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**Edward Devotion School  
MSBA**

**Preferred Schematic Report**

Brookline, Massachusetts

OCTOBER 2014

**Volume 1** of 3



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**TOWN of BROOKLINE**  
*Massachusetts*

**BUILDING DEPARTMENT**

Daniel F. Bennett  
Building Commissioner

Ms. Sarah Blache  
Massachusetts School Building Authority  
40 Broad Street, Suite 500  
Boston, Massachusetts 02109

2 October 2014

Re: Devotion School  
Preferred Schematic Report

Dear Ms. Blache:

On behalf of the Town of Brookline and its Devotion School Building Committee and in accordance with Article 8.1.1.2 of the "Contract for Project Management Services", I am pleased to submit the Preferred Schematic Report. Attached please find two (2) hard copies and two (2) electronic file in PDF format.

As the Owner's Project Manager (OPM), I hereby certify that I have reviewed the materials for completeness and I confirm that the Building Committee has approved the submission.

If you have any questions, please call me at 617.730.2044. Thank you.

Sincerely,

  
Anthony Guigli  
Owners Project Manager



## Acknowledgements

We wish to thank the following individuals for their assistance and their contributions to this feasibility study.

### Devotion School Building Committee

Betsy DeWitt	Board of Selectmen
Melvin Kleckner	Town Administrator
Abby Cox	School Committee Member
Helen Charlupski	School Committee Member
William Lupini	Superintendent of Schools
Charles Simmons	Director of Public Buildings
Daniel Bennett	Building Commissioner
Joseph J. Connelly	Devotion School Interim Principal
Jennifer Fischer-Mueller	Deputy Superintendent
Sean Cronin	Deputy Town Administrator
Ken Kaplan	Building Commission
Sergio Modigliani	Planning Board
Jim Batchelor	Preservation Commission
Angela Hyatt	Advisory Committee
Peter Rowe	Deputy Superintendent
Sadhna Brown	Devotion Parent
Pam Roberts	Devotion Parent
Robert Shuman	Business Community
Linda Leary	Historical Society



**Brookline Public Schools**

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Peter Rowe	Deputy Superintendent for Administration and Finance
Joseph J. Connelly	Interim Principal, Devotion School
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David Pollak	School Committee Member
Tamara Sitkoff	

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Daniel Bennett	Building Commissioner
Peter Ditto	Director of Engineering/ Transportation
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# Table of Contents

## Volume 1

<b>3.3.2.1 Introduction</b>	Vol. 1	11
Project Directory		
Overview of Process		
MSBA Review		
School Building Committee Process		
Overview of Community Process		
Summary of Updated Project Schedule		
Evaluation of Existing Conditions		
Final Evaluation of Alternatives		
Preferred Solution		
Local Action and Approvals		
Revised Educational Program		
<b>3.3.2.2 Evaluation of Existing Conditions</b>	Vol. 1	51
Summary		
Overview of MCP		
BWSC Release Notification		
<b>3.3.2.3 Final Evaluation of Alternatives</b>	Vol. 1	61
Option 0: Base Repair		
Option 1: Renovation with Addition		
Option 2: Renovation with Addition		
Option 3/3A: New Construction		
Impact on Students		
Impact on Students, Phasing Schedule		
Project Schedule		
Preliminary Design Pricing		
Permitting Requirements		
<b>3.3.2.4 Preferred Solution</b>	Vol. 1	125
Preferred Solution and Educational Program		
MSBA Space Summary		
Variation from MSBA Guidelines		
Existing Site Survey		
Site Plan		
Building Plans		



## Table of Contents continued

LEED v4 for Schools  
Budget Statement - Expenditures  
Budget Statement - Revenue  
Proposed Project Schedule

<b>3.3.2.9 Local Actions and Approvals</b>	Vol. 1	155
Local Action and Approval Certification		
Stakeholder Meetings		
School Building Committee Meeting Minutes		
Certified Vote		
Feasibility Study Completion Checklist		
<b>Appendix A – Civil Narratives</b>	Vol. 1	193
<b>Appendix B – Landscape Narratives</b>	Vol. 1	201
<b>Appendix C – Structural Narratives</b>	Vol. 1	221
<b>Appendix D – Fire Protection Narratives</b>	Vol. 1	235
<b>Appendix E – Plumbing Narratives</b>	Vol. 1	253
<b>Appendix F – HVAC Narratives</b>	Vol. 1	269

## Volume 2

<b>Appendix G – Electrical Narratives</b>	Vol. 2	5
<b>Appendix H – Technology Narratives</b>	Vol. 2	31
<b>Appendix I – Response to MSBA Review Comments</b>	Vol. 2	41
<b>Appendix J – Education Plan Appendices</b>	Vol. 2	119
<b>Appendix K – Capital Improvements Program</b>	Vol. 2	197

## Volume 3

<b>Appendix L – Cost Estimates</b>	Vol. 3	5
<b>Appendix M – Architectural Alternative Options</b>	Vol. 3	267

## 3.3.2.1 Introduction

Project Directory	12
Overview of Process	13
MSBA Review	13
School Building Committee Process	14
Overview of Community Process	14
Summary of Updated Project Schedule	15
Evaluation of Existing Conditions	15
Final Evaluation of Alternatives	16
Preferred Solution	17
Local Action and Approvals	17
Revised Educational Program	19



## Project Directory School Building Committee

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### OVERVIEW OF THE PROCESS

#### MSBA Review

The Town of Brookline submitted the Preliminary Design Program to the Massachusetts School Building Authority (the “MSBA”) on March 24, 2014. The MSBA returned comments of their submission review to the Town of Brookline on April 16, 2014. Responses to the review were submitted to the MSBA by Brookline on May 5, 2014.

The Town of Brookline was invited to present the Devotion School project to the MSBA Facilities Assessment Subcommittee on July 9, 2014. At the FAS meeting, the Educational Program and the use of the proposed Multipurpose Room were topics of discussion. At this meeting Brookline also requested MSBA approval to reschedule the date for the PSR submission from August 7th, for the September 24th Board meeting, to October 2nd, for the November 19th Board meeting. On July 10th, the MSBA followed up their comments at the FAS meeting with a request to the Town of Brookline for additional information. The MSBA requested an updated project schedule to confirm the date of the PSR submission. More detailed information on the scheduling and use of the proposed Multipurpose Room was requested to allow the MSBA to consider the acceptance of a variation to MSBA guidelines for the inclusion of this space within the proposed program. The MSBA informed the Town that an updated Educational Program would be required as part of the Preferred Schematic Report.

Additional information about the use of the Multipurpose Room was forwarded to the MSBA on July 25, 2014. This included a narrative “The Value of a Multi-Purpose Room in the Devotion School Renovation Plan” and scheduling information for the proposed gymnasiums, cafeteria, and Multipurpose Room. On August 1, 2014, the MSBA informed the Town via email that the additional information was reviewed by the MSBA and “found to be responsive”. Based on the review, the MSBA determined that it does not object to the District including a Multipurpose Room in the proposed project. The MSBA stated further that,

“Because this performance/ athletic space is in addition to the spaces included in the MSBA guidelines, the MSBA will consider all area associated with this space, exclusive of up to a 1,600 nsf for a stage, as ineligible for reimbursement.”

The Town of Brookline submitted a revised Educational Plan for the Edward Devotion School on September 15, 2014. This is included within this Preferred Schematic Report.

*Refer to Appendix I for MSBA review comments and response, Multipurpose Room additional information, and Appendix J for the revised Educational Program Appendices.*

### **School Building Committee Process**

Since the PDP submission, the School Building Committee met on a regular basis, as listed in the Local Approval Process section. The focus of several of the meetings was the development of criteria for evaluating options. The Committee agreed to a methodology for ranking the relative importance of design variables. The result was not the selection of a specific design option but a means to evaluate various design options moving forward, including, ultimately, the selection of a Preferred Solution.

During this time, the School Building Committee requested authorization from the Office of the Inspector General to proceed with a CM-at-Risk delivery method for this project. This approval was received on June 6, 2014. At this time it is anticipated that advertisement for Construction Managers will occur in October, with interviews scheduled in November.

### **Overview of Community Process**

The Devotion School Building Committee is dedicated to engagement with the larger Brookline community with a transparent and inclusive community outreach effort. All SBC meetings adhere to public meeting law. A link dedicated to the project is available on the Brookline Public Schools website. The site is updated after each School Building Committee with the graphic material that was presented.

With the start of the new 2014-2015 school year, a public meeting was held at Devotion on September 10th. Representatives from the SBC and the architects presented the three options that are included in this PSR submission. The scheduling of the meeting was timed to encourage public feedback prior to the selection of the Preferred Solution.

There are two Devotion parent representatives serving on the School Building Committee. They have been the liaison between the Committee and the Devotion community. They organized two parent meetings prior to the SBC vote on the Preferred Solution. Drawings and models of the options were available at these meetings.

The School Building Committee accepted public comments prior to the selection of the Preferred Solution. More than fifty letters were received and distributed to the SBC. This public process was reflected in the discussion at the September 26th meeting when the Preferred Solution was selected.



### Summary of Updated Project Schedule

The Owner's Project Manager has updated the project schedule for each of the three options. These schedules have been included under section 3.3.2.3 Final Evaluation of Options. The schedule for the Preferred Solution is located again under section 3.3.2.4 Preferred Solution. These schedules reflect the MSBA approval of the Town of Brookline request for a PSR submission on October 2, 2014 to allow for consideration at the MSBA Board meeting on November 19, 2014. Key milestones are as follows:

- MSBA Facility Subcommittee meetings – Oct. 15 or Oct. 29, 2014
- MSBA Board Meeting – Projected Approval to move to Schematic Design phase – November 19, 2014.
- MSBA Board Meeting – Projected Approval of Project Scope and Budget Agreement – March 25, 2015
- Town of Brookline – Vote for Project Scope and Budget Agreement – May 15, 2015
- Anticipated Demolition of 1954 wing – July 1, 2016
- Anticipated Start of Construction – October 3, 2016
- Target Move-In Date – September 2019
- Project Completion – Completion of Site work – July 2020

### Evaluation of Existing Conditions

No new information concerning the existing conditions was obtained since the PDP submission.

As described in section 3.3.2.2 Evaluation of Existing Conditions of this submission, the Town of Brookline fulfilled reporting obligations to the Massachusetts Department of Environmental Protection (DEP) for the results of soil testing at one of the borings in the vicinity of the school's underground storage tank. This obligation is applicable to all of the proposed options, and does not impact the final evaluation of alternatives.

## Final Evaluation of Alternatives

Since the PDP submission, HMFH Architects continued to develop the selected options. Responding to comments of the School Building Committee and Brookline educators, some of the options were not advanced. These alternatives have been included in the Appendix.

Four alternatives have been evaluated and documented in this Preferred Schematic Report. All options have been evaluated for: achievement of the organizational and spatial requirements of the Educational program, potential impact on students during construction, structural systems and building systems, proposed total project budget and construction cost estimates, permitting requirements, and proposed schedule. The following is a summary of the alternatives:

### Option 0: Base Repair Option

Option 0 is the full renovation of the existing Edward Devotion School. The school will be brought into compliance with all building and accessibility codes. The renovation will require the replacement of the majority of the building's MEP systems and life safety upgrades. The configuration and size of the existing school does not support the Educational Program. Many spaces will remain undersized by MSBA guidelines and a large number of program areas are not accommodated.

### Option 1: Renovation with Additions

Option 1 proposes that the central pavilion of the 1913 Devotion School is retained and renovated. New construction includes a three-story addition to the north of the 1913 building and new two-story classroom wings on the east and west side of the site. The full Educational Program is supported by the project.

### Option 2: Renovation with Addition

Option 2 is a renovation of the central pavilion of the 1913 Devotion School with a new four-story addition connected to the existing school and located to the north. The full Educational Program is supported by the project.

### Option 3 and 3A: New Construction

Options 3 and 3A propose the construction of a new Devotion School on the playing fields north of the existing school. For both options, the 1924 Gymnasium and the 1954 and 1974 classroom buildings will be demolished. In Option 3, the 1913 Devotion School building will remain on the site. Its adaptive reuse will not be a part of the Devotion School project. In Option 3A, the entire Devotion School would be demolished and the site will be used for a playing field. The full Educational Program is supported by the project.

#### **Preferred Solution**

On September 26, 2014, the Devotion School Building Committee voted to approve Option 1 as the Preferred Solution for the Preferred Schematic Report.

Members of the School Building Committee were asked to articulate their reasons for selecting Option 1. They noted that many of the parents and neighbors who corresponded with the SBC expressed a preference for Option 1. Option 1 was felt to be a more “human scale” and comfortable for younger children. While acknowledging that this Option did not have the most open space, many preferred the quality of the open space and that the play areas and playing fields were located on the residential Stedman Street side of the site and not on the urban Harvard Street. They commented that building massing towards Harvard Street is more in keeping with the urban streetscape and may offer better opportunities for school security. Its configuration is similar to that of the existing school. Option 1 was felt to best serve the Educational Program and the concept of classroom clusters of related grade level cohorts – K-2, Grades 3-5, and Grades 6-8.

#### **Local Actions and Approvals**

On September 26, 2014, the Devotion School Building Committee authorized the Owner’s Project Manager to submit the Preferred Schematic Report to the Massachusetts School Building Authority (MSBA) on behalf of the Committee. At the same meeting, the Committee voted to approve Option 1 for the Preferred Schematic Report (PSR) submission. The signed documentation of approvals is included within the Local Actions and Approvals section.



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# Edward Devotion Elementary School Educational Program

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Public Schools of Brookline

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9/11/14

## Table of Contents

Introduction	2
Strategic Plan Goals	3
Grade and School Configuration Policies	3
Class Size Policies	4
School Scheduling Method	5
Teaching Methodology and Structure	8
Grouping Practices	9
Tiered Instruction	9
Educational Technology	10
English Language Arts/Literacy	12
Mathematics	13
Performing Arts	14
Physical Education	15
Science and Engineering	16
Social Studies	17
Visual Arts	17
World Language	18
English Language Learners	19
Special Education	20
Social Emotional Learning and Bullying Prevention/Intervention	23
Outdoor Space for Physical Activity	23
Professional Learning and Teacher Planning	24
Room Assignment Policies	25
Lunch Programs	27
Transportation Policies	28
Functional and Spatial Relationships and Adjacencies	28
Security and Visual Access Requirements	30
Final Statement of Intention	30



## EDWARD DEVOTION ELEMENTARY SCHOOL EDUCATIONAL PROGRAM<sup>1</sup>

The Public Schools of Brookline (PSB) provides education to pre-school through twelfth grade students in eight elementary schools, one comprehensive high school, and early childhood programs in rental spaces across town. In addition to school-based programs, the Public Schools of Brookline offers continuing education courses, summer school, enrichment programs, and numerous athletic opportunities.

For more than two decades, the Public Schools of Brookline has been guided by four core values: high achievement for all, excellence in teaching, collaboration, and respect for human differences. More recently, a fifth core value was added – educational equity. The core values, along with a vision, mission, and set of goals, establish the four cornerstones of our strategic plan<sup>2</sup>. Once finalized, the second version of our strategic plan will provide inspiration and direction, while holding us accountable to fulfilling our vision, which begins with:

*Brookline provides an extraordinary education for every child. Each child's unique path to achievement is supported in academically exciting and programmatically rich environments.*

These two sentences could be part of a school system's vision statement today or 50 years ago; however, the reality of what these schools would look like would be vastly different. Fifty years ago, or in some cases just ten years ago, what was considered extraordinary, exciting, and programmatically rich is practically irrelevant for the teaching and learning that is required today. No longer is learning confined to the classroom. Learning is ubiquitous. No longer is there a finite body knowledge that a teacher imparts to her students. Now, there is a vast amount of information available to students, not just by way of the teacher, but by virtue of access to technology. Described as the "Four Cs" or "super skills" for the 21<sup>st</sup> century – communication, collaboration, critical thinking, and creativity, are redefining the basics of children's learning experiences. No longer is "smart" defined solely by scores on standardized tests. Instead, intelligence and talent is expressed in a variety of ways: applying knowledge, creating products, solving complex problems, systems thinking, design and testing, and knowing how to learn<sup>3</sup>.

In the year 2014, our vision statement challenges us to shift the traditional paradigm of school to a new definition of a 21<sup>st</sup> century preK-12 education. Our strategic plan, specifically the four strategic plan goals, serve as our guide as we challenge ourselves to fully prepare children for their futures in an extraordinary time.

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<sup>1</sup> Revised for September 2014

<sup>2</sup> See Appendix A: *Public Schools of Brookline: Strategic Plan – Vision, Mission, Core Values, and Goals*

<sup>3</sup> M. Neumeier, *Metaskills: Five Talents for the Robotic Age*, New Riders, 2013

## STRATEGIC PLAN GOALS

### **Goal 1: Every Student Achieving**

Ensure that every student meets or exceeds Brookline’s high standards and eliminate persistent gaps in student achievement by establishing educational equity across all classrooms, schools, and programs.

### **Goal 2: Every Student Invested in Learning**

Increase every student’s ownership of his/her learning and achievement by using rigor, relevance, and relationships to foster a spirit of inquiry and the joy of learning.

### **Goal 3: Every Student Prepared for Change and Challenge**

Instill in every student the habits of mind and life strategies critical for success in meeting the intellectual, civic, and social demands of life in a diverse, ever-changing, global environment.

### **Goal 4: Every Educator Growing Professionally**

Foster dynamic professional learning communities that inspire inquiry, reflection, collaboration, and innovation, and use data to improve teaching, advance student learning, and refine the programs and practices of the Public Schools of Brookline.

Our teaching and learning aspirations described in the strategic plan goals drive our building plans. The Devotion School building plan was developed with an understanding of how the physical structures can create and sustain an environment that maximizes student learning. **It’s essential that the school be flexible, with spaces that can be reconfigured, that are accessible (both physically and technologically), and that create an environment that promises interest, creativity, and multiple learning opportunities.**

## GRADE AND SCHOOL CONFIGURATION POLICIES

The Public Schools of Brookline provides educational programs for students in preschool through grade 12. As of September 8, 2014, there were 7,514 pre-K through 12 students enrolled in the Public Schools of Brookline. The eight elementary schools educate students in grades pre-K through grade 8, with a September 8, 2014 enrollment of 5,604 students. Students attend the Brookline elementary school in their geographical neighborhoods. Brookline High School serves students in grades 9 – 12, with an enrollment in September 2014 of 1,910 students.

The Edward Devotion School is the largest of Brookline’s K-8 elementary schools, with a population of 815 students. It enjoys an international reputation, welcoming students from all over the world. The system-wide programs offered at Devotion are the English Language Learner program with a high concentration of Hebrew speakers, and a K



through 8 Therapeutic Learning Center for students who need intensive social and emotional supports.

A 5-section K-8 school serving approximately 1,000 students is a big elementary school. To serve students of this age most effectively, the physical space, at a minimum, needs to feel small. Students thrive in a small learning community where teachers know them well; in a community that supports a sense of safety, respect, and trust; in a community that is energizing and promotes creativity; and in a community that supports learning *every* way with the appropriate facilities that promote learning *everywhere*. Our educational plan calls for clustering grade levels, for pedagogical reasons. This renovation creates the necessary intimacy and scale to create caring, connected, and collaborative learning communities in the new Devotion School.

**CLASS SIZE POLICIES**

The Brookline School Committee, Brookline district leadership, and the Brookline Educators Union recognize that class size is an important factor in a quality education. While recognizing that a steadily increasing enrollment in Brookline, coupled with limited space in our school buildings, has put pressure on class sizes, the average system wide class size has remained relatively steady during the recent 8-year period of enrollment growth. A goal of the new facility is to create classes as small personalized learning environments.

The number of required classrooms based on current enrollment for 815 students is as follows:

- Kindergarten 5 classrooms
- Grade 1 5 classrooms
- Grade 2 5 classrooms
- Grade 3 5 classrooms
- Grade 4 4 classrooms
- Grade 5 4 classrooms
- Grade 6 4 classrooms
- Grade 7 4 classrooms
- Grade 8 4 classrooms
  
- Total 40 classrooms

Historically, all Brookline elementary schools have housed pre-kindergarten classrooms, providing inclusive educational opportunities to the children of Brookline. In 2012, pre-kindergarten classes were moved out of the Devotion School and displaced to other sites in town due to increasing enrollment and space constraints. We value preK-8 configurations. Therefore, the Devotion building project creates two inclusive pre-

kindergarten classrooms allowing the Devotion community’s youngest learners to be housed, once again, in an elementary school setting in a preK-8 school.

Applying the design principle of making a large school feel smaller, grade levels are clustered to allow teams of teachers to work with their cohort of students. A smaller, more personalized learning environment is created within such clusters, which also promotes a strong sense of teachers “owning” all students and helps to ensure that no student feels anonymous.

In addition to supporting a strong sense of community and allowing teachers to get to know their students well, clustering grade levels promotes collaboration. For this reason, proximity matters. Teachers teaching side-by-side in classrooms with windows to the hallways naturally promotes a sharing of practice. Classroom windows serve the purpose of informal supervision with a clear line of sight into hallways and gathering spaces while also making teachers’ practice more public and student learning more visible. The newly renovated school will support these critical characteristics of professional learning communities.

## SCHOOL SCHEDULING METHOD

Every year the district distributes the document, *Time Allocations – Expectations and Guidelines*<sup>4</sup>. This document clearly communicates the minimum teaching and learning minutes by grade level, across the disciplines, per day and in a week, in order to meet state requirements and adhere to the collective bargaining agreements.

Teachers use this information for planning purposes and the document highlights the opportunity for interdisciplinary curriculum. Administrators create the K-8 master schedule using the *Time Allocations* document and collective bargaining agreement.

Regarding scheduling, the Unit A contract reads:

Under Article 43, Section I - Teaching Hours and Teaching Loads – Each elementary teacher (K-6) will be scheduled for a daily preparation period. In a five-day week, at least four (4) of these preparation periods will be scheduled for at least forty (40) minutes in length, while the fifth will be scheduled for at least thirty (30) minutes in length. Such preparation periods are exclusive of the one-half (1/2) hour duty-free lunch period per day. The employee’s supervisor shall have the responsibility to schedule preparation and lunch periods.

The Public Schools of Brookline has a rich program of specials – visual arts, performing arts, physical education, and health. A *secondary* benefit of these classes is the use of

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<sup>4</sup> See Appendix B: *K-8 Time Allocations: Expectations and Guidelines and 21<sup>st</sup> Century Interdisciplinary Themes*



this time for teachers' planning (individual and common planning time). Of course, the *primary* benefit of visual arts, performing arts, physical education, and health is the experience students have in each of these disciplines, both within the separate classes and through the integration of these subjects with the other disciplines.

Appropriate space for the specialists to provide a high level of instruction is essential. Within the week, all students at Devotion take one 40-45 minute visual art class; grades K-3 take one 30-minute and one 40-minute general music class; Grades 4 & 5 take one 40-minute general music class and one 45-minute Conservatory class; and grades 6-8 take two 45-minute Conservatory classes per week. There are two small music classrooms at Devotion with minimal storage space. Conservatory classes are taught by itinerant staff, who also serve other elementary schools in town. As a result, we are limited in our ability to schedule these classes across all days of the week. Conservatory classes take place one afternoon and one morning per week. Due to the lack of physical space, these instrumental music classes take place in the music rooms, auditorium/multipurpose space, computer lab, cafeteria, the art room, and at times in a lobby area.

All students, K-8, participate in two periods of Physical Education instruction each week. The Devotion School houses only two gym spaces – one full-size gym and one “small” gym; the small gym is used as an instructional space only for students in grade K-2. The schedule requires three Physical Education classes to be scheduled at one time. Therefore, two classes must “double up” in the large gym in order to accommodate all of the instructional sessions. This creates obvious limitations to instruction.

Elementary world language (K-6) is also a variable in scheduling. The program is described in detail later in the document and listed here only for purposes of understanding the complexity of the Devotion School scheduling process. Teachers travel from classroom to classroom for instruction, by grade, as follows:

Grades K-2:	3 sessions x 20 minutes = 60 minutes/week
Grades 3-5:	3 sessions x 30 minutes = 90 minutes/week
Grade 6:	3 sessions x 45 minutes = 135 minutes/week

The English Language Learner (ELL) program is another area of attention in the schools' master schedule. The Devotion School is home for our ELL Hebrew speaking students. Currently, 119 students (across languages) are serviced in four classrooms, utilized in the following ways:

- K-3 Hebrew ELL: four 60-90 minute periods per day; small groups range from 6-8 students

- Grades 4-8 Hebrew ELL: six 45-60 minute periods per day; small groups range from 1-8 students
- K-2 non-Hebrew ELL: four 60-90 minute periods per day; small groups range from 3-7 students
- Grades 3-8 non-Hebrew ELL: six 45-60 minute periods per day; small groups range from 1-6 students

Two teachers are assigned to support our Hebrew speakers and two teachers work with our non-Hebrew ELL students. Our support model is both push-in and pull-out, as determined by the student’s level of English proficiency. Students at the entering and developing stage need a designated ELL learning classroom.

Currently, space is a strong driver of the master schedule at the Devotion School. The building plan not only addresses the issues of the amount of space (e.g., number of classrooms), it provides for the types of spaces and the functions necessary for the teaching and learning that is aligned to our local standards and strategic plan goals.

The building plan presents structural elements that support a more educationally effective master schedule for the school. A few examples include:

- Appropriate spaces to schedule math specialists and literacy specialists providing intervention services to students;
- Special education services stationed and provided throughout the school with proximity to the clustered grade levels;
- More classrooms that support the work of the *Engineering Design Process*<sup>5</sup> – define the problem, explore, design, create, try it out, and make it better;
- Grade level clusters to allow elementary world language teachers to move from class to class across a grade level more efficiently;
- Large rooms that can be divided into smaller spaces;
- Instrumental lessons conducted in the proper space, not in a classroom or an alcove causing disruption to other classes;
- Fully accessible classrooms allowing students with physical disabilities to be scheduled into any learning space in the building;
- Appropriate professional spaces available for teacher collaboration during common planning time;
- Adequate and secure storage spaces with moveable furniture allowing use by multiple users;
- Availability of appropriate open space for informal gathering;
- Adequate spaces (walls, glass cabinets, display areas) for extended display of student work so that a space is not deemed “not available” while displaying student work.

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<sup>5</sup> See Appendix C: *Engineering Design Process*, a student-friendly version of the engineering design process provided by TheWorks.org. The graphic supports Brookline teachers’ understanding of how to build engineering practices into and across the curriculum.



## TEACHING METHODOLOGY AND STRUCTURE

“Form follows function” is a fundamental principle in science/engineering. The Devotion School renovation project provides the opportunity to create the school facility in a form that supports the functions of a 21<sup>st</sup> century education and promotes the innovative teaching and learning that is called for in our strategic plan goals.

Brookline’s K-8 curriculum<sup>6</sup> is created across all disciplines within our local standards, called *Learning Expectations*<sup>7</sup> (LEs). Brookline’s Learning Expectations meet or exceed the rigorous Massachusetts Curriculum Frameworks. The Brookline Learning Expectations are developed with teams of teachers, led by curriculum coordinators. With the adoption of the Common Core State Standards, our most recent revisions are in English language arts and literacy, and mathematics. The revisions needed were relatively minor, given the earlier research and development of our local LEs through our Program Review Process.

We teach for understanding and mastery<sup>8</sup> of the *Learning Expectations*. Standards-based progress reports in grades 1-5 are a perfect example of Brookline’s commitment to the essential content and skills of the Common Core, the up and coming Next Generation Science Standards, and the contemporary research in education calling for student-centered learning, individualization and personalization, and attention to 21<sup>st</sup> Century skills (e.g., critical thinking), Habits of Mind (e.g., reflection), social emotional learning (e.g., respect), and noncognitive skills (e.g., perseverance)<sup>9</sup>.

In addition, the revised strategic plan goals require shifts in our curriculum, instruction, and assessment practices in order for students to acquire the high-priority skills and essential knowledge needed to flourish in high school and succeed in the digital age. Twenty-first century learning requires 21<sup>st</sup> century teaching in a 21<sup>st</sup> century school.

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<sup>6</sup> See Appendix D: *Public Schools of Brookline Grade 3 Curriculum Overview*. Brookline has a comprehensive K-8 curriculum across all subjects defined by the *Learning Expectations*. It is essential that parents and the community are aware of the Brookline curriculum. Each grade level’s *Curriculum Overview* introduces the discipline and a summary of important content, skills, and concepts in that discipline and grade.

<sup>7</sup> See Appendix E: *Grade 3 Science/Engineering Learning Expectations*. Every subject has *Learning Expectations* – statements that define what students will know and be able to do, K-8.

<sup>8</sup> See Appendix F: A subset of *Learning Expectations* across the subjects in grades 1-5 are defined as *Essential Learning Expectations* (ELE). Student learning and growth of each ELE is monitored, measured/described, and reported on the grade 1-5 Progress Reports with the use of rubrics. Rubrics describe the continuum of learning for each ELE. On the rubrics, *Established* defines grade level proficiency.

<sup>9</sup> See Appendix G: *Work Habits and Skills*. Beyond the acquisition of discipline- specific content and skills, all students need to know how to learn in a variety of settings and be a good citizen. *Work Habits and Skills* define a set of high-priority skills that Brookline values greatly and, therefore, measures/describes on the *Progress Reports*.

Building plans for the Devotion School create the learning environment students need now in order to be prepared for the future.

Below is an overview of Brookline's educational programs and practices, the current state at Devotion, and how the renovated school building will support and promote improvements in pedagogy that are imperative if we are to meet our goal of fully preparing students for their futures.

### **Grouping Practices**

General education teachers, in collaboration with special educators and other instructional specialists, determine a variety of grouping methods to meet the instructional needs of their students. Grouping and regrouping methods take place weekly within classrooms and among grade level classrooms. General education, special education, literacy and math specialists, ELL teachers, and ECS teachers collaborate to provide tiered instruction in the inclusive environment. Pullout instruction is provided for students who require it, based on their personalized instructional needs within tier two and tier three programming. There is shared responsibility among the faculty for all students' success. Grade level classrooms are organized within common hallways and adjacent locations. Close proximity is critical in order to achieve the requisite communication and collaboration for a variety of grouping methods in grade level teams. Current architectural aspects of Devotion School preclude the necessary adjacencies to ensure team proximity for all grade levels. Classrooms are not easily rearranged for different sized groups. Different areas of the classroom are not suitable teaching and conferencing spaces. The renovation would provide space that can be adjusted for the needed activity, with furniture that is easily moved and rearranged, with wall space that can support a small board and/or display student work and other visuals necessary for instruction.

### **Tiered Instruction**

Teachers at the Devotion School support students through a variety of teaching models: co-teaching, team teaching, flexible grouping, small group instruction, and individualized instruction. Teachers believe that all learners should be provided differentiated forms of instruction and recognize that all students learn in different ways, rates, and timeframes. To that end, the Devotion School continually adapts its staffing support, instructional methodologies, and assessment practices to meet student needs.

Tiered levels of instruction provide the general education foundation of Devotion School's continuum of service model. Devotion staff provide tiered levels of instruction to all students (tier one - the general classroom curriculum; tier two - strategic levels of instruction; tier three - intensive levels of instruction, usually at the individualized level). If a student demonstrates academic and/or social/emotional/behavioral concerns despite thorough Response to Intervention (RTI) procedures, the teacher refers the



student to the building Child Study Team (CST). The CST supports teachers implementing additional strategies. CST meetings require a professional space for collaboration.

#### **Educational Technology**

Technology and digital learning play an ever-increasing and critical role in teaching and learning, both inside and outside of schools. Our schools need to be hubs of learning, with classrooms that are flexible and dynamic, with reliable access to the rich resources available to enhance teaching and learning, and with an understanding of the appropriate role of technology in our schools and students' lives.

In Brookline, we envision technology improving our ability to:

- Communicate and collaborate in our schools, our community, and the evolving global society;
- Maximize learning for all students using techniques and materials that take into account varying backgrounds, capabilities, and learning styles;
- Ensure that all students obtain digital literacy skills that are required in the 21st century;
- Create a well-integrated, learner-centered environment focused on inquiry into engaging problems;
- Enrich and extend professional learning for all teachers and instructional leaders; and,
- Enable all school personnel to effectively and comfortably use technology as a teaching and administrative tool so that more resources and time can be focused on teaching students.

The current facility poses significant technological challenges. Collaboration across town and school departments has produced creative solutions with beneficial outcomes, for example, establishing a wireless network throughout most of the school; properly installing interactive white boards with projectors in strategic instructional areas; and creating space for middle school students to have ongoing access to a set of computers near their classrooms.

With the challenges that come with accelerated enrollment across the schools, including facility demands, we have not been able to keep up with the advances of technology. The Devotion PTO is a strong supporter of technology and has provided significant funds over time to give students and teachers better access to a variety of technological tools (e.g., iPads and Smart Boards)<sup>10</sup>. The school system is in the first stage of addressing the serious issues of accessibility, sustainability, and flexibility of technology in the Public Schools of Brookline. Our decision to advance technology will allow us to provide

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<sup>10</sup> See Appendix H: *Devotion Technology Snapshot*

broader and more reliable access for students and helps us to get the right device at the right time into the hands of students; eliminate barriers (e.g., financial) to ensure access for all students; improve safety and security for students, staff, and families; and more regularly support students to learn effective, efficient, and responsible use of the Internet, and responsible and safe digital citizenship skills.

The new facility will support a variety of improvements in the school's technology, for example, but not limited to: a more robust and reliable wireless network to support multiple devices per user; multiple and strategically placed electrical outlets and drops for easy access, relocation and setup; sufficient space for technology closets; and well provisioned classrooms that redefine the current standard. We are planning for the standard learning space to include: a wireless access point and appropriate network drops; voice over internet protocol (VOIP) phone; a mounted projection/interactive whiteboard with enhanced audio system; two (2) classroom desktop computers with speakers and headphones; a district-issued teacher laptop; classroom tablet; and document camera. With this as the standard, there will be learning spaces that have more technology in the room and others possibly less. The technology in the room is dependent on the educational goals and functional demands of the space.

Technology provides an opportunity to transform learning, when used properly. To most effectively infuse technology into curriculum, instruction, and assessment, coordinators across the disciplines are guided by two models of educational technology: TPACK (Technological Pedagogical Content Knowledge) and SAMR (substitution, augmentation, modification, and redefinition)<sup>11</sup>. Tools of technology can promote our intentions defined within our strategic plan goals, for example: technology's role in advancing rigor and relevance<sup>12</sup> through project-based/problem-based learning, and interdisciplinary studies. This is an area of curriculum and instruction in need of significant growth, and the new building will not only support these improvements but, with the proper 21<sup>st</sup> century school design, can actually promote growth in this area. The renovated Devotion School will improve collaboration, spark curiosity and inquiry, allow for learning anywhere and everywhere, and be user-friendly, with technology that is accessible, sustainable, and flexible. These are essential elements for long-term student-centered learning.

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<sup>11</sup> See Appendix I: *TPACK (Technological Pedagogical Content Knowledge) and SAMR (substitution, augmentation, modification, and redefinition)*.

<sup>12</sup> See Appendix J: *Rigor and Relevance Framework* and *Rigor/Relevance Framework + SAMR + P21.org*. Students need to be engaged in rigorous intellectual tasks, defined by the cognitive challenges of the work, ranging from awareness at the most basic level to analysis, synthesis, and evaluation at the higher levels of cognition. Matched with relevant curriculum, students are able to think in complex ways and apply their knowledge to solve novel problems. Infusing technology and intentionally teaching 21<sup>st</sup> century skills magnifies the overall impact of the learning experience for students, as outlined in the document, *Rigor/Relevance Framework + SAMR + P21.org*



### **English Language Arts/Literacy**

The K-8 English Language Arts program emphasizes explicit instruction in strategies of proficient readers and writers. These strategies are critical for effective reading and writing across the curriculum, which is a significant shift with the new standards of literacy.

Brookline was well positioned for the move to the Common Core State Standards. Through our rigorous Program Review process, an ambitious K-8 literacy initiative began in the 2010-2011 school year. This initiative provided a strong foundation with which to meet the demands of the new MA Frameworks. The literacy initiative, like the MA Frameworks, emphasizes reading and writing in non-fiction, particularly in the content areas of science and social studies. In addition, just as the Frameworks require students to read texts at ever increasing levels of difficulty, the Brookline initiative has focused on providing students access to a text gradient that accelerates their reading achievement.

Literacy instruction in Brookline is guided by *The Continuum of Literacy Learning, PreK-8* (Fountas & Pinnell), a comprehensive and detailed description of student proficiency in literacy across K-8. One of the many strengths of this guide is the broad definition of *Literacy Learning*, including:

- Interactive Read-Aloud and Literature Discussion
- Shared and Performance Reading
- Writing About Reading
- Writing
- Oral, Visual, and Technological Communication
- Phonics, Spelling, and Word Study
- Guided Reading (small-group reading instruction)

Schedules for grades 1 – 5 reflect a daily, uninterrupted 90-minute literacy block. During this protected instructional block, students receive small group reading instruction from their classroom teachers and participate in a variety of language arts learning centers, allowing students to refine reading and writing skills. Students who receive targeted literacy interventions do so during this block of time. Interventions may be provided by one of Devotion’s four literacy specialists, a special educator, or an ELL teacher. In grades 6-8, students have a daily 50-60 minute block of English Language Arts instruction. Students requiring additional supports and literacy intervention receive targeted instruction from classroom teachers, special educators and ELL teachers during designated 45-55- minute instructional blocks each day.

Teachers use multiple assessments to measure student progress, for example the *Benchmark Assessment System* (BAS) and running records. In grade level data meetings, teachers examine whole class and small group instructional implications, as well as identify students and develop plans for individual literacy interventions. Tier two

intervention includes the *Leveled Literacy Intervention (LLI)* and *Reading Recovery* (grade 1).

Although most of the reading and writing instruction takes place within the classroom environment and across content areas, smaller work areas are necessary to facilitate individualized instruction, including both 1:1 and small group settings for book discussions and peer editing. In addition, small work areas are needed to support individual and small group general education interventions in reading and writing, inside and outside the classroom. Devotion's four literacy specialists also need office space in which planning, coaching, direct instruction, and intervention can take place.

One resource of great significance in literacy learning is the school's book room. Building, rebuilding, organizing, and well provisioning all of our school's book rooms is a vital element of the literacy initiative. Spaces for book rooms are not readily available. The renovated school will provide easy access, for teachers and literacy specialists across the grades, to adequate space for the numerous sets of books required to meet the needs of all students. This dedicated space will offer a level of organization that makes receiving and returning books easy and not a burden of time.

## **Mathematics**

The goal of the mathematics program in Brookline is to meet the needs of all learners so that they become critical problem solvers and reflective thinkers about mathematics in our evolving global, technological, and digital world. We also seek to stimulate interest and curiosity in the field of mathematics to develop students' passion and interest in a math career.

The mathematics program is grounded in the 2011 MA Curriculum Frameworks for Mathematics, in both Standards for Mathematical Content and the Standards for Mathematical Practice. Brookline's transition to the new standards started with focused attention on students' learning through the eight Standards of Mathematical Practice. In addition, for students in K-5, we increased the focus on the critical areas of *place value*, addition, subtraction, multiplication, division, fractions and decimals with an emphasis on understanding and application.

The most effective instruction for in-depth math content and deliberate attention to mathematical practices places different requirements on the physical space. Instruction varies, in that there are opportunities for individual learning, pairs and small groups, and whole-class instruction. Teachers need the space to change as instruction changes – furniture easily reconfigured for different groups, technology easily employed throughout the room, ample space so that students can spread out and use a variety of objects to manipulate and see the math, projection with robust Internet access to show real-life applications and simulations, examples of mathematical models, and sharing student work. Appropriate, safe and secure storage space is also critical.



The needs of the physical space in K-5 for math are mirrored in the middle grades. In grades 6-8, students continue this progression to geometry, algebra, probability and statistics, again focused on student learning and application. Brookline is fortunate to have selected math programs, *ThinkMath!* and *IMPACT Mathematics*, that align well with the new MA Frameworks. Because of this alignment, teachers use instructional materials with which they are already familiar, and are introduced to new resources for performance-based assessments (applications of math understanding) and opportunities to work with other teachers to integrate the disciplines and highlight STEM project-based opportunities.

Different learning support is provided across the continuum of learning across the grades. For students who struggle in the early grades, math specialists use the intervention program by Kathy Richardson. Upper grade intervention support is with the program by Marilyn Burns, called *Do the Math*. In addition, we are piloting a new adaptable universal assessment and instructional support program – *iReady* - in different grades across the schools, including Devotion. This will help us target student learning needs across the units of the math curriculum and across all grades. This level of detailed analysis will support more targeted instruction and map student progress over time.

Students who show mastery of grade level standards engage in extensions that take the math concept deeper and provide more learning of the concept. With the support of the Enrichment and Challenge Support (ECS) teacher at Devotion, students will engage in very challenging authentic projects that require a deep understanding of the topic, and they will be asked to apply and demonstrate their understanding of the math concept. As with all other examples, this type of creative investigation requires malleable educational spaces.

The three math specialists at Devotion School, who provide individual and small group support across all grade levels, currently share inadequate office space. The space is used for collaborative planning, coaching teachers, and intervention work with students. Currently they must access other inadequate spaces in the building, including classrooms, inappropriate hallway space, or other educators' offices, which then impacts the professional work of the educator in that office. For pullout services, the offices need to be well-equipped learning spaces with access to the appropriate technology that supports math learning and assessment. Teachers and students will benefit from the office size, storage facilities, flexible configurations of space, and location, as described in the building plan.

### **Performing Arts**

The Public Schools of Brookline is proud to continue a tradition of a strong performing arts department. Each K-8 school has music instruction for all students across all grades.

In grade four, all students begin the study of a string or band instrument, and then choose to participate in band, orchestra, and choral ensembles in grade 5. In grades 6 through 8, students may continue with band, orchestra, or chorus or take classes in music production, guitar, or general music. Devotion hosts a variety of music concerts (choral and instrumental) throughout the school year. Additionally, students in grades 2 – 8 are involved in musical theater. Performances take place in the auditorium/multipurpose space, which has a capacity of 300 people. As such, we are limited in the number of classes and families we can invite to attend a performance, requiring us to schedule multiple show times. School Committee policy requires that all elementary schools have a multipurpose space with the capacity to seat at least 40% of its total occupancy.

Space challenges in performing arts were detailed in the section, SCHOOL SCHEDULING METHOD. The new building will have a tremendously positive impact on the performing arts department and, given the current locations due to such challenges, will improve other teaching and learning spaces as a result.

### **Physical Education**

The physical education department provides instruction to all students across the grades, K-8. Students participate in quality instructional physical education programming twice a week, for 40-45 minutes each class. The curriculum is presented in accordance with the Massachusetts Frameworks and the National Standards for Quality Physical Education. The curriculum follows a developmental sequence from body management competence to fundamental skills to specialized skills, while simultaneously addressing physical fitness and social skills. Devotion has 2.9 FTEs for Physical Education, divided among three educators.

The PE department shines in its use of technology to enhance teaching and learning. Teachers engage students with the use of, for example, Polar Heart Rate Sensors, multiple iPad apps for instruction, monitoring, taking pictures and videos, and the web-based *Fitness Gram* assessment. While the desire and knowledge for appropriate use of technology is present, teachers struggle with continuous robust wireless access, lack of safe, secure, and easily accessible storage, and the inability of the technology to work properly when there is too much background noise. The renovated facility addresses these issues.

As described in the earlier SCHEDULING section, currently, there are only two gyms – one full-sized and one “small.” Two classes must “double up” in the large gym in order to accommodate all of the instructional sessions. Another significant challenge is the lack of ample and appropriate storage space for large equipment and general PE supplies.



### **Science and Engineering**

The Brookline science department continues to build upon a rich history of science teaching and learning. The Program Review process highlighted areas of improvement based on the current research in the field, including integration of science, technology, engineering, and math (STEM), inquiry-based learning, continued emphasis on science practices, and the addition of the practices of engineering.

In order to make learning more rich and meaningful for students, science and engineering practices are integrated throughout the Brookline K-8 curriculum. This approach is recommended and modeled by the national Next Generation Science Standards (NGSS) and the draft Massachusetts Science, Technology, and Engineering (STE) Framework, both of which integrate science and engineering practices within each grade level.

According to *The Framework for K-12 Science Education* (the basis for the NGSS), “[t]o support students’ meaningful learning in science and engineering, all three dimensions [content, scientific and engineering practices, and crosscutting concepts] need to be integrated into standards, curriculum, instruction and assessment.” Furthermore, “Engineering and technology are featured alongside the natural sciences (physical sciences, life sciences, and earth and space sciences) for two critical reasons” (1) to reflect the importance of understanding the human-built world, and (2) to recognize the value of better integrating the teaching and learning of science, engineering and technology.”

Teachers implement hands-on, inquiry-based science and engineering curriculum that requires flexible space. The spaces – indoor and outdoor – need to allow for and promote creativity and innovation. Labs need to be well provisioned in order for students to advance an idea, investigate a line of inquiry, and design and test solutions to real-world problems. Science labs need ample space for students to work and for the safe storage of science materials and supplies. Specific needs of a science lab are in addition to the general design and development of other contemporary teaching spaces – wall space for visuals, projection area(s), technologically versatile, natural light, flexible furniture, etc. Overall, the renovated Devotion School needs to bring the science lab spaces up to the standards of Brookline’s science program.

Currently, there are two adjacent science labs, which have recently lost storage space to the creation of a classroom. A third science room is located in a converted classroom (grade 6) with no running water/sink and no windows; this does not constitute a science lab. The deficiencies of these spaces are a determining factor, as teachers seek to design meaningful and inquiry-based scientific experiences for students.

The building plan provides for effective science lab spaces and meets all regulations as outlined.

## **Social Studies**

The K-8 social studies department has been deep in curriculum revision and renewal. Across the grades, the curriculum coordinator, in collaboration with teacher-teams, is developing new units of study and common assessments at multiple grade levels. Skills and habits of social scientists are a thread throughout the revised curriculum. Professional development accompanies each new unit of study. Examples of content include: civics, physical and human geography, economics, and US and world history. Along with content, teachers are developing strategies for explicit literacy instruction, including how to make difficult primary texts accessible to all students. Each new area of learning includes the identification of natural connections to other subjects to support the development of interdisciplinary units.

Teachers continue to incorporate more technology into social studies teaching, enabling them to access real-time data, utilize digital textbooks and atlases, and support the development of digital literacy that includes Internet research, online student learning activities, and diverse instructional strategies to accommodate all learning styles.

The social studies curriculum and instruction demand physical spaces similar to the other subjects – flexible, accessible, safe and secure storage, and wall space for visuals and student work displays.

## **Visual Arts**

The Public Schools of Brookline has a vibrant visual arts program that provides students repeated opportunities to develop observational skills, decision-making skills, and craftsmanship using art as the visual language to communicate ideas and demonstrate understandings. The visual arts program has a K-12 continuum of key understandings, concepts, and processes as the framework for its curriculum. The department continues to collaborate with other coordinators and teachers to create more interdisciplinary units in the K-8 curriculum. There are examples of this creative integration at the Devotion School. Currently, however, displays of student work are very temporary and not well positioned for sharing.

Currently, the two visual arts classrooms are using a subdivided former industrial arts wood working shop. One of the “classrooms” includes a hallway/corridor that students use during class time. Each classroom has two sinks, but lack proper storage space for materials. One classroom has a kiln room. The other classroom was once a woodshop, and retains its woodworking equipment. Both classrooms have limited amounts of natural lighting. The renovation can provide what’s needed: three art classrooms, one art room for each grade level cluster, with ample natural light and with enough space for the largest class to sit a maximum of four students per table. Also, the visual art classrooms need a separate storage closet for material/equipment storage as well as teacher preparation. The visual art classrooms require ample storage capacity within the



classroom for artwork in process. The layout of the classroom should separate the worktables from preparation/sink areas. Multiple sinks at appropriate student height, and furniture and amenities (i.e., sinks), scaled to meet the needs of the grade level clusters, are required. A separate kiln room attached to the classroom is required. A contemporary visual art classroom needs a technology/media station (computers with photo/video software and Internet access) set-up to serve 4-6 students located away from paints and clay preparation.

There should be ample space for whole-class demonstrations and exhibiting exemplary artwork on the walls. In the corridor outside the visual art classroom, as well as in corridors throughout the school, there should be ample wall space designed for student artwork to be exhibited, including a 3D wall case centrally located in the school. Displaying student work throughout the school is essential for a variety of reasons. One reason is that it builds a sense of pride and ownership of the space and the school. A second reason is that an authentic viewing audience is a natural motivator for students; and, finally, displaying quality evidence of student learning provides multiple examples of high expectations for all students. This is especially important in visual arts.

#### **World Language**

As is true in many schools, 7<sup>th</sup> and 8<sup>th</sup> grade students in Brookline elect to study either Spanish or French as a World Language. World Language classes meet five days per week for 50-55 minutes.

Brookline is fortunate to also have an elementary world language program. The K-6 World Language Program is based on current pedagogical research about effective approaches to language acquisition. It meets the rigorous expectations of the Massachusetts Foreign Languages Curriculum Framework as well as the nationally established standards for foreign language education. The overall goals are:

- To acquire proficiency in speaking, listening, reading and writing the target language;
- To acquire an understanding of and appreciation for other cultures;
- To reinforce learning of the general curriculum content through the study of a world language; and
- To develop students as language learners

Grade K-6 World Language is Content-Enriched FLES (Foreign Language in the Elementary School), which provides a sequential language learning experience that aims to develop language proficiency, appropriate to each grade level. Content-Enriched FLES programs are those in which language lessons reinforce concepts from other subject areas: social studies, science, and math, and English language arts. Integration among the subjects is essential.

The Brookline Elementary World Language Learning Expectations are based upon the “5 Cs” of the National Standards for Foreign Languages: Communication, Cultures, Comparisons, Connections and Communities. World language teachers, together with the K-8 Curriculum Coordinator for World Languages, continue to develop a proficiency-based curriculum grounded in culture as the program achieves full implementation. The curriculum and assessments focus on what students can *do* with the language, and reflect the proficiency descriptors of the National Performance Guidelines for K-12 Learners.

World language teachers conduct lessons almost exclusively in the target language (Spanish or Chinese), with an emphasis on functional communication activities based in real-life situations. Lessons are carried out using songs, games, books, and other interactive activities that provide students immediate opportunities to practice the language. Material is introduced in thematic units of School and Community, Family, and Climate (K- 2); and Community, Leisure Time, Climate, and Food (3-5). Students in Grade 6 continue to further their learning in these themes while transitioning to a more formal middle grade program model.

Three Elementary World Language teachers at Devotion School instruct students in grades K-6. All three teachers share office space for planning, collaborating with teachers, and communicating with parents. All three teachers travel from individual classroom to individual classroom, with five minutes of transition time.

The Elementary World Language program can be improved with the spaces being created through this renovation. For example, classes can come together in larger spaces for large group presentations and activities, or instruction in small groups. Smaller groups can be made up of classroom peers or a mix of students from different classes, as a way of further developing the sense of team across the grade level. With each classroom better equipped with technology and proper storage, EWL teachers would not have to push their overloaded cart from class to class and take time away from teaching for set up and breakdown of equipment. Efficiencies of this manner would allow for more instruction and more time for the EWL and classroom teacher to touch base at the end of a lesson, whether to talk about their next common planning period, attend an IEP meeting, or exchange quick observations about a particular student during the lesson.

### **English Language Learners (ELL)**

The English Language Learners (ELL) program provides services to students whose primary language is not English and who are not yet proficient in English. The program provides support at each school, with services focused on students’ English language acquisition, literacy development, social integration, and academic achievement.



The ELL program supports a significant number of Devotion students. With a population of 119 students, our ELL program serves 14 % of the student population. Small groups of students meet with ELL teachers several times per week both in and out of the classroom for direct English instruction. Devotion is home to the district-wide Hebrew ELL population, with two full-time teachers to instruct these students. Devotion has two additional teachers (totaling 1.8 FTE) to serve non-Hebrew speaking ELL students. ELL classes range in number of students served at one time. Small group instruction is the approach used in all four classes.

The ELL program serves students outside of the classroom and, therefore, needs its own space. Like special education, housing the ELL programs in the general vicinity of the grade level clusters is intentional. Wall space and storage is also important, given the use of visuals and the need for storage of the general education program materials made available to the teachers and students in the ELL classrooms. ELL classrooms will be reflective of other learning spaces – flexible, well provisioned, and accessible.

#### **Special Education**

In 2013-2014, 15.2% of Devotion students had special needs. This includes both students from the Devotion School district, as well students from across the district who are placed in one of the district-wide Therapeutic Learning Centers (grades K-8) located at Devotion.

Inclusion is a core belief and practice in the Public Schools of Brookline. This educational model challenges schools to meet the needs of all students by educating learners with disabilities alongside their non-disabled peers. The environment necessary to nurture and foster inclusion is built upon a shared belief system between general and special education, and a willingness to merge the talents and resources of teachers. An inclusive education helps prepare students with disabilities for an integrated adult life and builds understanding and acceptance within the broader community.

The Devotion staff is very proud of their success with some of our most vulnerable learners. Devotion houses the district-wide *Therapeutic Learning Center (TLC)* for K-8 students diagnosed with emotional and behavioral disabilities. The TLC is a special education and supportive service-based program for students with a history of emotional disabilities that impact their learning.

This integrated program provides the following services as deemed necessary by each individual student's IEP:

- Direct instruction in a separate setting or in a general education setting
- Support in general education
- Continuum of services from fully included to direct instruction in a separate setting

- Adaptations of the educational environment
- Positive behavior intervention plans
- Instruction in relaxation techniques
- Counseling

In addition, the program provides a variety of educational supports, such as: reduced student to teacher ratio; full time school social worker dedicated to TLC; paraprofessional support while included in general education classes; and weekly group lessons targeting social skills and social thinking. TLC classes are divided into three grade level clusters (K-3, 4-6, 7-8), and program staff is extensively trained in Social Thinking Curriculum and Collaborative Problem Solving. In addition, staff members are transitioning to the use of the Quality Behavioral Solutions (QBS) Safety-Care program. All students served by the TLC are included with their peers in general education classes, receiving some pullout academic supports as outlined in their educational plans. Students in the TLC often receive other related services, including occupational therapy, speech and language therapy, and counseling. Our special educators serve not only as liaisons, but also as case-managers for students in order to bridge the gap between home and school-based services.

In addition to our TLC classes, our Learning Centers (LC) and Comprehensive Learning Centers (CLC) support students with special needs. The CLC Programs are designed for students with varied disabilities who require a higher level of services. The CLC classes have a low staff to student ratio allowing for increased individualization. Students may receive higher levels of direct, specially designed instruction in academic areas within the Comprehensive Learning Centers. A high level of case management and coordination of services is provided by the CLC teachers. Although these programs are building based, when necessary other elementary schools may access these programs as district-wide options.

Student Services are defined as school psychologists, inclusion facilitators, learning center teachers, social workers, speech/language pathologists, occupational therapists, physical therapists and nurses. In many cases, these positions are shared among more than one school, but together they represent a team-based approach to supporting students and families in need at the elementary level in Brookline. Related service providers include two speech/language pathologists, an occupational therapist, a physical therapist, a psychologist, a Board Certified Behavior Analyst (BCBA), and a social worker. Also, there are educators specializing in supporting deaf/hearing impaired students and vision-impaired students to access the curriculum.

Special education services throughout the district address the needs of identified learners with disabilities between the ages of three and twenty-two, who require specialized instruction to support access to the curriculum. A wide range of services is provided to meet the individual needs of students, from academic intervention to related services in areas such as speech therapy, occupational therapy and physical

therapy. Availability of therapeutic services for students requiring special education intervention in the realm of social, emotional and adjustment areas is present at all schools and levels. Staff works closely with families in ensuring that necessary services are identified and provided to students in accordance with applicable mandates. A strong and positive relationship exists between the district staff and the Special Education Parent Advisory Council with benefits that accrue to school system, students and families. Strong collaboration with general education staff is a concerted effort to provide services to students in the most inclusive manner, which benefits all students within the class setting. Providing consultation, collaboration and professional development opportunities to both regular education and special education staff across the district is an active approach to further the joint efforts of all teachers to provide students with special education services in the most inclusive setting, which is appropriate.

Devotion School offers instructional spaces for pullout small group and individual instruction provided by learning center teachers, and inclusion facilitators, who support inclusion for students with significant disabilities.

The physical structure of the school building can detract from or promote these feelings. The Devotion building plan provides both breakout rooms for privacy and open spaces for groups to gather, with clear lines of site. Special education classrooms need to be flexible and easily reconfigured, given that different students are served in the same space at different times. In addition, accessibility to a wide variety of technology options is essential. Assistive technology plays a critical role in supporting engagement and learning for students with special needs. Different devices for different purposes need to be available with supports for quick set-up and secure storage.

Special education learning spaces are spread among general education classrooms. The location of the classrooms allows staff to communicate and collaborate fluidly throughout the day on student needs and programming. The number of students in these classrooms is monitored to ensure a lower class size is maintained to allow the flexible learning requirements of the students. The four Learning Centers at Devotion resemble large office spaces, for 1:1 or small group instruction. The three Comprehensive Learning Centers require a bit more space, resembling a small classroom. In this space, the special educator will conduct small group instruction, social skills groups and collaborate with other related service providers to provide services to students. The three Therapeutic Learning Centers are designed as a “suite” in order to accommodate multiple tiers of student needs. There must be space for academic support, community building and social skills instruction, a calming area for relaxation, and a safe space for students to de-escalate when in crisis.

The physical environment impacts learning. This is especially true for our students with disabilities at the Devotion School. It is important that every student has an authentic sense of belonging and feels safe in their school. Clustering grade levels, spreading

special education teachers throughout the school, and providing services to students in close proximity to their cohort peers are examples of how the design of the school is supporting the academic and social emotional learning goals for Devotion students with special needs.

## **SOCIAL EMOTIONAL LEARNING AND BULLYING PREVENTION PROGRAM**

It is the mission of the Public Schools of Brookline (PSB) to ensure that every student develops the skills and knowledge to pursue a productive and fulfilling life. To truly live this mission, it is essential that our schools are safe, welcoming, respectful and nurturing. Such a culture is created when everyone in the school is aligned to requisite beliefs, values, and behaviors. Children need to learn these beliefs, values and behaviors, and adults need to model, guide, and explicitly teach them to children using intentional strategies in order to establish a culture conducive to learning. This is essential because learning is inextricably linked to school culture.

Culture is a complex element within a school. In Brookline, we have created a comprehensive social emotional learning and bullying prevention and intervention program to nurture school culture and provide the knowledge, skills, procedures and processes required to foster positive student behavior in support of learning. With the effective implementation of the comprehensive program, we envision all Brookline schools reflecting a safe, welcoming, respectful and nurturing school culture that supports the development of all children through their preK-12 experiences.

The Olweus Bullying Prevention and Intervention program is our K-12 school culture and anti-bullying program. *Responsive Classroom* (K-5) and *Developmental Designs* (6-8) represent the core social emotional curriculum in Brookline. Both RC and DD programming require classroom meeting areas to conduct “morning meetings” (grades K-5) and advisory (grades 6-8). Each classroom should have an area zoned for these class meetings and other similar functions. Many staff members have also been trained in Marie Garcia Winter’s *Social Thinking* curriculum and lead Tier II instruction with small groups of students.

Overall, the school needs to provide gathering spaces to promote social engagement among students and adults. The new Devotion School will facilitate and encourage connections among grade levels and across the disciplines, be welcoming by design, and show evidence of collaboration, respect, and high expectations with student work prominently displayed throughout the school. All of which support the social emotional learning of students.

## **OUTDOOR SPACE FOR PHYSICAL ACTIVITY**

Outdoors, Devotion has a number of play areas including an adjacent baseball diamond, basketball courts and tennis courts, maintained by the town Parks and Recreation



department. This outdoor space is used mainly by the school during school hours, but is shared with local recreation programs and neighbors after school and on weekends. A number of neighborhood athletic groups use the outdoor space when school is not in session. In addition, playground areas are available for student use on school property. The “Front Playground” abuts Harvard Street and is considered the main playground for the Kindergarten classes. There are two climbing structures and two slides at this play site. There is also a large sand play area, and two bike racks. Kindergarten students also have access to a small paved area with two hopscotch grids painted on the pavement. Students in grades 1 – 3 have access to a second playground space. In this space, a large play structure offers two slides, “Monkey Bars,” and other climbing opportunities. Adjacent to this structure are foursquare grids painted on a small paved area. The Devotion School Garden, maintained by staff and students and integrated across the K-8 science curriculum, resides in this section of the playground. Students in grades 4 and 5 access a third playground space. There is another large play structure in this area, offering “Monkey Bars,” two slides, connective bridges, and climbing areas. There are three tire swings in this play space. Grades 4 and 5 also have access to a large hot-top play area that contains two basketball hoops, three hopscotch grids, and five foursquare grids. Our students in grades 6-8 use the adjacent open fields, baseball diamond, and basketball courts during recess time.

#### **PROFESSIONAL LEARNING AND TEACHER PLANNING**

Pursuit of our educational goals requires shifts of different degrees in curriculum, instruction, and assessment, which, in turn requires new learning for educators. Professional learning is a very high priority in the Public Schools of Brookline. Professional learning has moved from the traditional staff development workshop or attendance at a conference to ongoing, continuous learning. . Professional learning takes on a variety of forms in Brookline, depending on the objectives of the learning. Much of the learning is job-embedded, ongoing, and collaborative. One strategy to accomplish this form of professional learning is instructional coaching. Brookline supports the following roles: Educational Technology Specialists (ETS), Librarians, Math Specialists, Literacy Specialists and Literacy Coaches, Enrichment and Challenge Support (ECS) teachers, and Inclusion Facilitators and Inclusion Specialists.

The adult culture reflects the characteristics of a professional learning community: shared norms and values; a focus on student learning; making professional practice more visible; collaboration; and, inquiry, reflection, and analysis. There are conditions necessary for supporting an adult culture reflective of a professional learning community, some of which are supported in the new facility. Conditions include, for example: space/time to meet, physical proximity, interdependent teaching roles, and

communication structures<sup>13</sup>. Educators need the appropriate and well-provisioned spaces to gather to analyze data and determine next steps for instruction, study classroom videos, participate in a webinar, review student work, vet online resources, and read and discuss the contemporary literature of the profession. The building plan creates spaces that will be available throughout the day and are adaptable to the adult learning activities.

