BECOMING THE LAND

THE SYNTHESIS OF ARCHITECTURE AND NATURE

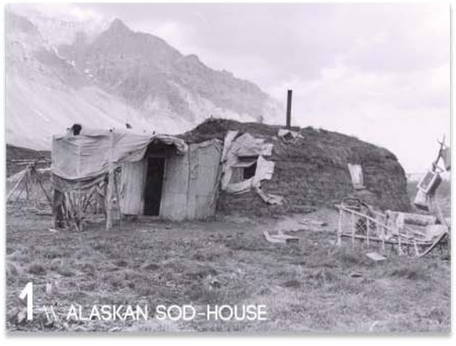
Matthew Axtmann | Design Thesis

001 // Thesis Abstract | Theoretical Premise

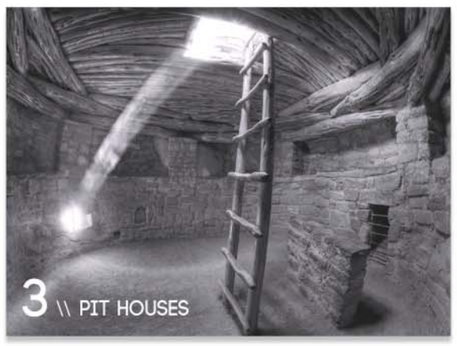
Can architecture become an extension of its landscape through the replication of nature's innate characteristics? A thesis analyzing the integration of the built environment with nature.

We must learn to harvest the primordial and intrinsic principles of our past while constructing future architecture. To build with the land as our ancestors did; to create cohesive ecosystems comprised of both built and natural environments. Civilizations such as the Anasazi used the protection of a cantilevered mountain edge to build under for protection. The Incan empire built upon the terraced steps of Machu Picchu. These early nations let the landscape determine their infrastructure. The ability to modernize these rudimentary concepts can be a testament to human nature. More complex and tentative adaptations can be made to our landscape integration with a more diverse way of thinking. We can again resort to the natural environment for directing and determining how we construct our future buildings. If architecture begins to react the way humans, animals, ecosystems, and environments act, it becomes one in the same; a harmonious synthesis of architecture and the natural word.

"What was once open land, filled with sunlight and air, with a distinct relationship to the horizon, becomes a building. The artifices [trickery or slyness] of humans supersede what nature has deposited on a given place." -Aaron Betsky


