

MSBA Story of a Building
Embracing Change
Saugus Middle High School
Saugus, MA

May 25, 2022

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Saugus Representatives

Scott Crabtree

Town Manager, Saugus, MA

Michael Hashem

HS Math Teacher, Saugus Middle High School
(Formerly Saugus HS Principal & Interim Superintendent)

Former Saugus MS & HS



HMFH Architects



Tina Stanislaski

AIA, LEED AP

Principal



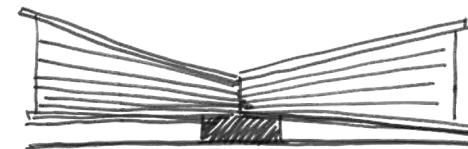
Gary Brock

AIA, LEED BD+C,

Project Architect

Overview: Town Identity

- Strong sense of history and town pride



Iron Works (bellows)

- DATE OF TOWN SETTLEMENT: 1629
- DATE OF TOWN INCORPORATION: 1815
- CURRENT POPULATION: 28,361
- TOTAL AREA: 11.8 sq mi
- DISTANCE FROM BOSTON: 10 mi

Overview:

- 10 miles from Boston along Route 1



FACILITY SIZE:

- 271,000 SF

SITE SIZE:

- 21.75 acres

% ENERGY REDUCED FROM BENCHMARK:

- 26%

% REDUCTION IN ENERGY COSTS:

- 33%

CARBON REDUCTION:

- 48.7 tons/yr

CERTIFICATION:

- LEED Platinum

ENROLLMENT:

- 1,360 students

GRADES:

- 6-12

OF MIDDLE SCHOOL STUDENTS:

- 644

OF HIGH SCHOOL STUDENTS:

- 716

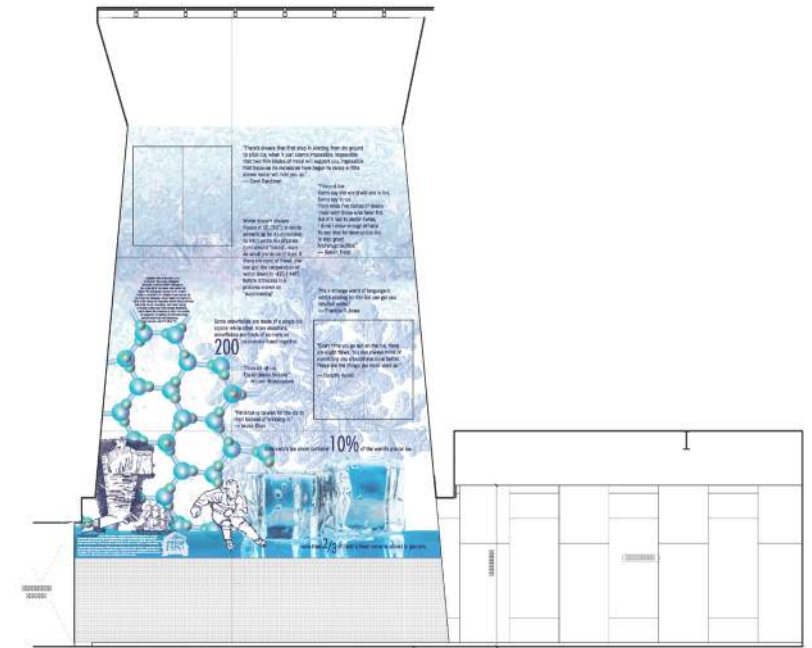
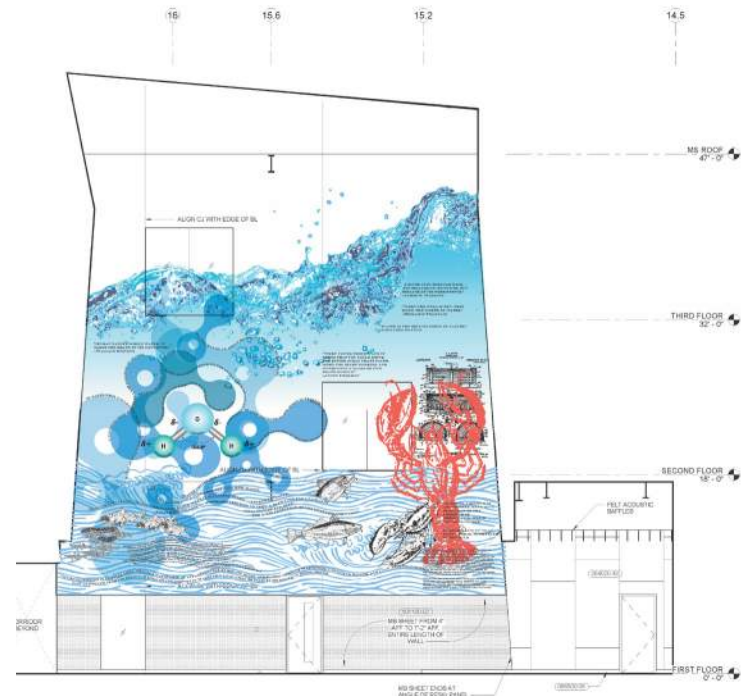
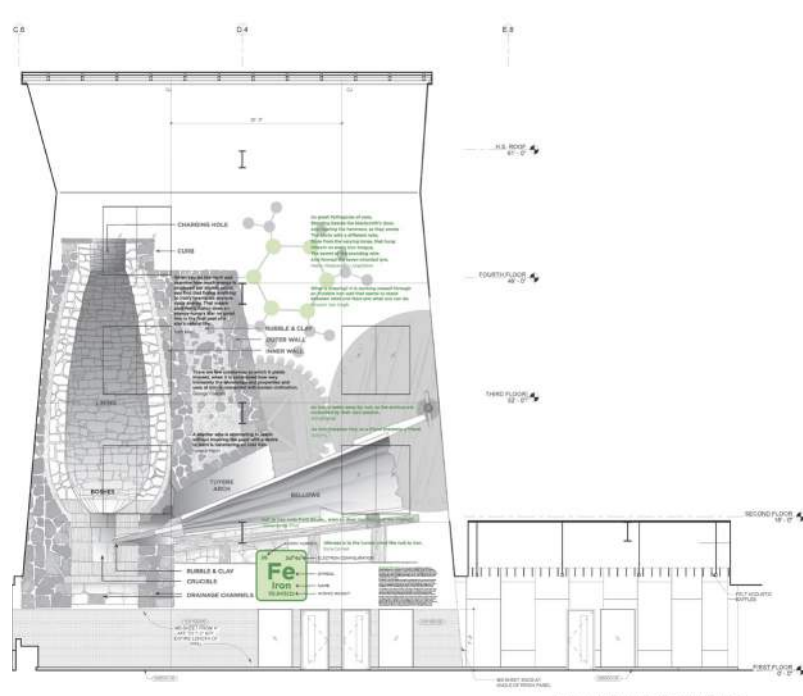
TOTAL PROJECT COST:

