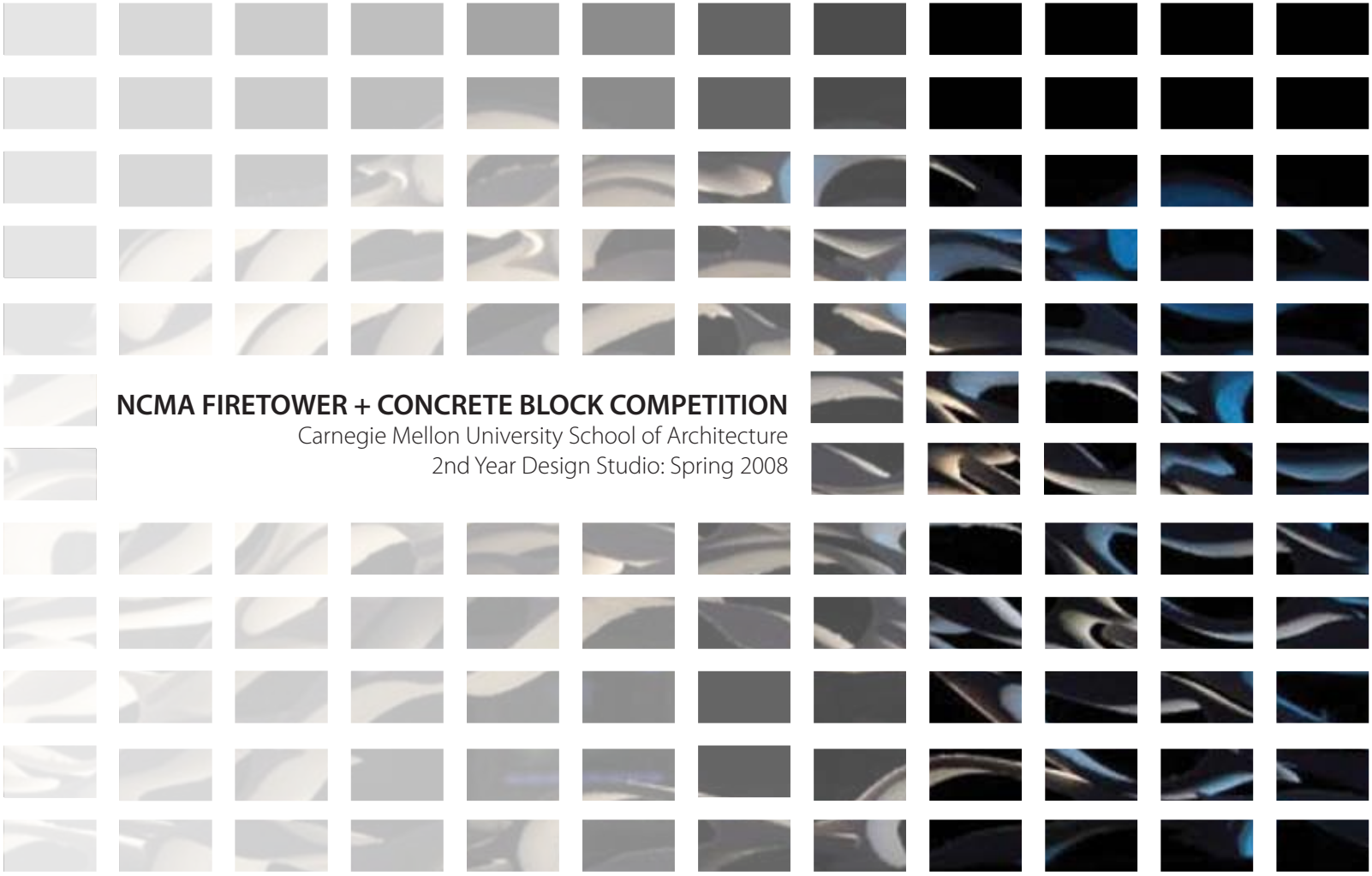

NCMA FIRETOWER + CONCRETE BLOCK COMPETITION

Carnegie Mellon University School of Architecture
2nd Year Design Studio: Spring 2008

SPONSORS

National Concrete Masonry Association
13750 Sunrise Valley Drive
Herdon, VA 20171-4662

Carnegie Mellon University
School of Architecture
201 College of Fine Arts
Pittsburgh, PA 15213

SPECIAL THANKS

David Rozsa, of the NCMA Foundation,
for acting as our liaison during this competition
Jan Boyer, and the Pennsylvania Concrete Masonry Association,
for their endorsement as our local NCMA State Alliance
Don Lampus Sr., and the R.I. Lampus Company,
for their endorsement as a local NCMA Producer Member
Kurt Rosander, of CEMEX,
for agreeing to serve on the design jury as an NCMA rep

FACULTY

Kai Gutschow, PhD, Studio Coordinator
Arthur Lubetz, AIA, Studio Instructor
James O'Toole, Studio Instructor
Tom Price, AIA, Studio Instructor
Spike Wolff, Studio Instructor
Laura Lee, FAIA, Head of the School of Architecture

Booklet edited by Kai Gutschow, designed by Michelle Lopez

NCMA FIRETOWER + CONCRETE BLOCK COMPETITION

2nd Year Design Studio : Spring 2008

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MINDSET

The Spring semester of the 2nd year architecture studio at Carnegie Mellon University (CMU) builds on the students' investigation of composition, concept, and spatial experience in the fall, and demands a more intensive exploration of the role that materials and assembly methods can play in creating a small piece of architecture. Students focus on the scale of the human body encountering the physical presence of building materials, especially the joining of architectural elements. Each of the four studios explores in separate but equal ways how to elevate ordinary construction to poetic expression, and how real materials, structure, enclosure, joinery, craft, and building techniques can lead to significant architecture.

The short-term objective of the NCMA concrete masonry competition at CMU, sponsored by the National Concrete Masonry Association (NCMA) Education and Research Foundation, is to provide a hands-on experience in concrete masonry design at both the scale of the building, and the scale of the individual masonry block. The long-term objective is to inspire interest in concrete masonry among undergraduate and graduate students of architecture. This 2nd annual masonry competition featured two inter-related student design projects that ran concurrently during the first 5 weeks of the spring studio. The first was a "Fire Tower" featuring masonry, and the second was a "Block System" in concrete that students fabricated in styrofoam using a CNC router in the School's new digital fabrication lab. The two projects allowed the students to focus on masonry both at the scale of the overall building, and through details of a masonry block system.

PROCESS

A key aim of the semester pedagogy and the NCMA competition is to develop in each student a robust design process that includes: 1) extensive research; 2) iterative techniques; 3) working simultaneously at several scales; and 4) the ability to communicate results clearly and effectively. It was crucial for students to develop a rich and effective design process that would allow them to understand and synthesize solutions for a wide array of complex issues in a systematic, gradual, and progressive way, making and sticking to important decisions along the way.

The nested, concurrent design projects featured in the NCMA competition were part of this effort, demanding work at several scales, from the site plan and building design to the masonry block, and how it forms part of a flexible, robust system of construction. The "block system," which could become part of the masonry fire tower, was designed with both analog (hand drawings and models) and digital (CAD and rendering) techniques, and was fabricated at a large scale using the school's CNC router in the new digital fabrication lab. In addition, the studio worked closely with a co-requisite "Materials & Assembly" course for technical knowledge, materials research, and to integrate a masonry charette and masonry-related field trips into the design process.

PROJECT BRIEFS

Project 1 : Fire Tower Featuring Masonry

Each student was to design a Fire Tower, featuring masonry construction, adjacent to the South Side Works in Pittsburgh, Pennsylvania. The tower was to function both as a poetic landmark for the community, and as a functional fire training tower for the fire department. Part of the charge was to conceptualize and invent the precise program, function, and use of the tower in terms of identity, fire training, possible use in community events, historic or symbolic meanings, as well as its relationship to the South Side works, to the adjacent industrial parks, to the historic South Side, including the former J&L steel works on the site, or to the Monongahela river and greater Pittsburgh.

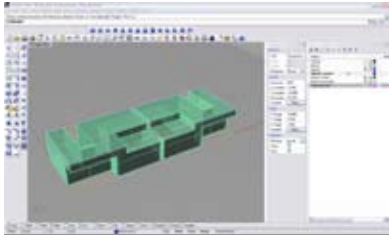
Project 2 : Block System in Concrete

For this project, the students (as groups) were to design, and digitally fabricate on a CNC mill, a flexible "family" or "system" of masonry block components that could be dry-stacked, arranged to "turn the corner," and begin to "frame an opening." Students were allowed to work at any size or scale, though due to the budget, time, and machine limitations, each team was limited to a single sheet of 4'x8'x4" Styrofoam, and was required to minimize the "left over" material and waste. When cut out, the blocks were to be assembled without glue to display the inherent design potential of each groups' block system, including the variety of configurations that are possible. The goal was to have students experience the opportunities (& limitations) of working at close to 1:1 scale, of designing with a single, stackable building component, and of finding ways to go beyond the limitations of off-the-shelf blocks and integrating the design and fabrication processes more closely.

MASONRY INSTRUCTION

Technical knowledge related to concrete masonry was delivered in the co-requisite course 48-215 "Materials and Assembly", taught by Prof. Steve Lee. Students in 48-215 received at least two weeks of lectures on concrete masonry construction techniques, as well as a week of "building physics" related to the energy and related technical data about concrete masonry construction.

In addition, Prof. Lee organized four hands-on field trips, including one to the "Bricklayers and Allied Crafts, Local 9" training center in Wilkins Township, PA, on Jan 24, 2008. The class divided up into teams of 4-5 students, and each chose a masonry oriented name (e.g. team Vusoir, Team Corbel). Their charge was to design a portion of a masonry wall exploring the issues of pathos, opening, texture, pattern, coursing and/ or bonding using eighty (80) standard modular bricks and ten (10) eight inch concrete masonry units. They documented their design with a plan/ elevation drawings at a scale of 1 1/2"=1'-0", to bring to the hands-on workshop, then documented the completed construction with digital photos and measurements, presenting work on the ANSI B drawing template, including dimensions, notes, photos, plans, elevations and an axo.



DIGITAL FABRICATION

While computing as a design tool has been in use for more than forty years, only now has its presence permeated further into the practice of architecture, especially in its relation to construction. Boundaries between architect, consultant, fabricator, and contractor are shifting, and new approaches to building are emerging with the digital building model as the instrument of communication throughout the process, from "file to factory." Digital fabrication gives the architect both more control over the design-to-building process, and more flexibility, as they are no longer only limited to off-the-shelf components and standard mass-production techniques.

The modular nature of the concrete block, its elemental and tectonic assembly through "stacking," and even its heavy weight, make it particularly suitable for innovations through digital fabrication and assembly. Research and teaching investigations such as those by Monica Ponce de Leon at Harvard funded by IMI, by Gramazio and Kohler at the ETZ in Zurich, and elsewhere, are making clear the value for architecture and for the masonry industry of exploring the opportunities "digital masonry." The "Block System" project presented here was a unique opportunity for students to explore the kind of thinking, software, and techniques of working that open up with the new digital fabrication technology available to architects today, and how they might begin to inform their design process and the construction implications.

Architecture Studio: 2nd Year Spring '08
Spring 2008, CMU, Arch #48-205, M/W/F 1:30-4:20
Class Website: www.andrew.cmu.edu/course/48-205

Coordinator: Kai Gutschow
Email: gutschow@cmu.edu
Off. Hr: M/F 12:00-1:00pm & by appt. in MM202

(3/12/08)

PROJECT 1 - FIRE TOWER

MINDSET: Building on our investigation of composition, concept, and spatial experience last semester, we will undertake a more intensive exploration of the role that materials and assembly methods can play in creating a small piece of architecture. We will focus on the scale of the human body encountering the physical presence of building materials. We seek to explore how to elevate ordinary construction to poetic expression, how real materials, structure, enclosure, joinery, craft, and building techniques can lead to significant architecture. A key focus of the studio is on the joining of architectural elements, especially of concrete masonry and other materials.

PROJECT: Your charge is to design a Fire Tower, featuring masonry construction, adjacent to the South Side Works. The tower is to function both as a poetic landmark for the community, and as a functional fire training tower for the fire department. Part of the charge is to conceptualize and invent the precise program, function, and use of the tower in terms of identity, fire training, possible use in community events, historic or symbolic meanings, as well as its relationship to the South Side works, to the adjacent industrial parks, to the historic South Side, including the former J&L steel works on the site, or to the Monongahela river and greater Pittsburgh.

PROGRAM: You are charged with inventing the exact program brief for the Fire Tower according to the criteria listed above, and creating a building with the following constraints:
- it must fit within a 24'x24' footprint, except for small cantilevers above
- it can be no more than 75' tall to its tallest point
- it must contain multiple interior levels, though not necessarily "full" levels
- one interior stairwell must connect each level with the other. At a minimum, firemen must be able to drag their hoses up this stairwell.
- at least one "room" and one part of the stairwell must be fully enclosed, for possible use as a "burn room" and "smoke stair" for fire training.
- for pedagogical, symbolic, contextual, and funding purposes the tower construction must "feature masonry" (i.e. much of the building should be made of masonry, particularly concrete block). Emphasis should be placed on the joinery of masonry units to each other, and to other materials.
- it must contain at least one wall-opening, and one roof-top access-point for a fire ladder truck to approach and train firemen to enter the building.
- as a result, the tower must be sited and contain hard-scape paving such that a long ladder truck can approach, maneuver, and leave the site.

