
CULTIVATING EXCELLENCE

what is
SUSTAINABILITY
at Bristol Aggie?

agricultural history & culture

academic connectivity/ integration

natural resource education

animals

SOCIAL SUSTAINABILITY
health & wellbeing
place
connectivity

ECONOMIC SUSTAINABILITY
prosperity
living infrastructure
resource regeneration

ENVIRONMENTAL SUSTAINABILITY
resource regeneration
living infrastructure
health & wellbeing

EDUCATIONAL SUSTAINABILITY
connectivity
living infrastructure
prosperity
health & wellbeing

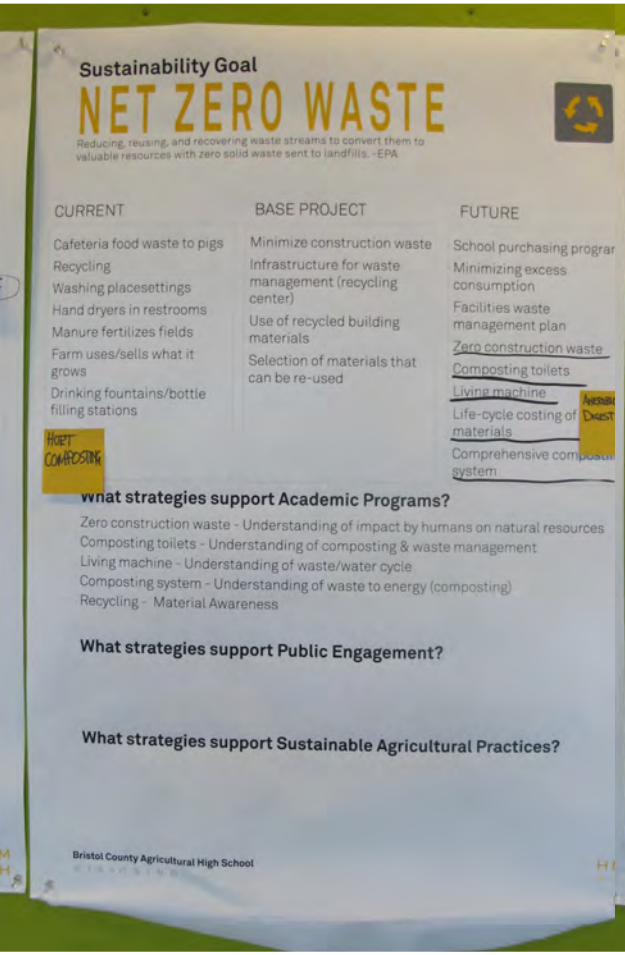
Environmental Master-Plan
Sustainable Campus + Sustainable Buildings

