GENERATIVE MAKING

CHAD SCHWARTZ | SCHOOL OF ARCHITECTURE | SOUTHERN ILLINOIS UNIVERSITY | SPRING 2014

PRIMARY CONCEPTS

Elusive in a traditional dimensional definition, the architectural detail can be defined as the union of construction, the result of the *logos of techne*, with construing, the result of the *techne of logos*.

PRIMARY CONCEPTS

While I was studying, I developed a particular way of thinking through making. Instead of always starting with a drawing or a discussion, I used the making of test pieces in the workshop to find ideas....

I remained open and receptive to the possibilities that the materials in my hands were offering, ready to convert them into something useful. Making them, I was wondering how each one might translate to the scale of a building or a piece of furniture....

The use of the term *critical making*.... signals a desire to theoretically and pragmatically connect two modes of engagements with the world that are often held separate - critical thinking, typically understood as conceptually and linguistically based, and physical “making,” goal-based material work.

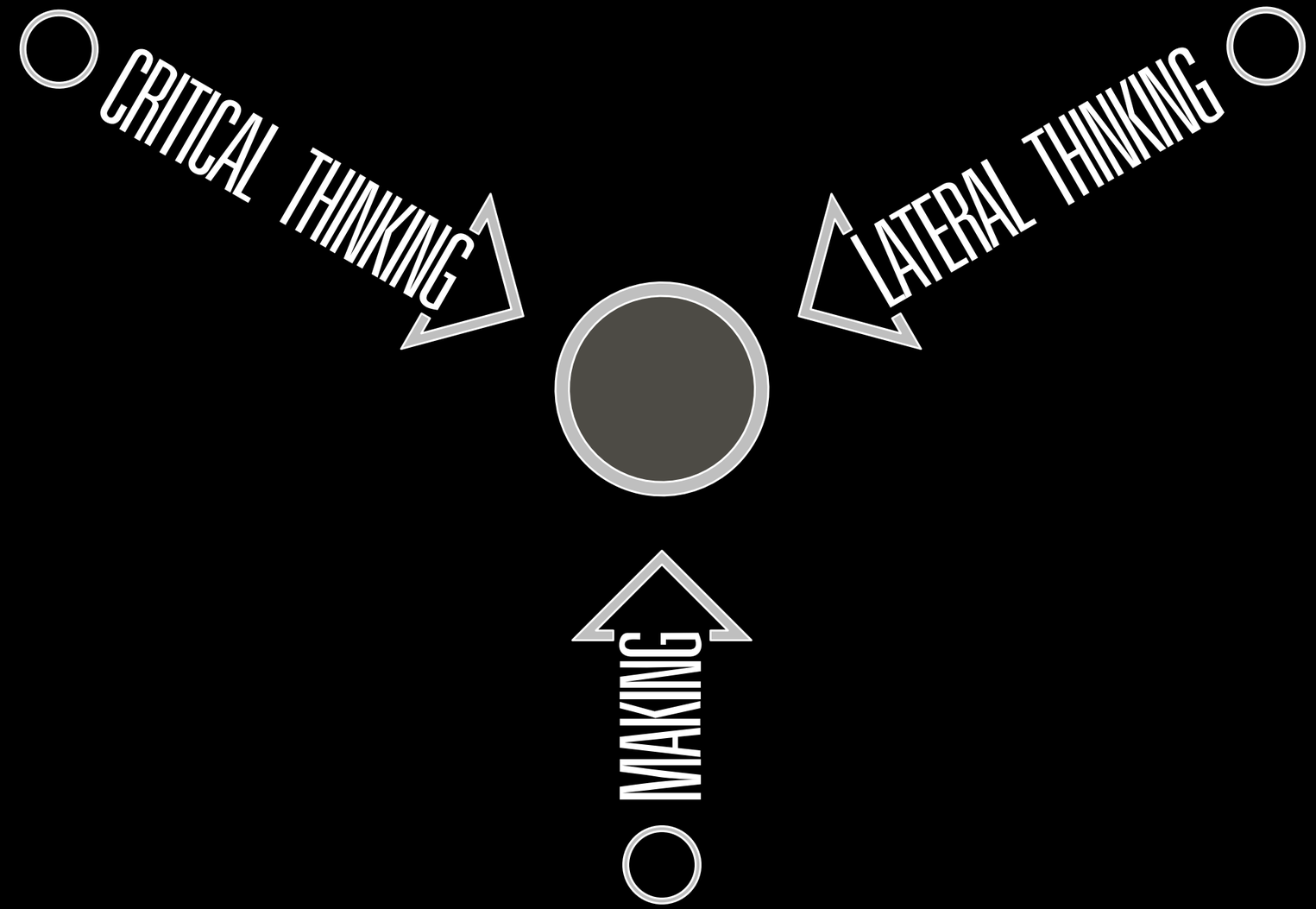
Above is drawn a diagram of a typical seed with two cotyledons. The cotyledons are specialized rudimentary leaves containing a supply of nourishment sufficient for the initial stage of the development of the germ.

The Germ is the real thing; the seat of identity. Within its delicate mechanism lies the will to power: the function which is to seek and eventually to find its full expression in form.

The seat of power and the will to live constitute the simple working idea upon which all that follows is based - as to efflorescence.

I CRITICAL MAKING

critical making is developed through the use of three practices:



critical thinking is an act of reasoning

When an individual critically thinks, he or she actively links thoughts together in a way that allows [him or her] to believe one thought provides support for another thought.

Critical thinking is a logical, step-by-step process; it is constantly attempting to move forward.

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lateral thinking is a process of exploration

Lateral thinking is a process by which the thinker poses different approaches, concepts, or points of entry into a given problem.

Lateral thinking steps sideways with the goal of revealing a series of ways to engage the problem from widely divergent perspectives.