PROCESS: A primary goal of the studio is to foster a robust design process, including enriching your work through: 1) extensive research; 2) iterative techniques; and 3) working simultaneously at several scales, from corner detail to site plan. As part of this effort, all students will design a masonry "block system" concurrently with this project. This "block system," which may become part of the masonry fire tower, will be designed with both analog and digital techniques, and will be fabricated at a large scale using the school's CNC router in the new digital fabrication lab. In addition, the studio will work closely with the M&A course to do materials research, and to integrate a masonry charette and masonry-related field trips into the design process.

DELIVERABLES: This is a short project, with many phases, requiring you to work quickly and effectively, and to commit to early ideas in order to resolve your design from the level of site plan, to the masonry block details. The final presentation requirements will be determined at mid-review, but will include large scale details and your "block system" design. Those dealing extensively with concrete block will be entered into an NCMA competition.

THE SITE: The site is a prominent site just east of the current South Side Works development in Pittsburgh, along the Mon River, at the bridgehead to the Hot Metal Bridge. The cleared and ready-to-build construction site is bounded by Hot Metal St. to the north, S. Water St. (and the bike trail and river) to the east, the existing parking lot for the UPMC Sport Medicine complex to the south, and a heavily used, sunken freight rail track to the west. It is serviced by bus 59U.

You may place your Fire Tower anywhere on this site, though for safety and access reasons, you must be able to drive a "Ladder Truck" up to it on all sides, so it must be setback from all sidewalks, train tracks, and parking lots. All site plans should show in light graphics the turning radius of a truck.

Although your project is to design a Fire Tower, your proposal should engage the entire site. Do not create a tower in isolation: demonstrate how your tower engages the site, how the site can be shaped to embrace the tower, making it part of a larger urban and cultural fabric.

Architecture Studio: 2nd Year Spring '08
Spring 2008, CMU, Arch #48-205, M/W/F 1:30-4:20
Class Website: www.andrew.cmu.edu/course/48-205

Coordinator: Kai Gutschow
Email: gutschow@cmu.edu
Off. Hr: M/F 12:00-1:00pm & by appt. in MM202

(1/18/08)

PROJECT 2 - BLOCK SYSTEM

MINDSET: This project is intended to enrich the design process of the Proj.1 Fire Tower by engaging in architecture at the level of detail, by fabricating models of masonry building components at the scale of 1:1, and by seeking to understand the opportunities (and limitations) of working with a single, elemental building material. In addition, the project will introduce some of the thinking, software, and techniques of working with the new digital fabrication technology available to architects today and how they might begin to inform our design process.

PROJECT: Your charge is to design and digitally fabricate a flexible "family" or "system" of masonry block components that can be dry-stacked, arranged to "turn the corner," and begin to "frame an opening," within the following constraints:
- All the components, including any kind of kind of lintel or spanning member, must be milled out of a single block of 4'x8'x4" white foam using a large, flatbed CNC router, using only 2D tool path files (more on these technical limitations in a lecture by Jeremy Ficca)
- For efficiency reasons, we will be milling foam, as a substitute or model of a real building material. In order to integrate with the Fire Tower project, your design should model a high-end, custom concrete block of some kind (concrete can be formed in many shapes, colors, textures, etc.). Remember, however, to consider both the final design of the white foam model as an object in itself, as well as the "real" blocks you are representing and modeling.
- Your "system" may include as many different kinds of blocks as you wish.
- Your blocks may be any "size" you choose, and can be at any "scale" to a "real" building material (i.e it's fine to create "miniature" versions of "real" blocks).
- No matter what the "size" or "scale" of your blocks, you should work at a 1:1 scale in your analog and digital drawings, and models. A recommended starting size is 5"x2"x2": blocks that are much smaller will not work well with the grain of the foam, the size of the router bit, and will be too light weight to assemble. Blocks that are much bigger will not yield enough blocks to assemble into a meaningful "system"
- You should work to maximize the overall number of blocks you can cut out of a single sheet of foam, while minimizing the "left over" material and waste.
- When cut out, the blocks should be assembled without glue to display the inherent design potential of your block system, including the variety of configurations that are possible. To stabilize the lightweight material, toothpicks may be used to keep small foam pieces in place during assembly and display, but should not form structural components of your system.

You will be evaluated on: 1) the formal design quality of the set of individual blocks and their relation to each other; 2) the experiential qualities of the overall system in aggregate, including the connections, texture, perforations, and their ability to turn the corner and create and opening; and 3) the efficiency with which you create the "2D nested milling drawing" and "tool path" files and use the foam. The results will be exhibited and reviewed during the same week as the Fire Tower reviews, and considered as part of an in-house competition sponsored by the National Concrete Masonry Association to promote student research.

PROCESS: In order to make efficient use of time, and to maximize the learning potential for all, we have scripted the design constraints and fabrication process quite closely according the following schedule (subject to change):

Fr. 1/18 - lecture by Jeremy Ficca on the technical constraints imposed, and the opportunities afforded, by the CNC router and the configuration in which we intend to use it, including issues of router-bit size, limiting cuts to 2D tool paths, efficient use of the material, creating the "nested milling darwing" and the "tool path files" from Rhino and other digital drawings.
- all students start individual Block System designs .
- each studio divides into 3 groups, and each group begins "Masonry charette" to design a small installation in masonry, to be constructed 1/24 (see M&A)
- discussion by students and studio instructor about the inter-relationship of the "Block System" project, the "Masonry Charette" and the Fire Tower, including any unique focus in the studio, and the assignment over the long MLK weekend.

Mo. 1/21 - NO STUDIO - MLKHoliday. Work independently on the Block System and Fire Tower, and in groups on the Masonry Charette
Tu. 1/22 - Wats:ON Lecture by Kazuyo Sejima (SANAA), 7pm, McConomy
We. 1/23 - Review "Masonry Charette" group projects
- Crit progress on indiv. Block System project
- Crit progress on Fire Tower

Th. 1/24 - M&A Field trip to masonry apprentice center
Fri. 1/25 - DUE: analog physical model of one block, 3D rendered model in Rhino or similar, "shaded elevation" drawing of wall
- Review indiv. Block Systems.
- Based on block designs, divide each studio into 3 fabrication groups

Mo. 1/28 - DUE: Analog physical model, Rhino model, Shaded Elevation
- Crit group Block Projects (P. Lewis guest ?).
- Crit Fire Tower
- Velux Lecture by Paul Lewis of LTL Architects, NYC (www.ltlwork.net)

We. 1/30 - Crit group Block Project
- Crit Fire Tower

Fr. 2/1 - DUE: Analog Model, Rhino model, Shaded Elevation drawing, & Nested Milling Drawing.
- Mid-review of group Block System.
- Crit Fire Tower

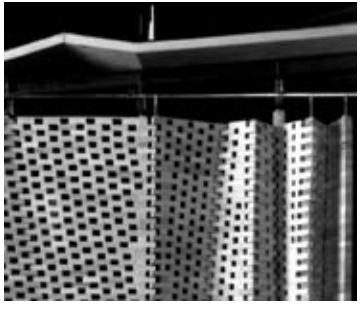
Sa. 2/2 & Su. 2/3 - Begin creating "tool path files," and begin routing 2x2 foam practice pieces in dfba lab (sign up for 1-hour slots all weekend)
Mo. 2/4 - MID-REVIEW - Fire Tower (Lubetz + Wolff; O'Toole + Price)
- Milling of 2x2 practice pieces (evening)

Tu. 2/5 - Milling of 2x2 practice pieces
We. 2/6 - DUE: Analog model, Rhino model, Shaded Elevation & Milling Drawing
- Review final group Block Project
- Revise & finalize Nested Milling Drawing. Then no work in dfab lab until Sat. 2/9
- Crit Fire Tower

Fr. 2/8 - Crit Fire Tower
- Dfab Lab Grand Opening event, evening

Sa. 2/9 - Sign up for slots in dfab lab to create final toolpath files for 4x8 foam and start routing. Continue all week in evenings (sign up for slots).
Mo. 2/11, We. 2/13 - Crit Fire Tower
Fr. 2/15 - Finish all milling and work on group Block System
Su. 2/17 - Deadline for work on Fire Tower
Mo. 2/18, We. 2/20 - FINAL REVIEW for Proj.1 Fire Tower & Proj.2 Block System
Fr. 2/29 - DUE: Project Documentation for Proj.1 & for Proj.2
TBA - possible NCMA competition jury

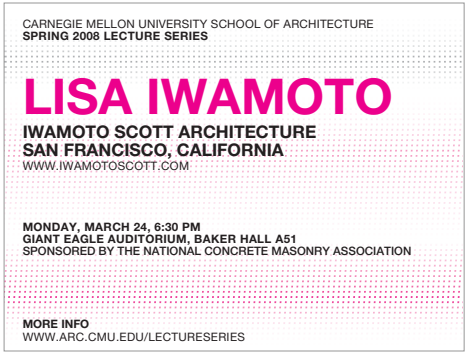
(See attached calendar for overview)

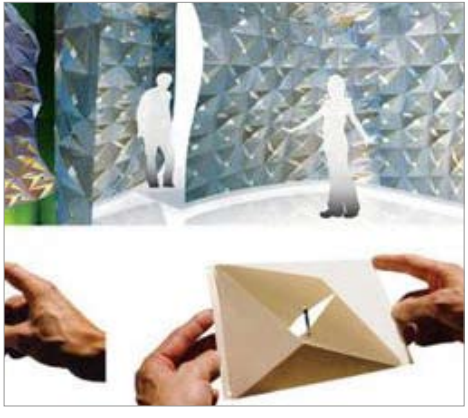


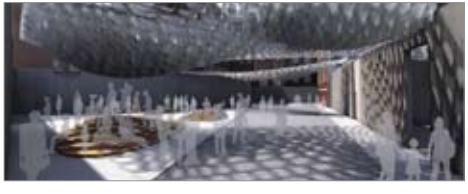
THE JURY

A distinguished jury of local architects, professors, and concrete masonry industry reps met on Fri. Mar. 21, 2008, to review, discuss, and decide on the winners of the Firetower and Block system projects. As per NCMA competition guidelines, judging was both quantitative and qualitative, and assigned separate point totals to each student project in the categories of aesthetic quality, programmatic concept, innovative use of concrete masonry, functional use of concrete masonry, and constructability.

Overall, the jury was enthusiastic about the high level of the 2nd year student work. For the "Firetower featuring Masonry", the jury commended the program's attempt to improve on the functionality of a usually unremarkable building type, and the many strong presentations, though it wished for a greater focus on the detailing of concrete block as either an appropriation of existing conventions, or a projection of alternative assemblies. For the "Block System" project, the jury was particularly enthusiastic about large-scale, tangible Styrofoam block models that were displayed alongside the presentation boards, and praised the project's ability to allow the students to experiment with, and fabricate a complete system of life-like blocks that begins to explore how digital fabrication may begin to change how we produce, assemble, and design with concrete block.







JURORS

Dutch MacDonald, AIA, CFO of Maya Design
Ron Dulaney, architect at Bohlin Cywinski Jackson
Lee Calisti, AIA, architect at LeeCalisti Design
Kurt Rosander, CEMEX (NCMA Rep.)
Jeremy Ficca, AIA, Asst. Prof., CMU
Moderator: Kai Gutschow, PhD, Assoc. Prof, CMU

AWARDS LECTURE

CMU and NCMA announced a public lecture on March 24, 2008, featuring Lisa Iwamoto of the firm Iwamoto Scott, a San Francisco based architecture and design practice she leads with her partner Craig Scott, to cap off the NCMA student design competition. Professor Iwamoto's research and exploration into digital fabrication, digital modeling, and parametric design practices, both with her firm, and in her work as an Associate Professor at Berkeley, fit well with the intent of the 2nd year studios and the NCMA competition the school engaged in. Her firm continually rethinks the use of new technology, both in the design process, and in fabrication, from the scale of the building element to urban environments.

After the lecture, as part of a larger departmental awards ceremony, Prof. Kai Gutschow, and David Rosza of the NCMA Foundation, announced the competition winners and handed out awards. A Grand Prize, and Runner-Up, as well as several honorable mentions were awarded for each of the two projects.