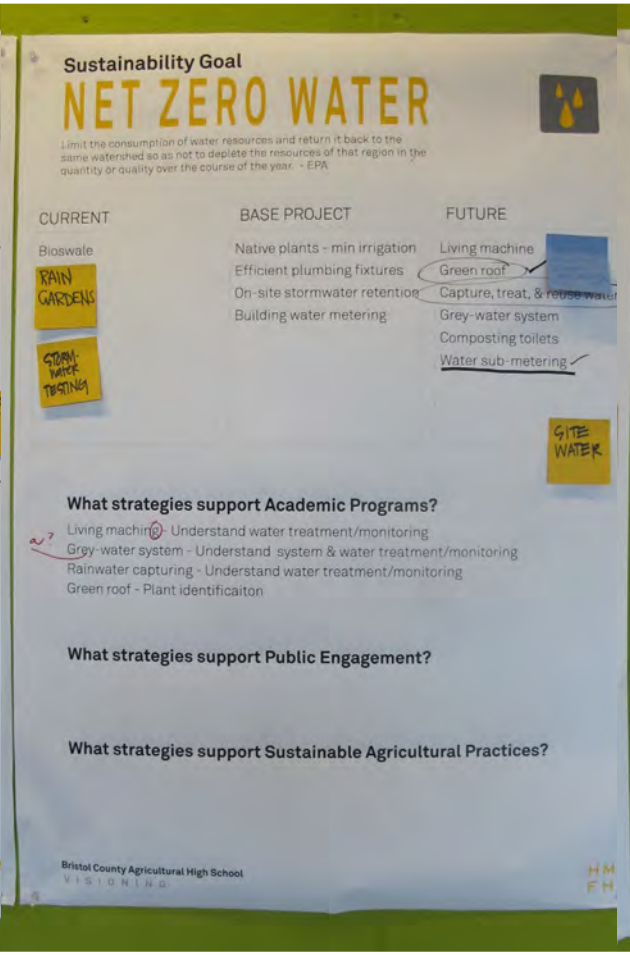
water

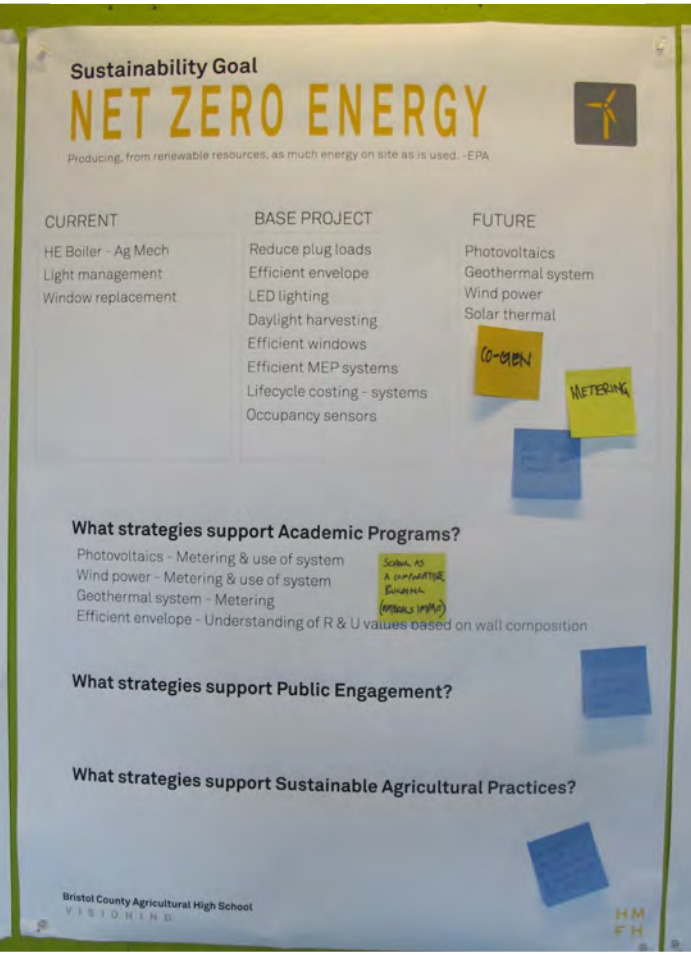
energy

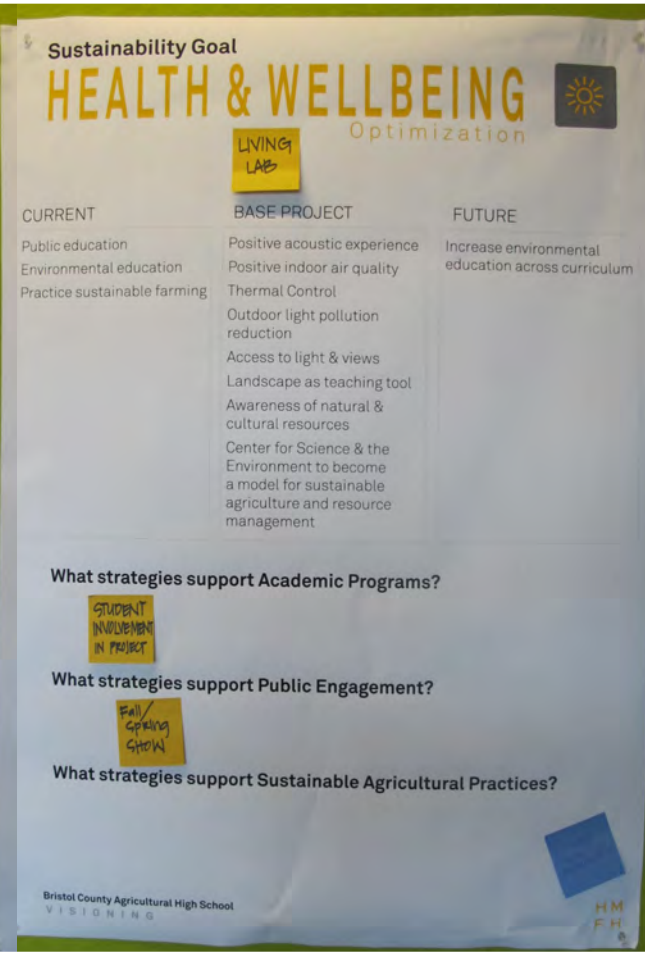
waste

COMMUNITY VISIONING – Goal Setting Process











EDUCATIONAL GOALS

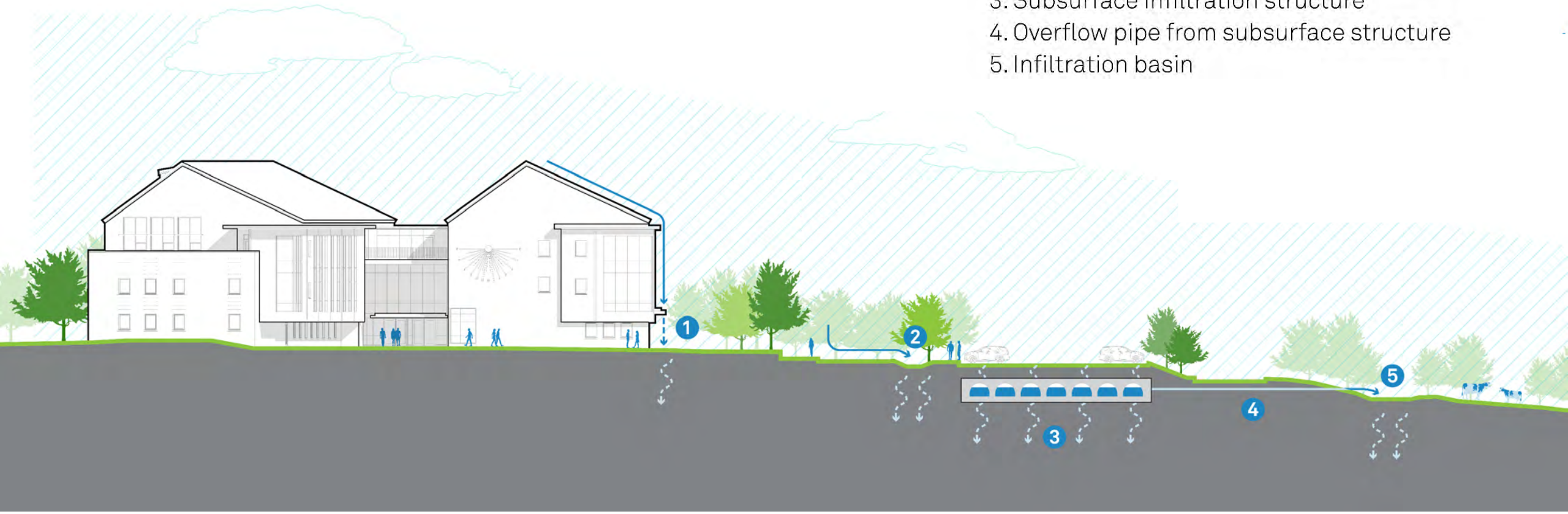
- All new facilities should be highly energy efficient, set net zero as a goal!
- Promote sustainable agricultural practices and sustainability curriculum
- Grow more food for students

SUSTAINABILITY GOALS

- Achieve **10%** better than code
- Make each building /structure a champion for specific sustainability measures
- Center for Science and the Environment will be a *'living lab'* for the students and the community
- Design the dairy barn to be **Net Zero Energy**
- No impact on the Taunton River watershed