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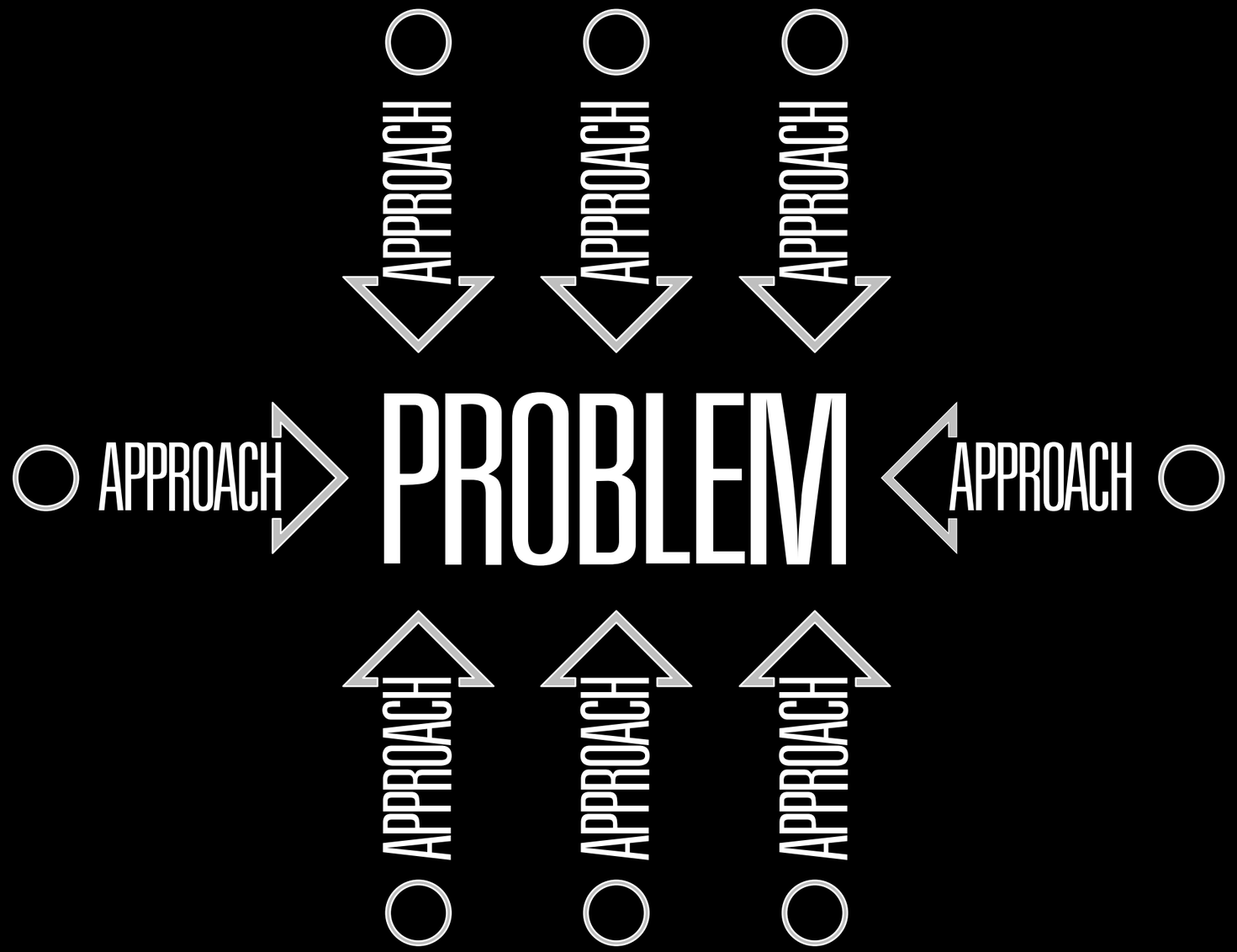


making is a “systematic encounter with the material world”

Acts of making are centered on the need for experiential knowledge or “knowing how” instead of simply applying the universal knowledge of “knowing that.”

Processes of making explore avenues for manipulating the material at hand and determine the best ways to achieve desired results.

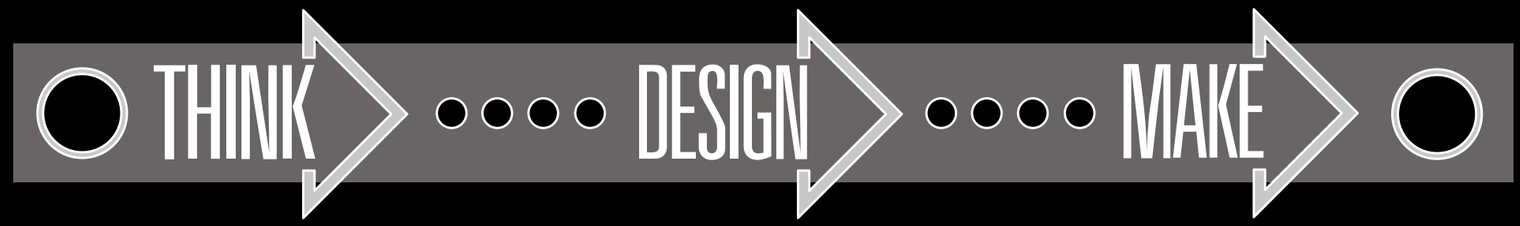
MATTHEW CRAWFORD | SHOP CLASS AS SOULCRAFT: AN INQUIRY INTO THE VALUE OF WORK

CRITICAL MAKING

what do architects or architecture students make?

...architects do not make anything concrete. They do not create the spaces we dwell in; the create drawings and models that are at the same time representations of the building yet to be built and abstractions of the conceived design strategy.

what is the process?



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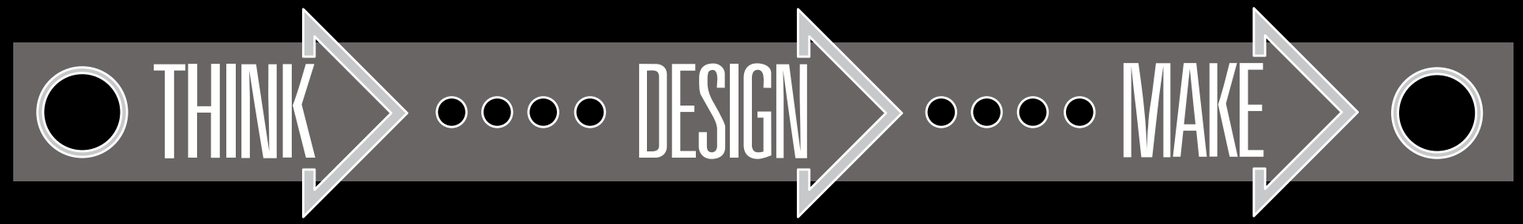
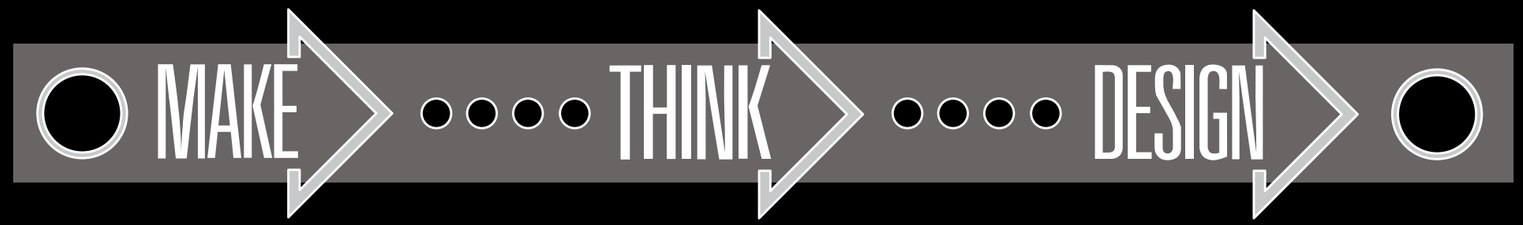




...a dialogue

Critical making can use an iterative cycle of these three elements as a generative tool. It is a dialogue between thinking and making potentially resulting in a series of built elements, but also a series of ideas about space and connection.

I GENERATION I: CUBE

inspiration

David Morrow Guthrie sought to reinvigorate architectural education through the introduction of the tangible consequences of scale and materiality as primary components of assigned exercises.

inspiration + application

David Morrow Guthrie sought to reinvigorate architectural education through the introduction of the tangible consequences of scale and materiality as primary components of assigned exercises.

This studio introduced similar projects through a parallel track structure.

GENERATION I: CUBE

process

The students were required to develop 16″x16″x16″ full scale cube constructs out of the given materials. There were 4 cycles of cubes: 2x4, 1/2″ plywood, concrete, and fabric.

