



adam d. barnett  
**masters thesis**  
spring 2010



agricultural archaeology  
**research center**

rollag, minnesota



**thesis**  
**try to save the world!**



**education**  
**archaeology**



# **problem statement:**

how can the history of technology influence the decisions we make in the future?



# **premises**

- technology is a product of culture
- technology evolves increasingly
- many technologies have become unsustainable



# **theoretical premise**

In order to meet the needs of future generations we must examine the historical path that led us to a technological state centered on consumption. In analyzing past mechanisms of technology we can gain insight as to how our current methods of production can reach a sustainable level.



**research**





# **archaeology**

methods and techniques

A black and white photograph of a rusted, abandoned vehicle, possibly a truck or van, with a satellite dish mounted on its roof. The vehicle is heavily overgrown with tall grass and weeds, suggesting it has been left in a neglected state for a long time. The background shows a dense thicket of trees and branches.

# **technology change**

**James Burke: "Connections"  
-technological triggers**



# **forces of change**

**Jared Diamond: "Guns, Germs, and Steel: The Fates of Human Societies"**

- Economic gain relative to existing technology**
- Social value and prestige**
- Ease of technological adoption**



# **the dust bowl**

**technology + blinders = devastation**



# **research conclusion**

**apply an archaeological approach to technological/  
agricultural artifacts**



**project:**

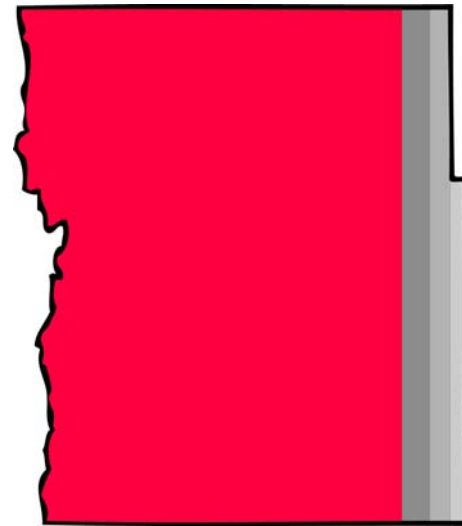
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**project feasibility**

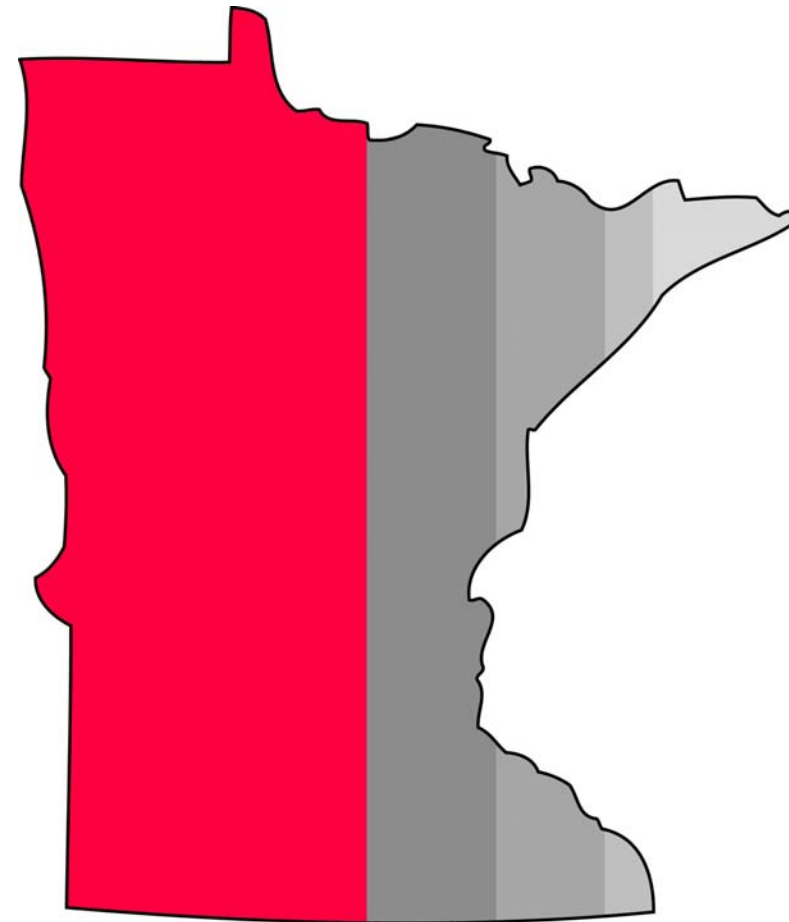
# cultural significance

## land use statistics



**clay county, mn**

agricultural land: 90%



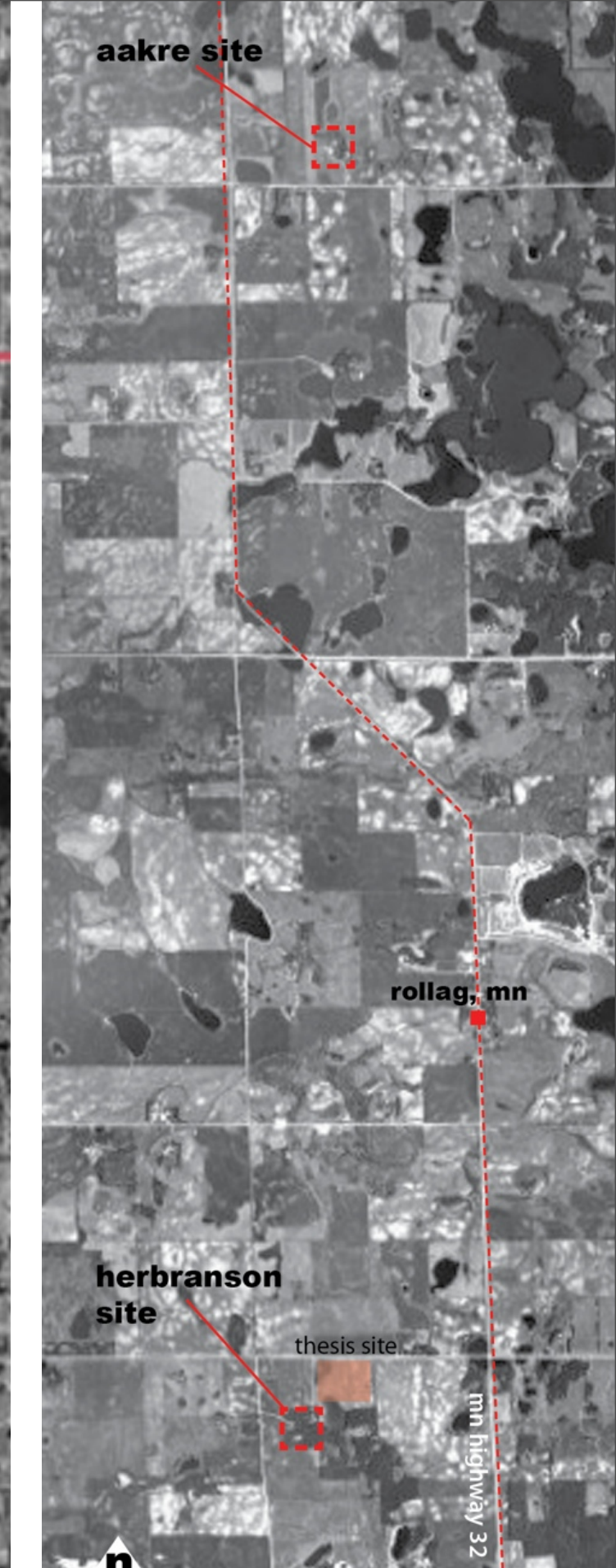
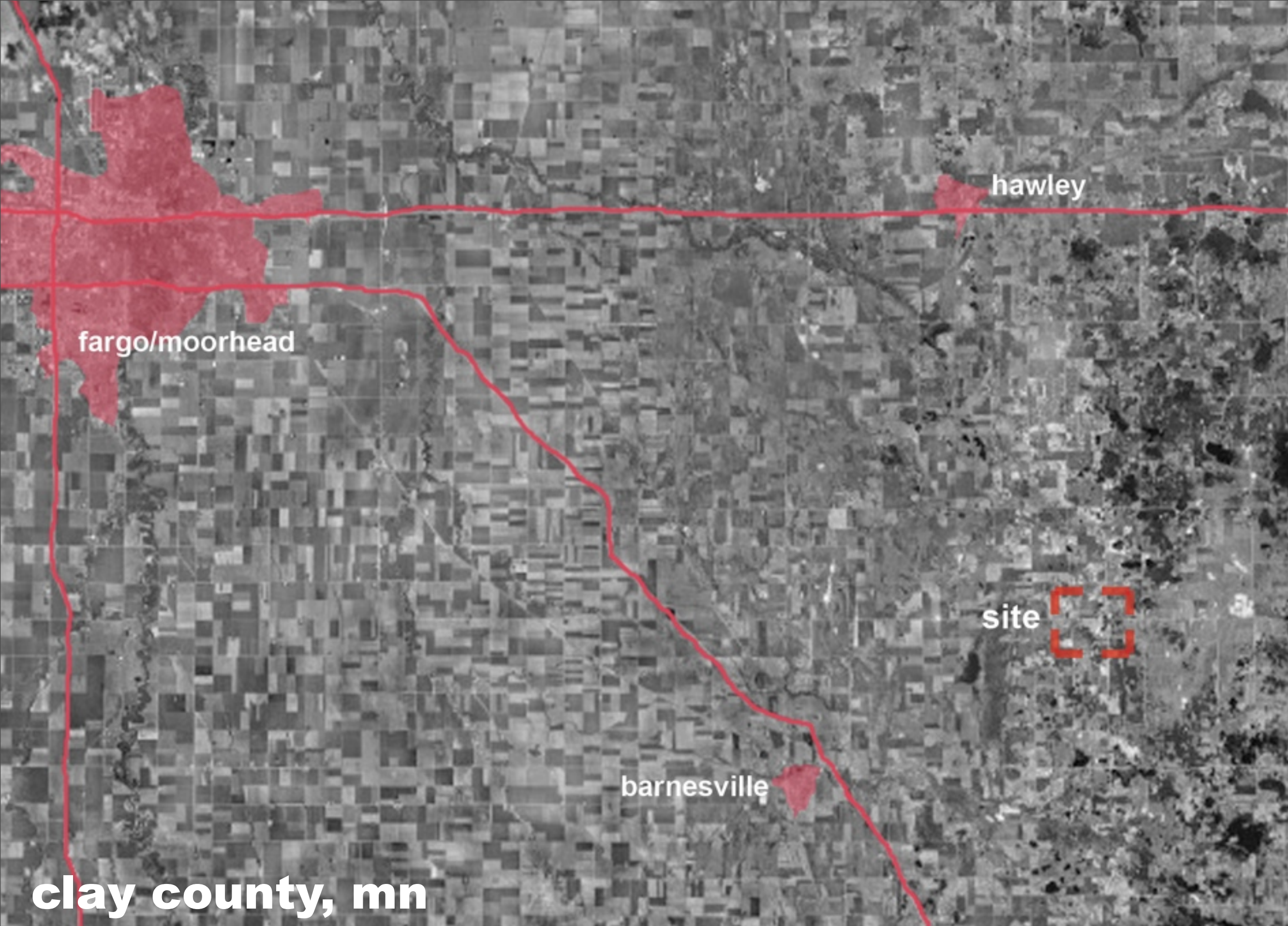
**minnesota**

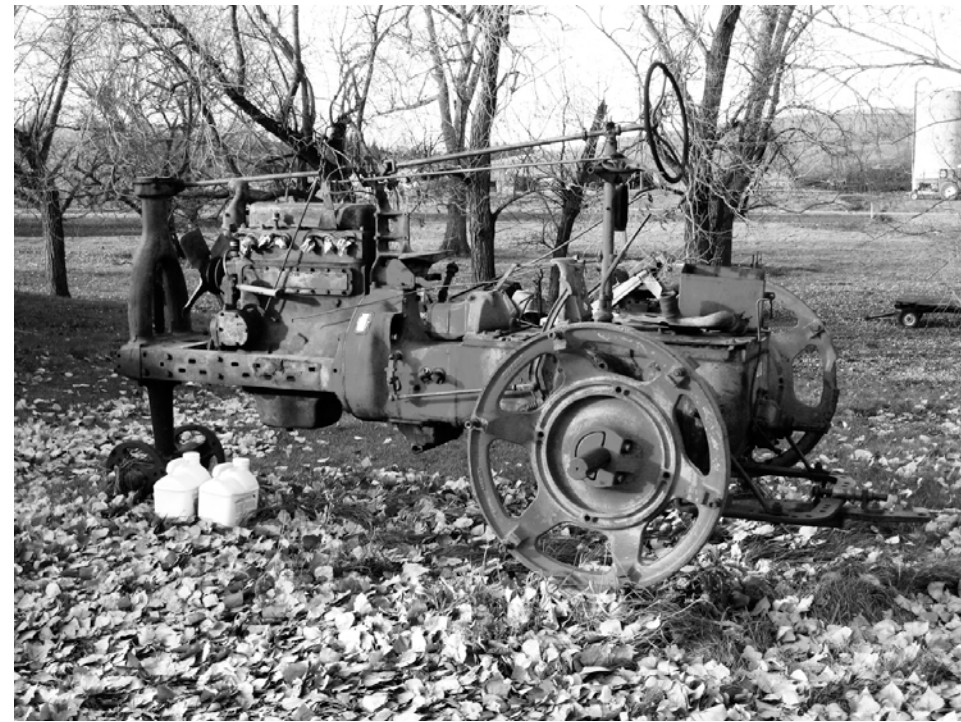
agricultural land: 51%



# **artifact study**

- Aakre farmsite
- Herbranson farmsite

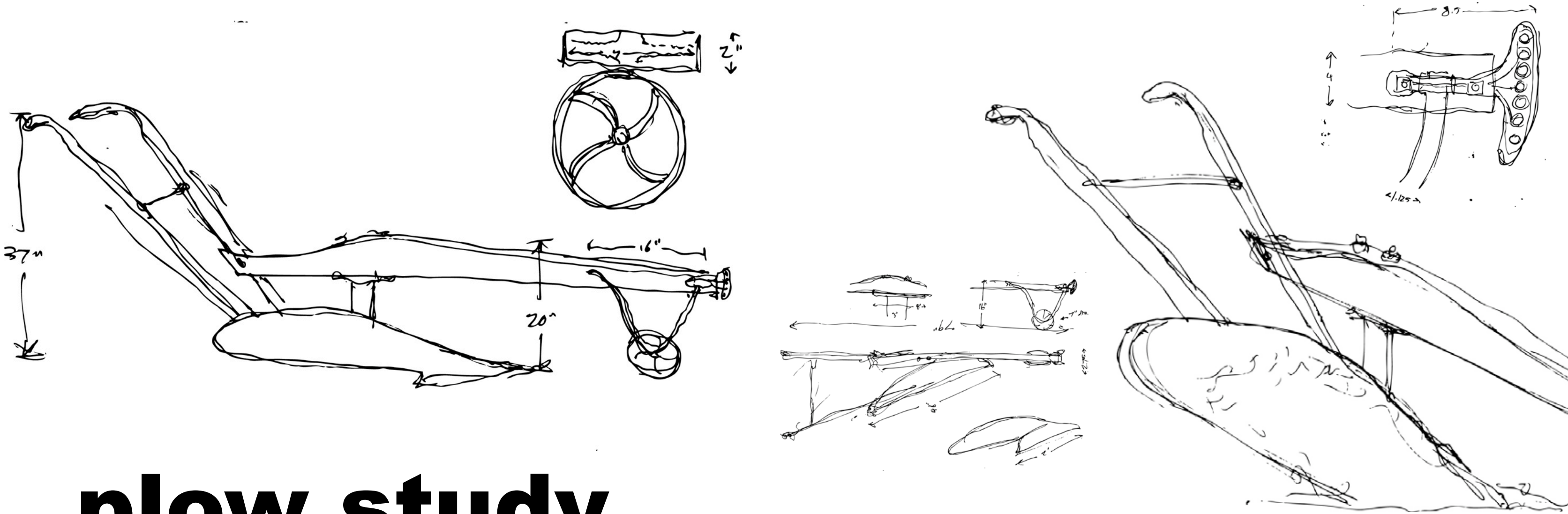




# aakre site



# herbranson site



# plow study

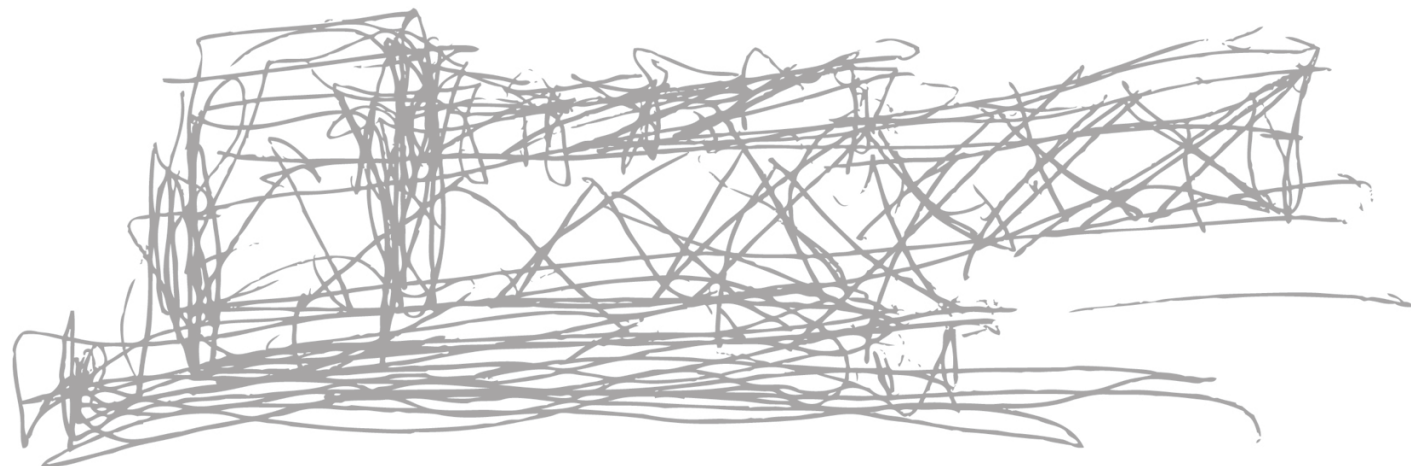


# **building program**

- research space + offices and library
- exhibition space + public spaces
- auxiliary spaces for required for building functions

