

The Ephemeral Population

Housing for a Transient Workforce

A Design Thesis

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Problem Statement

In what ways do oil drilling operations affect nearby communities?

Claim

Because of the great economic growth and development associated with them, oil booms have an influence on communities that find themselves near drilling sites.

Premises

When discovered, oil attracts many companies and firms who wish to profit off of its acquisition.

The newfound oil discovery becomes the dominant factor in nearby communities' economies and, therefore, influences their decision making processes.

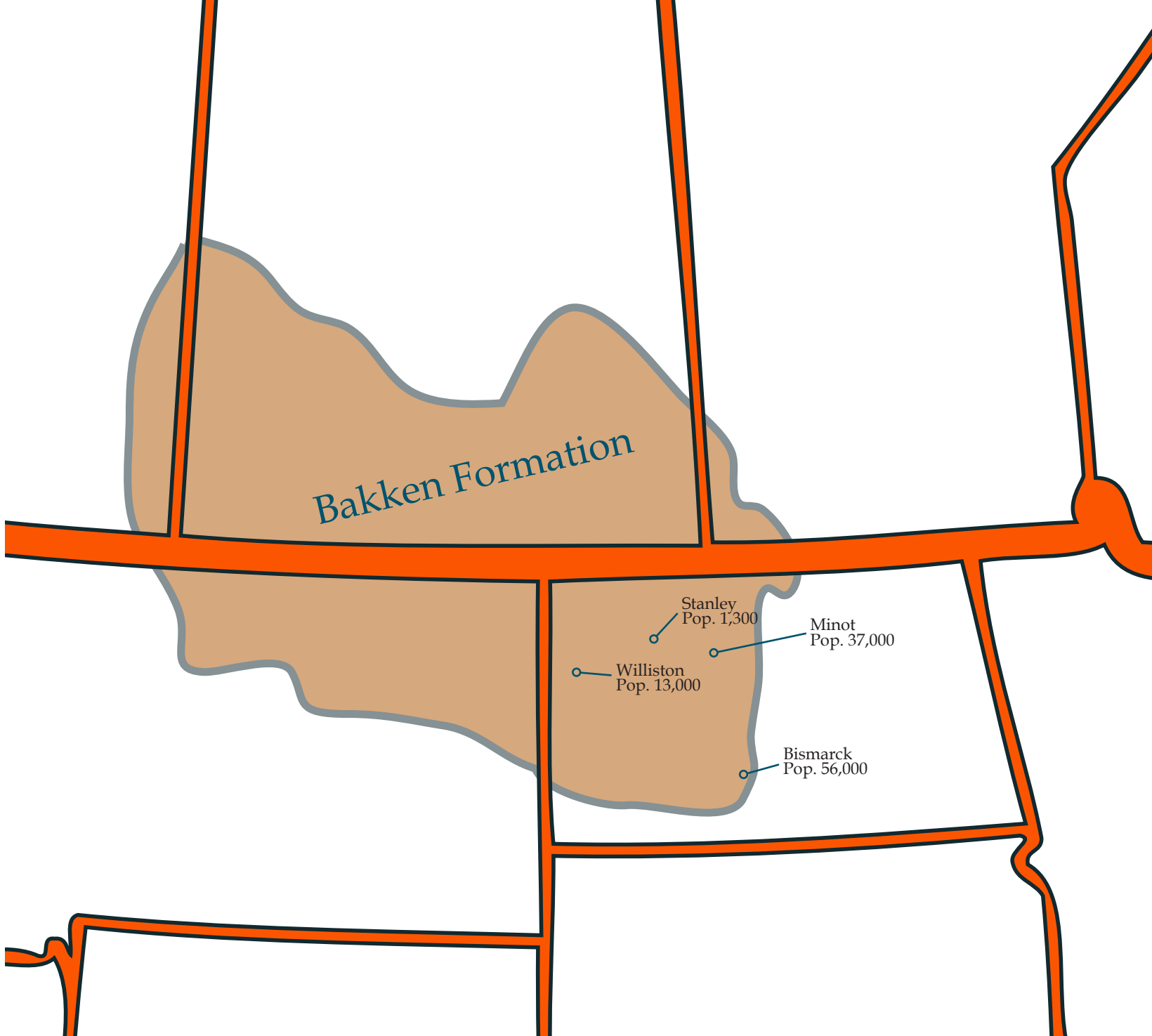
This dramatic change in their economy prompts rapid population growth which puts a strain on their infrastructures.

Unifying Idea

Oftentimes when an oil drilling site is abandoned, the community in which it created is as well. In order for the community to continue to thrive, it is crucial that design decisions are sensitive to the volatility of the business.

Typology

This is a residential typology in the form of a housing community that is able to adapt to the various needs of an area in transition.



Bakken Formation

Stanley
Pop. 1,300

Minot
Pop. 37,000

Williston
Pop. 13,000

Bismarck
Pop. 56,000

North Dakota Oil...briefly

1951: Oil discovered near Tioga

1970's: Oil and gas production ramps up

1981: "Peak" oil. We are beginning to use oil faster than we can find it.

Mid 80's: Price of a barrel plummets. Production in ND all but stops. The profits do not cover the cost of extraction. The first big "bust."

90's - 00's: Extraction methods are advancing. Directional drilling and horizontal drilling allow for oil to be reached faster, more efficiently, more economically, and at greater depths.

2008: Hydraulic fracturing technique. Oil prices skyrocketing. Production, again, ramps up in western ND.

2010: 112 million barrels of oil extracted this year. Puts ND at the 4th highest crude oil producing state behind California, Texas, and Alaska.

The Good

-Very low unemployment

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- Excellent Wages

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Thriving Economy

The not-so-good

-Fundamental changes in small town life

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- Water supply

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- Waste management

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Infrastructure

A map showing the Bakken Formation in North Dakota. The formation is shaded in light brown and outlined in grey. It is bounded by thick orange lines representing major roads or highways. Four cities are marked with blue dots and labeled with their names and populations: Stanley (1,300), Minot (37,000), Williston (13,000), and Bismarck (56,000). The text 'The Site Stanley, ND' is located in the bottom right corner.

Bakken Formation

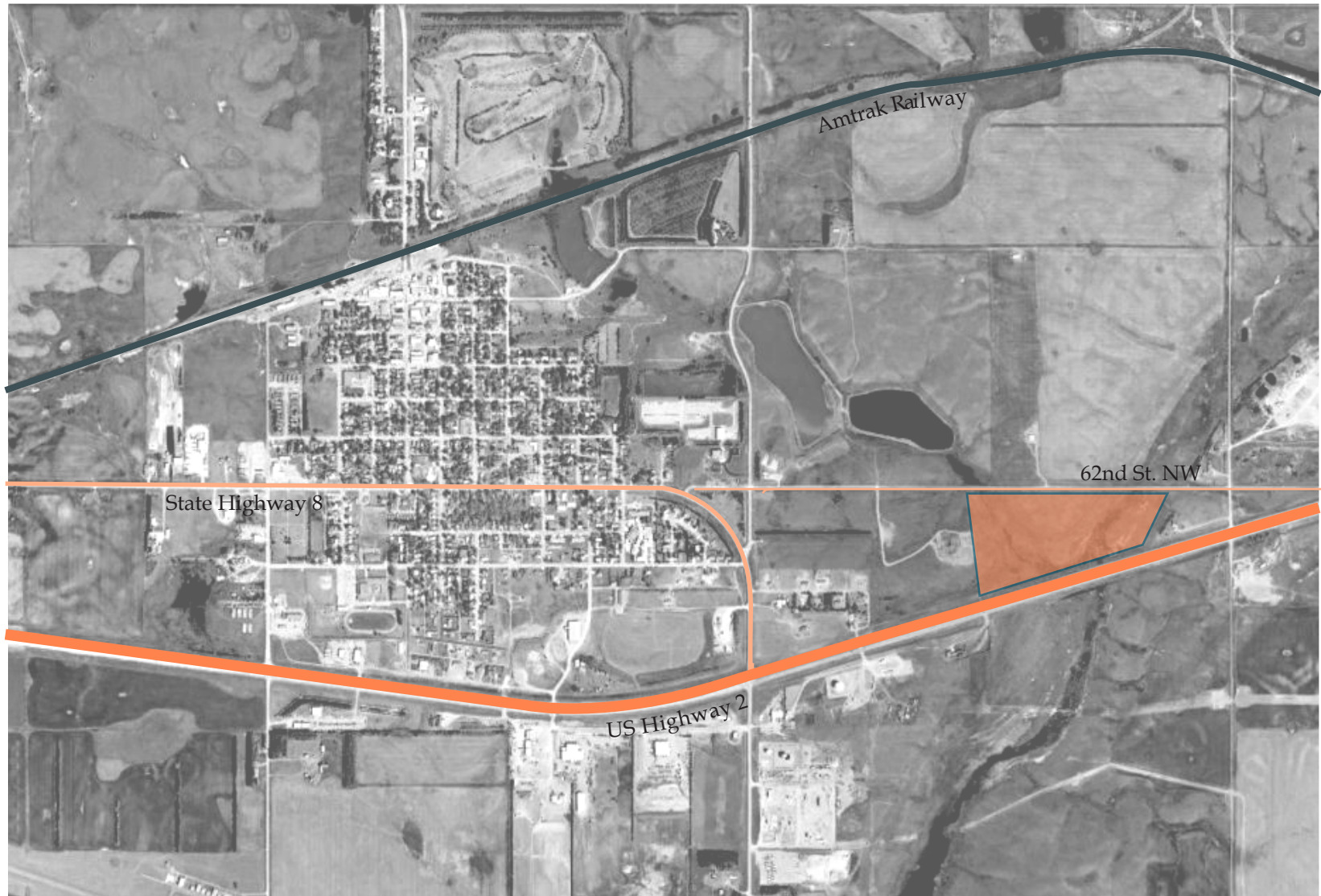
Stanley
Pop. 1,300

Minot
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Pop. 56,000

The Site
Stanley, ND



Amtrak Railway

State Highway 8

62nd St. NW

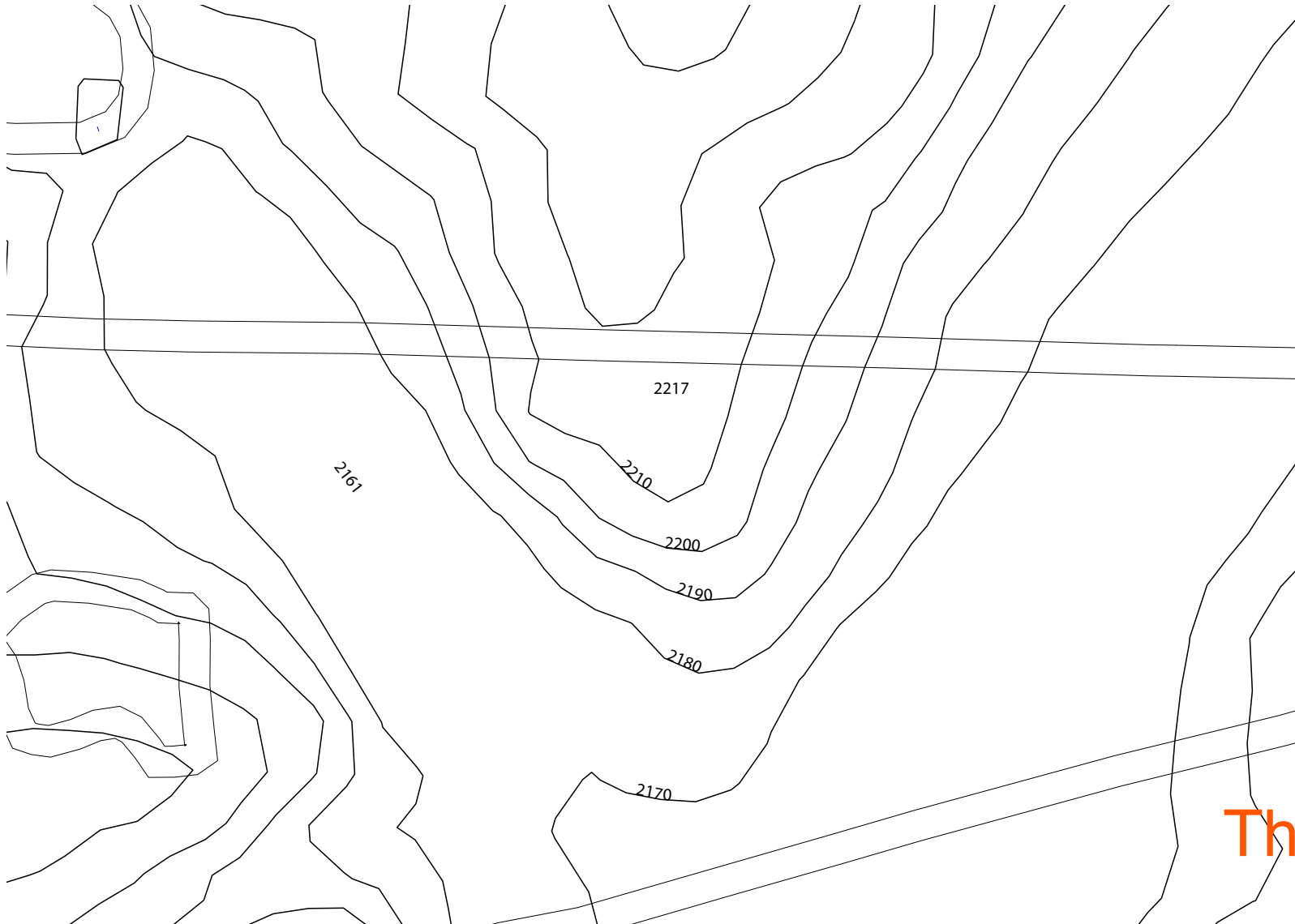
US Highway 2

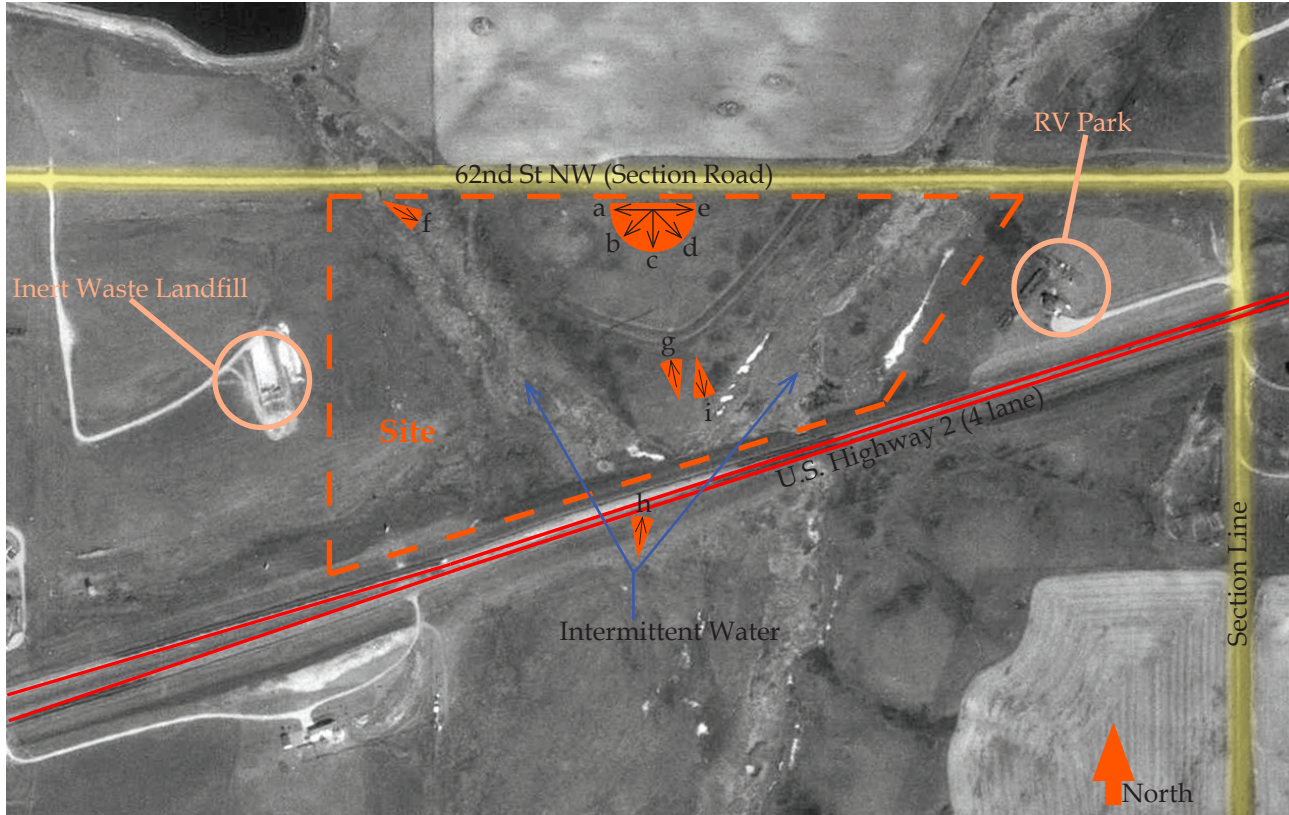
The Site
Stanley, ND



The Site
Stanley, ND

The site falls from 2217 feet above sea level at it's highest point to 2161 feet above sea level at it's lowest. This is a drop of 56' over a distance of 700'. The steepest portion of the site has a 16% slope which is too steep to comfortably walk on, and is nearly too steep for a vehicle to drive upon. The flat area on top of the hill, as well as the areas at the base of the hill, have a slope of 2.5% or less. These areas seem flat to the user, but still drain adequately, and are suitable for all activities.







