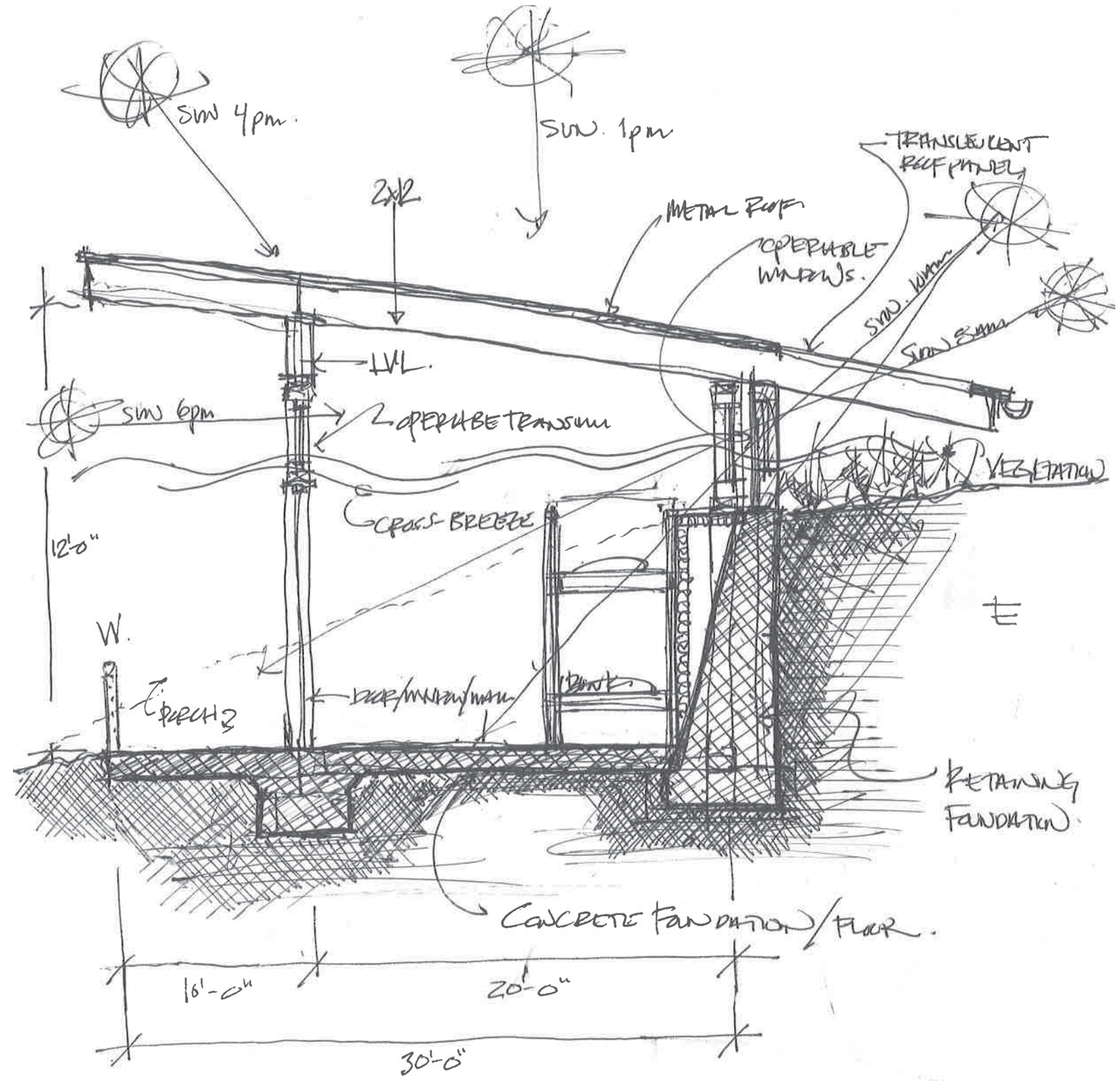
SUB-GRADE CABIN

Our cabin combines a passive sustainable design that uses its site to maintain itself, with the ease and economy of prefabrication.

