplies		41,502		69,047		80,223		11,175		80,223		-
Textbooks		33,189		37,373		45,624		8,250		45,624		-
Vocational Program Materials		4,090		8,552		4,940		(3,612)		4,940		-
Total Materials		272,528		358,032		428,544		70,512		428,544		-
Services												
Athletics		207,741		195,491		191,564		(3,927)		197,311		5,747
Attendance		-		-		-		-		-		-
Food Service		52,812		53,722		85,313		31,591		92,340		7,027
Health Services		8,448		9,153		6,720		(2,433)		6,720		-
Other Student Activities		80,257		83,908		91,366		7,459		96,366		5,000
Psychological Services		171,963		159,293		138,451		(20,842)		142,605		4,154
School Security		-		-		-		-		-		-
Student Transportation		1,265,159		1,274,235		1,362,022		87,787		1,402,883		40,861
Total Services		1,786,380		1,775,802		1,875,437		15,775		1,938,225		62,788
Total Material & Services		2,058,908		2,133,834		2,303,981		86,287		2,366,769		62,788
Facility Costs & Capital Improvements												
Facility Costs												
Custodial Supplies		53,164		53,740		51,298		(2,442)		52,340		1,042
Electricity		346,066		377,506		336,841		(40,665)		345,480		8,639
Heating Oil		8,043		8,541		8,266		(274)		8,432		166
Maintenance		-		-		-		-		-		-
Building Security Maintenance		3,970		4,019		6,530		2,511		6,750		220
Elevator		-		-		-		-		-		-
Equipment Maintenance		55,536		70,546		93,603		23,057		87,520		(6,083)
Exterminating		-		-		-		-		-		-
Facility Maintenance		118,631		115,757		105,771		(9,986)		102,331		(3,440)
Fire Alarm		-		-		-		-		-		-
Fire Extinguisher Inspection		-		-		-		-		-		-
Generator		-		-		-		-		-		-
HVAC Maintenance		-		-		-		-		-		-
Other		-		-		-		-		-		-
Site Maintenance (Grounds)		23,099		57,029		56,113		(916)		57,000		887
Technology		-		-		-		-		-		-
Trash Removal		32,577		30,692		33,077		2,385		32,500		(577)
Natural Gas		177,039		174,489		148,287		(26,202)		137,000		(11,287)
Snow Removal		-		-		-		-		-		-
Telephone		44,245		39,732		81,227		41,496		94,000		12,773
Water/Sewer		52,835		35,616		45,772		10,157		44,741		(1,031)
Total Facility Costs		915,206		967,665		966,786		(879)		968,094		1,308
Capital Improvements												
Capital Improvements		59,194		422,793		121,627		(301,166)		-		(121,627)
Total Facility Costs & Capital Improvements		974,400		1,390,458		1,088,412		(302,045)		968,094		(120,318)

Category	2009-2010		2010-2011		2011-2012		Change from Previous Year		Post-Construction Budget		New Facility vs. Current	
	Staff (FTE)	Expenditure	Staff (FTE)	Expenditure	Staff	Expenditure	Staff (FTE)	Expenditure	Staff	Budget	Staff (FTE)	Budget
Debt Service												
Short-term		36,984		16,449		9,304		(7,145)		9,500		196
Long-term		2,354,308		2,357,782		2,357,681		(101)		3,600,000		1,242,319
Total Debt Service		2,391,292		2,374,231		2,366,985		(7,246)		3,609,500		1,242,515
Total Budget & Staff	218.32	20,598,270	201.87	21,389,694	208.47	21,274,394	7	(199,160)	208	23,271,695	0	1,997,301

Monument Mountain Regional High School

Design, Bidding & Construction phases schedule

June 5, 2013

Schematic Design Submission (SD)

- 1 Submit SD Package to MSBA
- 2 MSBA Board of Directors Meet to Approve & Finalize Project Scope & Budget Agreement / PFA
- 3 District Vote on Project

June 13, 2013 thru November 5, 2013

June 13, 2013

July 31, 2013

November 5, 2013

Design Development Phase (DD)

- 1 Prepare/refine building/site plans
- 2 Send DD set to Estimators
- 3 DD Estimates due from Estimators
- 4 DD estimate Reconciliation meeting
- 5 Submit DD package to MSBA

November 6 2013 thru March 7, 2014

4 months

November 6, 2013

February 14, 2014

February 28, 2014

March 3, 2014

March 7, 2014

6 MSBA reviews DD package

March 7 thru March 28, 2014

60% Construction Documents Phase (60% CD)

March 10, 2014 thru June 6, 2014

- 7 Start 60% CD Phase
- 8 Send 60% CD set to Estimators
- 9 60% CD Estimates due from Estimators
- 10 60% CD Reconciliation meeting
- 11 Submit 60% CD package to MSBA

3 months

March 10, 2014

May 16, 2014

May 30, 2014

June 2, 2014

June 6, 2014

12 MSBA reviews 60% CD package

June 6 thru July 4, 2014

Final Construction Documents Phase (CD)

June 9, 2014 thru August 29, 2014

- 13 Start Final CD Phase
- 14 Send final 90% CD set to Estimators
- 15 Final CD Estimates due from Estimators
- 16 Final CD Reconciliation meeting
- 17 Submit Final CD package to MSBA

3 months

June 9, 2014

July 4, 2014

July 18, 2014

July 21, 2014

July 25, 2014

18 MSBA reviews Final CD package

July 28 thru August 15, 2014

19 Final modifications to Bid Documents

August 18 thru August 29, 2014

Bid Phase

September 1, 2014 thru October 31, 2014

- 20 Distribute Bid Documents
- 21 Bidding complete
- 22 Finalize construction contracts

8 wks

September 1, 2014

October 10, 2014

October 10 thru October 31, 2014

New Building Construction Phase

November 1, 2014 thru September 2017

- 23 Start Construction of new building
- 24 Contractor substantial completion of building
- 25 FF&E/Move-In/Commission new building
- 26 Occupy new building

3 mos 35 mo

November 1, 2015

October 1, 2017

Phased In During Construction

January 1, 2018

	2013						2014						2015						2016						2017																							
	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec					
	DESIGN PHASE												BID PHASE		CONSTRUCTION PHASE																								CLOSEOUT PHASE									
Construction Phases																																																
Phase 1																																																
Phase 1-S																																																
Phase 2																																																
Phase 3																																																
Phase 3-S																																																
Phase 4																																																
Phase 5																																																
Phase 5-S																																																
Substantial Completion October 1, 2017																																																
Closeout																																																
Occupancy January 1, 2018																																																

★ KEY MILESTONES
 ★ SCHEDULED DATES

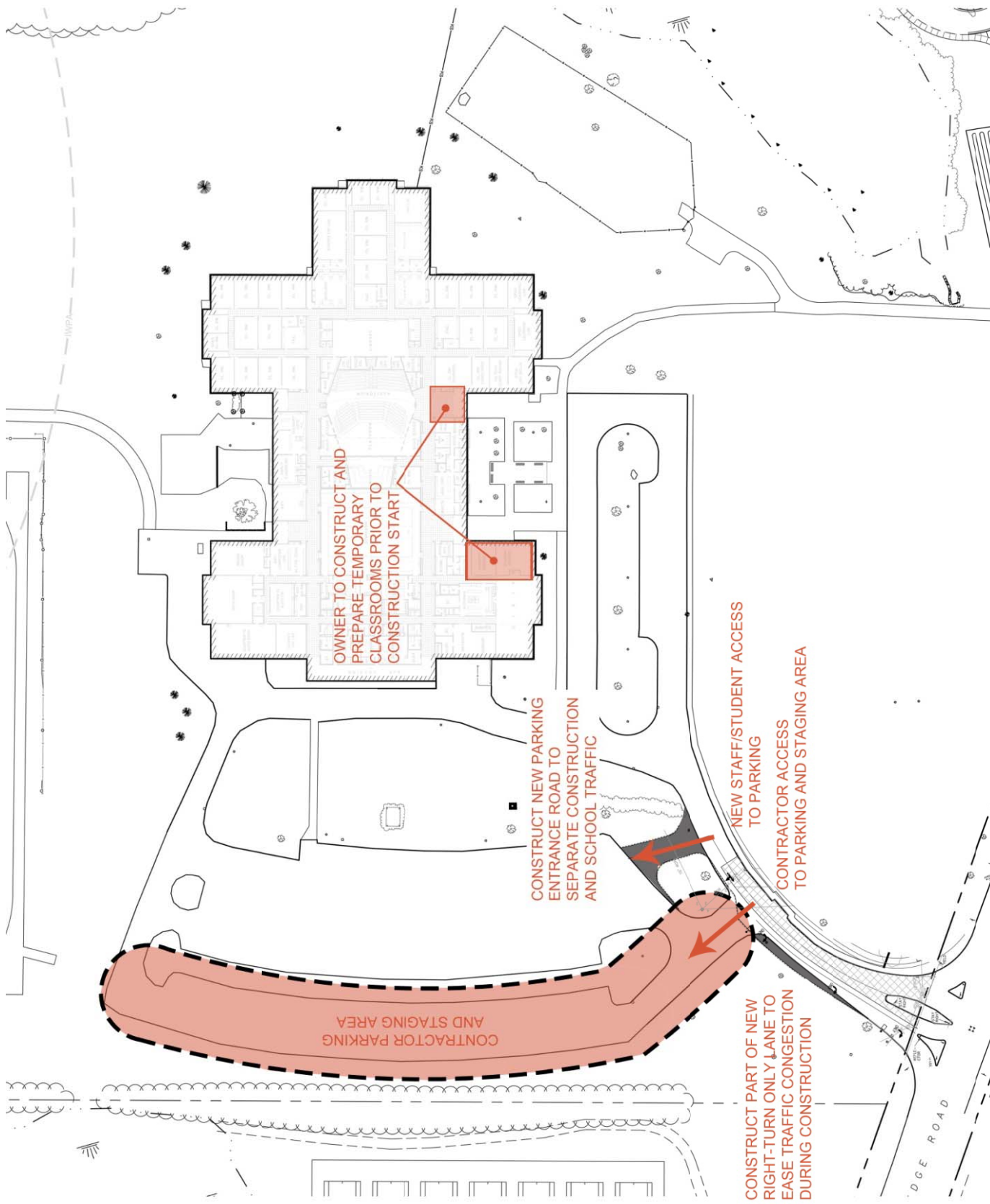
Monument Mountain Regional High School

Construction Phasing

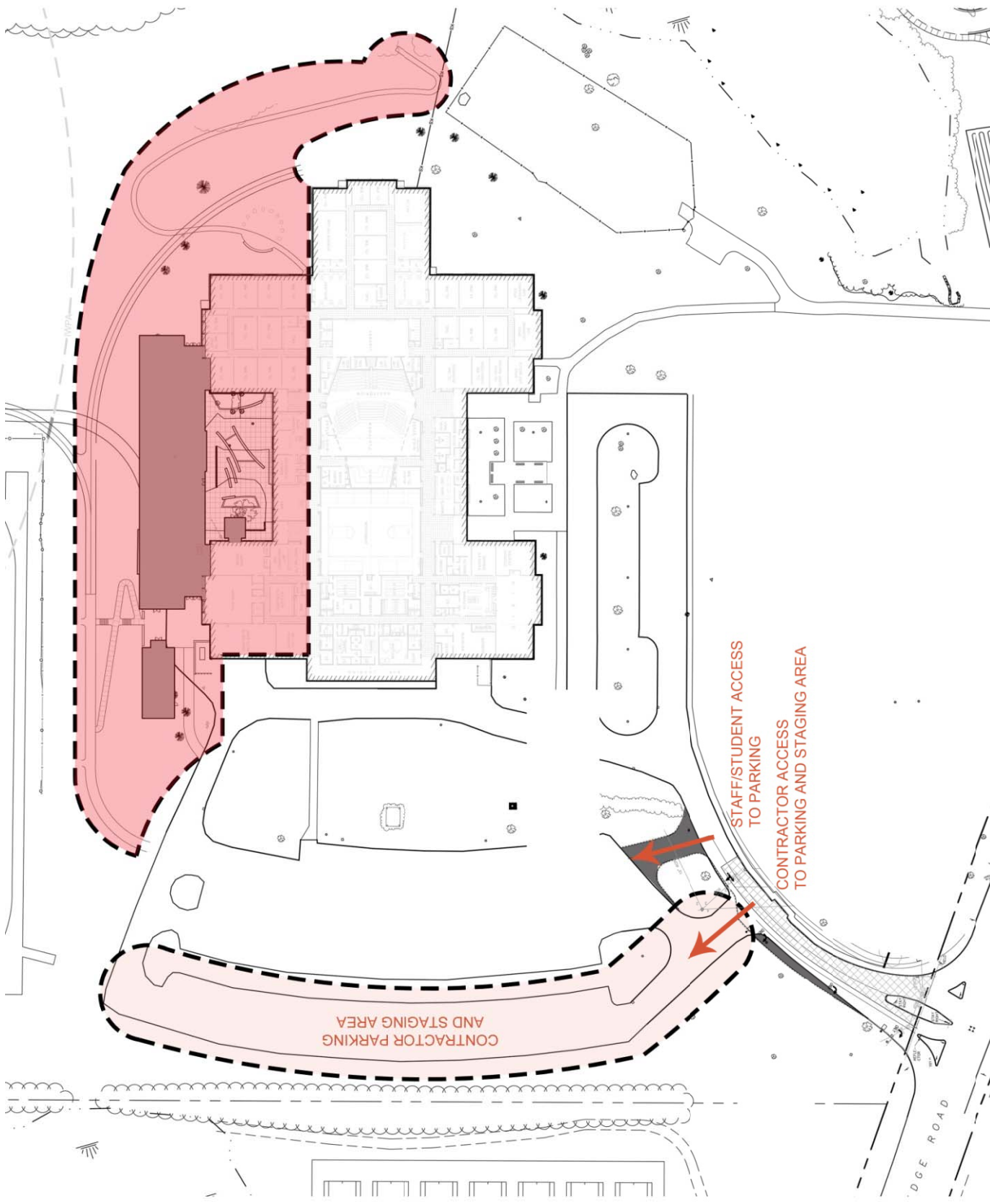
GC

Design-Bid-Build

May 31, 2013



Phase 0 (September 2014)



Phase 1 (November 2014- September 2015)

PHASE 1
NOVEMBER 2014 - SEPTEMBER 2015

NEW BOILER ROOM/
 MAIN ELEC. ROOM



A-WING RENO.
PHASE 1-S
SUMMER 2015

- > CLEAR ALL EXISTING CRS TO BE RENOVATED
- > STORE ANY EXISTING ITEMS TO REMAIN OFF SITE DURING SUMMER CONSTRUCTION
- > TEMPORARY EGRESS POINTS TO BE DETERMINED

B-WING RENO.
PHASE 1-S
SUMMER 2015

- > CLEAR ALL EXISTING CRS TO BE RENOVATED
- > STORE ANY EXISTING ITEMS TO REMAIN OFF SITE DURING SUMMER CONSTRUCTION
- > TEMPORARY EGRESS POINTS TO BE DETERMINED

RTU LOCATIONS ABOVE

EXISTING BOILER ROOM (OPERATIONAL FOR ALL UNRENOVATED SPACES)

EXISTING ELECTRICAL ROOMS (OPERATIONAL FOR ALL UNRENOVATED SPACES)

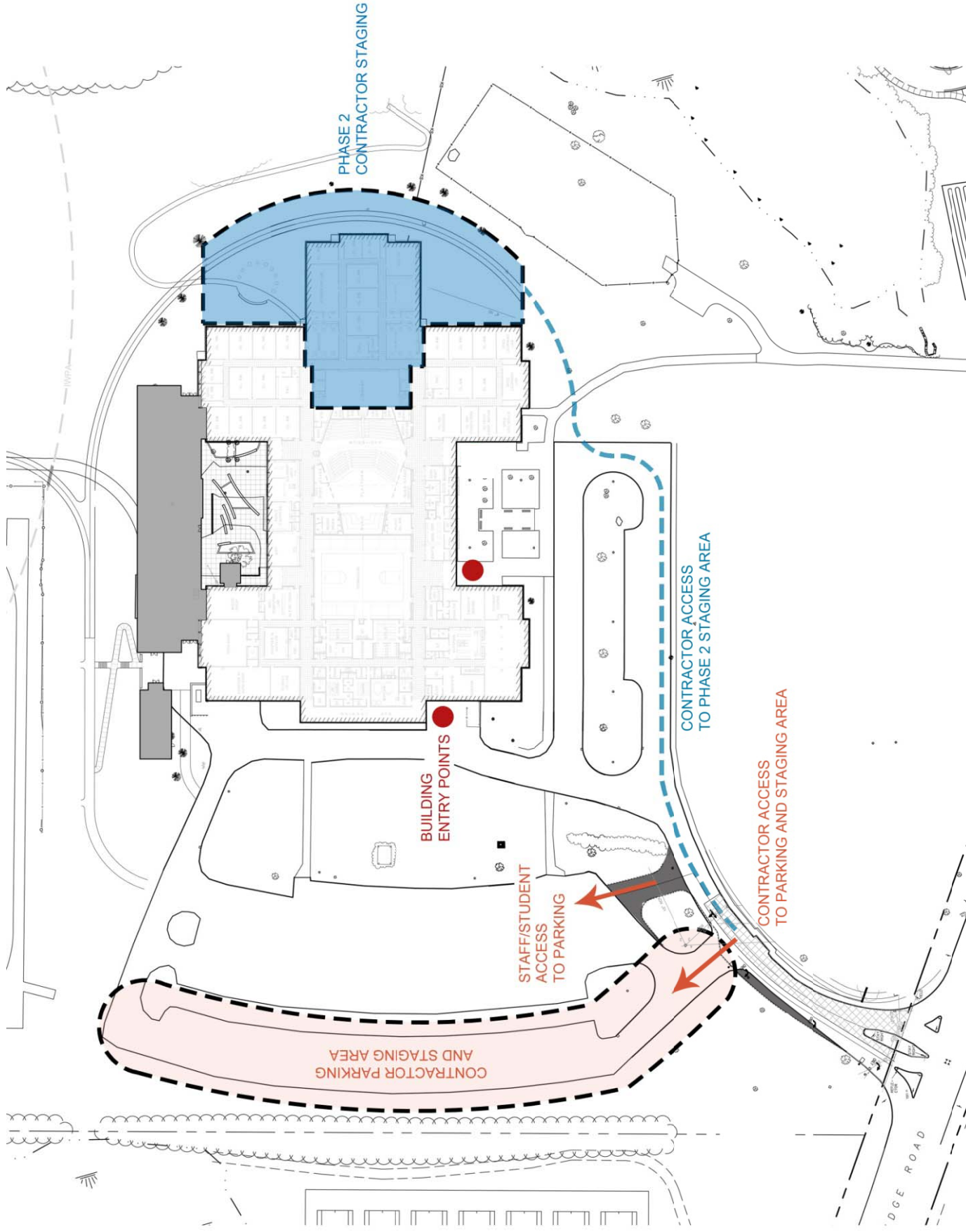
EARLY CHILDHOOD PROGRAM TO BE RELOCATED OFF-SITE TO ELEMENTARY SCHOOL FOR THE DURATION OF CONSTRUCTION

TEMP. ART CR

TEMP. CULINARY SPACE EITHER IN EXISTING FACULTY DINING OR SPED LIFE SKILLS ROOM

TEMP. CR

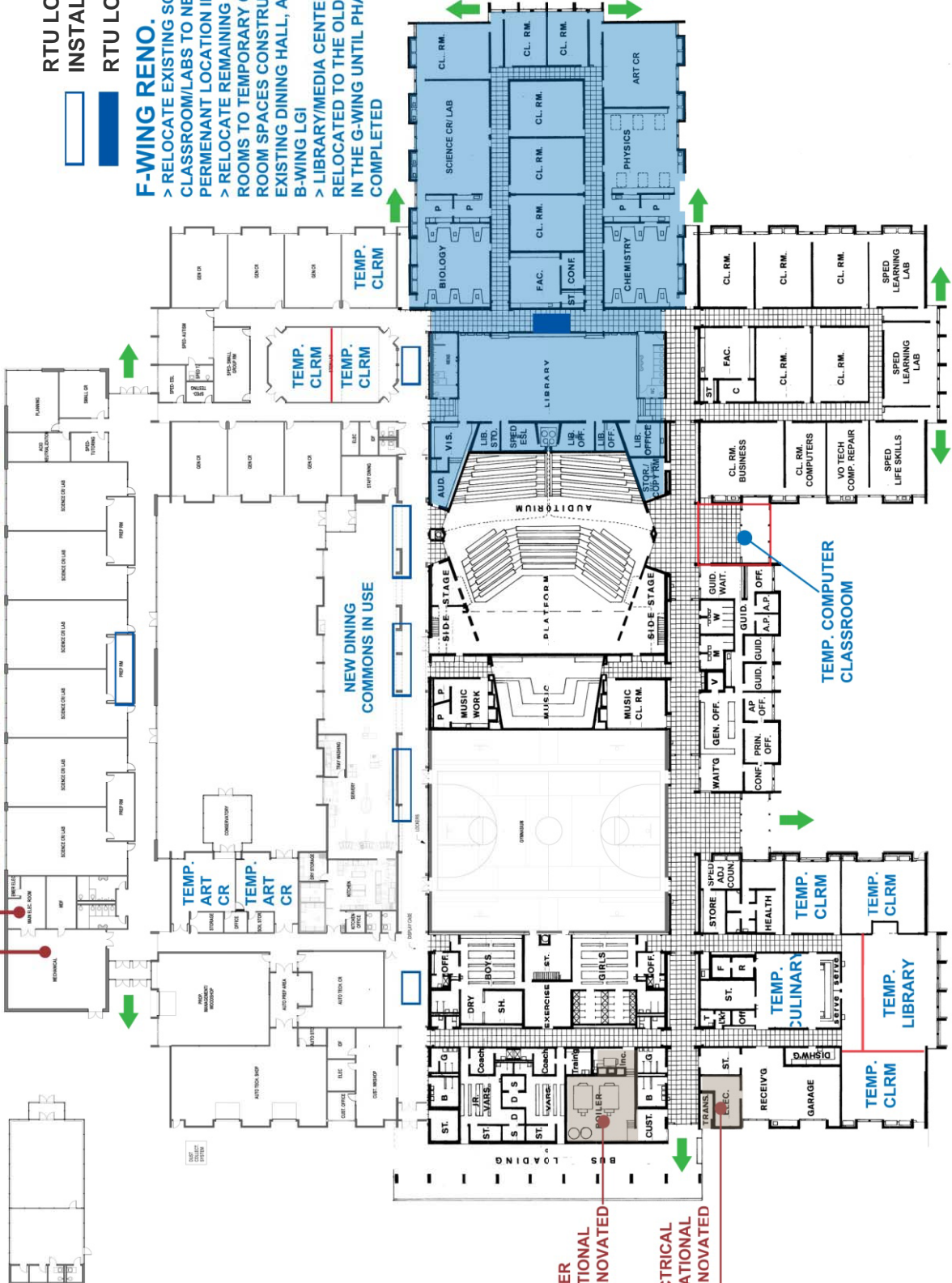
Phase 1 (November 2014- September 2015)



Phase 2 (September 2015- February 2016)

PHASE 2
SEPTEMBER 2015- FEBRUARY 2016

NEW BOILER ROOM/
MAIN ELEC. ROOM



RTU LOCATIONS PREVIOUSLY INSTALLED
RTU LOCATIONS ABOVE

F-WING RENO.

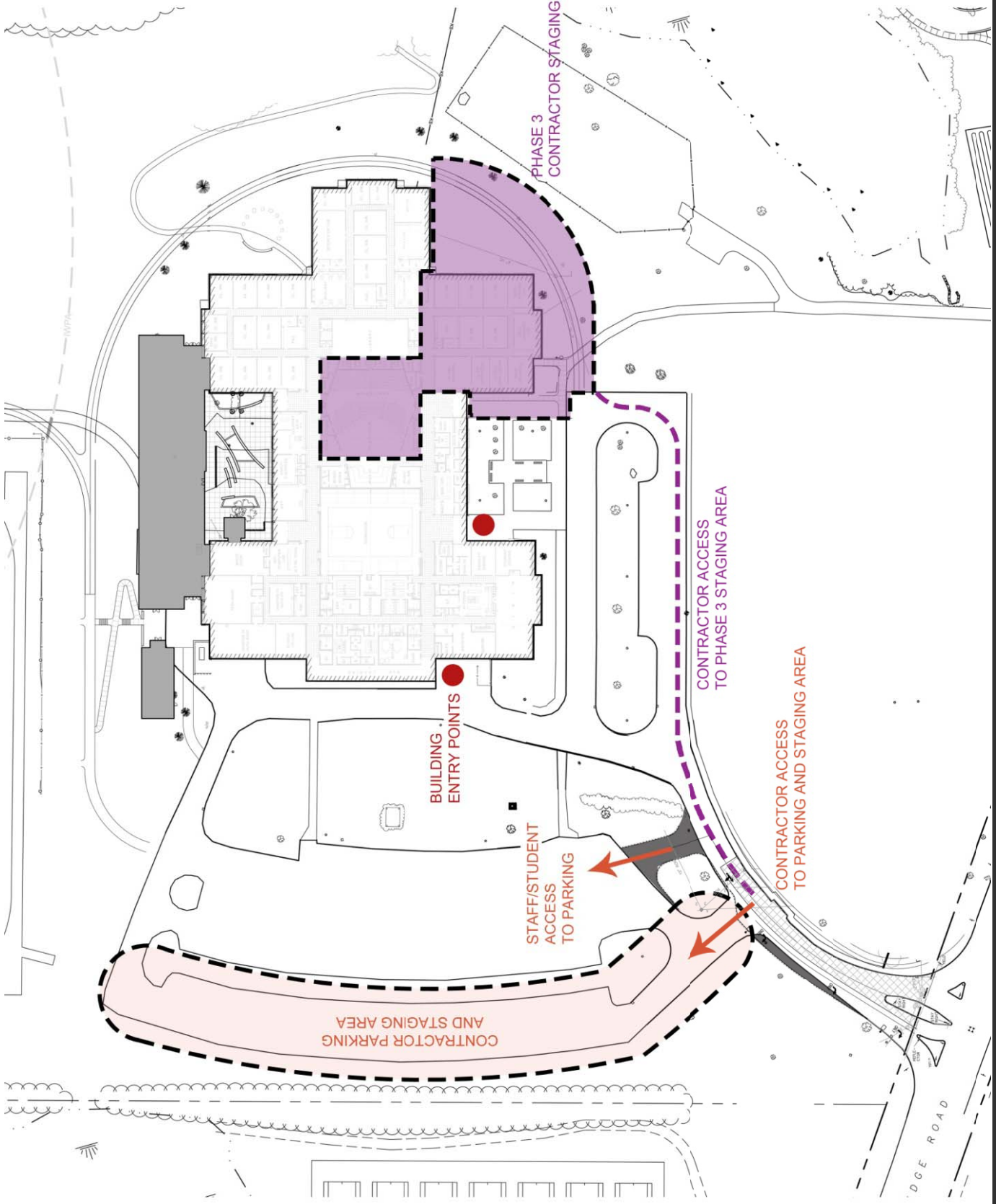
- > RELOCATE EXISTING SCIENCE CLASSROOM/LABS TO NEW PERMANENT LOCATION IN N-WING
- > RELOCATE REMAINING CLASS-ROOMS TO TEMPORARY CLASS-ROOM SPACES CONSTRUCTED IN EXISTING DINING HALL, AND NEW B-WING LGI
- > LIBRARY/MEDIA CENTER IS TEMP. RELOCATED TO THE OLD DINING HALL IN THE G-WING UNTIL PHASE 4 IS COMPLETED

EXISTING BOILER ROOM (OPERATIONAL FOR ALL UNRENOVATED SPACES)
EXISTING ELECTRICAL ROOMS (OPERATIONAL FOR ALL UNRENOVATED SPACES)

Phase 2 (September 2015- February 2016)

MARGO JONES
Architects
INCORPORATED

SMMA



Phase 3 (February 2016- September 2016)

PHASE 3
FEBRUARY 2016 - SEPTEMBER 2016

NEW BOILER ROOM/
 MAIN ELEC. ROOM

RTU LOCATIONS PREVIOUSLY
 INSTALLED
 RTU LOCATIONS ABOVE

PHASE 3-S
SUMMER 2016
 (MAY 1, 2016 - SEPTEMBER 1, 2016)
 > RENOVATE EXISTING AUDITORIUM



EXISTING BOILER
 ROOM (OPERATIONAL
 FOR ALL UNRENOVATED
 SPACES)

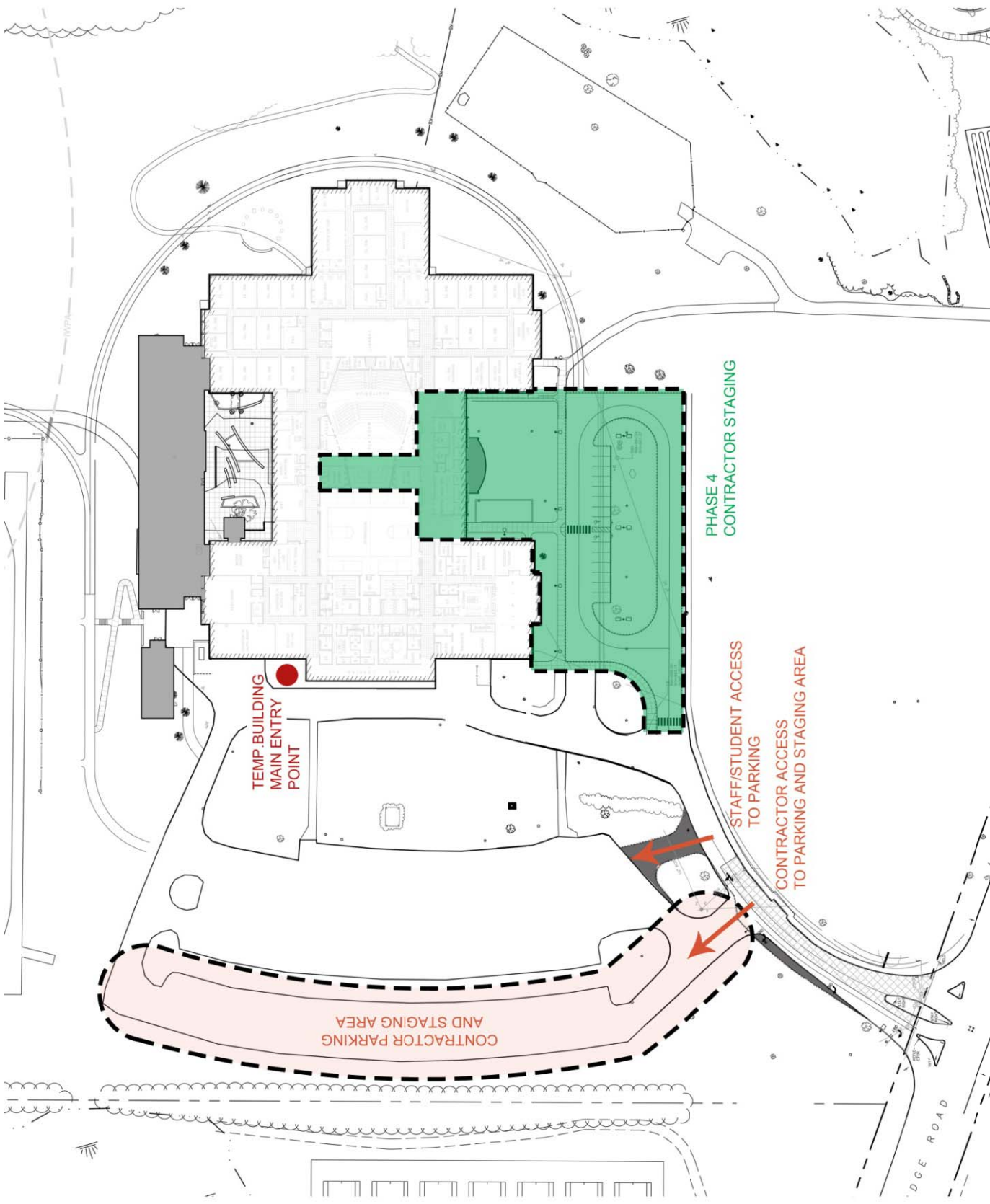
EXISTING ELECTRICAL
 ROOMS (OPERATIONAL
 FOR ALL UNRENOVATED
 SPACES)

H-WING RENO
 > RELOCATE EXISTING CLASSROOMS IN
 TO NEW PERMANENT LOCATIONS IN
 F-WING

> RELOCATE REMAINING CLASS-
 ROOMS TO TEMPORARY CLASS-
 ROOM SPACES CONSTRUCTED IN
 EXISTING DINING HALL G-WING, B-WING
 LGI, AND NEW AG. SPACES IN A-WING
 > EXISTING VO-TECH COMPUTER REPAIR
 PROGRAM TO BE TEMPORARILY
 RELOCATED UNTIL END OF PHASE 4

TEMPORARY
 COMPUTER
 CLASSROOM

Phase 3 (February 2016- September 2016)



Phase 4 (September 2016- February 2017)

PHASE 4
SEPTEMBER 2016- FEBRUARY 2017

NEW BOILER ROOM/
 MAIN ELEC. ROOM

RTU LOCATIONS PREVIOUSLY
 INSTALLED



RTU LOCATIONS ABOVE

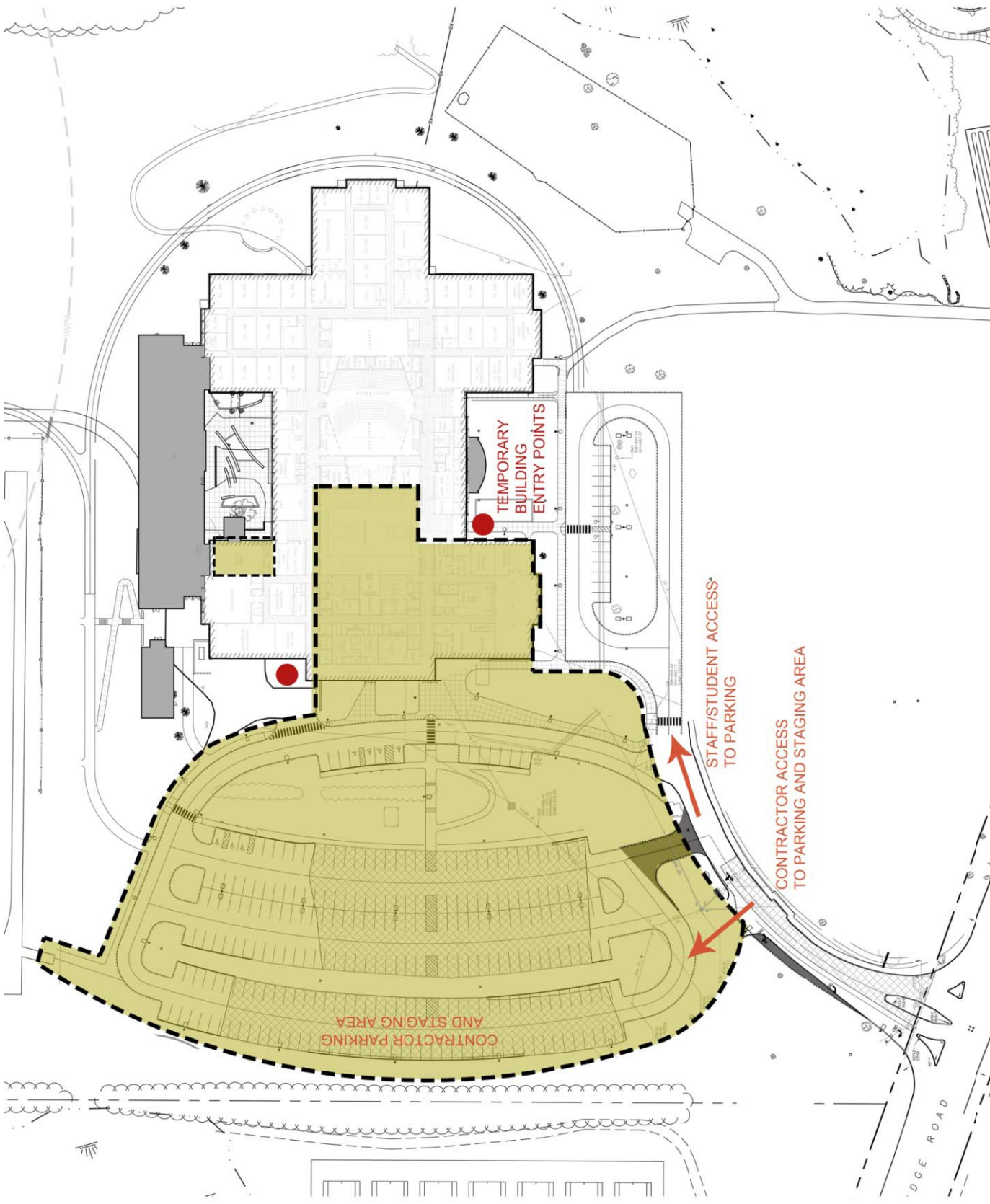


TEMPORARY
 MAIN ENTRANCE
 DURING PHASES 4 & 5

EXISTING BOILER
 ROOM (OPERATIONAL
 FOR ALL UNRENOVATED
 SPACES)

