What Lies Behind: Form and Structure

Approaching architecture (The Architecture of...)

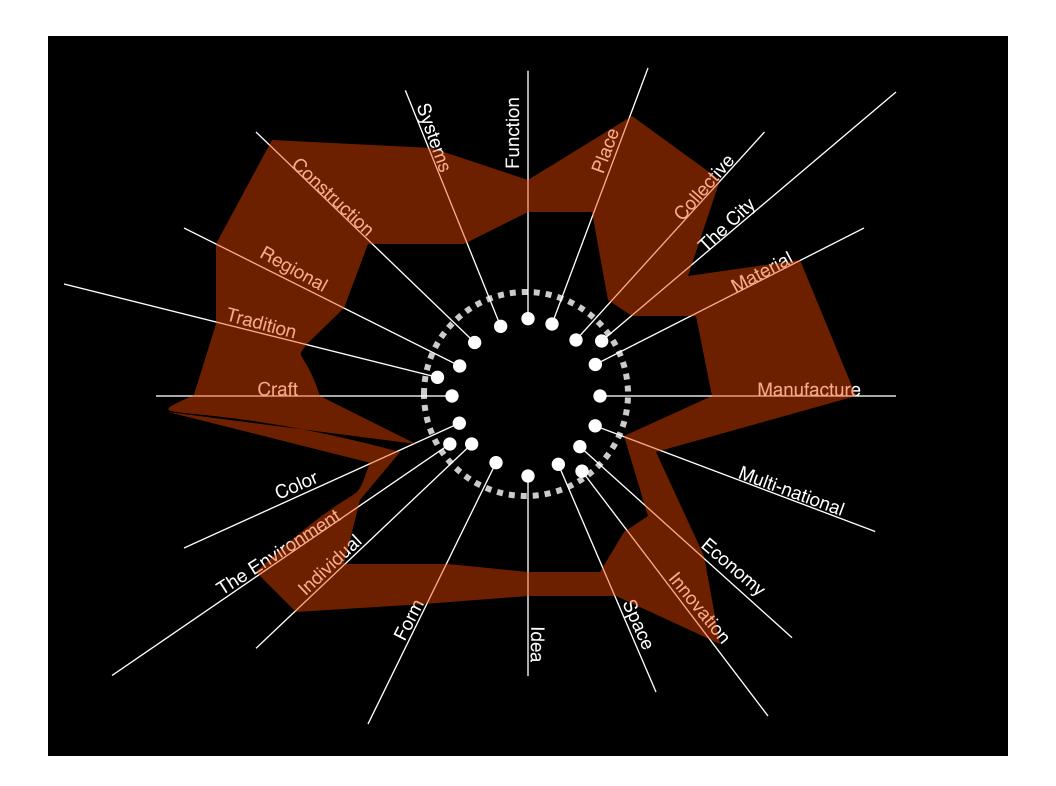
"I'm not lost, but where am I on this map?"

The Full Desk

Form and Structure

Architecture is:

A state of the achievement of an ideal where the ideal becomes present and can direct the development of space, light, materials and systems to meet the professional duties entrusted to the architect by the public.



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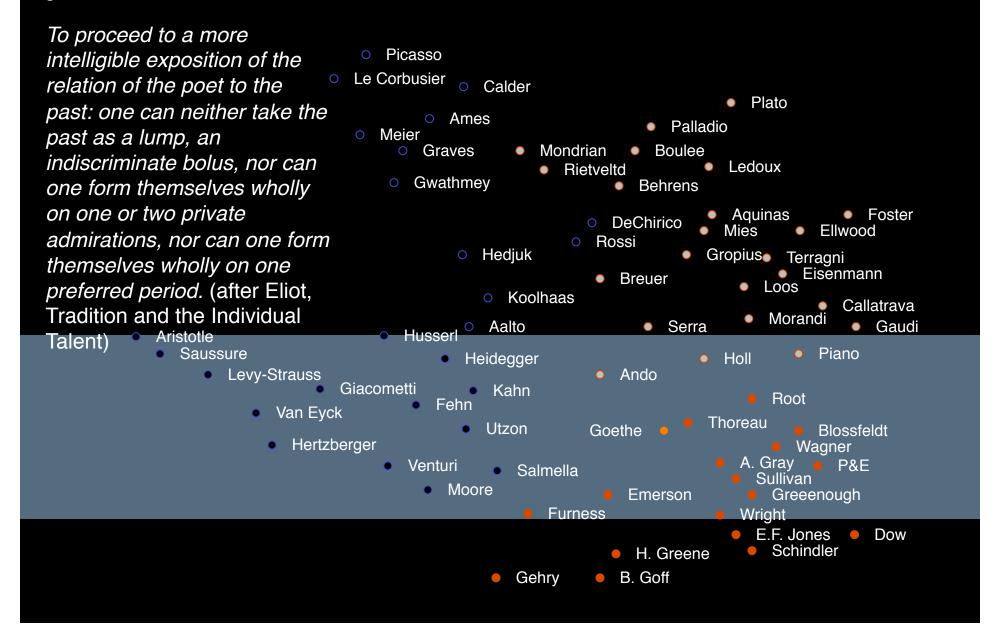
Fundamentally, the university is a place where knowledge is made from discovery

The faculty are engaged in the discovery and ordering of facts and intuitions to support and provoke the construction of knowledge

The students are engaged in personal discovery, ordering, and reflecting on facts and intuitions to construct a map that allows them a confidence to publicly assert "I am here" the integrity to privately acknowledge "I need to be there" and the knowledge, discipline and commitment to chart a course to their destination

- From the body of your work:
- Build a map
- Find out where you've been on the map
- Find out which direction you've been moving
- Set a course towards a destination
- Update the map
- Update your location
- Update your course
- Adjust your course
- Repeat regularly

No poet, no artist of any kind, has their complete meaning alone. Their significance, their appreciation is the appreciation of their relation to the poets and artists that prepared the ground for them.



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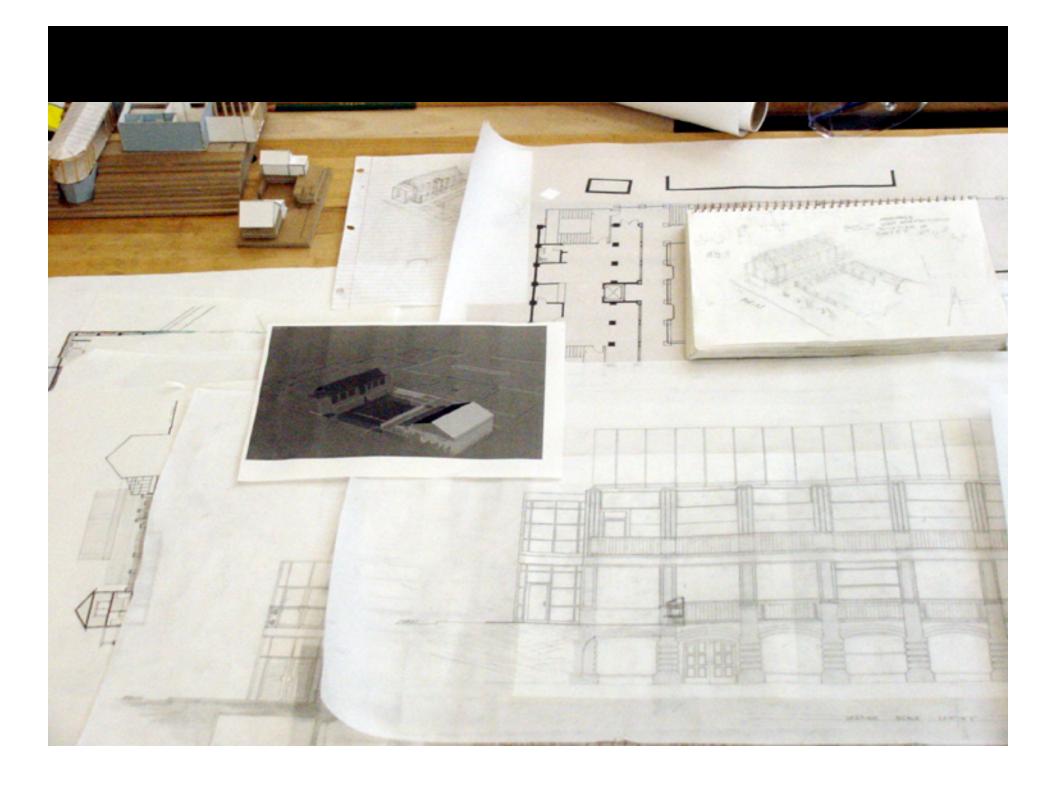
"I'm not lost, but where am I on this map?"