The intent of our design is to utilize the existing topography of the site as a means of insulating the cabin on three of the four exterior walls. By building the cabin within the ground we also alleviate the need to raise the floor plan above grade to accommodate the slope while increasing the thermal capacity of the walls without adding artificial insulation to the walls and floor. The cabin is sited so as to take advantage of the existing waterfront view through various glazed openings along the west façade. Additionally, through the cabin's orientation, direct southern solar heat gain is minimized in the summer; softer east and west direct sun is admitted into the cabin early morning and late evening, which minimizes the need for artificial lighting during those hours of the day when lighting is most needed. Modest size PV panels installed on the roof shall provide sufficient electrical loads to power artificial lighting during night hours and cloudy days.

The majority of the cabin walls are constructed of reinforced concrete due to their placement below grade. The remaining exposed portions of the cabin utilize SIP (structurally insulated panel) walls; the SIP walls allow for prefabrication of the wall systems off-site for quality control, cost savings and ease of assembly on-site. The SIP panels are finished with a cedar clap-board siding that references the exterior aesthetic of existing cabins. Additionally, we elected to use 6" SIP wall construction, which achieves an average thermal resistance rating of R-41. Roof construction is composed of LVL spanning joists, traditional plywood sheathing and a standing seam metal roof. Interior ceiling is finished with 4" closed cell spray foam insulation and tongue-and-groove cedar plank.

Our design goal is to create a cabin that is well constructed of quality materials for longevity, is well insulated and properly sealed for thermal / energy performance and offers a unique design that excites and teaches those who visit the camp.



SUB-GRADE CABIN
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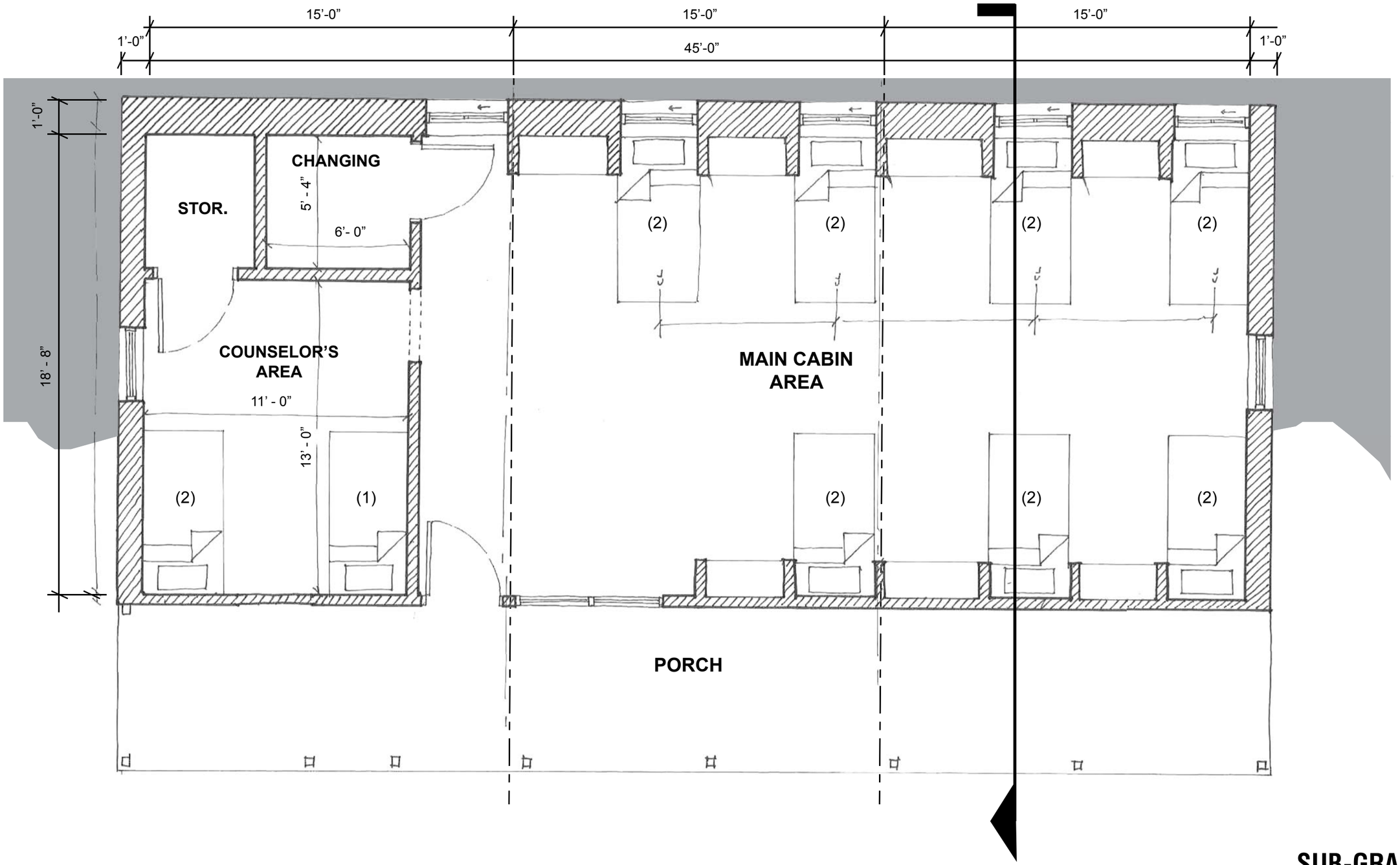