1 \\ ALASKAN SOD-HOUSE

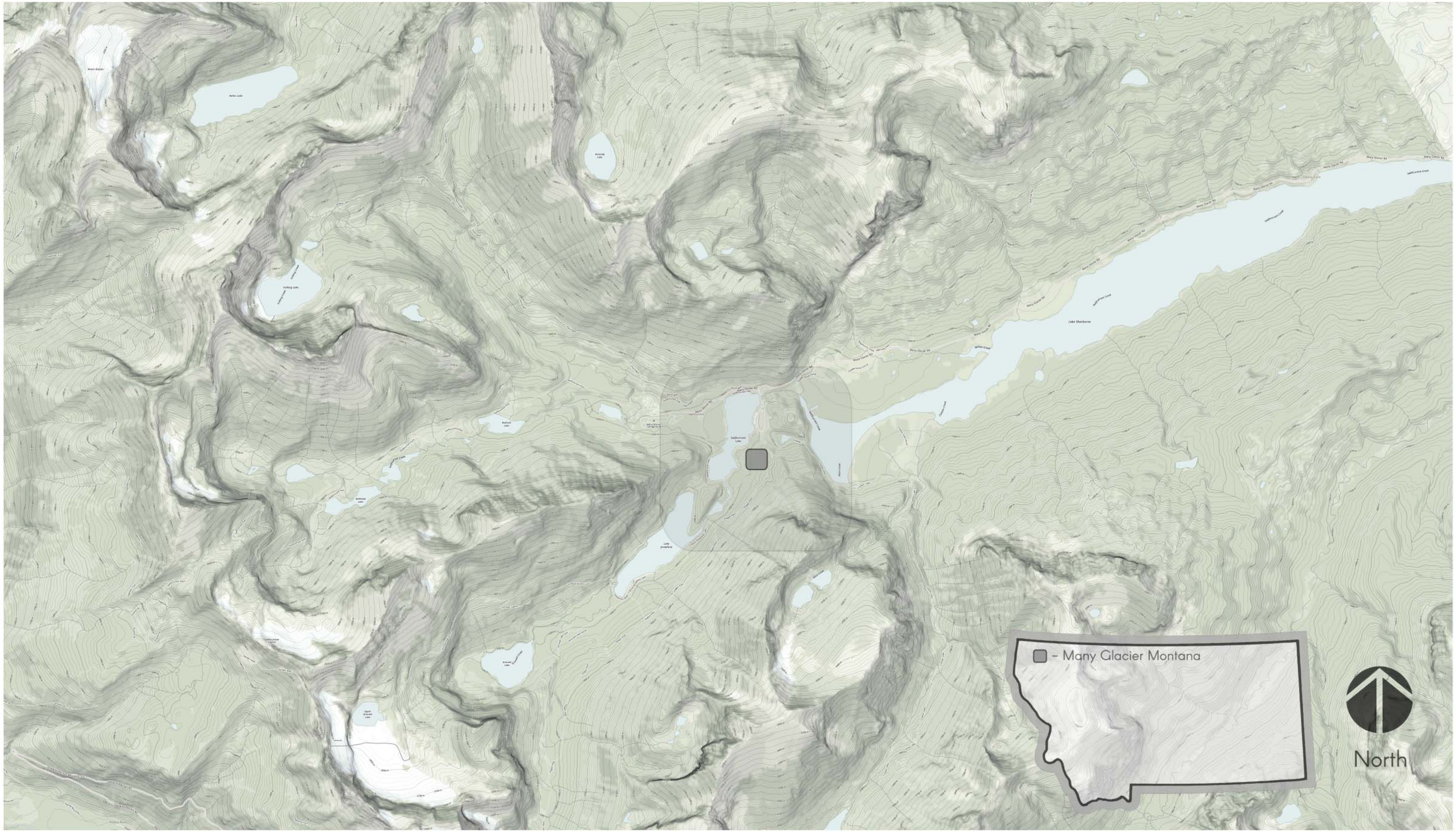

2 \\ MESA VERDE


3 \\ PIT HOUSES


4 \\ MACHU PICCHU


5 \\ GOREME CAPPADOCIA

002 // The Macro Site



003 // The Micro Site

004 // The Typology and Park

Glacier Park Research Facility and Tourism Center

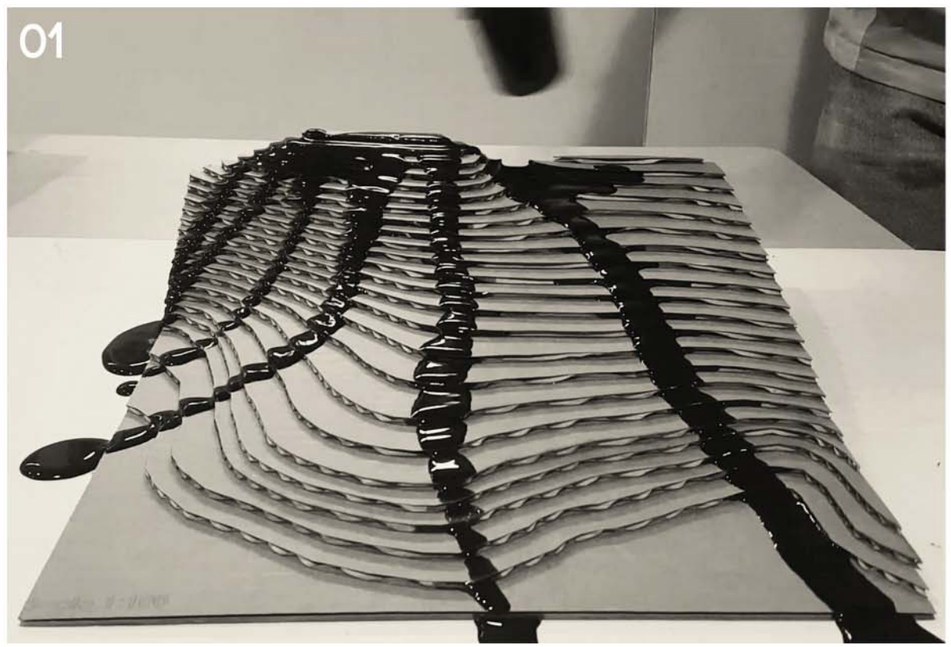
Tourism: Observation, Exhibits, Tourist Information, Classrooms, Cafe, and Theater.

