Exterior Render: Arrival to the Ecology Centre.

the ecology centre

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an ecology centre designed to **bridge** the anthropogenic pinch point of the site and restore the sensitive, surrounding ecologies in which it rests within; a recovering anthropocence.

AT THE LAKE LAURENTIAN CONSERVATION AREA, THERE IS A PINCH POINT IN THE LAND, A DAM, WHICH CREATES A DIVIDE BETWEEN NATURAL AND MADE. THIS PROJECT SEEKS TO PROVIDE A MORE SENSITIVE THRESHOLD AND RESTORE ITS SURROUNDING LANDSCAPE FOR BOTH HUMAN AND NON-HUMAN. THE ARCHITECTURE BRIDGES THE ANTHROPOGENIC PINCH POINT OF THE SITES EXISTING DAM THROUGH ORGANIZING THE PROGRAM AS A CONTINUOUS SPACE ALONG THE EXISTING CAUSEWAY.

THE LIGHT FRAME GEOMETRIC STRUCTURE IS LIFTED OFF THE LAND THROUGH THE MEANS OF A SCULPTED FOUNDATION, ALLOWING FOR THE PROGRAM TO EXTEND AND OCCUPY THE INTERSTITIAL SPACES BETWEEN THE ARCHITECTURE AND THE LAND. THE EXTENSIVE EXTERIOR FACADES OFFER A MULTITUDE OF NATURAL LIGHTING CONDITIONS, DIFFUSED AND DIRECTED, RESPONDING TO THE INTERIOR PROGRAMMATIC COMPONENTS AND THE SITES ECOLOGICAL PHENOMENONS. THE MAIN CLASSROOM SPACE SPILLS OUT TO THE OUTDOOR CLASSROOM DECK, PROVIDING VIEWS TO THE WATERWAY FLOWING INTO THE POND BELOW.

THE SENSITIVE DESIGN APPROACH IS ALSO REFLECTED IN THE SURROUNDING LANDSCAPE DESIGN STRATEGY. AN ACCESSIBLE BOARD WALK DESCENDS TO THE WATERS EDGE THROUGH A SERIES OF SWITCHBACK, 1:20 RAMPS. WITHIN THIS AREA ARE PLANTINGS OF LOCAL GRASSLAND SPECIES. WETLAND VEGETATION IS INTRODUCED TO SLOW AND FILTER RUN OFF FROM THE BOARDWALK SYSTEM AND REDUCE RISKS OF EROSION. UPLAND VEGETATION IS PLANTED TO BLOCK COOL NORTH WINDS AND PROVIDE SHADE TO TRAIL USERS. THE LOCAL SPECIES ARE PLANTED IN ACCORDANCE TO THEIR NATURAL SUCCESSION, PROVIDING A UNIQUE OPPORTUNITY FOR ALL USER TO EXPERIENCE THE DYNAMIC ECOLOGY OF THE LAKE LAURENTIAN CONSERVATION AREA.