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FLOOR PLAN
SCALE: 1/4" = 1'-0"

N

SUB-GRADE CABIN
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FRONT ELEVATION
SCALE: 1/4” = 1’-0”

SUB-GRADE CABIN
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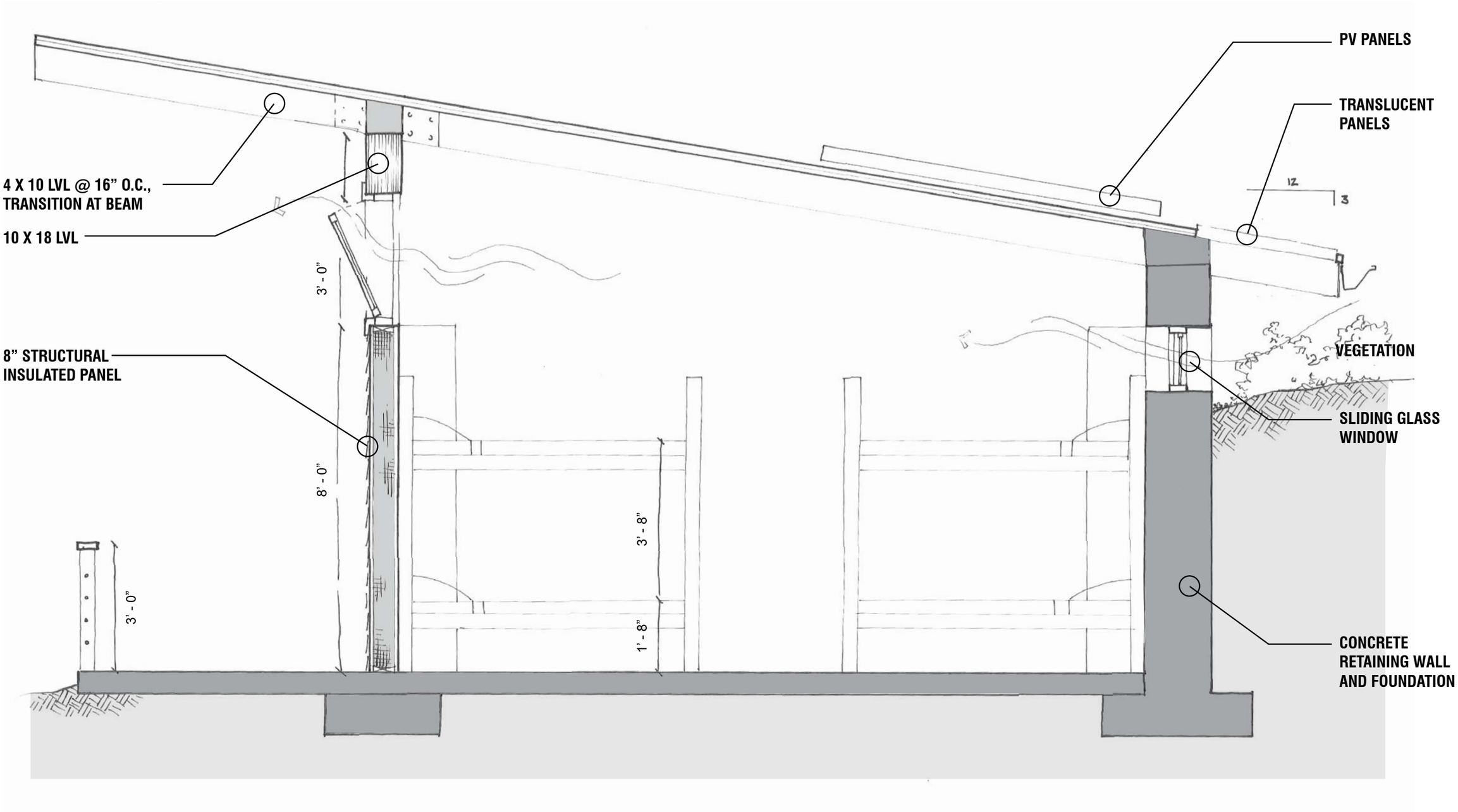