# project design

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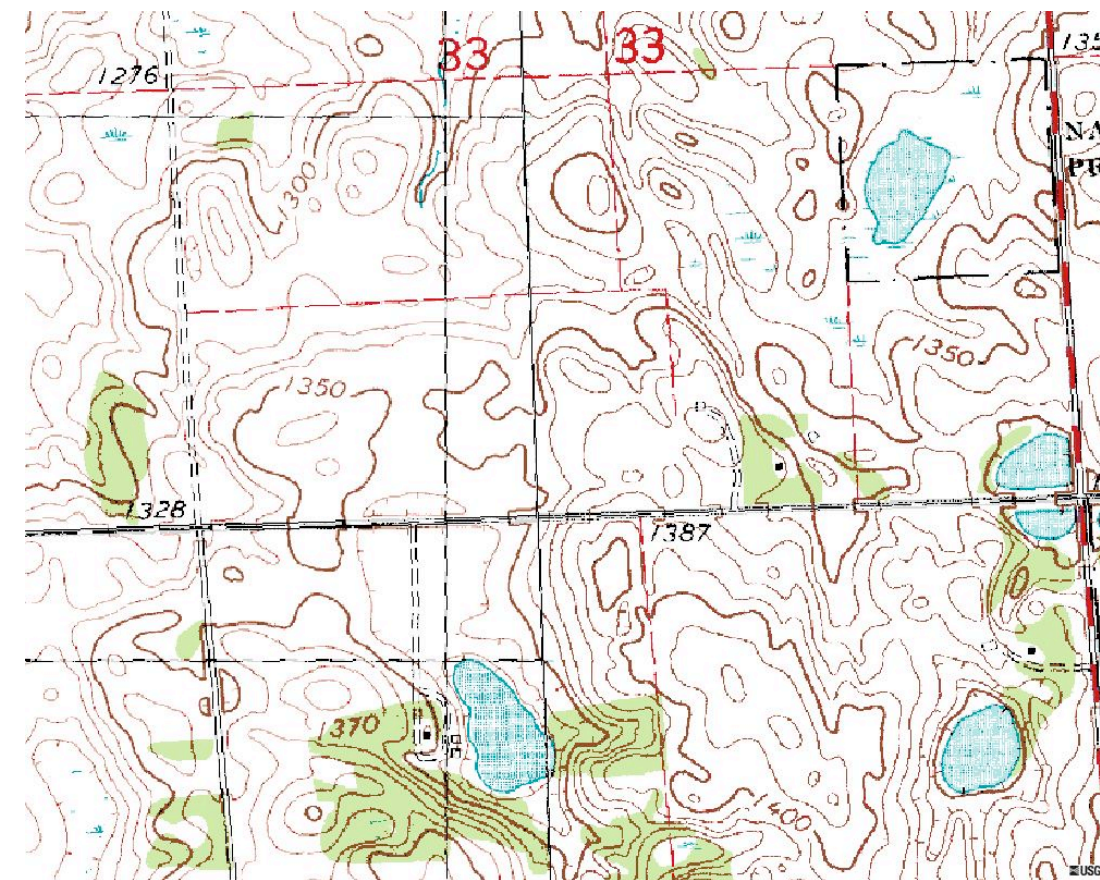
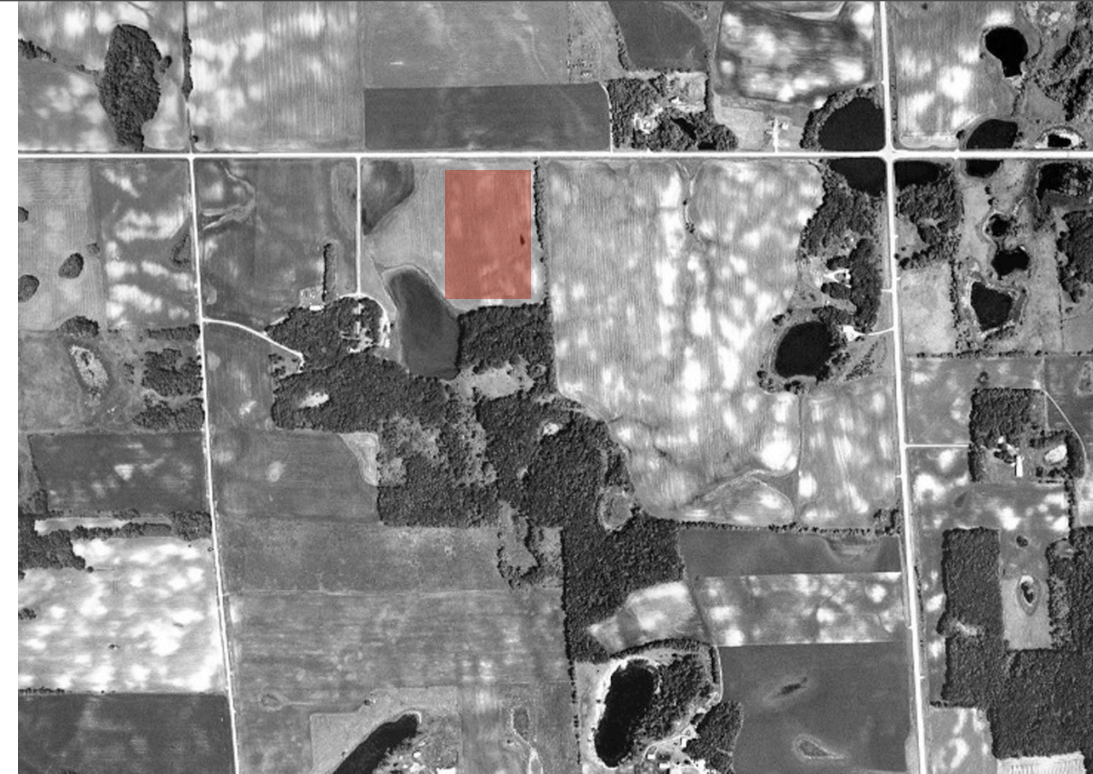
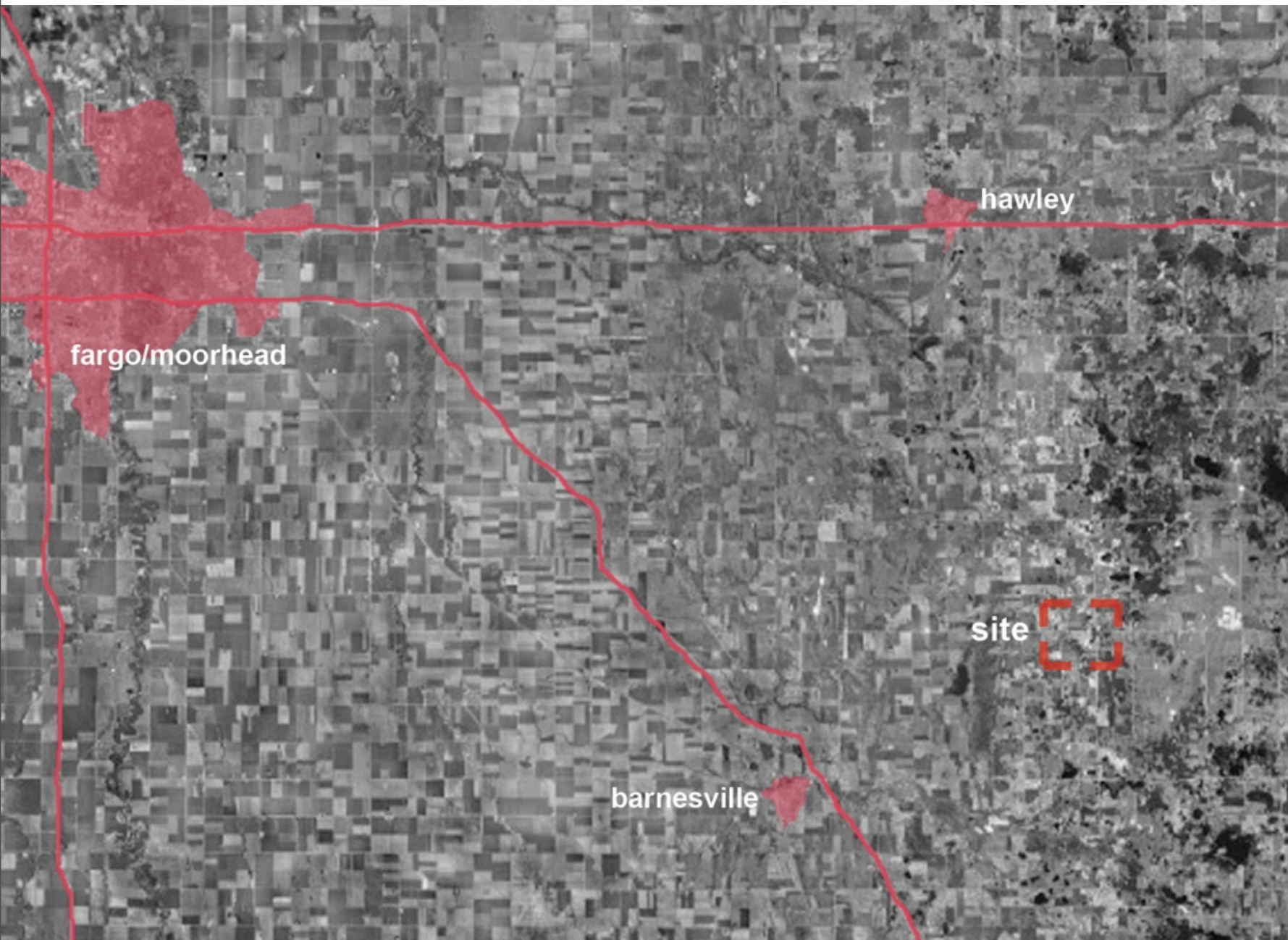