- \$140,205,976

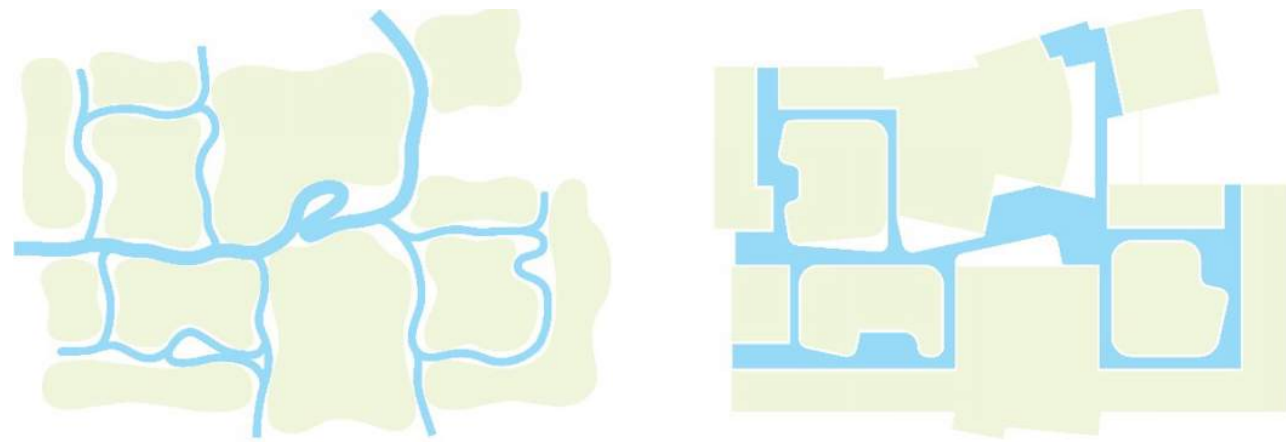
DATE OF OCCUPANCY:

- 08/01/2020

Overview: Town History on Display

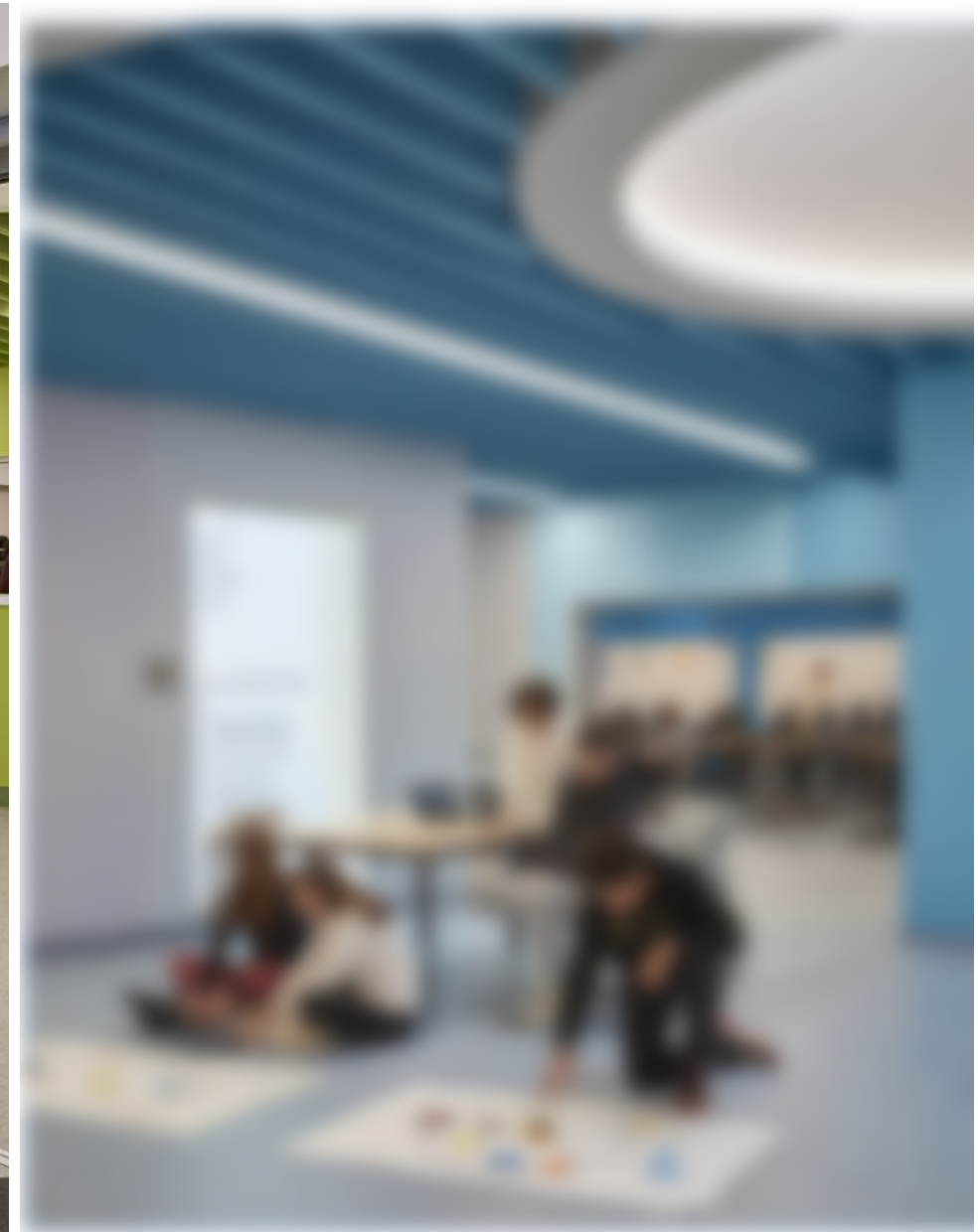


Process: Design Inspired by Local Environment and History



Process: Educational Planning & Project Goal Setting

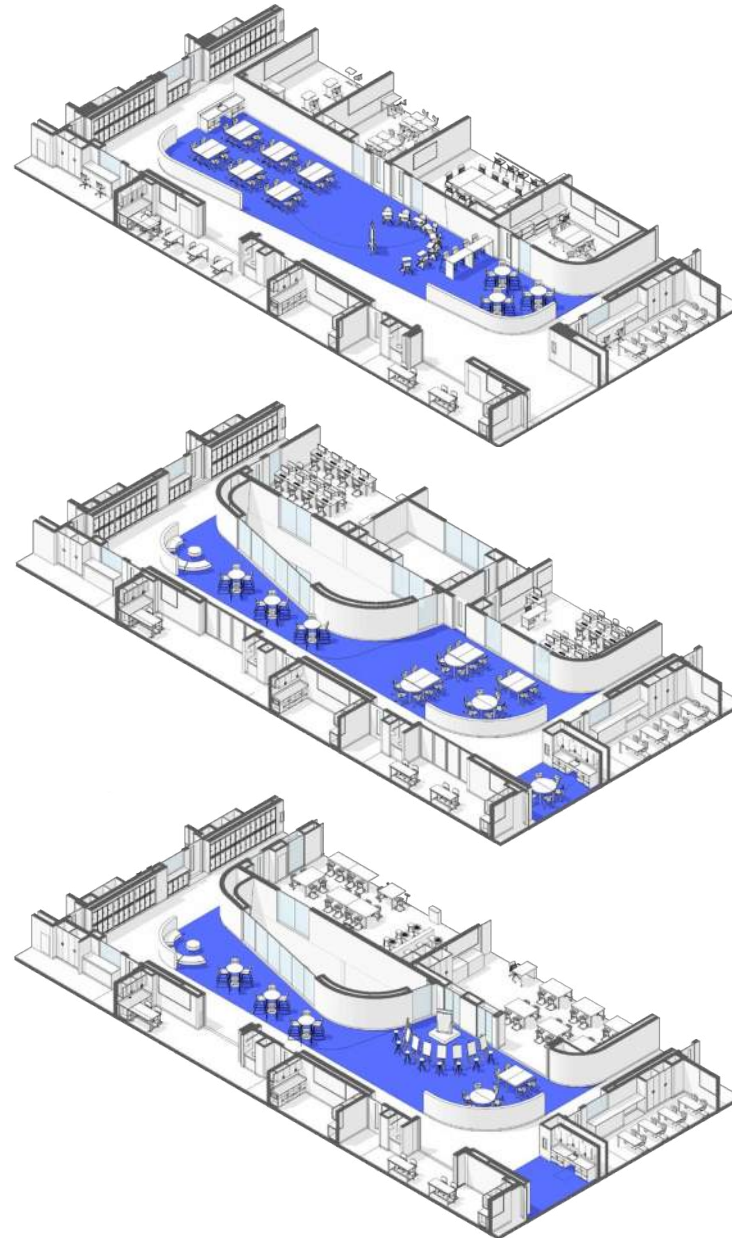
- Consolidation of facilities
- Conserve resources
- Allow for flexibility
- Maximize return on investment