EXISTING ELECTRICAL
 ROOMS (OPERATIONAL
 FOR ALL UNRENOVATED
 SPACES)

- L-WING RENO.**
- > TEMPORARY RELOCATION OF ADMIN. OFFICES
 - > BAND MOVES TO PERMANENT LOCATION IN E-WING
 - > RENOVATE CENTRAL SPINE/ STUDENT CENTER



Phase 5 (February 2017- October 2017)

PHASE 5
FEBRUARY 2017 - OCTOBER 2017

NEW BOILER ROOM/
 MAIN ELEC. ROOM

RTU LOCATIONS PREVIOUSLY
 INSTALLED

RTU LOCATIONS ABOVE

C-WING RENO.
PHASE 5-S
SUMMER 2017
 EXTENDED SUMMER RENO.
 (MAY 15, 2017 - OCT. 2017)
 > LOCKER ROOMS OFF-LINE
 DURING THIS PERIOD
 > DEMO EXISTING
 BOILER ROOM AND
 ELECTRICAL ROOMS
 LAST
 > RENOVATE GYMNASIUM
 > INSTALL NEW
 CLERESTORY

EXISTING BOILER
 ROOM (OPERATIONAL
 FOR ALL UNRENOVATED
 SPACES)

EXISTING ELECTRICAL
 ROOMS (OPERATIONAL
 FOR ALL UNRENOVATED
 SPACES)



> FINAL INTERIOR FIT-UP
 OF AG. SPACES AFTER
 TEMP. SPACES ARE
 RELOCATED

TEMP.
 ADMIN
 OFFICE
 SPACE

TEMP.
 GUIDANCE

G-WING RENO.
PHASE 5

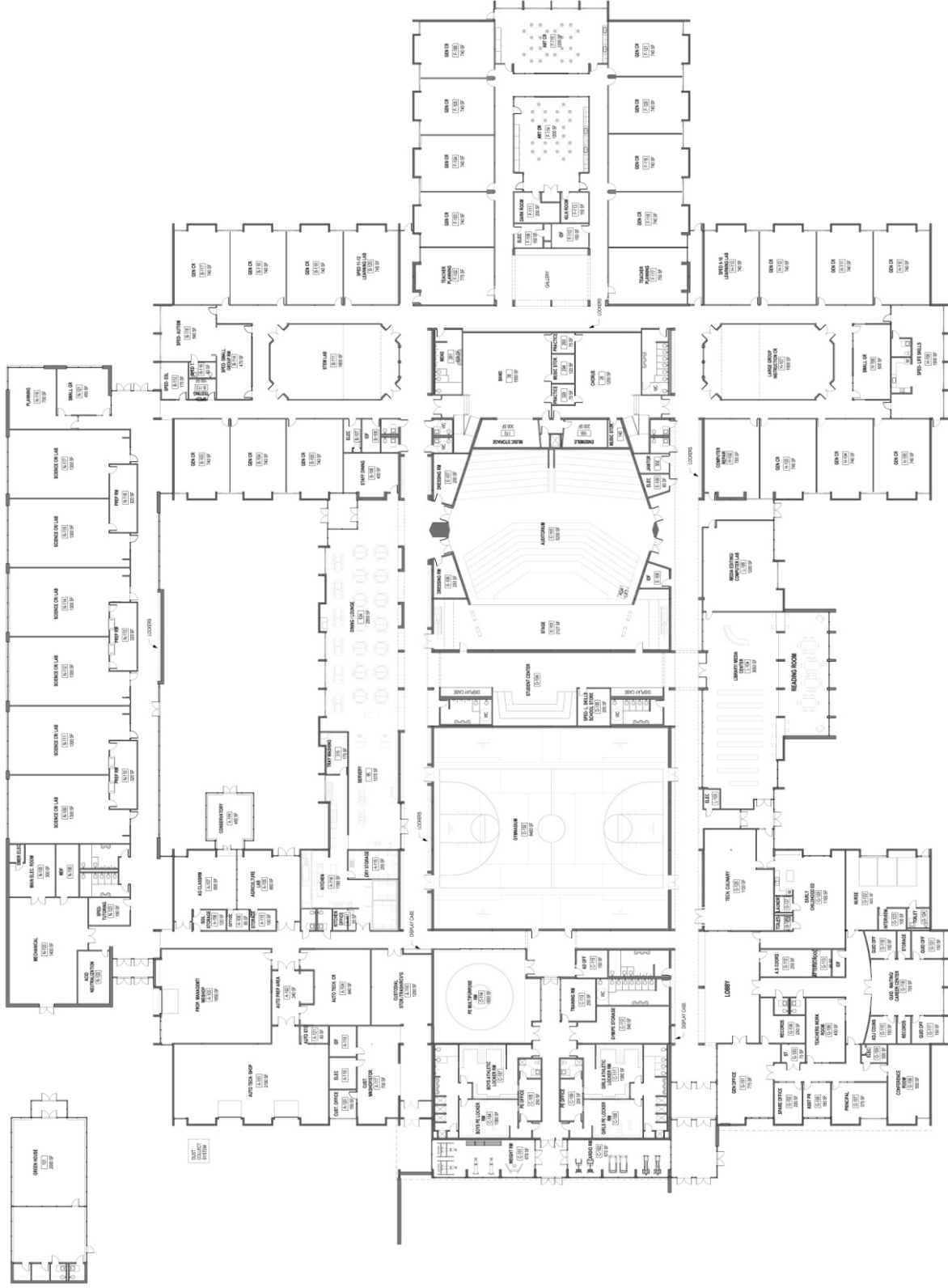
> TEMPORARY ADMIN.
 OFFICES AND GUIDANCE
 LOCATED IN NEW LGI SPACE/ICHORUS
 UNTIL MID-SUMMER 2017
 > RELOCATE LIBRARY AND
 COMPUTER LAB FROM A&H-WINGS TO FINAL LOCATION



Grand Opening (January 2018)

MARGO JONES
Architects
INCORPORATED

SMMA



★ GC SELECTED
PHASE 1

PROCUREMENT
SHOP DRAWINGS

PHASE 1S

PHASE 2

PHASE 3

PHASE 3S

PHASE 4

PHASE 5

PHASE 5S

SUMMER 2014

SUMMER 2015

SUMMER 2016

SUMMER 2017

JUNE 2014

SEPT. 2014

FEB. 2015

JUNE 2015

SEPT. 2015

FEB. 2016

JUNE 2016

SEPT. 2016

FEB. 2017

JUNE 2017

Overall Construction Phasing Schedule

GC

MARGO JONES
Architects
INCORPORATED

SMMA

Total Project Budget

Berkshire Hills: Monument Mountain Regional High School - School Building Committee Approved

6/5/2013

Total Project Budget: All costs associated with the project are subject to 963 CMR 2.16(5)		Estimated Budget	Scope Items Excluded from the Basis of Estimated Total Facilities Grant or Otherwise Ineligible	Basis of Estimated Total Facilities Grant ¹	Estimated Maximum Total Facilities Grant ¹
Feasibility Study Agreement					
1	OPM Feasibility Study	\$186,000		\$186,000	
2	A&E Feasibility Study	\$450,000		\$450,000	
3	Enviro. & Site Survey	\$40,000		\$40,000	
	Hazardous Materials	\$5,000		\$5,000	
4	Other Estimates	\$19,000		\$19,000	
		\$10,000		\$10,000	
5	Feasibility Study Agreement Subtotal	\$750,000	\$0	\$750,000	\$363,975
Administration					
6	Legal Fees	\$15,000	\$15,000	\$0	
Owner's Project Manager					
7	Design Development	\$68,400	\$0	\$68,400	
8	Construction Contract Documents	\$90,000	\$0	\$90,000	
9	Bidding	\$75,000	\$0	\$75,000	
10	Construction Contract Administration	\$1,945,000	\$999,642	\$945,358	
11	Closeout	\$95,750	\$0	\$95,750	
12	Extra Services	\$0	\$0	\$0	
13	Reimbursable & Other Services	\$0	\$0	\$0	
14	Cost Estimates	\$31,500	\$0	\$31,500	
15	Advertising	\$5,000	\$0	\$5,000	
16	Permitting	\$300,000	\$300,000	\$0	
17	Owner's Insurance	Not Included	\$0	\$0	
18	Other Administrative Costs	\$0	\$0	\$0	
19	Administration Subtotal	\$2,625,650	\$1,314,642	\$1,311,008	\$636,232
Architecture and Engineering					
Basic Services					
21	Design Development	\$1,000,000	\$0	\$1,000,000	
22	Construction Contract Documents	\$1,600,000	\$0	\$1,600,000	
23	Bidding	\$200,000	\$0	\$200,000	
24	Construction Contract Administration	\$1,115,000	\$377,119	\$737,881	
25	Closeout	\$85,000	\$0	\$85,000	
26	Other Basic Services (FFE Procure & Inventory)	\$100,000	\$0	\$100,000	
27	Basic Services Subtotal	\$4,100,000	\$377,119	\$3,722,881	
Reimbursable Services					
28	Construction Testing		\$0	\$0	
29	Printing (over minimum)	\$70,000	\$0	\$70,000	
30	Other Reimbursable Costs	\$30,000	\$0	\$30,000	
	Peer Review	\$10,000	\$0	\$10,000	
31	Hazardous Materials	\$125,000	\$0	\$125,000	
32	Geotech & Geo-Env.	\$25,000	\$0	\$25,000	
	Site Borings	\$15,000	\$0	\$15,000	
33	Site Survey	\$15,000	\$0	\$15,000	
34	Wetlands	\$15,000	\$0	\$15,000	
35	Traffic Studies	\$10,000	\$0	\$10,000	
36	Architectural/Engineering Subtotal	\$4,415,000	\$377,119	\$4,037,881	\$1,959,584
CM & Risk Preconstruction Services					
37	Pre-Construction Services		\$0	\$0	\$0
Site Acquisition					
38	Land/Building Purchase		\$0	\$0	
39	Appraisal Fees		\$0	\$0	
40	Recording fees		\$0	\$0	
41	Site Acquisition Subtotal	\$0	\$0	\$0	\$0
Construction Costs					
42	SUBSTRUCTURE				
43	Foundations	\$1,050,900	\$0		
44	Basement Construction	\$0	\$0		

Soft Cost Reimbursement		Prorated 20% Exclusion
Est'd Budget	Excluded	\$0 -Administration
\$2,830,650	\$1,314,642	\$0 -A/E Services
\$4,905,000	\$377,119	\$0 -Miscellaneous Proj Costs
		\$6,143,889 Sum of Three Soft Costs
		Eligible Soft Costs Category
		\$1,516,008 -Administration
		\$4,527,881 -A/E Services
		Ineligible therefore not included in calculation -Site Acquisition
		\$200,000 \$100,000 -Miscellaneous Proj Costs
		\$1,468,000 \$100,000 FFE
		Not included in this calculation Owners Contingency
		\$7,511,889 Total Eligible Soft Costs
Construction Costs associated with Soft Cost Cap Calculation		
Est'd Budget	Construction Costs	Category
\$0	\$0	-CM Preconstruction services
	\$41,728,813	-Construction Cost
		Not included in this calculation -Construction Contingency
		\$41,728,813 Total Construction Cost
		20% Soft Cost Allowance
		\$8,345,763 Reimbursable Soft Cost
		-\$833,874 Eligible minus Reimbursable
		-If Eligible minus Reimbursable is negative OK.
		-If Eligible minus Reimbursable is positive enter value into Soft Costs that exceed 20% of Const'n Cost below in the Ineligible column.
	Construction Budget	\$41,728,813
OPM Services		Eligible Fees Total % of Const OPM Fee @
Basic Services	\$2,460,150	\$1,460,508 5.90% \$1,460,508 \$999,642
Extra Services	\$19,000	0.05%
Designer Services		Dsg'r Fee @
Basic Services	\$4,550,000	\$4,172,881 10.90% \$4,172,881 \$377,119
Extra Services	\$355,000	0.85%

Total Project Budget

Berkshire Hills: Monument Mountain Regional High School - School Building Committee Approved

6/5/2013

Total Project Budget: All costs associated with the project are subject to 963 CMR 2.16(5)		Estimated Budget	Scope Items Excluded from the Basis of Estimated Total Facilities Grant or Otherwise Ineligible	Basis of Estimated Total Facilities Grant ¹	Estimated Maximum Total Facilities Grant ¹	
45	SHELL					
46	Superstructure	\$1,227,300	\$0			
47	Exterior Closure					
48	Exterior Walls	\$266,700	\$0			
49	Exterior Windows	\$1,334,100	\$0			
50	Exterior Doors	\$155,400	\$0			
51	Roofing	\$4,151,700	\$57,606			
52	INTERIORS					
53	Interior Construction	\$2,775,000	\$38,506			
54	Staircases	\$5,900	\$76			
55	Interior Finishes	\$2,262,000	\$31,381			
56	SERVICES					
57	Conveying Systems	\$51,800	\$726			
58	Plumbing	\$1,482,100	\$20,571			
59	HVAC	\$5,054,300	\$70,135			
60	Fire Protection	\$599,300	\$8,309			
61	Electrical	\$4,103,300	\$56,937			
62	EQUIPMENT & FURNISHINGS					
63	Equipment	\$894,200	\$12,415			
64	Furnishings	\$1,060,700	\$14,726			
65	SPECIAL CONSTRUCTION & DEMOLITION					
66	Special Construction	\$0	\$0			
67	Existing Building Demolition	\$900,400	\$12,491			
68	In-Bldg Hazardous Material Abatement	\$499,063	\$6,933			
69	Asbestos Cont'g Floor Mat'l Abatement	\$148,050	\$148,050			
70	Other Hazardous Material Abatement	\$0	\$0			
71	BUILDING SITEWORK					
72	Site Preparation	\$375,400	\$0			
73	Site Improvements	\$1,085,800	\$0			
74	Site Civil/ Mechanical Utilities	\$512,300	\$0			
75	Site Electrical Utilities	\$475,200	\$0			
76	Other Site Construction	\$0	\$0			
77	Scope Excluded Site Cost		\$330,724			
78	Construction Trades Subtotal	\$30,470,913	\$809,586			
79	Contingencies (Design and Pricing)	\$3,768,600	\$100,128			
80	D/B/B Sub-Contractor Bonds	\$678,600	\$18,030			
81	D/B/B Insurance	\$0	\$0			
82	D/B/B General Conditions	\$3,788,800	\$100,665			
83	D/B/B Overhead & Profit	\$692,100	\$18,389			
84	GMP Insurance	\$0	\$0			
85	GMP Fee	\$0	\$0			
86	GMP Contingency	\$0	\$0			
87	Escalation to Mid-Point of Construction	\$2,329,800	\$61,901			
88	Overall Excluded Construction Cost		\$873,151			
89	Construction Budget	\$41,728,813	\$1,981,850	\$39,746,963	\$19,289,201	
90	Alternates	\$0	\$0	\$0	\$0	
91						
92						
93	Alternates Subtotal	\$0	\$0	\$0	\$0	
94	Miscellaneous Project Costs					
94	Utility Company Fees	\$25,000	\$0	\$25,000		
95	Testing Services	\$75,000	\$0	\$75,000		
96	Swing Space/Modulars	\$0	\$0	\$0		
97	Other Project Costs	\$0	\$0	\$0		
	Moving	\$85,000	\$85,000	\$0		
	Misc.	\$15,000	\$15,000	\$0		

Site Cost Reimbursement =	8.0%	
Direct Site Cost Excluded		Eligible Site Costs
\$2,448,700	\$0	\$2,448,700
Direct Bldg Cost		
\$26,474,700		\$2,117,976
Scope Excluded Site Cost		\$330,724
Eligible minus Reimbursable		
If Eligible minus Reimbursable is negative OK. No ineligible needed		
If Eligible minus Reimbursable is positive enter value into Scope Excluded Site C		
Construction Cost Reimbursement		
\$887,909	Eligible Demo	
\$492,130	Eligible Abatement	
\$1,380,039	Total Eligible Demo & Abatement	
\$170,681	12.37% % of Trades	\$ 303.13 Total \$/sf
\$30,734	2.23% % of Trades	\$ 288.73 Eligible \$/sf
\$0	0.00% % of Trades	
\$171,596	12.43% % of Trades	
\$31,345	2.27% % of Trades	
\$0	0.00% % of Trades	
\$0	0.00% % of Trades	
\$0	0.00% % of Trades	
\$105,518	5.91% % of Cumulative sum of Trades and Markups	
\$1,889,913	Marked Up Demo & Abatement	
\$40,620,114	Eligible Construction Cost	
137,662	If eligible area if less than total area enter eligible area here.	
\$ 275.00	Reimbursable Const Cost for New Construction \$/sf (subject to change)	
\$ 37,857,050	Reimbursable Const Cost	
\$1,889,913	Marked Demo & Abatement	
\$ 39,746,963	Reimbursable Const Cost	
\$873,151	Eligible Minus Reimbursable	
If Eligible minus Reimbursable is negative OK. No ineligible entry needed		
If Eligible minus Reimbursable is positive enter value into Overall Excluded Construction Cost		
FFE Reimbursement		
\$1,368,000	Eligible FFE	
570	Enter Design Enrollment	
\$2,400	Reimbursable/student (Subject to change)	

Total Project Budget

Berkshire Hills: Monument Mountain Regional High School - School Building Committee Approved

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	Estimated Budget	Scope Items Excluded from the Basis of Estimated Total Facilities Grant or Otherwise Ineligible	Basis of Estimated Total Facilities Grant ¹	Estimated Maximum Total Facilities Grant ¹
Total Project Budget: All costs associated with the project are subject to 963 CMR 2.16(5)				
98 Misc. Project Costs Subtotal	\$200,000	\$100,000	\$100,000	\$48,530
Furnishings and Equipment				
99 Furnishings	\$684,000	\$0	\$684,000	
100 Equipment	\$100,000	\$100,000	\$0	
101 Computer Equipment	\$684,000	\$0	\$684,000	
102 FF&E Subtotal	\$1,468,000	\$100,000	\$1,368,000	\$663,890
103 Soft Costs that exceed 20% of Const'n Cost		\$0		
104 Project Budget Before Contingencies	\$51,187,463	\$3,873,611	\$47,313,852	\$22,961,412

\$1,368,000 Reimbursable Cost

\$0 Eligible Minus Reimbursable

If Eligible minus Reimbursable is negative OK.

If Eligible minus Reimbursable is positive enter value into Scope Excluded FFE Cost

Board Authorization			
	Design Enrollment	570	40.90 Reimbursement Rate Before Incentive Points
	Total Building Gross Floor Area (GSF)	137,662	7.63 Total Incentive Points
	Project Budget	\$51,187,463	48.53% MSBA Reimbursement Rate
	Scope Items Excluded or Otherwise Ineligible	-\$3,873,611	
	Third Party Funding (Ineligible)	\$0	1.50 (0-2) Maintenance
	Basis of Estimated Total Facilities Grant ¹	\$47,313,852	0.00 (0-1) CM @ Risk
	Reimbursement Rate	48.53%	0.00 (0-6) Newly Formed Regional School District
	Estimated Maximum Total Facilities Grant ¹	\$22,961,412	4.13 (0-5) Major Reconstruction or Reno/Reuse
			0
			137,662
114	Potentially Eligible Construction Contingency ²	\$3,129,661	0.00 (0-1) Overly Zoning 40R and 40S
115	Potentially Eligible Owner's Contingency ²	\$1,500,000	0.00 (0-0.5) Overlay Zoning 100 units or 50% of units 1,2,
116	Total Potentially Eligible Contingency ²	\$4,629,661	or 3 family structures
117	Reimbursement Rate	48.53%	2.00 (0-2) Energy Efficiency - "Green Schools"
118	Potential Additional Contingency Grant Funds ²	\$2,246,774	0.00 (5) Model Schools
119	Maximum Total Facilities Grant	\$25,208,186	7.63 Total Incentive Points
120	Total Project Budget	\$55,817,124	

NOTE: This template was prepared by the MSBA as a tool to assist Districts and their teams in the understanding of MSBA policies and practices and their potential impact on the MSBA's calculation of a potential Basis of Total Facilities Grant and potential Total Maximum Facilities Grant. This template does not contain a final, exhaustive list of all evaluations which the MSBA may use in determining whether items are eligible for reimbursement by the MSBA. The MSBA will perform an independent analysis based on a review of information and estimates provided by the District for the proposed school project that may or may not agree with the estimates generated by the District using this template.

1. Does not include any potentially eligible contingency funds and is subject to review and audit by the MSBA.

2 - Pursuant to Section 3.20 of the Project Funding Agreement and the applicable policies and guidelines of the Authority, any project costs associated with the reallocation or transfer of funds from either the Owner's contingency or the Construction contingency to other budget line items shall be subject to review by the Authority to determine whether any such costs are eligible for reimbursement by the Authority. All costs are subject to review and audit by the MSBA.

Berkshire Hills: Monument Mountain Regional High School - School Building Committee Approved

6/5/13

Total GSF	Reconciled Estimate 137,662	Estimate % or \$/GSF
SUBSTRUCTURE		
Foundations	\$1,050,900	\$ 7.63
Basement Construction	\$0	\$ -
SHELL		
Superstructure	\$1,227,300	\$ 8.92
Exterior Closure		
Exterior Walls	\$266,700	\$ 1.94
Exterior Windows	\$1,334,100	\$ 9.69
Exterior Doors	\$155,400	\$ 1.13
Roofing	\$4,151,700	\$ 30.16
INTERIORS		
Interior Construction	\$2,775,000	\$ 20.16
Staircases	\$5,900	\$ 0.04
Interior Finishes	\$2,262,000	\$ 16.43
SERVICES		
Conveying Systems	\$51,800	\$ 0.38
Plumbing	\$1,482,100	\$ 10.77
HVAC	\$5,054,300	\$ 36.72
Fire Protection	\$599,300	\$ 4.35
Electrical	\$4,103,300	\$ 29.81
EQUIPMENT & FURNISHINGS		
Equipment	\$894,200	\$ 6.50
Furnishings	\$1,060,700	\$ 7.71
SPECIAL CONSTRUCTION & DEMOLITION		
Special Construction	\$0	\$ -
Existing Building Demolition	\$900,400	\$ 6.54
In-Bldg Hazardous Material Abatement	\$499,063	\$ 3.63
Asbestos Cont'g Floor Mat'l Abatement	\$148,050	\$ 1.08
Other Hazardous Material Abatement	\$0	\$ -
BUILDING SITEWORK		
Site Preparation	\$375,400	\$ 2.73
Site Improvements	\$1,085,800	\$ 7.89
Site Civil/ Mechanical Utilities	\$512,300	\$ 3.72
Site Electrical Utilities	\$475,200	\$ 3.45
Other Site Construction	\$0	\$ -
Scope Excluded Site Cost		
Construction Trades Subtotal	\$30,470,913	\$ 221.35
		% to constr
Contingencies (Design and Pricing)	\$3,768,600	12.368%
D/B/B Sub-Contractor Bonds	\$678,600	2.227%
D/B/B Insurance	\$0	0.000%
D/B/B General Conditions	\$3,788,800	12.434%
D/B/B Overhead & Profit	\$692,100	2.271%
GMP Insurance	\$0	0.000%
GMP Fee	\$0	0.000%
GMP Contingency	\$0	0.000%
Escalation to Mid-Point of Construction	\$2,329,800	5.913%
Overall Excluded Construction Cost	\$0	\$ -
Construction Budget	\$41,728,813	\$ 303.13
Alternates	\$0	
0	\$0	\$ -
0	\$0	\$ -
0	\$0	\$ -
Alternates Subtotal	\$0	% to constr
Miscellaneous Project Costs		

Scope Excluded Items Calculation:		
Auditorium 1,910		TOTAL
not related	\$0	\$0
not related	\$0	\$0
not related	\$0	\$0
not related	\$0	\$0
not related	\$0	\$0
not related	\$0	\$0
\$57,606	\$0	\$57,606
\$38,506	\$0	\$38,506
\$76	\$0	\$76
\$31,381	\$0	\$31,381
\$726	\$0	\$726
\$20,571	\$0	\$20,571
\$70,135	\$0	\$70,135
\$8,309	\$0	\$8,309
\$56,937	\$0	\$56,937
\$12,415	\$0	\$12,415
\$14,726	\$0	\$14,726
\$0	\$0	\$0
\$12,491	\$0	\$12,491
\$6,933	\$0	\$6,933
n/a	n/a	\$0
\$0	\$0	\$0
not related	\$0	\$0
not related	\$0	\$0
not related	\$0	\$0
not related	\$0	\$0
not related	\$0	\$0
\$330,812	\$0	\$330,812
\$40,914	\$0	\$40,914
\$7,367	\$0	\$7,367
\$0	\$0	\$0
\$41,134	\$0	\$41,134
\$7,514	\$0	\$7,514
\$0	\$0	\$0
\$0	\$0	\$0
\$0	\$0	\$0
\$19,562	\$0	\$19,562
\$447,303	\$0	\$447,303

Berkshire Hills: Monument Mountain Regional High School - School Building Committee Approved

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Total GSF	Reconciled Estimate 137,662	Estimate % or \$/GSF
Utility Company Fees	\$25,000	\$ 0.18
Testing Services	\$75,000	\$ 0.54
Swing Space/Modulars	\$0	\$ -
Other Project Costs	\$0	\$ -
<i>Moving</i>	\$85,000	\$ 0.62
<i>Misc.</i>	\$15,000	\$ 0.11
Misc. Project Costs Subtotal	\$200,000	\$ 1.45
Furnishings and Equipment		
Furnishings	\$684,000	\$ 4.97
Equipment	\$100,000	\$ 0.73
Computer Equipment	\$684,000	\$ 4.97
FF&E Subtotal	\$1,468,000	\$ 10.66
Soft Costs that exceed 20% of Const'n Cost	\$0	\$ -
Project Budget Before Contingencies	\$51,187,463	\$ 371.83

Scope Excluded Items Calculation:		
Auditorium 1,910		TOTAL
		\$0
		\$0
		\$0
		\$0
		\$0
\$0	\$0	\$0
		\$0
		\$0
\$0	\$0	\$0
		\$0
\$447,303	\$0	\$447,303

Berkshire Hills Regional School District Monument Mountain Regional High School Project

Anticipated Reimbursement Rate with Incentive Points

Category:

	Reimbursement Points	
Reimbursement Rate before Incentives	40.90%	Possible
Maintenance (contact the MSBA project manager)	1.50%	0-2
CM @ Risk	0.00%	0-1
Newly Formed Regional School District	0.00%	0-6
Major Reconstruction or Reno/Reuse (see note below)	4.13%	0-5
Overly Zoning c. 40R and c. 40S	0.00%	0-1
Overlay Zoning 100 units or 50% units for 1,2, or 3 family units	0.00%	0-0.05
Energy Efficiency - "Green Schools"	2.00%	0-2
Model Schools	0.00%	5.0
Total Incentive Points		
Anticipated MSBA Reimbursement Rate with Incentives	48.53%	

Note: Existing building renovation 113,705 gsf with New Addition of 23,967 gsf for total future size of 137,672

	A	B	C	D
\$000s COST REDUCTION OPTIONS	All Cost Impact Items (Deduct)/Add	LEED Contingent	Notes	SBC Approved Modifications 4/9/13: Minimal Program Impact
I. Sitework				
1 Change curbs to Pre-Cast concrete rather than granite	\$ (44.1)			
2 Eliminate Reinforced Turf around Bldg. Perimeter	\$ (73.1)		To a gravel/sand section	\$ (73.1)
3 Eliminate chain link fence in main Parking Lot	\$ (13.3)			\$ (13.3)
4 Simplify Entrance Sign	\$ (21.9)		Assume existing to remain, clean brick, repoint, and new letters	\$ (21.9)
5 Reduce Bike Racks	\$ (4.4)	Yes		
6 Added communications duct bank from ES to HS	\$ (56.3)		extra duct bank for future use	\$ (56.3)
7-A Eliminate lower parking lot paving	\$ 4.1	Yes	eliminate 90 parking spaces [273 spaces overall currently on site]	no
7-B Reduce infiltration system	\$ (113.8)	Yes	Contingent on acceptance of the Elimination of lower lot pvg.	no
7-C Add reinforced turf at lower parking lot	\$ 120.5	Yes	Contingent on acceptance of the Elimination of lower lot pvg.	no
8-A Simplify Playground Structure	\$ (22.0)		Reduce allowance to \$12,000	\$ (22.0)
8-B Eliminate Playground Structure and buy in FF&E	\$ (34.4)			
9 Reduce Playground Surface Area to 850 SF	\$ (8.5)		Maintain unit cost	
10 Reduce screen walls and loading dock	\$ (15.6)		Simplify construction and materials	\$ (15.6)
11 Reduce scope at west drop-off loop	\$ (54.6)		Maintain existing curbing, mill & overlay paving	
12 Reduce scope in courtyard	\$ (43.8)		Reduce allowance to 100K; SMMA to provide sketches	\$ (43.8)
13 Reduce seat wall in exterior classroom area by 50 linear feet	\$ (12.2)			\$ (12.2)
14 Eliminate exterior circular classroom (quiet area) at SE corner of building	\$ (13.8)		Maintain pathway to orchard for ADA access	\$ (13.8)
15 Add water quality unit/increase scope of new drainage system	\$ 62.5	Yes	Required based on the LEED credits we are currently pursuing	\$ 62.5
II. Interior & Exterior Building Components				
"Doghouse" Clerestory Roof Monitors				
1-A Reduce clerestory roof monitors (by half)	\$ (109.6)			\$ (109.6)
1-B Replace clerestory roof monitors with skylights	\$ (167.6)		Assume (4) 4'x4' skylights	
1-C Eliminate all clerestory roof monitors	\$ (216.1)	Yes	We cannot eliminate all skylights based on the LEED credits we are pursuing	
Skylights				
2 Change (3) larger skylights and assume (2) 4x4 skylights in their place	\$ (22.0)	Yes		\$ (22.0)
3 Reduce overall number of 4x4 skylights to 20 total (currently at 32 total)	\$ (41.5)	Yes		
4 Change Art Room clerestory light monitor and assume (4) 4x4 skylights	\$ (72.0)	Yes	We cannot eliminate all skylights based on the LEED credits we are pursuing	
Clerestory Windows at existing High Mansard/Gym				
5-A Reduce # of clerestory windows in gym from 17 to 9	\$ (56.9)			\$ (56.9)
5-B Eliminate all clerestory windows	\$ (116.3)			

	A	B	C	D
\$000s COST REDUCTION OPTIONS	All Cost Impact Items (Deduct)/Add	LEED Contingent	Notes	SBC Approved Modifications 4/9/13: Minimal Program Impact
Exterior Materials				
6 Utilize a composite panel Aluca-Bond type system rather than Standing Seam on mansard roof	\$ (244.2)			\$ (244.2)
7 TPO ILO PVC Roofing	\$ (128.9)		SMMA would recommend to maintain PVC	
8 Maintain existing bus canopy roof structure			NO ESTIMATE	\$ -
9 Eliminate cover board at new roof	\$ (151.8)			\$ (151.8)
10 Limit acoustical roof screens to above the Dining Commons roof- 2250 SF- All remaining roof screens can be standard louvered roof screens	\$ (78.8)		need better understanding of LEED impact; if none or minimal than accept the VE; SMMA reports no LEED impact	\$ (78.8)
11 Utilize DAFS system for soffits rather than Metal Panel	\$ (115.4)			\$ (115.4)
Auditorium				
12 Reduce Auditorium Wall Finishes- AWP by 25%	\$ (40.6)	Yes	recommendation to not reduce a full 25% but only 12% per SMMA	\$ (20.0)
13-A Maintain existing seats- assume cleaning	\$ (183.8)		Removal of some seating will be required to create ADA wheelchair spaces	
13-B Maintain existing seats and assume re-upholstering/re-finishing	\$ (80.6)		Removal of some seating will be required to create ADA wheelchair spaces	
14 Maintain existing ceiling- patch at removal of sliding partition tracks, at new lighting and HVAC	\$ (218.8)			\$ (218.8)
15 Add staging for new Auditorium lighting and ceiling work	\$ -		included in General Conditions	\$ -
16 Eliminate new Rigging & Curtains	\$ (125.0)		Curtain may need to be replaced based on CDW HazMat report indicating the stage fire curtain as potentially containing asbestos	\$ (125.0)
17 Delete Auditorium sound system/Existing system to remain	\$ (87.5)		Existing system noted to be relatively new and good working order	\$ (87.5)
18 Maintain existing wood floor at stage	\$ (29.3)		Stage floor recently overlaid with new flooring	\$ (29.3)
Greenhouse/Ag Program				
19 Packaged Greenhouse ILO stick-built	\$ (93.8)		purchase pre-manufactured greenhouse rather than design and construct a customized unit	\$ (93.8)
20 Delete Conservatory greenhouse	\$ (186.9)		This would also have potential site cost savings (knoll/ledge removal)	
21-A Keep Ag Program in existing location at the bottom of the hill- Delete both greenhouse and conservatory and Ag program spaces at the new additions	\$ (1,086.9)			
21-B ***Upgrade existing agricultural buildings at the bottom of the hill	\$ 540.0		Required if Ag program remains in its current location at the bottom of the hill	
Interior Construction				
22 Use VCT tiles in corridors rather than Linoleum Sheet Flooring	\$ (46.6)			\$ (46.6)
23 Assume sealed concrete at locker rooms vs. tile			not a good option considering existing conditions realities	
24 Reduce porcelain wall tile- Maintain at main Lobby, assume impact-resistant GWB (up to 6' aff) all other corridor locations- Add + Deduct	\$ (156.3)		reduce scope either in height and/or locations; working group recommendation to reduce by \$75k locations TBD	\$ (75.0)
25 Reduce retractable fire doors/partitions (From 10 to 5)	\$ (46.9)			\$ (46.9)
26 Ceiling tiles - Reduce 2' x 2' ACT and assume 2' x 4' ACT	\$ (60.8)			
27 Eliminate classroom door sidelights	\$ (19.2)			
28 Reduce classroom marker boards - assume (2) 12' boards per classroom	\$ (51.2)		LGI/STEM Lab spaces should assume (3) 8' and (1) 12'	\$ (51.2)

Note: Highlighted items represent recommendations of the School Building Cmte on 4/9/13

	A	B	C	D
\$000s COST REDUCTION OPTIONS	All Cost Impact Items (Deduct)/Add	LEED Contingent	Notes	SBC Approved Modifications 4/9/13: Minimal Program Impact
29 Reduce concrete block partitions (by 10%) and install wall board	\$ (18.2)			\$ (18.2)
30 Eliminate painting exposed structure at Gym	\$ (19.8)			\$ (19.8)
31 Reduce FF&E allowance to MSBA guideline of \$2,400/student	\$ (342.0)		currently budgeting \$3,000 per student	\$ (342.0)
32 Increase FF&E allowance to ideal level of \$3,200/student	\$ 114.0			
III. Infrastructure (MEP)				
<u>Electrical</u>				
1 Reduce quantity of exterior CCTV cameras (by 90%)	\$ (337.5)		District to meet on this issue and direct the team; half assumed saved	\$ (168.8)
2 Double up cameras on light poles ILO separate poles	\$ (75.0)			
3 Reduce quantity of interior CCTV cameras (by 12%)	\$ (21.9)		<i>District to meet on this issue and direct the team</i>	
4 Gas generator ILO Diesel	\$ 250.0			
5 Add assisted listening devices to classrooms	\$ 73.1		working group worthwhile given cost per classroom	\$ 73.1
6 Convert lighting protection system to aluminium rather than copper	\$ (17.3)		25% savings versus copper	\$ (17.3)
7 Delete Multi-Purpose Room sound system	\$ (15.6)			\$ (15.6)
<u>Mechanical</u>				
1 Simplify HVAC control system	\$ (55.0)	Yes	no scope identified on this	
2 Simplify HVAC system	\$ (468.8)	Yes	no scope identified on this	
3 Delete AC at Gym, Multi-Purpose Room and Cardio/Weight Rooms	\$ (59.4)			
4 Delete AC at LGI and STEM Lab	\$ (20.0)			
5 Eliminate Center Prep Room Fume Hood	\$ (10.0)			
6 Reduce Sound Attenuators	\$ (79.4)	Yes	These will most likely be required to meet proposed LEED credits	
IV. Alternates				
1 Eliminate Tiered seating scope	\$ (431.0)		Existing bleachers to remain	
2 Reduce scope of granite tiered seating (40%)	\$ (200.0)		reduce the scope to meet the same cost as replacing existing bleachers	\$ (200.0)
V. Other				
1 Utilize General Contractor rather than CM	\$ (3,500.0)			\$ (3,500.0)
Total Options to Reduce Costs	\$ (9,073.8)			\$ (5,990.8)
Revised Budget with Accepted V/E	\$ 52,926.2		Assumes \$62m starting budget per SD estimates with CM & Alternate	\$ 56,009.2



TRANSMITTAL

To: Ms. Mary Pichetti
Director of Capitol Planning
 Massachusetts School Building Authority
 40 Broad Street, 5th Floor, Suite 500
 Boston, MA 02109

Phone:
 e-mail:

From: Kenneth J. Guyette
Senior Project Manager
 STRATEGIC BUILDING SOLUTIONS
 65 Hunt Street
 Agawam, MA 01001

Phone: 860-234-3590
 e-mail: kguyette@go-sbs.com

Client: Berkshire Hills Regional School District (BHRSD)

Project: Monument Mountain Regional High School – DESE Submittal

Attached you will find the following items:

Item #:	# of Copies:	Dated:	Description:
1	2	4/16/2013	OPM Cover Letter
2	2	1/23/2013	Special Education Delivery Methodology (signed)
3	2	4/1/2013	Proposed Space Summary
4	2	4/1/2013	11x17 Floor Plan (with SPED space locations identified)
5	1	4/26/13	Electronic version (PDF format) on CD

These are transmitted as checked below:

- | | | |
|--|--|--|
| <input checked="" type="checkbox"/> For Approval | <input type="checkbox"/> For Review & Comment | <input type="checkbox"/> Approved as Noted |
| <input type="checkbox"/> As Requested | <input type="checkbox"/> Copies for Distribution | <input type="checkbox"/> Approved as Submitted |
| <input type="checkbox"/> For Your Use | <input type="checkbox"/> Returned as Noted | <input type="checkbox"/> Rejected as Noted |

Remarks: Mary,
 The items noted above are enclosed, per the MSBA Module 4 requirements for the Department of Elementary and Secondary Education submittal. Please feel free to contact me if you have any questions or comments.
 Thank You.