The Site
Stanley, ND



The Site
Stanley, ND



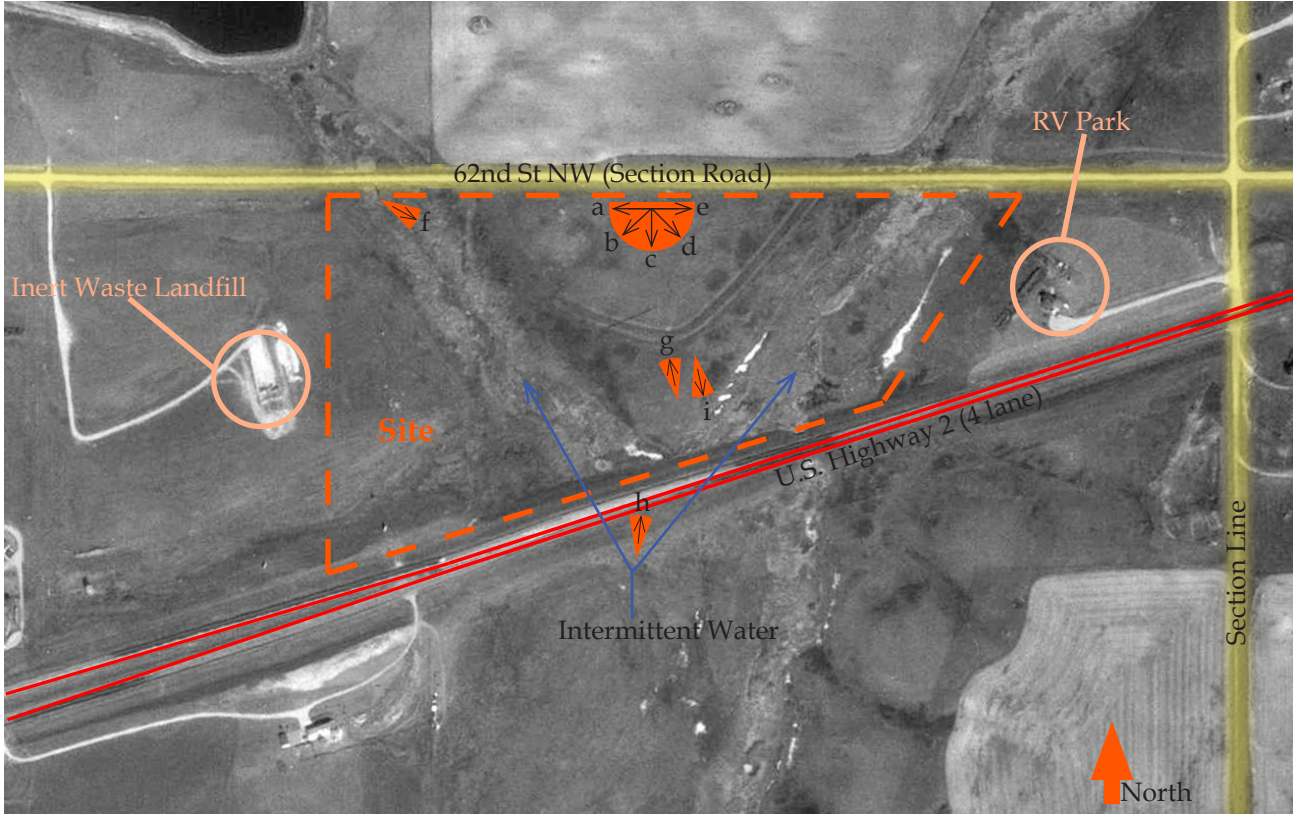
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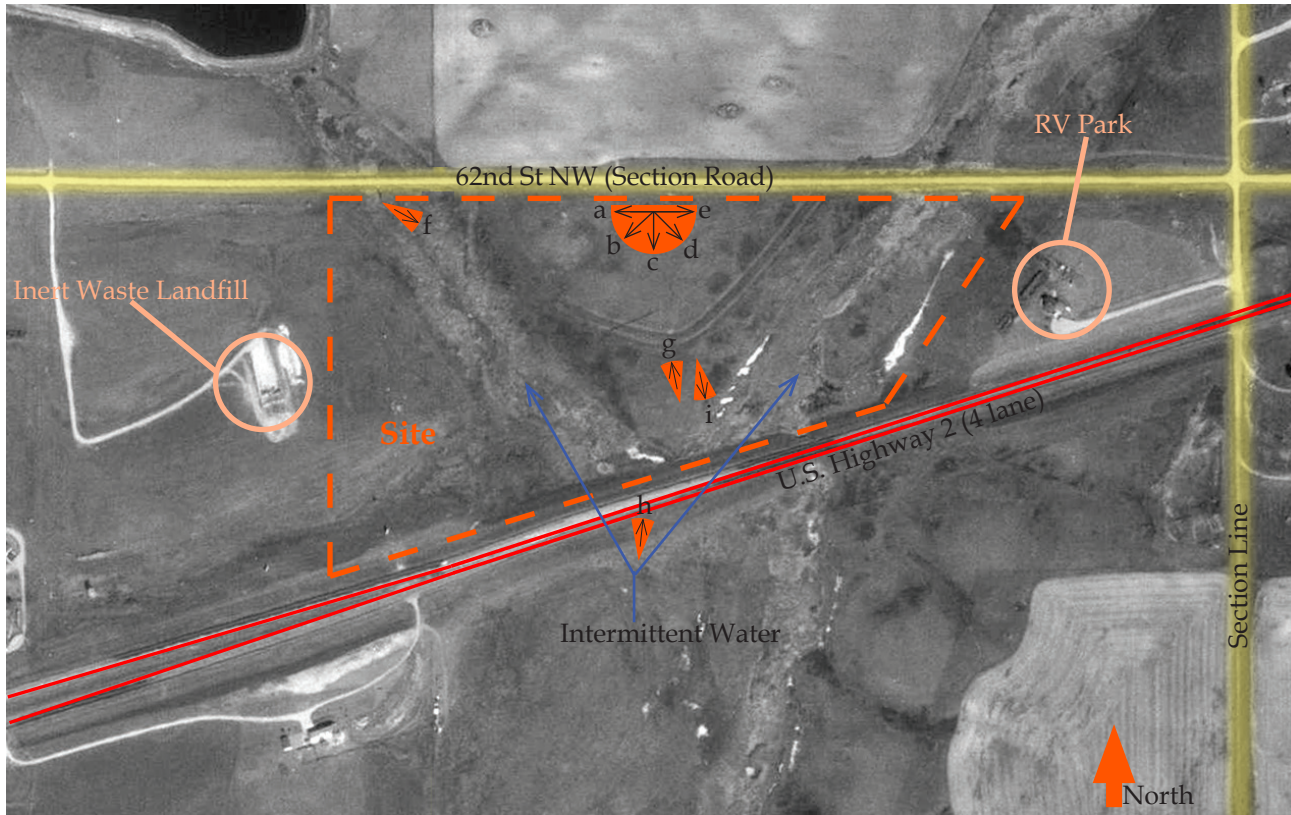


The Site

Stanley, ND



The Site
Stanley, ND





The Site
Stanley, ND

Important Notes

- Sewage lagoons lie adjacent to site.
- No utilities are present on site.
- South facing hill provides shelter from winter winds and allows for natural heating and daylighting.

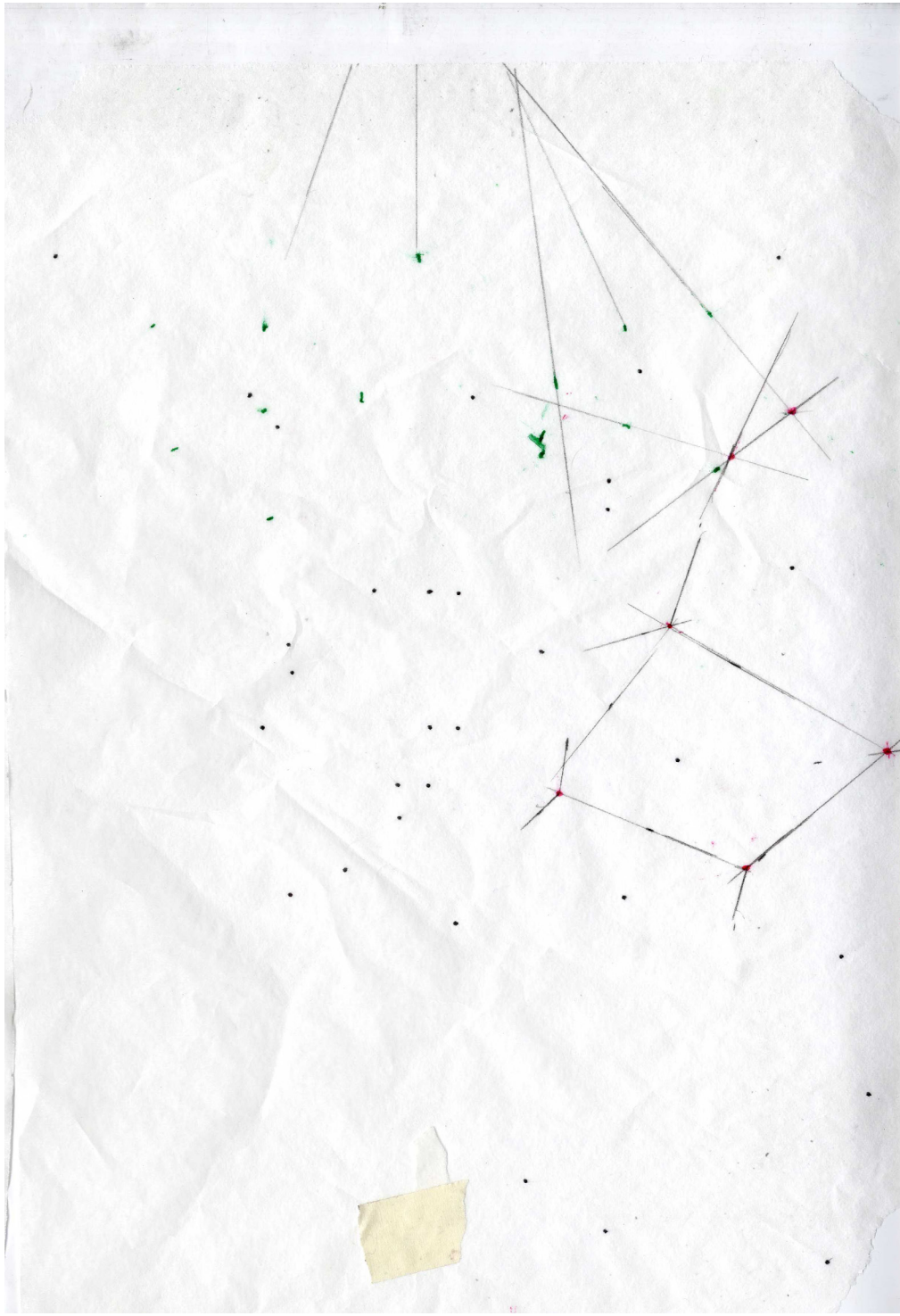
- Provide **housing** for a transient workforce near Stanley, ND
- Avoid straining the overburdened **infrastructure**
- Establish a “**model**” that is able to be used in other situations with little modification.
- Because of its temporary nature, design must be **non-invasive** to the site
- “**Give back**,” somehow, to the context
- Be aware of, and design for, the **mental and social implications** of a “temporary” community
- Consider construction, logistical, and economic issues associated with the typology; **Think ahead**.

Objectives



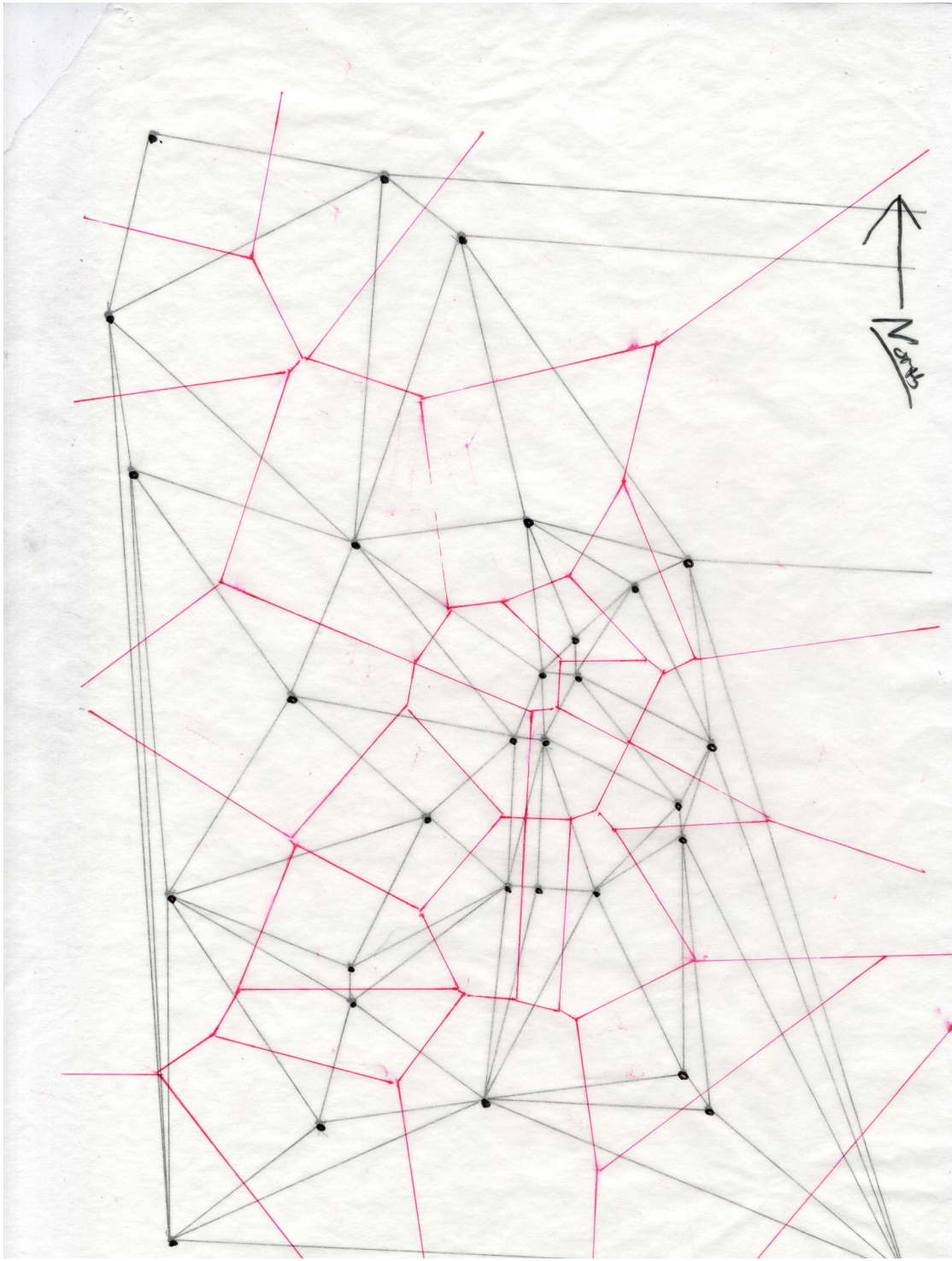
Points generated from a map overlay.
Each point represents an oil well location.