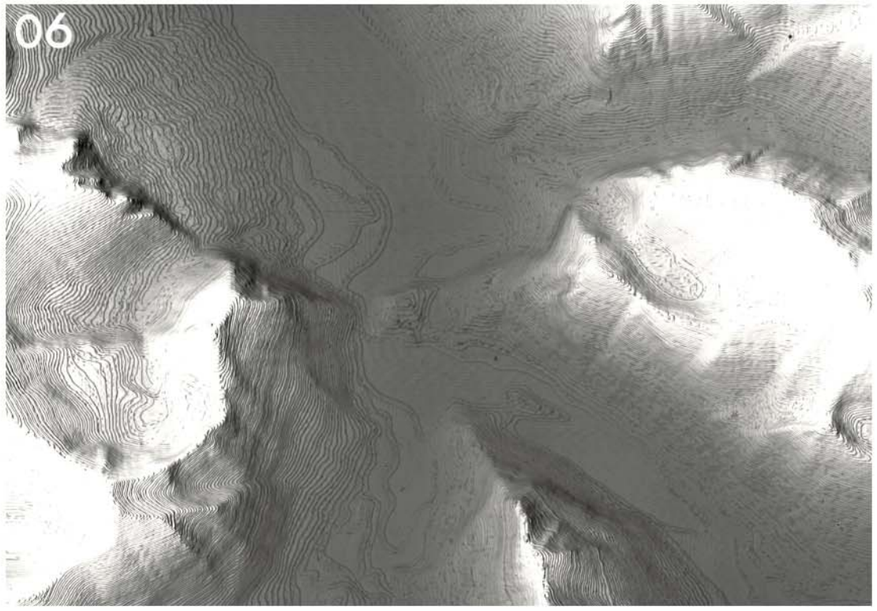
Employee: Climatology, Glaciology, Wildlife Preservation, Comp Labs, S. Equipment, and National Parks Office.

In 1850, Glacier National Park had 150 glaciers. Today, only 25 remain large enough to be considered active. USGS stated that “glaciers have receded rapidly since the Park’s establishment in 1910, primarily due to long-term changes in regional and global climate. I have a passion for learning about these glaciers and why throughout history so many have disappeared.

Designing a research facility that focuses on the education and research of climatology, glaciology, and National preservation is something that paralleled these passions perfectly. Situated in the Northeast portion of the park, the site location is within a 5 mile radius of 8 active glaciers including one of the largest, the Grinnell Glacier. Testing the theoretical abstract in a location so delicate and effected so negatively by climate change was very pertinent.

005 // The Design Process



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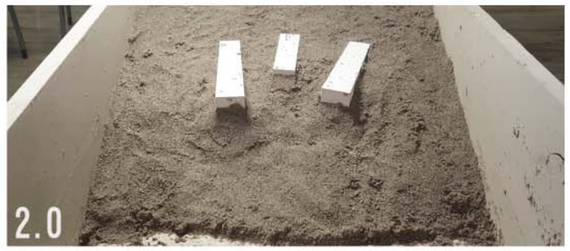
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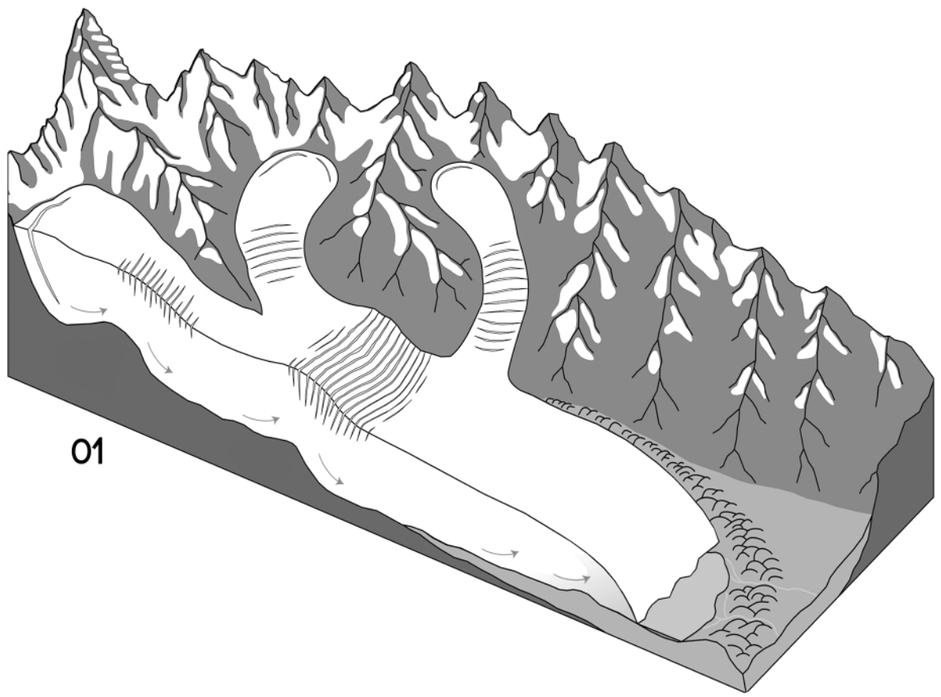
007 // The Design Process