AWARDED PROJECTS

Project 1 : Fire Tower Featuring Masonry

1st Place	Adam Aviles
2nd Place	Karen Branick
Honorable Mention	Matthew Huber
Honorable Mention	Kaitlin Miciunas

Project 2 : Block System

Grand Prize Team	Mekha Abraham, Karen Branick Daniel Hudock, Ranjit Korah, Lindsay Mannion
Runner-up Team	Elizabeth Duray, Bum Yeol Kim Kaitlin Miciunas, Giacomo Tinari
Honorable Mention	Patrick Amorosa, Max Arocena, Samantha Carter, Jarrod Coleman, Katherine Kokoska

1st Place: Adam Aviles

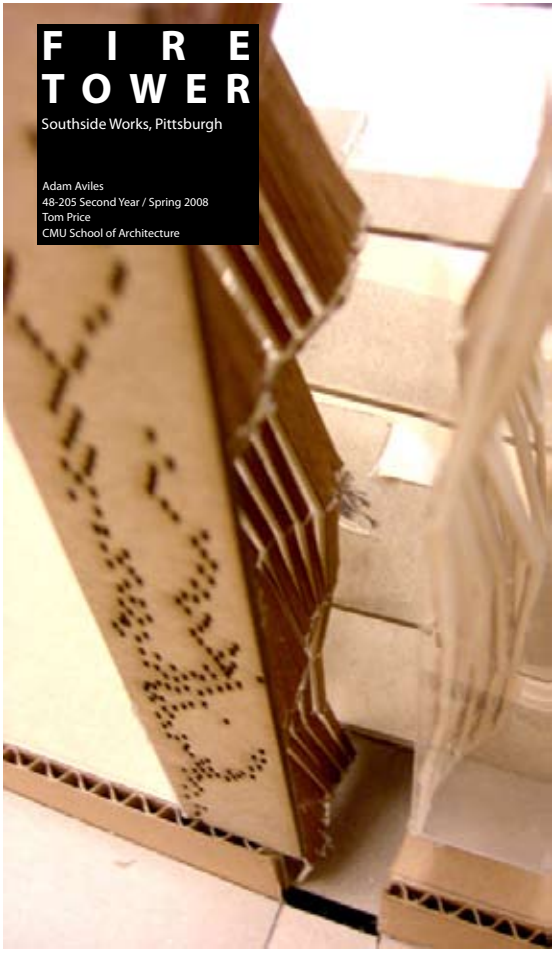
Firetower Featuring Masonry
Instructor: Tom Price

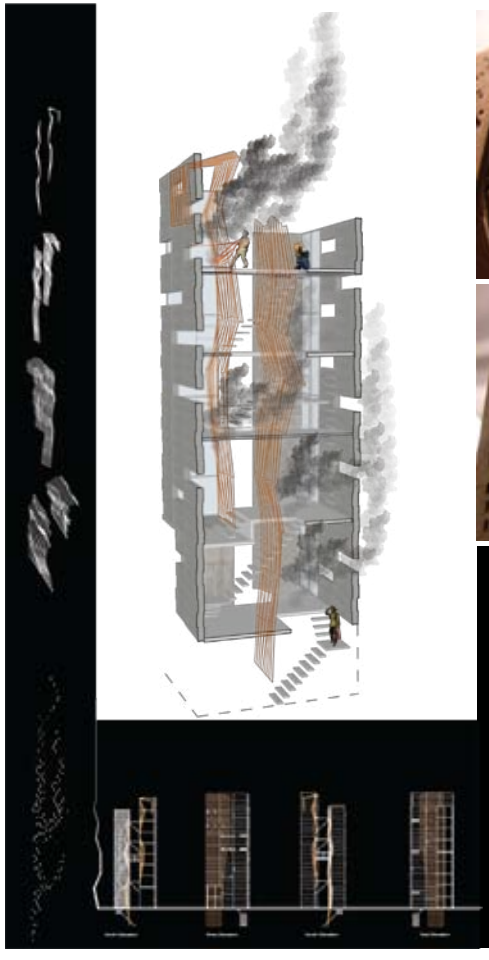
"This Firetower offers a clear diagram that expresses the power of fire and concrete block in a straight-forward way, and leads to a good balance of form and idea. Details such as the perforated masonry wall generate both surface variation and light modulation, as well as a visible symbol of the fire inside. The masonry is confronted almost as one confronts a fire: it is with respect and care, without the use of tricks."

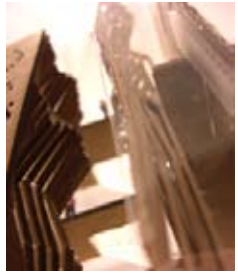
FIRE TOWER

Southside Works, Pittsburgh

Adam Aviles
48-205 Second Year / Spring 2008
Tom Price
CMU School of Architecture







STATEMENT

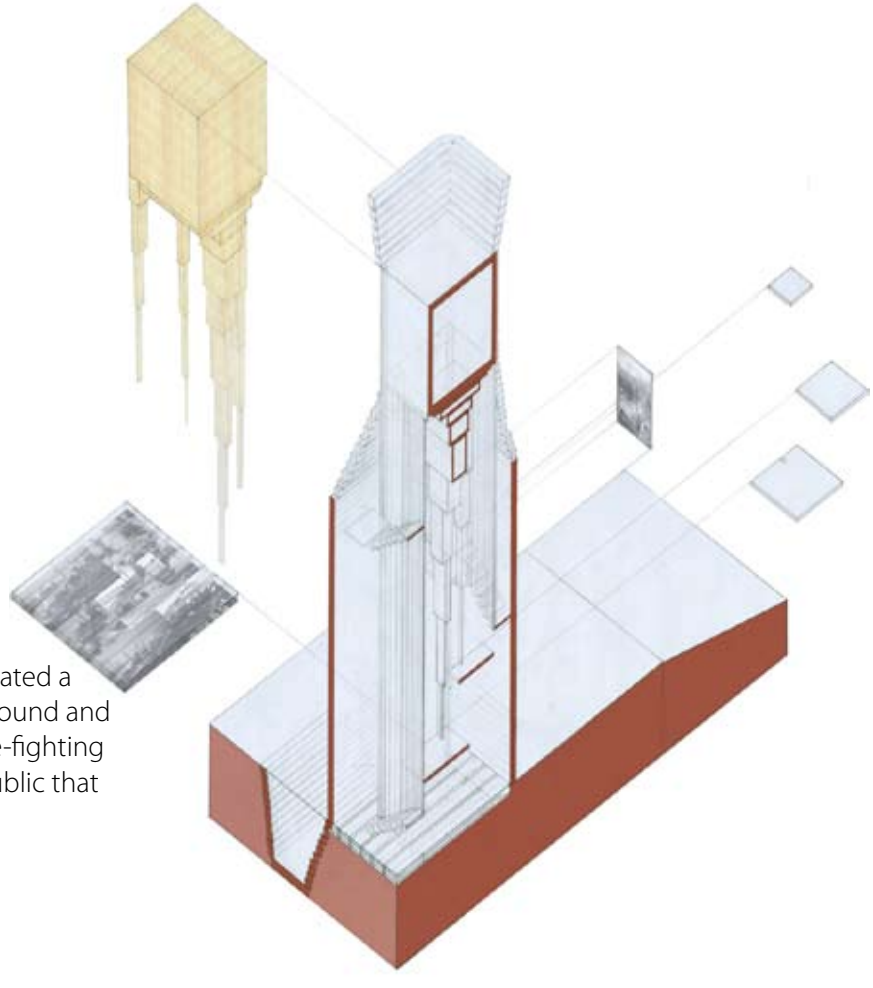
For my firetower, I focused on fire and how this natural element can mold and transform space. When approaching the site, I found there to be a gap between the commercial and residential areas, the Hot metal Bridge and the river it was suspended over, and between steel and water. I took that "gap" and placed it in my architecture. this gap's for was 'formed by fire' in that it was contradictory to the rigid cast in place concrete walls of the exterior. This gap was to be made of 1/2 inch thick steel planks that shifted according to the transformative qualities of fire. These planks pushed and pulled, transforming the floor surface and creating variation. lastly, when focusing on masonry, I used standard CMU's to create the front facade. In certain places, the head mortar joints between CMU's were left out leaving that inherent "gap." Collectively, these subtractions worked together to create an iconic symbol of fire-thus informing distant travelers know what the building's significance was.

adam aviles

2nd Place: Karen Branick

Firetower Featuring Masonry
Instructor: Tom Price

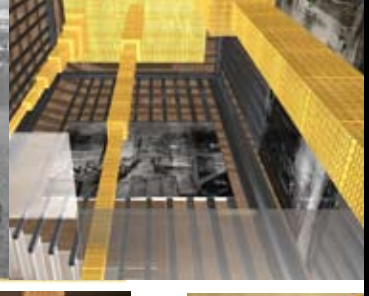
"Highly articulated drawings successfully communicated a simple concrete masonry shell that rises from the ground and hides a glowing, perforated metal burn-room for fire-fighting practice, and a display of historical images for the public that ventures up the stair."



FIRE TOWER

Southside Works, Pittsburgh

Karen Branick
48-205 Second Year / Spring 2008
Instructor: Tom Price
CMU School of Architecture



STATEMENT

As the Southside develops into a new commercial area, the history of the site is largely ignored. My fire tower provides both a functional space for firemen to train as well as a public space for the visitor to reflect on the industrial history of the site. The burn room, clad in perforated metal, glows when activated and "drips" into the interior core of the building. These drips provide a space for the fire to be ignited. The interior core is shielded from the newer, superficial Southside Works. Historical images within the core along with the limited views to the site encourage the visitor to reflect on how the site was in the past, how it is in the present, and where it may go in the future. As a visitor ascends the stairs, small slits in the brick wall provide light without offering a view out. Futhermore, the historical images attached to the steel stair suppports are images mosaics. A visitor on the stairs would see a series of smaller images, whereas someone inside the core on one of the three "viewing platforms" would see a large singular image (composed by the smaller images).

Karen Branick

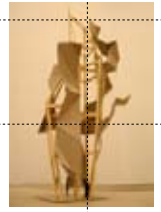
Honorable Mention: **Matthew Huber**

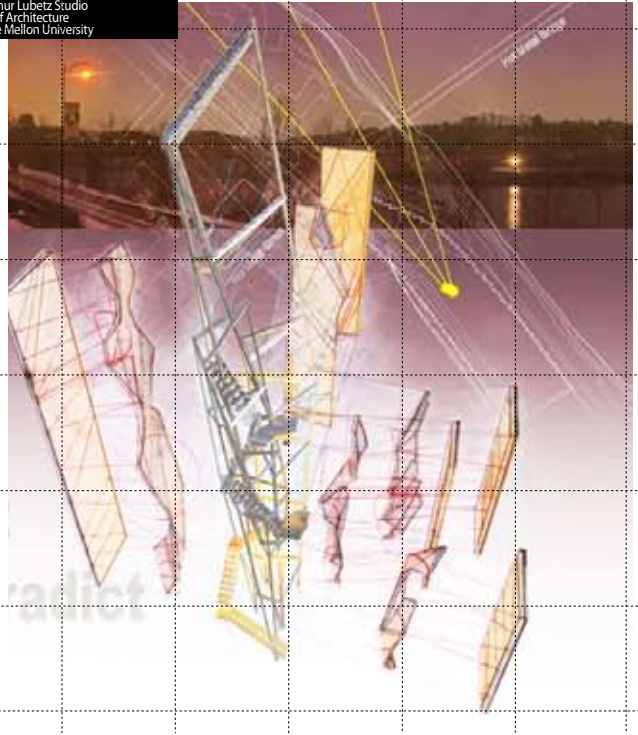
Firetower Featuring Masonry
Instructor: Arthur Lubetz

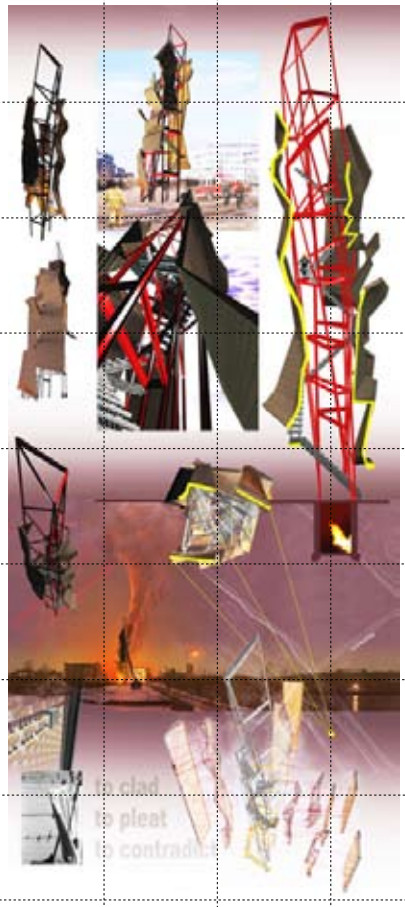
FIRE TOWER MONUMENT

south side works, pittsburgh, pennsylvania

Matthew Z Huber
s08 | Arthur Lubetz Studio
School of Architecture
Carnegie Mellon University