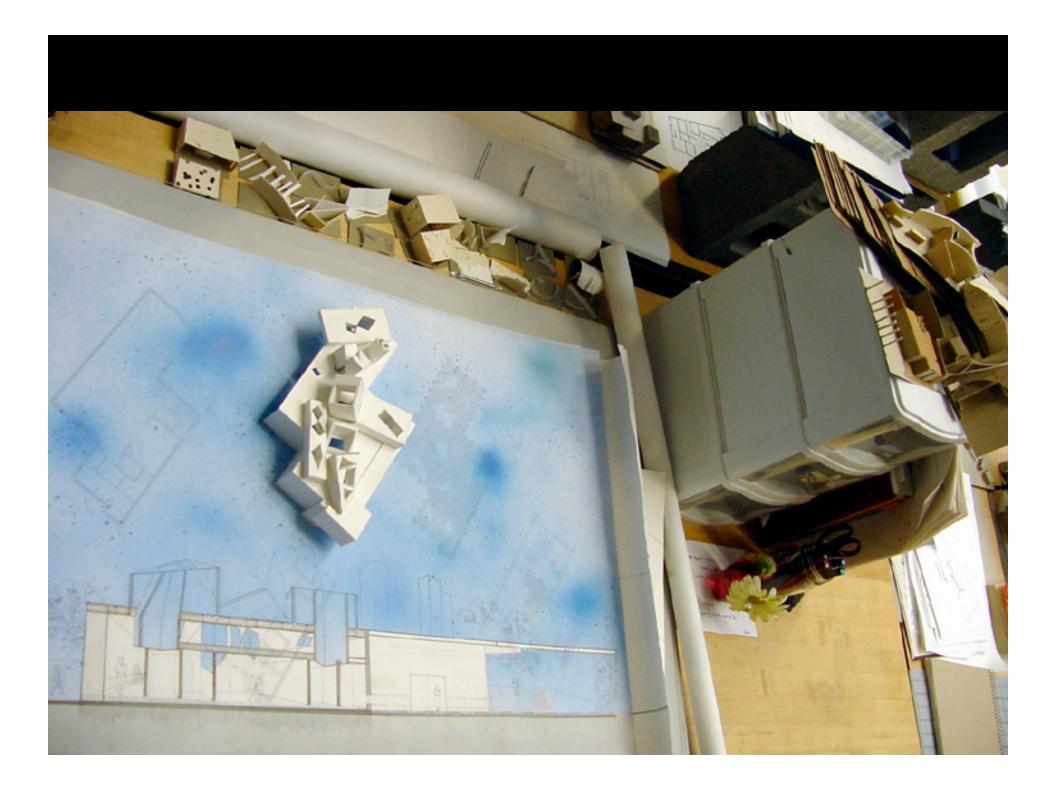
The Full Desk





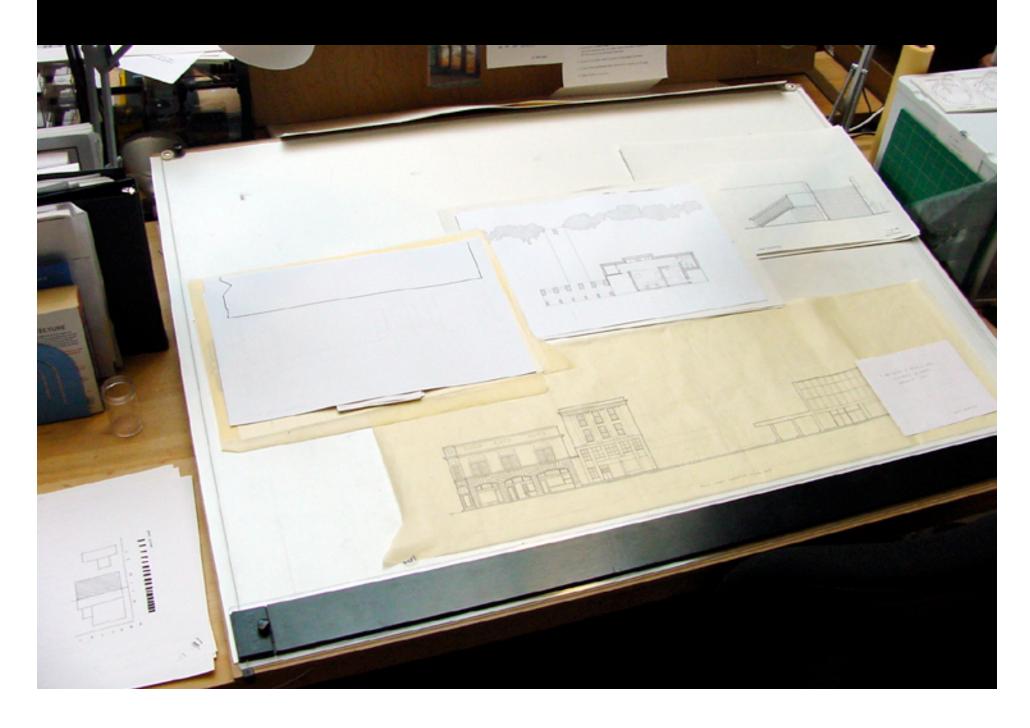


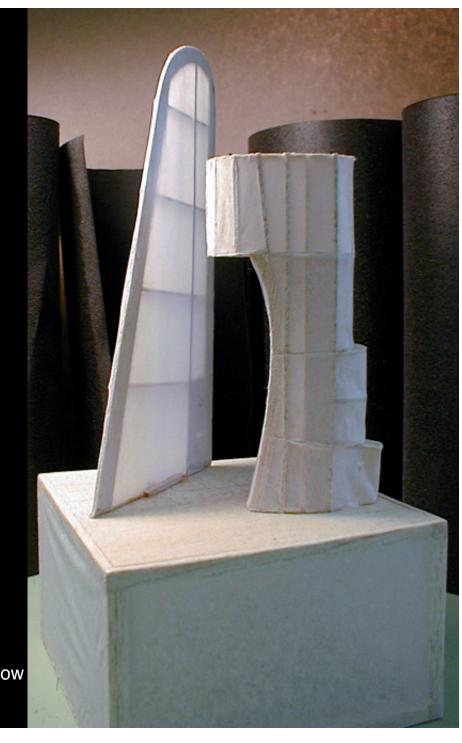




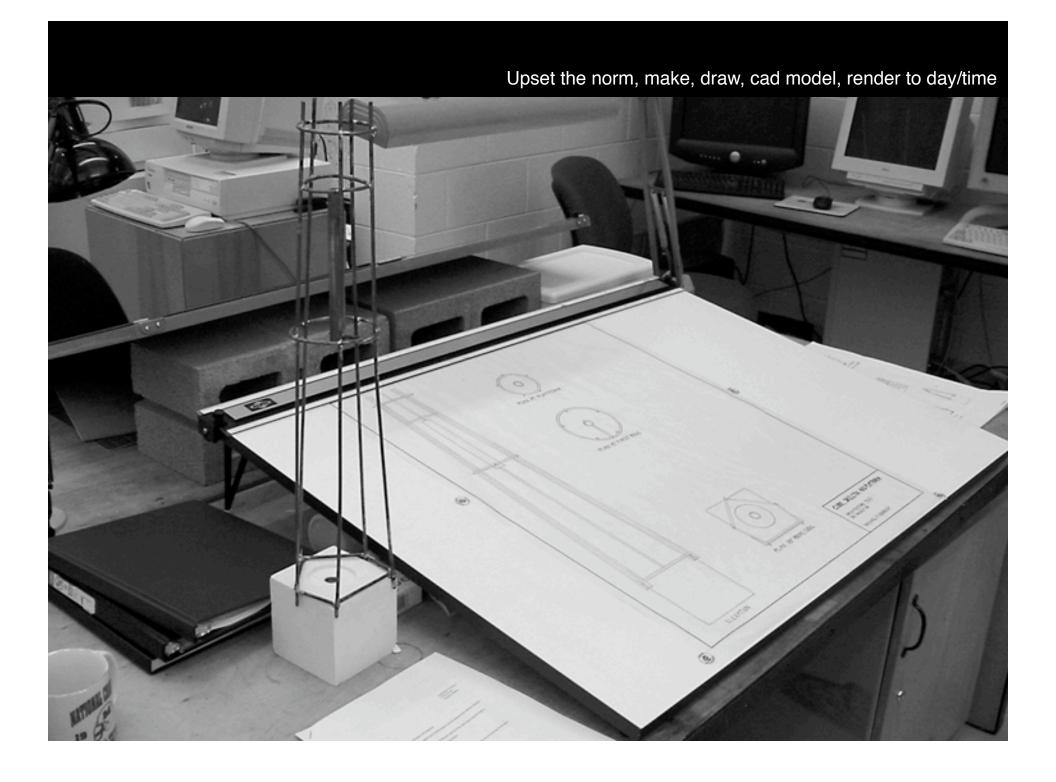


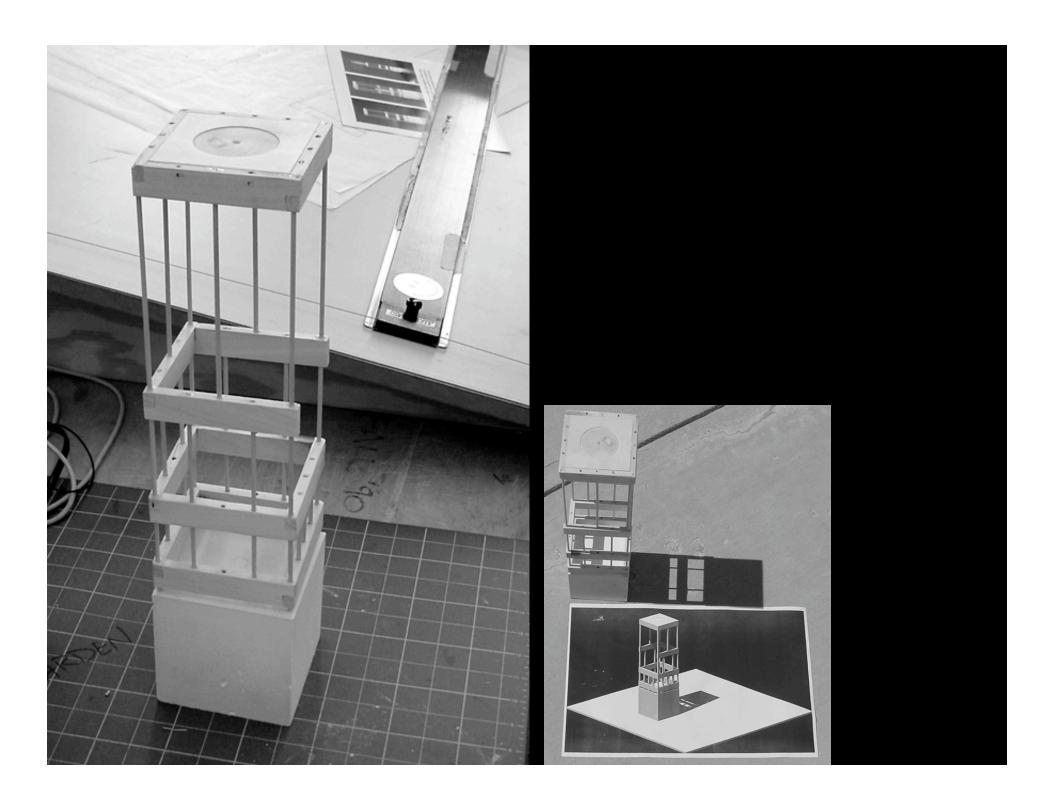


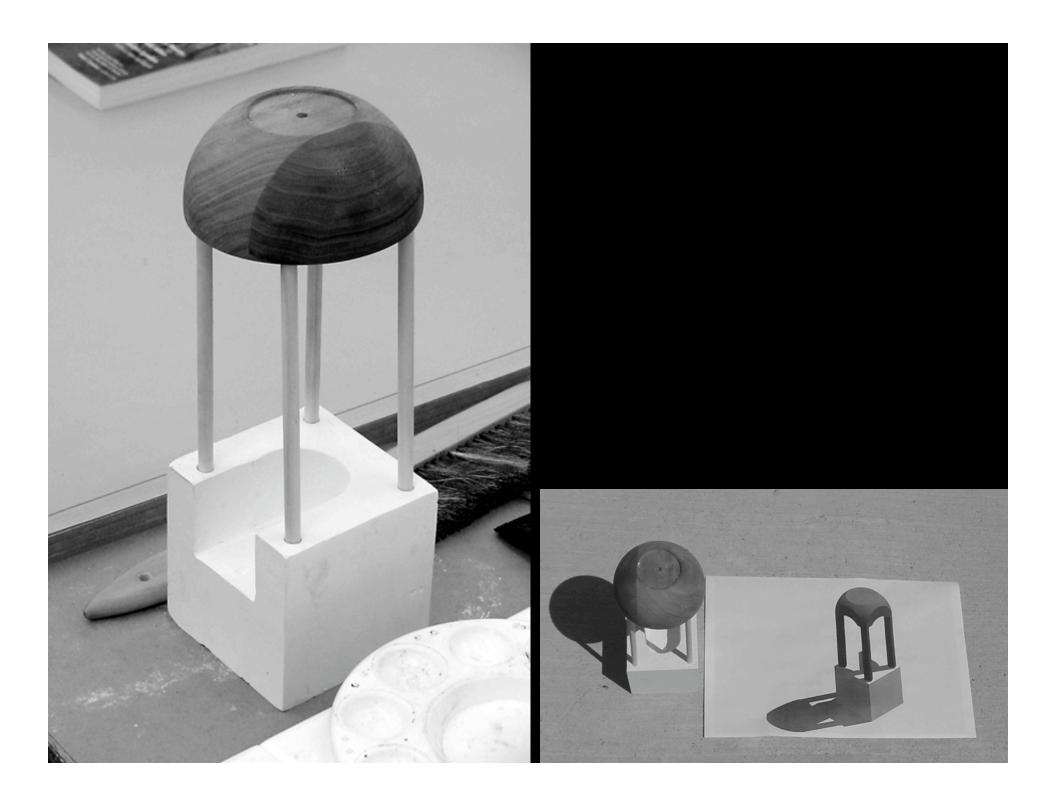


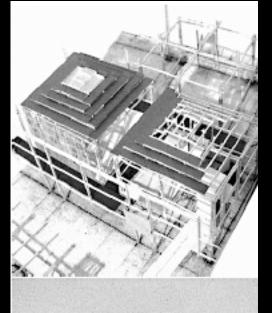


Allowing what you knew to become something you didn't know Then explore it's qualities, speculate through photography

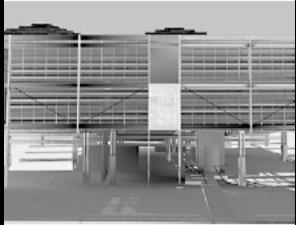








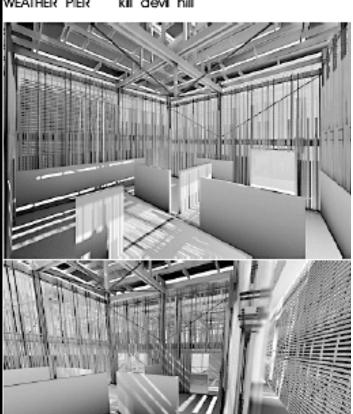
from the outside to the inside



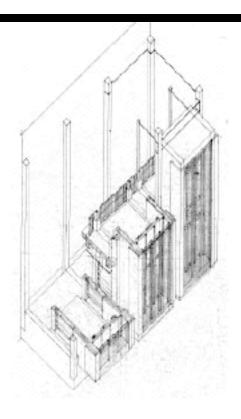


trance, piotecting wall, conclete elements

WEATHER PIER kill devil hill



views from the reception hall and exhibition space layer.



Axonometric-section of three gallery units

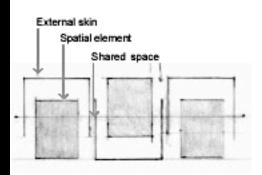


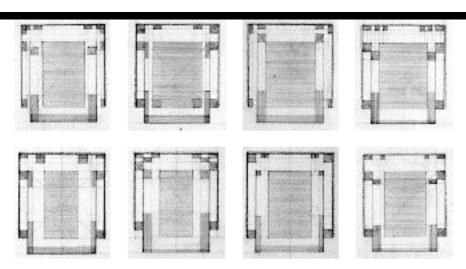
Walls form an enclosure around the gallery units

A 9'-0" high picture wall is located in front of the glass panels, which extend the entire height of the two story gallery unit. The 9'-0" wall has a white oak interior finish, to provide the least amount of distraction from the 2'-0" x 3'-0" wide black and white photographs it displays.

The two outer walls that enclose the gallery units are completely opaque and consist of precast concrete panels on the exterior and white oak paneling on the interior. The two types of paneling extend the entire height of the two story gallery unit. The walls are hollow to allow for a 5'-0" wide truss to extend vertically from ground to roof. The truss will help to reinforce the wall and stabilize the gallery unit. The top and bottom floors are welded to the truss with steel angles. The ground floor, however, will also be reinforced and attached to the concrete base to aid in the stability of the gallery unit.

An interlock connection results from the overlapping of two spatial elements and the emergence of a zone of shared space is formed.

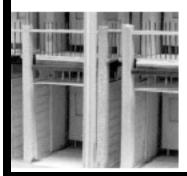


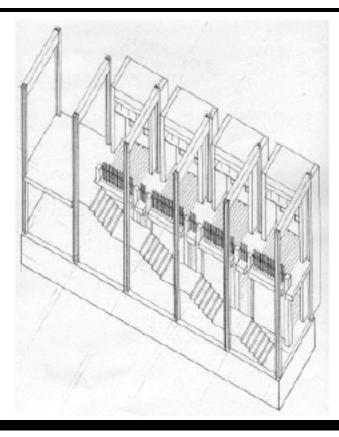


Investigating the constructed relationship between the various interlocking elements that enclose each gallery



Top floor: standing galleries





The addition is comprised of two floors. The upper level is a mezzanine that houses the standing galleries, the Loewy museum, and a secondary walkway. The lower level consists of the sitting galleries, a common area/lookout space, and a narrow atrium walkway. The atrium is open to the upper level and is the main walkway for the addition. It resembles the major axis of the building and reinforces the linear movement of the site.



Screens aid to direct the air flow towards the return air duct. Ducts are located above each gallery unit on the top floor.

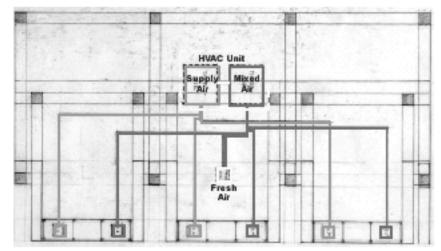
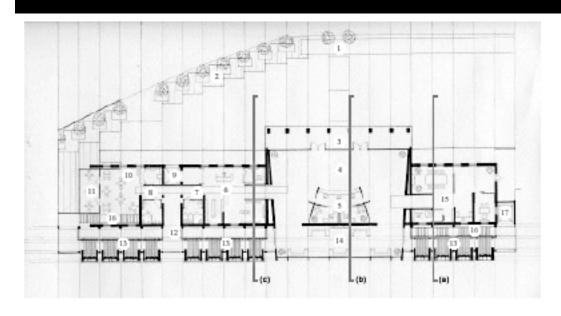


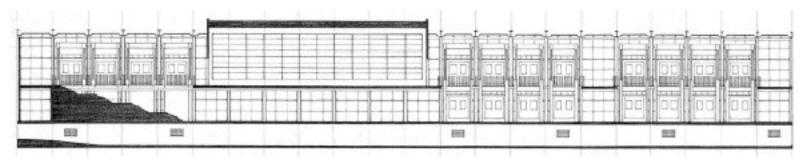
Diagram of the location of air ducts

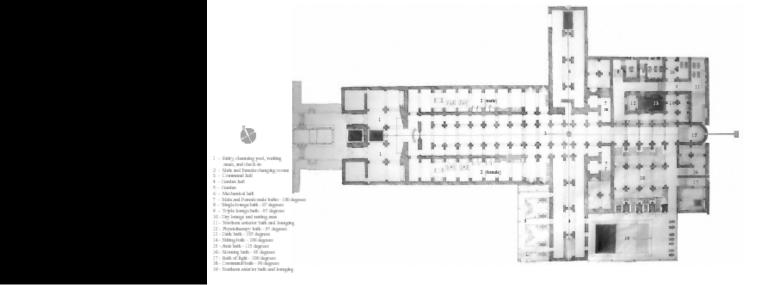


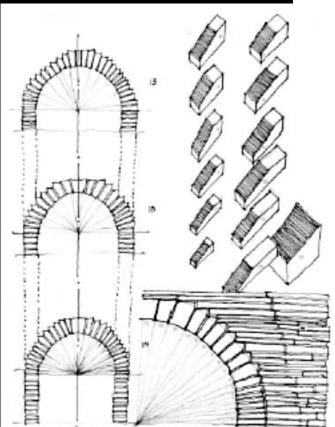
Key

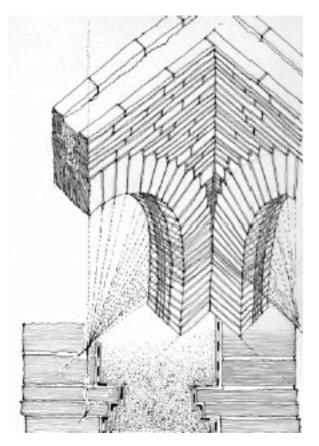
- 1: Entrance Sidewalk 2: Public Sidewalk
- 3: Entrance Portico
- 4: Lobby
- Ticket/Information Counter 5:
- 6: Gift Shop
- 7: Women's Restroom
- 8: Men's Restroom
- 9: Service Elevator 10: Bar/Restaurant
- Look-Out Balcony 11:
- 12: Bridge to Galleries
- 13: Moving Galleries
- Loewy Museum 14:
- Offices/Conference Room 15:
- 16: Public Stairs
- 17: Public Elevator