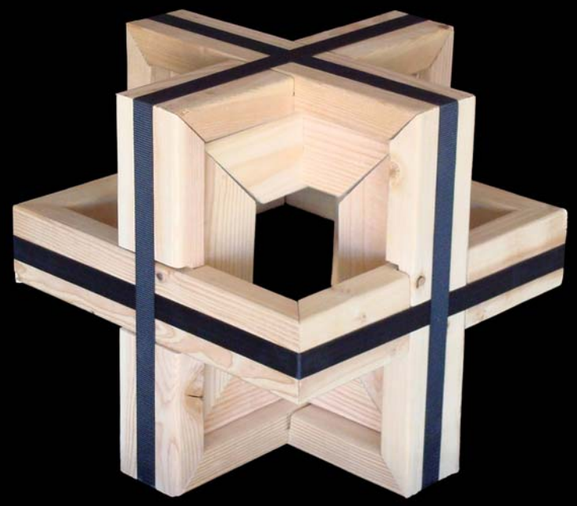
Each cycle involved the building of two material cubes through an iterative process.

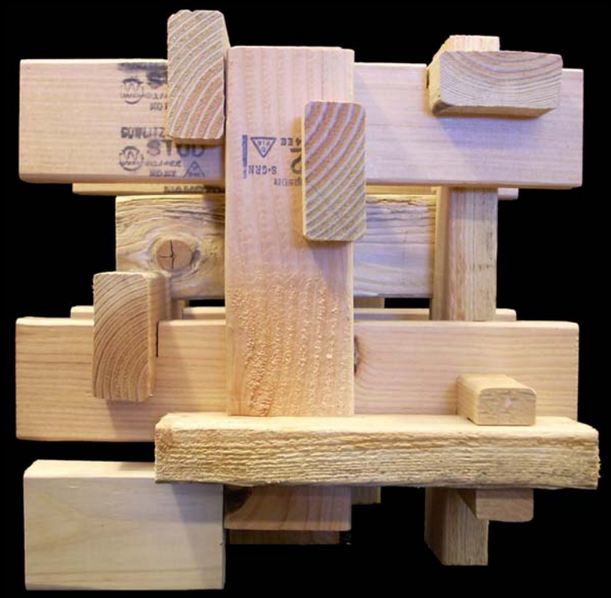
GENERATION I: CUBE

cycle 1 | task 1

Build the first cube out of 2x4s
using only the methods of building
and sketching.

construct: line



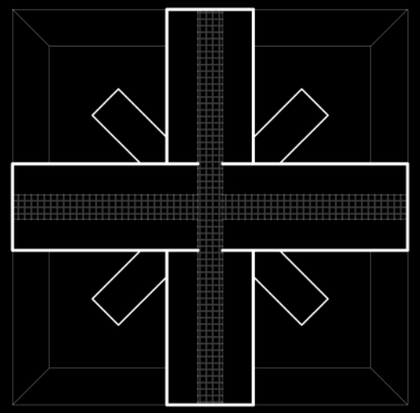


CONSTRUCTIONS: P. KHATANIFAR + R. MAYS

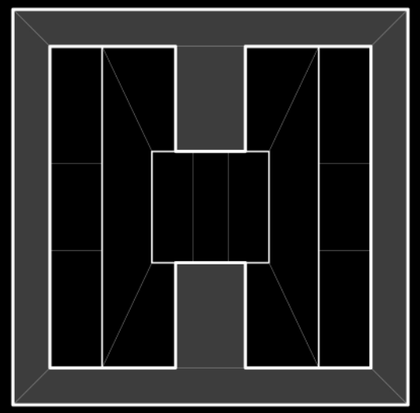
GENERATION I: CUBE

cycle 1 | task 2

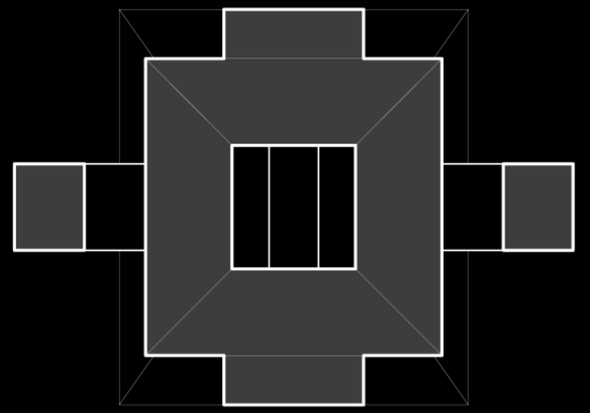
Document the built cubes.



Plan



Section



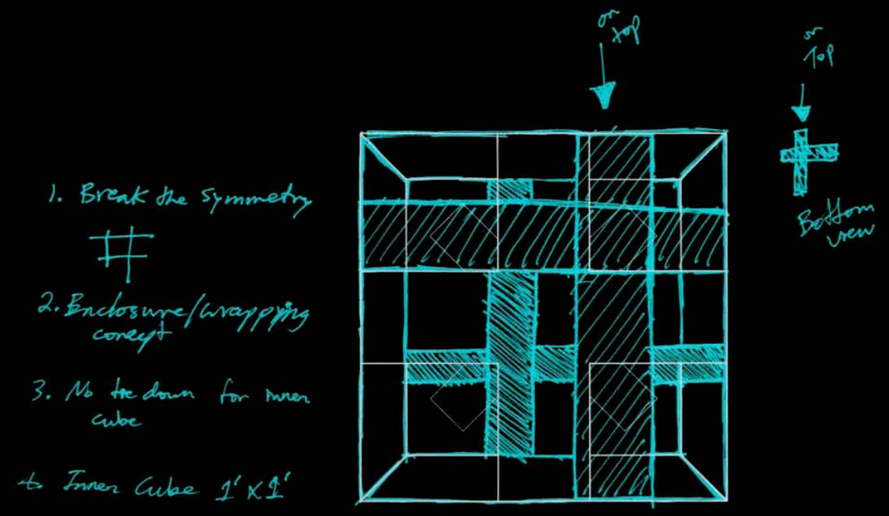
Cross Section

DRAWINGS: P. KHATANIFAR

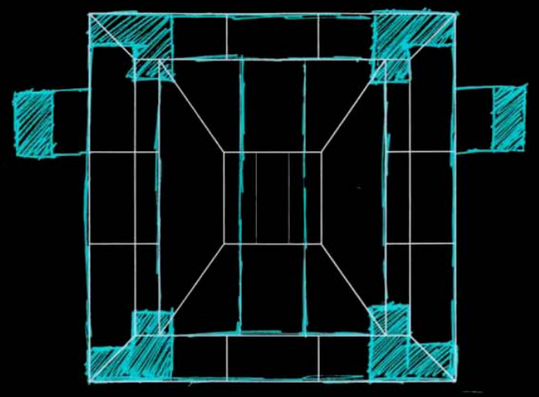
GENERATION I: CUBE

cycle 1 | task 3

Critique the cubes as a class and redline the drawings.