STORMWATER MANAGEMENT
GROUNDWATER RECHARGE STRATEGIES

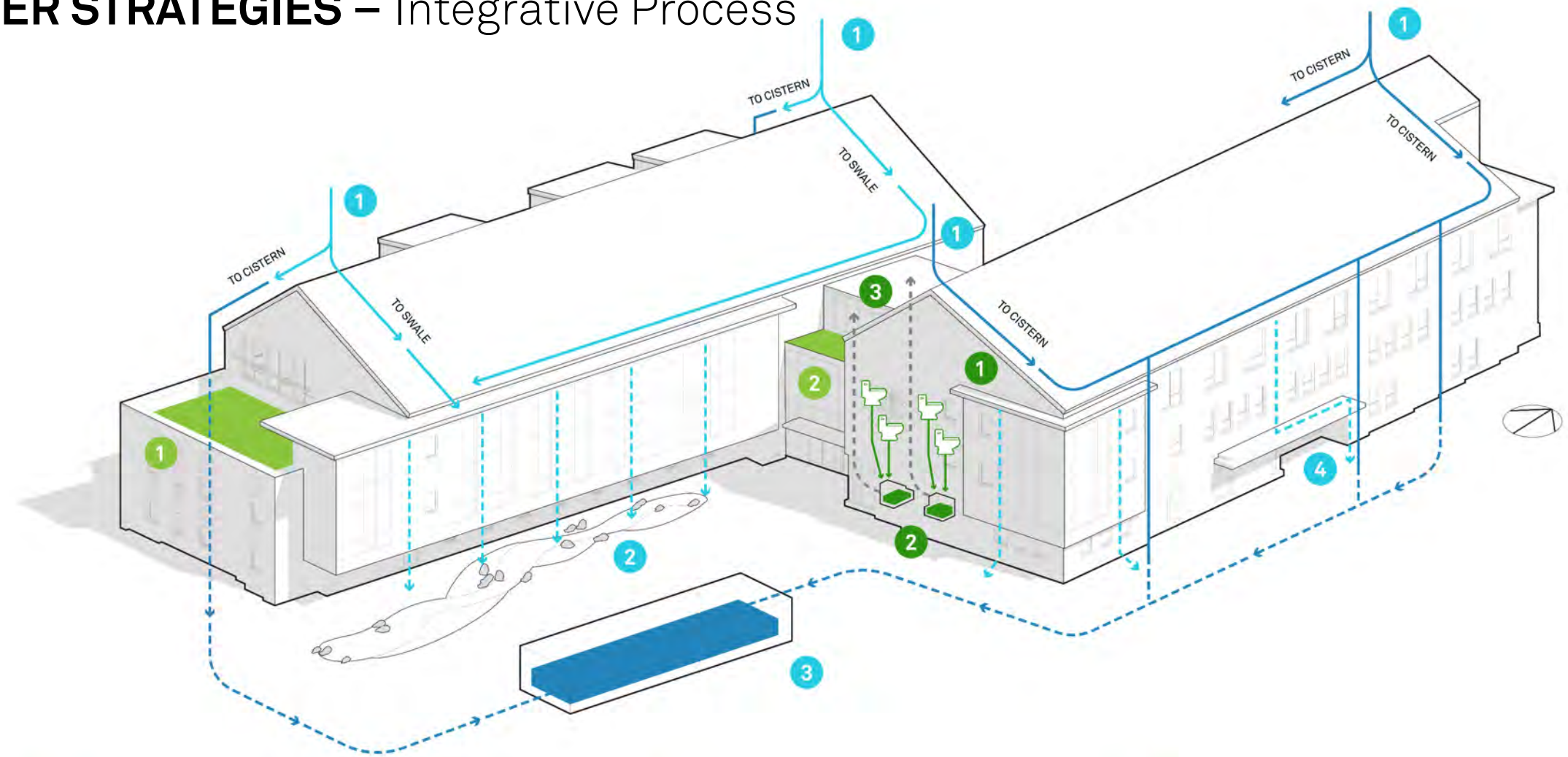
1. Rain chain and splash block
2. Surface water run-off captured in bioswale
3. Subsurface infiltration structure
4. Overflow pipe from subsurface structure
5. Infiltration basin