As designers of learning, much of teachers' time is spent planning with colleagues to create the best learning experience for all students. Because of its value, we deliberately and intentionally create planning and collaborative time for teachers.

## **ROOM ASSIGNMENT POLICIES**

Below is a description of current room assignments and how the Devotion School is organized due to space limitations:

Classroom space and needs for our special education programs varies. The four Learning Centers (LCs) provide instructional services within the general education classrooms; however small instructional spaces for individual and small group instruction are required. These spaces should be easily accessible from the general classrooms. Small classroom spaces are needed for each of our three Comprehensive Learning Centers (CLCs). Students will come to the CLC for core instruction, social curriculum, and other services throughout the day. Finally, our three Therapeutic Learning Centers (TLCs) provide our students with a small classroom learning space, a separate relaxation area for calming and social skills work, as well as a space for students to safely and privately de-escalate when in emotional crisis. Our current TLC suites have 4-5 small office/classroom spaces within their respective suits to meets the range of needs presented by the students served.

Currently there are three floors in the Devotion School with the bottom floor below grade referred to as the basement level. There are six classrooms, two Therapeutic Learning Centers, and one Comprehensive Learning Center located on the basement level, along with core subjects of music and physical education. The basement level is also home to our Occupational Therapy room, and offices for one of our two Vice Principals, our three Physical Educators, and our Director of Guidance. The Devotion Cafeteria is also located on the basement floor. Our cafeteria currently has the capacity to seat only two grade levels during a lunch period, thus requiring us to schedule five lunch shifts. Our 2<sup>nd</sup> grade and 6<sup>th</sup> grade students begin lunch at 10:45 am, and our Kindergarten and 1<sup>st</sup> grade students don't eat until the last lunch period, at 12:40 pm.

Three Kindergartens, two grade 1, and two grade 2 classrooms, as well as a Learning

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<sup>13</sup> F. Newmann, University of Wisconsin-Madison, 1994. Fred Newmann and his colleagues were pioneers in the research showing the impact of adult culture on student learning, when the culture reflects the characteristics of a professional learning community.



Center and an office/instructional space for one ELL teacher, are housed in the “1950s wing” of the building. Last year, one of our 1<sup>st</sup> grade classrooms was recently added to meet the demands of our increasing enrollment, however the only space to convert was a former learning center, and as a result this one 1<sup>st</sup> grade classroom was significantly smaller than our other primary grade classrooms. As such, we had to cap the enrollment in this classroom at 16 students. This year, enrollment drove a reduction of one section, allowing the return of the earlier classroom configuration. This wing does not physically align with the rest of the building, as it has only two floors. One floor is built at ground level, and the other directly above it. When looking at the intersection of the original structure and the 1950s wing, some of the Kindergarten, Grade 1 and Grade 2 classrooms seem to have been built on floors one-and-a-half and two-and-a-half.

On the other side of the original structure, sits the “1970s wing”. This wing of the building houses Grades 4 – 8, and was originally built in an open concept design. Three of the four 4<sup>th</sup> grade classrooms are on the second floor of this wing. Due to space constraints, one 4<sup>th</sup> grade classroom is not in proximity of the others, but is on the other side of the building. All four 5<sup>th</sup> grade classrooms are on the 2<sup>nd</sup> floor of the 1970s wing, as well as two of the four 6<sup>th</sup> grade classrooms. Additionally, on the second floor of this wing, there is one learning center, an office for the ECS resource teacher, and one ELL office. In the middle of all these classrooms and offices, we have built a “mini computer lab.” This area, subdivided by half-wall cubicles, holds nine desktop computers and provides small group instructional space for staff and students to work. Also on the second floor are the two Art rooms and a cluster of office spaces divided by temporary walls and doors. We call this space “the village.” The village is home to our three EWL teachers, our three math specialists, one reading specialist, and our METCO liaison. This space is inadequate for our needs. The office areas are too small, and because of the portable nature of the design, none of the offices have ceilings. This is a problem for staff who wish to assess a student and, therefore, require a quiet work space, or for a teacher and parent who need to discuss a confidential matter. The 3<sup>rd</sup> floor of the 1970s wing houses our two remaining 6<sup>th</sup> grade classrooms, our 7<sup>th</sup> and 8<sup>th</sup> grade science labs, and classrooms for each remaining 7<sup>th</sup> and 8<sup>th</sup> grade core content course – ELA, Math and Social Studies. Also, an additional classroom is used as shared space for our middle grade Spanish teacher, French teacher, and Health teacher. This one room is not adequate for the number of classes scheduled, so Foreign Language and Health classes are often conducted in other core content classrooms. The 3<sup>rd</sup> floor space also has a “mini computer lab”, as well as a learning center, a speech therapy office and a social worker’s office.

The original structure on the second floor is home to the main office, including the principal’s office and team facilitator’s office. Additionally, a guidance office, the nurse’s suite, the psychologist’s office, our second vice principal’s office, two second grade classrooms, one fourth grade classroom, a reading specialist’s office, and two Hebrew ELL teachers reside on the second floor. Our library, full-size computer lab, teachers’

lounge, and teachers' workroom are on the main level, as well. The library resides in a space that was originally designed as an auditorium. It serves all the students in the school for both instruction and research.

On the third floor of the original structure sits the auditorium/multipurpose space, one literacy specialist office, four third grade classrooms, two Comprehensive Learning Centers, one Therapeutic Learning Center and a guidance office.

Overall, the Devotion School has clustered classrooms in neighboring proximity of one another, and attempted to work within the space constraints posed by the architecture of the design.

Some of the special education instruction occurs within the regular education classrooms, however we retain a need for 10 separate learning center classrooms, with three of these designed as suites to accommodate the varying degrees of need within our Therapeutic Learning Centers.

Due to lack of space and fire code restrictions, there is no opportunity for the entire school to gather for school assemblies. Currently, the gym and/or auditorium/multipurpose room is used for school assemblies that need to occur at three different times, one for grades K-2, another for grades 3-5, and a third for grades 6-8.

The building plan overhauls this patchwork configuration of the current facility and addresses multiple challenges described above. Clustering grade level classrooms provide close proximity for collaboration, communication, and flexible grouping. Other valuable spaces such as art, music, technology lab, and library/information center would ideally be within close proximity to the general classrooms to provide ease of transition from space to space as well as limit the transition time between classes to maximize the time spent in the classrooms. The broader Devotion School community uses core spaces such as the gymnasium, auditorium/multipurpose space, and cafeteria, therefore, ease of access for the public is important. The cafeteria will ideally be located on the first floor with direct access to the play spaces for time before or after lunch.

## **LUNCH PROGRAMS**

The mission of Food Services is to provide healthy, tasty, high-quality, sustainable, affordable meals to the students and staff of the Public Schools of Brookline. Breakfast and lunch are served at all nine schools in the district. As part of the National School Breakfast and Lunch Program, we follow guidelines set by the USDA regulating what qualifies as a healthy breakfast and lunch. Meals are cooked from scratch, using real food, and we are continually looking for ways to improve our school meals.

Parents set up online lunch accounts and pre-pay meals. All students have an individual PIN number. A students' account can indicate a specific allergic warning or set restrictions on choices by parents.



There is one cafeteria in the existing Devotion School. This poses significant challenges for scheduling, dining, transitions and staffing support. Presently, the Devotion School runs five lunch sessions. The number of lunch sessions requires a significant number of staff to provide adequate supervision. This poses a challenge to us, given the constraints of the current collective bargaining agreement, and our need for a robust student supervisory plan in alignment with our anti-bullying initiative.

Currently, Devotion School has a staff of one kitchen manager and three attendants who work in a full service kitchen. Lunch service begins at 10:45 am, with the last lunch concluding at 1:05 pm. The number of students within each lunch ranges from 172 to 217 students. Each lunch period includes two grade levels, with lunch shifts that have complex, overlapping transitions. Each lunch period utilizes one serving line, where students use a PIN number system when purchasing their lunch. The current cafeteria is inadequate in terms of space and sound issues, and one lunch line is not sufficient for serving such a large number of students in a timely manner.

#### **TRANSPORTATION POLICIES**

The Public Schools of Brookline provides bus transportation for K-8 students residing more than 2.0 walking miles from their districted school. These students are transported at district expense. All students in Grades K-6, who live less than 2.0 miles from their school, are responsible for their own transportation. The district does make exceptions for students whose needs are “safety” related. K-6 students who live 2.0 miles or more from the school may opt to purchase a bus pass in accordance with the MBTA fee schedule. Special education transportation services are separate from regular bus transportation.

The Devotion Elementary School has one district bus to transport students with special needs to and from the Therapeutic Learning Center program and one Boston bus for METCO students. Students who utilize the bus are dropped off in our bus drop-off lane between 7:30 am and 7:40 am daily. Monday through Thursday, school dismisses at 2:30 pm; on Fridays, students are dismissed at 1:40pm due to weekly professional collaborative time for teaching staff. Due to the fact that the Devotion School site has limited driveway space, there is no live student drop-off or pick-up on the site. Many students walk or bicycle to school or parents park nearby on local streets and walk the remaining distance to the school with the students. The school staff provides safety and supervision on the school property during arrival and dismissal times. The town Police Department provides crossing guards in the vicinity of the school.

#### **FUNCTIONAL AND SPATIAL RELATIONSHIPS AND ADJACENCIES**

The Edward Devotion School serves the vibrant Coolidge Corner neighborhood and is the largest of Brookline’s K to 8 schools, with a population of 838 students. It enjoys an international reputation: historically, it is the public school that President John F.

Kennedy attended; academically, it welcomes students from all over the world, and socially, it reflects and respects human diversity.

Functional and spatial relationships and adjacencies are the key to the successful design of the new facility. These relationships between classrooms and programs in the school define the programmatic, functional, spatial, and environmental requirements of the educational facility and become the basis for the design at the next phase. Devotion School depends on adjacencies for communication, collaboration, flexible grouping, and teaming. Providing learning areas both in and outside classrooms for small group work, individual tutorial spaces, and additional instructional break out rooms are critical in a school with a focus on integrated classrooms at grades K-8, requiring specialized instruction and an emphasis on inclusive practices.

Community is a core value among students, staff and parents. Devotion School is a warm and inviting place for children, staff and families. A priority for the students, staff and Devotion community is to bring a “small school” feel to a large elementary design. The PTO and parent volunteers are actively involved in before, during and after school programs. Devotion requires a welcoming main office and community arrival space that accommodates the high morning influx of families who walk or get dropped off by parents at school arrival, as well as the active dismissal procedures. The students, faculty and parent community value and require a space for the entire school to gather, both as a common space to gather and celebrate learning and as an area to spotlight the arts through assemblies and performances. A functional dining facility with a reasonable capacity is a need of the school. After school, we provide space for a K-4 extended day program that operates until 6:00 pm. Approximately 100 students participate in this program daily Monday through Friday. Community gathering space is necessary, as well as smaller spaces for homework support, small group activities and gross motor play. The Devotion After School Enrichment Program (DASEP) conducts a series of clubs after school Mondays through Fridays until 6:00 pm. This program offers students in grades K-6 club options that require use of space to engage in art, drama and sports activities. The Steps to Success program, which supports students of low income, offers an After Hours University, which also requires space for students to receive homework support and tutoring, as well as enrichment club options and gross motor activities. The Devotion School also hosts a variety of intramural athletic programs, including flag football, volleyball, basketball, and floor hockey. These teams utilize outdoor field space and the large gym for programming. The new design should include a large gym with space for bleachers to accommodate spectators during athletic events.

The Devotion School is a relationship-oriented community, that practices and values inclusive partnerships and mutual support in all aspects of the school community. This is the overall spirit of the school that will drive the design of the facility.



## SECURITY AND VISUAL ACCESS REQUIREMENTS

The new school facility will continue and enhance the safe drop off of students with safe secondary access for emergency needs. The Devotion School requires:

- Access Control utilizing a security access fob device by authorized staff.
- Visual Security of the main entrances utilizing a video monitoring/recording system that will be monitored at the school secretary's desk.
- Safe staff parking
- Safe visitor parking
- Safe pathways for pedestrians and bicyclists coming from varied directions to the school
- Safe bus access systems that do not interfere with drop off and pick up traffic
- Safe recess grounds and play fields that can be properly supervised by staff and protected from vehicle traffic
- Visual access of the driveway, garage and parking lots
- Safe access for kitchen, facility and shipping / receiving separate from school traffic to the main entrance
- Safe and appropriate access to the perimeter of the building and play fields

Maintaining safety of the current facility is a top priority and a challenge. One example immediately observable is the main lobby. The main lobby lacks sufficient square footage, resulting in the lobby being very congested during arrival, dismissal, and mass movement times of the day (e.g., lunch time). In addition, the administrative office space for the principal and two vice principals is inadequate. Administrative offices may be spread throughout the building to provide passive supervision.

## FINAL STATEMENT OF INTENTION

Brookline's burgeoning student population shows no signs of abating. Our current kindergarten class will graduate from high school in 2026. Education literature is replete with evidence of the need to change traditional instruction in schools to better match the learning that is required for students now and in their future. It is our mission *to ensure that every student develops the skills and knowledge to pursue a productive and fulfilling life, to participate thoughtfully in a democracy, and succeed in a diverse and evolving global society.* **It is our intention that our educational mission and goals drive the building renovation plan that supports the best practices of teaching and learning in an elementary school of this size at this time, and for the future of all Devotion students.**



### 3.3.2.2 Evaluation of Existing Conditions

Summary	53
Overview of MCP	55
BWSC Release Notification Form	57





### EVALUATION OF EXISTING CONDITIONS

*Refer to McPhail Associates Memorandum that follows.*

A Phase 1 Environmental Site Assessment Report was included in the PDP submission. Six soil samples obtained as part of the subsurface exploration program were tested. One sample, from Boring B-7, in the vicinity of the school's underground storage tanks, displayed high TVOC readings, and was chemically tested for extractable petroleum hydrocarbons (EPH) with target analyses and volatile organic compounds (VOCs). The concentrations of EPH and VOCs were above applicable reporting thresholds required under the Massachusetts Contingency Plan (MCP). The presence of EPH and VOC compounds in soil above applicable standards is considered a Recognized Environmental Condition (REC).

Reporting obligations required under the MCP require notification to the Massachusetts Department of Environmental Protection (DEP) within 120 days of obtaining knowledge of the release. Notification of the MCP reporting condition was performed by the Town of Brookline as the owner and operator of the Devotion School. The online notification was completed by Peter Rowe on May 29, 2014. The next reporting date under the MCP is May 29, 2015, which involves the submittal of a Phase 1 Initial Site Investigation, which will include additional assessment of the release.

The objective under the MCP is to achieve a Permanent Solution to the release which is indicated by filing of a Class A Response Action Outcome (RAO) Statement to the DEP. In order to achieve a Permanent Solution to the release, conditions at the site must demonstrate that contamination has reduced to levels which do not pose a Significant Risk to the health and welfare of the public and environment. A Permanent or Temporary Solution must be achieved within 5 years of notification to the DEP. The obligation for a Permanent Solution applies to all options so it is not a factor in the selection of the Preferred Solution for the school project. The remediation of the release will be incorporated into the school construction project.



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## Memorandum

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**Date:** March 25, 2014  
**To:** Ms. Deborah Collins, AIA  
**Company:** HMFH Associates, Inc.  
**CC:** Ambrose J. Donovan  
**From:** William J. Burns  
**Project Name and No.:** Project No. 5697; The Edward Devotion School  
**Subject:** Overview of Environmental Regulatory Compliance

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The following is a brief overview of reporting obligations that are required under the Massachusetts Contingency Plan (MCP), to address the release of petroleum hydrocarbons that was identified in soil at the Edward Devotion School campus which is further documented in our Phase I Environmental Site Assessment Report, dated March 4, 2013.

### **Background**

In summary, a subsurface exploration program was completed as part of the above referenced Phase I Environmental Site Assessment Report which included the sampling and laboratory testing of soil samples. The results of the soil testing identified the presence of naphthalene, 2-methylnaphthalene, acenaphthene, C<sub>9</sub>-C<sub>18</sub> aliphatics and C<sub>11</sub>-C<sub>22</sub> aromatics at concentrations of 38 milligrams per kilogram (mg/kg), 62.9 mg/kg, 4.15 mg/kg, 2,070 mg/kg and 2,140 mg/kg, respectively, which exceed the applicable Reporting Thresholds that are established in the MCP.

### **MCP Reporting Obligations**

#### *Release Notification*

The above referenced concentrations of petroleum constituents have triggered an MCP reporting condition which requires notification to the Massachusetts Department of Environmental Protection (DEP) within 120 days of obtaining knowledge of the release. With respect to this site, notification of the MCP reporting condition should be provided by the Town of Brookline which is the owner and operator of the Edward Devotion School.

Notification of a release to the DEP is provided by the submittal of a Release Notification Form (BWSC-103) on DEP's on-line filing database known as "eDEP" which can be accessed at <https://edep.dep.mass.gov>. Unless an account previously exists, the Town of Brookline will be required to create an "eDEP account" prior to accessing the BWSC-103 transmittal. Instructions regarding the creation of an account are provided via a link on the above referenced eDEP homepage.

Once logged into eDEP, the BWSC-103 120-day Release Notification Form can be accessed via the "Forms" icon located at the top of the web page. Once the BWSC-103 Form icon is selected, "Region 3" and "Brookline" must be selected to continue with preparation of the form. The subsequent web page will contain a link to access the actual BWSC-103 form. For further reference, a copy of the BWSC-103 Transmittal form is attached.





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The form will require the location of the release, date and time that knowledge of the release was obtained, the maximum concentrations of contamination detected in soil (which are referenced above), and name of the person/entity required to notify. Once completed, validation of the form will be required by selecting the applicable button. Subsequent to completing the BWSC-103 form, the transmittal will require an electronic signature and submittal, all of which is provided on the BWSC-103 eDEP web page.

If you would like we will be happy to complete the BWSC-103 Release Notification Form for submittal to the DEP.

#### *Future MCP Reporting Obligations*

The objective under the MCP is to achieve a Permanent Solution to the release which is indicated by filing of a Class A Response Action Outcome (RAO) Statement to the DEP. In order to achieve a Permanent Solution to the release, Conditions at the site must demonstrate that contamination has been reduced to levels which do not pose a Significant Risk to the health and welfare to the public and environment.

Pursuant to provisions of the MCP, further compliance reporting is required in order to achieve closure to the release site. In summary, a Permanent or Temporary Solution must be achieved for a release within 5 years of its notification to the DEP. At any point within this 5 year time period, an RAO Statement can be filed with the DEP. However, the MCP has established the following secondary reporting requirements and deadlines in the event that a RAO Statement cannot be immediately filed for the release.

Within one year of Release Notification, the MCP requires that a Phase I Initial Site Investigation Report and Tier Classification be filed with the DEP. Three years after Release Notification, submittal of a Phase II Comprehensive Site Assessment and Phase III Remedial Action Plan to the DEP is required. Subsequently, four years after notification of the release condition a Phase IV Remedy Implementation Plan is required to be submitted to the DEP. If remediation of the release is required prior to the four year anniversary of the release notification, submittal of a Release Abatement Measure Plan to the DEP will be required. Each of the above referenced Phase reports requires a certain level of assessment of the release condition. As a result further assessment at the site is required to define the nature and extent of the release and to health risks. Based on this additional assessment, an evaluation can be made to whether remediation and further assessment are required or if an RAO is can be filed for the site.

Please do not hesitate to call us should you have any questions. Thank you.



Massachusetts Department of Environmental Protection

## **eDEP Transaction Copy**

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Here is the file you requested for your records.

To retain a copy of this file you must save and/or print.

Username: **WJBURNS**

Transaction ID: **648080**

Document: **BWSC103 Release Notification Form for 120 Day Reporting**

Size of File: **163.23K**

Status of Transaction: **In Process**

Date and Time Created: **4/29/2014:1:45:18 PM**

**Note:** This file only includes forms that were part of your transaction as of the date and time indicated above. If you need a more current copy of your transaction, return to eDEP and select to "Download a Copy" from the Current Submittals page.

### 3.3.2.2 Evaluation of Existing Conditions

#### BWSC Release Notification



Massachusetts Department of Environmental Protection  
*Bureau of Waste Site Cleanup*

#### RELEASE NOTIFICATION FORM

Pursuant to 310 CMR 40.0371 (Subpart C)

**BWSC103-120 DAY**

Release Tracking Number  
assigned upon receipt and  
review by the Department

#### A. RELEASE OR THREAT OF RELEASE LOCATION:

1. Release Name/Location Aid: EDWARD DEVOTION SCHOOL

2. Street Address: 345 HARVARD STREET

3. City/Town: BROOKLINE 4. ZIP Code: 024460000

5. Coordinates: a. Latitude: N 42.3449 b. Longitude: W 71.1238

#### B. THIS FORM IS BEING USED TO:

1. Submit a **Release Notification** for a 120 day reporting requirement

(All sections of this transmittal form must be filled out)

#### C. INFORMATION DESCRIBING THE RELEASE:

1. Date and time you obtained knowledge of the Release:  Time:   AM  PM  
mm/dd/yyyy hh:mm

2. Date and time release occurred, if known:  Time:   AM  PM  
mm/dd/yyyy hh:mm

#### 3. 120 DAY REPORTING CONDITIONS

Check all Notification Thresholds that apply to the Release:  
(for more information see 310 CMR 40.0315)

- a. Release of Hazardous Material(s) to Soil or Groundwater Exceeding Reportable Concentration(s)
- b. Release of Oil to Soil Exceeding Reportable Concentration(s) and Affecting More than 2 Cubic Yards
- c. Release of Oil to Groundwater Exceeding Reportable Concentration(s)
- d. Subsurface Non-Aqueous Phase Liquid (NAPL) Equal to or Greater than 1/8 Inch (.01 feet) and Less than 1/2 Inch (.04 feet)



Massachusetts Department of Environmental Protection  
Bureau of Waste Site Cleanup

**RELEASE NOTIFICATION FORM**

Pursuant to 310 CMR 40.0371 (Subpart C)

**BWSC103-120 DAY**

Release Tracking Number  
assigned upon receipt and  
review by the Department

**C. INFORMATION DESCRIBING THE RELEASE (cont.)**

4. List below the Oils (O) or Hazardous Materials (HM) that exceed their Reportable Concentration (RC) or Reportable Quantity (RQ) by the greatest amount.

Check here if an amount or concentration is unknown or less than detectable.

O or HM Released	CAS Number, if known	O or HM	Amount or Concentration	Units	RCs Exceeded, if Applicable (RCS-1, RCS-2, RCGW-1, RCGW-2)
NAPHTHALENE		O	38	MG/KG	RCS-1
C9-C18 ALIPHATICS		O	2070	MG/KG	RCS-1
C11-C22 AROMATICS		O	2140	MG/KG	RCS-1
2-METHYLNAPHTHALENE		O	62.9	MG/KG	RCS-1

Check here if a list of additional Oil and Hazardous Materials subject to reporting, or any other documentation relating to this notification is attached.

**D. PERSON REQUIRED TO NOTIFY:**

1. Name of Organization: \_\_\_\_\_
2. Contact First Name: \_\_\_\_\_ 3. Last Name: \_\_\_\_\_
4. Street: \_\_\_\_\_ 5. Title: \_\_\_\_\_
6. City/Town: \_\_\_\_\_ 7. State: \_\_\_\_\_ 8. ZIP Code: \_\_\_\_\_
9. Telephone: \_\_\_\_\_ 10. Ext.: \_\_\_\_\_ 11. Email: \_\_\_\_\_
12. Check here if attaching names and addresses of owners of properties affected by the Release, other than an owner who is submitting this Release Notification (required).

**E. RELATIONSHIP OF PERSON TO RELEASE:**

1. RP or PRP     a. Owner     b. Operator     c. Generator     d. Transporter
- e. Other RP or PRP    Specify: \_\_\_\_\_
2. Fiduciary, Secured Lender or Municipality with Exempt Status (as defined by M.G.L. c. 21E, s. 2)
3. Agency or Public Utility on a Right of Way (as defined by M.G.L. c. 21E, s. 5(j))
4. Any Other Person Otherwise Required to Notify    Specify Relationship: \_\_\_\_\_



### 3.3.2.2 Evaluation of Existing Conditions

BWSC Release Notification



**Massachusetts Department of Environmental Protection**  
*Bureau of Waste Site Cleanup*

**RELEASE NOTIFICATION FORM**

Pursuant to 310 CMR 40.0371 (Subpart C)

**BWSC103-120 DAY**

Release Tracking Number  
assigned upon receipt and  
review by the Department

**F. CERTIFICATION OF PERSON REQUIRED TO NOTIFY:**

1. I, \_\_\_\_\_, attest under the pains and penalties of perjury (i) that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this transmittal form, (ii) that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained in this submittal is, to the best of my knowledge and belief, true, accurate and complete, and (iii) that I am fully authorized to make this attestation on behalf of the entity legally responsible for this submittal. I/the person or entity on whose behalf this submittal is made am/is aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

2. By: \_\_\_\_\_ 3. Title: \_\_\_\_\_  
Signature

4. For: \_\_\_\_\_ 5. Date: \_\_\_\_\_  
(Name of person or entity recorded in Section D) mm/dd/yyyy

6. Check here if the address of the person providing certification is different from address recorded in Section D.

7. Street: \_\_\_\_\_

8. City/Town: \_\_\_\_\_ 9. State: \_\_\_\_\_ 10. ZIP Code: \_\_\_\_\_

11. Telephone: \_\_\_\_\_ 12. Ext.: \_\_\_\_\_ 13. Email: \_\_\_\_\_

**YOU ARE SUBJECT TO ANNUAL COMPLIANCE ASSURANCE FEES FOR EACH BILLABLE YEAR FOR TIER CLASSIFIED DISPOSAL SITES. YOU MUST LEGIBLY COMPLETE ALL RELEVANT SECTIONS OF THIS FORM OR DEP MAY RETURN THE DOCUMENT AS INCOMPLETE. IF YOU SUBMIT AN INCOMPLETE FORM, YOU MAY BE PENALIZED FOR MISSING A REQUIRED DEADLINE.**

Date Stamp (DEP USE ONLY:)



Attachment to BWSC-103, Release Notification Form  
Edward Devotion School, Brookline

Part C: List of Additional Oil and Hazardous Materials

O or HM Released	CAS Number, if known	O or HM	Amount or Concentration	Units	Rcs Exceeded, if Applicable (RCS-1, RCS-2, RCGW-1, RCGW-2)
Acenaphthene	83-32-9	O	4.15	mg/kg	RCS-1



### 3.3.2.3 Final Evaluation of Alternatives

Option 0: Base Repair	63
Option 1: Renovation with Addition	69
Option 2: Renovation with Addition	77
Option 3/3A: New Construction	85
Impact on Students	97
Impact on Students, Phasing Schedule	113
Project Schedule	114
Preliminary Design Pricing	115
Permitting Requirements	117





### 3.3.2.3 Final Evaluation of Alternatives

Option 0: Base Repair

#### OPTION 0

Option 0 evaluates the feasibility of a renovation to the existing Edward Devotion School with no additions. The existing school will be brought into compliance with all building and accessibility codes. This renovation will consist of upgrades to life safety features and the replacement of the majority of the building's systems, which have reached the end of their usable life cycle.

A programmatic reorganization of the building will be undertaken to attempt to satisfy the spatial and organizational requirements of the Educational Program. Existing interior layouts will be re-utilized as much as possible, with some minor interior partition modifications where necessary. The configuration and size of the existing school does not support the Educational Program, both in the number of programmed spaces and in the teaching philosophy, which is based on inclusive, team-centered learning in grade-level clusters. In the Option 0 diagrammed as follows, the renovated complex would lack twelve (12) general classrooms, three (3) science labs and prep rooms, one (1) room each of Art and Music classrooms, and many of the small group rooms and rooms for specialists and therapists.

Building Renovation:  
162,051 gsf  
New Construction:  
0 gsf

---

TOTAL Construction:  
162,051 gsf  
Estimated  
Construction Cost:  
\$48 M



The 1913 building will continue to house some of the larger shared spaces such as the Small Gym, Library and Multipurpose Room. The existing 1924 Gymnasium, at the rear of the 1913 building, will be renovated. It is smaller than current MSBA guidelines and cannot accommodate a regulation size basketball court with proper safety overrun area or spectator seating.

The 1954 building's structural bay was designed as a double-loaded corridor with smaller office-sized spaces on one side and larger classroom spaces on the other. The new spaces will continue to be programmed in this way. New partitions will replace the existing movable partitions to improve classroom acoustics. The accessibility restrictions of the 1954 building split-level structure will be addressed by installing an elevator accessible to all floor levels.

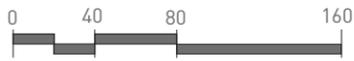
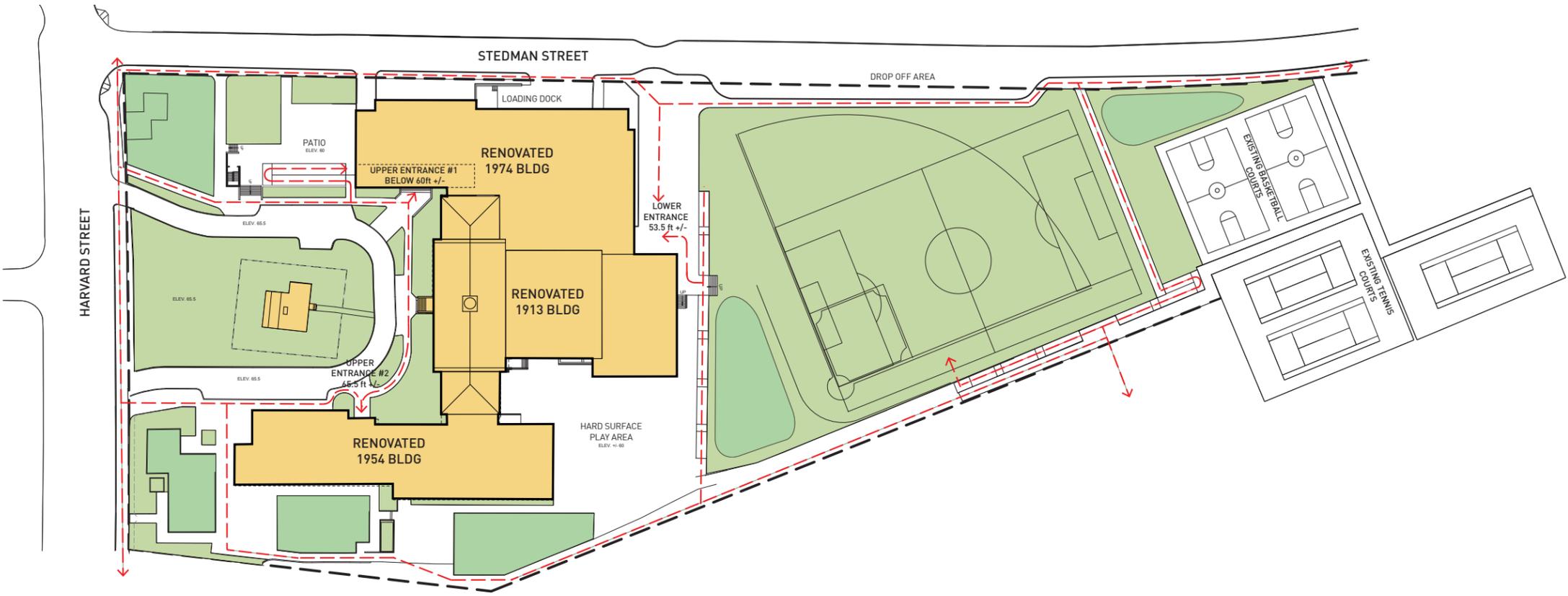
The 1974 building was originally designed as an open classroom floor plan. Through previous renovations the interior spaces have been divided using an interior curtainwall/storefront partition system. These partitions will be replaced with new stud partitions for better acoustic performance. The majority of the spaces housed in the 1974 building will continue to serve as classroom space, along with Music and Art rooms. The Cafeteria would also remain in its current location; it is smaller than the MSBA guidelines.

Compromises in overall room sizes and adjacencies will need to be made in order to reuse as many of the existing spaces as possible. In the 1913 and 1970 building, a majority of the existing classroom spaces are smaller than the MSBA recommended room sizes. However, the MSBA will allow for the use of smaller room sizes in a renovation project to allow for the maximized reuse of the existing structure. Consistent, direct adjacencies, adequate room sizes, and full program requirements cannot be achieved in an exclusively renovation option. The distribution of the classrooms within the school does not allow for the close proximity required for a collaborative classroom cluster as envisioned in the Educational Program.

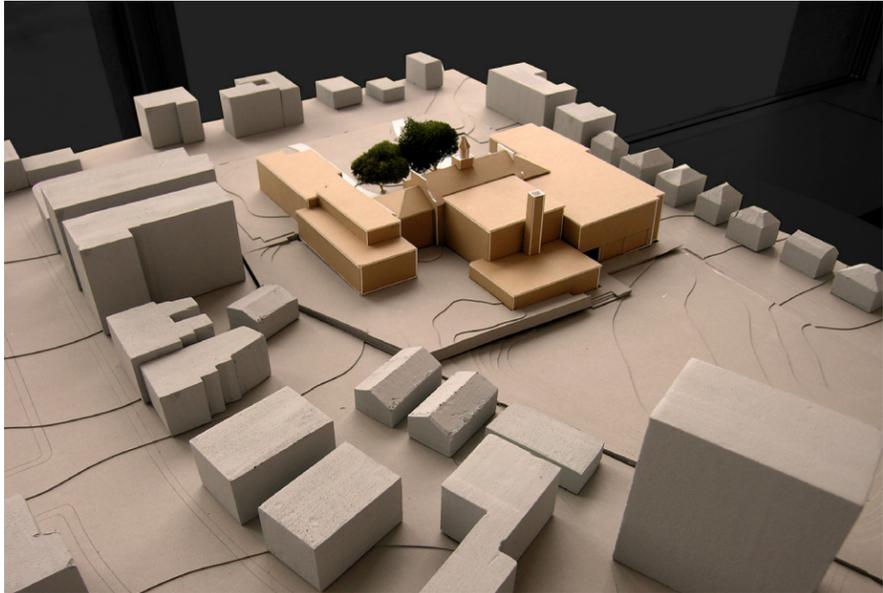
This option has arguably the most impact on students and staff during construction. The renovation must be accomplished as a series of smaller construction projects, requiring multiple transitions as students and staff vacate spaces and move to renovated rooms. Even with the transition plan of relocating Grades 6-8 off site, the student enrollment remaining will be a large number in proportion to the size of the existing school. A multi-phased occupied renovation could require as long as three years to complete.

*Refer to Impacts on Students in Volume 1 for phasing analysis. Refer to Appendix for Civil, Site and Landscape, Structural, Fire Protection, Plumbing, HVAC, Electrical, and Technology narratives for this option.*

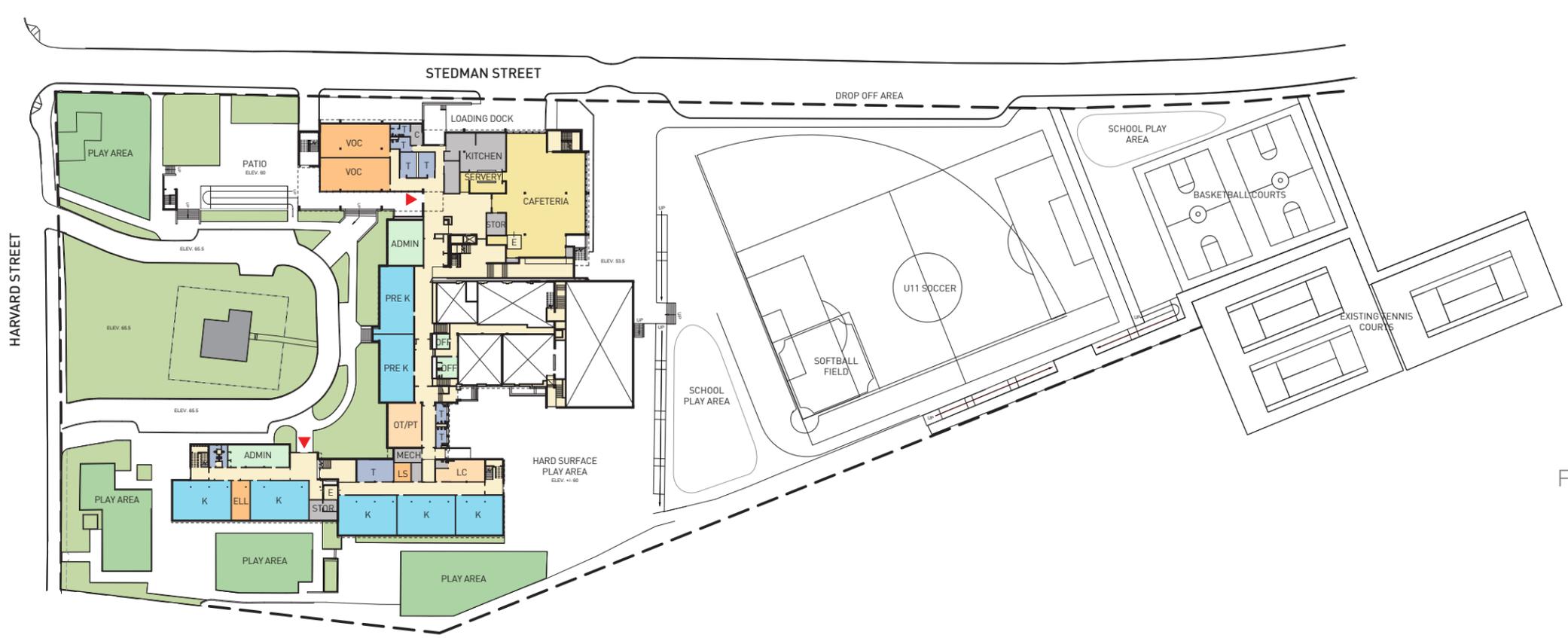




Lower Floor



South View



First Floor



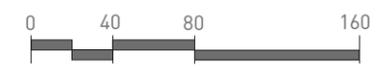
Lower Floor

**ROOM KEY**

- ADM Administration
- C Custodial
- CLC Comprehensive Learning Center
- COMP Tech Classroom
- CR Classroom
- CUST Custodial
- E Elevator
- EN Ensemble
- H Health Instructor
- K Kiln (Art Room)
- LC Learning Center
- LR Locker Room
- LS Literacy Specialist
- M Mechanical Space
- MED Medical Suite
- MS Math Specialist
- OFF Office
- P Science Prep Area
- MP Music Practice Room
- PR Project Area (Media)
- REC Receiving/ Custodial
- S Storage
- SCI Science
- SG Small Group Room
- SP Speech
- ST Stair
- T Toilet
- TLC Therapeutic Learning Center
- VOC Tech Classroom
- WL World Language

**DEPARTMENT KEY**

- Administration
- Shared Spaces
- Circulation
- Mechanical
- Core Academic/Art/Music
- Core Classroom Cluster 1
- Core Classroom Cluster 2
- Core Classroom Cluster 3
- Special Education
- Toilets



### 3.3.2.3 Final Evaluation of Alternatives

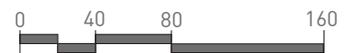
Option 0: Base Repair continued



Third Floor



Second Floor





### 3.3.2.3 Final Evaluation of Alternatives

#### Option 1: Renovation with Addition

#### OPTION 1

Option 1 is the further development of Option 1.4 from the PDP submission. Option 1.4 proposed the renovation of the 1913 portion of the Devotion School with a major addition surrounding it on the north and east elevations. The proposed classroom wing on the eastern border of the site extended beyond the 1913 Devotion central pavilion towards Harvard Street and adjacent to the historic Devotion House. The new addition was proposed as a four-story building, with four stories above grade on Stedman Street. With the difference in grade between Harvard Street and Stedman Street, the Harvard Street building mass was three stories. Entry on Harvard Street was proposed at the end of the new classroom wing. As design of the option progressed, there were several challenges to resolve with this option. The three-story building mass of the classroom wing overshadowed both the 1913 Devotion School and the Devotion House. The three-story classroom wing extended to the zoning setback line, adjacent to neighboring buildings, reducing the visibility of the pedestrian path from Devotion Street to Harvard Street. In Option 1, as in Option 1.4, the central pavilion of the 1913 building is retained and renovated. Option 1 proposes two classroom wings, one on Stedman Street and the other on the east side of the site. These two-story additions extend towards Harvard Street

Demolition:	
147,172 gsf	
Building Renovation:	
17,965 gsf	
New Construction:	
154,527 gsf	
New Structured Parking:	
24,089 gsf	
<hr/>	
TOTAL Construction:	
196,581 gsf	
Estimated	
Construction Cost:	
\$85 M	



and frame the historic Devotion House. This configuration recalls the original site plan for the site. At the turn of the 20th century, the Devotion School site took shape with the construction of two school buildings, one constructed in 1892 and one in 1898, followed in 1913 by construction of the existing Devotion School. These buildings created a complex around the Devotion House, of which only the Devotion House and the 1913 building remain on the site today.

The site organization for Option 1 is similar to the existing school conditions. On Harvard Street, a driveway loop circles the Devotion House building for limited bus and van access to the main entry of the 1913 building. Within this drive, a public green offers open lawn adjacent to the Devotion House. A shared community/school play space is located between the east classroom wing and Harvard Street, while the Stedman Street corner continues present use with a small public seating area. Underground parking extends beneath the site along Stedman Street, with the roof developed as a new school garden. The Stedman Street part of the site contains play areas for the school and a synthetic turf field for U9 soccer. To enlarge the area available for school open space, one basketball court has been removed. Pedestrian access across the site is still provided from Devotion Street, but the tree-lined raised walkway has been leveled to provide contiguous play areas. The pedestrian path from Devotion Street to Harvard Street on the east border of the site is maintained. A parent drop-off lane is proposed along Stedman Street for the entire school site.

Option 1 is a three-story building with the full height only visible from Stedman St. On Harvard Street, the classroom additions are two stories. There are two main entrances to the school – one from Stedman Street and one from Harvard Street. On Harvard Street, two new ramps will allow accessible entry into the original doorway of the 1913 school. From this entrance level, one will travel up a short flight of steps or via a new lift to enter into an expanded lobby in the renovated building. In this center part of the school, between the two flanking classroom wings, there will be a new addition that contains the school community spaces. Due to the differences in the floor levels between the Stedman and Harvard levels, spaces on the Stedman level will have higher ceilings. On this level, school community spaces – the Small Gym, the Cafeteria, and the Multipurpose Room front on the outdoor play spaces. One level above, the two-story Gymnasium and Media Center are accessed from the Harvard Street entrance lobby. An outdoor classroom level, located on the Multipurpose Room, is adjacent to the Media Center and entered from this lobby. The location of large school community spaces has been strategic to allow for after-hours use of these program areas without the need to open the entire school.

The distribution of the classroom additions supports a goal for the design of a new school – to create the feeling of a small school within a large school. In



### 3.3.2.3 Final Evaluation of Alternatives

#### Option 1: Renovation with Addition continued

Option 1, the classroom wing on Stedman Street contains the classrooms for the youngest students in Pre-K – Grade 2. The Stedman level of the classroom cluster locates the Pre-K and Kindergarten students closest to the entrance for convenient parent drop-off and pick-up. It achieves one of the goals for the project that the “smallest feet have the least travel” to community spaces such as the Small Gym, Cafeteria, and Multipurpose Room. These classrooms also have direct access to play areas and fields. On the next, Harvard level, are found the classrooms for Grades 1 and 2, with visual connection to the classrooms below. The classroom wing on the east side of the school contains the two other classroom clusters; on the first floor, Grades 3-5, and on the second floor, Grades 6-8. The remainder of the Stedman classroom wing contains Art classrooms on the first floor, for use by all grade levels, and science classrooms on the second floor. Dedicated science classrooms are used only by Grades 6-8 who have their classrooms on the same floor. In the renovated 1913 building, Administration spaces and Technology classrooms are located on the first floor with Music Classrooms on the second.

The classroom wings have been organized to support the Devotion teaching philosophy that depends on adjacencies for communication, collaboration, flexible grouping, and teaming. Each grade level is supported by a cluster of five classrooms surrounding a project area. Rooms for small group instruction and specialists are distributed throughout these clustered classrooms.

*Refer to Impacts on Students in Volume 1 for phasing analysis. Refer to Appendix for Civil, Site and Landscape, Structural, Fire Protection, Plumbing, HVAC, Electrical, and Technology narratives for this option.*



Option 1: Renovation with Addition Attributes Matrix

Category	Description	Jacob's Ladder Average	Option 1 Addition and Renovation							
<b>Historic Character</b>	1913 Building Retained	14	Renovation of Front Portion. Demolition of Auditorium Wing and Gym	Playing fields on Harvard St. with fencing	5	None				
	Protection of Devotion House	14.31	Yes	Playing fields at rear of site	17	Yes				
	Large trees near Devotion House retained	11	Yes	U-9 soccer field	NA	Yes - at rear of site				
	Original 1913 main entrance made accessible	NA	Yes	Play Areas receive good sunlight	13	Yes - for most of play areas morning and afternoon				
<b>Urban Design</b>	Urban architecture: how does it look, fit in	22	More building mass towards Harvard St. Two-story wings on Harvard and Stedman; three-stories behind the 1913 building. More frontage on Stedman than existing. Closer to property line on Babcock than existing.	Good visibility of outdoor space from building	15	Yes				
	Minimize Building Footprint/Massing	19	Building footprint (Harvard St. level) = 79,930 SF. Site coverage (% of bldg. to open space) = 27%. Perimeter = 2,107	Pre-K/ K close to play areas	NA	Yes				
	Public seating area	9	Maintained	Playing Areas on Harvard St. side of site with low fencing	NA	None				
	Devotion St. pedestrian access to and across the site	15	Elevated path leveled and trees removed. Path shifted toward basketball courts. Retaining wall along Babcock pathway.	Playing Areas on Stedman St. side of site with low fencing	NA	Yes				
<b>Vehicular &amp; Pedestrian Circulation</b>	Loading dock and service access with good adjacencies	15	Loading dock/service in parking garage in lower level. Adj. to receiving	Outdoor Classroom	NA	Yes				
	Visitor Parking	10	Visitor spaces in Harvard turn-around as in existing	Retaining basketball courts	10	Two courts (loss of 1)				
	Underground Parking	NA	New underground parking for 65 spaces (increase of 10 spaces)	Retain maximum number of students on-site during construction	18	Grades K-5 on-site during construction; Grades 6-8 off-site				
	Parking in Neighborhood	NA	10 spaces added to neighborhood parking program	Term if construction and what phasing is required (as impacts school and neighborhood)	21	2 Phase Construction; 3.5 years - Fall 2016 start, Sept 2019 occupancy; July 2020 sitework completion				
	Babcock Street pedestrian walk from Devotion to Harvard Parent Drop-off on Stedman	NA	Reconstructed Entire length of school	Loss of Program areas during construction	NA	Most impact				
<div style="display: flex; align-items: center;"> <div style="width: 15px; height: 15px; background-color: #ADD8E6; margin-right: 5px;"></div> <span>Educational Program Attributes</span> </div>				<b>Community Input</b>	Neighborhood Input	16				
					Town-wide Input	13				
				<b>MSBA Eligible</b>	Meets standard for funding	18	Yes - Multipurpose Room not eligible			
				<b>Educational Success</b>	Accommodates Educational Program	NA	Yes			
					Pre-K/ K-2 separate wing from Grades 3-8	NA	Yes			
					Vertical travel time	NA	Least			
					Proximity of entrances to PK/K-2 classrooms	NA	Yes for PK & K (Stedman); Grades 1& 2 up one level			
					Cafeteria and Gym adjacent to playgrounds	NA	Cafeteria and Small Gym adj. to Stedman play; Gym on Harvard St. level			
					Multipurpose/ Auditorium for 40% of the school population	NA	Yes			
				<b>Project Risk</b>						
				<b>Cost</b>	Construction Cost		\$118,397,806			
					Project Cost		\$118,397,806			
								Building Design Variable from Jacob's		

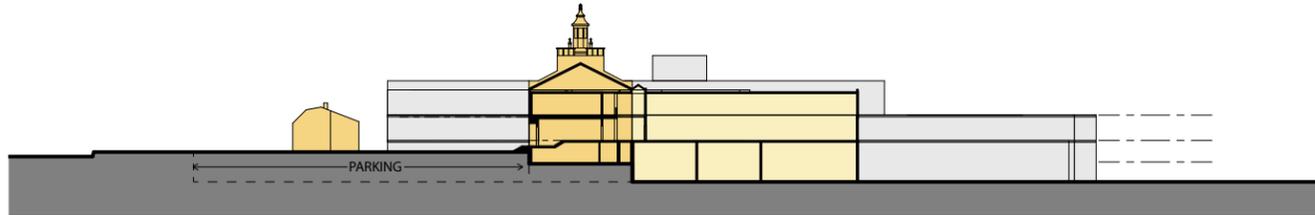


3.3.2.3 Final Evaluation of Alternatives

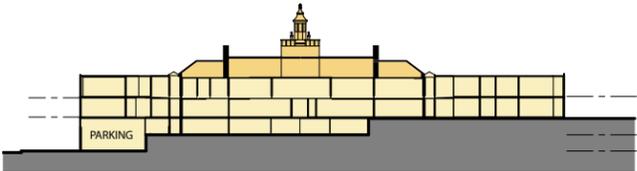
Option 1: Renovation with Addition continued



Site Plan



Longitudinal Section



Cross Section



### ROOM KEY

- ADM Administration
- C Custodial
- CLC Comprehensive Learning Center
- COMP Tech Classroom
- CR Classroom
- CUST Custodial
- E Elevator
- EN Ensemble
- H Health Instructor
- K Kiln (Art Room)
- LC Learning Center
- LR Locker Room
- LS Literacy Specialist
- M Mechanical Space
- MED Medical Suite
- MS Math Specialist
- OFF Office
- P Science Prep Area
- MP Music Practice Room
- PR Project Area (Media)
- REC Receiving/ Custodial
- S Storage
- SCI Science
- SG Small Group Room
- SP Speech
- ST Stair
- T Toilet
- TLC Therapeutic Learning Center
- VOC Tech Classroom
- WL World Language



### DEPARTMENT KEY

- Administration
- Shared Spaces
- Circulation
- Mechanical
- Core Academic/Art/Music
- Core Classroom Cluster 1
- Core Classroom Cluster 2
- Core Classroom Cluster 3
- Special Education
- Toilets

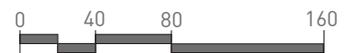


### 3.3.2.3 Final Evaluation of Alternatives

Option 1: Renovation with Addition continued



Second Floor





### 3.3.2.3 Final Evaluation of Alternatives

#### Option 2: Renovation with Addition

#### OPTION 2

In the Preliminary Design Program submission there were two options that proposed the renovation of the 1913 building with a large classroom addition to the north. In Option 1.1, the addition was organized as a series of stacked classroom clusters surrounding a central atrium. This addition consumed much of the green space north of the building, resulting in a playing field on Harvard Street. In Option 2, the classroom clusters were organized by floor along a corridor, resulting in a five-story linear bar behind the Auditorium wing of the Devotion School and extending across the site with its narrow end fronting on Stedman Street. Due to the width of the proposed addition, there was some compromise in the classroom clustering. As design work proceeded on these options, the School Building Committee expressed a preference for an option that minimized the building footprint on the site. Additionally, there was strong opposition to the proposal for fenced playing fields along Harvard Street. Based on these criteria, Option 1.1 was rejected and Option 2 was chosen for continued study.

There are similar approaches to the site in Option 2 as in Option 1. As in Option 1, there is a driveway loop around the Devotion House for limited bus and van access to the main entry of the Devotion School. A Public Green is

Demolition:	
147,172 gsf	
Building Renovation:	
17,965 gsf	
New Construction:	
147,080 gsf	
New Structured Parking:	
26,418 gsf	
<hr/>	
TOTAL Construction:	
191,463 gsf	
Estimated	
Construction Cost:	
\$82 M	



proposed along Harvard Street with open lawn adjacent to the Devotion House, a community/school play area on the east side of the site, and a public seating area on the Stedman corner. Underground parking extends along Stedman Street with its roof developed as a play area. In Option 2 the entire addition is north of the 1913 building, with the 1954 and 1974 classrooms demolished. In this option, open space is available for play areas adjacent to the 1913 building. North of the building and one level below, the Stedman Street site provides additional play area and the area for a synthetic turf U9 soccer field. As in Option 1, a basketball court has been removed for more open space. A new school half-court basketball area is added near the Cafeteria. Also in both options, pedestrian access across the site is still provided from Devotion Street, but the tree-lined raised walkway has been leveled to provide contiguous play areas. The pedestrian path along the east border of the site connecting Devotion Street to Harvard Street is maintained. A parent drop-off lane on Stedman Street is also proposed in Option 2 for the entire school site.

The central portion of the 1913 building is renovated. Two ramps are added to allow an accessible entrance through the original doorway of the building. Option 2 proposes the reconstruction of the first floor of the school to be level with the original entrance. The Pre-K classrooms are located at this level near the front entrance and the Administration main office. The Pre-K classrooms are also adjacent to a Pre-K and Kindergarten play area. The second floor of the original school building is renovated for Art classrooms and additional Administration spaces.

The new addition is four stories, with school community spaces on the Stedman level and three levels of classroom clusters above. From Harvard Street, only three stories are visible and the addition is lower than the peaked roof and cupola of the Devotion School. The Kindergarten – Grades 2 classrooms are on the first floor of classrooms, the Harvard level, with the Kindergarten classrooms as the link between the existing school and the new addition. Kindergarten classrooms are located near the main entrance and have direct access to a Pre-K and Kindergarten play area and to a hard-surfaced plaza. The next level of classrooms contains the Grades 3-5 cluster and the top floor houses Grades 6-8. Science classrooms, used only by the 6th-8th graders, are located on the same floor as the Grade 6-8 classroom cluster.

The classroom wings have been organized to support the Devotion teaching philosophy that depends on adjacencies for communication, collaboration, flexible grouping, and teaming. Each grade level is supported by a cluster of five classrooms surrounding a project area. Rooms for Small group instruction and specialists are distributed throughout these clustered classrooms.



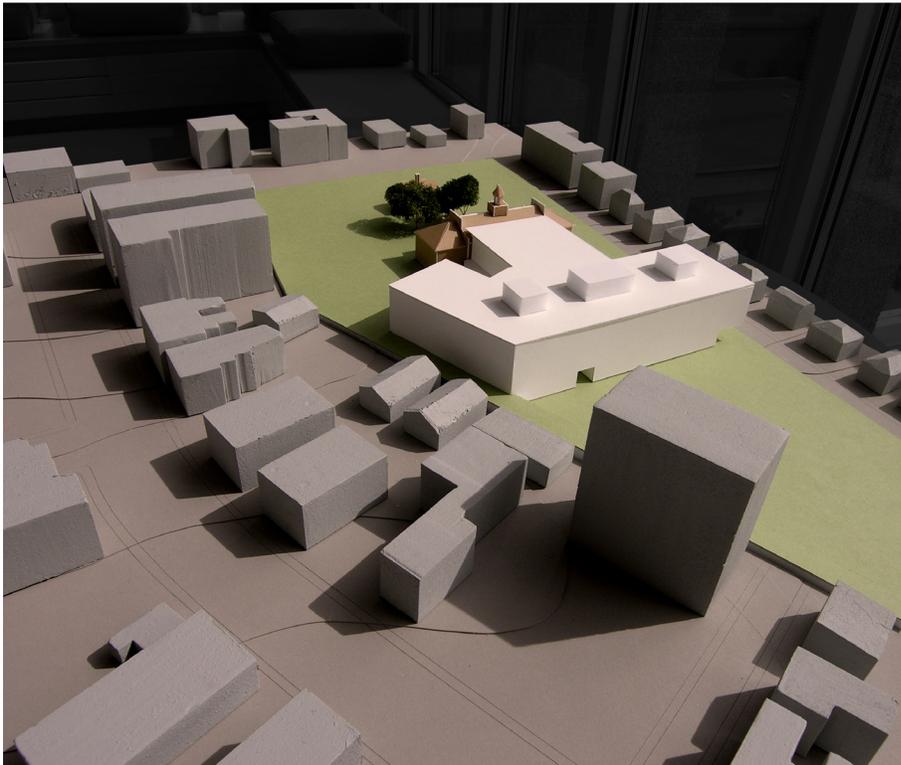
### 3.3.2.3 Final Evaluation of Alternatives

#### Option 2: Renovation with Addition continued

The Stedman level contains most of the school community spaces. These spaces will have higher ceilings as a result in the difference in grade between the Stedman and Harvard levels. On this level, the Media Center, Cafeteria, and Multipurpose Room have views and access to the play areas and fields. With a separate entrance on Stedman Street, these spaces could be available for community use after hours without the need to access the rest of the school.

The Gymnasium and Small Gym are located on the Harvard Street level in an extension of the classroom wing. An entrance to a lobby outside these two athletic spaces could also offer the opportunity for contained after-hours use of the facility.

*Refer to Impacts on Students in Volume 1 for phasing analysis. Refer to Appendix for Civil, Site and Landscape, Structural, Fire Protection, Plumbing, HVAC, Electrical, and Technology narratives for this option.*



## Option 2: Renovation with Addition Attributes Matrix

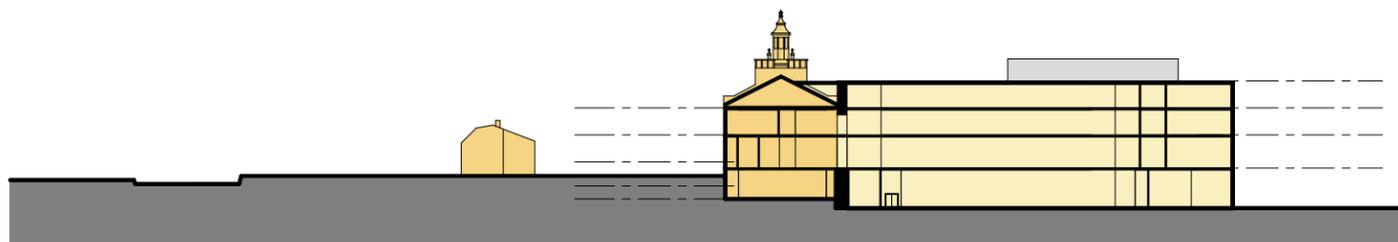
Category	Description	Jacob's Ladder Average	Option 2 Addition and Renovation
<b>Historic Character</b>	1913 Building Retained	14	Renovation of Front Portion. Demolition of Auditorium Wing and
	Protection of Devotion House	14.31	Yes
	Large trees near Devotion House retained	11	Yes
	Original 1913 main entrance made accessible	NA	Yes
<b>Urban Design</b>	Urban architecture: how does it look, fit in	22	Building massing to north of the 1913 building. Three-stories on Harvard; four stories on Stedman. Smallest frontage on Stedman. Closer to property line on Babcock than existing.
	Minimize Building Footprint/Massing	19	Building footprint (Harvard St. level) = 50,677 SF. Site coverage [% of bldg. to open space] = 17%. Maintained
	Public seating area	9	
	Devotion St. pedestrian access to and across the site	15	Elevated path leveled and trees removed. Path shifted toward basketball courts. Retaining wall along
<b>Vehicular &amp; Pedestrian Circulation</b>	Loading dock and service access with good adjacencies	15	Loading dock/service in parking garage in lower level. Adj. to receiving
	Visitor Parking	10	Visitor spaces in Harvard turn-around as
	Underground Parking	NA	New underground parking for 65 spaces (increase of 10 spaces)
	Parking in Neighborhood	NA	10 spaces added to neighborhood parking program
	Babcock Street pedestrian walk from Devotion to Harvard Parent Drop-off on Stedman	NA	Reconstructed Entire length of school
<b>Site Programming &amp; Organization</b>	Playing fields on Harvard St. with fencing	5	None
	Playing fields at rear of site	17	Yes
	U-9 soccer field	NA	Yes - at rear of site
	Play Areas receive good sunlight	13	Yes - for most of play areas morning and afternoon. Pre-K/ K play area in shade until afternoon.
	Good visibility of outdoor space from building	15	Yes - raised plaza near Gym and Pre-K/K play area partially obscured from street (requires after-hours monitoring)
	Pre-K/ K close to play areas	NA	Yes
	Playing Areas on Harvard St. side of site with low fencing	NA	Yes
	Playing Areas on Stedman St. side of site with low fencing	NA	Yes but no fencing
	Outdoor Classroom	NA	Yes
	Retaining basketball courts	10	Two courts (loss of 1)
<b>Phasing and Transition of Students</b>	Retain maximum number of students on-site during construction	18	Grades K-5 on-site during construction; Grades 6-8 off-site
	Term if construction and what phasing is required (as impacts school and neighborhood)	21	2 Phase Construction; 3.5 years - Fall 2016 start, Sept 2019 occupancy; July 2020 sitework completion
	Loss of Program areas during construction	NA	Medium impact
<b>Community Input</b>	Neighborhood Input	16	
	Town-wide Input	13	
<b>MSBA Eligible</b>	Meets standard for funding	18	Yes - Multipurpose Room not eligible
<b>Educational Success</b>	Accommodates Educational Program	NA	Yes
	Pre-K/ K-2 separate wing from Grades 3-8	NA	No - PK&K-2/3-5/6-8 classroom clusters each on its own floor level
	Vertical travel time	NA	Medium
	Proximity of entrances to PK/K-2 classrooms	NA	Yes - PK & K (Harvard); Grades 1 & 2 on same level
<b>Project Risk</b>	Cafeteria and Gym adjacent to playgrounds	NA	Cafeteria adj. to Stedman play; Gym and Small gym on Harvard St. level adj. to play area
	Multipurpose/ Auditorium for 40% of the school population	NA	Yes
<b>Cost</b>	Construction Cost		\$114,178,504
	Project Cost		\$114,178,504
			Building Des:

### 3.3.2.3 Final Evaluation of Alternatives

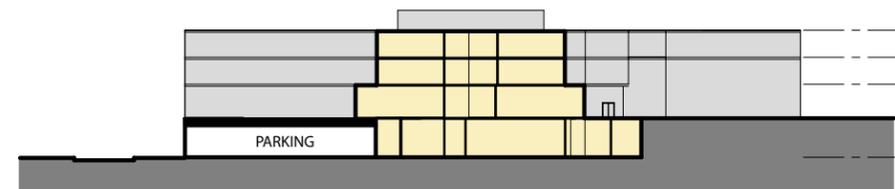
Option 2: Renovation with Addition continued



Site Plan



Longitudinal Section



Cross Section



First Floor



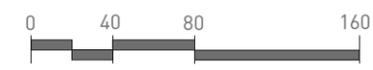
Lower Floor

**ROOM KEY**

- ADM Administration
- C Custodial
- CLC Comprehensive Learning Center
- COMP Tech Classroom
- CR Classroom
- CUST Custodial
- E Elevator
- EN Ensemble
- H Health Instructor
- K Kiln (Art Room)
- LC Learning Center
- LR Locker Room
- LS Literacy Specialist
- M Mechanical Space
- MED Medical Suite
- MS Math Specialist
- OFF Office
- P Science Prep Area
- MP Music Practice Room
- PR Project Area (Media)
- REC Receiving/ Custodial
- S Storage
- SCI Science
- SG Small Group Room
- SP Speech
- ST Stair
- T Toilet
- TLC Therapeutic Learning Center
- VOC Tech Classroom
- WL World Language

**DEPARTMENT KEY**

- Administration
- Shared Spaces
- Circulation
- Mechanical
- Core Academic/Art/Music
- Core Classroom Cluster 1
- Core Classroom Cluster 2
- Core Classroom Cluster 3
- Special Education
- Toilets







### 3.3.2.3 Final Evaluation of Alternatives

Option 3/3A: New Construction

#### OPTIONS 3 and 3A

Option 3 and 3A propose the construction of a new Devotion School on the playing fields north of the existing school. These options have as their starting points Option 3.2 in the PDP submission. The strategy of these options is the construction of a new school without demolition of any portion of the existing Devotion School. Devotion will remain fully operational during construction of the new building. As in the other options, students in Grades 6-8 will be transferred to a school renovated to address District-wide swing space. However, in this option relocation of students off-site is required to address future enrollment growth and not loss of program space due to demolition and construction.