Plan



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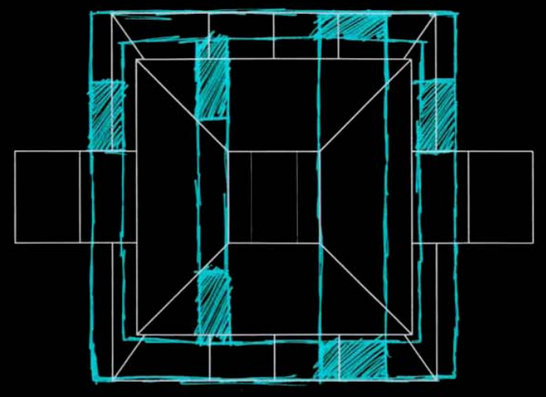


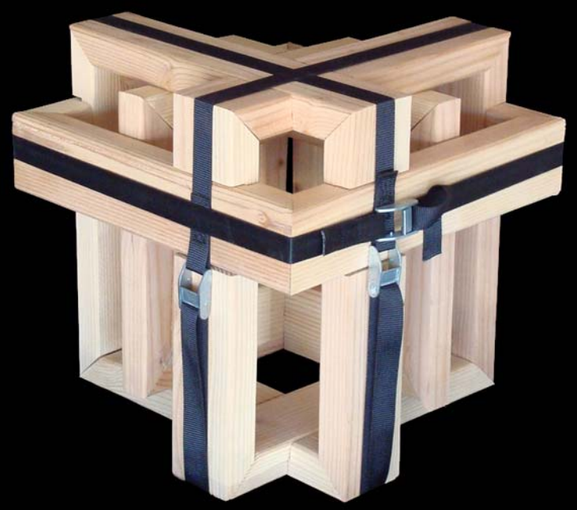
Cross Section

DRAWINGS: P. KHATANIFAR

GENERATION I: CUBE

cycle 1 | task 4

Building on the critique, construct
a second version of the cube.

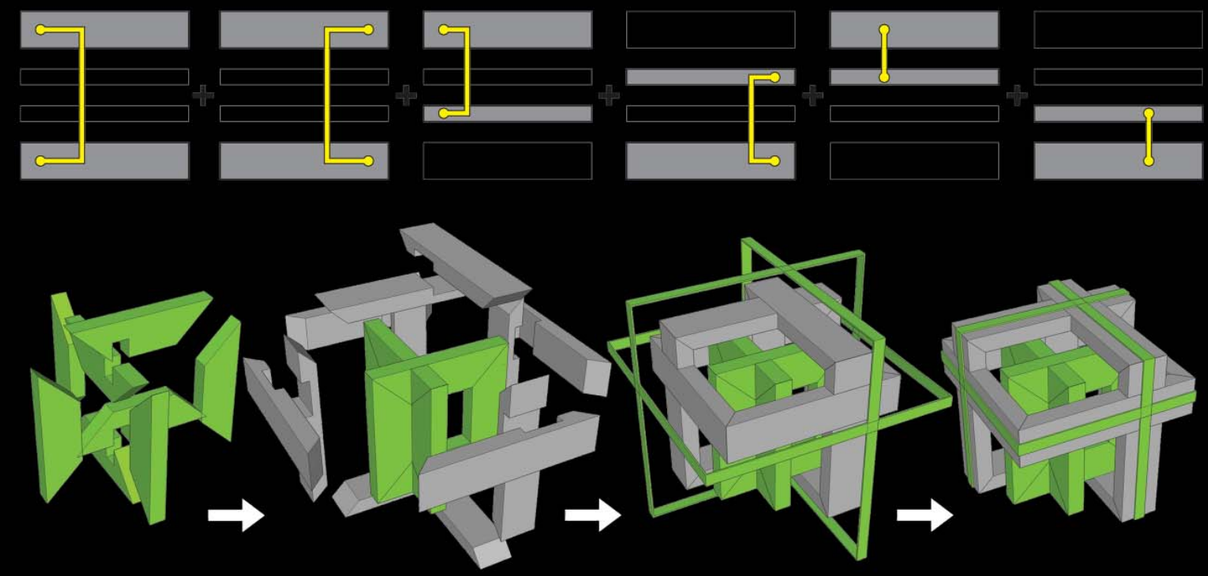


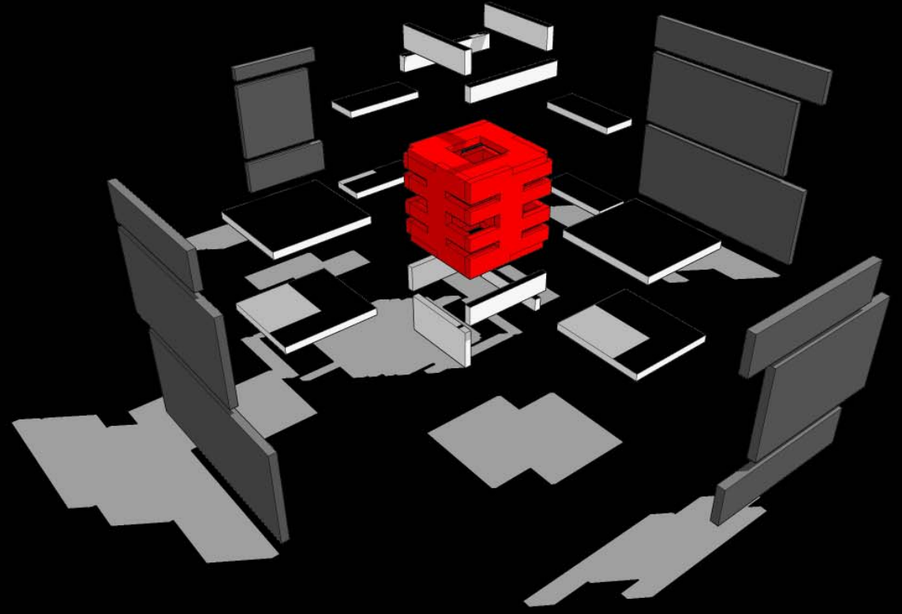
CONSTRUCTIONS: P. KHATANIFAR + D. YU

GENERATION I: CUBE

cycle 1 | tasks 5 + 6

Document the second cube and provide a diagrammatic analysis of its core ideas/concepts.





DIAGRAMS: D. EDWARDS, P. KHATANIFAR + R. MAYS

GENERATION I: CUBE

excavation

At the end of the cycle, the students were asked to pull the core ideas out of the constructions and transfer the ideas into the next building cycle.