Process: Educational Planning Holistic Approaches

REDACTED

Fostering Social/Emotional Well-being

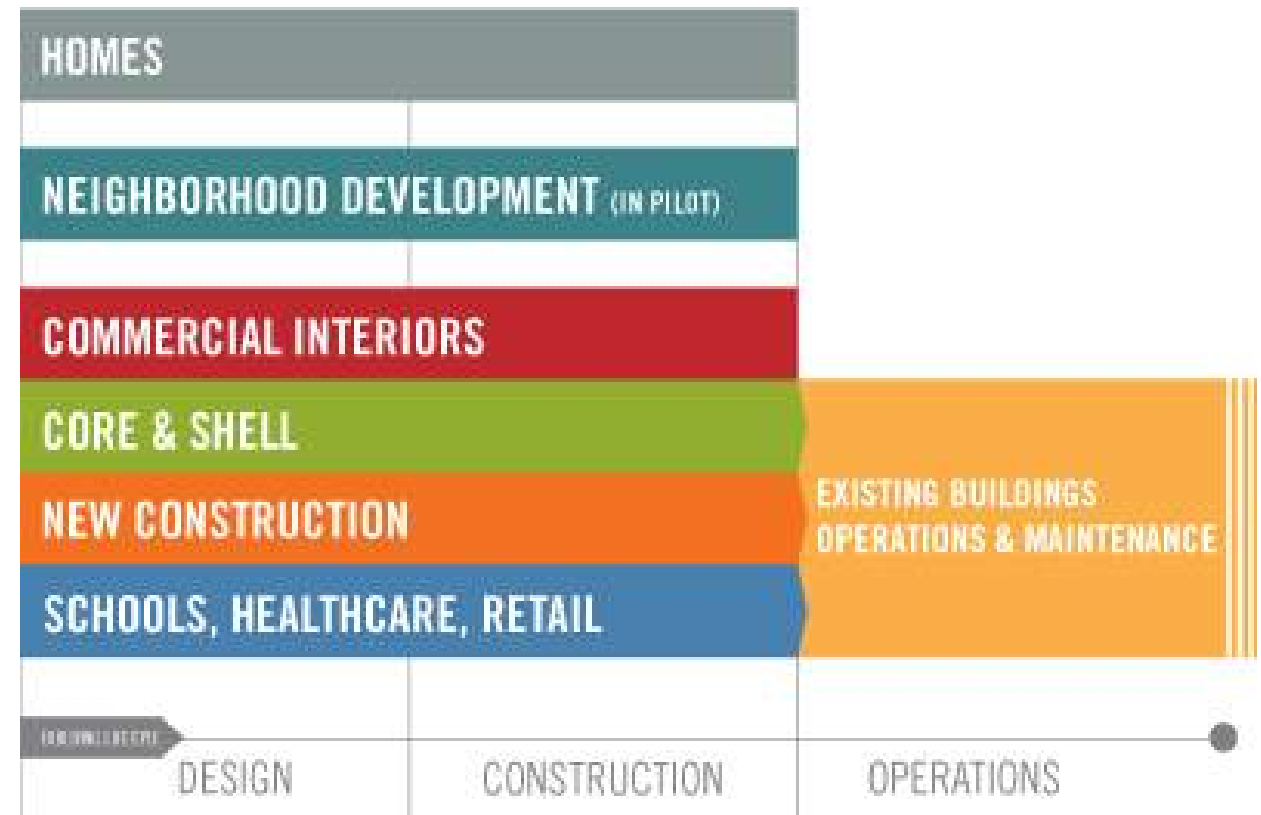
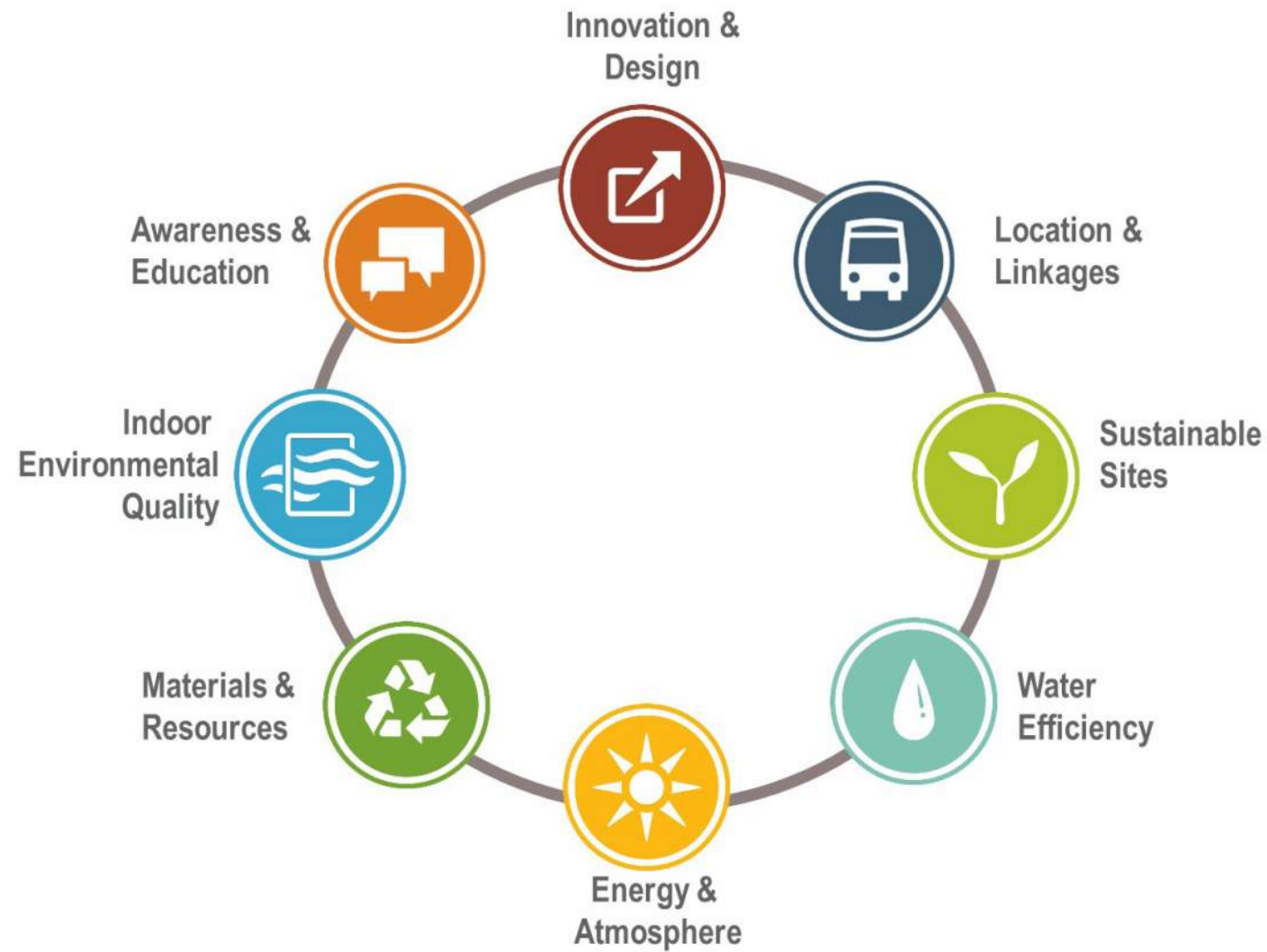


Saugus Middle High School: 1st LEED Platinum Certified MSBA Project

- Working with the community
- Establishing Goals
- Begins with a master plan for school district



What is LEED?



