
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

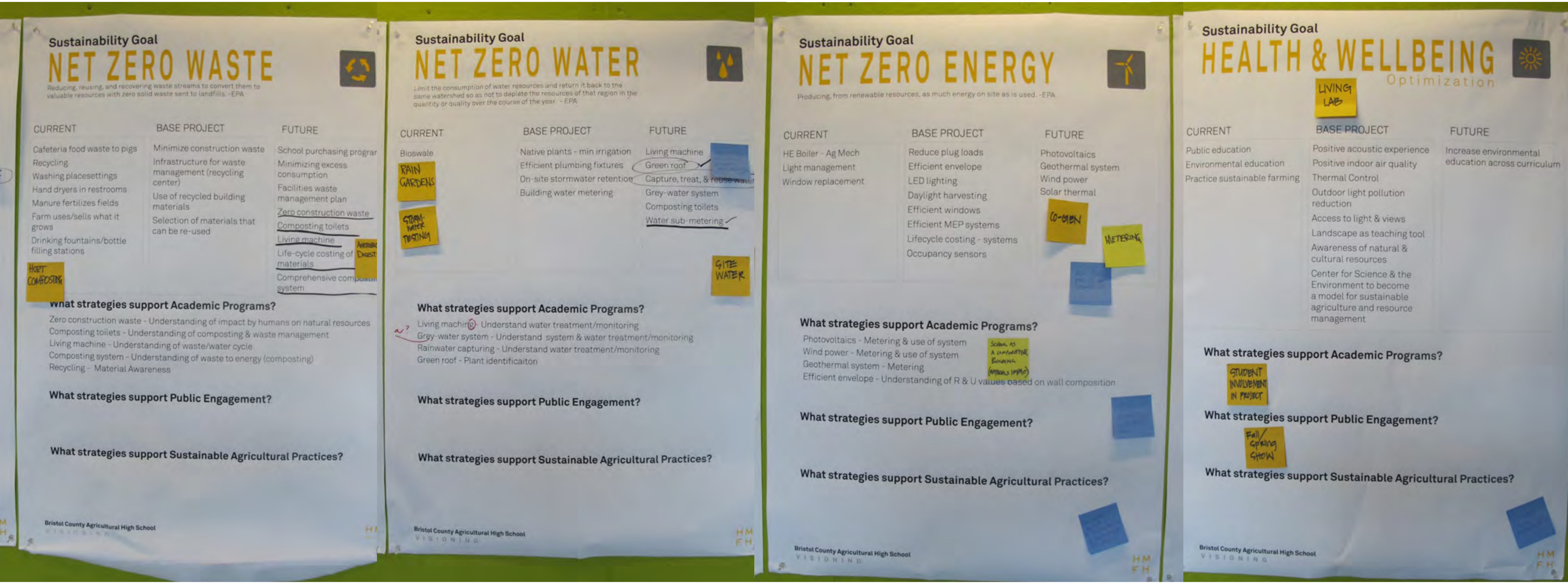
ENVIRONMENTAL SUSTAINABILITY
resource regeneration
living infrastructure
health & wellbeing

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

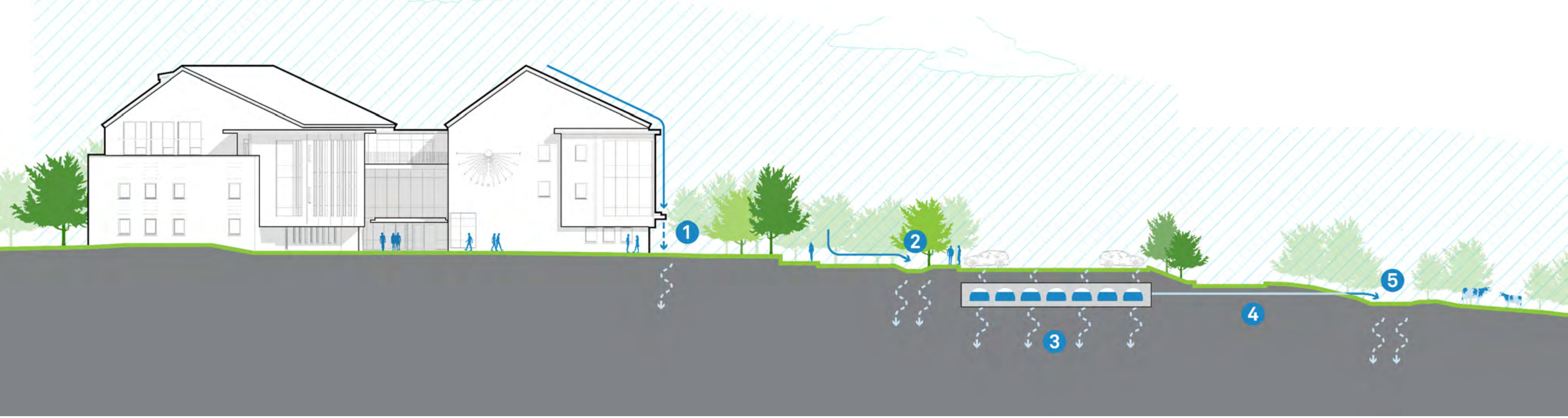
- All new facilities should be highly energy efficient, set net zero as a goal!
- Promote sustainable agricultural practices and sustainability curriculum
- Grow more food for students

