



Town of Concord

Concord Middle School

Middle School Building Committee

09.16.2021

**EWING
COLE** | SMMA

Project Goals Recap



Total Project Cost Range per RFS **\$80-\$100 M**
Total Project Cost maximum currently estimated **\$102 M**



Replace two middle schools with **one combined middle school**, grades 6-8



Design enrollment **700 Students**



Team Teaching Model, meet **Ed Plan**



Design for **Net Zero Energy**

Primary Goal:
Consolidate two middle school populations **into a single, 21st century learning facility** that will serve the community for generations.



Design Subcommittee

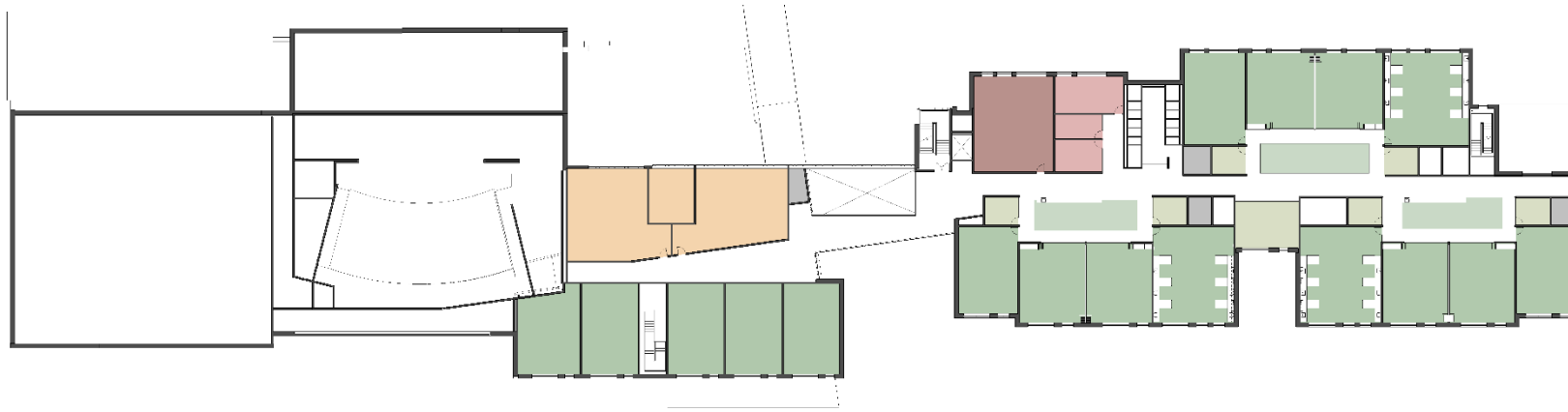
September 14, 2021



- Classroom
- Team Commons
- Special Education
- Vocation/Tech Classroom
- Administration
- Guidance
- Nurse
- Media Center
- Auditorium
- Music
- Art
- Physical Education
- Cafeteria