In Option 3.2, the new school was designed to be a four-story structure, with underground parking and school community space on the lower Stedman Street level. On Harvard Street, the face of the school was a linear bar containing Administration, the two Gyms, Music spaces, and the Multipurpose Room. Joined to this were three floors of classrooms, one grade level cluster (K-2, 3-5, 6-8) per floor. To reduce the apparent mass of the building within

Demolition:	
	121,051 gsf
Building Renovation:	
	0 gsf
New Construction:	
	166,095 gsf
New Structured Parking:	
	26,994 gsf

---

TOTAL Construction:	
	193,089 gsf
Estimated Construction Cost:	
	\$76 M



the neighborhood, the building was capped at four floors, of which three were above grade on Harvard Street, due to the grade change across the site. As a result, the building footprint consumed much of the site. To the north, the basketball courts were removed for play areas. On Harvard Street, following the demolition of the entire Devotion School, the site between the Devotion House and the new school was proposed for development as athletic fields, soccer or baseball, some additional play areas, and a public green along Harvard Street.

Design work proceeded on this option with several iterations. The School Building Committee determined that, as long as the educational program was achieved, the new building could grow vertically in order to reduce the footprint on the site. With this approach, more open space would be available for play areas and playing fields. Options 3 and 3A are proposed as five story buildings.

In Options 3 and 3A, the building design is the same. In both options, the 1924 Gymnasium and the 1954 and 1974 classroom buildings are demolished and the resultant site developed. The difference between the two options is the disposition of the 1913 Devotion School. In Option 3, the 1913 Devotion School building will remain. It will be made secure and weather tight following the demolition of the attached 1924, 1954, and 1974 additions. Structural review of the school has determined that both the central pavilion and the attached Auditorium wing would need to remain if the building is free-standing. The adaptive reuse of this building would not be a part of the Devotion School project, thus leaving an obligation for a future project for the Town of Brookline. In Option 3A, as in Option 3.2, the entire Devotion School would be demolished.

Site development north of the new building is the same for both Options 3 and 3A. As in all proposed options, pedestrian access across the site is still provided from Devotion Street, but the tree-lined raised walkway has been leveled to provide contiguous play areas. As in the other options, a basketball court has been removed for more open space. Open space is not sufficient to fit a soccer or baseball field. The area is designated as a Pre-K play area and an Upper Grades Play Area. A parent drop-off lane is also proposed along Stedman Street for the entire school site. Both options also maintain the pedestrian path along the east border of the site that connects Devotion Street to Harvard Street.

On Harvard Street, both Options propose a Public Green with open lawn space adjacent to the Devotion House, a community/school play area on the east side of the site, and a public seating area on the Stedman corner. In these options, entry to the new building is further north on the site than Options 1 and 2, where the main entrance of the 1913 building is maintained. A vehicular lane is proposed in the new construction options, to provide more convenient access from Harvard Street to the main Harvard entrance, especially for persons with



### 3.3.2.3 Final Evaluation of Alternatives

#### Option 3/3A: New Construction continued

mobility issues. Option 3 maintains the existing bus loop but connects it to a new drive and turn-around sized for vans. In Option 3, the existing bus loop is removed and the vehicular drive along the Stedman Street border has been enlarged to accommodate a turn-around for buses.

In Option 3, with the existing 1913 building retained on the site, there is not adequate dimension to develop an athletic playing field for either soccer or baseball. Open space to the east of the former Devotion School and in the space between the former and new schools is proposed for play areas for students in the lower grades. A Kindergarten play area fills in the space between the new Kindergarten wing and the pedestrian path along the east border of the site. In Option 3A, with the Devotion School demolished, a synthetic turf U9 soccer field is proposed. One play area for students in the lower grades is placed in the area adjacent to the new building with another between the Public Green and the soccer field. As in Option 3, the Kindergarten wing has an adjacent play area.

As in Options 1 and 2, the differential in grade between Harvard Street and Stedman Street is used to reduce the building massing on Harvard Street. As the new building is further north on the site than the existing building, earthwork fill operations will be required to extend the Harvard Street grade north to the building. Options 3 and 3A are four stories on Harvard Street and five stories on Stedman. Main entries are proposed at each street level. On Stedman Street, two Pre-K classrooms adjacent to the main entrance will facilitate parent drop-off and pick-up. These classrooms are near their outside play area. The Multipurpose Room and the Cafeteria are located on the Stedman level with direct views and access to the play areas.

Because the school is a five-story school, it has been organized vertically to reduce vertical travel time from classrooms to specialized classrooms and school community spaces. The classroom floors have been organized to support the Devotion teaching philosophy that depends on adjacencies for communication, collaboration, flexible grouping, and teaming. Each grade level is supported by a cluster of five classrooms surrounding a project area. Rooms for small group instruction and specialists are distributed throughout these clustered classrooms.

On the Harvard Street level, Administration offices, the medical suite, and the Media Center are grouped near the main entrance and accessed by the entire school community. The Kindergarten – Grade 2 classroom group occupies the remainder of this level. On the next floor level are located the spaces that serve all of the students – Art and Music classrooms, World Language classrooms,

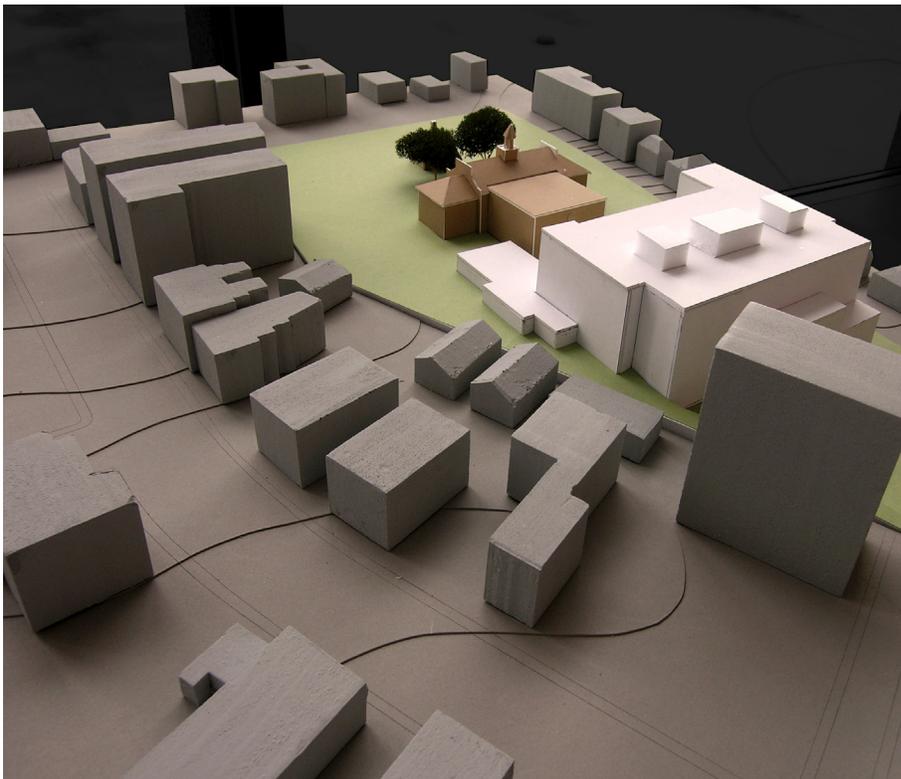


### 3.3.2.3 Final Evaluation of Alternatives

#### Option 3/3A: New Construction continued

a Technology classroom, Occupational and Physical Therapy rooms, and the Gymnasium and Small Gymnasium with related locker rooms and Health Instructor offices. The upper two floors each contain a classroom cluster – Grades 3-5 on the next level and Grades 6-8 on the upper floor with three Science classrooms used only by these grades. With this approach, students need to travel only one or two levels to reach most of the specialized programs. Travel to the Cafeteria and Multipurpose rooms is three or four flights of stairs from the upper two classroom levels

*Refer to Impacts on Students in Volume 1 for phasing analysis. Refer to Appendix for Civil, Site and Landscape, Structural, Fire Protection, Plumbing, HVAC, Electrical, and Technology narratives for this option.*



Option 3: New Construction Attributes Matrix

Category	Description	Jacob's Ladder Average	Option 3 New Construction (1913 Mothballed)			
Historic Character	1913 Building Retained	14	Make Safe Front Portion and Auditorium Wing. Demolition of Gym.	Playing fields on Harvard St. with fencing	5	None
	Protection of Devotion House	14.31	Yes	Playing fields at rear of site	17	None
	Large trees near Devotion House retained	11	Yes	U-9 soccer field	NA	No
	Original 1913 main entrance made accessible	NA	Not in this contract	Play Areas receive good sunlight	13	Yes - for most of play areas morning and afternoon. Courtyard between 1913 and new building in shade.
Urban Design	Urban architecture: how does it look, fit in	22	Behind 1913 building, including Auditorium wing. Building massing further into neighborhood from Harvard than Options 1 or 2. Four stories on Harvard; five stories on Stedman. One-story K wing. Similar frontage length on Stedman as existing. Closer to	Good visibility of outdoor space from building	15	Yes - areas between 1913 building and new school obscured from street (requires after-hours monitoring)
	Minimize Building Footprint/Massing	19	Building footprint (Harvard St. level) (new + existing) = 57,910 SF. Site coverage (% of bldg. to open space)(new +	Pre-K/ K close to play areas	NA	Yes
	Public seating area	9	Bisected by sidewalk	Playing Areas on Harvard St. side of site with low fencing	NA	Yes
	Devotion St. pedestrian access to and across the site	15	Elevated path leveled and trees removed. Path shifted toward basketball courts. Retaining wall along	Playing Areas on Stedman St. side of site with low fencing	NA	Yes
Vehicular & Pedestrian Circulation	Loading dock and service access with good adjacencies	15	Loading dock/service in parking garage in lower level. Adj. to receiving	Outdoor Classroom	NA	Yes
	Visitor Parking	10	Visitor spaces in modified Harvard turn-	Retaining basketball courts	10	Two courts (loss of 1)
	Underground Parking	NA	New underground parking for 65 spaces (increase of 10 spaces	Retain maximum number of students on-site during construction	18	Grades K-5 on-site during construction; Grades 6-8 off-site
	Parking in Neighborhood	NA	10 spaces added to neighborhood parking program	Term if construction and what phasing is required (as impacts school and neighborhood)	21	2 Phase Construction; 2.5 years - Fall 2016 start, Sept 2018 occupancy; July 2019 sitework/parking
	Babcock Street pedestrian walk from Devotion to Harvard	NA	Reconstructed	Loss of Program areas during construction	NA	School operational during construction - loss of parking in Phase
	Parent Drop-off on Stedman	NA	Entire length of school	Community Input	16	
			Town-wide Input	13		
			MSBA Eligible	Meets standard for funding	18	Yes - Multipurpose Room not eligible
			Educational Success	Accommodates Educational Program	NA	Yes
				Pre-K/ K-2 separate wing from Grades 3-8	NA	No- Pre-K on lower level; K-2/3-5/6-8 classroom clusters each on its own floor
				Vertical travel time	NA	Most
				Proximity of entrances to PK/K-2 classrooms	NA	Yes - PK (Stedman); K wing & Grades 1 and 2 near entrance (Harvard)
				Cafeteria and Gym adjacent to playgrounds	NA	Cafeteria adj. to Stedman play; Gym and Small Gym one level above Harvard St. level
				Multipurpose/ Auditorium for 40% of the school population	NA	Yes
			Project Risk			
			Cost	Construction Cost		\$105,898,980
				Project Cost		\$105,898,980
				Building Des:		

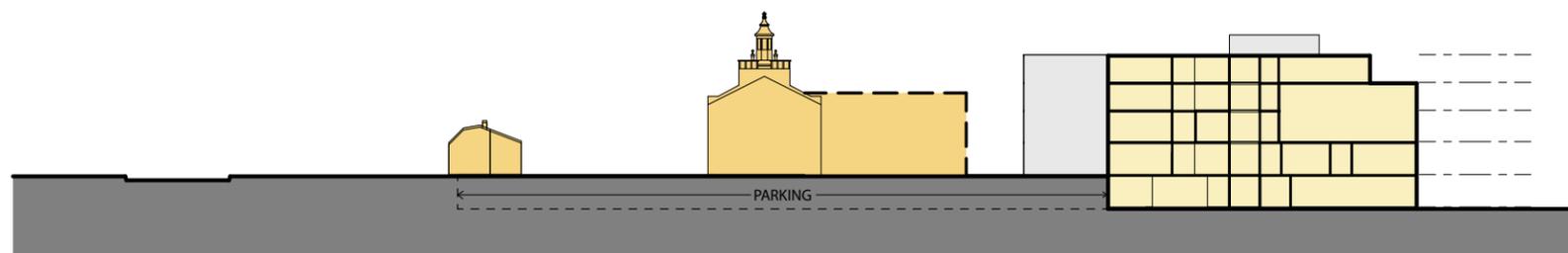


3.3.2.3 Final Evaluation of Alternatives

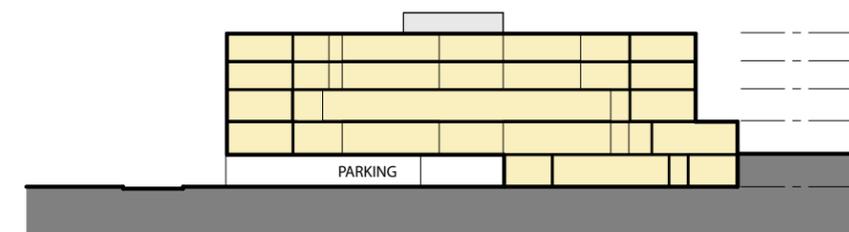
Option 3: New Construction



Site Plan



Longitudinal Section



Cross Section



First Floor



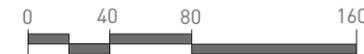
Lower Floor

**ROOM KEY**

- ADM Administration
- C Custodial
- CLC Comprehensive Learning Center
- COMP Tech Classroom
- CR Classroom
- CUST Custodial
- E Elevator
- EN Ensemble
- H Health Instructor
- K Kiln (Art Room)
- LC Learning Center
- LR Locker Room
- LS Literacy Specialist
- M Mechanical Space
- MED Medical Suite
- MS Math Specialist
- OFF Office
- P Science Prep Area
- MP Music Practice Room
- PR Project Area (Media)
- REC Receiving/ Custodial
- S Storage
- SCI Science
- SG Small Group Room
- SP Speech
- ST Stair
- T Toilet
- TLC Therapeutic Learning Center
- VOC Tech Classroom
- WL World Language

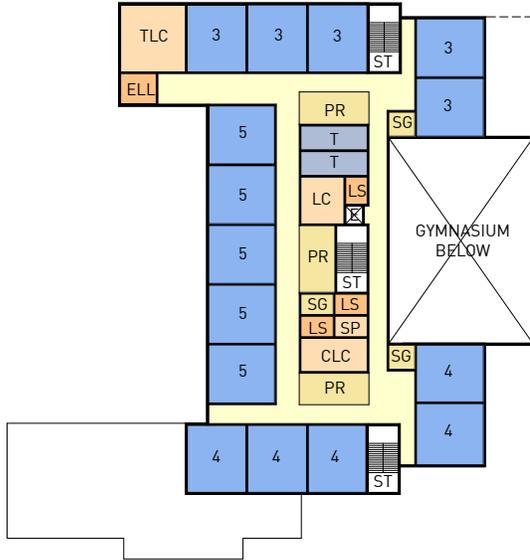
**DEPARTMENT KEY**

- Administration
- Shared Spaces
- Circulation
- Mechanical
- Core Academic/Art/Music
- Core Classroom Cluster 1
- Core Classroom Cluster 2
- Core Classroom Cluster 3
- Special Education
- Toilets

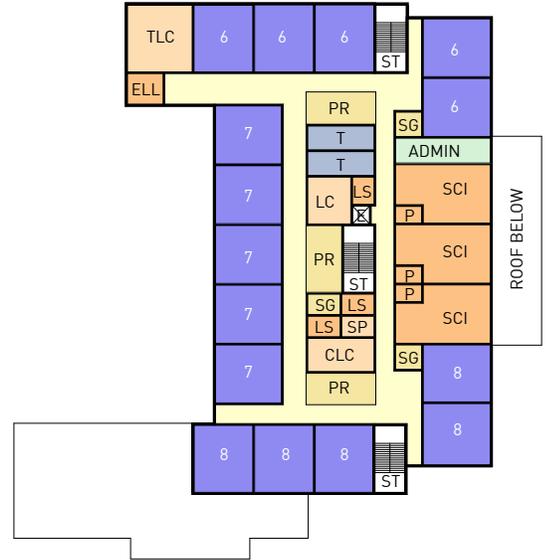


### 3.3.2.3 Final Evaluation of Alternatives

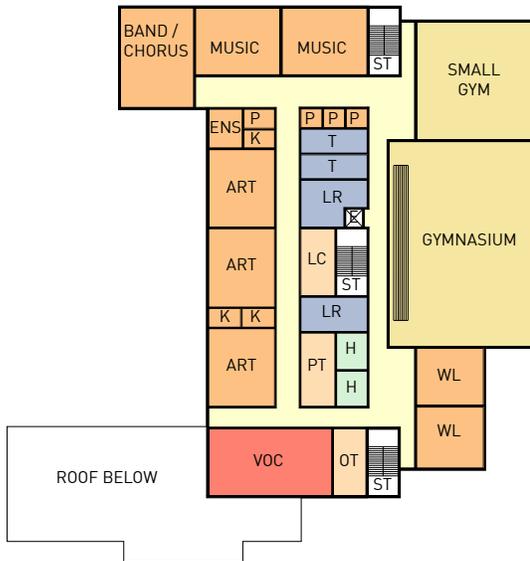
Option 3: New Construction continued



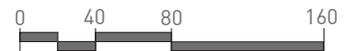
Third Floor



Fourth Floor



Second Floor



Option 3A: New Addition Attributes Matrix

Category	Description	Jacob's Ladder Average	Option 3A New Construction (1913 Demolition)				
<b>Historic Character</b>	1913 Building Retained	14	Demolition of entire 1913 building and Gym	Playing fields on Harvard St. with fencing	5	Potential for field between Devotion House and new building	
	Protection of Devotion House	14.31	Yes	Playing fields at rear of site	17	None	
	Large trees near Devotion House retained	11	Yes	U-9 soccer field	NA	Potential for field between Devotion House and new building	
	Original 1913 main entrance made accessible	NA	NA	Play Areas receive good sunlight	13	Yes - for most of play areas morning and afternoon	
<b>Urban Design</b>	Urban architecture: how does it look, fit in	22	Building massing further into neighborhood from Harvard than Options 1 or 2. Four stories on Harvard; five stories on Stedman. One-story K wing. Similar frontage length on Stedman as existing. Closer to property line on Babcock than existing.	Good visibility of outdoor space from building	15	Yes	
	Minimize Building Footprint/Massing	19	Building footprint (Harvard St. level) = 43,340 SF. Site coverage (% of bldg. to open space) = 15%. Perimeter Bisected by sidewalk	Pre-K/ K close to play areas	NA	Yes	
	Public seating area	9		Playing Areas on Harvard St. side of site with low fencing	NA	Yes	
				Playing Areas on Stedman St. side of site with low fencing	NA	Yes	
<b>Vehicular &amp; Pedestrian Circulation</b>	Devotion St. pedestrian access to and across the site	15	Elevated path leveled and trees removed. Path shifted toward basketball courts. Retaining wall along Babcock pathway.	Outdoor Classroom	NA	Yes	
	Loading dock and service access with good adjacencies	15	Loading dock/service in parking garage in lower level. Adj. to receiving	Retaining basketball courts	10	Two courts (loss of 1)	
	Visitor Parking	10	Visitor spaces in modified Harvard turn-	Retain maximum number of students on-site during construction	18	Grades K-5 on-site during construction; Grades 6-8 off-site	
	Underground Parking	NA	New underground parking for 65 spaces (increase of 10 spaces)	Term if construction and what phasing is required (as impacts school and neighborhood)	21	2 Phase Construction; 2.5 years - Fall 2016 occupancy; July 2019 sitework/parking	
	Parking in Neighborhood	NA	10 spaces added to neighborhood parking program	Loss of Program areas during construction	NA	School operational during construction - loss of parking in Phase	
	Babcock Street pedestrian walk from Devotion to Harvard Parent Drop-off on Stedman	NA	Reconstructed Entire length of school	<b>Community Input</b>	Neighborhood Input	16	
				Town-wide Input	13		
				<b>MSBA Eligible</b>	Meets standard for funding	18	Yes - Multipurpose Room not eligible
				<b>Educational Success</b>	Accommodates Educational Program	NA	Yes
					Pre-K/ K-2 separate wing from Grades 3-8	NA	No- Pre-K on lower level; K-2/3-5/6-8 classroom clusters each on its own floor level
					Vertical travel time	NA	Most
					Proximity of entrances to PK/K-2 classrooms	NA	Yes - PK (Stedman); K wing & Grades 1 and 2 near entrance (Harvard)
					Cafeteria and Gym adjacent to playgrounds	NA	Cafeteria adj. to Stedman play; Gym and Small Gym one level above Harvard St. level
					Multipurpose/ Auditorium for 40% of the school population	NA	Yes
				<b>Project Risk</b>			
				<b>Cost</b>	Construction Cost		\$104,936,957
					Project Cost		\$104,936,957
						Building Des:	



### 3.3.2.3 Final Evaluation of Alternatives

Option 3A: New Construction



### Open Space Comparisons

CATEGORIES BY OPTIONS	Existing Condition	Option 1	Option 2	Option 3 (Mothball 1913 Building)	Option 3A (Demolition of 1913 Building)
<b>PUBLIC GREEN</b>	19,933 SF	20,647 SF	23,253 SF	21,170 SF	23,230 SF
<b>OUTDOOR CLASSROOM SPACE</b>	N/A	7,316 SF	3,047 SF	2,267 SF	1,915 SF
<b>PLAY AREA (unprogrammed and w/ structure)</b>	28,398 SF	32,922 SF	55,119 SF	58,440 SF	60,427 SF
<b>REGULATION STRIPED PLAY FIELD</b>	52,059 SF	21,600 SF	21,600 SF	N/A	21,600 SF
<b>BASKETBALL COURTS</b>	18,204 SF	13,500SF	15,500SF (includes modified half-court at play area)	13,500SF	13,500SF
Extra Play Space ( potential to extend play areas toward Public Space on Harvard Street		5,600 SF	10,236 SF	8,034 SF	-
<b>TOTAL OPEN SPACE FOR ENTIRE SITE (including public space and community basketball)</b>	118,594 SF	101,585 SF	128,755 SF	103,411 SF	120,672 SF
<b>LESS PUBLIC OPEN SPACE</b>	-19,933 SF	-20,647 SF	-23,253 SF	-21,170 SF	-23,230 SF
<b>ADJUSTED TOTAL OPEN SPACE (excluding public space)</b>	98,661 SF	80,938 SF	105,502 SF	82,241 SF	97,442 SF
<b>PERCENTAGE COMPARISON TO EXISTING CONDITION</b>		-18%	+7%	-17%	-2%
<b>LESS COMMUNITY BASKETBALL</b>	-18,204 SF	-13,500 SF	-13,500 SF	-13,500 SF	-13,500 SF
<b>ADJUSTED TOTAL OPEN SPACE FOR SCHOOL PROGRAM ONLY</b>	80,457 SF	67,438 SF	92,002 SF	68,741 SF	83,942 SF
<b>PERCENTAGE COMPARISON TO EXISTING CONDITION</b>		-17%	+ 14%	-15%	+4%
Ex. Conditions. Pave Patio SF (Harvard and Stedman corner)	726 SF				



## IMPACT ON STUDENTS

*Refer to Devotion School Phasing Schedule and Phasing Diagrams*

A multi-year construction project will have a major impact on the Devotion School community irrespective of which option is advanced. Some of the impacts are common to all options; others are specific to a particular option.

Within the Town of Brookline, no available facility is large enough to house the entire school population off-site during construction. Compounding the challenge, the school population is projected to continue to grow during the project time span, from the current population of 842 students to the design population of 1,010 students at project completion. To alleviate some pressure on the building and site during construction, the Town of Brookline has proposed relocating a portion of the student body to a school presently undergoing renovation for use as District-wide swing space. For all options, students in Grades 6-8 will attend school at this alternate location. While the final educational program will include two Pre-K classrooms, these children will not attend the Devotion School until final school occupancy. Since Grades 6-8 students will not be on site, dedicated science classrooms will not be required. In the analysis of the phasing impacts on students, the assumption is that for each phase the school must accommodate five sections each for Kindergarten through Grade 5, which results in a requirement for a minimum of 30 classrooms.

The Edward Devotion School is located in a dense urban neighborhood. There is limited area on the site for construction mobilization – temporary offices, staging areas, storage, etc. To insure student safety, there will be no outside play areas or fields during construction - for any of the proposed options. The Town of Brookline is researching opportunities for play space within reasonable proximity to the school. In all options, completion of site work will occur following the major construction phases.

All options will require efforts to ensure the safety and security of students, staff, and the Devotion community; the mitigation of the construction noise, disruption, and harmful impacts on air quality; and engagement with the Devotion School neighborhood during construction.

In summary, the following are impacts on students common to all of the proposed options:

- Grades 6 – 8 off-site during construction
- Requirement for a minimum of 30 (K-5) classrooms at each phase
- Dedicated science classrooms not required as Grades 6-8 are off-site
- No outdoor play space during construction

- Requirement to insure safety/security, mitigate construction disruption, engage with the neighborhood

For the proposed options HMFH Architects analyzed the impact on educational programming by phase during construction. This analysis revealed that the options were not equal in terms of accommodation of the required educational program for the K-Grade 5 population. The options may require different mitigation measures to house all required program areas.

*Refer to Phasing Impacts on Program Matrix*

### 3.3.2.3 Final Evaluation of Alternatives

Impact on Students. Option 0

#### **OPTION 0 – Base Repair Option**

Option 0 proposes the renovation of the existing Devotion School, with no additions. The full educational program will not be met in this option. Even with the reduced student population, this option has arguably the most impact on students and staff. The renovation must be accomplished as a series of smaller construction projects, requiring multiple transitions as students and staff vacate spaces and move to renovated rooms. School community spaces, such as the gym, the cafeteria, and the Media Center, would be unavailable during renovation periods. Of all of the options, this option would require the most extensive efforts to isolate construction noise and disruption, mitigation to insure air quality, and temporary protection to insure student and staff safety and separation from construction personnel.



#### **OPTION 1 – Renovation with Addition**

Option 1 is proposed as a two-phase project, with a projected construction period of three years, followed by a site work phase. The project begins with the replacement of the 1954 classroom wing with a new two-story classroom wing. While students occupy the new wing, the 1913 Auditorium wing and the 1974 addition will be demolished. In Phase 2, the remaining portion of the 1913 building will be renovated. A second two-story classroom wing will be constructed with new school community spaces- the Gymnasium, Small Gymnasium, Cafeteria, Media Center, and Multipurpose room- joined to the renovated 1913 building and connecting the two classroom wings. Underground parking will also be constructed during Phase 2.

As illustrated in the educational program matrix, Option 1 has a significant impact on the educational program. During the construction of Phase 1, before the replacement of the classroom wing, there are only 23 classrooms available in the remaining school. In order to deliver the 30 required classrooms, some classes will be housed in temporary space. Two science classrooms would be available as the program is not required. Five remaining classrooms are proposed to occupy two Art Classrooms, 1 Music Room, 1 World Language classroom and the Staff Lounge. In Phase 2, program loss is more extensive. During construction, only the new two-story classroom wing, that includes a Multipurpose Room, will be available. In addition to Art, Music, and World Language classrooms, school community spaces such as the Gym, the Small Gym, the Media Center, Administration space, the Cafeteria and Kitchen are not provided during Phase 2. There will be no underground parking garage during Phase 2.

Several strategies are under consideration to mitigate the program loss in Option 1. School Department representatives have confirmed that programs will continue to be offered even without dedicated space during the construction period. In this option, modular classrooms might be located on the site to provide additional program area. It may also be possible to relocate Grade 5 (five classrooms) to the alternate school location to free up additional program space. The proposed Multipurpose Room, a large space with a high ceiling volume, could serve as a temporary physical education space. While the loss of Cafeteria space is a challenge, The Town of Brookline School Department has solved this operational issue in previous school projects.

## Option 1: Phasing Impacts on Program

EDUCATIONAL SPACE	EXISTING SCHOOL	PROGRAM FOR K-5	FINAL PROGRAM	PHASE 1 (during Construction)	PHASE 1 Notes	PHASE 2 (during Construction)	PHASE 2 Notes
<b>CORE ACADEMIC AREAS</b>							
Pre-K	0	0	2		No PK during constr.		No PK during constr.
Kindergarten - 5 sections	5	5	5	5	Smaller than reg. - in exist. Art, Music, and Science crs.	5	Smaller than reg. - standard classroom during construction
General Classrooms - 5 sections Grades 1-5	35	25	40	25	23 ext. (take over 2 rooms to reach 25 classrooms)	25	
Science Classrooms	2	0	3	0	Not req. for K-5/ Used for Kindergarten	0	Not req. for K-5
World Language Classrooms	1	1	2	0	Used for general classroom	0	
Small Group Rooms	0	0	9	0		6	3 each for K-2, 3-5
Literary/Math Specialists	7	6	9	6	3 each for K-2, 3-5	6	3 each for K-2, 3-5
Enrichment Challenge Support Office	1	1	1	1		0	
ELL	4	2	4	1		2	1 each for K-2, 3-5
<b>SPECIAL EDUCATION</b>							
Therapeutic Learning Center	3	2	3	3	+1 (Grades 6-8 offsite)	2	1 each for K-2, 3-5
Comprehensive Learning Center	3	2	3	2	1 each for K-2, 3-5	2	1 each for K-2, 3-5
Learning Center	4	2	4	3		2	1 each for K-2, 3-5
Speech	2	2	3	1		2	
OT/PT	1	1	2	0		2	
Offices	2	2	7	1		0	
<b>ART &amp; MUSIC</b>							
Art Classroom	2	2	3	0	Used for Kindergarten	0	
Band/Chorus	0	0	1	0		0	
Music Classroom	1	1	2	0	Used for Kindergarten	0	
Music Practice	1	1	5	1		0	
Multipurpose Room with Stage	1	1	1	1		1	
<b>VOCATIONS &amp; TECHNOLOGY</b>							
Tech Classrooms	1	1	2	1		0	
<b>HEALTH &amp; PHYSICAL EDUCATION</b>							
Gymnasium	1 (1 station)	1 (1 station)	1 (2 stations)	1 (1 station)		0	In Multipurpose Rm.
Small Gymnasium	1	1	1	1		0	
<b>MEDIA CENTER (LIBRARY)</b>							
Media Center (Library)	1	1	1	1		0	
<b>DINING &amp; FOOD SERVICE</b>							
Cafeteria	1	1	1	1		0	
Kitchen	1	1	1	1		0	
<b>MEDICAL</b>							
Medical	1	1	1	1		0	
<b>ADMINISTRATION &amp; GUIDANCE</b>							
Offices	2,450 SF	2,450 SF	4,525 SF		-1 VP office; no Staff Lounge (used for general classroom)	0	
<b>CUSTODIAL &amp; MAINTENANCE</b>							
Office, Storage, Recycling, Workshop	850 SF	850 SF	2,567 SF	850 SF		1000 SF	
<b>PARKING</b>							
Parking Garage	1	1	1	1		0	

Compromised Program Space



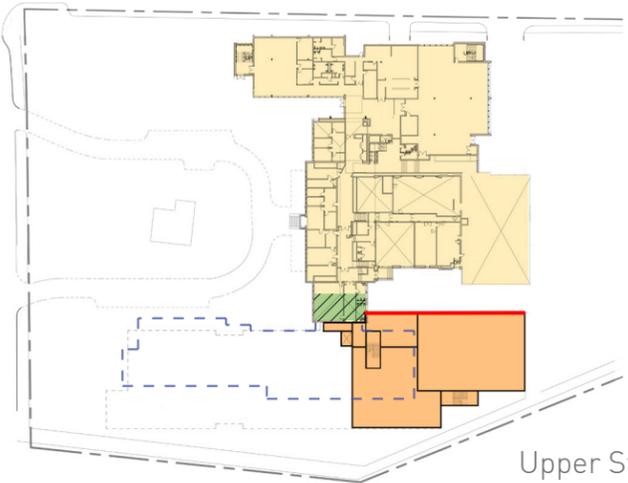
Loss of Program Space



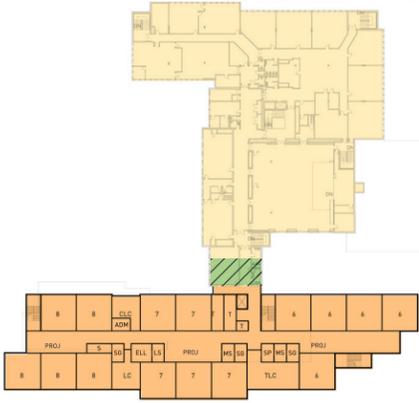
3.3.2.3 Final Evaluation of Alternatives

Option 1: Renovation with Addition continued

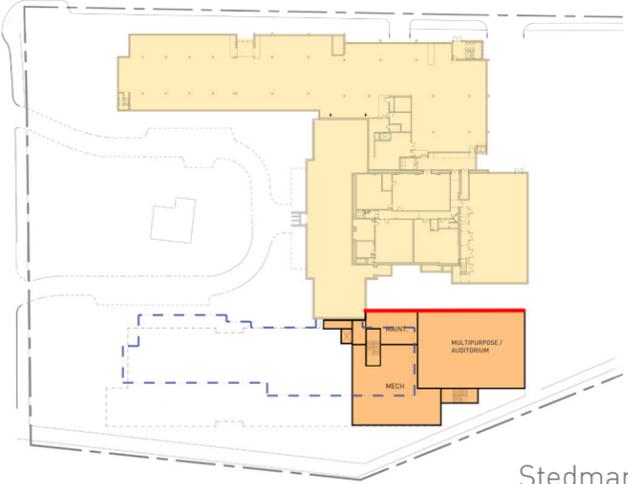
Phase 1



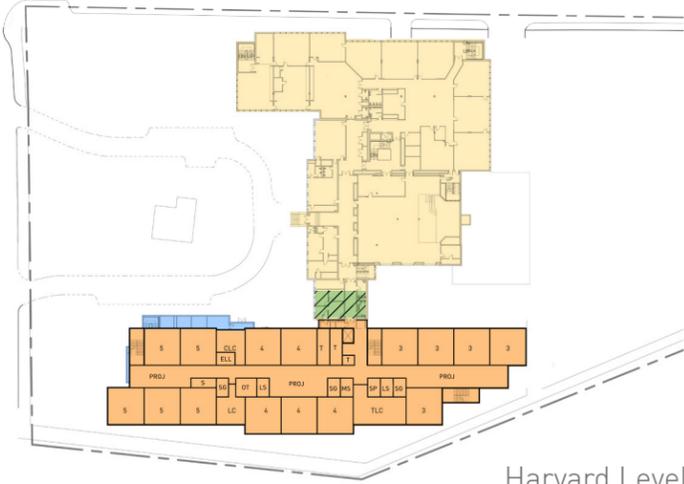
Upper Stedman Level



Second Floor



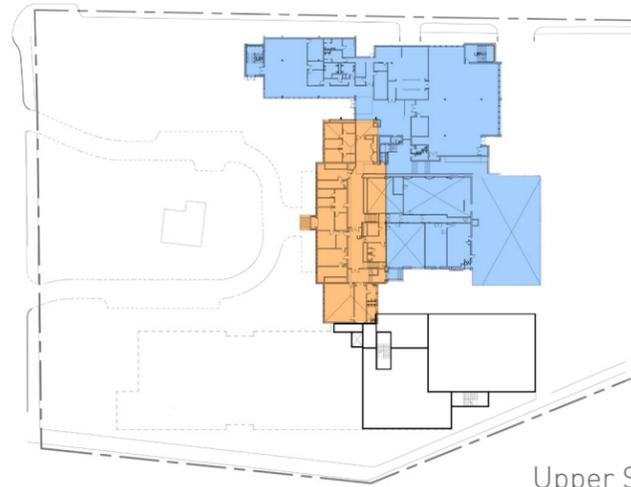
Stedman Level



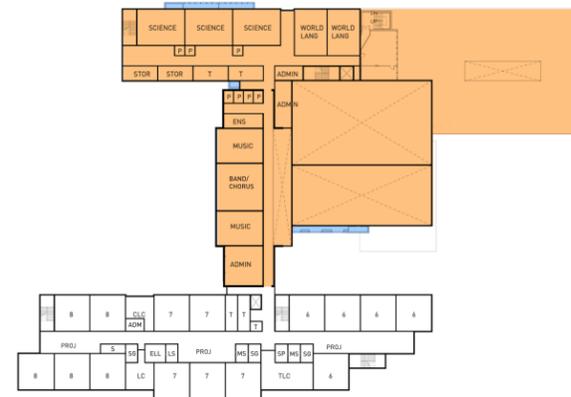
Harvard Level

-  Disruption
-  Temporary Wall
-  Demolition
-  Existing Devotion School
-  New Construction / Renovation

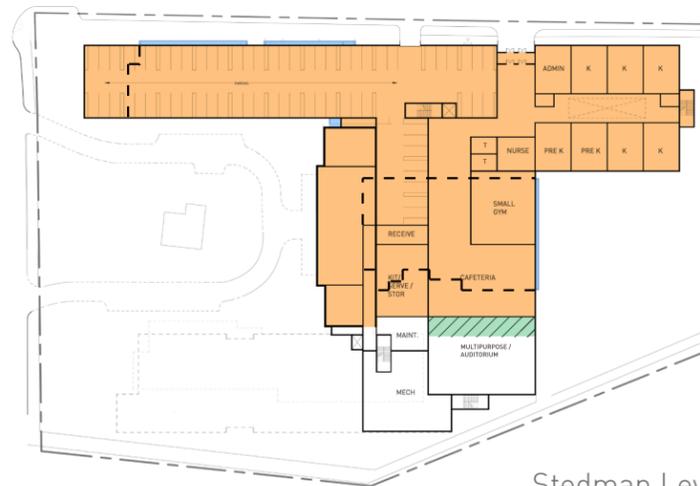
Phase 2



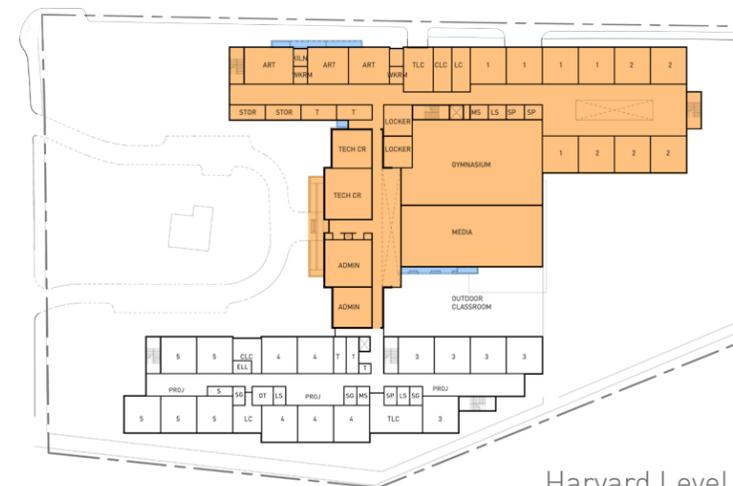
Upper Stedman Level



Second Floor



Stedman Level



Harvard Level

-  Disruption
-  Temporary Wall
-  Demolition
-  Existing Devotion School
-  New Construction / Renovation

#### **OPTION 2 – Renovation with Addition**

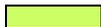
Option 2 is also proposed as a two-phase project, with a projected construction period of three years, followed by a site work phase. In Option 2, a four-story addition containing school community spaces and general and specialized classrooms is connected by a new classroom link, which replaces the Auditorium wing of the 1913 building, to the remaining renovated 1913 building. The construction process begins with the demolition of the existing 1924 gymnasium addition. The existing Small Gym will be expanded and renovated to house physical education classes during the subsequent Phase 1. In Phase 1, the four-story addition will be constructed north of the existing school. During this phase, Devotion school remains operational. When students and staff move to the completed addition, the Auditorium wing of the 1913 building and the 1954 and 1974 additions will be demolished. Phase 2 work will include the construction of the new classroom link, the renovation of the 1913 Devotion School that remains, and the underground parking structure. During Phase 2, the new addition does not include Therapeutic Learning Center rooms, OT/PT, Speech rooms, Art classrooms, the full program area for a Kitchen, and some of the required Administration space. As in Option 1, there will be no underground parking during Phase 2.

With a strategy of some temporary space, it may be possible to mitigate most of the program loss. Three science classrooms will be constructed in Phase 1 but will not be occupied until final school occupancy. These classrooms could be appropriated temporarily for the Art Classrooms, OT/PT, and additional Administration space. With the reduced population of K-5, only two Comprehensive Learning Centers and two Learning Centers are required, but three of each will have been constructed in the new addition. The two Therapeutic Learning Centers required for K-5 could occupy the Comprehensive Learning Center and the Learning Center, although in reduced area (500 sf instead of 1,000 sf). Some space will be available in the new addition adjacent to the Cafeteria. This space could serve as a temporary kitchen, operating as a satellite kitchen, not a full cooking kitchen.

## Option 2: Phasing Impacts on Program

EDUCATIONAL SPACE	EXISTING SCHOOL	PROGRAM FOR K-5	FINAL PROGRAM	PHASE 1 (during Construction)	PHASE 1 Notes	PHASE 2 (during Construction)	PHASE 2 Notes
<b>CORE ACADEMIC AREAS</b>							
Pre-K	0	0	2		No PK during constr.		No PK during constr.
Kindergarten - 5 sections	5	5	5	5		5	Smaller than reg. - standard classroom during construction
General Classrooms - 5 sections Grades 1-5	35	25	40	35		25	
Science Classrooms	2	0	3	2	Not req. for K-5	0	Not req. for K-5 - used for Art, OT/PT, Administration
World Language Classrooms	1	1	2	1		2	
Small Group Rooms	0	0	9	0		6	3 each for K-2, 3-5
Literary/Math Specialists	7	6	9	7		6	3 each for K-2, 3-5
Enrichment Challenge Support Office	1	1	1	1		0	
ELL	4	2	4	4		3	
<b>SPECIAL EDUCATION</b>							
Therapeutic Learning Center	3	2	3	3	+1 (Grades 6-8 offsite)	2	Smaller than final - temporary use of extra CLC and LC
Comprehensive Learning Center	3	2	3	3	+1 (Grades 6-8 offsite)	2	+1 (Grades 6-8 offsite) - use as temporary TLC
Learning Center	4	2	4	4	+1 (Grades 6-8 offsite)	2	+1 (Grades 6-8 offsite) - use as temporary TLC
Speech	2	2	3	2		0	
OT/PT	1	1	2	1		2	Temporary location in Science classroom
Offices	2	2	7	2		0	
<b>ART &amp; MUSIC</b>							
Art Classroom	2	2	3	2		1	Temporary location in Science classroom
Band/Chorus	0	0	1	0		1	
Music Classroom	1	1	2	1		2	
Music Practice	1	1	5	1		5	
Multipurpose Room with Stage	1	1	1	1		1	
<b>VOCATIONS &amp; TECHNOLOGY</b>							
Tech Classrooms	1	1	2	1		2	
<b>HEALTH &amp; PHYSICAL EDUCATION</b>							
Gymnasium	1 (1 station)	1 (1 station)	1 (2 stations)	0		1	
				1	In renovated enlarged Small Gymnasium - no locker rooms		
Small Gymnasium	1	1	1	0	Used for Gym	1	
<b>MEDIA CENTER (LIBRARY)</b>							
Media Center (Library)	1	1	1	1		1	
<b>DINING &amp; FOOD SERVICE</b>							
Cafeteria	1	1	1	1		1	
Kitchen	1	1	1	1		1	Temporary kitchen
<b>MEDICAL</b>							
Medical	1	1	1	1		1	
<b>ADMINISTRATION &amp; GUIDANCE</b>							
Offices	2,450 SF	2,450 SF	4,525 SF	2,450 SF		2,310 SF	Temporary location in Science classroom
<b>CUSTODIAL &amp; MAINTENANCE</b>							
Office, Storage, Recycling, Workshop	850 SF	850 SF	2,567 SF	850 SF		0	
<b>PARKING</b>							
Parking Garage	1	1	1	1		0	

Compromised Program Space



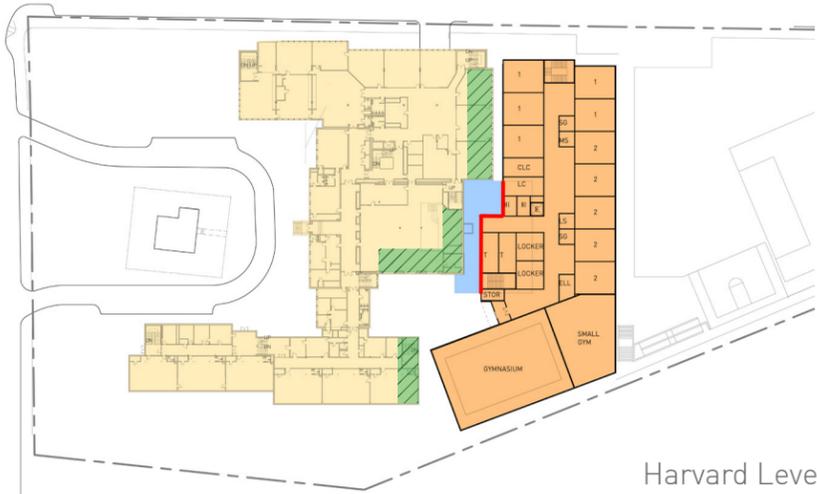
Loss of Program Space



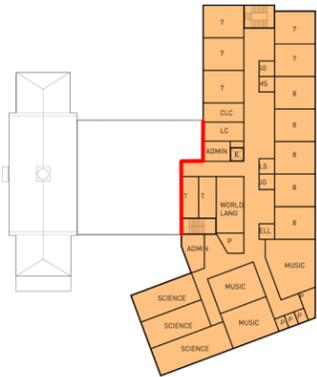
3.3.2.3 Final Evaluation of Alternatives

Option 2: Renovation with Addition continued

Phase 1



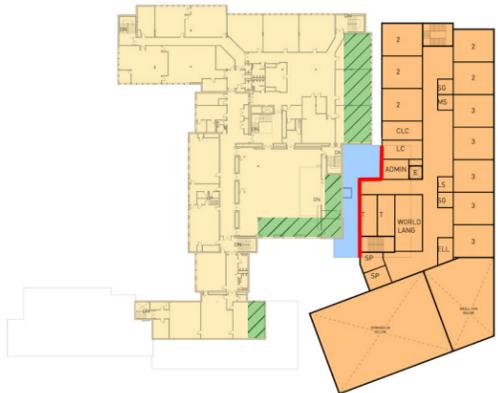
Harvard Level



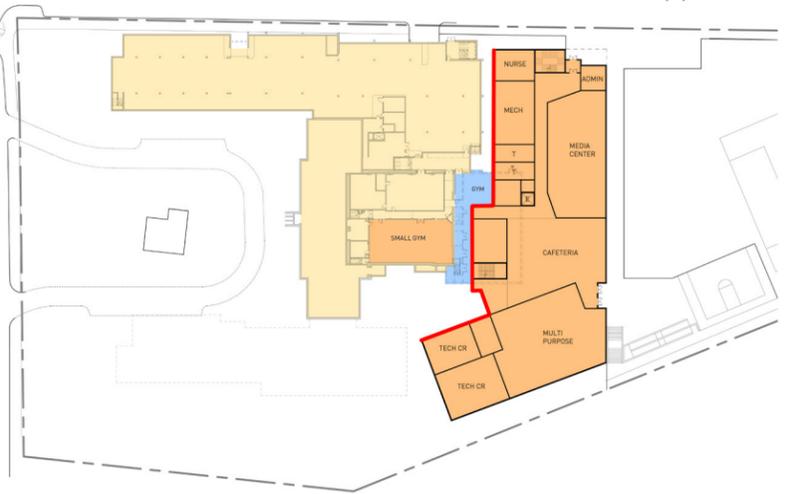
Third Floor



Upper Stedman Level



Second Floor



Stedman Level

-  Disruption
-  Temporary Wall
-  Demolition
-  Existing Devotion School
-  New Construction / Renovation



### 3.3.2.3 Final Evaluation of Alternatives

#### Impact on Students, Option 3/3A

#### **OPTIONS 3 and 3A – New Construction**

Options 3 and 3A have the least impact on students of all of the options. In both Options 3 and Option 3A, a new school building is constructed to the north of the existing Devotion School, and the existing school remains operational. As in the other options, students in Grades 6 – 8 will be relocated to the alternate school. In Options 3 and 3A, the student relocation is not required to accommodate phasing but to absorb the projected additional student enrollment. With the completion of the new school, demolition will occur, followed by the construction of the underground parking and site work completion. In Option 3, the 1954 and 1974 additions are demolished, leaving the 1913 Devotion School, including its Auditorium wing. This structure will be made safe and secured, “mothballed”, for a future Town project, program presently undetermined. This project is beyond the scope of the Devotion School project, but creates an obligation to the Town for the completion of this future project. Option 3A proposes the demolition of the entire 1913 building. The site of the former building would be developed for additional play area for the Devotion School, including a potential soccer field.

There is no educational program loss with Options 3 and 3A. Underground parking will not be available during Phase 2.

Option 3, however, does result in a completed school project but with a potential future construction project, with its attendant phasing and construction mitigation efforts, which would impact school operations.

Option 3/3A: Phasing Impacts on Program

EDUCATIONAL SPACE	EXISTING SCHOOL	PROGRAM FOR K-5	FINAL PROGRAM	PHASE 1 (during Construction)	PHASE 1 Notes	PHASE 2 (during Construction)	PHASE 2 Notes
<b>CORE ACADEMIC AREAS</b>							
Pre-K	0	0	2	0	No PK during constr.	2	
Kindergarten - 5 sections	5	5	5	5		5	
General Classrooms - 5 sections Grades 1-5	35	25	40	35	Not req. for K-5	40	
Science Classrooms	2	0	3	2		3	
World Language Classrooms	1	1	2	1		2	
Small Group Rooms	0	0	9	0		9	
Literary/Math Specialists	7	6	9	7		9	
Enrichment Challenge Support Office	1	1	1	1		1	
ELL	4	2	4	4	4	4	
<b>SPECIAL EDUCATION</b>							
Therapeutic Learning Center	3	2	3	3	+1 (Grades 6-8 offsite)	3	
Comprehensive Learning Center	3	2	3	3	+1 (Grades 6-8 offsite)	3	
Learning Center	4	2	4	4	+1 (Grades 6-8 offsite)	4	
Speech	2	2	3	2		3	
OT/PT	1	1	2	1		2	
Offices	2	2	7	2		7	
<b>ART &amp; MUSIC</b>							
Art Classroom	2	2	3	2		3	
Band/Chorus	0	0	1	0		1	
Music Classroom	1	1	2	1		2	
Music Practice	1	1	5	1		5	
Multipurpose Room with Stage	1	1	1	1		1	
<b>VOCATIONS &amp; TECHNOLOGY</b>							
Tech Classrooms	1	1	2	1		2	
<b>HEALTH &amp; PHYSICAL EDUCATION</b>							
Gymnasium	1 (1 station)	1 (1 station)	1 (2 stations)	1 (1 station)		1 (2 stations)	
Small Gymnasium	1	1	1	1		1	
<b>MEDIA CENTER (LIBRARY)</b>							
Media Center (Library)	1	1	1	1		1	
<b>DINING &amp; FOOD SERVICE</b>							
Cafeteria	1	1	1	1		1	
Kitchen	1	1	1	1		1	
<b>MEDICAL</b>							
Medical	1	1	1	1		1	
<b>ADMINISTRATION &amp; GUIDANCE</b>							
Offices	2,450 SF	2,450 SF	4,525 SF	2,450 SF		4,525 SF	
<b>CUSTODIAL &amp; MAINTENANCE</b>							
Office, Storage, Recycling, Workshop	850 SF	850 SF	2,567 SF	850 SF		2,567 SF	
<b>PARKING</b>							
Parking Garage	1	1	1	1		1	

Compromised Program Space



Loss of Program Space



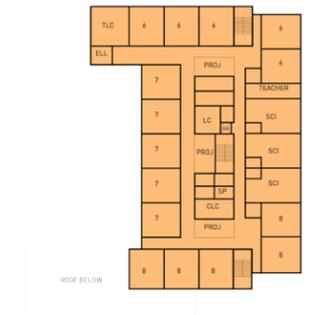
### 3.3.2.3 Final Evaluation of Alternatives

Option 3: New Addition continued

Phase 1



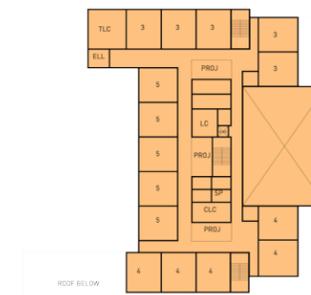
Harvard Level



Fourth Floor



Upper Stedman Level



Third Floor



Stedman Level



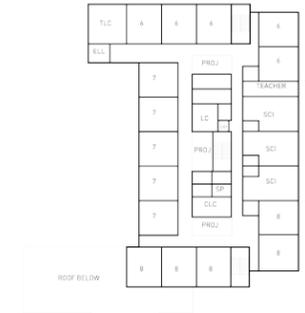
Second Floor

-  Disruption
-  Temporary Wall
-  Demolition
-  Existing Devotion School
-  New Construction / Renovation

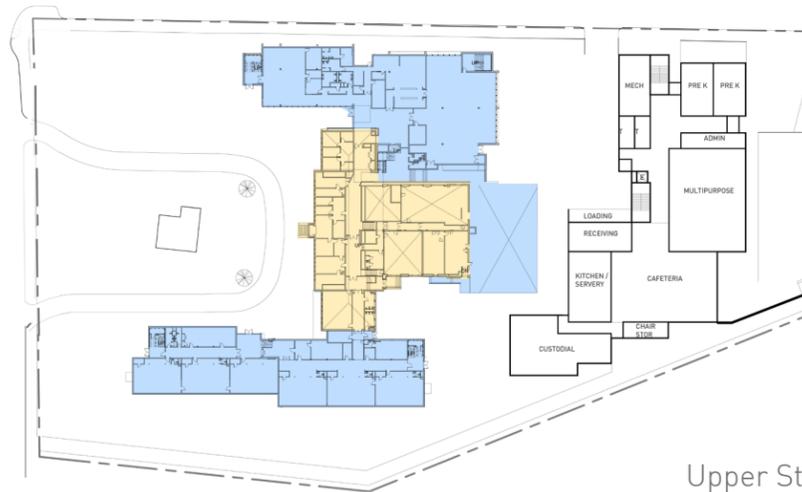
Phase 2



Harvard Level



Fourth Floor



Upper Stedman Level



Third Floor



Stedman Level



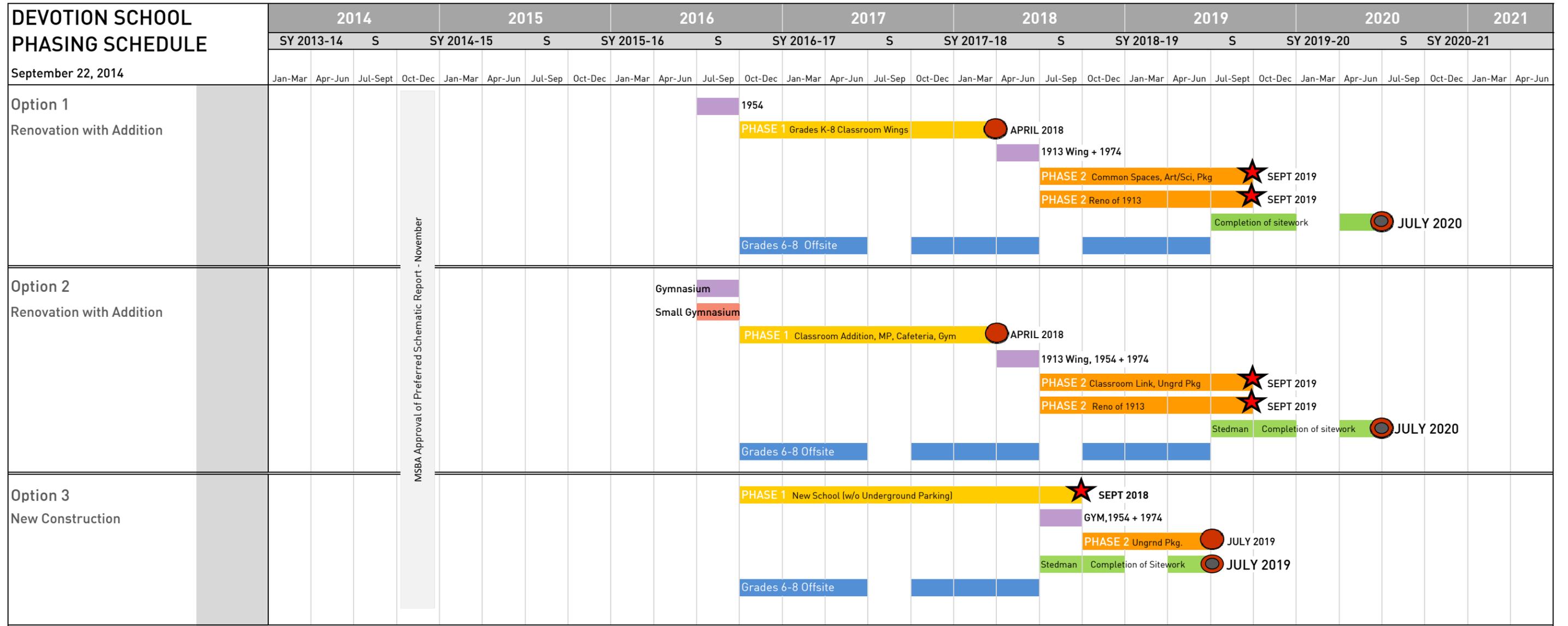
Second Floor

-  Disruption
-  Temporary Wall
-  Demolition
-  Existing Devotion School
-  New Construction / Renovation



### 3.3.2.3 Final Evaluation of Alternatives

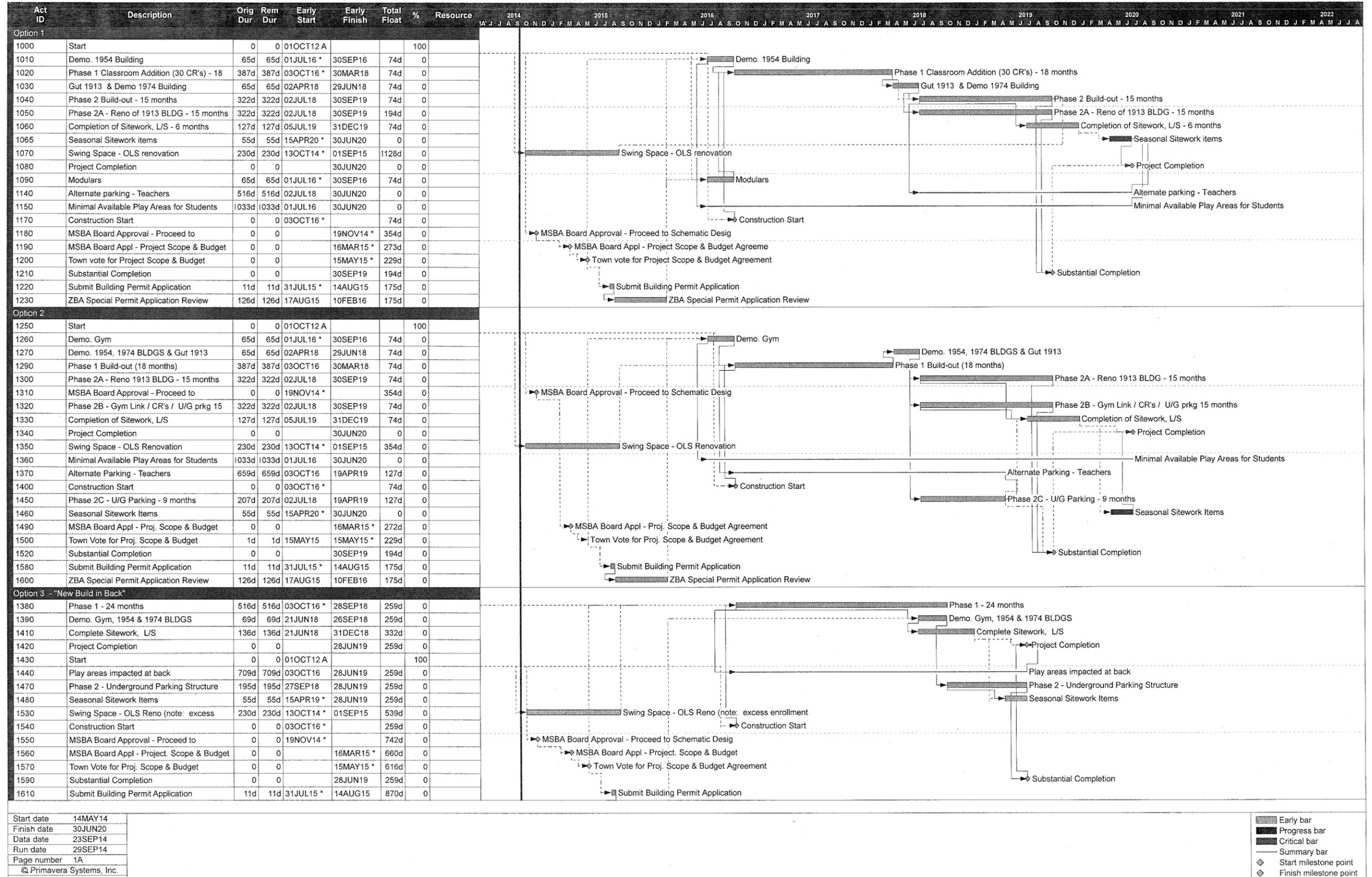
Impact on Students, Phasing Schedule



**SCHEDULE LEGEND**

- DEMO
- DBB PROJECT
- CONSTRUCTION
- CONSTRUCTION
- CONSTRUCTION
- SWING SPACE
- SITE WORK
- ★ ALL STUDENTS IN SCHOOL
- PROJECT COMPLETION

Project Schedules



### 3.3.2.3 Final Evaluation of Alternatives

#### Preliminary Design Pricing

**Edward Devotion Elementary School**  
**Summary of Preliminary Design Options Pricing**

Option	Total Gross SF (includes structured parking)	SF of Renovated Space Cost/SF <sup>1</sup>	SF of New Construction Cost/SF <sup>1</sup>	SF of New Structured Parking Cost/SF <sup>1</sup>	Site, Demolition, Haz Mat Cost <sup>1</sup>	Estimated Total Construction Cost <sup>2</sup> Cost/SF <sup>1</sup>	Estimated Total Project Costs
OPTION 0 Base Repair	162,051	158,151 \$191.36	-	-	\$3,764,869	\$47,842,028 \$295.23	\$68,302,274
OPTION 1 Addition/Renovation	196,581	17,965 \$322.24	154,527 \$280.25	24,089 \$103.64	\$5,894,891	\$84,964,582 \$432.21	\$118,397,806
OPTION 2 Addition/Renovation	191,463	17,965 \$411.39	147,080 \$258.92	26,418 \$124.31	\$6,654,806	\$82,183,252 \$429.24	\$114,178,504
OPTION 3 New Construction (Mothball 1913)	193,089	-	166,095 \$266.90	26,994 \$138.35	\$6,660,978	\$76,147,472 \$394.36	\$105,898,980
OPTION 3A New Construction (Demolition of 1913)	193,089	-	166,095 \$262.68	26,994 \$138.35	\$7,299,506	\$76,061,929 \$393.92	\$104,936,957

<sup>1</sup> marked up construction costs

<sup>2</sup> does not include construction contingency

<sup>3</sup> district's preferred solution





## TOWN of BROOKLINE

*Massachusetts*

### BUILDING DEPARTMENT

Daniel F. Bennett  
Building Commissioner

Michael Yanovitch  
Chief Building Inspector

#### **Brookline Building Permit Application Process** (Approximately 2 month process)

The 8th edition of the Massachusetts State Building Code (“MSBC”) is comprised of the International Building Code 2009 (IBC), several companion I-codes and Massachusetts amendments.