Design



Beginning a Voronoi tessellation.

Design

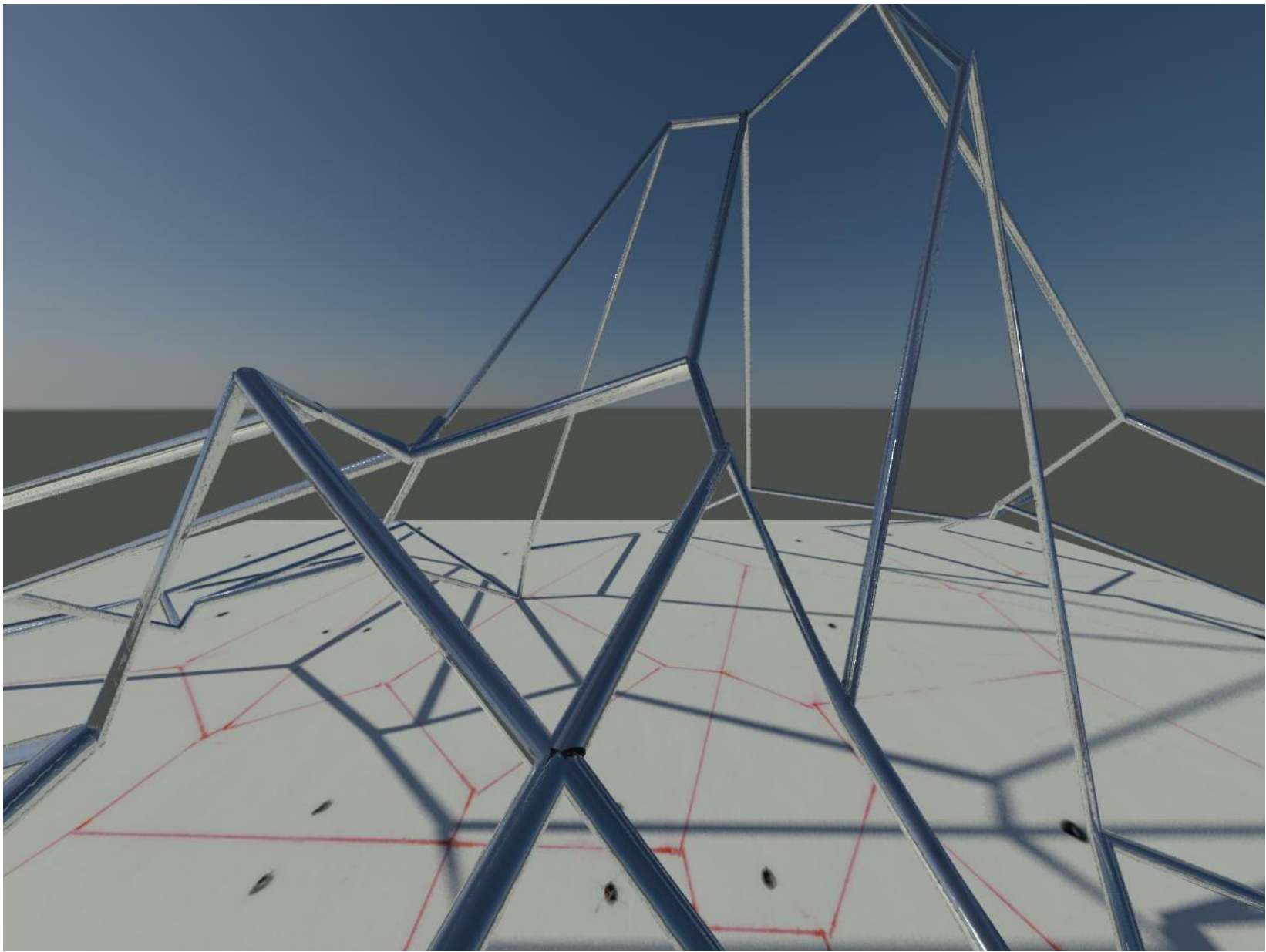


Completed Voronoi Tessellation (red) overlaid on a Delaunay Triangulation (black).

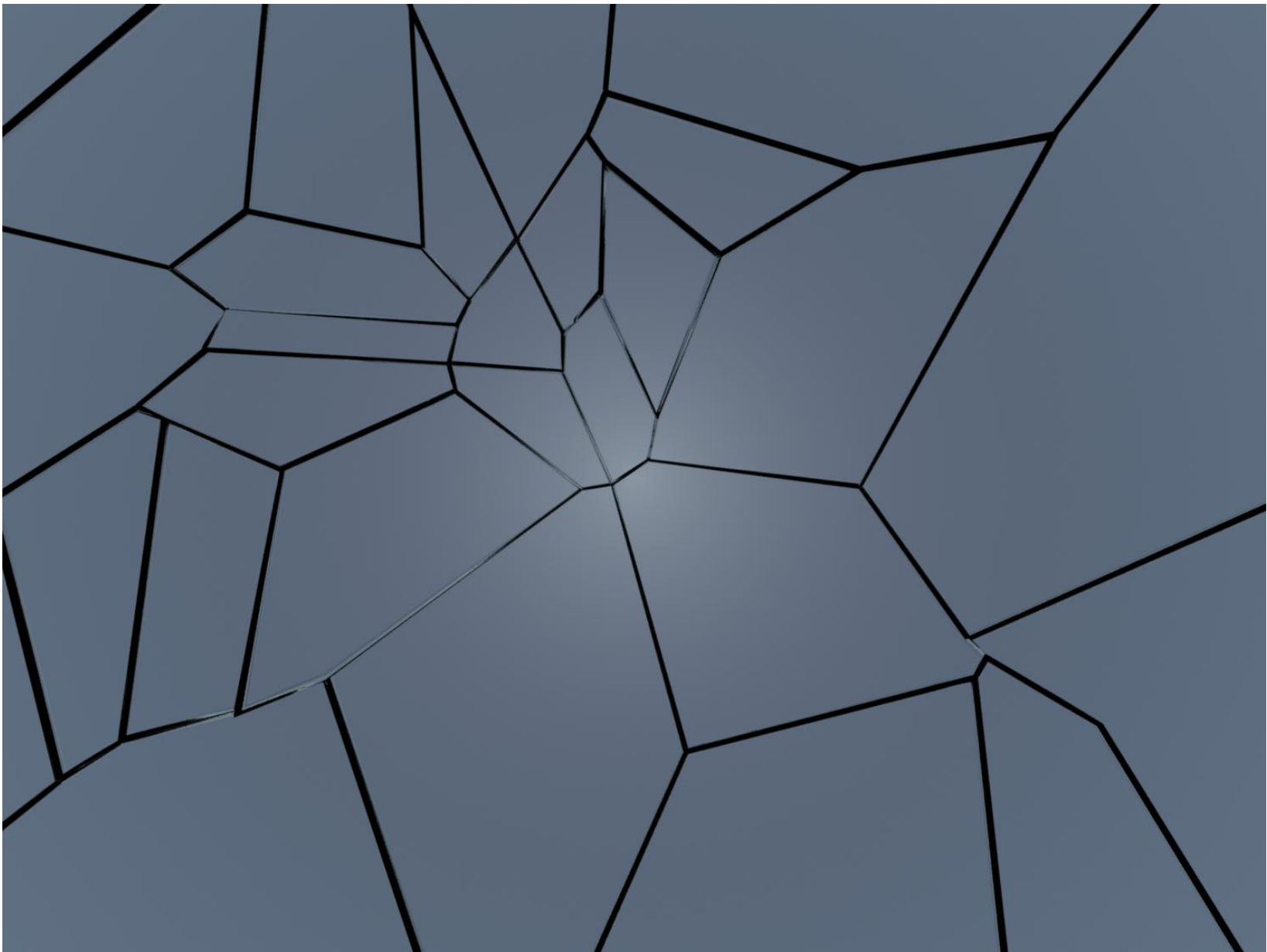
Design



Design

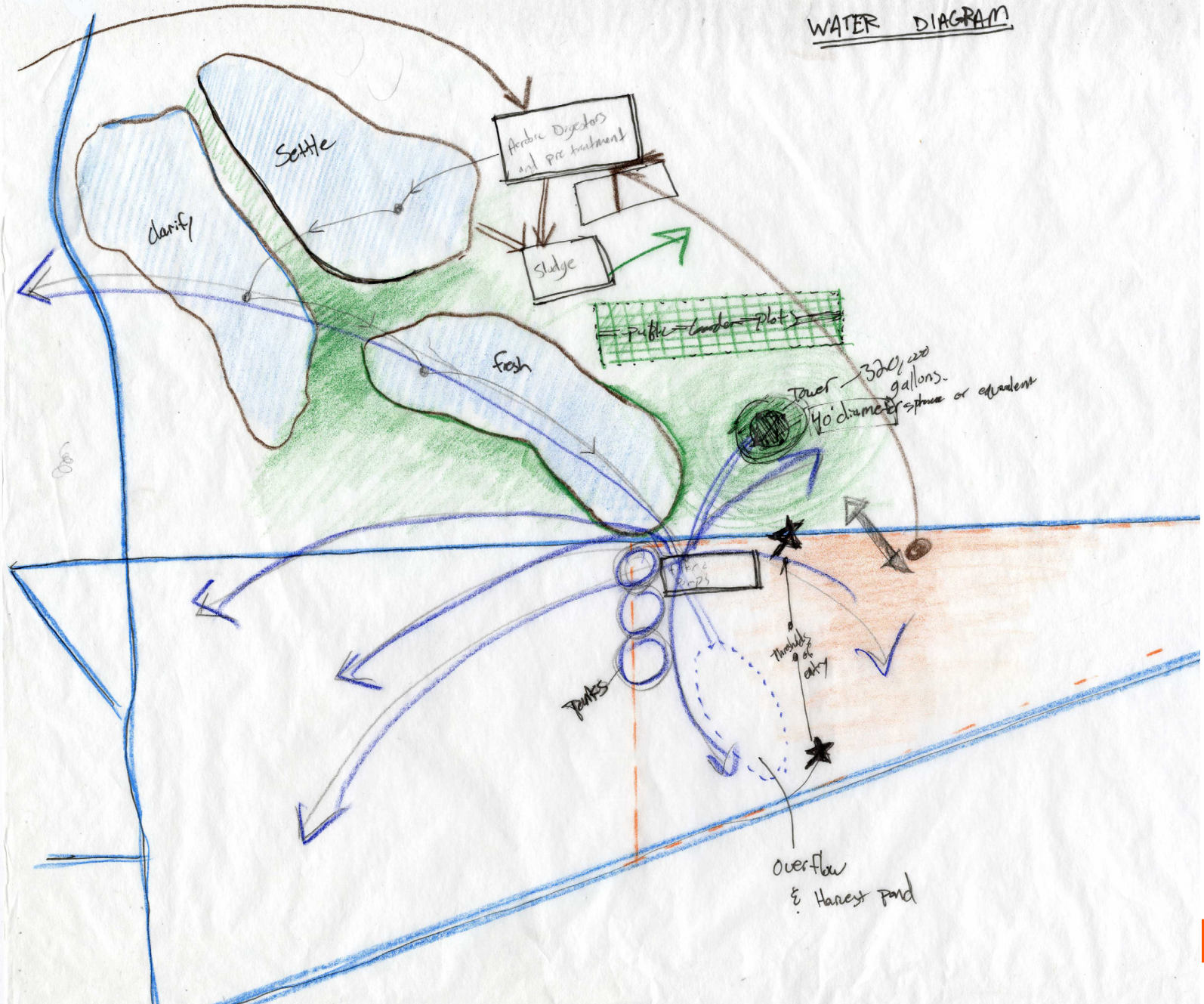


Design



Design

WATER DIAGRAM



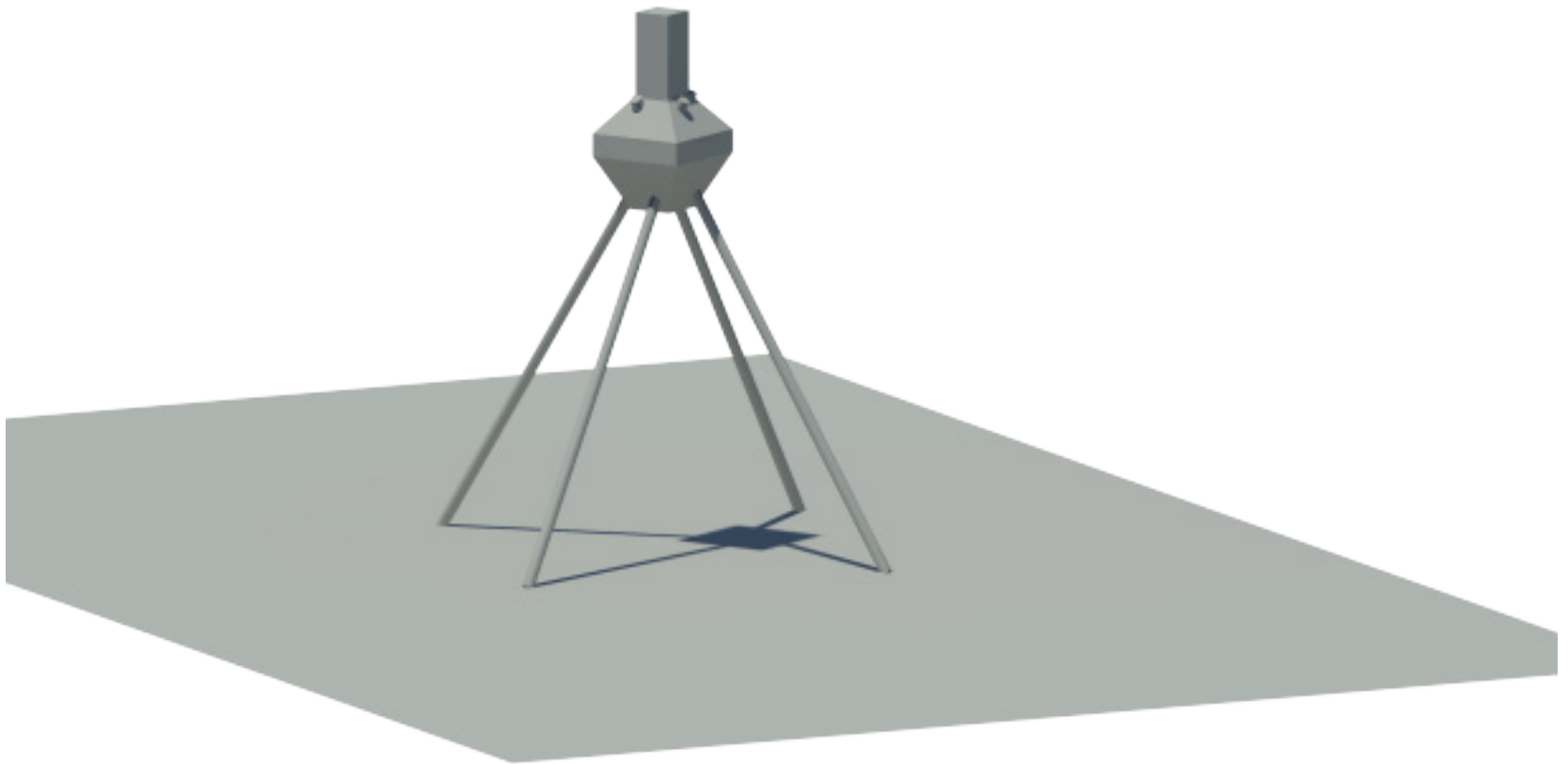
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Design