Signed: 
 Kenneth J. Guyette

Date: April 26, 2013



April 16, 2013

Ms. Mary Pichetti
Director of Capital Planning
Massachusetts School Building Authority
40 Broad Street, Suite 500
Boston, Massachusetts 02109

**Subject: Berkshire Hills Regional School District
Monument Mountain High School**

Dear Ms. Pichetti:

The District is pursuing execution of a Project Scope and Budget Agreement for the MSBA approved schematic design of Monument Mountain High School – Proposed Additions and Renovations. Monument Mountain High School's 2012-13 enrollment is 533. The design enrollment for the proposed school project is 570. The existing school currently serves, and is proposed to serve grades 9-12.

In accordance with G.L.c.70 B, the District has assembled the documents required for the review of the special education program at Monument Mountain High School. The following are attached per the 'Submittal Requirements':

1. A letter from Dr. Peter Dillon, BHRSD Superintendent of schools describing its special education program.
2. Proposed space summary that includes the existing facility, proposed spaces, and MSBA guidelines based on the agreed upon design enrollment. The first page of this summary indicates a total of 6,400 square feet of space dedicated to the delivery of special education.
3. The floor plans for the proposed 137,190 Gross Square Footage at Monument Mountain High School

I have reviewed the attached documents and confirm that the district's School Building Committee has officially approved the attached submittal on April 9, 2013 and verify that the space summary match the floor plan and is complete and conforms to the MSBA requirements as described in Module 4 – Schematic Design Guidelines.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Jonathan Winikur', with a long horizontal flourish extending to the right.

Jonathan Winikur
Building Project Manager

CC: Dr. Peter Dillon, BHRSD Superintendent of Schools
Marianne Young, Principal, Monument Mountain High School
Thomas A. Simon, Director, BHRSD Office of Special Education
Katie Loeffler, Massachusetts School Building Authority
Zaida Roshandel, Massachusetts School Building Authority
Alex Pitkin, Principal SMMA
Dan Ruiz, Project Manager, SMMA



BERKSHIRE HILLS REGIONAL SCHOOL DISTRICT

GREAT BARRINGTON * STOCKBRIDGE * WEST STOCKBRIDGE

50 MAIN STREET * P.O. BOX 617 * STOCKBRIDGE, MA 01262 * (413) 298-4017
OFFICE OF SPECIAL EDUCATION * THOMAS A. SIMON, DIRECTOR

January 23, 2013

Massachusetts Department of Elementary and Secondary Education
75 Pleasant Street
Malden, MA 02148

Dear Director of School Governance,

The description below is a summary of the Special Education programs provided in the Berkshire Hills Regional School District with a focus on the programs and proposed new layout at Monument Mountain Regional High School.

The Berkshire Hills Regional School District (BHRSD) provides PreK-12 education to the geographic areas of Great Barrington, Stockbridge, and West Stockbridge in Southern Berkshire County, Massachusetts. Students from Otis, Tyringham and Richmond also have the option of attending Monument Mountain through a tuition agreement with these towns as they do not currently have an in-district high school option. The District provides a comprehensive Special Education program to all students ages 3-21 who meet state and federal eligibility requirements. Each student who is identified as having a disability that impacts his/her access to the curriculum, and requires specialized instruction, will have an Individualized Education Program that describes the particular services and goals for the student.

As of October 1, 2012, BHRSD serves a total population of 1361 students. Of that number, 176 have an active IEP. Monument Mountain Regional High School serves a total population of 533 students in grades 9-12, 74 of whom have an active IEP. Five of these students have passed beyond grade 12 and are currently receiving transitional services to prepare them for adulthood.

Monument Mountain Regional High School

I. Current Programs:

Student Support Services: In addition to the Special Education programming described in this document, Monument Mountain Regional High School provides comprehensive student support services including a school nurse, School Adjustment Counselor, three guidance counselors and additional grant funded positions for after school and co-curricular programming.

Inclusion Model: Most of our students are able to progress in the curriculum in the general education setting with minimal supports. All students have access to our Career, Vocational and Technical Education programs. Teachers are provided with consultation and support from Special Education staff relative to the needs of the students in their classrooms. In some instances, classes may be co-taught by a content area teacher and a special education teacher. This may be supplemented by specified or as-needed time in the Learning Lab.

Learning Labs: Students at the high school who require additional instruction or support may be scheduled into the Learning Lab, either in lieu of, or in addition to a general directed study period. There are two Learning Labs at the high school: one designated for grades 9-10, and one for grades 11-12. Each is staffed by two special education teachers and one paraprofessional who also provide the inclusion support described above. Learning labs provide additional instruction to students who need it in the academic areas, as well as social and emotional support when needed. The focus in grades 9-10 is on specific instruction, primarily organizational and content based. As students reach the 11-12 program, the focus shifts to independence, autonomy, and self-advocacy skills. The amount of time spent outside of the individualized programming dictates whether the student is receiving services in a “Full Inclusion” (less than 21% of the students time) or “Partial Inclusion” (between 21% – 60%) of the students time.

Life Skills: For students with significant cognitive disabilities, BHRSD provides a program designed around the students’ need to develop functional life skills including self-care, financial management, home care, employment, transportation and other daily living skills in addition to highly modified academic learning. This program is staffed by a teacher and two paraprofessionals who work together to provide modified instruction and support inclusion programming for the students. A key element in this program is the School Store. This micro-business is staffed by Life Skills students and managed by Life Skills program teachers. This store is currently located at the entrance of the school’s cafeteria providing easy access for all students and full inclusion for Life Skills students.

Spectrum Program: Designed around the specific needs of students on the Autism Spectrum, the Spectrum Program provides a combination of supported inclusion and academic and emotional support within the building. The program is staffed by two teachers and each student has access to a paraprofessional who supports the students in their academic classes. Most students in this program receive the majority of their instruction in the general education program, and they are supported by consultation with content area teachers, the special education teachers and paraprofessionals. This program is also supported by consultation with a Board Certified Behavior Analyst (BCBA) to provide embedded professional development and guidance to the program.

Transition Training: Transition planning is embedded in the program for all students, and it is specified in the IEP for students with disabilities. Students who have not met all of their graduation requirements by 12th grade due to a disability require additional training to achieve independence as adults. These students are supported through varied approaches including internships, internships with job coaches, supported classes offered by the local community college, and travel training. These post-12th grade services are dictated by the students IEP and are dependent upon his or her disability.

II. Proposed Program Delivery:

The proposed layout for Monument Mountain Regional High School is designed around these programs and is intended to increase the impact programming has on the students' ability to access the curriculum in the least restrictive environment. All programs will continue in their current form; however, the new locations will enable each to explore and further develop opportunities to collaborate and increase student access.

Student Support Services: Spaces for these services will be moved to the administrative wing of the building, an improvement over the current space allocation that finds support service offices and personnel located good distances away from one another. The office for the School Adjustment Counselor will be located adjacent to guidance counselor offices. The school nurse will be in close proximity to all support services and administration. Additionally, small office spaces to provide privacy for testing and counseling services with non-district personnel will be available, as well as office space for the 21st Century Community Learning Center after-school program coordinator.

Learning Labs: These programs will be moved to a central location in the academic wing of the school. They will be across the hall from each other, near the common planning areas, and at the intersection of hallways among the Science Technology and Mathematics (STEM) wing and the Arts and Humanities wing. This design provides students better and more interconnected supports throughout the school day.

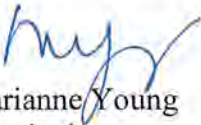
Life Skills: This program will remain in the same wing in which it now resides though it will move into the classroom previously occupied by the 11-12 Learning Lab at the end of the Arts and Humanities wing. This is a larger space, and will allow the program to be set up in a way that allows for multiple learning areas. The location within the humanities wing will continue to allow access by the students, and will continue to foster collaboration by the staff. The location of the School Store in the main artery connecting the front hall to the Dining Commons maintains the access and visibility vital to this program and the school.

Spectrum: Similar to the move for the Life Skills classroom, the Spectrum Program classroom will remain in its current location and expand into the full space at the end of the "B" wing. This too will allow for more differentiated learning spaces continue to allow strong access to the general education curriculum and to individualized instruction and support.


The School Building Needs committee has met regularly and has presented a number of options to the community. The proposed plan represents the current best thinking for service delivery to all students. The Director of Special Education has reviewed the proposed layout of the school and agrees that the locations intended for the various programs provides the best access within the plan for students to have access to the curriculum and to the life of the school. While other locations were considered for programs, the possible challenges were considered by the team and were adjusted to the plan presented here. It remains the intent of the district to locate programs

in areas that best serve the needs of the students and provides them with the best opportunities for accessing the curriculum as well as their non-disabled peers.


Sincerely,



Marianne Young
Principal
Monument Mountain
Regional High School



Peter Dillon
Superintendent
Berkshire Hills
Regional School District



Thomas Simon
Director of Special Education
Berkshire Hills
Regional School District

MSBA Guidelines Space	MSBA Guidelines SF	Proposed Room Name	Floor Plan Designation	Proposed SF	Proposed Space Description and Reasoning for Adjacencies
Floor 1					
*Unique to District		SPED- ESL	A	180	Small classroom to support English language learners
*Unique to District		SPED- TESTING	B	100	Classroom to support the general SPED population
Self-Contained Sped - Toilet	60	SPED- TOILET	C	60	Toilet room to support general SPED population
*Unique to District		SPED- AUTISM	D	540	Classroom to support the Spectrum Program for autistic students
Small Group Room/ Reading	500	SPED- SMALL GROUP ROOM	E	470	Classroom to support the general SPED population in grades 11 &12
Self-Contained Sped	950	SPED 11-12 LEARNING LAB	F	740	Classroom to support the general SPED population in grades 11 &12
Self-Contained Sped	950	SPED 9-10 LEARNING LAB	G	745	Classroom to support the general SPED population in grades 9 & 10
*Unique to District		SPED- LIFE SKILLS	H	1000	Classroom to support life skills education (includes kitchen and a toilet room with shower and changing table)
*Unique to District		SPED-TUTORING	I	300	Classroom to support the general SPED population
*Unique to District		ADJUSTMENT COUNSELOR	J	150	Office space for adjustment counselor
*Unique to District		SPED LIFE SKILLS-STUDENT STORE	K	200	Student store program facilitated by Life Skills students
			Total	4,485	

Square Footage Summary:

The proposed overall gross square footage of the new building is 136,300; Average square footage of General Classrooms is 740

MSBA guidelines allows for 5,040 net square feet of dedicated special education space. The proposed program is 555 nsf less than these guidelines.

*Indicates that space is unique to District's program and does not appear in MSBA space guidelines.



Massachusetts Department of Elementary and Secondary Education

75 Pleasant Street, Malden, Massachusetts 02148-4906

Telephone: (781) 338-3000
TTY: N.E.T. Relay 1-800-439-2370

June 4, 2013

Berkshire Hills Regional School District
50 Main Street
P.O. Box 617
Stockbridge, MA 01262

Dear Superintendent Dillon:

The Office for Career/Vocational Technical Education visited Monument Mountain High School on May 3, 2013.

On May 3rd I toured the district's two chapter 74 state-approved vocational technical education programs; Automotive Technology and Horticulture. In addition, I visited other industrial arts programs that the district plans to expand upon and renovate facilities. The current spaces provide curricula limitations and equipment constraints.

During the visit I had an opportunity to review the proposed school designs which appear to be reasonable, accommodating, and thoughtful. The renovation will provide improved educational opportunities for all students in facilities that are more state-of-art and closer aligned to business and industry needs.

It is apparent that you, along with the principal and faculty are committed to providing continuous improvement for the school district to support student achievement for all. It is evident that you and your team are thoughtful and attentive to receiving feedback.

Thank you for your hospitality during the visit. If you have questions or concerns, please contact me in the Office for Career/Vocational Technical Education at 781-338-3910.

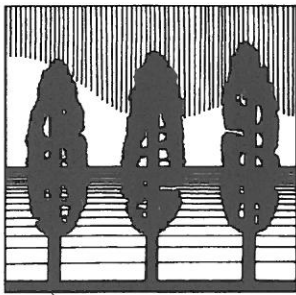
Sincerely,

Lisa M. Sandler
Office for Career/Vocational Technical Education

C: Mary Pichetti – MSBA

SECTION THREE LOCAL ACTIONS AND APPROVALS

Refer to attached Local Actions Letter dated May 23, 2013, provided by Owners Project Manager.



BERKSHIRE HILLS REGIONAL SCHOOL DISTRICT

GREAT BARRINGTON • STOCKBRIDGE • WEST STOCKBRIDGE

50 MAIN STREET • P.O. BOX 617 • STOCKBRIDGE, MA 01262 • (413) 298-4017

May 23, 2013

Ms. Diane Sullivan
Senior Capital Program Manager
40 Broad Street, Suite 500
Boston, Massachusetts 02109

Dear Ms. Sullivan:

The Berkshire Hills Regional School District School Building Committee (“SBC”) has completed review of the Schematic Design Submittal for the Monument Mountain High School project and voted to approve and authorize the OPM to submit the Schematic Design related submittals to the MSBA for consideration on April 25, 2013. A certified copy of the SBC meeting minutes, which includes the specific language of the vote and the number of votes in favor, opposed and abstained, are attached.

The SBC held six meetings regarding the Monument Mountain Regional High school project since the MSBA Board of Directors approved the District to proceed into Schematic Design on November 12, 2012.

December 4, 2012, School Building Committee, 6:00PM

Monument Mountain Regional High School

Notice published on District website at least 2 days prior to meeting according to MGL

Presenters: SBS, SMMA, & District

1. Project Update
2. VoAg Program Review
3. Eco- Charrette discussion for public outreach.
4. Process, Approvals and Schedule Review
5. Floor Plan Concepts Review

January 9, 2013, School Building Committee, 6:00PM

Monument Mountain Regional High School

Notice published on District website at least 2 days prior to meeting according to MGL

Presenters: SBS, SMMA, & District

1. Project Update
2. Floor Plan Review
3. Site Design Review
4. HVAC Design Review
5. Eco-Charrette outcome Review.

January 29, 2013, School Building Committee, 6:00PM

Monument Mountain Regional High School

Notice published on District website at least 2 days prior to meeting according to MGL

Presenters: SBS, SMMA, & District

1. Project Update
2. Site Design Review
3. Structural Discussion
4. Technology Discussion
5. Security Discussion
6. Electrical Design Discussion
7. Floor Plan Review
8. Discussion regarding the physical connection to greenhouse.
9. Public outreach planning review and discussion.

February 12, 2013, School Building Committee, 6:00PM

Monument Mountain Regional High School

Notice published on District website at least 2 days prior to meeting according to MGL

Presenters: SBS, SMMA, & District

1. Overview of Schedule for Cost estimates & MSBA Submission
2. Exterior Design Discussion
3. Roof Studies Discussion
4. STEM Addition Design Discussion
5. New Entry Design Discussion
6. Technology and Security Discussion
7. Generator Discussion
8. Floor Plan Update Review

February 26, 2013, School Building Committee, 6:00PM

Monument Mountain Regional High School

Notice published on District website at least 2 days prior to meeting according to MGL

Presenters: SBS, SMMA, & District

1. Approval of SBS Invoice
2. Phasing Review & Discussion
3. Kitchen/Servery Review & Discussion
4. Mechanical Equipment Review & Discussion
5. Emergency Shelter Discussion
6. Site Review & Discussion
7. Courtyard Access Options Review & Discussion
8. Floor Plan Review & Discussion
9. Exterior Elevation Studies Review & Discussion
10. New Entry Design Ideas Review & Discussion
11. Library Addition Options Review & Discussion
12. Schedule Options Discussion
13. Public Outreach Discussion
14. SBS to develop a new Project Timeline with revised dates.

April 9, 2013, School Building Committee, 6:00PM

Monument Mountain Regional High School

Notice published on District website at least 2 days prior to meeting according to MGL

Presenters: SBS, SMMA, & District

1. Review of Progress Since Last Meeting
2. General Contract/Construction Manager Delivery Methods Review & Discussion
3. Cost Reduction Options Review & Discussions
4. Discussion on Community Outreach
5. MSBA Approval July 31, 2013 – MSBA Board meeting for approval of Schematic Design and Project Scope and Budget Agreement.
6. Working Group was authorized to approve Schematic Design package on behalf of the SBC.

April 25, 2013, School Committee, 6:00PM

Monument Mountain Regional High School

Notice published on District website at least 2 days prior to meeting according to MGL

Presenters: Dick Coons, Chairman School Building Committee

1. Discuss Status of Project and Overall Costs
2. School Committee approved SD Submission

In addition to the SBC meetings listed above, the District held one public meeting, which were posted in compliance with the Open Meeting Law, at which the Monument Mountain Regional High school project was discussed.

December 18, 2012, Eco-Charrette Presentaion

Monument Mountain Regional High School

Notice published on District website at least 2 days prior to meeting according to MGL

Presenters: SBS, SMMA, & District

1. Introduction
2. Green Charrette Breakout Sessions
3. ENERGY EFFICIENCY AND RENEWABLE ENERGY
4. SUSTAINABLE SITES & WATER EFFICIENCY - The following elements
5. INDOOR ENVIRONMENTAL QUALITY

The meeting presentation materials, meeting minutes and summary materials as they relate to the Monument Mountain Regional High school project are available locally for public review at District Offices, and online at <http://www.mmrhsproject.org/pages/MMRHSP>

To the best of my knowledge the meetings listed above comply with the requirements of the Open Meeting Law, M.G.L. c. 30A, §§18-25 and 940 CMR 29.00: Open Meetings.

The District has named Steven Soule, Director of Operations, as the local point of contact to receive questions.

By signing this Local Action Certification, I hereby certify that, to the best of my knowledge and belief, that the information supplied by the District is true, complete and accurate.



By: Peter Dillon, Ed. D.
Title: Chief Executive Officer

Date: May 23, 2013

By signing this Local Action Certification, I hereby certify that, to the best of my knowledge and belief, that the information supplied by the District is true, complete and accurate.



By: Peter Dillon, Ed. D.
Title: Superintendent of Schools

Date: May 23, 2013

By signing this Local Action Certification, I hereby certify that, to the best of my knowledge and belief, that the information supplied by the District is true, complete and accurate.



By: Stephen Bannon
Title: Chair of the School Committee

Date: May 23, 2013

SECTION FOUR APPENDIX

The Appendix contains the following documents:

4.1 SCHEMATIC DESIGN PROJECT MANUAL

4.2 SCHEMATIC DESIGN DRAWINGS

4.3 SCHEMATIC DESIGN IMAGES (SEPARATE CD)

4.4 SCOPE DOCUMENT FOR COST ESTIMATING

Project Manual

Monument Mountain Regional High School

Great Barrington, Massachusetts

May 31, 2013

OWNER

Berkshire Hills Regional School District
600 Stockbridge Road
Great Barrington, MA 01230

ARCHITECT/ENGINEER

Symmes Maini & McKee Associates
1000 Massachusetts Avenue
Cambridge, MA 02138

Margo Jones Architects, Incorporated
308 Main Street, 3rd Floor
Greenfield, MA 01301

MONUMENT MOUNTAIN REGIONAL HIGH SCHOOL

Uniformat Building Specifications

PROJECT SUMMARY

10 PROJECT DESCRIPTION

1010 Project Summary

1010.10 Summary of Work

1010.50 Work Restrictions

1010.51 Alternates

1020 Project Program

1020.10 Site Program

1020.50 Facility Program

1020.60 LEED for Schools/High Performance Schools Requirements

1030 Project Criteria

1030.20 Code Analysis

1030.50 Sustainable Design Requirements

1030.53 Facility Environmental Requirements

1030.56 Indoor Air Quality Requirements

1040 Existing Conditions

1040.30 Assessment

1040.50 Subsurface Investigation

1050 Owner's Work

1060 Phased Construction

30 PROCUREMENT REQUIREMENTS

3010 Project Delivery

3010.10 Project Delivery Methods

A SUBSTRUCTURE

A10 FOUNDATIONS

A1010 Standard Foundations

A1010.10 Wall Foundations

A1010.30 Column Foundations

A40 SLABS-ON-GRADE

A4010 Slab-on-Grade

A4010.10 Standard Slabs On Grade

A4040 Pits and Bases

A4090 Slab-On-Grade Supplementary Components

A4090.10 Perimeter Insulation, Slab Insulation, And Vapor Retarder

A4090.30 Waterproofing

B SHELL

B10 SUPERSTRUCTURE

B1010 Floor Construction

- B1010.10 Floor Structural Frame
- B1010.50 Ramps
- B1010.90 Floor Construction Supplementary Components

B1015 Lateral Load Structure

- B1015.10 Lateral Load Resisting System

B1020 Roof Construction

- B1020.10 Roof Structural Frame
- B1020.90 Roof Construction Supplementary Components

B1080 Stairs

- B1080.10 Stair Construction

B20 EXTERIOR VERTICAL ENCLOSURES

B2010 Exterior Walls

- B2010.10 Exterior Wall Veneer
- B2010.20 Exterior Wall Construction
- B2010.30 Exterior Wall Interior Skin

B2020 EXTERIOR WINDOWS

- B2020.10 Exterior Windows
- B2020.30 Exterior Window Wall

B2050 EXTERIOR DOORS AND GRILLES

- B2050.10 Exterior Entrance Doors
- B2050.20 Exterior Utility Doors

B2070 Exterior Louvers and Vents

B2070.10 Exterior Louvers

B30 EXTERIOR HORIZONTAL ENCLOSURES

B3010 Roofing

B3010.50 Low-Slope Roofing

B3010.60 Reroofing

B3010.80 Flashing And Sheet Metal

B3060 Horizontal Openings

B3060.10 Roof Windows and Skylights

B3060.50 Vents and Hatches

B3080 Overhead Exterior Enclosures

B3080.30 Exterior Soffits

Acoustic Equipment Screens

C INTERIORS

C10 INTERIOR CONSTRUCTION

C1010 INTERIOR PARTITIONS

- C1010.10 Interior Fixed Partitions
- C1010.20 Interior Glazed Partitions
- C1010.90 Interior Partition Supplementary Components

C1030 INTERIOR DOORS

- C1030.10 Interior Swinging Doors
- C1030.20 Interior Entrance Doors
- C1030.40 Interior Coiling Doors
- C1030.80 Interior Access Doors And Panels

C1060 RAISED FLOOR CONSTRUCTION

- C1060.30 Platform/Stage Floors

C1070 SUSPENDED CEILING CONSTRUCTION

- C1070.10 Acoustical Suspended Ceilings
- C1070.20 Suspended Gypsum Board Ceilings
- C1070.70 Special Function Suspended Ceilings

C1090 INTERIOR SPECIALTIES

- C1090.20 Information Specialties
- C1090.25 Compartments And Cubicles
- C1090.35 Wall And Door Protection
- C1090.40 Toilet, Bath, And Laundry Accessories
- C1090.90 Other Interior Specialties

C20 INTERIOR FINISHES

C2010 Wall Finishes

- C2010.10 Tile Wall Finish
- C2010.20 Wall Paneling
- C2010.80 Acoustical Wall Treatment
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MONUMENT MOUNTAIN REGIONAL HIGH SCHOOL

10 PROJECT DESCRIPTION

1010 Project Summary

1010.10 Summary of Work

The Project is the construction of additions and renovations to the Monument Mountain Regional High School, located at 600 Stockbridge Road in Great Barrington, Massachusetts. Demolition and renovation will take place in phases.

The project includes construction of a 1-story addition to the east of the existing building consisting of new science laboratories, mechanical rooms, and core academic support spaces. Additional smaller additions include a new entry tower, library/media center addition, and cardio and weight rooms. Renovations to the existing building consist of new roofing, windows, exterior envelope upgrades, introducing new skylights and roof monitors, interior finishes, mechanical, electrical, and plumbing upgrades, the addition of fire sprinklers, seismic upgrades to the structure and exterior utility, parking lot and roadway upgrades.

The school facility will be designated as an Emergency shelter. When the building is used as an emergency shelter the areas in use will be the same as when the building is configured for after school activities use.

1010.50 Work Restrictions

Comply with limitations on use of public streets and other requirements of authorities having jurisdiction.

On-Site Work Hours: Limit work to normal business working hours of 7:00 a.m. to 5:00 p.m., Monday through Friday, except as otherwise indicated. Obtain prior authorization from the Owner at least 72 hours in advance for work at the site outside these hours or on weekends. Schedule deliveries of material and equipment to the site during normal hours of construction operations, however without impeding the normal school operations. School arrival and departure times are approximately 7:05 a.m. to 7:18 a.m. and 2:05 p.m. to 2:15 p.m.

Restriction on work within the building: Work shall only be performed within the phased work areas, only after all temporary noise and dust have been constructed and temporary exhaust fans made operational.

Restrictions on Use of Site: Site Work and Work outside the building may be performed while school is in session if it does not interfere with or impede school activities, including but not limited to arrivals and departures of students and staff, and outdoor athletic and play activities.

Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner without prior written approval of the Owner.

Noise, Vibration, and Odors: Coordinate operations that may result in elevated levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner. The Owner will be the sole judge of whether construction activities are disrupting operations.

Quiet Days: Each phase will include five quiet days, to be chosen by the Owner. During these days no work will be performed, that in the judgment of the Owner, will impact their activities during these days.

Employee Screening: Comply with Owner's requirements regarding CORI reporting and requirements stated in the General Conditions regarding CORI screening of Contractor personnel working on the Project site.

Identification Badges: Provide identification badges for Contractor's employees, and for employees of the Contractor's subcontractors, sub-subcontractors, and suppliers.

No Smoking On Site: Smoking is not permitted on the project site.

1010.51 Alternates

Provide the following Bid Alternates:

1. New granite terraced seating along western hillside of the existing track- as indicated on the site drawings.

1020 Project Program

1020.10 Site Program

Site improvements include roadways, walkways, and parking area upgrades, and service vehicle access to the loading dock.

The site work addresses the existing entrance drive safety issue on Stockbridge Road, improves the bus and parent circulation, and upgrades the utility services. Site accessibility is addressed.

1020.50 Facility Program

The one-story Academic Addition east of the existing Monument Mountain Regional High School will house new science laboratory

classrooms along with smaller core academic support spaces and new mechanical rooms. The proposed building is 136,300 square feet.

The project includes selective demolition of, and interior renovation to, the existing building to accommodate the proposed use of the facility. The existing building plumbing, HVAC, electrical and technology systems will be fully upgraded, including providing for full fire sprinklering. The existing windows will be replaced and the minimally insulated terne metal mansard roof will be re-clad with insulating metal panels. The roof will be replaced with new roofing and insulation. The asbestos will be abated through-out and new finishes provided. The significant accessibility issues throughout will be addressed, as well as life safety and egress code issues.

1020.60 LEED for Schools/High Performance Schools Requirements

The Monument Mountain Regional High School will be designed and constructed in accordance with LEED for Schools guidelines. The project will seek LEED for Schools Silver certification.

A progress LEED scorecard is included in the Schematic Design Report. This scorecard identifies the project design criteria and associated credits which are under consideration for this project.

Several points involve facilities maintenance, including commitment to a regular recycling plan, designated parking for fuel-efficient vehicles, and green housekeeping practices are contingent upon the District committing to certain policies and actions.

1030 Project Criteria

1030.20 Code Analysis

The building will be designed in accordance with the 8th edition of the Massachusetts State Building Code, the Massachusetts Architectural Access Board (MAAB), and the 2009 IBC International Codes. The Code Analysis is included in the Schematic Design Report.

The Town of Great Barrington is a Green Community and has adopted the Massachusetts Stretch Energy Code. The requirements for these programs will be included in with the LEED for Schools requirements in order to determine the overall energy performance goals for this project.

1030.50 Sustainable Design Requirements

LEED for Schools Certification: Silver. The awarding authority has determined that this facility shall be designed and constructed in accordance with the principals of the U.S. Green Building Council's LEED (Leadership in Energy and Environmental Design) Green Building Rating System™, in order to achieve LEED for Schools Silver Certification.

SMMA will register the project with USGBC at the commencement of the Design Development phase. Material and systems selections consistent with the Silver Certification goal will be agreed upon at this time.

The LEED Assessment Criteria Matrix is in the Schematic Design Report under separate cover. This identifies both the prerequisites for basic LEED certification and additional opportunities for this building to achieve a Silver Certification. All of the criteria identified as "prerequisites" must be met to achieve basic certification. Additional LEED points are required for Silver Certification.

During subsequent design development, contract document, and construction phases, the opportunities and decisions presented in the matrix will be developed further and formally documented.

Specifications will include instructions to Contractor regarding waste management and waste diversion goals (95%), recycled content, low-emitting and regional material procurement goals, FSC certified wood and construction indoor air quality goals.

1030.53 Facility Environmental Requirements

Several points, including commitment to a regular recycling plan, designated parking for fuel-efficient vehicles, and green housekeeping practices are contingent upon the Regional School District committing to certain policies and actions.

1030.56 Indoor Air Quality (IAQ) Requirements

The renovations and additions will have specification requirements to ensure that air quality inside the building is not impacted by construction activities that lead to unhealthy or uncomfortable conditions for students, staff, faculty, visitors, as well as construction personnel.

The purpose of the Indoor Air Requirements are; containment and control of contaminants, reduce sources of contaminants, construct temporary partitions during construction to protect occupied areas, to survey and monitor of IAQ in occupied areas, to comply with "Sustainable Design Requirements" required by LEED.

The Contractor is required to employ a Certified Indoor Environmentalist (CIE) as a qualified IAQ Consultant to prepare IAQ plans, monitor air quality, interpret sampling results, evaluate materials used during construction, and recommend changes to mitigate unacceptable air quality. The CIE will make recommendations regarding work practices, conduct indoor air quality testing, and review the properties of construction materials based on MSDS sheets to ensure that air quality in the occupied spaces of the building meets regulated and guideline recommendations. Work areas will be maintained under negative pressure, relative to adjacent occupied areas, at all times during

construction, by means of appropriately sized and correctly functioning fan units directly exhausting thru filtration to the outside of the building and dust and sound proof partitioning.

The IAQ recommendations will be submitted and documented as an indoor air quality management plan. The Owner will also include housekeeping plans to comply with facilities maintenance LEED requirements.

1040 Existing Conditions

1040.30 Assessment

The existing Monument Mountain Regional High School is located at 600 Stockbridge Road (Route 7) in Great Barrington, MA. The site is bound by Stockbridge Road to the west, Monument Valley Road and Muddy Brook Regional Elementary School to the southwest, to the north and land to the east and southeast owned by Massachusetts Land Conservation Trust, Inc. The eastern property line follows the Konkapot Brook, identified as a perennial stream on the 2009 U.S. Geological Survey quadrangle maps.

The site measures approximately 143.3 acres, 40 acres of which make up the developed and western region of the site. The existing high school building is centrally located within the developed area. There is also a farmhouse building with accessory greenhouse structures located on the western corner of the site, at the intersection of Stockbridge Road and Monument Valley Road. The Muddy Brook Regional Elementary School and Monument Valley Regional Middle School are accessed by Monument Valley Road and are directly south of the High School site.

A track and field complex with bleachers and a press box are to the east of the existing school building, along with practice field space and baseball and softball fields. The site accommodates parking for approximately 290 vehicles mostly concentrated in a large parking lot to the north of the school building. The rest of the site, approximately 55 acres, is densely wooded and undeveloped. There is at-grade loading area on the northwest corner of the building.

Topography on the project site ranges significantly from the southwest corner at elevation 864 where the greenhouse building exists up to elevation 896 where the high school exists and down to a rough elevation of 830 along the east side of the property at the Brook. The school is one story with the same floor elevation generally throughout the building. In general, the site slopes away from the high school building in all directions as steep as 3h:1v.

1040.50 Subsurface Investigation

Subsurface conditions consist of asphalt, topsoil, fill, glacial till, and bedrock. Groundwater is at 8.0 to 14.0 feet below existing ground surface, which correspond to elevations 332 to 344 feet. Existing structures, topsoil, and fill will be removed and replaced with compacted structural soil fill where required for new construction.

Radon testing indicates radon levels are below the Environmental Protection Agency's radon action level. The full Geotechnical Report is included in the Schematic Design Report.

1050 Owner's Work

FFE: Owner will provide new moveable furniture, fixtures and equipment under separate contracts. Relocation of existing FFE at each phase commencement and completion will be under the Construction Contract.

Technology Equipment: Owner will provide new technology equipment under a separate contract. Infrastructure and coordination will be under the Construction Contract. Relocation of existing technology equipment at each phase commencement and completion will be by the Owner.

1060 Phased Construction

Construct temporary dust and noise barriers throughout building during renovation.

Construct temporary egress routes, including egress signs and temporary Fire Detection and Alarm services.

Disable Fire Alarm in areas of renovation but include temporary manual pull stations at locations directed.