The MSBC is the building code for all towns, cities, state agencies or authorities in accordance with M.G.L. c. 143, §§ 93 through 100. The MSBC, and other referenced specialized codes as applicable, shall apply to the construction, reconstruction, alteration, repair, demolition, removal, inspection, issuance and revocation of permits or licenses, installation of equipment, classification and definition of any building or structure and use or occupancy of all buildings and structures or parts thereof.

The Devotion School will be constructed in accordance with the provisions of the 8<sup>th</sup> edition of the Massachusetts State Building Code and all other applicable state and local codes, rules and regulations.

To obtain a permit, the owner or authorized agent shall file a permit application with the following information:

1. Identify and describe the work to be covered by the permit for which application is made.
2. Describe the land on which the proposed work is to be done by legal description, street address or similar description that will readily identify and definitely locate the proposed building or work.
3. Indicate the use and occupancy for which the proposed work is intended.
4. Be accompanied by Construction Documents and other information as listed below.
5. State the valuation of the proposed work. The building official has authority to request from the applicant a detailed substantiation of the valuation.
6. Be signed by the owner or authorized agent.
7. Give such other data and information as required by the building official in accordance with this code.

The applicant shall submit information consisting of construction documents, statement of special inspections, geotechnical report and other data shall be submitted with each permit application. The construction documents shall be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed. All plans and specifications shall bear a seal and signature of the responsible registered design professional.

333 Washington Street, Brookline, Massachusetts 02445  
Tel: (617) 730-2100 Fax: (617) 739-7542  
[www.brooklinema.gov](http://www.brooklinema.gov)

The following Town Department Approvals shall be submitted with the Building Permit Application:

- Fire Department – Fire Protection Systems – Fire Alarm & Sprinkler System
- Board of Health – Kitchen and food preparation areas
- Preservation Commission (if applicable)
- Conservation Commission (if applicable)
- DPW -Water Department – confirm water is available
- DPW-Engineering – Traffic – Storm Water
- DPW-Sewer Department – confirm sewer connection available

The following Construction Documents shall be submitted with the Building Permit Application:

- Plans shall be dimensioned and drawn to scale, shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that it will conform to the MSBC and relevant laws, ordinances, rules and regulations.
- Shop drawings for the fire protection system(s) shall be submitted and shall be approved prior to the start of system installation.
- Plans shall show in sufficient detail the location, construction, size and character of all portions of the means of egress.
- Plans and sections shall describe in sufficient detail the exterior wall envelope and shall provide details of the exterior wall envelope as required, including flashing, intersections with dissimilar materials, corners, end details, control joints, intersections at roof, eaves or parapets, means of drainage, water-resistive membrane and details around openings. Manufacturer’s installation instructions that provide supporting documentation that the proposed penetration and opening details described in the plans maintain the weather resistance of the exterior wall envelope. The supporting documentation shall fully describe the exterior wall system which was tested, where applicable, as well as the test procedure used.
- The application for permit shall be accompanied by a site plan showing to scale the size and location of new construction and existing structures on the site, distances from lot lines, the established street grades and the proposed finished grades and, as applicable, flood hazard areas, floodways, and base flood elevations; and it shall be drawn in accordance with an accurate boundary line survey. In the case of demolition, the site plan shall show construction to be demolished and the location and size of existing structures and construction that are to remain on the site or plot.

In addition all plans, computations and specifications involving new construction, alterations, repairs, expansions or additions or change in use or occupancy of existing buildings shall be prepared by or under the direct supervision of a registered design professional and shall bear his or her signature and seal. Said signature and seal shall signify that the plans, computations and specifications meet the applicable provisions of this code and accepted engineering practices. Any alternative means and methods which

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### 3.3.2.3 Final Evaluation of Alternatives

#### Permitting Requirements

deviate from prescriptive requirements of the MSBC shall be submitted to the building official for approval in a narrative form separate from the plans.

This project will be subject to Construction Control as detailed in section 107.6 of the MSBC. The registered design professionals who are responsible for the design, plans, calculations, and specifications, their designee or the registered design professionals, who have been retained for construction phase services, shall perform the following tasks:

- Review, for conformance to the code and the design concept, shop drawings, samples and other submittals by the contractor in accordance with the requirements of the construction documents.
- Perform the duties for registered design professionals in pursuant to MSBC Chapter 17: Structural Tests and Special Inspections.
- Be present at intervals appropriate to the stage of construction to become generally familiar with the progress and quality of the work and to determine if the work is being performed in a manner consistent with the construction documents and the code.

The permit application shall not be deemed completed until all of the construction documents required by the MSBC have been submitted. Documentation indicating that work complies with the plans and specifications shall be provided at the completion of each phase when required by the building official. Upon completion of the work, the registered design professional shall file a final document to the building official indicating that, to the best of his or her knowledge and belief, the work has been performed in accordance with the approved plans and this code.

The applicant shall submit a Structural Test and Special Inspection Summary with the permit application.

The actual construction of the work shall be the responsibility of the general contractor as identified on the approved permit and shall involve the following:

- Execution of all work in accordance with the approved construction documents.
- Execution and control of all means and methods of construction in a safe and satisfactory manner in accordance with all applicable local, state, and federal statutes and regulations.
- Upon completion of the construction, certification in writing to the responsible registered design professional that, to the best of the contractor's knowledge and belief, construction has been done in substantial accord pursuant to Construction Control and with all pertinent deviations specifically noted.

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**TOWN of BROOKLINE**  
*Massachusetts*  
**BUILDING DEPARTMENT**

Daniel F. Bennett  
Building Commissioner

Michael Yanovitch  
Chief Building Inspector

**Brookline Board of Appeals Special Permit Process**  
(Approximately 6 month process)

The Brookline Zoning Board of Appeals (“ZBA”) is an appointed quasi-judicial body authorized to function under M.G.L. 40A, Town General By-Laws, and Local Rules and Regulations. The ZBA consists of three members and five associate members, only three members participate in a hearing at any given time. The ZBA holds public hearings on a weekly bases to decide on applications for special permits and/or variances from the requirements of the Zoning Bylaws.

The applicant shall follow the following procedures when filing an application for a special permit.

1. Plan Review for Determination of Compliance with the Zoning By-Law

The applicant shall first submit plans to the Chief Building Inspector or his/her designee, who shall advise the applicant in writing as to whether the plans comply or do not comply with the Zoning By-Law. The application for Plan Review, including all associated plans, drawings and documents, shall be in a form specified by the Chief Building Inspector.

A written determination of non-compliance, hereinafter referred to as the “Denial Letter”, shall identify the following:

- a. All plans, drawings and documents submitted by the applicant that provided the basis for the review and determination by the Chief Building Inspector; and
- b. Each section of the Zoning By-Law that the plans do not comply with and which will require a special permit from the Board of Appeals.

The Chief Building Inspector shall issue the Denial Letter within thirty (30) days after the application for Plan Review is complete. Copies of the Denial Letter shall be submitted to the Town Clerk, Planning Board and Zoning Coordinator as part of the application for a special permit.

2. Compliance with Prior Decisions and Conditions of the Board of Appeals

As part of the Plan Review procedure, the Chief Building Inspector, in consultation with the Zoning Coordinator, shall determine whether the applicant’s plans are in compliance with any applicable decision and corresponding conditions previously issued by the Board of Appeals. The Denial Letter

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shall note whether or not the subject property is in compliance with any prior decision of the Board of Appeals.

#### 3. Special Permit Application to Town Clerk

Three copies of each application for a Special Permit shall be submitted to the Town Clerk. The application shall be filed in a form approved by the ZBA and as specified by the Board's Rules and Regulations.

#### 4. Determination of Complete Application

Prior to scheduling a hearing before the ZBA, the Zoning Coordinator shall determine whether or not the application is complete. Within fourteen (14) days of receiving the application, the Zoning Coordinator shall send a letter notifying the applicant that his/her application is complete or what additional information is required to complete the application. If the Zoning Coordinator does not issue a letter within the fourteen (14) day period, the application shall be deemed complete and a hearing is scheduled before the ZBA. Applicants are encouraged to meet with the Zoning Coordinator prior to filing with the Town Clerk to review the Rules and Regulations of the ZBA that pertain to applications for Special Permits and to obtain a preliminary determination that all of the required information is contained in the application. Once the Zoning Coordinator determines that the application is complete or the fourteen day period has expired, whichever occurs first, the Town Clerk shall maintain a copy and forward copies to the Planning Board and the Chief Building Inspector with the Zoning Administrator's determination, if any.

#### 5. Planning Board Advisory Report

The Planning Board shall, within twenty (20) days of the date an application has been determined complete, submit an advisory report to the applicant and ZBA after holding a public meeting. The advisory report, which shall be accompanied by appropriate plans, drawings, and other supporting documents, will provide a recommendation and proposed conditions as warranted.

#### 6. Time Extension for Completion of Planning Board Advisory Report

An applicant may submit a written request to the Planning Board to extend the 20 day period for filing the advisory report with the ZBA. The Planning Board, following consideration of the request at a public meeting noticed, may grant such a request and provide written notice of such action to the applicant, ZBA, Town Clerk, Chief Building Inspector and Zoning Coordinator.

#### 7. Board of Appeals (ZBA) Decision

The ZBA shall not render a decision on an application for a special permit until the advisory report from the Planning Board has been received and considered or until the 20 day period, or any extension requested by an applicant and granted by the Planning Board for this period, has expired and after the ZBA has held a public hearing.

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The applicant may also submit a written request to the ZBA requesting an extension of time or postponement of the public hearing on the application for a special permit. If the request is made after the legal notice for the hearing is published, the ZBA shall consider such a request at a public meeting. The ZBA may also seek a report from the Zoning Coordinator regarding the requested extension or postponement. The Zoning Coordinator shall provide written notice of the Board of Appeal's decision on the request to the applicant, with copies to the Planning Board, Town Clerk and Chief Building Inspector. The signed decision is then filed with the Town Clerk's Office where it is time stamped and a Twenty (20) day appeal period begins to toll (M.G.L. 40A §9). If no appeals are filed in the Twenty (20) calendar days, an attested copy of the decision can be recorded with the property deed at the Norfolk Registry of Deeds in Dedham (M.G.L. 40A §11). A copy of that decision stamped by the Registry of Deeds is required to be submitted with the building permit application to the Building Department for the approved project (M.G.L. 40A §11).

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## TOWN of BROOKLINE Massachusetts

### BUILDING DEPARTMENT

Daniel F. Bennett  
Building Commissioner

Michael Yanovitch  
Chief Building Inspector

#### Zoning Board of Appeals Application Procedure

1. Meet with the Chief Building Inspector to determine the nature and extent of relief needed from the **Brookline Zoning By-Law and Board of Appeals (ZBA)** as well as the plans and information required for filing.
2. The initial application for this process is in the form of a **Building Permit** application describing the proposed work **signed by the Owner or Owner's attorney**. The application should be in triplicate along with **three (3)** sets of plans by the architect and/ or Registered Land Surveyor **signed and sealed** by the respective professional. The plan review fee is also required to be paid at the time of application.
3. This office will then generate a letter denying the permit application within thirty (30) days of the submittal. This is known as the "Denial Letter", it will specify the sections of the Zoning By-Law that requires relief. A copy of the letter, along with your application, will be forwarded to the **Zoning Coordinator, Town Clerk** and the **Planning Board**.
4. Upon receipt of the denial letter you have thirty (30) days from the date of the letter to file your application to the **Town Clerk**. The **Zoning Coordinator** will provide you with the appropriate forms and review the application for completeness and advise you on fees required (M.G.L. 40A §9).
5. The **Zoning Coordinator** will then schedule a public hearing with the **Planning Board** prior to the public hearing in the front of the **ZBA**. The **Zoning Coordinator** will arrange for notification of the abutters within (300) feet of the property and newspaper advertising of the hearings (7) and (14) days prior to the hearing dates (M.G.L. 40A §11).
6. You and your representative **must** attend the **Planning Board** public hearing to present your case. The **Planning Board** will then submit a report with their recommendations to the **ZBA**.
7. You and your representative **must** then attend the **ZBA** public hearing. The **ZBA** will make a decision on your application, in most cases a decision is rendered that night, unless a continuance is requested. The decision is written and signed by the board shortly thereafter.
8. The signed decision is then filed with the **Town Clerk's Office** where it is time stamped and a Twenty (20) day appeal period begins to toll (M.G.L. 40A §9). If no appeals are filed in the Twenty (20) calendar days, an attested copy of the decision can be recorded with the property deed at the **Norfolk Registry of Deeds** in Dedham (M.G.L. 40A §11). A copy of that decision stamped by the **Registry of Deeds** is required to be submitted with the **building permit application** to the **Building Department** for the approved project (M.G.L. 40A §11).

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### 3.3.2.4 Preferred Solution

Preferred Solution and Educational Program	127
MSBA Space Summary	131
Variation from MSBA Guidelines	137
Existing Site Survey	141
Site Plan	143
Building Plans	145
LEED v4 for Schools	147
Budget Statement - Expenditures	149
Budget Statement - Revenue	151
Proposed Project Schedule	154





## 3.3.2.4 Preferred Solution

### Preferred Solution and Educational Program

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#### PREFERRED SOLUTION AND THE EDUCATIONAL PROGRAM

Four Strategic Plan Goals for the Edward Devotion School have guided the design of the Preferred Solution. These goals, from the Educational Program, are:

- “Goal 1: Every Student Achieving
- Goal 2: Every Student Invested in Learning
- Goal 3: Every Student Prepared for Change and Challenge
- Goal 4: Every Educator Growing Professionally”

The Educational Program raises the challenge for a school environment that maximizes student learning by supporting the “Four Cs” or “super skills” – communication, collaboration, critical thinking, and creativity. This educational vision has been the foundation for the organization of the building and the site design.

#### Classroom Clusters

The fundamental building block in the school design is the concept of the classroom cluster. For pedagogical reasons, the educational program organizes the school into three grade-level cohorts – Kindergarten - Grade 2, Grades 3–5, and Grades 6-8. This effectively creates smaller learning communities within the larger 1,010-student school and allows teachers to work with their group of students and with other teachers in their cluster. Teachers will feel ownership of their students, helping to ensure that no student is anonymous. This smaller learning community will generate collaboration and communication, and a sense of safety for the students. As stated in the Educational Program, “Close proximity is critical in order to achieve the requisite communication and collaboration for a variety of grouping methods in grade level teams.”

In the Preferred Solution, the Kindergarten–Grade 2 cluster is located in one wing, on two levels. On the Stedman Street level of the building, two Pre-K classrooms join the Kindergarten classrooms. These classrooms, with the youngest students, are located in close proximity to the Stedman Street entrance, facilitating parent drop-off and pick-up. This location also answers a desire expressed by the teachers for the least travel for the youngest students to play fields and student community spaces such as the Cafeteria and Multipurpose Room. The Grades 3-5 and Grades 6-8 classroom clusters, each on one floor level, occupy a separate two-story classroom wing. Option 1 expands on the small school approach of the classroom clusters concept with the locations of these distinct classroom wings.

The Devotion educational program asserts that “learning is no longer confined to the classroom. Learning is ubiquitous.” Project-based/problem-based learning is inherent in the educational program. To support collaborative, creative, project-based learning, Project Areas have been designed within the classroom clusters. A Project Area is a learning space separate from the classroom in which smaller groups of students may work collaboratively or individually and which is capable of supporting project-based learning. In Option 1, a Project Area is located at each group of classrooms, for a total of three Project Areas for each classroom cluster.

### **Tiered Instruction**

The Devotion School teaching methodology has incorporated research in education that recognizes the importance of student-centered learning, individualization, and personalization. Devotion provides a continuum of services. Tiered levels of instruction range from general classroom, then strategic levels of instruction, and, finally, to intensive levels of instruction, usually at the individualized level. In support of this, the building design includes small work areas for small group and individual instruction. Spaces are also provided for math and literacy specialists to provide intervention services to students. These spaces are identified in the plan as Small Group Rooms, Literacy Specialist, and Math Specialist. These spaces are integrated into the classroom clusters, at each grade level. This close proximity to classrooms will encourage their use and increase instruction time that is wasted in the existing school, where students are required to travel to remote specialist’s rooms.

### **Inclusion**

The Public Schools of Brookline are committed to the challenge of educating all learners with disabilities alongside their non-disabled peers. With 15.2% of its population receiving services, and as the home for the district-wide Therapeutic Learning Center program, the Devotion special needs facilities are an important component of the school. These spaces include the Therapeutic Learning Centers, the Comprehensive Learning Centers, and Learning Centers, and provide graduated levels of support. Additionally, spaces that support Student Services, such as occupational and physical therapists, speech/language pathologists, school psychologists, nurses, and inclusion facilitators, are also provided. Consistent with the philosophy of inclusion, dedicated Special Education learning areas are distributed throughout the school, adjacent to and integrated with the classroom clusters.



#### **Specialized Classrooms and School Community**

Complementing the general classrooms, academic support spaces, and Special Education spaces are specialized classrooms for visual arts, music and performing arts, language, science, physical education, and health. Students in all grade levels participate in these programs.

The Music and Technology classrooms are proposed to occupy portions of the renovated 1913 building. Music classrooms, with a suite of practice rooms and an ensemble room, are located on the second floor, acoustically isolated from other classrooms. The Technology classrooms are located near the main Harvard Street entrance and in close proximity to the Media Center on the same floor level.

Three Art classrooms are located on the Harvard Street level of the K-2 classroom wing. Each Art classroom will serve one of the classroom groupings – K-2, Grades 305, and Grades 6-8. Each art room will be scaled to the physical and curricular needs of the respective age groups, with adequate storage spaces and a kiln room. Display of student art work is a requirement from the Educational Program as a motivator for students, evidence of student learning, and a generator of school pride and ownership.

Two World Language classrooms and a World Language office are located on the second floor of the K-2 classroom wing. This adjacency will minimize the travel time for the three World Language teachers that share these classrooms. There are four English Language Learners (ELL) rooms to support small group instruction. As stated in the Educational program, these ELL rooms are intentionally located within the classroom clusters to maximize instructional time and to reinforce that these students are a part of the general classroom community.

Only the students in Grades 6-8 take part in science classes in specialized science classroom/ laboratories. Science labs will be designed to support hands-on, inquiry-based learning. Ample space, preparation areas, and storage space will promote safe exploration and creativity. Science classrooms are located on the second floor of the K-2 classroom wing and on the same floor level as the Grades 6-8 general classrooms.

In the Preferred Solution, most of the large school community spaces are centered within the school, and serve as a link between the two classroom wings. Students from the different grade levels will mingle with each other in these larger school community spaces. As requested in the Educational program, large communal arrival spaces at the Stedman and Harvard Street

entrances are welcoming to the large influx of families who walk or get dropped off by parents at school arrival and during the busier dismissal period.

The Small Gym is proposed for the Stedman Street level, nearest the youngest students and directly connected to the outdoor play space. The main Gymnasium, with its locker rooms and Health Instructor is located on the Harvard Street level, adjoined to a large lobby space at the Harvard Street main entrance.

As discussed with the MSBA in earlier correspondence, Brookline School Committee policy requires that all Brookline elementary schools have a multipurpose space with the capacity to seat at least 40% of its total occupancy. As described in its name, a Multipurpose Room is flexible and easily reconfigured to meet instructional needs for various size groups throughout the school day. It can be transformed to serve as a site for a wide range of activities – a gallery space, a library, a video production studio, a robotics lab, a stage, a yoga studio, an adult meeting and learning space, or a quiet contemplative space for reading and reflection. Access to technology in this space will maximize its potential. In support of the Educational Program goal of creating “a small school feel” to a large elementary school, the Multipurpose Room can be a venue for all grade level groups to gather as a community. In the Preferred Solution, the Multipurpose Room is positioned on the first floor, Stedman Street level. It is directly adjacent to the Cafeteria, which could serve as a reception space for an event in the Multipurpose Room. The Multipurpose Room fronts on the play area and playing fields.

In the Preferred Solution, the location of large school community spaces has been strategic to allow for after-hours use of these program areas without the need to open the entire school.









EDWARD DEVOTION SCHOOL			
Existing Conditions			
ROOM TYPE	ROOM NFA <sup>1</sup>	# OF RMS	area totals
<b>PARKING</b>			<b>20,000</b>
Parking	20,000	1	20,000
<b>Parking Excluded</b>			
Total Building Net Floor Area (NFA)			83,692
Proposed Student Capacity / Enrollment			
Total Building Gross Floor Area (GFA) <sup>2</sup>			<b>141,231</b>
Grossing factor (GFA/NFA)			<b>1.69</b>
<b>Parking Included</b>			
Total Building Net Floor Area (NFA)			103,692
Proposed Student Capacity / Enrollment			
Total Building Gross Floor Area (GFA) <sup>2</sup>			<b>162,051</b>
Grossing factor (GFA/NFA)			<b>1.56</b>

PROPOSED								
Existing to Remain/Renovated			New			Total		
ROOM NFA <sup>1</sup>	# OF RMS	area totals	ROOM NFA <sup>1</sup>	# OF RMS	area totals	ROOM NFA <sup>1</sup>	# OF RMS	area totals
		<b>0</b>			<b>23,416</b>			<b>23,416</b>
			23,416	1	23,416	23,416	1	23,416
		10,990			103,154			114,144
		<b>0</b>			<b>0</b>			<b>1,010</b>
GSF of existing		<b>17,965</b>	GSF new		<b>154,527</b>			<b>172,492</b>
		<b>1.63</b>			<b>1.50</b>			<b>1.51</b>
		<b>10,990</b>			<b>126,570</b>			<b>137,560</b>
		<b>0</b>						<b>1,010</b>
GSF of existing		<b>17,965</b>	GSF new		<b>178,616</b>			<b>196,581</b>
		<b>1.63</b>			<b>1.41</b>			<b>1.43</b>

MSBA Guidelines (refer to MSBA Educational Program & Space Standard Guidelines)			
ROOM NFA <sup>1</sup>	# OF RMS	area totals	Comments
		<b>0</b>	
		104,588	
		<b>1,010</b>	Enter grade enrollments to the right
		<b>156,882</b>	
		<b>1.50</b>	
		<b>1,010</b>	Enter grade enrollments to the right

<sup>1</sup> Individual Room Net Floor Area (NFA) Includes the net square footage measured from the inside face of the perimeter walls and includes all specific spaces assigned to a particular program area including such spaces as non-communal toilets and storage rooms.

<sup>2</sup> Total Building Gross Floor Area (GFA) Includes the entire building gross square footage measured from the outside face of exterior walls

**Architect Certification**

I hereby certify that all of the information provided in this "Proposed Space Summary" is true, complete and accurate and, except as agreed to in writing by the Massachusetts School Building Authority, in accordance with the guidelines, rules, regulations and policies of the Massachusetts School Building Authority to the best of my knowledge and belief. A true statement, made under the penalties of perjury.

Name of Architect Firm: HMFH Architects Inc.

Name of Principal Architect: George Metzger

Signature of Principal Architect: 

Date: October 2, 2014



## VARIATION FROM MSBA GUIDELINES

On April 16, 2014, the MSBA returned comments of its review of the Initial Space Summary included in the Preliminary Design Program submitted by the Town of Brookline on March 24, 2014. In this review, the MSBA accepted variations to MSBA guidelines, as follows:

### Core Academic

- Classrooms Grades 1-5 – one additional classroom above the MSBA guideline and classrooms planned at 900 NSF in lieu of 950 NSF with reduced classrooms sized to allocate space for Small Group areas within grade cohort clustering.
- Classrooms Grades 6-8 – one classroom below the MSBA guideline and classrooms planned at 900 NSF with reduced classrooms sized to allocate space for Small Group areas within grade cohort clustering.
- Nine Small Group Rooms programmed at 150 NSF, totaling 1,350 NSF. In total, General Classrooms and Small Group Rooms for grades 1 to 8 total 650 NSF below the guidelines.
- Nine Small Group Rooms, each 150 NSF and totaling 1,350 NSF, are programmed to accommodate Literacy and Math Specialists. The MSBA stated that it does not object to these spaces but requested participation levels and scheduling information.

The net result of these accepted variations to Core Academic space is an increase of 700 NSF, 1,050 GSF (with a 1.5 grossing factor (GFA/NFA)).

### Dining and Food Service

- The MSBA noted that the Cafeteria NSF area has been calculated based on scheduling three lunch periods per day. As such, the Cafeteria is sized 2,525 NSF below the MSBA guideline for a dining room to serve a 1,010 student population.
- The 1,600 NSF allocation for a Stage has been eliminated from the program as the stage is included as part of the existing Auditorium within the Art & Music category. The MSBA stated that this note is not relevant to Option 3.2, a new school facility. *Refer to further discussion about the Stage included within this narrative.*

The net result of these comments is a reduction in Dining and Food Service space of 4,125 NSF, 6,188 GSF (with a 1.5 grossing factor (GFA/NFA)).

## Administration and Guidance

- Three Vice-Principal Offices are proposed – one for each designated grade cluster. The area for a Vice-Principal's office is programmed at 130 NSF. Only one office is included in the MSBA guidelines.
- A 150 NSF METCO office is programmed to offer administrative, student, and family support.

The net result of these accepted variations to Administration and Guidance space is an addition of 410 NSF, 615 GSF (with a 1.5 grossing factor (GFA/NFA)).

In the April 16th review comments, the MSBA requested additional information from the District and design team in order to facilitate a better understanding of the program and to allow for further review. Additional information was requested for the following spaces:

- Four English Language Learner (ELL) rooms of 250 NSF each
- One Enrichment Challenge Support (ECS) room of 250 NSF
- 3,875 NSF of Special Ed support spaces - Resource Rooms (Learning Centers), OT/PT, Special Ed Team Facilitator, Special Ed Team Clerk, BCBA, two Psychologists
- Three Therapeutic Learning Centers at 1,000 NSF each
- Three Comprehensive Learning Centers at 500 NSF
- One Multipurpose Room of 5,500 NSF
- A third Health and Physical Education space at 3,000 NSF. The MSBA noted that the guidelines were exceeded by 2,216 NSF.
- One 200 NSF World Language Office
- A Steps to Success Office of 130 NSF

The Town of Brookline returned responses to the MSBA PDP review on May 5, 2014. The Town of Brookline was invited to present the Devotion School project to the MSBA Facilities Assessment Subcommittee on July 9, 2104. Following the FAS, on July 10th, the MSBA requested more detailed information on the scheduling and use of the proposed Multipurpose Room. This information was returned to the MSBA on July 25th. On August 1, 2014, the MSBA informed the Town that the additional information was reviewed by the MSBA and “found to be responsive.” Based on the review the MSBA determined that it does not



### 3.3.2.4 Preferred Solution

#### Variation from MSBA Guidelines

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object to the District including a Multipurpose Room in the proposed project. The MSBA stated further that.

“Because this performance/ athletic space is in addition to the spaces included in the MSBA guidelines, the MSBA will consider all area associated with this space, exclusive of up to 1,600 NSF for a stage, as ineligible for reimbursement.”

Based on this directive, to be consistent with the MSBA guidelines, the Space Summary proposes 3,900 NSF in the Art & Music category and lists 1,600 NSF for the Stage in the Dining & Food Service category. In the plans, however, the stage is shown as a part of the Multipurpose Room.

The Space Summary included within this Preferred Schematic Report has incorporated the MSBA- accepted variations to the MSBA guidelines in the “Proposed” column. As stated in the Module 3 Feasibility Study instructions, the column titled “MSBA Guidelines” has not been altered with the exception of the insertion of the agreed upon enrollment. In the MSBA Guidelines column, the Total Building Net Floor Area (NFA) is listed as 104,588 NSF. With the accepted MSBA variations and the spaces listed above, the MSBA Guidelines Total Building Net Floor Area (NSF) equals 112,598. With a Grossing Factor of 1.5, the MSBA Guidelines Total Building Gross Floor Area (GSF) totaled 156,882 GSF in the Initial Space Summary. When the accepted variations are included, the MSBA Guidelines Total Building Gross Floor Area (GSF) totals 168,897.

Since the PDP submission, the design team and Devotion educators have engaged in discussions about the proposed alternatives. As requested at the FSA meeting, the District also submitted to the MSBA, on September 15, 2014, a revised educational program – “Edward Devotion Elementary Program”, which is included in this PSR submission. Based on these discussions and goals articulated in the educational program, several modifications to the Space Summary are proposed and included in this submission.

As stated in the Educational Program, “No longer is learning confined to the classroom. Learning is ubiquitous.” Project-based/ problem-based learning is inherent in the educational plan. “Devotion School depends on adjacencies for communication, collaboration, flexible grouping, and teaming. Providing learning areas both in and outside classrooms for small group work, individual tutorial space, and additional instructional break-out rooms are critical in a school with a focus on integrated classrooms at grades K-8, requiring specialized instruction and an emphasis on inclusive practices.” A Project Area is a learning space separate from a classroom and capable of serving as a site for collaborative, project-based work. As indicated in the floor plans, Project

Areas are located adjacent to each group of classrooms, one for each grade level. For each grade level cluster, K-2, Grades 3-5, and Grades 6-8, there are three project areas. In the Core Academic Spaces category, Nine Project Areas, of 250 NSF each, are proposed in the Space Summary. As students engaged in the Project Areas come from the adjacent classrooms, the proposed area for the classrooms has been proposed as 880 NSF rather than 900 NSF. This partially offsets the additional program area.

In Option 1, some program spaces are housed in renovated space in the 1913 building. These include the Technology Classrooms and Music classrooms. In the Space Summary, these areas are smaller than the allowable MSBA guidelines. This does not reflect a request to reduce the allowable area but the possibility that the full area may not be possible due to existing conditions. As design proceeds, efforts will be taken to make the area adhere as closely as possible to the guidelines.

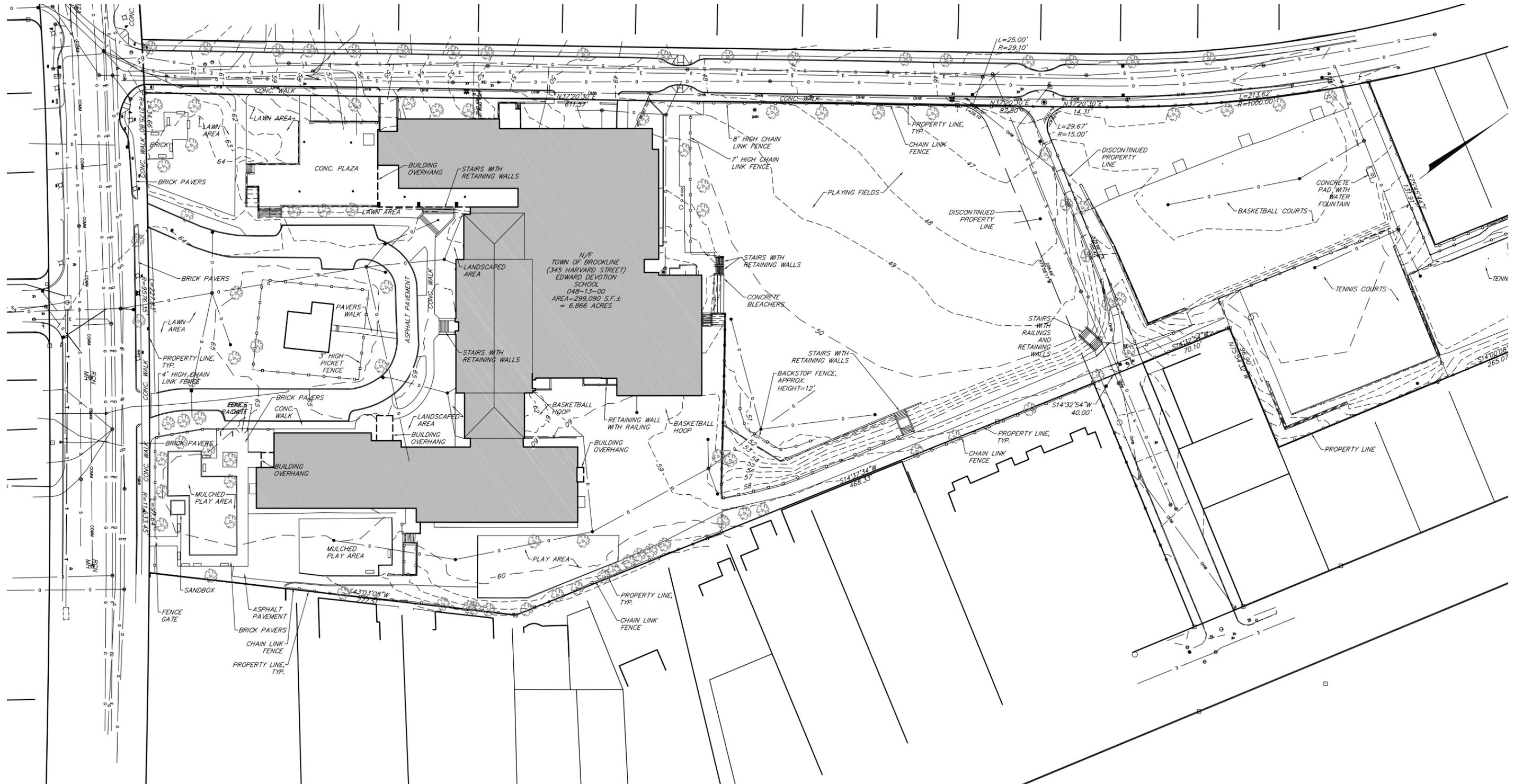
The proposed area for the Gymnasium is 7,000 NSF, which is an increase of 6,000 NSF. As described in the updated educational program,

“The Devotion School hosts a variety of intramural athletic programs, including flag football, volleyball, basketball, and floor hockey. These teams utilize outdoor field space and the large gym for programming. The new design should include a large gym with space for bleachers to accommodate spectators during athletic events.”

The additional area is proposed to provide a regulation basketball court with recommended safety zones and a bank of low-rise bleachers.

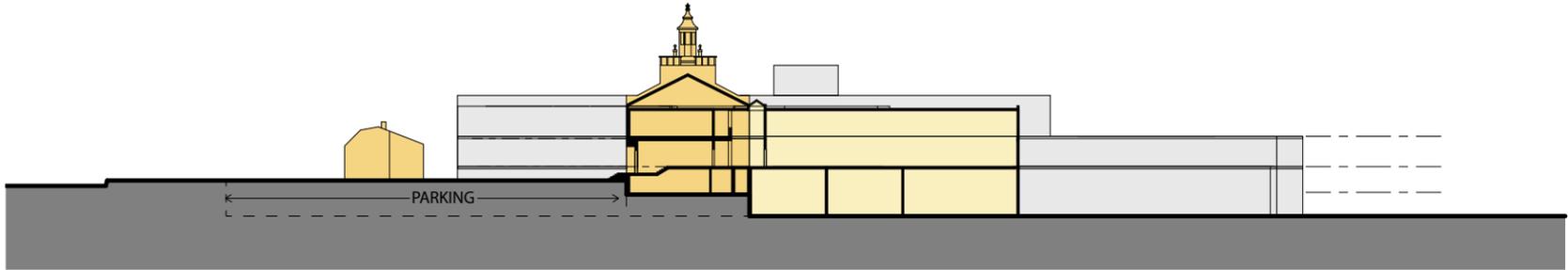
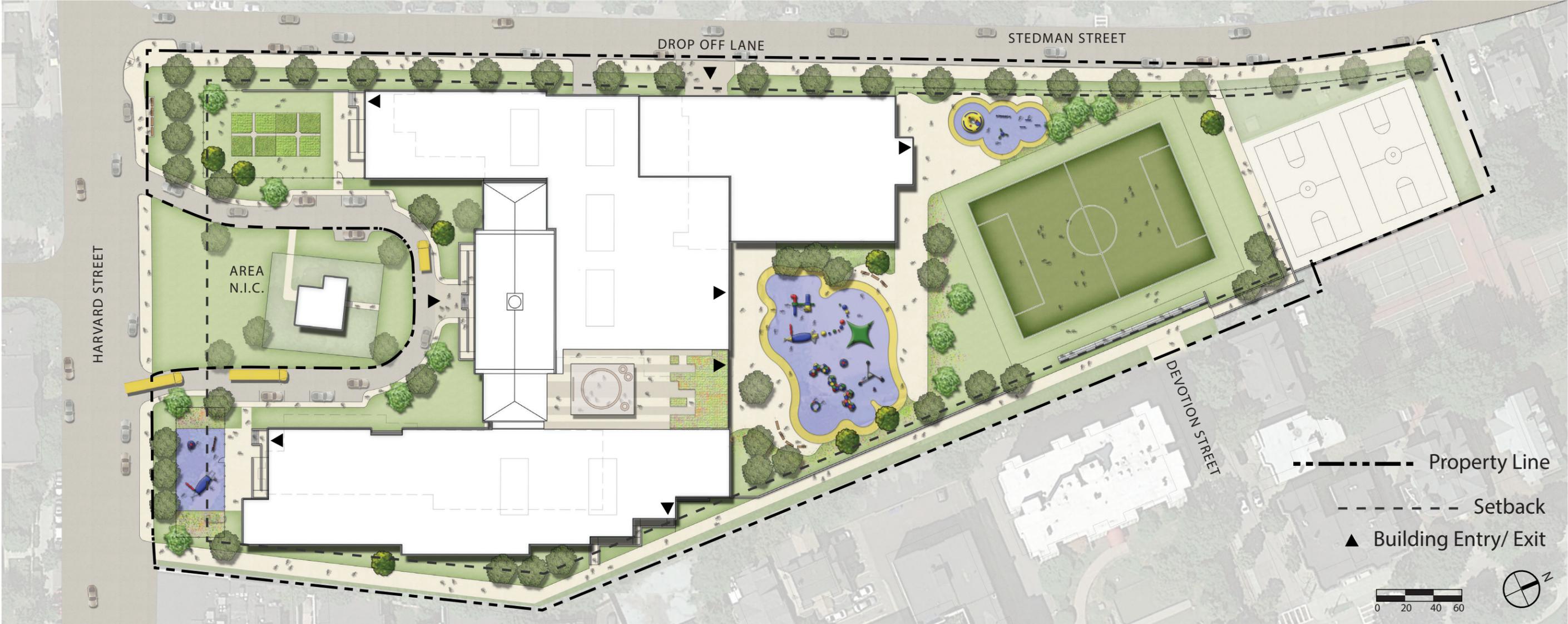
In the “Proposed” column, underground parking has been shown. As requested in the MSBA PDP review, the gross floor area inclusive of the Pre-K spaces and exclusive of the parking spaces has been illustrated. A separate calculation has been provided with the parking facility included.



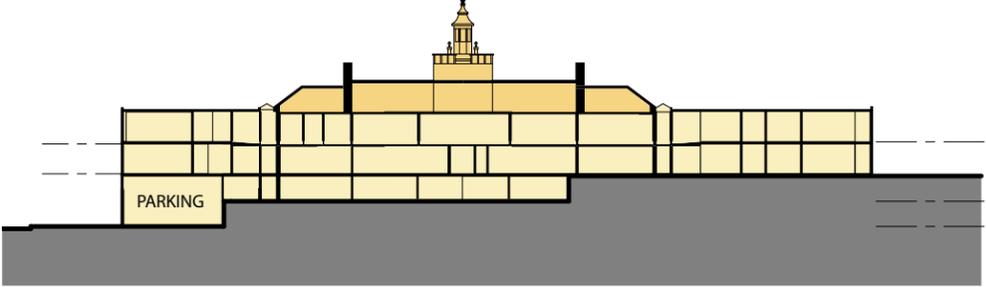




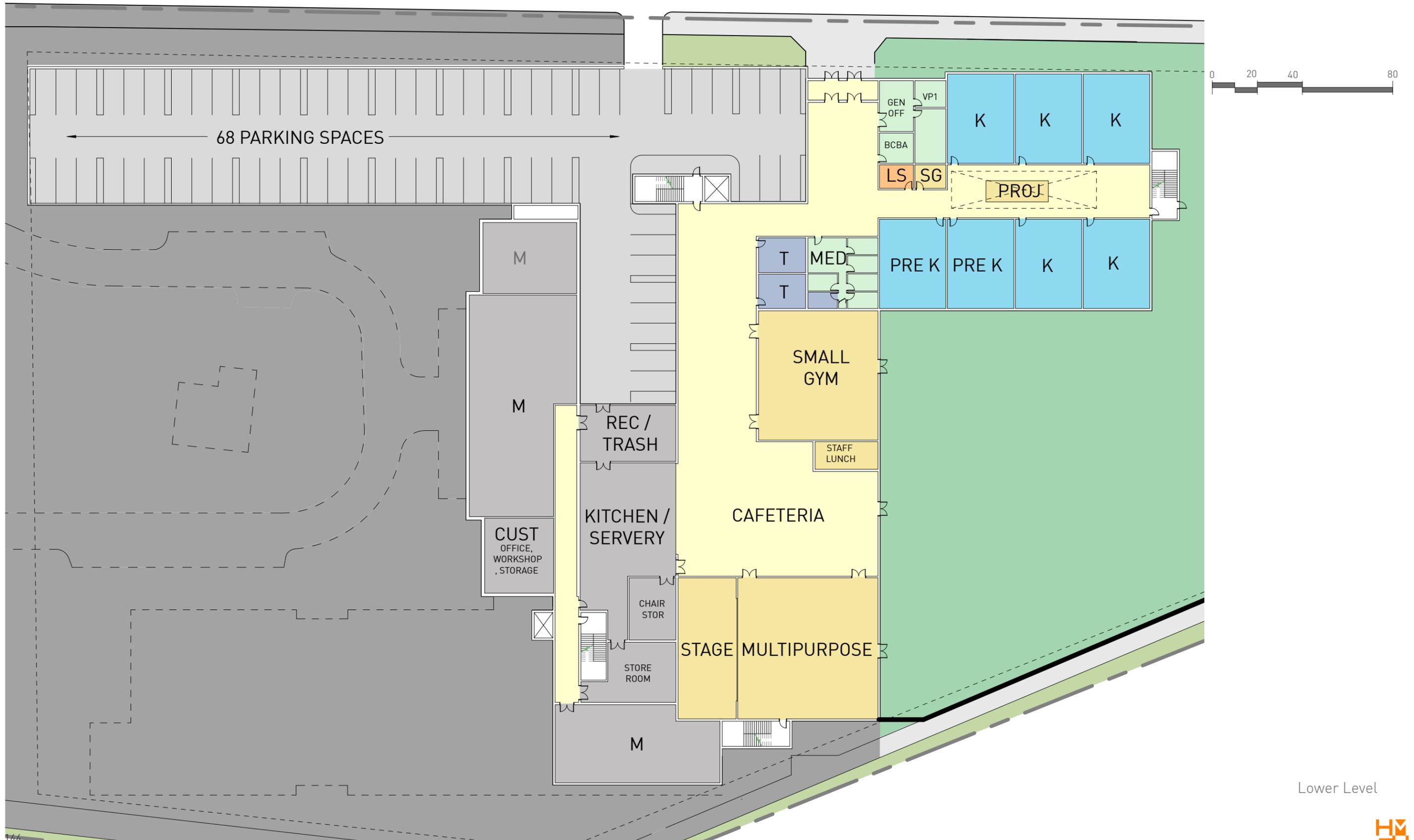
Preferred Option 1



Longitudinal Section

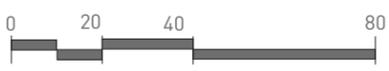


Cross Section

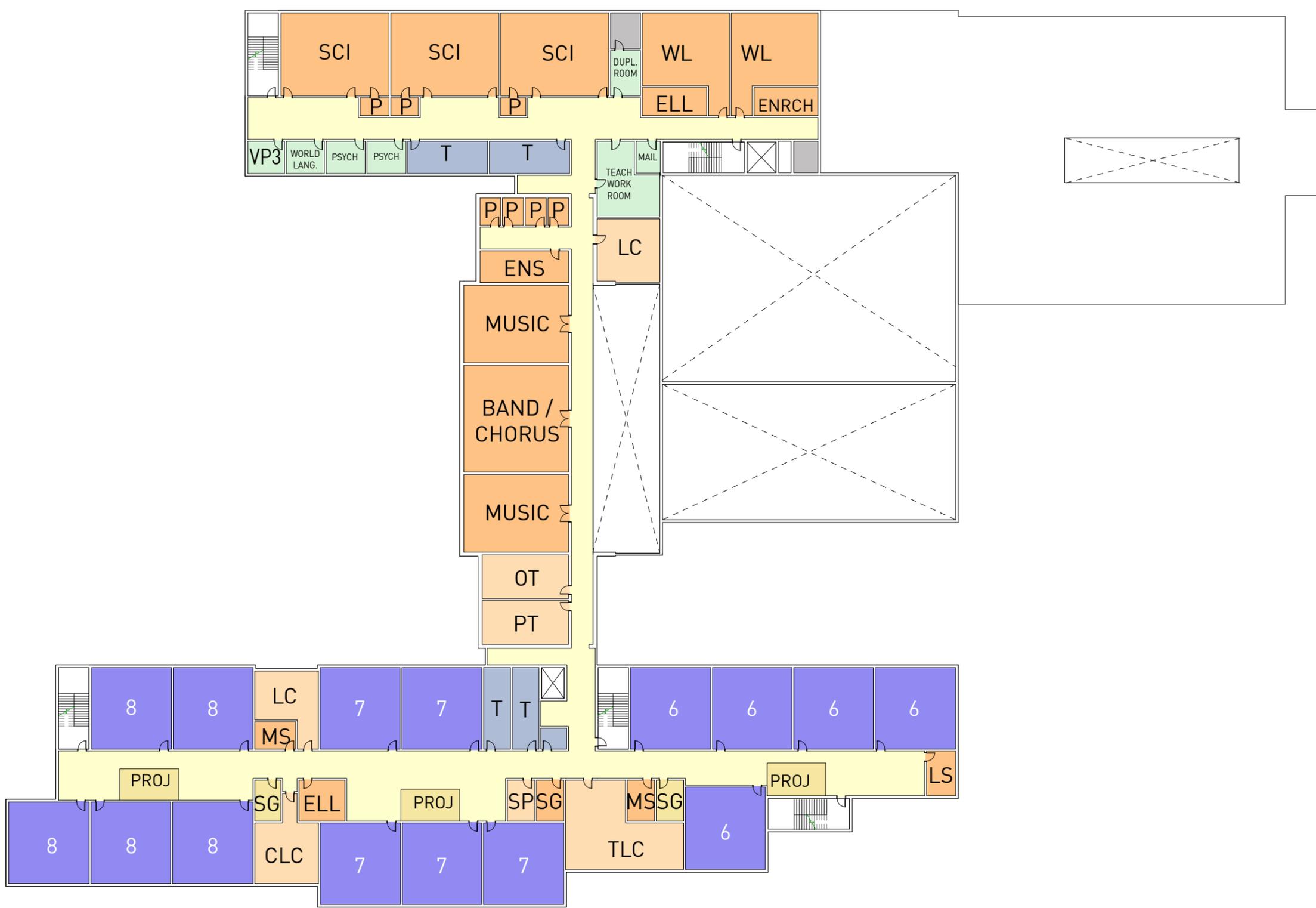


3.3.2.4 Preferred Solution

Building Plans



First Level



Second Level



**HMFH Architects, Inc.**

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t 617 492 2200  
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www.hmfh.com

October 2, 2014

Massachusetts School Building Authority

Re: DRAFT LEED v4 for Schools Project Checklist

To Whom It May Concern,

This is an Acknowledgement that the Brookline School District has identified a goal of 2% additional reimbursement from the MSBA High Efficiency Green School Program. As their Designer, I have submitted a draft of the completed LEED v4 for Schools checklist showing 50 attempted points and an additional 39 possible points, which will meet that goal.

To the best of our ability and to the extent that we can control it, 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 and cost estimates will match the scope of work indicated in the submitted scorecard.

Very truly yours,

HMFH Architects, Inc.



Deborah Collins, AIA

Cc: Tony Guigli



George R. Metzger, AIA  
Laura A. Wernick, FAIA

Lori Cowles, AIA  
Philip S. Lewis, AIA  
C. Julia Nugent, AIA

Deborah A. Collins, AIA  
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Tina Stanislaski, AIA  
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Susan M. Elmore, CPSM  
Melissa A. Greene, AIA  
Matthew LaRue, AIA  
Erica Metzger  
Margaret M. Munroe  
Christopher H. Vance, AIA  
Robert P. Williams, AIA

Stephen Friedlaender, FAIA  
John F. Miller, FAIA  
Mario J. Torroella, FAIA



**LEED v4 for BD+C: Schools**  
Project Checklist

Project Name: Edward Devotion School Brookline, MA  
Date: October 2, 2014

Y	?	N	Credit	Integrative Process	1
<b>13 1 1 Location and Transportation 15</b>					
			Credit	LEED for Neighborhood Development Location	15
			Credit	Sensitive Land Protection	1
			Credit	High Priority Site	2
			Credit	Surrounding Density and Diverse Uses	5
			Credit	Access to Quality Transit	4
			Credit	Bicycle Facilities	1
			Credit	Reduced Parking Footprint	1
			Credit	Green Vehicles	1
<b>4 4 4 Sustainable Sites 12</b>					
			Prereq	Construction Activity Pollution Prevention	Required
			Prereq	Environmental Site Assessment	Required
			Credit	Site Assessment	1
			Credit	Site Development - Protect or Restore Habitat	2
			Credit	Open Space	1
			Credit	Rainwater Management	3
			Credit	Heat Island Reduction	2
			Credit	Light Pollution Reduction	1
			Credit	Site Master Plan	1
			Credit	Joint Use of Facilities	1
<b>5 4 3 Water Efficiency 12</b>					
			Prereq	Outdoor Water Use Reduction	Required
			Prereq	Indoor Water Use Reduction	Required
			Prereq	Building-Level Water Metering	Required
			Credit	Outdoor Water Use Reduction	2
			Credit	Indoor Water Use Reduction	7
			Credit	Cooling Tower Water Use	2
			Credit	Water Metering	1
<b>13 9 9 Energy and Atmosphere 31</b>					
			Prereq	Fundamental Commissioning and Verification	Required
			Prereq	Minimum Energy Performance	Required
			Prereq	Building-Level Energy Metering	Required
			Prereq	Fundamental Refrigerant Management	Required
			Credit	Enhanced Commissioning	6
			Credit	Optimize Energy Performance	16
			Credit	Advanced Energy Metering	1
			Credit	Demand Response	2
			Credit	Renewable Energy Production	3
			Credit	Enhanced Refrigerant Management	1
<b>4 9 0 Materials and Resources 13</b>					
			Prereq	Storage and Collection of Recyclables	Required
			Prereq	Construction and Demolition Waste Management Planning	Required
			Credit	Building Life-Cycle Impact Reduction	5
			Credit	Building Product Disclosure and Optimization - Environmental Product Declarations	2
			Credit	Building Product Disclosure and Optimization - Sourcing of Raw Materials	2
			Credit	Building Product Disclosure and Optimization - Material Ingredients	2
			Credit	Construction and Demolition Waste Management	2
<b>9 5 2 Indoor Environmental Quality 16</b>					
			Prereq	Minimum Indoor Air Quality Performance	Required
			Prereq	Environmental Tobacco Smoke Control	Required
			Prereq	Minimum Acoustic Performance	Required
			Credit	Enhanced Indoor Air Quality Strategies	2
			Credit	Low-Emitting Materials	3
			Credit	Construction Indoor Air Quality Management Plan	1
			Credit	Indoor Air Quality Assessment	2
			Credit	Thermal Comfort	1
			Credit	Interior Lighting	2
			Credit	Daylight	3
			Credit	Quality Views	1
			Credit	Acoustic Performance	1
<b>2 4 0 Innovation 6</b>					
			Credit	Innovation	5
			Credit	LEED Accredited Professional	1
<b>0 2 2 Regional Priority 4</b>					
			Credit	Regional Priority: Specific Credit - Indoor Water Use Reduction	1
			Credit	Regional Priority: Specific Credit - Rainwater Management	1
			Credit	Regional Priority: Specific Credit	1
			Credit	Regional Priority: Specific Credit	1

**50 39 21 TOTALS Possible Points: 110**  
Certified: 40 to 49 points, Silver: 50 to 59 points, Gold: 60 to 79 points, Platinum: 80 to 110

3.3.2.4 Preferred Solution  
Budget Statement - Expenditures

Category	FY13 2012-2013		FY14 2013-2014		FY15 2014-2015		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
<b>Salaries</b>												
<b>Administration</b>												
Admin. Secretary	2.00	93,640	2.00	95,513	2.00	97,423	0.00	1,910	3.00	160,454	1.00	63,031
Assistant Principal	2.00	179,829	2.00	183,426	2.00	187,094	0.00	3,669	2.00	202,517	0.00	15,423
Building Aides / Main Office	1.00	18,117	1.00	18,479	1.00	18,849	0.00	370	1.00	20,403	0.00	1,554
Curriculum Director/Coord.	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Custodians/Maintenance Staff	3.00	148,088	3.00	151,050	3.00	154,071	0.00	3,021	3.00	166,771	0.00	12,700
Executive Secretary	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Facilities Manager	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Guidance	2.00	142,784	2.00	145,640	2.60	187,852	0.60	42,213	3.10	238,788	0.50	50,935
Adjustment Counselor	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Guidance Counselors	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Guidance Director	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Legal	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Nurse	1.00	83,557	1.00	85,228	1.50	152,433	0.50	67,205	2.00	164,998	0.50	12,565
Psychologists	1.00	71,175	1.00	72,599	1.00	74,050	0.00	1,452	1.50	120,105	0.50	46,054
Principal	1.00	126,482	1.00	129,012	1.00	131,592	0.00	2,580	1.00	182,389	0.00	50,797
Special Education Admin	1.00	83,244	0.00	84,909	0.00	86,607	0.00	1,698	0.00	93,746	0.00	7,139
Superintendent/Asst. Superintendent	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
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	-
<b>Total Administration</b>	<b>14.00</b>	<b>946,916</b>	<b>13.00</b>	<b>965,854</b>	<b>14.10</b>	<b>1,089,971</b>	<b>1.10</b>	<b>124,117</b>	<b>16.60</b>	<b>1,350,170</b>	<b>2.50</b>	<b>260,199</b>
<b>Instruction - Teaching Services</b>												
Arts (Visual)	1.70	122,297	1.70	124,743	1.80	133,788	0.10	9,045	2.30	180,266	0.50	46,478
Business	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Communications	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Kindergarten	6.00	318,314	5.00	257,449	5.00	262,598	0.00	5,149	5.00	284,245	0.00	21,647
Kindergarten Aides	5.06	101,137	4.22	82,930	4.22	84,588	0.00	1,659	4.22	91,561	0.00	6,973
ELL	3.80	309,201	4.00	315,385	4.00	321,693	0.00	6,308	4.30	369,481	0.30	47,788
English Language	1.80	153,628	1.80	156,701	1.80	159,835	0.00	3,134	2.00	187,190	0.20	27,356
Literacy Specialists	3.70	281,235	3.50	286,860	3.50	292,597	0.00	5,737	4.00	352,166	0.50	59,569
World Language	3.20	203,679	3.70	207,753	3.90	225,008	0.20	17,255	4.30	271,915	0.40	46,908
Health Education	0.80	63,352	0.80	64,619	0.80	65,911	0.00	1,292	1.00	85,525	0.20	19,613
History & Social Science	1.60	120,671	1.60	123,084	1.60	125,546	0.00	2,462	2.00	164,255	0.40	38,709
Instructional Assistant/Paraprofessionals	23.13	474,021	22.22	464,479	22.22	473,769	0.00	9,290	23.91	555,822	1.69	82,054
Library/Media	1.00	94,050	1.00	95,931	1.00	97,850	0.00	1,919	1.00	105,916	0.00	8,066
Mathematics	2.00	153,336	2.00	156,403	2.00	159,531	0.00	3,128	2.00	172,681	0.00	13,150
Mathematics Specialists	2.10	155,406	2.10	158,514	2.10	161,684	0.00	3,170	2.40	196,282	0.30	34,598
Music	1.70	148,353	1.70	151,320	2.00	173,996	0.30	22,676	2.40	216,699	0.40	42,703
Elementary Classroom Teachers	25.00	1,818,817	26.00	1,920,393	27.00	1,958,801	1.00	38,408	30.00	2,332,969	3.00	374,168
Physical Education	2.80	209,862	2.90	214,059	3.00	224,890	0.10	10,831	3.40	271,789	0.40	46,898
Elementary Classroom Aides (1st Grade)	2.53	67,920	2.53	69,278	2.53	70,664	0.00	1,386	3.37	97,489	0.84	26,825
School Adjustment Counselor	1.00	67,520	1.00	68,870	1.00	70,248	0.00	1,377	1.00	76,038	0.00	5,791
Grant Funded Adjustment Programs	3.00	159,457	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Science	1.60	149,022	1.60	152,002	1.60	155,042	0.00	3,040	2.00	196,183	0.40	41,140
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 Teachers	11.00	801,993	11.00	818,033	11.00	834,394	0.00	16,361	12.00	974,074	1.00	139,681
Substitute Teachers	0.00	114,117	0.00	116,399	0.00	118,727	0.00	2,328	0.00	128,514	0.00	9,787
Technology (Ed Tech Teachers)	1.00	54,660	1.00	55,753	1.00	56,868	0.00	1,115	1.00	61,556	0.00	4,688
Professional Development / Workshops	0.00	24,367	0.00	24,854	0.00	25,351	0.00	497	0.00	27,441	0.00	2,090
<b>Total Instruction - Teaching Services</b>	<b>105.53</b>	<b>6,166,415</b>	<b>101.37</b>	<b>6,085,814</b>	<b>103.07</b>	<b>6,253,380</b>	<b>1.70</b>	<b>167,566</b>	<b>113.60</b>	<b>7,400,060</b>	<b>10.53</b>	<b>1,146,680</b>
<b>Total Salaries Administration &amp; Instruction</b>	<b>119.53</b>	<b>7,113,331</b>	<b>114.37</b>	<b>7,051,668</b>	<b>117.17</b>	<b>7,343,351</b>	<b>2.80</b>	<b>291,683</b>	<b>130.20</b>	<b>8,750,230</b>	<b>13.03</b>	<b>1,406,878</b>
<b>Employee Benefits</b>												
All employee-related fringe (health insurance, retirement etc)		979,277		955,790		998,757		42,967		1,201,374		202,617