# inspiration





# site selection



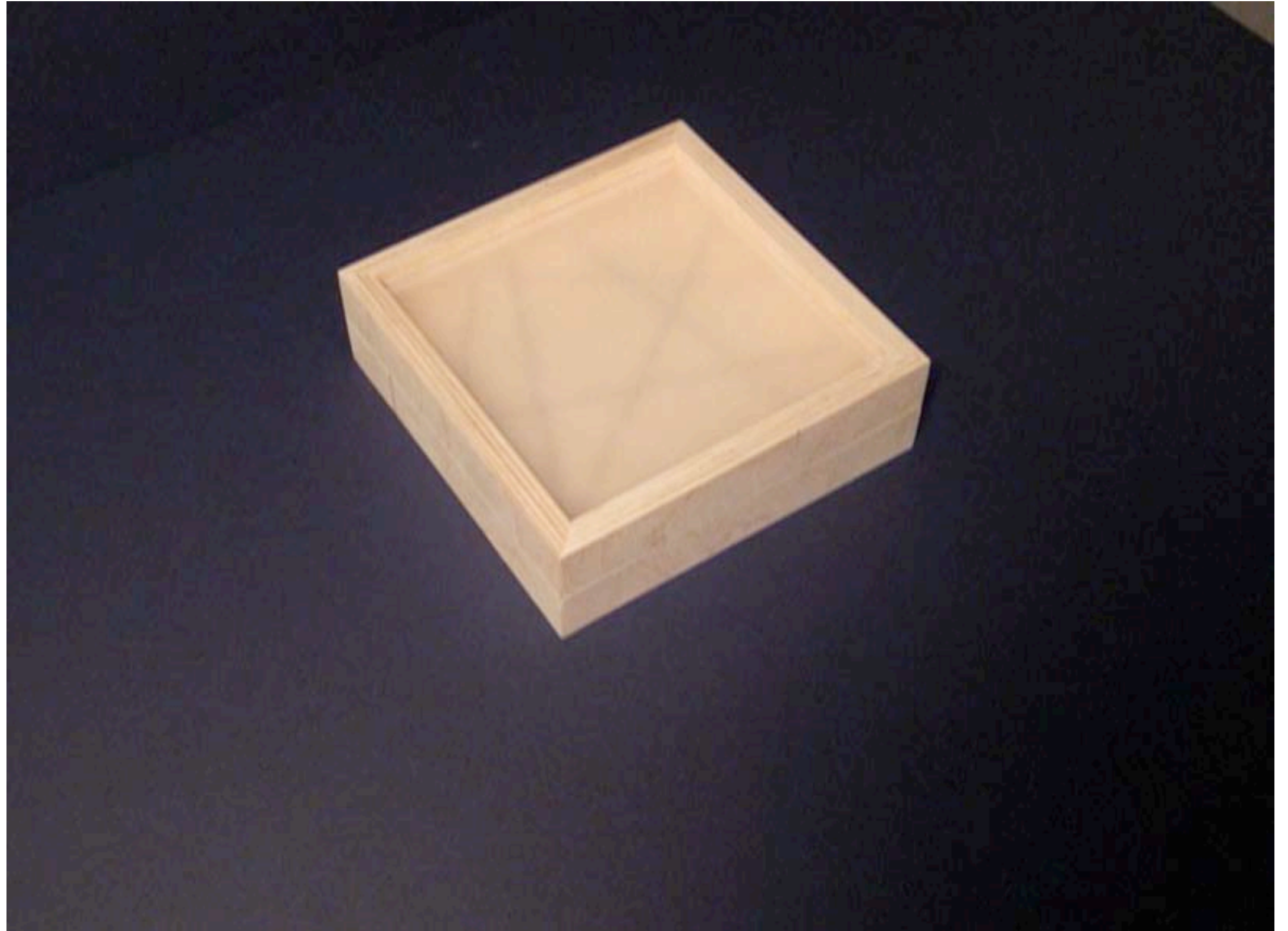
**topography!**

# site images

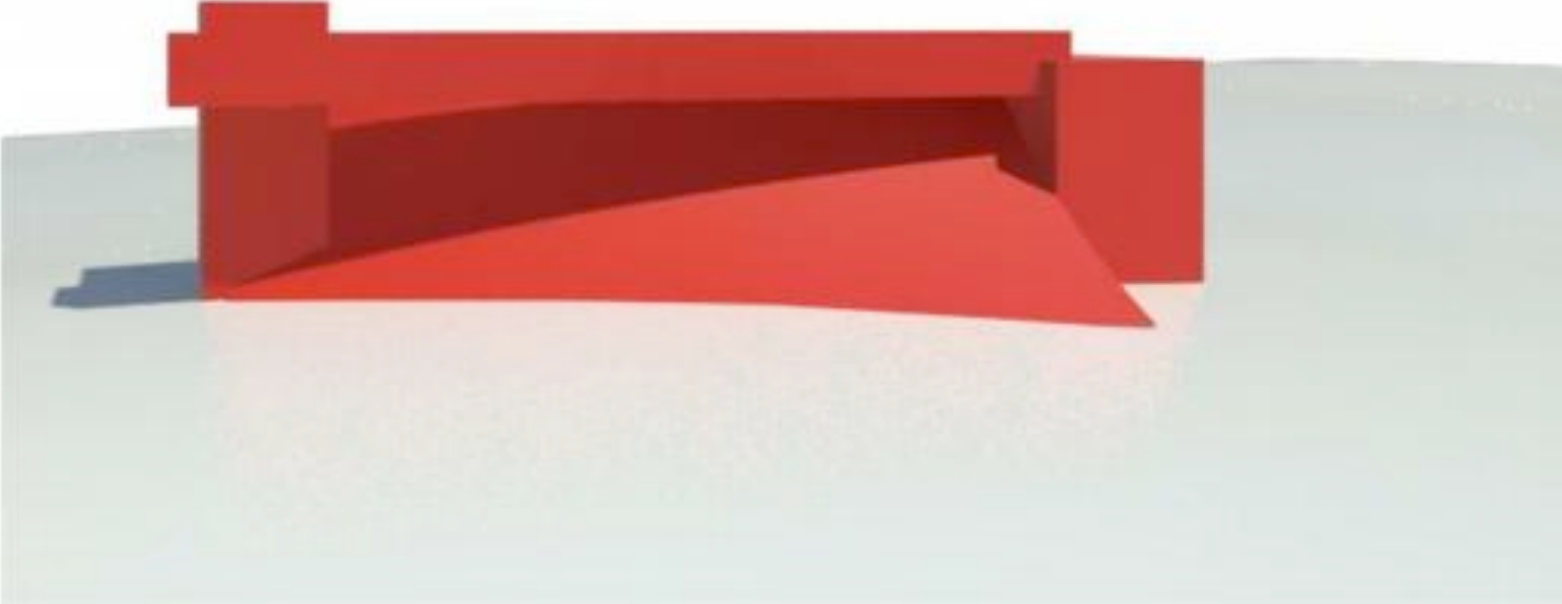
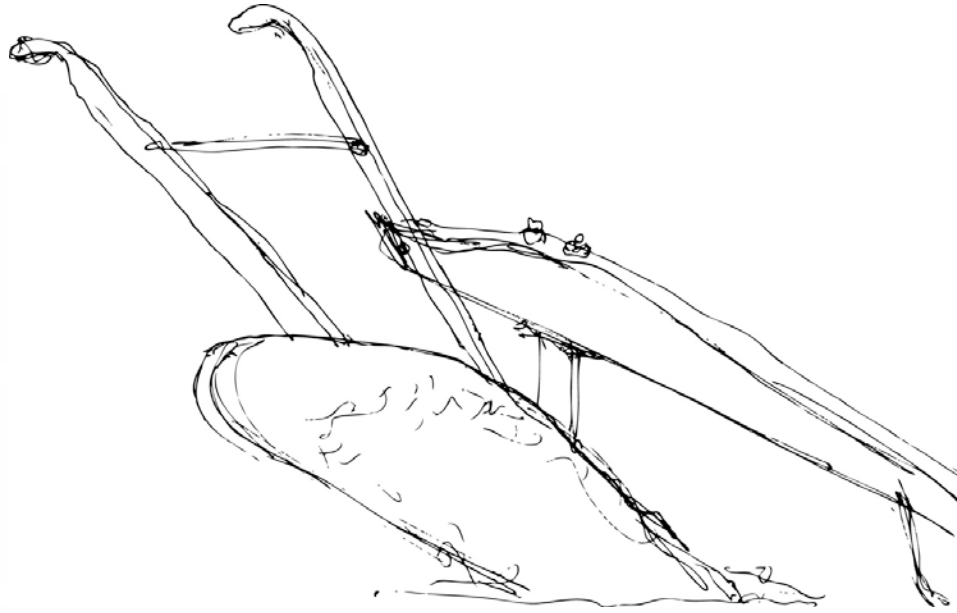
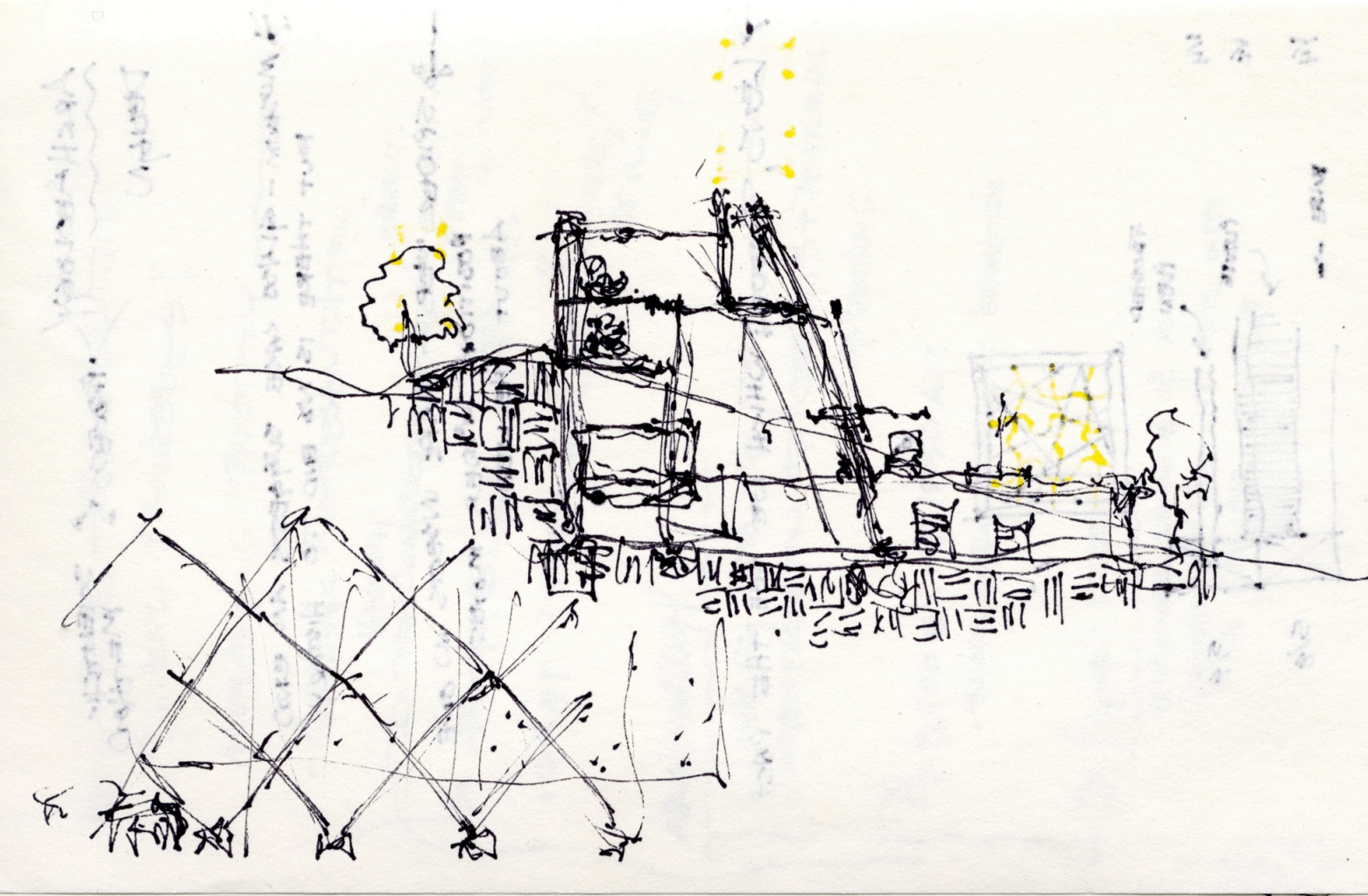




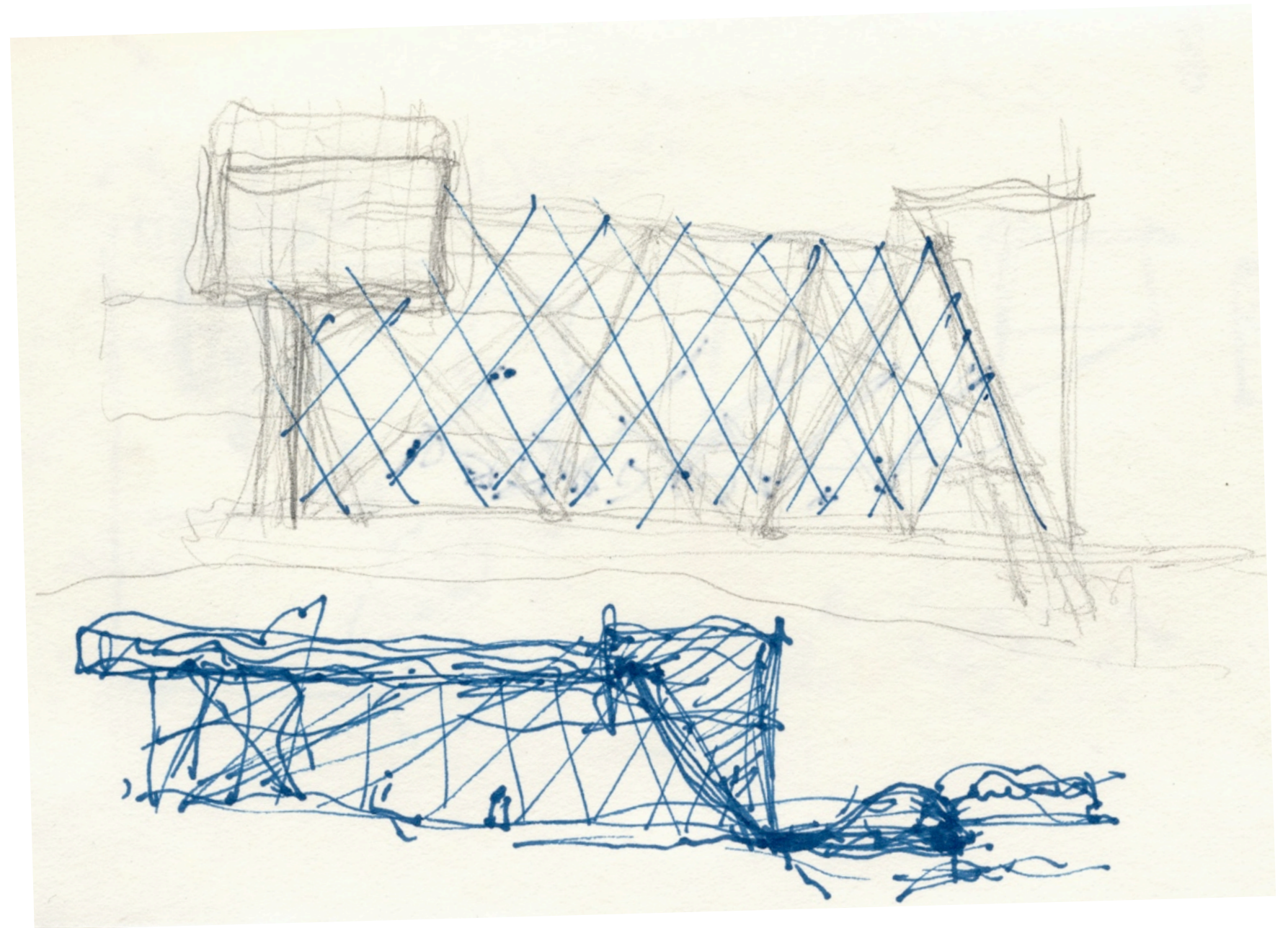
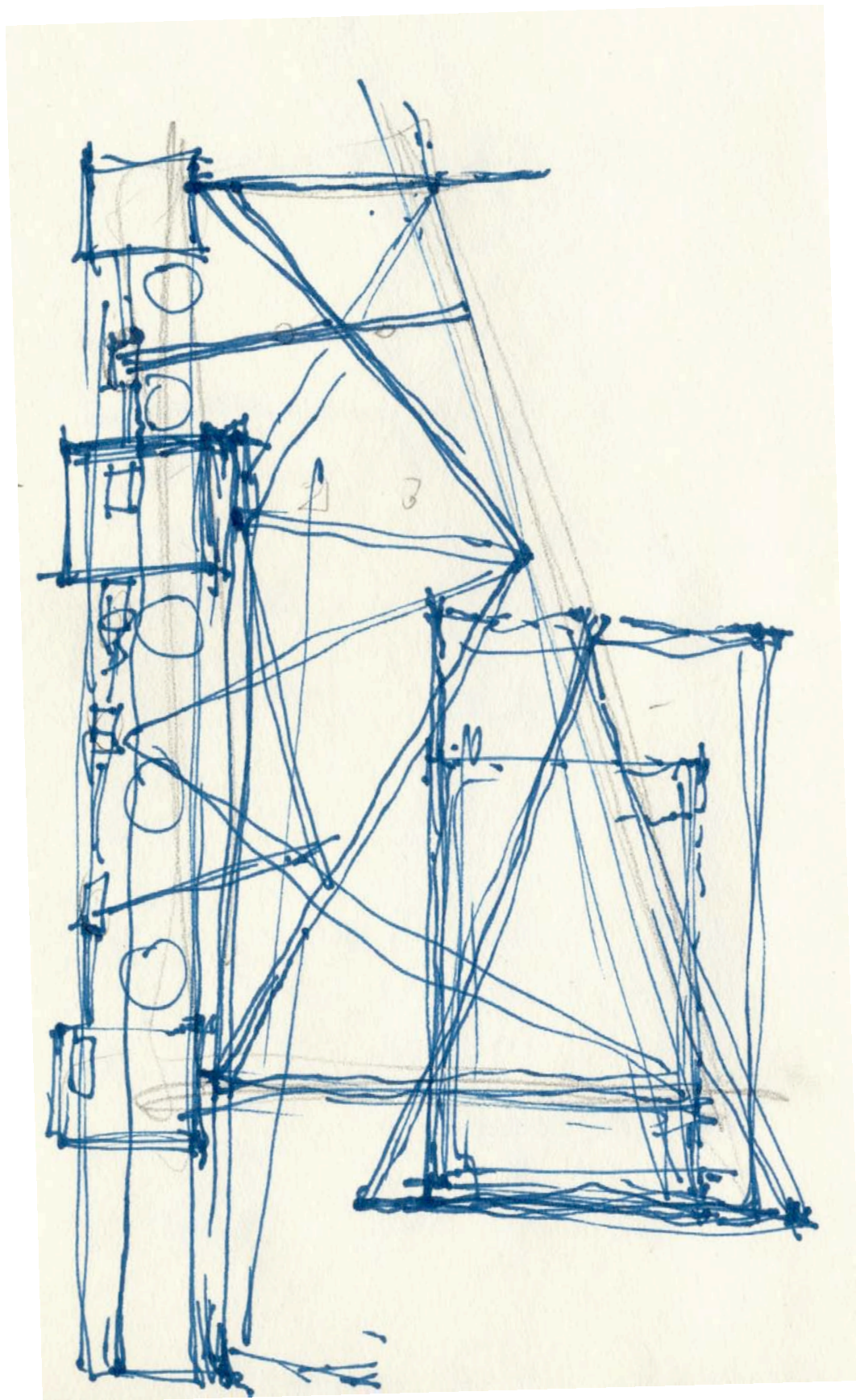
**parti**

