

2016 A4LE Exhibition of School Planning and Architecture

Wellesley High School

Wellesley, Massachusetts

Award Type: High School

Wellesley High School

Among the top performing high schools in Massachusetts, Wellesley's new high school exhibits a bold array of programs based upon a STEAM centered curriculum that integrates hands on experiences of fine and performing arts with state-of-the-art technology in the sciences; technology maker spaces such as computer programming and robotics; and rigorous recording studio spaces, black box theater, and a TV Studio and editing lab all on a highly constrained site.



Community and Planning Process

Planning Process: The Town of Wellesley prides itself on its inclusive, collaborative planning process. Conducting 200+ meetings over a 4-year span, the architect provided a full complement of design professionals over the course of planning to facilitate designing collaboratively with multiple Town-mandated committees and stakeholders including neighbors, the Design Review Committee, Historic Preservation, Committee as well as administration, staff, and students. The team also conducted two public forums for visioning with two educational planners and a green design charrette to better understand the broader needs of the Town.



Community and Planning Process

Planning for the Future:

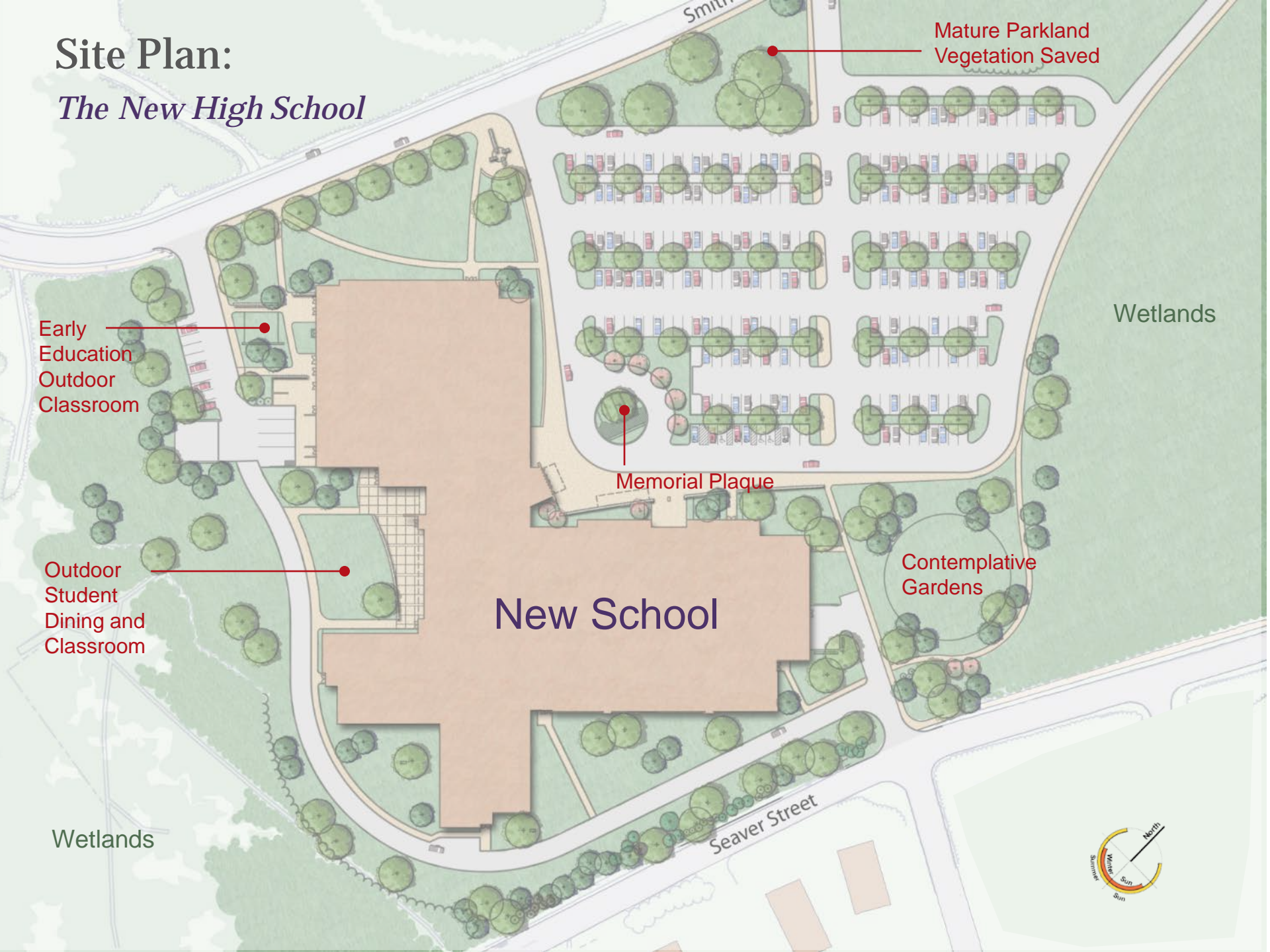
The site provided unique challenges due to its small, dense, suburban surroundings and is constrained by a flood plain and wetlands including channelized streams on each side of the new school that could not be disrupted without triggering extensive permitting hurdles.