Category	2012-2013		2013-2014		2014-2015		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
<b>Materials &amp; Services</b>												
<b>Materials</b>												
Audio-Visual Materials		6,242		6,367		6,494		127		7,030		535
Culinary Arts Materials		-		-		-		-		-		-
General Office Supplies		1,032		1,053		1,074		21		1,162		89
Information technology		67,152		68,495		69,865		1,370		75,624		5,759
Hardware		-		-		-		-		-		-
Software		-		-		-		-		-		-
Library Materials		10,341		10,548		10,759		211		11,646		887
Non info-tech equipment		38,251		39,016		39,796		780		43,077		3,280
Testing Materials & Supplies		2,430		2,479		2,528		50		2,737		208
Textbooks		71,412		72,840		74,297		1,457		80,422		6,124
Vocational Program Materials		-		-		-		-		-		-
<b>Total Materials</b>		<b>196,860</b>		<b>200,797</b>		<b>204,813</b>		<b>4,016</b>		<b>221,696</b>		<b>16,883</b>
<b>Services</b>												
Athletics		-		-		-		-		-		-
Attendance		-		-		-		-		-		-
Food Service		-		-		-		-		-		-
Health Services		-		-		-		-		-		-
Other Student Activities		14,781		15,077		15,378		302		16,646		1,268
Psychological Services		-		-		-		-		-		-
School Security		-		-		-		-		-		-
Student Transportation		-		-		-		-		-		-
<b>Total Services</b>		<b>14,781</b>		<b>15,077</b>		<b>15,378</b>		<b>302</b>		<b>16,646</b>		<b>1,268</b>
<b>Total Material &amp; Services</b>		<b>211,641</b>		<b>215,874</b>		<b>220,191</b>		<b>4,317</b>		<b>238,342</b>		<b>18,151</b>
<b>Facility Costs &amp; Capital Improvements</b>												
<b>Facility Costs</b>												
Custodial Supplies		-		-		-		-		-		-
Electricity		121,016		114,990		116,233		1,243		125,814		9,581
Heating Oil		-		-		-		-		-		-
Maintenance		-		-		-		-		-		-
Building Security Maintenance		-		-		-		-		-		-
Elevator		-		-		-		-		-		-
Equipment Maintenance		-		-		-		-		-		-
Exterminating		-		-		-		-		-		-
Facility Maintenance		382,593		393,120		400,982		7,862		434,036		33,054
Fire Alarm		-		-		-		-		-		-
Fire Extinguisher Inspection		-		-		-		-		-		-
Generator		-		-		-		-		-		-
HVAC Maintenance		-		-		-		-		-		-
Other		-		-		-		-		-		-
Site Maintenance (Grounds)		129,862		134,407		137,095		2,688		148,396		11,301
Technology		-		-		-		-		-		-
Trash Removal		-		-		-		-		-		-
Natural Gas		108,031		118,411		103,811		(14,600)		112,368		8,557
Snow Removal		-		-		-		-		-		-
Telephone		4,485		4,575		4,666		91		5,051		385
Water/Sewer		-		-		-		-		-		-
<b>Total Facility Costs</b>		<b>745,987</b>		<b>765,503</b>		<b>762,788</b>		<b>(2,715)</b>		<b>825,666</b>		<b>62,878</b>
<b>Capital Improvements</b>												
Capital Improvements		65,876		155,323		-		(155,323)		-		-
<b>Total Facility Costs &amp; Capital Improvements</b>		<b>811,863</b>		<b>920,826</b>		<b>762,788</b>		<b>(158,038)</b>		<b>825,666</b>		<b>62,878</b>
<b>Debt Service</b>												
Short-term		-		-		-		-		-		-
Long-term		-		-		-		-		-		-
<b>Total Debt Service</b>		<b>-</b>		<b>-</b>		<b>-</b>		<b>-</b>		<b>-</b>		<b>-</b>
<b>Total Budget &amp; Staff</b>	<b>119.53</b>	<b>9,116,112</b>	<b>114.37</b>	<b>9,144,158</b>	<b>117.17</b>	<b>9,325,088</b>	<b>3</b>	<b>180,930</b>	<b>130</b>	<b>11,015,612</b>	<b>13</b>	<b>1,690,524</b>

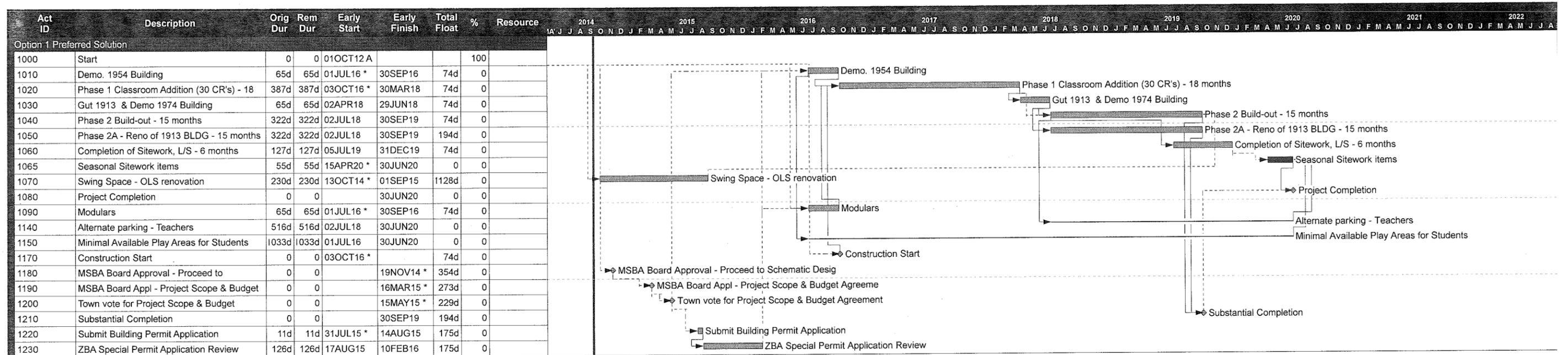


FY11 End of Year Financial Report							
	Regular Day	Special Education	C74 Occupational Day	Adult Education	Other Programs	Undistributed	Total
<b>A. Revenue from Local Sources</b>							
Assessments received by Regional Schools	-	-	-	-	-	-	-
E&D Fund Appropriations	-	-	-	-	-	-	-
Tuition from Individuals	-	-	-	-	-	-	-
Tuition from Other Districts in Comm.	-	-	-	-	-	-	-
Tuition from Districts in Other States	-	-	-	-	-	-	-
Previous Year Unexpended Encumbrances (Carry Forward)	-	-	-	-	-	-	-
Transportation Fees	-	-	-	-	-	-	-
Earnings on Investments	-	-	-	-	-	-	-
Rental of School Facilities	-	-	-	-	-	125,804	125,804
Other Revenue	-	-	-	-	-	-	-
Medical Care and Assistance	-	480,659	-	-	-	-	480,659
Non Revenue Receipts	-	-	-	-	-	-	-
<b>Total Revenue From Local Sources</b>	<b>-</b>	<b>480,659</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>125,804</b>	<b>606,463</b>
<b>B. Revenue from State Aid</b>							
School Aid (Chapter 70)	-	-	-	-	-	6,895,830	6,895,830
Mass School Building Authority - Construction Aid	Contract	1,227,634	-	-	-	912,112	2,139,746
Pupil Transportation (Ch. 71, 71A,71B,74)	-	-	-	-	-	-	-
Charter Tuition Reimbursements & Charter Facilities Aid	Charter Reimt	30,418	-	-	-	3,572	33,990
Circuit Breaker	-	-	-	-	-	1,291,163	1,291,163
Foundation Reserve	-	-	-	-	-	-	-
<b>Total Revenue From State Aid</b>	<b>-</b>	<b>1,258,052</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>9,102,677</b>	<b>10,360,729</b>
<b>C. Revenue from Federal Grants</b>							
SFSF and Education Jobs Federal Grants	-	-	-	-	-	586,149	586,149
ESE Administered Grants	279,567	1,951,826	45,926	-	-	1,688,461	3,965,780
Direct Federal Grants	-	-	-	-	-	-	-
<b>Total Revenue Federal Grants</b>	<b>279,567</b>	<b>1,951,826</b>	<b>45,926</b>	<b>-</b>	<b>-</b>	<b>2,274,610</b>	<b>4,551,929</b>
<b>D. Revenue from State Grants</b>							
ESE Administered Grants	-	-	-	-	-	1,585,186	1,585,186
Other State Grants	-	-	-	-	-	114,800	114,800
<b>Total Revenue From State Grants</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>1,699,986</b>	<b>1,699,986</b>
<b>E. Revenue - Revolving &amp; Special Funds</b>							
School Lunch Receipts	-	-	-	-	-	2,078,015	2,078,015
Athletic Receipts	-	-	-	-	-	288,701	288,701
Tuition Receipts - School Choice	-	-	-	-	-	-	-
Tuition Receipts - Other	-	-	-	1,479,525	-	2,201,607	3,681,132
Other Local Receipts	-	-	-	-	-	136,853	136,853
Private Grants	-	-	-	-	838,237	-	838,237
<b>Total Revenue Revolving &amp; Special Funds</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>1,479,525</b>	<b>838,237</b>	<b>4,705,176</b>	<b>7,022,938</b>
<b>Total Revenue All Sources</b>	<b>279,567</b>	<b>3,690,537</b>	<b>45,926</b>	<b>1,479,525</b>	<b>838,237</b>	<b>17,908,253</b>	<b>24,242,045</b>

FY12 End of Year Financial Report							
	Regular Day	Special Education	C74 Occupational Day	Adult Education	Other Programs	Undistributed	Total
<b>A. Revenue from Local Sources</b>							
Assessments received by Regional Schools	-	-	-	-	-	-	-
E&D Fund Appropriations	-	-	-	-	-	-	-
Tuition from Individuals	-	-	-	-	-	-	-
Tuition from Other Districts in Comm.	-	-	-	-	-	-	-
Tuition from Districts in Other States	-	-	-	-	-	-	-
Previous Year Unexpended Encumbrances (Carry Forward)	-	-	-	-	-	-	-
Transportation Fees	-	-	-	-	-	-	-
Earnings on Investments	-	-	-	-	-	-	-
Rental of School Facilities	-	-	-	-	-	88,434	88,434
Other Revenue	-	-	-	-	-	-	-
Medical Care and Assistance	-	485,689	-	-	-	-	485,689
Non Revenue Receipts	-	-	-	-	-	-	-
<b>Total Revenue From Local Sources</b>	<b>-</b>	<b>485,689</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>88,434</b>	<b>574,123</b>
<b>B. Revenue from State Aid</b>							
School Aid (Chapter 70)	-	-	-	-	-	6,932,850	6,932,850
Mass School Building Authority - Construction Aid	Contract	1,227,634	-	-	-	5,547,769	6,775,403
Pupil Transportation (Ch. 71, 71A,71B,74)	-	-	-	-	-	-	-
Charter Tuition Reimbursements & Charter Facilities Aid	Charter Reimt	13,412	-	-	-	3,211	16,623
Circuit Breaker	-	-	-	-	-	2,026,690	2,026,690
Foundation Reserve	-	-	-	-	-	-	-
<b>Total Revenue From State Aid</b>	<b>-</b>	<b>1,241,046</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>14,510,520</b>	<b>15,751,566</b>
<b>C. Revenue from Federal Grants</b>							
SFSF and Education Jobs Federal Grants	-	-	-	-	-	8092	8,092
ESE Administered Grants	441,133	2,033,454	45,707	-	-	361,757	2,882,051
Direct Federal Grants	-	-	-	-	-	-	-
<b>Total Revenue Federal Grants</b>	<b>441,133</b>	<b>2,033,454</b>	<b>45,707</b>	<b>-</b>	<b>-</b>	<b>369,849</b>	<b>2,890,143</b>
<b>D. Revenue from State Grants</b>							
ESE Administered Grants	-	-	-	-	-	1,581,534	1,581,534
Other State Grants	-	-	-	-	-	106,600	106,600
<b>Total Revenue From State Grants</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>1,688,134</b>	<b>1,688,134</b>
<b>E. Revenue - Revolving &amp; Special Funds</b>							
School Lunch Receipts	-	-	-	-	-	2,250,802	2,250,802
Athletic Receipts	-	-	-	-	-	312,904	312,904
Tuition Receipts - School Choice	-	-	-	-	-	-	-
Tuition Receipts - Other	-	-	-	1,345,041	-	2,727,420	4,072,461
Other Local Receipts	-	-	-	-	-	143,199	143,199
Private Grants	-	-	-	-	644,455	-	644,455
<b>Total Revenue Revolving &amp; Special Funds</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>1,345,041</b>	<b>644,455</b>	<b>5,434,325</b>	<b>7,423,821</b>
<b>Total Revenue All Sources</b>	<b>441,133</b>	<b>3,760,189</b>	<b>45,707</b>	<b>1,345,041</b>	<b>644,455</b>	<b>22,091,262</b>	<b>28,327,787</b>

FY13 End of Year Financial Report							
	Regular Day	Special Education	C74 Occupational Day	Adult Education	Other Programs	Undistributed	Total
<b>A. Revenue from Local Sources</b>							
Assessments received by Regional Schools	-	-	-	-	-	-	-
E&D Fund Appropriations	-	-	-	-	-	-	-
Tuition from Individuals	-	-	-	-	-	-	-
Tuition from Other Districts in Comm.	-	-	-	-	-	-	-
Tuition from Districts in Other States	-	-	-	-	-	-	-
Previous Year Unexpended Encumbrances (Carry Forward)	-	-	-	-	-	-	-
Transportation Fees	-	-	-	-	-	-	-
Earnings on Investments	-	-	-	-	-	-	-
Rental of School Facilities	-	-	-	-	-	98,188	98,188
Other Revenue	-	-	-	-	-	-	-
Medical Care and Assistance	-	364,617	-	-	-	-	364,617
Non Revenue Receipts	-	-	-	-	-	-	-
<b>Total Revenue From Local Sources</b>	<b>-</b>	<b>364,617</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>98,188</b>	<b>462,805</b>
<b>B. Revenue from State Aid</b>							
School Aid (Chapter 70)	-	-	-	-	-	8,949,381	8,949,381
Mass School Building Authority - Construction Aid	Contract	556,757	-	-	-	6,322,443	6,879,200
Pupil Transportation (Ch. 71, 71A,71B,74)	-	-	-	-	-	5,194	5,194
Charter Tuition Reimbursements & Charter Facilities Aid	Charter Reimb	4,030	-	-	-	2,641	6,671
Circuit Breaker	-	-	-	-	-	2,142,130	2,142,130
Foundation Reserve	-	-	-	-	-	-	-
<b>Total Revenue From State Aid</b>	<b>-</b>	<b>560,787</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>17,421,789</b>	<b>17,982,576</b>
<b>C. Revenue from Federal Grants</b>							
SFSF and Education Jobs Federal Grants							
ESE Administered Grants	494,692	2,062,875	51,833	-	-	381,281	2,990,681
Direct Federal Grants	-	-	-	-	-	-	-
<b>Total Revenue Federal Grants</b>	<b>494,692</b>	<b>2,062,875</b>	<b>51,833</b>	<b>-</b>	<b>-</b>	<b>381,281</b>	<b>2,990,681</b>
<b>D. Revenue from State Grants</b>							
ESE Administered Grants	-	-	-	-	-	1,612,250	1,612,250
Other State Grants	-	-	-	-	-	349,499	349,499
<b>Total Revenue From State Grants</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>1,961,749</b>	<b>1,961,749</b>
<b>E. Revenue - Revolving &amp; Special Funds</b>							
School Lunch Receipts	-	-	-	-	-	2,041,672	2,041,672
Athletic Receipts	-	-	-	-	-	290,869	290,869
Tuition Receipts - School Choice	-	-	-	-	-	-	-
Tuition Receipts - Other	906,767	-	-	1,183,305	-	1,998,396	4,088,468
Other Local Receipts	-	-	-	-	-	241,484	241,484
Private Grants	-	-	-	-	657,714	-	657,714
<b>Total Revenue Revolving &amp; Special Funds</b>	<b>906,767</b>	<b>-</b>	<b>-</b>	<b>1,183,305</b>	<b>657,714</b>	<b>4,572,421</b>	<b>7,320,207</b>
<b>Total Revenue All Sources</b>	<b>1,401,459</b>	<b>2,988,279</b>	<b>51,833</b>	<b>1,183,305</b>	<b>657,714</b>	<b>24,435,428</b>	<b>30,718,018</b>

# Proposed Project Schedule



### 3.3.2.9 Local Actions and Approvals

Local Action and Approval Certification	157
Stakeholder Meetings	161
School Building Committee Meeting Minutes	163
Certified Vote	189
Feasibility Study Completion Checklist	191





## 3.3.2.9 Local Actions and Approvals

### Local Actions and Approvals Certification

**THE PUBLIC SCHOOLS OF BROOKLINE**  
**OFFICE OF THE SCHOOL COMMITTEE**  
**BROOKLINE, MASSACHUSETTS**  
Town Hall, 5<sup>th</sup> Floor, 333 Washington Street  
Brookline, MA 02445  
Telephone: 617-730-2430 Fax: 617-264-6451  
www.brookline.k12.ma.us



Susan Wolf Ditkoff, Chairman  
Barbara Scotto, Vice Chairman  
P.H. Benjamin Chang  
Helen Charlupski  
Abby Cox  
Michael Glover  
Lisa Jackson  
David Pollak  
Rebecca Stone

Ms. Diane Sullivan  
Senior Capital Program Manager  
40 Broad Street  
Boston, Massachusetts 02109

26 September 2014

Dear Ms. Sullivan:

The Town of Brookline School Building Committee (“SBC”) has completed its review of the Feasibility Study Preferred Schematic Option for the Edward Devotion school project (the “Project”), and on 26 September 2014, the SBC voted to approve and authorize the Owner’s Project Manager to submit the Feasibility Study related materials to the MSBA for its consideration. A 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.

Since the MSBA’s Board of Directors approved the District to proceed into schematic design on 20 November 2013, the SBC has held thirteen (13) meetings regarding the Project, in compliance with the state Open Meeting Law. These meetings include:

All of the following were posted on the Town of Brookline website and in the Town Clerk’s Office:

13 December 2013, 8:00 a.m., Brookline Town Hall, Room 103, topics of discussion included an update on the designer contract and enrollment, schedule, budget, and design process. List of materials included “Draft Project Budget” dated 12.12.13 and “Schedule for FS/SD” dated 12.10.13.

14 February 2014, 8:00 a.m., Brookline Town Hall, Room 103, topics of discussion included PTO communication, schedule, summary of PTO and Community meetings and design options (presented by HMFH). List of materials included program, MSBA program, organizational and concept diagrams, existing site and play field options dated 2.14.14.

7 March 2014, 9:00 a.m., Brookline Town Hall, Room 111, topics of discussion included criteria for selection of options, a presentation of options (by HMFH), and a selection of options. List of materials included educational program principles (no date), statement of objectives dated 3.7.2014, Review of Options dated 3.7.2014 and concept diagrams dated 3.3.2014.

By a unanimous vote, the Building Committee approved Option 2 (as long as it addresses all educational program issues), 1.1, 1.4 and 3.2 for inclusion in the Preliminary Design Program (PDP) submission to the MSBA and to authorize the Owner's Project Manager to submit the PDP to the MSBA on behalf of the Devotion School Building Committee.

21 March 2014, 9:00 a.m., Brookline Town Hall, Room 103, topics of discussion included a presentation of the Preliminary Design Program (by HMFH) and approval of same.

By a unanimous vote, the Building Committee approved the Preliminary Design Program (PDP) and authorized the Owner's Project Manager to submit it to the MSBA on behalf of the Devotion School Building Committee.

9 April 2014, 8:00 a.m., Brookline Health Center, Denny Room, topics of discussion included PDP Submission, criteria for evaluating options, "Jacob's Ladder Ranking. List of materials included draft list of building design variables and "Jacob's Ladder" instructions and information.

2 May 2014, 8:00 a.m., Brookline Town Hall, Room 103, topics of discussion included project update, analysis and discussion of "Jacob's Ladder" exercise and schedule. List of materials included "Jacob's Ladder Results and Discussion".

30 May 2014, 8:00 a.m., Brookline Town Hall, Room 103, topics of discussion included update on PDP submission, schedule, potential impacts of construction and update on CMR application. List of materials included schedule and impacts analysis.

11 July 2014, 8:00 a.m., Brookline Town Hall, Room 103, topics of discussion included project update, schedule, and decision making process. List of materials included characteristics of options, rubric for evaluating design options and schedule.

25 July 2014, 8:00 a.m., Brookline Town Hall, Room 103, topics of discussion included parking, site program, and occupancy during phased construction. Materials included site plans.

8 August 2014, 8:00 a.m., Brookline Town Hall, Room 111, topics of discussion included Override Study Committee update and presentation of current design options. List of materials included plans of options.

5 September 2014, 8:00 a.m., Brookline Town Hall, Room 103, topics of discussion included PSR submission and project schedule, and presentation of current design options. List of materials included plans and phasing schedule.

### 3.3.2.9 Local Actions and Approvals

#### Local Actions and Approvals Certification

22 September 2014, 8:00 a.m., Brookline Town Hall, Room 103, topics of discussion included decision making process, phasing impacts of options, cost estimating, update of design options and schedule. List of materials included phasing diagrams, plans, schedule, preliminary cost estimate information, and worksheet for evaluating design options.

26 September 2014, 8:00 a.m., Brookline Town Hall, room 103, topics of discussion included a review of the options, a discussion of the options and a vote to include Option 1 in the Preferred Schematic Report (PSR) and a vote to authorize the Owner's Project Manager to submit the PSR to the MSBA on behalf of the Building Committee.

In addition to the SBC meetings listed above, the District held two (2) public meetings, which were posted in compliance with the state Open Meeting Law, at which the Project was discussed. The Meetings were held on 23 January 2014 at 7:00 p.m. and on 10 September 2014 at 7:00 p.m. in the Auditorium of the Edward Devotion School, 345 Harvard Street, Brookline, Massachusetts. The meetings were hosted by the Superintendent of Schools and the School Principal.

At the January meeting, HMFH Architects presented on the process and schedule and the focus of the feasibility study. The Principal conducted a community discussion which included small group discussions followed by a "whole group report out". The meeting concluded with next steps and final comments.

At the September meeting, HMFH Architects presented the design options under consideration by the Building Committee for the Preferred Schematic Report (PSR) submission, schedule, overriding principals for design. A discussion and question and answer period followed.

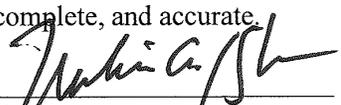
Both meetings were posted both on the Town of Brookline website and in the Town Clerk's Office. In addition, a notice and agenda were sent to all residences and businesses within 300 feet of the school via USPS.

The presentation materials for each meeting, meeting minutes, and summary materials related to the Project are available locally for public review at the Town of Brookline website or in the office of the Brookline Building Department, 333 Washington Street, 3<sup>rd</sup> Floor, Brookline, Massachusetts.

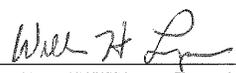
To the best of my knowledge and belief, each of the meetings listed above complied with the requirements of the Open Meeting Law, M.G.L. c. 30A, §§ 18-25 and 940 CMR 29 *et seq.*

If you have any questions or require any additional information, please contact Anthony Guigli, Owner's Project Manager at [tguigli@brooklinema.gov](mailto:tguigli@brooklinema.gov).

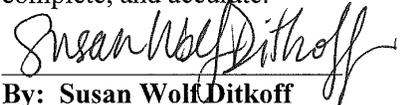
By signing this Local Action and Approval Certification, I hereby certify that, to the best of my knowledge and belief, the information supplied by the District in this Certification is true, complete, and accurate.

  
By: **Mel Kleckner**  
Title: **Town Administrator**  
26 September 2014

By signing this Local Action and Approval Certification, I hereby certify that, to the best of my knowledge and belief, the information supplied by the District in this Certification is true, complete, and accurate.

  
By: **Dr. William Lupini**  
Title: **Superintendent of Schools**  
26 September 2014

By signing this Local Action and Approval Certification, I hereby certify that, to the best of my knowledge and belief, the information supplied by the District in this Certification is true, complete, and accurate.

  
By: **Susan Wolf Dithoff**  
Title: **Chair of the School Committee**  
26 September 2014



#### Stakeholder Meetings Schedule

Date of Meeting	Participants	Location
2014		
April 9	School Building Committee	Brookline Town Hall
May 30	School Building Committee	Brookline Town Hall
July 11	School Building Committee	Brookline Town Hall
July 25	School Building Committee	Brookline Town Hall
July 8	School Building Committee	Brookline Town Hall
July 19	Meeting with Teachers	Devotion School
September 5	School Building Committee	Brookline Town Hall
September 10	Community Meeting	Devotion School
September 22	School Building Committee	Brookline Town Hall
September 26	School Building Committee	Brookline Town Hall
October 1	School Building Committee	Brookline Town Hall



### 3.3.2.9 Local Actions and Approvals

#### School Building Committee Meeting Minutes

Name of Committee: Devotion School Building Committee

Meeting Date: 9 April 2014 Time: 8:00 a.m. Meeting Location: Health Center, Denny Room

Attendees: See attached sign-in sheets.

Next Meetings: May 2, 2014 at 8:00 a.m. in Town Hall Room 103 and May 30, 2014 in Town Hall Room 103.

Topic: Meeting Minutes

Motion to approve the minutes of the 21 March 2014 Devotion School Building Committee Meeting. Unanimously approved.

Topic: Update on Preliminary Design Program (PDP) Submission

T. Guigli stated that the PDP was submitted to the Massachusetts School Building Authority (MSBA) on 24 March 2014 and that the review period is expected to be up to six (6) weeks. To date only a few comments of a clerical nature have been received and addressed by the TOB. These minor items have not impacted the MSBA review. He further stated that the architect, Town staff and the Building Commission representative to the Building Committee have commenced an exercise to assess the impacts of construction on school operations, contractor operations and the neighborhood for each of the options under consideration. This is very preliminary owing to the conceptual nature of the designs at this time. It will be an iterative process that will need to be continually revisited as the designs are developed. He reported that the Board of Selectmen voted on 8 April 2014 to authorize the Town Administrator to submit an application to the Office of the Inspector General to employ the Construction Manager at Risk (CMR) delivery method for the work of the project. Once submitted the approval process takes a number of weeks.

Topic: Criteria for Evaluating Options

T. Sitkoff stated that the methodology is “Jacobs Ladder”. The idea is to begin to develop in a very logical fashion the group criteria and priorities for assessing design options. . The results do not make the decision of which design to choose, but will provide information for discussion purposes.

J. Flewelling then advised all that the educational programming is considered the highest of all criteria and is therefore not part of the day’s exercise. All four options fully meet said program, which she summarized as follows:

- Design “grade level clusters” (K-2, 3-5, 6-8) to make a large school feel smaller.
- Grade level clusters adjacent to services such as SPED, ELL, etc.
- Design for shorter travel distances for younger students.

- Arrival/dismissal locations close to K-2 student areas, this also helps address building security concerns.
- Cafeteria and gym designed to be adjacent to outdoor play areas.
- Building shall include a Multi-Purpose Room that can house 40% of building population.

T. Sitkoff then presented the draft list of twenty (20) design variables that individuals will rank for the “Jacobs Ladder”. She explained that each item should be ranked by each person with a point value between 1 and 25. The more important an item is to an individual, the higher the point value they should assign to it. Once all parties have completed their rankings, the results will be tallied.

A discussion then took place for clarifications of the process and what each issue or aspect of the building design includes. It was noted by H. Charlupski that open space issues do not seem to be reflected in the list. T. Sitkoff stated that more criteria may be added later. P. Roberts noted that just because an issue my collectively rank lower than others it doesn’t mean that it is not important.

The “Draft List of Building Design Variables” is attached.

Topic: Jacob’s Ladder Ranking

The committee then began the exercise of individual ranking of criteria. Once that was done, T. Sitkoff polled each person as to their ranking for each of the criteria. The resultant tally is attached.

Meeting Adjourned at approximately 9:30 a.m.

Respectfully submitted,

Anthony Guigli  
Owner’s Project Manager

Devocommin4914.doc



### 3.3.2.9 Local Actions and Approvals

School Building Committee Meeting Minutes continued

Name of Committee: Devotion School Building Committee

Meeting Date: 2 May 2014 Time: 8:00 a.m. Meeting Location: Town Hall, Room 103

Attendees: See attached sign-in sheets. Under 940 CMR 29.10(8) Ken Kaplan participated remotely by telephone. Chairwoman DeWitt reviewed the Remote Participation Checklist and confirmed that a quorum is physically present and that all votes would be taken by roll call.

Next Meetings: May 30, 2014 at 8:00 a.m. in Town Hall Room 103. Subsequent meetings (all at 8:00 a.m.) are June 13 and 27, July 11 and 25, and August 1, 2014, location(s) TBD.

Topic: Meeting Minutes

Motion to approve the minutes of the 9 April 2014 Devotion School Building Committee Meeting. Unanimously approved by roll call vote with six (6) abstentions (Cronin, Cox, Fischer-Mueller, Batchelor, Bennett and Brown). Dr. Lupini, Mr. Simmons and Mr. Rowe not present (Rowe arrived later).

Topic: Project Update

T. Guigli stated that written comments on the PDP submission were issued by the Massachusetts School Building Authority (MSBA) on 16 April 2014. Since receipt, Town and School staff and the Architect have been working on a response, the final draft of which is under review and expected to be sent to the MSBA no later than Monday 5 May 2014. On other matters, the application to the Office of the Inspector General for approval for the Town to employ the Construction Manager at Risk (CMR) delivery method for construction was recently submitted. Anticipating favorable action, the OPM has begun to craft the Request for Qualifications (RFQ) for procurement.

In response to questions, T. Guigli stated the RFQ and contract with the CMR firm are likely to include provisions for the Town to abandon this approach in the event an acceptable Guaranteed Maximum Price (GMP) is not realized. This will need to be carefully considered moving forward along with when is the right moment to negotiate the GMP and what effect all of this may have on schedule and the ability to pre-purchase certain scope items.

Topic: Analysis and Discussion of Jacob's Ladder Exercise

T. Sitkoff stated the goal of today's meeting is to review the results of the Jacob's ladder exercise by identifying items that the Committee is in general agreement on and to provide direction to the architect accordingly, and to identify those that need further discussion.

To do this she then reviewed the results in the attached spreadsheets and encouraged comment on the "Description of Results" and the "Assumption of Meaning" in each

category. From the discussions, some verbiage was modified and there was agreement that the shaded portions of the list under the heading “Submit to Architects” were acceptable to the Committee. One clarification is that just because a category may be lower on the list of priorities, it does not necessarily mean it is unimportant, just that it is ranked lower than other items of greater importance to the Committee.

It was agreed that “MSBA Eligible” and “Community Input” would be discussed at the 30 May 2014 meeting.

A discussion then took place about “Historic Character” and “Site Programming and Organization”. These are items that require further discussion as there are aspects of the issue that are ambiguous.

D. Pollak stated that the question of demolition of the 1913 building has five basic aspects to it including preservation, phasing impact and capacity of the Old Lincoln School, differences of cost and program and site and open space configuration.

In expressing their opinions, some Committee members noted that the 1913 building should be preserved because of it is one of a limited number of “iconic” buildings in Brookline, because it is part of the fabric of the neighborhood, concerns about losing the auditorium, how the neighborhood uses the space, and the physical interface of the 1913 building to the Devotion House and the street scape among other attributes.

Parties noted that the Override Vote must be kept in mind and how the project cost, design and other factors may influence voters.

An overriding principal is that the educational program not be compromised.

A discussion as to whether there is any possibility of housing the entire student population off site took place. The Town and School administration will explore this question again and report back to the Committee at the 30 May 2014 meeting. To date, that approach has not been fruitful.

A discussion of schedule then took place. The Town needs to vote a preferred option by late July or early August in order to make the September 2014 MSBA Board meeting. Failure to do so will mean a two (2) month delay as they meet bimonthly. By March 2015, the schematic design must be complete and submitted to the MSBA and the Override vote is planned for May 2015.

Meeting Adjourned at approximately 10:00 a.m.

Respectfully submitted,

Anthony Guigli  
Owner’s Project Manager



### 3.3.2.9 Local Actions and Approvals

#### School Building Committee Meeting Minutes continued

Name of Committee: Devotion School Building Committee

Meeting Date: 30 May 2014 Time: 8:00 a.m. Meeting Location: Town Hall, Room 103

Attendees: See attached sign-in sheets.

Next Meetings: All commence at 8:00 a.m. are June 26, July 11 and 25, and August 8 and 22, September 5, 2014, location(s) TBD.

Topic: Meeting Minutes

Approval of May 2, 2014 meeting minutes tabled until the next meeting on June 26, 2014.

Topic: Update on Preliminary Design Program (PDP) submission

T. Guigli stated that written comments on the PDP submission were issued by the Massachusetts School Building Authority (MSBA) on 16 April 2014. The response to said comments was sent to the MSBA on Monday 5 May 2014. Last week in a telephone conversation, he stated the project staff have been invited to a meeting of the Facility Assessment Subcommittee (FAS) on either June 25 or July 9 (date to be determined by the MSBA). The OPM has asked the MSBA to include the Devotion project on the 6/25 meeting agenda.

The purpose of the meeting is to review the PDP submission and obtain direction as a result. Any design/program issue is a potential topic of discussion, however there are a few items that will most certainly be vetted including how the four options under consideration address the needs of the educational program, parking and structured parking and the proposed Multi-Purpose Room. The MSBA will be interested in the justification for the structured parking and Multi-Purpose Room as both are deviations from their standard educational program template. If they are ultimately included in the design of the project, MSBA participation in costs is not assured.

Topic: Schedule Update and Potential Impacts of Construction

T. Guigli presented the updated schedules dated 5.28.2014 and “Schedule and Impacts Analysis” narrative dated 5.29.2014 (copies attached). He summarized a number of the key points in those documents and stressed that they are very preliminary and will change often as the design progresses and other new information and viewpoints are considered.

The date of full occupancy of any of the options is currently the date that all site work is complete. If it is determined that occupancy can happen prior to that point, then a number of weeks or months are gained in that regard. Further, once the CM at Risk firm is engaged, it is expected they will offer ideas and suggestions on the work plan and schedule.

Under Option 3.2, Dr. Lupini stated that the demolition of the current school building may have to be delayed for a time to address system-wide school enrollment issues.

Topic: Update on CM at Risk Application

T. Guigli stated that the application to the Inspector General's Office (IG) for permission to employ the Construction Manager at Risk (CMR) method of construction project delivery (M.G.L. ch. 149A) was submitted. This resulted in some questions from the IG's office, the responses for which are being prepared now.

If approved, it is expected that the time frame to procure and execute a contract with the CMR is about six months.

Meeting Adjourned at approximately 9:00 a.m.

Respectfully submitted,

Anthony Guigli  
Owner's Project Manager



### 3.3.2.9 Local Actions and Approvals

#### School Building Committee Meeting Minutes continued

Name of Committee: Devotion School Building Committee

Meeting Date: 11 July 2014 Time: 8:00 a.m. Meeting Location: Town Hall, Room 103

Attendees: See attached sign-in sheets.

Next Meetings: All commence at 8:00 a.m. are July 25 Town Hall Room 103, August 8 Town Hall Room 111, August 22 TH Room 103 and September 5, 2014 TH Room 103.

Topic: Meeting Minutes

H. Charlupski moved approval of the Meeting Minutes of May 2, 2014 and May 30, 2014. Second by A. Cox and A. Hyatt, respectively.

***Meeting minutes of May 2, 2014 and May 30, 2014 unanimously approved with P. Roberts abstaining on May 30 minutes.***

Topic: Project Update

T. Guigli reported on the Facility Assessment Subcommittee (FAS) meeting at the Massachusetts School Building Authority (MSBA) on 7.9.2014. Unfortunately, approval of the Educational Program/Template was not secured. The MSBA maintains that the case has not yet been completely made by the Town of Brookline as to the need for the Multi- Purpose Room in the educational program.

B. Lupini stated there are two decision points; allowing the Multi-Purpose Room and MSBA financial participation in its cost if it is allowed. It has been confirmed that currently the MSBA does not include such spaces in elementary, middle or K-8 schools. It is also thought that the Multi-Purpose Room may be more readily accepted in an additions/renovations option since the space already exists and may be of a smaller grossing factor, but that is not confirmed.

A discussion about the utility and use of the Multi-Purpose Room then took place. Questions were asked about what benefit would be obtained by removing the interstitial floor, flexibility given the size of the space, sight lines, etc. S. Modigliani stated that if the Multi-Purpose Room is not allowed in the program for Option 3.2, then it effectively eliminates this option from further consideration, since the space is considered by the TOB to be essential to the educational program. He stated his opinion that this option offers certain benefits to the project not available with the addition/renovations options including lower cost, little or no relocation of students, more compact program and more rapid move-in. All parties agree that finalization of the educational program with the MSBA as soon as possible is essential.

T. Guigli noted that he will be working with the architect and school staff in the coming days to get additional information to the MSBA on the scheduling and use of common spaces in the proposed design in an effort to secure approval of the educational

program/template as soon as possible. In other update news, he reported the first draft of the CM at Risk RFQ has been completed and is under review.

Topic: Schedule Update

T. Guigli confirmed that the schedule attached to the minutes of May 30, 2014 with a run date of May 28, 2014 is the current and latest schedule. It will be forwarded to the MSBA to satisfy their request for an updated schedule. Among other things, it calls for at least one community meeting in September and for selection of the “preferred option” at the end of September.

G. Metzger stated that this latest schedule is in jeopardy based on the fact that the educational program/template is not approved and design progress has been on hold for two months.

Topic: Decision Making Process

Selectman DeWitt distributed two documents (attached) “Characteristics of Options” and “Rubric for evaluation design options” and reviewed them with the Building Committee. She stated that for any and all designs, the assumption is that the educational program is fully met, therefore the intent is that the options will be assessed on other criteria. When asked whether all options in the Preliminary Design Program (PDP) submission must be developed, G. Metzger stated that each must be developed to a level and to a points that one or more of them are not worth pursuing further. For example, one or more of the additions/renovations options may be “collapsed” into another one of the additions/renovations options if they are so similar to each other.

G. Metzger then reviewed the four options with the Committee with respect to open space and active play areas, summarizing as follows:

Option 1.1 currently includes more emphasis on active play fields on Harvard Street.

Option 1.4 currently does not include active play fields on Harvard Street.

Option 2 is similar to 1.1 but can be re-programmed to move active play areas to rear of site

Option 3.2 currently includes active play spaces between the footprint of the proposed building and the existing Devotion House.

Active play fields are loosely defined as those that would require a protective enclosure for errant balls as opposed to for aiding in management of children on site. G. Metzger stated there is varying amounts of flexibility in the characterization of the options above as will be revealed and explored when the designs are further developed in the coming weeks. A discussion then took place as to providing the architect some input in said effort.



### 3.3.2.9 Local Actions and Approvals

School Building Committee Meeting Minutes continued

Ultimately it was the consensus of the Committee that there should be no active play fields directly abutting Harvard Street forward of the Devotion House.

Selectman DeWitt then briefly updated the Committee on the time table and process of the proposed Override vote.

Finally a discussion took place about the need for the architect to continue work on the project assuming that the Multi-Purpose Room will be included in the project but not funded by the MSBA. T. Guigli recommended that the architect proceed, noting that it is not without risk to the Town. The downside is that the Multi-Purpose Room is not included and that there are costs incurred to re-design. G. Metzger stated there is limited risk if the decision is received by the next Building Committee Meeting. The consensus of the Committee is that the architect proceed.

Meeting Adjourned at approximately 9:30 a.m.

Respectfully submitted,

Anthony Guigli  
Owner's Project Manager

Name of Committee: Devotion School Building Committee

Meeting Date: 25 July 2014 Time: 8:00 a.m. Meeting Location: Town Hall, Room 103

Attendees: See attached sign-in sheets.

Next Meeting: August 8 Town Hall Room 111, 8:00 a.m. Other scheduled meetings are August 22 TH Room 103 and September 5, 2014 TH Room 103 (8:00 a.m.).

Topic: Meeting Minutes

H. Charlupski moved approval of the Meeting Minutes of July 11, 2014. Second by P. Roberts.

***Meeting minutes of July 11, 2014 unanimously approved with K. Kaplan and J. Fischer-Mueller abstaining.***

Topic: Parking Capacity

B. Dewitt stated that there are a number of aspects of this project that aren't included as part of the MSBA reimbursement package that have an impact. Parking is one of these and how it is addressed will be of great importance to the neighborhood. If structured parking is proposed to be part of the solution and none of the cost is reimbursable, then the Town has a decision to make as to its inclusion in the project.

G. Metzger stated that as part of the traffic consultant's work it was determined that enrollment growth impacts parking, and drop-off and pick-up of students; there is a need for an additional twenty (20) parking spaces for added staff. Currently there are 129 official spaces; 55 in the garage, 9 in the existing driveway and the balance are permitted spaces on neighborhood streets. The current working design assumption is that the additional spaces will be accommodated in similar proportions; that is half on site and half in the neighborhood. In response to a question, D. Collins stated it is unlikely any parts of the existing garage can be maintained for re-use. The reasons for this include the fact that the existing 1974 building sits atop it and is planned for demolition and codes have changed since the garage was first built leaving the structure inadequate for re-use.

Topic: Site Program

G. Metzger stated that programming of the site has been discussed in terms of the needs of the school, versus recreation, versus the neighborhood. The priorities as understood by HMFH are the following;

- School program needs including structured play area(s).
- Accommodating on site the needs of recreation to the extent possible.
- Other desired accoutrements – not likely to realize owing to site limitations.

### 3.3.2.9 Local Actions and Approvals

#### School Building Committee Meeting Minutes continued

HMFH will inventory the things that can fit on site, what cannot fit, what is school driven (including outdoor classroom(s)) and what is not. Decisions will then need to be made as to the site program elements to include in the project. A discussion then followed as to site and site programming.

B. DeWitt advocated for retaining or enhancing issues important to the community to the extent possible. M. Klecker advocated for maintaining pedestrian access and circulation. D. Pollak requested that the Committee and architect explore the feasibility of reopening Devotion Street from Babcock Street with a traffic turn-around on site so as to potentially alleviate traffic on Harvard and Stedman Streets. T. Guigli stated this appears to be out of the scope of the project and may have significant schedule impacts. G. Metzger stated that HMFH will do a quick analysis of this idea as to feasibility and agrees that implementation, if it is indeed feasible, may involve a protracted process.

G. Metzger and D. Collins then presented “Concept” site plans of the various options (see attached). G. Metzger stated the drawings are updates from earlier work and the approach is more consistent and detailed.

Option 1.5 is an attempt to make building massing more compact to save as much open space as possible. It includes a swath of community open space at the main entrance on Harvard Street and includes the same pedestrian access and underground parking in same location as it is currently. It allows for basketball or U-9 soccer field in the rear of the building and the new construction section is four (4) stories, but it starts at a lower elevation on Stedman Street. It includes two stories at the “L” wing out to Harvard Street and two stories at the gym.

Option 2.1 is five (5) floors total in the new construction portion of the building. This concept preserves the most green space but presents the biggest challenges to maintaining classroom “clusters”. On Harvard Street it includes public spaces, children’s structured play areas, and an outdoor classroom. The rear of the building includes U-9 soccer field and basketball courts.

Option 3.4 is the new construction concept retaining the 1913 building as a stand-alone facility. This option, because of limited outdoor space has no active play areas for soccer or baseball/softball. In addition, it would require significant additional funds (not reimbursable) for the renovation/re-use of the 1913 building. If the 1913 building were demolished, this concept would allow for an active play area in between the Devotion House and the school.

A discussion of the merits of the designs follows. Some believe building height is worth the added open space. Some think placing some of the massing of the building toward the south of the site as in Options 1.4 or 1.5 is acceptable. All were reminded that the 1913 building has no north and south elevations to preserve so any design must account for that fact.

For the next meeting the architect expects to present three dimensional models of the options.

Topic: Occupancy During Phased Construction

G. Metzger stated that based on conversations with the School Department, the current planning for design is that the number of students that will remain on campus during construction is the number that would be housed in thirty-five (35) classrooms, or all of K-6 (no pre-school), including enrollment growth (k-6 classrooms x 5). Grades 7 and 8 are presumed to be housed off-campus. The current enrollment is 825; the planned enrollment is 1010. With grades 7 and 8 so relocated, the maximum population remains 825.

Town and School Administration are still working on exploring possibilities of getting all students moved off-campus during construction. Nearby houses of worship may be the best hope for doing so, however all parties agree that nothing has materialized as yet and the chances of actually achieving this are low.

P. Rowe did state that there is the possibility of including relocating the 6<sup>th</sup> grade. This depends on what the final use of the Old Lincoln School is determined to be for the term of construction.

Meeting Adjourned at approximately 9:30 a.m.

Respectfully submitted,

Anthony Guigli  
Owner's Project Manager



#### **Meeting Minutes**

Name of Committee: Devotion School Building Committee

Meeting Date: 8 August 2014 Time: 8:00 a.m. Meeting Location: Town Hall, Room 111

Attendees: See attached sign-in sheets.

Next Meeting: September 5, 2014 TH Room 103 (8:00 a.m.). Community Meeting  
September 10, 2014, Auditorium, Edward Devotion School, 345 Harvard Street at  
7:00 p.m.

Topic: Meeting Minutes

***Meeting minutes of July 25, 2014 unanimously approved with A. Cox, S. Modigliani, S. Cronin, B. Lupini and C. Simmons abstaining.***

Topic: Override Study Committee

B. DeWitt and S. Modigliani provided an update on the Override Study Committee. Its report has been submitted and among the conclusions is a unanimous finding that the Edward Devotion School Project should proceed. Under that scenario, Town Meeting will be required to approve all of the project funds irrespective of the fact that a part of the project will be funded by the MSBA.

Topic: Presentation of Current Design Options

The HMFH team presented the design options in their current stage of development. According to G. Metzger, Options 1.6, 1.7 and 1.8 all retain the 1913 building with new construction around it. Options 2.1 and 2.2 also retain the 1913 building but the new construction is a taller more linear building addition. Options 3.4 and 3.5 are all new construction with or without the retention of the 1913 building, which would need considerable work in its own right if it were to be retained. If retained, it would also need to be reprogrammed or repurposed as all of the school program would be housed in the new building.

Option 1.6 retains more of the 1913 building and adds wings of classrooms similar to the current configuration of the school. It allows for an entrance where it exists now in the 1913 building, keeps the bus loop and more of the program elements are on the Harvard Street end of the site. Assuming that only the 7<sup>th</sup> and 8<sup>th</sup> graders are relocated during construction this option is difficult to achieve the 35 classrooms on site that are required for the phasing plan. If the 6<sup>th</sup> grade is ultimately also moved off-site, this option becomes somewhat easier to implement with respect to phasing.

With this option, the existing gym becomes the new cafeteria, and a new gym is added. The design team is working on maintaining the grade cluster concept, as currently this is

the only option that doesn't achieve the three grade cluster for every grade. The Multi-Purpose room is a two story volume space. No baseball field can be located on site.

Option 1.7 includes outdoor courtyard classroom space and the lower level has many of the public spaces. Part of the roof serves as a play space. The main entrance to the school would remain off Harvard Street, with a lower entrance off Stedman Street. The 1913 Building would house a double volume media center and administrative spaces. The site houses three basketball courts.

Option 1.8 again has the main entrance off Harvard Street and a lower level entrance off Stedman Street. The cafeteria, gym, small gym and Multi-Purpose Room all have direct access to play areas. The upper levels (1<sup>st</sup> and 2<sup>nd</sup> floors) house administrative areas and classrooms. The parking area is below the new construction. This is the lowest profile building of the current options. It is three stories along Stedman Street, but runs much longer on the street.

Option 2.1 organizes the program vertically and connects to the 1913 Building. The structured parking is in approximately the same area it is currently. The outdoor area along Harvard Street is maintained as community green space. It is organized to have classrooms together in their groupings. The first floor houses the larger communal spaces and maintains a two story Multi-Purpose Room.

Option 2.2 again organizes the program vertically and connects to the 1913 Building. The parking is below the new construction and the new addition is wider than in Option 2.1. It is six levels in the back and is assumed at this point to be over 70 feet in height which implies "high rise" construction. Classrooms are organized in the cluster formation.

Option 3.4 is new construction and uses more of outdoor space in its building footprint and parking is underneath the building. In this option, the 1913 Building could be demolished or retained and repurposed. The bus drop off is from Harvard Street into a traffic circle near the upper entrance.

Option 3.5 is also new construction but it consolidates the program more vertically, thus maximizing open space. It is six stories of occupied space above the structured parking. It encroaches on the height limit.

Of the two new construction options, 3.4 may be preferable as it avoids high rise construction and the floor plans are closer to the preferred educational layout as there is less vertical stacking. Because it is all new construction, it would be only one phase and would thus allow the existing school to remain fully operational during construction.

D. Collins noted that that HMFH had looked at the suggestion of rebuilding Devotion Street as an access to the site. It takes up too much green space and divides the site, further complicating site programming. None of the options allow for U-11 soccer, all assume currently U-9 soccer.

### 3.3.2.9 Local Actions and Approvals

School Building Committee Meeting Minutes continued

D. Pollak maintains that a number of the options would benefit by transferring more of the program and building along the south side of the site, thus reducing massing and building height of the main areas of the planned school.

S. Modigliani requests the design team consider factors of the impacts of the options such as cost, schedule, phasing, impacts to operations, etc. G. Metzger stated there will be much more information on these at the September 5 meeting.

After further discussion, it was agreed the architect will focus on development of Options 1.8, 2.1 and 3.5 (retaining 1913 Building).

Meeting Adjourned at approximately 9:45 a.m.

Respectfully submitted,

Anthony Guigli  
Owner's Project Manager

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## Meeting Minutes

Name of Committee: Devotion School Building Committee

Meeting Date: 5 September 2014 Time: 8:00 a.m. Meeting Location: Town Hall, Room 103

Attendees: See attached sign-in sheets.

Next Meetings: September 26, 2014 TH Room 103 (8:00 a.m.). Community Meeting September 10, 2014, Auditorium, Edward Devotion School, 345 Harvard Street at 7:00 p.m.

Topic: Meeting Minutes

Motion by K. Kaplan to approve the minutes of 8 August 2014.

***Meeting minutes of August 8, 2014 unanimously approved with H. Charlupski and S. Brown abstaining.***

Topic: Preferred Schematic Design Submission to the MSBA

T. Guigli briefly outlined the schedule and milestones of the project for the next month. October 2, 2014 is a hard deadline for the Town to submit to the MSBA the Preferred Schematic Report (PSR). It is a comprehensive collection of documents and approvals related to the Preferred Schematic and involves a significant amount of work for the design team, School Department and Owner's Project Manager (OPM). To that end, the work of the document must be complete by the next Building Committee Meeting now scheduled for 26 September 2014. It is at that meeting that the Committee will be expected to vote the preferred schematic design and authorize the OPM to submit the PSR to the MSBA.

S. Modigliani stated that the Committee should have a framework for making the decision as to the preferred schematic option. Included in that framework are issues of cost, schedule, phasing (how many phases and what are the impacts), programming of open space (include Park and Recreation Department), and input from the educators as to what design option best responds to and satisfies the educational program for years to come.

Topic: Presentation of Current Design Options

The HMFH team presented the design options in their current stage of development. G. Metzger stated that HMFH had met with its structural, mechanical and electrical consultants to gather their input on the three options currently under consideration. In addition, there was one meeting with some of the teaching staff last month to present the options and get comments.

### 3.3.2.9 Local Actions and Approvals

#### School Building Committee Meeting Minutes continued

From the last Building Committee meeting, HMFH learned that with regards Option 1.8, some are of the opinion that the form of the proposed courtyard may be enclosing the Devotion House too much. The revised Option 1.8-F pulls the wings back from Harvard Street so that their massing is not as enveloping of the Devotion House. The wing along Stedman Street houses Pre-K, K and grades one and two. These classrooms are near play areas and the cafeteria, gym and Multi-Purpose Room. On the first floor, outside of the Library/Media Center is a play space. There is a double wide corridor in front of the Library/Media Center which serves as a gathering space or small atrium at the entry to the school. This is planned to be a two-phase construction with the wings to the south and north being built first, and the center, connecting section built in Phase 2.

From the last meeting some of the comments relative to Option 2.1 were that the massing from Harvard Street was too imposing with the suggestion of moving more of the program and building to the south side of the site. In addition, there were concerns with the link connector from new building to 1913 Building. Option 2.1-D is now a four story addition instead of five stories as more of the building is shifted to the south side of the site. There is an entrance from Stedman Street in the lower level which houses parking, Multi-Purpose, Cafeteria and Library/Media Center. The first floor entrance is in the 1913 Building which houses Administration and Pre-K. The link houses kindergarten and the balance of this floor houses the gym, small gym and grades 1 and 2. The cafeteria and gym exit directly to outdoor play areas. Upper floors house grades 3-8, art, music and science. This is planned to be a two phase construction with the addition to the back of the building built first. The wings are then torn down and the link is built in Phase 2.

Option 2.1-F is a five story addition to the rear of the 1913 Building. The lower floor houses parking, cafeteria and Multi-Purpose Room. The 1913 Building houses administration and Pre-K. Kindergarten, gym, small gym and grades 1 and 2 are housed in the balance of the first floor. The second and third floor house grades 3 through 8. The top floor houses Science, Library/Media Center, art and music. One possible benefit of this taller building is that it has the shortest frontage on Stedman Street; 80-100 feet. This option is planned to be three phases of construction.

At the last meeting, two new construction options were presented; a four story building with grade clusters and a six story building. One comment on the four story option was that it took up too much of the site. The new Option 3.5-D is a hybrid of the two. If the 1913 Building is to be retained, it would need work and would need to be re-purposed. In addition, after consultation with the structural engineer, it has been determined that the rear wing of the building which currently houses the auditorium would need to be retained as it is structurally integral to the front of the building. The lower level houses parking, Multi-Purpose, Pre-K and cafeteria. The first floor houses K-2 and the Library/Media Center. The second floor houses the gyms, art and music. Upper floors house grades 3-8 and science. This is a three phase construction option, but all students remain on site during construction.

A discussion followed as to the programming of outside play areas. E. Gallentine said the potential loss of the baseball field will be an issue as there is already a shortage of such space town-wide. It is primarily used by those in the third and fourth grades. There is no apparent pattern of what age group(s) use soccer fields.

Topic: Schedule

HMFH presented the schedule. Currently construction is planned to start in the third quarter of 2016 and be completed as early as July 2019 or as late as July 2021, depending on the option selected.

Meeting Adjourned at approximately 9:45 a.m.

Respectfully submitted,

Anthony Guigli  
Owner's Project Manager

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### 3.3.2.9 Local Actions and Approvals

#### School Building Committee Meeting Minutes continued

#### Meeting Minutes

Name of Committee: Devotion School Building Committee

Meeting Date: 22 September 2014 Time: 8:00 a.m. Meeting Location: Town Hall, Room 103

Attendees: See attached sign-in sheets. Under 940 CMR 29.10(8), Helen Charlupski participated remotely by telephone because of geographic distance from the meeting. Chairwoman DeWitt reviewed the Remote Participation Checklist and confirmed that a quorum was physically present and that all votes would be taken by roll call.

Next Meeting: September 26, 2014 TH Room 103 (8:00 a.m.).

Topic: Meeting Minutes

Motion by P. Roberts, second by K. Kaplan to approve the minutes of 5 September 2014 and minutes of Community Meeting of 10 September 2014. B. DeWitt conducted a roll call vote.

***Meeting minutes of September 5, 2014 and minutes of Community Meeting of 10 September 2014 approved with roll call as follows: J. Fischer-Muellar and R. Shuman not in attendance (therefore no vote), D. Bennett and C. Simmons abstain on both meeting minutes. Voting “yes” to approve both minutes were B. DeWitt, H. Charlupski, K. Kaplan, B. Lupini, P. Rowe, J. Batchelor, S. Modigliani, S. Brown, P. Roberts and J. Connelly. Voting “yes” to approve minutes of 9/5/14 but abstaining on minutes of 9/10/14 were M. Kleckner, S. Cronin, A. Cox, A. Hyatt.***

Topic: Decision Making Process

B. DeWitt stated that the vote of the preferred design option for the “Preferred Schematic Report” (PSR) is slated for Friday 26 September 2014, in order that the architect and Owner’s Project Manager (OPM) can finalize the PSR and submit it to the Massachusetts School Building Authority (MSBA) on or before the 2 October 2014 deadline for their November 2014 Board Meeting. The Committee will also be expected to vote to authorize the OPM to submit the PSR on behalf of the Committee. She then distributed the “Worksheet for Evaluating Design Options” which is intended to be a tool for voting members of the Committee to determine how they will vote on 9/26. Another useful tool is the matrix of design components as crafted by the architect. B. DeWitt noted that whatever option is ultimately selected, it’s design will be further developed in an effort to maximize outdoor green space and to deliver the best educational program at the best cost and in the shortest possible time frame.

The scheduled dates are important to achieve in order to keep to the project schedule, meet the dates of planned MSBA meetings and to ready the project for consideration by means of an override vote and Town Meeting in Spring 2015.

Topic: Phasing Impacts of Options

The HMFH team presented slides and provided a verbal description of the anticipated phasing plans and schedules for the design options under consideration. All are based on the current plan of relocating grades 6-8 offsite. The cost estimates that are in process are taking into consideration the phasing plans that are being presented.

Phase 1 of Option 1 involves the demolition of the 1954 wing in the summer of 2016. In the Fall of 2016, the wing of the building to the south side of the site would be built. It is estimated this it would be complete and occupied in April 2018. During this time, school continues to function in the 1913 and 1974 buildings. In the April/June time frame of 2018, the 1974 wing is demolished and the 1913 Building is gutted. Phase 2, from July of 2018 to September 2019 is the renovation of the 1913 Building and the additions to the rear of the building and toward Stedman Street and occupancy of same. Site work continues until July 2020.

Phase 1 of Option 2 begins with the demolition of the gym and enlargement of the small gym in the summer of 2016. In the Fall of 2016, the major addition to the rear of the 1913 building commences and is planned to conclude in April 2018. During this time, school continues to function on the 1913, 1954 and 1974 buildings. In the April/June time frame of 2018, the 1954 and 1974 wings are demolished and the 1913 Building is gutted. Phase 2, from July 2018 to September 2019 includes the renovation of the 1913 Building, and construction of the link and underground parking. Site work continues until July 2020.

Phase 1 of Option 3 begins in the Fall of 2016 and is planned to conclude in September 2018 and is the construction of a new school to the rear of the site. In the summer of 2018, the gym, 1954 and 1974 buildings are all demolished and the 1913 Building is “mothballed”. Phase 2 includes the underground parking, which is anticipated to commence in Fall 2018. It and the site work are planned to be complete in July 2019.

If Option 1 is selected and the phasing plan is realized, there is a period during Phase 2, where there are challenges to presenting the educational program. Thirty classrooms are planned to be available, along with support spaces. There is no planned space for Administration, Library, World Language, Art, Music and there is no kitchen or cafeteria. In the opinion of the School Department, food service can be addressed by off-site food preparation. A number of programs such as Art or Music can still be offered to students with creative thinking such as mobile programming. Other potential methods of improving the educational program delivery may include use of the Multi-Purpose Room for different functions and the possible relocation of Grade 5 off-site.

If Option 2 is selected, students only have use of the small gym during Phase 1, but most other programs continue to be available in the building. During Phase 2, nearly all program spaces are available, except again on-site food service preparation.

### 3.3.2.9 Local Actions and Approvals

#### School Building Committee Meeting Minutes continued

If Option 3 is selected, all internal program spaces are available to the student population during all phases.

It is noted that, regardless of the Option chosen, there will be little or no outside play space for students during most of the construction period owing to the site constraints. In addition, all phasing and schedule projections are subject to change as the design of the preferred option progresses over the coming months and years.

#### Topic: Cost Estimating

G. Metzger of HMFH reported on the ongoing cost estimating effort. HMFH has retained PM&C for cost estimating and the Town has retained A.M. Fogarty for an independent cost estimate. Preliminary documents have been prepared and a meeting was held to reconcile differences. That reconciliation effort continues as does the final cost estimating itself. Once the final work is completed, the architect will add the “soft” costs to determine the total planned project costs. The “soft” costs include A/E fees, OPM fee, contingencies, FF&E, moving, etc.

The preliminary estimates of construction cost for Option 1 range from approximately \$82-84.9 million, Option 2 from approximately \$80.3-82.3 million and Option 3 from approximately \$75.1-77 million. Cost estimates are subject to change as the design of the preferred option progresses in the coming months and years.

#### Topic: Update of Design Options

D. Collins of HMFH then presented slides and a narrative of “concept site plans” of the options under consideration. She began by stressing that the idea is to provide information on relative availability of green space over the options, leaving open the final programming of the outdoor space to future efforts.

Option 1 yields an estimated total of approximately 102K sf of open space. When public use spaces and basketball are removed, the space programmed to school use is project to be approximately 67K sf. The comparative numbers for Option 2 are approximately 129K sf open space; 106K sf of which is for school programmed area; Option 3 approximately 82K sf open of which 69K sf is for school programmed space. The existing is approximately 119K sf open space total of which 81K sf is programmed to school use. Overlays of possible baseball diamonds were also presented.

After some discussion it was agreed that “Option 3A” would be added to all documentation to restore the new construction option with the 1913 Building demolished. Thus, the committee would be able to consider the new construction option with or without the 1913 Building remaining.

Meeting Adjourned at approximately 10:00 a.m.

Respectfully submitted,

Anthony Guigli  
Owner’s Project Manager

## Meeting Minutes

Name of Committee: Devotion School Building Committee

Meeting Date: 26 September 2014 Time: 8:00 a.m. Meeting Location: Town Hall, Room 103

Attendees: See attached sign-in sheets. Under 940 CMR 29.10(8), Helen Charlupski participated remotely by telephone because of geographic distance from the meeting. Chairwoman DeWitt reviewed the Remote Participation Checklist and confirmed that a quorum was physically present and that all votes would be taken by roll call.

Next Meetings: 17 November 2014 and 1 December 2014 location TBD (8:00 a.m.).

Topic: Meeting Minutes

Motion by M. Kleckner, second by P. Roberts to approve the minutes of 22 September 2014. B. DeWitt conducted a roll call vote.

***Meeting minutes of September 22, 2014 approved with roll call as follows: R. Shuman not in attendance (therefore no vote), B. DeWitt, M. Kleckner, A. Cox, H. Charlupski, K. Kaplan, B. Lupini, C. Simmons, D. Bennett, S. Cronin, A. Hyatt, P. Rowe, J. Batchelor, S. Modigliani, S. Brown, P. Roberts, L. Leary and J. Connelly voting “yes”, J. Fischer-Mueller abstaining.***

Topic: Review of Options

B. DeWitt began by providing a brief summary of the history of the project to date. In June 2012 the Building Committee was established. Prior to that the Town undertook the “Devotion School Concept Study”. Funds for Feasibility and Schematic Design were approved by Town Meeting in November 2012 and the School Department began working on the educational program. In the spring of 2013, HMFH was selected as the architect. The BSPACE effort ensued and was completed in the fall, at which time design work on Feasibility commenced. In January 2014 the first community meeting was held (not counting the community meeting that happened in connection with the concept study). In March, the “Preliminary Design Program” (PDP) was submitted to the Massachusetts School Building Authority (MSBA). In August, the MSBA approved inclusion of the Multi-Purpose Room in the project, but will not participate in its funding. In September, the revised educational program was submitted to the MSBA and a second community meeting was held where options were reviewed and criteria for selection were described and questions were taken and responded to.