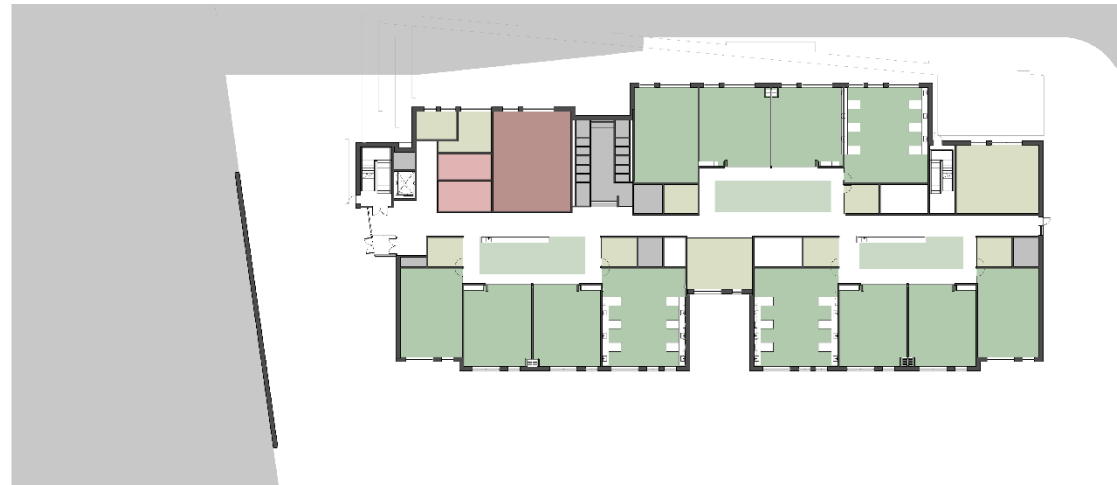


GROUND FLOOR PLAN



- Classroom
- Team Commons
- Special Education
- Vocation/Tech Classroom
- Administration
- Guidance
- Nurse
- Media Center
- Auditorium
- Music
- Art
- Physical Education
- Cafeteria

UPPER-LEVEL PLAN



LOWER-LEVEL PLAN











Interior materials will be selected **conscious of the projects budget, sustainability and long-term building maintenance goals.**

The interior design will **relate to the exterior design and palette.** Glazing on the exterior will create a visual and physical connection to the interior.

The building has been designed to encourage student engagement within academic clusters and common areas. Patterns, colors and materials will **provide wayfinding and encourage movement throughout the space.**

The interior design will be a **neutral palette with complementary accent colors.**



Technical Performance

- Optimize Daylighting
- Maintain High Energy Efficiency
- Durability and Maintenance
- Recycled Content
- Acoustic Performance
- Low Emitting Materials

Cost Effectiveness

- Design for Repetition and Ease of Construction
- Prioritize Material Cost

Aesthetics

- Design for 21st Century Learning
- Express Educational Vision and Aspiration
- Timeless and Age Appropriate

Sustainability Performance

- Materials
 - Sourcing of Raw Materials
 - Recycled Content
 - EPD's & HPD's
 - Low Emitting Materials
- Enhanced Indoor Air Quality
 - Interior Lighting
 - Artificial Lighting
 - Daylighting
- Acoustic Performance

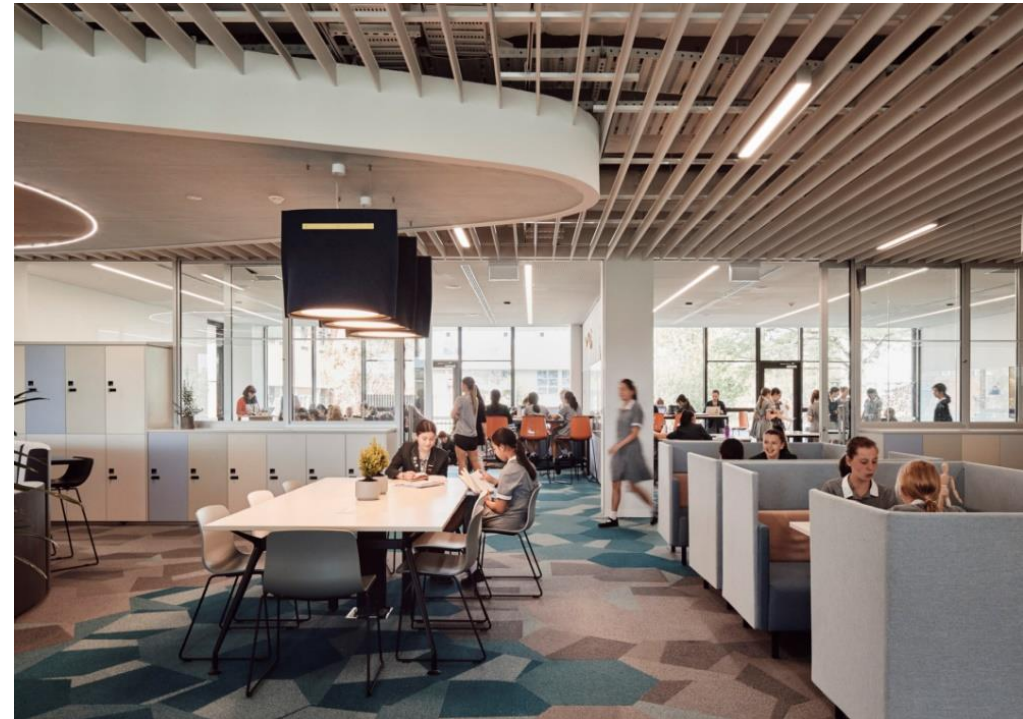


Diagram of Floor Materials

- Linoleum
- Porcelain Tile or Epoxy Resinous
- Wood
- Sealed Concrete
- Carpet Tile
- Walk Off Carpet