A key conversation involved the debate to reuse or raze the 1938 school structure, a beloved icon in town. Studies proved to the Building Committee (and 90% of the voting public) that the cost and impacts of a renovation would not meet future needs and a new facility was necessary to advance the high performing school's goal to be a world class educational environment that challenges and prepares critical thinking students to compete and collaborate in the global market.



Site Plan:

The New High School



Mature Parkland
Vegetation Saved

Wetlands

Early
Education
Outdoor
Classroom

Outdoor
Student
Dining and
Classroom

Memorial Plaque

Contemplative
Gardens

New School

Wetlands

Seaver Street



Site Plan:

The New High School



Community Environment

Historic context: The Town of Wellesley sought to express its commitment to educational excellence through its new community-focused high school. The history of the high school and its alumni played a large role in connecting the new school to its rich past. Several elements of the historic 1938 building were restored and utilized in the new building including the 18 foot tall tower cupola and its eagle weathervane—to serve as a sculpture in the main entrance



New installations

New installations

Historic Memorabilia

- A special 1938 Room was created to celebrate the architectural legacy of the old Wellesley High School.
 - Decorative elements, including the cement cast “W”s, exterior wall lights, the 1938 cornerstone and a library card catalog, are central features of the room.
 - A typical classroom from 1938, including blackboards, wood chair rails, trim pieces, storage casework, corkboards and slate window sills, are also preserved.
 - The floor of the 1938 Room was constructed of wooden floor boards relocated from the historic 1881 Town Hall – the first public building when Wellesley was incorporated.
- The exterior clock face was reused on the new tower.
- Seven exterior copper lights and 11 benches, many gifts of previous WHS classes, were repurposed outside the building.
- Town, state and national emblem seals were incorporated into the pilasters of the flagpole plaza.
- Various student art pieces, plaques, signs, trophies and banners were remounted.
- A residential structure was salvaged and relocated nearby, enabling site expansion.



Performing Arts

Community Environment: A robust Performing and Dramatic Arts environment including the 750-seat Performing Arts Center, a black box theater, band and ensemble rooms, choral room, changing rooms and ample stage storage allow for the highly subscribed programs to perform for the community as well as hosting professional performing organizations. Each space can serve as a recording studio, allowing students to build personal portfolios.



PERFORMING ARTS

Performing Arts

Learning Environment:

The creation of a civic commons centered in the new school allows the students' academic and social environment to develop endless opportunities for interaction and collaboration with the broader community. The welcoming commons displays student work, is the dining commons and a civic gathering space for 1,600 students. The second floor gymnasium is connected by a flowing stair with the 1938 weathervane newel post. The commons, with its two ceiling heights, offers a variety of social environments and is linked to the outdoor dining area.





Learning Environment

The new school is organized as a dense Hub and Spoke model on four floors. The Hub of the school is a series of stacked atriums and cantilevered commons spaces that continuously connect the different academic departments while socially connecting the students in a wireless student centered space with carpeted floors and soft seating, digital media display and centralized recycling centers. Dispersed administration/ guidance centers, and staff planning centers are directly adjacent and create meaningful adult to student connections on all floors of the building.