What is Sustainability?

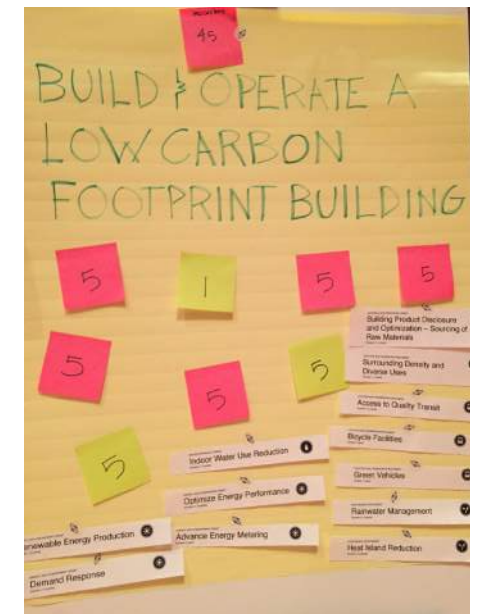
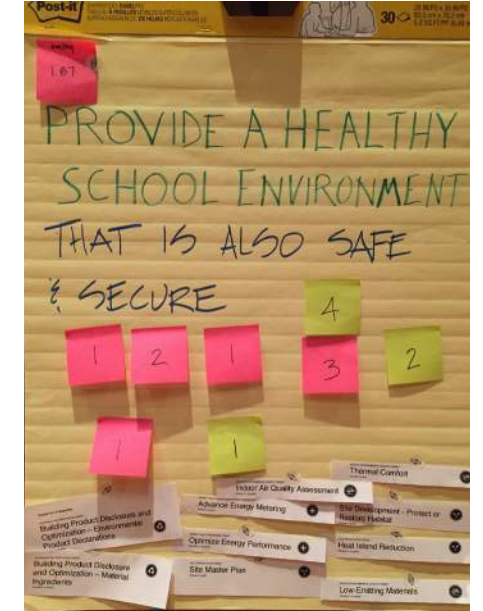
Conserving resources for future generations... one project at a time



Process: Sustainability Goals

	Health & Well-being	Energy	Water	Waste
GOALS	<p>90% Regularly Occupied Spaces have Access to Daylight & Views</p> <p>Choose healthy materials with transparency labels</p>	<p>Reduce consumption by 20% or more</p>	<p>35% Indoor Water Use Reduction</p>	<p>Comprehensive Composting program</p>
STRATEGIES	<p>Windows/Skylights/Clerestory</p> <p>Well Planned Core Learning</p> <p>Green Roofs</p> <p>Natural Materials</p> <p>Good Acoustic Properties</p> <p>Good IEQ</p>	<p>Improve Energy Efficiency</p> <ul style="list-style-type: none">o Envelope Improvementso Energy Recovery <p>Improve Resiliency</p>	<p>Rainwater Harvesting</p> <ul style="list-style-type: none">o Irrigationo Flushing Toilets & Urinals	<p>Kitchen Food Sorting</p> <p>Industrial Compost</p>

Process: Charrettes/Brainstorming



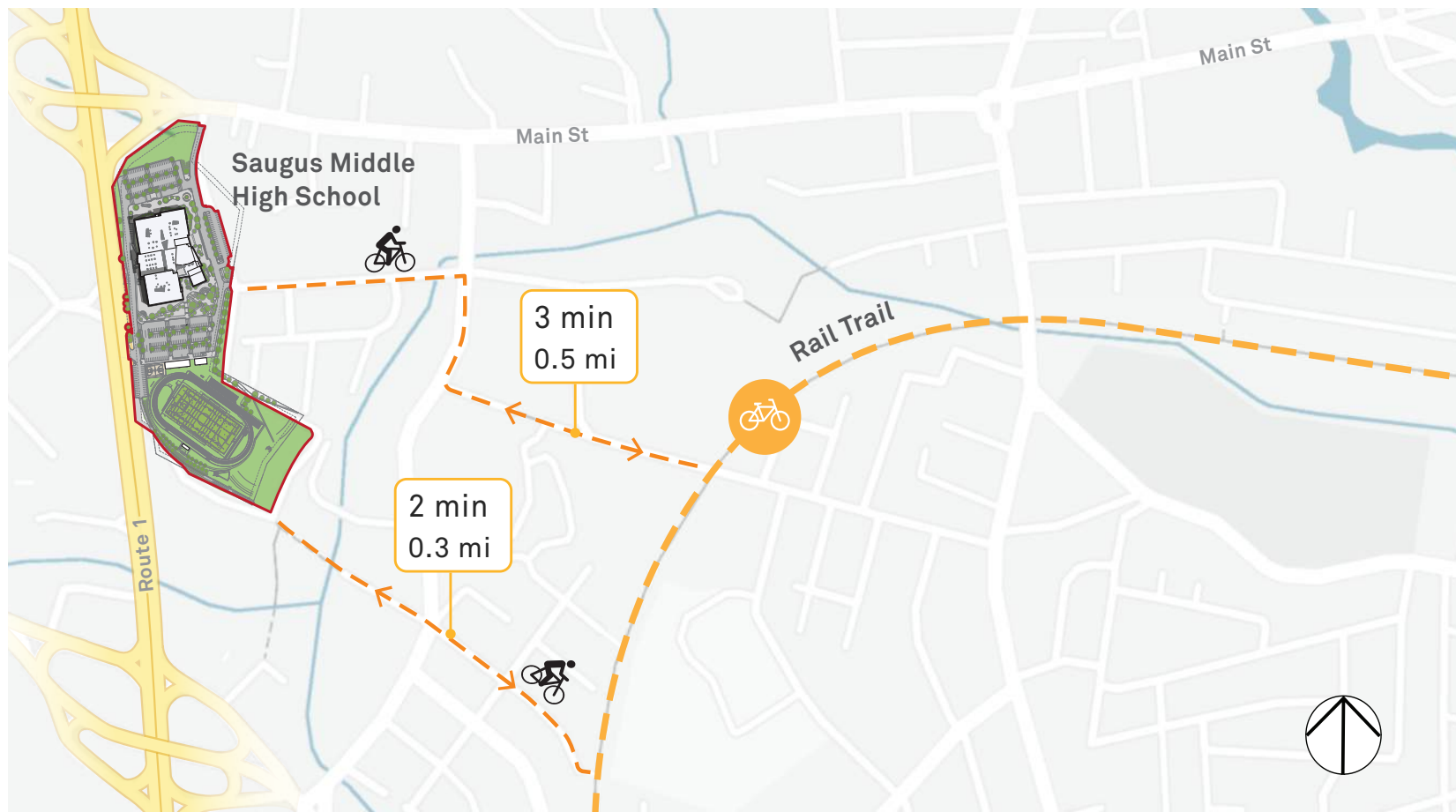
Health Sustainability Goals

- Material transparency
- Embodied carbon
- Daylighting
- Air quality
- Acoustics