cycle 2

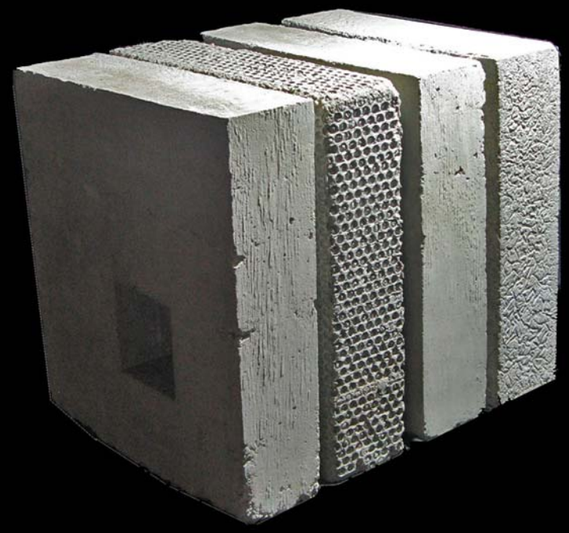
material: 1/2″ plywood
construct: plane

CONSTRUCTIONS: P. KHATANIFAR, J. BROOKBANK, D. YU + B. LUCKE

GENERATION I: CUBE

cycle 3

material: concrete
construct: mass



CONSTRUCTIONS: M. BARTSCHI, K. GRIGGS + J. BROOKBANK

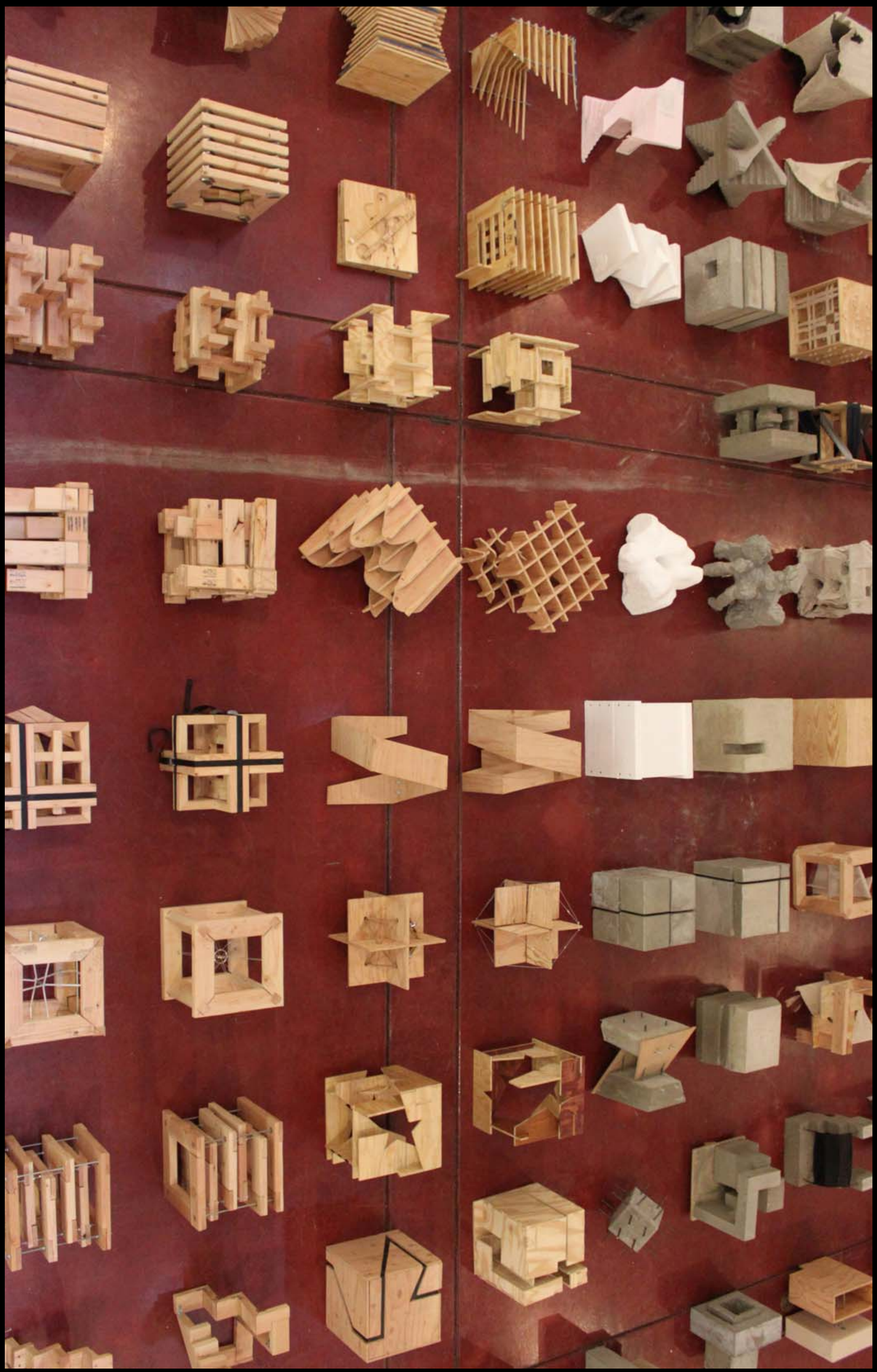
GENERATION I: CUBE

cycle 4

material: fabric +
construct: flexible plane

CONSTRUCTIONS: K. GRIGGS + D. EDWARDS

GENERATION I: CUBE



I GENERATION I: CUBE

final excavation

The ideas were then pulled out of the cubes and transferred into the architectural construct of a community arts center.

DRAWINGS: P. KHATANIFAR

GENERATION I: CUBE

DRAWINGS: M. BARTSCHI

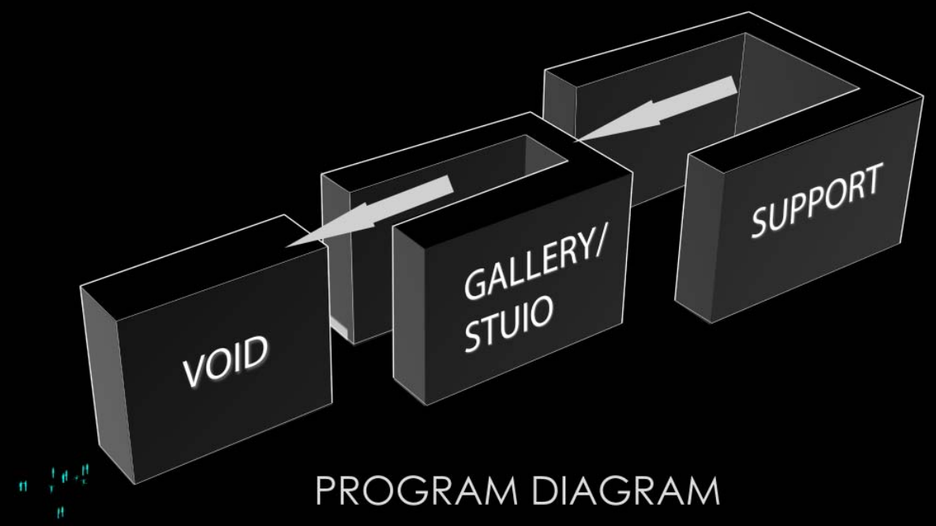
I GENERATION I: CUBE

GENERATION I: CUBE

DRAWINGS: B. LUCKE

GENERATION I: CUBE

DRAWINGS: B. LUCKE



PROGRAM DIAGRAM

GENERATION I: CUBE

ART CENTRAL

DRAWINGS: D. EDWARDS

generation I objectives

1: generate ideas through acts of making

2: broaden student perspectives regarding design processes

3: creation of intimacy with building materials

“The way we come to know a hammer is not by staring at it, but by grabbing hold of it and using it.”