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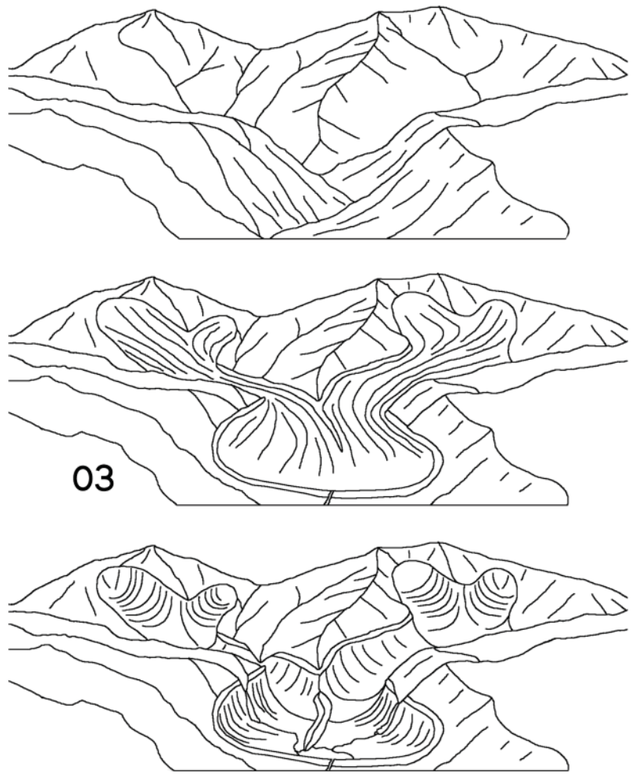

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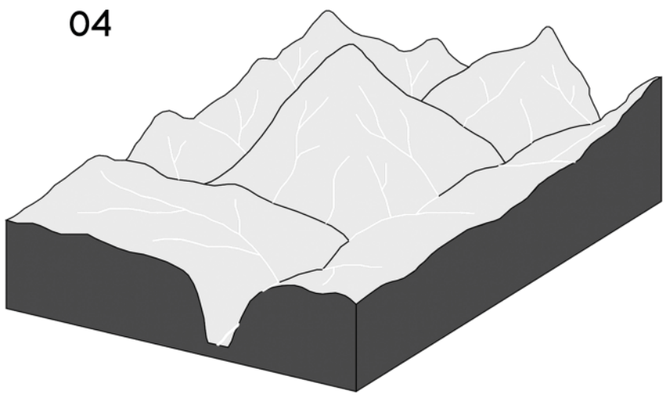

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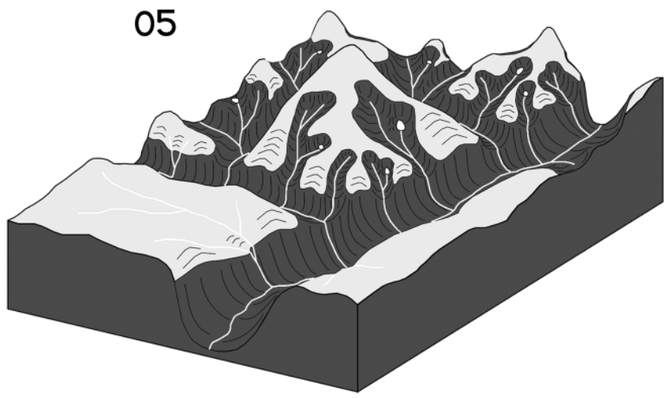

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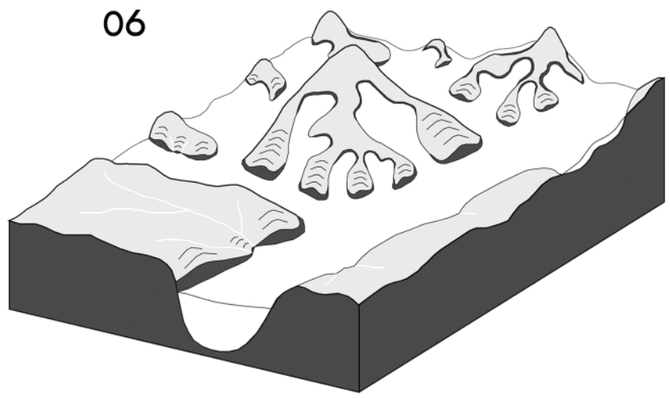

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008 // The Process Takeaway

// Glaciers exist below grade, The architecture can act in a similar fashion

// Use the natural contours of the site to determine architectural form

// Allow for natural migration patterns of regional animals

// Preserve the beauty of the site, by not impeeding on views

// The natural operations of the site should maintain their intended processes, don't impede