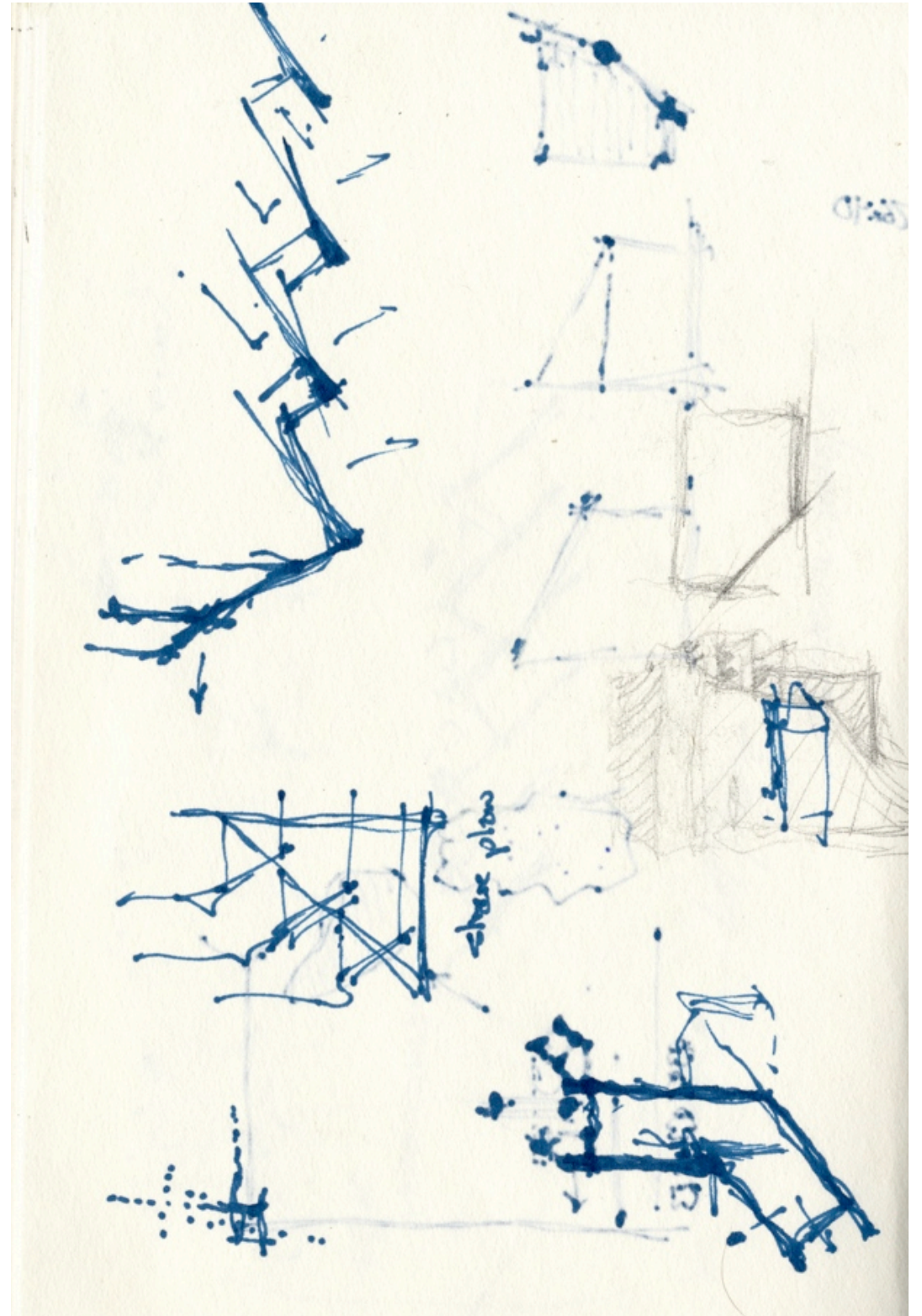


# initial concept

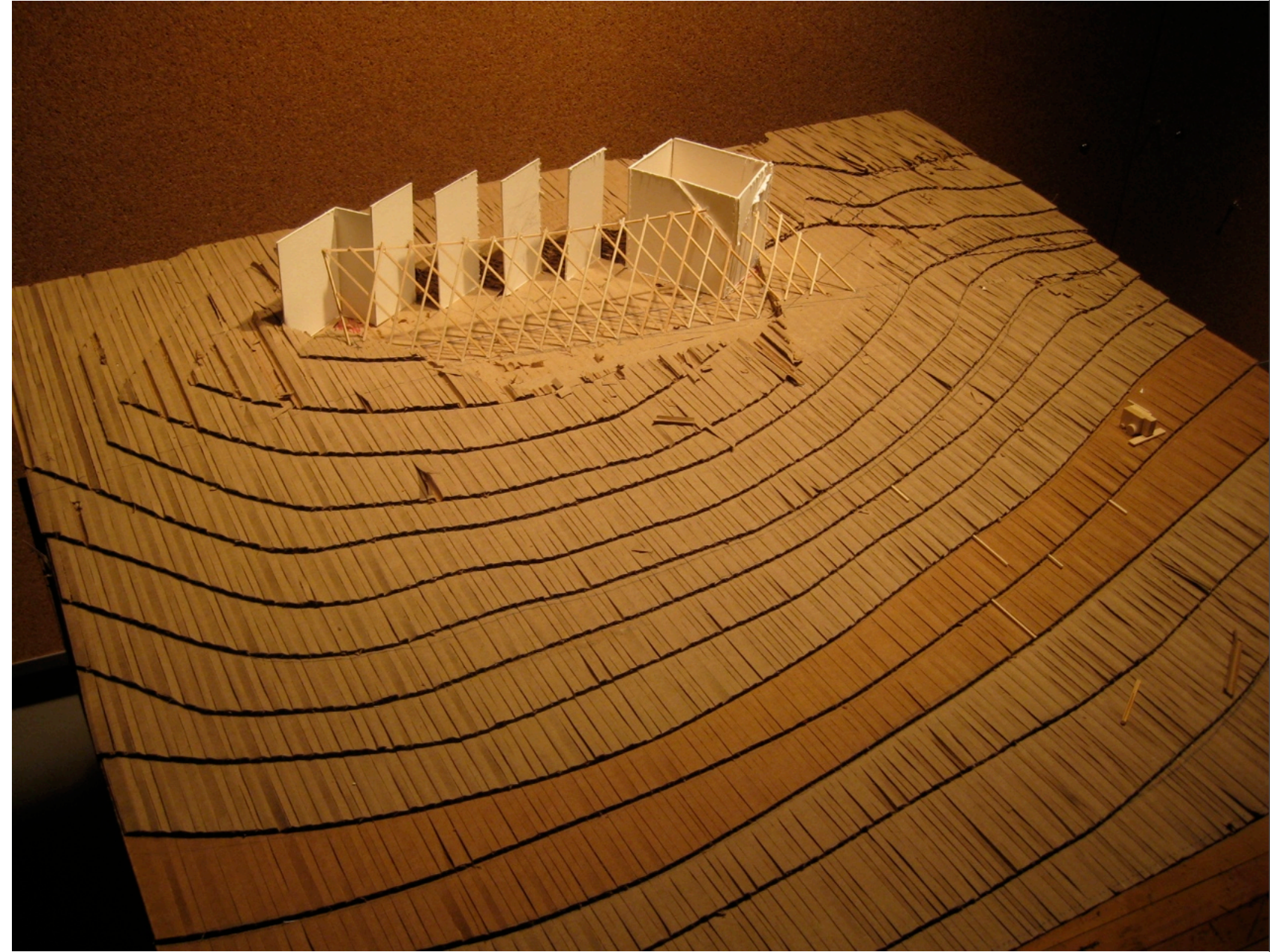
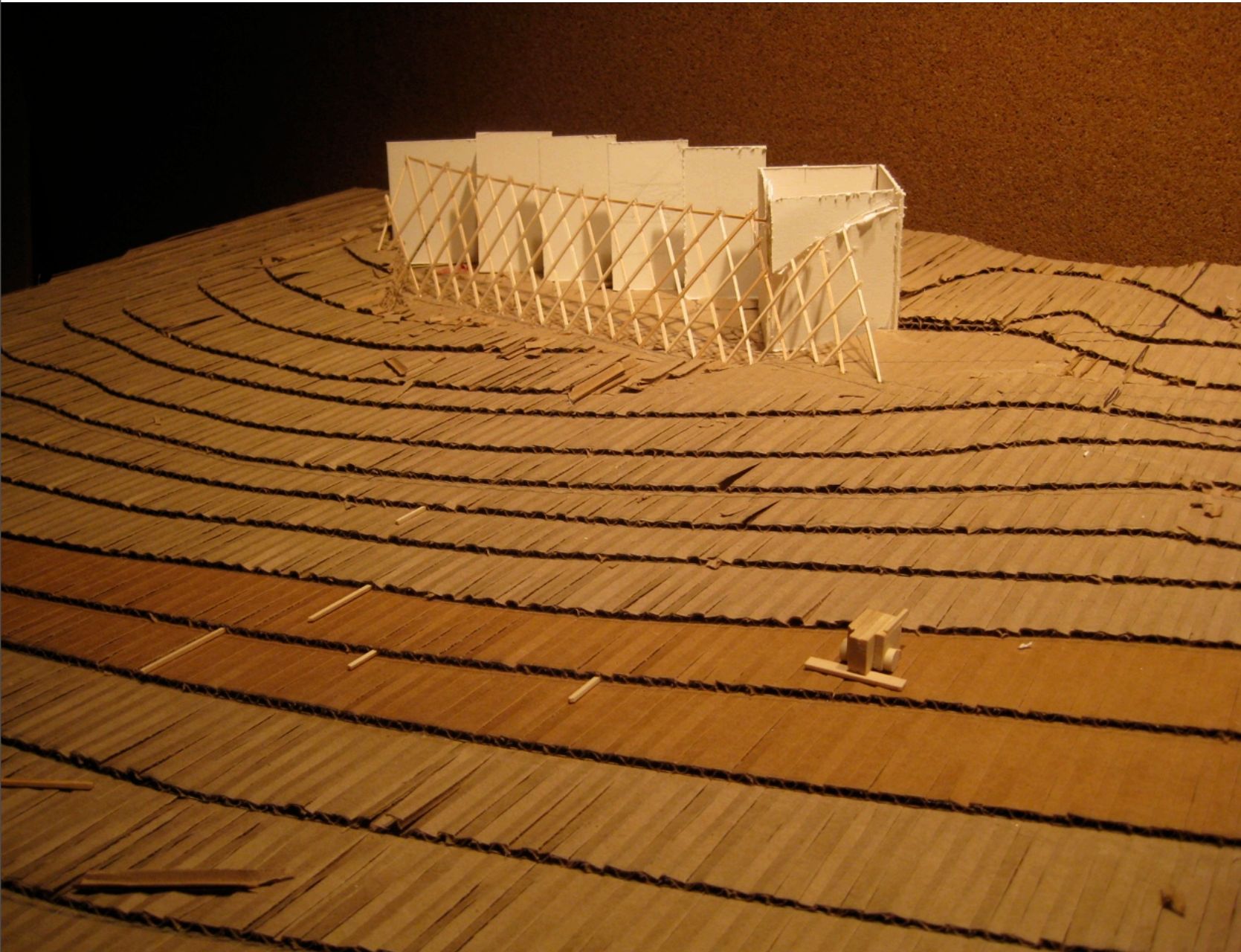


plow blade inspiration

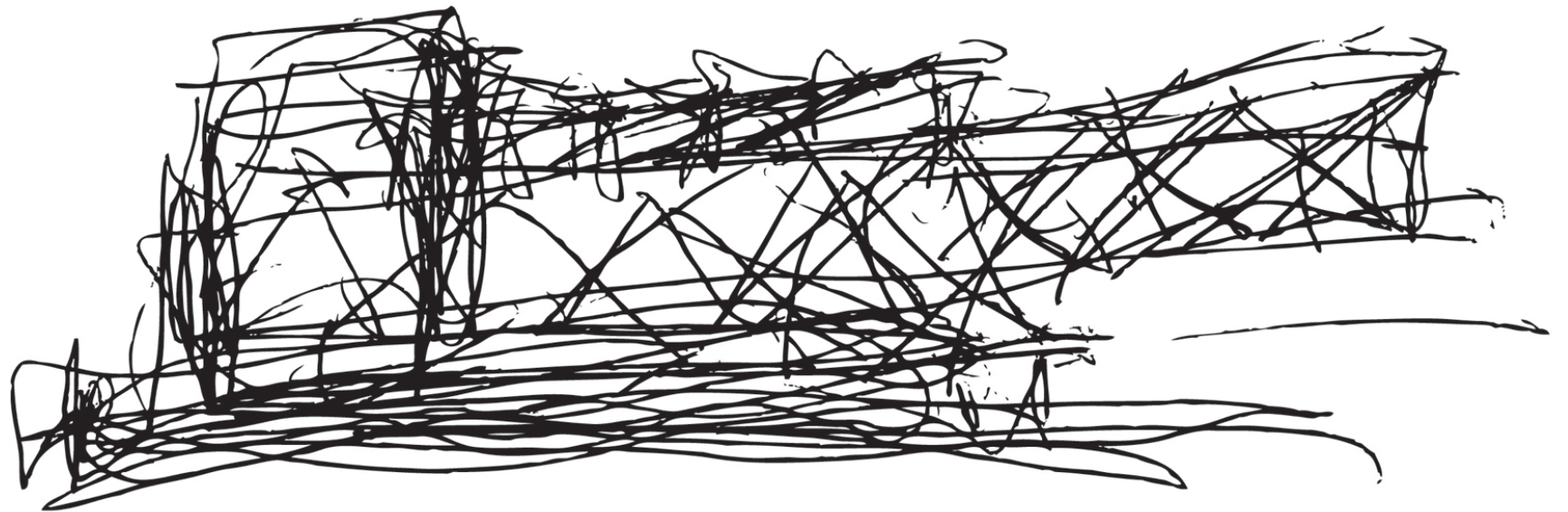
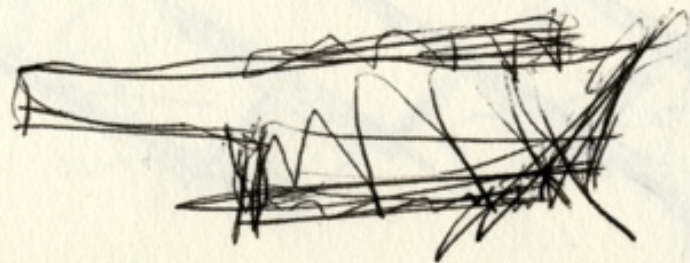
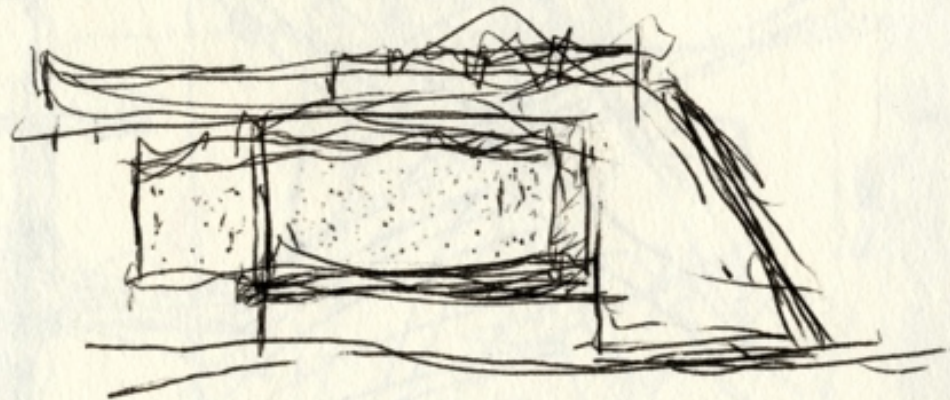
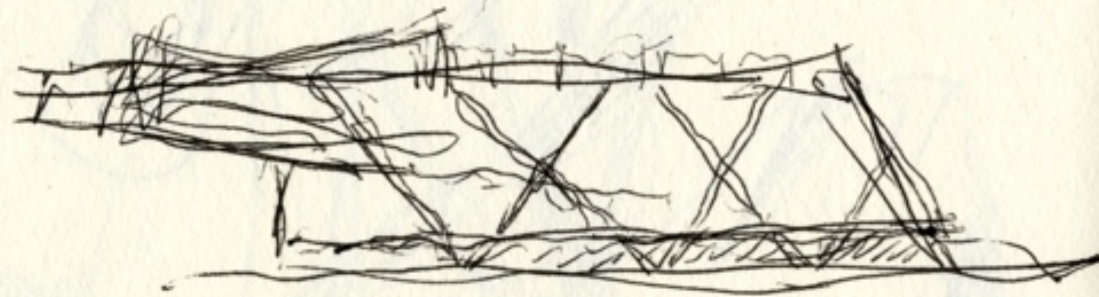