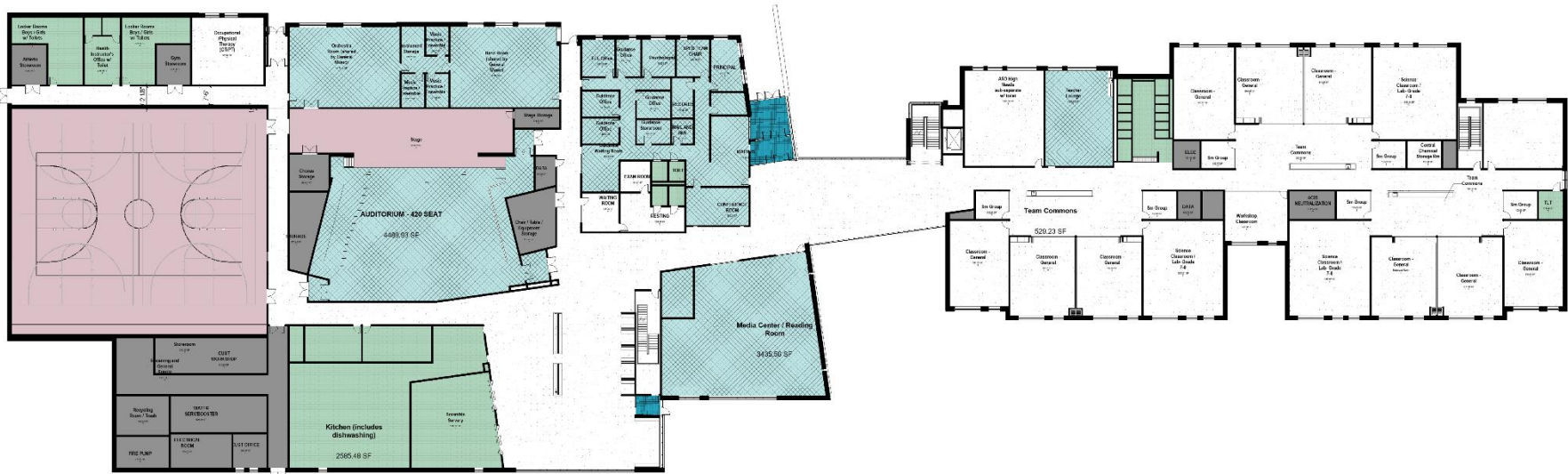







Diagram of Ceiling Materials

-  Acoustic Ceiling Tile
-  Food Service Ceiling Tile
-  Wood Look Metal Ceiling
-  Exposed Metal Deck
-  Painted Gypsum Ceiling