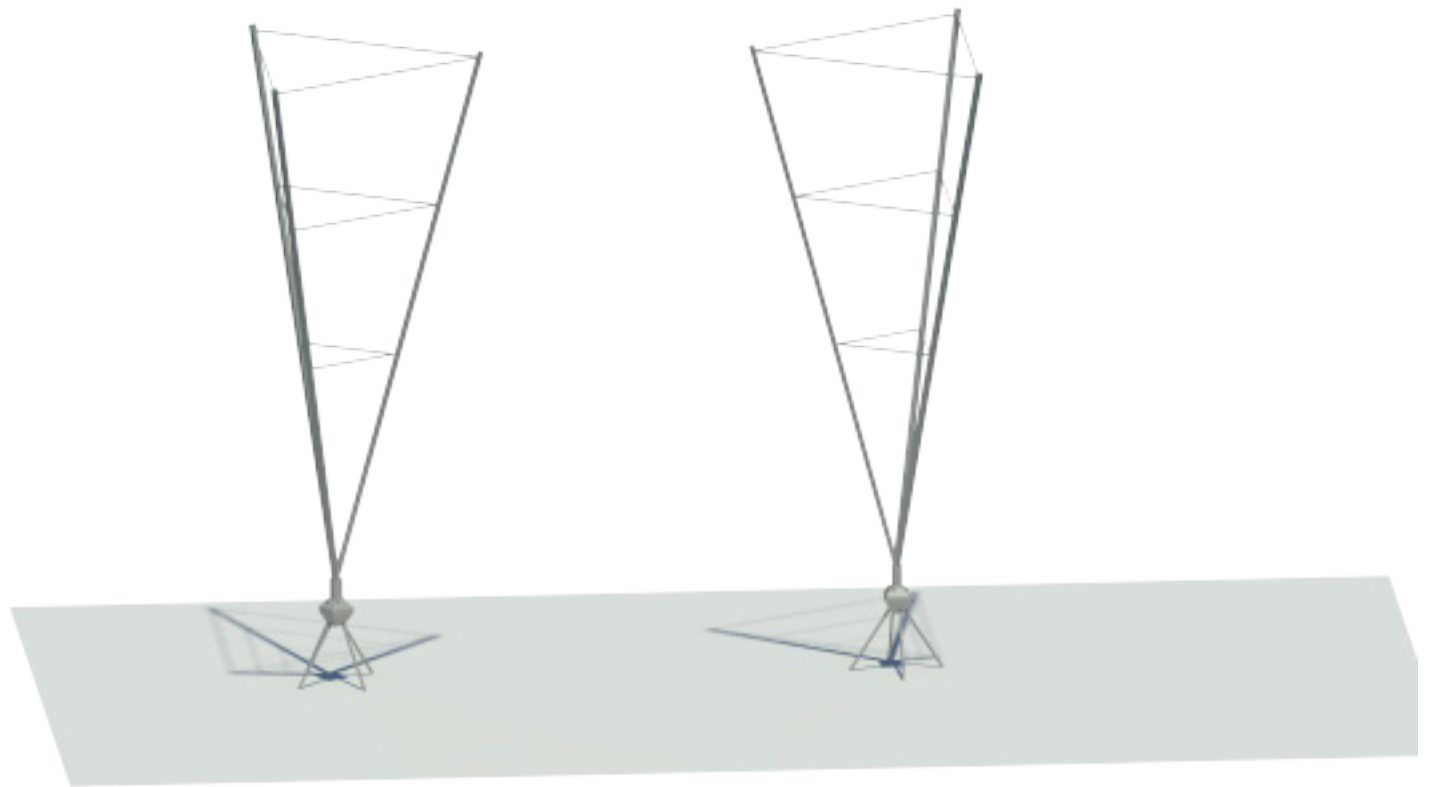
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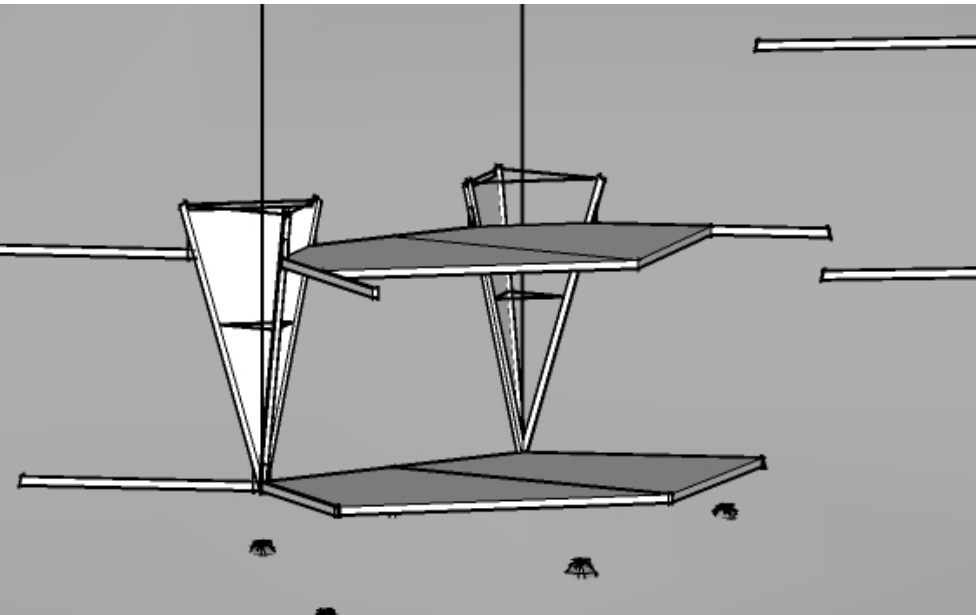
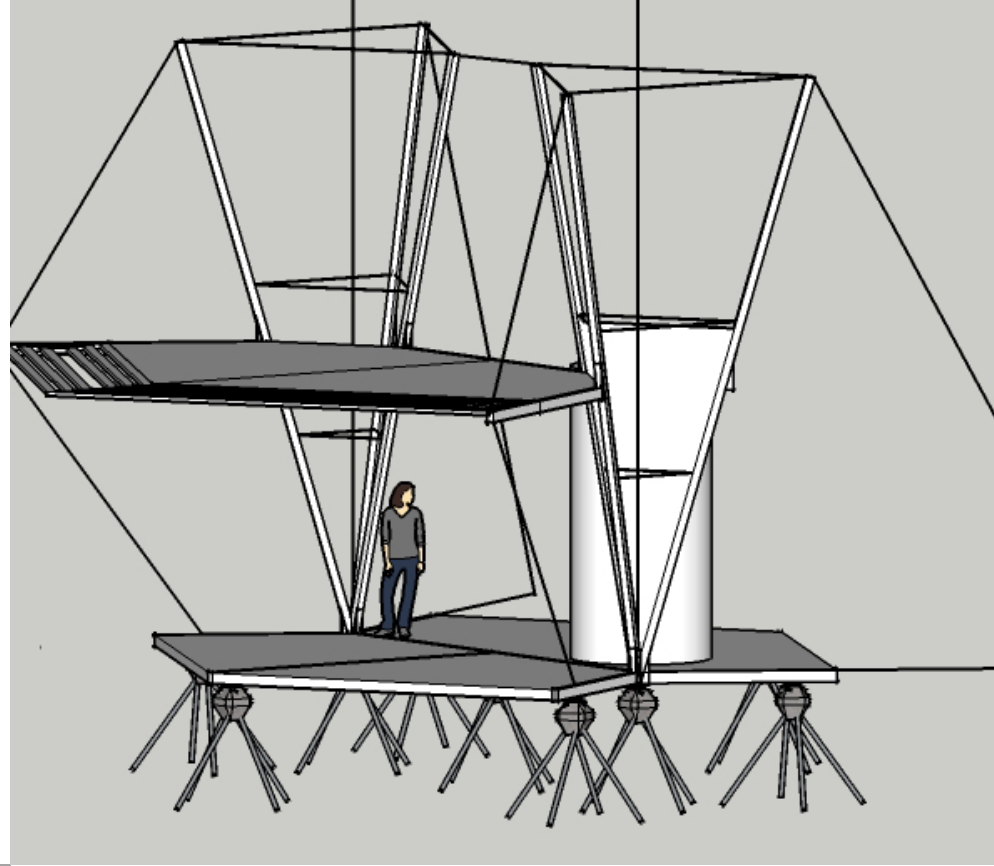
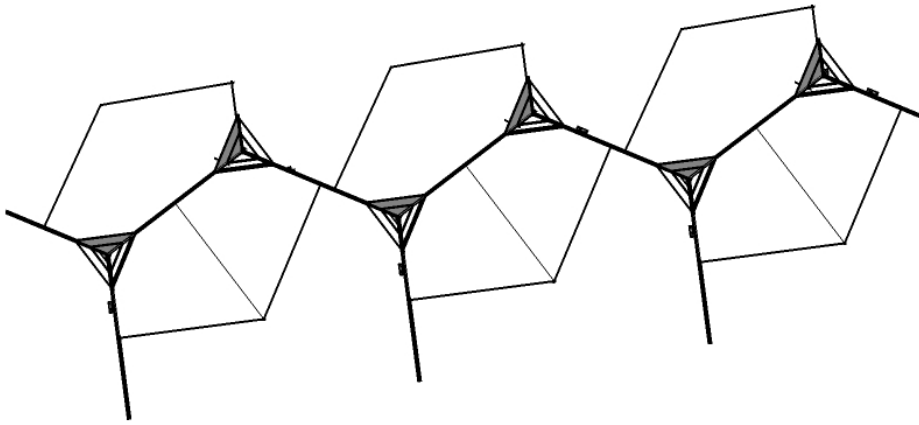
Design



Design

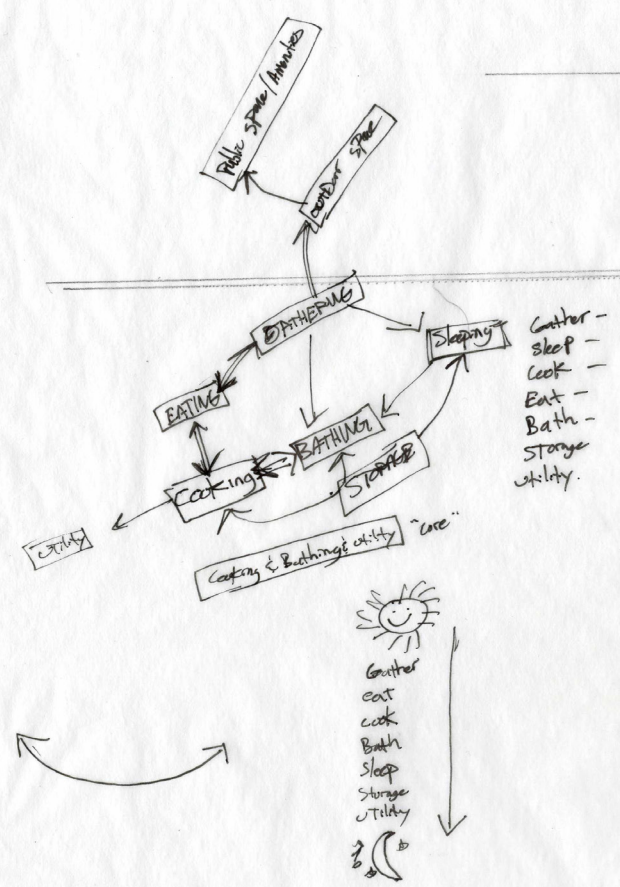


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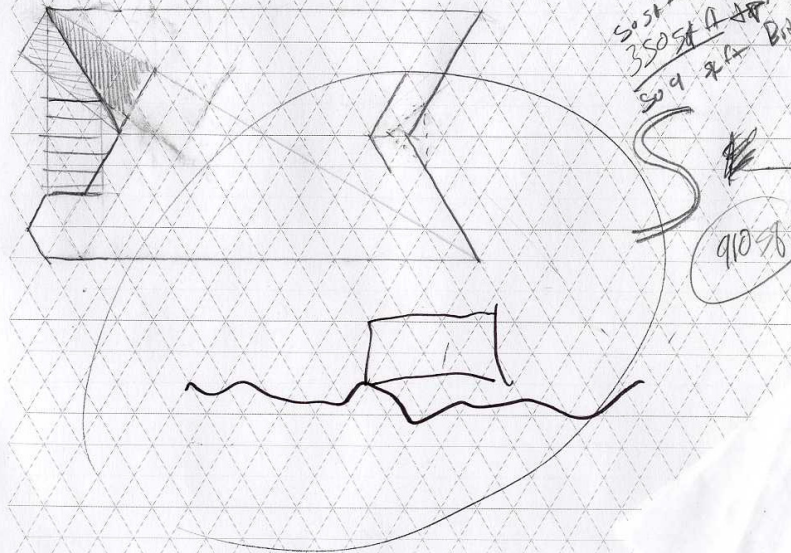
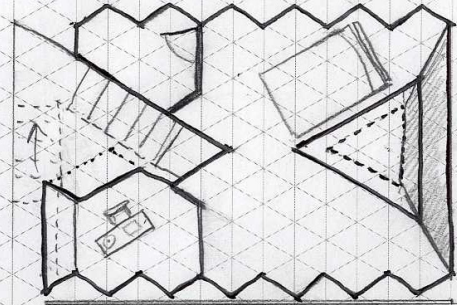
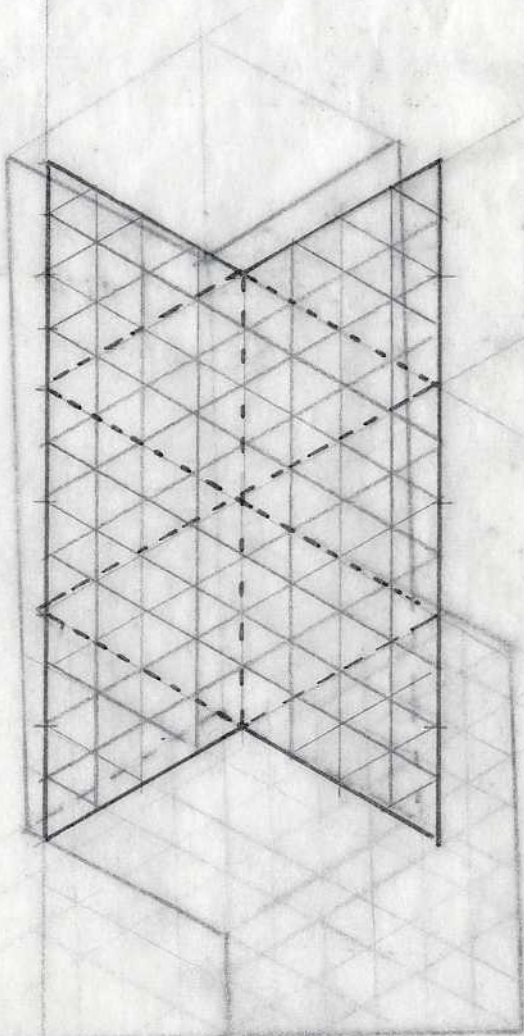