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BUILDING SECTION
SCALE: NONE

SUB-GRADE CABIN
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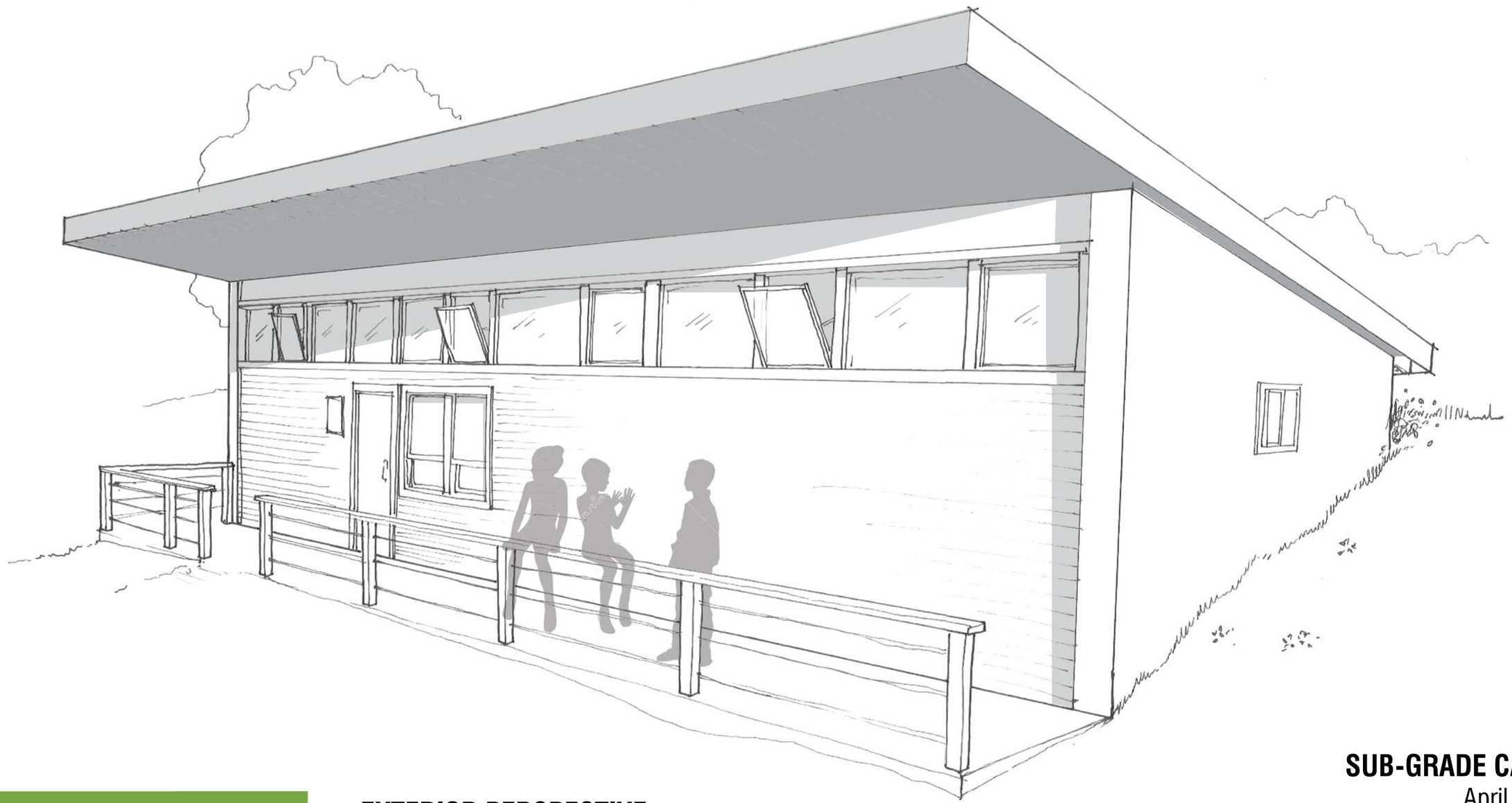