WATER SYSTEMS – Combined site and building strategies



WATER STRATEGIES – Integrative Process



STORMWATER MANAGEMENT

1. Incoming rain
2. Dry swale
3. Underground irrigation cistern
4. Rain chain

GREEN ROOFS

1. Intensive green roof
2. Extensive green roof

COMPOSTING TOILET SYSTEM

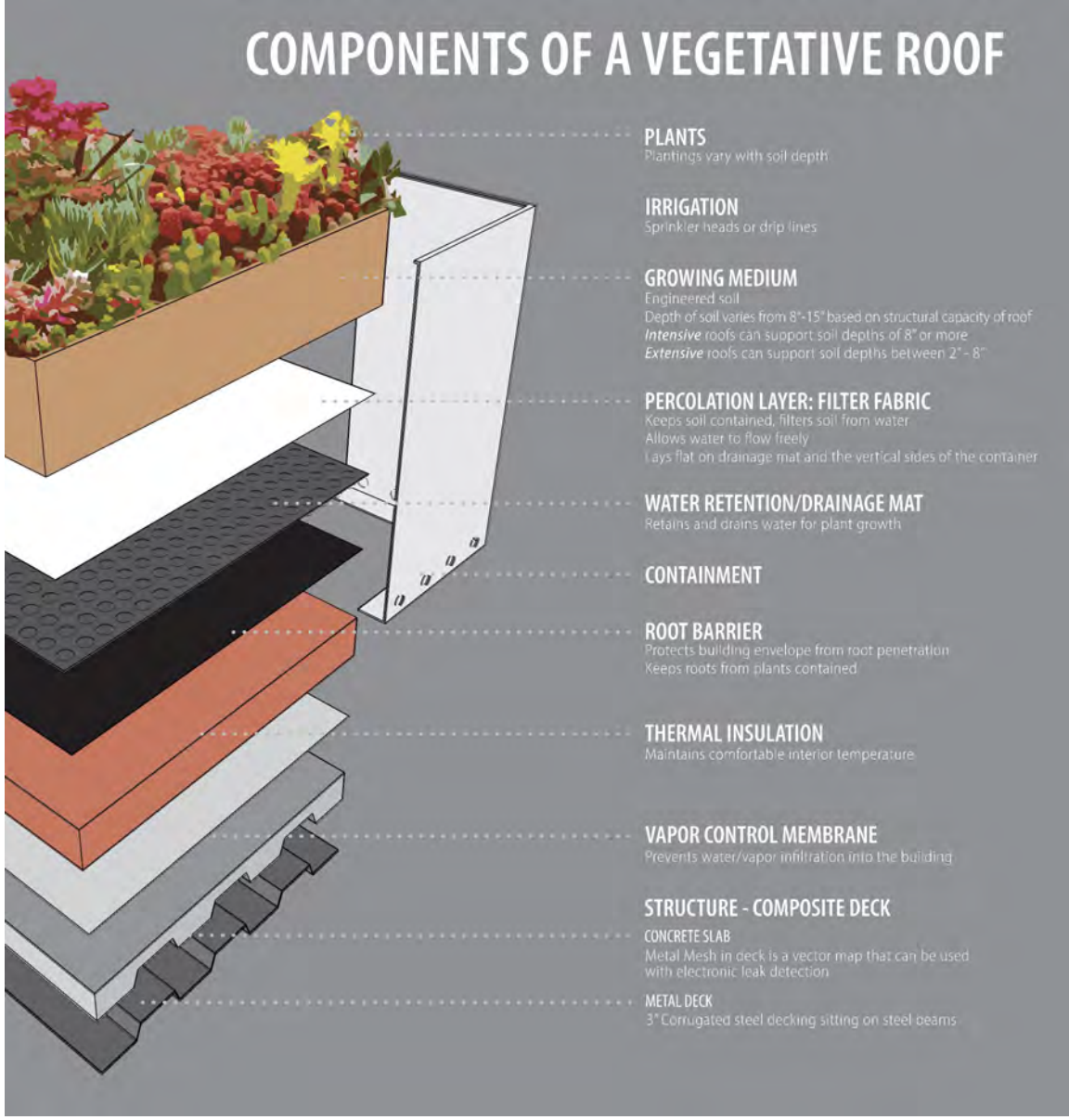
1. Composting toilets
2. Composters
3. Exhaust vents


VETERINARY CLINIC









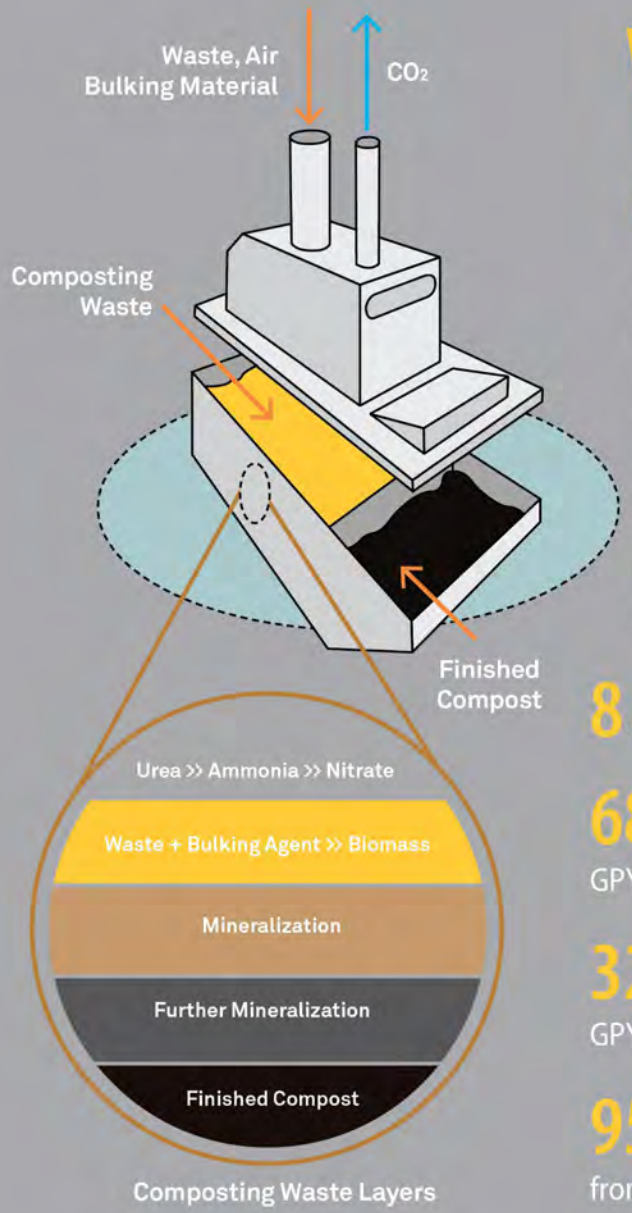
WATER STRATEGIES – Building Component and Teaching Tool


THE GLOBAL CARBON CYCLE
SLOW CARBON CYCLE
Atmospheric CO2
+4.9 GtC
860 GtC
Ocean CO2
2.5 GtC
90
90
Ocean
WATER
Organic Carbon
700 GtC
Surface Sediments
1750 GtC
Marine Biota
3 GtC
Dissolved
Inorganic Carbon
38,000 GtC
WASTE
Composting Toilets
Waste, Air
Building Material
CO2
Finished
Compost
Urea >> Ammonia >> Nitrate
Mineralization
Further Mineralization
Finished Compost
Composting Waste Layers
8 composting toilets in the CSE
68% reduction from approx. 235,000 GPY in water consumption from flush fixtures
32% reduction from approx. 235,000 GPY in water consumption from flow fixtures
95% reduction in solid waste netted from decomposition cycle









Composting Waste Layers

WASTE

Composting Toilets

Composting toilets allow for the distribution of essential plant nutrients into the soil. Nutrients from conventional toilets that would typically be sent to the sewer system will now remain on-site to be used as compost. Soil is one of the largest carbon *sinks* our planet uses to regulate the natural carbon cycle. Healthy soils contribute to healthy flora and fauna.