MARTIN HEIDEGGER

CUBE

GENERATION I:

generation I reflections

objectives were met fairly well
based on observation and
interviews with students

however there was a lack of
consistency with translation from
cubes to buildings

GENERATION II: PANELS

generation II process

In this course, the students went through the same series of steps:

- building pairs of constructions

- iterative process that alternates methods

- similar requirements for the built constructions

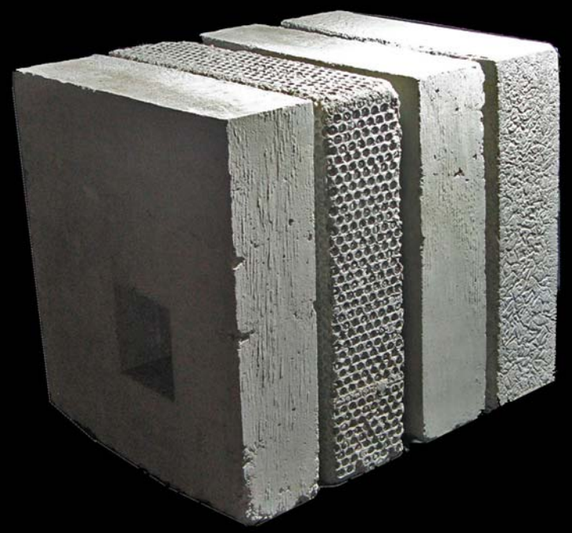
- the excavation of ideas

GENERATION II: PANELS

generation II process

However, there were some critical differences in generation II:

- construct of a 32″x16″x4″ panel instead of a cube



GENERATION II: PANELS

CONSTRUCTIONS: K. GRIGGS + R. MUSIAL

generation II process

However, there were some critical differences in generation II:

- construct of a 32″x16″x4″ panel instead of a cube

- start the process with an inspirational element

DIAGRAMS: R. MUSIAL

GENERATION II: PANELS

GENERATION II: PANELS

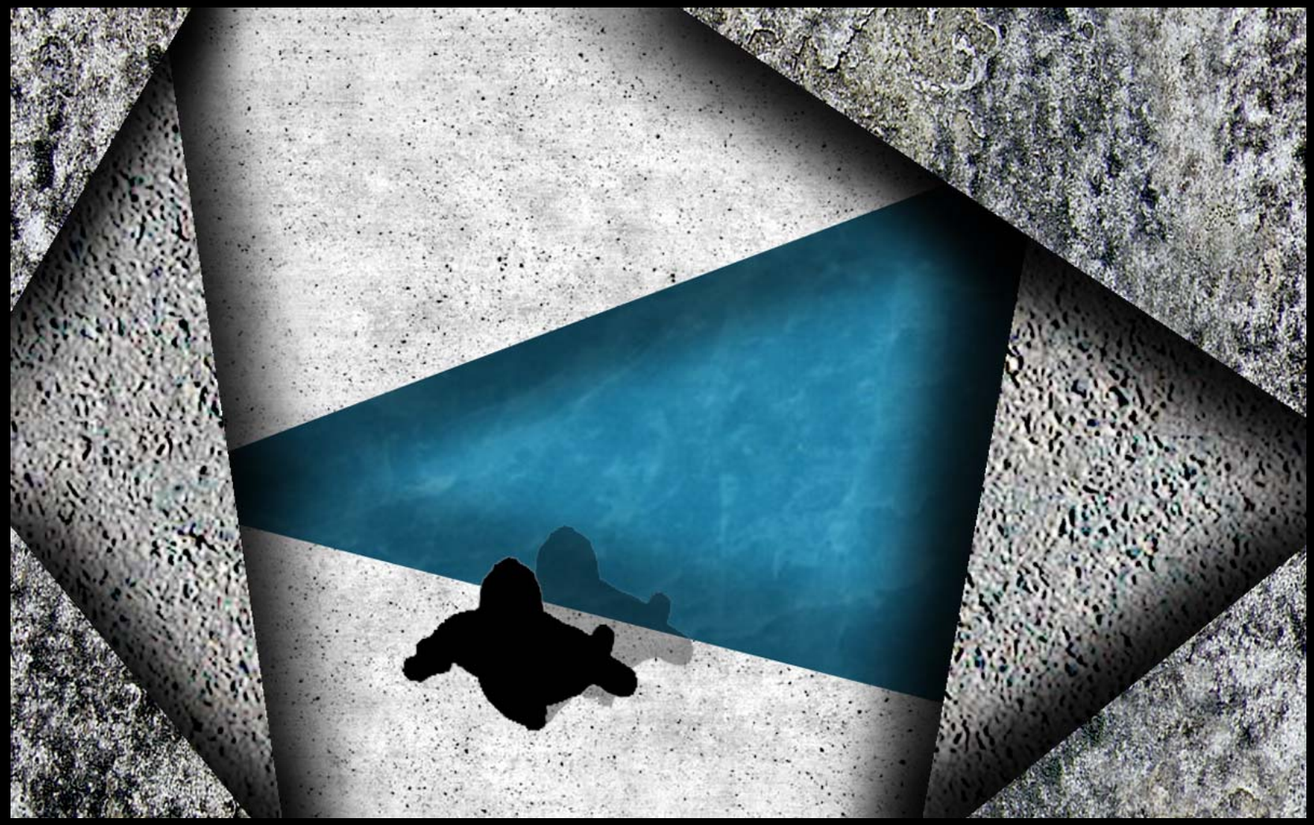
generation II process

However, there were some critical differences in generation II:

- construct of a 32″x16″x4″ panel instead of a cube

- start the process with an inspirational element

- translation was built into the analysis process



DRAWING: K. ODLE

GENERATION II: PANELS

generation II process

However, there were some critical differences in generation II:

- construct of a 32″x16″x4″ panel instead of a cube

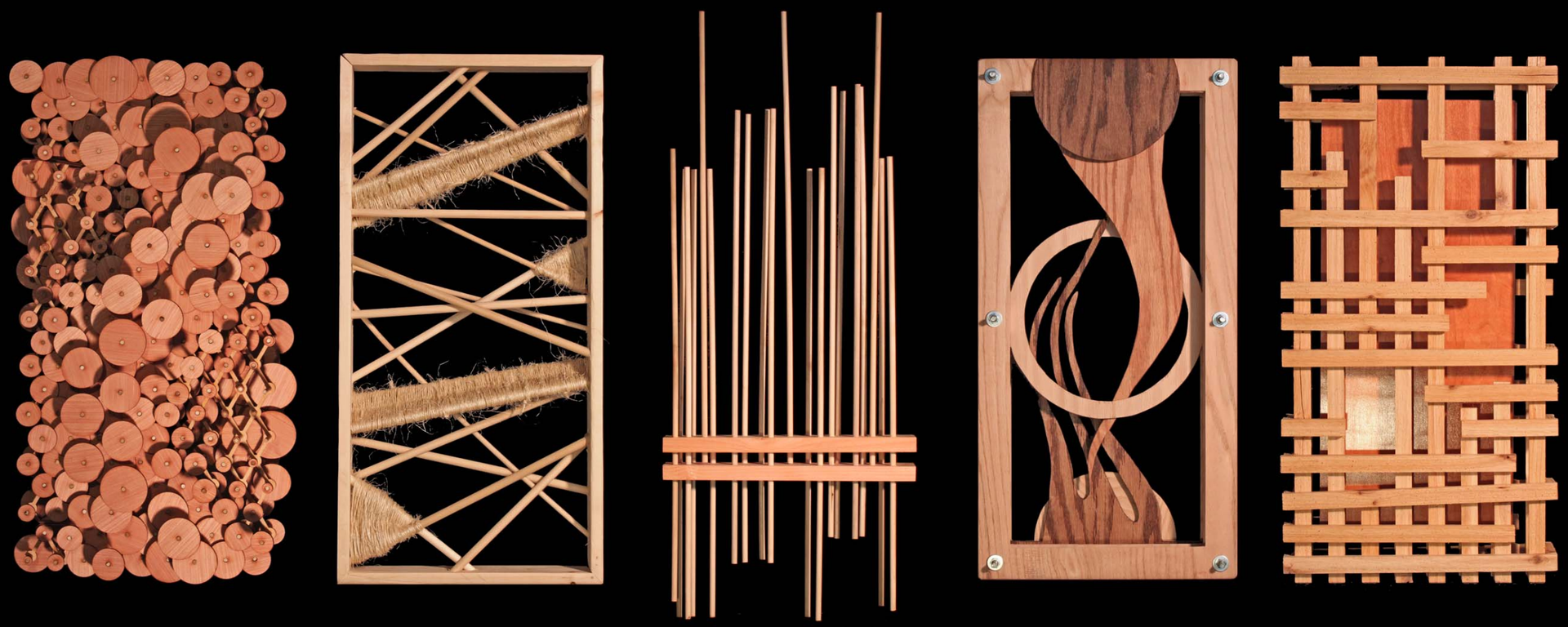
- start the process with an inspirational element