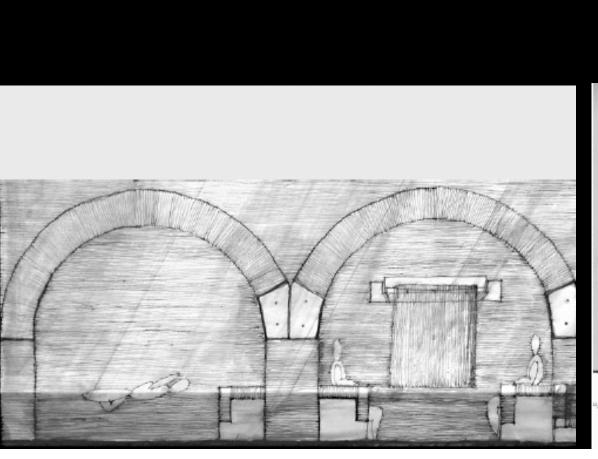


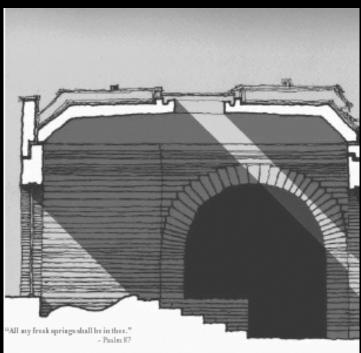
Arches are the fairtic of the woven room. Although separated by tooms the arches contain in order integra to thermed we, but they also share in order that is contained within the whole but.

The springline of the arch is important, it wills the reason that, at a certain point in the layer of the whole bridding, owny such begins. When the arches use born, and reade, the springline becomes the blood that gives the family of arches that the

The building, from the beginning was thought of as stone, but was thiving drawn as stone?

No. The stone was drawn as brick masonry, the stone had to be marified, and made. The stone arch is the figure of the building, and the stall in the ground for the figure. There is a difference in the matter of masonry undertake. The brick is broken by the mason, and he or she fits the brick to corners or special conditions. The stone is cut and delicately had. The power of it is that white being cut is cannot be broken in spits. It remains a solid, self-serving, independent conditionant but supperson finel' by belying support a whole. In a same, the will of the stone is broken, but the strift semains.

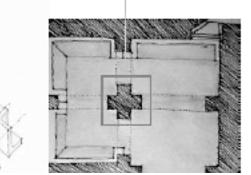




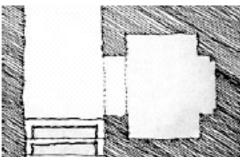


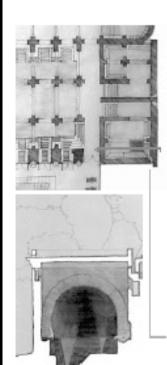
In the order of the building, the plan is the generator but it is through section that we perceive architecture. We are given access to the plan through the thought of the rain. Taken from this book are the stockbee, models, and sections, they are the building, from the building of the ... We will be taken through the building power, light, during any secrets of its making, power, light, durings, how/ness, and joy. We can seen the people move about the building power, light, durings, how/ness, and joy. We can seen the people move about the building power, light, during the building. The plan is the rain of drawings. Like a rain, the plan is the rain of drawings. Like a rain, the plan is the rain of generally, and order of the building. It places, on record, the thickness of the building, and the making of place, steps, and stone floors. With each drawn like the plan is make. Layer after boyer, the floor, the steps, and their stones; the sents and their stones, and their stones; the sents and stones are make.

The tooms are revealed firrough their man, the beauty of the mass as a toom is its power to have a place curved out of stone. Curving

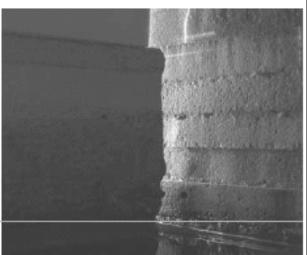


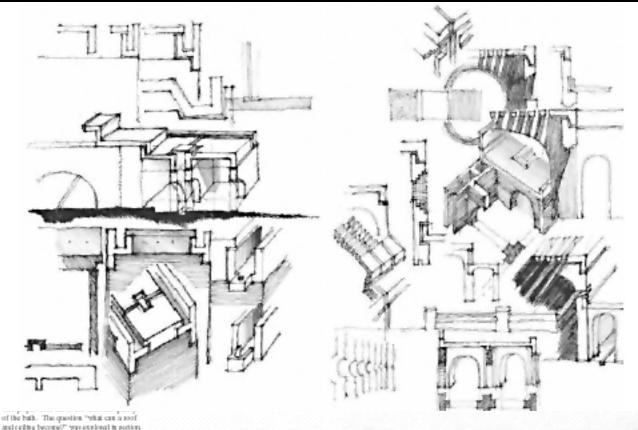
the anatomy of a column



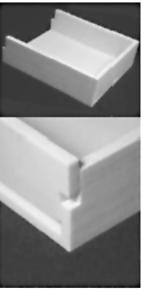








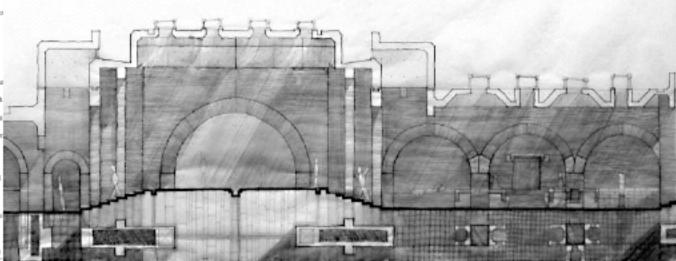
None enjoys peasure, and weight, it feels constitutely under the backwises of finally, and wise it exceeds. The storetic of the world of Heshiba, a place mailed by the storet manner, a world of steas and shadow. The constraint is life-up and take places, as assembly of life-up and take out concrude. It is a world of assembled places that results is themselved to the number of assembled places that results is themselved and machine, it have in become of the mode of reachestly. The formed order for the both is like store, leavey, and mailed, supporting the includes of constraint of constraint of successing.



of the both. The question "what can a roof and calling become?" was explored in section. The section as a drawing tool allowed the expension for the main themse of the both to be explored. The controls lids and their direct connection to the stone was studied through the section. The life informed the shady of space and light, and then questions areas.

What was the nature of the light in robition to the space, and what was the trainer of space robated to the pools, and to the floor? The constrole lide were designed in accordance with the room that it covered. Each the allowed for the same light to push through. Shaft light lide were for the train light to though that light were for the train. The lid is a modern expirate into the weath for the robits to the weath for the robits to stone archae in the pools.

The peobs are the place of water and relocation, central to the notion that trust can experience the power of place. The pool reflects the weathed root, and is made by the floor adviserable plate warm mineral water, while the root above moves bowards the sky, elevating runn's senses to a greater good. The greater good to the annuron bomm, it is the senses commands that flammanal Kanst copyensed in his isentiese of judgment, "the senses commands that annurons that acceptance in his isentiese of judgment, who can be also all human life, the common sense."



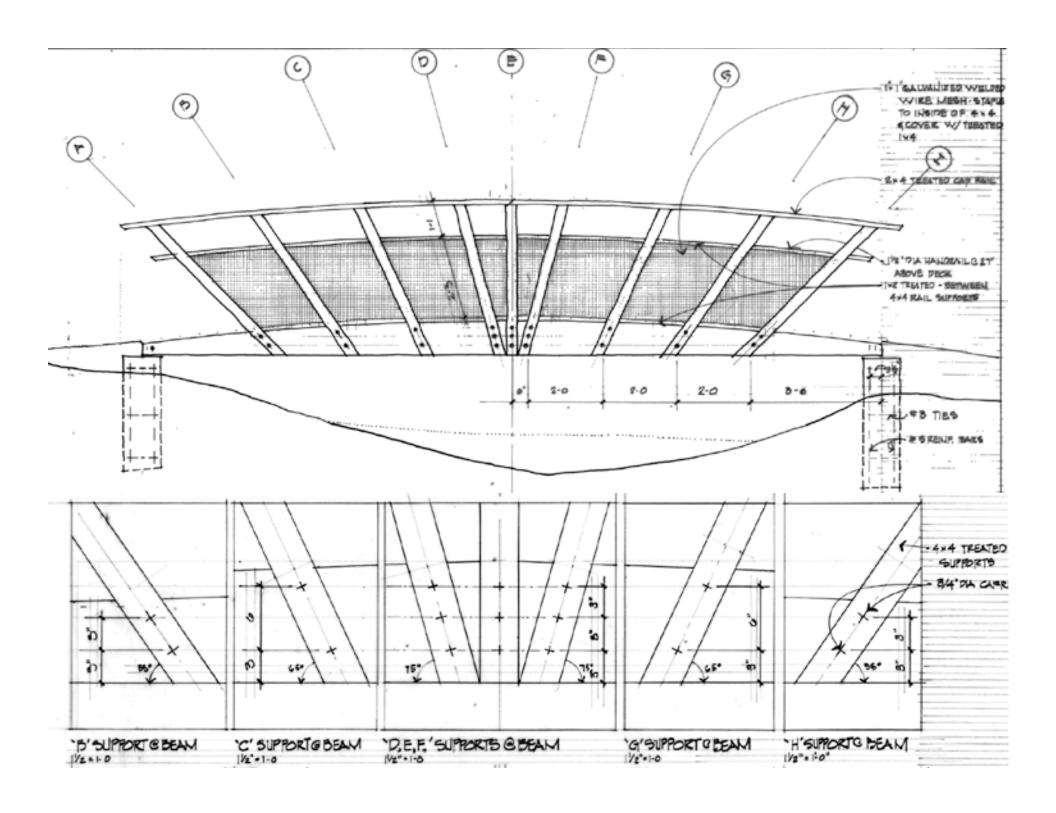
Seeking Resistance















ERIC BRADY/Staff
Hollins College students who constructed a bridge at the school gained a new perspective on manual work, and respect for the people who do it.

vman (left) and Leyden Haynes build a bridge over a creek at Hollins College.