30 PROCUREMENT REQUIREMENTS

3010 Project Delivery

3010.10 Project Delivery Methods

Trade Contractors: will be required to be pre-qualified in accordance with Chapter 193 of the Acts of 2004.

A. SUBSTRUCTURE

A10 FOUNDATIONS

A1010 Standard Foundations

A1010.10 Wall Foundations

All new additions will require a 16" thick reinforced, cast-in-place concrete walls, with an 8" brickshelf, on a minimum of 24" to 36" wide continuous strip footing, around the perimeter of the building extending at least 4'-0" below finished grade, for footings resting on compacted structural fill or undisturbed soils, and 2'-0" below grade for footings resting on ledge.

As the grade slopes away from the existing building, it is anticipated that a portion of the walls will need to be designed as retaining walls and step down as they extend from the existing structure.

Cast-in-place concrete for all foundations and slabs to contain a 33% minimum percentage of recycled and regional materials. Recycled content consisting of fly ash or similar appropriate recycled content.

A1010.30 Column Foundations

At the new additions, individual spread footings at columns with allowable bearing pressures as recommended in the "Geotechnical Engineering Recommendations" report for the "Mounment Mountain Regional High School Renovations and Additions by O'Reilly, Talbot & Okun Associates, dated February 22, 2013. (Based on this preliminary report the footings will most likely rest on natural soils or compacted structural fill with and allowable bearing value of 4500 psf).

A typical interior footing supporting a roof only will be approximately 4'-6"x4'-6"x18" deep. Approximate footing reinforcing will be 5 to 6psf.

Interior grade beams will be required between interior braced frame columns and footings. These beams will be approximately 24" wide x 18" to 24" deep with approximately 25lbs of reinforcing per linear foot. These grade beams will be required at new construction.

At the existing braces, additional grade beams will not likely be required, as the majority of existing braces are either on exterior walls, or above a continuous wall footing. However, if new braces are required on the

interior (at locations where braces do not currently exist, and) where a continuous footing does not exist, it may be necessary to add a grade beam and/or increase the existing footing sizes. Typically, the existing column footings are 4'-0" square and 1'-4" deep and will need to be increased by approximately 12" all around, creating a overall footing size of 6'-0"x6'-0".

A40 SLAB ON GRADE

A4010.10 Standard Slabs on Grade

At the additon, the new floor will consist of a cast-in-place concrete slab, 5" thick minimum at the classroom areas of the addition, and 6" thick at electrical and mechanical room. All slabs shall be reinforced with 6x6-W2.9xW2.9 welded wire fabric (1 layer in the 5" slab and 2 layers inthe 6" slab), placed over a minimum of 2" of rigid insulation and a vapor barrier over a base course of approximately 8" of compacted gravel fill. The exact details of the slab-on-grade subgrade preparation will be determined from the recommendations set forth in the Final Geotechnical Engineering Evaluation Report.

A4040 Pits and Bases

Acid Neutralization and Waste: Constructed with 10" reinforced concrete walls with a 12" thick reinforced concrete foundation mat. An appropriate waterstop will be incorporated into the pit design.

A4090 Slab-On-Grade Supplementary Components

A4090.10 Perimeter Insulation, Slab Insulation, and Vapor Retarder

Perimeter Insulation: 2" thick foamed plastic insulation, continuous with the under-slab insulation, extending vertically along the outside face of foundation walls for a distance of 4'-0" below finish grade.

Under-Slab Insulation: 2" thick foamed plastic insulation, extending under the entire surface of the floor slab.

Vapor Retarder: Heavy-duty, unreinforced, 15 mils thick polyolefin sheet with Perm Rating of 0.03 perms or less, "Stego Wrap" by Stego Industries, LLC, or equal; continuous under the slab on grade.

A4090.30 Waterproofing

Waste water pump lift station pit: Pit will be made watertight by application of crystalline waterproofing or equal type waterproofing.

B. SHELL

B10 SUPERSTRUCTURE

B1010 Floor Construction

B1010.10 Floor Structural Frame

No additional framed floors are anticipated the new construction. The new addition is a one story structure with a roof and slab on grade.

B1010.50 Ramps

Exterior ramps on grade will be constructed as cast-in-place concrete slab supported on concrete foundation walls and footings. Slab surface will receive a broom finish.

Railings and Handrails: Galvanized steel, painted.

B1010.90 Floor Construction Supplementary Components

Floor Construction Firestopping: In the addition, through-penetration fire-stopping will be provided in accordance with a tested U.L. design, to attain a 1-1/2 hour F-rating, and a corresponding T-rating where required by Code.

Low-Emitting Materials: All fireproofing will be specified to meet the test standards of Indoor Advantage Gold, GreenGuard Children and Schools or California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

B1015 Lateral Load Structure

B1015.10 Lateral Load Resisting System

Due to the extent of proposed renovations, the lateral force resisting system will need to be evaluated and analyzed to resist wind and seismic forces. Currently, there are diagonal steel rods and plates in many of the walls that were designed to resist these forces. However, the proposed renovations involve reconfiguring many of the interior spaces, with some that require alternations of the existing lateral system. In addition , the proposed additional roof top units contribute to a larger building mass that will affect seismic calculations. As a result, some of the existing braces

may need to increase in size, and it is likely that some new steel braced frames will need to be incorporated in the building. A complete structural analysis will determine the requirements for the size and extent of these frames, which will be coordinated with the architectural layout to minimize their visibility. In order to avoid extensive foundation work within the existing building, it may be more feasible to install a series of closely spaced braced frames. If the new architectural layout is such that this cannot be achieved, then in some cases the new frames will require the existing foundations to be upgraded in areas of the existing building.

For new construction, the approximate material quantities for the braced frames in new construction are 1 to 1.5 psf. For this renovation, it is anticipated that these quantities will be less than 25% of that.

Also, as part of the requirements to existing buildings, the condition of any existing masonry walls that are scheduled to remain will need to be reviewed. The building code requires that these walls be adequately braced to resist minimal out of plane seismic loads. Existing walls that are to remain will likely need to be bolted to new steel angles that are attached to the existing structural steel.

B1020 Roof Construction

B1020.10 Roof Structural Frame

Existing Structure:

The existing roof framing was designed to support a 40 pound per square foot (psf) live load. The current version of the Massachusetts State Building Code has updated the snow loading requirements such that the flat roof snow loading is closer to 50psf. Many of the existing steel members have some additional capacity to resist greater loads, and perhaps can claim some more so if the existing roofing is replaced with a lighter product. A preliminary review has indicated that there appears to be just enough capacity so that roof areas that require reinforcement will likely be limited to localized areas. However, there is also a scenario in which the flat roof snow load requirements may be calculated to be 55psf. This could happen if the building is designated as a "Mass Care Shelter", which could classify the building as Occupancy Category IV. If this is the requirement, then a more precise analysis will be required of the existing structural members, as it appears that this additional load may cause some of the steel members to reach their threshold. This analysis will incorporate the actual anticipated dead and live load changes, such as mechanical/plumbing piping routes, roofing materials and ceiling types.

Ideally, large areas that require attention may be able to coincide with roof areas that need reinforcing work to support new mechanical units on the roof.

In addition to the increased flat roof snow loads, the current code includes provisions for drifting snow loads, in which there are obvious areas of the existing roof that will need to be upgraded to meet this criteria. The most extensive portion of roof area that will require reinforcing occurs where the main roof meets the high walls of the Gymnasium and Auditorium. Snows drifts as long as 15 feet can occur around the perimeter of this high roof. On the East and West sides of these walls, the existing wide flange beams appear to have additional capacity for the drifting snow, however, the existing roof deck in these areas do not, and will need replacement. On the North and South sides of the high walls, both the existing roof joists and deck will require reinforcement or replacement. Additional areas where the effects of snow drifting will be considered include areas adjacent to the proposed new clearstory light monitors, and new mechanical units.

New the vertical support for new clearstory light monitor is intended to be new HSS columns posted up above locations of existing columns. The roofs will be framed with wide flange beams and girders. The new steel for these areas is anticipated to be 8psf for these areas. The drifted snow loads may be as much as 100psf where the monitor meets the main roof, and the drifts may taper away as much as 12 feet.

At the locations on the existing roof where new large mechanical units are proposed, a concrete pad or roof slab is required beneath them. This will require removing the existing roofing and metal deck, and providing new supplemental structural steel framing, and a composite floor deck to support a new 6" topping slab. The topping slab shall extend 2'-0" to 5'-0" beyond the footprint of the unit. A portion of these areas may coincide with the roof areas that require attention due to the drifting snow loads in order to minimize the scope of roofing work. There will be approximately 2250 sq. ft. of new composite deck and topping slab required. In addition approximately 400 sq. ft. of new 1.5" x 20 gage galvanized metal roof deck will be required around the units for patching. There will be approximately 10 new concrete pads for the HVAC units with an average size of 225 sq. ft. To support the units and concrete pads, approximately 15 tons of supplemental steel beams will be required in addition to 4 tons of girder cover plate reinforcing.

New Addition:

Typical new roof construction for the proposed addition will be 1.5" x 20 gage galvanized "Type B" metal roof deck, supported on "K" Series Steel Bar Joists at the classroom wing. The joists will in turn be supported by wide flange steel girders and square HSS steel columns. The approximate material weights for the bar joists will be 4 psf. The material quantities for the girders and columns will be approximately 4 to 5 psf.

It has been proposed that a large portion of the roof of the new addition be Photovoltaic (PV) ready for future solar panels. All new roofs in these PV ready areas shall have an 18 gage roof deck and an additional 1 to 1.5psf of additional structural steel.

The roof area under the new mechanical rooftop units at the addition will be a minimum 6" thick normal weight concrete slab on 1.5" x 20 gage galvanized composite metal deck extending at least 2'-0" to 5'-0" beyond the footprint of the unit on all sides. The composite slab here will be supported on wide flange steel beams and girders instead of the typical bar joists. The approximate material weights for the wide flange beams in this area will be 6 psf. The material quantities for the girders will be 4 psf.

Structural Steel Recycled Content: All steel is to consist of a minimum of 95% recycled steel with over 80% post-consumer and 15% pre-consumer recycled material in compliance with LEED for Schools requirements.

Misc. Metals Recycled Content: Recycled Content of Metal Products; Provide products with average recycled content of steel products so postconsumer recycled content plus one-half of pre-consumer recycled content is not less than 60 percent.

Structural Steel and Miscellaneous Metals Regional Content: Provide products consisting of at least 50% regional material by cost.

B1080 Stairs

B1080.10 Stair Construction

Exterior stairs: Exterior stairs will be constructed as cast-in-place concrete slabs supported on concrete foundation walls and footings. Tread and landing surface will receive a broom finish.

Railings and Handrails: Galvanized steel; and painted.

Interior Stairs: New monumental stair will be tube steel structure with terrazzo treads and risers.

Steel stairs for egress will conform to NAAMM (National Association of Architectural Metal Manufacturers) "Architectural" Class, with structural steel stringers, concrete-filled steel pan treads and platforms, steel plate risers.

Railings: Steel bar stock balusters, perforated steel panels, or wire mesh panels; with stainless steel handrail and cap rail.

B20 EXTERIOR VERTICAL ENCLOSURES

B2010 Exterior Walls

B2010.10 Exterior Wall Veneer

Masonry Walls: Brick masonry, accented with contrasting colors and/or precast concrete or cast stone trim, tied to stud framing with galvanized steel ties. Loose steel lintels above window and door openings. Bricks shall be manufactured within 500 miles of Project site to meet Regional Materials LEED credit.

Exterior Metal Composite Panels: Exterior metal composite panels will be installed in new building addition and at the existing mansard roof fascia around the entire perimeter of the existing building.

B2010.20 Exterior Wall Construction

Stud Framing and Sheathing: 18 gauge or heavier steel studs with G90 galvanizing, covered with 1/2 inch thick glass-mat faced panel sheathing.

Flashing: Through-wall flashing will be stainless steel with drip edge, tied to air barrier system.

Air Barrier: The air barrier will be Fluid-Applied, Vapor-Retarding Membrane Air Barrier consisting of elastomeric, modified bituminous or synthetic polymer membrane such as Carlisle Coatings & Waterproofing Inc.; Barriseal R or Barriseal S., Grace, W. R., & Co. - Conn.; Perm-A-Barrier Liquid, or Henry Company; Air-Bloc 32.

Insulation Above Grade at Masonry: The cavity wall insulation will be 4-1/2" thick, foamed plastic, rigid insulation, installed in the air space behind the masonry, outboard of the air barrier.

Insulation at Metal Composite Panels: Insulation at the metal composite panels is required by NFPA 285 to be of noncombustible materials. This will consist of water-repellant mineral-wool board insulation, 3 " thick.

Insulation is unfaced, with water-repellant treatment, with maximum flame-spread and smoke-developed indexes of 15 and zero. Manufacturers are Fibrex Insulations Inc., Roxul Inc., or Thermafiber.

B2010.30 Exterior Wall Interior Skin

Typical: 5/8 inch thick gypsum board, with joints taped and finished.

Cavity Walls and Concrete Walls: 5/8 inch thick gypsum board, with joints taped and finished, applied over galvanized steel cold-form metal framing.

B2020 Exterior Windows

B2020.10 Exterior Windows

Extruded aluminum, factory glazed fixed and operable windows.

Vision Glass: Insulating glass units, 1" thick (1/4" glass + 1/2" air space with Argon + 1/4" glass). Glazing will be Argon filled, with low-E coating on No. 2 surface, insulating units with a U-value of 0.42 minimum, and a solar heat gain coefficient (SHGC) of 0.35 or better.

Frames: Frames will be finished with Kynar or Hylar High-Performance Organic Finish (3-Coat Fluoropolymer. Manufacturer's standard thermocured system consisting of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight. Color and Gloss: Custom color to match Architect's sample.

Exterior Sun Control devices will be included, as indicated on the drawings.

Kalwall: The upper portion of the gym will be clad in translucent, insulated panels by Kalwall.

B2020.30 Exterior Window Wall

Vision Glass: Insulating glass units, 1" thick (1/4" glass + 1/2" air space with Argon + 1/4" glass). Windows Assembly will have an insulating U-value of 0.42 minimum, and a solar heat gain coefficient (SHGC) of 0.38 or better.

Spandrel Glass: Insulating glass units, 1" thick (1/4" glass + 1/2" air space + 1/4" glass), with opaque ceramic frit on the No. 4 surface.

Storefront: Extruded aluminum, stick-built storefront assembly; thermal break, equal to Kawneer "Trifab 451T" framing system or similar system by EFCO or Vistawall, with high-performance organic coating ("Kynar 500") in an architectural color. Glazed with 1" thick insulating glass, clear tempered glass with low-E coating on No. 2 surface. Interior storefront will be based on Kawneer "Trifab 450", without a thermal break. System will have operable vents.

Glazed Curtain Wall: Extruded aluminum curtain wall system, thermally broken or thermally improved, employing Kawneer "1600 Wall," Vistawall "2600," or equivalent framing system by EFCO, outside glazed. Mullions 2-1/2 inch face width, by depth required to resist wind loads. System may have operable vents.

Frames: Frames will be finished with Kynar or Hylar High-Performance Organic Finish (3-Coat Fluoropolymer. Manufacturer's standard

thermocured system consisting of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight. Color and Gloss: Custom color to match Architect's sample.

B2050 Exterior Doors And Grilles

B2050.10 Exterior Entrance Doors

Aluminum entrance doors: Kawneer "350/500" heavy duty doors with wide aluminum stiles, or equal by Vistawall or EFCO, with custom arrangement of intermediate mullions. High performance fluoropolymer finish (made of 70% "Kynar 500" or "Hylar 5000" resin).

Frames: Kawneer "451T" Or equal By Vistawall Or EFCO. Finished to match doors.

Glass: insulating glass units, 1" thick (1/4" glass + 1/2" air space + 1/4" glass), tempered safety glass.

Hardware: full height continuous hinge; exit device; offset tubular pulls; surface-mounted closers; stops; threshold and weatherstripping.

One leaf at all doors within the entry sequence at the main entrance will also be activated by low-power power-assisted operating device, with push-plates located on both sides of the door.

Locking will be coordinated with security system for access control.

B2050.20 Exterior Utility Doors

Flush steel doors, SDI 100 Extra Heavy Duty (16 gauge steel face with steel stiffeners in core), in fully welded, 14 gauge steel frames, G60 galvanized, shop-primed and field painted.

Hardware: Mortised lockset with lever handle; butt hinges; threshold

B2070 Exterior Louvers and Vents

B2070.10 Exterior Louvers

Mechanical Room Air Intake Louvers: Extruded aluminum fixed blade louvers with drainable blade profile; high performance painted finish, with bird screen, and with insulated blank-out panels to cover excess louver area not connected to duct.

Frames: Frames will be finished with Kynar or Hylar High-Performance Organic Finish (3-Coat Fluoropolymer. Manufacturer's standard thermocured system consisting of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent

polyvinylidene fluoride resin by weight. Color and Gloss: Custom color to match Architect's sample.

B30 EXTERIOR HORIZONTAL ENCLOSURES

B3010 ROOFING

B3010.50 Low-Slope Roofing

Underlayment/Substrate board: 1/2 - inch thick “Dens Deck” board steel deck.

Vapor Retarder: Reinforced polyethylene; Griffolyn type.

Insulation: Polyisocyanurate with glass mat facers; 5-inch average thickness, applied in at least two layers.

Cover board: 1/2 - inch or 1/4 -inch thick primed “Dens Deck”.

Securement: Insulation and overlayment mechanically fastened to deck to meet FM 1-90 requirements.

Mechanically fastened PVC : Thermoplastic Poly Vinyl Chloride system, including boards, barriers, and insulation, applied directly to steel deck, or to concrete-filled steel deck, and consisting of the following components:

Membrane: 60 mils thick, fabric backed, fabric reinforced. Color: Light grey. Membrane to meet EnergySmart program criteria, to meet the Heat Island Effect (Roof) credit under LEED.

Walkway Pads: As required for access to roof-top mounted equipment, with manufacturer’s standard anti-slip surface

Performance: Secure to meet FM 1-90 requirements; 1 fastener per 2 square feet in field of roof; increase fastener density at roof perimeter and in corners.

Warranty: Total system warranty, 15 years with 75 MPH wind enhancement.

B3010.60 Reroofing

The entire existing building will be reroofed with PVC system as described above..

B3010.80 Flashing And Sheet Metal

General: Metal flashing will be required at the following locations; custom color to match Architect's sample.

Roof edge and fascia.

Counterflashing, where a roof meets a vertical walls.

Sheet metal flashing will be fabricated from stainless steel.

B3060 HORIZONTAL OPENINGS

B3060 Horizontal Openings

B3060.10 Roof Windows and Skylights

Skylights will provide daylighting as indicated on the drawings.

Framed Skylights, fabricated with extruded aluminum framing, as fabricated by Naturalite, SuperSky or Wasco.

Glass: Insulated glass unit, 1-1/16" thick, fabricated with exterior pane 1/4 inch thick heat-treated clear glass with high-performance Low-E coating, and interior pane 5-1/16-inch thick of laminated safety glass consisting of 2 sheets of 1/8-inch thick annealed glass and 0.060 inch thick plastic interlayer.

B3060.50 Vents and Hatches

Provide roof hatches at locations to ensure adequate access to the roof. Replace smoke vents at Auditorium stage.

B3080 Overhead Exterior Enclosures

B3080.30 Exterior Soffits

Building Soffits: Metal composite panels; with a layer of air-vapor barrier behind the sheathing. Replace all existing soffits.

Acoustic Equipment Screens: Acoustic equipment screens at rooftop HVAC equipment near outdoor courtyard, by Kinetics Noise Control, Inc., or similar.

C. INTERIORS**C10 INTERIOR CONSTRUCTION**

Sustainable Materials: Building materials will be selected to optimize the use of sustainable materials, as defined by LEED for Schools for Recycled Content, Rapidly Renewable, Regional, Certified Wood and Materials Reuse. Sustainable materials include recycled content materials, materials from sources that regenerate in 10 years or less, wood certified by the Forest Stewardship Council as sustainably harvested, and material salvaged from a prior use. To the extent possible, materials will be selected that are extracted/harvested and manufactured within a 500 mile radius.

Indoor Air Quality (IAQ): Where applicable, all paints and coatings will be specified to meet the test standards of Indoor Advantage Gold, GreenGuard Children and Schools or California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers." All wood will be specified as no added urea-formaldehyde. Low-emitting materials will also be specified in the following categories: Adhesives, sealants and concrete sealers; carpet and carpet adhesives; resilient flooring and associated adhesives; other flooring adhesives; composite wood and agrifiber products; furniture and furnishings; acoustical ceiling panels, wall coverings, insulation and gypsum.

C1010 Interior Partitions**C1010.10 Interior Fixed Partitions**

Masonry: Concrete unit masonry construction will be used to enclose spaces that need high durability, such as the following locations:

Locker rooms.

Mechanical room.

Main switchgear rooms.

Receiving area.

Woodshop, where walls are being altered.

Construction: Normal-weight concrete masonry units, typically 8-inch width, ASTM C270 Type S mortar, reinforced with vertical rebar and with horizontal truss-type reinforcing in every other course. Partitions will run

from the floor to the underside of steel floor or roof deck above, and will be restrained from lateral movement at the top.

Existing, unreinforced concrete masonry walls to remain must be clipped to structure above, in accordance with current building code.

Gypsum Board Partitions

Typical Gypsum Board Partitions: 5/8 inch thick gypsum board on 0.0179 inch (25 gauge) steel studs, 3-5/8" deep studs spaced 16 inches on center. Screw gypsum board to studs.

2-hour rated construction around emergency electrical closets, HVAC duct shafts, and at fire wall locations indicated.

Schedule Of Gypsum Board Locations:

1. Install interior gypsum board products in the following locations:
 - a. Normal: Walls and ceilings unless otherwise indicated..
 - b. Moisture- and Mold-Resistant Type: Walls and ceilings in restrooms, locker rooms, servery and kitchen.
 - c. Durock: Corridor walls where tile is indicated, normal gypsum partitions above.
2. Install cementitious backer board in the following locations:
 - a. Shower rooms.
 - b. Wet walls in toilet rooms

Porcelain Tile Veneer Partitions: Along the main corridors.

Acoustical Partitions: Generally, at the locations listed below, new partitions will be constructed as sound-attenuating, with an STC of 38 or better. The walls will meet ASHRAE Standard S12.60-2002 Acoustical Performance Criteria, Design Requirements and Guidelines for Schools, with acoustical insulation inside the wall and acoustical caulking at top and bottom of the partition:

1. Music rooms.
2. Administrative areas.
3. Classrooms.
4. Library.
5. Toilet rooms.

Shaft Wall: Galvanized steel C-H studs with 1-inch thick coreboard and 5/8-inch thick Type X gypsum on outside face. Size studs to limit deflection to 1/175 of unbraced length under 5 psf load. Scope: mechanical shafts.

C1010.20 Interior Glazed Partitions

Frames: Hollow-metal construction, 16 gauge steel, with corners mitered and welded; shop-primed for field painting.

Glass: Clear glass; tempered at sidelights, transoms, and all borrowed lite frames.

Vestibules: At primary entrances, if a vestibule is included in the design, the interior vestibule wall will be constructed of aluminum storefront, without thermal break and of the same material as the frame, sidelights and transom of the entrance door surround at the exterior walls.

Corridors: Hollow-metal construction, 16 gauge steel, with corners mitered and welded; shop-primed for field painting.

Glass: Clear tempered safety glass.

C1010.90 Interior Partition Supplementary Components

Through-penetration firestopping in accordance with a tested U.L. design, to attain and f-rating equal to the rating of the partitions, and a corresponding T-rating where required by code.

Top-of-partitions firestopping at rated partitions and smoke barriers in accordance with a tested U.L. Design.

C1030 Interior Doors

C1030.10 Interior Swinging Doors

Flush Wood Doors: Flush wood doors in steel frames will be specified for cross-corridor doors, classrooms and other teaching spaces, administrative offices, toilet rooms, and for other doors in public areas.

Product: Flush wood doors, hardwood veneer face, WDMA Premium Grade 5-ply construction, natural finish, as manufactured by Algoma, Eggers, Marshfield, Mohawk or VT Industries. Prefit doors to steel frames.

Face Veneer: Select Red Oak veneer, quarter sliced.

Finish: Factory finish to match AWI TR-6 conversion varnish. Stained to match existing, refurbished frames.

Wood doors will be constructed from sustainably harvested FSC wood.

Flush Steel Doors: Flush steel doors in steel frames will be specified for mechanical equipment rooms, electrical equipment rooms, fire pump room, receiving area, and similar service locations.

Product: ANSI 250.8 Level 2, "Heavy Duty" doors, with 0.042-inch thick (18 gauge) cold-rolled steel faces, seamless edges. Shop-primed and field painted.

Special Architectural Doors: For special locations such as the entrances to the library or administration, stile-and-rail wood doors or all-glass entrance may be specified.

Steel Frames: 0.053-inch thick (16 gauge) cold-rolled steel hollow-metal frames; corners mitered and welded. Furnish drywall and masonry profiles, as appropriate to construction in which doors will be set. Shop-primed and field painted.

Door Hardware: Heavy-commercial quality; US 32D satin stainless finish.

Locksets: Mortised locksets and latchsets, with lever handles.

Keying: Grand-Master and Masterkeying system to be coordinated with the Owner.

Provide key cabinet and key organizing system.

C1030.20 Interior Entrance Doors

Aluminum entrance doors and storefront framing system, without thermal break, matching the entrance doors, single glazed with 1/4 inch thick clear tempered safety glass

Hardware: Full height continuous hinges; offset tubular pulls; tubular push bars full width of door; exposed closers.

C1030.40 Interior Coiling Doors

Overhead Coiling Security Grilles: Steel grille doors in corridors, shop-primed and field painted.

1. Release mechanism: Fusible link activated by building fire-detection system.

2. Raising and Lowering: Keyed electrical operation.
3. Include pass doors at egress locations.

Coiling Grille at Kitchen: Horizontal type, overhead, coiling aluminum door at opening to Servery, open link style grille with brushed aluminum finish. Electrically operated.

Coiling Counter Shutter at Dishroom: Stainless steel, manually operated, with hood, stainless steel shelf and jambs.

C1030.80 Interior Access Doors and Panels

Access Doors: Furnish access doors to provide access to plumbing, mechanical, and electrical controls. Frame with 1-inch wide overlapping trim; stainless steel units in all locations of CMU, brick, tile, FRP, kitchens and locker rooms and toilet rooms; painted steel units at other locations. Furnish fire-rated units for installation in fire-rated walls and fire-rated ceiling assemblies.

C1060 Raised Floor Construction

C1060.30 Platform/Stage Floors

Existing stage wood flooring to remain.

C1070 Suspended Ceiling Construction

C1070.10 Acoustical Suspended Ceilings

Acoustical Ceiling: Acoustical lay-in panels, size as scheduled in the finish schedule, supported by steel double-web grid with standard 15/16" wide aluminum face cap.

Acoustical Ceiling, Mylar Faced: Mineral-fiber lay-in panels with scrubbable aluminum or mylar face; supported by steel double-web grid with standard 15/16" wide aluminum face cap, Armstrong "Health Zone" or equal.

C1070.70 Special Function Suspended Ceilings

Exposed Structure (Painted): Shop-primed steel structure; field painted with spray-applied flat finish.

Exposed Structure (Sprayed): Shop-primed steel structure; sprayed with spray-applied K-13 acoustical insulation.

Suspended grid equipment supports: Shop-primed, field painted metal pipe grid and supports in STEM and Science Labs.

C1090 Interior Specialties

C1090.20 Information Specialties

Markerboards: Wall-mounted porcelain on steel markerboards with extruded aluminum trim and chalk tray, and tack-strip along top of board. Claridge or Greensteel.

Typically, 8' long markerboards are provided in each classroom.

Tackboards: Wall-mounted vinyl-coated cork tackboards with extruded aluminum trim.

Typically, 4' long tackboards are provided in each classroom, and additional tackboards may be installed in corridors and lounges, as the program requires. See room elevations.

Tack Strip: 1-1/2 inch high vinyl-coated cork with roller catch, installed at ceiling/wall juncture on three walls in each classroom. Allow 40 linear feet for each classroom.

C1090.25 Compartments And Cubicles

Toilet Compartments: Plastic panel compartments, fabricated from high-density polyethylene, as manufactured by Capitol, Comtec, Santana, or Sanymetal. Urinal screens and compartments shall be both floor and ceiling mounted.

C1090.35 Wall And Door Protection

Wall and Corner Guards: Stainless steel corner guards in kitchen areas, at porcelain tiled walls, and loading dock corridors.

C1090.40 Toilet, Bath, And Laundry Accessories

Toilet Accessories: Stainless steel similar to Bobrick classic style (flat face); combination towel dispenser and waste receptacle units; soap dispensers; toilet paper dispensers; sanitary napkin disposal units; grab bars.

Mirrors will be all-glass mirrors (not toilet accessories).

Sanitary napkins are typically distributed by the school nurse and not sold in vending machines.

Shower Accessories: Fold-down seats, grab bars, shower curtains and curtain hooks; and robe hooks for shower rooms.

Miscellaneous Accessories: Mop holder for janitor's closets. Towel dispensers for science lab sinks.

C1090.90 Other Interior Specialties

Interior Signage: Provide room identification signs, directional signage, safety signs. Type and extent to be determined.

Student Lockers: Wardrobe lockers are provide for the students and located in the corridors. Wardrobe lockers will be double tier, 15 inches wide, by 12 inches deep, 6-feet high, painted steel with louvers in the doors, with built-in combination locks. Accessories: Sloped tops, concrete base and fascia panels at existing corridors. Built in lockers at new corridors.

Quantity: as indicated on the plans

Athletic Lockers: Athletic lockers are provided in the gymnasium locker rooms. Athletic lockers will be painted steel lockers with expanded metal doors and sides for ventilation, with padlock rings. Quantity:

A combination of 2-tier and multi-tier units; quantity and configuration. Quantity: as indicated on the plans

Accessories: Locker room benches with wood seats; 4 per locker room.

Teachers' and Coaches' Lockers: Single-tier, 6-feet high, painted steel with louvers in the doors, with built-in combination locks. Accessories: Sloped tops, legs and fascia panel. Quantity: .

Kitchen Staff Lockers: Single-tier, 6-feet high, painted steel with louvers in the doors, with built-in combination locks. Accessories: Sloped tops, legs and fascia panel. Quantity: 6.

C20 INTERIOR FINISHES

C2010 Wall Finishes

C2010.10 Tile Wall Finish

Ceramic Tile: Glazed, 4" x 12" porcelain tile, full height to ceiling.

Porcelain tile: Large sized, unglazed, to 6'-8" wainscot height.

C2010.20 Wall Paneling

Wood Paneling: Hardwood veneer paneling, to be designed. Face veneer Red Oak, quarter sliced, HPVA Grade AA. Field finished with sealer, stain, 3 coats of clear urethane varnish.

C2010.80 Acoustical Wall Treatment

Fabric-Faced Acoustical Wood Fiber Wall Panels: Tectum "Finale Fabri-Tough" Panels, or equal panel constructed of aspen wood fibers bonded with inorganic hydraulic cement; 2-inches thick.

C2010.90 Wall Finish Supplementary Components

Concrete Wall Finishes: Smooth rubbed finish; latex paint.

Painted CMU: Exposed concrete unit masonry, finished with acrylic block filler and 2 coats of epoxy paint.

Gypsum Board, Latex Paint: Gypsum board with joints taped and finished; painted with 1-coat primer and 2 top coats of low-VOC latex paint.

C2030 Flooring

C2030.10 Flooring Treatment

Sealed Concrete: Additional coat of clear sealer/dustproofer, specified as Concrete work.

Painted Concrete: Epoxy paint; Tnemec "Tneme-Glaze" Series 280 or 280.

C2030.20 Tile Flooring

Porcelain Tile: Unglazed porcelain paver tile; 1/8" thick. (no greater than 12" x 24" tiles, provide crack isolation membrane)

Ceramic Tile: Unglazed porcelain mosaic tile, 2" x 2", unglazed

C2030.50 Resilient Flooring

VCT: Vinyl composition tile; 12" x 12" x 1/8" thick.

C2030.75 Carpeting

Carpet: Nylon tiles, glued down.

1. Library: \$33 sq. yd. for materials
2. Offices: \$33 sq. yd. for materials

C2030.80 Athletic Flooring

Wood Athletic Flooring: Alternative Physical Education/Multi-Purpose room to be new athletic wood flooring.

Rubber Athletic Flooring: Alternative Physical Education/Weight and Cardio room to be rubber athletic flooring.

C2030.85 Entrance Flooring

Entrance Mat: Provide nylon carpet-type tiles, such as Mats, Inc., Natur Tile. or comparable product with surface mounted frames.

Entrance Grilles and Frames: Thin line "T" shaped extruded aluminum blades, with alternating carpet strips, bolted together, suitable for recessed shallow-pit installation, nominal depth 1-1/2" to 2". At Main Entrance only. "Dual Track" by Mats, Inc. Stoughton, MA.

C2030.90 Flooring Supplementary Components

Moisture Mitigation System: Epoxy, fluid applied, membrane applied to new concrete slabs to receive resilient flooring, as required by moisture testing.

Existing concrete to receive cementitious underlayment, by Ardex or similar, where abatement was performed by the shot blast method.

C2090 Interior Finish Schedules

FINISH SCHEDULE

Room	Floor	Walls	Ceiling
Entrance Vestibules	Entrance Mat and Grilles(see Part E)	Glazed storefront system.	2 x 2 acoustical and gypsum board
Entrance Lobby	Porcelain tile.	Wood paneling; gypsum wallboard painted.	2 x 2 acoustical 15% gypsum wallboard

Room	Floor	Walls	Ceiling
Corridors	Porcelain tile	Porcelain tile over cement board wainscot, latex paint above.	2 x 2 acoustical gypsum wallboard soffits at transitions
Classrooms, Science Labs, and Computer labs	VCT	Gypsum wallboard, painted.	2 x 2 acoustical
SPED Classrooms	Carpet	Gypsum wallboard, painted.	Gypsum wallboard, painted.
Library	Carpet	Gypsum wallboard, painted.	4 x 4 acoustical panels & gypsum wallboard
Auditorium	Carpet tiles at aisles, painted concrete under seats	Refinish existing wood panels, paint	New gypsum wallboard
Stage	Refinish wood	Paint existing	Paint existing
Locker rooms	Rubber floor	Ceramic tile over cement board wainscot, gypsum wallboard with latex paint above	Paint exposed structure

Room	Floor	Walls	Ceiling
Band/Choral	VCT	Painted gypsum board	Acoustical reflective ceiling clouds
Large Group Instruction and STEM Lab	VCT	Painted gypsum wallboard	2 x 2 acoustical panels
Art rooms	Sealed Concrete	Gypsum wallboard, painted.	Exposed structure, painted
Offices	Carpet	Gypsum wallboard, painted.	2 x 2 acoustical
Cafeteria/ Teacher Dining	Porcelain tile	Gypsum board, painted.	2 x 2 acoustical & gypsum board
Kitchen and Culinary Program space	Epoxy Resinous flooring	FRP	2 x 4 mylar faced
Servery	Porcelain tile	Porcelain tile	Wood slat ceiling
Toilet Rooms	Ceramic tile.	Glazed ceramic tile	Gypsum board, painted
Gymnasium	Existing wood flooring to remain.	Painted existing CMU/New athletic wall pads	Exposed structure, painted

Room	Floor	Walls	Ceiling
Mechanical rooms	Concrete, w/ sealer.	Painted CMU	Exposed structure
Storage rooms	Sealed concrete or VCT	Painted CMU	Painted structure
Loading dock area	Concrete w/ sealer	Painted CMU	Painted structure
Alternative Physical education/ Multi Purpose room	Athletic wood flooring	Painted concrete masonry units or gypsum wallboard, painted.	Exposed structure, painted
Alternative Physical education/ Cardio and Weight rooms	Rubber flooring	Painted concrete masonry units or gypsum wallboard, painted.	Exposed structure, painted
Auto Shop and Agricultural program spaces, including Greenhouses	Sealed Concrete	Painted concrete masonry units or gypsum wallboard, painted.	Exposed structure, painted

D SERVICES

D10 CONVEYING

D1010 Vertical Conveying Systems

D1010.20 Lifts

Wheelchair lift: Provided at the following locations, unless it is possible to design for ramped access:

1. Access to the control booth in the Auditorium.
2. Access to Orchestra pit in the Auditorium.

D SERVICES

D20 PLUMBING

D2000 General Design Considerations

Massachusetts Plumbing Code, 248 CMR

Massachusetts State Building Code 780 CMR

Massachusetts Fire Prevention Code 527 CMR

Provide revisions to the existing domestic water systems including, cold water, hot water, hot water recirculation to accommodate new architectural conditions, and to replace existing piping throughout which is all at its expected lifespan. The existing domestic water systems will be phased out, removed and replaced to suit new conditions as the construction phasing is advanced.