Design

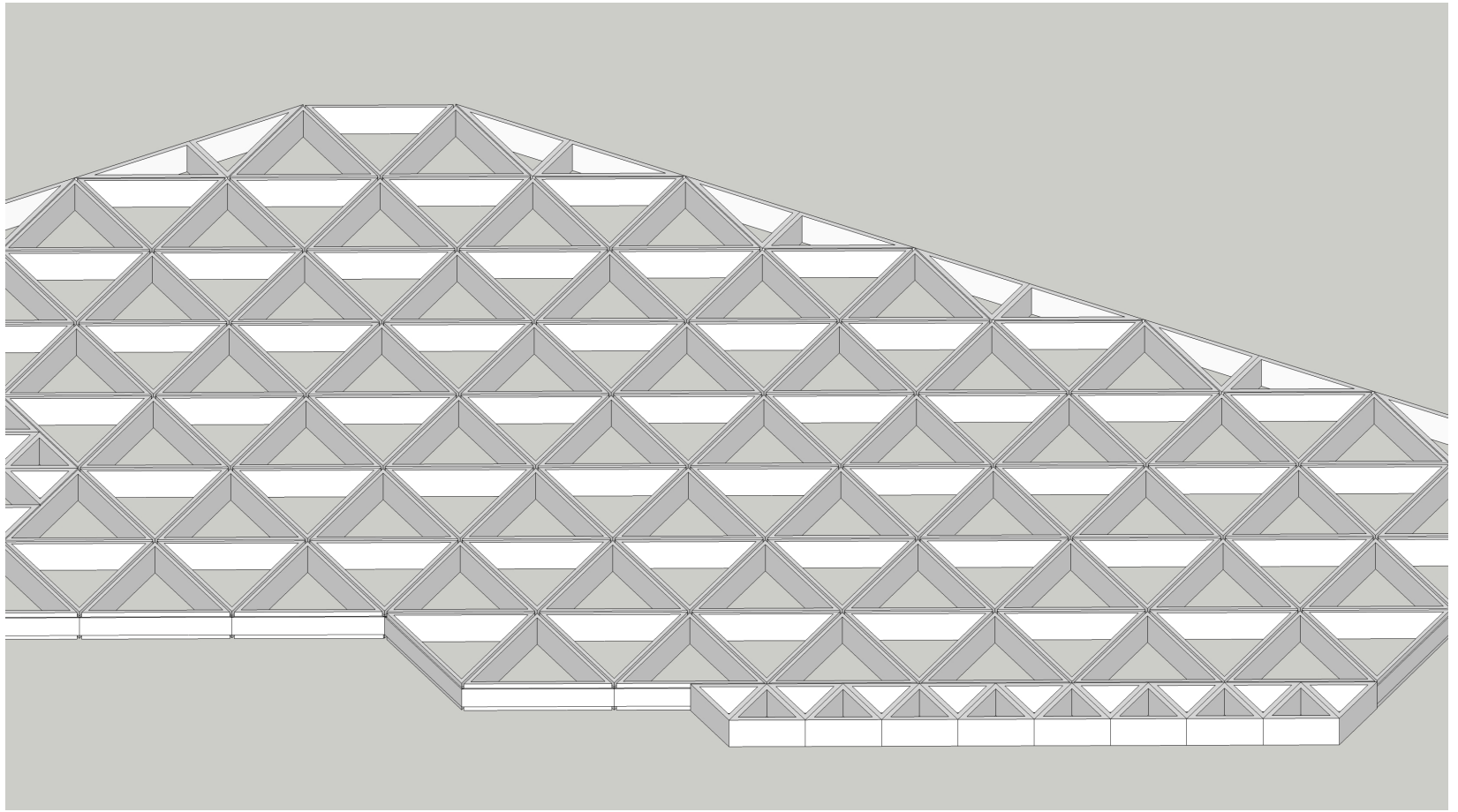
Handwritten scribble in the top left corner.