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EXTERIOR PERSPECTIVE
FRONT OF BUILDING

SUB-GRADE CABIN
April 2016

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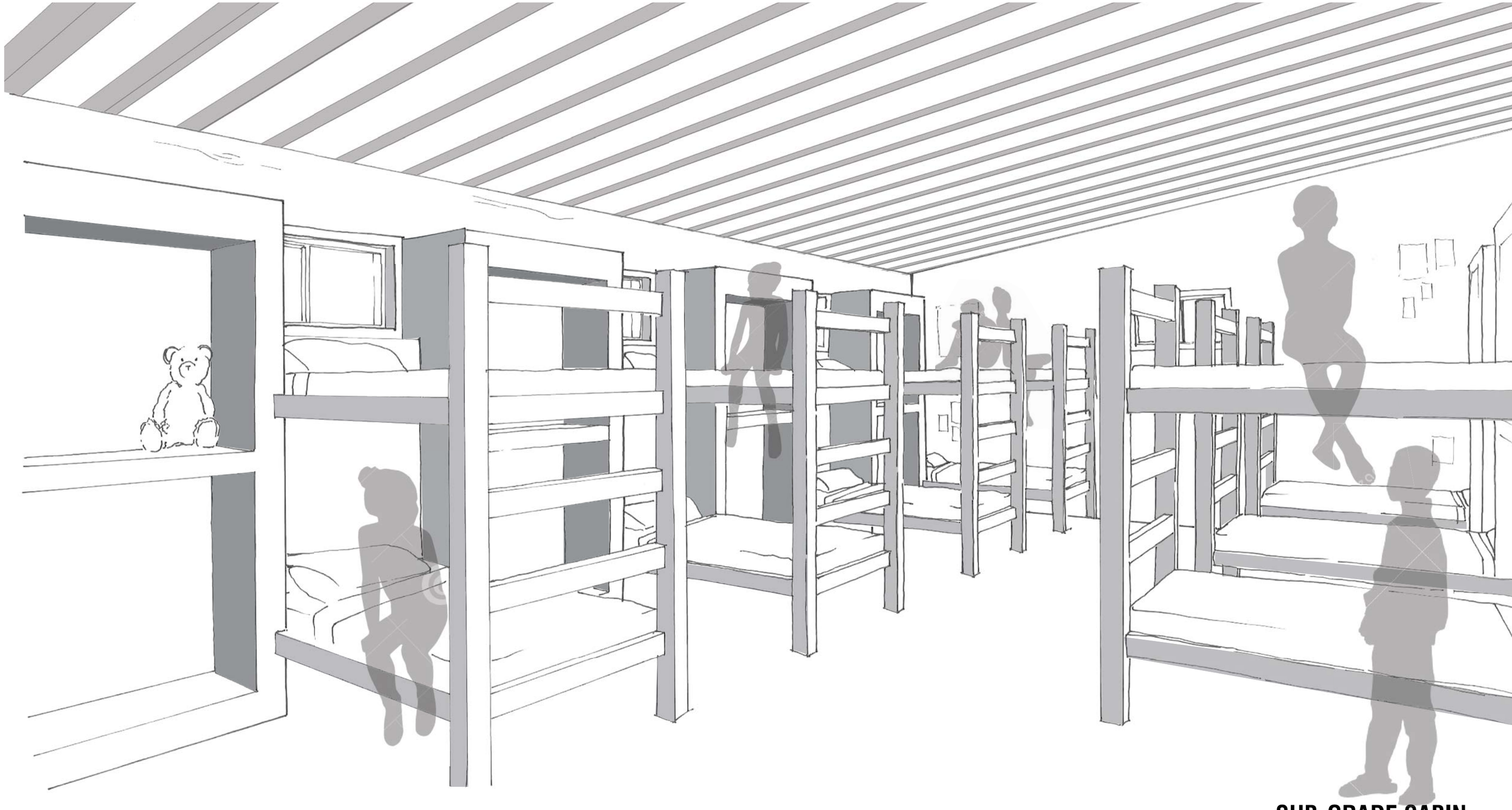