The sanitary waste and vent piping system will be modified to accept drainage from new fixtures and locations. The main under slab waste piping is to be re-used, and most branch piping will require some modification to comply with fixture location, and shall therefore be generally replaced.

A new natural gas system will be introduced to the building connecting to each piece of gas-fired equipment and each Laboratory gas outlet throughout the facility. The existing natural gas system will be phased out, removed and replaced to suit new conditions as the construction phasing is advanced.

D2010 Domestic Water Distribution

D2010.20 Domestic Water Equipment

Water meter: Type and style as required by the local water department, and sized for the peak intermittent demands of the building. Piping arrangement at meter installation to be as required by the local water department.

Hose Bibbs: Shall be chrome plated, wall mounted, with integral vacuum breaker, and loose key handle. They shall be located in each toilet room, and all rooms containing a floor drain.

D2010.40 Domestic Water Piping

Cold Water: The cold water supply system will be extended 10'-0" outside the building and connected to the underground yard main system. The service entrance will be equipped with a water meter that meets the requirements of the local water department and will be capable of remote reading for the school toward domestic water demand trending. Duplex, parallel, approved, master-reduced pressure principle backflow preventers will be provided downstream of the meter. The new system will be fed from existing domestic water booster system located at the underground water storage and pressurization facility on site. A separate non-potable cold water system will be provided for the Science room sinks and equipment, including backflow preventers, fed from the domestic water system. Domestic cold water piping will be copper, insulated, distributed throughout the building serving all fixtures and equipment requiring cold water such as kitchen appliances, boilers, and ice machines. Wall hydrants shall be provided around the building.

Hot Water: Hot water for the kitchen, classroom sinks, and toilet rooms will be provided by two ASME gas-fired condensing water heaters in parallel. Each heater will be sized to provide 66% of the demand. Water will be heated to 140 deg. F. for delivery to the kitchen. A central, bronze, master thermostatic mixing valve will reduce the temperature to 120 deg. F. for delivery to hand wash lavatories, classroom sinks, showers, and kitchenette sinks. Digital mixing valves shall be provided in lieu of mechanical types. Lavatories will have integral temperature limit stops and/or point-of-use mixers to provide 110 deg. F. maximum temperature. A separate non-potable hot water distribution system will be required for the Science room sinks. The non-potable hot water system will include a separate hot water re-circulating loop and 10 gallon electric water heater to maintain temperature in the loop during periods of low or no flow. All hot water supply and re-circulating systems will be copper, insulated, circulated using bronze circulating pumps, and controlled by immersion aqua stats.

All existing hot water and re-circulation piping and hot water plant will be removed due to age and condition. Temporary connections to the existing hot water piping system will be required as needed to accommodate phased construction and the existing hot water plant and piping will be phased out and removed as project construction progresses. New hot water piping will be re-circulated to directly behind hot water stops to minimize hot water "dead-ends", allowing hot water to be accessed as quickly as possible.

Designation	Description	Operating Temperature
HW	Domestic Hot Water	120 Deg. F.
	Public Lavatory Faucets (Tempered at faucet)	110 Deg. F.
	Kitchen equipment	140 Deg. F

D2010.60 Plumbing Fixtures

Water Closets: Commercial grade, white vitreous china, wall hung, 1.28 GPF, with exposed, battery powered, self generating type, sensor operated flush valve, and open front white plastic seat and self-sustaining check hinge. Fixture to be mounted on commercial grade, floor supported chair carrier, or floor mounted, floor outlet as necessary.

Urinals: Commercial grade, white vitreous china, wall hung, 0.125 GPF, with exposed, battery powered, self generating type, sensor operated, flush valve. Fixture to be mounted on commercial grade, floor supported chair carrier.

Lavatories: A combination of multi-station pre-molded Bradley type lavatories and Commercial grade, white vitreous china, under-mount type, with front overflow will be provided throughout the building. Fixtures will be provided with chrome plated, battery powered, self generating type, sensor operated 0.5 gpm faucet, open grid drain, supplies with stops, and "P" trap. Those fixtures designated as accessible, are to have the exposed water and waste piping below the counter insulated.

Drinking Fountains/Cooler: Commercial grade, wall hung, bi-level type with stainless steel finish and integral chiller.

Janitors sinks: Floor mounted mop service basins, molded plastic composition, with stainless steel grid drain. Provide with chrome plated mixing faucet, bumper guards on basin rim, and stainless steel wall splash guard.

D2010.90 Domestic Water Distribution Supplementary Component

Insulation will be applied to cold water, hot water, hot water re-circulation, and horizontal storm drain piping. It will be continuous through supports and include a vapor retarding jacket.

Exposed piping under fixtures designated for use by the handicapped shall be insulated with pre-molded insulation kits.

Insulation shields to be placed to protect insulation at pipe hangers.

D2020 Sanitary Drainage

D2020.30 Sanitary Sewerage Piping

Piping to be designed to collect liquid wastes from all new plumbing fixtures and drains requiring waste connections.

System to include atmospheric venting system, to maintain trap seals. Connections will be made to the existing sanitary vent system with new piping.

Trap primer systems will provide make-up water to fixture and drain traps where necessary to maintain liquid trap seals

Waste and vent piping shall be cast iron and will connect to existing buried sanitary piping where possible, pending video piping analysis of sanitary mains. If the existing under-slab building drainage piping proves to be in poor condition, new piping will be required to replace the existing where needed.

A separate kitchen waste system shall be provided to collect waste from all kitchen sinks and equipment that would discharge grease. Point-of-use grease traps will be provided to receive the waste discharge at the triple pot sink, dishwasher and other grease producing equipment. The unit at the triple pot sink will be floor recessed, PDI and ASSE approved, supplied with a flush floor access plate, and equipped with automatic draw-off hose. Kitchen waste will be piped separately by gravity to 10'-0" outside the building to an exterior grease trap structure. Kitchen waste and vent piping will be cast iron.

All vent piping on the roof shall be kept away from the HVAC air intakes to eliminate sewer gases from entering the building. Trap primers shall be provided on all floor drains.

The Laboratory wing will require a new pH adjustment system in a pit to serve laboratory waste collection in the addition. A separate lab waste building drain will convey lab waste out of the building independently 10 ft outside the building by gravity.

Sanitary waste serving the new addition will be conveyed separately outside the building to the site sanitary sewer system.

Sanitary sewerage serving the Vehicle maintenance area will be conveyed independently outside the building to a State-approved gas/oil separator and then to the site sewage system.

D2020.90 Sanitary Drainage Supplementary Components

Floor drains: A new floor drain will be required in all toilet rooms where more than one water closet/urinal is present. Floor drains will be of cast iron body construction, heavy duty grade, PDI approved. Those for use in toilet rooms and other finished spaces shall be have rough bronze exposed finishes. Floor drains in Toilet rooms will require automatic trap primer systems.

D2040 Rain Water Drainage

D2040.10 Rain Water Drainage Systems

System to be gravity drainage type and collect the discharge from all roof drains. The pipe routing is to be directly from the roof drain location, vertically down against building columns, and be collected below the first floor slab, to minimize conflicts with other building elements and systems. For the existing building, pending piping video analysis, new roof drains and piping will connect to existing below slab roof drainage collection systems. The new addition roof drainage will be conveyed separately outside the building by gravity to the site drainage system.

D2040.20 Rain Water Drainage Specialties

Roof drains to be cast iron construction, heavy duty, with flashing clamp for membrane roofing, under-deck clamping device, and aluminum domes.

D2040.30 Rain Water Drainage Insulation

Provide pre-formed pipe insulation on all drain bodies, and horizontal sections of rain water drainage system, to prevent condensation. All piping below 8' AFF shall be protected with Zeston 2000 PVC 30 mil jacketing

D2090 Other Plumbing Systems

D2090.10 Natural Gas Systems

A new gas service entrance will be provided by the gas supplier in proximity to the boiler room. Service piping will include a meter and regulator, provided by the gas company. The existing gas service will be de-commissioned and removed once the new boiler and water heater plants are fully functional.

The gas pressure at the outlet of the meter/regulator installation, provided by the gas supplier will be 2 psi. Complete 2 psi and 10" water column distribution systems will be provided within the building to serve all outlets and equipment requiring gas service. The system will include manually operated, shut-off valves, positioned at each connection to equipment, and the provide service shut-off for mains and branch lines in the overall system. Gas pressure regulators will be provided as necessary to accommodate the various gas pressure requirements to gas-fired equipment. Valve boxes will be required for all classrooms utilizing natural gas.

Valves:

- Shut-off valves: Those sized 1/2 inch to 2 1/2 inch shall be bronze bodied ball valves. Those sized 3 inches and larger shall be steel construction lubricated plug style.

D2090.40 Energy and Water Conservation

Refer to the LEED scorecard for the energy conservation and water conservation criteria, as they are part of design and construction objective. Some aspects of this initiative, as they pertain to the Plumbing systems are listed below:

- Utilization of low-flow plumbing fixtures throughout the building, including 1.28 gpf water closets, 0.125 gpf urinals, 0.5 gpm lavatory faucets, sensor operated faucets and flush valves in common areas, 1.8 gpm shower heads and 1.5 gpm aerators on kitchen faucets. The goal for domestic water conservation is 30% savings.
- Enhanced, 3rd party Commissioning of systems, including water heaters and circulating pumps with Commissioning Agent (CxA) is part of the construction process.
- Water heaters will be a minimum of 90% efficient

Note: It is the intent that the Plumbing system will be made fully operational on a phase by phase basis; as such, provide temporary valves, caps, and etc. to facilitate.

D SERVICES**D30 HEATING, VENTILATING AND AIR CONDITIONING SYSTEMS**

The project involves the phased demolition of the existing HVAC system, which includes a hot water boiler plant and associated distribution, heating & ventilating units, roof top condensing units and a pneumatic control system.

The proposed HVAC systems are a new hot water heating plant and distribution, new roof-mounted air handling units and a digital building automation system. A summary table of the proposed equipment is provided below.

HVAC Equipment Summary			
Equipment	Qty	Capacity	Comments
Boilers	3	2,000 MBH	Gas Fired, Condensing
HW Primary Pumps	3	125 GPM	Constant Volume
HW Secondary Pumps	2	270 GPM	Variable Volume Control
RTU-X	1	3,500 CFM (12 Ton)	STEM Lab
RTU-X	1	3,500 CFM (12 Ton)	Large Group Instruction
RTU-X	1	3,500 CFM (20 Ton)	Library & Computer labs
RTU-X	1	3,200 CFM (20 Ton)	Stage
RTU-X	1	6,300 CFM (30 Ton)	Admin
RTU-X	1	8000 CFM (30 Ton)	Auditorium
RTU-X	1	12,500 CFM (40 Ton)	Gym
ERU-X	1	8,000 CFM	POD A
ERU-X	1	8,000 CFM	POD B
ERU-X	1	8,000 CFM	POD C
ERU-X	1	8,000 CFM	POD F
ERU-X	1	8,000 CFM	POD H
ERU-X	1	8,000 CFM	Chorus & Band
ERU-X	1	8,000 CFM	New STEM Wing
MAU-X	1	7,000 CFM, 640 MBH	Kitchen Exhaust Make-up
EF-X	3	Totaling 8,000 CFM	Kitchen Hood Exhaust
EF-X	1	600 CFM	Dishwasher Exhaust
EF-X	10	500 CFM Each	Miscellaneous General Exhaust
Single-duct VAV boxes	–	300-1,000 CFM	Serving interior zones of air conditioned spaces; 2 offices per zone.
Fan powered VAV boxes with hot water reheat	–	750-1,200 CFM	Serving classroom spaces and common area; 1 per classroom; 1 per 800 sf for Commons
Ductless Split AC Units	5	1 Ton Each	Serving Electrical and IDF Rooms
Cabinet Unit Heaters	3	40 MBH (HW) Each	Serving entry vestibules; stairwells
Unit Heaters	2	40 MBH (Gas) Each	Serving Greenhouse
Sidewall Propeller Fan	1	1,000 CFM	Ventilating Greenhouse
Fume Hood Exhaust Fans	6	1,000 CFM	Serving Fume Hoods

D3000 Design Basis

D3000.10 Reference Standards

The Massachusetts State Building Code, Eighth Edition

International Mechanical Code (IMC) 2009

NFPA 101 - Life Safety Code.

Handbooks of The American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE).

D3000.20 Outdoor Design Conditions

Summer: 87°F dry bulb/71°F wet bulb

Winter: -8°F

Source: ASHRAE Fundamentals Handbook

D3000.30 Indoor Design Conditions

Computer Rooms: 72°F dry bulb

Occupied Air Conditioned Zones:

- Cooling Season: 75°F / 50% RH
- Heating Season: 70°F

Occupied Non-Air Conditioned Zones:

- Cooling Season: Not Controlled
- Heating Season: 70°F

D3000.40 Outdoor Air Ventilation

Minimum outside air will be introduced as required by code, or the requirement to make up exhaust air.

D3000.50 Sustainable Design Measures

The project will be certified under the 2009 LEED for Schools New Construction and Major Renovation process and the following measures will be incorporated into the HVAC system design.

- Enhanced Commissioning of equipment and systems
- Enhanced Refrigerant Management
- Measurement and Verification – this will entail the use of BTU meters and gas meters on the hot water plant, kW meters on

the distribution pumps and boiler burners; BTU meters; and kW meters on each of the fan motors. All meters will be tied together through the BAS for trending and analysis.

- CO2 sensors will be implemented in all large occupancy spaces, including the Auditorium, the Gym, the Commons and the Library.
- Airflow measuring stations on all outdoor air intake locations for monitoring through the BAS.
- Controllability of Systems and Thermal Comfort –Design.
- Enhanced acoustical performance which entails the need for attenuation for all systems.

D3010 Facility Fuel Systems

Fuel source for the heating plant will be natural gas.

D3020 Heating Systems

D3020.10 Heat Generation

The heating system will be a central, gas-fired condensing hot water boiler system, optimized for operating efficiency through the design of a high-delta-T terminal heating system. The heating load is estimated to be approximately 4,000 MBH.

- Three (3) 2,000 MBH condensing boilers will serve the load
- Include direct venting assemblies
- Include acid neutralization assemblies

The pumping will be primary/secondary. Each boiler will have a dedicated constant-volume primary pump to serve a primary loop. The secondary loop will include two (2) pumps (primary and standby) with VFD control to serve the variable volume building load, which will use two-way modulating valves for temperature control for each terminal unit.

- Primary Pumps – Three (3) 125 GPM in-line pumps, constant volume
- Secondary Pumps – Two (2) 270 GPM base mounted, end suction pumps, variable volume
- Hydronic Specialties – Bladder-type expansion tank, centrifugal air separator, make-up water feed with backflow preventer and pressure regulating valve, vibration isolation components, automatic and manual isolation valves, check valves, chemical treatment components and coupon rack.

- A modulating differential bypass control valve will be installed to ensure minimum flow is maintained to the boilers at low-load conditions.
- The hot water system will be 30% propylene glycol for freeze protection.
- The boiler system and all ancillary components will be located in the mechanical room.
- The heating system (boilers, pumps, and controls) will be on emergency power.

D3020.20 Heat Distribution Equipment

Terminal heating units will be hot water based and will include:

- cabinet unit heaters in vestibules and egress stairs,
- unit heaters in storage areas or back-of-house spaces, gas fired for greenhouse spaces.
- VAV fan powered boxes with hot water reheats for classroom spaces and similar occupied areas,
- Heating & ventilating units for non-air conditioned occupied spaces.

D3030 Cooling Systems

D3030.10 DX Cooling

All cooling will be provided by direct expansion type cooling coils within respective air handling units.

D3030.20 Cooling Distribution Equipment

Cooling will be provided to the programmed air conditioned spaces through air handling units serving single-duct VAV boxes and fan powered VAV boxes. The fan powered boxes will include ECM motor driven fans with acoustic attenuation.

- The gym, auditorium and stage units will be single zone constant volume type units.

D3030.30 Ductless Split Air Conditioning Systems

The split systems will incorporate roof-mounted condensing units with integral controls using refrigerant piped directly to indoor evaporator units that will be wall-mounted type with wall-mounted temperature sensors.

D3050 HVAC Air Distribution Systems

D3050.10 Heating and Ventilating Systems

The classrooms will be heated and ventilated using rooftop mounted energy recovery units. Distribution to classrooms will be through two-position VAV terminal boxes for occupied/unoccupied control, and controlled by space occupancy sensors.

Rooftop Heating and Ventilating Units will consist of: (24" roof curb with spring isolation)

Supply Air Section:

- Outdoor air intake weather hood with isolation damper
- MERV 7 Pre-Filter & MERV 13 Final Filter
- Common sensible energy recovery wheel
- Hot Water Heating Coil
- Centrifugal Supply Fan with VFD Control

Exhaust Air Section:

- Exhaust air intake damper
- MERV 7 Filter
- Centrifugal Exhaust Fan with VFD Control
- Common sensible energy recovery wheel
- Exhaust louver and damper.

D3050.20 Rooftop Air Handling Unit Systems

The majority of the air conditioned occupied spaces will be served from roof-mounted air handling units serving a system of VAV boxes or VAV fan powered boxes. VAV boxes will be provided for cooling-only interior zones and VAV fan powered boxes are provided for perimeter zones requiring heating and air conditioning.

The air handling units will be configured as follows:

- Return air opening w/isolation damper
- Centrifugal Return Fan with VFD Control
- Mixed air section with economizer control
- Outdoor air intake hood
- OA isolation damper
- MERV 7 Pre-Filter & MERV 13 Final Filter
- Hot Water Heating Coil
- DX Cooling Coil
- Centrifugal Supply Fan with VFD Control
- 24" roof curb with spring isolation

D3050.30 Rooftop Make-up Air Units: A gas-fired make-up air unit will serve the kitchen together with the kitchen hood exhaust fan(s). The make-up air unit will be configured as follows:

- Outdoor air intake hood
- Outdoor air isolation damper
- Outdoor air intake plenum
- MERV 7 Pre-Filter 7 MERV 13 Final Filter Section
- Centrifugal Supply Fan with VFD Control
- Supply plenum with modulating gas-fired furnace section
- 24” roof curb

D3050.40 Ducted Systems

The following duct systems are proposed, sized and installed in accordance with SMACNA guidelines:

- Supply Ductwork – Galvanized rectangular or round ductwork with 1-1/2” foil-faced fiberglass insulation or 1” lining, where noted. Outdoor intake plenums will be insulated with 2” polyisocyanurate.
- Return Ductwork – Galvanized rectangular or round ductwork.
- Exhaust Ductwork – Galvanized rectangular or round ductwork, except as follows:
 - Kitchen exhaust will be 16-gage black iron, welded and insulated in accordance with NFPA 96.
 - Dishwasher exhaust will be welded aluminum construction and sloped to drain.
 - Laboratory fume hood exhaust will be type 304 Stainless Steel ductwork, welded construction.

D3050.50 Piped Systems

The following pipe systems are proposed, sized and installed in accordance with ASHRAE guidelines:

- Hot Water Piping
 - 2-1/2” and larger: Schedule 40 threaded or welded steel with fiberglass insulation.
 - 2” and smaller: Type L Copper with brazed joints and fiberglass insulation.
- Refrigerant Piping
 - Type ACR or Type L Copper with brazed joints and fiberglass or closed cell insulation, as appropriate.

Provide aluminum weatherproof jacket for all exterior piping installations and PVC jackets for interior piping in mechanical rooms.

D3050.60 Acoustic Control Devices – Ducted Systems

In-duct acoustic attenuators will be provided on the main supply, return and exhaust systems serving the project.

D3060 HVAC Exhaust Systems

D3060.10 General Exhaust Fans

Roof-mounted exhaust fans will be provided for general exhaust of spaces that are not served by exhaust through energy recovery units. Include 24" roof curbs.

D3060.20 Kitchen Hood Exhaust Fans

Roof-mounted exhaust fans configured to meet the requirements of NFPA 96 for use with grease exhaust systems. Include 24" roof curb.

D3060.30 Dishwasher Exhaust Fans

Roof-mounted exhaust fan configured to serve dishwasher exhaust function. Include 24" roof curb.

D3060.40 Laboratory Hood Exhaust Fans

Roof-mounted, utility type exhaust fans, configured to provide dedicated exhaust to proposed Science Room fume hoods in compliance with ANSI Z9.5. System will include the following components:

D3070 System Performance Verification

D3070.10 Hydronic Systems

The air systems testing, adjusting and balancing will be performed by an Air Balancing Contractor certified by either Associated Air Balance Council (AABC), or National Environmental Balancing Bureau (NEBB).

D3070.10 Air Systems

The piping systems testing, adjusting and balancing will be performed by an Air Balancing Contractor certified by either Associated Air Balance Council (AABC), or National Environmental Balancing Bureau (NEBB).

D3080 Building Control Systems

The facility will be provided with a web-accessible, microprocessor-based, direct digital control (DDC) building automation system (BAS). The BAS will consist of programmable equipment level controllers and building level controllers that communicate via a local area network (LAN) to an operator workstation. Each controller will be capable of full, stand-alone operation and have integral permanent memory to maintain control and set points in case of network or power failure.

Where feasible, the BAS will be common to other automation systems serving the school, providing a shared network and control system for a range of school applications.

NOTE: The Monument Mountain school district will be provided with proprietary access to all installed software systems associated with the installed systems.

It is the intent that the HVAC system will be made fully operational on a phase by phase basis; as such, provide temporary valves, caps, and etc. to facilitate.

D SERVICES

D40 FIRE-PROTECTION

D4010 Fire Suppression

D4010.10 Water-Based Fire-Suppression

Codes and Standards:

Massachusetts State Building Code 780 CMR

Massachusetts Fire Prevention Code 527 CMR

Combined Standpipe/Wet-Pipe Fire Sprinkler System: Building to be protected throughout with a combined standpipe/wet-pipe type sprinkler system. System to include three standpipes and sprinkler system heads with spacing of 120 square feet (12'x10' pattern) per sprinkler. Systems to be hydraulically calculated to provide an application rate of 0.10 GPM per square foot over the hydraulically remote 1500 square feet, for Light Hazard areas of the building. Ordinary Hazard classification areas shall be protected at a rate of 0.15 GPM per square foot over the hydraulically remote 2000 square feet. The system is to be fed via a 8 inch main from the site fire protection system outside the building, which is in turn fed from the existing site fire pump at the water storage/pressurization facility.

Areas not to be provided with wet-pipe type sprinkler protection: Areas below raised floors, areas above suspended ceilings, Main Electrical room, elevator shaft and pit, elevator machine room, Electrical switchgear room, UPS Room

The sprinkler system shall be zoned for water flow as follows: One zone for each building wing and each floor for the purposes of monitoring water flow. The test valves for each zone shall be located to be accessible, and their discharge lines are to be directed outside the building to a safe location.

All test valves shall be at the remote ends of the systems to facilitate system flushing.

Fire Department Valves (2-1/2 inch) will be provided at each side of the Auditorium stage Proscenium opening.

Roof manifold Fire Department Valves will be provided on each different level of the roof where stairways are not provided to roof with interior Fire Department valves.

Sprinkler Heads:

In areas with suspended acoustical ceiling or gypsum board ceiling, sprinklers will be recessed type, chrome plated, for hung ceiling areas.

In mechanical rooms, and other unfinished areas, sprinklers will be specified as exposed, with brass finish.

Truck dock area will utilize dry sidewall type sprinklers, fed from the adjacent interior wet sprinkler system.

Sprinkler System Valves:

Double check valve assembly shall be provided on the sprinkler service. This device will be ASSE listed and Mass. Code approved, and installed in the fire service room.

Fire department pumper connection shall be a two-way Fire Department type, with threads to match the local Fire Department.

All shut-off valves to be FM approved type, and be equipped with supervisory tamper switches. These switches along with the flow switches shall be monitored by the building fire alarm system.

Exterior fire service to be equipped with an isolation post indicator valve, located approximately 40 feet from the building wall, and equipped with a supervisory switch, wired the building fire alarm system.

D4010.50 Fire-Extinguishing

Dry Chemical Fire Extinguishing Systems: Dry Chemical suppression system for kitchen hoods to be a full-flooding, independent dry chemical suppression system, complete with discharge nozzles, pipe and fittings, control panel, detection system, and dry chemical supply cylinders, in compliance with NFPA-2000.

D4010.90 Fire Suppression Supplementary Components

Standpipes: Provide wet-pipe type standpipe system throughout the entire building, equipped with 2 1/2" fire department angle valves, located at the intermediate floor landings, between all floors of the building.

Standpipes shall be provided with shut-off valves at the base of each standpipe riser.

Provide drain risers, located directly adjacent to each standpipe riser, for collection of test drainage water from pressure regulating/restricting hose valves, and sprinkler test drains. Drain risers shall discharge to stand-drains, or the exterior of the building.

Fire hose cabinets shall be provided in the stage area, and auditorium areas of these spaces (Public School buildings).

D4030 Fire Protection Specialties

D4030.10 Fire Protection Cabinets

Fire Extinguisher Cabinets: Fully-recessed cabinet; painted steel trim and door with full-glass panel, DSA glass. Baked enamel primer finish; field painted.

D4030.30 Fire Extinguishers

Fire Extinguishers: Multi-purpose dry type, 20A-60BC.

NOTE: It is the intent that the Fire Protection system will be made fully operational on a phase by phase basis; as such, provide temporary valves, caps, and etc. to facilitate.

D SERVICES

D50 ELECTRICAL

The new electrical systems proposed for existing Monument Mount Regional High School building will be designed and constructed in accordance with the principles of LEED for Schools. The goal is to achieve as many of the elective credits relating to electrical design and high efficient performance as are feasible given the constraints of the project site, budget, schedule, and program.

The focus on high efficiency for electrical systems is Power transformation, Lighting design and Lighting controls. Each of these energy efficient approaches will have benefit to the project by lowering electrical power consumption and thus operation costs.

The proposed electrical systems design will ensure the maximum energy efficiency with minimal energy consumption and minimal environmental impact.

The latest energy efficient technologies and strategies will be incorporated into electrical design to achieve the ultimate energy performance goal - getting the most output for the least amount of energy consumption.

A complete lighting system consisting of interior and exterior building-mounted lights with associated controls will be designed in compliance with State Energy Conservation Code and requirements of LEED Reduced Energy and Light Pollution credits.

As well, the proposed lighting design will incorporate the local utility company (National Grid) energy efficiency incentive program requirements as much as achievable while practical in order to get the maximum financial incentives offered by National Grid for implementing the high efficiency lighting system and controls.

D5001 Reference Standards

The Massachusetts State Building Code, 780 CMR, 8th Edition.
Massachusetts Electrical Code, 527 CMR, 2011
Life Safety Code NFPA 101, 2009
National Fire Alarm Code, NFPA-72, 2010
International Energy Conservation Code(IECC), 2009

D5010 Electrical Service and Distribution

D5010.01 Overview

Existing Monument Mount Regional High School electrical service originates from existing National Grid high voltage overhead line installed along the Stockbridge Road

(Route 7) on opposite side from school building. The existing service is crossing the Stockbridge road (Route 7) underground and extends towards the school building via two underground concrete-encased conduits and one underground handhole. In the preliminary electrical service design it is proposed to intercept the existing underground primary wiring and 'split' it in a new underground splice box, such that both services, the new and existing, could temporarily coexist during building construction and renovation phases. The existing primary service is proposed to be modified and re-routed as shown on site plan. The purpose of the proposed modification is that the existing will continue to support only a portion of the building during construction and renovation phases and upon completion it will be disconnected and removed entirely, including building vault transformer and associated primary wiring and metering arrangement. The new branch of the primary service will extend towards the new pad-mounted transformer via underground concrete encased conduits. If required by the National Grid, pre-cast manhole(s) will be installed to facilitate pulling of the primary feeder. Utility company will furnish and install a primary feeder cable from the riser pole to the pad-mounted transformer. The proposed primary service modifications will be reviewed with National Grid and finalized during subsequent design phase.

The new electrical service step down transformer will be furnished, installed, owned and maintained by the National Grid. The transformer will be located adjacent to school building addition, in close proximity to the building main electric room. The recommended distance from the transformer to the building is at least 10 ft.

Transformer will be of the pad-mounted type with a primary voltage advised by National Grid, and a secondary voltage of 277/480 volts. Transformers will be sized by the utility company based on the load data provided to utility by Symmes, Maini & McKee Associates. Concrete pads and grounding grid for the pad-mounted transformers will be provided by the Contractor per national Grid standards.

Concrete encased duct bank consisting of (2)-4 in. PVC conduits will be provided for the National Grid primary cable installation between the new slice box and pad-mounted transformer. If required, the pre-cast concrete manholes or handholes per National Grid standards will be provided to facilitate the primary cables installation.

National Grid will be responsible for the primary cable installation and terminations, while the Contractor is responsible for the transformer primary and secondary conduits and the transformer secondary feeder.

The new transformer secondary feeder of the copper conductors will be installed underground in the duct bank of (6)-4" PVC conduits from the pad-mounted transformer to the main electrical switchboard located in the main electrical room. The secondary feeder and terminations at the switchboard side will be provided by the Contractor, while termination at the transformer side will be performed by National Grid. Utility metering will be on the secondary side of the service and will be provided per National Grid standards. CT's will be provided by the National Grid, meter socket will be provided by the Contractor, and National grid will install the meter.

D5010.02 Electrical Design Load

Exterior parking and road lighting	15 KVA
Interior lighting	130KVA
Performance lighting	50KVA
HVAC loads (including ventilation, heating, partial A/C and exhaust)	500KVA
Plumbing equipment	30 KVA
Kitchen equipment (full service)	75 KVA
Computers and small power	200 KVA
Auto shop	50 KVA
Woodshop and dust collector	50 KVA
Tech Culinary	30 KVA
Miscellaneous Power	30 KVA
Existing Field lighting	30 KVA
Existing Press box	10 KVA

Total Connected Load is 1,200 KVA or 1,445 Amps at 277/480 volt 3 phase 4 wire system.

D5010.03 Main Electrical Switchboard

The main electrical switchboard will be fully metal enclosed, dead front, standard NEMA1 indoor type construction. Switchboard will be front-connected, front-accessible, with fixed individually mounted main device, and panel mounted feeder devices. Switchboard sections will be rear aligned, designed for placement against a wall.

The switchboard will be rated 2,000 Amperes at 277/480 volts, three phase, four wire system.

Main protective device will be a power circuit breaker 100% rated, with a solid state trip unit capable of adjusting long time, short time, and ground fault protection characteristics. In general, feeder protective devices will be thermal-magnetic type molded case circuit breakers, but electronic type circuit breakers will be furnished for the devices 250 Amp and larger.

The switchboard will be furnished with a service entrance transient voltage surge protection device (SPD) rated 240 kA, utility metering compartment and digital metering unit to monitor voltage, current, power factor and demand kW.

Main switchboard's short circuit rating shall be coordinated with WMECO, but estimated to be at 65 KAIC.

Digital metering unit will be tied into DDC system.

D5010.04 Electrical Power Distribution System

Electrical power riser diagram is shown on the drawings EP601, EP602, EP603, EP604.

Electrical power distribution equipment will be installed in the main electrical room and in dedicated electrical closets.

Electrical power distribution equipment in each electrical room or closet will support lighting, power, and HVAC loads in the associated areas.

Roof-mounted HVAC equipment such as RTU's, air handling units, energy recovery air handling units, make-up air units and exhaust fans will be powered from respective power distribution panels or directly from the main switchboard, based on respective connected loads. Boiler plant equipment including boilers, primary and secondary pumps will be power-fed from the standby power panel located in the mechanical room.

Selective HVAC equipment serving gymnasium, lockers, showers, cafeteria, kitchen, nurse and administration areas, and electrical/data rooms will be supported by the standby generator power.

Existing exterior Press Box and Fields lights will be reconnected to the new power distribution system. New dust collector and Green house will be power from school power distribution system.

Proposed manufacturers for the electrical power distribution equipment are: General Electric, Square D, Cutler-Hammer and Siemens.

D5010.05 Interior Electrical Dry-type Transformers

Interior electrical dry-type transformers will be provided to reduce 480 volt, three phase interior distribution voltage to 120/208 volts for small equipment power requirements, small mechanical loads and convenience outlets. Transformers shall be of a general purpose dry type, air cooled, with indoor ventilated steel enclosure, and shall comply with NEMA Standards ST 20.

The transformers shall be Energy Star rating conforming to TP-1 energy design. These transformers have the lowest impedance values for their class and will therefore generate lowered losses when converting power from one voltage to another.

Where required to accommodate computer equipment and other non-linear type loads, the transformers shall be K-13 factor rated with an electrostatic shielding.

D5010.06 Electrical Branch Circuit Panelboards

Electrical branch circuit panelboards will be dead-front type with thermal-magnetic molded case circuit breakers. Panelboards will be provided with tin-plated aluminum phase and neutral busses and copper equipment ground bus.

Panelboards will be rated 277/480 volts, three phase, four wire for power and lighting loads and 120/208 volts, three phase, four wire for small power and convenience outlets.

The panelboards with 200% rated neutral bus and SPD device will be specified for serving sensitive electronic equipment (computers, Head end room, etc.) and where substantial non-linear type loads are present.

All panelboards will be Underwriters Laboratories (UL) listed and labeled, and comply with NEMA standard PB1 for the panelboards.

D5010.07 Enclosed Safety Switches

Individual heavy-duty type switches in NEMA 1 for indoor and NEMA 3R for outdoor applications will be provided where equipment disconnecting means are required in accordance with Massachusetts Electrical Code.

D5010.08 Motor Controls

Individually enclosed combination motor starter/disconnect switches will be provided for the control and overload protection of the three-phase motors unless the starters are furnished as integral part of the packaged equipment. Motor starters will be magnetic type and have overload relays in each phase for three phase motors, hand-off-automatic selector switch, and control power transformer. Motor starters will comply with ANSI and NEMA standards.

D5010.09 Electrical Branch Wiring

In general, wiring will be insulated conductors installed in steel conduit or metallic tubing run concealed in the finished areas or exposed in the unfinished areas such as a storage rooms, gymnasium, mechanical and electrical rooms. Minimum conduit size will be 1/2 inch.

Metal clad MC type cable may be used for branch circuit wiring in the above suspended ceiling spaces and in the dry wall partitions where it is allowed by Massachusetts Electrical Code.

All conductors will be copper , type XHHW or THHN/THWN rated 600 volt and for at least 75 degree C insulation level . Minimum wire size for power and lighting circuits shall be # 12 AWG. Conductors # 8 AWG and larger shall be stranded. Control wiring conductors shall be # 14 AWG.

Multi-phase 120 volt branch circuits will be provided with a dedicated neutral conductor for each phase conductor.

Underground conduits and conduits installed under a concrete slab will be PVC Schedule 40. Conduits exposed to weather, and penetrating foundation and concrete slabs will be galvanized rigid steel.

D5010.10 Wiring Devices

Duplex receptacles will be heavy duty, specification grade, grounding type, rated 20 Amp at 120 volt, UL listed. Duplex receptacles will be of ground-fault type (GFI) and weather-resistant (WR) types where required by the Code.

Toggle switches will be 20 Amp at 120/277 volt, specification grade, UL listed.

D5020 Lighting

D5020.01 Interior Lighting

The overall intent of the lighting design is to provide a visual environment for the students, faculty, and community that is supportive of the educational activities within the building. To this end, the lighting systems will be designed around the IESNA Lighting Handbook (Ninth Edition) as well as incorporating lighting quality initiatives promoted by the Design Lights Consortium.