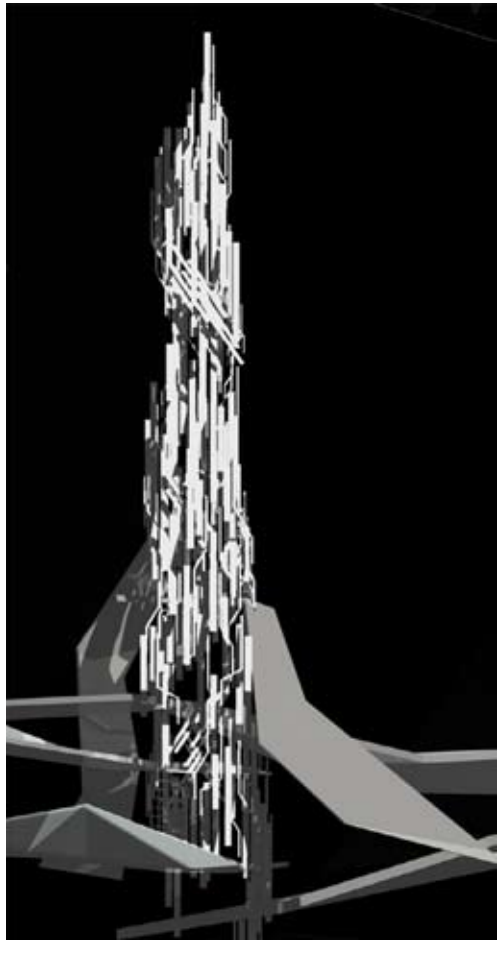
STATEMENT

Historically, the site proves contradictorily iconic: from industrial to corporate; from function as image to image as function. The fire tower-monument hybrid offers an opportunity to exacerbate this relationship.Disruption is achieved through three tactics: to clad, to pleat, to contradict. To clad: to apply for appearance or protection. Like a carpet on a clothes line, cladding is suspended from structure. As surface it defines space, as decoration it deceives. To pleat: to fold, to unfold, to refold, to implicate, to explicate, to complicate. As in a Baroque dress, the pleat autonomizes skin from body, interior from exterior. A constancy of discontinuity and a billowing of the infinite arise. To contradict: the fragment as the whole, the heavy as the light, masonry as curtain. Assumptions are startled by ambiguity.
This project questions the role of masonry in contemporary architecture. Once a material of mass, presence and tactility, it is reduced to surface treatment, to veneer: *earth as wall paper.* Masonry, heavy by its nature, succumbs to gravity. Nature is inverted: the masonry sheathing defies the rational, the tendency toward bottom-up accumulation. It floats, or rather is suspended, dependent upon a hidden system. Revealing, it peels upward, retreating from its primordial origins. Creasing, folding, pleating? The final rejection of mass. What does brick want to be? Certainly not a curtain.

| Matthew Z Huber

Honorable Mention: **Kaitlin Miciunas**

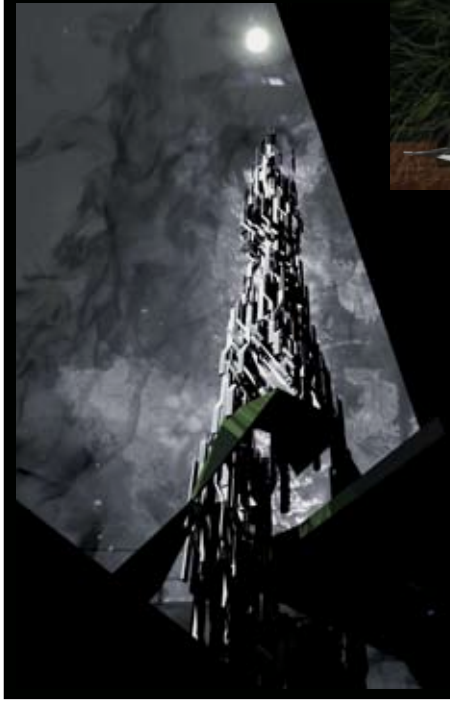
Firetower Featuring Masonry
Instructor: James O'Toole



F I R E T O W E R

Southside Works, Pittsburgh

Kaitlin Miciunas
48-205 Second Year / Spring 2008
Instructor: O'Toole
CMU School of Architecture

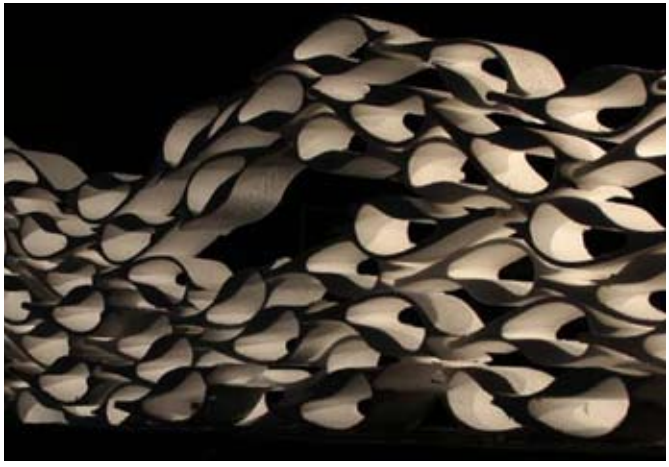


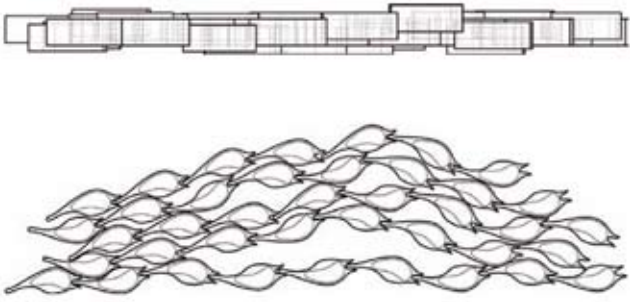
The fire tower reflects the imperfections of the wounded site in dialogue between present development and reveries of the steel mill past through decomposition and exaggeration. I am interested in the paradigm of destruction enabling growth in a way that becomes a visual narrative of reference to additive construction over time. In this way, the incisions in the earth expose foundation of the past and create community viewing platforms as well as pathways to the architectural event of the fire. Also, the masonry system allows for exposure, transparency and porosity of a solid material in its formal decomposition and offset planes, o create a pattern defined by the soot of use over time. Kaitlin Rose

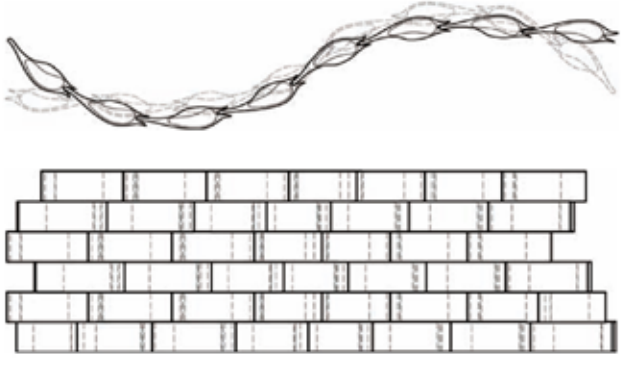
Block System
Instructor: Tom Price

Grand Prize Team: **Mekha Abraham**
Karen Branick
Daniel Hudock
Ranjit Korah
Lindsay Mannion

"A sophisticated system that is both expressive and functional, with a clear strategy of joinery and performative characteristics. A rigorous geometry is concealed by flowing forms that intrigue both at the scale of the individual block, and the overall wall. The wall can be built in two configurations: as a load-bearing, non-orthogonal wall that filters light, and as a delicate yet animated porous screen. A building or wall of this material would certainly challenge our notion of a concrete masonry structure."







STUDENTS' DESIGN STATEMENT

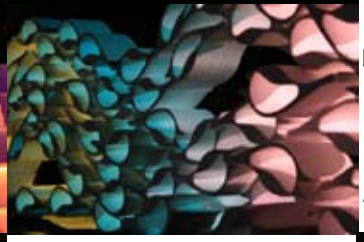
While still similar in scale to a standard masonry unit, the individual components of the block system offer a more versatile masonry unit through multiple orientations. The system can be constructed either as a non-load bearing screen wall, or as a more structural load-bearing wall that is able the maneuver freely in corner conditions. Both orientations seemingly trap light within interior pockets in the individual blocks to create a glowing interior-exterior contrast. Varying uses of artificial colored light inside and outside of the system evokes unique perceptions of volume, space, and tactility from individual viewers.

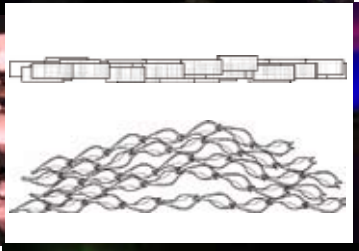
This singular block component is designed such that the same black can be used to make arrangements of nearly infinite possibilities with the two different methods of orientating the blocks. When arranged in one configuration, the blocks' design allows them to interlock from end to end as well as on top of one another with joints and inherent curvature which allow for different angles of connection and various form-making possibilities. In the second configuration, the blocks' connections allow for sweeping curvature in plan. The porosity created by this configuration allows for a unique light diffusion that is unachievable with traditional concrete block.

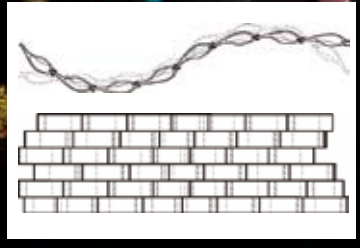
BLOCK SYSTEM

Digital Fabrication of Masonry

Lindsay Mannion
48-205 Second Year / Spring 2008
Instructor: Tom Price
CMU School of Architecture







STATEMENT

In this block system, the very simplest capabilities of the cnc routing machine were exploited to create a versatile and interesting component. This singular block component is designed such that the same block can be used to make arrangements of nearly infinite possibilities with the two different methods of orientating the blocks. Both arrangements create captivating visual experiences though their filtering of light and creation of form and depth in two very different, yet equally exciting, ways. When arranged in one configuration, the blocks' design allows them to interlock from end to end as well as on top of one another with joints and inherent curvature which allow for various different angles of connection and endless flowing form-making possibilities. This creates a situation in which the very building of the system becomes variable and dynamic. The same is true for the second configuration in which the blocks allow for sweeping curvature in plan and undulation in each block face as well as porosity and therefore unique light-transfering capabilities that are unachievable with traditional concrete block.

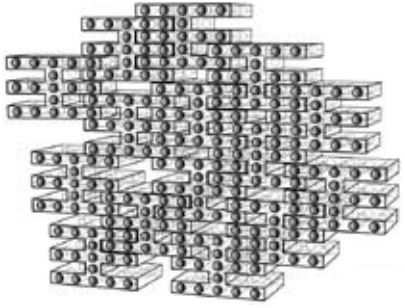
Lindsay Mannion

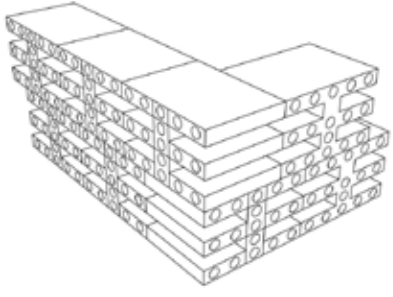
Block System

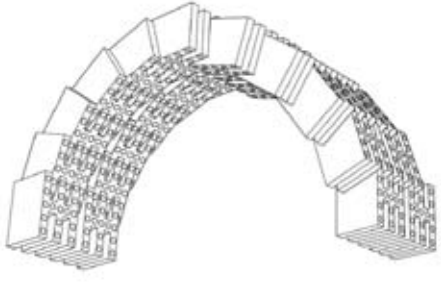
Instructor: James O'Toole

Runner-up Team: **Elizabeth Duray**
Bum Yeol Kim
Kaitlin Miciunas
Giacomo Tinari

"A compelling play off of existing concrete masonry units that can be stacked or interlocked to create either conventional orthogonal walls, or highly textured walls, and even cantilevered and vaulted spaces. The holes provide both ornamental patterns and a handhold for picking up the blocks."







STUDENTS' DESIGN STATEMENT

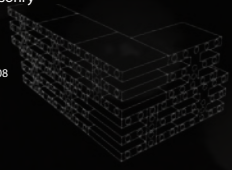
The strength of the concrete masonry unit lies in its physical tangibility and accumulative manipulative nature. But it lacks in compositional flexibility. The gravitational dependence of the ordinary brick inhibits masons from being able to form complex three dimensional structures and spaces. By integrating finger-like joining components within the block, an expansive opportunity is available.

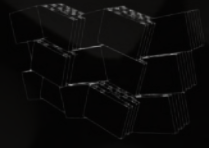
This simple method of joining allows for multiple possibilities in composition and orientation to one another eliminating necessity for dependence on simple stacking. This redefines the characteristic of the block, literally overlapping the boundaries between units in some configurations or creating micro boundaries within the unit in others. The boundary between units dissolves in the pattern-making of the drilled grid to suggest a whole greater than its parts. Units are scaled in relation to the human body for easy interaction with human hands: the holes serve both as finger sockets, and as ornament to create surface texture.