SUB-GRADE CABIN
April 2016

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INTERIOR PERSPECTIVE
MAIN CABIN AREA

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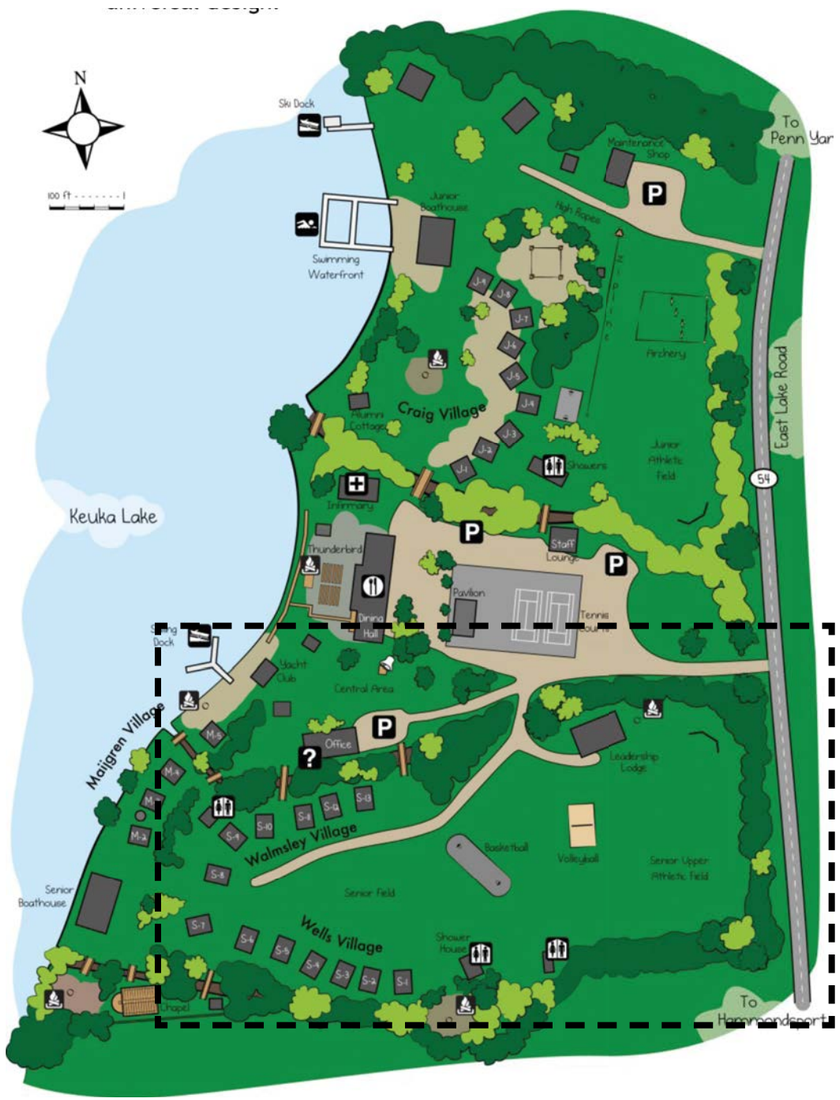