In general, high-efficiency interior lighting fixtures will utilize fluorescent low-mercury energy-efficient High Performance T8 lamps, standard or high output T5 lamps, compact fluorescent lamps and electronic ballasts. The ballasts shall be .95 power factor or higher, sound rating Class A, and input harmonic distortion of 20% or less.

Incandescent and HID lighting will be limited to only special applications which cannot be satisfied with fluorescent type lamps. HID fixtures will utilize high power factor regulator ballasts.

Lighting systems will comply with energy use limitations of Massachusetts Building Code (latest adopted version of the IBC 2009 with amendments), and the LEED guidance for schools.

Complete interior lighting system with the illumination levels per IES recommended value for applicable activity type and in compliance with the IECC 2009 energy allowances and LEED for Schools control requirements.

PROPOSED ILLUMINATION LEVELS

Location	Average Illumination Level
Classrooms	45-55 FC
Labs	50-60 FC
Offices, conference rooms and Library	35-50 FC
Kitchen	40-50 FC
Gymnasium	45-55 FC
Cafeteria	30-40 FC
Corridors and Stairways	20 FC
Utility and Storage rooms	20-30 FC

Classroom Lighting: Direct/Indirect pendant mounted fluorescent fixtures and teacher wall linear fixtures, controlled by the local switches and occupancy sensor. In addition,

the ambient daylight sensors will be provided for dimming control of light fixtures located adjacent to exterior windows.

Lighting in the administration areas, corridors, nurse's offices, teacher support areas, and in the similar areas will be fluorescent recessed 2 ft. by 2 ft. and 2 ft. by 4 ft. of the direct/indirect type, step-dimmed or multi-switched, controlled by local switches, occupancy sensors and daylight sensors where applicable.

Lighting in the kitchen, locker rooms, preparation rooms, storage rooms, and in the similar areas will be fluorescent recessed 2ft. by 2 ft. and 2ft. by 4ft. with prismatic lens. Lighting controls will be provided as required.

Auditorium will be equipped with a dedicated Theatrical Lighting system allowing for performances and lecture presentations. It will consist of lighting dimmer cabinets, performance type lights installed at the stage and above the sitting area ("house lights"), and various lighting controls. In the event of a fire alarm in the building, auditorium control system will bring all "house" lights up into full light level. For rehearsals and everyday "general" tasks Auditorium will be provided with "general" lighting consisting of metal halide or high output fluorescent lights.

Multi-level lighting control will be an energy-efficient and cost-effective method to provide multiple illumination levels as required for the different working tasks and time of the day. Local switches and occupancy sensors will be provided for lighting control in the private offices and conference rooms.

Throughout the building the ambient light sensors will be installed in areas where daylight harvesting is available. These sensors in conjunction with the fluorescent dimming type ballasts will result in the substantial energy savings.

Low-voltage programmable lighting control system will be furnished to facilitate automatic lighting shutoff on a scheduled basis with an occupant override in compliance with the Energy Code. This system will be provided for the building areas without occupancy sensors and will be tied into the building DDC system - for monitoring and time schedule overrides.

LED type exit signs and "emergency egress" lighting system will be connected to life-safety emergency power distribution system to provide illumination level required by Code for safe emergency egress in a case of the normal utility power failure.

Dedicated corridor, stair and area "emergency" lights will be powered from "emergency life-safety" panels. These lights will be controlled via the building low-voltage programmable lighting control system in the same manner as the "normal" lights, except that "emergency" lights will have an 'emergency by-pass' arrangement – irrelevant of their current "on-off" status the "emergency" lights will turn "on" automatically during the normal utility power loss, upon building security alarm system activation, or can be turned "on" manually by "master" switch(es) located strategically in the building.

D5020.02 Exterior Building and Site Lighting

In general, the new energy-efficient glare-free exterior lighting system consisting of building-mounted and pole-mounted lights will be installed in place of existing outdated system.

The new exterior lighting system will comply with energy use limitations per Massachusetts Building Code and referenced International Energy Code 2009. It will be designed in accordance with the principles of LEED for Schools and will comply with requirements of LEED for Reduced Energy and Light Pollution credits.

All exterior fixtures will be vandal resistant, enclosed, listed for wet locations and with full cut-off light distribution.

The new Exterior Building Lighting system will be provided at formal building exits to comply with the Massachusetts Building Code and referenced International Energy Code 2009.

Exterior Site Lighting system will be provided along the existing and new walkways and access roads, as well as at the upgraded parking lot, with a minimum maintained lighting level will be 0.5 FC at grade. Site lights will be pole-mounted, capable to withstand a maximum wind load of 100 mph. The fixtures mounting heights, types and locations will be selected to avoid glare and light spillover beyond the property line in compliance with LEED for Schools requirements.

All exterior lights will be controlled by the low-voltage programmable lighting control system. In addition, the parking lot and access road lights will be wired via a dedicated photocell for additional energy savings.

Exterior lighting will be tied into the building DDC system for monitoring and time schedule overrides.

D5030 Communication and Security

D5030.01 Fire Alarm System

Existing building fire alarm system will continue being active within the “non-renovated” areas during all construction phases. Currently connected to the local Fire Department via a dedicated telephone line, it will be disconnected and reconnected temporarily to the new fire alarm system as one zone named “old fire alarm panel”, and will be disconnected and removed upon completion of all construction and renovation phases.

The new addressable, non-coded, Class A supervised type fire detection and alarm system will be provided to meet the requirements of the Massachusetts Building Code, NFPA-72, Americans with Disabilities Act (ADA) and local Fire Department requirements. The fire alarm system will consist of two fire alarm control panels (FACP No.1 “Master” to be installed in the Main Electrical room in the first construction phase and FACP No.2 “Sub-panel” to be installed in Administrative area in the last construction/renovation phase), remote annunciator, automatic smoke and heat

detectors, manual pull stations, audible and visible alarm signals, and connections to automatic fire suppression systems. FACP No.1 will transmit alarm and trouble signals to Fire Department, and type of connection and transmitting alarm signals to the local Fire Department (via radio type master box, via dedicated telephone line or hard-wired via an exterior master box) will be reviewed with Fire Department and finalized during subsequent design phase. FACP No. 2 will be connected to FACP No.1 to make onefire alarm system.

Both fire alarm control panels will provide an alarm and annunciation capability in case of activation of any manual fire alarm station, smoke detector, heat detector, duct smoke detector, sprinkler water flow switch or fire suppression system. A graphic map, "as-built" drawings and operation manuals will be provided at the FACP No.2 "Master" location.

Both panels will be provided with an amplifier, microphone, and zone selector for speaker/strobe alarm signaling. Audible (speakers) and visual (high intensity strobes) alarm devices will be installed per NFPA-72. Speaker/strobe units will be used in the entire school building. Auditorium and other building local sound system will be automatically shut down upon fire alarm initiation, while the Auditorium "house" lights will be automatically turned ON.

Area type smoke detectors will be installed in the main and secondary electrical rooms, utility rooms and closets, data/telephone rooms, corridors, storage rooms and closets.

Addressable duct type smoke detectors will be installed in supply and return air ducts as required by NFPA-90A.

Heat detectors (fixed or rate-of-rise type) will be used for release of the Auditorium fire curtain. Stage roof hatches will be released by the fusible links (this arrangement will be reviewed with Fire department and finalized during subsequent design phase).

Heat detectors will be provided in the following areas: kitchen, woodshop, auto shop, tech culinary,

An automatic fire detection (smoke or heat detectors) in classrooms, labs, offices, bathrooms, Gymnasium, Auditorium, Cafeteria, multi-purpose rooms, library, art rooms, computer rooms, and similar learning spaces is not required in schools with fire protection system (sprinklers) and will not be provided unless specifically requested by the local Fire Department or Town representative.

The fire alarm remote LCD annunciator will be located at the main entrance vestibule.

Knox box(es) connected to the FACP will be provided if requested by the local Fire Department.

The system will be as manufactured by Edwards, FCI, Notifier or Simplex.

Fire alarm system will be tied into the DDC system.

D5030.02 Security Access and Surveillance

The proposed integrated electronic security system (IESS) consists of 3 sub-systems – Intrusion Detection, Closed Circuit Television (CCTV) and Access Control.

An addressable building intrusion detection system will provide the following functions:

- Intrusion alarm including dual technology motion detectors and door contact switches.
- Proximity card readers and key pads at the exterior doors and at the interior doors (i.e. Telecommunications Equipment Room, rooms storing valuable materials) as required by the program.
- Interface with the fire alarm and lighting control systems

The intrusion detection system will consist of a system control panel, system keypads, door contact switches and motion detectors. The system will be programmable such that upon detection of an unauthorized building entry it will transmit an alarm signal to the main office during school hours and to the local police department or the Owner's selected service during non-school hours. System coverage will include motion detection in all first floor rooms with exterior windows and in rooms with high value equipment. Door contacts will be provided on all exterior doors and on any interior doors equipped with access control card readers.

Closed Circuit Television (CCTV) security system will be provided. The scope of the system and performance criteria will be further defined with the Owner. A dedicated four-strand, fiber optic backbone network will be provided between the MDF and each IDF to separate the CCTV network traffic from the school data network. For cost estimating purposes, all cameras will be color, IP-based. Locations, approximate quantity and type of camera will be:

- Corridor and Corridor Intersections: Up to 45 fixed cameras.
- Egress doors and interior areas where students congregate (i.e. outside restrooms): Up to 40 fixed cameras.
- Main Entry: Four fixed cameras.
- Cafeteria: Up to seven fixed cameras.
- Gymnasium: Up to four fixed cameras.
- Exterior: Up to 80 fixed cameras with low light sensitivity, weather proof housing and accessories for exterior conditions, located as required to provide surveillance coverage of parking and drop-off areas, locations where vandalism may occur (corners that are not readily visible from the road) and areas where students congregate (i.e. outdoor dining.)

The Access Control system shall include a card access controller, door controllers and proximity card readers. The work of the Security, Electrical and Door Hardware contractors will be coordinated to ensure complete integration. Proximity readers will be located at selected locations as shown on the security drawings. The purpose is to only allow access to authorized personnel at predetermined times. Each proximity reader will have a distinctive code to identify the user and a log will be kept in memory. The log within the panel can be accessed through a computer. The alarm condition shall also initiate real time recording on the integrated CCTV System that is included as part of this proposed system. The system is programmed with graphic maps allowing the end-user to quickly identify alarm conditions and lock/unlock doors.

The system shall be tested and complete documentation shall be provided to the Owner on the operational and programming functions available. The system may be easily expandable to accommodate any additional devices that may be added in the future.

D5030.03 Voice and Data Systems

Communications Cable Infrastructure: During construction, the existing communications service feeds to the building will be maintained to allow the school to continue operations without interruption. A new underground communications duct bank will be provided with four individual conduits to deliver telephone, CATV, fiber optic cabling and a spare duct for future services. The new duct bank will originate on Stockbridge Road (Route 7) and extend to a new entrance facility that will be built next to the new Main Electric Room. The new conduit duct bank will run approximately 1,600 feet underground and include up to four communication manholes/hand-holes to accommodate the distance and number of bends in the cable path to facilitate cable pulling. The conduits will be concrete encased where they pass under roadways per the utility standard. The Communications Service Providers will furnish and install trunk cables from the riser pole to cross-connection equipment in the new Entrance Facility.

During the course of the addition and renovation project, the existing cable infrastructure will be maintained in portions of the building that will be renovated in later phases. By the end of the project, a completely new cable infrastructure will be provided throughout the building.

The School will be equipped with a voice and data distribution system providing connectivity from the work area voice/data outlets to their respective MDF/IDFs, and backbone cable connectivity from the each IDF to the MDF. All wiring, outlets and terminations will be installed to comply with EIA/TIA 568 standards. The (1) MDF and (5) IDF rooms will be strategically located so as not to exceed the maximum 100 meter length of the horizontal distribution cabling to the workstation outlets. These rooms will be designed to provide efficient cable runs, easy access and flexibility for future growth. Power, lighting and mechanical systems will be specified in the MDF and IDFs to provide and maintain adequate ambient conditions for immediate and future users and systems.

System program requirements and design shall include the specification of a complete data/voice cable infrastructure system including equipment, jacks, cable supports, pathways, installation and wiring methods and standards.

The voice and data distribution system shall consist of Category 6A, structured unshielded twisted pair (UTP) cabling systems and outlets for local area network (LAN) and voice communications. Outlets will be provided in offices, classrooms, workrooms, library, computer labs, cafeteria, gymnasium, and utility rooms. The data infrastructure will support both wired and wireless access to the network. The typical LAN/Voice outlet quantities in various spaces will be approximately:

- Classroom – Five LAN outlets and one voice outlet.
- Computer – Thirty-two LAN outlets and one voice outlet.
- Science Lab – Seventeen LAN and one voice outlet.
- Office – Two LAN and one voice outlet per desk.

Backbone cabling shall be fiber optic for data and multi-pair copper cable for analog telephone service (emergency and fax lines). The building will be provided with an infrastructure to support 100% wireless data network access throughout.

Telephone System: A telephone switch with components and accessories as required by the Owner's program needs will be provided under the Technology Equipment contract. Classrooms and other educational spaces, offices and locations where telephone outlets are indicated in the floor plans will be equipped with telephone handsets. The scope of the telephone system and performance criteria will be further defined. For schematic design purposes, the telephone system performance will include at minimum:

- Voice over IP (VoIP) telephone system consisting of interface capabilities with amplified intercom channels, (classroom) speakers, and/or telephones, digital readout for display of call origination in selected handsets.
- Automatic switching of the speaker's talk path to the telephone's handset, during the course of a call to the room's speaker.
- Direct dialing to all classroom and office telephones without having to call the room's speaker first, thereby disrupting the classes which are in session.
- Two-way communication from any classroom phone to any office phone.
- Two-way communication between any two phones in the system or any combination of phones in the system.
- Two-way communication between any telephone and any classroom speaker.
- Emergency 911 access.

D5030.04 Public Address and Program System

The School will be equipped with a new paging system consisting of an main console, microphones, amplifiers, AM/FM tuner, CD deck, speakers, wiring, telephone paging adapter, clock/program system interface and room call switches. The system shall allow

broadcasting of program tone signals for classroom changes, radio and CD deck program material, and microphone originated announcements to all areas throughout the building by individual area or on an all-call basis as programmed by zones. Private two way communications can be established between any classroom and the office, utilizing individual classroom telephone handsets. All electronic equipment will comply with applicable Electronics Industries Association (EIA) Standards.

A GPS-based wireless clock and program system will be provided for originating and distributing time and time correction signals, and for programming and initiating audible program signals. The system will consist of a master control unit, indicating clocks, and connections to the public address and music system. The master control unit will transmit wirelessly to the secondary clocks. Each secondary clock acts as a transceiver and synchs up with all other clocks. Clock correction is set for 1 second.

D5030.05 Cable Television System

Each educational space or group space will be cabled for video distribution system connectivity. The video system is to be bi-directional to allow the distribution of selected cable TV channels to the learning spaces and in-house broadcasts from the learning spaces. System will consist of a head end equipment rack with distribution components, outlets, splitters, trunk and branch cabling. All wiring, outlets and terminations will be installed to comply with local CATV company standards.

The cable television system head end will to allow programming to be distributed throughout the school and on to the community access channel. Remote connection for transmitting cameras, audio and intercom signals from the auditorium, gymnasium and library will be provided.

Select public sites, including cafeteria and main circulation areas, will be wired for digital signage and HDTV reception. The television units will be furnished and installed under the Technology Equipment contract.

D5030.06 Audio Visual Systems

Local sound systems will be provided for the Auditorium, Cafeteria, Large Group Instruction Room, STEM Lab, Band Room, Chorus Room, P.E. Multi-Purpose Room and Gymnasium for sound amplification from microphone, audio CD and portable audio sources via auxiliary input jacks. The systems will provide high quality sound reproduction for use during meetings, lectures, theatrical productions and public functions, and will be interconnected with the fire alarm system so fire alarm notification circuits override the local sound system.

The auditorium, large group instruction spaces and all academic classrooms will be wired for LCD projectors. Projectors in classrooms will be furnished under the Technology contract; and will be sized to accommodate the conditions of each location. High resolution, DLP projectors will be provided as part of the base bid in the Auditorium, Cafeteria and Large Group Instruction Room and STEM LAB.

All classrooms will be prepared for interactive presentation systems by installation of conduit, back boxes and pull strings. Interactive projectors, including installation and wiring, will be provided under the Technology contract.

Pending Owner approval, an optional Data Acquisition System (DAS) with a large interactive display monitor and graphic user interface for public viewing will be provided. The DAS takes readings from the Building Management System to monitor and interactively display power, water, and heat usage in the School and to provide comparative models with other buildings. The system will include integrated weather monitoring provided by a third party service to allow local weather conditions to be factored into the system display. The system will also be accessible over the local area network for classroom applications. Estimated value: \$35,000.00.

Pending Owner approval, an optional Media Server will be provided. The Media Server will be an IP video system that provides a complete infrastructure for delivering secure video to every desktop and display within the School. The system will be capable of recording any source and deliver live or recorded content, or video on demand. The system will allow administrators granular control over the media within a facility and a harmonized experience for all users. Estimated value: \$50,000.00.

D5030.06 Distributed Antenna System

Pending direction from the AHJ, the School will also be equipped with a Neutral-Host Distributed Antenna System capable of supporting Wireless Service Providers (WSP) and Public Safety Networks (PSN). The components of the system include: Donor Antennas, Coverage Antennas, Coax Cable, Coax Connectors, Splitters, Combiners, Couplers, Fiber-Optic Cable, Fiber-Optic Connectors, and Fiber-Optic Jumpers, Bi-Directional Amplifiers (BDA), Fiber-Optic Master Unit and Fiber-Optic Remote Units. Estimated Value: \$40,000.00.

D5090 Other Electrical Systems

D5090.01 Packaged Engine Generator System

A packaged engine-generator system will be provided to supply power to both emergency (Life Safety) and standby building loads including the loads associated with the building use as a community certified shelter upon loss of the normal electric utility power source. Impact of the shelter on the generator power system is based on the requirements that normal operation of the building's shelter areas (including lighting, heating, ventilation systems) should be maintained in a case of utility electrical power failure.

The generator unit shall start automatically on loss of normal power and transfer to the emergency power system within 10 seconds.

Generator-set power system loads:

- Life-safety emergency loads
 - 1) Emergency exit and egress lighting (interior and exterior)
 - 2) Fire alarm system
 - 3) Communication systems (telephone and public address systems)

- Standby power loads
 - 1) Heating system boilers with the associated pumps
 - 2) Boiler control panel and DDC panels
 - 3) Kitchen equipment and kitchen area lighting
 - 4) Gymnasium, adjacent corridors, shower and locker rooms lighting and dedicated receptacles
 - 5) Cafeteria, adjacent corridors and bathrooms lighting
 - 6) Administration area lighting, receptacles and small power
 - 7) Nurse/medical areas lighting, receptacles and small power
 - 8) Domestic hot water system equipment and pumps
 - 9) Security system equipment
 - 10) Handicap door operators and lifts
 - 11) Sewage pump systems or stations, if any (to be finalized)
 - 12) HVAC equipment (air supply and exhaust) serving the cafeteria, kitchen, gymnasium, lockers, showers, bathrooms, administration and nurse/medical area, telephone/ data rooms and closets.
 - 13) Remaining lighting in the corridors and lobbies within "Shelter area"
 - 14) Site/access road lighting (selective lights, to be finalized)

The generator power system design will include:

- The proposed generator set will be an outdoor type unit in a weatherproof and sound-attenuated enclosure. Preliminary estimated size of the generator set – 400 kW at 277/480 volt 3 phase.
- An exterior diesel-fired engine driven set will be provided. A skid-based fuel tank will be sized for 24 hours of the generator operation without re-fueling or 1000 gallons, whichever is greater. Fuel tank shall be of double-wall construction and will be furnished with a leak detection system.
- Three automatic transfer switches (ATS) and the associated power distribution panels. ATS for life safety loads - 250 Amp, two ATS for standby loads – 400Amp each (preliminary sizes).
- Emergency (life safety) power distribution equipment including ATS, panelboards and feeders will be installed in 2-hour fire-rated closets and shafts in compliance with the requirements of the Massachusetts Electrical Code.

Generator status signals will be transmitted to remote annunciator and also will be tied into the new DDC system for monitoring.

D5090.02 Grounding

All exposed, non-current carrying metallic parts of electrical equipment, the raceway system, and the neutral conductor of the wiring system will be grounded in accordance with the Electrical Code.

A ground bus will be provided in the main electrical room. It shall terminate electric service grounding conductor to the main switchboard ground bus, grounding electrode conductors to the water service pipe and building structural steel, and a conductor to the ground bus in the communication closet.

Separate copper equipment grounding conductor will be installed with all feeder and branch circuits.

Grounding cable connections to structural steel, grounding rods and other grounding cables will be of the thermal fusion type. Grounding rods will be copper clad steel, 5/8-inch diameter.

D5090.03 Lightning Protection System

The lightning protection system shall be designed and installed in accordance with NFPA 780, Standard for Installation of Lightning Protection Systems. System shall consist of the roof mounted air terminals, grounding conductors, down leads, ground rods and bonding conductors. Upon completion, the system shall be provided with a Underwriters Laboratories (UL) Label.

E EQUIPMENT AND FURNISHINGS

E10 EQUIPMENT

E1030 Commercial Equipment

E1030.80 Foodservice Equipment

A full kitchen will be provided to serve the Cafeteria as well as the Culinary Program space. SMMA will employ a Food Service Consultant to design the kitchen and select and specify commercial kitchen equipment.

See preliminary Food Service layout and list of equipment on the drawings.

Energy efficiency: Equipment will meet Energy STAR performance requirements to the extent feasible.

E1040 Institutional Equipment:

E1040.10 Educational and Scientific Equipment

Library Equipment: Not in the contract. Library equipment, such as card files and shelving, will be provided by the Owner, under a separate Furniture, Fixtures and Equipment contract.

Fume Hoods: 3 total.

Chemical Storage Cabinets: Full-height metal storage cabinets for storage of flammable chemicals and acids; one of each type in each Science Prep Room.

Dust Collection system: Industrial quality dust collection and air filtration system for Woodshop area.

Miscellaneous Equipment: Goggles sterilization cabinet and fire blanket in each lab. Refrigerator, freezer, ice machine, and dishwasher in each prep room.

E1060 Residential Equipment

E1060.10 Residential Appliances

The teachers' lounge area will include kitchen equipment, such as a refrigerator, microwave, and dishwasher.

Energy efficiency: Equipment will meet Energy STAR performance requirements to the extent feasible.

E1070 Entertainment and Recreational Equipment

E1070.10 Theater and Stage Equipment

Existing to remain

Stage Lighting: See Electrical narrative.

Large Group Instruction Room and Lighting Hall Lighting and Dimming Systems: Lights, dimming and control equipment; programmable, computer operated.

E1070.50 Athletic Equipment

Indoor Equipment in Gymnasium: The Gymnasium will be equipped so that it can be used for full-court basketball games utilizing the entire gymnasium, or for 2 practice games separated by a divider curtain.

Equipment to be provided:

1. New wireless system.
2. Basketball backboards, new on existing frames.
3. Mat mover

Outdoor Athletic Equipment: Refer to Sitework.

E1070.80 Audio-Visual Equipment

Projection Screens: Electrically operated screens with standard reflective fabric face; motor in roller. Screens will be provided at the following locations:

- In the Auditorium, on the stage, with extended blackout screen.
- In the Dining Commons, with extended blackout screen.
- In the Large Group Instruction Room and STEM Lab, with extended blackout screen.
- In the Library, with extended blackout screen.

- Gymnasium.
- Conference room in Administration wing.

Manually Operated Screens: Provide manufacturer's standard spring-roller-operated units designed and fabricated for wall or ceiling installation and consisting of case, screen, mounting accessories, and other components necessary for a complete installation.

1. Provide at teaching locations not receiving Smart Boards.
2. Provide a total of 2 screens to be located in Band and Chorus rooms.

E20 FURNISHINGS

E2010 Fixed Furnishings

E2010.20 Window Treatments

Horizontal Blinds: 1" wide metal slats. Manually operated for all offices.

Roller Shades: Manual

Room darkening shades will be provided for all classrooms.

Sheer shades will be provided to control glare for all classrooms.

E2010.30 Casework

Classroom Casework: Plastic laminate clad, veneer core plywood, casework, fabricated to AWI (American Woodwork Institute) Premium Grade, full-flush overlay design. Plastic laminate countertops. Classroom casework will be designed to conventional modular sizes and may be purchased from a manufacturer of standardized institutional casework.

1. Colors: Laminate-cladding will be in a variety of wood grain colors.
2. Accessibility: Base cabinets with sinks will be designed so that the sinks can be reached by students or teachers in a wheelchair.

Wardrobes: Each classroom will have two teacher's wardrobe units, fabricated in the same materials as the classroom cabinets, and fitted with coat hanging rod and shelf.

Lavatory Counters: Solid surfacing material, such as DuPont "Corian."

Reception Desk: Custom-fabricated laminate-clad wood case with solid wood trim, fabricated to AWI (American Woodwork Institute) Premium Grade standards. Top surface material to be determined.

Adjustable Shelving: Provide utility shelving for storage rooms, copy rooms, and similar locations: Laminate-clad shelves with solid-wood edge banding, supported on extra-heavy duty double slot extruded aluminum stanchions and brackets; 12" deep shelving.

Lab Casework: AWI (American Woodwork Institute) Premium Grade, full-flush overlay design. Epoxy benchtops, 1-1/4"countertops with 4" epoxy backsplash. Adjustable wood shelving with turned up ends, on painted Unistrut supports to structure above, every 24". Casework will be designed to conventional modular sizes and may be purchased from a prequalified manufacturer of standardized laboratory casework.

Lavatory Countertops in Labs: Epoxy resin, black, 1-1/4 inch thick, with epoxy resin lavatories.

Adjustable Shelving: Provide utility shelving for storage rooms, copy rooms, and similar locations: Wood shelves with solid-wood edge banding, supported on extra-heavy duty double slot extruded aluminum stanchions and brackets; 12" deep shelving.

Indoor Air Quality (IAQ): Casework specifications will require the use of panel materials that have been tested and certified per GreenGuard Children and Schools for low emissions of volatile organic compounds (VOCs) and that are made with no additional urea-formaldehyde.

E2010.70 Fixed Multiple Seating

The Auditorium will be furnished with fixed theater-type seating to accommodate approximately 600 seats. Type of seats (upholstered, non-upholstered) will be determined during design development. Seating layout will include areas for wheelchairs to comply with the Americans with Disabilities Act and with the Regulations of the Massachusetts Architectural Access Board.

E2010.90 Other Fixed Furnishings

Mirrors: In toilet rooms, provide unframed mirrors extending full width above lavatory counters, mounted to wall on plywood backing with mirror mastic and continuous top and bottom chrome-plated brass or stainless steel edge clips.

E2020 Moveable Furnishings

All moveable furnishings, such as classroom desks, cafeteria chairs and tables, and office furniture, will be provided by the School Department under a separate Furnishings, Fixtures and Equipment contract.

Existing Furniture: Contractor will be required to pack, label, and move existing moveable furnishings such as library tables, chairs and bookcases and classroom desks and chairs out of the areas being demolished or renovated into on-site storage area or trailers, or swing spaces inside the building, as required by the phasing plan, and then move these furnishings into finished spaces, unpack, and set in place.

- Owner/School staff will pack small personal items in cartons supplied by the Contractor, and will unpack these cartons after Contractor has moved them to the new location.

New Furniture: All new moveable furnishings, such as classroom desks, cafeteria chairs and tables, and office furniture, will be provided by the Owner under a separate Furnishings, Fixtures and Equipment contract.

E2050.60 Movable Multiple Seating

Telescoping Stands: Electrically-operated telescoping bleachers will be provided in the Gymnasium to accommodate 750 seats

Bleacher layout will include areas for wheelchairs to comply with the Americans with Disabilities Act and with the Regulations of the Massachusetts Architectural Access Board.

F SPECIAL CONSTRUCTION AND DEMOLITION**F20 FACILITY REMEDIATION****F2010 HAZARDOUS MATERIALS REMEDIATION****F2010.10 Transportation And Disposal Of Hazardous Materials**

The renovations and additions will require asbestos and other hazardous materials abatement at the start of each phase. The need to isolate the areas of demolition from the school occupied areas has been planned. The public spaces, such as the cafeteria, gymnasium and auditorium will be phased to take advantage of the summer break, commencing in the late spring and completing in the early fall.

The Architect's consultant, CDW., performed a preliminary assessment of the interior of the building to determine the presence and extent of hazardous materials. Their report, dated July 11, 2012 was delivered to the Owner under separate cover.

Mercury: Present in fluorescent light ballasts, emergency light batteries, and in switches and thermostats. Handle and dispose of as universal waste.

Other Hazardous Materials: In buildings of this age, it is typical to find light bulbs and thermostats that contain mercury, fluorescent light ballasts that contain PCBs, banned refrigerants in air conditioning units, an miscellaneous items with hazardous material content, such as emergency lighting, batteries, stored paints and chemicals. These materials will have to be handled and disposed of in accordance with federal, state and local regulations.

F2010.20 Asbestos Remediation

Asbestos: In brief, the preliminary assessment identified suspect ACBM at the following locations; these materials will have to be removed prior to renovation or demolition work in areas where it may be disturbed. A more detailed assessment will follow during the design development phase of the project.

Exterior:

Exterior Door Caulk

Exterior Window Caulk

Exterior Window Glaze

Interior:

Transite in Greenhouse

Sheet Flooring in Greenhouse

Glazing Greenhouse (Old)

Roofing Greenhouse Building

Transite in Boiler Room

Boiler Room, multiple areas

Hard Fittings on Pipe

Floor Tile

Carpet Glue and/or Remnant Mastic at Admin, Main Hall, Library, Auditorium

1' x 1' AT and Glue Daubs at Admin, Café and Hallway Outside Café, Inside Classrooms of Each Wing

Black/Grey Sink Coating

Wooden Classroom Door Window Glaze - Offices

Fire Door Assembly Window Glaze

Foundation Coating

Vapor Barrier Behind Masonry

Remnant Roofing Materials and Flashing

Hidden Transite Panels

Blackboard/White Boards/Cork Boards Glue Daubs

Paper/Mastic Under Gym Floor

Flex Connectors

Block Expansion Joint at Gym and A Wing Hall

Interior Caulk at Garage Doors Tech Wing

Interior Window Caulk

Interior Window Glaze

Covebase and Glue-Admin, Classrooms and Hallways

Transite Panel Under Windows

Black Table Tops, A-11, A-03, A-15 , all Science Classrooms

Transite Display Cases

Kilns in Art Room

Transite Fume Hoods

Laminate Counters-Select Classrooms

Coating on Strapping Under Gym Floor

Remnant Fire Doors

Hard fittings on Fiberglass Pipes and Pipe Insulation Throughout Behind Walls, Boiler Room

Walk In Refrigerator and Freezer Coating

Sheet Rock/Joint Compound/Plaster Above Lockers in Halls

Subsurface Transite and Roof Drains

Grout-Bathrooms, Ceramic Covebase

Stage Fire Curtain

Paper Under Stage Auditorium

PCBs in Caulking @ Windows, Interior Expansion Joints

Possible Mercury Containing Rubber Flooring at Stairways/Landings and Ramps

F2010.30 Lead Remediation

Lead Based Paint: Elevated levels of lead-based paint (lead content greater than 1.0 mg/cm²) are present on the library windows, and on various surfaces throughout the areas of the existing building which are

to be remodeled. Lead paint does not have to be removed before renovation, but components that are covered by LBP may require special handling and disposal, personnel air monitoring and other work protection in compliance with the OSHA lead standard.

F2010.40 Polychlorinate Biphenyl Remediation

PCBs: Present in fluorescent lamps and limited interior caulking. Handle and dispose of as universal waste

F2010.50 Mold Remediation

No mold has been specifically identified to date. Mold mitigation will be handled as part of standard temporary controls and Indoor Air Quality (IAQ) during construction.

F30 DEMOLITION

F3030 Selective Demolition

F3030.10 Selective Building Demolition

Principal areas of the existing building requiring selective demolition in preparation for renovation or remodeling:

Exterior:

Remove windows indicated. This removal may require special handling of asbestos-containing caulking materials and lead-containing paint.

Remove roofing indicated, including roofing at lower roofs along stepped-down perimeter. Remove roofing down to deck and remove roof perimeter sheet-metal flashing and fascia. This removal may require special handling of asbestos-containing caulking materials.

Interior:

General: Refer to Drawings for location and extent of areas which are being renovated.

Selective demolition in classroom areas and adjacent corridors. Remove partitions, doors and frames, ceilings, casework, flooring, items mounted walls, and wiring, ductwork and piping serving these spaces.

Selective demolition in toilet rooms, to accommodate accessibility modifications.

Remove carpet and vinyl asbestos tile from classrooms as part of the asbestos abatement. Prepare subfloor for installation of new vinyl composition tile.

The MEP Trades will be required to cut, cap, and make safe the MEP service equipment in the 2 classroom wings scheduled to be demolished. The Contractor shall perform all removal with the demolition.

The MEP Trades will be required to cut, cap, and remove the MEP service and equipment in all renovated areas.

G SITEWORK

G10 SITE PREPARATION

G1010 Site Clearing

Site Clearing and Erosion and Sediment Control, in compliance with the NPDES General Permit from the EPA.

Maintain temporary protective barriers (8' high chain link fence with tension wire top and bottom and dust scrim) through the course of construction separating occupied school operations from construction activities. Provide temporary signage to guide school and construction traffic.

Maintain safe access for emergency vehicles. Maintain access to the existing school building.

Provide separate construction access from the existing school driveway. Maintain separation from the existing school operations throughout construction.

G1020 Site Elements Demolition

G1020.10 Building Demolition

See Section F.

G1020.20 Utility Demolition

Maintain services to existing building throughout construction. Demolish utilities as shown on the site plans in accordance with the phasing requirements.

G1020.50 Selective Site Demolition

Remove and dispose pavement from portions of parking areas, driveways, and sidewalks within the limit of work as shown on the drawings to be rebuilt as indicated on the site plan.

Protect existing site improvements scheduled to remain. Provide safe access to building during construction.

G1040 Hazardous Material Remediation

Remove and legally dispose of petroleum contaminated soils, if encountered.

G1070 Site Earthwork

Remove knoll on east side of site building in the location of the conservatory addition. Blasting may be required.

Excavation for building foundations, utilities, pedestrian and parking areas including bracing and support as required.

Remove topsoil from below the proposed building addition and zone of influence of foundations. Replace with compacted structural fill.

Preparation of subgrade and bearing surfaces including proof rolling.

Placement and compaction of fills from onsite and offsite sources. Compact fill layers below building and pavement to 95% Maximum Dry Density, per ASTM 1557.

Preparation of subbase and base courses for building and pavement.

Preparation of landscaping areas including placement of topsoil.

G20 SITE IMPROVEMENTS

G2010 Roadways

Portions of the roadway identified on the site plan will be bituminous concrete pavement, consisting of a 1-1/2" binder course and a 1" wearing course over an 12" compacted gravel base. Materials to be in compliance with paragraph 460 of the Massachusetts Highway Department Standard Specifications. Other portions of pavement will be milled and overlaid with up to 2" of asphalt removed and replaced as shown on the plans.

Provide an emergency access drive around the building as indicated on the site plan. The access drive will be reinforced turf constructed of reinforced plastic mesh.

G2020 Parking Lots

G2020.10 Parking Lot Program

Approximately 270 parking spaces will be provided to serve staff and visitors, including 7 handicap accessible spaces (1 van and 6 automobile).

Parking areas will be striped and landscaped as indicated on the drawings. LED site lighting will be provided.

G2020.20 Paving

Portions of parking lot areas identified on the site plan will be bituminous concrete flexible pavement consisting of a 1-1/2" binder course and a 1" wearing course over a 12" compacted gravel base. Materials to be in compliance with paragraph 460 of the Massachusetts Highway Department Standard Specifications. Other portions will be milled and overlaid with up to 2" of asphalt removed and replaced as shown on the plans.

G2020.30 Curbs and Gutters

Front Entry Plaza and Drop-Off Area and driveways: VA4 vertical granite.