8 composting toilets in the CSE

68% reduction from approx. 235,000 GPY in water consumption from flush fixtures

32% reduction from approx. 235,000 GPY in water comsumption from flow fixtures

95% reduction in solid waste netted from decomposition cycle



ANIMAL FEED

Feeding food scraps to animals reduces waste and avoids methane generation from landfills.

Using food waste for animal feed preserves resources, such as fresh water and arable land, since less feed needs to be produced.

ACCEPTABLE FOOD

VEGETABLE & FRUIT SCRAPS
DAIRY PRODUCTS
EGGSHELLS & NUTSHELLS
BREADS, CEREALS & PASTA
COOKIES
COFFEE GROUNDS
SPOILED FOOD

NO OTHER ITEMS ARE ACCEPTABLE

COMPOST

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

ACCEPTABLE FOOD

ALL VEGETABLE & FRUIT SCRAPS
MEAT SCRAPS & BONES
DAIRY PRODUCTS
SEAFOOD & SHELLS
EGGSHELLS & NUTSHELLS
BREADS, CEREALS & PASTA
COOKIES & CANDY
COFFEE GROUNDS
SPOILED FOOD

ACCEPTABLE PAPER PRODUCTS

NAPKINS, PAPER TOWELS & TISSUES
PAPER PLATES & PAPER BAGS
PAPER COFFEE CUPS & FILTERS
TEA BAGS
PAPER SUGAR PACKETS
WAXED PAPER
PAPER SANDWICH WRAPPERS
PAPER TAKEOUT CONTAINERS
PAPER MILK CONTAINERS
PAPER JUICE & ICE CREAM CONTAINERS
GREASY PIZZA BOXES

OTHER ACCEPTABLE PRODUCTS

COMPOSTABLE PLASTIC BAGS & PRODUCTS CERTIFIED BY US COMPOSTING COUNCIL
HOUSEPLANTS, FLOWERS & POTTING SOIL
WOODEN COFFEE STIRRERS
PET FUR & FEATHERS
PET FOOD
SHREDDED PAPER (SHOULD BE RECYCLED)

MIXED RECYCLING

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

LANDFILL

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.

WASTE STRATEGIES – A thought process

ENERGY STRATEGIES

- Solar ready roof structures at all new construction *(School engaged in a PPA)*
- Electric vehicle charging stations *(4 Stations – 8 parking spaces)*
- Efficient Envelope:
  Building Envelope - Roof R-42.18, Walls R-20.69, triple-pane windows, and double-pane curtain wall
- LED lighting *(tunable white in labs)* – below code LPD
- 8 composting toilets





Architecture Supporting Student and Community Sustainability

Student and Community Sustainability

- Physical Health
- Social & Emotional Wellbeing
- Belonging/Community
- Purpose/Engagement
- Challenge Leading to Growth



Architect's Tools

- Natural Light/Acoustics/ Indoor Air Quality
- Spatial Variety & Flexibility
- Identity/Placemaking thru Design
- Connections to Nature
- Internal Visibility/Perspective
- Infrastructure for Student Engagement



The Campus:

Create a variety of places for social & academic learning

Emphasize connections with nature

Make places that reinforce identity and culture





The Student Commons:

Designing for Natural Light, Good Acoustics and Indoor Air Quality







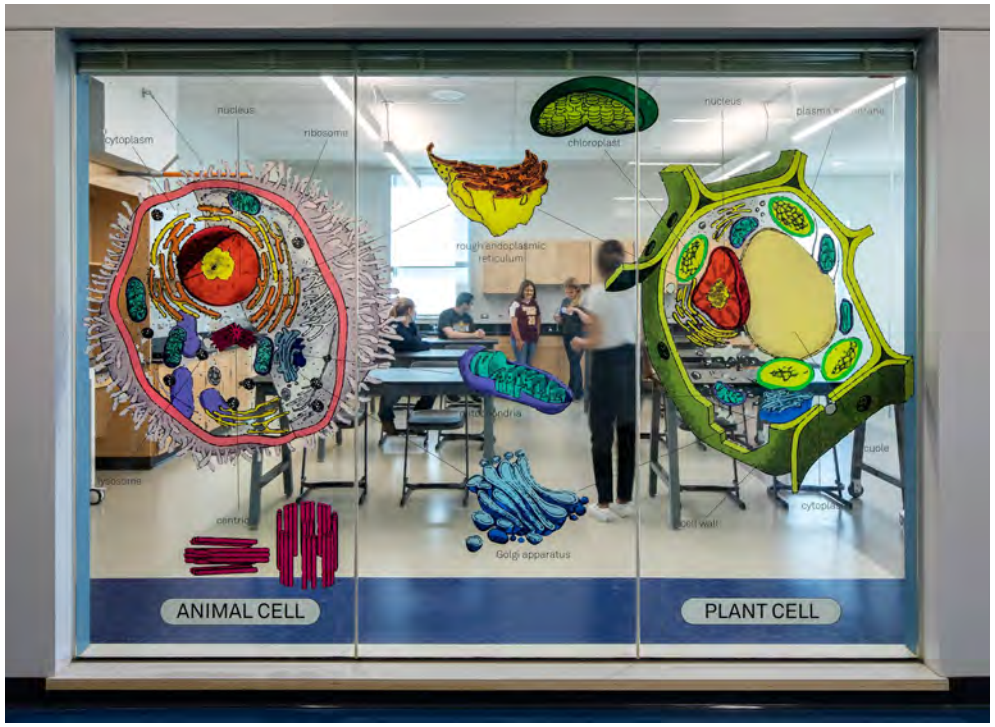




Media Center:

Variety of spaces
Flexibility
Adaptability

HMFH







Graphics:

Reinforce identity and culture

HM
FH



Natural History Museum:

Infrastructure for Student Engagement

HM
FH

NATURAL RESOURCE MANAGEMENT– School as a lab













NATURAL RESOURCE MANAGEMENT– Flexible Lab Space



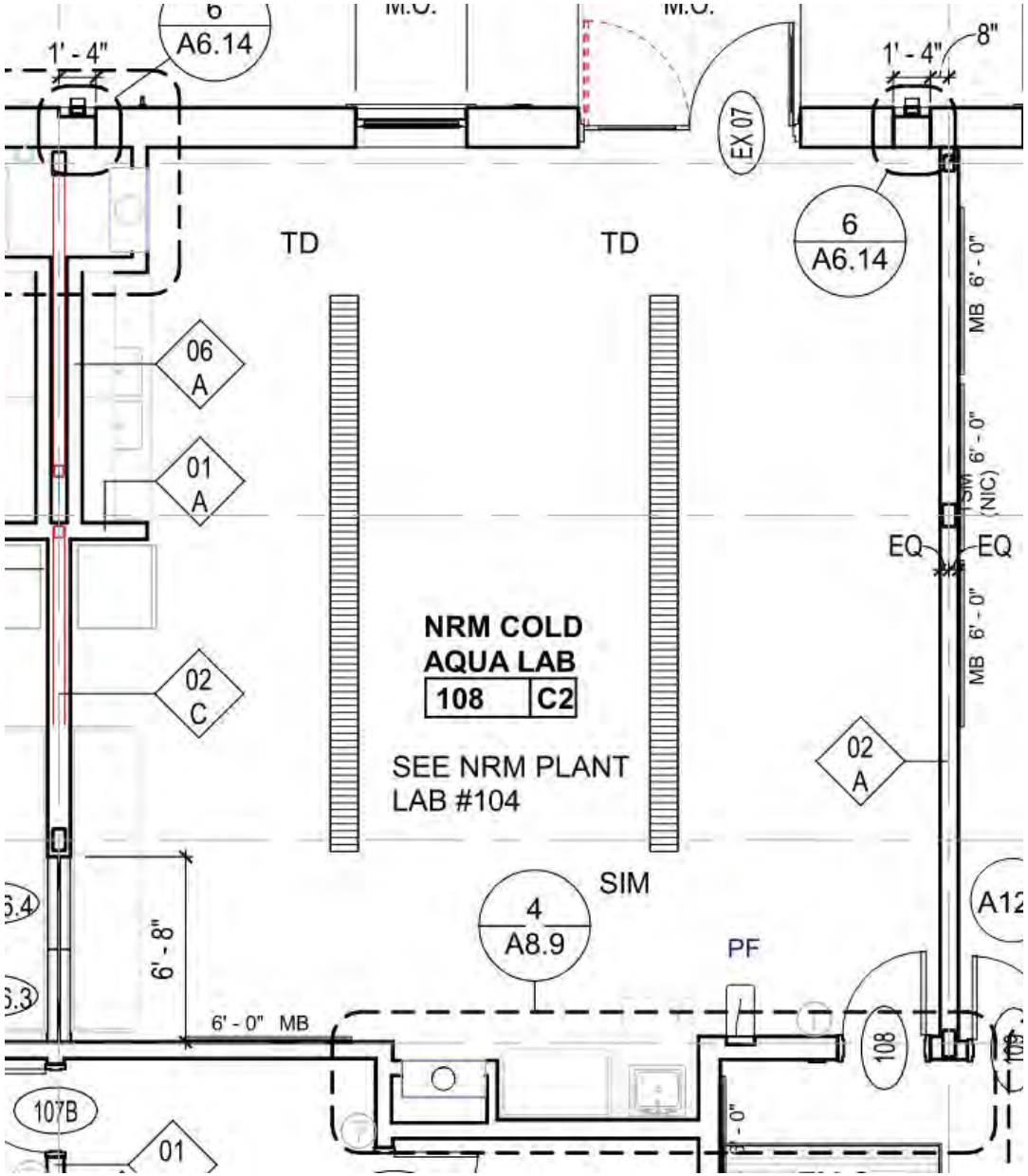






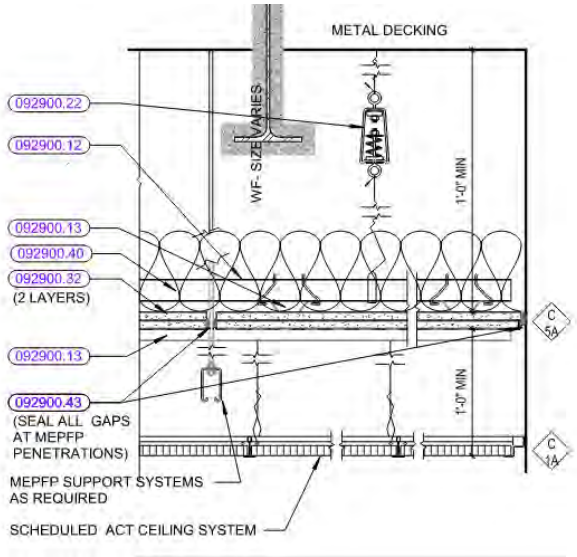