Learning through service

Learning and Discovery





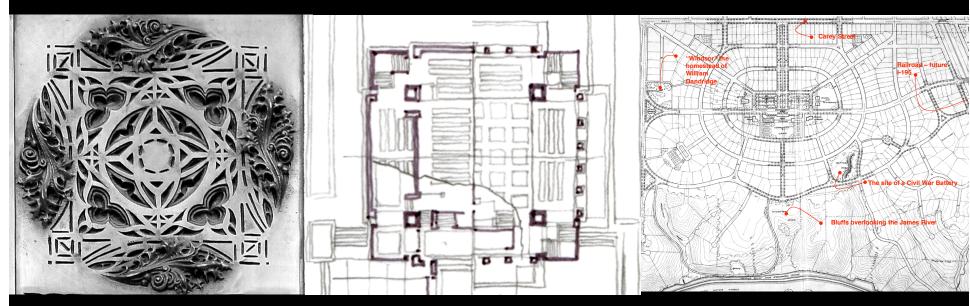


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The Full Desk

Form and Structure



Sullivan Stock Exchange 1893 Wright Unity Temple 1906

Nolen Windsor Farms, VA 1922





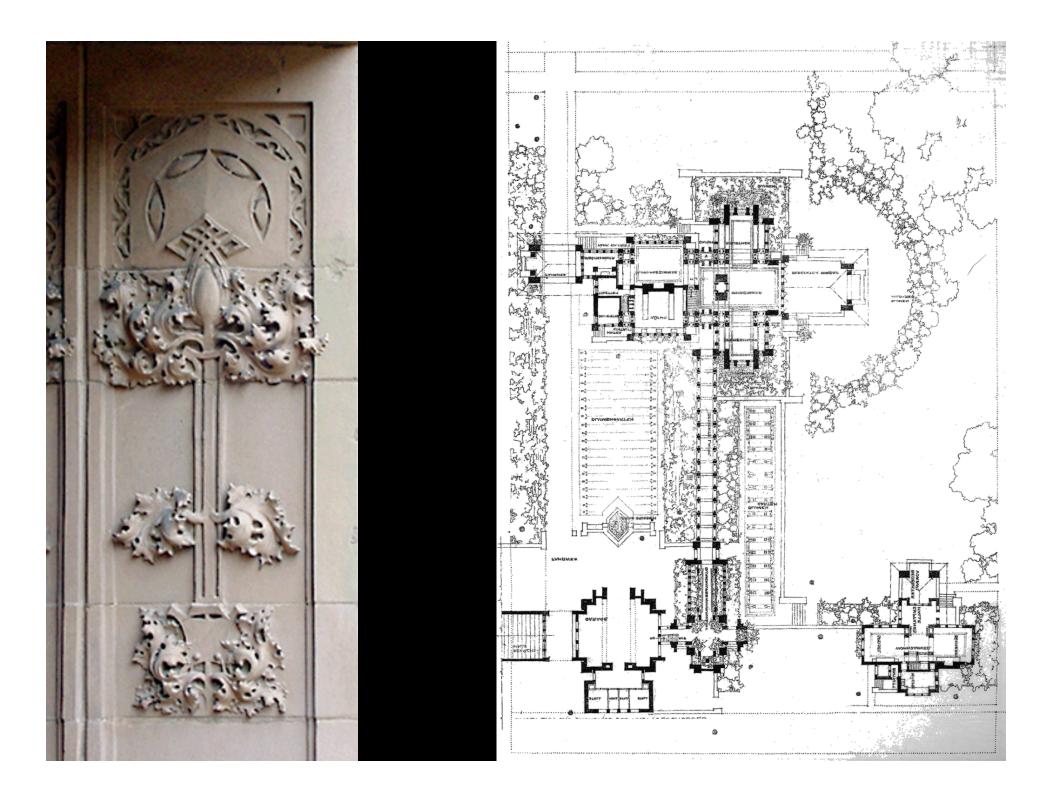


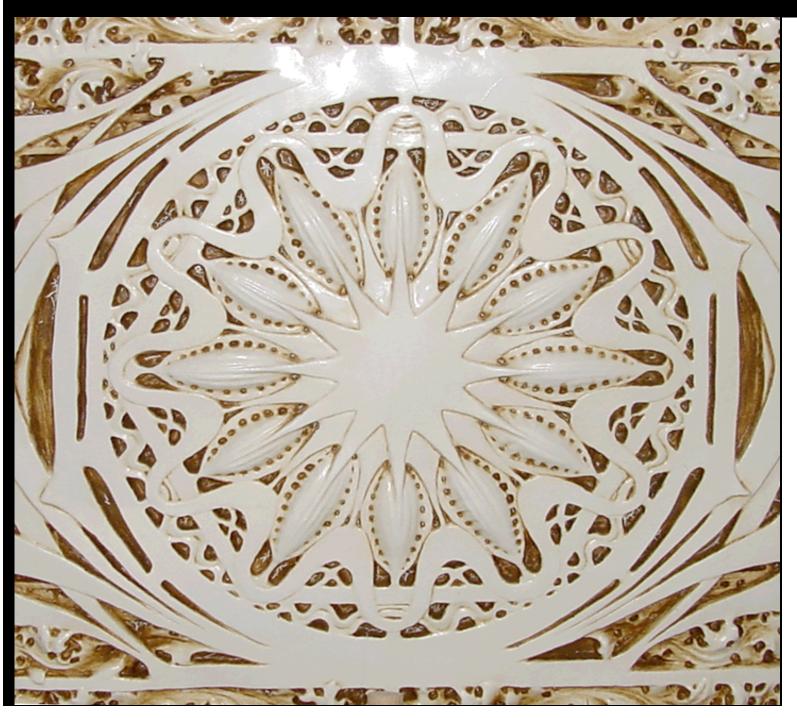






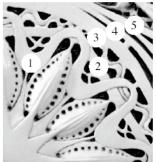








1892 Schiller Theatre Proscenium hexagon showing undulating unrelieved line at seeds



1892 Schiller Theatre Proscenium detail of undulating unrelieved line, the cut through the calyx



Horizontal Section Flax Calyx, figure 256 from Gray.



Horizontal Section through Linden Calyx, figure 223 from Gray.



? 1888 Auditorium Theatre, example of the medallion - the plant in plan - as ornamental structure



1890 Getty Tomb Octogon module



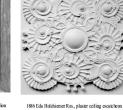
1893 Meyer Building, corner column capital projecting spherical center suggesting seed burst is immanent



1890 Stock Exchange omament from the elevator surround

1892 Wainwright tomb hexagonal container for flower

1892 Schiller Theatre Proscenium hexagon showing undulating unrelieved line at seeds





1890 Stock Exchange ornament from the elevator surround with organic elements projecting from the surface.

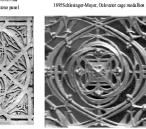




1892 Schiller Theatre Proscenium arch ornament, is this the "cap" for the star pod?

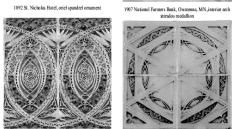


1888 Victor Falkeneau Res. limestone panel

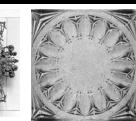


1890 Stock Exchange ornament from the entry portal





1892 Schiller Theatre balcony ornament





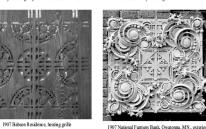






1895 Guaranty Building Reproduction of elevator medallion

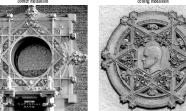




1907 National Farmers Bank, Owatonna, MN., exterior



1914 Home Building Association, Newark, OH upper ceiling medallion



1924 Headstone medallion, Louis Sullivan headstone, Chicago, IL





1919 Farmers and Merchants Union Bank, Columbus, WI., exterior entrance medallion



1914 Home Building Association, Newark, OH exterior

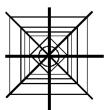
1919 Merchants National Bank, Grinnell, IA., entrance medallion



The inorganic containers of energy



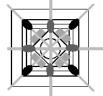
Place the seed germ at the center



The primary and secondary axis guiding organic growth

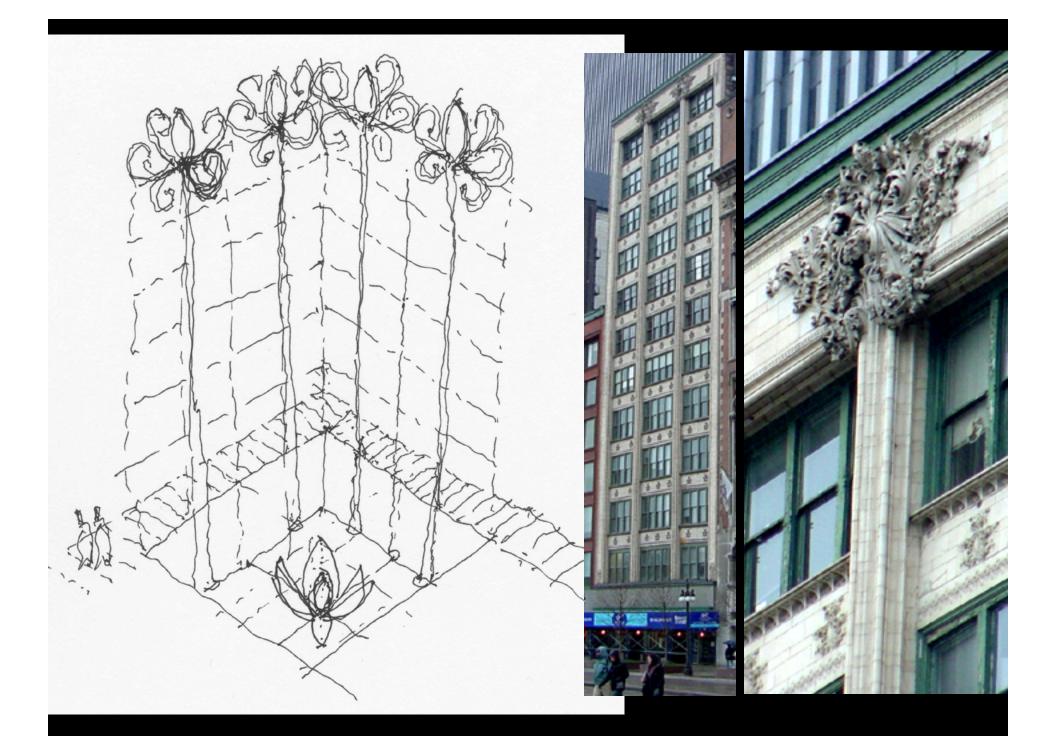


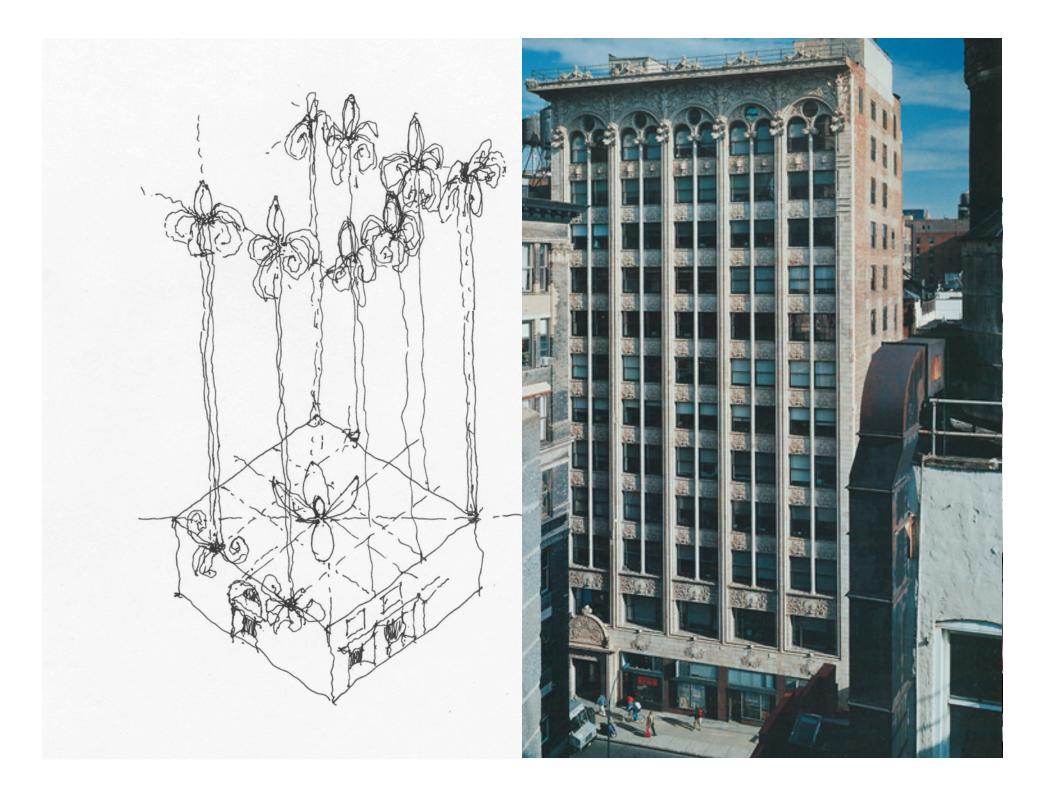
Primary locations of efflorescent "bursts of organic energy"

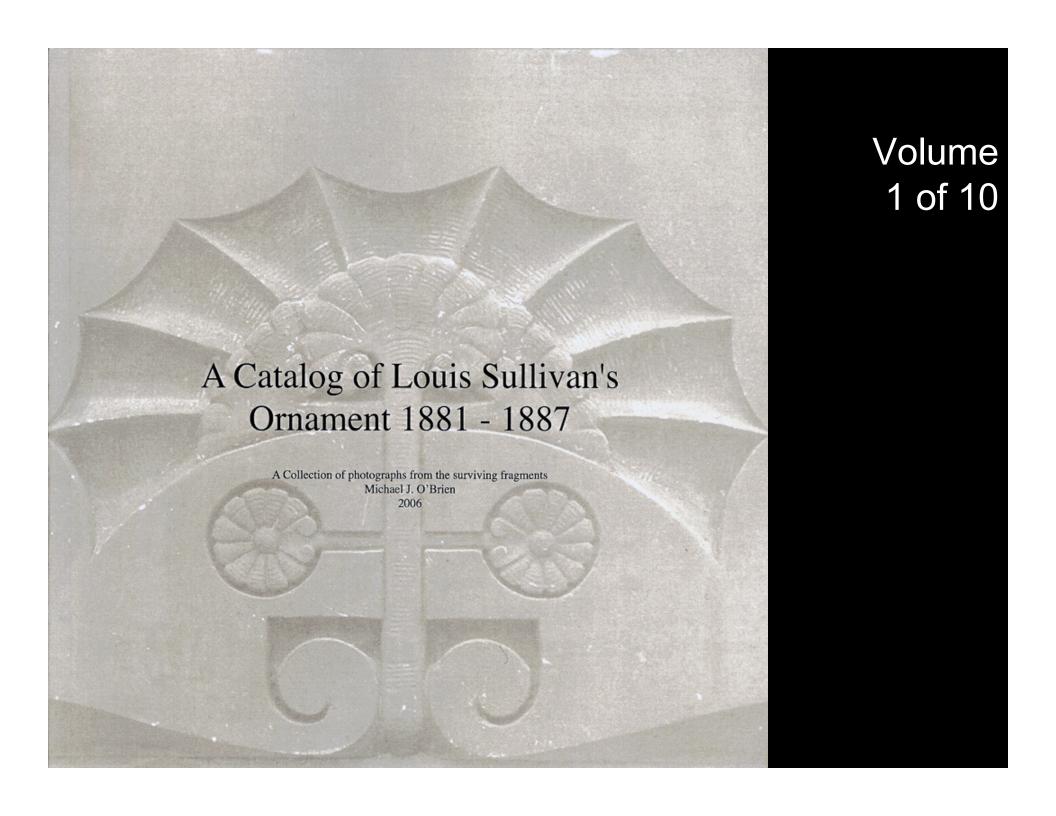


Secondary locations of efflorescent "bursts of organic energy"