Health: Community Resource

- Community Spaces
- Athletic facility and bike trails



Health: Indoor-Outdoor

- Tunable white light in Life Skills classrooms
- Outdoor classroom and green roof

REDACTED

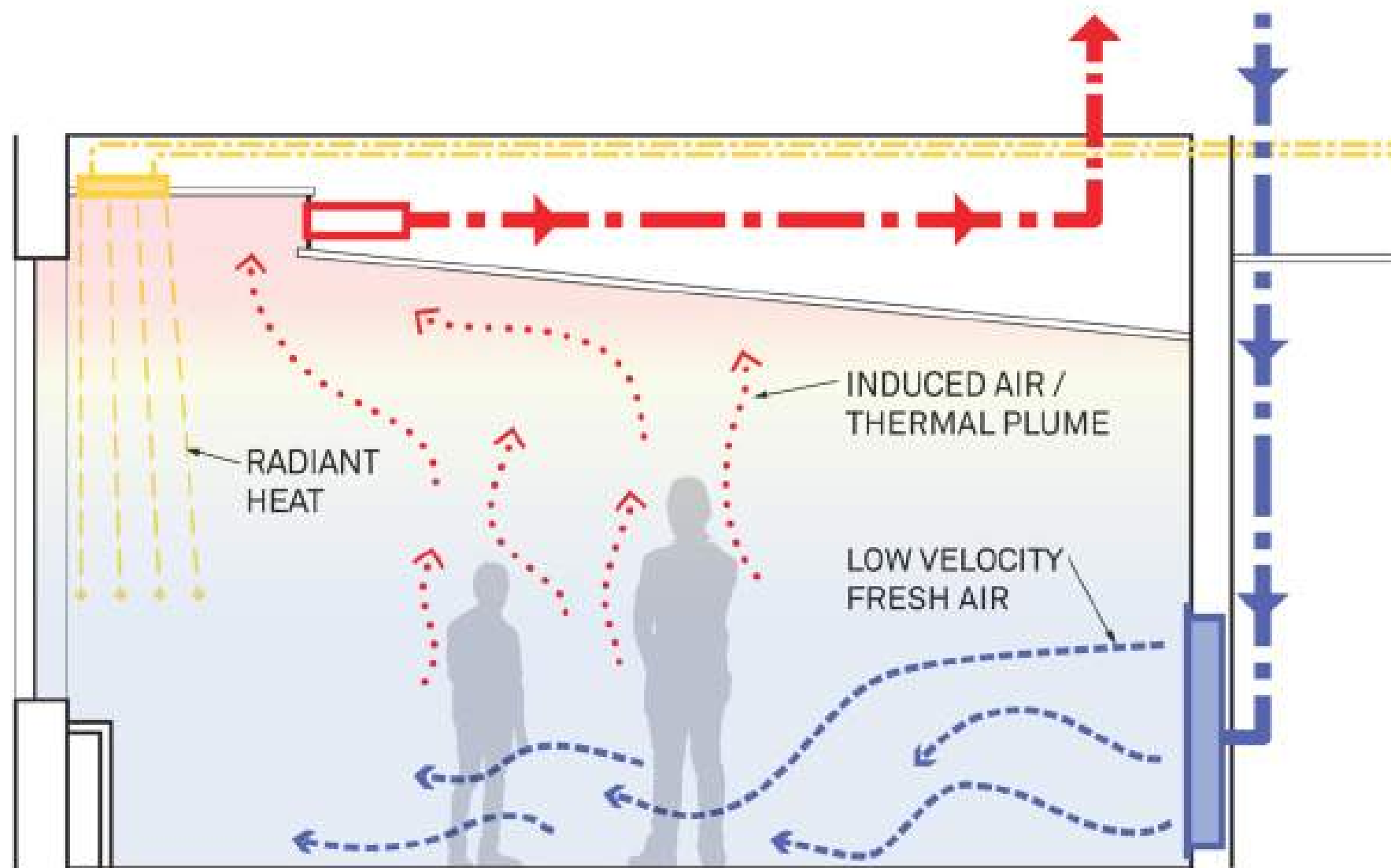


Boston Medical Center



Saugus Middle High School

Health: Air Quality



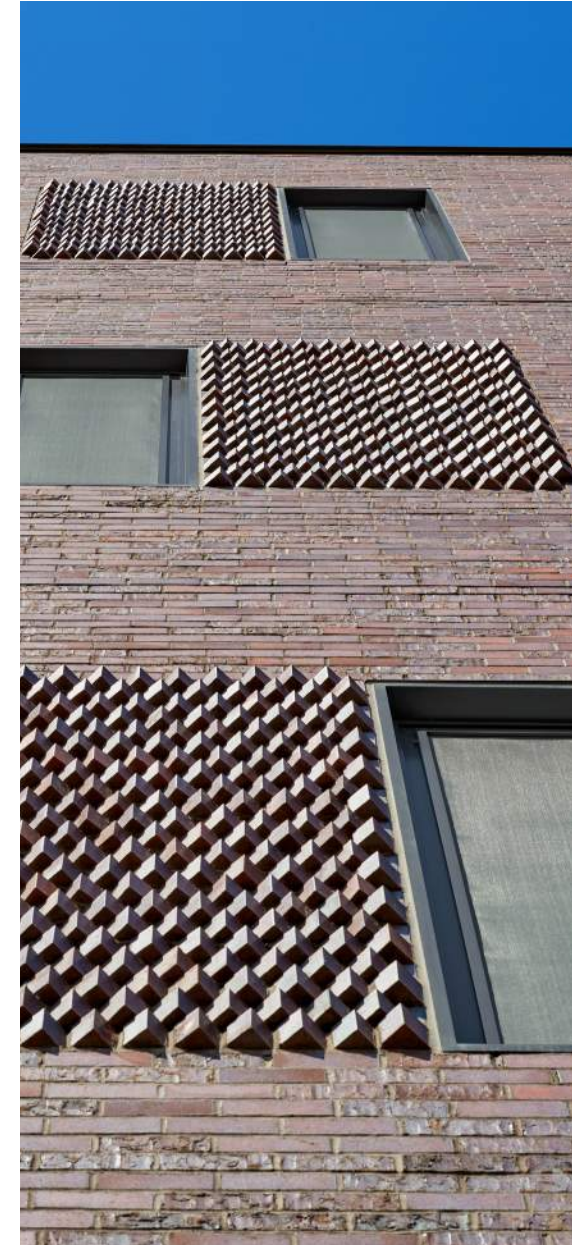
Displacement Ventilation



Ductless Fume Hood

Health: Acoustics

- Exterior material as buffer
- Interior partitions and flexibility



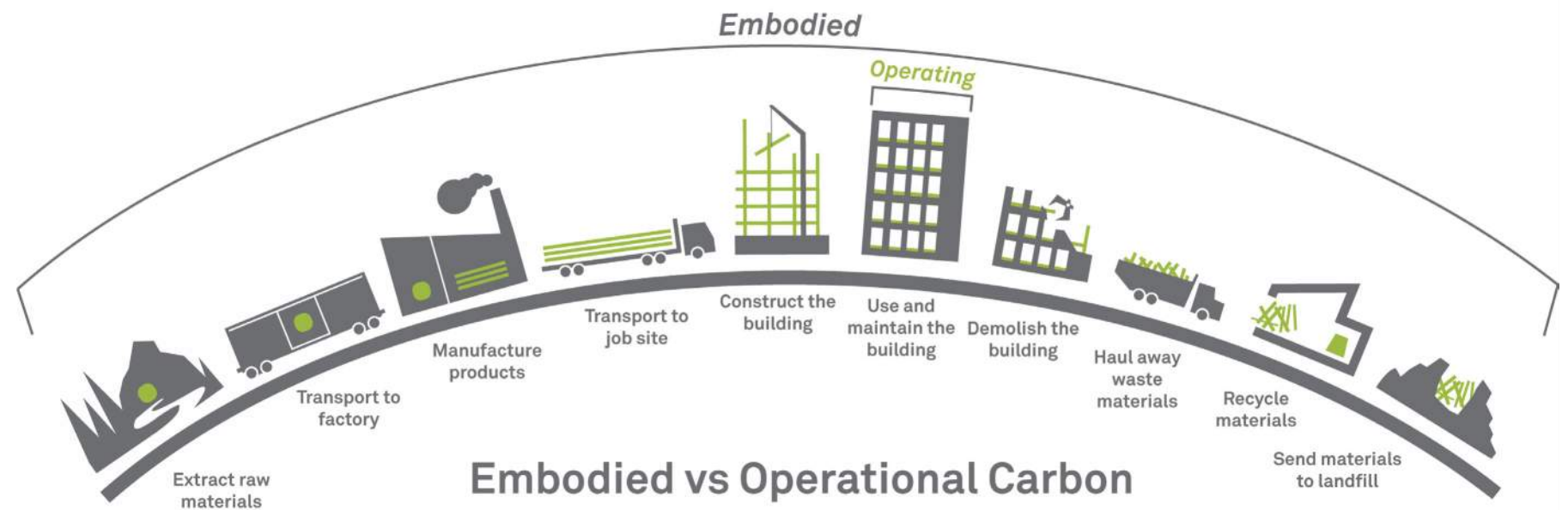
Health: Material

- Material transparency - Environmental Product Declarations, Health Product Declarations (EPD, HPD)
- Whole building life cycle analysis (LCA) - Embodied Carbon
- Optimizing material strengths for greatest efficiency



Energy Sustainability Goals

- Set EUI goals
- On-site generation
- Lowering carbon footprint
- All-electric building
- Net zero energy
- Net positive energy