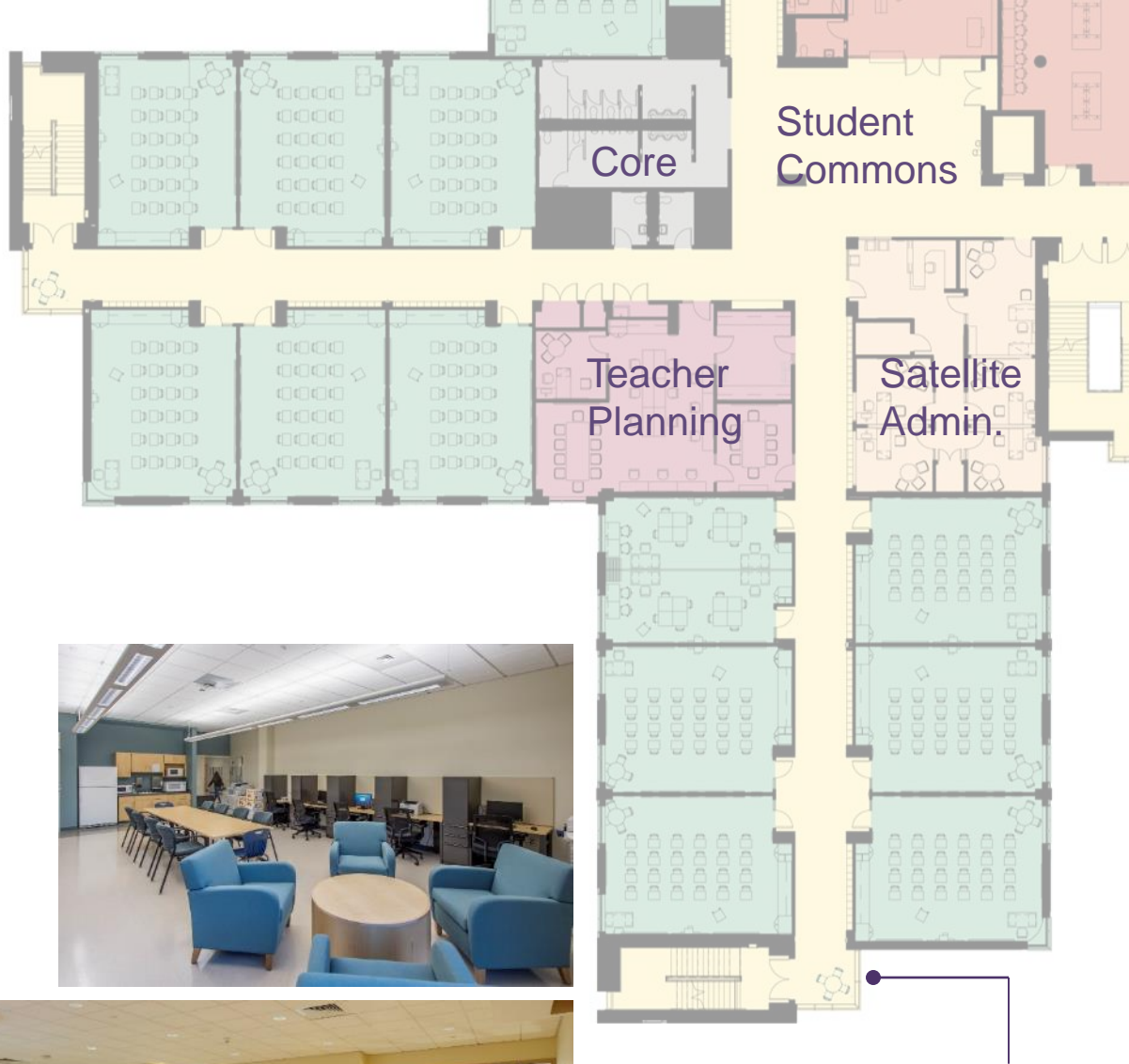
First Floor Plan

Learning Environment: A discrete alternative high school serving special needs students is a bridge program between high risk students and the daily high school use.



House Plans

Learning Environment: Each floor has been designed as an adaptive House Plan with focus on a central student commons area and meaningful adult/student interactions with teacher planning centers and an administrative suite with guidance and assistant principals offices all in close proximity. Technology is pervasive throughout the new High School and woven into all program areas. All classrooms have interactive whiteboards with integrated projectors, teacher podiums for laptops, multiple teaching surfaces, and laptop carts.