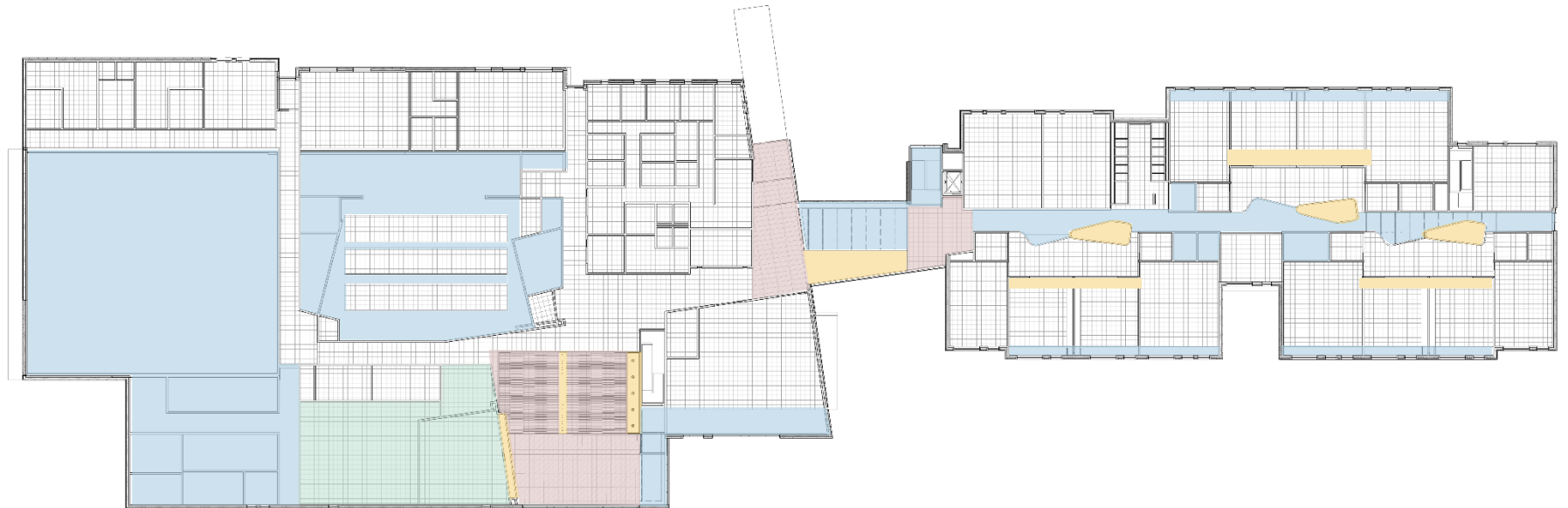
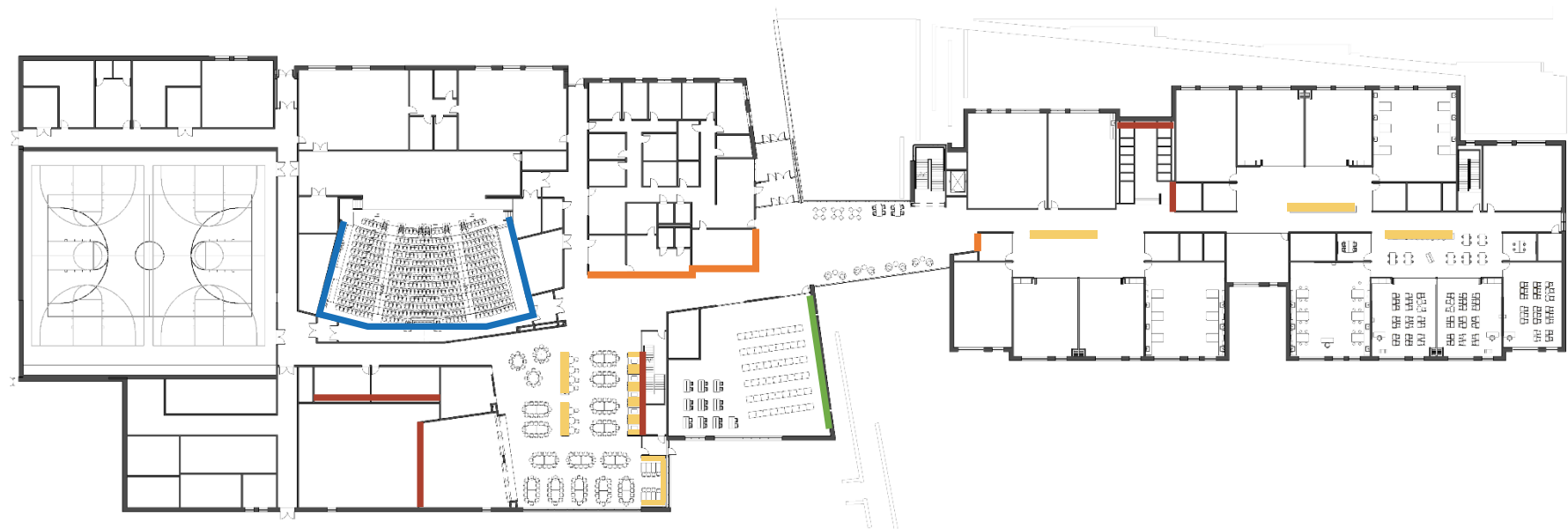


Diagram of Wall Materials

- Ceramic Tile Wainscot in Corridors
- Wall Graphic
- Full Height Accent Tile
- Millwork Bench
- Acoustic Wall Treatment
- Acoustic Panel