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

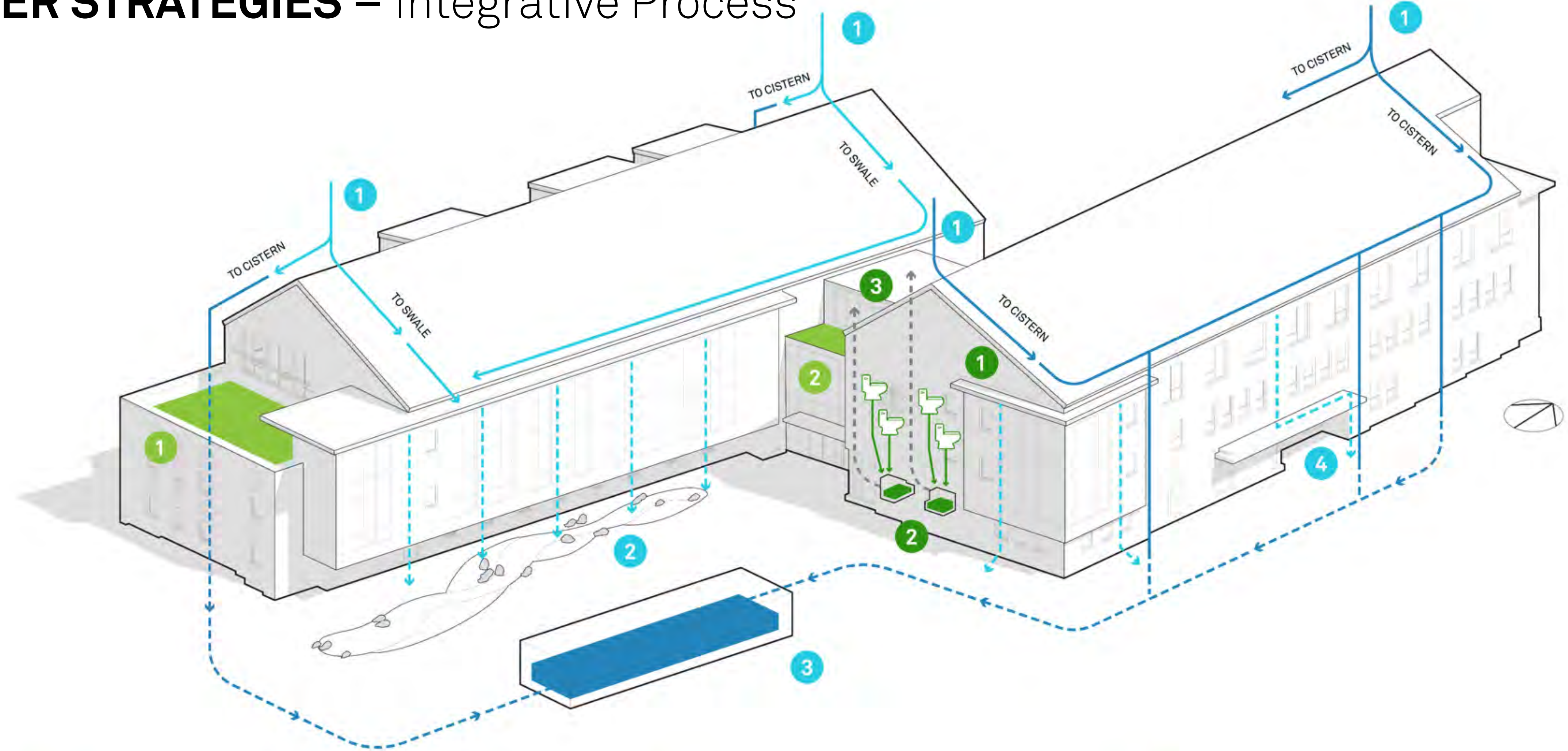
STORMWATER MANAGEMENT
GROUNDWATER RECHARGE STRATEGIES

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

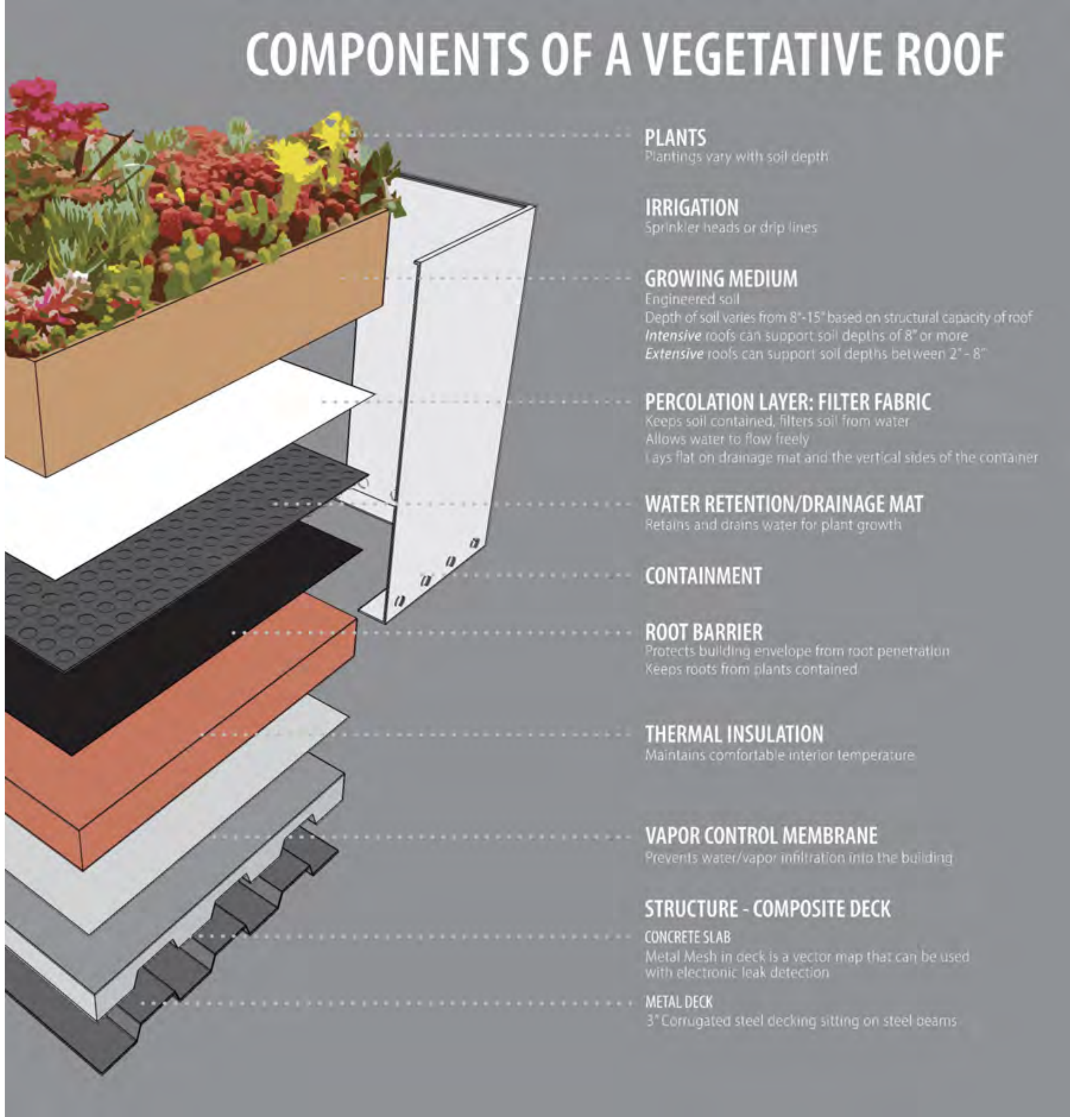
1. Intensive green roof
2. Extensive green roof

COMPOSTING TOILET SYSTEM

1. Composting toilets
2. Composters
3. Exhaust vents