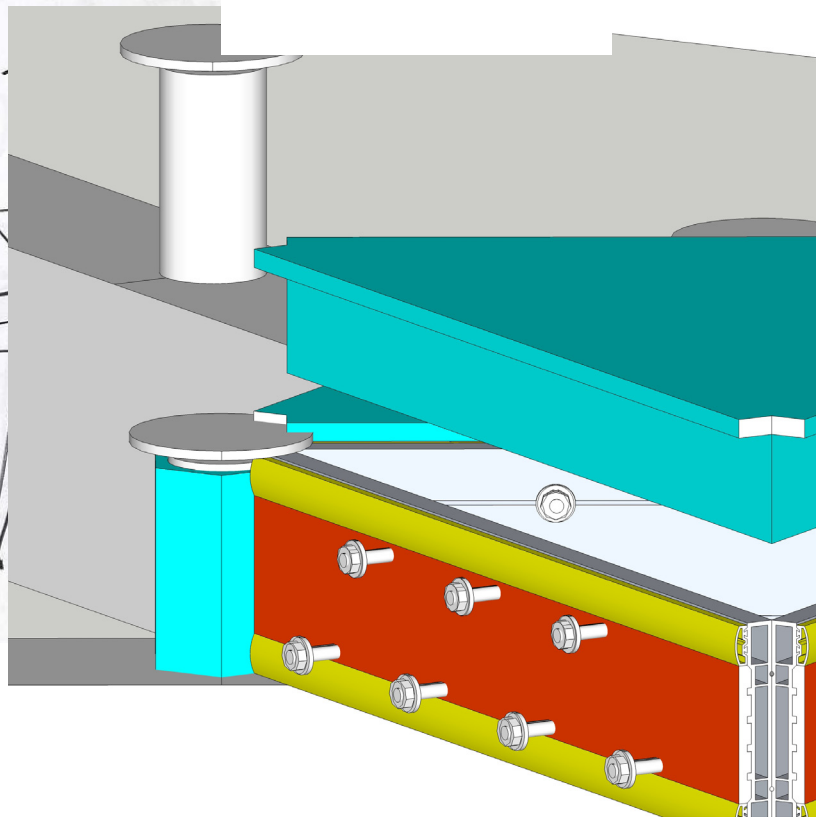
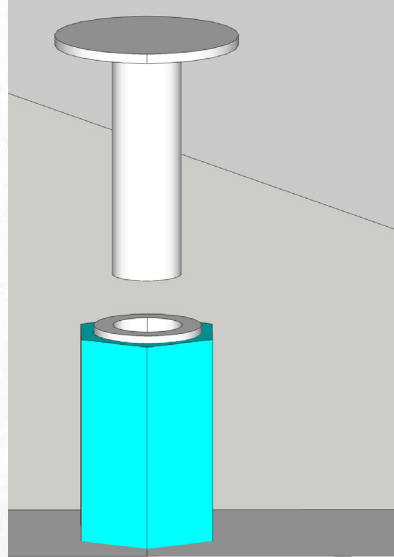
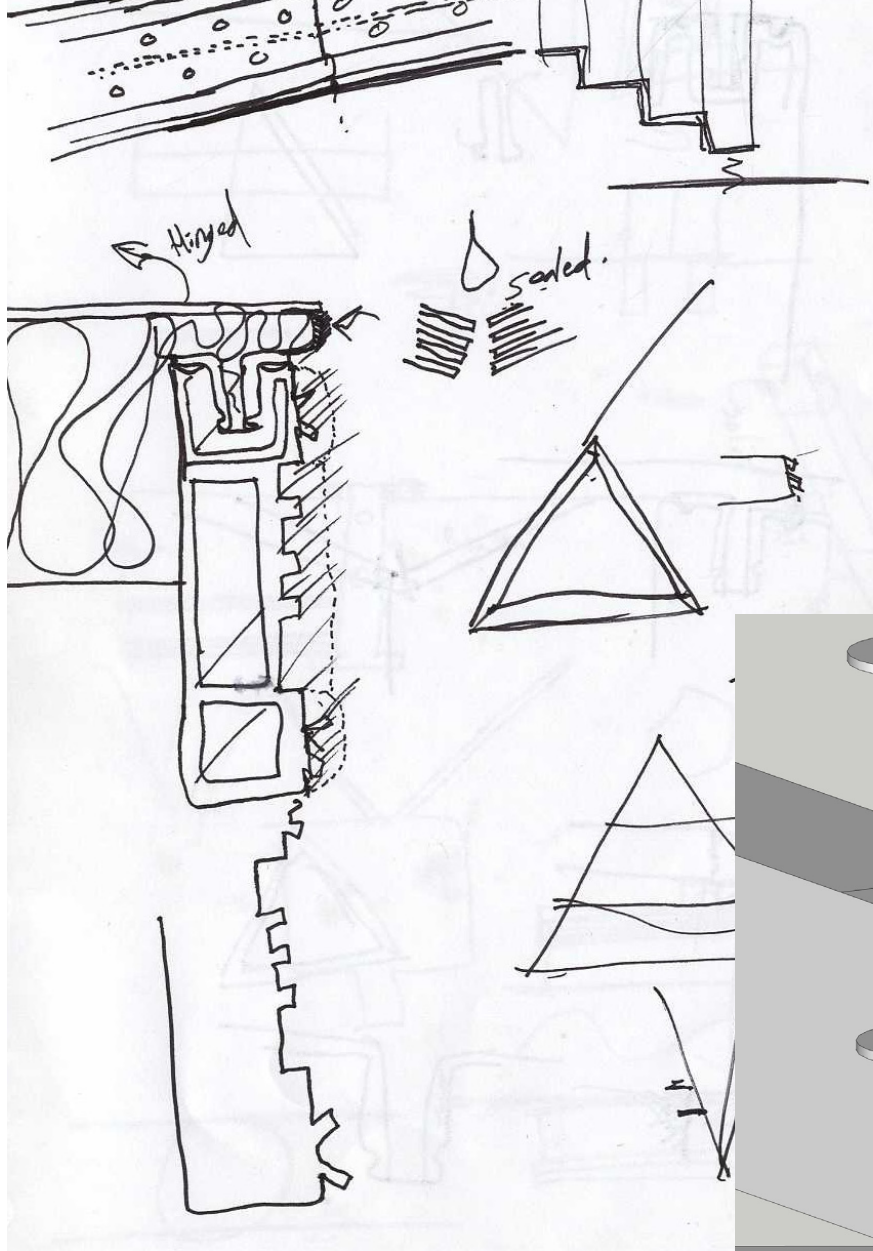
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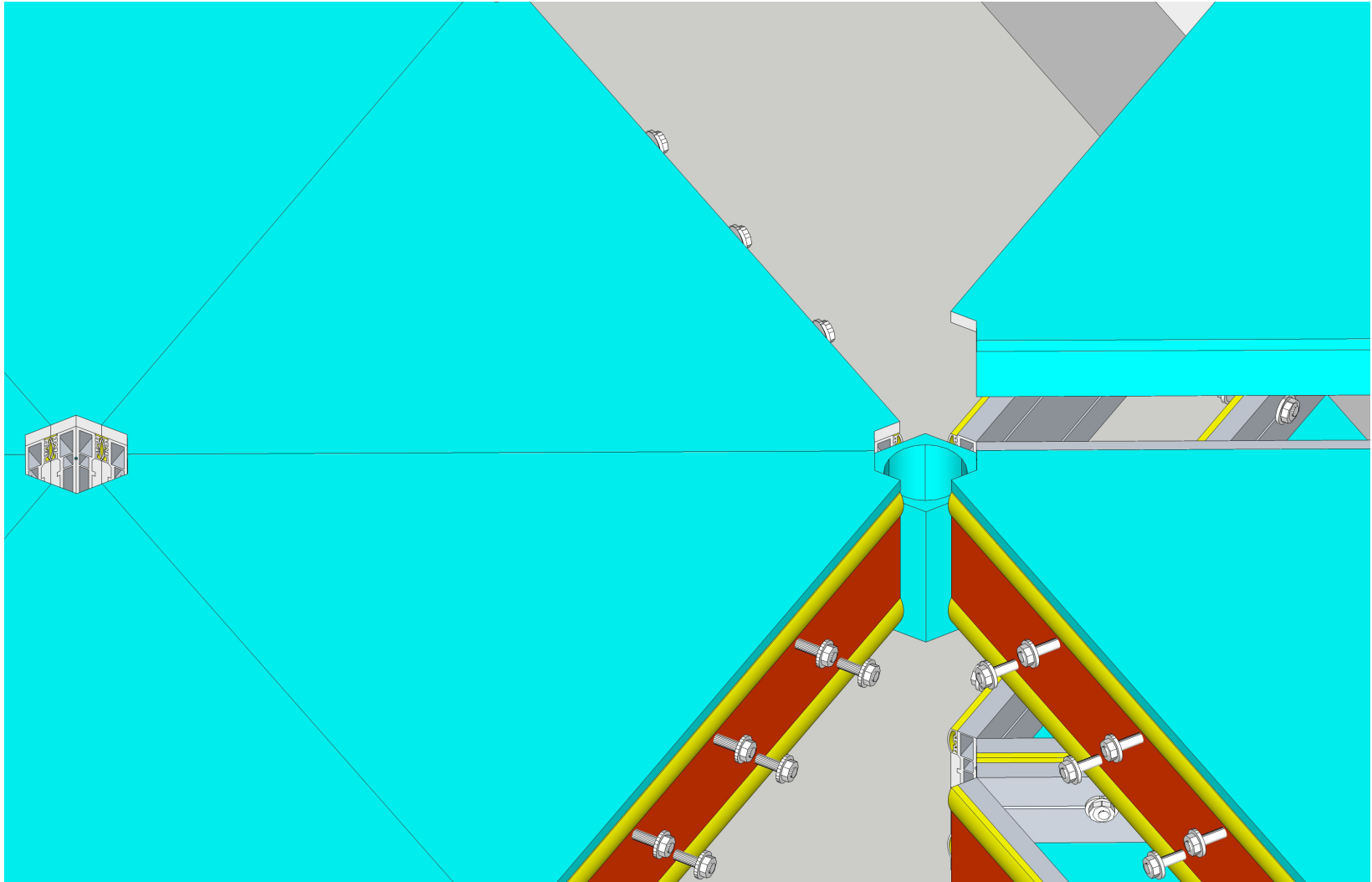
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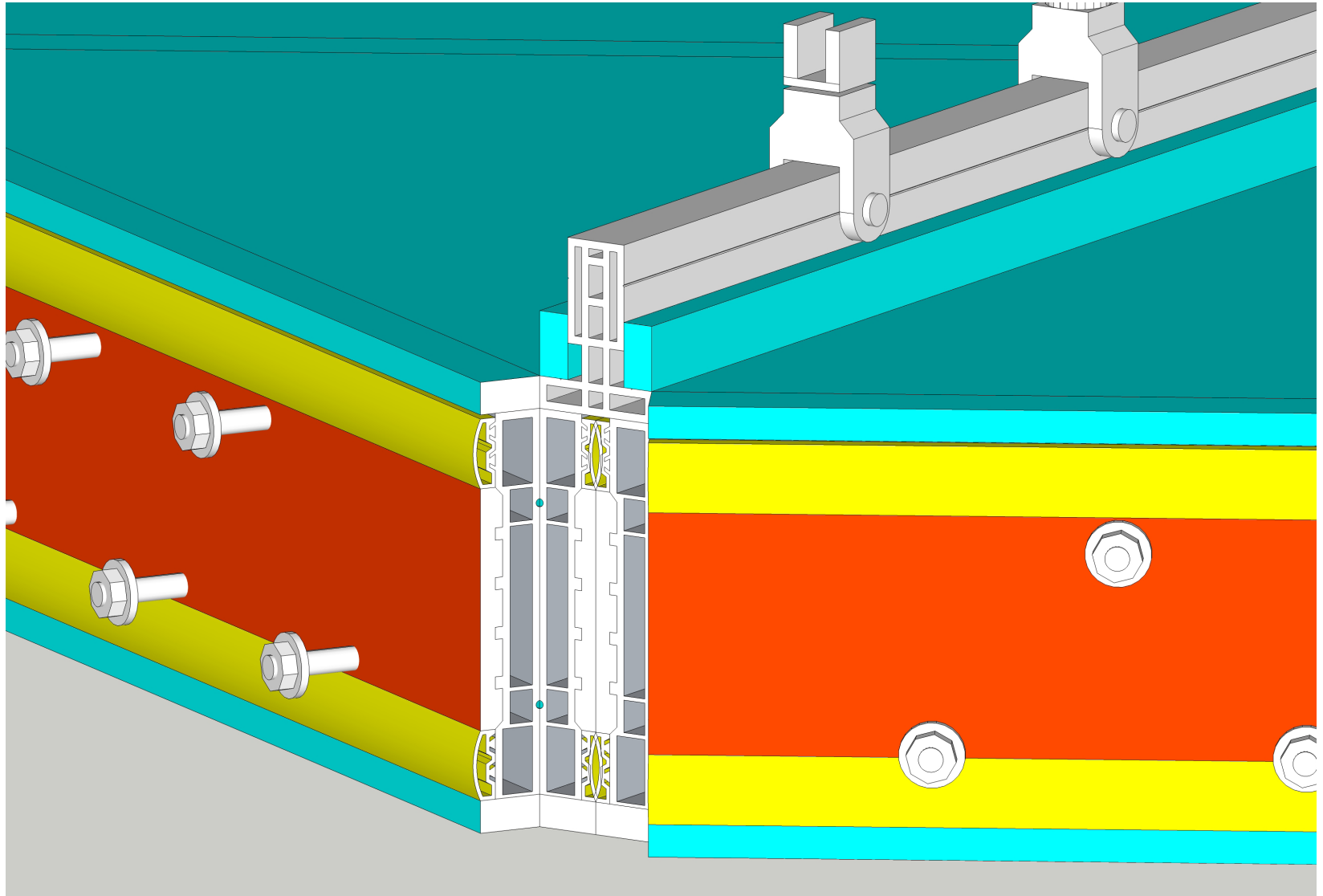
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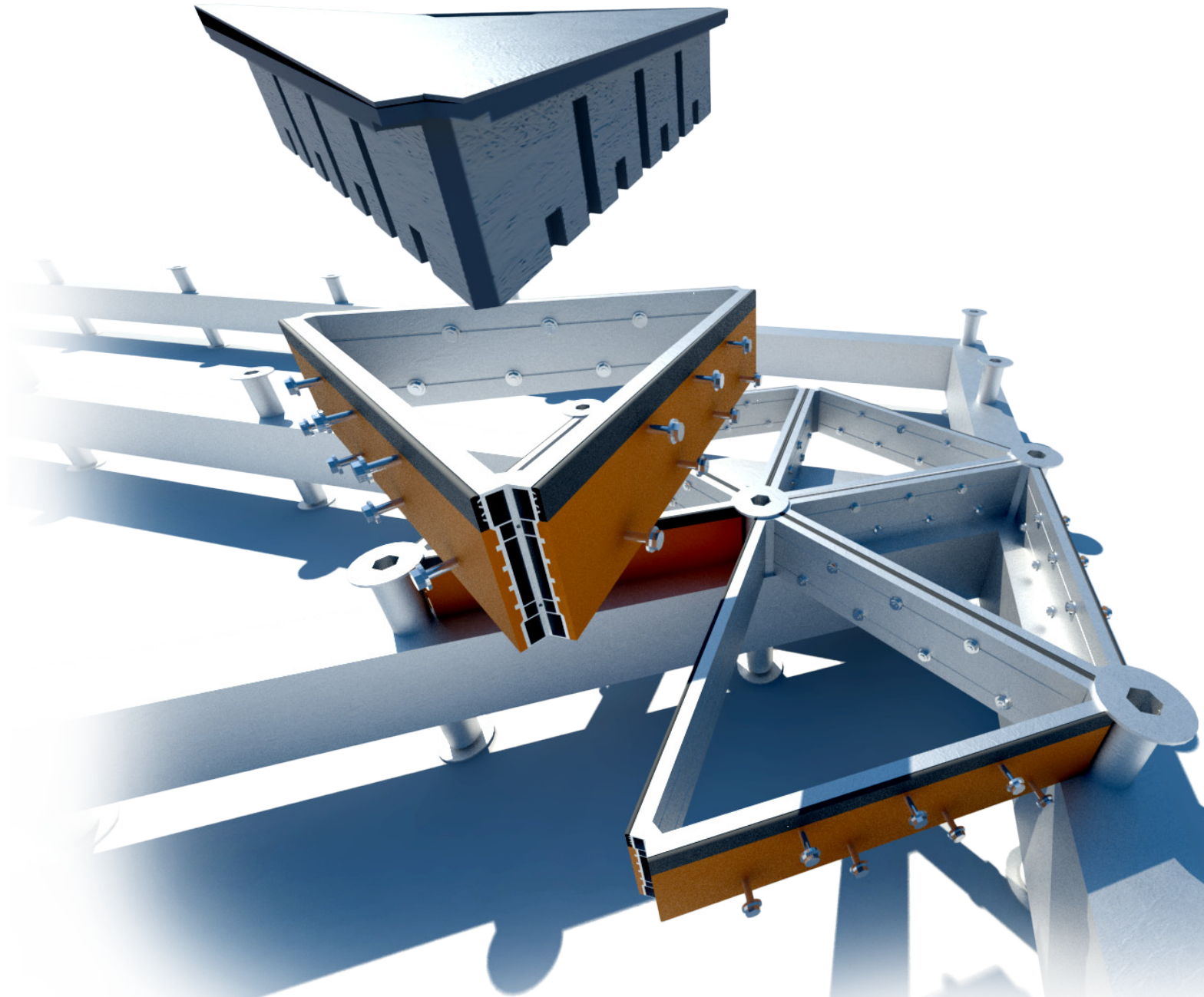
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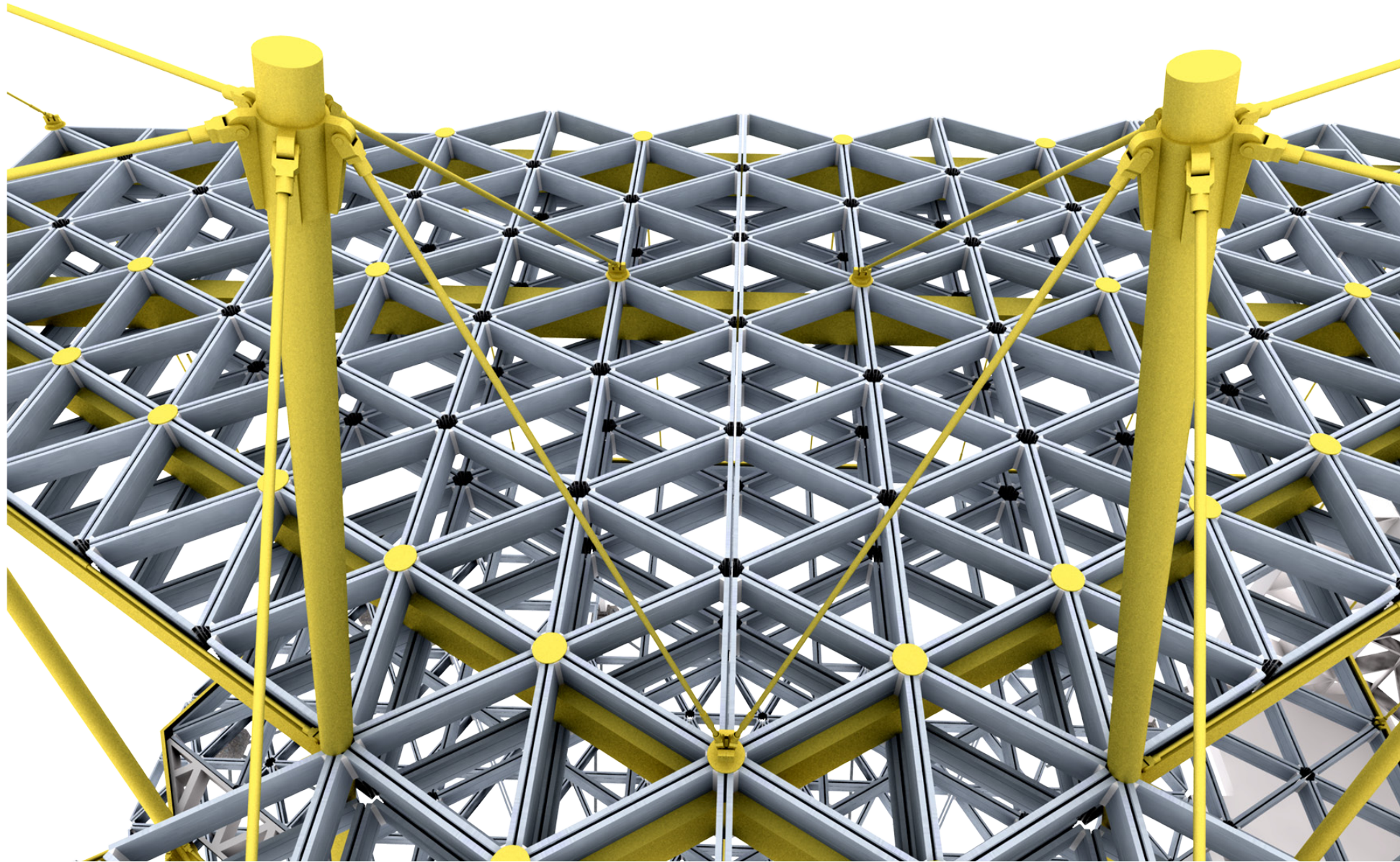
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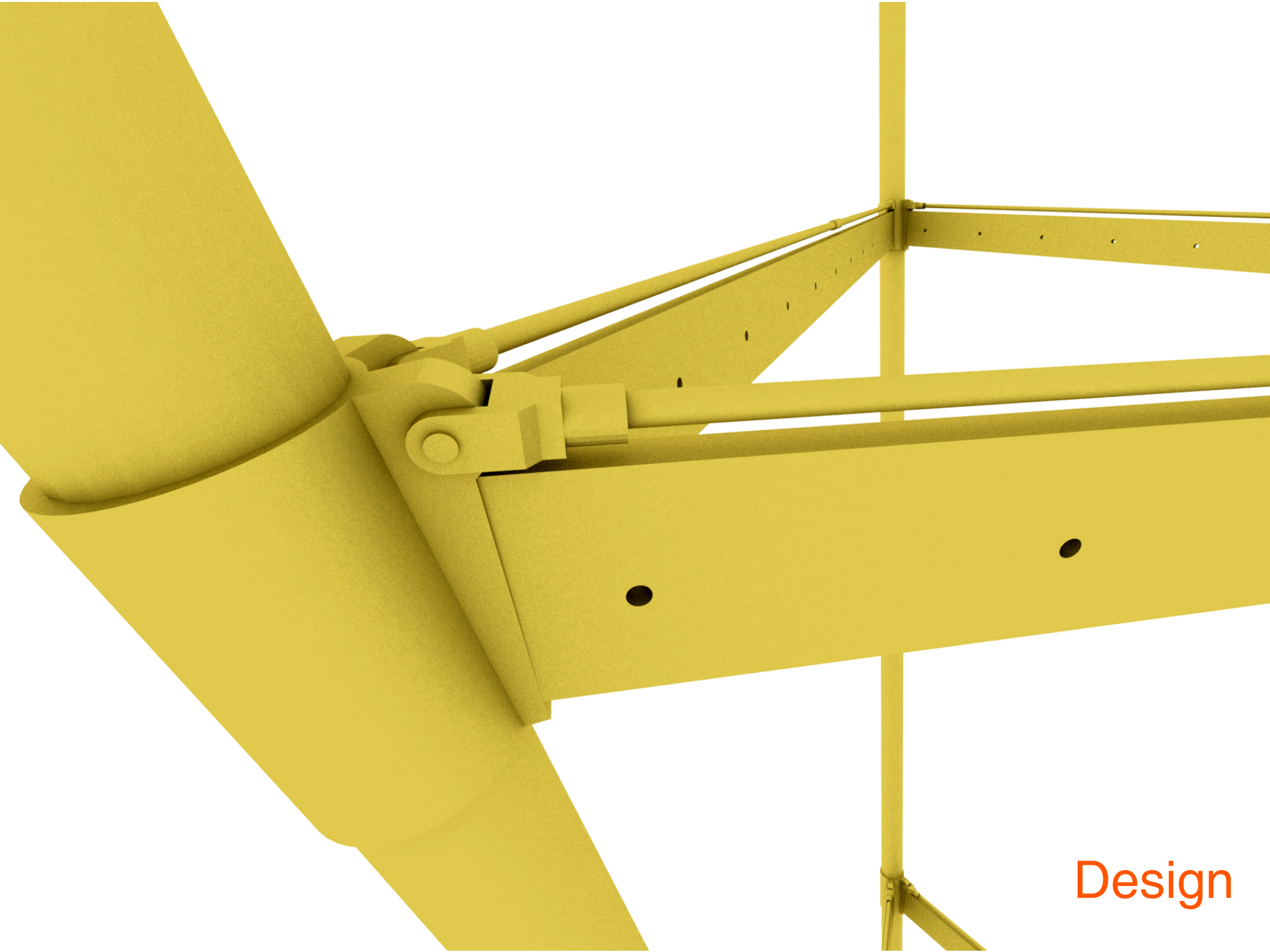
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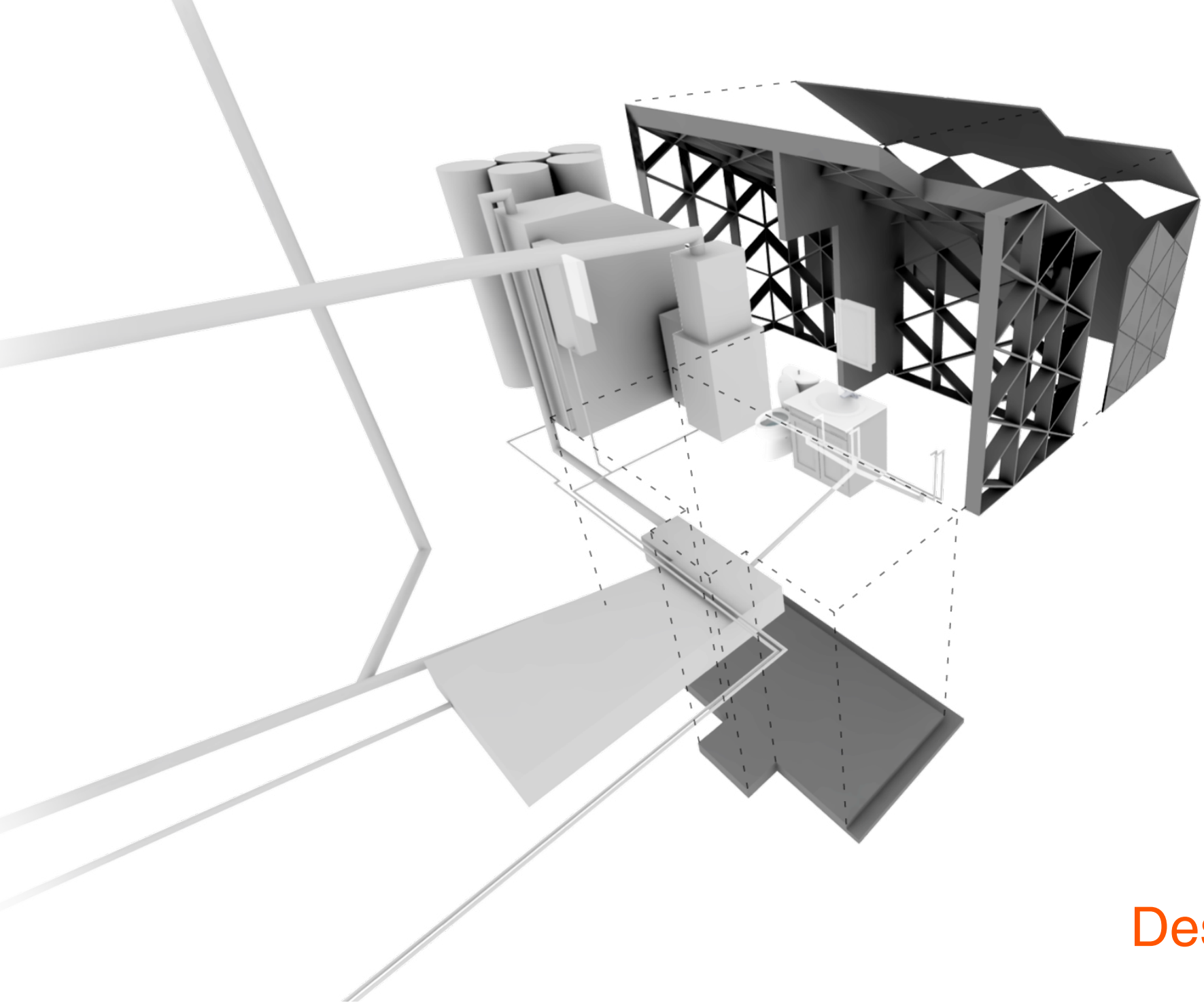
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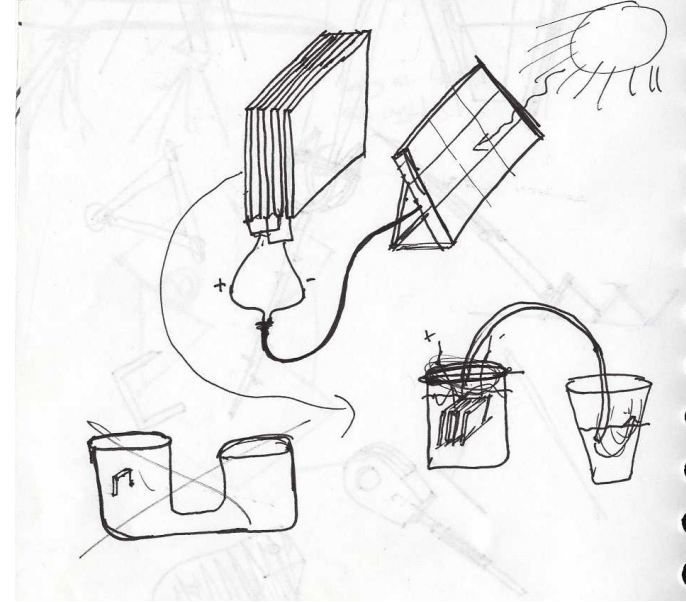
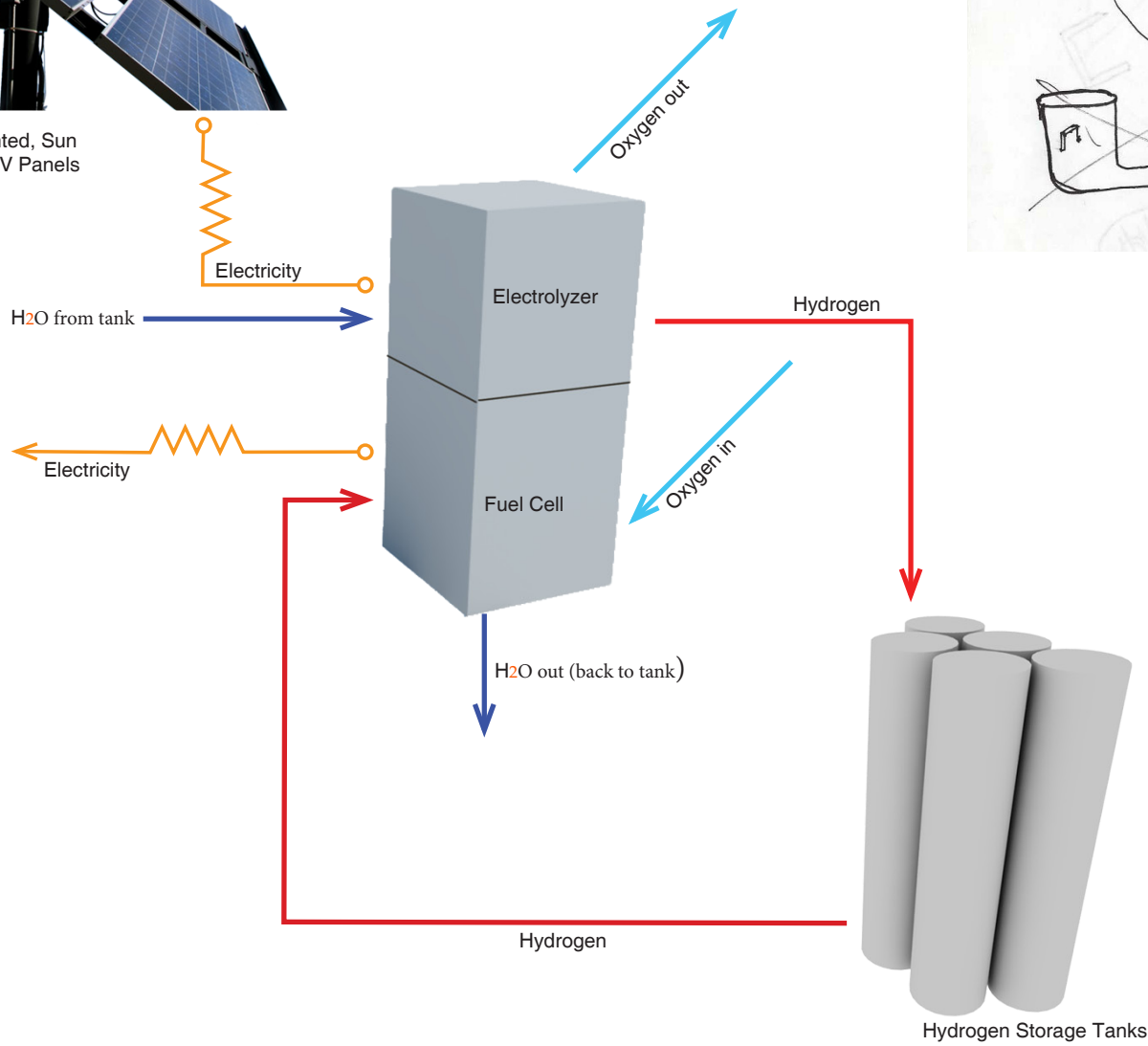
Design