TEAM COMMONS

14 SEPTEMBER 2021

CONCORD MIDDLE SCHOOL



Life Cycle Cost Analysis

Sustainability Subcommittee: September 20, 2021

Life Cycle Cost Analysis Update

Building Energy Systems

Initial Project Cost & Payback Analysis							
System Options		Installation Costs	Incremental costs		Predicted Annual Savings	Predicted EUI	Predicted GHG Emissions Reduction
		(\$)	(\$)	(%)	(\$)	kBtu/SF/yr.	(%)
Scenario 1 (Proposed Design)	VRF/ASHP HEATING & COOLING + DOAS	\$11,306,709				25.1	42.4%
Scenario 2	VRF/ASHP HEATING & COOLING + DOAS + DISPL. VENT (Audit.)	\$11,729,709	\$423,000	3.7%	(\$1,669)	25.4	41.8%
Scenario 3	GEOHERMAL HEATING & COOLING + GEOHERMAL DOAS	\$14,871,709	\$3,565,000	31.5%	\$2,053	24.8	43.1%

NOTE: Geothermal will not be possible without impact to schedule, due to site constraints

Life Cycle Cost Analysis Update

Building Energy Systems relative to MA Stretch Code

Initial Project Cost & Payback Analysis								
System Options		Installation Costs	Incremental costs		Predicted Annual Savings	Payback	Predicted EUI	Predicted GHG Emissions Reduction
		(\$)	(\$)	(%)	(\$)	(Yrs.)	kBtu/SF/yr.	(%)
Base Case (Stretch Code)	ALL ELECTRIC PACKAGED DX DOAS + DX HEAT PUMP HEATING/COOLING	\$10,128,910					43.6	
Scenario 1 (Proposed Design)	VRF/ASHP HEATING & COOLING + DOAS	\$11,306,709	\$1,177,799	1.2%	\$122,464	9.6	25.1	42.4%
Scenario 2	VRF/ASHP HEATING & COOLING + DOAS + DISPL. VENT (Audit.)	\$11,729,709	\$1,600,799	1.6%	\$120,794	13.3	25.4	41.8%
Scenario 3	GEOHERMAL HEATING & COOLING + GEOHERMAL DOAS	\$14,871,709	\$4,742,799	4.7%	\$124,516	38.1	24.8	43.1%

NOTE: Geothermal will not be possible without impact to schedule, due to site constraints

16 SEPTEMBER 2021

CONCORD MIDDLE SCHOOL

Life Cycle Cost Analysis Update

Building Energy Systems – 50 yr. Life Cycle Analysis

Life Cycle Cost Analysis (50 yrs) - HVAC Systems & Building Enclosure								
		System Costs as Present Value					Predicted EUI	Predicted GHG emissions Reduction (%)
		Installation	Replacement	Maintenance	Energy	50-Year Life	kBtu/SF/yr	
Scenario 1 (Proposed Design)	VRF/ASHP HEATING & COOLING + DOAS	\$11,306,709	\$5,530,200	\$581,493	\$4,278,024	\$21,696,000	25.1	42.4%
Scenario 2	VRF/ASHP HEATING & COOLING + DOAS + DISPL. VENT (Audit.)	\$11,729,709	\$5,745,440	\$594,358	\$4,320,978	\$22,390,000	25.4	41.8%
Scenario 3	GEOTHERMAL HEATING & COOLING + GEOTHERMAL DOAS	\$14,871,709	\$4,773,719	\$800,196	\$4,225,206	\$24,671,000	24.8	43.1%

NOTE: Geothermal will not be possible without impact to schedule, due to site constraints



Upcoming Meetings

Meetings

CMSBC – Thursday, September 16th

- Exterior and Interior Design refinements
- Mechanical Systems update

CMSBC – Thursday, October 7th

- SD Pricing Submission Content
- Proposed Value Management List
- Furniture and Technology Scope and Budget

-----[2.5 weeks Estimating and SD Report Review]-----

CMSBC – Friday, November 5th

- Review Reconciled Estimates / Project Cost
- Discuss Value Management (VM) Recommendation
- Vote VM Recommendation

CMSBC – Friday, November 12th

- Vote to approve Schematic Design Scope and Budget

A stylized map background featuring green areas, white lines, and two orange markers. One marker is a large 'F' shape in the upper right, and the other is a large 'X' shape in the lower left.

Thank you!