Short, Quiet
Academic Wings
– Daylit
– Active – out of
classroom spaces

Common Spaces

Physical Environment: At first glance the prime classroom wings appear as traditional double-loaded corridors, but great care was taken to make these wings very short and more pod-like with the greater concentration of gathering space located at the corridor nexus forming the commons areas allowing for the classroom wings, organized as House Plans for Humanities and STEAM Programs, to remain quiet and focused and the commons to be more interactive.



Common Spaces

Physical Environment: Large amounts of exterior glazing and interior borrowed lights have been designed into each classroom and doors have overhead operable transoms to increase daylight into the corridors as well as inducing natural cross ventilation.





Physical Environment: The project was designed to meet the State's Green School requirements as well as to achieve certification by the Massachusetts Collaborative for High Performance School (MaCHPS). The Town has taken its role as a steward of the environment and the school in specific as a teaching tool for the next generation of students. The Planning committee early on committed 1% of the total construction cost of the school towards sustainable design features.

- 12,000 sf green roof
- Two geothermal closed-loop wells to support limited year round (A/C) spaces for administration use
- Interactive data acquisition display system
- 40 KW solar PV rooftop array
- 100,000 gallons rainwater harvesting tank
 - Toilet flushing
 - Plant irrigation

Energy Efficiency & IEQ

Energy efficiency benefits the environment by reducing greenhouse gas emissions. The building's energy performance exceeds current energy code by 30%.

- A high performance building envelope, including glazing, insulation and thermal barriers reduces energy consumption.
- High efficiency condensing boilers, demand control ventilation and displacement ventilation significantly minimize energy use.
- A tempered air system lowers humidity in the gymnasium and limits need for air conditioning, air conditioning can be “switched” from the main school for major events such as graduation or large student gatherings.
- An energy management system controls energy use for all building systems and optimizes the building's energy efficiency.
- Building commissioning optimizes the performance of systems.
- High efficiency lighting and daylight and occupancy sensors are located throughout, and exterior LED lighting is significantly more energy-efficient than conventional lighting.
- Energy Star rated equipment is standard in the building.
- The 40 kilowatt (kW) photovoltaic system produces enough electricity to operate 900 laptop computers.
- A geothermal system provides heating and cooling year round for the administrative offices.
- An interactive lobby dashboard shows building energy use, water savings, photovoltaic array production and describes all the building's green features.



Energy Efficiency & IEQ

Indoor Environmental Quality (IEQ) is enhanced by the extensive use of natural light, access to exterior views and improved air quality.

- Window glazing, exterior sunshades and sloped classroom ceilings contribute to abundant daylight, exterior views and reduction of glare in classrooms and other spaces.
- Skylights provide filtered northern light to the art rooms and student commons.
- Daylight sensors adjust artificial lighting, responding to changes in natural light.
- Low-emitting volatile organic compounds (VOC) materials support better air quality in the building.
- Operable windows and transoms increase natural ventilation in the classrooms.
- Displacement ventilation in the auditorium and library improves air quality.