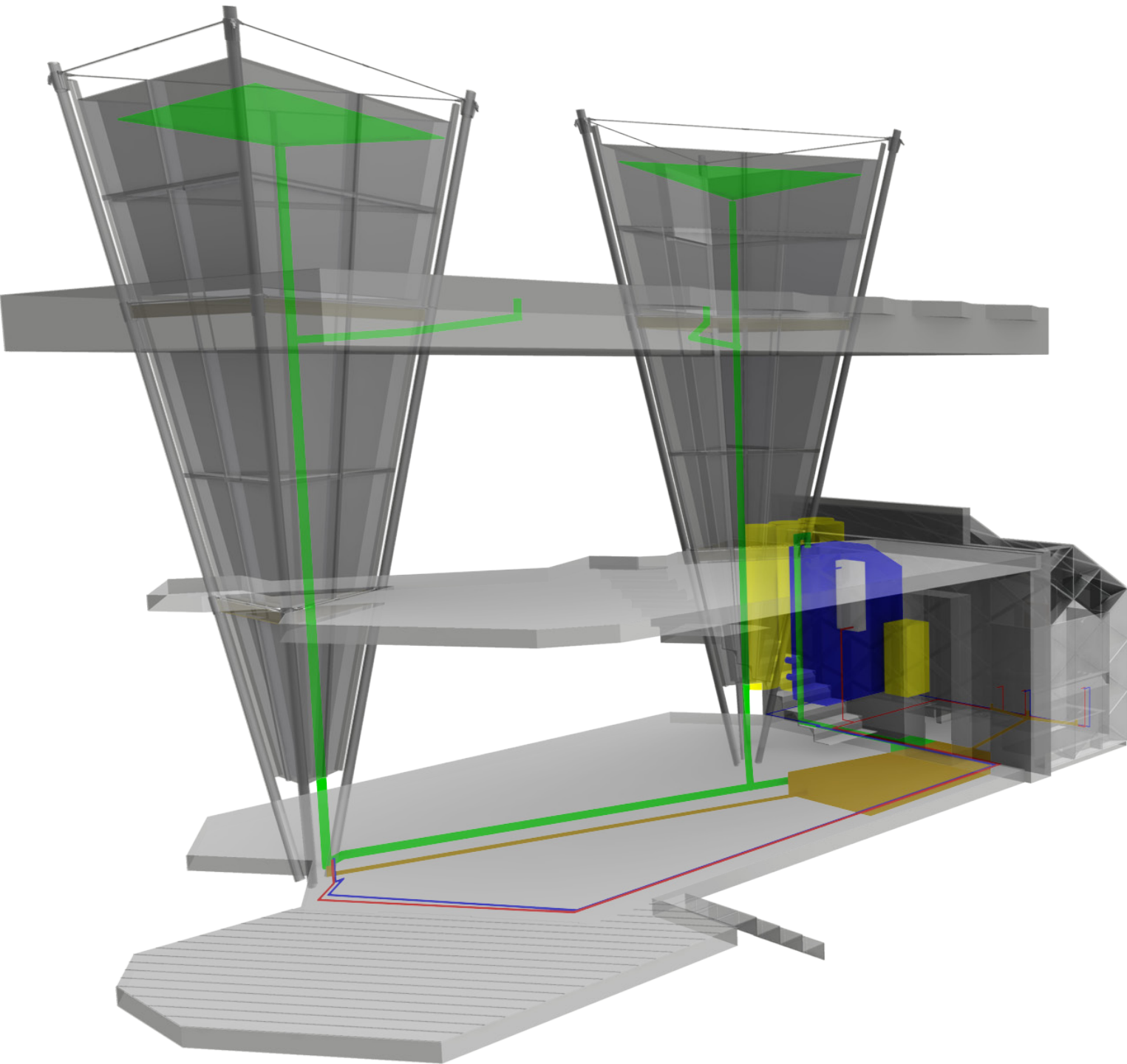
Design



Roof Mounted, Sun Tracking PV Panels



Design

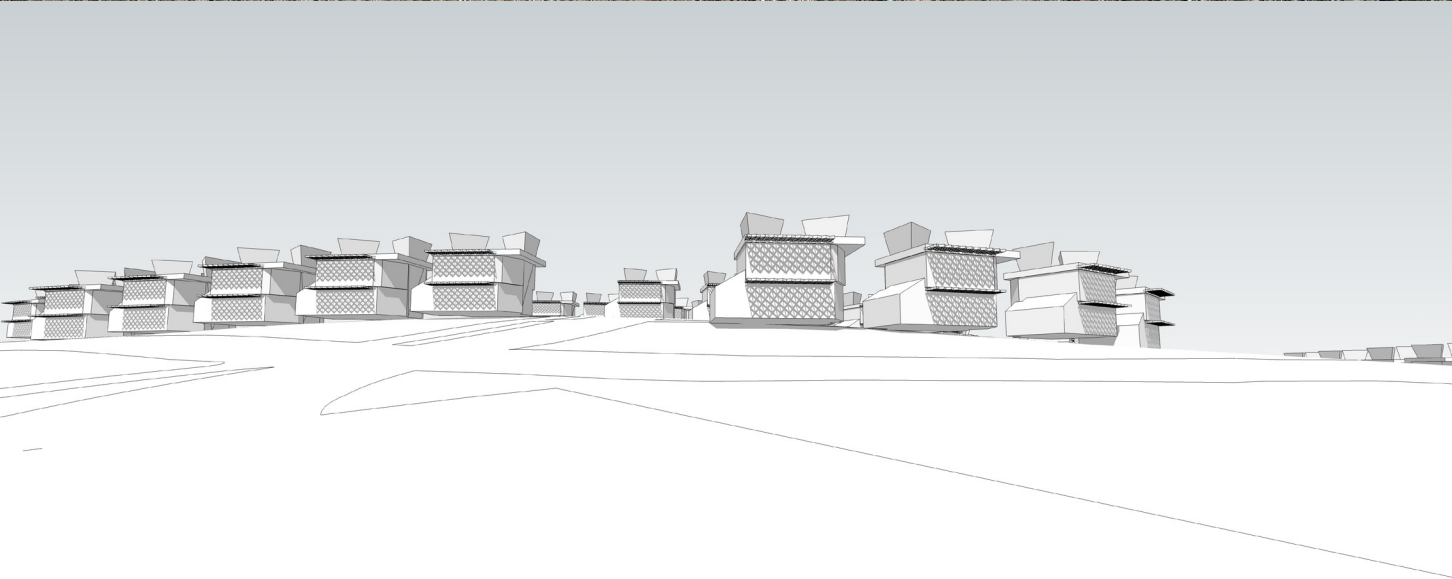


Design

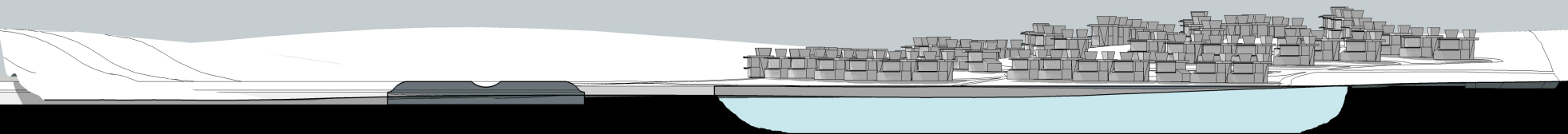
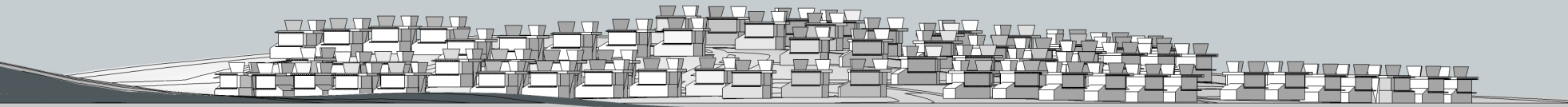
Concerning Community

The term “community” can describe a group of people and their lifestyles, a school of thought, a specific place, a number of places bound by a common link, or an assemblage of ideas, social constructs, infrastructure, etc. that make up a greater whole. It is also important to note that a community is more than the people who are in it. Communities usually exist before an individual is born into it, and continues to exist if that individual leaves.

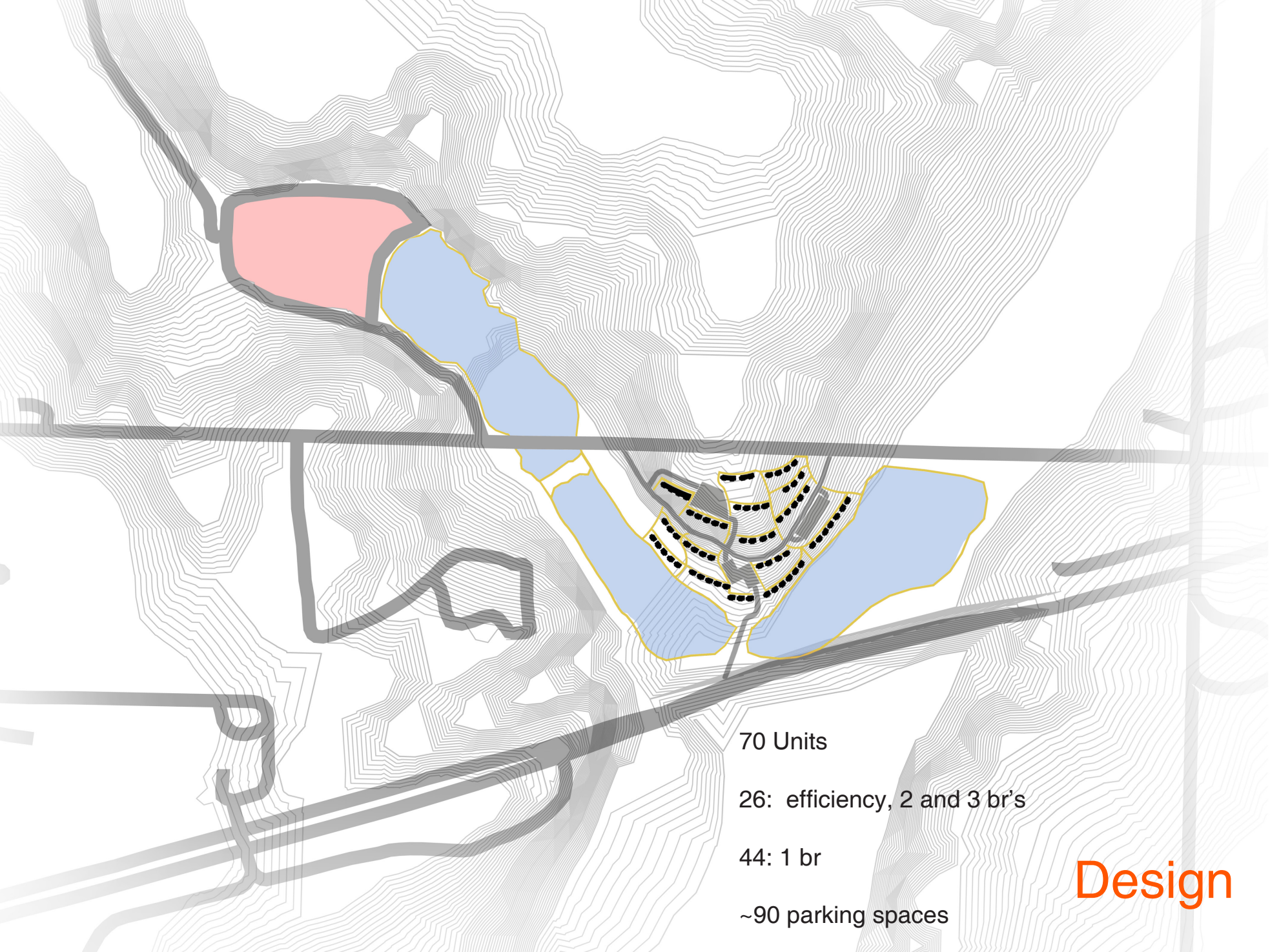
So, there is no such thing as a temporary community.