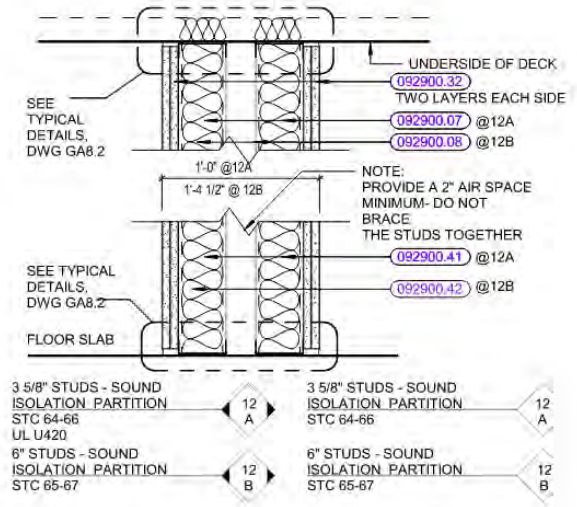




GROOMING LAB – Attention to Acoustics





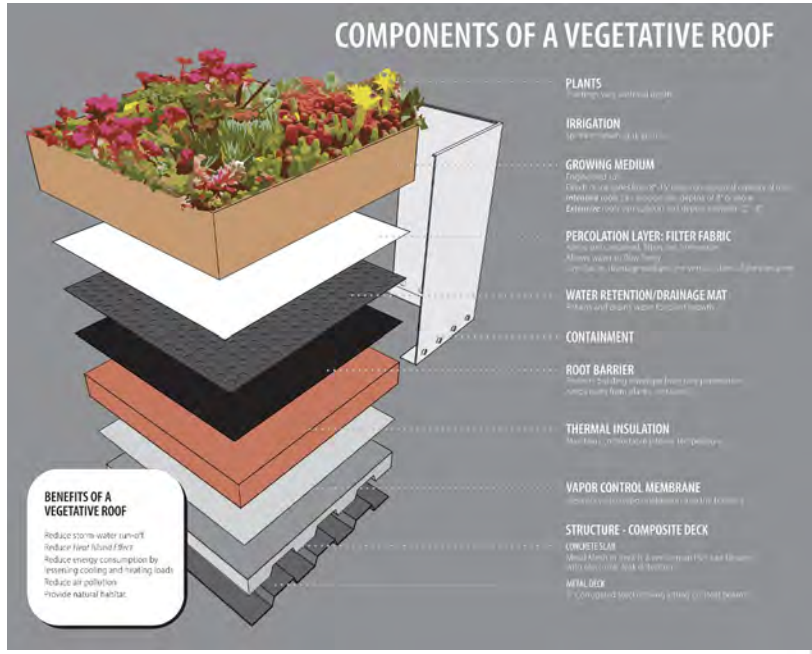


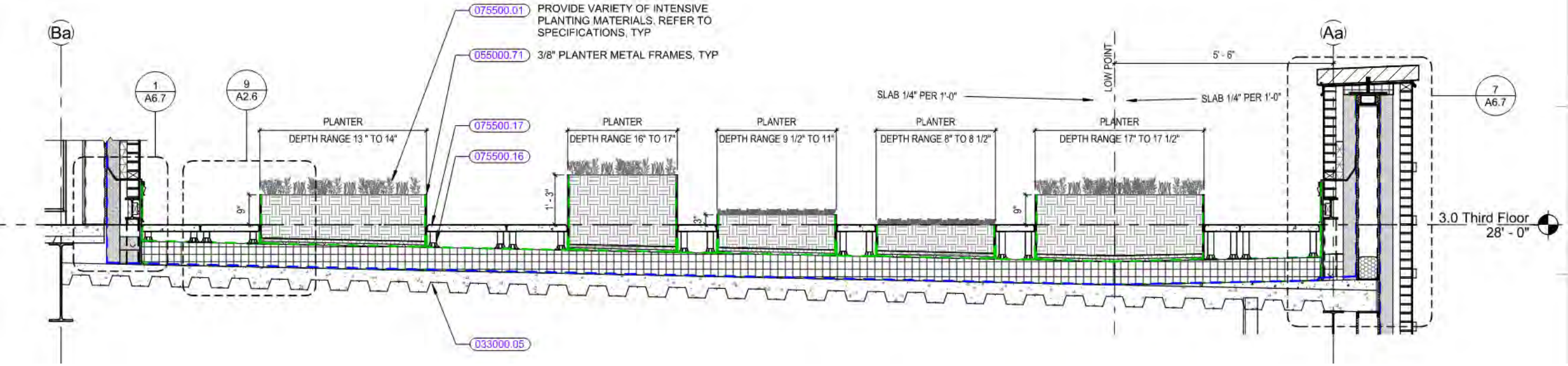
HM
FH

ENVIRONMENTAL ENGINEERING– School as a learning tool

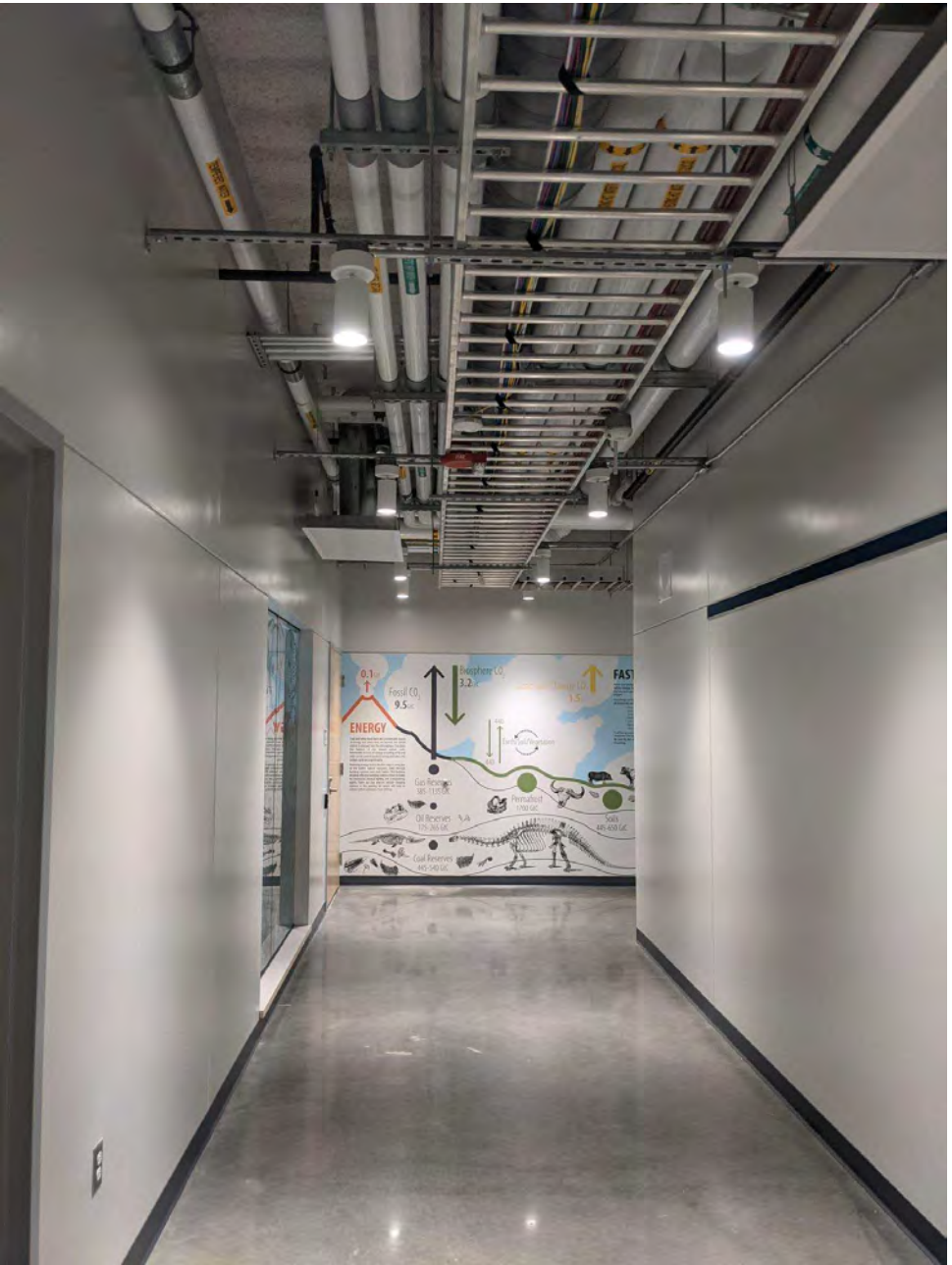