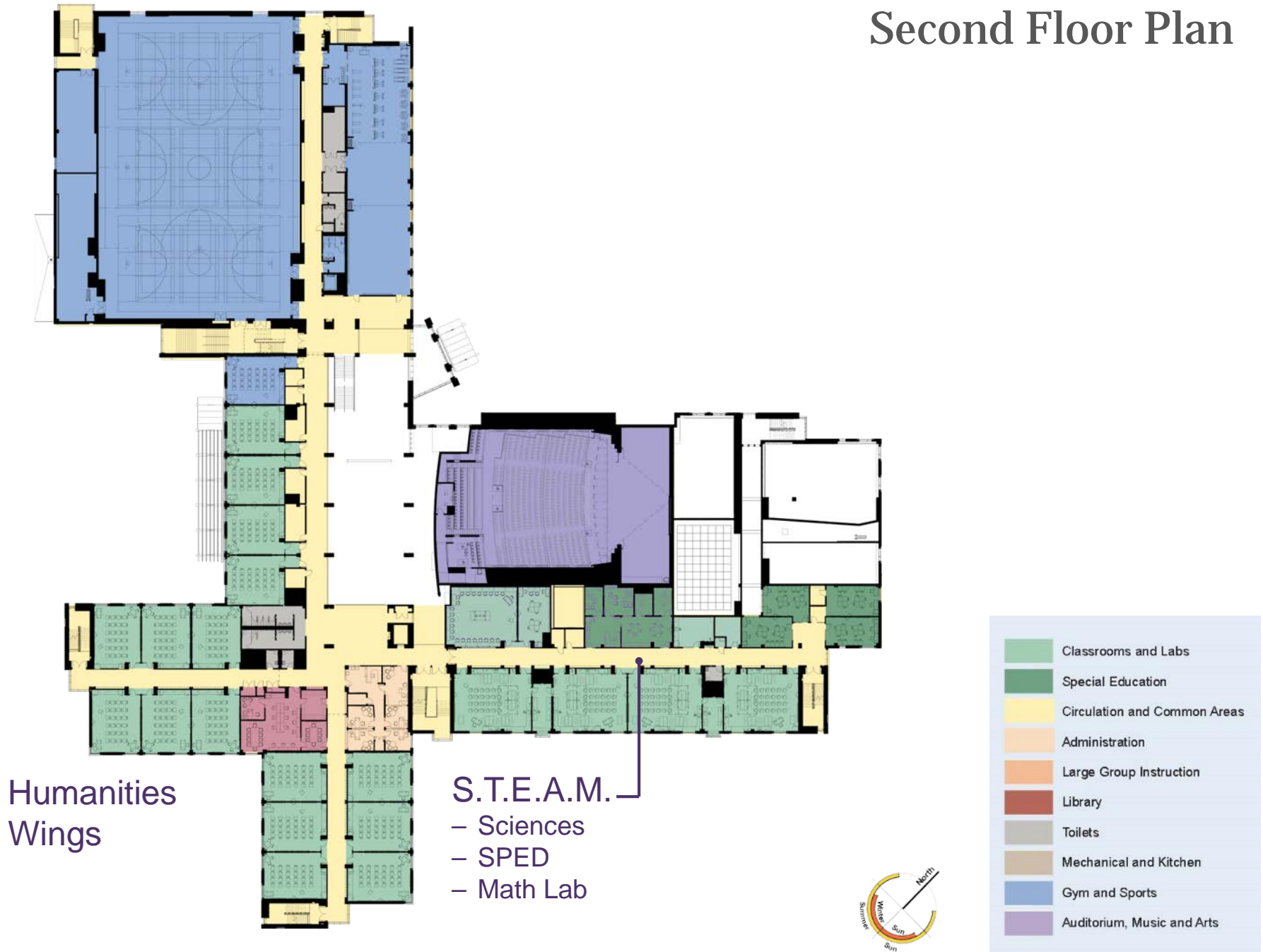


Sustainable Features

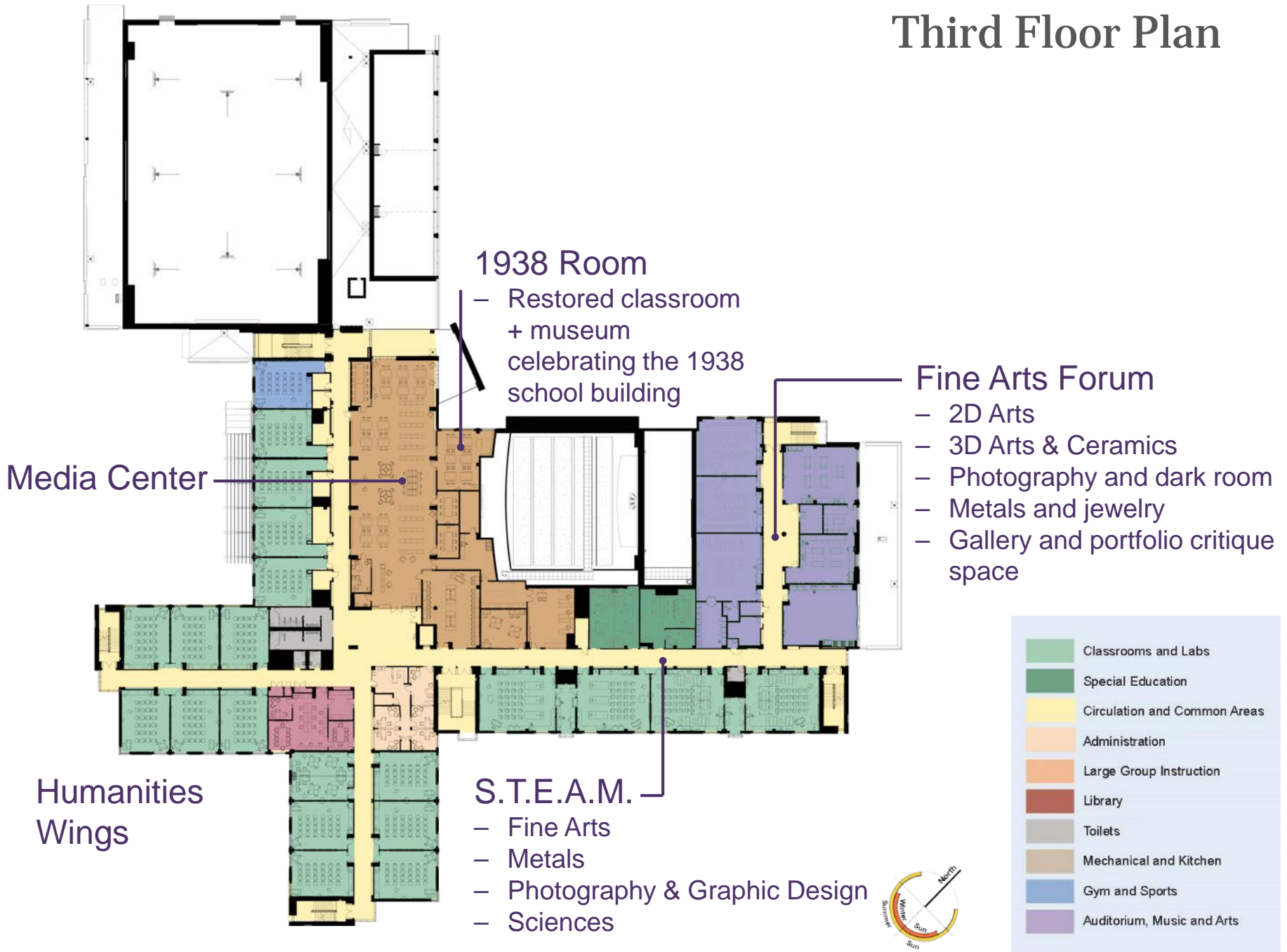
- 30% Energy performance beyond code
- 30% Water efficiency
- 50% FSC certified wood
- 93% Recycled construction waste
- 40 kW Photovoltaic system
- 7,000 sf Green vegetated roof
- 78% Daylighting and access to views
- 100,000 gallon rainwater harvesting system
Used in toilet flushing and irrigation
- 1,500,000 gallons potable water saved annually
- Geothermal heating and cooling system for administration area
- MA-CHPS certification for green schools
- Sunscreens, light shelves, and skylights throughout