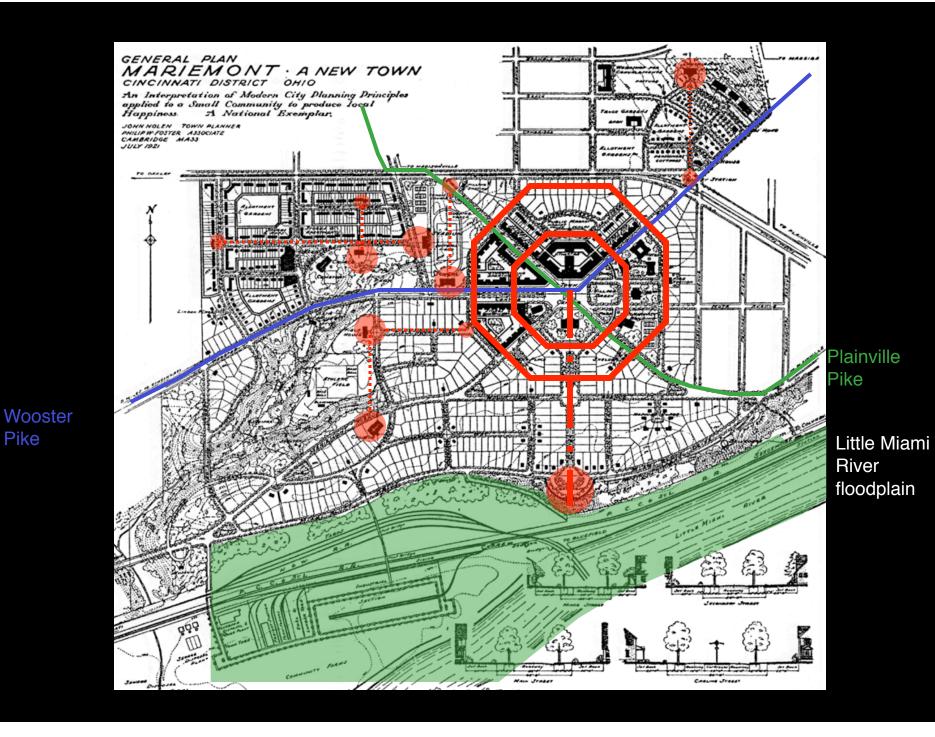






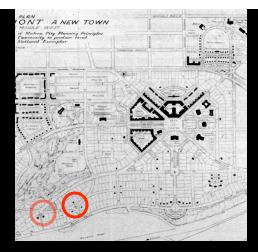




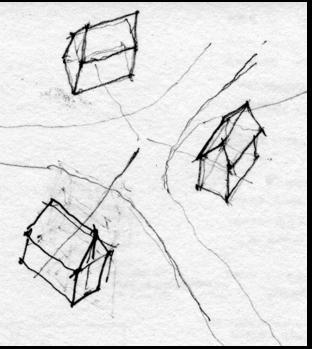


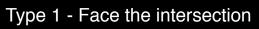
Pike

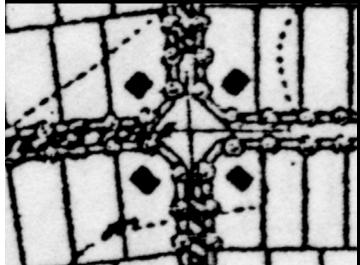
Type 1 - Face the intersection



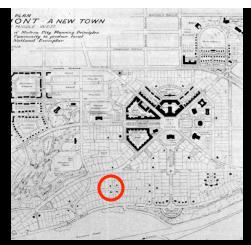


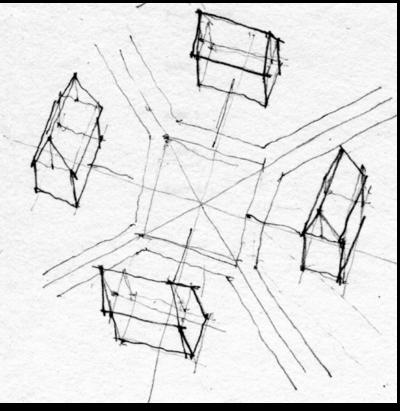


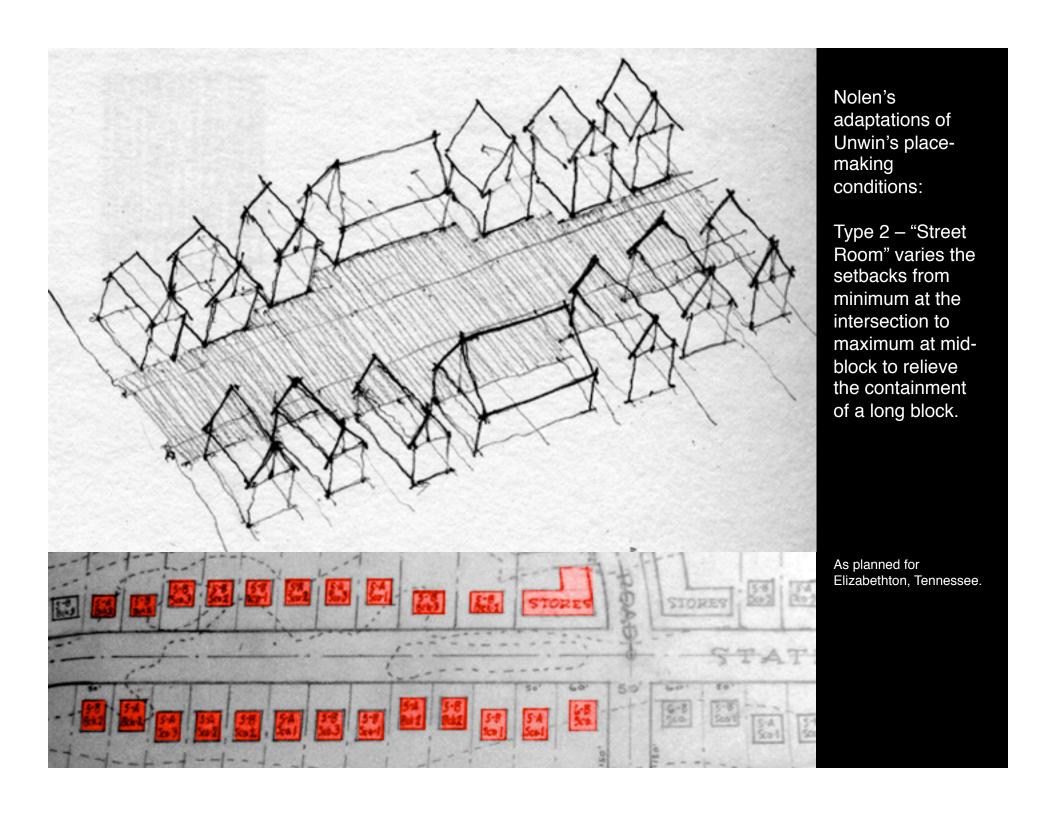


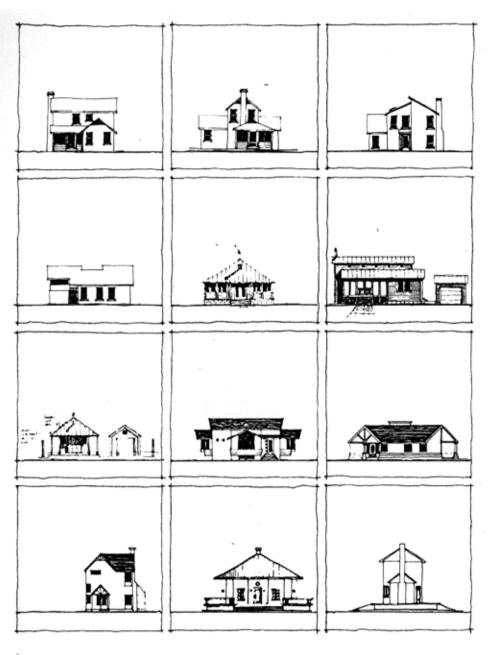




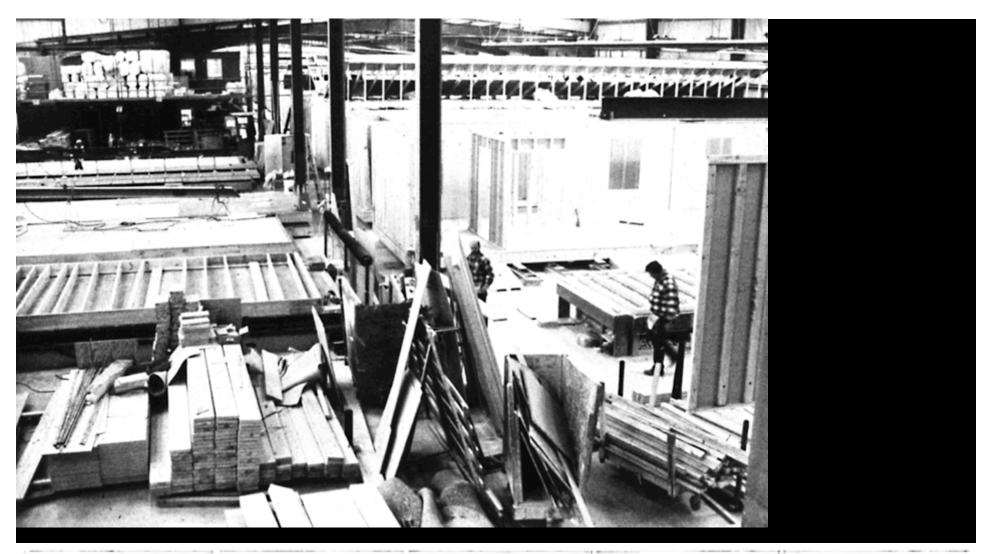


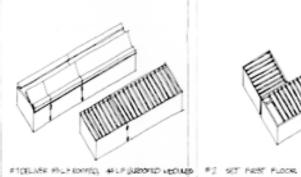




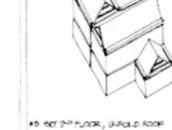


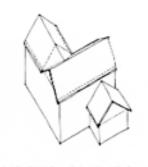
NATION WIDE HIDMIES
NEW PROTOTYPES FOR STARTER HOUSING