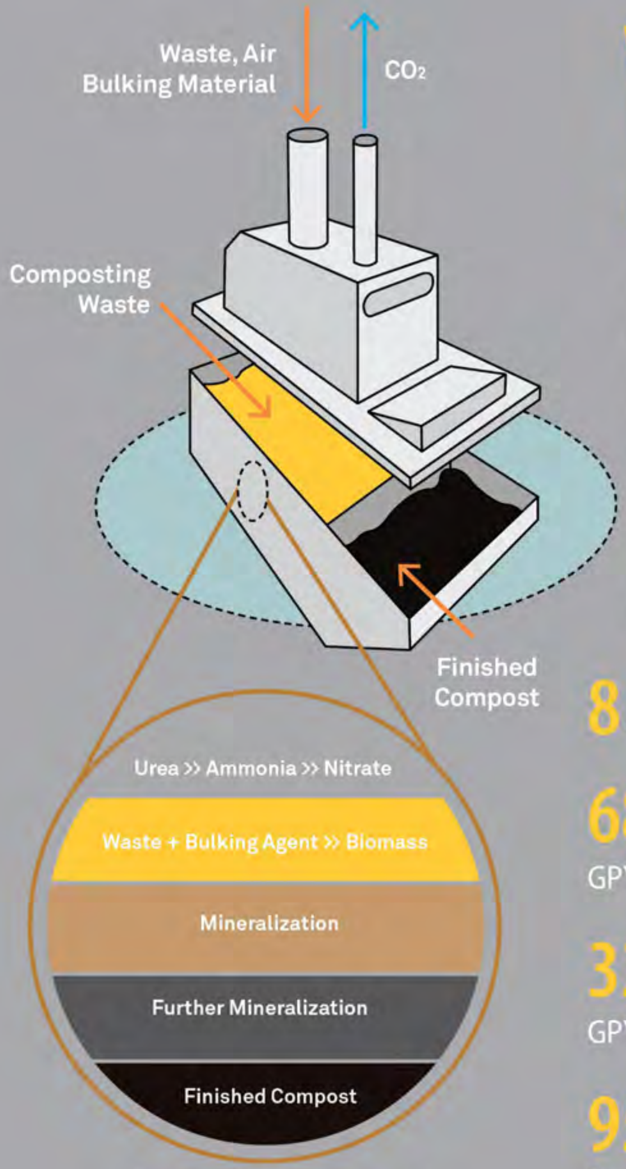

VETERINARY CLINIC


CULTIVATING EXCELLENCE



WATER STRATEGIES – Building Component and Teaching Tool


THE GLOBAL CARBON CYCLE
SLOW CARBON CYCLE
Atmospheric CO_2
+4.9 GtC
860 GtC
Ocean CO_2
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
Bulking Material
CO_2
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