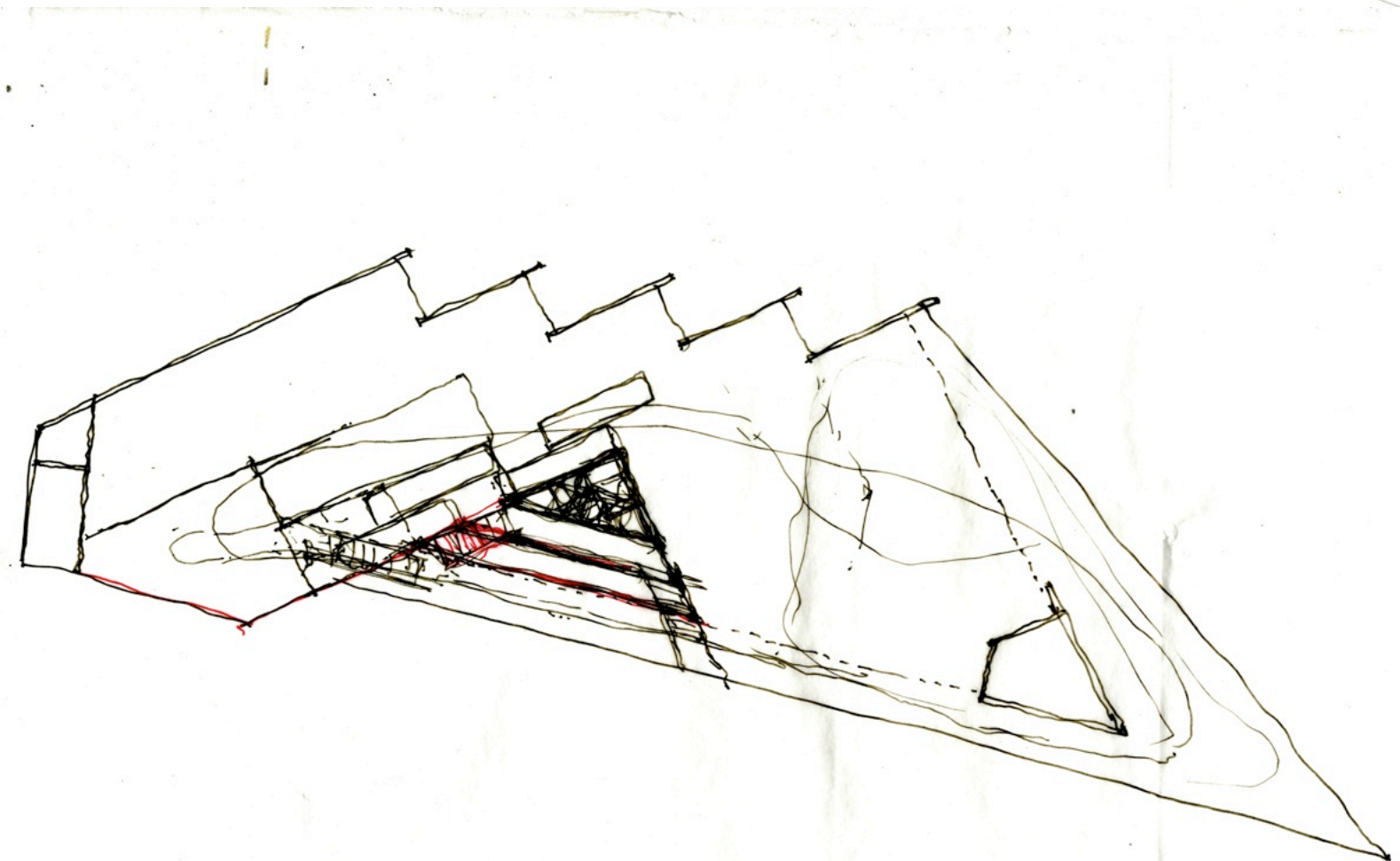
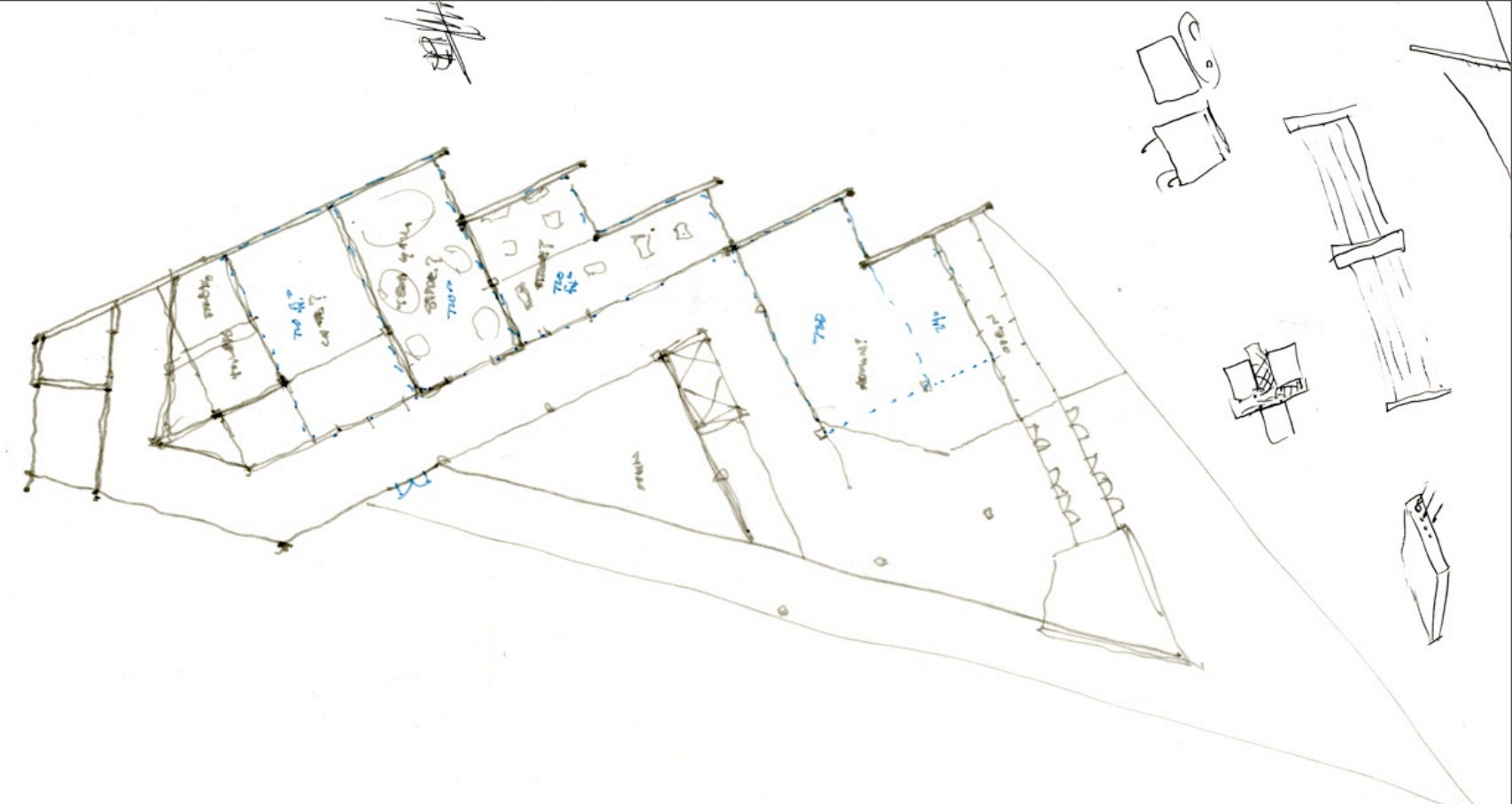
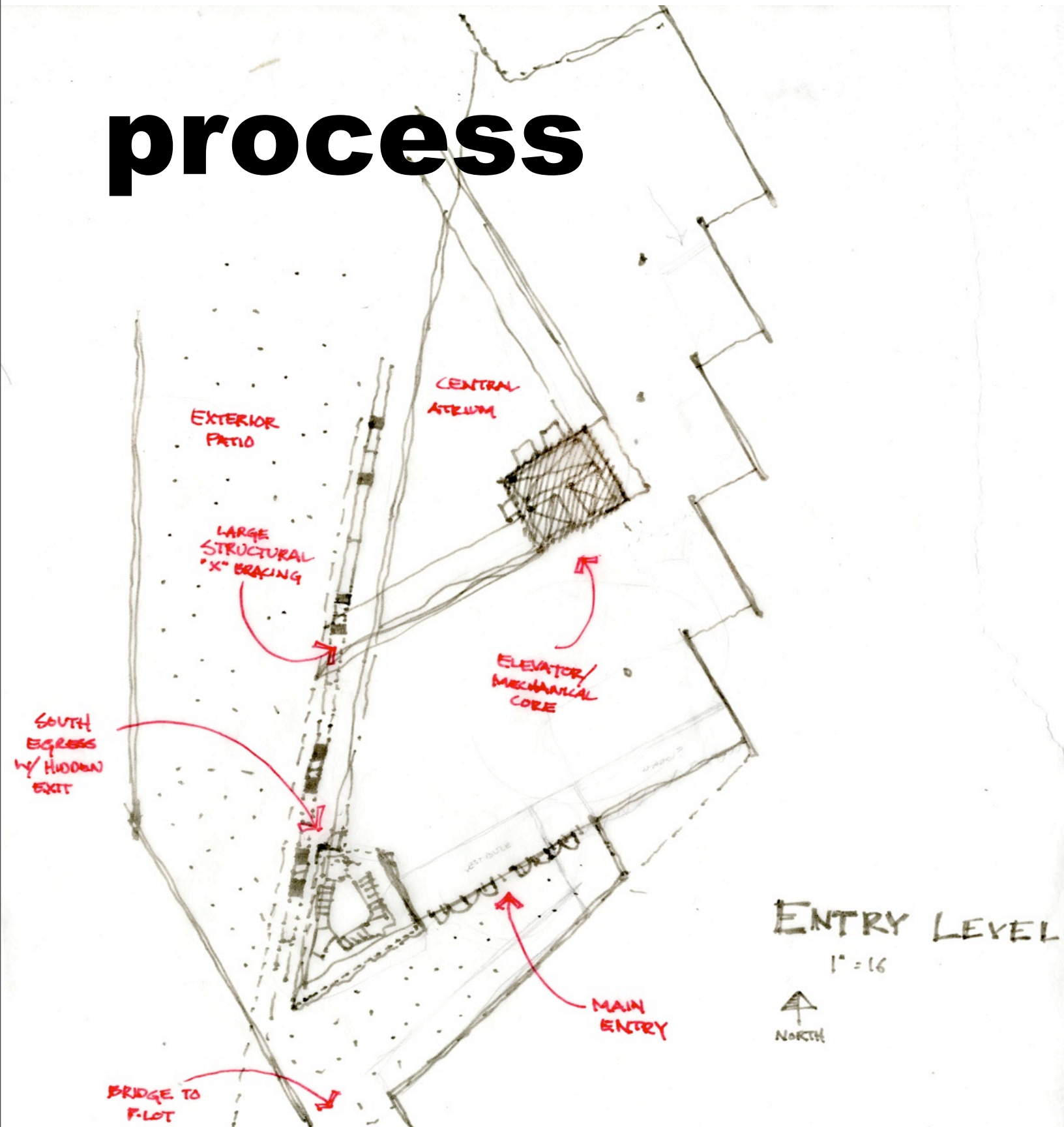
# initial concept



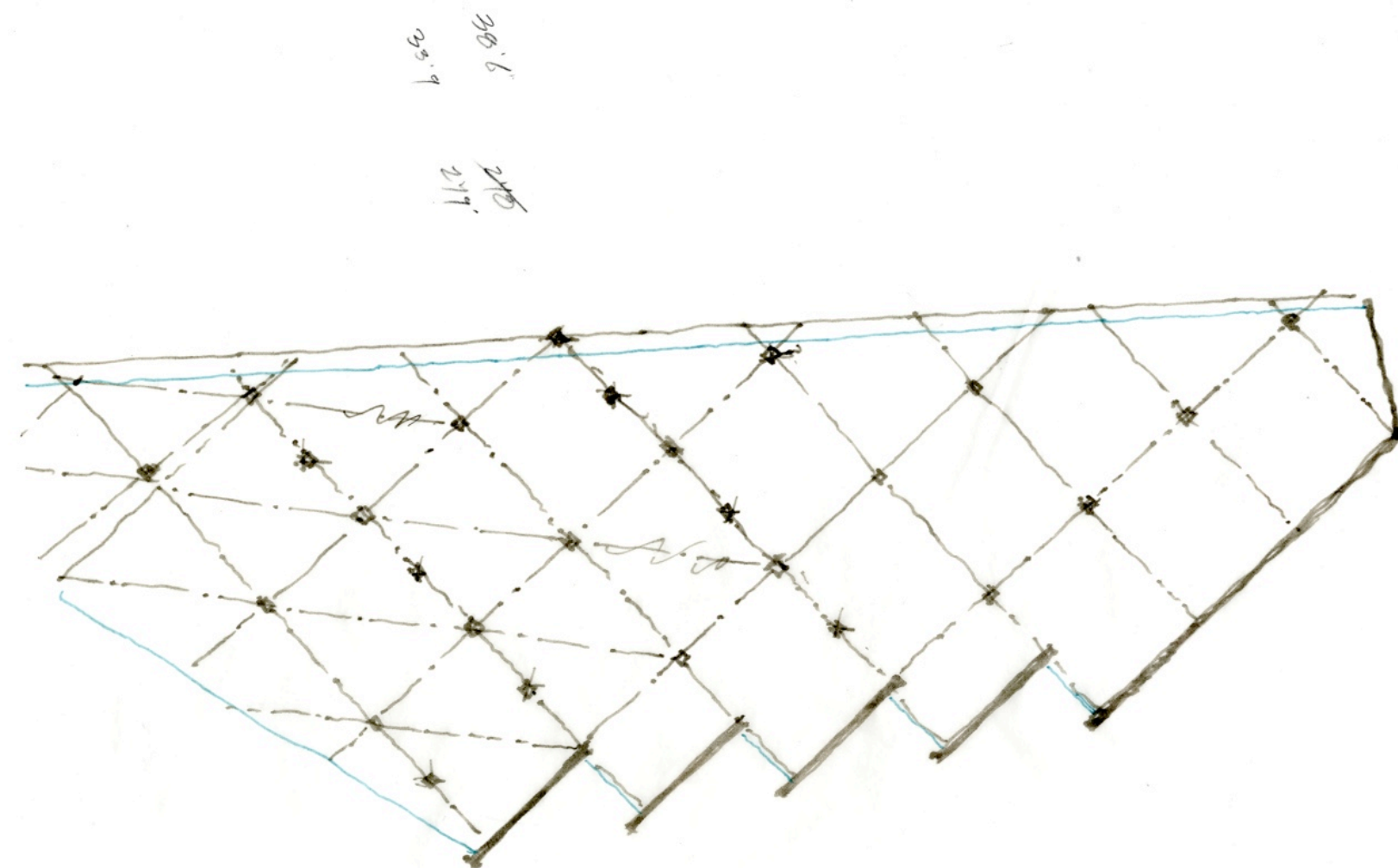
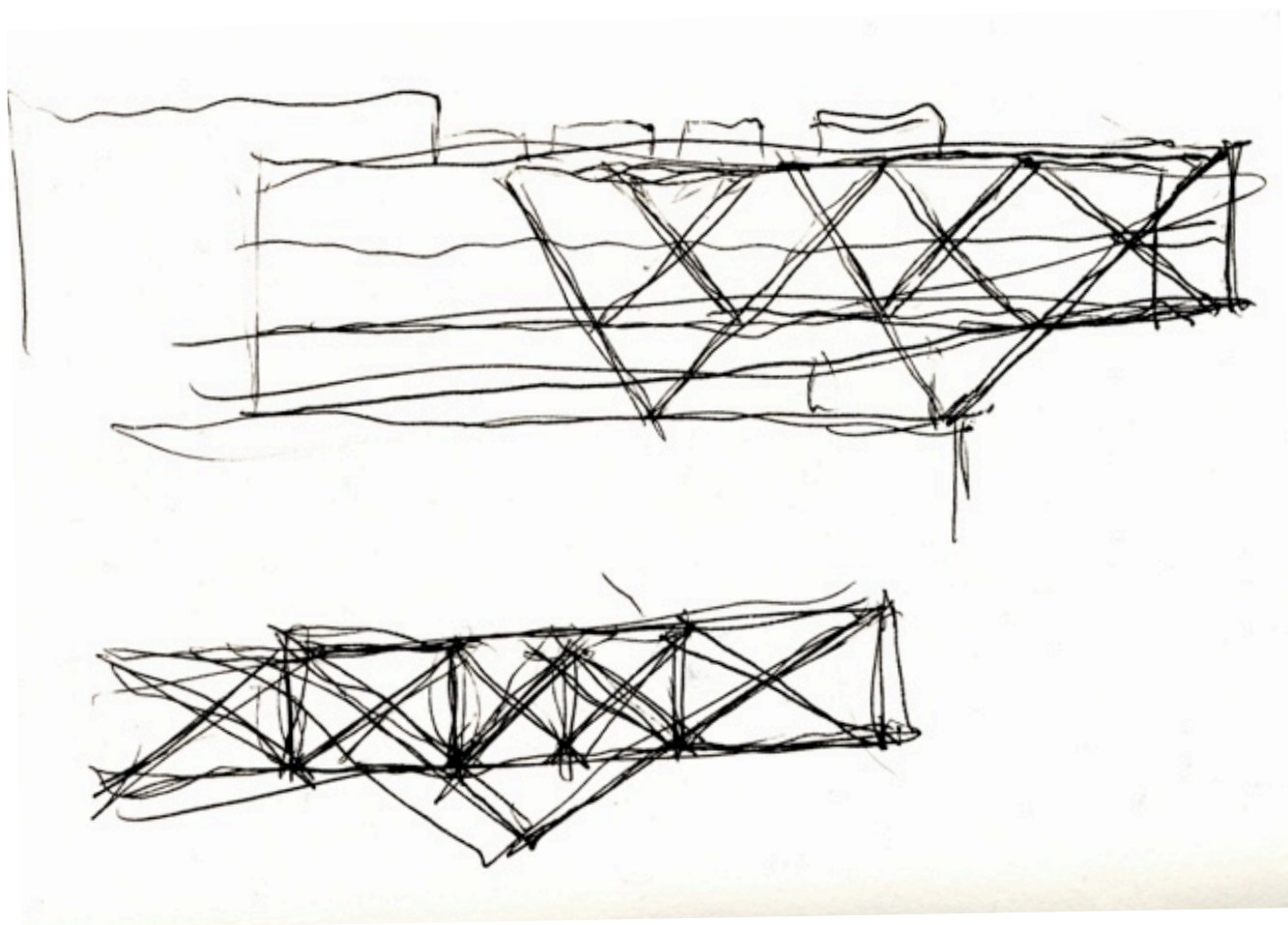
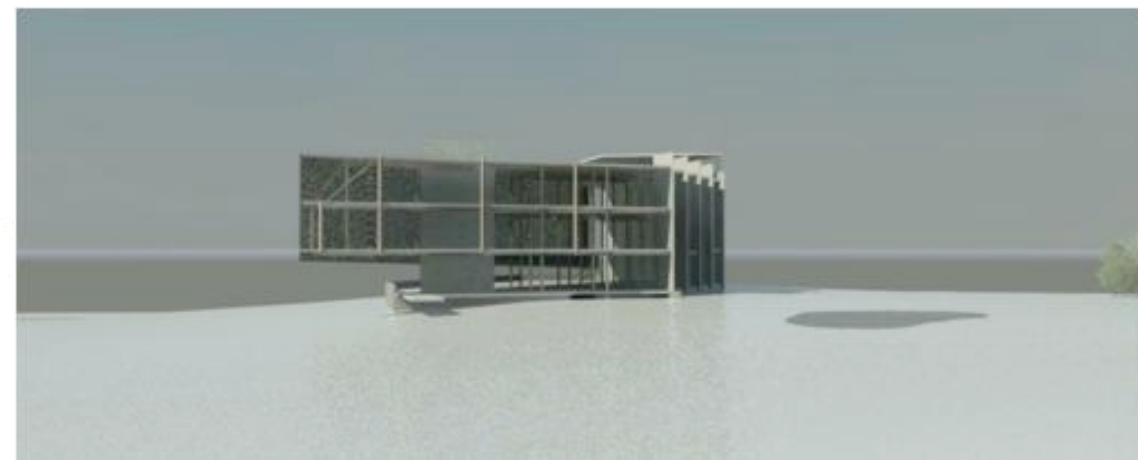