Design



Design



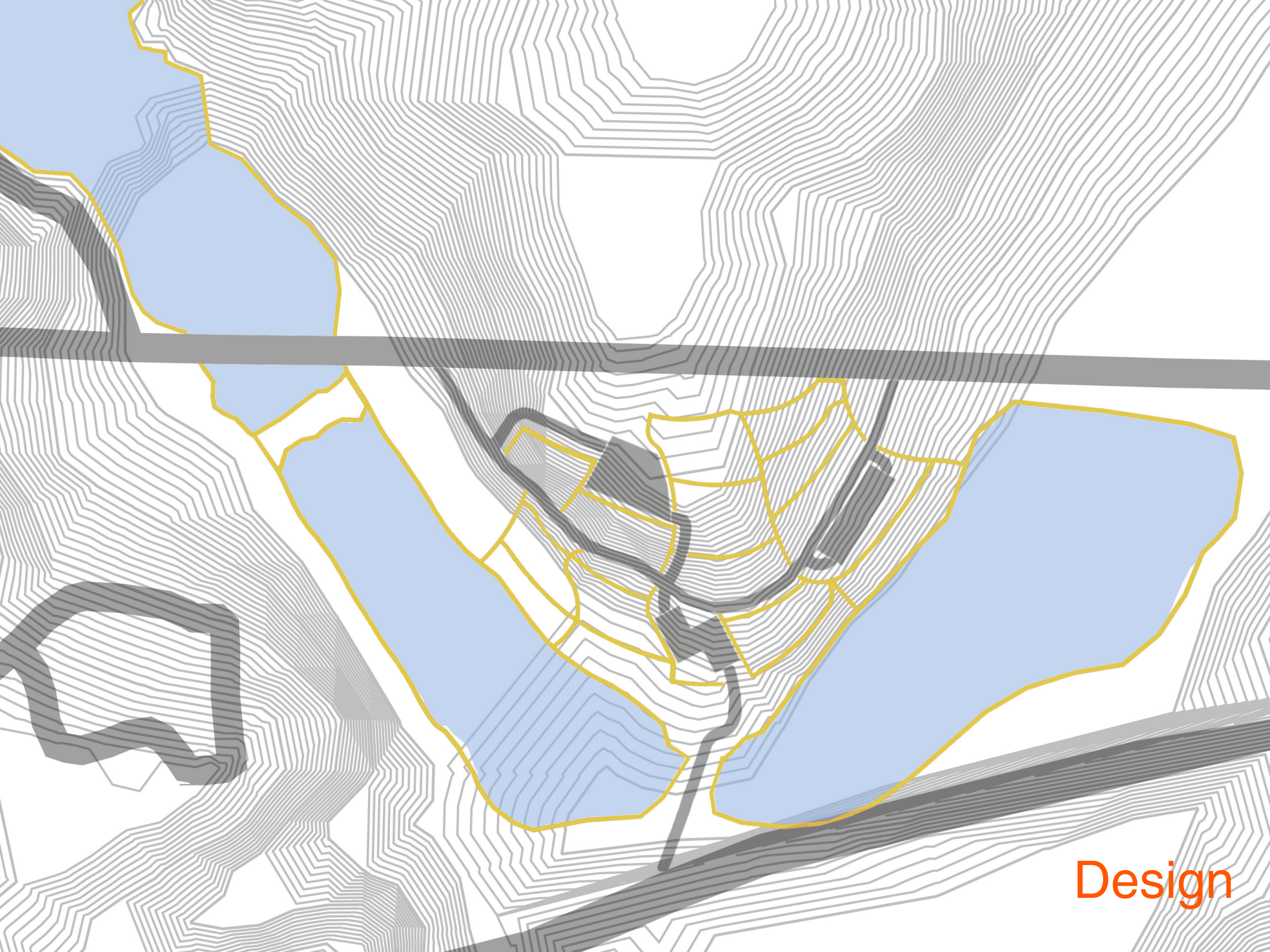
70 Units

26: efficiency, 2 and 3 br's

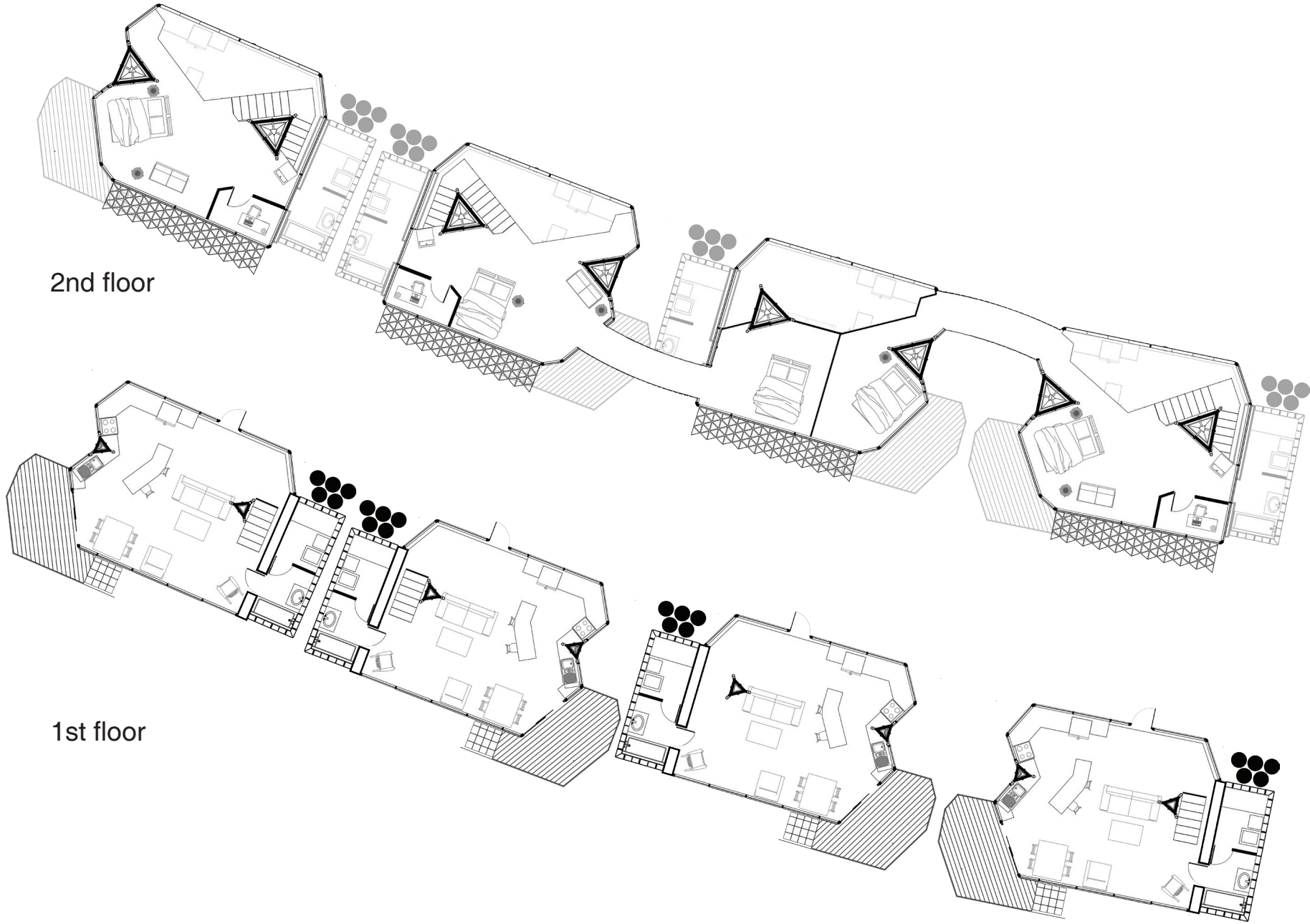
44: 1 br

~90 parking spaces

Design

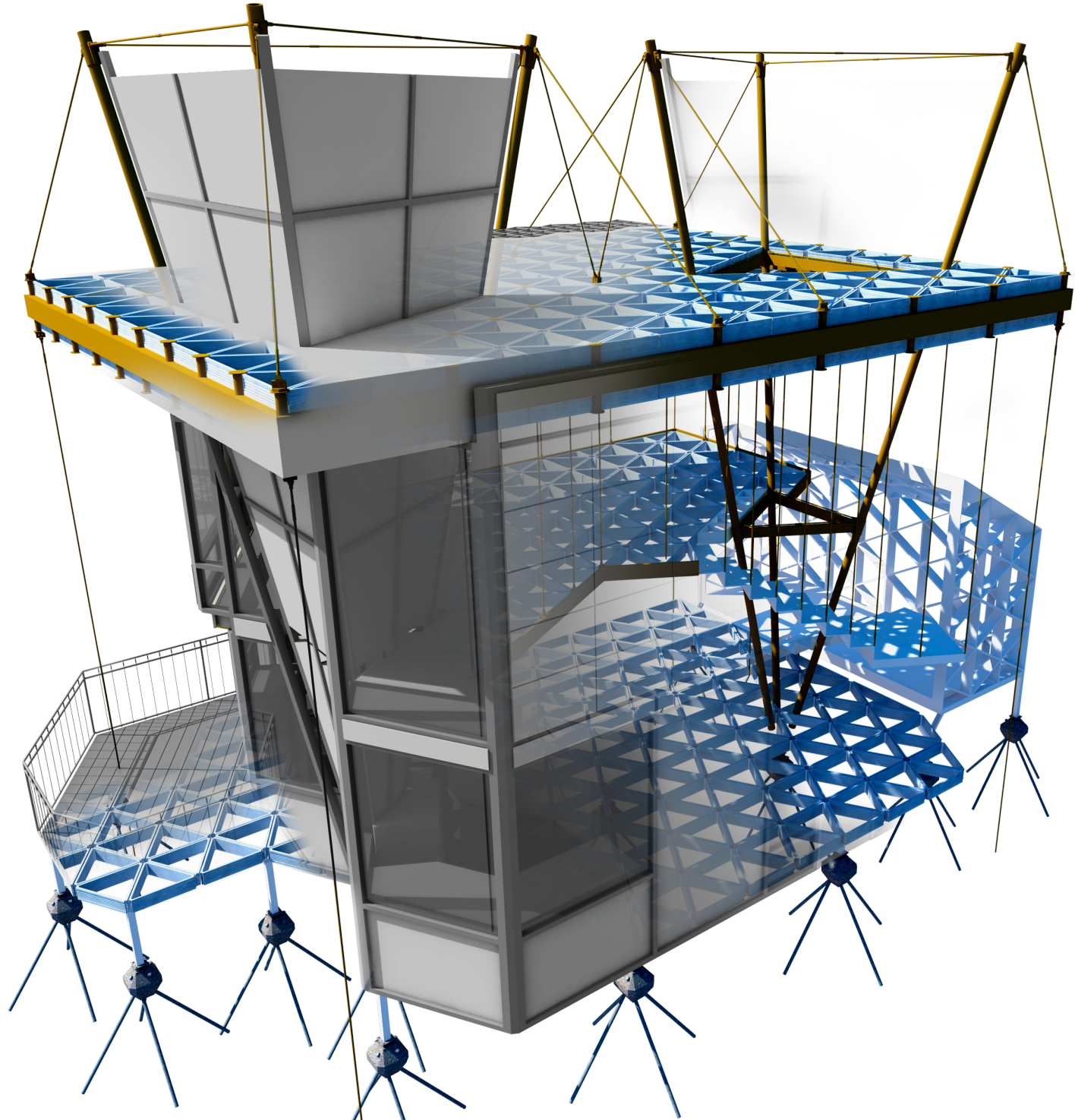


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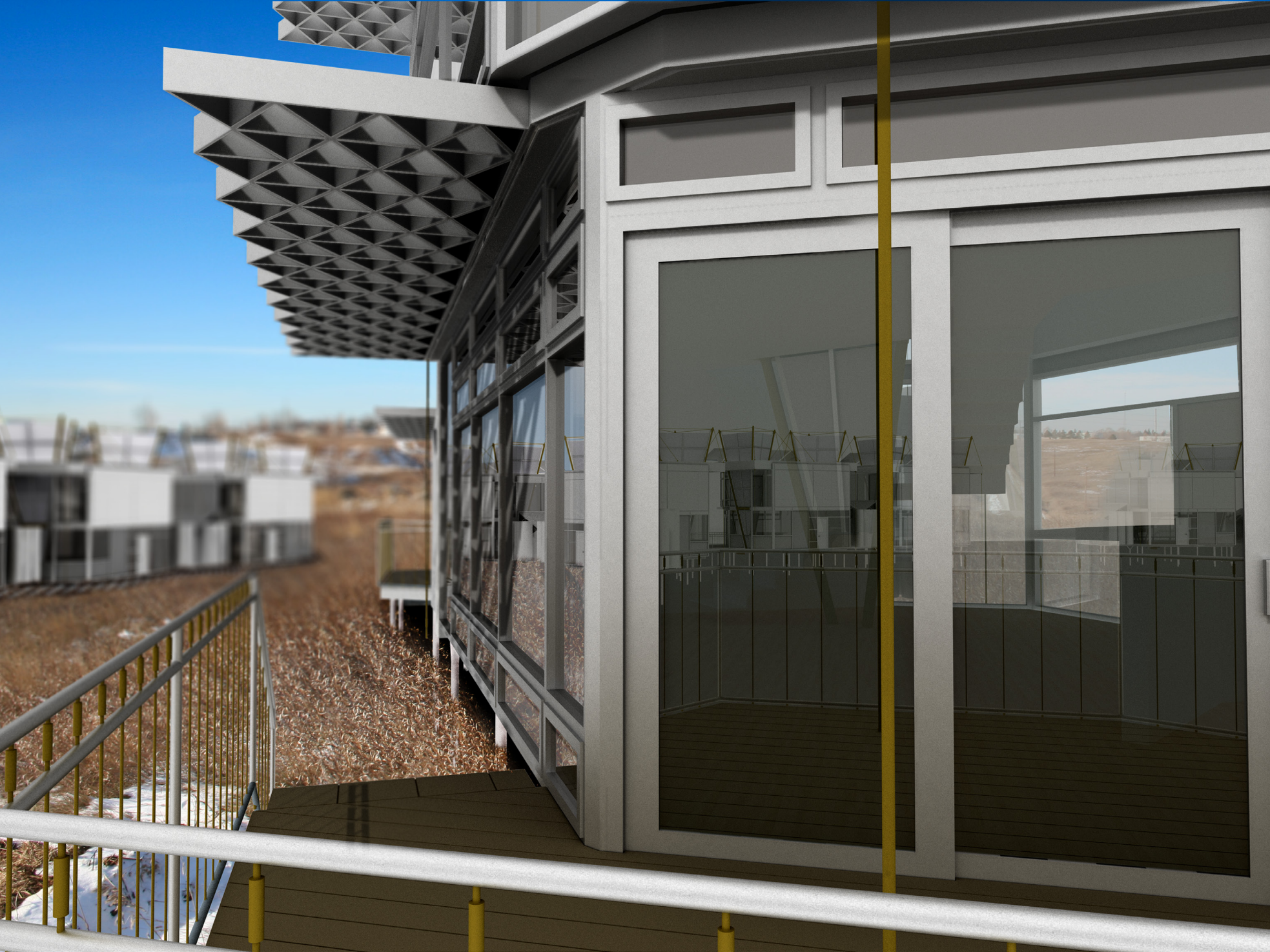


2nd floor

1st floor













“So, how did it go?”

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