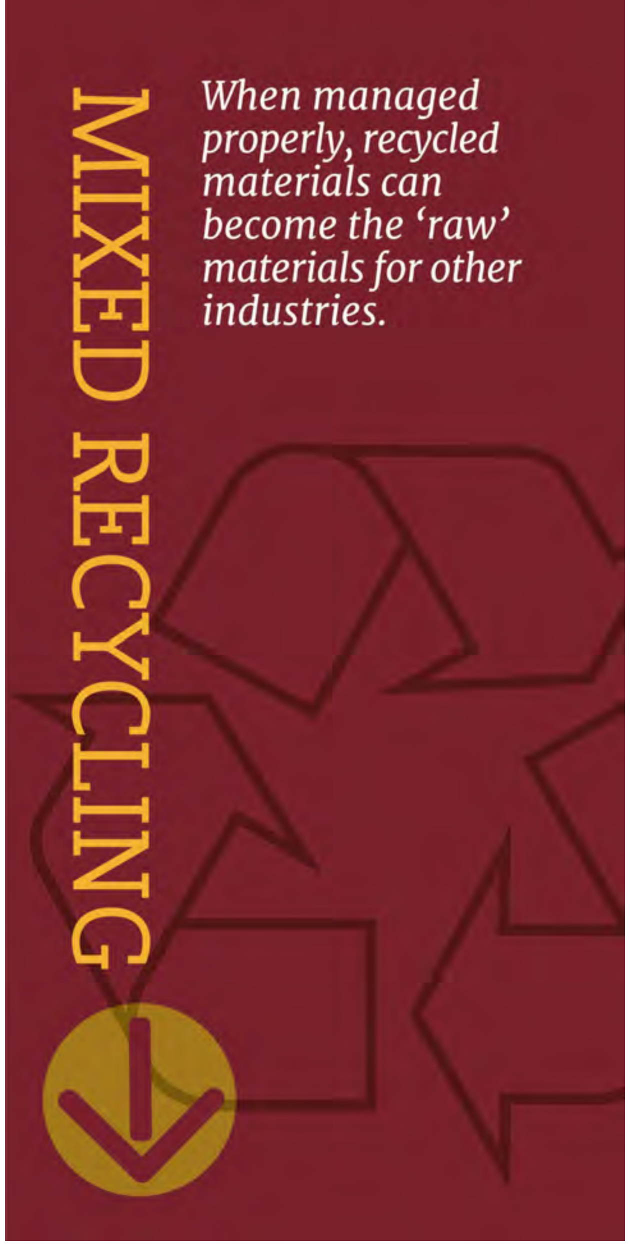
Composting toilets allow for the distribution of essential plant nutrients into the soil. Nutrients from conventional toilets that would typically be sent to the sewer system will now remain on-site to be used as compost. Soil is one of the largest carbon *sinks* our planet uses to regulate the natural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

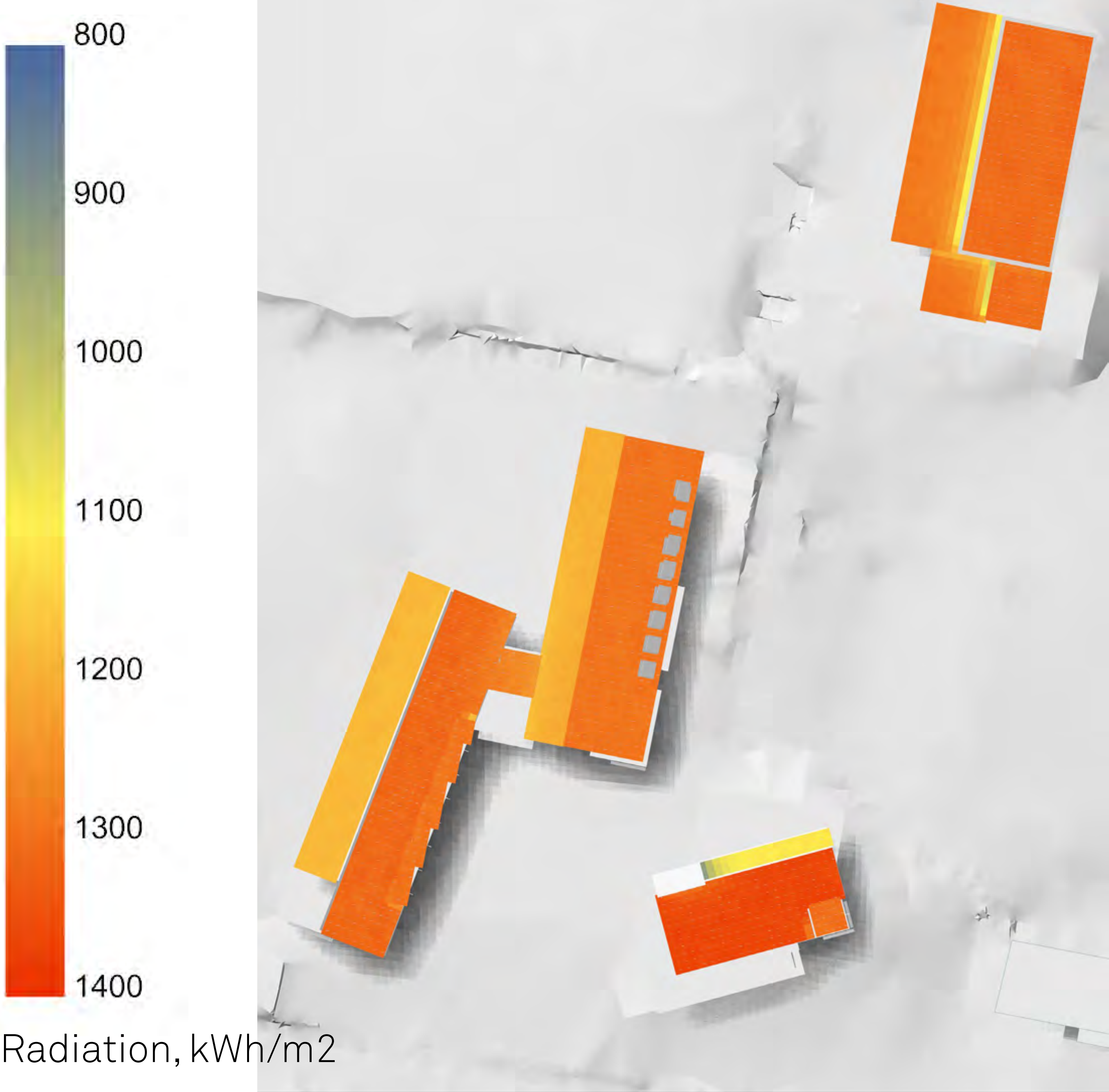
95% reduction in solid waste netted from decomposition cycle