G. Metzger then presented a review of the options under consideration. It was noted that all of the information presented is subject to change as the designs progress in the coming months. The anticipated phasing plans are based on the current idea of relocating grades 6-8 offsite. The cost estimates have taken into consideration the phasing plans that are being presented.

### 3.3.2.9 Local Actions and Approvals

#### School Building Committee Meeting Minutes continued

Phase 1 of Option 1 involves the demolition of the 1954 wing in the summer of 2016. In the Fall of 2016, the wing of the building to the south side of the site would be built. It is estimated this it would be complete and occupied in April 2018. During this time, school continues to function in the 1913 and 1974 buildings. In the April/June time frame of 2018, the 1974 wing is demolished and the 1913 Building is gutted. Phase 2, from July of 2018 to September 2019 is the renovation of the 1913 Building and the additions to the rear of the building and toward Stedman Street and occupancy of same. Site work continues until July 2020.

Phase 1 of Option 2 begins with the demolition of the gym and enlargement of the small gym in the summer of 2016. In the Fall of 2016, the major addition to the rear of the 1913 building commences and is planned to conclude in April 2018. During this time, school continues to function on the 1913, 1954 and 1974 buildings. In the April/June time frame of 2018, the 1954 and 1974 wings are demolished and the 1913 Building is gutted. Phase 2, from July 2018 to September 2019 includes the renovation of the 1913 Building, and construction of the link and underground parking. Site work continues until July 2020.

Phase 1 of Option 3 begins in the Fall of 2016 and is planned to conclude in September 2018 and is the construction of a new school to the rear of the site. In the summer of 2018, the gym, 1954 and 1974 buildings are all demolished and the 1913 Building is “mothballed”. Option 3A follows the same phases as Option 3, but includes the demolition of the 1913 wing and the construction of play fields on the original school footprint. Phase 2 includes the underground parking, which is anticipated to commence in Fall 2018. It and the site work are planned to be complete in July 2019.

If Option 1 is selected and the phasing plan is realized, there is a period during Phase 2, where there are challenges to presenting the educational program. Thirty classrooms are planned to be available, along with support spaces. There is no planned space for Administration, Library, World Language, Art, Music and there is no kitchen or cafeteria. In the last meeting of the Committee, ways of managing these issues were discussed and the School Department is prepared to deliver quality education during this time frame even with the anticipated issues.

If Option 2 is selected, students only have use of the small gym during Phase 1, but most other programs continue to be available in the building. During Phase 2, nearly all program spaces are available, except again on-site food service preparation.

If Option 3 is selected, all internal program spaces are available to the student population during all phases.

A review of the chart of impacts to school operations shows areas of the program that are compromised or out of service altogether. Option 2 is less disruptive than Option 1 and Options 3 and 3A are the least disruptive.

It is noted that, regardless of the Option chosen, there will be little or no outside play space for students during most of the construction period owing to the site constraints. G. Metzger also reviewed “areas of impact” during the construction phases.

The site plan for Option 1 shows that most of the open space for school program use is to the rear of the building in similar location as it is now. The public green spaces are to the front of the building on Harvard Street. Option 2 the larger spaces to be developed are in the rear of the site with smaller areas to the sides. Again the public green spaces are to the front of the site along Harvard Street. Option 3 has a smaller and more compact open space to the rear of the site and smaller play spaces to the front and sides of the proposed building. Option 3A has more open space to the front of the building facing Harvard Street with the potential of a slightly narrow U-9 soccer field. For all options, HMFH looked at ball fields and there are some possibilities but perhaps not for regulation size Little League. G. Metzger then presented the Open Space Comparison chart including Option 3A.

With respect to anticipated schedule, Options 1 and 2 are currently showing full student occupancy in the fall of 2019, while in both 3 and 3A that happens approximately one year earlier. For all options, site work is expected to continue after occupancy.

G. Metzger presented the preliminary project cost information, including the estimates of construction cost, which include a consideration for CM at Risk delivery method. Option 0, which does not address program and would not be reimbursable is estimated at \$68.3 million, Option 1 at \$118.4 million with an estimated Town share of \$90.6 million, Option 2 at \$114.2 million with an estimated Town share of \$87.4 million, Option 3 at \$105.9 million with an estimated Town share of \$79.7 million and Option 3A at \$104.9 million with an estimated Town share of \$78.5 million. Because these numbers are based on conceptual designs, it is important to focus less on the numbers themselves and more on the costs relative to the other options.

Topic: Discussion of Options

B. DeWitt noted that there were over fifty written communications from the public received by the Committee and that the Committee has tried to consider them all. She recognized the two parent representatives to the Committee for their efforts to get people involved and for hosting two parent meetings and otherwise representing the concerns of parents.

S. Modigliani then proposed that Option 3, which includes “mothballing” of the 1913 Building be removed from further consideration by the Committee. The reasons for this include the fact that Option 3 as included in the Preliminary Design Program (PDP) submission to the MSBA showed complete demolition of the existing school (now Option 3A). This was further reiterated in subsequent meetings. It was not until the end of July that this Option began to show retention of the 1913 Building. Retention of the building results in not enough play space to meet the needs of the school.

### 3.3.2.9 Local Actions and Approvals

#### School Building Committee Meeting Minutes continued

Motion by S. Modigliani to remove Option 3 from further consideration by the Committee, second by M. Kleckner.

Motion by J. Batchelor to amend the Modigliani motion to remove Option 3 and Option 3A from further consideration by the Committee, second by P. Roberts.

On discussion S. Cronin noted that Option 3A did not get the Committee's full consideration. Further, there are a number of reasons why it is a good choice including no need for phasing or relocation of students, shortest construction time, lowest cost and would result in a brand new building. L. Leary was in favor of taking both options out of further consideration because potential demolition of the 1913 Building is not likely to be a reality and would result in potential delays.

***By roll call vote, the motion by J. Batchelor was approved as follows: H. Charlupski abstaining, B. DeWitt, B. Lupini, D. Bennett, J. Connelly, J. Fischer-Mueller, K. Kaplan, J. Batchelor, S. Brown, P. Roberts and L. Leary voting "yes". M. Kleckner, A. Cox, C. Simmons, S. Cronin, S. Modigliani, A. Hyatt, P. Rowe voting "no".***

***By roll call vote, the amended original motion was approved as follows: B. DeWitt, H. Charlupski, B. Lupini, D. Bennett, J. Connelly, J. Fischer-Mueller, K. Kaplan, J. Batchelor, P. Rowe, S. Brown, P. Roberts and L. Leary voting "yes". M. Kleckner, A. Cox, C. Simmons, S. Cronin, S. Modigliani and A. Hyatt voting "no".***

The discussions now turned to Options 1 and 2. Option 1 is a lower building with a footprint that is more spread out versus Option 2 which is a taller building with less footprint. An important point for many who support Option 1 is the idea of moving more of the massing of the wing along Stedman Street "forward" towards Harvard Street in an effort to maximize open space to the rear of the site. G. Metzger and D. Collins stated that HMFH will work towards that goal if that option is selected but note there are some challenges to address including dimensional issues and there may be trade-offs such as less optimal travel distance from classrooms to public spaces for younger students.

Each voting member of the Committee then spoke their thoughts on the two options under consideration. In summary, comments for Option 1 included the notion that many parents and neighbors prefer it and that it has more of a "human scale". Although it has less total play space for students, the quality and location of them is better than in Option 2. Some feel that Option 1 is a similar configuration to the existing school and that the neighborhood is used to it and that over the long term it will best serve the K-8 model. Many also said that Option 1 has a lot of potential as its design progresses for grade clusters and maximizing the use of open space. In addition, building massing toward Harvard Street is more in keeping with the urban street scape of the area and may offer better opportunity for school security.

Those in favor of Option 2 note its smaller footprint, more open space, less phasing and less impact to school operations as a result. As a more compact building with less

outside walls, it is better from a “green” perspective and may offer more opportunities in achieving the best “LEED” rating. Some feel that it offers better integration of students over various age levels; Option one segregates them more based on age. Others feel Option 2 has a better street scape than Option 1 in that it preserves more open space along Harvard Street and better integrates with the historic structures on site. Option 2 also has potential as its design would progress.

Motion by B. Lupini, second by H. Charlupski to approve Option 1 for the Preferred Schematic Report (PSR) submission to the Massachusetts School Building Authority (MSBA) for the Edward Devotion School.

***By a roll call vote, the motion was approved as follows: B. DeWitt, M. Kleckner, A. Cox, H. Charlupski, B. Lupini, C. Simmons, D. Bennett, J. Fischer-Mueller, J. Connelly, K. Kaplan, J. Batchelor, P. Rowe, S. Brown voting “yes”. S. Cronin, S. Modigliani, A. Hyatt, P. Roberts and L. Leary voting “no”.***

Motion by B. Lupini, second by K. Kaplan to authorize the Owner’s Project Manager (OPM) to submit the Preferred Schematic Report (PSR) to the Massachusetts School Building Authority (MSBA) on behalf of the Devotion School Building Committee.

***By a roll call vote, the motion was unanimously approved.***

Meeting Adjourned at approximately 9:50 a.m.

Respectfully submitted,  
Anthony Guigli  
Owner’s Project Manager



**TOWN of BROOKLINE**  
*Massachusetts*

**BUILDING DEPARTMENT**

Daniel F. Bennett  
Building Commissioner

EDWARD DEVOTION SCHOOL  
BUILDING COMMITTEE VOTE

Having convened an open meeting on Friday 26 September 2014 at 8:00 a.m. in Brookline Town Hall Room 103, the Committee considered the question to approve Option one (1) in the Preferred Schematic Report (PSR) submission to the Massachusetts School Building Authority (MSBA) for the Edward Devotion School.

On motion it was VOTED by roll call thirteen (13) APPROVED five (5) OPPOSED.

Anthony Guigli  
Owner's Project Manager  
Building Department  
26 September 2014

Town Clerk

A TRUE COPY  
ATTEST:

Town Clerk  
Brookline

Psrvote2.doc

333 Washington Street, Brookline, Massachusetts 02445  
Tel: (617) 730-2100 Fax: (617) 739-7542



**TOWN of BROOKLINE**  
*Massachusetts*

**BUILDING DEPARTMENT**

Daniel F. Bennett  
Building Commissioner

EDWARD DEVOTION SCHOOL  
BUILDING COMMITTEE VOTE

Having convened an open meeting on Friday 26 September 2014 at 8:00 a.m. in Brookline Town Hall Room 103, the Committee considered the question to authorize the Owner's Project Manager to submit the Preferred Schematic Report (PSR) for the Edward Devotion School to the Massachusetts School Building Authority (MSBA) on behalf of the Devotion School Building Committee.

On motion it was unanimously VOTED by roll call.

Anthony Guigli  
Owner's Project Manager  
Building Department  
26 September 2014

Town Clerk

A TRUE COPY  
ATTEST:

Town Clerk  
Brookline

Psrvote.doc

333 Washington Street, Brookline, Massachusetts 02445  
Tel: (617) 730-2100 Fax: (617) 739-7542



### 3.3.2.9 Local Actions and Approvals

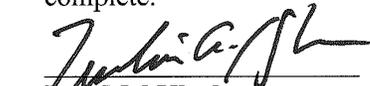
#### Feasibility Study Completion Checklist

11/21/11

#### Appendix 3F Module 3 Feasibility Study Completion Checklist

Submittal	Submittal Date	Review comments addressed
3.1 Preliminary Design Program	3/24/2014	9/15/2014
3.1.7 Local Actions and Approval Certification	3/24/2014	N/A
3.3.2 Preferred Schematic Report	10/2/2014	TBD
3.3.2.9 Local Actions and Approval Certification	9/26/2014	N/A
3.4.1 Conference Call	TBD	TBD
3.4.2 Facilities Assessment Subcommittee Meeting	TBD	TBD
3.4.3 MSBA Board approval	N/A	TBD
3.5 MSBA Board Action Letter denoting approval of authorization to proceed to schematic design	Date Received	N/A

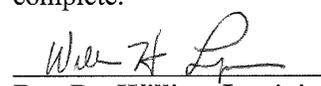
By signing this Feasibility Study Completion Checklist, I hereby certify that I have read and understand the checklist and further certify that the information supplied by the District in the table above is true, accurate, and complete.

  
By: Mel Kleckner

**Title: Town Administrator**

**Date: 9.26.2014**

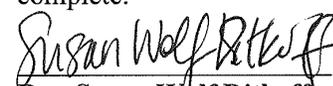
By signing this Feasibility Study Completion Checklist, I hereby certify that I have read and understand the checklist and further certify that the information supplied by the District in the table above is true, accurate, and complete.

  
By: Dr. William Lupini

**Title: Superintendent of Schools**

**Date: 9.26.2014**

By signing this Feasibility Study Completion Checklist, I hereby certify that I have read and understand the checklist and further certify that the information supplied by the District in the table above is true, accurate, and complete.

  
By: Susan Wolf Ditkoff

**Title: Chair of the School Committee**

**Date: 9.26.2014**



Civil Narratives

Civil Pricing Narrative

195



**EVALUATION OF ALTERNATIVES – CIVIL**  
**Edward Devotion School, Brookline, Massachusetts**  
**Nitsch Project #9915 – March 13, 2014**  
**Updated – September 15, 2014**

Nitsch Engineering has reviewed the proposed addition and renovation Options 0, 1, 2, and 3 as they relate to site utilities and site permitting considerations. Nitsch Engineering’s evaluation of the proposed options is outlined below.

**SITE SUMMARY TABLE**      ○ Minimal      ○ Moderate      ● Major

	OPTION 0	OPTION 1	OPTION 2	OPTION 3
<b>SITE UTILITY CONSIDERATIONS</b>				
Stormwater	○	○	○	○
Water	○	○	○	●
Sanitary Sewer	○	○	○	○
Private Utilities (gas, electric, communications)	○	○	○	●



Project #9915 – Edward Devotion School, Brookline, MA – Evaluation of Alternatives  
September 15, 2014  
Page 2 of 6

### **SITE OPTION 0 – MAINTAIN EXISTING BUILDING**

Option 0 includes maintaining the existing building, underground parking garage, vehicular areas, and play areas. Renovations may be made to the existing building. Existing basketball and tennis courts and the Devotion Playground will be maintained.

Option 0 will have minimal impacts to site stormwater, water service, site sanitary sewer, and private utilities.

#### **Stormwater**

The renovation of the existing building will not require construction of a new stormwater management system. New deep sump catch basins and stormwater quality structures are recommended for vehicular pavement areas that may be renovated. Video inspection is recommended for reuse of an existing drain line extending to the site from Harvard Street. Drain services from Devotion Street will be maintained.

The building renovations are not expected to affect existing site conditions; therefore existing impervious and pervious cover may remain the same. Stormwater infiltration systems will not be required under the Massachusetts Department of Environmental Protection (MassDEP) Stormwater Standards.

#### **Water**

Water service is available from Stedman and Harvard Street. Existing water lines service the building along Stedman Street and will be maintained. Fire hydrants are located along Stedman and Harvard Street, and may also be maintained.

#### **Sanitary Sewer**

The existing sewer service connects to a sanitary sewer main in Stedman Street. The sewer service connection in Stedman Street may be maintained. Video inspection is recommended to determine if existing sewer services are adequate for reuse. Sewer services from Devotion Street will be maintained. Sewer services to the Edward Devotion House will be maintained.

#### **Private Utilities**

The existing site gas, electric, and communication services extend from Stedman Street, and may be maintained. Existing gas service from Harvard Street to the Edward Devotion House may be maintained. See the Mechanical and Electrical evaluations for information regarding capacity and function of private utilities.

## **SITE OPTION 1 – MAINTAIN & RENOVATE 1913 BUILDING PLUS ADDITIONS**

### **General**

Option 1 includes maintaining and renovating the 1913 building and reconstructing the existing underground parking garage along Stedman Street, along with the construction of new additions in the central, southern, and northern portions of the site. This option includes maintaining green space to the south. The existing Edward Devotion house will remain and its associated access driveway will be maintained for bus drop off and parking. The existing Devotion Playground at the central portion of the site will be used for building additions, walkways, and play areas. Two of the three existing basketball courts and all existing tennis courts will remain.

Option 1 will have moderate impacts to site stormwater, site sanitary service, site water service, and private utilities.

### **Stormwater**

The new site configuration will require construction of a new stormwater management system. New deep sump catch basins, bioretention basins/swales, and stormwater quality structures will be needed for vehicular pavement areas. Video inspection is recommended for reuse of an existing drain line extending to the site from Harvard Street. Drain services from Devotion Street will be maintained.

The proposed site configuration appears to result in an increase in impervious area. The project will require stormwater detention or infiltration systems to mitigate the increased peak rate of runoff resulting from the increase in impervious area to meet MassDEP Stormwater Standards.

### **Water**

Water service is available from Stedman and Harvard Street. Existing water lines service the building along Stedman Street and will be maintained. Fire hydrants are located along Stedman and Harvard Street, and may be maintained.

### **Sanitary Sewer**

The existing sewer service connects to a sanitary sewer main in Stedman Street. The sewer service connection in Stedman Street is proposed to be replaced. Video inspection is recommended to determine if existing sewer services are adequate for reuse. Sewer services from Devotion Street will be maintained. Sewer services to the Edward Devotion House will be maintained.

### **Private Utilities**

The proposed option may require alterations to the site gas, electric, and communications services. The existing private utility services extend from Stedman Street, and may be relocated. Existing gas service from Harvard Street to the Edward Devotion House may be maintained. See the Mechanical and Electrical evaluations for information regarding capacity and function of private utilities.

Project #9915 – Edward Devotion School, Brookline, MA – Evaluation of Alternatives  
September 15, 2014  
Page 4 of 6

## **SITE OPTION 2 – MAINTAIN & RENOVATE 1913 BUILDING PLUS ADDITIONS AND MORE FLOORS**

### **General**

Option 2 includes maintaining and renovating the 1913 building and reconstructing the existing underground parking garage, along with the construction of new additions reaching four-stories in height and centrally located within the site. This option includes maintaining green space to the south and the construction of new play areas. The existing Edward Devotion house will remain and its associated access driveway will be maintained for bus drop off and parking. The existing Devotion Playground at the central portion of the site will be replaced with new play areas. Two of the three existing basketball courts and all existing tennis courts will remain.

Option 2 will have moderate impacts to site stormwater, site water service, site sanitary sewer, and private utilities.

### **Stormwater**

The new site configuration will require construction of a new stormwater management system. New deep sump catch basins and stormwater quality structures will be needed for vehicular pavement areas. Video inspection is recommended for reuse of an existing drain line extending to the site from Harvard Street. Drain services from Devotion Street will be maintained.

The proposed site configuration appears to result in a decrease in impervious area. Stormwater infiltration systems will not be required under the MassDEP Stormwater Standards.

### **Water**

Water service is available from Stedman and Harvard Street. Existing water lines service the building along Stedman Street and will be maintained. Fire hydrants are located along Stedman and Harvard Street, and may be maintained.

### **Sanitary Sewer**

The existing sewer service connects to a sanitary sewer main in Stedman Street. The sewer service connection in Stedman Street is proposed to be replaced. Video inspection is recommended to determine if existing sewer services are adequate for reuse. Sewer services from Devotion Street will be maintained. Sewer services to the Edward Devotion House will be maintained.

### **Private Utilities**

The proposed option may require alterations to the site gas, electric, and communications services. The existing private utility services extend from Stedman Street, and may be relocated. Existing gas service from Harvard Street to the Edward Devotion House may be maintained. See the Mechanical and Electrical evaluations for information regarding capacity and function of private utilities.

### **SITE OPTION 3 – MAINTAIN & RENOVATE 1913 BUILDING PLUS NEW CONSTRUCTION**

Option 3 includes maintaining and renovating the existing 1913 building and reconstructing the existing underground parking garage, along with the construction of a new five-story building. Majority of the existing building will be removed, and the remainder of the building, located north of the 1913 building, will be demolished in a later phase. This option includes maintaining green space to the south as well as constructing new play areas. A portion of the existing bus drop off/parking area will be maintained and will be expanded with a new van drop off area constructed at the western edge of the site. The existing Edward Devotion house will remain. The existing Devotion Playground at the central portion of the site will be replaced with the proposed building, walkways, and play areas. Two of the three existing basketball courts and all existing tennis courts will remain.

Option 3 will have major impacts to private utilities and site water service, and moderate impacts to site stormwater and site sanitary sewer.

#### **Stormwater**

The new site configuration will require construction of a new stormwater management system. New deep sump catch basins, bioretention basins/swales, and stormwater quality structures will be needed for vehicular pavement areas. Video inspection is recommended for reuse of an existing drain line extending to the site from Harvard Street. Drain services from Devotion Street will be maintained.

The proposed site configuration appears to result in an increase in impervious area. The project will require stormwater detention or infiltration systems to mitigate the increased peak rate of runoff resulting from the increase in impervious area to meet MassDEP Stormwater Standards.

#### **Water**

Water service is available from Stedman and Harvard Street. Existing water services the building along Stedman Street. Water service connections will be relocated to serve the new building location. Fire hydrants are located along Stedman and Harvard Street, and may be maintained.

#### **Sanitary Sewer**

The proposed option will require relocation of the site sanitary sewer service to serve the new building location. Sewer services from Devotion Street will be maintained. Sewer services to the Edward Devotion House will be maintained.

#### **Private Utilities**

The proposed option will require alterations to the site gas, electric, and communications services. The private utility services extend from Stedman Street. Connections for utilities in Stedman Street will need to be relocated to serve the new building location. Existing gas service from Harvard Street to the Edward Devotion House may be maintained. Overhead power lines above the Devotion Playground will likely need to be relocated. See the Mechanical and Electrical evaluations for information regarding capacity and function of private utilities.

Project #9915 – Edward Devotion School, Brookline, MA – Evaluation of Alternatives  
September 15, 2014  
Page 6 of 6

#### **SITE PERMITTING REQUIREMENTS**

The project will require permitting under the United States Environmental Protection Agency's (EPA) National Pollution Discharge Elimination System (NPDES) Program. In Massachusetts, the USEPA issues NPDES permits to operators of regulated construction sites. Regulated projects are required to develop and implement stormwater pollution prevention plans in order to obtain permit coverage. The NPDES permit is obtained approximately one week prior to the start of site construction.

The project will likely be required to review by the Planning Board through the Site Plan Review Process. Site Plan Review typically begins at the end of the Design Development phase of the project, and extends 2-4 months depending on the site and community constraints.



## Landscape Narratives





#### **Purpose of Report**

The purpose of this report is to provide evaluation of the site organization and programming provided in the final three alternatives, Options 0, 1, 2 and 3, which will be submitted to the MSBA for review. On September 26, 2014, the Brookline Building School Building Committee voted to support Option 1 as their preferred option.

Evaluation of site organization and programming is based primarily on comparison to existing outdoor spaces and in consideration of topographic constraints, environmental factors, such as solar orientation, and in anticipation of compliance with ADA and MAAB requirements. Additionally, this evaluation considers impacts on the historic character of the Devotion House, on urban design and whether pedestrian and vehicular circulation needs are addressed. CRJA's understanding of the current site functions, needs and opportunities for improvement is based on information obtained in meetings with the Devotion School principal and staff, on 2/4/14, and with the Director of the Town of Brookline's Parks and Open Space Division, on 3/10/14. Specific program requirements have not been confirmed for athletic facilities. However, in response to parental and community requests, the site layout for each alternative reflects the design team's effort to fit as much space for an athletic field as possible, while addressing the abovementioned functional and aesthetic needs.

#### **Existing Conditions**

The Devotion School occupies a large corner parcel at the intersection of Harvard Street and Stedman Street in Brookline. Harvard Street is a busy, two way commercial thoroughfare, whereas Stedman Street is a narrow, one way (south bound) residential street. The site slopes from its southwestern boundary on Harvard Street and from its southeastern perimeter, toward the northern extent of the property. The overall grade change from south to north is approximately 19 feet.

The existing school is comprised of a combination of buildings constructed in 1913, 1954 and 1974. This building complex is set back significantly from Harvard Street, behind the historic Edward Devotion House. The 1913 building is centered on the Harvard Street frontage, directly behind the historic Devotion House. The 1913 structure is flanked by the 1954 and 1974 additions, on its east and west sides, respectively. The most significant building massing is behind the 1913 structure, and along Stedman Street.

Despite the significant massing of the building complex, the overall character of the school property is that of a green community park. The historic Devotion House and its landscape with two tall canopy trees anchor the heart of the Harvard Street frontage. The remaining site is divided roughly into four programmatic zones:

- **Neighborhood Common** (along Harvard Street, includes a shaded seating area with benches and game tables; an expansive lawn in front of the Devotion House, serves as a kind of urban "beach" as well as location for occasional art exhibition and farmer's market type events.)

- **Playground Spaces** (extending along the eastern perimeter of the site from Harvard Street to the rear of the building, are programmed separately with play equipment for older and younger children. The school encounters some overlap (and perhaps some tension) with outside daycare organizations and members of the public, with pre-school aged children, who wish to use the play spaces fronting Harvard Street during normal school hours. Play equipment is outdated and ground plane surfacing does not meet code for accessibility.
- **Playing Fields** (between the rear of the building and the former Devotion Street easement, there is a combined little league sized baseball field and youth soccer field. The field is overly compacted, drains poorly and cannot support turf in large areas.)
- **Community Basketball and Tennis Courts** (property, between the former easement and the northern boundary, includes three full basketball courts and three tennis courts. Pavement and surrounding chain link fences are in disrepair and in need of replacement; transition spaces do not meet code for accessibility. The Director of Parks and Open Space indicates that the fence belongs to the City.)

Access to the school is predominately by foot. While this foot traffic comes from all directions, interviews with the school administration indicate that a significant population originates from the north, walking along Stedman. During site visits, CRJA observed smaller groups of pedestrians accessing the site via walkway connections from Babcock Street to Devotion Street and its pathway extension along the former easement to Stedman and from the walk on the north side of the tennis courts. Some members of the public have expressed their desire in writing (or in meetings) for the proposed building solutions to retain this east/west access across the site. Interviews with school administrators indicate that the Devotion Street path extension presents a security challenge, due to the intrusion of the public during school hours, while the elevated pathway ridge forms a barrier to engaging students to use the basketball courts during play time.

Upon arrival at the school, students and their parents/caregivers may enter the school from multiple entrances. The primary entrance is the front door to the 1913 building, facing Harvard Street. This entrance, which includes a flight of stairs, is not universally accessible.

Vehicular drop off and pick up is separated by car and by bus. Drop off/pick up by car is provided on Stedman Street. Bus service picks up and drops off students on the horseshoe driveway behind the Devotion House. Access to the underground parking garage and to the at-grade, service area/loading dock are both on Stedman Street. The secondary garage entrance is closed due to poor sight lines between parked cars; the loading dock is not properly oriented for south bound, one way traffic. Refer to the Traffic Engineers' evaluation for an assessment of the vehicular access and circulation issues.

### **Evaluation of Alternatives**

As noted above, the site plans for each of the proposed alternatives strive to include as many of the existing outdoor programmed spaces as possible while addressing other functional and aesthetic considerations. These considerations are itemized on an overall matrix Review of

Options. The following narrative expands on that evaluation of options, looking at four guiding principles for the site:

- Historic Character
- Urban Design
- Vehicular and Pedestrian Circulation
- Site Programming and Organization

### Option 0

This option assumes that the existing building complex would remain and be renovated. Under this scenario, we assume that all site pavement, play areas, including the ball field, and all planting areas are in conditions of disrepair and/or non-compliance with accessibility code, thus requiring upgrade and/or replacement.

### Option 1 (Preferred)

This option retains the 1913 building while replacing the rest of the building complex.

- **Historic Character:** The Devotion House location remains unchanged and the large canopy trees behind it will not be impacted by site development.
- **Urban Design:** Building massing on Harvard and Stedman Streets will be more robust than current conditions, while following the general layout of the existing complex. The generous space for a community green in front of the historic Devotion House, will remain protected and outside of the contract. Whereas the community playground and seating area will be upgraded.
- **Vehicular and Pedestrian Circulation:** Drop-off and pick-up by car will be provided along Stedman Street. The site diagram currently shows a pull off zone for approximately 14 cars. Traffic analysis indicates that this space will need to be expanded to the northeast, on Stedman, to accommodate a total of 28 cars. Students transported by bus will be dropped-off and picked-up on the existing driveway loop on Harvard Street. Access to the garage will remain on Stedman Street. This curb cut may also serve the loading and service area.

Pedestrian access will continue to be provided from multiple directions. However, access from Devotion Street will require a ramped condition and re-alignment of the walk to Stedman. This option affords fairly generous upper and lower level entry plazas, from Harvard and Stedman Streets, respectively, which should support the necessary number of parents and caregivers who wait for students outside the building.

- **Site Programming and Organization:** In line with teacher requests, this option provides an opportunity for centralizing rather dispersing, age related play spaces. However, the overall square footage for play space and athletic fields is approximately 17% less than

existing conditions. Presently, the school grounds include approximately 41,000 SF in play space. On the plus side, Option 1 offers significantly more space for outdoor learning spaces and community/teaching gardens than is currently provided. In terms of playing fields, this option provides less than the current site. A U9 sized soccer field can be accommodated, but the site cannot fit a little league baseball field, without compromising other play areas. In general, with the exception of the soccer field, all of these outdoor spaces will enjoy good solar orientation. The play space along Stedman, on the north side of the building will be partially shaded. If space were not so constrained, the soccer field should be rotated to a true north/south orientation.

The Option 1 site diagram requires losing one of the three community basketball courts. However, due to site constraints, the Devotion path extension will need to be re-routed, in order to accommodate a level play area on the north side of the proposed building addition. This re-grading will necessitate removal of the allee of large canopy trees.

All building entrances, including the Harvard Street entrance to the 1913 Building, will be universally accessible.

## Option2

This option retains the 1913 building while providing a four story addition to the north.

- **Historic Character:** The Devotion House location remains unchanged and the large canopy trees behind it will not be impacted by site development. This option removes the 1954 and 1974 wings, allowing the 1913 structure to stand alone behind the historic Devotion House.
- **Urban Design:** Building massing is concentrated into a compact four story addition on the north side of the 1913 building. This reduces building massing both on Harvard and Stedman, compared to existing conditions. The central community green is provided along the entire Harvard Street frontage, with age appropriate structured play areas set back, behind this community green frontage.
- **Vehicular and Pedestrian Circulation:** Parental drop-off and pick-up by car will remain on Stedman and bus/van service will continue to be handled on the existing Harvard Street driveway loop.

Pedestrian access is similarly well distributed, compared to Option 1; the Devotion Street extension path will need to be re-located toward the north, in order to accommodate space for the playing field. This option offers a range of gathering spaces at primary entrances on Harvard and Stedman Streets, as well as adjacent to play areas and atop a raised plaza.

- **Site Programming and Organization:** Given the more concentrated building solution provided in Option 2, the overall play space allocation is about 14% greater than existing conditions, not counting the community basketball courts and the public open space on Harvard. This option provides an opportunity for segregation of play spaces by age, but school staff may prefer to have these spaces in closer proximity to one another. As with Options 1, this option offers an opportunity for a community/teaching garden space adjacent to the historic Devotion House site. As for solar orientation, the height of this building solution will shade the play spaces on the north side of the building. The extent of this shading will need to be further evaluated.

This Option 2 site diagram eliminates one of the existing basketball courts. As with Option 1, the Devotion path extension will need to be re-located, in order to accommodate the soccer field. The re-grading/re-location of the path will necessitate removal of the allee of large canopy trees.

### Option 3A

This option replaces the existing building complex in its entirety with all new construction.

- **Historic Character:** The Devotion House location remains unchanged, but the placement of a U9 sized soccer field may impact the two large canopy trees behind the house; a third large tree will certainly be loss with the demolition of the 1913 structure. Presence of the playing fields and associated fencing will impact the backdrop for the Devotion House. Landscape mitigation measures will need to be studied.
- **Urban Design:** Building massing will be pulled significantly away from Harvard Street, to concentrate toward the middle of the site. This solution provides a somewhat pinched condition on the easterly and westerly sides of the site, which impact site organization and quality of available sunlight.

As for the Harvard Street frontage, this option provides a continuous community green space. This generous green space in front of the Devotion House would offset the introduction of athletic fields behind the house.

- **Vehicular and Pedestrian Circulation:** Drop-off and pick-up by car and bus will be handled similar to the solutions for other options, on Stedman Street. Bus and van service would be accommodated via a new drive with a drop-off/pick-up turn-around located near the entrance. While the bus and van service is provided on an interior driveway loop that extends deeply into the school property the driveway with turning radius seems to intrude upon the site and the play space to a greater degree than other options.

Pedestrian access continues to be provided from all directions. However, the entry walk from Harvard Street is significantly longer than other options. The gathering space for

Harvard Street entrance is sizable and offers fairly good visibility. Whereas the Stedman Street entrance is slightly more constrained by the site and may need further study to ensure that the waiting population is adequately accommodated. As with all other schemes, the Devotion Street path extension will need to be relocated and trees will need to be removed.

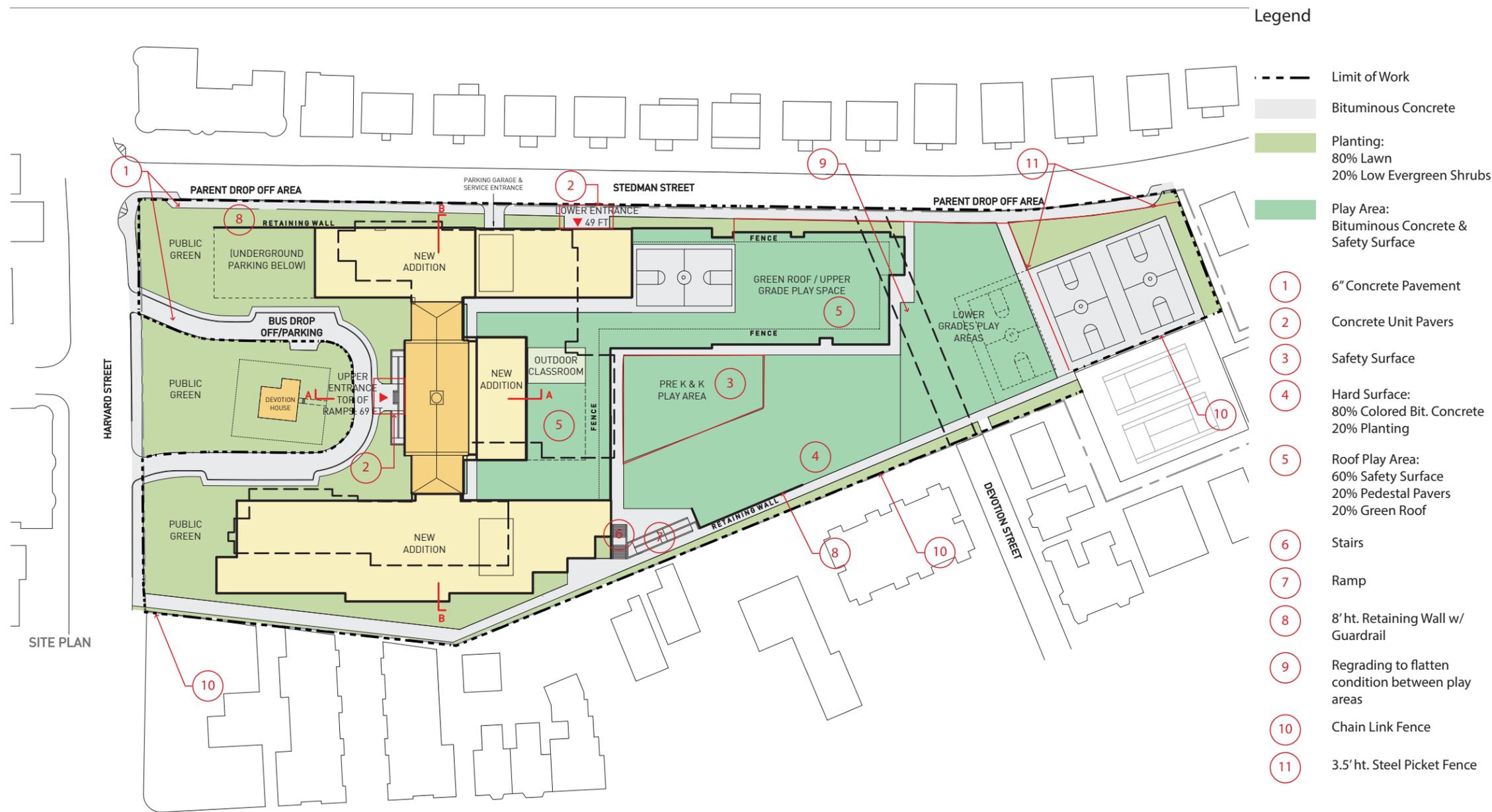
- **Site Programming and Organization:** Option 3A offers the most dispersed organization of play space, versus the other options, which may not comply with the teachers request for more consolidated “eyes” on the children at play. As with other options, one of the community basketball courts will need to be removed; the other two courts will be upgraded.

Compared to existing conditions, Option 3A provides slightly more play space and fields (+4%), excluding the community basketball courts and the public green space. As for solar orientation, the play space at the northern end of the site will be partially shaded by the building. Site constraints prevent the soccer field from being laid out in the optimal north/south orientation.

### **Option 3B**

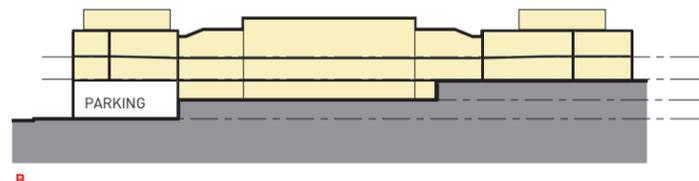
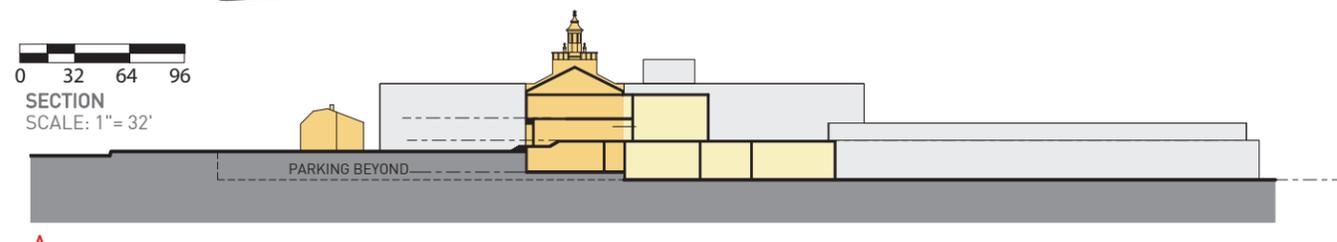
This option replaces the existing building complex in its entirety with all new construction, except for the 1913 structure which would be “moth-balled” for future renovation/restoration under a separate contract.

Considering the four measures (historic character, urban design, circulation and site programming and organization) this option is roughly equivalent to Option 3A, except that the remaining presence of the 1913 structure would preclude this site from including a playing field.



- Legend**
- Limit of Work
  - Bituminous Concrete
  - Planting:  
80% Lawn  
20% Low Evergreen Shrubs
  - Play Area:  
Bituminous Concrete &  
Safety Surface
  - 1 6" Concrete Pavement
  - 2 Concrete Unit Pavers
  - 3 Safety Surface
  - 4 Hard Surface:  
80% Colored Bit. Concrete  
20% Planting
  - 5 Roof Play Area:  
60% Safety Surface  
20% Pedestal Pavers  
20% Green Roof
  - 6 Stairs
  - 7 Ramp
  - 8 8' ht. Retaining Wall w/  
Guardrail
  - 9 Regrading to flatten  
condition between play  
areas
  - 10 Chain Link Fence
  - 11 3.5' ht. Steel Picket Fence

0 32 64 96  
SECTION  
SCALE: 1" = 32'



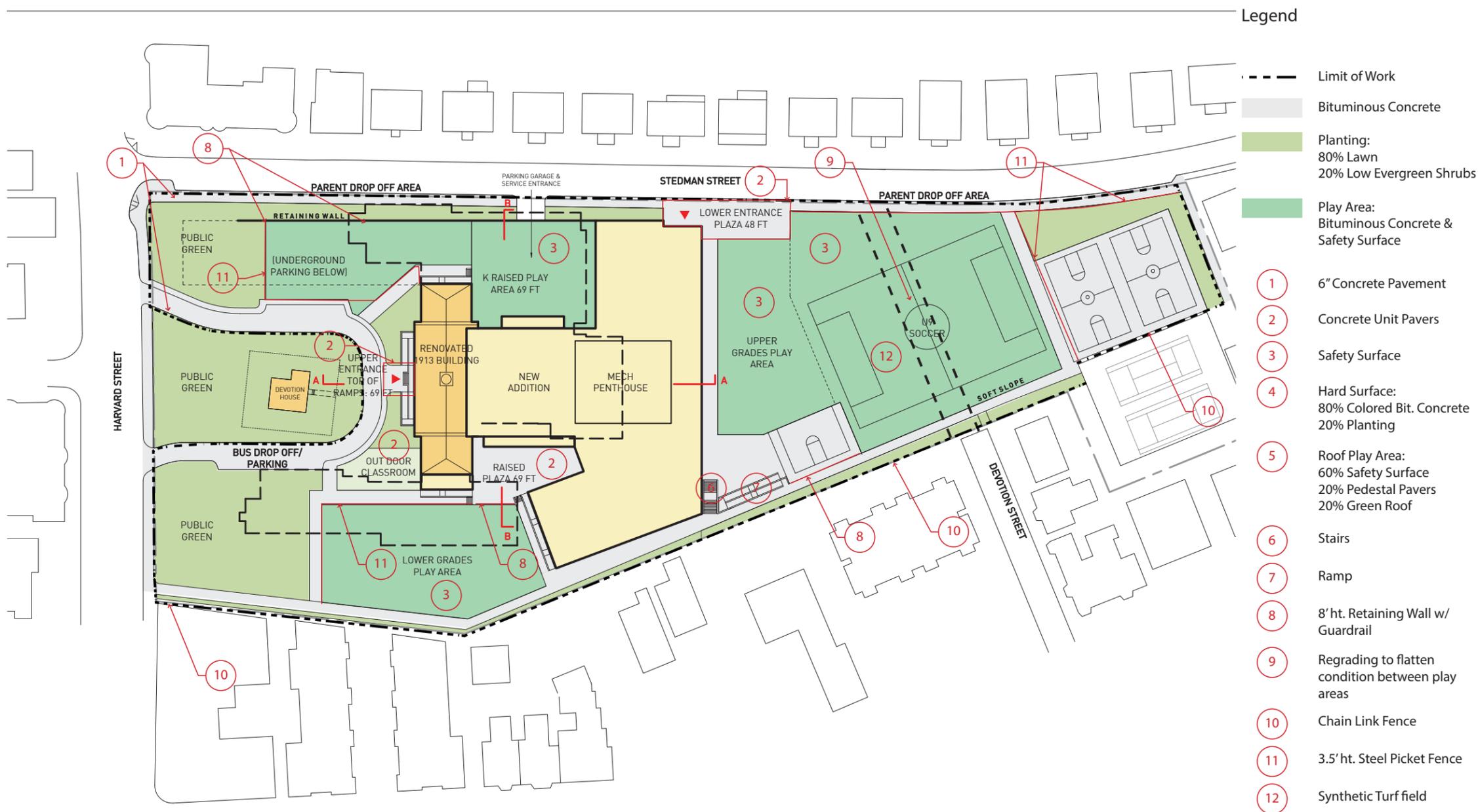
# Option 1.8-F Concept Site Plan



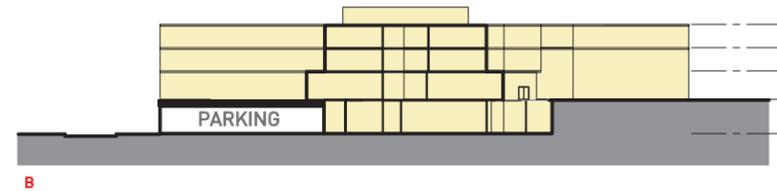
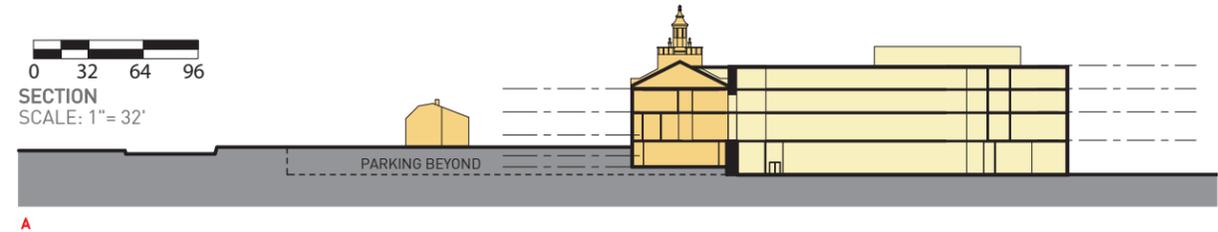
DEVOTION SCHOOL  
Brookline, MA  
9/5/14







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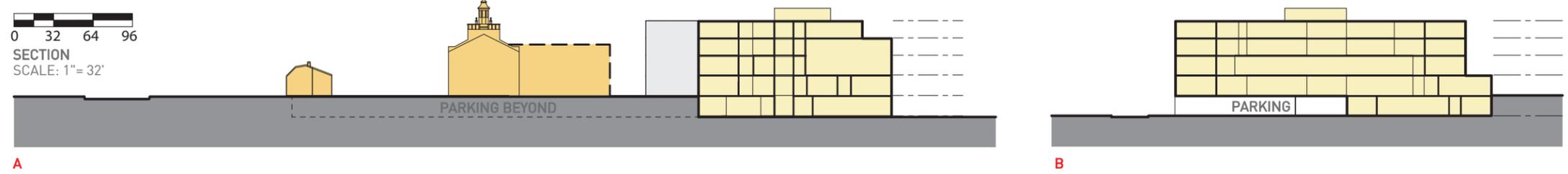


# Option 2.1-D Concept Site Plan

DEVOTION SCHOOL  
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9/5/14







# Option 3.5-D Concept Site Plan


**DEVOTION SCHOOL**  
 Brookline, MA  
 9/5/14
 



Devotion School  
Draft Pricing Narrative: Site and Landscape  
Prepared by CRJA  
9/8/14

#### **SITE AND LANDSCAPE:**

The site and landscape scope is defined generally by the area from back of curb to face of existing school buildings. For pricing assumptions related to vehicular curbing and pavements, refer to the Civil Engineer's narrative.

This narrative is intended to describe site demolition and site improvements which are anticipated for the three Conceptual Site Plans: Options: 1; 2 and 3. While these options present very different building solutions, there are many common assumptions related to the site demolition and site improvements associated with each option. This narrative will describe those common elements. Pricing assumptions that are unique or which vary between the three options will be highlighted and described in detail.

For additional clarification, refer to the attached pricing Key Plans.

**Site Demolition:** Refer to the Existing Conditions Plan and to Site Pricing Key Plans.

Overall, it is anticipated that within the project limit of work, all existing pavement, site elements and vegetation will be demolished and removed as preparation for each of the three building options. As noted on the Pricing Key Plans, this limit of work excludes the area around the historic Edward Devotion House. The Edward Devotion House is owned by the Town of Brookline and administered by the Brookline Historical Society. Site preparation and construction operations associated with the Devotion School project need to ensure that the historic house and its designated property is protected against all damage. One particular concern is the added need to protect two large shade trees on the north side of the historic house. Given their enormous height, the root zones of the trees extend into the project limit of work. The cost estimate should include arborist services to monitor tree protection and condition during site demolition and construction.

Another critical issue related to pricing site demolition is the need for construction to be phased. Under phased construction, access to various school buildings and outdoor play facilities will be protected and maintained. Refer to the Architect's Phasing Plan.

#### **Common Demolition Assumptions between Options:**

While the phasing of demolition needs to be factored into the cost estimate, the overall site demolition will include the following scope for all three options:

- Full removal of all pavement, including base material: this includes concrete, bituminous play areas and unit pavers with assumed concrete base.
- Full removal of all site elements and footings including:
  - Fencing at all play areas, ball fields, and along the north, east and west property lines
  - Mulched play areas, play structures, planter boxes and walls, basketball hoops and poles
  - Site stairs with cheek walls in approximately ten (10) locations
  - Retaining walls located at the concrete plaza on the south side of the site, between play areas (east side), behind the backstop of the ball field, and at the southeast corner of the Town basketball courts
  - Regarding the Town basketball courts, it is assumed that all three courts (pavement, hoops, seating, and drinking fountain with concrete pad) will be removed entirely.

Devotion School  
Draft Pricing Narrative: Site and Landscape  
Prepared by CRJA  
9/8/14

- Except for the trees to be protected within the historic Edward Devotion House property, and four (4) trees on the west side of the existing Town basketball courts, all trees, vegetation and lawn within the Project Limit of Work will be removed. This vegetation removal assumes:
  - Approximately 66 trees, including the allee of large trees on the walk linking Devotion and Stedman Streets.
  - Shrub plantings throughout the site, including foundation shrubs on the south side of the existing 1913 structure, which remains in all options.
  - Existing top soil is unsuitable for re-use.

### **Option 3 Special Demolition Assumptions:**

There are two design differences associated with Option 3 that will impact site preparation and demolition costs:

1. A portion of the addition to the 1913 building will remain on the north side of the building; thus the site demolition area will be slightly less than the other options.
2. The west leg of the driveway around the historic Devotion House will be demolished and relocated, thus increasing demolition versus the other options. Refer to the Civil Narrative.

### **Site Improvements:**

It is assumed that pricing the site improvements associated with the three options (1, 2 and 3) will be based on areas and linear footage which will be calculated by the Cost Estimator from the attached electronic Key Plans and CAD files, provided by the Architect. General assumptions about materials and product specifications are described on both the Key Plans and in this narrative.

### **Common Assumptions between Options:**

Each of the site options include the following site and landscape improvements; refer to the individual Key Plans for differences in square or linear footage for a particular material.

- **Pavement:** Assume paving scope includes replacement of the sidewalk fronting the school property on Stedman Street.
  - Walkways: 6" thick concrete pavement atop 6" compacted gravel borrow; tooled and broom finish
  - Entrance Plazas and Outdoor Classrooms: 3" thick precast concrete unit pavers, equal to Hanover Architectural Prest Brick, atop a 6" thick concrete base and 6" thick compacted gravel borrow sub-base.
  - Play Areas: Colored poured in place rubber safety surface, equal to GameTime, atop bituminous concrete pavement, with additional combination of colored bituminous concrete and planting, as shown on the Key Plans.
  - Basketball Courtyards: 3.5" bituminous concrete with court striping, atop 4" compacted dense graded crushed stone, atop 8" compacted gravel borrow.
  - Accessible Ramps: 6" thick concrete pavement with haunch on both sides to support handrail posts.



Devotion School  
 Draft Pricing Narrative: Site and Landscape  
 Prepared by CRJA  
 9/8/14

- **Stairs:** Assume 6" thick granite treads and cheek walls on CIP concrete footing; stainless steel handrails.
- **Retaining Walls:**
  - Pre-engineered standard concrete block wall system, equal to Versalok ; standard block units 6" x 14" x 12" with standard 3 5/8" thick cap units. Assume all walls will require guard rails. Assume 8'-0" for height of walls.
- **Fencing and Guardrails:**
  - Vinyl coated, galvanized steel chain link fence
    - 8'-0" ht. at eastern perimeter
  - Color galvanized steel picket fence with top and bottom rails
    - 3.5' ht. atop retaining walls and around at grade play areas
- **Stainless Handrails:** for ramps, complying with MAAB guidelines
- **Play Areas:** In addition to the safety surface noted above, each play area will include age appropriate play equipment, equal to structures by Kompan. See plan for play structure layout for each Conceptual Option.
- **Basketball Courts:** In addition to bituminous paving with court striping, these courts will include:
  - Basketball standard and footing: four (4) at grade for each option
- **Outdoor Classroom:** In addition to the unit pavers noted above, assume that each space includes solid granite seat walls totaling 50LF (seating for 25)
- **Public Green:** Assume two seating areas along Harvard Street, 1,000SF unit pavers and five (5) park benches (6'-0" long) for each space.
- **Planting:**
  - Trees: Forty (40) 3" cal. shade trees and ten (10) 8'-10' ht. ornamental flowering trees
  - Foundation Plantings along retaining wall and building frontage on Stedman Street:
    - 75% low evergreen shrubs and 25% perennials; assume 18" deep planting soil
  - Lawn: loam and seed; assume 6" deep planting soil.
- **Site Lighting:**
  - Walkways: 13' ht. pole and luminaire at 30' o.c.
  - Uplighting of ten (10) ornamental flowering trees

**Special Assumptions per Option:**

- **Option 1:**

Devotion School  
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Prepared by CRJA  
9/8/14

- This option includes site amenities on the roof. Assume this roof top space includes:
  - 60% play surface (equal to game Time or Americourt;
  - 20% pedestal pavers (2'x2' precast units equal to Hanover Architectural System)
  - 20% green roof, pre-grown module system equal to Live Roof
- Other Features not Common to All Options:
  - Stairs with handrails on the east side: assume 14 risers
  - Ramps on both sides of the Harvard Street entrance to the 1913 Structure
- **Option 2:**
  - Synthetic turf field striped for U9 soccer, equal to Field Turf System.
  - Raised Plaza composed of unit pavers, granite seatwall (50LF), ramp access and two sets of stairs, with guard rail
  - Half basketball court and standard
  - Ramps on both sides of the Harvard Street entrance to the 1913 Structure
- **Option 3:**
  - Relocated bus drop off and new driveway with van turn-around
    - Assume concrete pavement for new walks
    - Refer to Civil Narrative for assumptions related to the new vehicular driveways and curbing

Refer also to the Civil Narrative for assumptions related to site drainage structures.

## Structural Narratives



## **EDWARD DEVOTION SCHOOL**

Brookline, Massachusetts

### **Preferred Schematic Structural Report**

September 26, 2014

## **INTRODUCTION**

*Foley Buhl Roberts & Associates, Inc. (FBRA)* is collaborating with *HMFH Architects, Inc. (HMFH)* and their consultants in the evaluation of renovation, renovation/addition and new construction options for the Edward Devotion School in Brookline. The purpose of this Preferred Schematic Structural Report is to outline the basis of the structural design, describe the proposed structural systems and summarize the anticipated scope of structural work in the existing building for each option. An outline Structural Specification is also included. This report should be used in conjunction with the Architectural Concept Plans and the documents of the other disciplines, in preparing the preliminary cost estimate.

The Edward Devotion School is located at 345 Harvard Street in Brookline, MA. The present school consists of the original building (Circa 1913), along with the 1954 and 1974 additions on the east and west sides, respectively. The Edward Devotion School is the largest elementary school in Brookline and is home to over 700 Pre-K through 8<sup>th</sup> Grade students. The facility was constructed on a sloping site (downwards to the north and west; approximately one story) and has a gross floor area of approximately 162,051 square feet on three levels. Increased enrollments have created overcrowded conditions in the school and building systems are in need of replacement.

Structural conditions were reviewed at the site (to the extent possible) on several occasions. Structural systems and conditions in the original building (Central Wing – Circa 1913), the East Wing (1954) and the West Wing (1974) are described in the March 10, 2014 *Existing Conditions Structural Report*, prepared by FBRA. Refer also to the Preliminary Design Program (PDP) – Structural Report of March 12, 2014 for additional information.

With reference to the September 5, 2014 Concept Diagrams prepared by HMFH, four (4) options are being considered, as summarized below. Demolition/Construction will be phased in all options; refer to the Architectural Concept Plans for further information.

## **PROPOSED OPTIONS**

### **Option 0:**

Option 0 is the full renovation of the existing facility, including the Central, East and West Wings. No new construction is proposed. The total (existing) floor area of this option is approximately 162,051 square feet.

### **Option 1:**

Option 1 is a renovation/addition scheme, which includes 17,965 square feet of renovated space in the Central Wing (original building) and 154,527 square feet of new additions, constructed in phases. In Phase 1, the existing East Wing will be demolished to accommodate the construction of a new, two-story (plus partial Lower Level) classroom addition. A two-story classroom wing will be constructed to the northwest of the existing school in this phase as well. Following the

**EDWARD DEVOTION SCHOOL**

Brookline, Massachusetts

**Preferred Schematic Structural Report**

September 26, 2014

Page 2 of 13

demolition of the West Wing and the northern (flat roof) section of the Central Wing, a three-story addition will be constructed, which wraps around the remaining portion of the Central Wing on the north and west sides. Below grade parking (24,089 square feet) will be constructed along the west (Stedman Street) side of the site at the Lower Level (in the general area where parking currently exists). A portion of the new parking garage roof will be a green space/play area. The total floor area of Option 1 (excluding parking) is 172,492 square feet.

**Option 2:**

Option 2 is also a renovation/addition scheme, which includes 17,965 square feet of renovated space in the Central Wing (original building) and 147,080 square feet of new additions, constructed in phases. In Phase 1, the 1954 Gymnasium addition will be demolished and a new, four-story addition will be constructed to the north of the remaining section of the Central Wing. Following the demolition of the East and West Wings and the northern (flat roof) section of the Central Wing in Phase 2, a four-story classroom addition with Receiving and the Kitchen/Servery at the Lower Level will be constructed between the remaining portion of the Central Wing and the Phase 1 construction. The First Floor level of the Central Wing will be removed and reconstructed 3 feet lower, to meet the landing level of the existing Main Entrance. This will require extensive temporary shoring and bracing of the existing floor and roof construction, as well as bracing of the existing foundation walls during construction. Existing bearing walls and columns at the First Floor will need to be reinforced, as they will be longer in the modified building. A new parking garage (similar to the Option 1 Garage, but 26,418 square feet in area) will also be constructed in Phase 2. The roof of the new parking garage will be a green space/play area. The total floor area of Option 2 (excluding parking) is 165,045 square feet.

**Option 3:**

Option 3 is an all new construction scheme, in which the East and West Wings as well as the 1954 Gymnasium addition to the original building (Central Wing) will be demolished, following the construction of the new school. The remaining portion of the Central Wing will be made weather tight and will be renovated in the future by the Town for another purpose. A new, five-story building is proposed, to be constructed to the north of the existing school, in the area of the present fields. The new building will include 26,994 square feet of below grade parking at the Ground Floor level along the west (Stedman Street) side, in a similar location as that proposed in Options 1 and 2 (constructed in Phase 2, following the demolition of the West Wing). The total floor area of Option 3 (excluding parking) is 166,095 square feet.

**BASIS OF DESIGN – NEW CONSTRUCTION (OPTIONS 1, 2 AND 3)**

The basis of the structural design for new construction in Options 1, 2 and 3 is described in this section.

**Codes and Design Standards**

<i>Building Code:</i>	Massachusetts State Building Code (780 CMR) - Eighth Edition.
<i>Concrete:</i>	ACI 318 and ACI 301; latest editions.
<i>Structural Steel:</i>	AISC “Specification for Structural Steel Buildings” and AISC “Code of Standard Practice”.
<i>Steel Deck:</i>	Steel Deck Institute (SDI) – Referenced Standards

## **EDWARD DEVOTION SCHOOL**

Brookline, Massachusetts

### **Preferred Schematic Structural Report**

September 26, 2014

Page 3 of 13

#### **Design Loads/Parameters**

##### *Live Loads:*

Classrooms (with partition allowance):	70 PSF
Corridors:	80 PSF
Open plan areas (including green space/outdoor play areas):	100 PSF
Stairs:	100 PSF
Mechanical Areas:	150 PSF

##### *Snow Loads (Brookline):*

Basic Ground Snow Load:	40 PSF
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##### *Wind Loads (Brookline):*

Wind Speed:	105 MPH
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##### *Seismic Parameters (Brookline):*

Spectral Response – Short Periods:	$S_S = 0.280g$
Spectral Response – 1-Second Periods:	$S_D = 0.068g$
Seismic Use Group:	III
Seismic Design Category:	B
Site Class:	D
Structural System:	Building Frame System
Lateral Load Resisting System:	Steel Braced Frames ( <i>Not Specifically Detailed for Seismic Resistance</i> )
Response Modification Factor (R):	3.0
System Overstrength Factor ( $\Omega_0$ ):	3.0
Deflection Amplification Factor ( $C_d$ ):	3.0

#### **Foundations:**

The foundation design is based on an allowable bearing capacity of 6.0 kips per square foot (3.0 tons per square foot) on natural soils (glacial outwash deposit) or on compacted structural fill, per the recommendations of McPhail Associates, LLC in their *Preliminary Foundation Engineering Report* dated March 3, 2014. Groundwater was encountered at a depth of 16.9 feet below the ground surface in one observation well; however, the groundwater level will vary across the site and change seasonally. The McPhail Associates report recommends that perimeter and underslab drainage systems be installed at lowest level floor areas that are constructed below the exterior finished grade.

#### **Construction Classification:**

New construction will typically be Type IIA Construction (Noncombustible, Protected). Floor construction (except slabs on steel deck) and roof construction require applied fireproofing to achieve the required fire resistance rating. In all options, the new construction will be fully encased.



**EDWARD DEVOTION SCHOOL**

Brookline, Massachusetts

**Preferred Schematic Structural Report**

September 26, 2014

Page 4 of 13

**Sustainable Design Considerations:**

Sustainable design considerations will be incorporated in the building design; it is intended that the new construction will be LEED Certified.

**STRUCTURAL SYSTEMS DESCRIPTION – NEW CONSTRUCTION (OPTIONS 1, 2 AND 3)**

Structural systems descriptions for new construction in Options 1, 2 and 3 are described in this section. The anticipated scope of structural work in the existing building is described in the following section.

**Structural Bays/Spans:** Structural bays/spans will vary; however, the typical structural bay will be square or rectangular, approximately 750 square feet to 900 square feet in area. Floor or roof construction over the Gymnasium and the Multi-Purpose Room spaces will clear span (all options).