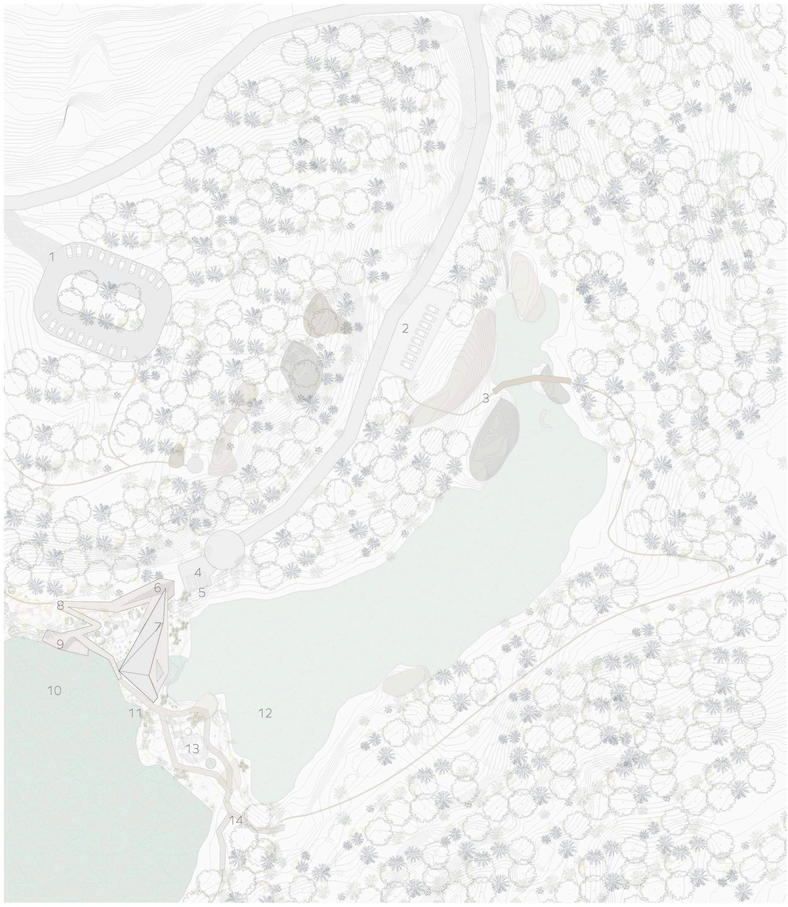
site: re-discovering the landscape

"a scenic natural area located only ten minutes from downtown Sudbury – offers 2,415 acres of protected green space"
- CONSERVATION SUDBURY

Location: North parking lot, facing the causeway, separating Lake Laurentian from the pond. High levels of parking lot run off and sediment enter into the spillway, as little protective measures are currently in place.

Location: Existing outdoor classroom space facing lake Laurentian. Riparian zone vegetation is heavily damaged due to on site activities.

Location: The pond, featuring leatherleaf bog vegetation, was created as a result of the dam structure. The pond flows into Ramsey lake, the primary water drinking source for Sudbury; therefore, the reduction of harmful runoff is essential.