Parking Lot Curbing: VA4 vertical granite curbs and cape cod bituminous berm as indicated on the site plan.

G2020.04 Parking Lot Appurtenances

Parking lots will be provided with traffic barriers, parking lot signs and pavement markings.

G2030 Pedestrian Sidewalks, Plazas and Courtyards

G2030.10 Sidewalks

Pedestrian sidewalks will be portland cement and bituminous concrete. Sidewalks will be 5" portland cement concrete over 8" gravel base or 2-1/2" bituminous concrete over 8" compacted gravel base. Sidewalks are proposed at the perimeter of the main parking lot, drop-off area to the school entrances. At least three quarters (by area) of walkways shall be cement concrete.

G2030.20 Entry Plaza

The entry plaza area is adjacent to the proposed building main entrance and will be color conditioned concrete and conform to portland cement concrete sidewalk specifications.

G2030.30 Cast-in-Place Detectable-Tactile Warning Surfaces

Curb ramps, as defined by ADAAG and MAAB shall be constructed with minimum 24" wide detectable warning surface with raised dome tactile surface.

G2030.40 Exterior Steps and Ramps

Steps: Cast-in-place concrete; standard cements and aggregates; broomed finish. Galvanized steel pipe rail, painted with polyurethane paint system.

Ramps: Cast-in-place concrete; standard cements and aggregates; broomed finish. Widths and slopes conforming to ADAAG and MAAB. Galvanized steel pipe rail, painted with polyurethane paint system.

G2030.15 Courtyard

The courtyard is located east of the building between the existing building and new addition. It will be color conditioned concrete and conform to portland cement concrete sidewalk specifications. Seatwalls and granite landscape edgers will also provide planted areas as shown on the plans.

G2050 Athletic, Recreational, and Playfield Areas Playground Safety Surface

G 2050.10 Playground Safety Surface

Provide a 4" deep poured-in-place resilient rubber surface, designed for use, a playground safety surface to meet fall-height requirements for a minimum of 8 feet when tested in accordance with ASTM F1292a. Cushion source shall be styrenebutadiene rubber (SBR) granules, manufactured from 100% post-consumer recycled materials, and polyurethane and the top wearing course shall be pigmented ethylene-propylene (EPDM) rubber granules, graded from 1 to 3 mm in size, in a polyurethane binder.

G2060 Site Development

G2060.20 Fences and Gates

Provide 3'-6" high vinyl clad chain link fence along south side of main parking lot.

Provide a 3'-6" high ornamental metal fence surrounding the playground.

G2060.25 Site Furnishings

Site furniture will include benches, trash receptacles, bicycle racks, and bollards. Acceptable products for benches, trash receptacles and bicycle racks will come from the same manufacturer and will be packaged together as a collection.

One ground-set 40' high extruded aluminum or fiberglass pole, with flag.

Granite seat walls will be located in the courtyard with granite landscape edging.

Stone boulder seating will be located in the southeast corner of the building.

G2060.30 Monument Entrance Sign

Provide two exterior main entrance signs that are 8' high masonry clad wall with bronze laser cut lettering.

G2060.60 Screen Walls

Screen walls will be precast concrete with masonry facing to match the building exterior.

G2080 Landscaping

G2050.10 Soil Preparation

Provide eighteen inches of loam in plant bed areas and eight inches of loam in lawn areas per specified topsoil preparation and amendment additives.

G2050.20 Lawns and Grasses

Lawn areas shall be provided to compliment the general plantings and the site. Specified seed mixes will be provided for general lawn areas and sloped areas.

G2050.30 Trees, Plants and Ground Covers

Trees, shrubs, and groundcover will be provided to compliment the site and public areas. Planting areas will include three inch deep mulch. Plant selection will include drought resistant and native plant species.

G2050.40 Plant Maintenance and Guarantee

Contractor shall provide 90 days maintenance to plantings and lawn areas and warranty plantings for one year to ensure the health and establishment of all plantings.

G30 LIQUID AND GAS SITE UTILITIES

G3010 Water Utilities

G3010.10 Site Domestic Water Distribution

The domestic water distribution system will be a 4" Class 52 ductile iron line connected to the existing 4" service.

G3010.30 Site Fire Protection Water Distribution

The fire protection service to the building will be an 12" Class 52 ductile iron line connected to the existing stub north of the proposed building entrance.

The existing 12" distribution main will be extended to the south to serve a new fire hydrant. Hydrants will be provided within 300 feet of each building corner and as required by the Great Barrington Fire Department.

G3020 Sanitary Sewerage Utilities

G3020.10 Sanitary Sewerage

Gravity sewer lines will be PVC (SDR-35). Manholes shall include metal frame and covers with precast concrete structures with brick channels. Connection will be to the existing septic tank.

Kitchen and culinary art waste will discharge to a precast concrete grease trap.

Laboratory wastes will be treated within the building and will connect to the sanitary sewer service outside the building.

G3030 Storm Drainage Utilities

G3030.20 Storm Drainage Piping

Storm drain pipe will be Corrugated Polyethylene. Manholes and catch basins shall include metal frame and grates with precast concrete structures. Catch basins will include a four foot deep sump and oil hoods at the outlets.

Stormwater treatment devices will be incorporated into the storm drain system with hydro-dynamic separators similar to Stormceptor.

Subsurface infiltration area (Stormtech or approved equal) with dimensions shown on the plans.

G40 ELECTRICAL SITE IMPROVEMENTS

G4020 Site Lighting

G4020.10 Area Lighting

Refer to Section D50, Electrical Work

Z GENERAL

Z10 GENERAL REQUIREMENTS

Z1010 Price and Payment Procedures

Z1010.20 Unit Prices

Unit prices proposed by the Bidders and accepted by the Owner will be used as the basis for adjusting the Contract Price should actual quantities of work differ from the quantity included in the base Contract Price.

Bidders will be required to provide unit prices for the following types of Work:

Various classes of earthwork.

Miscellaneous and structural steel.

Various types of asbestos abatement work

Z1010.30 Alternates

Alternates will be identified by the Architect in consultation with the Owner during the Contract Documents phase, as a means for insuring that the Project will be constructed within the budget.

Provide the following Bid Alternates:

1. New granite terraced seating along western hillside of the existing track- as indicated on the site drawings.

Z1010.60 Contract Modification Procedures

When modifications are initiated by the Owner, the Architect will ask the Contractor to prepare a cost proposal for the change, for review by the Architect and Owner.

Changes may also be proposed by the Contractor, for limited reasons set forth in the Contract Documents.

Change Orders have to be accepted and signed by the Owner, the Architect and the Contractor.

Changes to which the Contractor has not yet agreed with respect to payment, may be implemented as a Construction Change Directive,

signed by the Owner and the Architect. CCD's will become CO's when accepted and signed by the Contractor.

Z1020 Administrative Requirements

1020.10 Project Management

Contractor will be required to employ a Project Manager and a Superintendent. The Superintendent will be on site full time during construction, and will be responsible for scheduling Progress Meetings.

The Owner will employ a Project Representative who will be on site full time during construction.

Applications for payment will be submitted monthly by the Contractor, in accordance with statutory requirements. The Architect will review and approve Applications for Payment.

Z1020.50 Submittal Procedures

The Contractor will prepare and submit for the Architect's review Action Submittals such as Shop Drawings, Samples, Product Data and Informational Submittals such as Certificates, Test Reports, and Material Safety Data Sheets (MSDS).

Architect will review and approve or otherwise comment on Action Submittals which are required by the Specifications.

Architect will review but will not be required to approve or take action on Informational Submittals.

LEED Credits: Where information about material content or chemical emissions is required in order to document compliance with LEED Credit requirements.

Z1040 Quality Requirements

Z1040.40 Quality Assurance

Contractor will be responsible for developing procedures to measure and report the quality and performance of construction, and for confirming that fabricators, installers, manufacturers testing agencies, and others involved in the construction process meet the specified requirements.

Z1040.80 Quality Control

The Contractor will be required to provide the services of a Registered Engineer or Registered Land Surveyor to lay out locations and elevations for the building and for site improvements.

The Owner will employ a testing and inspection agency to perform the following tests and inspections:

Inspect soil for proper compaction and moisture content under footings, foundations, and slabs on grade.

Review concrete mix design, perform slump tests, and analyze results.

Inspect structural steel connections.

Review mortar mix design, and perform testing of mortar and masonry units.

Full-time roofing inspection.

Field testing of windows and curtain wall for water leakage and air infiltration.

Z1050 Temporary Facilities and Controls

Z1050.10 Temporary Utilities

Temporary Power: By electrical sub-contractor. Owner will pay backcharges for connection to utility company, as this information is usually not available to bidders at the time bids are due.

Temporary Water: By plumbing sub-contractor. Cost of backcharge (charge for connecting to utility company lines) will be included in the plumbing sub-contract price.

Z1050.20 Construction Facilities

Contractor will be responsible for field offices.

Z1050.35 Temporary Vehicular Access and Parking

Contractor will enter and leave the site from a single location, which will be designated by the Owner and shown on the Drawings.

Z1050.40 Temporary Barriers and Enclosures

Contractor will be required to provide a site fence to secure the site, with a locking gate at the entrance to the site.

Z1050.50 Temporary Controls

Existing Hazardous Materials: Refer to this document for precautions during abatement and handling of asbestos containing materials, lead-based paint and other hazardous materials which may be present in and on surfaces of the existing buildings.

Erosion Control: Plan for erosion and sediment control to be placed on the site and maintained during demolition and construction.

Environmental Protection: Provide protection, operate temporary facilities and conduct construction in ways and by methods that comply with environmental regulations, and minimize the possibility that air, waterways and subsoil might be contaminated or polluted, or that other undesirable effects might result.

Air Quality Control: Provide adequate means for containing dust and debris generated by construction operations.

Noise Control: Develop and maintain a noise-abatement program to minimize disturbances to College activities in other buildings on the campus.

Waste Disposal: In accordance with local regulations and with the approved Waste Management Plan.

Temporary Partitions: Temporary dust and sound partitions within the building to allow construction within an ongoing operating school.

Z1050.70 Project Identification

The Contractor will be required to provide a project sign.

Z1070 Execution and Closeout Requirements

Z1070.30 Cleaning Management

The Contractor is required to complete the cleaning operations before requesting inspection for certification of Substantial Completion.

After the punch list work has been completed, as a prerequisite to Final Acceptance of the Work, reclean the entire building and grounds.

Z1070.40 Startup and Adjusting

As a prerequisite to Substantial Completion, Contractor will start up each piece of equipment and make adjustments necessary to insure that equipment is performing to specifications.

At the completion of the Project, Contractor will instruct Owner' personnel in operation and maintenance procedures for equipment furnished under this Contract.

Z1070.70 Closeout Submittals

Certified record survey showing property line, foundation locations, and finished floor elevations.

Certificates of inspection including:

1. Certificate of Occupancy.
2. Certificate of inspection for wheelchair lifts.
3. Certificate of inspection for mechanical work.
4. Certificate of inspection for electrical work.

Reports of equipment start-up, testing and balancing.

Change-over information related to Owner's occupancy, use, operation and maintenance, including final meter readings, if applicable.

Change-over from construction keying to final keying.

Consent of surety to payment at the time of Substantial Completion.

Completed project Operation and Maintenance Manuals.

Record of training of Owner's personnel; training videos if required.

Contractor's project warranty.

Project Record Documents: Record Drawings, Record Specifications, and Shop Drawings.

Contractor-prepared Submittals required for LEED Certification.

When the Contractor believes that the work is substantially complete, including the closeout submittals, the Contractor will notify the Architect in writing and request inspection. Prior to requesting this inspection, the Contractor will prepare a list of work still incomplete ("punch list") and attach this list to the request for inspection.

The Architect will make an inspection to determine whether the work is Substantially Complete and in accordance with the Contract Documents and, if it is, will issue the Certificate of Substantial Completion.

Z1090 Life Cycle Activities

Z1090.10 Commissioning/LEED Certification Requirements

Construction Waste Management Plan: Pursuant to LEED Materials and Resource Credit, Contractor will be required to develop and enforce a construction waste management plan that will recover 95% of construction waste materials that would otherwise go into landfill. Document the successful implementation of the waste management plan for the LEED Submittal.

Construction IAQ Management Plan: Contractor will be required to develop and enforce a construction indoor air quality management plan which will describe procedures to be implemented during construction and immediately prior to occupancy, to ensure that indoor air quality meets referenced standards when the Owner occupies the building. This plan will include either general building flush-out just prior to occupancy, or air testing after construction ends, followed by selective flush-out in areas in which contaminant concentrations exceeds permitted maxima. Document successful implementation of the plan for the LEED Submittal.

LEED Credit: Pursuant to LEED Energy and Atmosphere, Fundamental Building Systems Commissioning, and Energy and Atmosphere Credit, Additional Commissioning, a third party agent will perform commissioning work for this project.

Z70 PERMITS

Z7020 Permits

Z7050.20 Permits

Contractor will be required to obtain and pay for all permits and inspections required by the Regional District and by other authorities having jurisdiction.

The Regional District may decide to waive the fees for some or all such permits and inspections.

Monument Mountain Regional High School

Schematic Design-

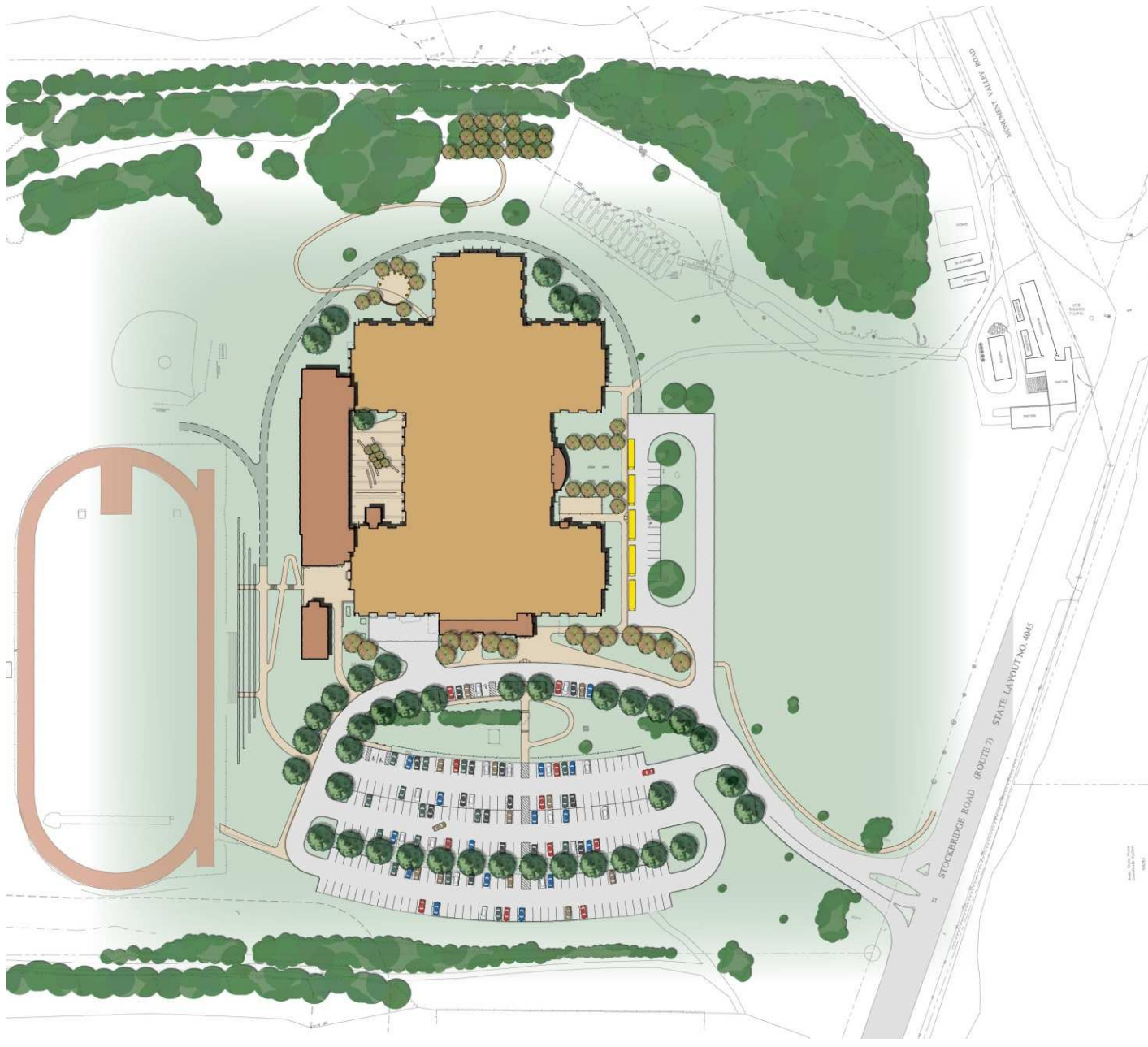
Project Scope for Cost Estimating

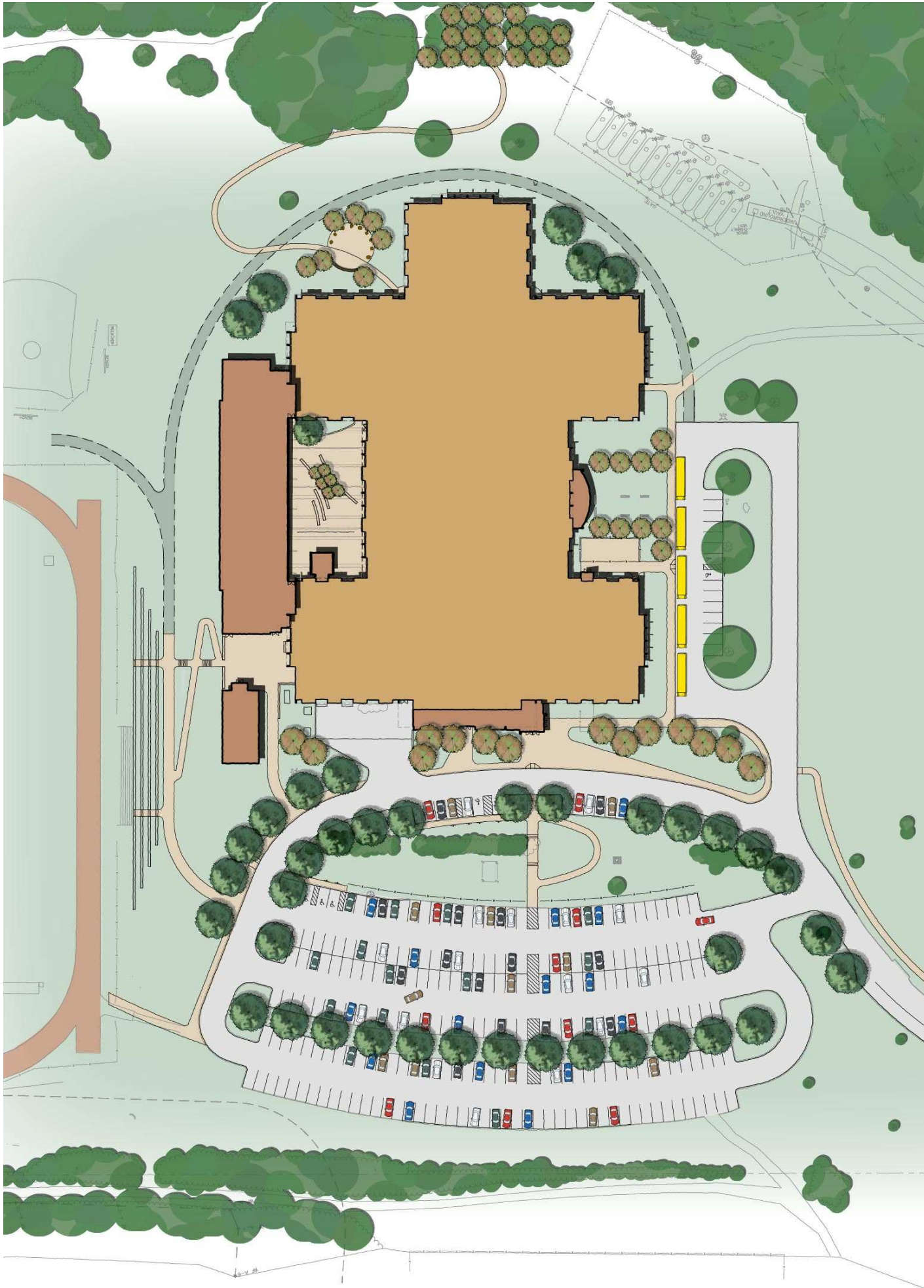
Decision Points □

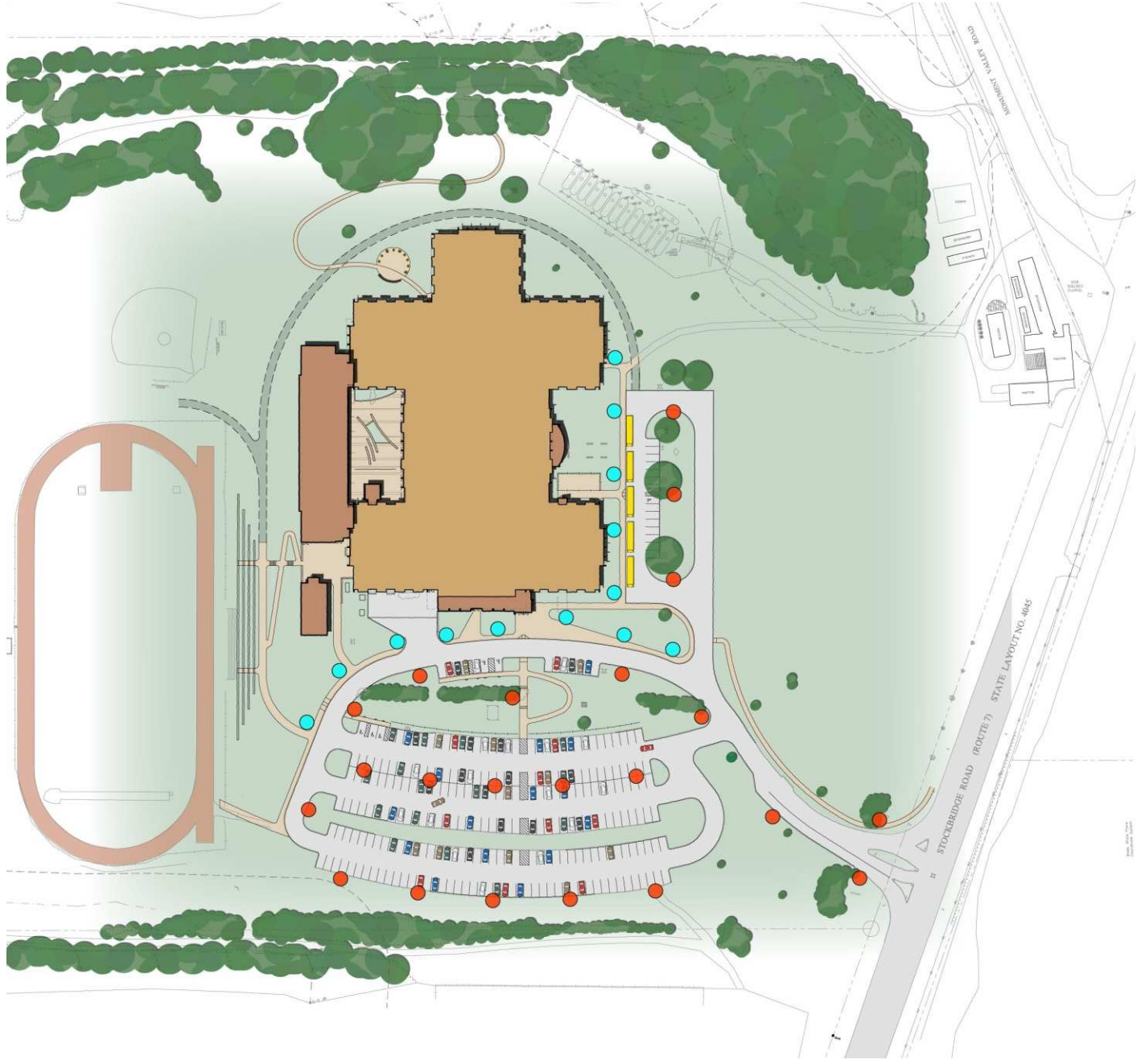
March 5, 2013

Project Scope- Assumptions for Cost Estimate

- Proposed SD Site Plan and Courtyard Design
- Proposed SD Floor Plan Layout
- Exterior Enclosure
- Structural
- Interiors
- Mechanical
- Technology/Security
- Electrical
- Emergency Shelter Assumptions







Site- Current Proposed Site Lighting Plan





Early Childhood Play Yard



Bus Drop-Off

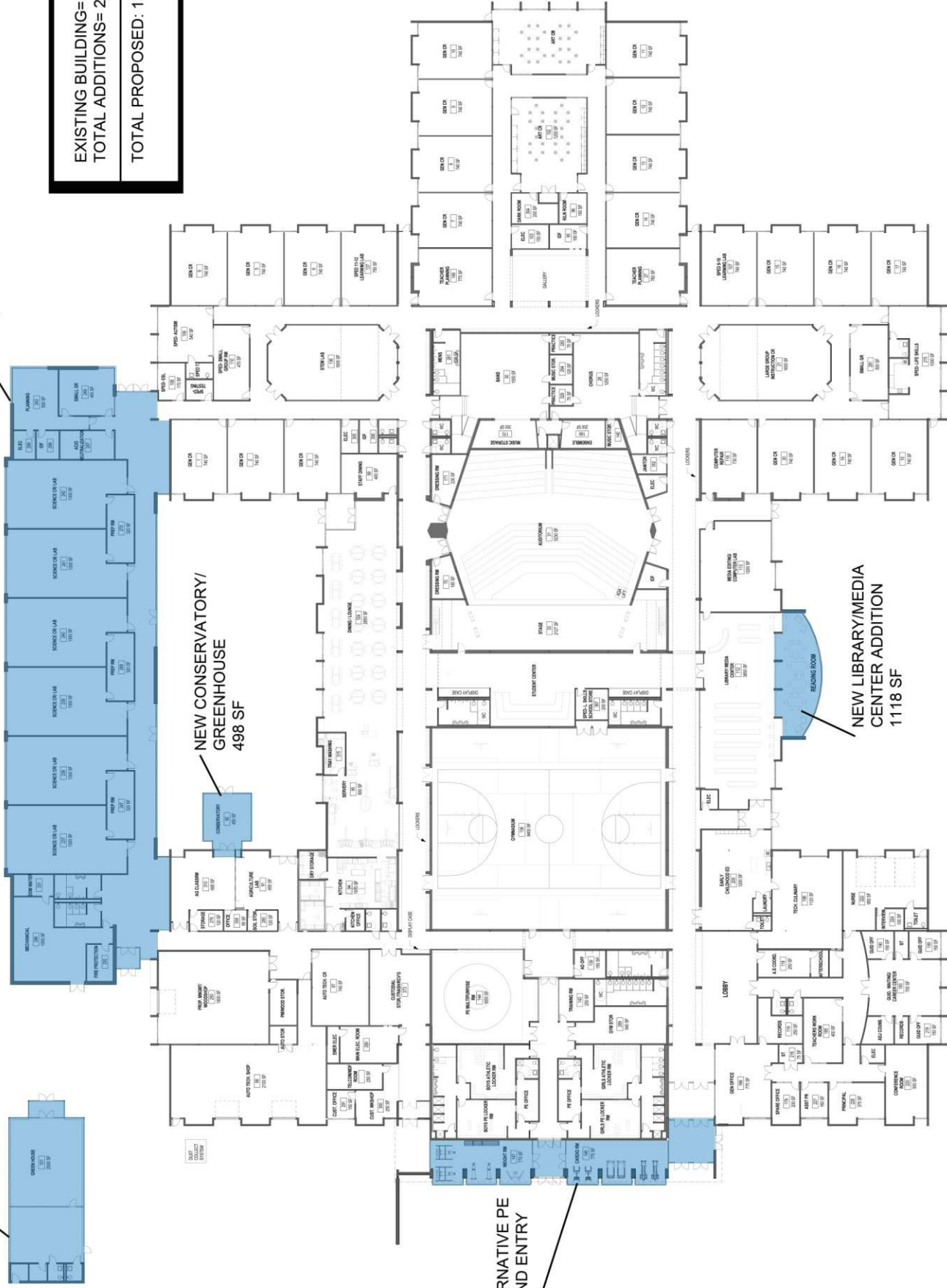
Courtyard Design Scope- Options Under Review

- 80-90% Paved Surfaces
- Low Maintenance Plantings
- Seating- Stone walls or boulders
- Oversized doors through adjacent spaces (exact location TBD)
for courtyard access

NEW GREENHOUSE
2,352 SF

NEW STEM/SCIENCE CLASSROOM ADDITION
17,754 SF

EXISTING BUILDING= 113,705 SF
TOTAL ADDITIONS= 23,957 SF
TOTAL PROPOSED: 137,662 SF



Proposed SD Floor Plan - SF Analysis

Exterior Enclosure- Scope and Assumptions

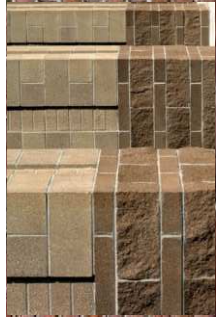
- Replace all existing windows with new insulated aluminum-framed, thermally broken window systems
- Existing brick to remain- minor re-pointing as required- assume cleaning of all existing brick at the end of the construction project
- Existing metal cladding at mansard roof to be removed and replaced with metal panel system and appropriate insulation
- Remove existing roof and replace with new membrane roof system with appropriate insulation

Exterior Materials- Assumptions



Existing Materials

CMU
\$



STEM Addition
Library Addition

Brick
\$



STEM Addition
Library Addition

Metal Panel
\$ 1/2



Existing Mansard
Re-cladding

Stone
\$\$\$



Entry Tower

Roof Plan- Scope and Assumptions

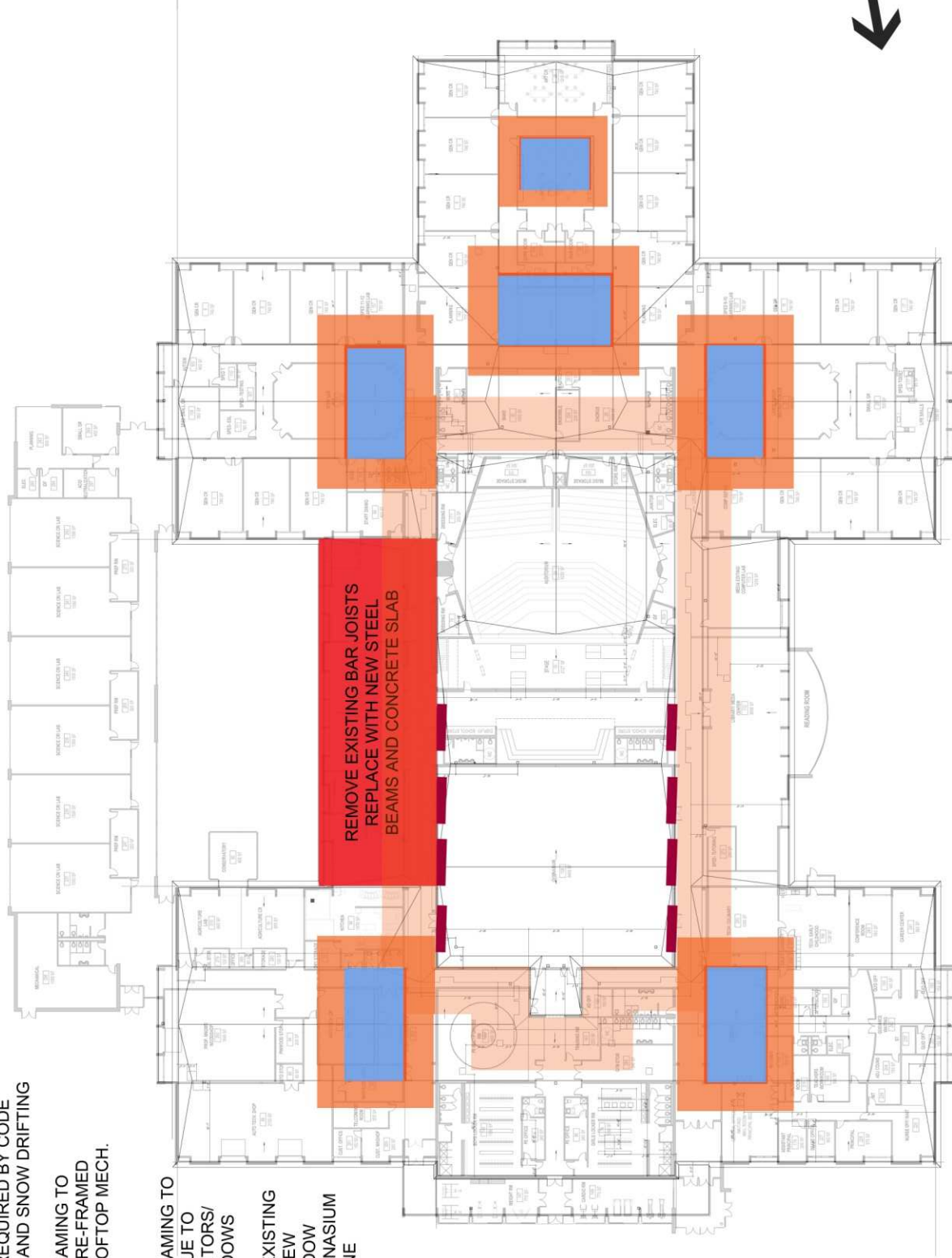
- New membrane roof and appropriate roof insulation to meet LEED and Energy Code requirements
- Install new lighting protection system over new roof
- Structural reinforcing required for new rooftop mechanical equipment and code upgrades
- Install proposed new roof monitors and skylights
- Install new roof screens

EXISTING ROOF FRAMING TO BE REINFORCED- REQUIRED BY CODE FOR SNOW LOADS AND SNOW DRIFTING

EXISTING ROOF FRAMING TO BE REMOVED AND RE-FRAMED DUE TO ADDED ROOFTOP MECH. EQUIPMENT

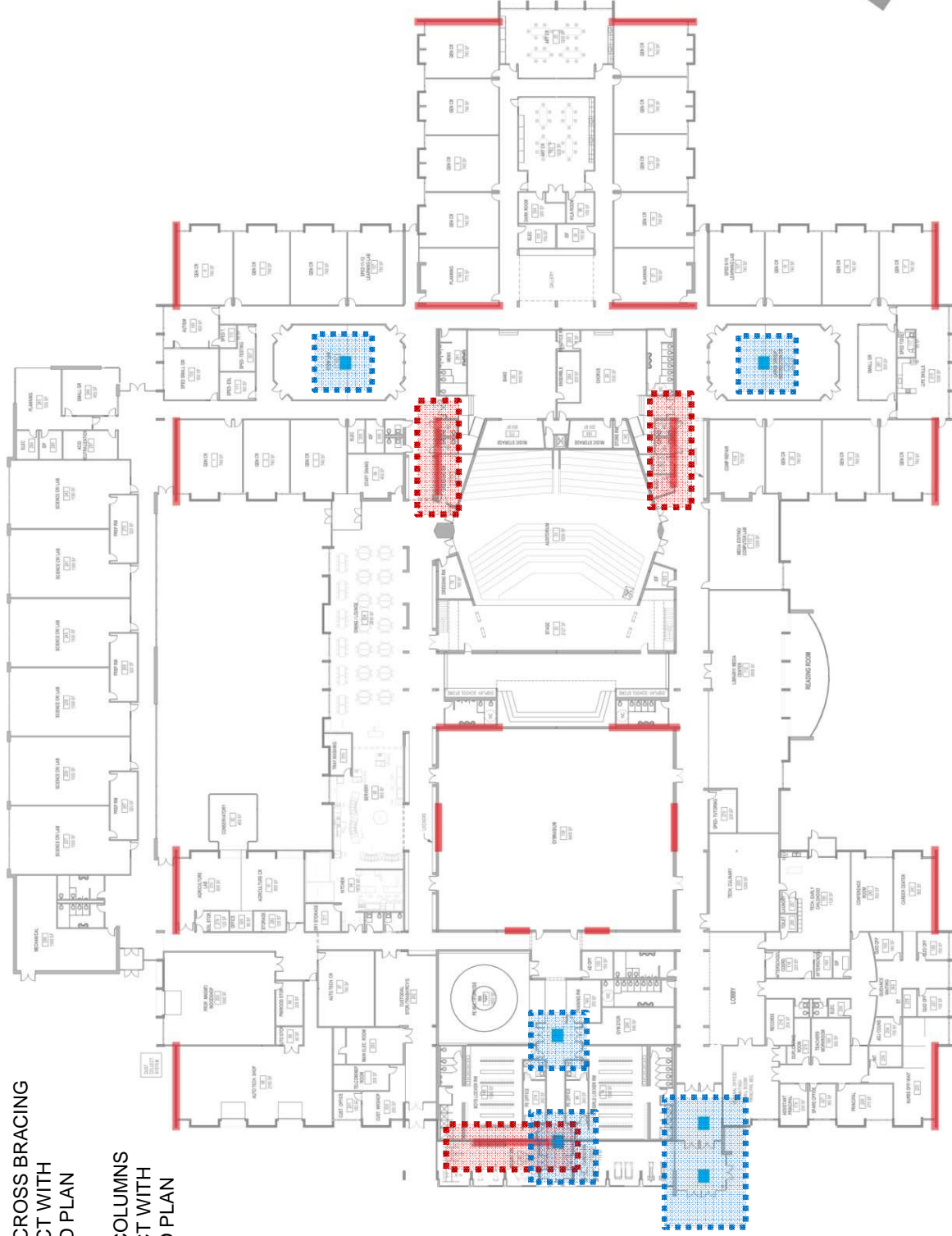
EXISTING ROOF FRAMING TO BE REINFORCED DUE TO ADDED ROOF MONITORS/ CLERESTORY WINDOWS