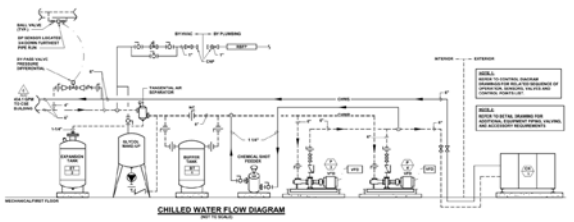


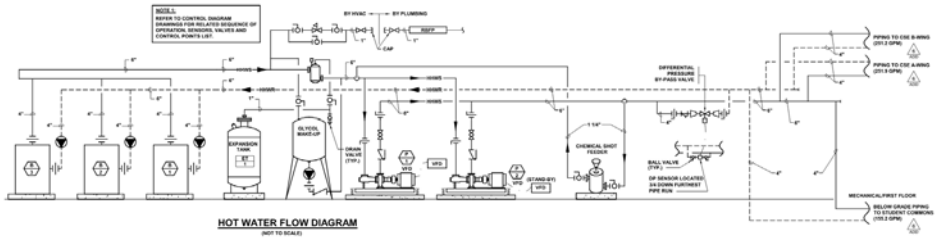


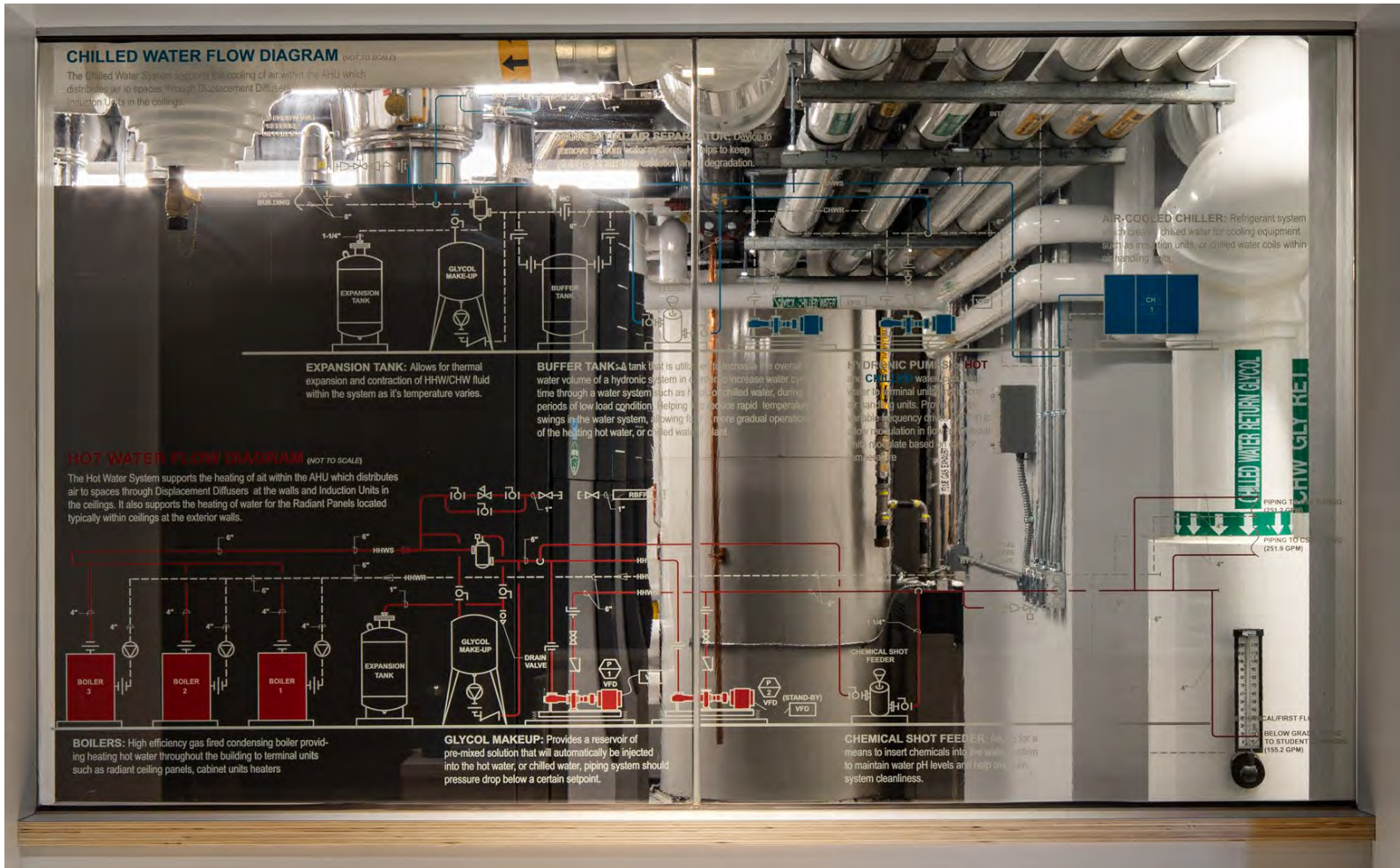


ENVIRONMENTAL ENGINEERING– School as a learning tool









ABORICULTURE - School as a learning tool