// As eskers, drumlins and morains snake through the land, as should the design

// The material should be of the land, holistically taken from its setting

EXTERIOR SOUTH WING | WINTER

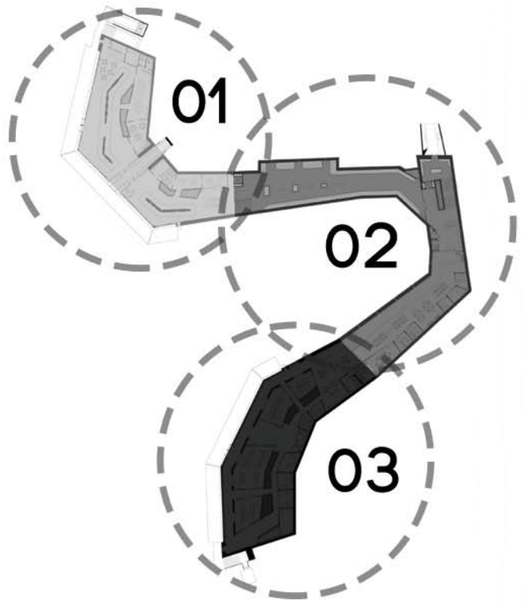
010 // The Site Plan

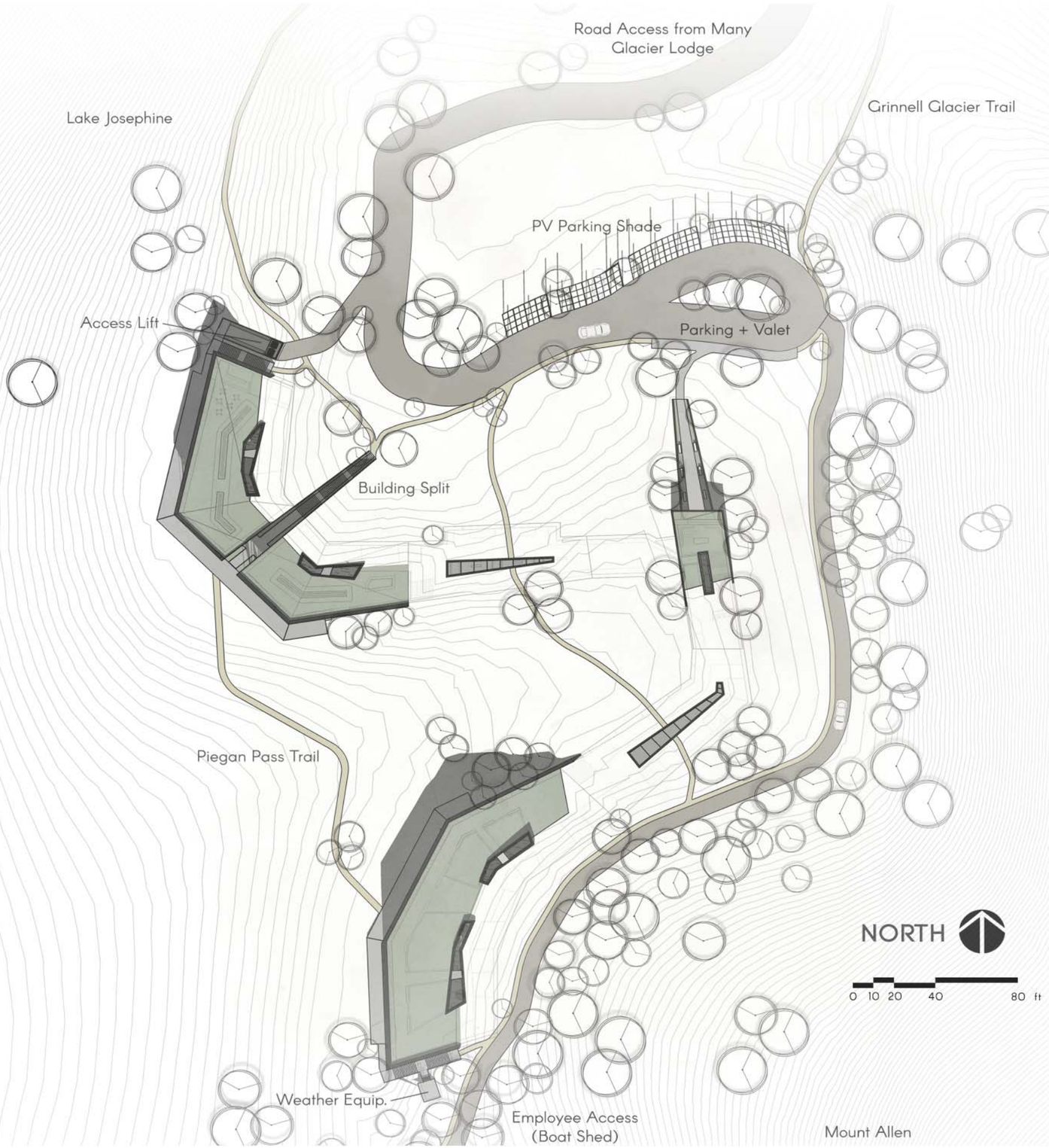
SITE PLAN LEGEND

Many Glacier, Montana | (48.792325, -113.656263) | Elev. 6691 ft
This site positioned in the Northwest portion of Montana lies 13.84 miles from the Canadian border. Its closest city is Babb Montana approximately 11.2 miles east of the site location. Its position its just east of the continental divide and sits within the rocky mountain range between Altyn peak, Allen Mountain, and Mt. Grinnell.