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

Graphics:

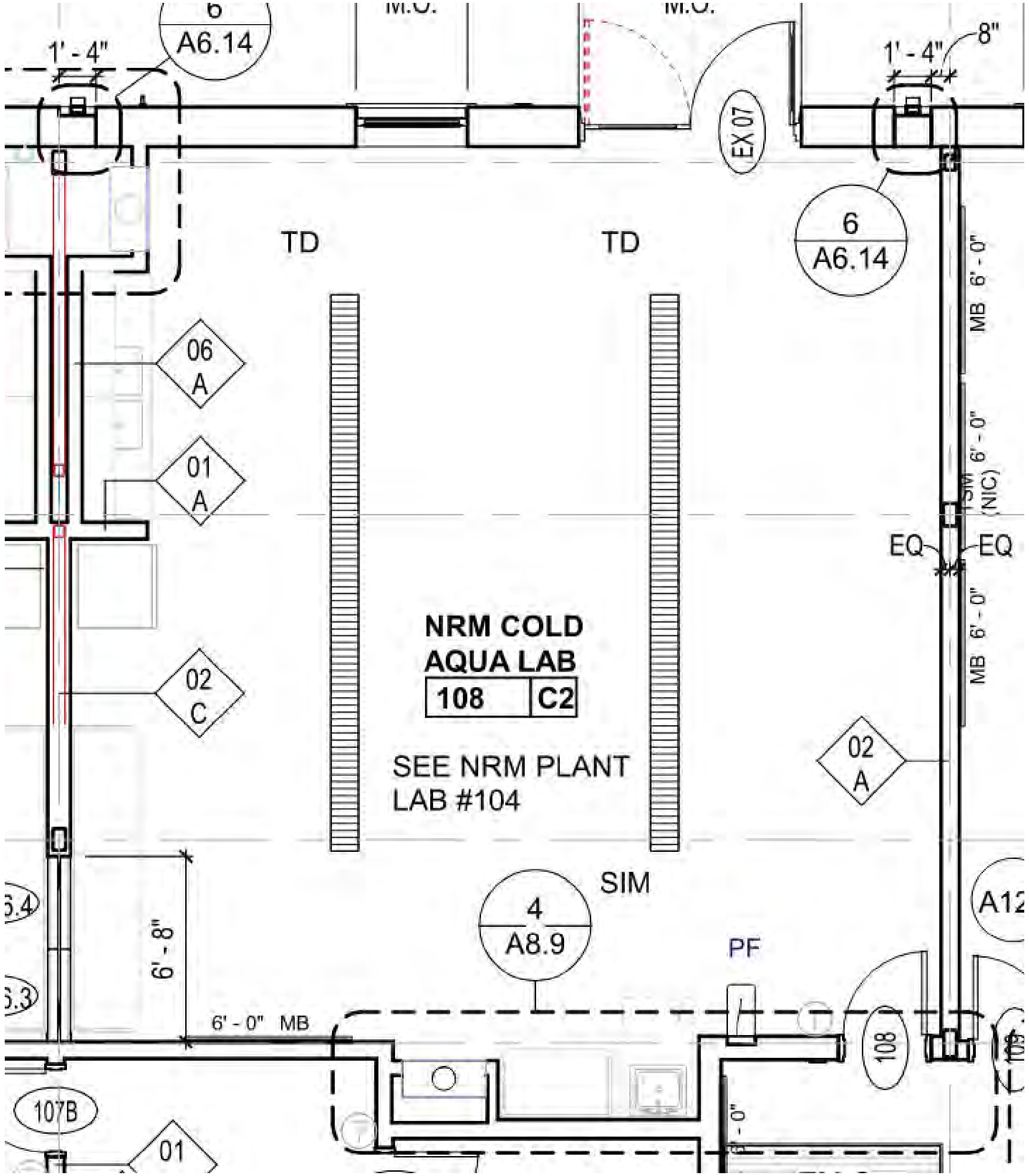
Reinforce identity and culture

Natural History Museum:

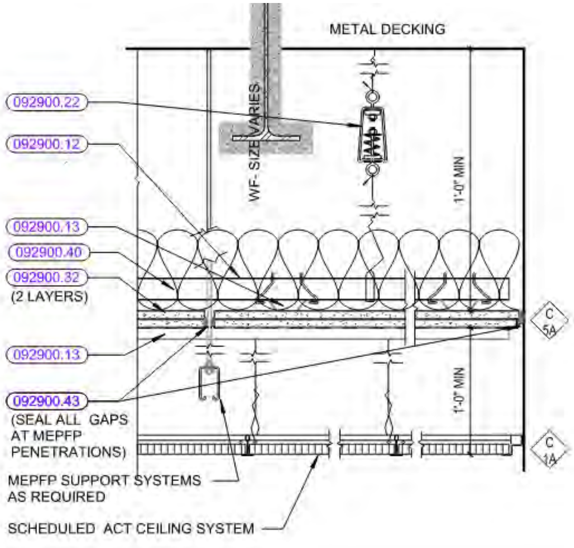
Infrastructure for Student Engagement

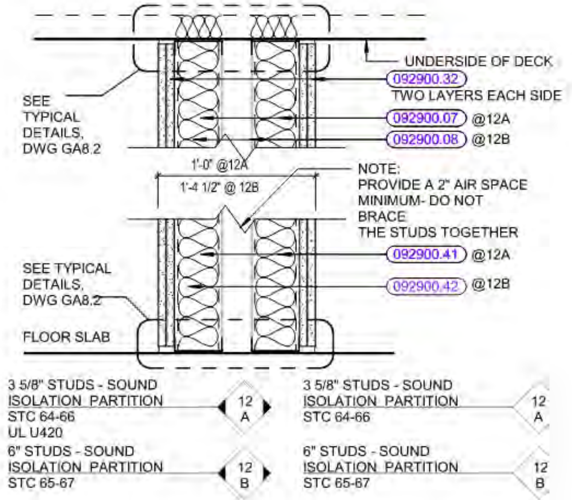
NATURAL RESOURCE MANAGEMENT– School as a lab