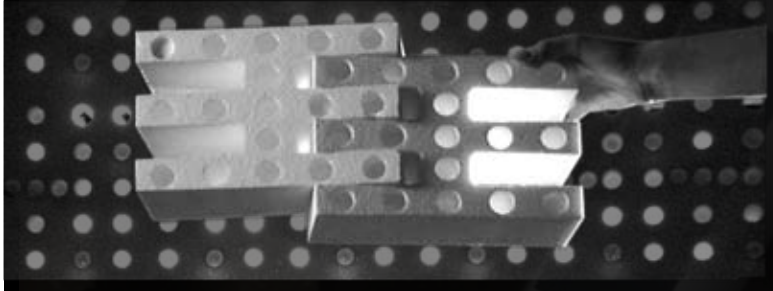
BLOCK SYSTEM

Digital Fabrication of Masonry

Kaitlin Miciunas
Liz Duray
Giacomo Tinari
48-205 Second Year / Spring 2008
Instructor: O'Toole
CMU School of Architecture







STATEMENT

The block system is based on the idea of one component with a great variety of ways for connection using friction rather than gravity. When combined, the surface can then be hung, and easily manipuplated and reformed to make something entirely new. The pockets holes form a grid that begins to manipulate light in the different distances of the small film of foam left from the pocketing technique. This allosws for light to come through and creates a sytematic aesthetic, encouraging the component combination as something greater in when combined.

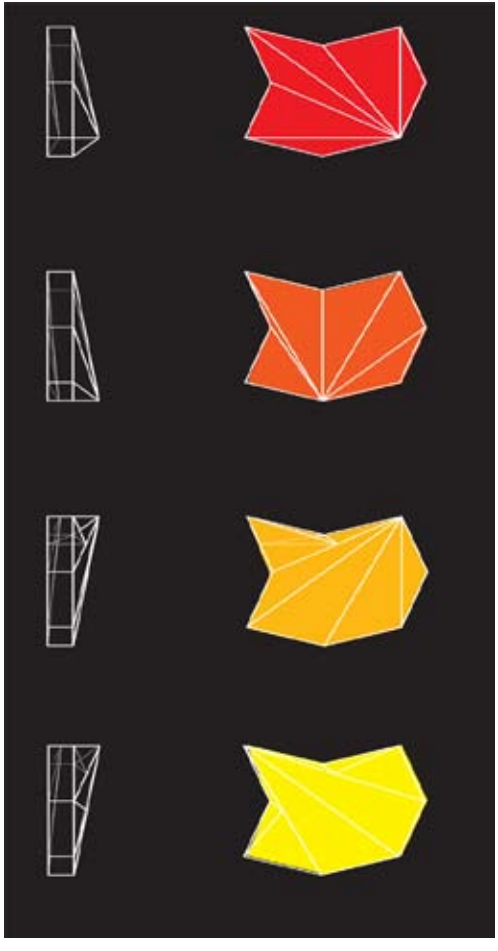
Kaitlin Rose

Block System

Instructor: Arthur Lubetz

Honorable Mention: Patrick Amorosa
Max Arocena
Samantha Carter
Jarrod Coleman
Katherine Kokoska

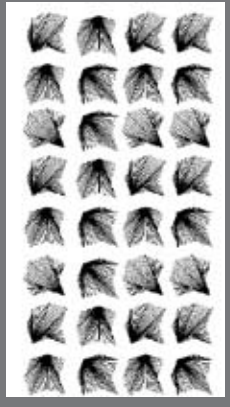
"A structurally viable block system that has the potential to create an incredible variety of subtle and sophisticated textures and patterns based on only four different block types."

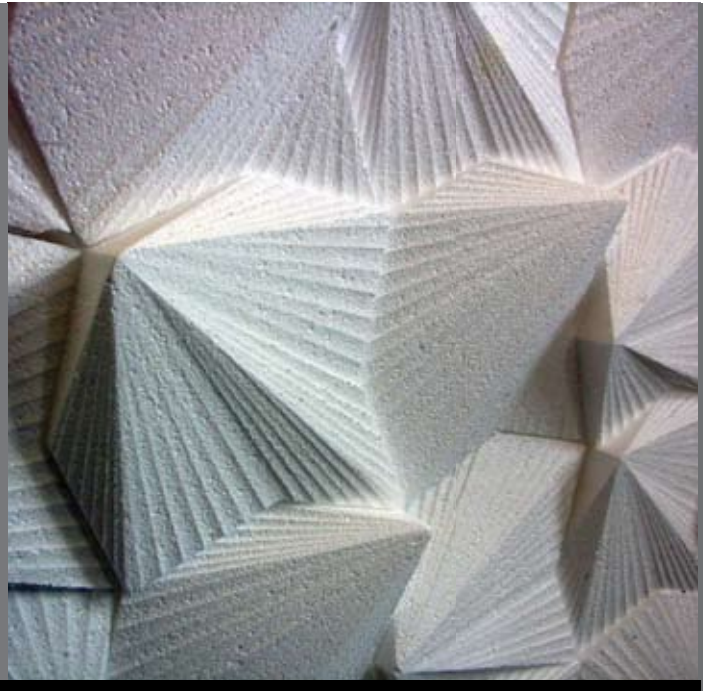


BLOCK SYSTEM

Digital Fabrication of Masonry

Patrick Amorosa
48-205 Second Year / Spring 2008
Instructor: Art Lubetz
CMU School of Architecture





STATEMENT

The masonry unit system our group devised consists of four standard modules that can be arrange at infinitum to create surface, define space, or enclose a volume.

The control criterion for our system was to create a fixed perimeter contour that all derivatives would share it common. This would allow for the consistent arrogation of the blocks in the systems.

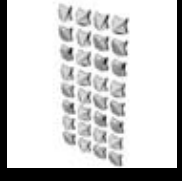
To introduce variation and texture into the block system, the topographies of the front and back surfaces were folded and creased.

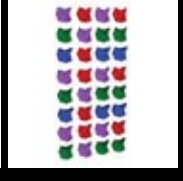
Because of the fixed perimeter, there exists no limiting factor in the overall arrangement of modules in the formation of a greater surface.

This allows the possibility of forming highly regular and repeating surfaces or highly irregular and chaotic surfaces without having to vary the standard module.

The technique of prototyping in EPS foam allowed for patterned ribbing to become evident in the blocks, thus revealing the creation process.

Patrick Amorosa





OTHER ENTRIES

Student: Christopher Bridgman
Instructor: Spike Wolff

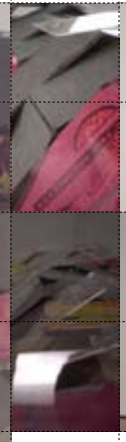
FIRE TOWER

Southside Works, Pittsburgh

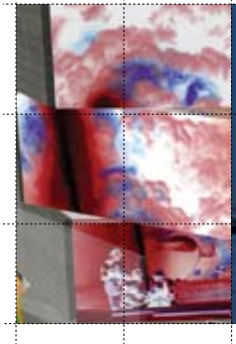
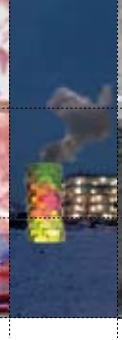
Chris Bridgman
48-205 Second Year / Spring 2008
Instructor: Spike Wolff
CMU School of Architecture








VISUAL
DISTORTION

STATEMENT

This project was for a small fire training tower that would provide readily available acces for training fire fighters and to act as a pcetic landmark in the local context. The main concept behind my fire tower is to contrast between the actual visual field and the virtual visual field. This contrast makes the viewer engage in the tower visually to make them question what is real and how different forms of vision affect the perception of an object. The tower achieves this effect by projecting images on the outer masonry skin of either real or digital video from inside the tower or real or digital viceo from somewhere anywhere else in the world. the use of the monitors is to make the public question if they are truely seeing the spectacle of the fire tower or if they are seeing a reproduction of the interior from somewhere else. The glass skin on the masonry skin creates a blurring effect that keeps the viewer from truely knowing if they are seeing inside of the tower or one of the projections on the masonry skin. This tower investigates the idea of image, and how it can play a role in how we percieve architecture.

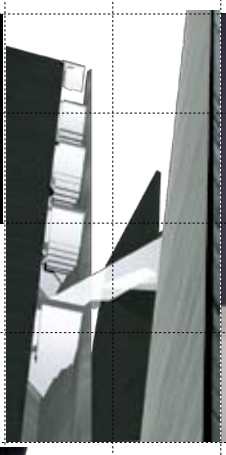
Chris Bridgman

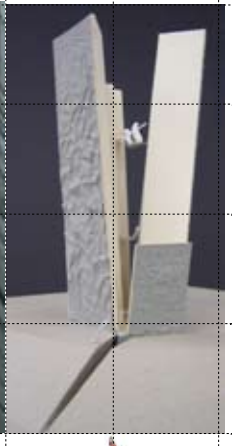
Student: Samantha Carter
Instructor: Arthur Lubetz

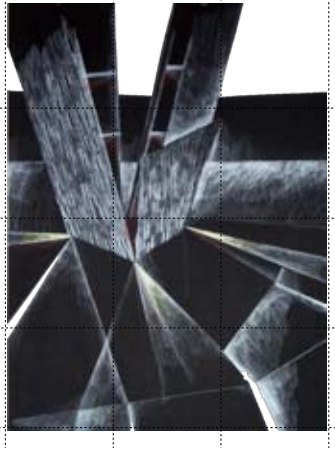
FIRE TOWER

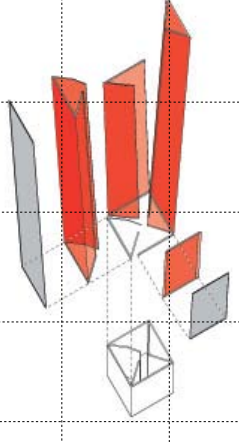
Southside Works, Pittsburgh

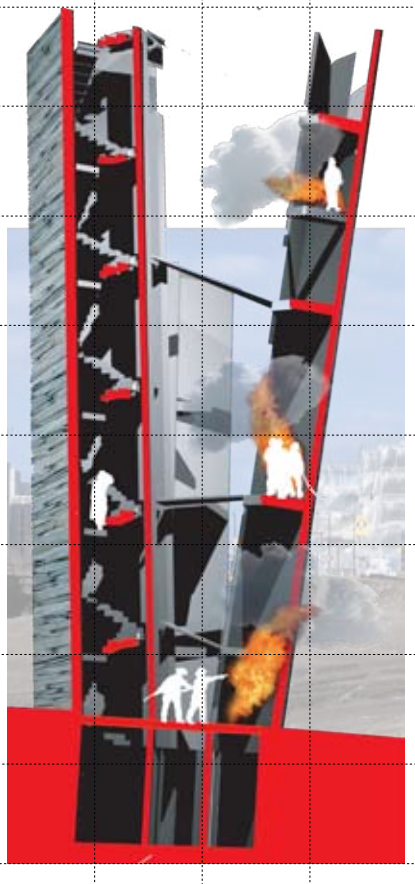
Place Name Here
48-205 Second Year / Spring 2008
Instructor:
CMU School of Architecture

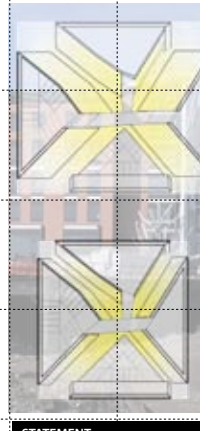












STATEMENT

Passion can be defined as an abundance o
strong, explosive feelings. Fire, firemen an
architecture can all be associated with this
enthusiasm, This fire tower reacts with the
and splits into piece as it penetrates throu
the ground in an explosive manner. Peopl
enter the building by walking along this
enclosed space created by the shifting gro
planes and then they enter between the
splitting walls of the tower. When the tow
in use, the middle area fills with smoke an
smoke seeps through the slits. You are abl
look up through the floors and barely mak
out the top of the tower, distancing yourse
from your destination point. Due to the de
smoke, people's sense of sight is weakend
their other senses are heightened. When
ing through this tower a person's emotion
become very strong causing them to deep
understand the explosive nature of the to
both physically and psychologically.

Samantha Car

Student: Ellen Garrett
Instructor: Arthur Lubetz

FIRE TOWER

Southside Works, Pittsburgh

Ellen Garrett
48-205 Second Year / Spring 2008
Lubetz studio
CMU School of Architecture

STATEMENT

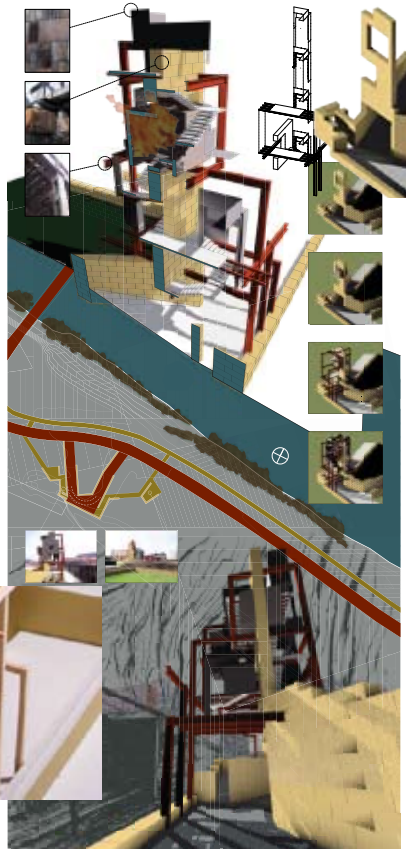
This tower, on this site with its context in flux will present a multiplicity of interpretations. The ambiguous form will create experiences perceived by people as their own. Ambiguity is an expression whose meaning cannot be determined from its context. The difference between being vague and being ambiguous can be understood by the relationship between the context and the site respectively. While the context is changing and indefinable, the form and experience of the tower defined through infinite interpretations.