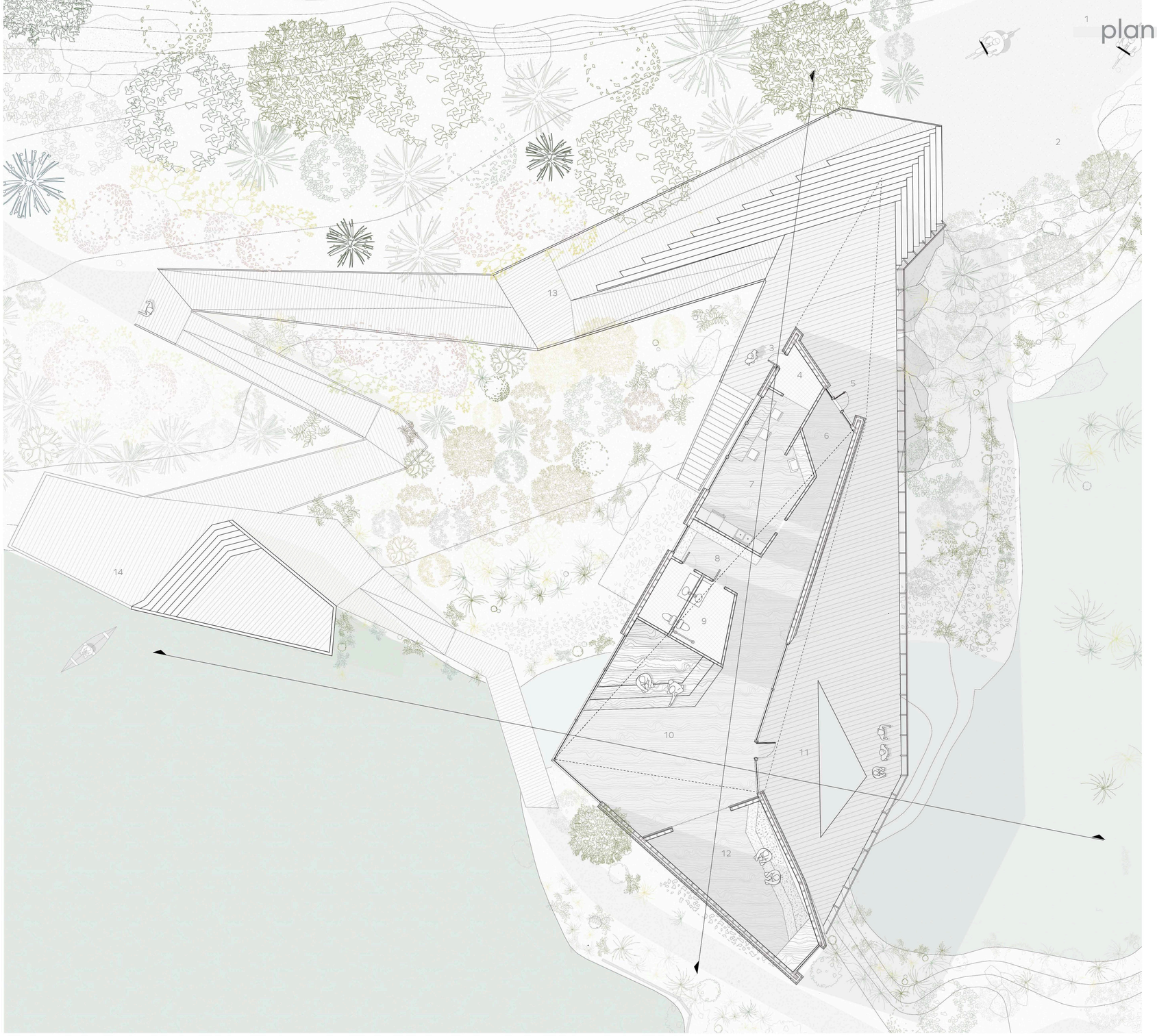


SITE PLAN 1:500

LEGEND

1 Overflow Parking
2 Main Parking
3 Bypass Bridge and Trail
4 Accessible Parking
5 Bioswale
6 Accessible Boardwalk
7 Ecology Centre
8 North Trail Head
9 Boat Launch
10 Lake Laurentian
11 Dam
12 Pond
13 Accessible Trail
14 South Trail Head

plan: choreographing interior | exterior connections



FLOOR PLAN 1:50

LEGEND

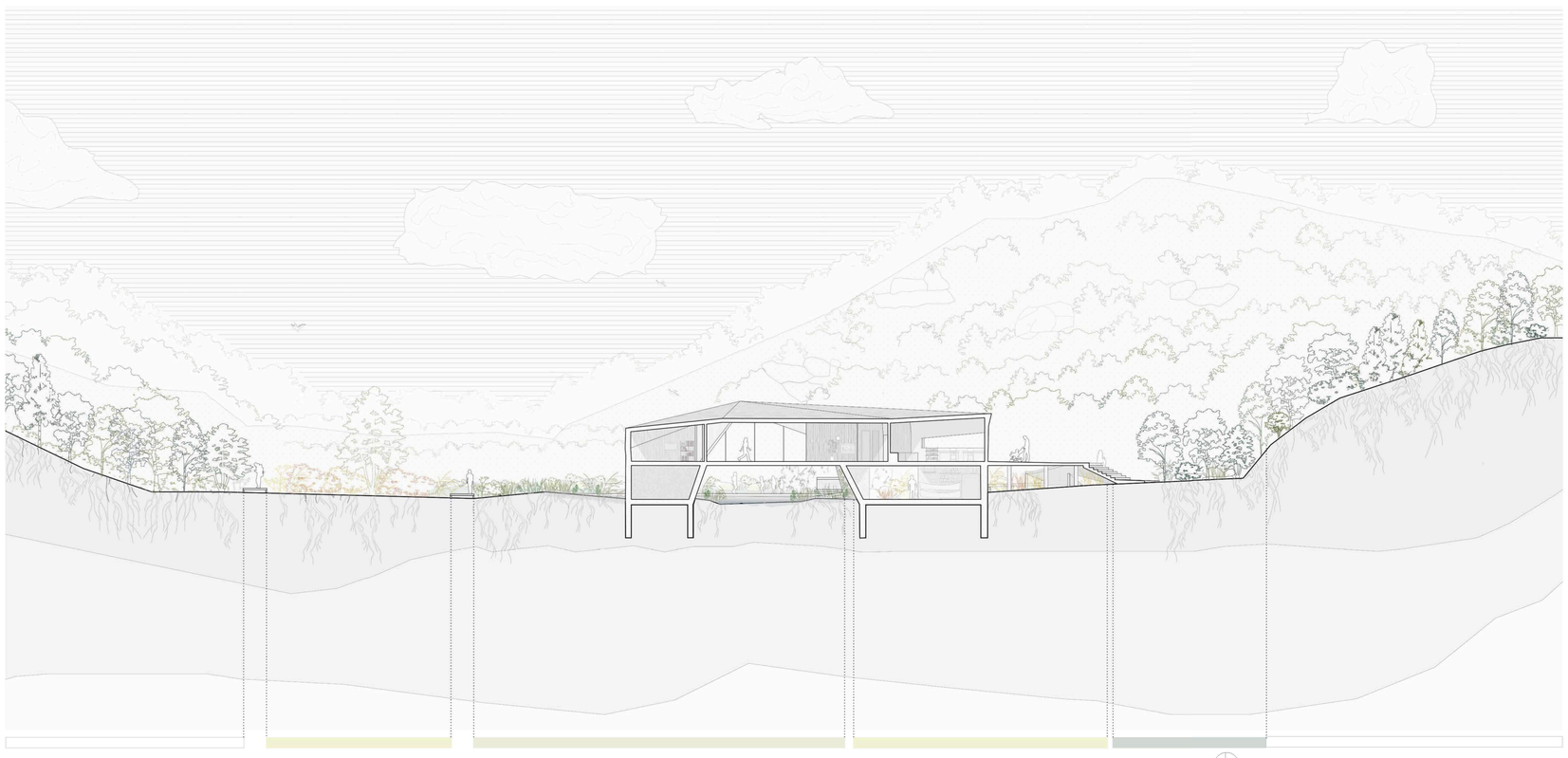
1 Bus Drop Off
2 Accessible Parking
3 Staff Entrance
4 Indoor Storage
5 Main Visitor Entrance
6 Reception Area
7 Administration
8 Mudroom
9 Restrooms
10 Main Classroom
11 Outdoor Classroom
12 Secondary Classroom
13 Accessible Boardwalk
14 Boat Launch