NATURAL RESOURCE MANAGEMENT– Flexible Lab Space

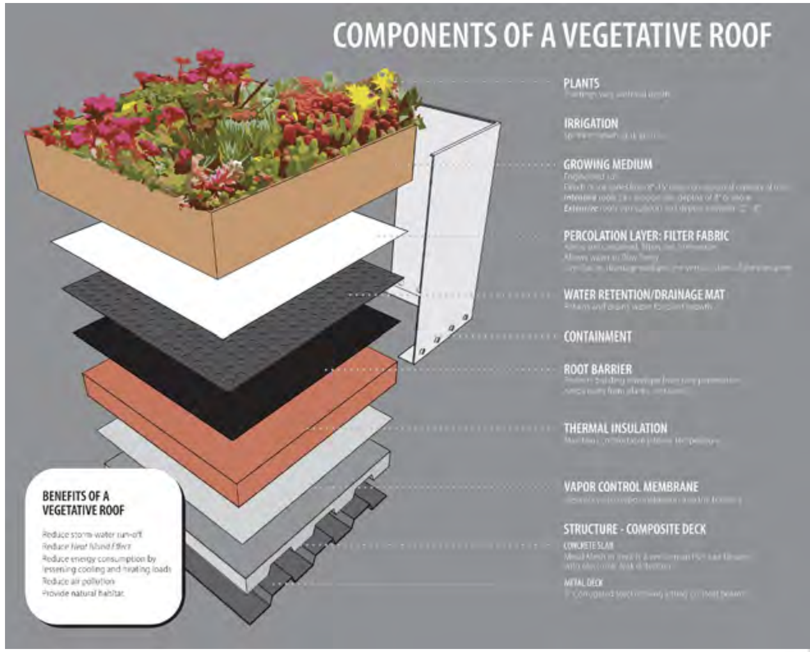


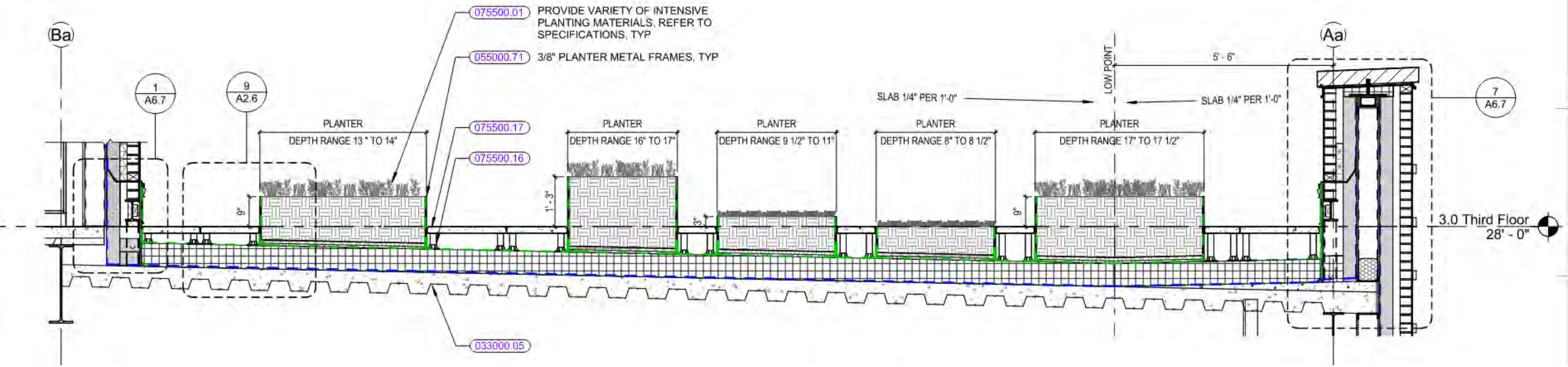
GROOMING LAB – Attention to Acoustics



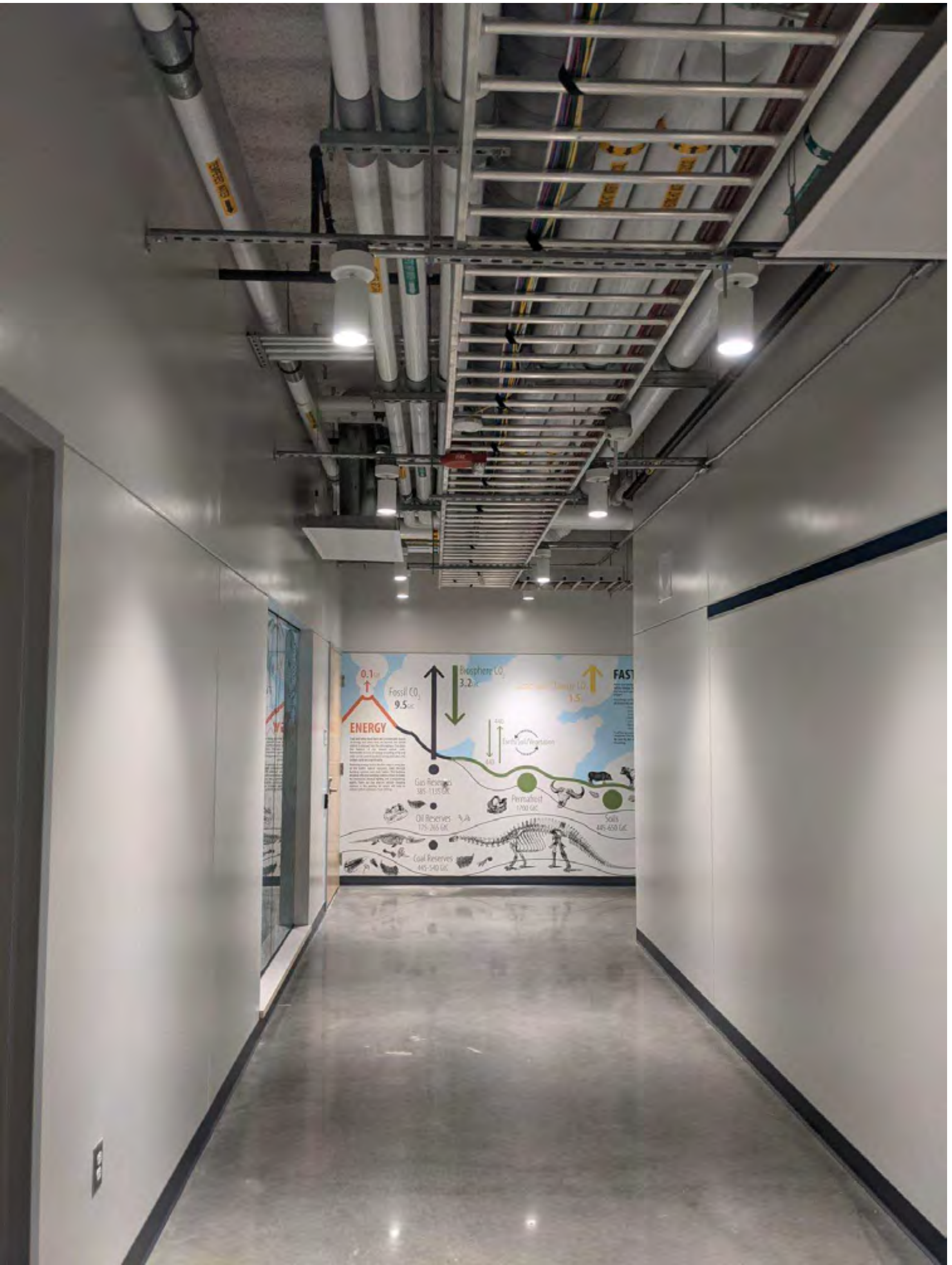