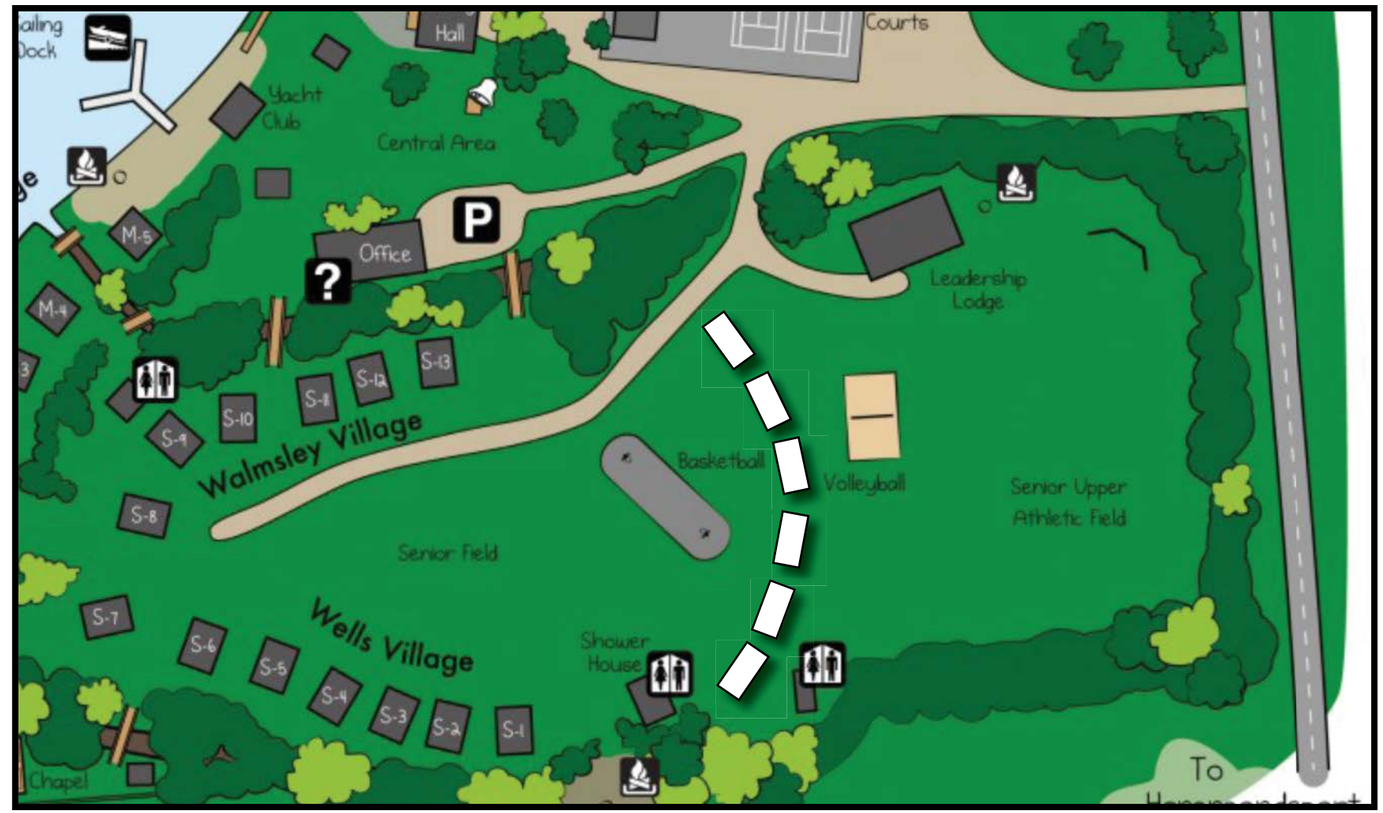

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SITE PLAN
NO SCALE

SUB-GRADE CABIN
April 2016

Architecture Week Design Competition