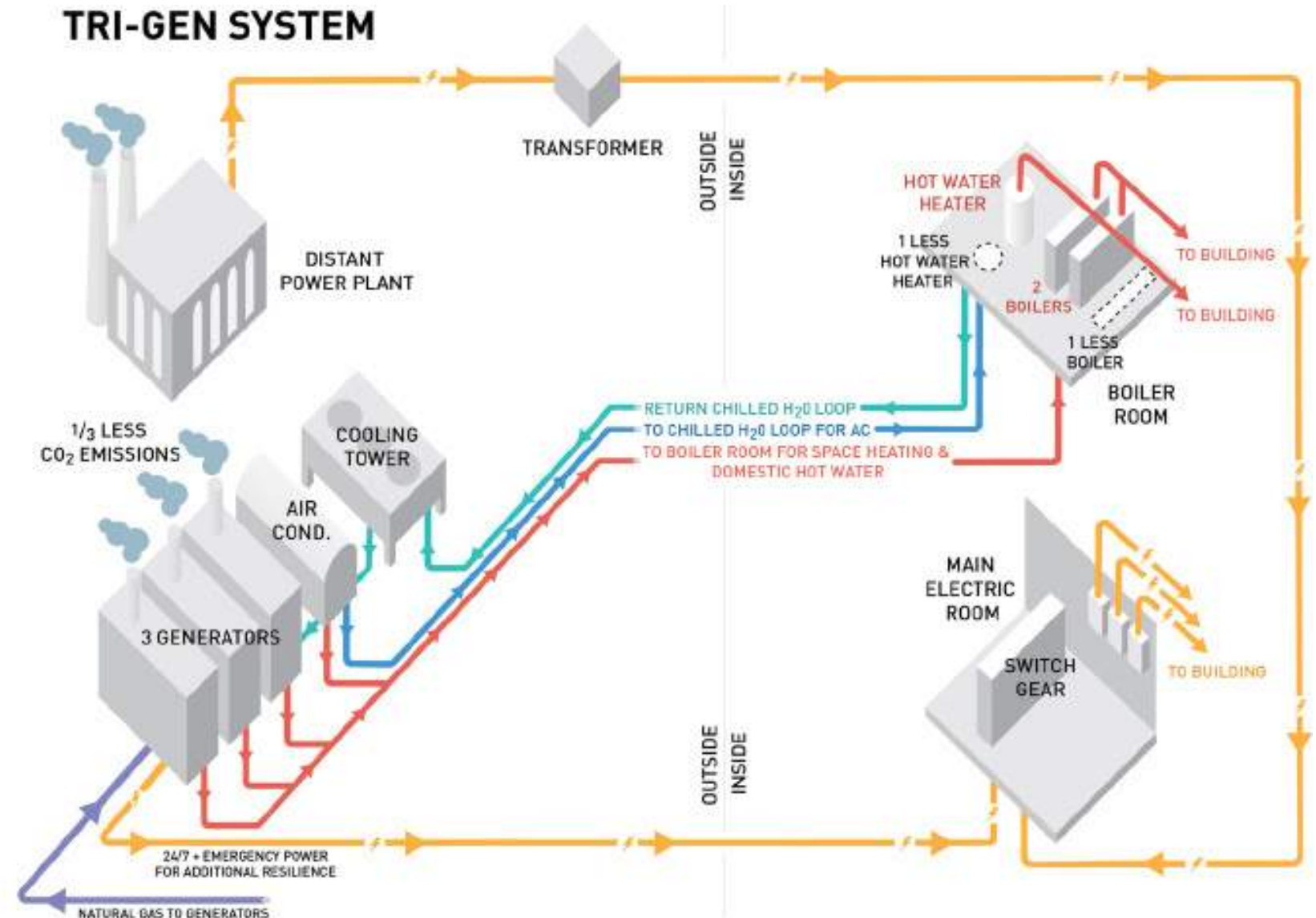
Energy: Solar



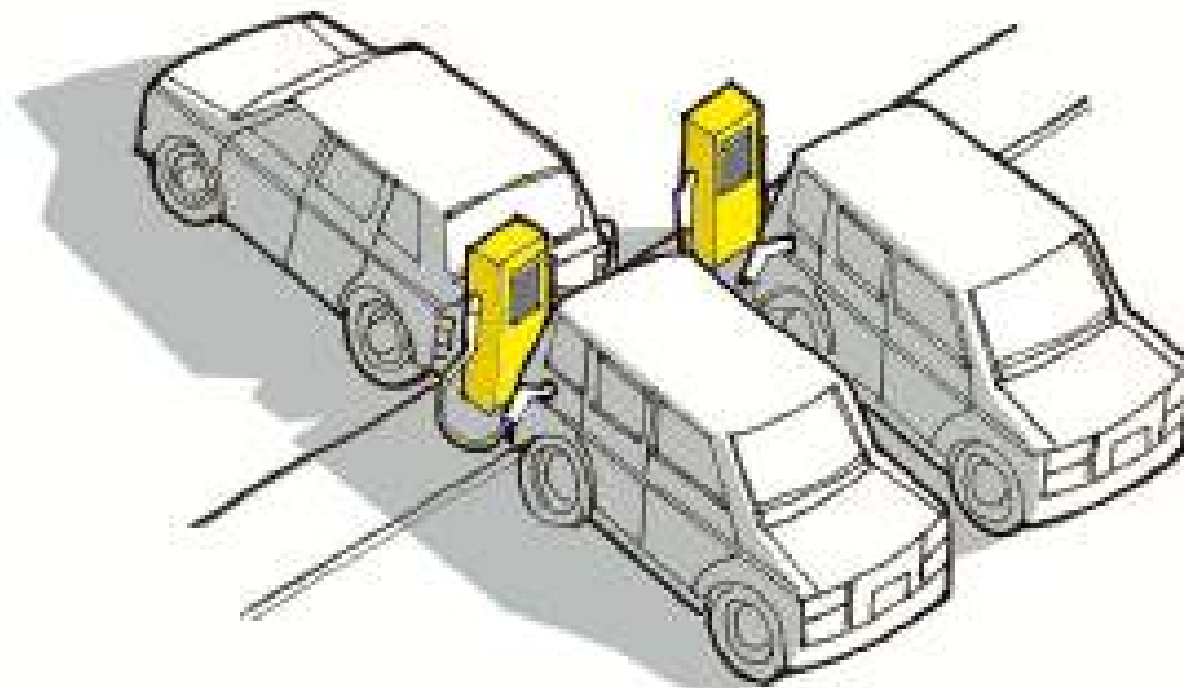
Solar Farm at Sagus Public Works

Energy: Efficiency

- Combined Heat and Power (CHP) - Tri-Gen includes cooling
- Resiliency:
 - CHP is also emergency backup
 - Abundant daylighting
 - Operable windows



Energy: Accommodating Electric Vehicles

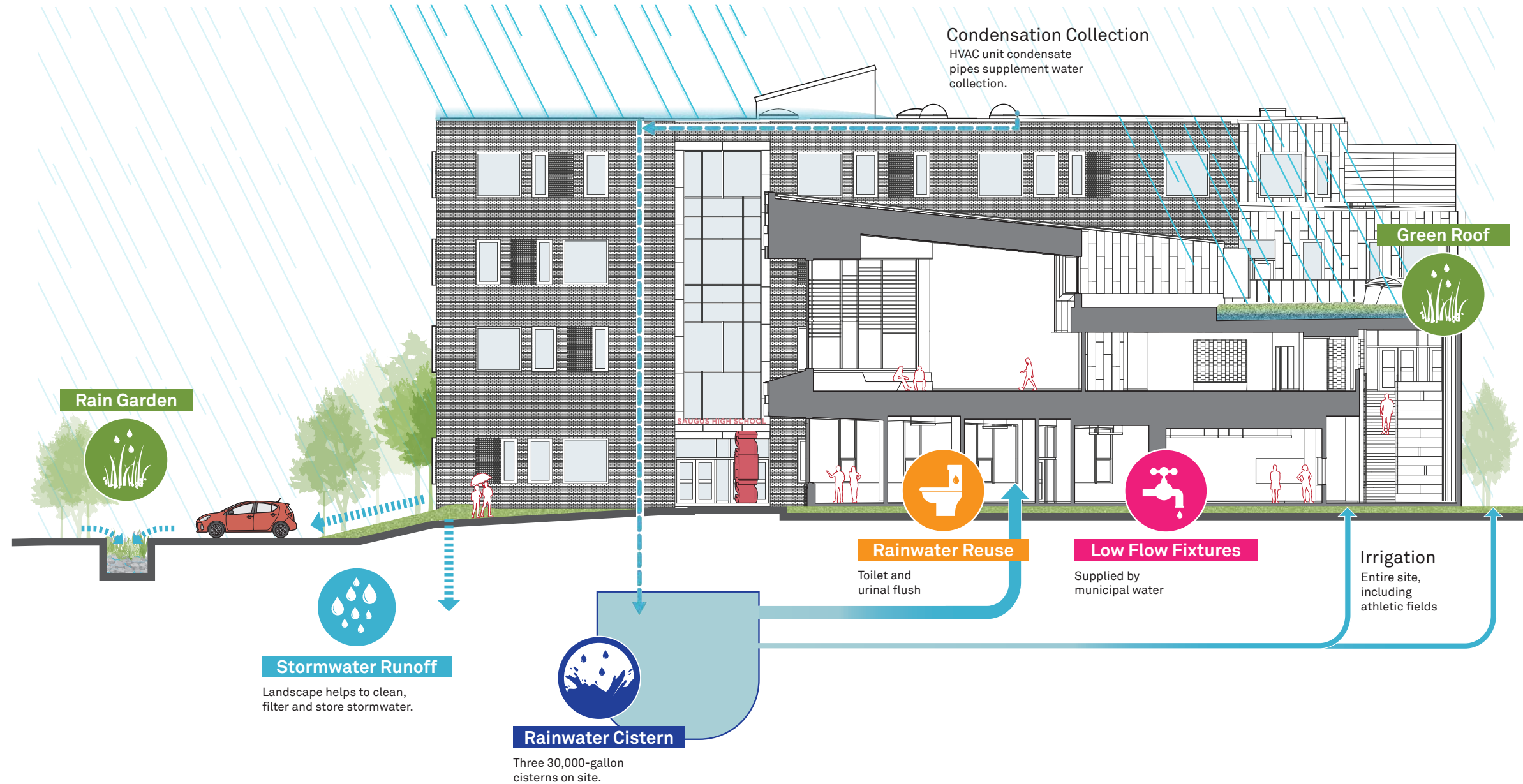


Water Sustainability Goals

- Water use reduction
- Stormwater management
- Protection of local area
- On-site processing



Water: Stormwater Management



Water: Site Water

- Clean stormwater
- Reduce rate of stormwater runoff
- Reduce heat island effect
- Bridges improve pedestrian safety
- Aesthetic benefits

REDACTED

Water: Stormwater Structures



Water: Rain Gardens



Water: Reuse

Stormwater reuse expected to save more than **1,500,000** gallons of water per year
= **12,000,000 16oz water bottles**



BLUE WATER

To conserve drinking water, Saugus Middle High School uses **reclaimed stormwater** to flush our toilets. As a condition to permitting this innovative water conservation effort, state plumbing inspectors require the use of **blue** dye to easily identify the non-potable water.

Do not drink reclaimed water.



Waste Sustainability Goals

- Diversion rate, construction and occupancy
- Education around waste reduction
- Collaboration with community
- Stringent waste management



Waste: Construction Waste



Waste: Composting & Recycling

- On-site compactors
- Send compost to local farm



Composting diverts another 50% of trash from landfills for a variety of potential uses.