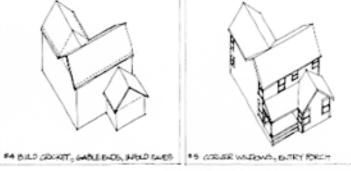


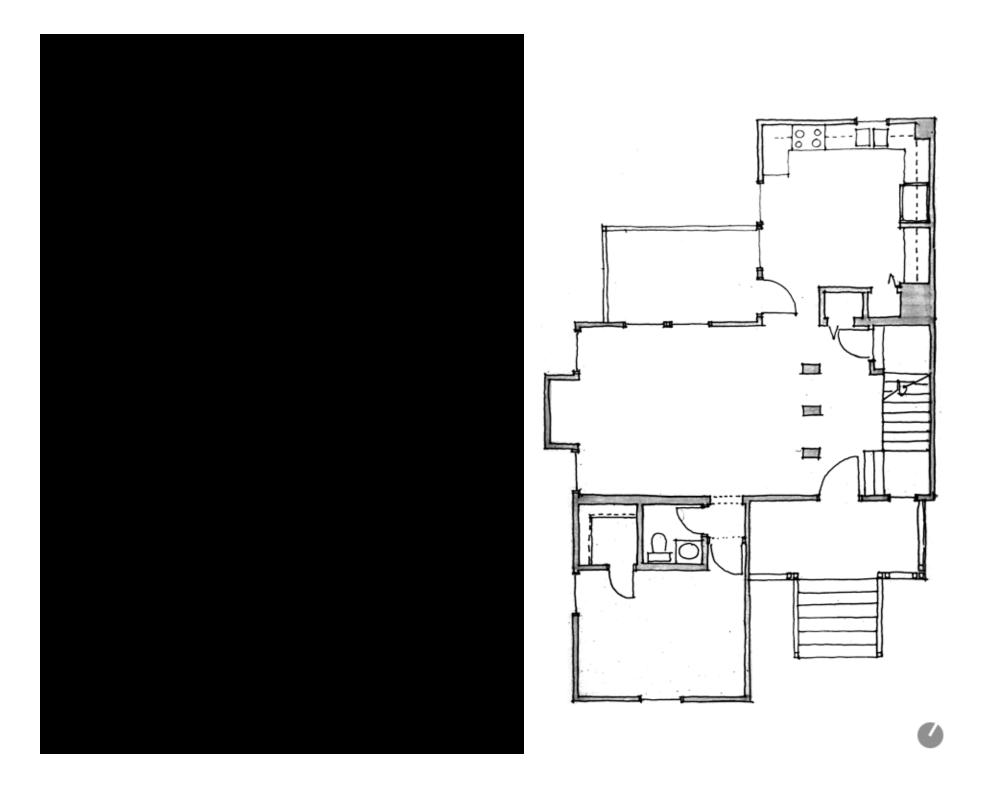




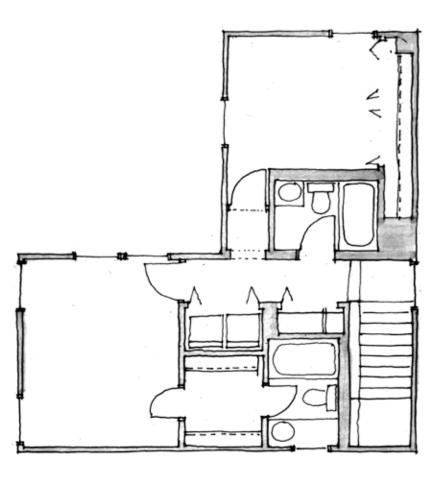


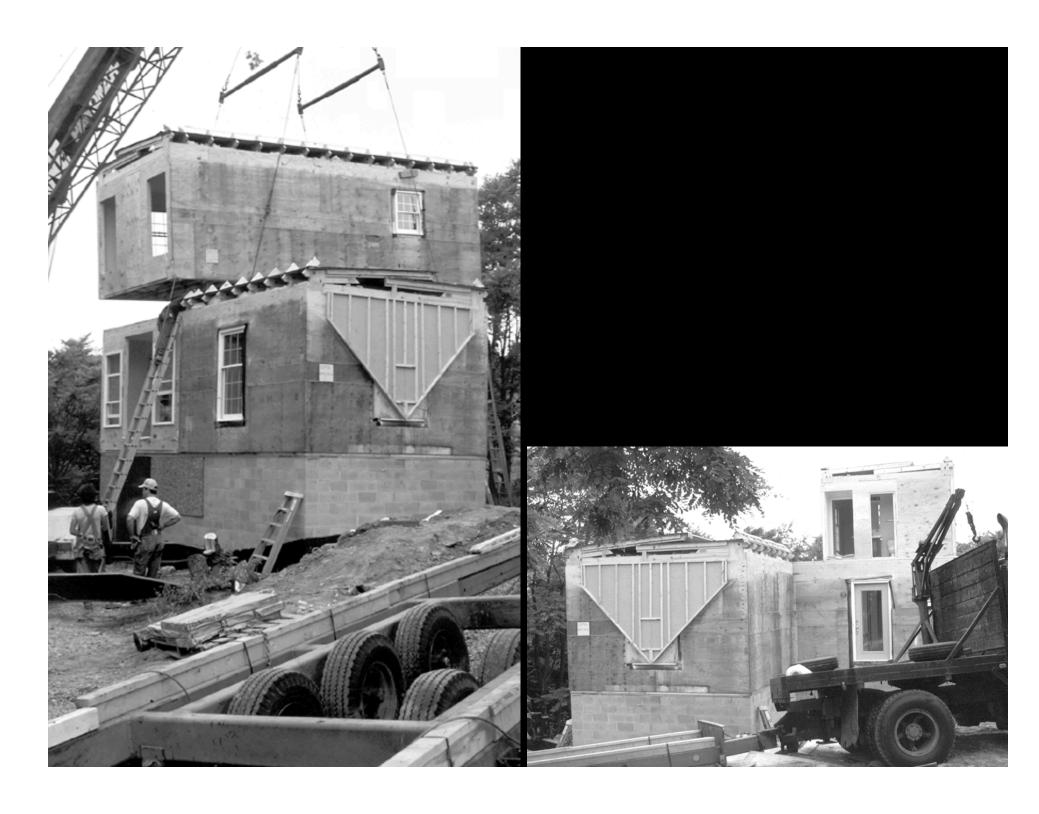








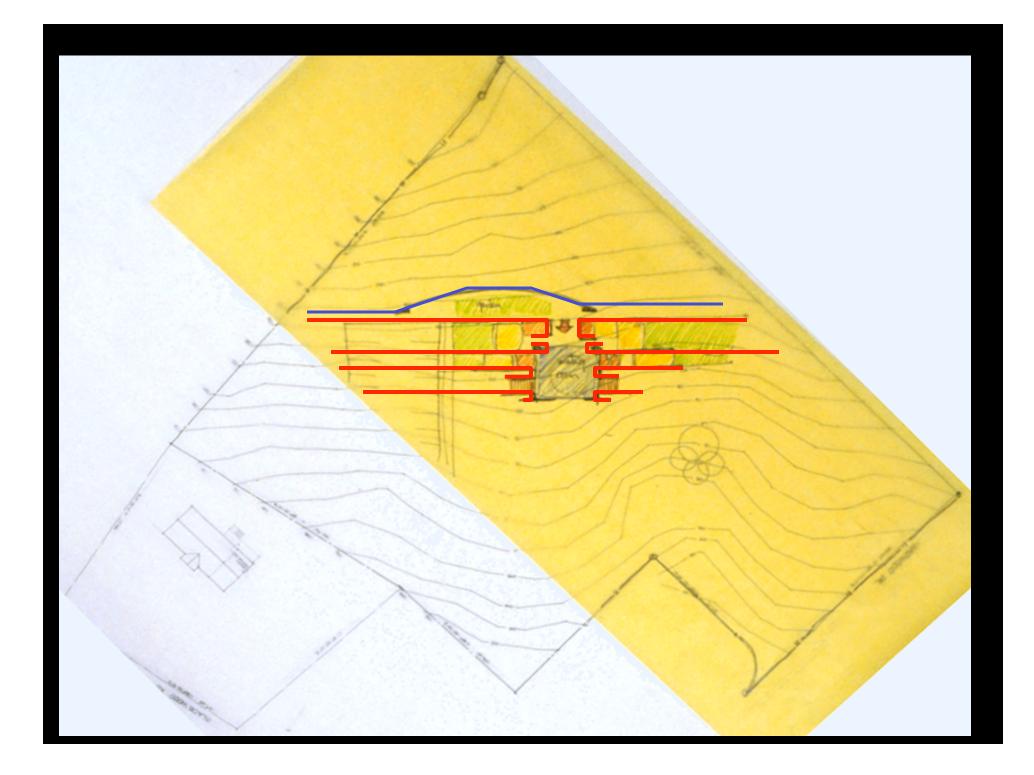


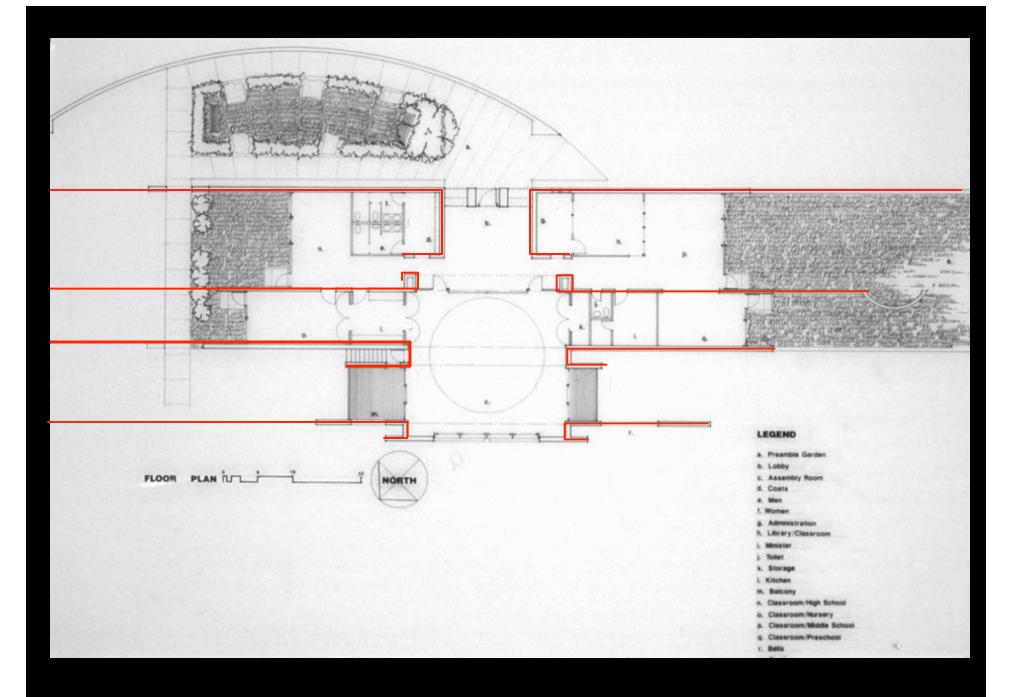




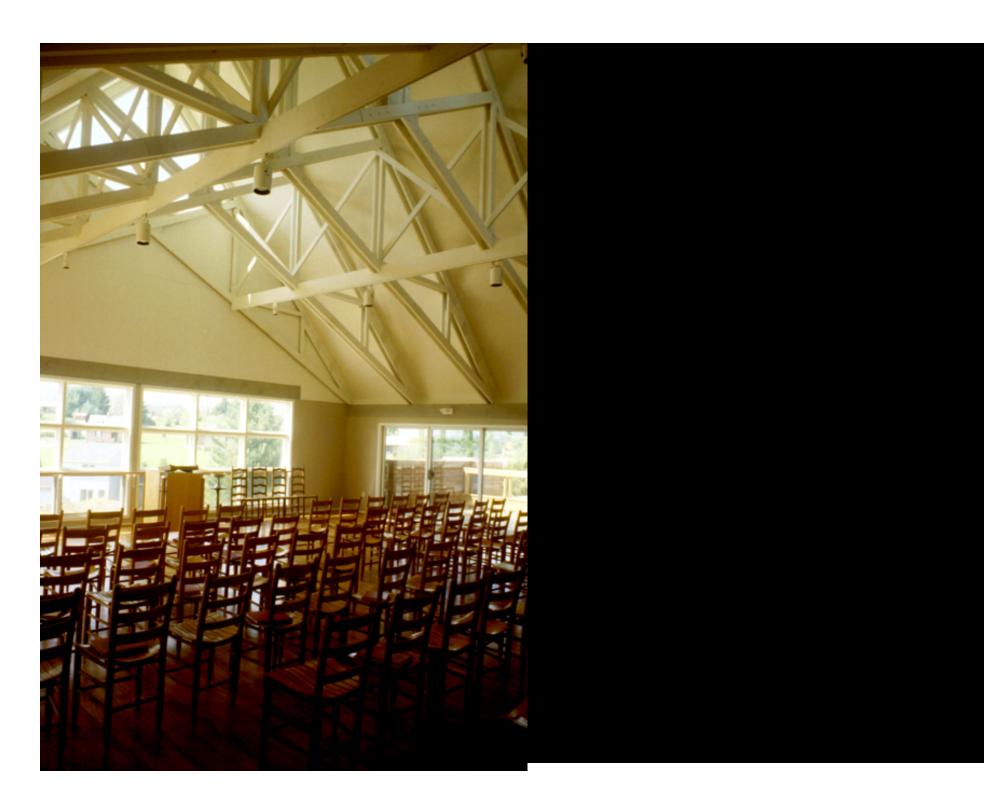


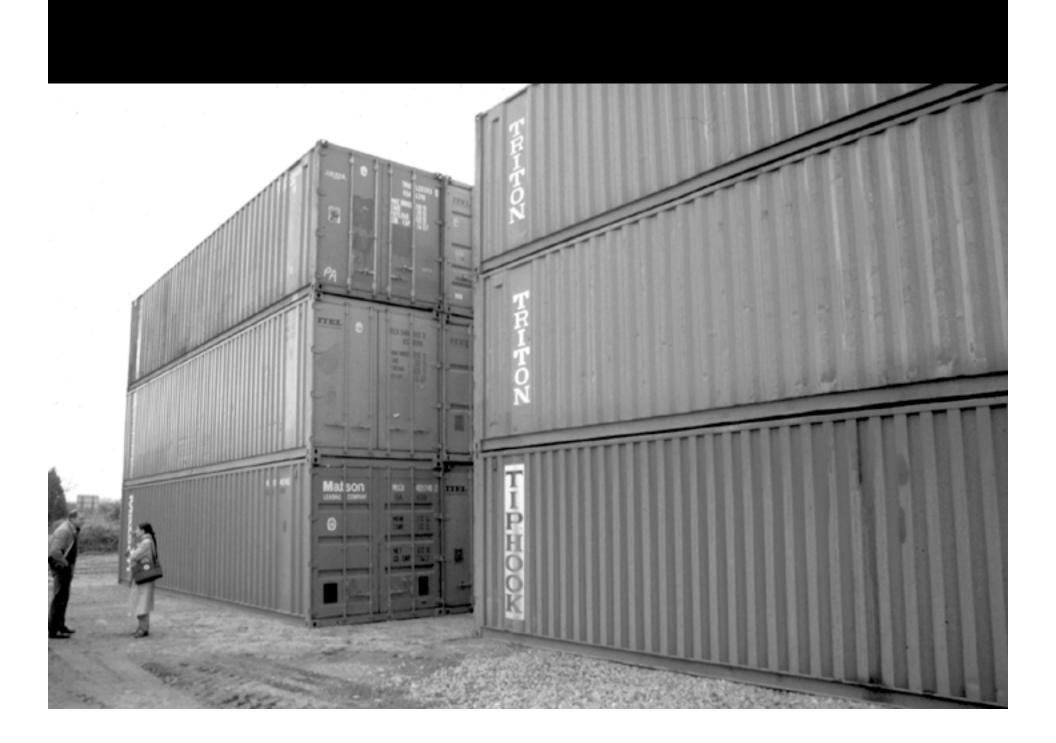


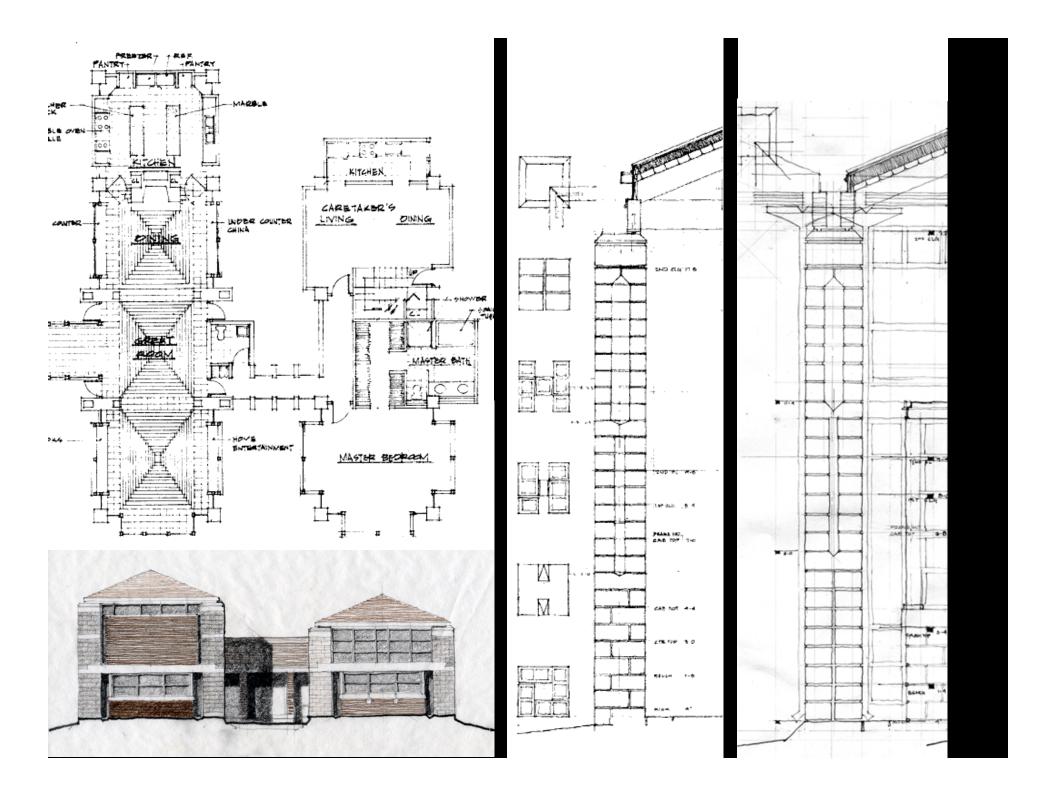


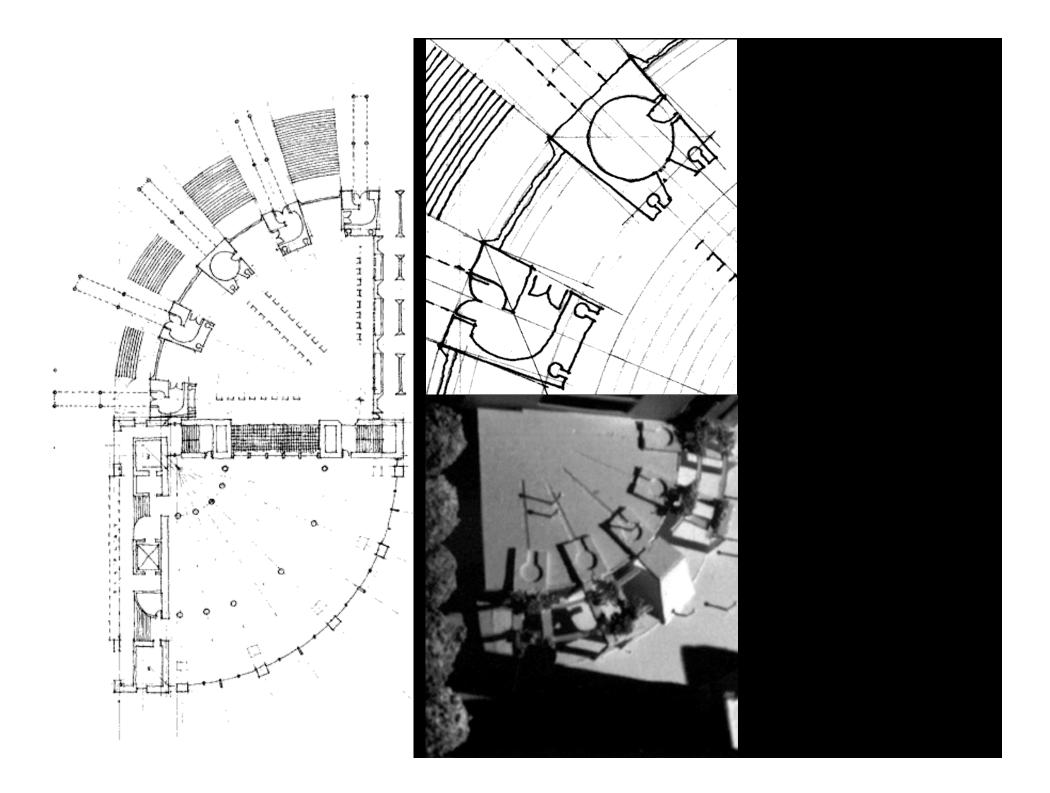


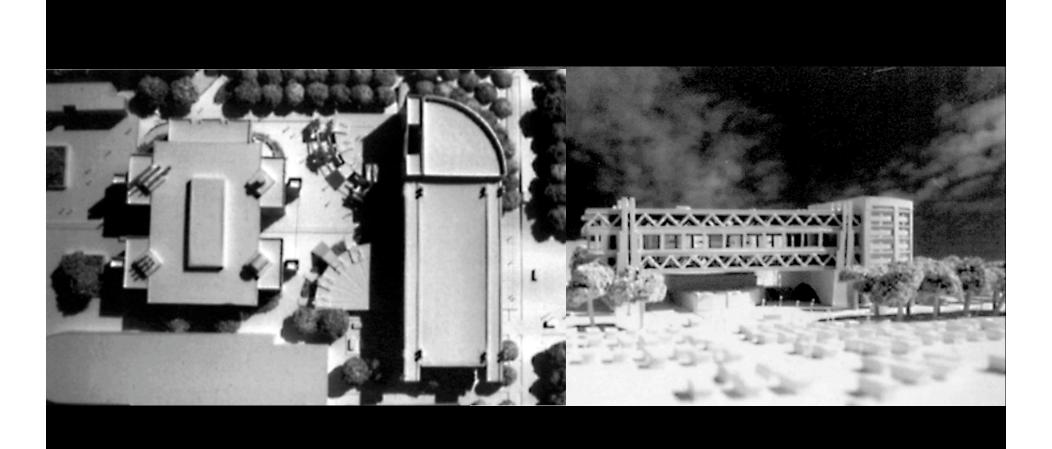


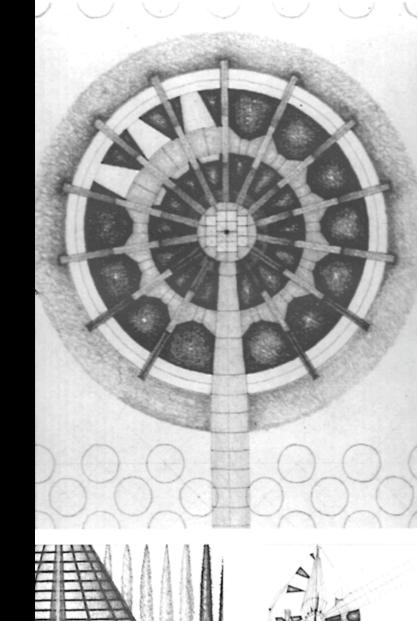


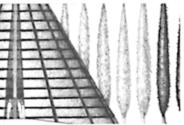




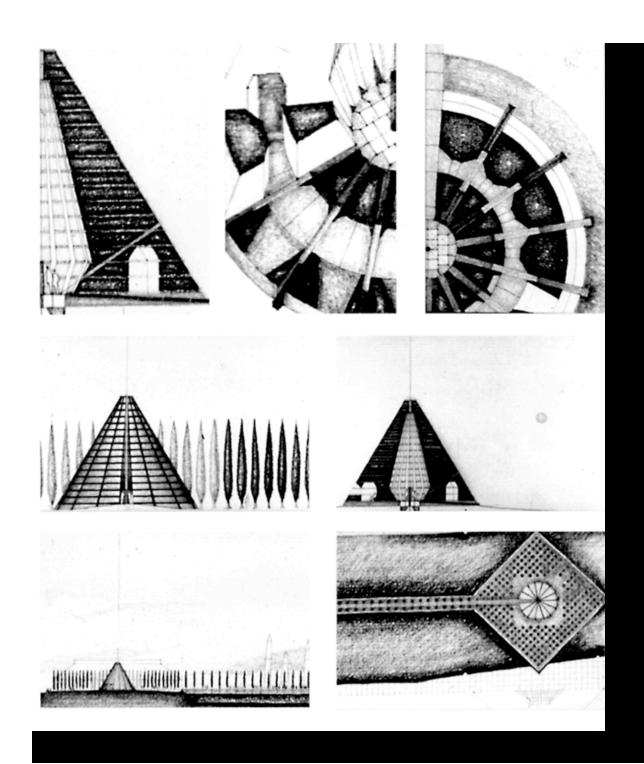


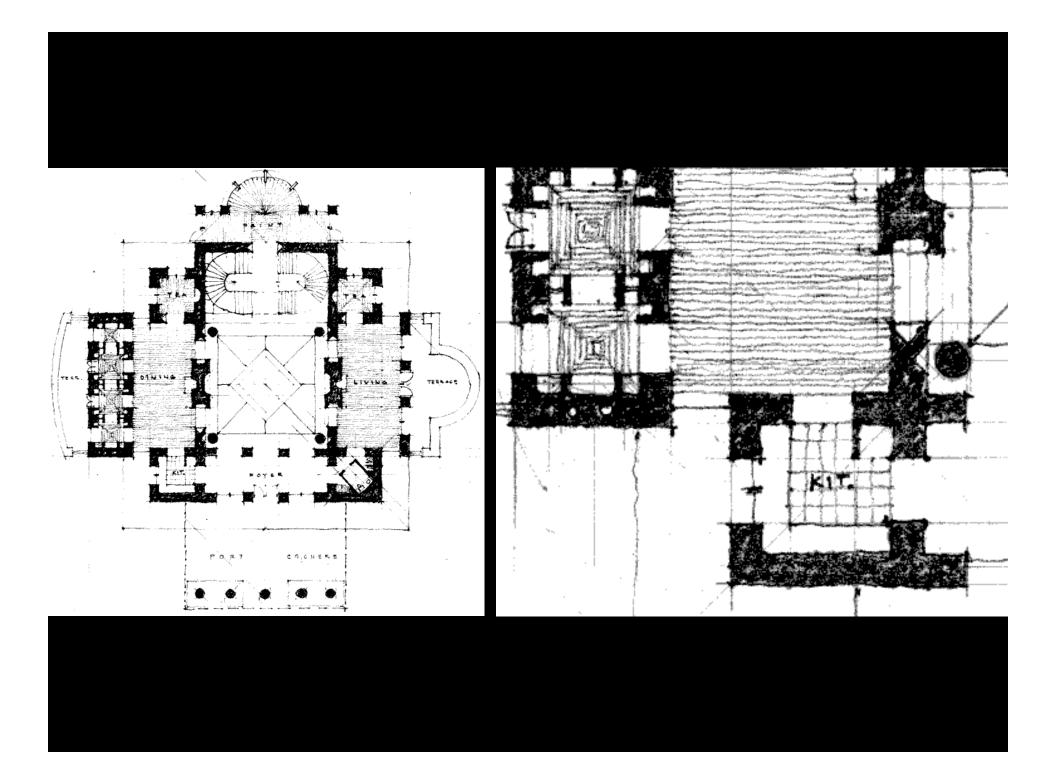


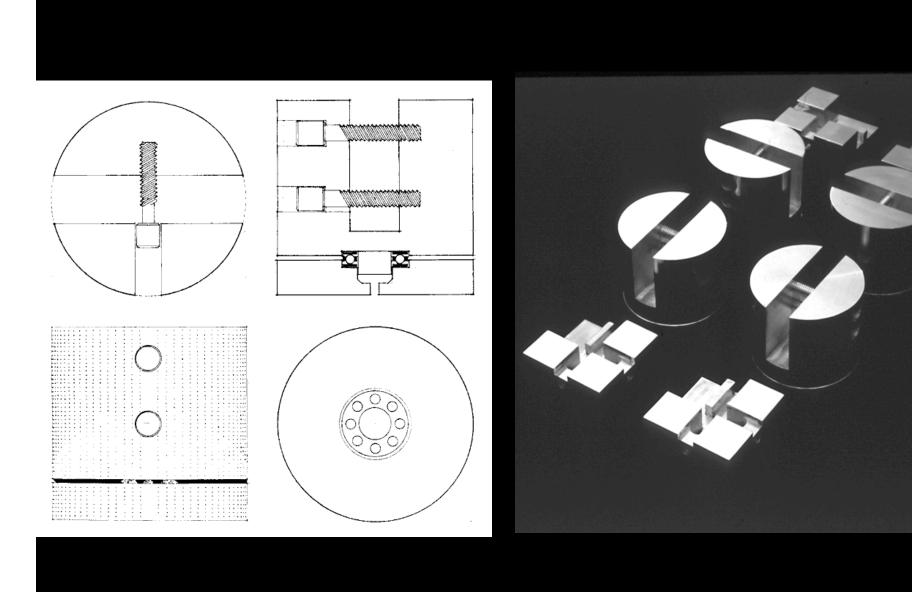


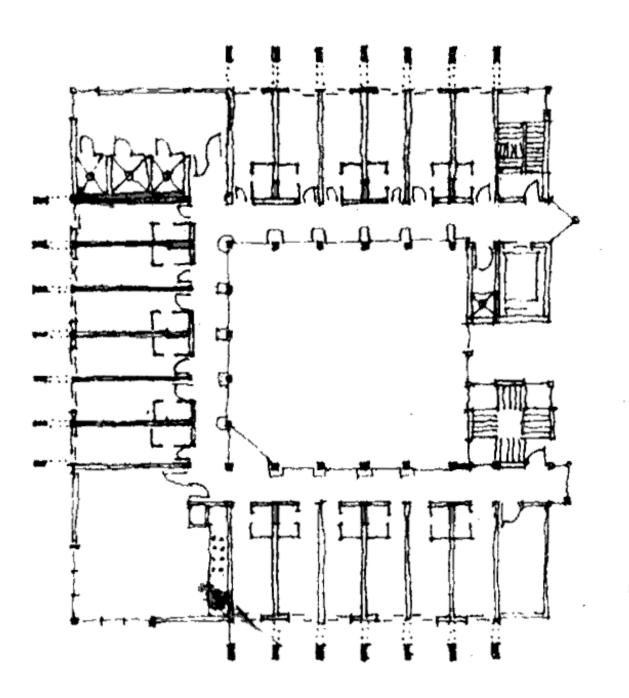


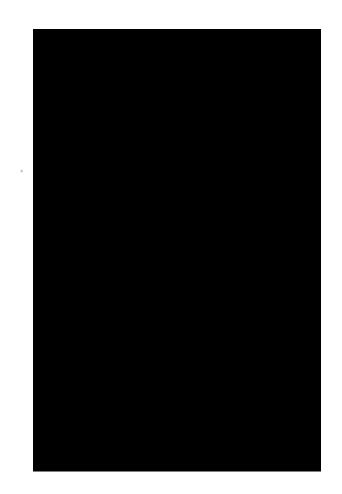


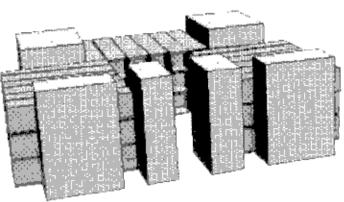


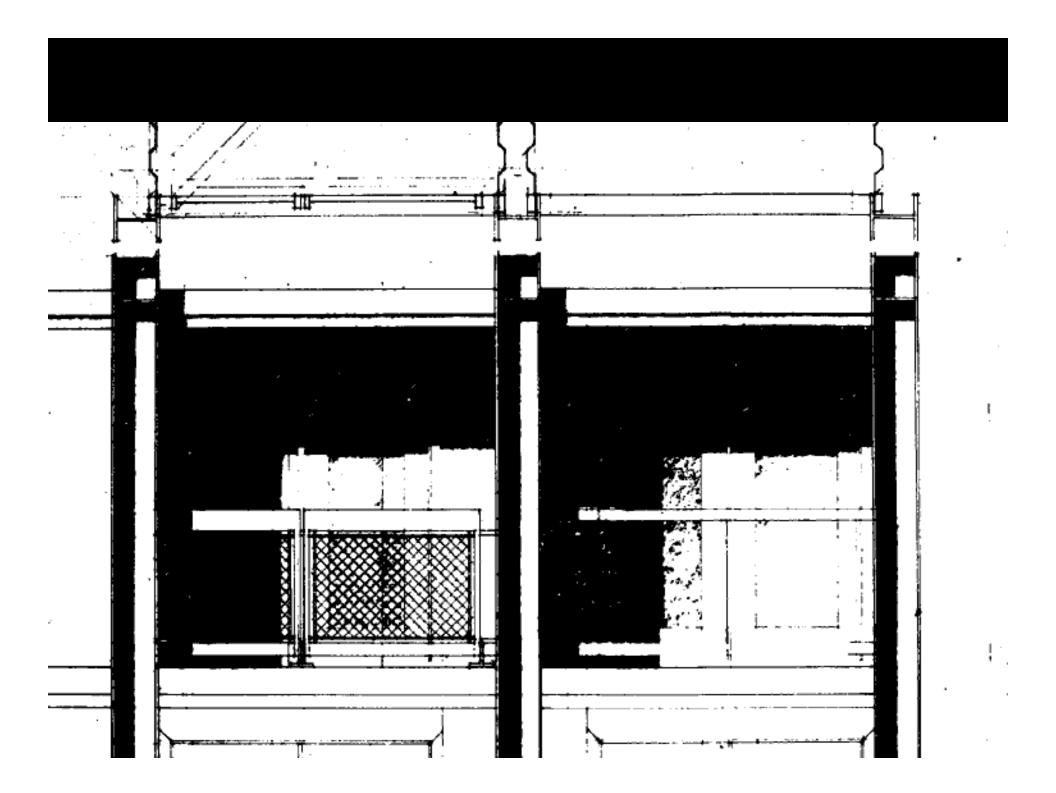












| Material | Labor | Equipmen | | |
|--|---|--|--|--|
| | | | Adjustme | nt |
| ¢2.100 | 0.45.005 | ¢22.200 | 1.0 | 001.605 |
| | | | | \$81,635 |
| | \$11,515 | | | \$29,399 |
| \$109,595 | \$61,452 | \$4,653 | .958 | \$168,322 |
| \$58,617 | \$64,302 | \$0 | .854 | \$104,973 |
| \$146,836 | \$82,707 | \$3,275 | .667 | \$155,290 |
| \$20,321 | \$8,068 | \$0 | .893 | \$25,352 |
| \$66,695 | \$39,569 | \$2,409 | .771 | \$83,787 |
| \$164,348 | \$29,839 | \$642 | .970 | \$188,985 |
| \$116,194 | \$86,350 | \$0 | .929 | \$188,164 |
| \$44,954 | \$23,269 | \$0 | 1.021 | \$69,655 |
| \$111,385 | \$130,054 | \$0 | 1.053 | \$254,235 |
| | | \$0 | 1.019 | \$94,852 |
| | ,, | , | | \$1,444,656 |
| | | | | \$40,652 |
| | | | | \$190,223 |
| • | | | \$435,638 | |
| Overneau | X I I OIII | | | Ψ433,036 |
| Total Contract | | | | \$2,111,170 |
| | | | | |
| Project Cost per unit (\$2,111.170 / 63) | | | | \$33,510 |
| Differential from New Clay House project (\$8,489 per unit x 63 units) | | | | \$534,807 |