GROUND FLOOR PLAN 1:50

LEGEND

1 Gravel Access Path
2 Storage
3 Water Cistern
4 High Efficiency Boiler
5 Rock Swale
6 Grassland Vegetation
7 Wetland Vegetation
8 Accessible Boardwalk
9 Outdoor Gathering Space
10 Accessible Trail

section: restoring ecological boundaries



EXISTING UPLAND VEGETATION

PURPOSED GRASSLAND VEGETATION
Sweet Gale
Sphagnum Moss
Milk Weed
Golden Rod
Rice and Hair Grass

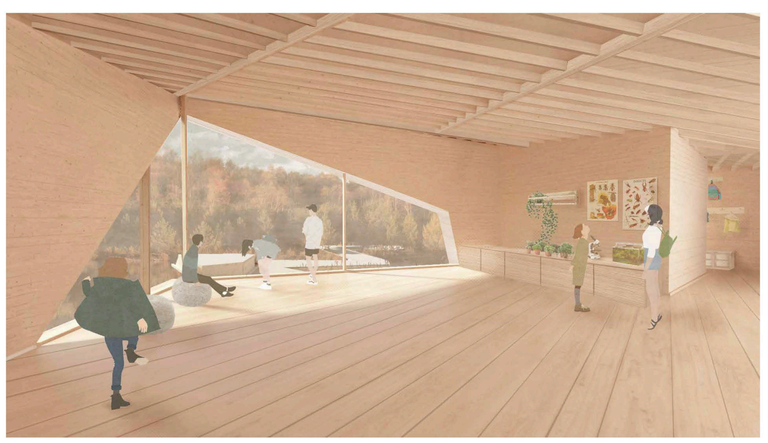
PURPOSED WETLAND VEGETATION
Leatherleaf
Sedges
Bulrushes
Cattail

PURPOSED UPLAND VEGETATION
Red Pine
White Birch
Red Oak
Aspen
Blueberries

LONGITUDINAL SECTION 1:100

The site landscaping strategy is in correspondence with ecological succession patterns. Species listed are native to the conservation area and support pollinator and indicator species. The reintroduction of these ecological boundaries provides services such as: the reduction of erosion and flood damage, filtration of run-off, and the provision of biodiversity.

Interior Render| Front Entrance: Soft, diffused light enters the space and spills into the connecting hallway, leading to the indoor and outdoor classroom spaces. The connecting structural detail of the east wall guides the eye towards the glulam beams, spanning the ceiling.



Interior Render| Main Classroom: The flowing water runs under the middle of the structure, where the main indoor and outdoor classrooms are programmed. Directed light floods into the space and rhythmic shadows are casted from the exposed timber rafters.

Exterior Render| Accessible Boardwalk: The accessible boardwalk descends to the boat launch. Grassland vegetation provides habitat for pollinator and indicator species, birch and pine trees provides shade to trail users.