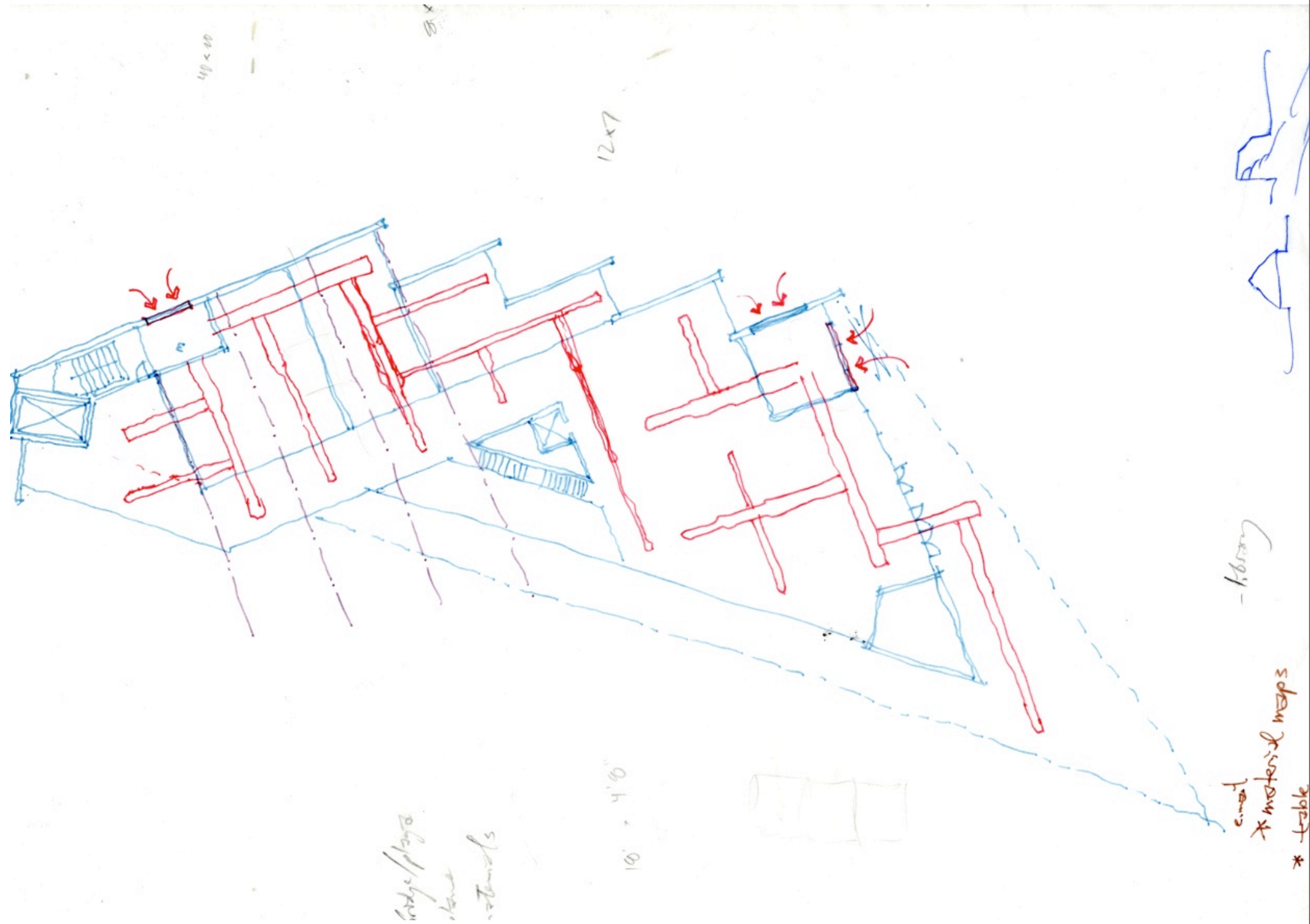
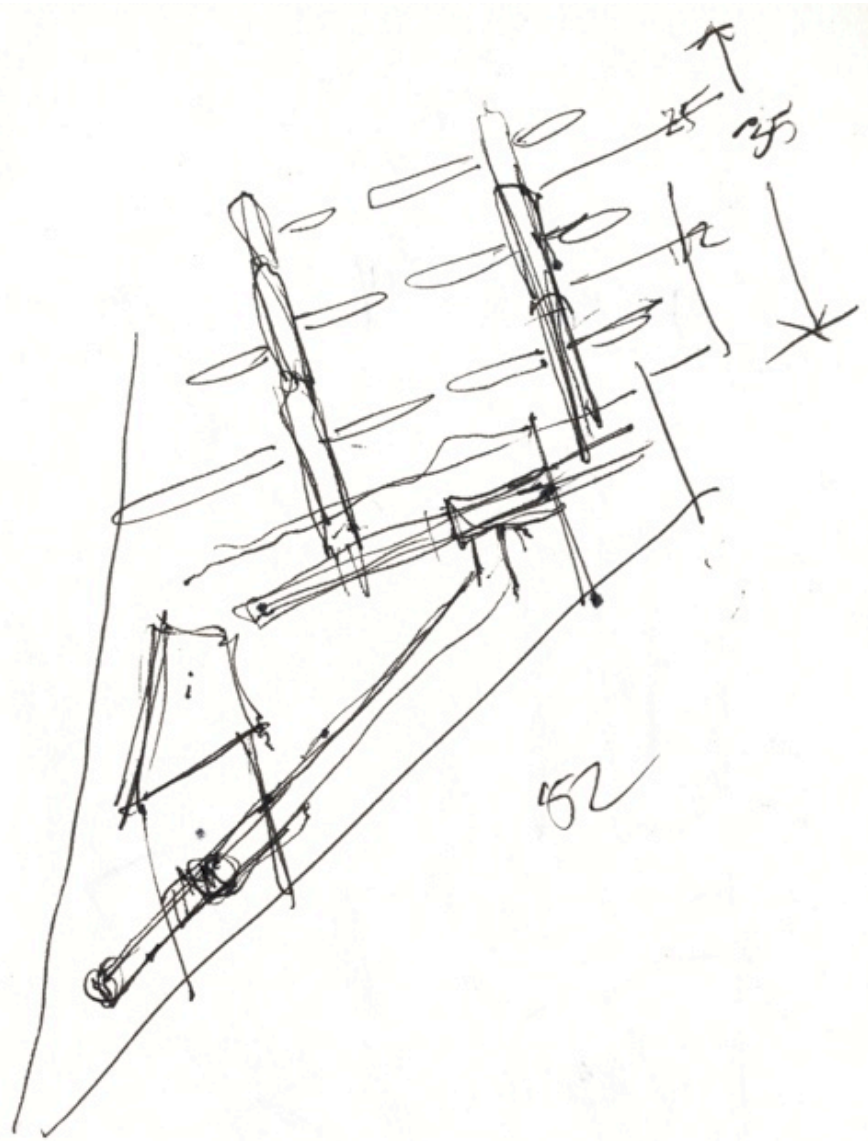
# process



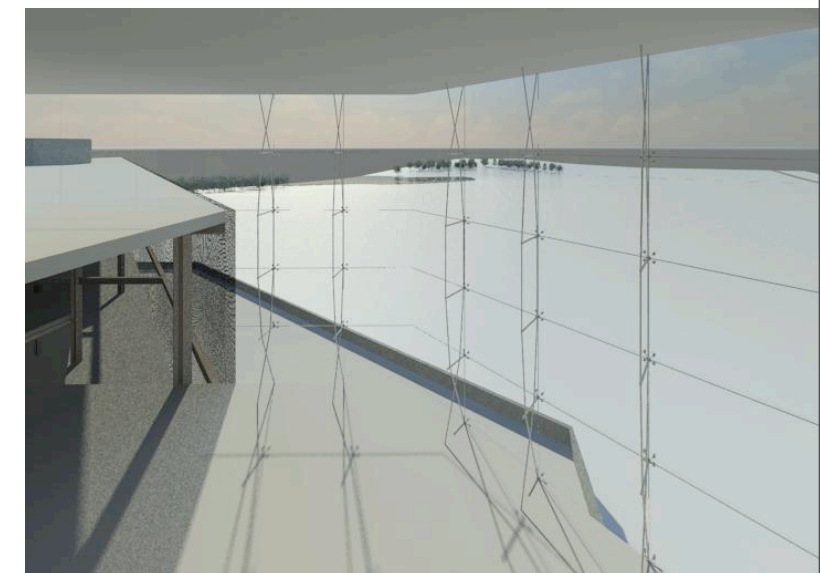
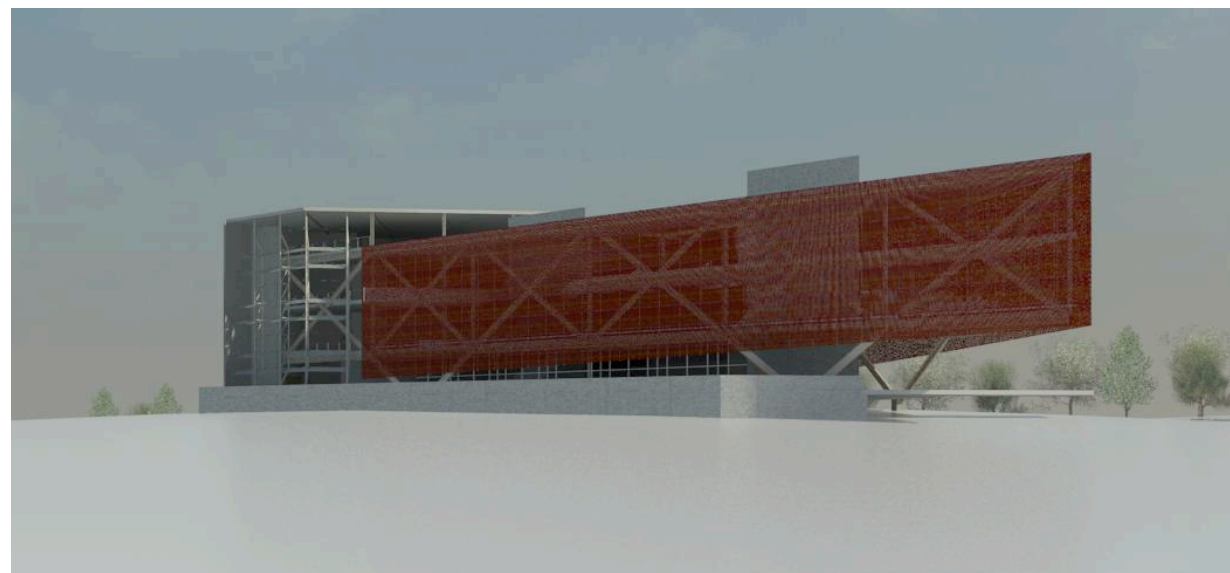
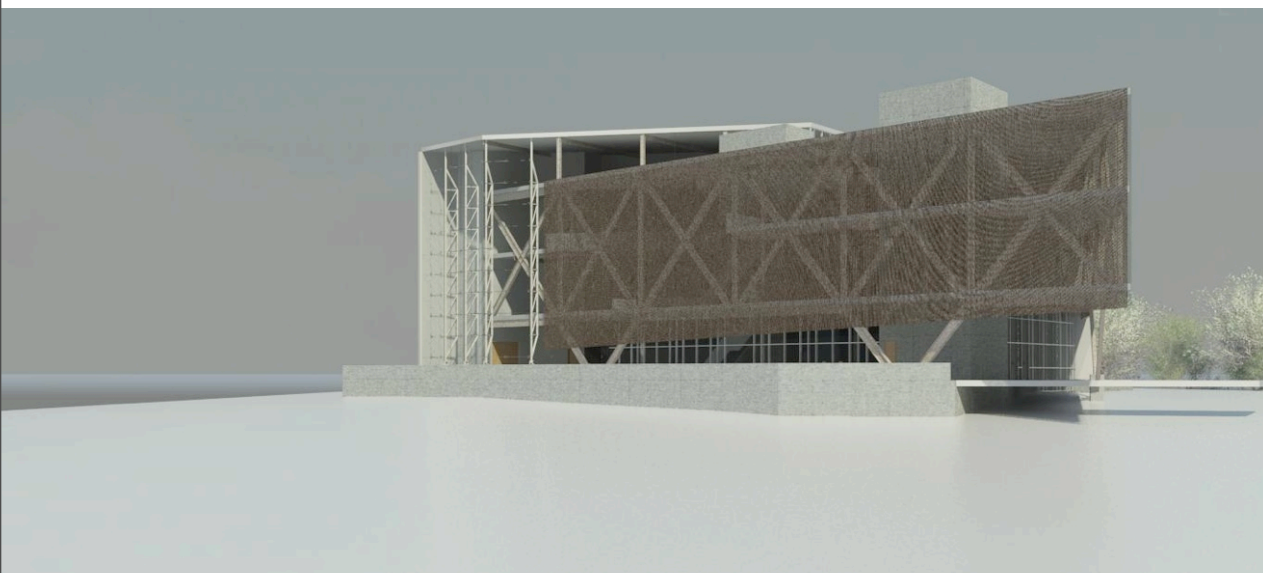
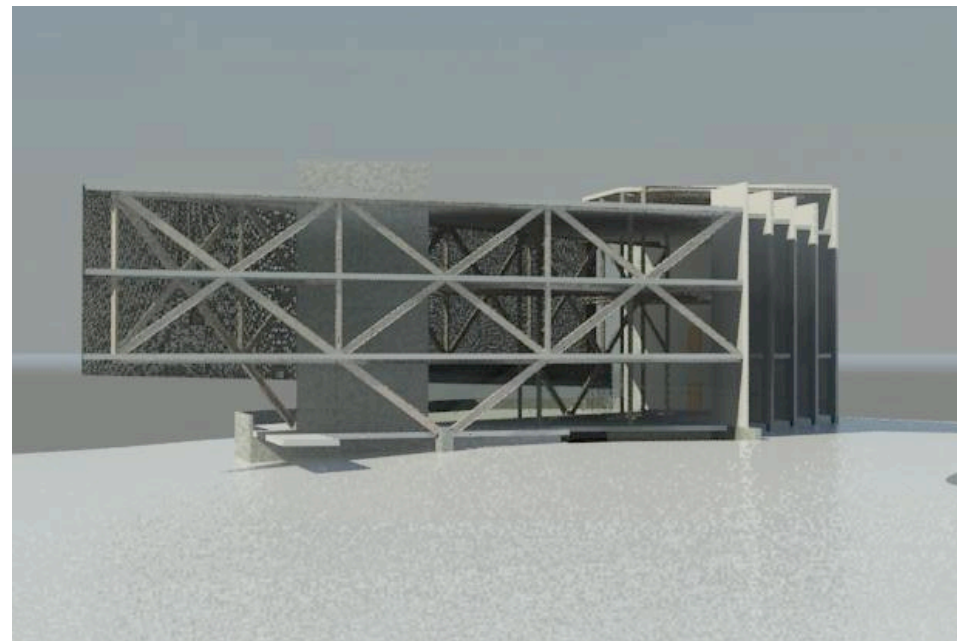
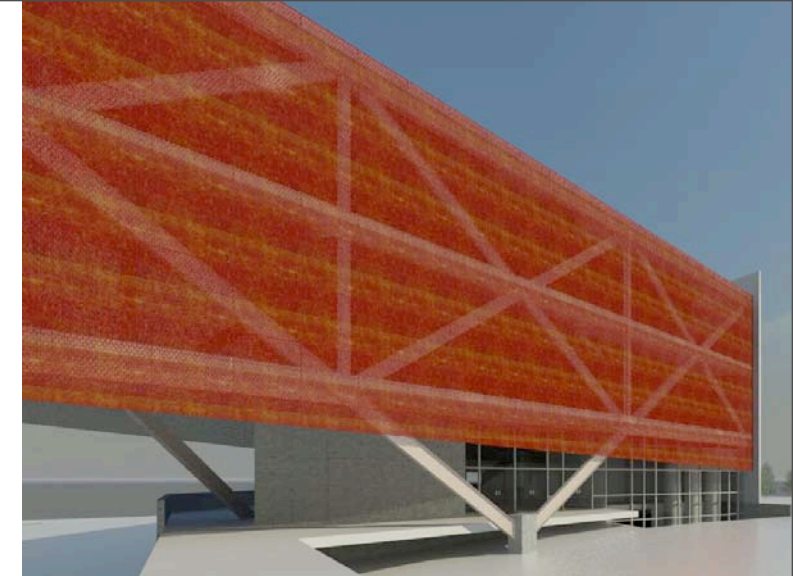
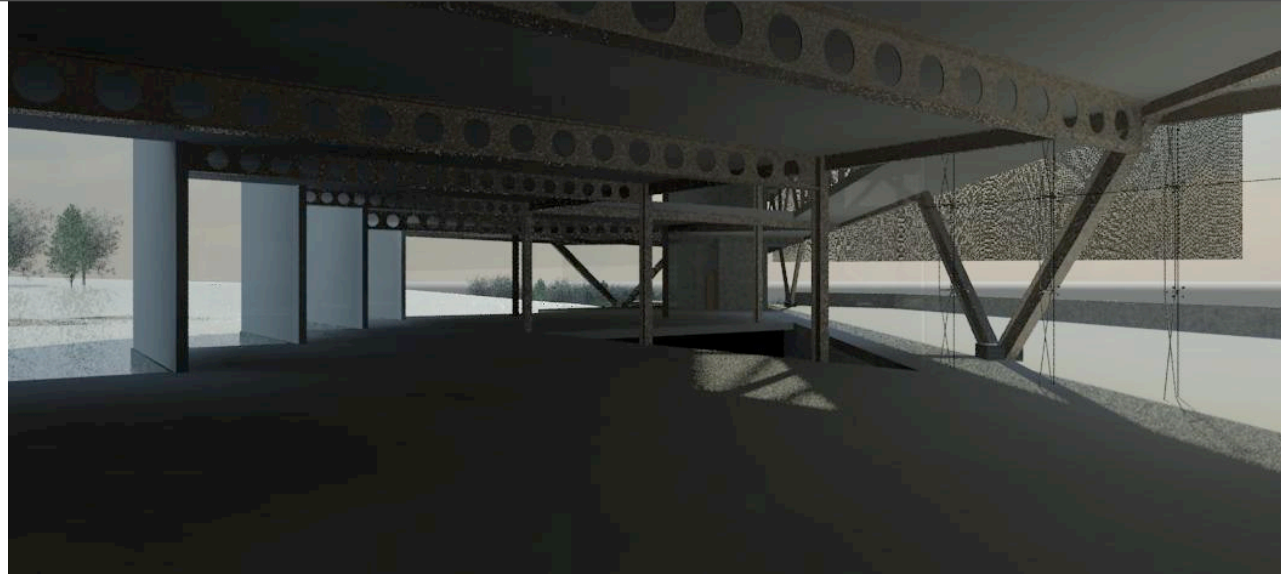
# process structure