- translation was built into the analysis process

DRAWING: K. ODLE

cycle 1

material: wood

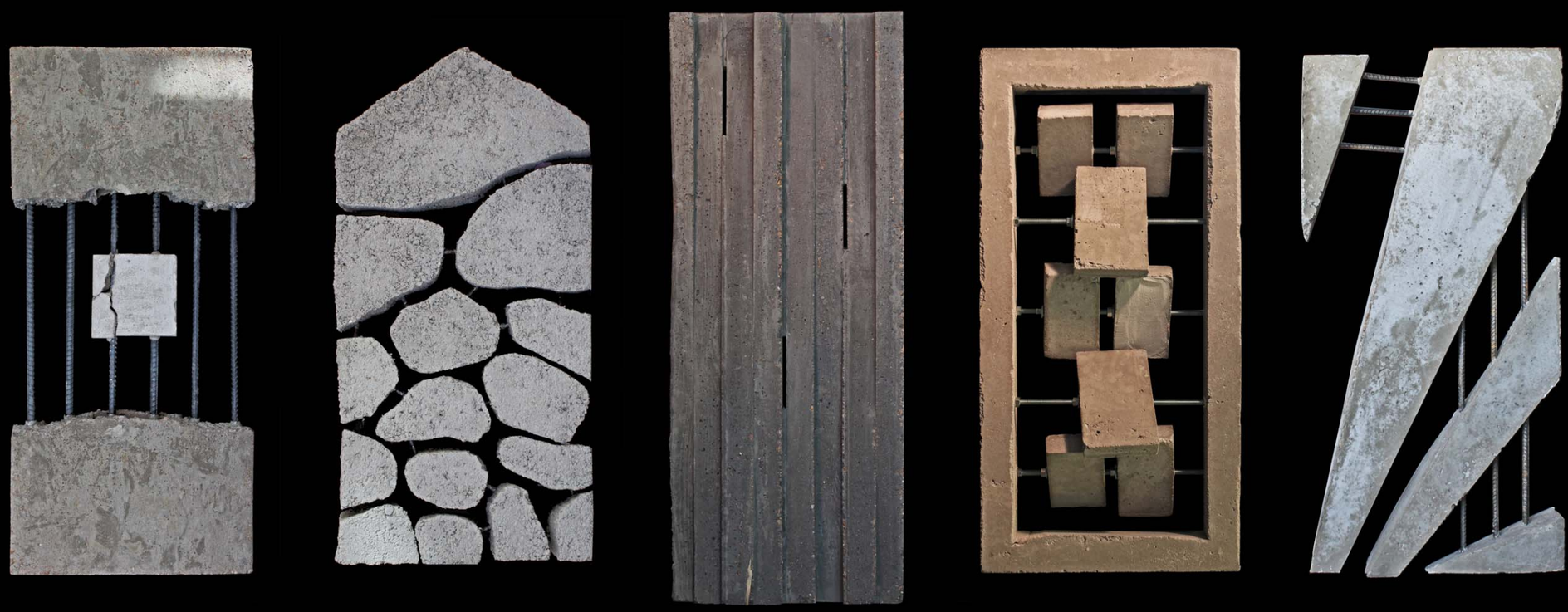


CONSTRUCTIONS: M. OLLMANN, A. STEISKAL, K. PATRICK, D. THOMASON + S. DALE

GENERATION II: PANELS

cycle 2

material: concrete

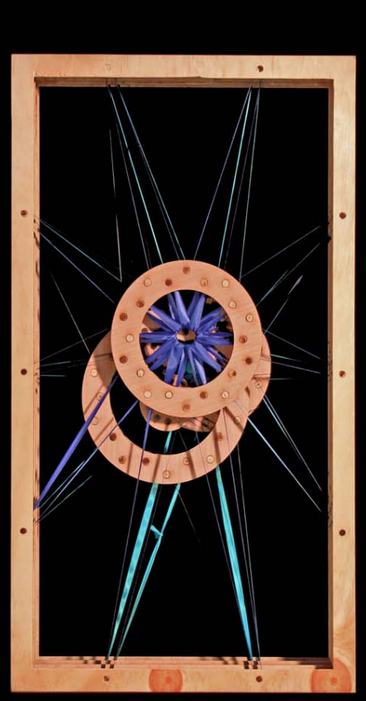


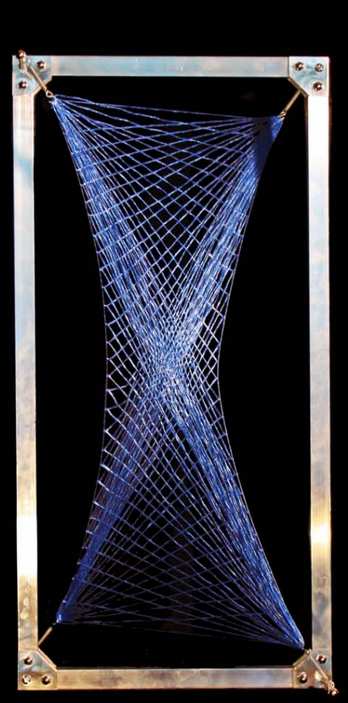
CONSTRUCTIONS: S. DALE, D. THOMASON, R. MUSIAL, B. MOUNT, + R. NORTHCUTT

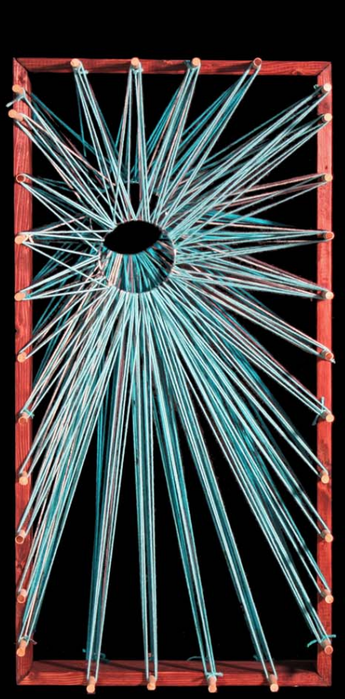
GENERATION II: PANELS

cycle 3

material: fabric







CONSTRUCTIONS: A. MICHAEL, K. PATRICK, R. MUSIAL, M. OLLMANN, A. STEISKAL

GENERATION II: PANELS

final excavation

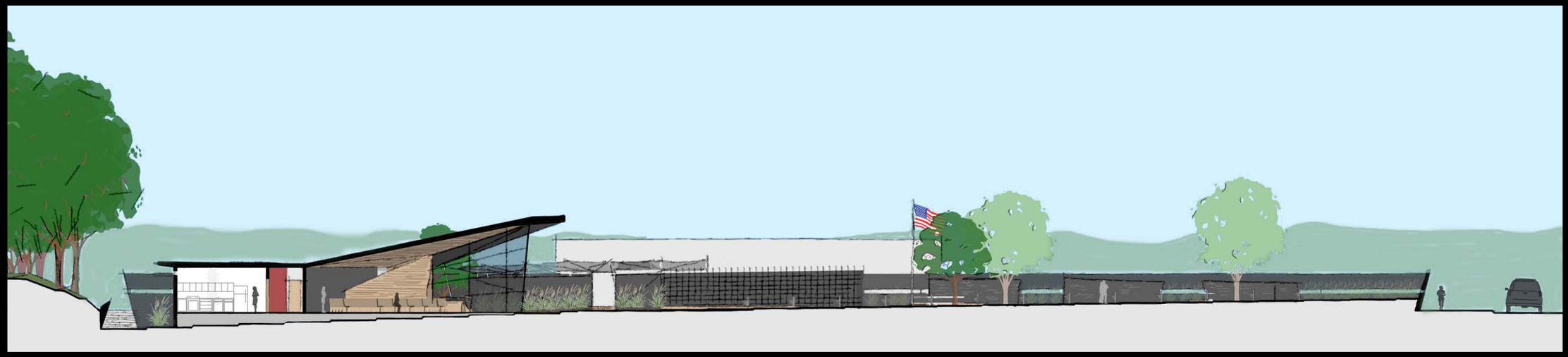
The ideas were then pulled out of the cubes and transferred into the architectural construct of a cemetery.

DRAWINGS: R. NORTHCUTT

GENERATION II: PANELS

final excavation

The ideas were then pulled out of the cubes and transferred into the architectural construct of a cemetery.

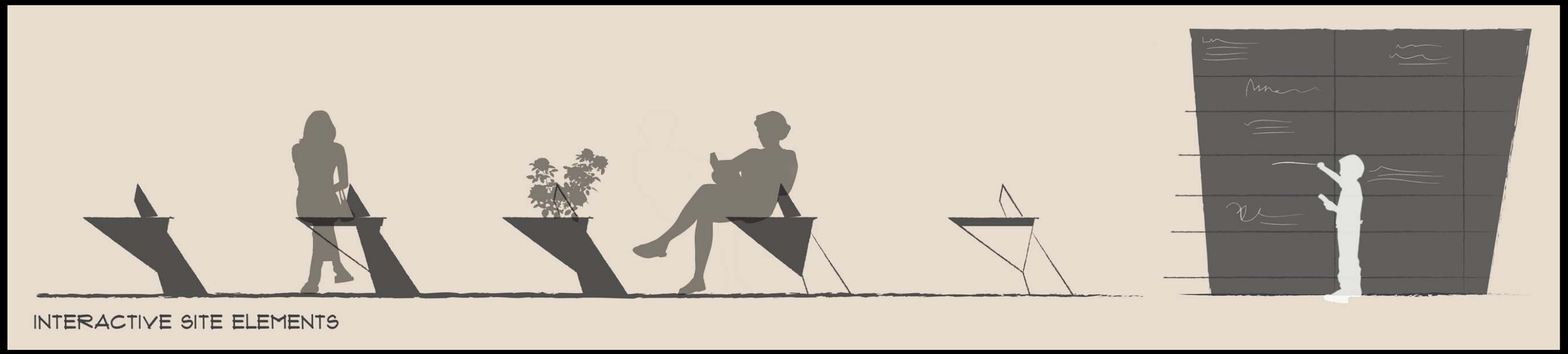


DRAWINGS: R. NORTHCUTT

GENERATION II: PANELS

final excavation

The ideas were then pulled out of the cubes and transferred into the architectural construct of a cemetery.



DRAWINGS: R. NORTHCUTT

GENERATION II: PANELS

I CONCLUSIONS

It is symptomatic of the priority given to sight that we find it necessary to remind ourselves that the tactile is an important dimension in the perception of built form. One has in mind a whole range of complementary sensory perceptions which are registered by the labile body: the intensity of light, darkness, heat and cold; the feeling of humidity; the aroma of material; the almost palpable presence of masonry as the body senses its own confinement; the momentum of an induced gait and the relative inertia of the body as it traverses the floor; the echoing resonance of our own footfall.

goals for the future

1: introduction of a strong literature review

2: use of recycled materials

3: new strategies for better transfer of ideas between constructs

CONCLUSIONS