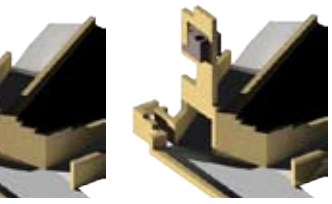
Student: Josiah Haskell
Instructor: Tom Price

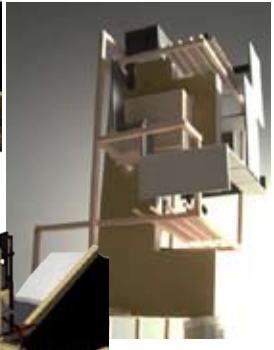
FIRE TOWER

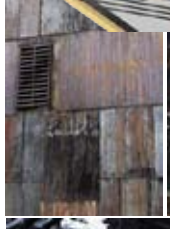
Southside Works, Pittsburgh

Josiah Haskell
48-205 Second Year / Spring 2008
Instructor: Tom Price
CMU School of Architecture









STATEMENT

The focus of this project was the design of a Fire Tower, featuring masonry construction, near the Southside Works in Pittsburgh. This small tower was to function as both a firefighter training facility as well as a poetic landmark. The site, while being adjacent to a newly-built shopping area, was formerly part of a steel mill and remnants of a steel railway structure could be found in its Southwestern corner.

To begin my design process, I walked around the Southside, visually researching the use of materials in industrial structures in the area. I used my research to compose a palette of materials for my tower- these materials were large units of stone masonry, cor-ten steel, and corrugated steel cladding. Through my composition of these materials, I sought to translate the existing horizontal form of the framed railroad structure into a vertical, more refined form of the Fire Tower.

While serving as a functional firefighter training facility, my tower also opens up to the use of the public as an observation structure. The cladding system, of corrugated steel, displays to visitors a story of Pittsburgh's industrial past and redefined future through framed views of the nearby railroad structure and the Hot Metal Bridge as well as views of downtown and nearby commercial and research buildings.

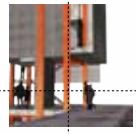
Josiah Haskell

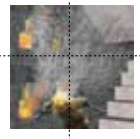
Student: Daniel Hudock
Instructor: Tom Price

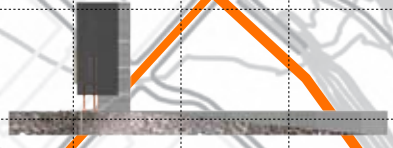
FIRE TOWER

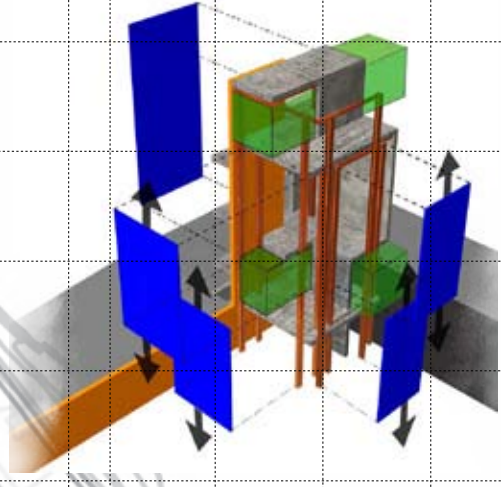
Southside Works, Pittsburgh

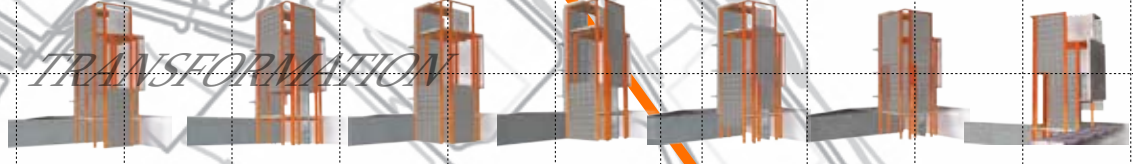
Dan Hudock
48-205 Second Year / Spring 2008
Price Studio:
CMU School of Architecture











STATEMENT

Upon arriving at a building engulfed in flames, a firefighter is immediately presented with countless unknown variables, all of which are subject to an incredible number of changing and divergent circumstances. These ambiguities inevitably arise, and how the firefighter reacts to them could be the difference between life and death.

These properties of transformation and ambiguity are carried over into the design of the fire tower. Four vertical sliding steel mesh panels allow for an opportunistic transparency throughout the building. The structure itself is bare and minimal, reflecting the openness and sense of transparency of the South Side site itself. These mesh panels can either open up and reveal the tower and the site as a whole, or it can be closed down completely for functionality or aesthetics. The tower is located at an axis between the industrial past of Pittsburgh and its commercial future, and the forms of the tower are 'carved out' by the collision of these two paths, forming positive and negative spaces.

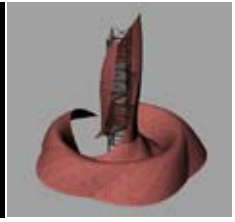
The fire tower serves functionally and poetically as a landmark for the community by causing uncertainty with its transformative properties, and by evoking different emotions and reactions with each new visit.

Dan Hudock

FIRE TOWER

Southside Works, Pittsburgh

Lindsay Mannion
48-205 Second Year / Spring 2008
Instructor: Tom Price
CMU School of Architecture



STATEMENT

Through the observation of the way in which the natural elements on the project site, such as the earth and plant life, were growing over and consuming the debris and remnants of the past, a relation was drawn to the situation of the new industries growing over and consuming historical relics of the old industries of Pittsburgh. The architecture of this fire tower is a reaction to and spatial manifestation of this concept, with the pristine brick masonry growing over and consuming the rusting steel structure. The tower functions as a poetic landmark, drawing attention to the situation of losing the history of Pittsburgh, and can be personally experienced by the public as well as be used for training. Visitors will experience the effects of becoming spatially consumed within the organic brick structure which is cleanly flowing in form, yet instinctual and systematic in its mercilessly enclosing, strangling growth around the steel structure. The burn room is further encased within the steel structure, suspended within thick, highly polished concrete walls which would become illuminated and reflecting of the light and flames when the burn room is ignited and viewed throughout the tower's verticle circulation procession from underneath and through the transparent floor structure.

Lindsay Mannion

Student: Joshua Marshman
Instructor: Spike Wolff

FIRE TOWER

Southside Works, Pittsburgh

Josh Marshman
48-205 Second Year / Spring 2008
Wolff Studio
CMU School of Architecture

STATEMENT

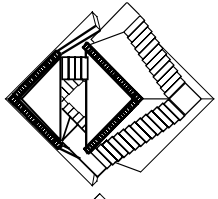
The only permanent and truly intristic quality of the site is constant change. Change occurs in many different scales and at various rates on the site, and always deterioration occurs simultaneously with growth. Architecturally this translates into two purposes: to bear the mark of change over time, and to create a constantly shifting and ever changing spacial experience. This is achieved by taking the burn room, the single programatic requirement, through a series of shifts through space related to the site. The traces of each shift form complex layers of interweaving, tall meandering spaces that become the only public space. The viewer is constantly ascending or descending at different rates, and entering into different intertwined spacial environments, the constantly changing nature of which is emphasized through the reflectivity of stainless steel. Aperatures which allow fractured views of the context are created as the path of a single observer is taken through a similar series of shifts relating to circulation within the structure. The central void created by these shifts through space becomes the burn room, which may occur at different locations on separate fractured floor plates. The lighting of fires at alternating locations within the tower will scar the interior masonry at varying rates over time, allowing the walls of this innermost void to record the change over time.

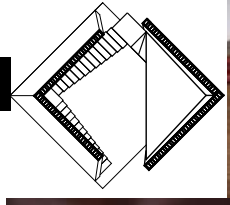
Student: Judyta Podraza
Instructor: Arthur Lubetz

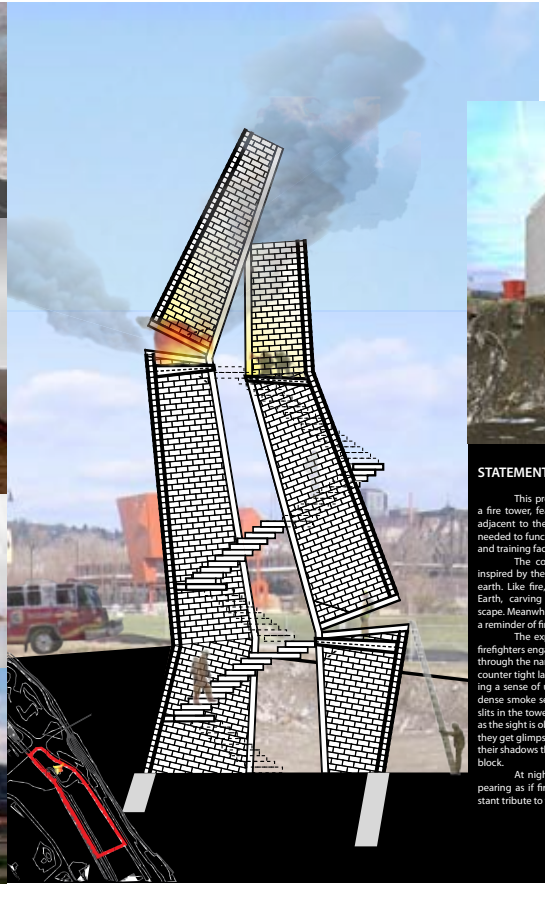
FIRE TOWER

South Side Works, Pittsburgh

Judy Podraza
48-205 Second Year / Spring 2008
Instructor: Arthur Lubetz
CMU School of Architecture







STATEMENT

This project called for the creation of a fire tower, featuring masonry construction, adjacent to the South Side works. The tower needed to function both as a poetic landmark and training facility for the fire department.

The concept for the fire tower was inspired by the relationship between fire and earth. Like fire, the tower emerges from the Earth, carving and manipulating the landscape. Meanwhile the slit or scar in the tower is a reminder of fire's strength.

The experience inside starts with the firefighters engaging bodies as they maneuver through the narrow openings. Inside, they encounter tight landings and sloped floors evoking a sense of unfamiliarity and instability. As dense smoke seeps through the ruptures and slits in the tower, other senses are heightened as the sight is obstructed. By-standers pause as they get glimpses of firefighters inside and see their shadows through the fiber-optic concrete block.

At night the tower is illuminated appearing as if fire burned inside, being a constant tribute to firemen.

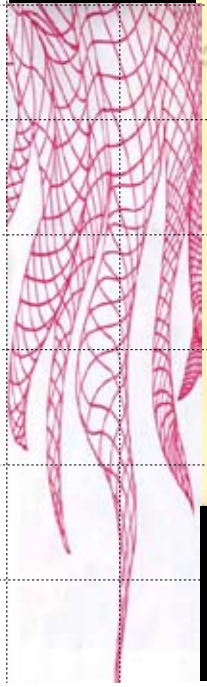
Judy Podraza

Student: Randi Smith
Instructor: Tom Price

FIRE TOWER

Southside Works, Pittsburgh

R. Smith
48-205 Second Year / Spring 2008
Instructor: Price
CMU School of Architecture



STATEMENT

When given seemingly opposing agend tower for fire training and a landmark fo lic involvement the overall goal of this p is to blend both agendas intentions into piece of architecture. As any landmark should be extrememly contextual, and referencing the idea that arechitecture is not timeless, but of its time, the scheme comments on the South Side's current state of continuing to layer new industry and modernization over its rubbled past. Light transmitting convrete masonry blocks are layered together system- atically and threaded through reinforcements to deliver the sense of instability- key in the training of fire fighters as well as being the symbol of a broken industry rising from debris and growing to a pristine, but still uncertain, crown. As the experience is expressed by the sight as well as the architecture, the tempo- rality of the tower will only strengthen the concept as the site around it changes.