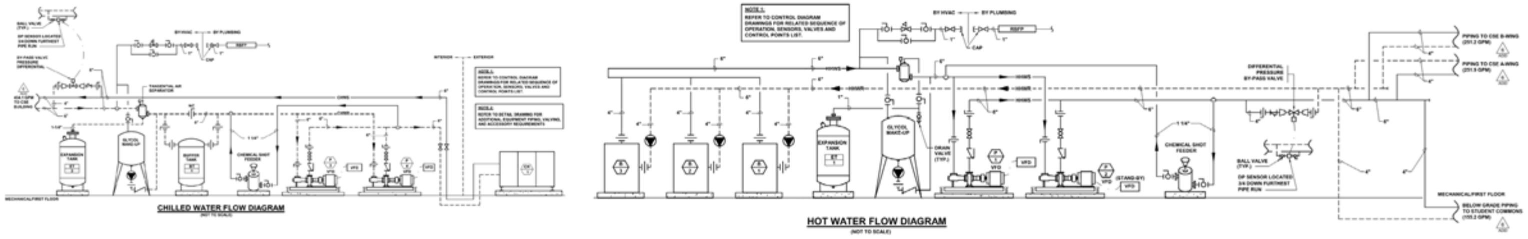
ENVIRONMENTAL ENGINEERING– School as a learning tool

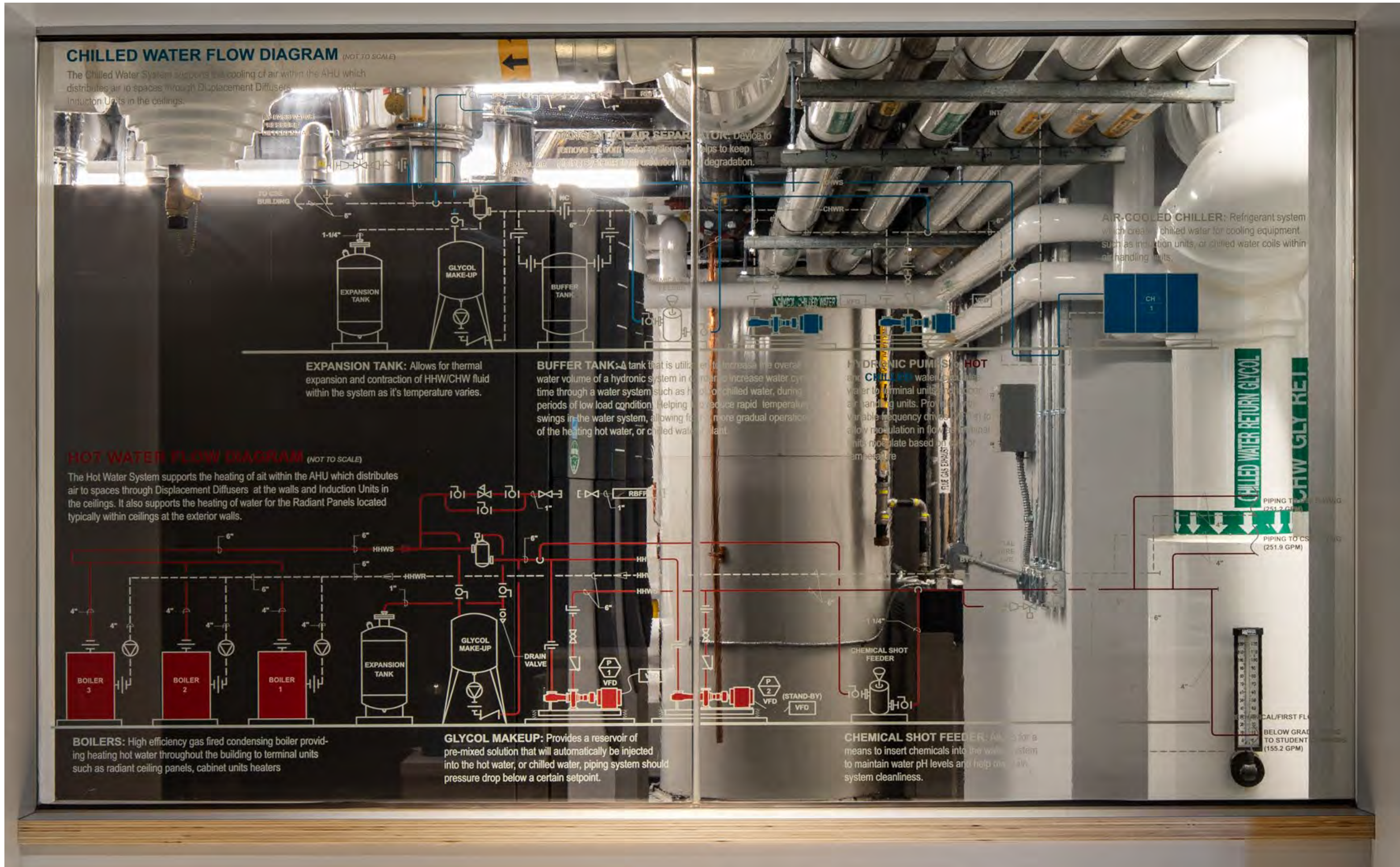




ENVIRONMENTAL ENGINEERING– School as a learning tool







ABORICULTURE - School as a learning tool