| | \$3,100 \$19,969 \$109,595 \$58,617 \$146,836 \$20,321 \$66,695 \$164,348 \$116,194 \$44,954 \$111,385 \$41,371 Subtotal Sales Tax Payroll Tax Overhead of | \$3,100 \$45,235 \$19,969 \$11,515 \$109,595 \$61,452 \$58,617 \$64,302 \$146,836 \$82,707 \$20,321 \$8,068 \$66,695 \$39,569 \$164,348 \$29,839 \$116,194 \$86,350 \$44,954 \$23,269 \$111,385 \$130,054 \$41,371 \$51,712 Subtotal Sales Tax Payroll Taxes & Insura Overhead & Profit Total Contract | \$3,100 \$45,235 \$33,300 \$19,969 \$11,515 \$332 \$109,595 \$61,452 \$4,653 \$58,617 \$64,302 \$0 \$146,836 \$82,707 \$3,275 \$20,321 \$8,068 \$0 \$66,695 \$39,569 \$2,409 \$164,348 \$29,839 \$642 \$116,194 \$86,350 \$0 \$44,954 \$23,269 \$0 \$111,385 \$130,054 \$0 \$41,371 \$51,712 \$0 Subtotal Sales Tax Payroll Taxes & Insurance Overhead & Profit Total Contract | \$3,100 \$45,235 \$33,300 1.0 \$19,969 \$11,515 \$332 .924 \$109,595 \$61,452 \$4,653 .958 \$58,617 \$64,302 \$0 .854 \$146,836 \$82,707 \$3,275 .667 \$20,321 \$8,068 \$0 .893 \$66,695 \$39,569 \$2,409 .771 \$164,348 \$29,839 \$642 .970 \$116,194 \$86,350 \$0 .929 \$44,954 \$23,269 \$0 1.021 \$111,385 \$130,054 \$0 1.053 \$41,371 \$51,712 \$0 1.019 Subtotal Sales Tax Payroll Taxes & Insurance Overhead & Profit Total Contract |





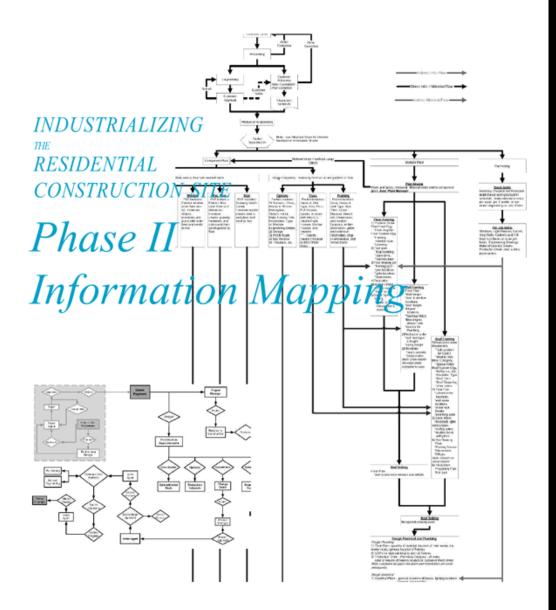
Phase I Overview and Integration

- Completed 2000
- Review of
- Robotics
- Manufactured Systems
- Historic Programs
- Digital Technology
 - •in manufacturing
 - residential construction

Proposed five types of integration necessary to increase, productivity, performance, quality, value in residential construction:

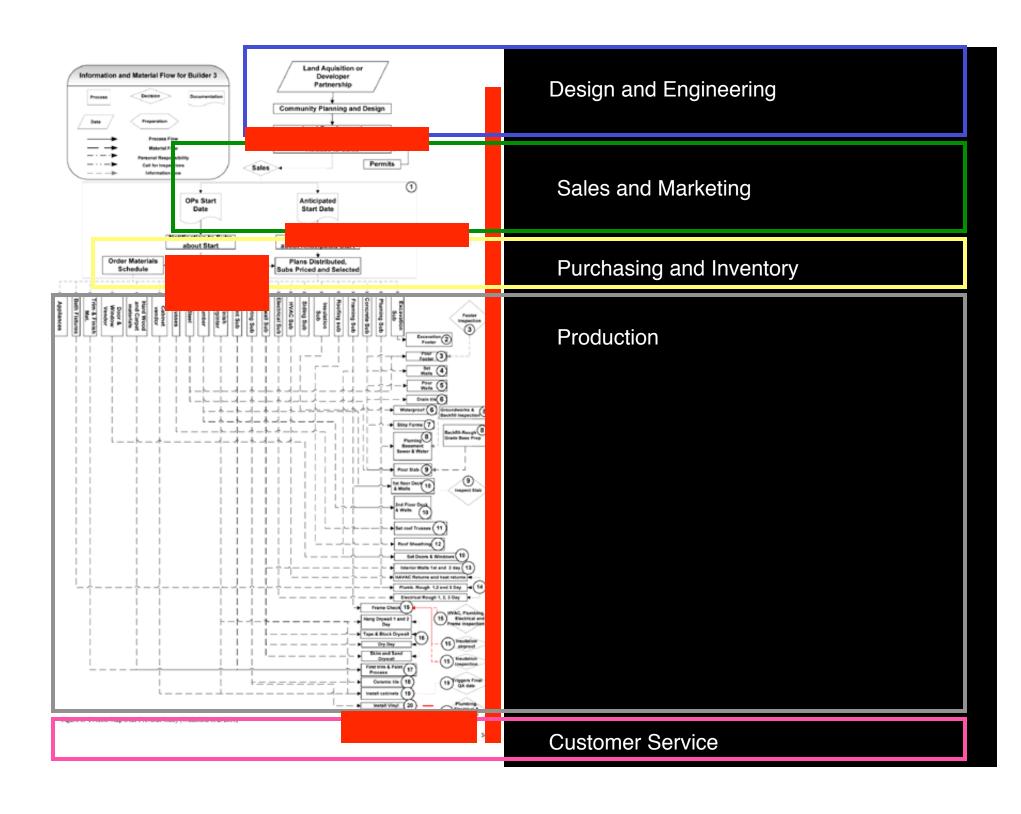
- information
- physical
- performance
- production
- operations





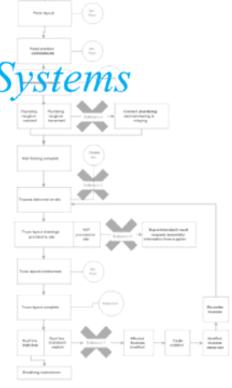
Phase 2 Information mapping

- completed 2001
- studied information flow from sales to service in five production builders
- Found information disconnects and production bottlenecks

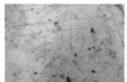


INDUSTRIALIZING
THE
RESIDENTIAL
CONSTRUCTION SITE

Phase III
Production Systems









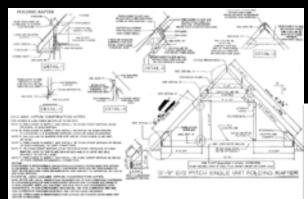
U.S. Department of Housing and Urban Development Office of Policy Development and Research



Phase III Production Systems

- Completed in 2002
- Studied four production builders framing processes in detail
- Identified production bottlenecks
 - at the interface between craft and mass production
 - at the interface between documents and subcontractors







(Rew

House # 41829-30