CROSS SECTION 1:50

The interstitial space between the structure and spillway allows for the outdoor programming to extend. This space also allows for non-human species to continue to occupy the landscape underneath the architecture.

structure: exploring light and form

EXPLODED AXONOMETRIC| STRUCTURAL DIAGRAM

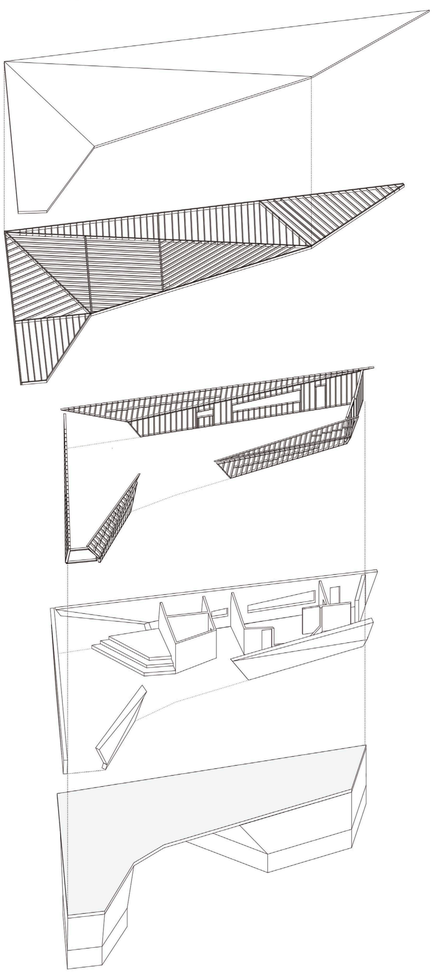
ROOF SYSTEM IS COVERED WITH A CEDAR SHAKE, WHICH WILL SILVER WITH TIME

ROOF FRAMING IS COMPOSED OF THREE PRIMARY PANELS

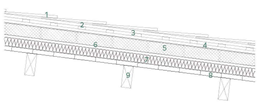
EXTERIOR, ANGULAR WALLS ARE FRAMED AS PANELS AND CONNECTED WITH FASTENERS

INTERIOR WALLS TRANSFER THE LOAD OF THE LARGE SPANNING ROOF PANELS

THE SCULPTED FOUNDATION LIFTS THE STRUCTURE OFF THE LAND, AND PROVIDES SURFACE AREA FOR BIO-RECEPTIVE PANELS

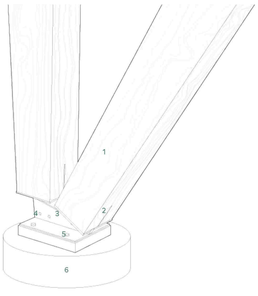


STRUCTURAL DETAILS



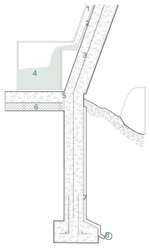
ROOF DETAIL
1:10

1 Cedar Shingles
2 Waterproofing layer
3 Strapping
4 Plywood
5 Rigid Insulation
6 Plywood
7 Insulation
8 Timber decking
9 Timber roof structure



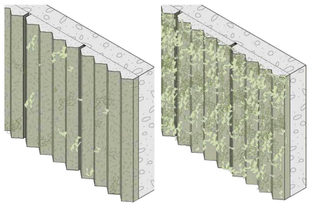
STRUCTURAL COLUMN DETAIL
1:5

1 Timber support structure
2 Steel plate
3 Galvanized steel base plate
4 Steel plate bolt connection
5 Steel base plate bolt connection
6 Concrete foundation



FOUNDATION DETAIL*
1:20

1 Drain pipe
2 Vapor barrier
3 Reinforced concrete foundation wall on footing over compacted gravel or bedrock
4 Water cistern
5 Expansion joint
6 Rigid insulation
7 Waterproofing Membrane
8 Perimeter drain



ARCHITECTURAL MEDIATOR| BIO RECEPTIVE PANEL*

PANEL OVER 5 YEAR PERIOD
1:10

The exterior of the Ecology Centres' concrete casted foundation walls provides an excellent opportunity for organisms to grow and flourish on specifically designed bioreceptive concrete panels,faceted to the exterior foundation. The panels are milled to create depressions, allowing for increased growth surface area. The panels are seeded, encouraging growth of local sphagnum moss, and lichen.

* Presented in Architecture and Ecology, ARCH 2326, final panel assignment