Transformative Learning Through Architecture

The Beverly Middle School
Flexible Learning Academy

Flexible Classroom Studios
Flexible Configurations
Flexible Support

Exhibits
Cross Discipline
Problem Solving
Project Based Learning
Learning Outside the Classroom
HOW DID WE GET TO THE 5-8?

- **Strategic Planning**
- **Statement of Interest**
- **Feasibility Study**
PRESSING ISSUES

• **Growing Enrollments**
  2018/2019 – 1,361 students 5-8 based on students in the system
  2019/2020 – 1,391 students
  2020/2021 – 1,428 students

• **Assumes no additional growth**

• **Choice and move-in numbers are growing**
5-8 Middle School

- Research by School Committee and Administration
- Public Outreach
ADVANTAGES

• Continuity of Instruction
• Smooth Transition from Elementary to High School
• Stronger Relationship with Parents
• Developmentally Appropriate
• More Opportunities for 5th Grade
• Cost Effective Solution to Elementary Over-crowding
Educational Program

GUIDING PRINCIPLES

• **Small School Academies 5/6 and 7/8**

• **High Expectations**

• **Adaptability and Flexibility**

• **21st Century Skills – (Communication, Creativity, Collaboration, and Critical Thinking)**
SUMMATION

- Creating an Environment for Students to Explore
- 21st Century Skills, STEM/STEAM, Global Education
- Increased Preparation for a Career Focus At BHS
Educational Innovation

Display & Exhibit

- Exhibit Space for Student Work
- Flexible Project Studios
- Passive Learning Opportunities
- Student Socialization
- Blurring the Classroom
Educational Innovation

Indoor / Outdoor Connections

- Indoor / Outdoor Connections
- Roof Garden with Photovoltaic
- Student Gatherings
- Project Studio
Educational Innovation

High Performance Work Environments

- Educational Incubator
- Learning outside the Classroom
- Student Socialization
- Student Exhibits
- Student Cafe
Creation of Small Academic Neighborhoods

- Small School Learning Environments
- Distributed Leadership / Oversight
- Distributed Dining
- “Branch Library” within learning neighborhood
- Integration of STEAM
- Indoor/Outdoor Connections
- Neighborhood “Branding”
Creation of Project Based Labs (Maker/Builder Spaces)
Educational Program Benefits – Bldg. Floor Plans

**Maker/Builder Space**
Educational Program Benefits – Bldg. Floor Plans

**-maker/builder space**
**Outdoor Learning Environment**

- Educational Advantages:
  - Outdoor dining area
  - Outdoor amphitheater
  - Exhibit and work areas
  - Open green space
  - Outdoor classroom space
  - Outdoor science space
  - Outdoor project space – extension of maker/builder space
  - Examples:
    - **Science** (Raised planting beds, testing cars in physics projects, heat transfer, weather analysis, water features, engineering elements: pulleys, planes, etc.)
    - **Humanities** (Socratic Debate, drama, poetry, Greek myths)
    - **Arts** (3D installations, sculpture, etc.)
  - Maintain a secure outdoor environment
  - Defined pathway from drop off area to building entry
  - Outdoor holding space for early arrivals and late departures
  - Varying elevations of “Educational Zones”: more clearly defined areas
  - Direct access from Cafeteria
  - Maintain privacy from classroom neighborhoods
  - Easy access from centralized circulation stairs for all grade levels
  - Easy access for maintenance equipment / staff
  - Greater potential for separate structured community use
SITE PLAN

- Maintain separation of bus and vehicular drop-off areas
- Building organization more closely blends with natural topography of site (less cut and fill)
- Less glazing exposure on south façade
- Increased parking and efficiency of parking organization
- Outdoor Learning Space – Southern exposure / greater sun exposure
- Closer proximity of gymnasium/lockers to outdoor playing fields
- Direct access from parking area to gymnasium and/or auditorium via a separate entry lobby
- More flexible student arrival procedures (via main entry, gym entry or outdoor learning space)
- Outdoor access to Art and Technology spaces
- Loading area at the “back” of the building
EDUCATIONAL PROGRAM BENEFITS – BLDG. FLOOR PLANS