COMPOST →

ACCEPTABLE FOOD:
ALL VEGETABLES & FRUITS
BREAD, BREADS & PANES
MEATS, SEAFOOD, EGGS
BONDS, CHEESE, BUTTER
COFFEES & TEAS
SPICES & HERBS

ACCEPTABLE PAPER PRODUCTS:
HOUSEHOLD TOILET PAPER, WIPES
KITCHEN PAPER TOWELS & FILTERS
PAPER

OTHER ACCEPTABLE PRODUCTS:
COMPOSTABLE PLASTIC FOOD PRODUCTS (CERTIFIED BY US COMPOSTING COUNCIL,
INDUSTRIAL PROCESS & POTTY TOILETS
HOUSEHOLD APPLIANCES (WASHERS, DRYERS)
APPLIANCES PARTS FOR REPAIRABLE PRODUCTS
AUTO TIRE TREADS, CARPETING, FLOORING, INSULATION, CEILING, WALLS, ROOFING
PAINTS & STAINING MATERIALS
PLASTICS & RUBBER (NO STYROFOAM)
HOUSEHOLD APPLIANCES (WASHERS, DRYERS)

UNACCEPTABLE MATERIALS:
FLAMMABLE LIQUIDS
Hazardous Liquids
& Solvents
& Automotive Fluids (Antifreeze, Oil, Grease, etc.)
& Car Batteries
& Car Tires
& Car Parts
& Car Seats
& Car Seats
& Car Seats

Separating liquids helps reduce weight of waste containers, leaky messes, and odors from wet materials.

LIQUIDS →

When managed properly, recycled materials can become the 'raw' materials for other industries.

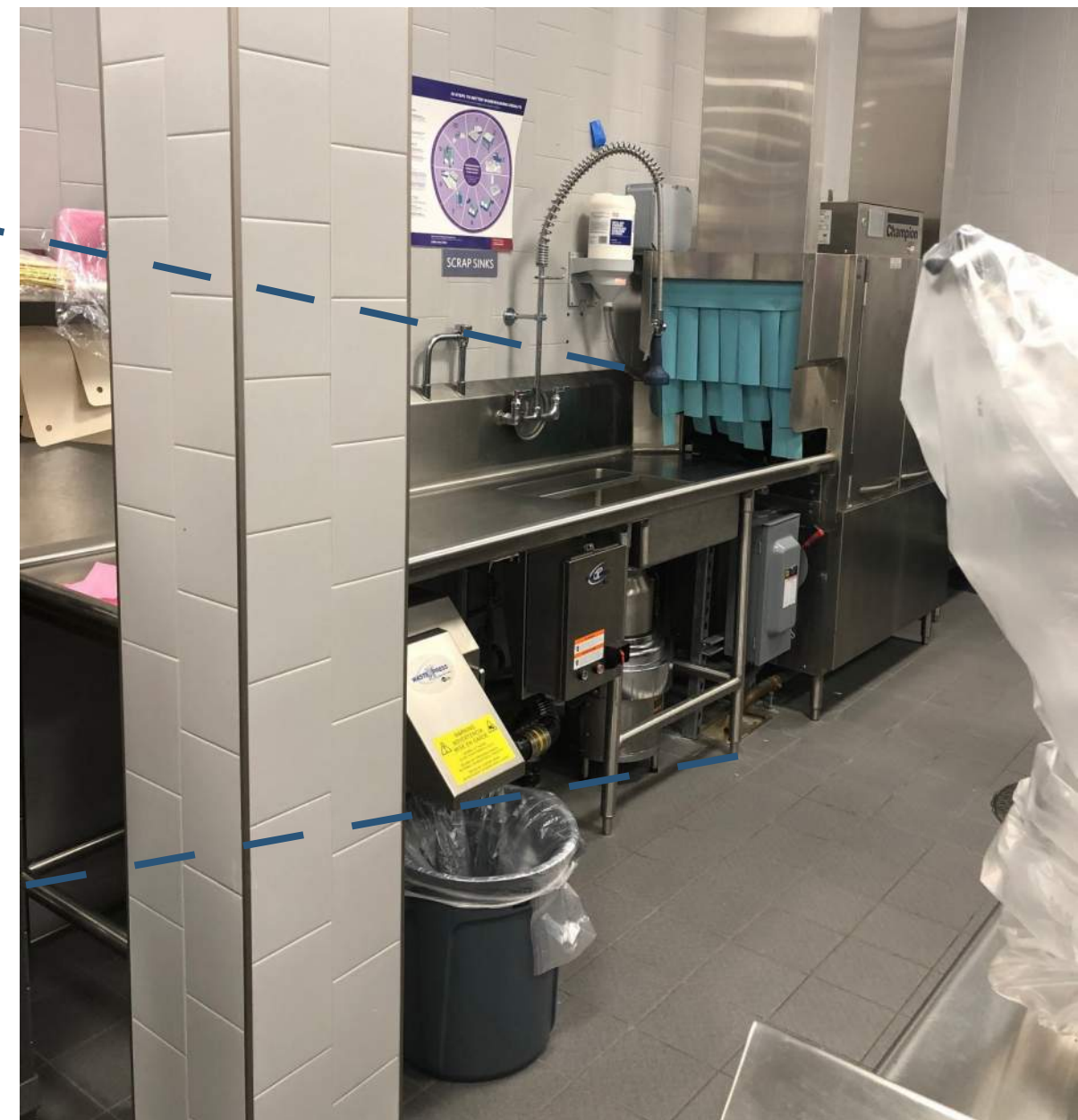
MIXED RECYCLING →

At schools, landfill is first reduced 50% by recycling. The remaining trash is further reduced 50% by composting. This saves landfill space, reduces incinerated waste, and saves money.

LANDFILL →



Waste: Innovative Equipment



Potential for Platinum

- 1. Building Master Plan
- 2. Open space & restoring habitat
- 3. Gender neutral toilet facilities
- 4. Demand response
- 5. COVID protocols
- 6. Bicycle parking
- 7. Housing density



GOLD
60-79 points

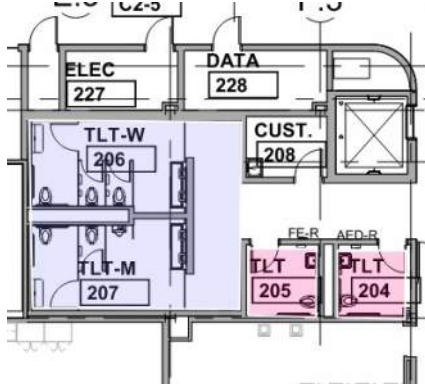


PLATINUM
80+ points

2



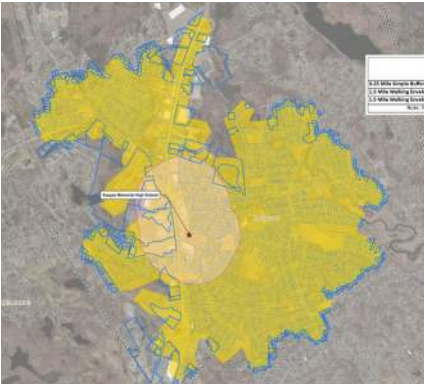
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Embracing Change: Lessons Learned

- Moving targets can be hit - plan to hit more than is needed
- Start early to integrate good sustainable practices
- Client may be more interested and supportive than initially expected
- Education of new occupants is still challenging



SAUGUS MIDDLE HIGH SCHOOL

DESIGN TEAM MEMBERS

Architect **HMFH Architects**

Civil Engineer **Samiotos**

Landscape Architect **CSS**

Structural Engineer **Foley Buhl Roberts Associates**

MEP/FP Engineer **GGD Consulting Engineers**

Technology Consultant **GGD Consulting Engineers**

FFE Consultant **Point Line Space**

Sustainability Consultant **James Carr architecture + design**

“When a student walks into this space, their expression says it all...the learning and exploring possibilities are limitless.”

- MYRA D. MONTO, ASSOCIATE PRINCIPAL,
SAUGUS MIDDLE HIGH SCHOOL