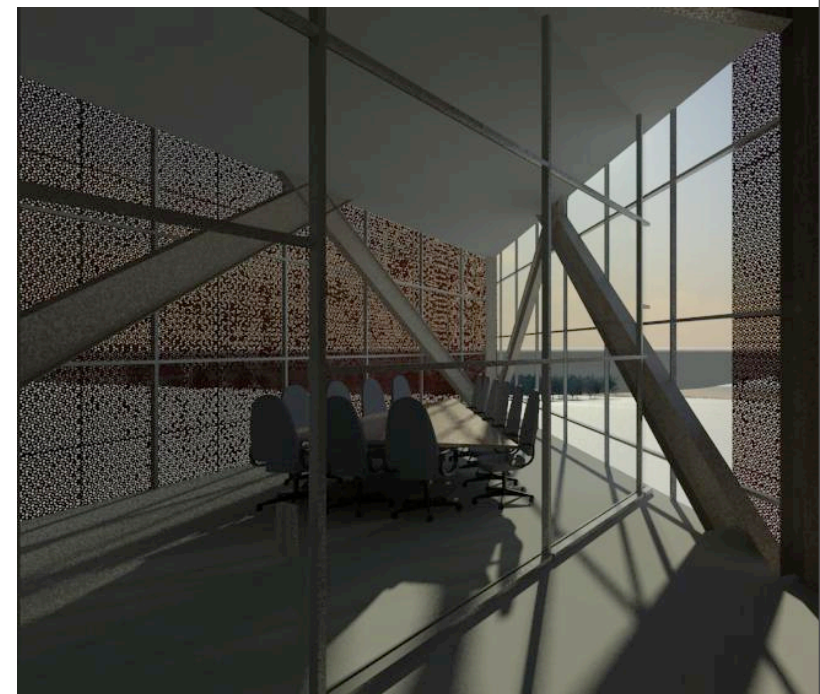
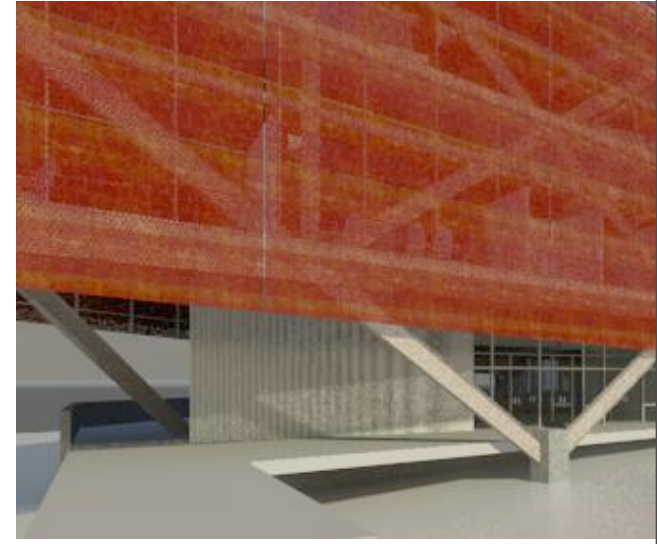
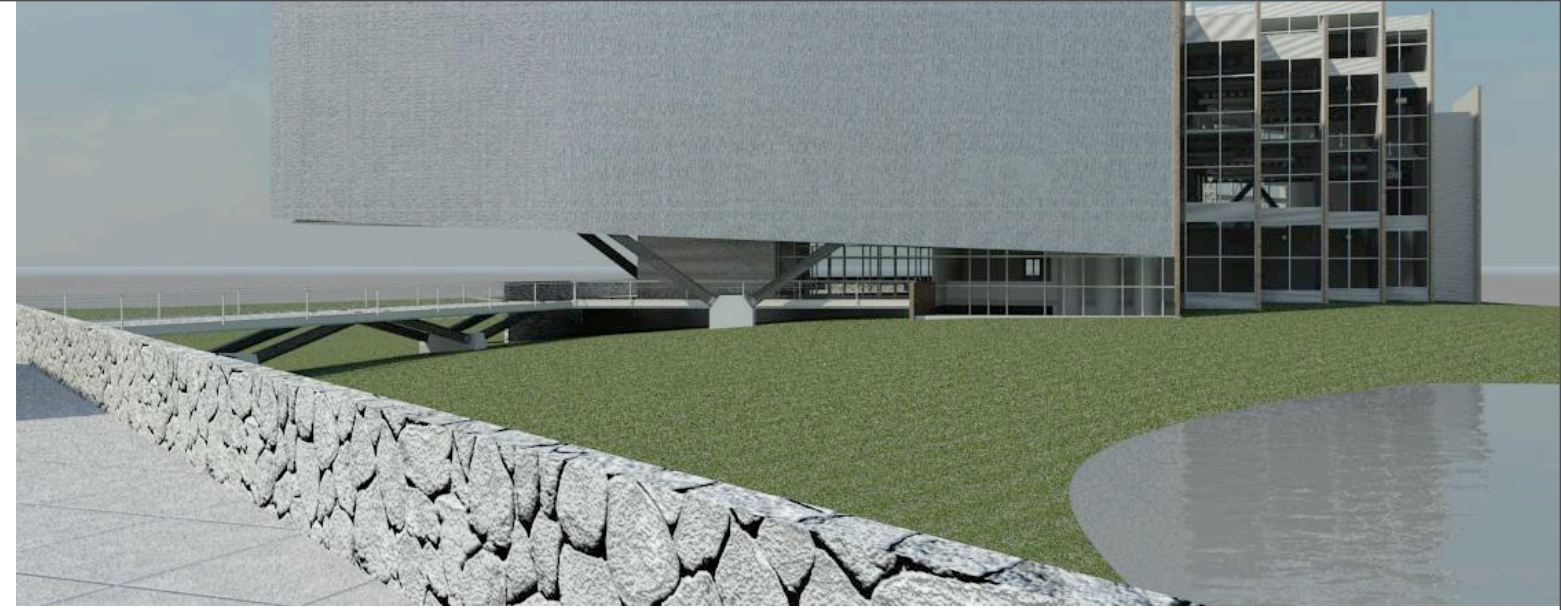
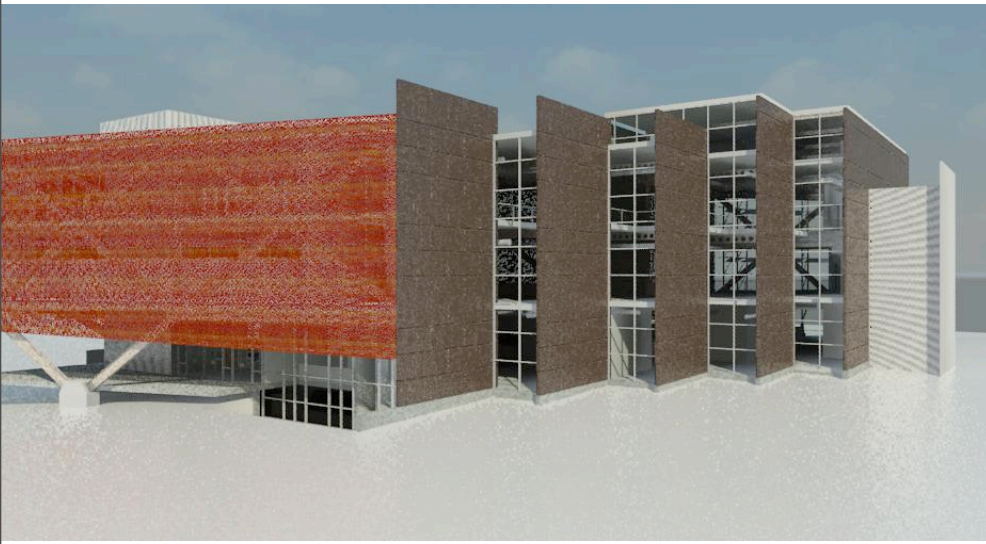
# process mechanical



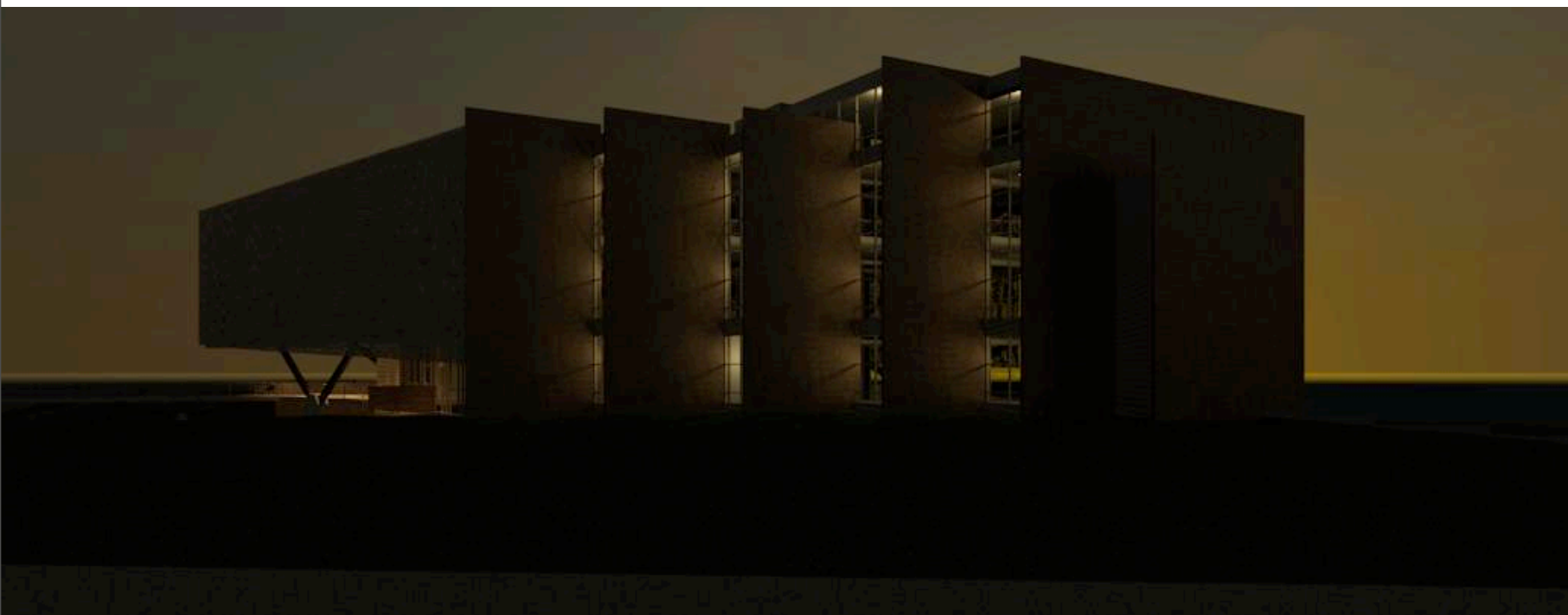
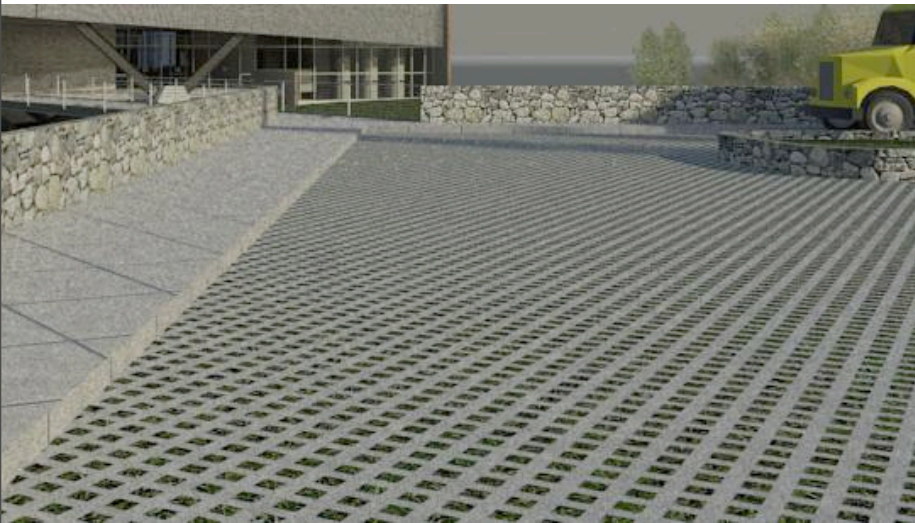
# process digital