The next generations of architecture will not be about style, but instead will focus on substance and the methods and processes of making.

n. ouellette | fabric I

m. ollmann | wood II

a. steiskal | fabric II

r. northcutt | concrete I

t. andry | wood I

k. patrick | fabric I

s. dale | concrete I

a. steiskal | wood I

r. musial | fabric I

s. tutka | concrete II

r. musial | wood I

d. thomason | wood II

b. mount | fabric I

c. peniston | concrete II

s. tutka | fabric I

b. mount | wood II

k. coughlin | concrete II

a. soldner | wood I

r. northcutt | fabric I

r. musial | concrete I

r. northcutt | wood I

k. coughlin | wood II

a. steiskal | concrete II

m. ollmann | wood I

d. thomason | fabric I

s. dale | wood II

t. andry | fabric II

n. ouellette | wood II

c. peniston | fabric I

n. ouellette | concrete II

k. odle | fabric I

s. dale | concrete II

m. ollmann | fabric I

s. dale | wood I

t. andry | concrete II

r. musial | fabric II

a. steiskal | fabric I

t. andry | wood II

k. coughlin | fabric II

a. michael | concrete I

k. odle | concrete I

a. michael | wood II

a. michael | fabric II

k. coughlin | wood I

a. steiskal | wood II

r. northcutt | fabric II

t. andry | wood II

s. dale | fabric I

r. northcutt | wood II

a. michael | wood I

k. odle | wood I

b. mount | wood I

n. ouellette | fabric II

m. ollmann | concrete II

s. tutka | wood II

b. mount | fabric II

k. coughlin | fabric I

r. northcutt | concrete II

a. soldner | fabric II

a. michael | fabric II

k. odle | concrete II

d. thomason | wood I

r. musial | concrete I

b. mount | wood 2

d. thomason | concrete II

r. musial | wood II

s. tutka | fabric II

b. mount | concrete II

m. ollmann | fabric II

k. patrick | wood II

k. patrick | fabric II

a. michael | fabric I

n. ouellette | wood I

r. musial | concrete II

m. ollmann | wood II

k. patrick | wood I

d. thomason | fabric II

c. peniston | fabric II

k. odle | fabric II

s. dale | fabric II

a. michael | concrete II

a. soldner | wood II

c. borges | wood II

k. patrick | concrete I