**Story Heights/Floor Elevations:** Typical story heights vary between floors and between options, ranging from 13'-6" to 20'-0". Refer to the Architectural Concept Plans for additional information.

**Foundations:** Foundations for all options will be conventional spread footings. The preliminary foundation design is based on an allowable bearing capacity of 6.0 kips per square foot (3.0 tons per square foot) on natural soils (glacial outwash deposit) or on compacted structural fill, per the recommendations of McPhail Associates, LLC in their *Preliminary Foundation Engineering Report* dated March 3, 2014. Temporary lateral earth support may be required during construction, particularly along the east and west sides of the site.

**Drainage:** Groundwater was encountered at a depth of 16.9 feet below the ground surface in one observation well; however, the groundwater level will vary across the site and change seasonally. The McPhail Associates report recommends that perimeter and underslab drainage systems be installed at lowest level floor areas that are constructed below the exterior finished grade.

**Lowest Level Floor Construction** will typically be a 5" thick concrete slab on grade, reinforced with welded wire fabric. The slab will be underlain by a heavy duty vapor barrier, 2" of rigid insulation and 6" of imported, compacted gravel fill. Slabs on grade constructed below the exterior finish grade will be underlain by a 9" thick layer of compacted ¾" stone placed on filter fabric, to accommodate the underslab drainage system. Saw cut control joints (1¼" deep) will be provided in each direction along each column line. Full depth isolation joints will be constructed around columns.

**Upper Level Floor Construction (Including New First Floor in the Central Wing – Option 2):** Composite structural steel framing: 4" thick (minimum), normal weight concrete topping slab on a 2" deep, 18 gauge, composite type, galvanized steel floor deck (6" minimum total slab thickness), reinforced with welded wire fabric, spanning to composite wide flange steel beams. Steel beams span to composite wide flange steel girders that are supported by wide flange steel columns. Floor construction over the Gymnasium (Options 2 and 3) or Multi-Purpose Room spaces (Options 1, 2 and 3) will be similar, with a concrete slab on cellular acoustic composite steel floor deck (3" deep, 20/20 gauge) supported by clear spanning steel beams. Note that, in Options 1 (partial) and 3, the Gymnasium is located over occupied spaces below. Noise may be an issue; acoustic isolation (e.g. a floating slab system) may be required.

## **EDWARD DEVOTION SCHOOL**

Brookline, Massachusetts

### **Preferred Schematic Structural Report**

September 26, 2014

Page 5 of 13

Exposed steel floor framing over the Gymnasium and Multi-Purpose Room spaces will be classified as Exposed to View Structural Steel (E.V.S.S.). All E.V.S.S. will be surface prepped and shop painted with a primer that is compatible with the finished paint. Primary floor structural members over the Gymnasium and Multi-Purpose Room spaces that are exposed to view will require intumescent paint to achieve the required fire resistance rating.

All composite steel beams and girders will be *unshored*. Composite action will be achieved by field welding  $\frac{3}{4}$ " diameter x  $4\frac{1}{2}$ " long headed shear studs through the deck, to the top flanges of the beams and girders. To avoid compromising composite action, conduit or other, similar embedded items *should not* be placed in the concrete slab on steel deck construction. Slabs on composite steel floor deck will be placed at the required elevation, adding concrete to compensate for the deflection of the (unshored) steel framing (assume an approximate average of  $\frac{3}{4}$ " additional concrete required over the bay area).

**Typical Roof Construction:** Typical roof construction consists of a 3" deep, 20 gauge, Type DR galvanized steel roof deck spanning to wide flange steel beams. Steel beams are typically supported by wide flange steel girders, which span to wide flange steel columns.

Steel roof deck over the Gymnasium (Option 1) will be cellular acoustic type, 3" deep; 20/20 gauge (Galvanized). Steel deck typically spans to steel purlins, which are supported by clear spanning steel girders and wide flange steel columns.

Exposed steel roof framing over the Gymnasium in Option 1 will be classified as Exposed to View Structural Steel (E.V.S.S.). All E.V.S.S. will be surface prepped and shop painted with a primer that is compatible with the finished paint. Primary roof structural members over the Gymnasium that are exposed to view will require intumescent paint to achieve the required fire resistance rating.

Where practical, roof drainage will be achieved by sloping the steel to the internal drains. Some areas of tapered insulation should be anticipated, in areas where it is not practical to slope the steel.

Concrete slabs on composite steel deck will be provided below rooftop mechanical units, for acoustical purposes. Screens will be provided around rooftop equipment for acoustic and aesthetic purposes.

**Steel Framing Connections:** Type 2 simple framing connections (shear only); double clip angles typically.

**Columns:** Typical columns will be wide flange steel sections.

**Lateral Force Resisting System:** Lateral (wind and seismic) forces will be resisted by steel bracing, for reasons of economy, stiffness, reduced structural depth and smaller column sizes. Bracing members will be square or rectangular HSS sections. Brace configurations may include chevrons, inverted chevrons ("V"), or single diagonals in short bays, as required by architectural considerations. The bases of all braced frames will be tied together below the lowest level slab on grade with 2'-0" x 2'-0" reinforced concrete grade beams.

**Expansion (Seismic) Joints:** All new construction will be separated from the existing building by an expansion/seismic joint (Options 1 and 2), allowing the new construction and the existing building to be considered as structurally independent. A (double) fire wall will likely be required at the expansion joint in Options 1 and 2; accordingly, additional fire protection will typically not be

**EDWARD DEVOTION SCHOOL**

Brookline, Massachusetts

**Preferred Schematic Structural Report**

September 26, 2014

Page 6 of 13

**Exterior Walls:** Exterior walls will typically be masonry veneer, with areas of glazed curtainwall and architectural panels. A galvanized, light gauge steel stud backup wall (16 gauge minimum thickness) will be constructed at masonry veneer areas. Vertical slip joints will be provided in the metal stud backup system at each level. Due to the height of the brick in certain areas (greater than 30 feet), a galvanized steel relieving angle will be required. The outside face of masonry will be located approximately 20" from the column centerline. Intermediate, HSS Steel girts will be provided at exterior Gymnasium walls, to laterally support the wall construction at mid-height.

**Parking Structure:** A below grade parking structure with a rooftop green space/outdoor play area above is proposed in all options (area varies with each option). The location and footprint of the proposed parking structure in each option is similar to the existing parking garage at the Ground Floor level of the 1974 West Wing. Refer to the Architectural Concept Plans for additional information

Garage roof construction at the outdoor play areas will consist of a 12" thick, waterproofed, reinforced concrete flat slab, supported by interior reinforced concrete columns and footings and by reinforced concrete foundation walls (14" thick) at the building perimeter. Concrete slabs at interior, occupied areas over the Garage will reduce to 10" thick.

The Garage floor slab at the Lower Level will be a 5" thick concrete slab on grade (pitched to drains), placed on a layer of compacted, non-frost susceptible granular fill.

**ESTIMATED STRUCTURAL QUANTITIES – NEW CONSTRUCTION (OPTIONS 1, 2 AND 3)**

**Note:** Refer to Structural Systems Descriptions in the preceding section for steel floor and roof deck types/gauges as well as slab on grade, structural slabs and slabs on steel deck information.

**Foundations:****Typical Perimeter Frost Wall and Footing:**

*14" thick, including an 8" wide masonry shelf, with horizontal and vertical reinforcing each face (4.0+/- psf). The outside surface of perimeter foundation walls should receive a trowelled-on bituminous mastic. Typical perimeter frost wall continuous footing: 2'-6" wide, by 12" deep, with continuous reinforcing bars, plus dowels to the foundation wall (10.0+/- plf). The bottom of the footing will be approximately 4'-0" minimum below the exterior finish grade for frost protection.*

**Typical Basement Wall and Footing:**

*Typical, full height foundation wall: 16" thick, including an 8" wide masonry shelf, with horizontal and vertical reinforcing each face (6.0+/- psf). The outside surface of perimeter foundation walls should receive trowelled-on bituminous mastic dampproofing. Typical, full height foundation wall continuous footing: 2'-6" wide, by 12" deep, with continuous reinforcing bars, plus dowels to the foundation wall (15.0+/- plf). The bottom of the footing will be approximately 2'-4" minimum below the Lower Level slab on grade.*

**Typical Interior Column Footing:**

Typical, average interior column footings are as follows:

Option 1: 7'-6" x 7'-6" x 22" deep, with 475 pounds of reinforcing.

**EDWARD DEVOTION SCHOOL**

Brookline, Massachusetts

**Preferred Schematic Structural Report**

September 26, 2014

Page 7 of 13

Option 3: 12'- 0" x 12'- 0" x 2'-8" deep, with 1700 pounds of reinforcing.

**Typical Perimeter Column Footing:**

Typical, average perimeter column footings are as follows:

Option 1: 6'- 0" x 6'- 0" x 20" deep, with 275 pounds of reinforcing.

Option 2: 8'- 0" x 8'- 0" x 24" deep, with 560 pounds of reinforcing.

Option 3: 9'- 0" x 9'- 0" x 2'- 2" deep, with 750 pounds of reinforcing.

**Grade Beams at Lateral Bracing Bays:**

2'-0" x 2'-0" with 50 pounds of reinforcing per foot.

**Reinforced Concrete Slab over Parking Garage:**

12" thick with 9.5 psf reinforcing at outdoor play areas; 10" thick with 7.5 psf reinforcing below interior spaces.

**Structural Steel:**

**Average weight of Structural Steel – Floors:**

13.5 psf

**Average weight of Structural Steel – Roofs:**

12.5 psf

**ANTICIPATED SCOPE OF STRUCTURAL WORK – EXISTING BUILDING (ALL OPTIONS)**

Renovations, alterations, repairs and additions to existing buildings in Massachusetts are governed by the provisions of the Massachusetts State Building Code (MSBC – 8<sup>th</sup> Edition) and the Massachusetts Existing Building Code (MEBC). These documents are based on amended versions of the 2009 *International Building Code (IBC)* and the 2009 *International Existing Building Code (IEBC)*, respectively.

The MEBC defines three (3) compliance methods for the repair, alteration, change of occupancy, addition or relocation of an existing building. The method of compliance is chosen by the Design Team (based on the project scope and cost considerations) and cannot be combined with other methods.

Regardless of the compliance method chosen, the MEBC currently requires that buildings with unreinforced masonry walls be evaluated with respect to the provisions of Appendix A1 of the IEBC (applicable to the Central Wing in Options 1 and 2 and the entire existing facility in Option 0). An assessment of masonry shear stresses, wall slenderness, parapets, wall anchorage, diaphragm anchorage, etc. is required; and the existing building must be capable of resisting at least 75% of the seismic loading required by the Code for new construction.

The *Work Area Compliance Method* (IEBC Chapters 4 through 12) is based on a proportional approach to compliance, where upgrades to an existing building are triggered by the type and



**EDWARD DEVOTION SCHOOL**

Brookline, Massachusetts

**Preferred Schematic Structural Report**

September 26, 2014

Page 8 of 13

project. The Work Area Compliance Method includes requirements for three levels of alterations, in addition to requirements for repairs, changes in occupancy, additions, historic buildings or moved buildings. A complete seismic evaluation of the existing building is required for the following: Level 2 alterations where the demand to capacity ratio of lateral load resisting elements has been increased by more than 10%, all Level 3 alterations, a change in occupancy to a higher category and where structurally attached additions (vertical or horizontal) are planned. Partial demolition of the Central Wing and a full renovation of the remaining section of the building are planned in Options 1 and 2; accordingly, the work would be classified as Level 3.

Structural systems and conditions in the original building (Central Wing – Circa 1913), the East Wing (1954) and the West Wing (1974) are described in the March 10, 2014 *Existing Conditions Structural Report*, prepared by FBRA.

**OPTION 0 (Renovation Only)****Central Wing – Circa 1913**

- Conduct a seismic analysis/evaluation of the existing building to determine if adequate lateral load capacity is available (masonry walls) to resist 75% of the seismic loading required by the Code for new construction. Such an evaluation is beyond the scope of this report; however, FBRA suggests that seismic upgrades, such as the addition of reinforced masonry shear walls and/or the reinforcing of existing masonry walls may be required to meet this requirement. Floor and roof construction will need to be anchored to existing interior and perimeter masonry walls at all locations/levels (at approximately 4'-0" o.c.). Cantilevered elements (chimneys, etc., as applicable) will need to be braced. **The cost of this work should be included in the preliminary cost estimate (potentially \$10.00/SF to \$15.00/SF over the gross floor area of the building).**
- Repointing of brick and stone joints is required in certain locations.
- Areaways and below grade exterior stairwells should be cleaned of debris and plant material to ensure proper drainage.
- Further review and evaluation of the clock tower is recommended.
- Roof drainage (downspouts), foundation drainage and surface drainage adjacent to the building should be evaluated and improved.
- Snow drift loading on the northern, flat roof should be evaluated. The preliminary cost estimate should carry an allowance for the reinforcing of existing flat roof construction in snow drift areas.
- Accessibility issues will need to be addressed (refer to Architectural documents); including the potential addition of elevators, lifts, ramps, etc. as may be appropriate.

## **EDWARD DEVOTION SCHOOL**

Brookline, Massachusetts

### **Preferred Schematic Structural Report**

September 26, 2014

Page 9 of 13

#### **East Wing – 1954**

- Conduct a seismic analysis/evaluation of the existing building to determine if adequate lateral load capacity is available (masonry walls) to resist 75% of the seismic loading required by the Code for new construction. Such an evaluation is beyond the scope of this report; however, FBRA suggests that seismic upgrades, such as the addition of reinforced masonry shear walls and/or the reinforcing of existing masonry walls may be required to meet this requirement. Floor and roof construction will need to be anchored to existing interior and perimeter masonry walls at all locations/levels (at approximately 4'-0" o.c.). Cantilevered elements (chimneys, etc., as applicable) will need to be braced. **The cost of this work should be included in the preliminary cost estimate (potentially \$10.00/SF to \$15.00/SF over the gross floor area of the building).**
- Repointing of brick is required in certain locations. Repair of cracked and or spalled brick is also required in limited locations.
- Areaways and below grade exterior stairwells should be cleaned of debris and plant material to ensure proper drainage.
- Steel windows are rusting and should be replaced.
- Cleaning and coating of exposed steel columns supporting entry canopies is required.
- Snow drift loading on the flat roof at the northern section of the East Wing should be evaluated. The preliminary cost estimate should carry an allowance for the reinforcing of existing flat roof construction in snow drift areas.
- Accessibility issues will need to be addressed (refer to Architectural documents); including the potential addition of elevators, lifts, ramps, etc. as may be appropriate.

#### **West Wing – 1974**

- Conduct a seismic analysis/evaluation of the existing building to determine if adequate lateral load capacity is available (masonry walls) to resist 75% of the seismic loading required by the Code for new construction. Such an evaluation is beyond the scope of this report; however, FBRA suggests that seismic upgrades, such as the addition of reinforced masonry shear walls and/or the reinforcing of existing masonry walls may be required to meet this requirement. Floor and roof construction will need to be anchored to existing interior and perimeter masonry walls at all locations/levels (at approximately 4'-0" o.c.). Cantilevered elements (chimneys, etc., as applicable) will need to be braced. **The cost of this work should be included in the preliminary cost estimate (potentially \$10.00/SF to \$15.00/SF over the gross floor area of the building).**
- Repointing of brick is required in certain locations. Repair of cracked and or spalled brick is also required in limited locations.
- Caulking is required at control joints in the brick veneer.
- Steel relieving angles at each floor level should be cleaned and coated with a zinc-rich paint.



**EDWARD DEVOTION SCHOOL**

Brookline, Massachusetts

**Preferred Schematic Structural Report**

September 26, 2014

Page 10 of 13

- Site walls and railings have deteriorated significantly; FBRA recommends that this construction be removed and rebuilt.
- Areaways and below grade exterior stairwells should be cleaned of debris and plant material to ensure proper drainage.
- Accessibility issues will need to be addressed (refer to Architectural documents); including the potential addition of elevators, lifts, ramps, etc. as may be appropriate.

**OPTIONS 1, 2 and 3**

In Options 1, 2 and 3, the East and West wings will be demolished. The Central Wing will be partially demolished in Options 1 and 2 (the north, flat roof section will be removed. in Option 3, the 1954 Gymnasium addition will be removed, restoring the Central Wing to its original configuration. The anticipated scope of structural work in the original building (Central Wing) is described below.

**Central Wing – Circa 1913**

- Conduct a seismic analysis/evaluation of the existing building to determine if adequate lateral load capacity is available (masonry walls) to resist 75% of the seismic loading required by the Code for new construction. Such an evaluation is beyond the scope of this report; however, FBRA suggests that seismic upgrades, such as the addition of reinforced masonry shear walls and/or the reinforcing of existing masonry walls (e.g. by shotcrete) may be required to meet this requirement. Floor and roof construction will need to be anchored to existing interior and perimeter masonry walls at all locations/levels (at approximately 4'-0" o.c.). Cantilevered elements (chimneys, etc., as applicable) will need to be braced. ***The cost of this work should be included in the preliminary cost estimate (potentially \$20.00/SF over the gross floor area of the remaining section of the building).***
- Repointing of brick and stone joints is required in certain locations.
- Areaways and below grade exterior stairwells should be cleaned of debris and plant material to ensure proper drainage.
- Further review and evaluation of the clock tower is recommended.
- Roof drainage (downspouts), foundation drainage and surface drainage adjacent to the building should be evaluated and improved.
- Accessibility issues will need to be addressed (refer to Architectural documents); including the potential addition of elevators, lifts, ramps, etc. as may be appropriate.
- The existing First Floor construction in the Central Wing will be removed and reconstructed in Option 2, This will require extensive temporary shoring and bracing of the existing floor and roof construction, as well as bracing of the existing foundation walls during construction. Existing bearing walls and columns at the First Floor will need to be

## **EDWARD DEVOTION SCHOOL**

Brookline, Massachusetts

### **Preferred Schematic Structural Report**

September 26, 2014

Page 11 of 13

reinforced, as they will be longer in the modified building. ***FBRA estimates that the unit cost of the new, lowered First Floor construction in the Central Wing will be approximately three (3) times that for the new additions.***

- In Option 3, the 1954 Gymnasium addition will be demolished, restoring the Central Wing to its original configuration. Work in the Central Wing would be limited; weather-tight closure of all openings exposed to the exterior due to the demolition would be required.

### **OUTLINE STRUCTURAL SPECIFICATION:**

#### **Concrete:**

- All concrete shall be normal weight, 4,000 psi at 28 days, except foundation walls and footings, which shall be normal weight, 3,000 psi and exterior (exposed) concrete (paving) which shall be normal weight, 4,500 psi.
- Portland Cement: ASTM C150, Type I or II.
- Fly Ash: ASTM C618, Class F. Replacement of cement content with fly ash is limited to 20% (by weight). Fly ash is not permitted in exterior, exposed concrete, slabs on grade or slabs on steel deck.
- All concrete shall be proportioned with 3/4" maximum aggregate, ASTM C 33, except 3/8" maximum aggregate shall be used at toppings less than 2" thick (e.g. metal pan stairs).
- All reinforcing shall be ASTM A 615 deformed bars, Grade 60.
- All welded wire fabric shall conform to ASTM A 185.
- Reinforcing bars, steel wire, welded wire fabric, and miscellaneous steel accessories shall contain a minimum of 25% (combined) post-industrial/post-consumer recycled content (the percentage of recycled content is based on the weight of the component materials). Certification of recycled content shall be in accordance with Submittal Requirements.
- Concrete products manufactured within 500 miles (by air) of the project site shall be documented in accordance with Submittal Requirements.
- Cure all concrete by moisture retention methods, approved by Architect; curing compounds shall not be used.

#### **Reinforced Concrete Masonry (Elevator Shafts):**

- Masonry construction shall conform to ACI 530/ASCE 5/TMS 402 "Building Code Requirements for Masonry Structures", latest edition.
- Masonry strength,  $f_m$  shall not be less than 1350 psi.
- Requirements for load bearing block strength shall be as required for specified masonry strength ( $f_m$ ) but shall not be less than 2000 psi on the net area of the block.
- Grout shall conform to ASTM C476, Type Fine, and shall be of strength required for specified masonry strength ( $F'm$ ) but not less than 3000 psi.



**EDWARD DEVOTION SCHOOL**

Brookline, Massachusetts

**Preferred Schematic Structural Report**

September 26, 2014

Page 12 of 13

- Mortar for reinforced masonry shall conform to ASTM C 270 Type S and shall be of strength required for specified masonry strength (f'm) but not less than 1800 psi.
- Reinforcing bars shall conform to ASTM A 615 Grade 60 deformed bars. Lap all continuous bars 48 diameters and provide bar positioners. Assume No. 5 bars at 2'-8" o.c. vertically and horizontal bond beams with 2 – No. 5 continuous at 4'-0" o.c.
- Joint reinforcing shall be 9 gauge ladder type conforming to ASTM A 82. Provide prefabricated corners and tees. Walls shall be reinforced horizontally with joint reinforcing at 16 inches on centers unless otherwise noted.
- Reinforcing bars, steel wire and miscellaneous accessories shall contain a minimum of 25% (combined) post-industrial/post-consumer recycled content (the percentage of recycled content is based on the weight of the component materials). Certification of recycled content shall be in accordance with Submittal Requirements.
- Elevator shaft walls shall be 100% solid grouted (all cores); low lift grouting.
- Masonry products manufactured within 500 miles (by air) of the project site shall be documented in accordance with Submittal Requirements.

**Structural Steel:**

- Structural steel shapes shall conform to ASTM A 992, Fy = 50 ksi.
- Steel tubes (HSS) shall conform to ASTM A 500, Grade B, Fy=46 ksi.
- Structural steel plates and bars shall conform to ASTM A 36, Fy = 36 ksi.
- Steel members shall contain a minimum of 25% (combined) post-industrial/post-consumer recycled content (the percentage of recycled content is based on the weight of the component materials). Certification of recycled content shall be in accordance with the Submittal Requirements.
- Steel manufactured within 500 miles (by air) of the project site shall be documented in accordance with the Submittal Requirements.
- Anchor Bolts: Anchor bolts at column base plates shall conform to ASTM F1554 – Grade 36 and shall be headed type. Provide a minimum of four (4), ¾" diameter anchor bolts at all columns; additional bolts and/or larger diameter will be required at bracing locations.
- Bolted connections shall be ASTM A 325, Type N (bearing) bolts, except slip-critical bolts shall be used at lateral brace beam connections.
- Shear connectors shall be ¾" diameter, 4½" long, headed Nelson studs conforming to ASTM A 108.
- Shop and field welding shall be AWS D1.1 E70XX electrodes.
- Surface treatment for typical structural steel: SSPC Surface Preparation No. 3 (Power Tool Cleaning). Structural steel shall be left unprimed.

**EDWARD DEVOTION SCHOOL**

Brookline, Massachusetts

**Preferred Schematic Structural Report**

September 26, 2014

Page 13 of 13

- Surface treatment for Exposed to View Structural Steel in the Gymnasium (E.V.S.S.) shall be SSPC Surface Preparation No. 6 (Commercial Blast Cleaning). Structural steel shall receive one coat of shop primer that is compatible with the finish paint.
- All exterior, exposed structural steel shall be hot-dipped galvanized.

**Steel Deck:**

- Typical steel roof deck shall be 3" deep, 20 gauge, Type DR, conforming to ASTM A653, Grade 33 (minimum), galvanized in accordance with ASTM A 653, coating class G-60.
- Acoustic steel roof deck (over the Gymnasium) shall be 3" deep, 20/20 gauge cellular type, conforming to ASTM A653, Grade 33 (minimum), galvanized in accordance with ASTM A 653, coating class G-60. Acoustic steel roof deck shall be shop treated and painted with a primer that is compatible with the finish paint.
- Typical steel floor deck shall be 2" deep, 18 Gauge, composite type, conforming to ASTM A 653, Grade 33, galvanized in accordance with ASTM A 653, coating class G-60.
- Acoustic steel floor deck (over Gymnasium and Multi-Purpose Room) shall be 3" deep, 20/20 gauge cellular type, conforming to ASTM A653, Grade 33 (minimum), galvanized in accordance with ASTM A 653, coating class G-60. Acoustic steel floor deck shall be shop treated and painted with a primer that is compatible with the finish paint.
- All steel floor deck and roof deck accessories (pour stops, finish strips, closures, etc.) shall be the same finish as the deck; 18 gauge minimum.
- Steel deck shall contain a minimum of 25% (combined) post-industrial/post-consumer recycled content (the percentage of recycled content is based on the weight of the component materials). Certification of recycled content shall be in accordance with the Submittal Requirements.
- Steel deck manufactured within 500 miles (by air) of the project site shall be documented in accordance with the Submittal Requirements.
- Provide 14 gauge sump pans at roof drains.

**End of Preferred Schematic Structural Report**

Fire Protection Narratives





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L#43489/Page 1/September 16, 2014

### **FIRE PROTECTION SYSTEMS**

#### **NARRATIVE REPORT - OPTION 0**

##### **REPAIR OPTION**

The following is the Fire Protection System Narrative, which defines the scope of work and capacities of the Fire Protection System as well as the Basis of Design.

#### 1. CODES

- A. All work installed under Section 210000 shall comply with the MA Building Code, IBC 2009 and all state, county, and federal codes, laws, statutes, and authorities having jurisdiction.

#### 2. DESIGN INTENT

- A. The work of Section 210000 is shown on the drawings and specifications. All work is new and consists of furnishing all materials, equipment, labor, transportation, facilities, and all operations and adjustments required for the complete and operating installation of the Fire Protection work and all items incidental thereto, including commissioning and testing.

#### 3. GENERAL

- A. In accordance with the provisions of the Massachusetts Building Code 780 CMR, a renovated school building of this size must be protected throughout with an automatic sprinkler system.

#### 4. DESCRIPTION

- A. The existing building is partially protected with an automatic sprinkler system. The existing fire service and double check valve assembly will be re-used. New wet alarm valve complete with electric bell will be provided. The existing fire department connection meeting local thread standards. Existing sprinklers will be demolished.
- B. The existing building will be protected with a combined standpipe/sprinkler system with control valve assemblies to limit the sprinkler area controlled to less than 52,000 square feet as required by NFPA 13-2013. Control valve assemblies shall consist of a supervised shutoff valve, check valve, flow switch and test connection with drain.
- C. All areas of the building, including all finished and unfinished spaces, will be sprinklered. All electrical rooms/closets are to be sprinklered. The elevator shaft and elevator machine room are not sprinklered.
- D. All sprinkler heads will be quick response, pendent and/or sidewall in hung ceiling areas and upright in unfinished areas.
- E. Fire Protection Systems are designed in accordance with NFPA 13-2013, NFPA 14-2013 and NFPA 72-2010. The system includes a combination standpipe/sprinkler system throughout the building.

Devotion School  
Brookline, MA  
J#831 037 00.00  
L#43489/Page 2/September 16, 2014

5. BASIS OF DESIGN

- A. The mechanical rooms, kitchen, science classrooms, storage rooms and parking areas are considered Ordinary Hazard Group 1; all other areas are considered light hazard.
- B. Required Design Densities:
  - Light Hazard Areas                    0.10 GPM over 1,500 s.f.
  - Ordinary Hazard Group 1            0.15 GPM over 1,500 s.f.
- C. Sprinkler spacing (max.):
  - Light Hazard Areas:                    225 s.f.
  - Ordinary Hazard Areas:                130 s.f.
- D. A flow test will be conducted to verify if a fire pump will be required for the project.

6. PIPING

- A. Sprinkler piping 1-1/2 in. and smaller shall be ASTM A-53, Schedule 40 black steel pipe. Sprinkler piping 2 in. and larger shall be ASTM A-135, Schedule 10 black steel pipe.

7. FITTINGS

- A. Fittings on fire service piping, 2 in. and larger, shall be Victaulic Fire Lock Ductile Iron Fittings conforming to ASTM A-536 with integral grooved shoulder and back stop lugs and grooved ends for use with Style 009-EZ or Style 005 couplings. Branch line fittings shall be welded or shall be Victaulic 920/920N Mechanical Tees. Schedule 10 pipe shall be roll grooved. Schedule 40 pipe, where used with mechanical couplings, shall be roll grooved and shall be threaded where used with screwed fittings. Fittings for threaded piping shall be malleable iron screwed sprinkler fittings.

8. JOINTS

- A. Threaded pipe joints shall have an approved thread compound applied on male threads only. Teflon tape shall be used for threads on sprinkler heads. Joints on piping, 2 in. and larger, shall be made up with Victaulic, or equal, Fire Lock Style 005, rigid coupling of ductile iron and pressure responsive gasket system for wet sprinkler system as recommended by manufacturer.

9. DOUBLE CHECK VALVE ASSEMBLY

- A. Double check valve assembly shall be MA State approved, U.L./F.M. approved, with iron body bronze mounted construction complete with supervised OS & Y gate valves and test cocks. Furnish two spare sets of gaskets and repair kits.



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Brookline, MA  
J#831 037 00.00  
L#43489/Page 3/September 16, 2014

- B. Double check valve detector assembly shall be of one of the following:
1. Watts Series 757-OSY
  2. Wilkins 350A-OSY
  3. Conbraco Series 4S-100
  4. Or equal



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Devotion School  
Brookline, MA  
J#831 037 00.00  
L#43436/Page 1/September 16, 2014

### **FIRE PROTECTION SYSTEMS**

#### **NARRATIVE REPORT - OPTION 1 (Renovation/Addition)**

The following is the Fire Protection System Narrative, which defines the scope of work and capacities of the Fire Protection System as well as the Basis of Design.

1. CODES
  - A. All work installed under Section 210000 shall comply with the MA Building Code, IBC 2009 and all state, county, and federal codes, laws, statutes, and authorities having jurisdiction.
2. DESIGN INTENT
  - A. The work of Section 210000 is shown on the drawings and specifications. All work is new and consists of furnishing all materials, equipment, labor, transportation, facilities, and all operations and adjustments required for the complete and operating installation of the Fire Protection work and all items incidental thereto, including commissioning and testing.
3. GENERAL
  - A. In accordance with the provisions of the Massachusetts Building Code 780 CMR, a renovated school building with addition of this size must be protected throughout with an automatic sprinkler system.
4. DESCRIPTION
  - A. The system will include a new 8" fire service, fire pump (if required), double check valve assembly, wet alarm valve complete with electric bell, and a fire department connection meeting local thread standards.
  - B. The system will be a combined standpipe/sprinkler system with control valve assemblies to limit the sprinkler area controlled to less than 52,000 square feet as required by NFPA 13-2013. Control valve assemblies shall consist of a supervised shutoff valve, check valve, flow switch and test connection with drain.
  - C. All areas of the building, including all finished and unfinished spaces, will be sprinklered. All electrical rooms/closets are to be sprinklered. The elevator shaft and elevator machine room are not sprinklered. Existing sprinklers will be demolished.
  - D. All sprinkler heads will be quick response, pendent and/or sidewall in hung ceiling areas and upright in unfinished areas.
  - E. Fire Protection Systems are designed in accordance with NFPA 13-2013, NFPA 14-2013 and NFPA 72-2010. The system includes a combination standpipe/sprinkler system throughout the building.

Devotion School  
Brookline, MA  
J#831 037 00.00  
L#43436/Page 2/September 16, 2014

5. BASIS OF DESIGN

- A. The mechanical rooms, kitchen, science classrooms, storage rooms, and parking areas are considered Ordinary Hazard Group 1; all other areas are considered light hazard.
- B. Required Design Densities:

Light Hazard Areas	0.10 GPM over 1,500 s.f.
Ordinary Hazard Group 1	0.15 GPM over 1,500 s.f.
- C. Sprinkler spacing (max.):

Light Hazard Areas:	225 s.f.
Ordinary Hazard Areas:	130 s.f.
- D. A flow test will be conducted to verify if a fire pump will be required for the project.

6. PIPING

- A. Sprinkler piping 1-1/2 in. and smaller shall be ASTM A-53, Schedule 40 black steel pipe. Sprinkler piping 2 in. and larger shall be ASTM A-135, Schedule 10 black steel pipe.

7. FITTINGS

- A. Fittings on fire service piping, 2 in. and larger, shall be Victaulic Fire Lock Ductile Iron Fittings conforming to ASTM A-536 with integral grooved shoulder and back stop lugs and grooved ends for use with Style 009-EZ or Style 005 couplings. Branch line fittings shall be welded or shall be Victaulic 920/920N Mechanical Tees. Schedule 10 pipe shall be roll grooved. Schedule 40 pipe, where used with mechanical couplings, shall be roll grooved and shall be threaded where used with screwed fittings. Fittings for threaded piping shall be malleable iron screwed sprinkler fittings.

8. JOINTS

- A. Threaded pipe joints shall have an approved thread compound applied on male threads only. Teflon tape shall be used for threads on sprinkler heads. Joints on piping, 2 in. and larger, shall be made up with Victaulic, or equal, Fire Lock Style 005, rigid coupling of ductile iron and pressure responsive gasket system for wet sprinkler system as recommended by manufacturer.

9. DOUBLE CHECK VALVE ASSEMBLY

- A. Double check valve assembly shall be MA State approved, U.L./F.M. approved, with iron body bronze mounted construction complete with supervised OS & Y gate valves and test cocks. Furnish two spare sets of gaskets and repair kits.

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L#43436/Page 3/September 16, 2014

B. Double check valve detector assembly shall be of one of the following:

1. Watts Series 757-OSY
2. Wilkins 350A-OSY
3. Conbraco Series 4S-100
4. Or equal



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Devotion School  
Brookline, MA  
J#831 037 00.00  
L#43437/Page 1/September 16, 2014

### **FIRE PROTECTION SYSTEMS**

#### **NARRATIVE REPORT - OPTION 2 (Renovation/Addition)**

The following is the Fire Protection System Narrative, which defines the scope of work and capacities of the Fire Protection System as well as the Basis of Design.

1. CODES
  - A. All work installed under Section 210000 shall comply with the MA Building Code, IBC 2009 and all state, county, and federal codes, laws, statutes, and authorities having jurisdiction.
2. DESIGN INTENT
  - A. The work of Section 210000 is shown on the drawings and specifications. All work is new and consists of furnishing all materials, equipment, labor, transportation, facilities, and all operations and adjustments required for the complete and operating installation of the Fire Protection work and all items incidental thereto, including commissioning and testing.
3. GENERAL
  - A. In accordance with the provisions of the Massachusetts Building Code 780 CMR, a renovated school building with addition of this size must be protected throughout with an automatic sprinkler system.
4. DESCRIPTION
  - A. The system will include a new 8" fire service, fire pump, double check valve assembly, wet alarm valve complete with electric bell, and a fire department connection meeting local thread standards.
  - B. The system will be a combined standpipe/sprinkler system with control valve assemblies to limit the sprinkler area controlled to less than 52,000 square feet as required by NFPA 13-2013. Control valve assemblies shall consist of a supervised shutoff valve, check valve, flow switch and test connection with drain.
  - C. All areas of the building, including all finished and unfinished spaces, will be sprinklered. All electrical rooms/closets are to be sprinklered. The elevator shaft and elevator machine room are not sprinklered. Existing sprinklers will be demolished.
  - D. All sprinkler heads will be quick response, pendent and/or sidewall in hung ceiling areas and upright in unfinished areas.
  - E. Fire Protection Systems are designed in accordance with NFPA 13-2013, NFPA 14-2013 and NFPA 72-2010. The system includes a combination standpipe/sprinkler system throughout the building.

Devotion School  
Brookline, MA  
J#831 037 00.00  
L#43437/Page 2/September 16, 2014

5. BASIS OF DESIGN

- A. The mechanical rooms, kitchen, science classrooms, storage rooms, and parking areas are considered Ordinary Hazard Group 1; all other areas are considered light hazard.
- B. Required Design Densities:

Light Hazard Areas	0.10 GPM over 1,500 s.f.
Ordinary Hazard Group 1	0.15 GPM over 1,500 s.f.
- C. Sprinkler spacing (max.):

Light Hazard Areas:	225 s.f.
Ordinary Hazard Areas:	130 s.f.
- D. System design will include an electric driven fire pump, 750 GPM. If building option is determined to be a high-rise building, fire pump will be rated for 1,000 GPM.

6. PIPING

- A. Sprinkler piping 1-1/2 in. and smaller shall be ASTM A-53, Schedule 40 black steel pipe. Sprinkler piping 2 in. and larger shall be ASTM A-135, Schedule 10 black steel pipe.

7. FITTINGS

- A. Fittings on fire service piping, 2 in. and larger, shall be Victaulic Fire Lock Ductile Iron Fittings conforming to ASTM A-536 with integral grooved shoulder and back stop lugs and grooved ends for use with Style 009-EZ or Style 005 couplings. Branch line fittings shall be welded or shall be Victaulic 920/920N Mechanical Tees. Schedule 10 pipe shall be roll grooved. Schedule 40 pipe, where used with mechanical couplings, shall be roll grooved and shall be threaded where used with screwed fittings. Fittings for threaded piping shall be malleable iron screwed sprinkler fittings.

8. JOINTS

- A. Threaded pipe joints shall have an approved thread compound applied on male threads only. Teflon tape shall be used for threads on sprinkler heads. Joints on piping, 2 in. and larger, shall be made up with Victaulic, or equal, Fire Lock Style 005, rigid coupling of ductile iron and pressure responsive gasket system for wet sprinkler system as recommended by manufacturer.

9. DOUBLE CHECK VALVE ASSEMBLY

- A. Double check valve assembly shall be MA State approved, U.L./F.M. approved, with iron body bronze mounted construction complete with supervised OS & Y gate valves and test cocks. Furnish two spare sets of gaskets and repair kits.



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Devotion School  
Brookline, MA  
J#831 037 00.00  
L#43437/Page 3/September 16, 2014

- B. Double check valve detector assembly shall be of one of the following:
  - 1. Watts Series 757-OSY
  - 2. Wilkins 350A-OSY
  - 3. Conbraco Series 4S-100
  - 4. Or equal



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Devotion School  
Brookline, MA  
J#831 037 00.00  
L#43438/Page 1/September 16, 2014

### **FIRE PROTECTION SYSTEMS**

#### **NARRATIVE REPORT - OPTION 3 (New Construction)**

The following is the Fire Protection System Narrative, which defines the scope of work and capacities of the Fire Protection System as well as the Basis of Design.

1. CODES
  - A. All work installed under Section 210000 shall comply with the MA Building Code, IBC 2009 and all state, county, and federal codes, laws, statutes, and authorities having jurisdiction.
2. DESIGN INTENT
  - A. The work of Section 210000 is shown on the drawings and specifications. All work is new and consists of furnishing all materials, equipment, labor, transportation, facilities, and all operations and adjustments required for the complete and operating installation of the Fire Protection work and all items incidental thereto, including commissioning and testing.
3. GENERAL
  - A. In accordance with the provisions of the Massachusetts Building Code 780 CMR, a new school building greater than 12,000 square feet must be protected with an automatic sprinkler system.
4. DESCRIPTION
  - A. The system will include a new 8" fire service, fire pump (if required), double check valve assembly, wet alarm valve complete with electric bell, and a fire department connection meeting local thread standards.
  - B. The system will be a combined standpipe/sprinkler system with control valve assemblies to limit the sprinkler area controlled to less than 52,000 square feet as required by NFPA 13-2007. Control valve assemblies shall consist of a supervised shutoff valve, check valve, flow switch and test connection with drain.
  - C. All areas of the building, including all finished and unfinished spaces, will be sprinklered. All electrical rooms/closets are to be sprinklered. The elevator shaft and elevator machine room are not sprinklered.
  - D. All sprinkler heads will be quick response, pendent and/or sidewall in hung ceiling areas and upright in unfinished areas.
  - E. Fire Protection Systems are designed in accordance with NFPA 13-2013, NFPA 14-2013 and NFPA 72-2010. The system includes a combination standpipe/sprinkler system throughout the building.

Devotion School  
Brookline, MA  
J#831 037 00.00  
L#43438/Page 2/September 16, 2014

5. BASIS OF DESIGN

- A. The mechanical rooms, kitchen, science classrooms, storage rooms, and parking areas are considered Ordinary Hazard Group 1; all other areas are considered light hazard.
- B. Required Design Densities:

Light Hazard Areas	0.10 GPM over 1,500 s.f.
Ordinary Hazard Group 1	0.15 GPM over 1,500 s.f.
- C. Sprinkler spacing (max.):

Light Hazard Areas:	225 s.f.
Ordinary Hazard Areas:	130 s.f.
- D. A flow test will be conducted to verify if a fire pump will be required for the project.

6. PIPING

- A. Sprinkler piping 1-1/2 in. and smaller shall be ASTM A-53, Schedule 40 black steel pipe. Sprinkler piping 2 in. and larger shall be ASTM A-135, Schedule 10 black steel pipe.

7. FITTINGS

- A. Fittings on fire service piping, 2 in. and larger, shall be Victaulic Fire Lock Ductile Iron Fittings conforming to ASTM A-536 with integral grooved shoulder and back stop lugs and grooved ends for use with Style 009-EZ or Style 005 couplings. Branch line fittings shall be welded or shall be Victaulic 920/920N Mechanical Tees. Schedule 10 pipe shall be roll grooved. Schedule 40 pipe, where used with mechanical couplings, shall be roll grooved and shall be threaded where used with screwed fittings. Fittings for threaded piping shall be malleable iron screwed sprinkler fittings.

8. JOINTS

- A. Threaded pipe joints shall have an approved thread compound applied on male threads only. Teflon tape shall be used for threads on sprinkler heads. Joints on piping, 2 in. and larger, shall be made up with Victaulic, or equal, Fire Lock Style 005, rigid coupling of ductile iron and pressure responsive gasket system for wet sprinkler system as recommended by manufacturer.

9. DOUBLE CHECK VALVE ASSEMBLY

- A. Double check valve assembly shall be MA State approved, U.L./F.M. approved, with iron body bronze mounted construction complete with supervised OS & Y gate valves and test cocks. Furnish two spare sets of gaskets and repair kits.



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Devotion School  
Brookline, MA  
J#831 037 00.00  
L#43438/Page 3/September 16, 2014

- B. Double check valve detector assembly shall be of one of the following:
1. Watts Series 757-OSY
  2. Wilkins 350A-OSY
  3. Conbraco Series 4S-100
  4. Or equal



## Plumbing System Narratives



Devotion School  
Brookline, MA  
J#831 037 00.00  
L#43488/Page 1/September 16, 2014

**PLUMBING SYSTEMS**

**NARRATIVE REPORT - OPTION 0**

**REPAIR OPTION**

The following is the Plumbing System Narrative which defines the scope of work and capacities of the Plumbing System as well as the Basis of Design. The Plumbing Systems shall be designed and constructed for **LEED for Schools** where indicated on this narrative.

1. CODES
  - A. All work installed under Section 220000 shall comply with the MA Building Code, IBC 2009, MA Plumbing Code and all state, county, and federal codes, laws, statutes, and authorities having jurisdiction.
2. DESIGN INTENT
  - A. The work of Section 220000 is shown on the drawings and specifications. All work is new and consists of furnishing all materials, equipment, labor, transportation, facilities, and all operations and adjustments required for the complete and operating installation of the Plumbing work and all items incidental thereto, including commissioning and testing.
3. GENERAL
  - A. The plumbing systems that will serve the project are cold water, sanitary waste and vent system, grease waste system, special waste system, storm drain system, and natural gas system.
  - B. The existing building is serviced by municipal water service and municipal sewer service.
  - C. All plumbing in the building will conform to accessibility codes and to water conserving sections of the plumbing code.
  - D. Installation of all work is to be coordinated with the phasing plans for the project.
4. DRAINAGE SYSTEM
  - A. Soil, waste, and vent piping system is provided to connect to all fixtures and equipment. System runs will connect to existing piping in building and terminate with stack vents through the roof.
  - B. A separate grease waste system starting with connection to an exterior concrete grease interceptor running thru the kitchen and servery area fixtures and terminating with a vent terminal through the roof. The grease interceptor is provided under Division 33 scope.
  - C. Storm drainage system will be provided to drain all flat roofs with new roof drains piped through the building to a point 10 ft. outside the building.



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Devotion School  
Brookline, MA  
J#831 037 00.00  
L#43488/Page 2/September 16, 2014

- D. Drainage systems piping will be service weight cast iron piping; hub and spigot with gaskets for below grade; no hub with gaskets, bands and clamps for above grade 2 in. and larger. Waste and vent piping 1-1/2 in. and smaller will be type 'L' copper.
- E. The existing drainage piping will be reused if adequately sized for intended use. Integrity of existing piping will be confirmed via video inspection.
- F. A separate special waste system shall be provided starting with a connection to an exterior limestone chip acid neutralizer, running thru the building and to the science classroom fixtures terminating with vent terminals through the roof. Special waste and vent piping will be Schedule 40 electric heat fused polypropylene piping, fittings and traps, flame retardant above grade and non-flame retardant below ground.

#### 5. WATER SYSTEM

- A. The existing 4 in. domestic water service and meter will be re-used.
- B. Cold and hot water distribution piping will be provided to new fixtures. New reduced pressure backflow preventers will be provided on the hot and cold water supply to the science area for cross connection protection as required by code. Non-freeze wall hydrants with integral back flow preventers are provided along the exterior of the building. Existing cold and hot water domestic water piping will be demolished.
- C. Domestic hot water heating will be provided by two high efficiency natural gas fired water heaters with storage tank and a thermostatically controlled mixing device to control water temperature to the fixtures.
- D. Water temperature will be 140 deg. to serve the kitchen and 120 deg. to serve general use fixtures. A pump will recirculate hot water from the piping system loop for each temperature system.
- E. Water piping will be type 'L' copper with wrought copper sweat fittings, silver solder. All piping will be insulated with 1 in. thick high density fiberglass.
- F. A new tepid (70 deg. F – 90 deg. F) water loop will be provided to the emergency shower/eyewash fixtures as required by code. This loop will be circulated.

#### 6. NATURAL GAS SYSTEM

- A. Natural gas service is provided for the building. The existing gas system will be modified to serve the heating boilers, domestic water heater, science classrooms, rooftop equipment, kitchen cooking equipment, and generator.
- B. New gas piping will be Schedule 40 black steel pipe with threaded gas pattern malleable fittings for 2 in. and under and butt welded fittings for 2½ in. and larger.

#### 7. FIXTURES

- A. Furnish and install all fixtures, including supports, connections, fittings, and any incidentals to make a complete installation.

Devotion School  
Brookline, MA  
J#831 037 00.00  
L#43488/Page 3/September 16, 2014

- B. Fixtures shall be the manufacturer's guaranteed label trademark indicating first quality. All acid resisting enameled ware shall bear the manufacturer's symbol signifying acid resisting material.
  - C. Vitreous china and acid resisting enameled fixtures, including stops, supplies and traps shall be of one manufacturer by Kohler, American Standard, Eljer, or equal. Supports shall be Zurn, Smith, Josam or equal. All fixtures shall be white. Faucets shall be Speakman, Chicago, or equal.
  - D. Fixtures shall be as scheduled on drawings.
    - 1. Water Closet: High efficiency toilet, 1.28 gallon per flush, wall hung, vitreous china, siphon jet, sensor operated 1.28 gallon per flush-flush valve.
    - 2. Urinal: Sensor operated 0.125 gallon flush valve urinal, wall hung, and vitreous china.
    - 3. Lavatory: Wall hung/countertop ADA lavatory. Infra-red, sensor mixing faucet.
    - 4. Sink: ADA stainless steel countertop sink with gooseneck faucet. Sediment traps are to be provided art areas.
    - 5. Drinking Fountain: Hi-low wall mounted electric water cooler, stainless steel basin with bottle filling stations.
    - 6. Janitor Sink: 24 x 24 x 10 Terrazzo mop receptor.
    - 7. Emergency showers and eyewashes shall comply with ANSI Z-358.1-2009.
8. DRAINS
- A. Drains are cast iron, caulked outlets, nickaloy strainers, and in waterproofed areas and roofs shall have galvanized iron clamping rings with 6 lb. lead flashings to bond 9 in. in all directions. Drains shall be Smith, Zurn, Josam, or equal.
9. VALVES
- A. Locate all valves so as to isolate all parts of the system. Shutoff valves 3 in. and smaller shall be ball valves, solder end or screwed, Apollo, or equal.
10. INSULATION
- A. All water piping shall be insulated with snap-on fiberglass insulation Type ASJ-SSL, equal to Johns Manville Micro-Lok HP, 850 degrees snap-on system.
11. CLEANOUTS
- A. Cleanouts shall be full size up to 4 in. threaded bronze plugs located as indicated on the drawings and/or where required in soil and waste pipes.

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Consulting Engineers Inc.

Devotion School  
Brookline, MA  
J#831 037 00.00  
L#43488/Page 4/September 16, 2014

12. ACCESS DOORS

- A. Furnish access doors for access to all concealed parts of the plumbing system that require accessibility. Coordinate types and locations with the Architect.

13. WATER HEATER

- A. Natural gas fired, condensing, high efficiency units with storage tank.

Devotion School  
Brookline, MA  
J#831 037 00.00  
L#43433/Page 1/September 16, 2014

**PLUMBING SYSTEMS**

**NARRATIVE REPORT - OPTION 1 (Renovation/Addition)**

The following is the Plumbing System Narrative which defines the scope of work and capacities of the Plumbing System as well as the Basis of Design. The Plumbing Systems shall be designed and constructed for **LEED for Schools** where indicated on this narrative.

1. CODES
  - A. All work installed under Section 220000 shall comply with the MA Building Code, IBC 2009, MA Plumbing Code and all state, county, and federal codes, laws, statutes, and authorities having jurisdiction.
2. DESIGN INTENT
  - A. The work of Section 220000 is shown on the drawings and specifications. All work is new and consists of furnishing all materials, equipment, labor, transportation, facilities, and all operations and adjustments required for the complete and operating installation of the Plumbing work and all items incidental thereto, including commissioning and testing.
3. GENERAL
  - A. The plumbing systems that will serve the project are cold water, sanitary waste and vent system, grease waste system, special waste system, storm drain system, and natural gas system.
  - B. The existing building is serviced by municipal water service and municipal sewer service.
  - C. All plumbing in the building will conform to accessibility codes and to water conserving sections of the plumbing code.
  - D. Installation of all work is to be coordinated with the phasing plans for the project.
4. DRAINAGE SYSTEM
  - A. Soil, waste, and vent piping system is provided to connect to all fixtures and equipment. System runs from 10 ft. outside the building and terminates with stack vents through the roof.
  - B. A separate grease waste system starting with connection to an exterior concrete grease interceptor running thru the kitchen and servery area fixtures and terminating with a vent terminal through the roof. The grease interceptor is provided under Division 33 scope.
  - C. Storm drainage system is provided to drain all flat roofs with roof drains piped through the building to a point 10 ft. outside the building. Under drain piping (if necessary) is to be provided to a point 10 ft. outside the building. The pre-cast drainage structures are to be provided under Division 33 scope.



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Devotion School  
Brookline, MA  
J#831 037 00.00  
L#43433/Page 2/September 16, 2014

- D. Drainage systems piping will be service weight cast iron piping; hub and spigot with gaskets for below grade; no hub with gaskets, bands and clamps for above grade 2 in. and larger. Waste and vent piping 1-1/2 in. and smaller will be type 'L' copper.
- E. In existing buildings, existing drainage piping may be reused if adequately sized for intended use. Integrity of existing piping will be confirmed via video inspection.
- F. A separate special waste system shall be provided starting with a connection to an exterior limestone chip acid neutralizer, running thru the building and to the science classroom fixtures terminating with vent terminals through the roof. Special waste and vent piping will be Schedule 40 electric heat fused polypropylene piping, fittings and traps, flame retardant above grade and non-flame retardant below ground.

#### 5. WATER SYSTEM

- A. The existing building is serviced by an existing 4 in. domestic water service and meter. Water service and meter will be reused.
- B. Cold and hot water distribution piping will be provided. New reduced pressure backflow preventers will be provided on the hot and cold water supply to the science area for cross connection protection as required by code. Non-freeze wall hydrants with integral back flow preventers are provided along the exterior of the building. Existing cold and hot water domestic water piping will be demolished.
- C. Domestic hot water heating will be provided by two high efficiency natural gas fired water heaters with storage tank and a thermostatically controlled mixing device to control water temperature to the fixtures.
- D. Water temperature will be 140 deg. to serve the kitchen and 120 deg. to serve general use fixtures. A pump will recirculate hot water from the piping system loop for each temperature system.
- E. Water piping will be type 'L' copper with wrought copper sweat fittings, silver solder. All piping will be insulated with 1 in. thick high density fiberglass.
- F. A new tepid (70 deg. F – 90 deg. F) water loop will be provided to the emergency shower/eyewash fixtures as required by code. This loop will be circulated.

#### 6. NATURAL GAS SYSTEM

- A. Natural gas service will be provided for the building and will serve the heating boilers, domestic water heater, science classrooms, rooftop equipment, kitchen cooking equipment, and generator.
- B. Gas piping will be Schedule 40 black steel pipe with threaded gas pattern malleable fittings for 2 in. and under and butt welded fittings for 2½ in. and larger.

#### 7. FIXTURES

- A. Furnish and install all fixtures, including supports, connections, fittings, and any incidentals to make a complete installation.

Devotion School  
Brookline, MA  
J#831 037 00.00  
L#43433/Page 3/September 16, 2014

- B. Fixtures shall be the manufacturer's guaranteed label trademark indicating first quality. All acid resisting enameled ware shall bear the manufacturer's symbol signifying acid resisting material.
  - C. Vitreous china and acid resisting enameled fixtures, including stops, supplies and traps shall be of one manufacturer by Kohler, American Standard, Eljer, or equal. Supports shall be Zurn, Smith, Josam or equal. All fixtures shall be white. Faucets shall be Speakman, Chicago, or equal.
  - D. Fixtures shall be as scheduled on drawings.
    - 1. Water Closet: High efficiency toilet, 1.28 gallon per flush, wall hung, vitreous china, siphon jet, sensor operated 1.28 gallon per flush-flush valve.
    - 2. Urinal: Sensor operated 0.125 gallon flush valve urinal, wall hung, and vitreous china.
    - 3. Lavatory: Wall hung/countertop ADA lavatory. Infra-red, sensor mixing faucet.
    - 4. Sink: ADA stainless steel countertop sink with gooseneck faucet. Sediment traps are to be provided art areas.
    - 5. Drinking Fountain: Hi-low wall mounted electric water cooler, stainless steel basin with bottle filling stations.
    - 6. Janitor Sink: 24 x 24 x 10 Terrazzo mop receptor.
    - 7. Emergency showers and eyewashes shall comply with ANSI Z-358.1-2009.
8. DRAINS
- A. Drains are cast iron, caulked outlets, nickaloy strainers, and in waterproofed areas and roofs shall have galvanized iron clamping rings with 6 lb. lead flashings to bond 9 in. in all directions. Drains shall be Smith, Zurn, Josam, or equal.
9. VALVES
- A. Locate all valves so as to isolate all parts of the system. Shutoff valves 3 in. and smaller shall be ball valves, solder end or screwed, Apollo, or equal.
10. INSULATION
- A. All water piping shall be insulated with snap-on fiberglass insulation Type ASJ-SSL, equal to Johns Manville Micro-Lok HP, 850 degrees snap-on system.
11. CLEANOUTS
- A. Cleanouts shall be full size up to 4 in. threaded bronze plugs located as indicated on the drawings and/or where required in soil and waste pipes.

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Devotion School  
Brookline, MA  
J#831 037 00.00  
L#43433/Page 4/September 16, 2014

12. ACCESS DOORS
  - A. Furnish access doors for access to all concealed parts of the plumbing system that require accessibility. Coordinate types and locations with the Architect.
13. WATER HEATER
  - A. Natural gas fired, condensing, high efficiency units with storage tank.

Devotion School  
Brookline, MA  
J#831 037 00.00  
L#43434/Page 1/September 16, 2014

**PLUMBING SYSTEMS**

**NARRATIVE REPORT - OPTION 2 (Renovation/Addition)**

The following is the Plumbing System Narrative which defines the scope of work and capacities of the Plumbing System as well as the Basis of Design. The Plumbing Systems shall be designed and constructed for **LEED for Schools** where indicated on this narrative.

1. CODES
  - A. All work installed under Section 220000 shall comply with the MA Building Code, IBC 2009, MA Plumbing Code and all state, county, and federal codes, laws, statutes, and authorities having jurisdiction.
2. DESIGN INTENT
  - A. The work of Section 220000 is shown on the drawings and specifications. All work is new and consists of furnishing all materials, equipment, labor, transportation, facilities, and all operations and adjustments required for the complete and operating installation of the Plumbing work and all items incidental thereto, including commissioning and testing.
3. GENERAL
  - A. The plumbing systems that will serve the project are cold water, sanitary waste and vent system, grease waste system, special waste system, storm drain system, and natural gas system.
  - B. The existing building is serviced by municipal water service and municipal sewer service.
  - C. All plumbing in the building will conform to accessibility codes and to water conserving sections of the plumbing code.
  - D. Installation of all work is to be coordinated with the phasing plans for the project.
4. DRAINAGE SYSTEM
  - A. Soil, waste, and vent piping system is provided to connect to all fixtures and equipment. System runs from 10 ft. outside the building and terminates with stack vents through the roof.
  - B. A separate grease waste system starting with connection to an exterior concrete grease interceptor running thru the kitchen and servery area fixtures and terminating with a vent terminal through the roof. The grease interceptor is provided under Division 33 scope.
  - C. Storm drainage system is provided to drain all flat roofs with roof drains piped through the building to a point 10 ft. outside the building. Under drain piping (if necessary) is to be provided to a point 10 ft. outside the building. The pre-cast drainage structures are to be provided under Division 33 scope.



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Devotion School  
Brookline, MA  
J#831 037 00.00  
L#43434/Page 2/September 16, 2014

- D. Drainage systems piping will be service weight cast iron piping; hub and spigot with gaskets for below grade; no hub with gaskets, bands and clamps for above grade 2 in. and larger. Waste and vent piping 1-1/2 in. and smaller will be type 'L' copper.
- E. In existing buildings, existing drainage piping may be reused if adequately sized for intended use. Integrity of existing piping will be confirmed via video inspection.
- F. A separate special waste system shall be provided starting with a connection to an exterior limestone chip acid neutralizer, running thru the building and to the science classroom fixtures terminating with vent terminals through the roof. Special waste and vent piping will be Schedule 40 electric heat fused polypropylene piping, fittings and traps, flame retardant above grade and non-flame retardant below ground.

#### 5. WATER SYSTEM

- A. The existing building is serviced by an existing 4 in. domestic water service and meter. Water service and meter will be reused.
- B. Cold and hot water distribution piping will be provided. New reduced pressure backflow preventers will be provided on the hot and cold water supply to the science area for cross connection protection as required by code. Non-freeze wall hydrants with integral back flow preventers are provided along the exterior of the building. Existing cold and hot water domestic water piping will be demolished.
- C. Domestic hot water heating will be provided by two high efficiency natural gas fired water heaters with storage tank and a thermostatically controlled mixing device to control water temperature to the fixtures.
- D. Water temperature will be 140 deg. to serve the kitchen and 120 deg. to serve general use fixtures. A pump will recirculate hot water from the piping system loop for each temperature system.
- E. Water piping will be type 'L' copper with wrought copper sweat fittings, silver solder. All piping will be insulated with 1 in. thick high density fiberglass.
- F. A new tepid (70 deg. F – 90 deg. F) water loop will be provided to the emergency shower/eyewash fixtures as required by code. This loop will be circulated.

#### 6. NATURAL GAS SYSTEM

- A. Natural gas service will be provided for the building and will serve the heating boilers, domestic water heater, science classrooms, rooftop equipment, kitchen cooking equipment, and generator.
- B. Gas piping will be Schedule 40 black steel pipe with threaded gas pattern malleable fittings for 2 in. and under and butt welded fittings for 2½ in. and larger.

#### 7. FIXTURES

- A. Furnish and install all fixtures, including supports, connections, fittings, and any incidentals to make a complete installation.

Devotion School  
Brookline, MA  
J#831 037 00.00  
L#43434/Page 3/September 16, 2014

- B. Fixtures shall be the manufacturer's guaranteed label trademark indicating first quality. All acid resisting enameled ware shall bear the manufacturer's symbol signifying acid resisting material.
  - C. Vitreous china and acid resisting enameled fixtures, including stops, supplies and traps shall be of one manufacturer by Kohler, American Standard, Eljer, or equal. Supports shall be Zurn, Smith, Josam or equal. All fixtures shall be white. Faucets shall be Speakman, Chicago, or equal.
  - D. Fixtures shall be as scheduled on drawings.
    - 1. Water Closet: High efficiency toilet, 1.28 gallon per flush, wall hung, vitreous china, siphon jet, sensor operated 1.28 gallon per flush-flush valve.
    - 2. Urinal: Sensor operated 0.125 gallon flush valve urinal, wall hung, and vitreous china.
    - 3. Lavatory: Wall hung/countertop ADA lavatory. Infra-red, sensor mixing faucet.
    - 4. Sink: ADA stainless steel countertop sink with gooseneck faucet. Sediment traps are to be provided art areas.
    - 5. Drinking Fountain: Hi-low wall mounted electric water cooler, stainless steel basin with bottle filling stations.
    - 6. Janitor Sink: 24 x 24 x 10 Terrazzo mop receptor.
    - 7. Emergency showers and eyewashes shall comply with ANSI Z-358.1-2009.
8. DRAINS
- A. Drains are cast iron, caulked outlets, nickaloy strainers, and in waterproofed areas and roofs shall have galvanized iron clamping rings with 6 lb. lead flashings to bond 9 in. in all directions. Drains shall be Smith, Zurn, Josam, or equal.
9. VALVES
- A. Locate all valves so as to isolate all parts of the system. Shutoff valves 3 in. and smaller shall be ball valves, solder end or screwed, Apollo, or equal.
10. INSULATION
- A. All water piping shall be insulated with snap-on fiberglass insulation Type ASJ-SSL, equal to Johns Manville Micro-Lok HP, 850 degrees snap-on system.
11. CLEANOUTS
- A. Cleanouts shall be full size up to 4 in. threaded bronze plugs located as indicated on the drawings and/or where required in soil and waste pipes.