# process digital



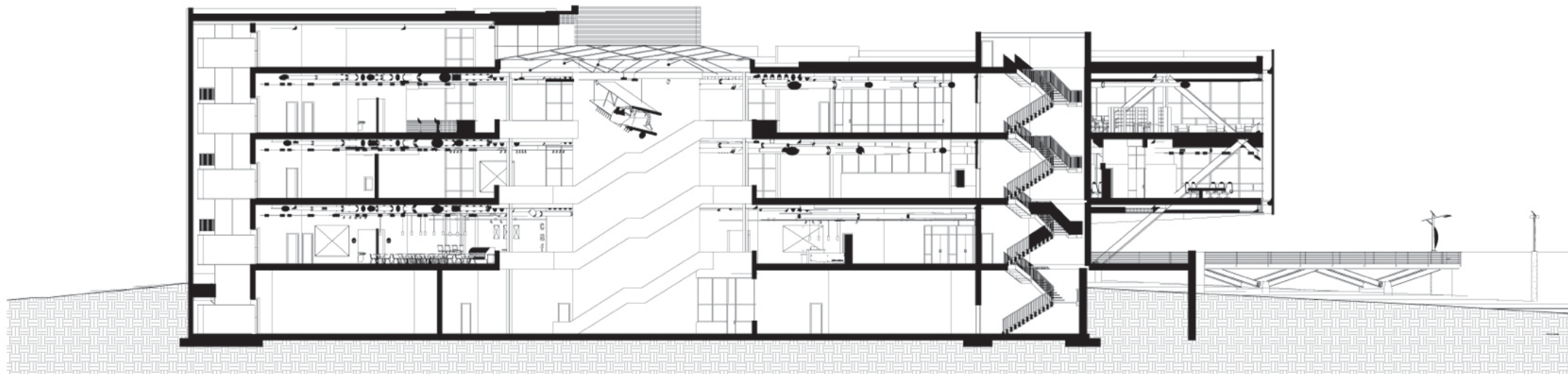
# process digital





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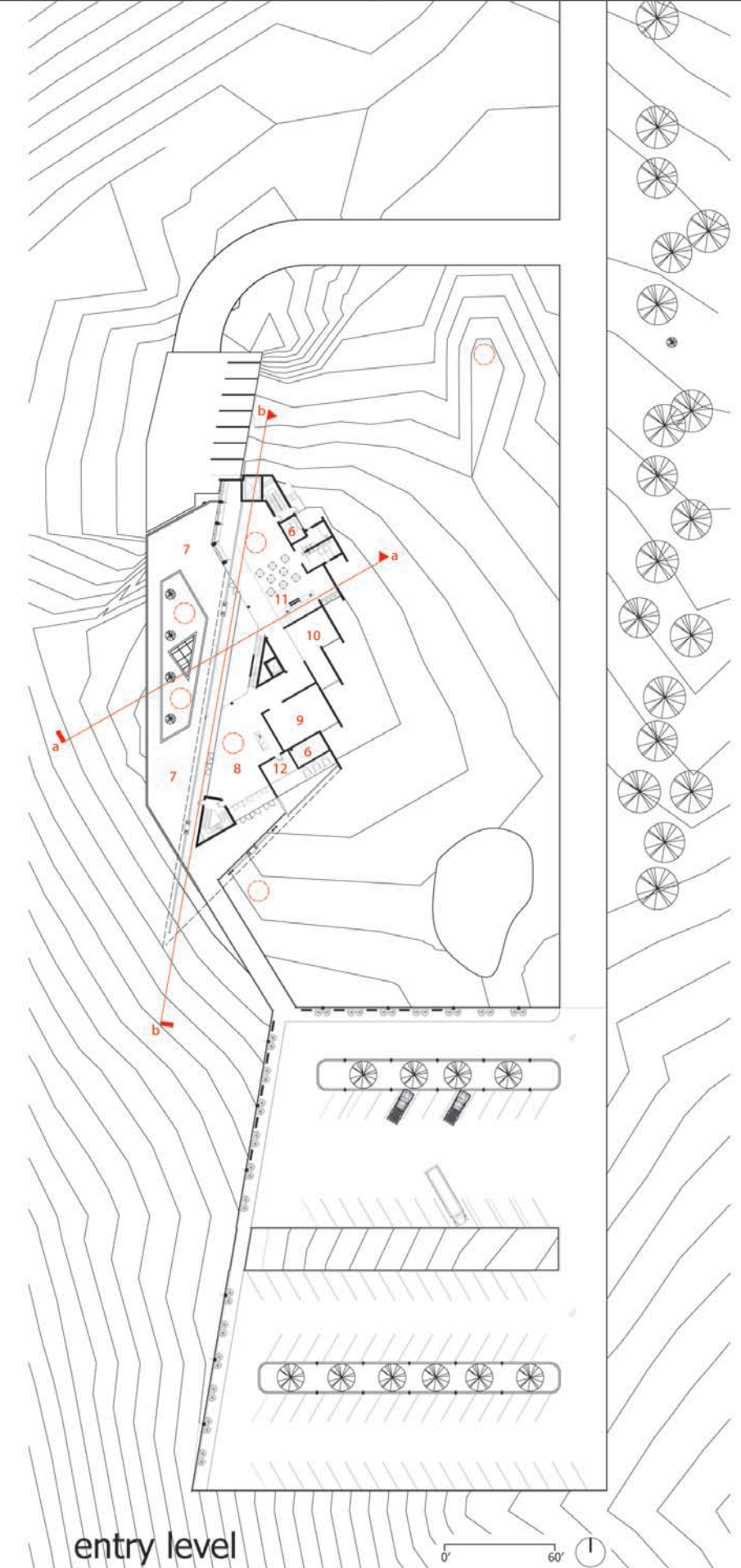




section bb

0' 30'

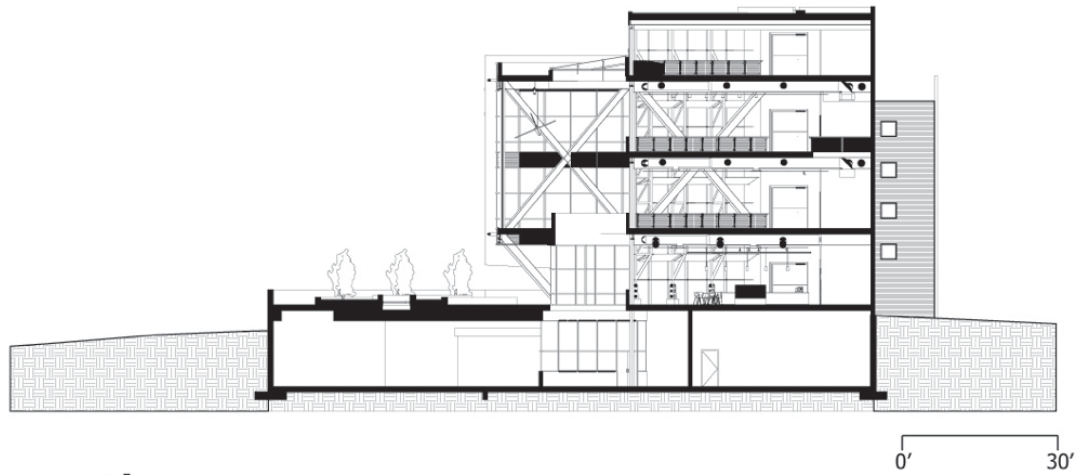
# spatial progression



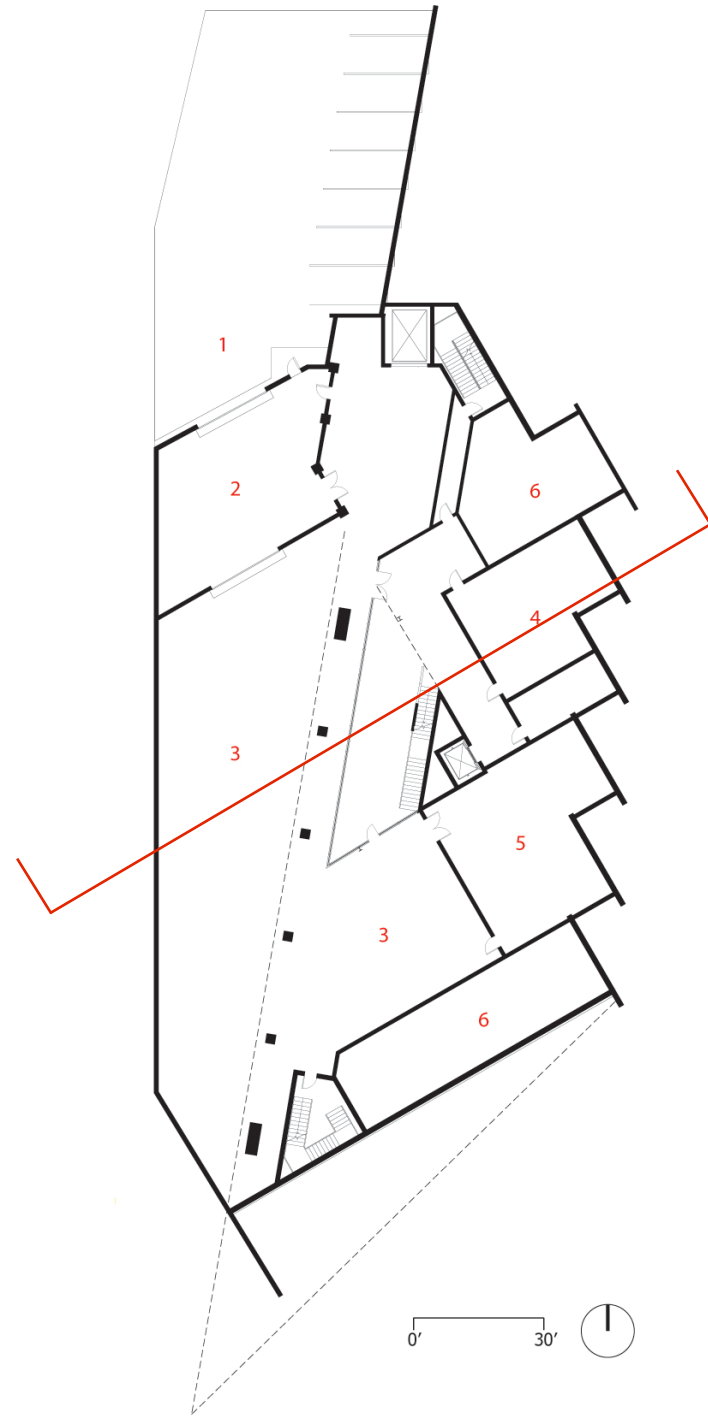
entry level

0' 60'

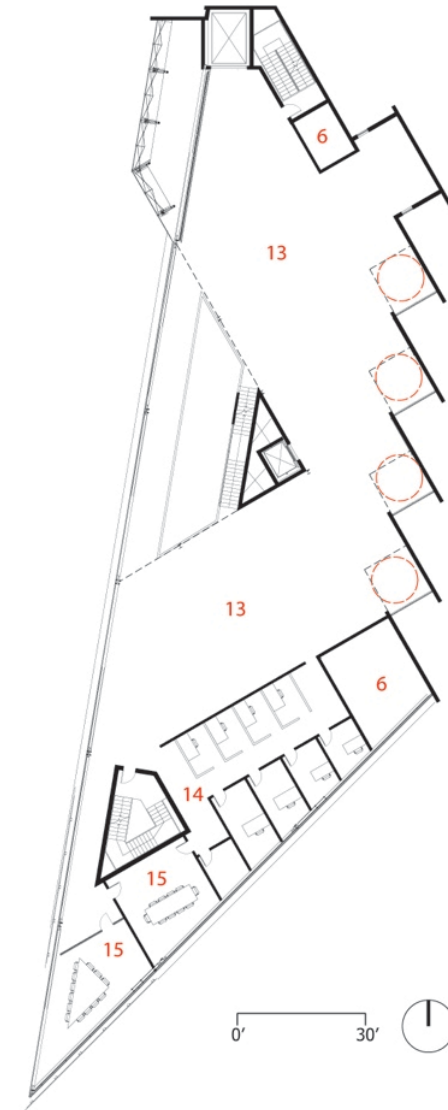
# technical drawings



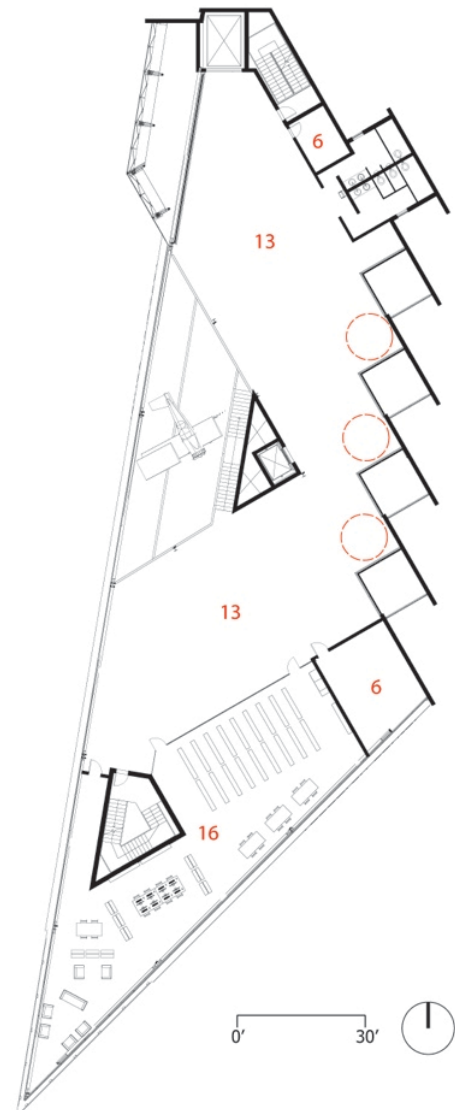
section aa



lower level



second level



third level



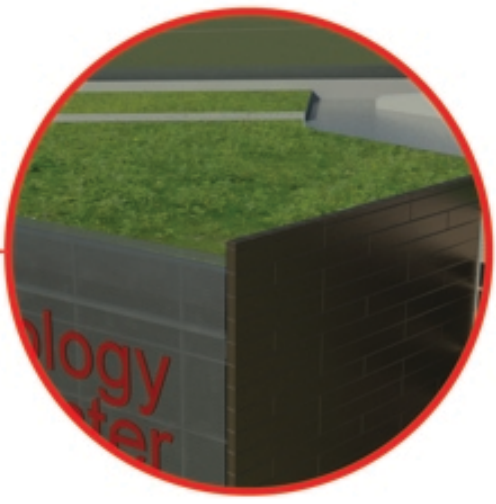
section **perspective**

# environmental integration strategies

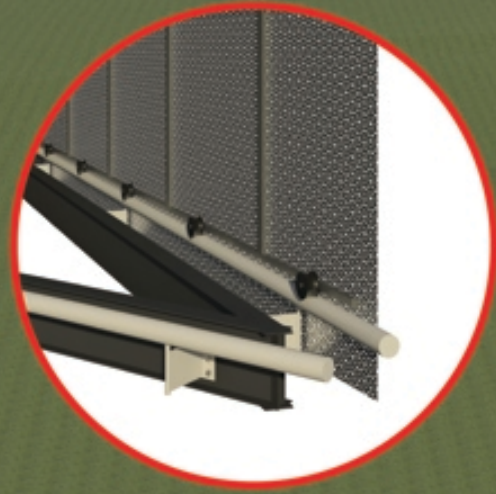


**operable windows-** allows natural ventilation and climate control in smaller spaces such as offices and conference rooms

**extensive green roof-** covering nearly 80% of total roofing area, the green roof reduces heating and cooling loads as well as rainwater runoff



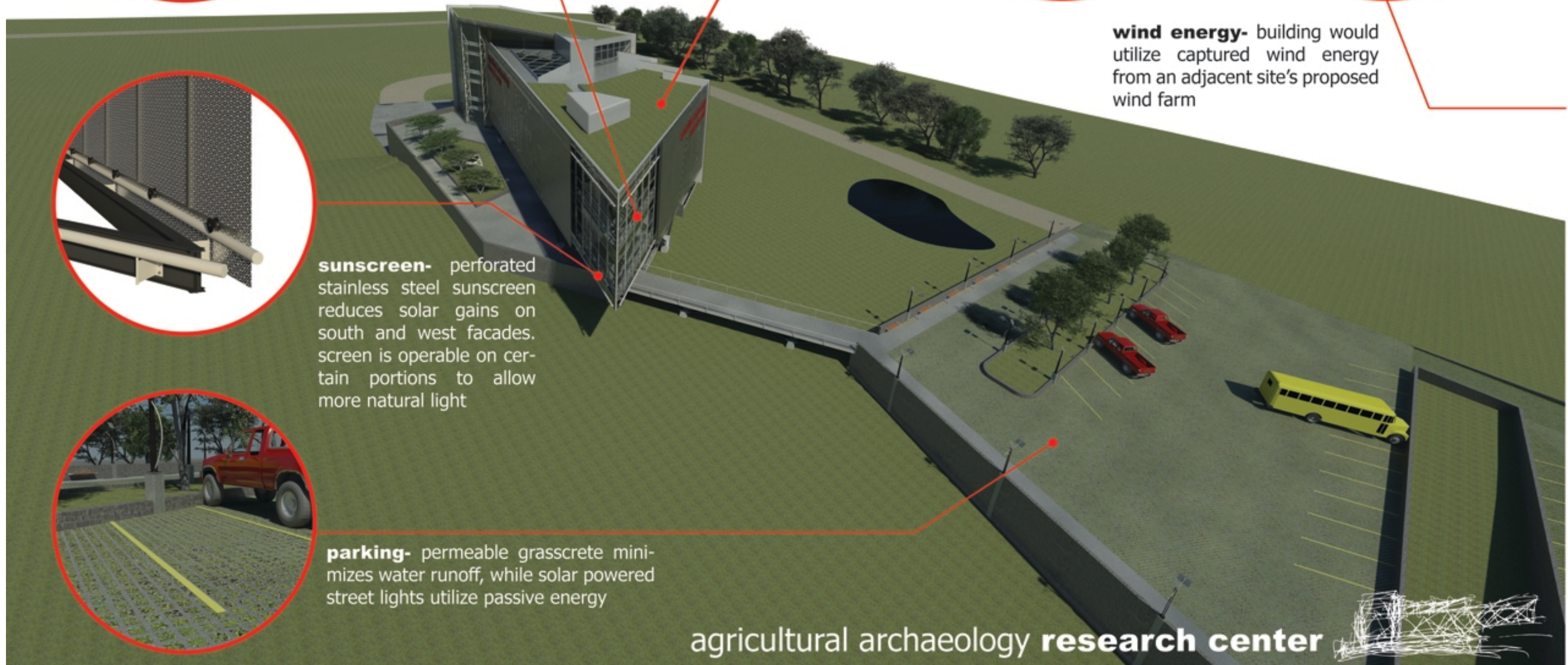
**wind energy-** building would utilize captured wind energy from an adjacent site's proposed wind farm



**sunscreen-** perforated stainless steel sunscreen reduces solar gains on south and west facades. screen is operable on certain portions to allow more natural light



**parking-** permeable grasscrete minimizes water runoff, while solar powered street lights utilize passive energy



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