Life-long Learning Expanded into Physical Education

FLOOR 1

Beverly Middle School - Beverly, MA

August 27, 2015
Educational Program Benefits – Bldg. Floor Plans

Beverly Middle School - Beverly, MA

Primary Building Entrance

Secondary Building Entrance

Canot Street

Primary Building Entrance

Secondary Student Entry Points

Student Exhibit Space

5/6 Cafeteria

Outdoor Learning Environment

Library Media Center

Secondary Student Entry Points

Gymnasium Below

Stage

Auditorium

Band

Choral Ensemble

Teacher Work. Tech.

CR

SCI

CR

CR

SCI

CR

CR

Maker

Art.

Kitchen/Serving

Custodial Storage

Service Entrance

Outdoor Learning Environment

Secondary Building Entrance

Educational Program Benefits – Bldg. Floor Plans

Beverly Middle School - Beverly, MA
LEED Silver Promotes Efficiency & Achieves more Reimbursement from the MSBA

Additional 2% MSBA Reimbursement Points

LEED GOLD
High Quality – High Performance Building

High Performance Building Envelope

EXTERIOR BUILDING ENVELOPE:
- Maximize passive performance
- Minimize complex systems
- Simplify exterior skin
- Optimize daylighting and views

01 Exterior Walls
CODE: 2012 IECC
R-13 + R-7.5cl
DESIGN: R-25

02 Roofs
CODE: 2012 IECC
R-25cl
DESIGN: R-30

03 Fenestrations
CODE: OVERALL U-FACTOR
FIXED: 0.38
OPERABLE: 0.45
SHGC: 0.40

04 Slab on Grade
CODE: 2012 IECC
R-10
DESIGN: R-10
View from Cabot Street
VIEW FROM OUTDOOR EDUCATIONAL AREA TOWARD THE CAFETERIA AND LIBRARY MEDIA CENTER
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## Beverly Middle School - Beverly, MA

### August 27, 2015

#### SBA Board Mtg - Approval of Schematic Design

#### Permits & Approvals for Demo

#### Survey & Layout

#### Temp Fence & Trailers

#### Complete Design for Abatement & Demo Early Package

#### Abatement & Demo

#### Complete Design for Piles, Civil & Landscaping

#### Pile Submittals & Installation

#### Complete Design for Foundations & Structure

#### Start Foundations

#### Foundations

#### Structural Steel

#### Complete Design of Construction Docs

#### Trade Contractor Bidding

#### Building Enclosed/Weather tight

#### Main Package Construction

#### Construction Substantial Completion

#### Furniture/Move-In

#### 1st Day of School

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### Proposed Construction Schedule (Including early Bid Packages)

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![Construction Schedule Diagram](image_url)
Agostini-Bacon Generic Scheduling Guidelines / Targets

- 21 months from start of Foundations to Substantial Completion (200,000 SF +/-)
- Avoid Winter for Weather Dependent Work:
  - Concrete Foundations
  - Spray Fireproofing
  - Masonry
- Erect Structural Steel during the Winter
- Start Concrete Slabs late-March or early-April
- Enclose the Building Envelope by November
QUESTIONS/COMMENTS?
Schematic Study

- More interesting building façade/entry along Cabot Street – Not just a flat facade
- More efficient building layout
- Greater efficiency with building circulation (less single loaded corridors)
- Reduction in overall building footprint
- Reduction in overall building envelope area
- Better connection and flow between neighborhoods / project labs (maker spaces) / cafeteria / outdoor learning environment
- Art / Technology spaces centrally located with exterior access (integration of STEAM)
- Easier building separation between educational space and community space
- More compact organization and direct relationship between auditorium and music spaces
- More efficient use of exterior solar treatment (cafeteria vs. classroom neighborhoods)
- Potential for green roof area (south facing) above gymnasium/auditorium via 3rd floor access
Schematic Study

GRADE 7
Learning Academy & Neighborhood

FLOOR 3

Beverly Middle School - Beverly, MA

August 27, 2015
GRADE 8
Learning Academy & Neighborhood