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Devotion School  
Brookline, MA  
J#831 037 00.00  
L#43434/Page 4/September 16, 2014

12. ACCESS DOORS
  - A. Furnish access doors for access to all concealed parts of the plumbing system that require accessibility. Coordinate types and locations with the Architect.
13. WATER HEATER

Devotion School  
Brookline, MA  
J#831 037 00.00  
L#43435/Page 1/September 16, 2014

**PLUMBING SYSTEMS**

**NARRATIVE REPORT - OPTION 3 (New Construction)**

The following is the Plumbing System Narrative which defines the scope of work and capacities of the Plumbing System as well as the Basis of Design. The Plumbing Systems shall be designed and constructed for **LEED for Schools** where indicated on this narrative.

1. CODES
  - A. All work installed under Section 220000 shall comply with the MA Building Code, IBC 2009, MA Plumbing Code and all state, county, and federal codes, laws, statutes, and authorities having jurisdiction.
2. DESIGN INTENT
  - A. The work of Section 220000 is shown on the drawings and specifications. All work is new and consists of furnishing all materials, equipment, labor, transportation, facilities, and all operations and adjustments required for the complete and operating installation of the Plumbing work and all items incidental thereto, including commissioning and testing.
3. GENERAL
  - A. The plumbing systems that will serve the project are cold water, sanitary waste and vent system, grease waste system, special waste system, storm drain system, and natural gas system.
  - B. The new building will be serviced by municipal water service and municipal sewer service.
  - C. All plumbing in the building will conform to accessibility codes and to water conserving sections of the plumbing code.
4. DRAINAGE SYSTEM
  - A. Soil, waste, and vent piping system is provided to connect to all fixtures and equipment. System runs from 10 ft. outside the building and terminates with stack vents through the roof.
  - B. A separate grease waste system starting with connection to an exterior concrete grease interceptor running thru the kitchen and server area fixtures and terminating with a vent terminal through the roof. The grease interceptor is provided under Division 33 scope.
  - C. Storm drainage system is provided to drain all flat roofs with roof drains piped through the building to a point 10 ft. outside the building. Under drain piping (if necessary) is to be provided to a point 10 ft. outside the building. The pre-cast drainage structures are to be provided under Division 33 scope.



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Devotion School  
Brookline, MA  
J#831 037 00.00  
L#43435/Page 2/September 16, 2014

- D. Drainage systems piping will be service weight cast iron piping; hub and spigot with gaskets for below grade; no hub with gaskets, bands and clamps for above grade 2 in. and larger. Waste and vent piping 1-1/2 in. and smaller will be type 'L' copper.
- E. A separate special waste system shall be provided starting with a connection to an exterior limestone chip acid neutralizer, running thru the building and to the science classroom fixtures terminating with vent terminals through the roof. Special waste and vent piping will be Schedule 40 electric heat fused polypropylene piping, fittings and traps, flame retardant above grade and non-flame retardant below ground.

#### 5. WATER SYSTEM

- A. A 4 in. domestic water service from the municipal water system will be provided to the building. A meter, strainer and backflow preventer (if required) will be provided.
- B. Cold and hot water distribution piping will be provided. New reduced pressure backflow preventers will be provided on the hot and cold water supply to the science area for cross connection protection as required by code. Non-freeze wall hydrants with integral back flow preventers are provided along the exterior of the building.
- C. Domestic hot water heating will be provided by two high efficiency natural gas fired water heaters with storage tank and a thermostatically controlled mixing device to control water temperature to the fixtures.
- D. Water temperature will be 140 deg. to serve the kitchen and 120 deg. to serve general use fixtures. A pump will recirculate hot water from the piping system loop for each temperature system.
- E. Water piping will be type 'L' copper with wrought copper sweat fittings, silver solder. All piping will be insulated with 1 in. thick high density fiberglass.
- F. A new tepid (70 deg. F – 90 deg. F) water loop will be provided to the emergency shower/eyewash fixtures as required by code. This loop will be circulated.

#### 6. NATURAL GAS SYSTEM

- A. Natural gas service will be provided for the building and will serve the heating boilers, domestic water heater, science classrooms, rooftop equipment, kitchen cooking equipment, and generator.
- B. Gas piping will be Schedule 40 black steel pipe with threaded gas pattern malleable fittings for 2 in. and under and butt welded fittings for 2½ in. and larger.

#### 7. FIXTURES

- A. Furnish and install all fixtures, including supports, connections, fittings, and any incidentals to make a complete installation.

Devotion School  
Brookline, MA  
J#831 037 00.00  
L#43435/Page 3/September 16, 2014

- B. Fixtures shall be the manufacturer's guaranteed label trademark indicating first quality. All acid resisting enameled ware shall bear the manufacturer's symbol signifying acid resisting material.
  - C. Vitreous china and acid resisting enameled fixtures, including stops, supplies and traps shall be of one manufacturer by Kohler, American Standard, Eljer, or equal. Supports shall be Zurn, Smith, Josam or equal. All fixtures shall be white. Faucets shall be Speakman, Chicago, or equal.
  - D. Fixtures shall be as scheduled on drawings.
    - 1. Water Closet: High efficiency toilet, 1.28 gallon per flush, wall hung, vitreous china, siphon jet, sensor operated 1.28 gallon per flush-flush valve.
    - 2. Urinal: Sensor operated 0.125 gallon flush valve urinal, wall hung, and vitreous china.
    - 3. Lavatory: Wall hung/countertop ADA lavatory. Infra-red, sensor mixing faucet.
    - 4. Sink: ADA stainless steel countertop sink with gooseneck faucet. Sediment traps are to be provided art areas.
    - 5. Drinking Fountain: Hi-low wall mounted electric water cooler, stainless steel basin with bottle filling stations.
    - 6. Janitor Sink: 24 x 24 x 10 Terrazzo mop receptor.
    - 7. Emergency showers and eyewashes shall comply with ANSI Z-358.1-2009.
8. DRAINS
- A. Drains are cast iron, caulked outlets, nickaloy strainers, and in waterproofed areas and roofs shall have galvanized iron clamping rings with 6 lb. lead flashings to bond 9 in. in all directions. Drains shall be Smith, Zurn, Josam, or equal.
9. VALVES
- A. Locate all valves so as to isolate all parts of the system. Shutoff valves 3 in. and smaller shall be ball valves, solder end or screwed, Apollo, or equal.
10. INSULATION
- A. All water piping shall be insulated with snap-on fiberglass insulation Type ASJ-SSL, equal to Johns Manville Micro-Lok HP, 850 degrees snap-on system.
11. CLEANOUTS
- A. Cleanouts shall be full size up to 4 in. threaded bronze plugs located as indicated on the drawings and/or where required in soil and waste pipes.

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Devotion School  
Brookline, MA  
J#831 037 00.00  
L#43435/Page 4/September 16, 2014

12. ACCESS DOORS

- A. Furnish access doors for access to all concealed parts of the plumbing system that require accessibility. Coordinate types and locations with the Architect.

13. WATER HEATER



## HVAC System Narratives





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Devotion School  
Brookline, MA  
J#831 037 00.00  
L#445550/Page 1/September 16, 2014

### HVAC SYSTEMS

### NARRATIVE REPORT – OPTION 0

### REPAIR OPTION

The following is the HVAC system narrative, which defines the scope of work and capacities of the HVAC system as well as the Basis of Design. The HVAC systems shall be designed and constructed for **LEED for Schools** where indicated on this narrative.

#### 1. CODES

All work installed under Division 230000 shall comply with the State of Massachusetts Building Code and all local, IBC 2012 with MA Amendments, county, and federal codes, laws, statutes, and authorities having jurisdiction.

#### 2. DESIGN INTENT

The work of Division 230000 is described within the narrative report. The HVAC project scope of work shall consist of providing new HVAC equipment and systems as described here within. All new work shall consist of furnishing all materials, equipment, labor, transportation, facilities, and all operations and adjustments required for the complete and operating installation of the Heating, Ventilating and Air Conditioning work and all items incidental thereto, including commissioning and testing.

#### 3. BASIS OF DESIGN: (MASS CODE)

Project weather and Code temperature values are listed herein based on weather data values as determined from ASHRAE weather data tables and the International Energy Conservation Code.

Outside: Winter 5 deg. F, Summer 91 deg. F DB 74 deg. F WB

Inside: 70 deg. F +/- 2 deg F for heating, 75 deg. F +/- 2 deg F (55% RH) for cooling for areas with air conditioning, 78 deg. F +/- 2 deg. F (<60% RH) for areas with displacement/dehumidification\*(see Displacement Ventilation note below). Unoccupied temperature setback will be provided (60 deg F heating (adj.), 85 deg F cooling/dehumidification (adj.).

Outside air is provided at the rate in accordance with ASHRAE guide 62.1-2010 and the International Mechanical Code as a minimum. All occupied areas will be designed to maintain 800 PPM carbon dioxide maximum.

#### 4. SYSTEM DESCRIPTION

Considering that the existing HVAC system is generally in poor condition and beyond its useful expected service life, we recommend a new high efficiency HVAC system, described as follows, shall be installed to replace the existing HVAC system.

##### A. Central Heating Plants: **LEED for Schools Credit EP2 & EC1**

Heating for the entire building will be through the use of a high efficiency gas-fired condensing boiler plant.

Devotion School  
Brookline, MA  
J#831 037 00.00  
L#45550/Page 2/September 16, 2014

The new boiler plant shall be provided with (3) 4800 MBH output boilers and (2) end suction base mounted primary & standby pumps with a capacity of 800 gpm each will be located in the mechanical room. Boilers shall each be sized for approximately 50% of the building heating load. In addition to new boilers and pumps, new hot water accessories including air separators and expansion tanks shall be provided.

The boiler plant will supply heating hot water to heating equipment and systems located throughout the building through a two-pipe fiberglass insulated schedule 40 black steel and copper piping system. The boiler plants shall supply a maximum hot water temperature of 180 deg F on a design heating day and the hot water supply water temperature will be adjusted downward based on an outside temperature reset schedule to improve the overall operating efficiency of the power plants. Primary and standby end suction base mounted pumps will be provided with variable frequency drives for variable volume flow through the water distribution system for improved energy efficiency.

Combustion air for each boiler will be directly ducted to each boiler through a galvanized ductwork distribution system. Venting from each boiler shall be through separate double wall aluminized stainless steel (AL29-4C) vent system and shall discharge approximately 12 feet above the roof level. Final venting height will be depending on the location of building intake air locations and adjacent roofs.

B. Central Cooling Plant: **LEED for Schools Credit EP2 & EC1**

A high efficiency central chilled water cooling plant consisting of a 320 ton high efficiency turbocor (oil-less compressor design) water cooled chilled, primary and standby chilled water pumps with VFDs, each with a capacity of 695 gpm, accessories, controls and steel and copper piping distribution system shall be provided to serve chilled water cooling HVAC equipment located throughout the building. The chilled water system will consist of a 35% propylene glycol solution. A glycol make-up feed unit system shall be provided.

An induced draft counter-flow cooling tower system, equipped with filtration and chemical treatment system and condenser water pump set and controls shall be provided as part of the chilled water system.

C. Classroom Heating and Ventilation (*General Classrooms, Art & Music, SPED, Music/Band Classrooms*):  
**LEED of Schools Credit EP2, EC1, EC5, IEQP1, IEQC1, 2, 3.1, 3.2, 5, 6.2 & 7.1**

It is proposed that new displacement ventilation systems are installed to serve the majority of classroom areas in the Renovation and Addition Building Classroom areas under this Option, where possible within existing building architectural and structural constraints.

If this option is selected a full HVAC system life cycle cost should be provided to evaluate a minimum of three HVAC system replacement options.

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Devotion School  
Brookline, MA  
J#831 037 00.00  
L#45550/Page 3/September 16, 2014

New air handling units with supply and return fan with VFDs, energy recovery wheels, hot water heating and chilled water cooling with modulating capacity control, sensible reheat wheel or hot pipe, and MERV 13 filtration will be provided to serve the new displacement ventilation system. Supply air will be provided to the space through new insulated, galvanized steel supply duct distribution system and shall be connected to wall mounted displacement ventilation diffusers located within the classrooms. Return air will be drawn back to the units by ceiling return air registers located within the classroom and will be routed back to the air handling unit by an insulated galvanized sheetmetal return air ductwork distribution system. Supplemental hot water fin tube radiation or ceiling radiant heating will be provided along exterior walls.

It is estimated that the following air handling equipment will be required to serve these Classroom areas:

(2) Two air handling units with a capacity of 20,000 CFM (CHW Cooling, HW Heating with Energy Recovery).

Displacement Ventilation\*:

The displacement ventilation system for the classroom wings are intended to provide a maximum cooling temperature during peak cooling periods of approximately 78°F, however, the ventilation air provided will be extremely dry which will be the result of utilizing refrigeration equipment and hot gas reheat to reduce vapor pressure to an extremely low condition of approximately 50 grains of moisture per pound of air and reheating the air to a supply temperature of approximately 68°F which will be distributed to each space. The extremely dry condition of the supply air provides the perception of a condition that is cooler than is actually occurring due to the evaporation of moisture to the adjacent air from the occupants of the space.

Considering maximum cooling requirements occur primarily during the months of July and August when the majority of the academic areas are not in use, it would suggest maintaining slightly higher temperatures may not present a discomfort, however, will relate to a substantial operating cost savings and a reduced installation cost.

An additional major benefit of utilizing dry air within the building will be the overall reduction of vapor pressure typically present in outside ventilation air during summer months. This reduction in vapor pressure will dramatically reduce the amount of moisture entering the building and the potential of condensation resulting in moisture, and a direct relationship with the formation of mold.

Classrooms Requiring Full Air Conditioning:

Classrooms that require full air conditioning will be provided with supplemental cooling active chilled beam induction units.

Devotion School  
Brookline, MA  
J#831 037 00.00  
L#45550/Page 4/September 16, 2014

D. Gymnasium:  
**LEED for Schools Credit EP2, EC1, EC5, IEQP1, IEQC1, 2, 3.1, 3.2, 5, 6.2 & 7.1**

The gymnasium will be served by an air-handling unit of the recirculation design. The unit will be approximately 7,500 CFM and will include supply and return fans with VFDs, 450 MBH heating and 21 Ton cooling with modulating capacity control, MERV 13 filtration, and carbon dioxide controls which will reduce outside air as allowed maintaining a maximum of 800 PPM. Supply air ventilation will be provided to the space through an exposed galvanized steel supply duct with drum louvers to project the air to the floor. As levels of carbon dioxide drop generally relating to a reduction in population a variable frequency drive located in each air-handling unit will modulate to reduce airflow and ventilation while always maintaining a maximum of 800 ppm. Return air will be drawn back to the air handling unit by a low wall return air register.

E. Small Gymnasium:  
**LEED for Schools Credit EP2, EC1, EC5, IEQP1, IEQC1, 2, 3.1, 3.2, 5, 6.2 & 7.1**

The gymnasium will be served by an air-handling unit of the recirculation design. The unit will be approximately 3,200 CFM and will include supply and return fans with VFDs, 240 MBH heating and 9 Ton cooling with modulating capacity control, MERV 13 filtration, and carbon dioxide controls which will reduce outside air as allowed maintaining a maximum of 800 PPM. Supply air ventilation will be provided to the space through an exposed galvanized steel supply duct with drum louvers to project the air to the floor. As levels of carbon dioxide drop generally relating to a reduction in population a variable frequency drive located in each air-handling unit will modulate to reduce airflow and ventilation while always maintaining a maximum of 800 ppm. Return air will be drawn back to the air-handling unit by a low wall return air register.

F. Multi-Purpose Room (and adjacent areas):  
**LEED for Schools Credit EP2, EC1, EC5, IEQP1, IEQC1, 2, 3.1, 3.2, 5, 6.2 & 7.1**

The Multipurpose room will be provided with a new air-handling unit of the recirculation design. The unit capacity will be approximately 5,800 CFM and will include supply and return fans with VFDs, hot water heating section with modulating capacity control, 17 ton chilled cooling system and MERV 13 filtration. Supply air ventilation to the Multi-purpose room will be provided to the space through the galvanized steel supply duct that will connect to an overhead duct distribution system. In addition, carbon dioxide controls will be installed which will monitor the overall level of carbon dioxide at a threshold level of 800 ppm. As levels drop generally relating to a reduction in population the air-handling unit outside air damper will modulate to reduce airflow and ventilation while always maintaining a maximum of 800 ppm. Return air will be drawn back to the units by low wall return air registers.

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Consulting Engineers Inc.

Devotion School  
Brookline, MA  
J#831 037 00.00  
L#45550/Page 5/September 16, 2014

G. Administration Areas:  
**LEED for Schools Credit EO2, EC1, EC5, IEQP1, IEQC1, 2, 3.1, 3.2, 5, 6.2 & 7.1**

Spatial heating and air-conditioning for the Administration area and Guidance offices will be served by horizontal ceiling concealed type ducted 4-pipe heating and cooling active chilled beam induction units with hot water and chilled water for the induction unit system provided by the individual hot water and chilled water central recirculation piping system communicating with the boiler and chilled water power plants.

The ventilation air handling unit capacity will be approximately 3,000 CFM and will include supply and return fan with VFDs, 150 MBH hot water heating section with modulating capacity control, MERV 13 filtration, 10 ton capacity chilled water cooling section, and exhaust air energy recovery wheel. Supply air ventilation will be provided to each space that will satisfy building code requirements based on population.

H. Library/Computer Lab  
**LEED for Schools Credit EP2, EC1, EC5, IEQP1, IEQC1, 2, 3.1, 3.2, 5, 6.2 & 7.1**

The Media Center and adjacent office and Computer Lab spaces will be served by horizontal ceiling concealed type ducted 4-pipe heating and cooling active chilled beam induction units with hot water and chilled water for the induction unit system provided by the individual hot water and chilled water central recirculation piping system communicating with the boiler and chilled water power plants.

The ventilation air handling unit capacity will be approximately 4,200 CFM and will include supply and return fan with VFDs, 180 MBH hot water heating section with modulating capacity control, MERV 13 filtration, 14 ton capacity chilled water cooling section, and exhaust air energy recovery wheel. Supply air ventilation will be provided to each space that will satisfy building code requirements based on population.

A split system high efficiency AC system should be provided for the computer classroom, for availability of Air Conditioning during the heating season.

I. Cafeteria, Servery and Staff Lunch Areas  
**LEED for Schools Credit EP2, EC1, EC5, IEQP1, IEQC1, 2, 3.1, 3.2, 5, 6.2 & 7.1**

The Cafeteria area will be served by an air-handling unit capable of providing 100% outside air. The units will be approximately 4,500 CFM and will include supply and return fan with VFDs, 450 MBH hot water heating section with modulating capacity control, MERV 13 filtration, 15 ton chilled water cooling section, and exhaust air energy recovery wheel. Supply air ventilation will be provided to each space that will satisfy building code requirements based on population. It is proposed that spatial heating and air-conditioning for in this area will be provided with variable air volume boxes with temperature and CO2 controls. Perimeter hot water radiation heating equipment shall be provided for exterior zones.

Devotion School  
Brookline, MA  
J#831 037 00.00  
L#45550/Page 6/September 16, 2014

J. Kitchen:

***LEED for Schools Credit EP2***

The kitchen areas shall be provided with new kitchen exhaust air fan and make-up air handling unit with hot water heating. The kitchen will be heated by an heating and ventilation air-handling units with hot water heating.

A variable volume kitchen exhaust hood control system consisting of kitchen exhaust stack temperature and smoke density sensors, supply and exhaust fan variable speed drives and associated controller will be provided by the kitchen equipment vendor. This system installation shall be field installed and coordinated with the ATC and Electrical contractors

K. Lobby, Corridor, and Entry Way Heating

New hot water convectors, cabinet unit heaters and fin tube radiation heating equipment shall be installed to provide heating to these areas. Corridors shall be ventilated from adjacent air handling unit systems.

L. Custodial Support Areas

Custodial support areas will be heated and ventilated by a heating and ventilation unit. Storage areas will be heated by radiation heating equipment. Horizontal type unit heaters will heat areas adjacent to the loading dock. All custodial closets will be exhausted by exhaust air fan systems.

M. Utility Areas:

Utility areas will be provided with exhaust air fan systems for ventilation, and will typically be heated with horizontal type ceiling suspended unit heaters.

The main IDF room will be air conditioned by high efficiency ductless AC cooling units.

N. Parking Garage:

The Parking garage shall be provided with a new exhaust air fan system for ventilation, and will be heated by hot water make up air handling units and horizontal type ceiling suspended and ducted unit heaters.

A new gas detection system shall be installed to control the exhaust air fan system operation.

O. Testing, Adjusting, Balancing & Commissioning:

All new HVAC systems shall be tested, adjusted, balanced and commissioned as part of the project scope.

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Devotion School  
Brookline, MA  
J#831 037 00.00  
L#45550/Page 7/September 16, 2014

P. Automatic Temperature Controls – Building Energy Management System

A new DDC (direct digital control) automatic temperature control and building energy management system shall be installed to control and monitor building HVAC systems. Energy metering shall be installed to monitor the energy usage of building HVAC systems and utilities (fuel, gas, water).

The control system shall be proprietary as manufactured by Johnson Controls.

## HVAC SYSTEMS

### NARRATIVE REPORT – OPTION 1 (Renovation/Addition)

The following is the HVAC system narrative, which defines the scope of work and capacities of the HVAC system as well as the Basis of Design. The HVAC systems shall be designed and constructed for **LEED for Schools** where indicated on this narrative.

#### 1. CODES

All work installed under Division 230000 shall comply with the State of Massachusetts Building Code and all local, IBC 2012 with MA Amendments, county, and federal codes, laws, statutes, and authorities having jurisdiction.

#### 2. DESIGN INTENT

The work of Division 230000 is described within the narrative report. The HVAC project scope of work shall consist of providing new HVAC equipment and systems as described here within. All new work shall consist of furnishing all materials, equipment, labor, transportation, facilities, and all operations and adjustments required for the complete and operating installation of the Heating, Ventilating and Air Conditioning work and all items incidental thereto, including commissioning and testing.

#### 3. BASIS OF DESIGN: (MASS CODE)

Project weather and Code temperature values are listed herein based on weather data values as determined from ASHRAE weather data tables and the International Energy Conservation Code.

Outside: Winter 5 deg. F, Summer 91 deg. F DB 74 deg. F WB

Inside: 70 deg. F +/- 2 deg F for heating, 75 deg. F +/- 2 deg F (55% RH) for cooling for areas with air conditioning, 78 deg. F +/- 2 deg. F (<60% RH) for areas with displacement/dehumidification\*(see note below). Unoccupied temperature setback will be provided (60 deg F heating (adj.), 85 deg F cooling/dehumidification (adj.).

Outside air is provided at the rate in accordance with ASHRAE guide 62.1-2010 and the International Mechanical Code as a minimum. All occupied areas will be designed to maintain 800 PPM carbon dioxide maximum.

#### 4. SYSTEM DESCRIPTION

##### A. Central Heating Plants: **LEED for Schools Credit EP2 & EC1**

Heating for the entire building will be through the use of a high efficiency gas-fired condensing boiler plant.

The new boiler plant shall be provided with (3) 4,000 MBH input boilers and (2) end suction base mounted pumps primary and standby with a capacity of 720 gpm each will be located in the mechanical room. Boilers shall each be sized for approximately 50% of the building heating load. In addition to new boilers and pumps, new hot water accessories including air separators and expansion tanks shall be provided.



**GARCIA • GALUSKA • DESOUSA**  
Consulting Engineers Inc.

Devotion School  
Brookline, MA  
J#831 037 00.00  
L#45433/Page 2/September 16, 2014

The boiler plant will supply heating hot water to heating equipment and systems located throughout the building through a two-pipe fiberglass insulated schedule 40 black steel and copper piping system. The boiler plants shall supply a maximum hot water temperature of 180 deg F on a design heating day and the hot water supply water temperature will be adjusted downward based on an outside temperature reset schedule to improve the overall operating efficiency of the power plants. Primary and standby end suction base mounted pumps will be provided with variable frequency drives for variable volume flow through the water distribution system for improved energy efficiency.

Combustion air for each boiler will be directly ducted to each boiler through a galvanized ductwork distribution system. Venting from each boiler shall be through separate double wall aluminized stainless steel (AL29-4C) vent system and shall discharge approximately 12 feet above the roof level. Final venting height will be depending on the location of building intake air locations and adjacent roofs.

B. Central Cooling Plant: **LEED for Schools Credit EP2 & EC1**

A high efficiency central chilled water cooling plant consisting of a 300 ton high efficiency turboco (oil-less compressor design) water cooled chilled, primary and standby chilled water pumps with VFDs, each with a capacity of 700 gpm, accessories, controls and steel and copper piping distribution system shall be provided to serve chilled water cooling HVAC equipment located throughout the building. The chilled water system will consist of a 35% propylene glycol solution. A glycol make-up feed unit system shall be provided.

An induced draft counter-flow cooling tower system, equipped with filtration and chemical treatment system and condenser water pump set and controls shall be provided as part of the chilled water system.

C. Classroom Heating and Ventilation (*General Classrooms, Science, Art & Music, SPED, Vocational & Technology Classrooms*):  
**LEED of Schools Credit EP2, EC1, EC5, IEQP1, IEQC1, 2, 3.1, 3.2, 5, 6.2 & 7.1**

It is proposed that new displacement ventilation systems are installed to serve the Renovation and Addition building Classroom areas under this Option.

New air handling units with supply and return fan with VFDs, energy recovery wheels, hot water heating and chilled water cooling with modulating capacity control, and MERV 13 filtration will be provided to serve a new displacement ventilation system. Supply air will be provided to the space through new insulated, galvanized steel supply duct distribution system and shall be connected to wall mounted displacement ventilation diffusers located within the classrooms. Return air will be drawn back to the units by ceiling return air registers located within the classroom and will be routed back to the air handling unit by an insulated galvanized sheetmetal return air ductwork distribution system. Supplemental hot water fin tube radiation or ceiling radiant heating will be provided along exterior walls.

Each classroom will be provided with a variable air volume terminal box and CO2 sensor for demand ventilation control.

Devotion School  
Brookline, MA  
J#831 037 00.00  
L#45433/Page 3/September 16, 2014

It is estimated that the following air handling equipment will be required to serve these Classroom areas:

Three (3) air handling units (AHU-1, AHU-2, AHU-3) with a capacity of 9,500 CFM (35 tons cooling, 360 MBH heating).

One (1) air handling unit (AHU-4) with a capacity of 5,600 CFM (22 tons cooling, 250 MBH heating); and one (1) air handling unit (AHU-5) with a capacity of 4,500 CFM (17 tons cooling, 180 MBH heating).

Displacement Ventilation:

The displacement ventilation system for the classroom wings are intended to provide a maximum cooling temperature during peak cooling periods of approximately 78°F, however, the ventilation air provided will be extremely dry which will be the result of utilizing refrigeration equipment and hot gas reheat to reduce vapor pressure to an extremely low condition of approximately 50 grains of moisture per pound of air and reheating the air to a supply temperature of approximately 68°F which will be distributed to each space. The extremely dry condition of the supply air provides the perception of a condition that is cooler than is actually occurring due to the evaporation of moisture to the adjacent air from the occupants of the space.

Considering maximum cooling requirements occur primarily during the months of July and August when the majority of the academic areas are not in use, it would suggest maintaining slightly higher temperatures may not present a discomfort, however, will relate to a substantial operating cost savings and a reduced installation cost.

An additional major benefit of utilizing dry air within the building will be the overall reduction of vapor pressure typically present in outside ventilation air during summer months. This reduction in vapor pressure will dramatically reduce the amount of moisture entering the building and the potential of condensation resulting in moisture, and a direct relationship with the formation of mold.

Classrooms Requiring Full Air Conditioning:

Classrooms that require full air conditioning will be provided with supplemental cooling active chilled beam induction units.

D. Gymnasium:

**LEED for Schools Credit EP2, EC1, EC5, IEQP1, IEQC1, 2, 3.1, 3.2, 5, 6.2 & 7.1**

The gymnasium will be served by (air handling unit of the recirculation design. The unit will be approximately 6,500 CFM and will include supply and return fans with VFDs, 400 MBH heating and 18 Ton cooling with modulating capacity control, MERV 13 filtration, and carbon dioxide controls which will reduce outside air as allowed maintaining a maximum of 800 PPM. Supply air ventilation will be provided to the space through an exposed galvanized steel supply duct with drum louvers to project the air to the floor. As levels of carbon dioxide drop generally relating to a reduction in population a variable frequency drive located in each air-handling unit will modulate to reduce airflow and ventilation while always maintaining a maximum of 800 ppm. Return air will be drawn back to the air handling unit by a low wall return air register.



**GARCIA • GALUSKA • DESOUSA**  
Consulting Engineers Inc.

Devotion School  
Brookline, MA  
J#831 037 00.00  
L#45433/Page 4/September 16, 2014

- E. Small Gymnasium:  
**LEED for Schools Credit EP2, EC1, EC5, IEQP1, IEQC1, 2, 3.1, 3.2, 5, 6.2 & 7.1**

The gymnasium will be served by (air handling unit of the recirculation design. The unit will be approximately 2,500 CFM and will include supply and return fans with VFDs, 200 MBH heating and 7.5 Ton cooling with modulating capacity control, MERV 13 filtration, and carbon dioxide controls which will reduce outside air as allowed maintaining a maximum of 800 PPM. Supply air ventilation will be provided to the space through an exposed galvanized steel supply duct with drum louvers to project the air to the floor. As levels of carbon dioxide drop generally relating to a reduction in population a variable frequency drive located in each air-handling unit will modulate to reduce airflow and ventilation while always maintaining a maximum of 800 ppm. Return air will be drawn back to the air-handling unit by a low wall return air register.

- F. Multi-Purpose Room:  
**LEED for Schools Credit EP2, EC1, EC5, IEQP1, IEQC1, 2, 3.1, 3.2, 5, 6.2 & 7.1**

The Multi-purpose room will be provided with a new air-handling unit of the recirculation design. The units will be approximately 4,200 CFM and will include supply and return fans with VFDs, hot water heating section with modulating capacity control, 15 ton chilled water cooling system and MERV 13 filtration. Supply air ventilation to the Multi-purpose room will be provided to the space through the galvanized steel supply duct that will connect to an overhead duct distribution system. In addition, carbon dioxide controls will be installed which will monitor the overall level of carbon dioxide at a threshold level of 1000 ppm. As levels drop generally relating to a reduction in population the air-handling unit outside air damper will modulate to reduce airflow and ventilation while always maintaining a maximum of 800 ppm. Return air will be drawn back to the units by low wall return air registers.

Return air will be drawn back to the units by low wall return air registers.

- G. Administration Areas:  
**LEED for Schools Credit EO2, EC1, EC5, IEQP1, IEQC1, 2, 3.1, 3.2, 5, 6.2 & 7.1**

Spatial heating and air-conditioning for the Administration areas will be served by horizontal ceiling concealed type ducted 4-pipe heating and cooling active chilled beam induction units with hot water and chilled water for the induction unit system provided by the individual hot water and chilled water central recirculation piping system communicating with the boiler and chilled water power plants.

The air handling unit will be approximately 3,000 CFM and will include supply and return fan with VFDs, 150 MBH hot water heating section with modulating capacity control, MERV 13 filtration, 12.5 ton capacity chilled water cooling section, and exhaust air energy recovery wheel. Supply air ventilation will be provided to each space that will satisfy building code requirements based on population.

Devotion School  
Brookline, MA  
J#831 037 00.00  
L#45433/Page 5/September 16, 2014

H. Media Center/Technology Lab:  
**LEED for Schools Credit EP2, EC1, EC5, IEQP1, IEQC1, 2, 3.1, 3.2, 5, 6.2 & 7.1**

The Media Center and adjacent office and Technology Lab spaces will be provided with an air-handling unit capable of providing 100% outside air and variable air volume operation. The unit will be approximately 4,000 CFM and will include supply and return fan with VFDs, 200 MBH hot water heating section with modulating capacity control, MERV 13 filtration, 15 ton capacity chilled water cooling section, and exhaust air energy recovery wheel. Supply air ventilation will be provided to each space which will satisfy building code requirements based on population. It is proposed that spatial heating and air-conditioning for zones will be provided by horizontal ceiling concealed type ducted 4-pipe heating and cooling active chilled beam induction units. Ventilation air to these perimeter areas will be provided by the associated air handling ventilation unit, with hot water and chilled water for the induction unit system provided by the individual hot water and chilled water central recirculation piping system communicating with the boiler and chilled water power plants.

I. Cafeteria and Staff Lunch Areas:  
**LEED for Schools Credit EP2, EC1, EC5, IEQP1, IEQC1, 2, 3.1, 3.2, 5, 6.2 & 7.1**

The Cafeteria area will be served by an air-handling unit capable of providing 100% outside air. The units will be approximately 4,200 CFM and will include supply and return fan with VFDs, 400 MBH hot water heating section with modulating capacity control, MERV 13 filtration, 10 ton chilled water cooling section, and exhaust air energy recovery wheel. Supply air ventilation will be provided to each space which will satisfy building code requirements based on population. It is proposed that spatial heating and air-conditioning for in this area will be provided with variable air volume boxes with temperature and CO2 controls. Perimeter hot water radiation heating equipment shall be provided for exterior zones.

J. Kitchen:  
**LEED for Schools Credit EP2**

The kitchen areas shall be provided with new kitchen exhaust air fan and make-up air handling unit with hot water heating. The kitchen will be heated by an heating and ventilation air-handling units with hot water heating.

A variable volume kitchen exhaust hood control system consisting of kitchen exhaust stack temperature and smoke density sensors, supply and exhaust fan variable speed drives and associated controller will be provided by the kitchen equipment vendor. This system installation shall be field installed and coordinated with the ATC and Electrical contractors

K. Lobby, Corridor, and Entry Way Heating:

New hot water convectors, cabinet unit heaters and fin tube radiation heating equipment shall be installed to provide heating to these areas. Corridors shall be ventilated from adjacent air handling unit systems.

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Devotion School  
Brookline, MA  
J#831 037 00.00  
L#45433/Page 6/September 16, 2014

L. Custodial Support Areas:

Custodial support areas will be heated and ventilated by a heating and ventilation unit. Storage areas will be heated by radiation heating equipment. Horizontal type unit heaters will heat areas adjacent to the loading dock. All custodial closets will be exhausted by exhaust air fan systems.

M. Utility Areas:

Utility areas will be provided with exhaust air fan systems for ventilation, and will typically be heated with horizontal type ceiling suspended unit heaters.

The main IDF room will be air conditioned by high efficiency ductless AC cooling units.

N. Parking Garage:

The Parking garage shall be provided with a new exhaust air fan system for ventilation, and will be heated by hot water make up air handling units and horizontal type ceiling suspended and ducted unit heaters.

A new gas detection system shall be installed to control the exhaust air fan system operation.

O. Testing, Adjusting, Balancing & Commissioning:

All new HVAC systems shall be tested, adjusted, balanced and commissioned as part of the project scope.

P. Automatic Temperature Controls – Building Energy Management System:

A new DDC (direct digital control) automatic temperature control and building energy management system shall be installed to control and monitor building HVAC systems. Energy metering shall be installed to monitor the energy usage of building HVAC systems and utilities (fuel, gas, water).

The control system shall be proprietary as manufactured by Johnson Controls.

## HVAC SYSTEMS

### NARRATIVE REPORT – OPTION 2 (Renovation/Addition)

The following is the HVAC system narrative, which defines the scope of work and capacities of the HVAC system as well as the Basis of Design. The HVAC systems shall be designed and constructed for **LEED for Schools** where indicated on this narrative.

#### 1. CODES

All work installed under Division 230000 shall comply with the State of Massachusetts Building Code and all local, IBC 2012 with MA Amendments, county, and federal codes, laws, statutes, and authorities having jurisdiction.

#### 2. DESIGN INTENT

The work of Division 230000 is described within the narrative report. The HVAC project scope of work shall consist of providing new HVAC equipment and systems as described here within. All new work shall consist of furnishing all materials, equipment, labor, transportation, facilities, and all operations and adjustments required for the complete and operating installation of the Heating, Ventilating and Air Conditioning work and all items incidental thereto, including commissioning and testing.

#### 3. BASIS OF DESIGN: (MASS CODE)

Project weather and Code temperature values are listed herein based on weather data values as determined from ASHRAE weather data tables and the International Energy Conservation Code.

Outside: Winter 5 deg. F, Summer 91 deg. F DB 74 deg. F WB

Inside: 70 deg. F +/- 2 deg F for heating, 75 deg. F +/- 2 deg F (55% RH) for cooling for areas with air conditioning, 78 deg. F +/- 2 deg. F (<60% RH) for areas with displacement/dehumidification\*(see Displacement Ventilation note below). Unoccupied temperature setback will be provided (60 deg F heating (adj.), 85 deg F cooling/dehumidification (adj.).

Outside air is provided at the rate in accordance with ASHRAE guide 62.1-2010 and the International Mechanical Code as a minimum. All occupied areas will be designed to maintain 800 PPM carbon dioxide maximum.

#### 4. SYSTEM DESCRIPTION

##### A. Central Heating Plants: **LEED for Schools Credit EP2 & EC1**

Heating for the entire building will be through the use of a high efficiency gas-fired condensing boiler plant.

The new boiler plant shall be provided with (3) 4,000 MBH input boilers and (2) end suction base mounted primary & standby pumps with a capacity of 720 gpm each will be located in the mechanical room. Boilers shall each be sized for approximately 50% of the building heating load. In addition to new boilers and pumps, new hot water accessories including air separators and expansion tanks shall be provided.



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Devotion School  
Brookline, MA  
J#831 037 00.00  
L#45434/Page 2/September 16, 2014

The boiler plant will supply heating hot water to heating equipment and systems located throughout the building through a two-pipe fiberglass insulated schedule 40 black steel and copper piping system. The boiler plants shall supply a maximum hot water temperature of 180 deg F on a design heating day and the hot water supply water temperature will be adjusted downward based on an outside temperature reset schedule to improve the overall operating efficiency of the power plants. Primary and standby end suction base mounted pumps will be provided with variable frequency drives for variable volume flow through the water distribution system for improved energy efficiency.

Combustion air for each boiler will be directly ducted to each boiler through a galvanized ductwork distribution system. Venting from each boiler shall be through separate double wall aluminized stainless steel (AL29-4C) vent system and shall discharge approximately 12 feet above the roof level. Final venting height will be depending on the location of building intake air locations and adjacent roofs.

**B. Central Cooling Plant: *LEED for Schools Credit EP2 & EC1***

A high efficiency central chilled water cooling plant consisting of a 320 ton high efficiency turbocor (oil-less compressor design) water cooled chilled, primary and standby chilled water pumps with VFDs, each with a capacity of 750 gpm, accessories, controls and steel and copper piping distribution system shall be provided to serve chilled water cooling HVAC equipment located throughout the building. The chilled water system will consist of a 35% propylene glycol solution. A glycol make-up feed unit system shall be provided.

An induced draft counter-flow cooling tower system, equipped with filtration and chemical treatment system and condenser water pump set and controls shall be provided as part of the chilled water system.

**C. Classroom Heating and Ventilation (*General Classrooms, Science, Art & Music, SPED, Music/Band Classrooms*):  
*LEED of Schools Credit EP2, EC1, EC5, IEQP1, IEQC1, 2, 3.1, 3.2, 5, 6.2 & 7.1***

It is proposed that new displacement ventilation systems are installed to serve the Renovation and Addition Building Classroom areas under this Option.

New air handling units with supply and return fan with VFDs, energy recovery wheels, hot water heating and chilled water cooling with modulating capacity control, sensible reheat wheel or hot pipe, and MERV 13 filtration will be provided to serve the new displacement ventilation system. Supply air will be provided to the space through new insulated, galvanized steel supply duct distribution system and shall be connected to wall mounted displacement ventilation diffusers located within the classrooms. Return air will be drawn back to the units by ceiling return air registers located within the classroom and will be routed back to the air handling unit by an insulated galvanized sheetmetal return air ductwork distribution system. Supplemental hot water fin tube radiation or ceiling radiant heating will be provided along exterior walls.

Each classroom will be provided with a variable air volume terminal box and CO2 sensor for demand ventilation control.

Devotion School  
Brookline, MA  
J#831 037 00.00  
L#45434/Page 3/September 16, 2014

It is estimated that the following air handling equipment will be required to serve these Classroom areas:

Three (3) air handling units (AHU-1, AHU-2, AHU-3) with a capacity of 7,500 CFM (30 tons cooling, 250 MBH heating).

One (1) air handling unit (AHU-4) with a capacity of 5,000 CFM (20 tons cooling, 200 MBH heating); and one (1) air handling unit (AHU-5) with a capacity of 12,000 CFM (42 tons cooling, 480 MBH heating).

Displacement Ventilation:

The displacement ventilation system for the classroom wings are intended to provide a maximum cooling temperature during peak cooling periods of approximately 78°F, however, the ventilation air provided will be extremely dry which will be the result of utilizing refrigeration equipment and hot gas reheat to reduce vapor pressure to an extremely low condition of approximately 50 grains of moisture per pound of air and reheating the air to a supply temperature of approximately 68°F which will be distributed to each space. The extremely dry condition of the supply air provides the perception of a condition that is cooler than is actually occurring due to the evaporation of moisture to the adjacent air from the occupants of the space.

Considering maximum cooling requirements occur primarily during the months of July and August when the majority of the academic areas are not in use, it would suggest maintaining slightly higher temperatures may not present a discomfort, however, will relate to a substantial operating cost savings and a reduced installation cost.

An additional major benefit of utilizing dry air within the building will be the overall reduction of vapor pressure typically present in outside ventilation air during summer months. This reduction in vapor pressure will dramatically reduce the amount of moisture entering the building and the potential of condensation resulting in moisture, and a direct relationship with the formation of mold.

Classrooms Requiring Full Air Conditioning:

Classrooms that require full air conditioning will be provided with supplemental cooling active chilled beam induction units.

D. Gymnasium:

**LEED for Schools Credit EP2, EC1, EC5, IEQP1, IEQC1, 2, 3.1, 3.2, 5, 6.2 & 7.1**

The gymnasium will be served by an air-handling unit of the recirculation design. The unit will be approximately 6,500 CFM and will include supply and return fans with VFDs, 400 MBH heating and 18 Ton cooling with modulating capacity control, MERV 13 filtration, and carbon dioxide controls which will reduce outside air as allowed maintaining a maximum of 800 PPM. Supply air ventilation will be provided to the space through an exposed galvanized steel supply duct with drum louvers to project the air to the floor. As levels of carbon dioxide drop generally relating to a reduction in population a variable frequency drive located in each air-handling unit will modulate to reduce airflow and ventilation while always maintaining a maximum of 800 ppm. Return air will be drawn back to the air handling unit by a low wall return air register.

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Devotion School  
Brookline, MA  
J#831 037 00.00  
L#45434/Page 4/September 16, 2014

- E. Small Gymnasium:  
**LEED for Schools Credit EP2, EC1, EC5, IEQP1, IEQC1, 2, 3.1, 3.2, 5, 6.2 & 7.1**

The gymnasium will be served by an air-handling unit of the recirculation design. The unit will be approximately 2,500 CFM and will include supply and return fans with VFDs, 200 MBH heating and 7.5 Ton cooling with modulating capacity control, MERV 13 filtration, and carbon dioxide controls which will reduce outside air as allowed maintaining a maximum of 800 PPM. Supply air ventilation will be provided to the space through an exposed galvanized steel supply duct with drum louvers to project the air to the floor. As levels of carbon dioxide drop generally relating to a reduction in population a variable frequency drive located in each air-handling unit will modulate to reduce airflow and ventilation while always maintaining a maximum of 800 ppm. Return air will be drawn back to the air-handling unit by a low wall return air register.

- F. Multi-Purpose Room:  
**LEED for Schools Credit EP2, EC1, EC5, IEQP1, IEQC1, 2, 3.1, 3.2, 5, 6.2 & 7.1**

The Multipurpose room will be provided with a new air-handling unit of the recirculation design. The units will be approximately 4,200 CFM and will include supply and return fans with VFDs, hot water heating section with modulating capacity control, 15 ton chilled cooling system and MERV 13 filtration. Supply air ventilation to the Multi-purpose room will be provided to the space through the galvanized steel supply duct that will connect to an overhead ductwork distribution system. In addition, carbon dioxide controls will be installed which will monitor the overall level of carbon dioxide at a threshold level of 800 ppm. As levels drop generally relating to a reduction in population the air-handling unit outside air damper will modulate to reduce airflow and ventilation while always maintaining a maximum of 800 ppm. Return air will be drawn back to the units by low wall return air registers.

- G. Administration Areas:  
**LEED for Schools Credit EO2, EC1, EC5, IEQP1, IEQC1, 2, 3.1, 3.2, 5, 6.2 & 7.1**

Spatial heating and air-conditioning for the Administration area and Guidance offices will be served by horizontal ceiling concealed type ducted 4-pipe heating and cooling active chilled beam induction units with hot water and chilled water for the induction unit system provided by the individual hot water and chilled water central recirculation piping system communicating with the boiler and chilled water power plants.

The ventilation air handling unit capacity will be approximately 3,000 CFM and will include supply and return fan with VFDs, 150 MBH hot water heating section with modulating capacity control, MERV 13 filtration, 9 ton capacity chilled water cooling section, and exhaust air energy recovery wheel. Supply air ventilation will be provided to each space that will satisfy building code requirements based on population.

Devotion School  
Brookline, MA  
J#831 037 00.00  
L#45434/Page 5/September 16, 2014

H. Library/Technology Lab:  
**LEED for Schools Credit EP2, EC1, EC5, IEQP1, IEQC1, 2, 3.1, 3.2, 5, 6.2 & 7.1**

The Media Center and adjacent office and Computer Lab spaces will be served by horizontal ceiling concealed type ducted 4-pipe heating and cooling active chilled beam induction units with hot water and chilled water for the induction unit system provided by the individual hot water and chilled water central recirculation piping system communicating with the boiler and chilled water power plants.

The ventilation air handling unit capacity will be approximately 3,500 CFM and will include supply and return fan with VFDs, 150 MBH hot water heating section with modulating capacity control, MERV 13 filtration, 10 ton capacity chilled water cooling section, and exhaust air energy recovery wheel. Supply air ventilation will be provided to each space that will satisfy building code requirements based on population.

I. Cafeteria, Servery and Staff Lunch Areas:  
**LEED for Schools Credit EP2, EC1, EC5, IEQP1, IEQC1, 2, 3.1, 3.2, 5, 6.2 & 7.1**

The Cafeteria area will be served by an air-handling unit capable of providing 100% outside air. The units will be approximately 4,200 CFM and will include supply and return fan with VFDs, 400 MBH hot water heating section with modulating capacity control, MERV 13 filtration, 12 ton chilled water cooling section, and exhaust air energy recovery wheel. Supply air ventilation will be provided to each space which will satisfy building code requirements based on population. It is proposed that spatial heating and air-conditioning for in this area will be provided with variable air volume boxes with temperature and CO2 controls. Perimeter hot water radiation heating equipment shall be provided for exterior zones.

J. Kitchen:  
**LEED for Schools Credit EP2**

The kitchen areas shall be provided with new kitchen exhaust air fan and make-up air handling unit with hot water heating. The kitchen will be heated by an heating and ventilation air-handling units with hot water heating.

A variable volume kitchen exhaust hood control system consisting of kitchen exhaust stack temperature and smoke density sensors, supply and exhaust fan variable speed drives and associated controller will be provided by the kitchen equipment vendor. This system installation shall be field installed and coordinated with the ATC and Electrical contractors

K. Lobby, Corridor, and Entry Way Heating:

New hot water convectors, cabinet unit heaters and fin tube radiation heating equipment shall be installed to provide heating to these areas. Corridors shall be ventilated from adjacent air handling unit systems.

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Devotion School  
Brookline, MA  
J#831 037 00.00  
L#45434/Page 6/September 16, 2014

**L. Custodial Support Areas:**

Custodial support areas will be heated and ventilated by a heating and ventilation unit. Storage areas will be heated by radiation heating equipment. Horizontal type unit heaters will heat areas adjacent to the loading dock. All custodial closets will be exhausted by exhaust air fan systems.

**M. Utility Areas:**

Utility areas will be provided with exhaust air fan systems for ventilation, and will typically be heated with horizontal type ceiling suspended unit heaters.

The main IDF room will be air conditioned by high efficiency ductless AC cooling units.

**N. Parking Garage:**

The Parking garage shall be provided with a new exhaust air fan system for ventilation, and will be heated by hot water make up air handling units and horizontal type ceiling suspended and ducted unit heaters.

A new gas detection system shall be installed to control the exhaust air fan system operation.

**O. Testing, Adjusting, Balancing & Commissioning:**

All new HVAC systems shall be tested, adjusted, balanced and commissioned as part of the project scope.

**P. Automatic Temperature Controls – Building Energy Management System:**

A new DDC (direct digital control) automatic temperature control and building energy management system shall be installed to control and monitor building HVAC systems. Energy metering shall be installed to monitor the energy usage of building HVAC systems and utilities (fuel, gas, water).

The control system shall be proprietary as manufactured by Johnson Controls.

**Q. Elevator and Stairwell Pressurization Systems:**

For all stairwells and elevators over 5 stories, provide a stairwell and elevator pressurization system for each stair and elevator. Stairwell and elevator system fan and associated controls shall be power by emergency powered circuits.

## HVAC SYSTEMS

### NARRATIVE REPORT – OPTION 3 (New Construction)

The following is the HVAC system narrative, which defines the scope of work and capacities of the HVAC system as well as the Basis of Design. The HVAC systems shall be designed and constructed for **LEED for Schools** where indicated on this narrative.

#### 1. CODES

All work installed under Division 230000 shall comply with the State of Massachusetts Building Code and all local, IBC 2012 with MA Amendments, county, and federal codes, laws, statutes, and authorities having jurisdiction.

#### 2. DESIGN INTENT

The work of Division 230000 is described within the narrative report. The HVAC project scope of work shall consist of providing new HVAC equipment and systems as described here within. All new work shall consist of furnishing all materials, equipment, labor, transportation, facilities, and all operations and adjustments required for the complete and operating installation of the Heating, Ventilating and Air Conditioning work and all items incidental thereto, including commissioning and testing.

#### 3. BASIS OF DESIGN: (MASS CODE)

Project weather and Code temperature values are listed herein based on weather data values as determined from ASHRAE weather data tables and the International Energy Conservation Code.

Outside: Winter 5 deg. F, Summer 91 deg. F DB 74 deg. F WB

Inside: 70 deg. F +/- 2 deg F for heating, 75 deg. F +/- 2 deg F (55% RH) for cooling for areas with air conditioning, 78 deg. F +/- 2 deg. F (<60% RH) for areas with displacement/dehumidification\*(see Displacement Ventilation note below). Unoccupied temperature setback will be provided (60 deg F heating (adj.), 85 deg F cooling/dehumidification (adj.).

Outside air is provided at the rate in accordance with ASHRAE guide 62.1-2010 and the International Mechanical Code as a minimum. All occupied areas will be designed to maintain 800 PPM carbon dioxide maximum.

#### 4. SYSTEM DESCRIPTION

##### A. Central Heating Plants: **LEED for Schools Credit EP2 & EC1**

Heating for the entire building will be through the use of a high efficiency gas-fired condensing boiler plant.

The new boiler plant shall be provided with (3) 3,700 MBH input boilers and (2) end suction base mounted primary and standby pumps with a capacity of 660 gpm each will be located in the mechanical room. Boilers shall each be sized for approximately 45% of the building heating load. In addition to new boilers and pumps, new hot water accessories including air separators and expansion tanks shall be provided.



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Devotion School  
Brookline, MA  
J#831 037 00.00  
L#45435/Page 2/September 16, 2014

The boiler plant will supply heating hot water to heating equipment and systems located throughout the building through a two-pipe fiberglass insulated schedule 40 black steel and copper piping system. The boiler plants shall supply a maximum hot water temperature of 160 deg F on a design heating day and the hot water supply water temperature will be adjusted downward based on an outside temperature reset schedule to improve the overall operating efficiency of the power plants. Primary and standby end suction base mounted pumps will be provided with variable frequency drives for variable volume flow through the water distribution system for improved energy efficiency.

Combustion air for each boiler will be directly ducted to each boiler through a galvanized ductwork distribution system. Venting from each boiler shall be through separate double wall aluminized stainless steel (AL29-4C) vent system and shall discharge approximately 12 feet above the roof level. Final venting height will be depending on the location of building intake air locations and adjacent roofs.

**B. Central Cooling Plant: *LEED for Schools Credit EP2 & EC1***

A high efficiency central chilled water cooling plant consisting of a 300 ton high efficiency turbocor (oil-less compressor design) water cooled chilled, primary and standby chilled water pumps with VFDs, each with a capacity of 650 gpm, accessories, controls and steel and copper piping distribution system shall be provided to serve chilled water cooling HVAC equipment located throughout the building. The chilled water system will consist of a 35% propylene glycol solution. A glycol make-up feed unit system shall be provided.

An induced draft counter-flow cooling tower system, equipped with filtration and chemical treatment system and condenser water pump set and controls shall be provided as part of the chilled water system.

**C. Classroom Heating and Ventilation (*General Classrooms, Science, Art & Music, SPED, Music/Band Classrooms*) :**  
***LEED of Schools Credit EP2, EC1, EC5, IEQP1, IEQC1, 2, 3.1, 3.2, 5, 6.2 & 7.1***

It is proposed that new displacement ventilation systems are installed to serve the Building classroom areas under this Option.

New air handling units with supply and return fan with VFDs, energy recovery wheels, hot water heating and chilled water cooling with modulating capacity control, sensible reheat wheel or hot pipe, and MERV 13 filtration will be provided to serve the new displacement ventilation system. Supply air will be provided to the space through new insulated, galvanized steel supply duct distribution system and shall be connected to wall mounted displacement ventilation diffusers located within the classrooms. Return air will be drawn back to the units by ceiling return air registers located within the classroom and will be routed back to the air handling unit by an insulated galvanized sheetmetal return air ductwork distribution system. Supplemental hot water fin tube radiation or ceiling radiant heating will be provided along exterior walls.

Each classroom will be provided with a variable air volume terminal box and CO2 sensor for demand ventilation control.

Devotion School  
Brookline, MA  
J#831 037 00.00  
L#45435/Page 3/September 16, 2014

It is estimated that the following air handling equipment will be required to serve these Classroom areas:

Three (3) air handling units with a capacity of 9,750 CFM (37.5 tons cooling, 400 MBH heating).

One (1) air handling unit with a capacity of 5,000 CFM (18 tons cooling, 220 MBH heating).

Displacement Ventilation:

The displacement ventilation system for the classroom wings are intended to provide a maximum cooling temperature during peak cooling periods of approximately 78°F, however, the ventilation air provided will be extremely dry which will be the result of utilizing refrigeration equipment and hot gas reheat to reduce vapor pressure to an extremely low condition of approximately 50 grains of moisture per pound of air and reheating the air to a supply temperature of approximately 68°F which will be distributed to each space. The extremely dry condition of the supply air provides the perception of a condition that is cooler than is actually occurring due to the evaporation of moisture to the adjacent air from the occupants of the space.

Considering maximum cooling requirements occur primarily during the months of July and August when the majority of the academic areas are not in use, it would suggest maintaining slightly higher temperatures may not present a discomfort, however, will relate to a substantial operating cost savings and a reduced installation cost.

An additional major benefit of utilizing dry air within the building will be the overall reduction of vapor pressure typically present in outside ventilation air during summer months. This reduction in vapor pressure will dramatically reduce the amount of moisture entering the building and the potential of condensation resulting in moisture, and a direct relationship with the formation of mold.

Classrooms Requiring Full Air Conditioning:

Classrooms that require full air conditioning will be provided with supplemental cooling active chilled beam induction units.

D. Gymnasium:

***LEED for Schools Credit EP2, EC1, EC5, IEQP1, IEQC1, 2, 3.1, 3.2, 5, 6.2 & 7.1***

The gymnasium will be served by an air-handling unit of the recirculation design. The unit will be approximately 6,500 CFM and will include supply and return fans with VFDs, 400 MBH heating and 18 Ton cooling with modulating capacity control, MERV 13 filtration, and carbon dioxide controls which will reduce outside air as allowed maintaining a maximum of 800 PPM. Supply air ventilation will be provided to the space through an exposed galvanized steel supply duct with drum louvers to project the air to the floor. As levels of carbon dioxide drop generally relating to a reduction in population a variable frequency drive located in each air-handling unit will modulate to reduce airflow and ventilation while always maintaining a maximum of 800 ppm. Return air will be drawn back to the air handling unit by a low wall return air register.

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Devotion School  
Brookline, MA  
J#831 037 00.00  
L#45435/Page 4/September 16, 2014

- E. Small Gymnasium:  
**LEED for Schools Credit EP2, EC1, EC5, IEQP1, IEQC1, 2, 3.1, 3.2, 5, 6.2 & 7.1**

The gymnasium will be served by an air-handling unit of the recirculation design. The unit will be approximately 2,500 CFM and will include supply and return fans with VFDs, 200 MBH heating and 7.5 Ton cooling with modulating capacity control, MERV 13 filtration, and carbon dioxide controls which will reduce outside air as allowed maintaining a maximum of 800 PPM. Supply air ventilation will be provided to the space through an exposed galvanized steel supply duct with drum louvers to project the air to the floor. As levels of carbon dioxide drop generally relating to a reduction in population a variable frequency drive located in each air-handling unit will modulate to reduce airflow and ventilation while always maintaining a maximum of 800 ppm. Return air will be drawn back to the air-handling unit by a low wall return air register.

- F. Multi-Purpose Room:  
**LEED for Schools Credit EP2, EC1, EC5, IEQP1, IEQC1, 2, 3.1, 3.2, 5, 6.2 & 7.1**

The Multipurpose room will be provided with a new air-handling unit of the recirculation design. The units will be approximately 4,200 CFM and will include supply and return fans with VFDs, hot water heating section with modulating capacity control, 15 ton chilled cooling system and MERV 13 filtration. Supply air ventilation to the Multi-purpose room will be provided to the space through the galvanized steel supply duct that will connect to an overhead supply air distribution system. In addition, carbon dioxide controls will be installed which will monitor the overall level of carbon dioxide at a threshold level of 800 ppm. As levels drop generally relating to a reduction in population the air-handling unit outside air damper will modulate to reduce airflow and ventilation while always maintaining a maximum of 800 ppm. Return air will be drawn back to the units by low wall return air registers.

- G. Administration Areas:  
**LEED for Schools Credit EO2, EC1, EC5, IEQP1, IEQC1, 2, 3.1, 3.2, 5, 6.2 & 7.1**

Spatial heating and air-conditioning for the Administration area and Guidance offices will be served by horizontal ceiling concealed type ducted 4-pipe heating and cooling active chilled beam induction units with hot water and chilled water for the induction unit system provided by the individual hot water and chilled water central recirculation piping system communicating with the boiler and chilled water power plants.

The ventilation air handling unit capacity will be approximately 3,000 CFM and will include supply and return fan with VFDs, 150 MBH hot water heating section with modulating capacity control, MERV 13 filtration, 9 ton capacity chilled water cooling section, and exhaust air energy recovery wheel. Supply air ventilation will be provided to each space that will satisfy building code requirements based on population.

Devotion School  
Brookline, MA  
J#831 037 00.00  
L#45435/Page 5/September 16, 2014

H. Library/Computer Lab  
**LEED for Schools Credit EP2, EC1, EC5, IEQP1, IEQC1, 2, 3.1, 3.2, 5, 6.2 & 7.1**

The Media Center and adjacent office and Computer Lab spaces will be served by horizontal ceiling concealed type ducted 4-pipe heating and cooling active chilled beam induction units with hot water and chilled water for the induction unit system provided by the individual hot water and chilled water central recirculation piping system communicating with the boiler and chilled water power plants.

The ventilation air handling unit capacity will be approximately 3,500 CFM and will include supply and return fan with VFDs, 150 MBH hot water heating section with modulating capacity control, MERV 13 filtration, 10 ton capacity chilled water cooling section, and exhaust air energy recovery wheel. Supply air ventilation will be provided to each space that will satisfy building code requirements based on population.

I. Cafeteria, Servery and Staff Lunch Areas  
**LEED for Schools Credit EP2, EC1, EC5, IEQP1, IEQC1, 2, 3.1, 3.2, 5, 6.2 & 7.1**

The Cafeteria area will be served by an air-handling unit capable of providing 100% outside air. The units will be approximately 4,200 CFM and will include supply and return fan with VFDs, 400 MBH hot water heating section with modulating capacity control, MERV 13 filtration, 12 ton chilled water cooling section, and exhaust air energy recovery wheel. Supply air ventilation will be provided to each space which will satisfy building code requirements based on population. It is proposed that spatial heating and air-conditioning for in this area will be provided with variable air volume boxes with temperature and CO2 controls. Perimeter hot water radiation heating equipment shall be provided for exterior zones.

J. Kitchen:  
**LEED for Schools Credit EP2**

The kitchen areas shall be provided with new kitchen exhaust air fan and make-up air handling unit with hot water heating. The kitchen will be heated by an heating and ventilation air-handling units with hot water heating.

A variable volume kitchen exhaust hood control system consisting of kitchen exhaust stack temperature and smoke density sensors, supply and exhaust fan variable speed drives and associated controller will be provided by the kitchen equipment vendor. This system installation shall be field installed and coordinated with the ATC and Electrical contractors

K. Lobby, Corridor, and Entry Way Heating

New hot water convectors, cabinet unit heaters and fin tube radiation heating equipment shall be installed to provide heating to these areas. Corridors shall be ventilated from adjacent air handling unit systems.

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L#45435/Page 6/September 16, 2014

L. Custodial Support Areas

Custodial support areas will be heated and ventilated by a heating and ventilation unit. Storage areas will be heated by radiation heating equipment. Horizontal type unit heaters will heat areas adjacent to the loading dock. All custodial closets will be exhausted by exhaust air fan systems.

M. Utility Areas:

Utility areas will be provided with exhaust air fan systems for ventilation, and will typically be heated with horizontal type ceiling suspended unit heaters.

The main IDF room will be air conditioned by high efficiency ductless AC cooling units.

N. Parking Garage:

The Parking garage shall be provided with a new exhaust air fan system for ventilation, and will be heated by hot water make up air handling units and horizontal type ceiling suspended and ducted unit heaters.

A new gas detection system shall be installed to control the exhaust air fan system operation.

O. Testing, Adjusting, Balancing & Commissioning:

All new HVAC systems shall be tested, adjusted, balanced and commissioned as part of the project scope.

P. Automatic Temperature Controls – Building Energy Management System

A new DDC (direct digital control) automatic temperature control and building energy management system shall be installed to control and monitor building HVAC systems. Energy metering shall be installed to monitor the energy usage of building HVAC systems and utilities (fuel, gas, water).

The control system shall be proprietary as manufactured by Johnson Controls.