REINFORCING AT EXISTING CMU WALLS FOR NEW CLERESTORY WINDOW OPENINGS AT GYMNASIUM AND CENTRAL SPINE



EXISTING CROSS BRACING
IN CONFLICT WITH
PROPOSED PLAN

EXISTING COLUMNS
IN CONFLICT WITH
PROPOSED PLAN



FIRE WALL LOCATIONS-
2 HOUR RATED ASSEMBLY

EGRESS LOCATIONS

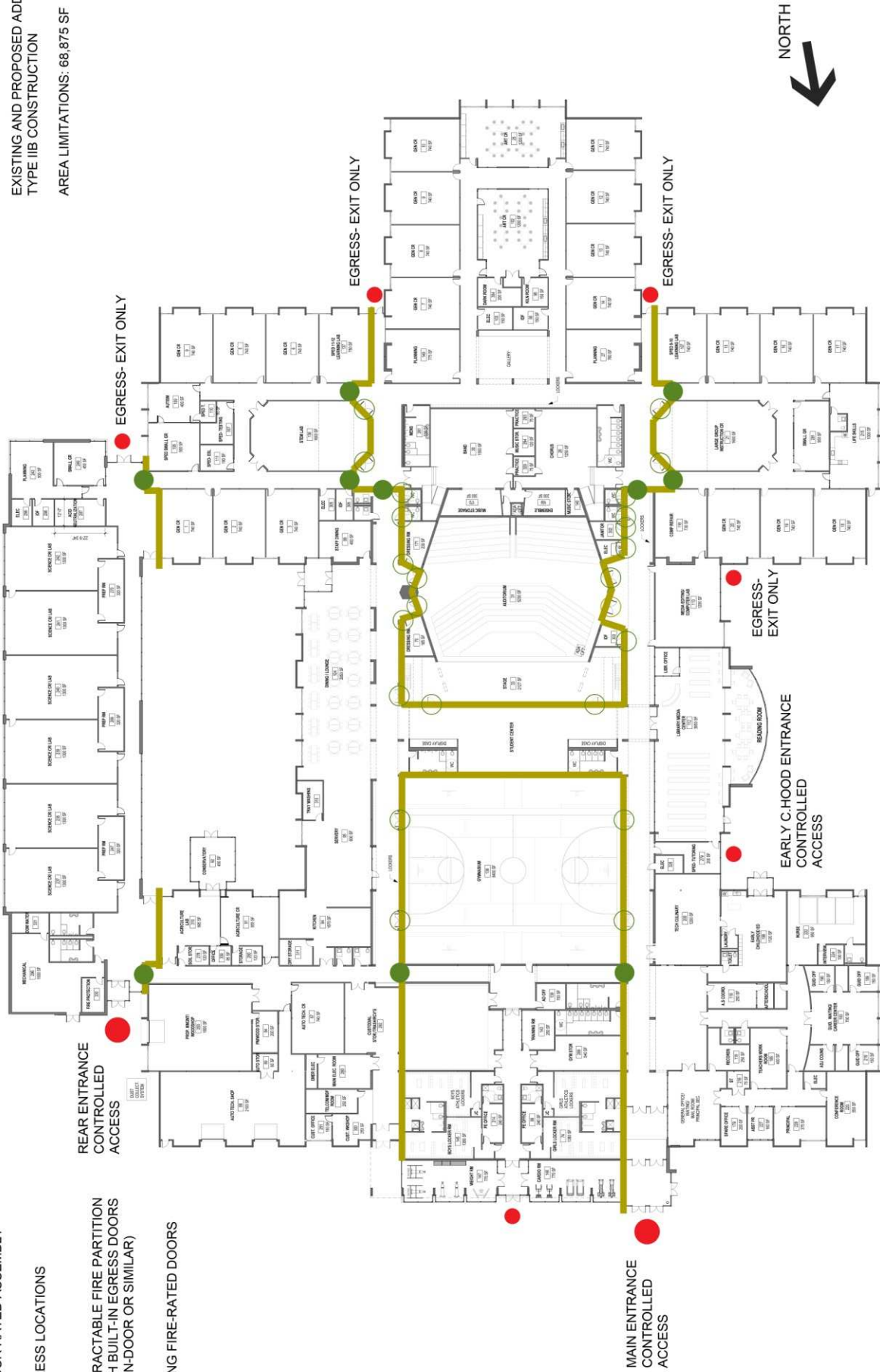
RETRACTABLE FIRE PARTITION
WITH BUILT-IN EGRESS DOORS
(WON-DOOR OR SIMILAR)

SWING FIRE-RATED DOORS

CODE ANALYSIS

EXISTING AND PROPOSED ADDITIONS:
TYPE IIB CONSTRUCTION

AREA LIMITATIONS: 68,875 SF



- Interiors- Assumptions

- ❖ To Remain
 - Exposed brick piers and walls along main corridors and interior classrooms where appropriate
- ❖ Demolition
 - ACT ceilings
 - Lighting and Signage
 - Lockers
 - Floor Finishes
- ❖ Proposed- New
 - ACT ceilings
 - Lighting and Signage
 - Lockers
 - Floor Finishes



- Interiors- Assumptions

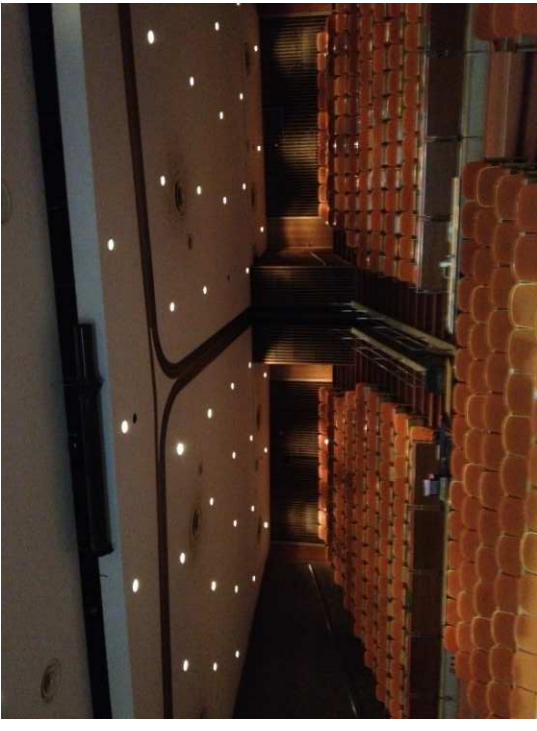
- ❖ To Remain
 - Flooring and Striping
 - Basketball Equipment
- ❖ Demolition
 - Wall enclosure at previous dividing wall partition
 - Second floor Press Box
 - Bleachers
 - Doors and hardware
 - Lighting
- ❖ Proposed- New
 - Overhead fabric room divider
 - Bleachers
 - Doors and hardware
 - Lighting
 - Drinking Fountains



- Interiors- Assumptions

- ❖ Demolition

- Ceiling finishes
- Lighting
- Wall partition track system
- Fixed seating
- Floor finishes
- Projection equipment
- Stage flooring
- Stage curtain
- Brick piers at stage
- Doors, frames and hardware
- Wood paneling throughout



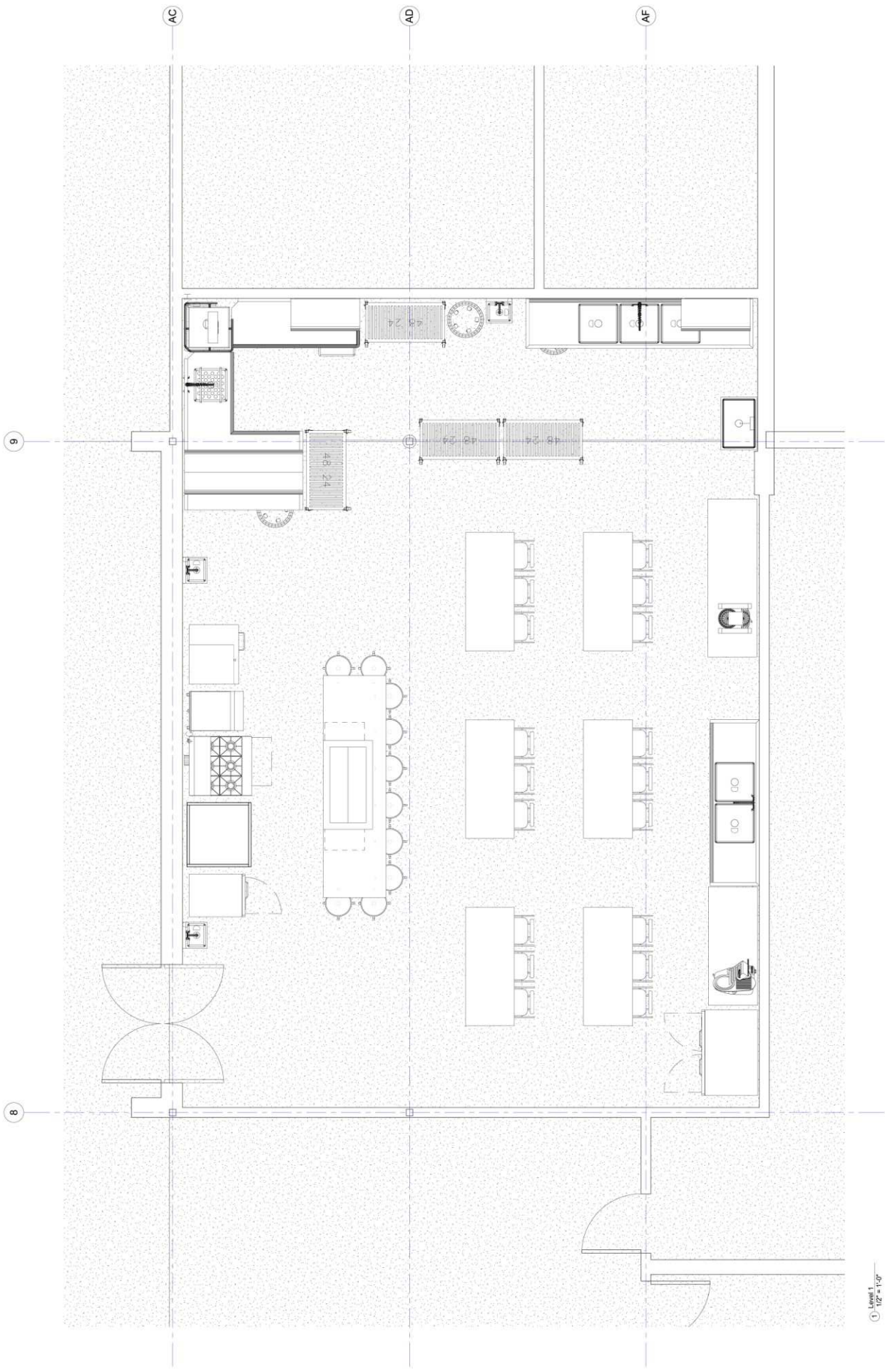
- Interiors- Assumptions
 - ❖ Proposed- New
 - Ceiling finishes
 - Lighting
 - ADA chair lift to control booth
 - Fixed seating
 - Floor finishes
 - Projection equipment
 - Stage flooring
 - Stage curtain
 - Doors, frames and hardware
 - Wood paneling
 - Acoustical wall panels as req'd
 - Railings at walkway to stage
 - ADA chair lift to pit



Kitchen Equipment List- Assumptions

EQUIPMENT SCHEDULE	
ITEM NO	QTY EQUIPMENT CATEGORY
1	1 BUFFET/CAFETERIA, TRAY STAND
2	- NOT USED
3	1 DISPLAY CASE, REFRIGERATED
4	- NOT USED
5	2 BUFFET/CAFETERIA, MOBILE MILK CASE
6	2 BUFFET/CAFETERIA, CASHIER STATION
7	1 BUFFET/CAFETERIA, ALL PURPOSE COUNTER
8	1 OVEN, MICROWAVE
9	1 DISHTABLE, 'L' SHAPE
10	1 PRE-RINSE FAUCET, DECK MOUNT
11	1 COLLECTOR, FOOD WASTE
12	1 WAREWASHER, RACK CONVEYOR
13	1 DISHTABLE, STRAIGHT
14	1 DISPENSER, WATER, MANUAL LOAD
15	1 BUFFET/CAFETERIA, BEVERAGE COUNTER
16	1 TOASTER, CONVEYOR
18	1 BUFFET/CAFETERIA, TRANSITION PIECE
18	1 BUFFET/CAFETERIA, TRANSITION PIECE
19	1 BUFFET/CAFETERIA, COLD FOOD STATION
20	1 BUFFET/CAFETERIA, BUFFET SHIELD

EQUIPMENT SCHEDULE	
ITEM NO	QTY EQUIPMENT CATEGORY
24	1 BUFFET/CAFETERIA, TRANSITION PIECE
25	2 BUFFET/CAFETERIA, HOT FOOD-SOUP STATION
26	2 BUFFET/CAFETERIA, BUFFET SHIELD
27	1 BUFFET/CAFETERIA, COLD FOOD STATION
27.1	1 BUFFET/CAFETERIA, BUFFET SHIELD
27.2	2 DROP-IN, HOT WELLS, UNINSULATED
28	1 WALK IN COOLER FREEZER
29	17 SHELVING, PLASTIC, FLAT
29	9 SHELVING, PLASTIC, LOUVERED
30	1 SINK, CORNER
31	1 WAREWASHER, DOOR TYPE, HIGH TEMP
31.1	1 DISHTABLE, STRAIGHT
32	1 TABLE, PREP W/ SINK
33	2 OVEN, CONVECTION, GAS
34	1 TABLE, WORK
34.1	1 POT RACK, TABLE MOUNT
35	1 STEAMER, PRESSURELESS
36	1 HOT HOLD
37	1 GRIDDLE, GAS
38	1 REFRIGERATOR, SHORTY
39	1 POT RACK, TABLE MOUNT
40	3 TABLE, WORK
41	1 RANGE, HEAVY DUTY, GAS W/ CONVECTION OVEN
42	1 MAKE UP AIR HOOD SYSTEM
43	1 RACK, CAN



Level 1
1/2" = 1'-0"

G Wing- Culinary Arts Schematic Plan



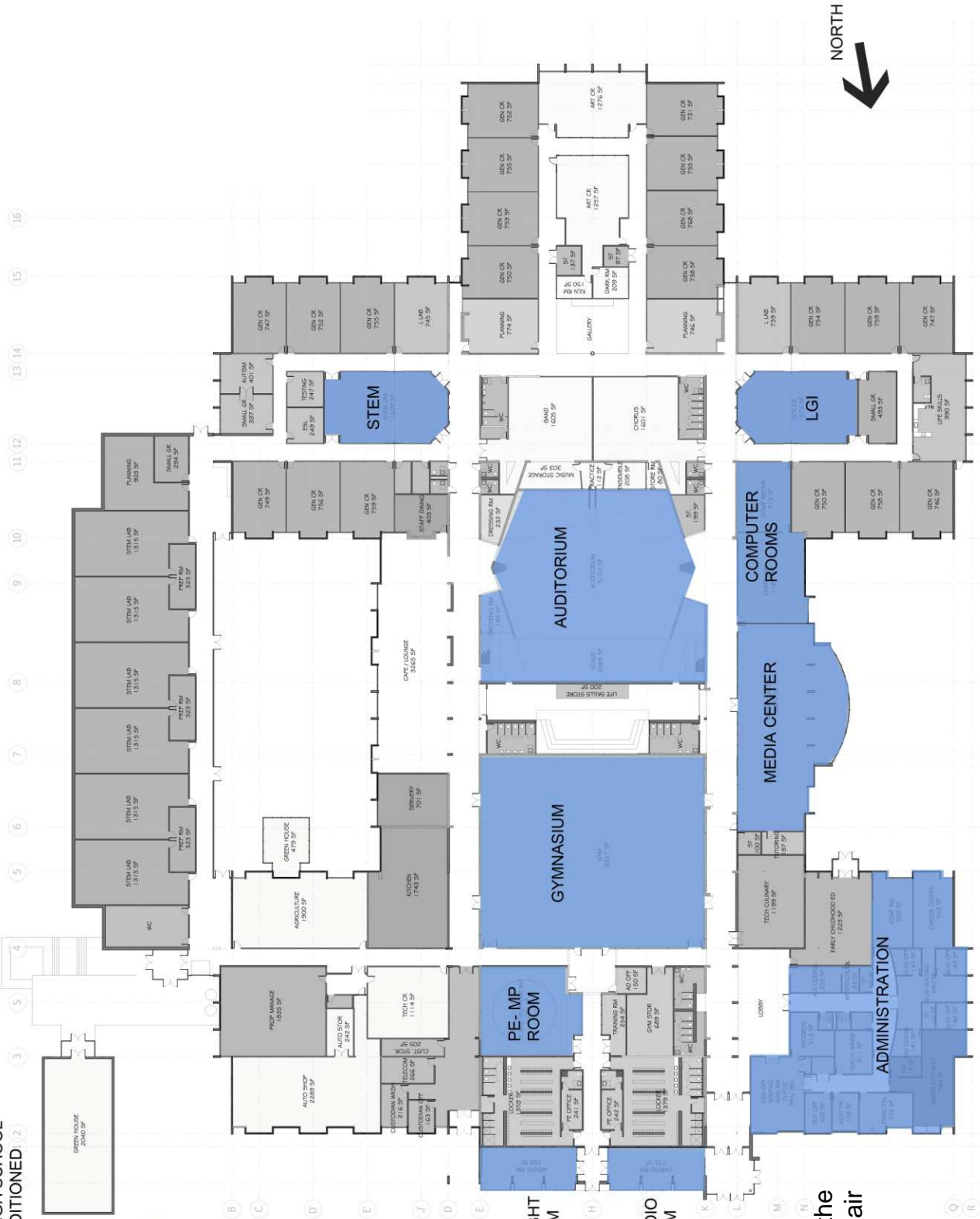
SMMA

Mechanical- Assumptions

- Heating: Primary/ Secondary Pumping Configuration
 - ❖ Condensing Boilers Only
- Air Conditioning/ Cooling
 - ❖ Packaged RTUs w/ DX Coils at Gymnasium and Auditorium
- Distribution
 - ❖ Overhead Diffusers
 - Design to eliminate drafts
 - ❖ Supplemental Radiation @ Perimeter where necessary
 - Finned Tube Radiation or Ceiling Mounted Radiant Panels
 - Reheat coils above ceiling
- Controls
 - ❖ Web-Based Building Management System (BMS)

PROPOSED FLOOR PLAN
MONUMENT MOUNTAIN REGIONAL HIGH SCHOOL
PROPOSED SPACES TO BE AIR CONDITIONED
NTS
MARCH 5, 2013
JSOUCY

INDICATES SPACES TO BE AIR CONDITIONED - BASE SYSTEM



Note: Electrical, Tel/Data Closets throughout the building will also be air conditioned

Mechanical- Decision Points

Ventilation Systems: Educational Spaces

- ❑ Option 1: Energy Recovery Units (ERU)
 - Base Option (PDP/ PSR)
 - These are 100% Outside Air Units
 - Hot Water Heating Coils
 - Heat Recovery Wheels
 - VFD Controlled Supply and Exhaust Fans

- ❑ Option 2: Dedicated Outdoor Air System (DOAS)
 - Alternate Option
 - Draws and Conditions only minimum required outside air
 - Localized fans and reheating at educational spaces
 - Includes Dehumidification:
 - *Comfort level is increased during shoulder seasons*
 - *More Efficient System. Less Energy Costs*

Mechanical- Decision Points

Air Conditioning/Cooling

- ❑ Option 1: Packaged RTUs w/ DX Coils
 - Base Option (PDP/ PSR)
 - Hot Water Coils or Gas Fired

- ❑ Option 2: Variable Refrigerant Flow (Administration and Media Center/ Computer Labs only)
 - Alternate Option
 - Evaporators on the interior/ Condensing Units on Roof
 - Pros: Limited Ducting, Uses Refrigerant Piping
 - Cons: Less common in US, Evap. Fans are noisier, Increased amount of refrigerant (LEED Concern)

Mechanical- Decision Points

Ventilation Systems: Classrooms

System Type	ERU's & Packaged RTU's with VAV Boxes	DOAS & Packaged RTU's with FPB's & VRF (Admin & Library Only)
First Cost	\$1,112,500.00	\$1,111,500.00
Maintenance Costs (over 50-year life)	\$1,029,190.56	\$1,080,650.09
Replacement Cost @ Year 25	\$2,329,327.95	\$2,327,234.17
Energy Cost (over 50-year life)	\$843,781.88	\$886,570.48
Life Cycle Cost (over 50-year life)	\$5,314,800.39	\$5,405,954.74

Notes:

1. Energy costs reflect MMRHS current utility rate: Electricity - \$0.06/kwh.
2. Life Cycle Cost calculations are based on a 50-year life and a 3% discount rate.



Technology

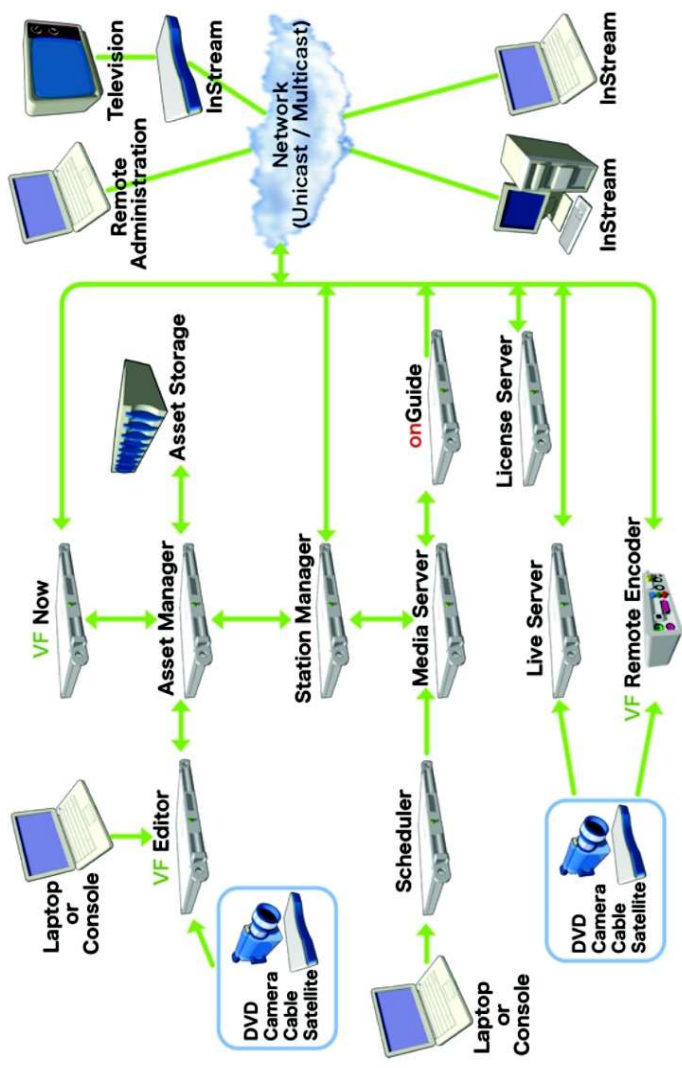
- Decision Points
 - ❖ Audio Visual Systems
 - Spaces requiring projection
 - Spaces requiring audio systems
 - ❖ Optional Systems to be included in Base Bid:
 - Media Server
 - Data Acquisition System

Technology- Audio/Visual System

- Assumptions
 - ❖ Spaces requiring projection
 - Gymnasium
 - Auditorium
 - Dining Commons
 - Library/ Media Center
 - LGI- STEM Lab Spaces
 - Conference Room
 - ❖ Spaces requiring audio systems
 - Gymnasium
 - Auditorium
 - Dining Commons
 - Multi-Purpose PE Space
 - Band/Chorus Spaces

Technology- Optional Systems

- **Media Server**
 - ❖ Strongly Recommend to be part of Base Bid
 - ❖ Provides video on-demand to classrooms over the IP network
 - ❖ Allows program storage for future retrieval and display



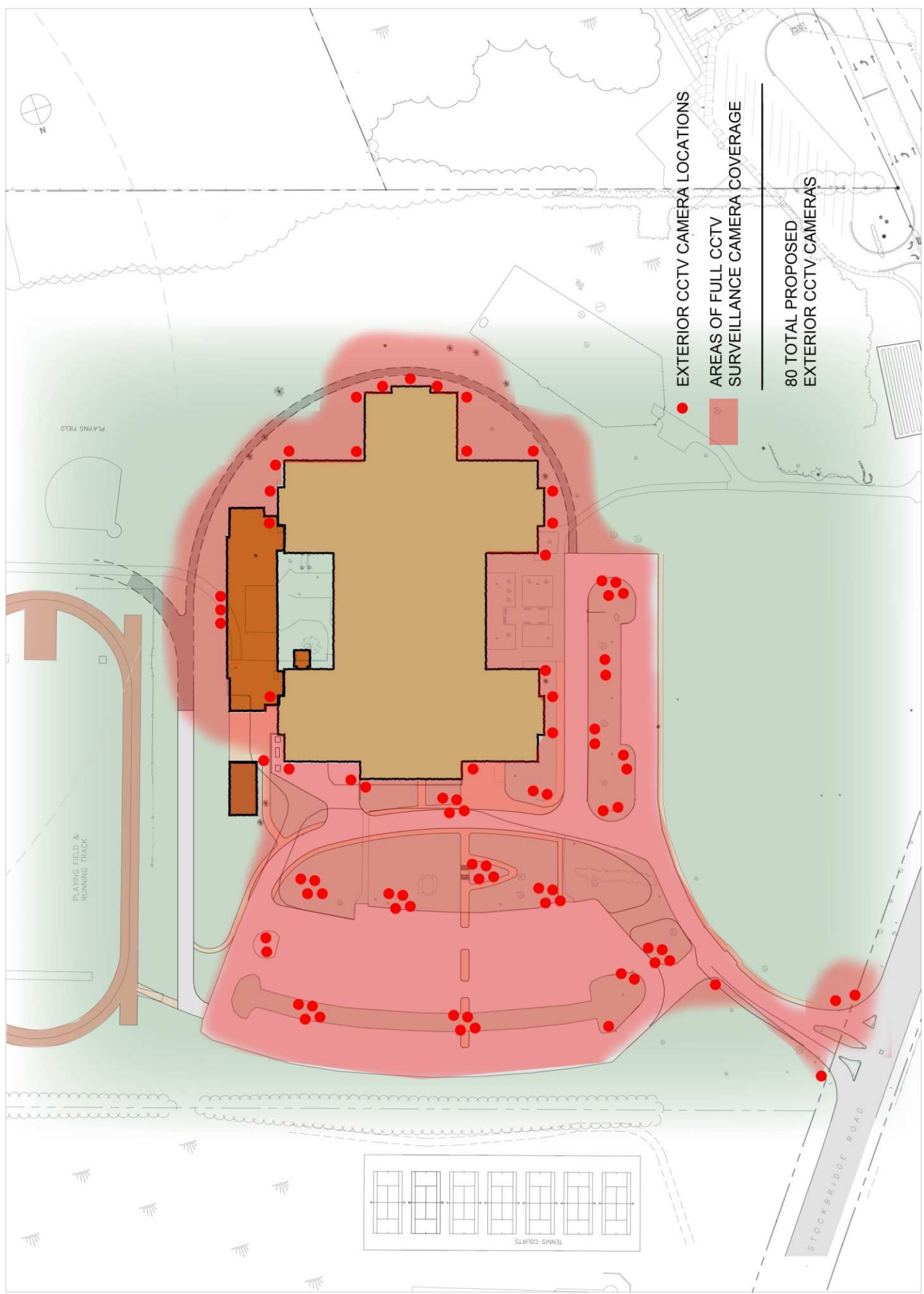
- **Data Acquisition System**
 - ❖ Educational tool for building systems monitoring

Security

- Decision Points
 - ❖ Access Control Plan- confirm location:
 - Card access
 - Handicap automatic door operators
 - Door Contact Switches
 - ❖ Security Camera Plan- confirm:
 - Camera coverage
 - Camera quantity
 - ❖ After-Hours Access/Lockdown- Security Grilles
 - Overhead grille locations
 - Accessible spaces after-hours

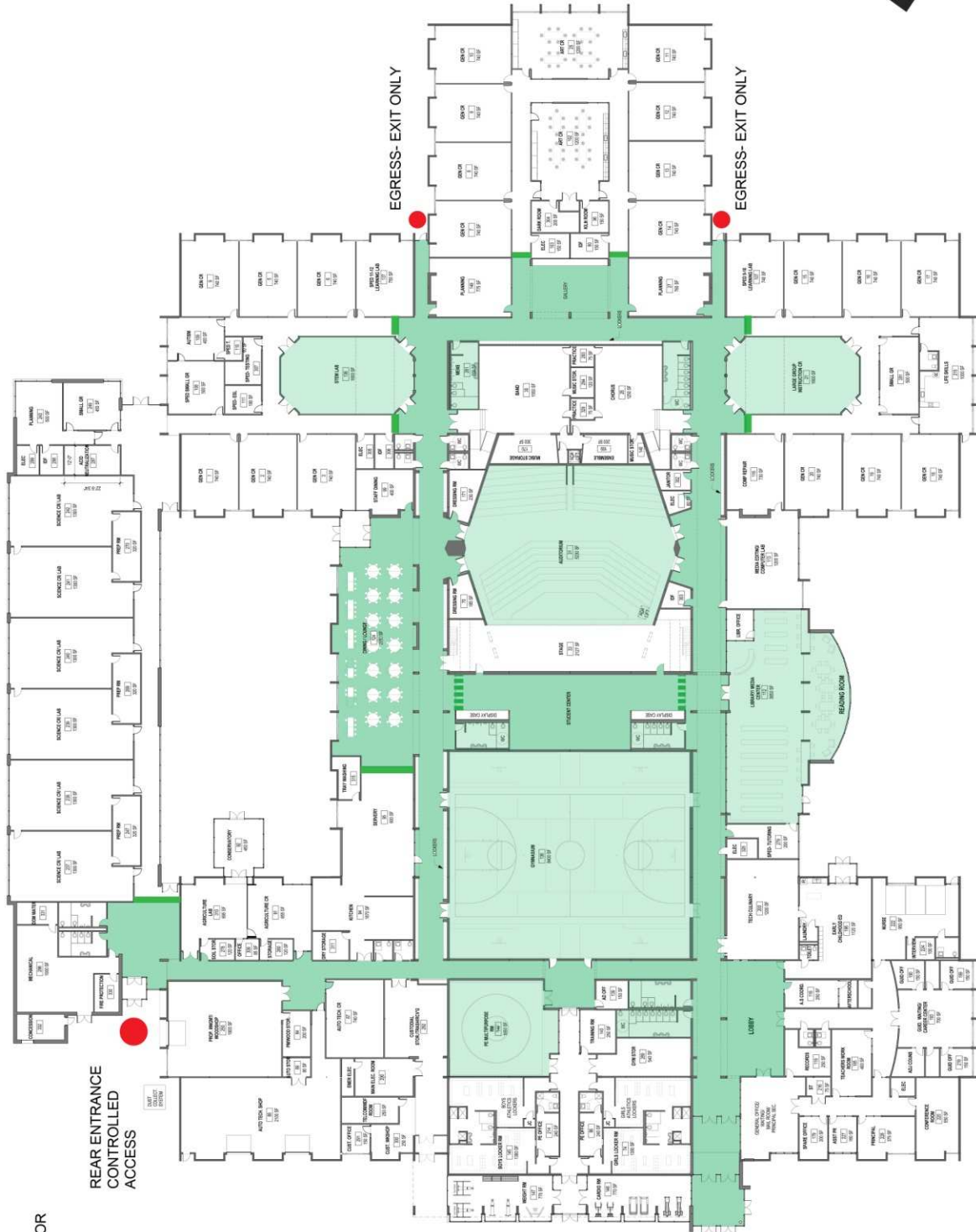
- CCTV CAMERA LOCATIONS
 - AREAS OF FULL CCTV SURVEILLANCE COVERAGE
-
- 100 TOTAL PROPOSED INTERIOR CCTV CAMERAS





CORRIDORS AND SPACES ACCESSIBLE AFTER HOURS

RETRACTABLE SEPARATION FOR AFTER HOURS SECURITY/ LOCKDOWN



Security – Proposed After-Hour Access Diagram



Electrical

- ❖ Lightning Protection System- Assume remove existing and install new
- ❖ Emergency Generator- Decision Points
 - Fuel Type- Gas or Diesel
 - Capacity



Electrical- Emergency Generator Options

Gas- Fired

Non-Shelter
200KW/250KVA

Model 200REZXB or similar

Add: (2) generator-mounted circuit breakers,
weatherproof sound attenuation enclosure, (2)
ATS's and remote annunciator

\$250,000

Diesel- Fired

Non-Shelter
200KW/250KVA

Model 200REOZJF or similar

Add: (2) generator-mounted circuit breakers,
weatherproof sound attenuation enclosure, (2)
ATS's, remote annunciator and skid-based 24-hour
fuel tank

\$150,000

Shelter

400KW/500KVA

Model 400REZXB or similar

Add: (3) generator-mounted circuit breakers,
weatherproof sound attenuation enclosure, (3)
ATS's and remote annunciator

\$425,000

Shelter

400KW/500KVA

Model 400REOZJ or similar

Add: (3) generator-mounted circuit breakers,
weatherproof sound attenuation enclosure, (3)
ATS's, remote annunciator and skid-based 24-hour
fuel tank

\$200,000

Emergency Shelter- Assumptions

- Structural Upgrades- required by Code
Increase occupancy category from OCIII to OCIV (for designated emergency shelters):
 - ❖ Additional roof reinforcing required for increased snow loading
 - ❖ Additional roof and lateral load reinforcing required for increased seismic loads (approx. 20% greater for buildings in OCIV)

Emergency Shelter- Decision Points

- Electrical Upgrades
 - ❑ Emergency generator capacity
 - ❑ Emergency generator fuel type (natural gas vs. diesel)
- Architectural Upgrades
 - ❑ Storage for Red Cross supplies- Discussions to be had with local emergency committee and local police and fire to determine requirements for new facility/design
 - ❑ Hurricane Shelter- Wall cladding, window and roof membrane upgrades required for increased wind loads- Discussions to be had with local emergency committee and local police and fire to determine requirements for new facility/design