01- 14,007 Sq Ft (Partially Buried) Tourist Exhibits and Classrooms
02- 16,340 Sq Ft (Fully Buried) Entrance/Lobby, Exhibits, and Offices
03- 16,410 Sq Ft (Partially Buried) Research Labs and Offices

Total= 46,757 Sq Ft





011 // The Floorplan

- A Depressed Egress Path
- B Lobby with Lockers
- C Reception
- D Women W.C
- E Men W.C
- F Parks Departments Offices
- G Collaborative Workspaces (NPS)
- H Meeting Room (NPS)
- I Employee Lounge
- J Collaborative Study (W.P)
- K Computer Lab
- L Glaciology Lab
- M Glaciology Offices
- N Climatology Lab
- O Climatology Offices
- P Mechanical/Storage
- Q Cold Room
- R Specialty Equipment
- S Employee Kitchen
- T Geological Exhibit
- U Classrooms
- V Exhibit Space
- W Cafe
- X Outdoor Patio

012 // The Details (Entry)

0 3 6 12 24 ft

S.01 \\ N-S SECTION (ENTRANCE)

013 // The Details (Entry)

014 // The Details (Hike Trail Split)

0 3 6 12 24 ft

S.04 \\ NW-SE SECTION (NP OFFICES)


01
02 03
04
05
06

017 // The Details (Tourist Exhibition Space)

0 3 6 12 24 ft

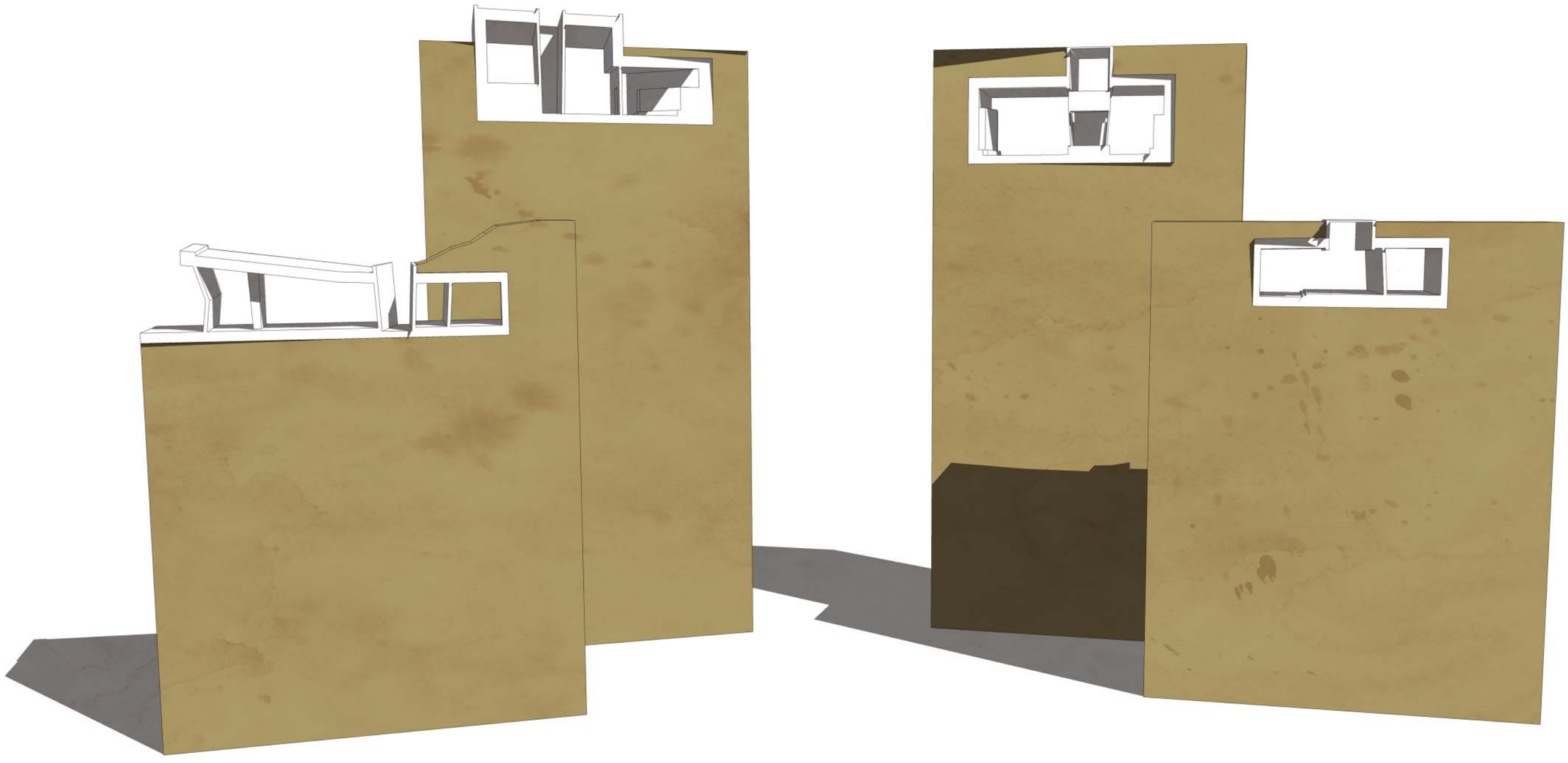
S.03 \\ E-W SECTION (TOURIST CENTER)