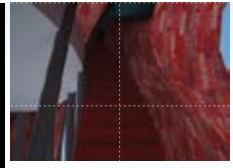
R. Smith

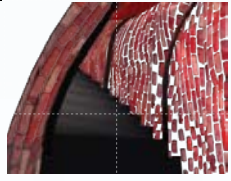
Student: Roxanna Viray
Instructor: Spike Wolff

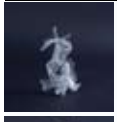
F I R E T O W E R

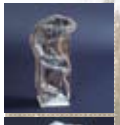
Southside Works, Pittsburgh

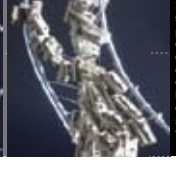
roxanna viray
48-205 Second Year / Spring 2008
instructor: wolff
CMU School of Architecture

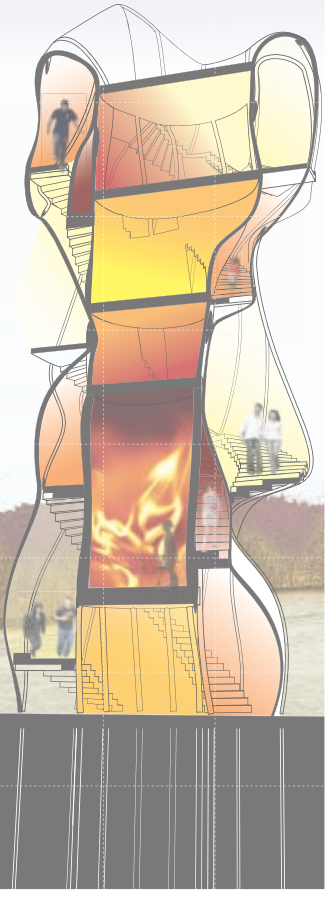












STATEMENT

fire is defined by three elements: heat, light, and flame. each element produces a different spacial experience which is translated into three distinct journeys which wind up the tower. the first is one of darkeness, enclosure, and steepness - using the sense of touch. the second is one of light, gentle, openness - a more visual experience. the third is one of movement- varying in enclosure, width, and slope. the connections between allow for interactions of sounds and views as well as moments of seperation. The masonry skin is a break from the traditional use of standard modular bricks. the bricks are hung vertically, strung like beads to create a skin that can mutate to vary light, porosity and texture.

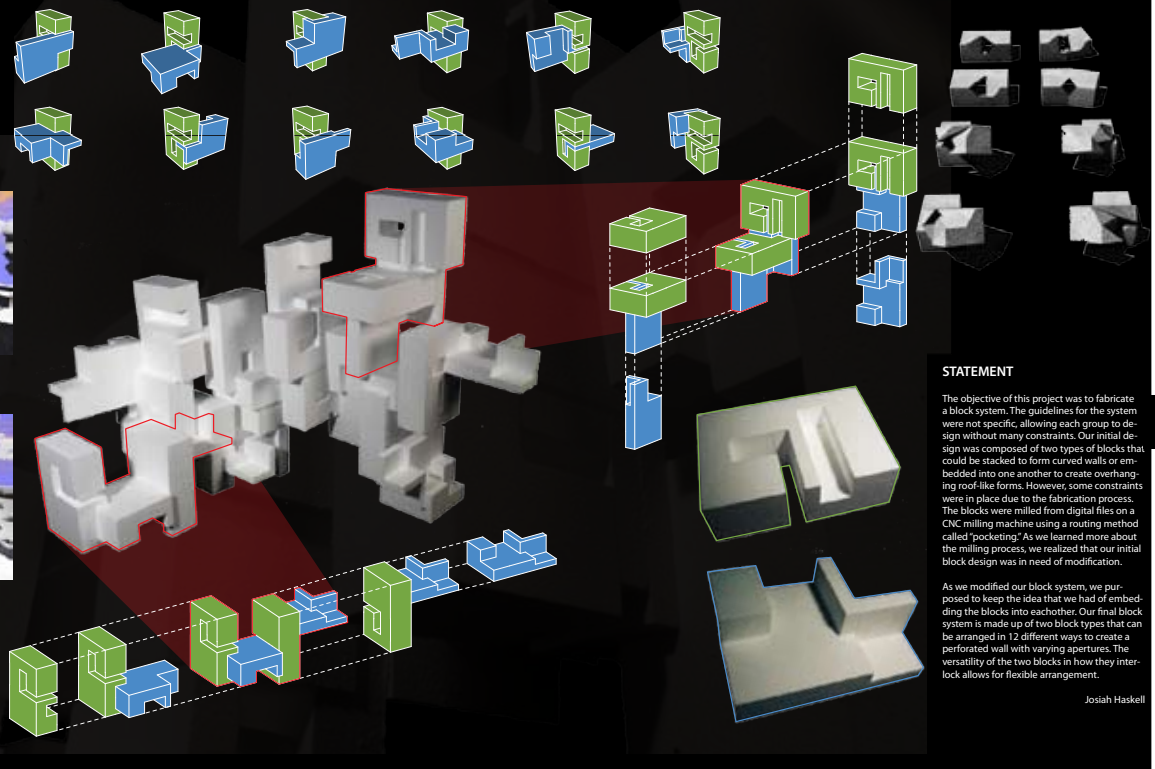
roxanna viray

Team Members: Adam Aviles, Josiah Haskell, Euginie Kwan, I-Shan Tam
Instructor: Tom Price

BLOCK SYSTEM

Digital Fabrication of Masonry

Josiah Haskell
48-205 Second Year / Spring 2008
Instructor: Tom Price
CMU School of Architecture



STATEMENT

The objective of this project was to fabricate a block system. The guidelines for the system were not specific, allowing each group to design without many constraints. Our initial design was composed of two types of blocks that could be stacked to form curved walls or embedded into one another to create overhanging roof-like forms. However, some constraints were in place due to the fabrication process. The blocks were milled from digital files on a CNC milling machine using a routing method called "pocketing." As we learned more about the milling process, we realized that our initial block design was in need of modification.

As we modified our block system, we purposed to keep the idea that we had of embedding the blocks into eachother. Our final block system is made up of two block types that can be arranged in 12 different ways to create a perforated wall with varying apertures. The versatility of the two blocks in how they interlock allows for flexible arrangement.

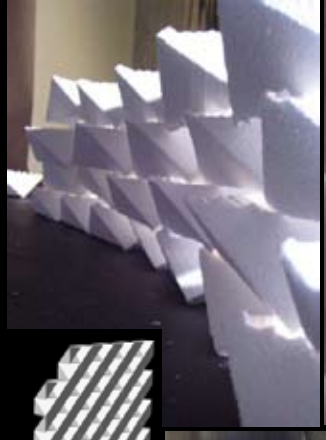
Josiah Haskell

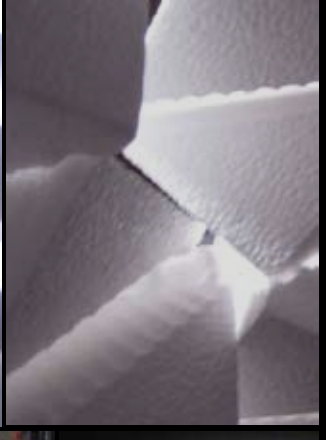
Team Members: Conor Doyle, Alexandra Legrady, Drew Lightfoot, Randi Smith, Lingshui Wang
Instructor: Tom Price

BLOCK SYSTEM

Digital Fabrication of Masonry

Alexandra Legrady
48-205 Second Year / Spring 2008
Instructor: Tom Price
CMU School of Architecture





STATEMENT

The main concept of the block was to create a component that could be easily configured in many different ways. The endless number of configurations makes it practical and multi-functional. The block is composed of eight triangles, two of which are equilateral. The ridges and the angular quality of the block allows for the creation of shadows and light to filter through the spaces between the blocks. With each different design the illumination between the blocks varies which allows for the block system to easily alter a space. The block was generated by the negative space of a model that focused on branching.

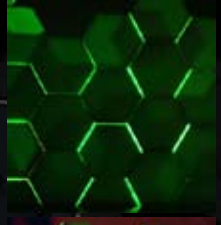
Alexandra Legrady

Team Members: Lowell Day, Douglas Farrell, Hiroyuki Ichikawa, John Soh, Pui Hang Wong
Instructor: James O'Toole

BLOCK SYSTEM

Digital Fabrication of Masonry

Hiroyuki Ichikawa
48-205 Second Year / Spring 2008
Instructor:
CMU School of Architecture



STATEMENT

Patterns are often overpowering and limited to within its components. If patterns could go beyond its components, its pattern, its limitations, it would unleash an unlimited variety of patterns from its own pattern.

Hexagons with different thicknesses on one side were compiled to form a free order of gradients. These differences in elevations were translated into a gradient of light and shadow which appears on the opposite side of the textured side. Through this approach, the gradients, the order, the color, the light and shadow are all manipulated to conceive an order not limited to its indivisual constituents.

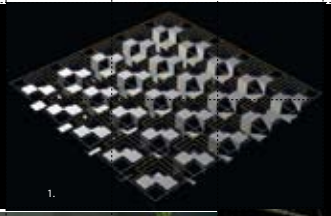
Hiroyuki Ichikawa

Team Members: Branch Abigail, Carl Covington, Anna Hong, Jiwon Hur, Sarah Mingle
Instructor: James O'Toole

BLOCK SYSTEM

Digital Fabrication of Masonry

Anna Hong
48-205 Second Year / Spring 2008
Instructor: James O'toole
CMU School of Architecture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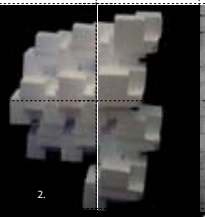
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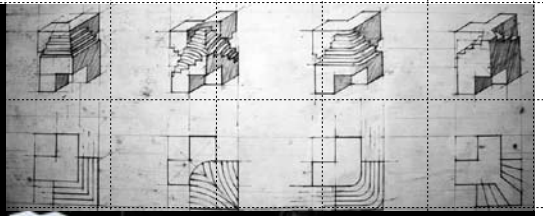


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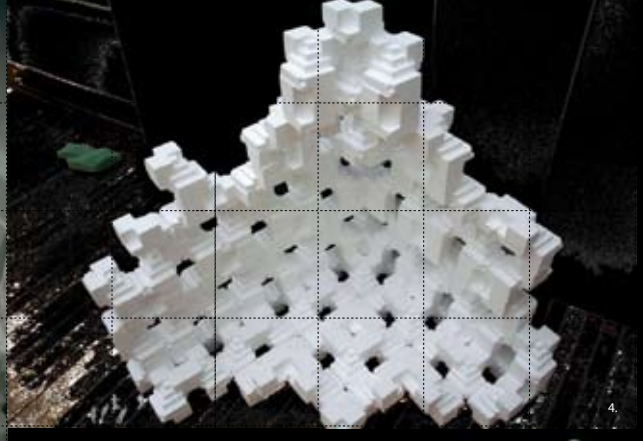
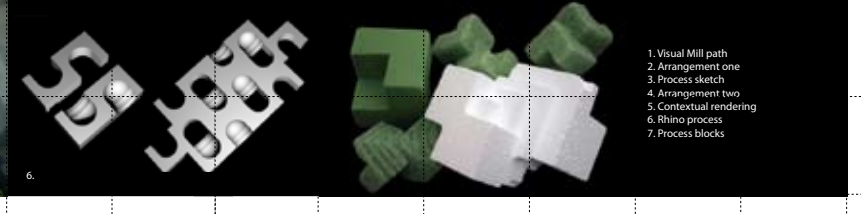

4.