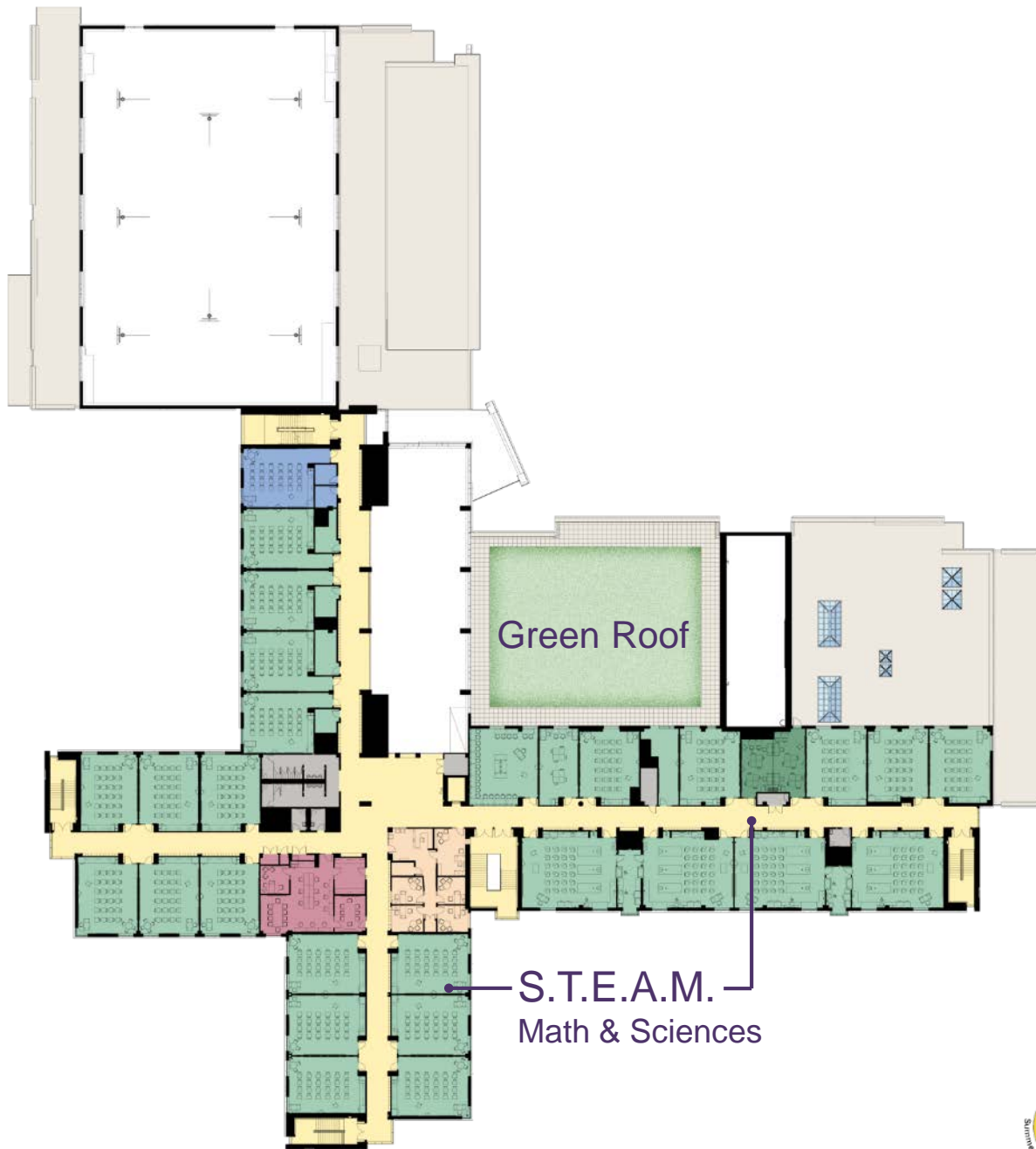
Second Floor Plan



Third Floor Plan



Fourth Floor Plan



	Classrooms and Labs
	Special Education
	Circulation and Common Areas
	Administration
	Large Group Instruction
	Library
	Toilets
	Mechanical and Kitchen
	Gym and Sports
	Auditorium, Music and Arts

Exhibition of School Planning and Architecture

Project Data

Submitting Firm :	Symmes, Maini & McKee Associates
Project Role	Architect/Engineering Firm
Project Contact	Alex C. Pitkin, AIA, LEED AP
Title	Principal, Senior Vice President
Address	1000 Massachusetts Ave.
City, State or Province, Country	Cambridge, Massachusetts 02138
Phone	617.547.5400

Joint Partner Firm:	Not Applicable
Project Role	
Project Contact	
Title	
Address	
City, State or Province, Country	
Phone	

Other Firm:	
Project Role	
Project Contact	
Title	
Address	
City, State or Province, Country	
Phone	

Construction Firm:	Turner Construction
Project Role	Construction Firm
Project Contact	Maureen Kirkpatrick
Title	Project Executive
Address	2 Seaport Lane
City, State or Province, Country	Boston, Massachusetts 02210
Phone	617.247.6400



Exhibition of School Planning and Architecture

Project Details

Project Name	Wellesley High School
City	Wellesley
State	Massachusetts
District Name	Wellesley School District
Supt/President	Dr. David Lussier
Occupancy Date	Spring 2012
Grades Housed	9-12
Capacity(Students)	1,600
Site Size (acres)	14 acres
Gross Area (sq. ft.)	280,000 sf
Per Occupant(pupil)	175
gross/net please indicate	1.45
Design and Build?	
If yes, Total Cost:	
Includes:	
If no,	
Site Development:	\$8,150,000
Building Construction:	\$94,604,000
Fixed Equipment:	\$4,776,900
Other:	\$22,469,100
Total:	\$130,000,000