Cafe
GNP's Active Glaciers
Did You Know?
On-going Research
Since the last ice age ended, around 10,000 years ago,
there have been many slight climate fluctuations that
have been mirrored by the growth or recession of glaciers.
Based on current trends, however, glacier recession models
predict that by 2030, Glacier National Park will be without
glaciers. Most of the park's glaciers, being of small to moderate
size, will likely be gone before then, as many glaciers are
receding faster than their predicted rates.

0 3 6 12 24 ft

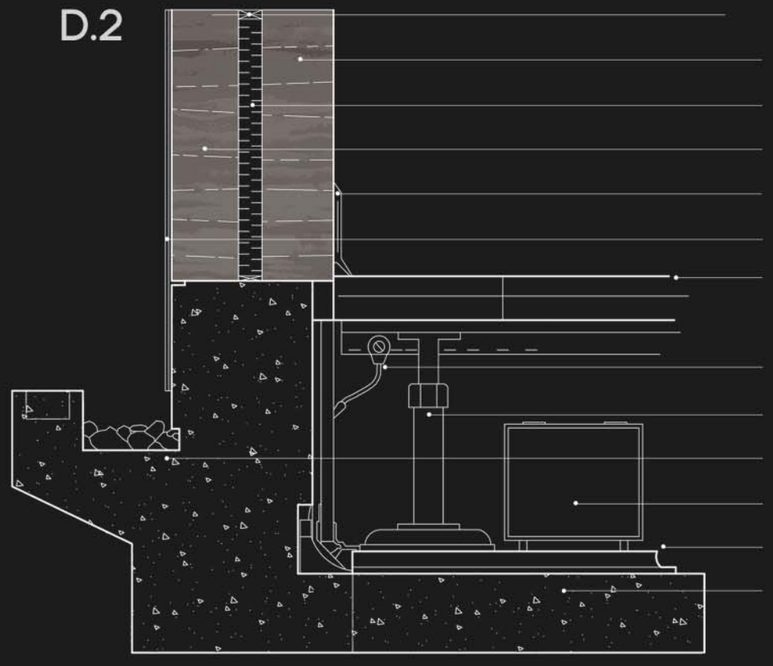
S.02 \\ E-W SECTION (RESEARCH LAB)

020 // The Details (East and West Wings)



022 // The Details (Construction)

D.2



'Trex' Wood Blocking

250 Rammed Earth Wall- Reinforced

100 Polyisocyanurate Insulation

250 Rammed Earth Wall- Reinforced

Cove Basing (9 inches)

Moister Resistant Exterior Membrane

Tiled Removable Flooring

#4 AWG min, Stranded Ground Jumper

Sub-Structural Flooring Column

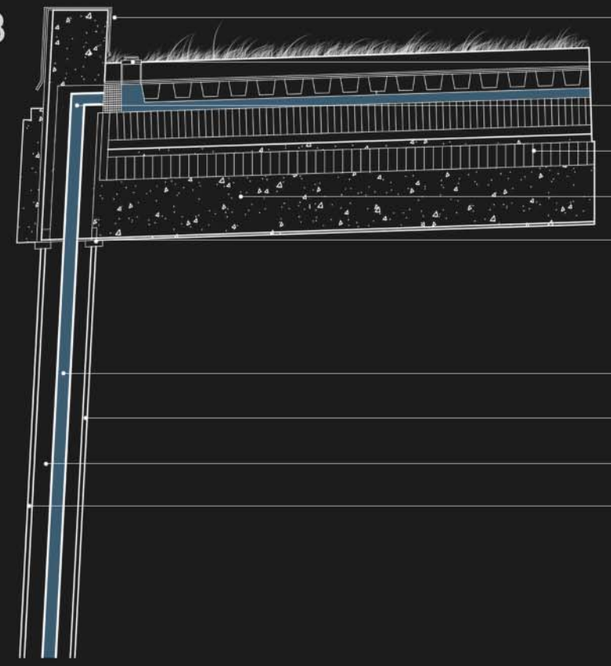
Crushed Drain Tile

HVAC Ducting

Dielectric Membrane

Concrete Footing (Reinforced)