PREBUILT SINGLE DORMER 2-8x4 6



In DATE

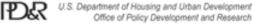
out sate



Phase IV Production Simulation

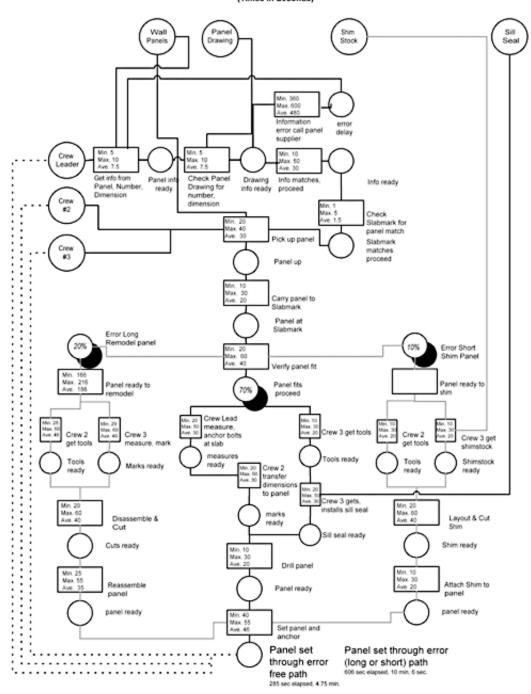
Evaluated viability of simulation methods for residential construction

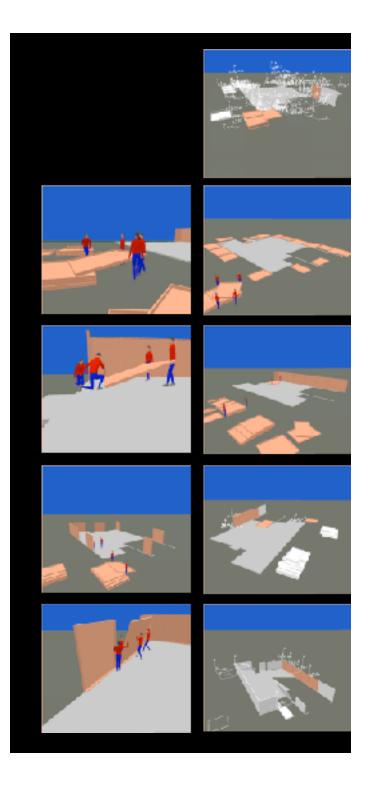
- Graphical / Physics approach
- · Numerical / Petri-Net approach





Simulation Diagram: Wall Panel Setting (Times in Seconds)

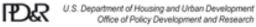






Phase V Virtual Prototyping:

- Develop whole-process simulation
- Evaluate simulation's ability to predict disconnects / bottlenecks
- Develop intuitive connector between petri-net and graphical model
- Towards Total Building Model approach integrating process & engineering in design phase







A Preliminary Method to Develop a Calculator for Evaluating Physical Design Characteristics and Whole House Performance Scoring

Whole - House Design Methods:

- Seeks to minimize losses between
 - domains
 - professions
 - subcontracts
 - subsystems
- To increase performance of the whole
- Employ multi-objective optimization to find largest region of non-inferior solutions
- Develop scoring tool to evaluate & describe whole house performance
- Available at: http://www.huduser.org/publications/ destech/housecalc.html



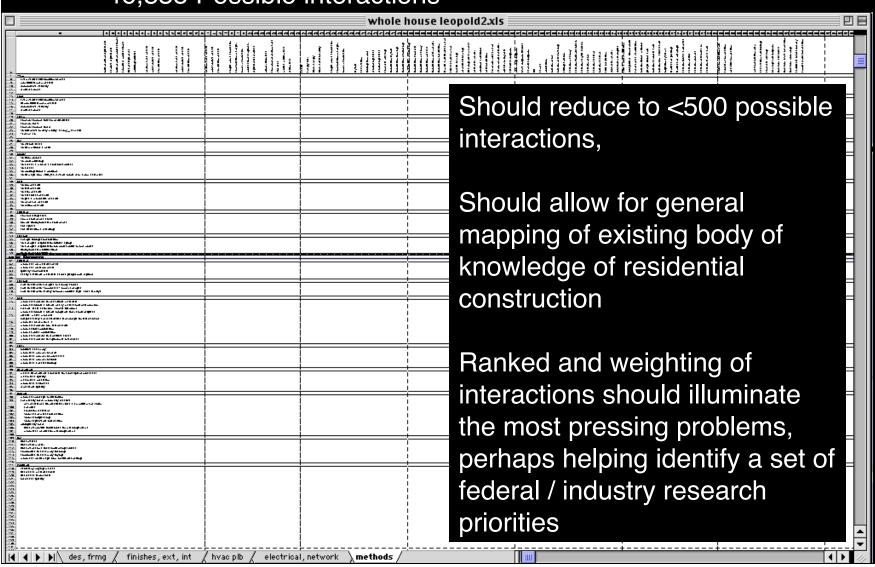
An "N-hard" problem

38 Owner concerns

42 Builder concerns

551 Characteristics

46,835 Possible interactions



Development of a Web-Based Revised Whole-House Calculator



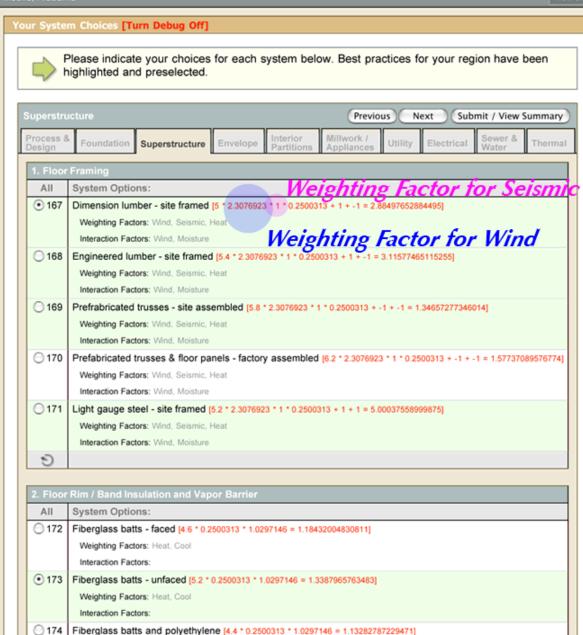
Whole - House Design Methods:

- Revision of first approach
 - web interface
 - location-specific climate data
 - logic-based interaction scores
 - simplified output "report card"
- Focused on new construction
- Intended for design/construction professionals
- Requires extensive knowledge of design and production process
- Viewable at: http://hud.g3.com:8000/

Weighting Factors: Heat, Cool Interaction Factors:

Mobile, Alabama

New Site



- 10 categories of input
 - Process & Design
 - Foundation
 - Superstructure
 - Envelope
 - Interior Partitions & Finishes
 - Millwork & Appliances
 - Utility Distribution
 - Electrical
 - Sewer & Water
 - Thermal Systems