STATEMENT

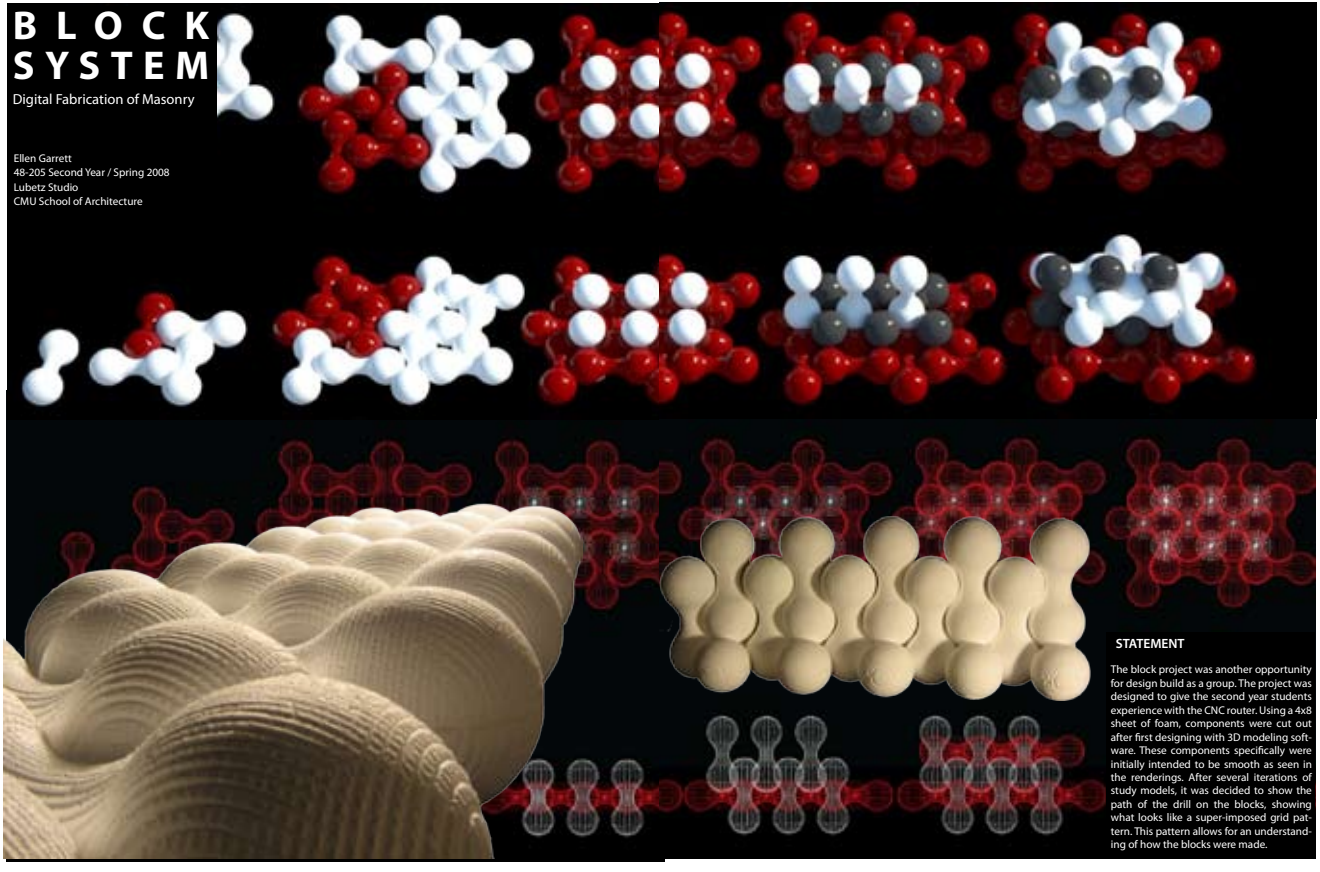
The block design is such that individual units can be manipulated in various ways to create different types of surfaces and structures. Depending on the nature of the arrangement, the blocks can be made to be either very compact or rather porous. By placing blocks directly one on top of the other creates solid walls and surfaces, although will not display the patterning to its fullest extent. On the other hand by stacking the blocks in various directions, the wall created can extend in a variety of directions, exhibiting the patterning in different ways as it rotates and fits together. In addition, the skewed nature of the block is such that it makes for an easy transition from wall to wall as a corner condition as well as from wall to floor. The closed conditions created allow for shade and shelter from the elements as well as space for containment, while the open spaces created allow for views through the structure as well as openings through which nature can interact with the blocks.

Anna Hong


6.

1. Visual Mill path
2. Arrangement one
3. Process sketch
4. Arrangement two
5. Contextual rendering
6. Rhino process
7. Process blocks

Team Members: Filip Agren, Ellen Garrett, Ingrid Kong, Benjamin Lehrer
Instructor: Arthur Lubetz

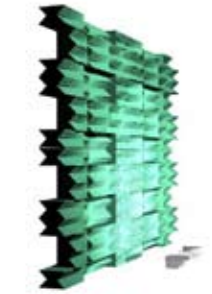


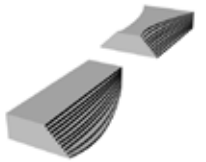
Team Members: Steven Burton, Matthew Huber, Judyta Podraza, Justin Rosenberry, Arlie Schrantz
Instructor: Arthur Lubetz

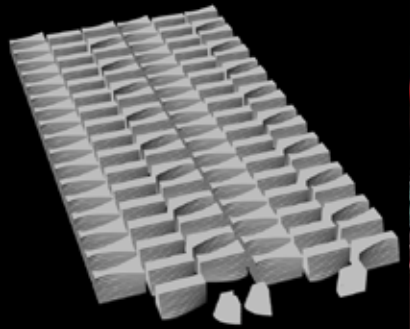
BLOCK SYSTEM

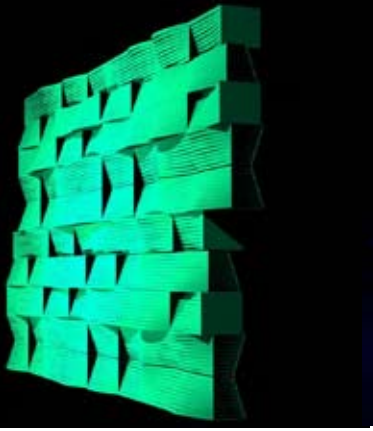
Digital Fabrication of Masonry

Justin Rosenberry
48-205 Second Year / Spring 2008
Lubetz:
CMU School of Architecture









STATEMENT

The concept behind this block system was to create three different blocks which could be stacked and rotated to create and infinite number of combinations. The three blocks consist of one which is convex one both sides, one which is concave on both sides, and one which has a convex and concave side. This allows for patterns which will not be uniform on both sides. This form also allows for shadows to be cast all accross the surface, also catching very interesting light qualities.

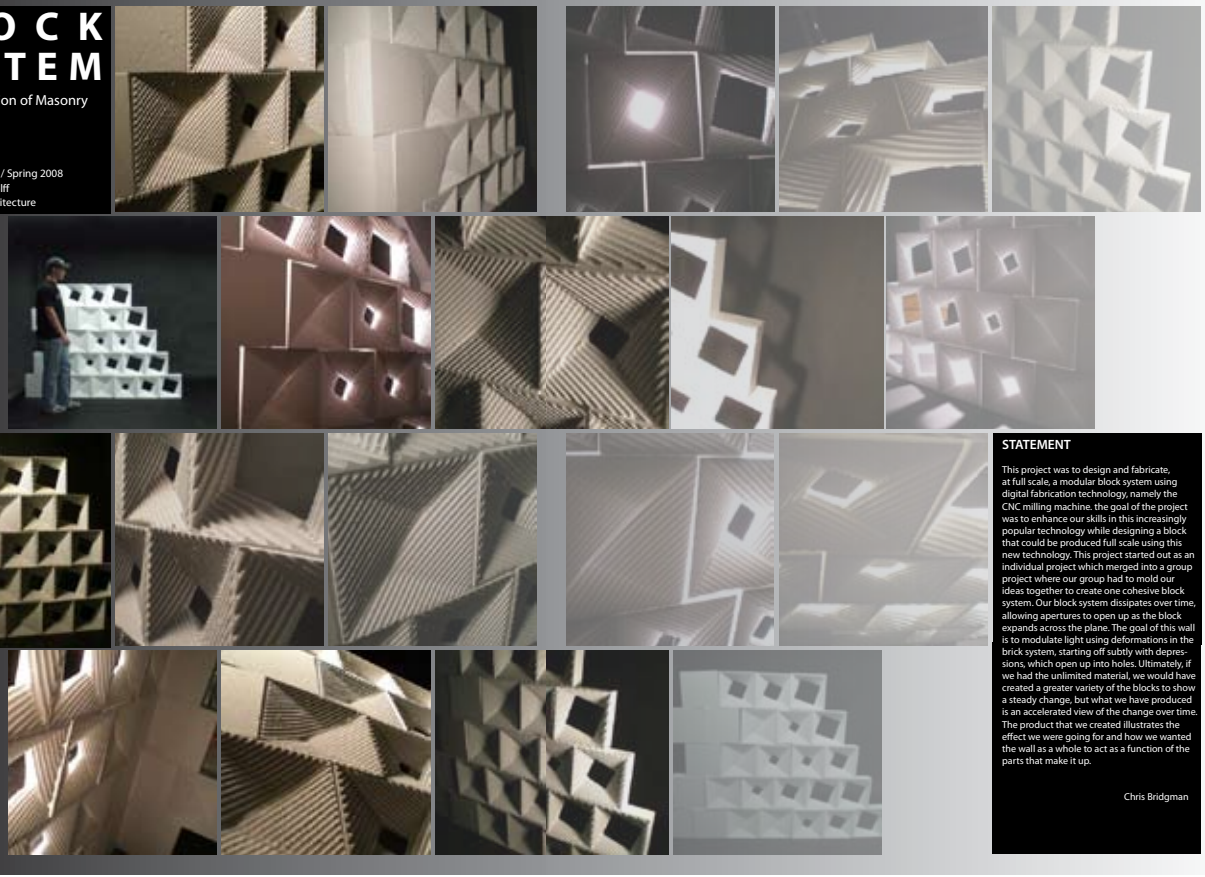
Justin Rosenberry

Team Members: Christopher Bridgman, Ishita Gaur, Adam Himes, Eric Smith
Instructor: Spike Wolff

BLOCK SYSTEM

Digital Fabrication of Masonry

Chris Bridgman
48-205 Second Year / Spring 2008
Instructor: Spike Wolff
CMU School of Architecture



STATEMENT

This project was to design and fabricate, at full scale, a modular block system using digital fabrication technology, namely the CNC milling machine. the goal of the project was to enhance our skills in this increasingly popular technology while designing a block that could be produced full scale using this new technology. This project started out as an individual project which merged into a group project where our group had to mold our ideas together to create one cohesive block system. Our block system dissipates over time, allowing apertures to open up as the block expands across the plane. The goal of this wall is to modulate light using deformations in the brick system, starting off subtly with depressions, which open up into holes. Ultimately, if we had the unlimited material, we would have created a greater variety of the blocks to show a steady change, but what we have produced is an accelerated view of the change over time. The product that we created illustrates the effect we were going for and how we wanted the wall as a whole to act as a function of the parts that make it up.

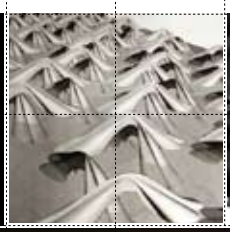
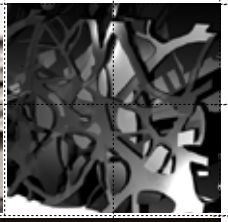
Chris Bridgman

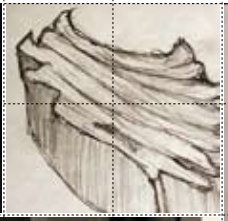
Team Members: Samuel Kriegler, Joshua Marshman, Silvia Park, Bizhou Wang, Eddie Wong
Instructor: Spike Wolff

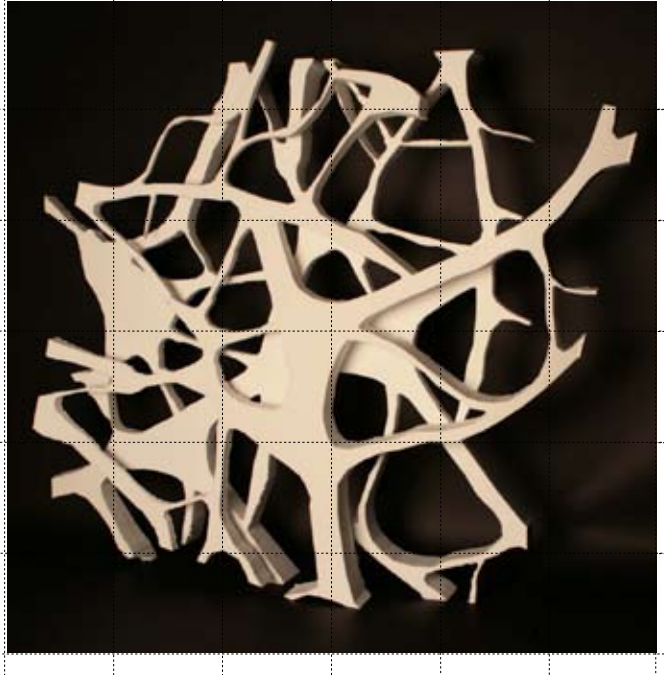
BLOCK SYSTEM

Digital Fabrication of Masonry

Eddie Wong
48-205 Second Year / Spring 2008
Instructor: Spike Wolff
CMU School of Architecture







STATEMENT

The concept for this block project was the structure of the human body. The focus was on what is beneath the skin. Human bone stucture and muscle were blown up at an enlarged scale.

Two surface structures were created by first carving out curves on the 4'x8'x4" foam block, and then pocketing out void spaces. The two surfaces undulate creating an elegant flow. They are laid back to back creating overlaps in the in-between spaces. The pulled out void blocks are then inserted into the overlapping holes to give the blocks a solid structure. The project is a play between the relationships of skin and structure.

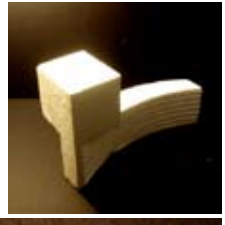
Eddie Wong

Team Members: Catherine Adams, Ellen Chou, Alise Kuwahara, Julie Martini, Roxanna Viray
Instructor: Spike Wolff

BLOCK SYSTEM

Digital Fabrication of Masonry

Ellen Chou
48-205 Second Year / Spring 2008
Instructor: Spike Wolff
CMU School of Architecture



STATEMENT

This project started with individual exploration of designing a block that serves a similar function as a brick. It has to be able to create a wall, an opening and an intersection. I created a block that is L-shaped so it will be able to interlock with each other. And it has the capability to form a wall that seems randomly arranged but it is composed of a single component. After individual exploration, we worked in groups, combined our ideas, and mass produced the blocks with a CNC milling machine.

Ellen Chou