D.3



Metal Sheet Parapet Cap

Access To Drain Filter

PVC Water Drain Tube (Runs Between Glass)

Rigid Insulation (8 inches)

Site Cast Reinforced Concrete (18" inches)

Header Mullion

Drain running to Water Reservoir

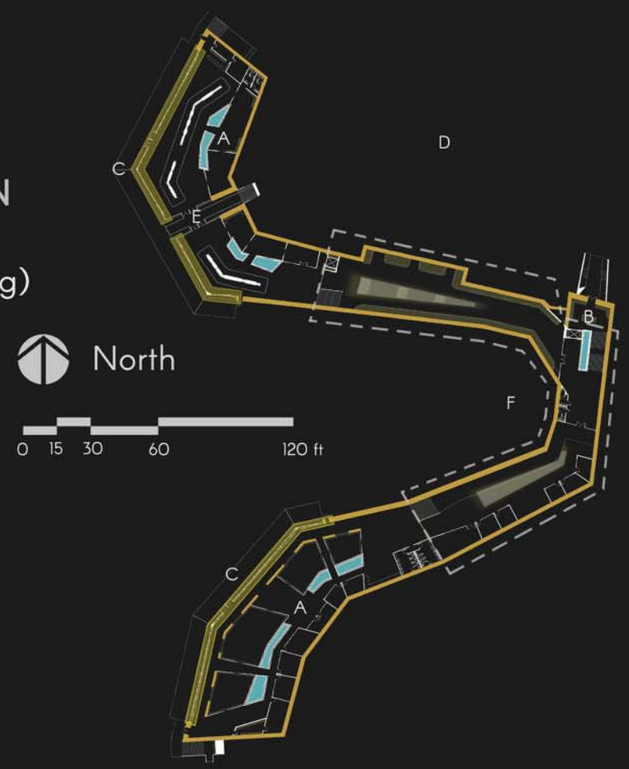
1/2 Inch Low- E Insulated Glass

Vapor Barrier

1/2 Inch Low-E Insulated Glass

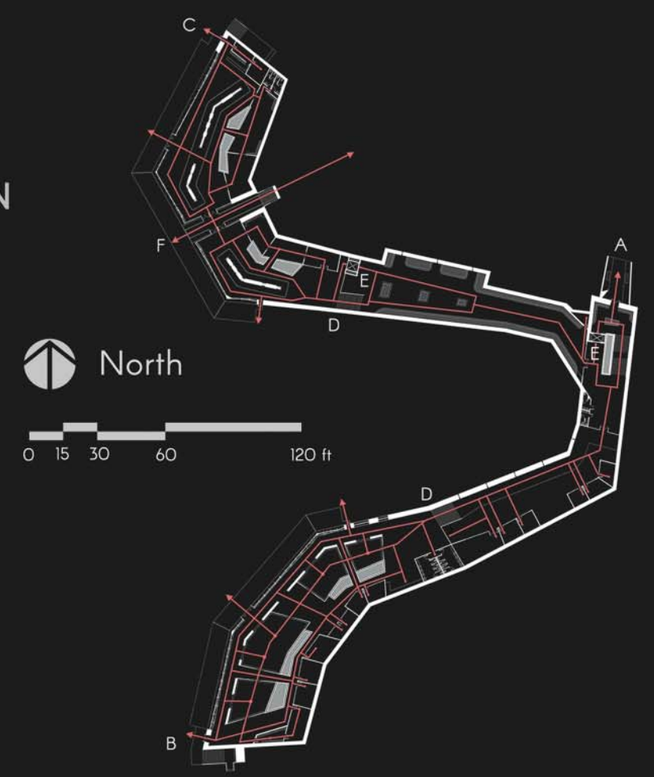
EMP.1 \\ PASSIVE PLAN

A. Water Collection (250 g)
B. Thermal Wall
C. Solar Heat Gain
D. PV Array
E. Natural Ventilation
F. Earth Insulation



EMP.3 \\ EGRESS PLAN

A. Main Entry
B. Employee Entrance
C. Service Entry
D. Smock Barrier
E. Elevator
F. Building Split



024 // Thank You (Comments, Questions, Discussion)