DESIGN 4: one refined design
Enclosure Designs

Things We Like From Our Explorations:

Artifact wall:
- reflect module of wetland construction
- register the change in deck level, through shadow or bench
- stop short of armature wall to allow walls to read separately
- allow openings for ventilation
- bring wall to ceiling to show expansion upward

Seat wall / Window wall:
- flexible ventilation, multiple openings
- provide seating
- relate to artifact wall, perhaps with storage
- use eight foot rhythm of structure
- maximize transparency

Opening wall:
- maximize connection with wetland
- reinforce longitudinal axis of the barge
- do not block water system or movement on deck

The translucent artifact wall was chosen for the final design, as was the flip-up opening wall design.

This flexible window configuration will be part of the final design.
d4.2: ARMATURE: STRUCTURE EXPLORATIONS

Structure Designs: 6 options

Things We Like From Our Explorations:
- steel verticals
- hot tub steel
- primacy of center columns
- armature structure over line of classroom
- minimize beam transverse to structure at cantilevered side
- roof cant opening outward
- lower classroom floor (two feet lower than armature deck between columns)
- steel desk exposed on upper area (armature portion between columns)
- logically sized structural members
- frame of structure with system insertions between armature, potentially a second skin making the enclosure
- opaque roof with potential openings for light and air

- main vertical structure sits outside of enclosure
- separate interior and exterior structural horizontals
- wood armature structure on interior, steel exterior
- roof drains in gutter suspended from armature
- wood horizontal support extends beyond beyond enclosure over ramp
- tension wires supporting wood beams

- armature wall to hold other elements
- double column structure to allow reading of armature from both interior and exterior
- double interior floor for possible change of parti
- creation of interstitial zone between columns that allows for physical read and gutter
- water draining to channel hung in armature path
- systems possibilities: cabinets, discrete elements, frame

- exclusively wood structural members
- allow rain water to enter the classroom through interior rain drainage
- columns are back-to-back channels that allow beam to slide between them
- cantilever held in tension with steel cables
- openings in armature wall allow for seating and possible passage from armature to interior room
- translucent roofing material emphasizes the lightness of the enclosure
d4.2: ARMATURE: STRUCTURE EXPLORATIONS

Structure Designs

Understanding the visual articulation of the armature structure and enclosure systems became an important detail to resolve. These model studies were used to examine how to both express the structure of the armature and also provide a weather tight enclosure for the classroom.
Ecology and human activity

Hybrid systems which combine designed solutions with natural systems – or the cultivation of ecologic processes – brings restoration efforts and human activities together.

The wetland system on the barge demonstrates how these hybrid strategies might be employed at a small scale.

Principles for design

- Living with and participating in ecologic processes
  - wetland should educate
- Ability to access and be in wetland space
- Ability to touch water and touch plants
- Teach plant identification with plant beds
- Wetland should be defined as a volumetric and articulated space
- Integrate spaces with plants and water
- Consider edges and adjacencies and detail them carefully
- Create a nursery bed for Spartina alterniflora to be used in shore restoration projects
Filtration and Dissolved Oxygen

The wetland allows visitors to see both the natural filtration function of plants and soil, and the engineered components of scuppers with a roughened surface, which increases the dissolved oxygen level in the water.

The barge wetland acts as a pilot project to demonstrate strategies that can be employed along the river at different scales and in different forms.

The wetland design integrates ecologic systems by making process visible and participatory.

Visitors experience wetland plants in ways that they might not otherwise be able along the shore, and see that plants function to clean, filter and slow water.

This iteration of the design process explored different strategies for inhabiting the wetland, making process tangible and visible, and creating an experience of delight for the visitor.
The Arm

There is great potential for the curricular and phenomenal experience of the barge, in its connection to the shores of the river. The “arm” is a simple, narrow bridge that affords passage between the barge and the shore.

The evolution of the arm stemmed from the belief that the curriculum could reflect a reciprocity between the water of the river and the land it permeates. The physical anchoring of the barge, to land that emerges from beneath the water, makes apparent the relationship between the river and constructions upon it that have significantly altered its disposition in the last century.

The arm is part of the structure of the barge, housed at its side and deployed in certain conditions. The barge may moor where occupation of the shore is both permitted and feasible for The ERP and visitors to the barge, in which case this passage and occupation can become part of the barge curriculum.

Once deployed, the arm becomes a stable structure that is moored at both of its ends with “spuds”, one of these being the very spud that moors the barge itself. This arrangement allows the barge to pivot around this spud, gently rotating as it is swayed by prevailing currents of the river and winds. This phenomenon is one of several afforded by the arm that presents a visceral moment of learning for students of the river’s ecology.