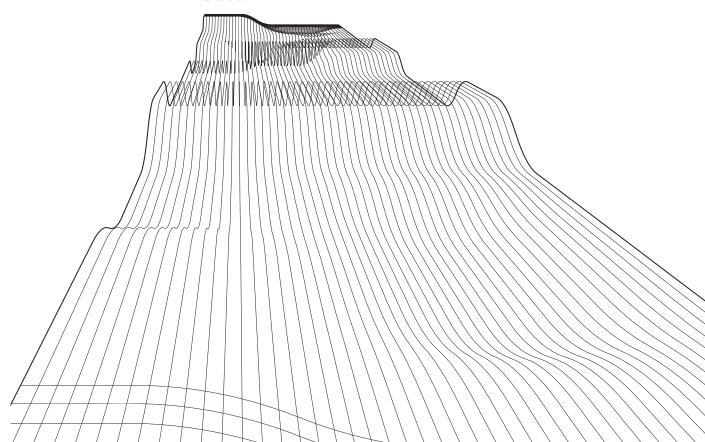
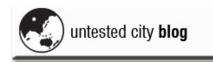
NICOLETTE MASTRANGELO, LEED AP

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SELECTED WORKS | architecture, urbanism

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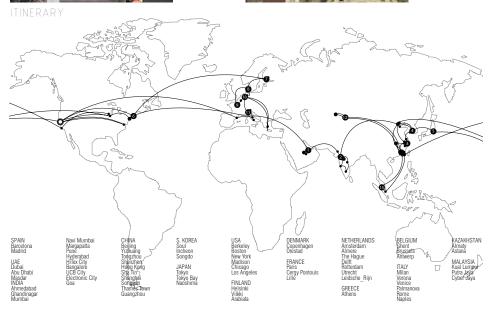
THE UNTESTED CITY BLOG is an interactive public forum for the exchange of ideas and information over the course of a 12-month journey (and subsequent research) through the world's newest cities and public realms. While much of this site is dedicated to travelogues, fieldwork, and analysis, ultimately the research hinges on contacts and networks of communication.

UNTESTED CITY refers to the untapped potential of unprecedented rates and scales of development occurring in many parts of the world and to design s responsibility to act, reinvent, experiment, and respond. For designers, it is an opportunity to test new ideas in order to re-think the way we are building cities and to address the overlooked consequences of the past. Design must take on a whole systems thinking a landscape urbanism meets high-density metropolis approach. Design is a process of integration at great scope. It must be multi-disciplinary and collaborative if it is to be sustainable. It is the opportunity to invent new modes of inhabiting the city at new adjacencies, scales, and flexibilities. The future of our cities will be determined by antiplans and zones of opportunity. Only when cities are examined from the roof-top down, can they built from the bottom up. Our built environments are in need of an overhaul and architecture is the tangible and social interface for urban reconciliation.

A building is not a building.

6 NEW CITY CASE STUDIES





EXHIBITION





METHODOLOG'

Why are new cities being built?

How is public space being designed, built and used in these new cities?

Which examples should be implemented? Which should be abandoned?

The research led to a sort of **construction tourism** around the world to answer these main questions. The hypothesis centered around the belief that I would discover many dysfunctional examples and neglected planning opportunities for public space, but that a closer examination might reveal a new species of surrogate public space, one that serves traditional urban needs in unprecedented form.



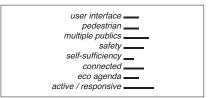
The research focused on two distinct **patterns of development**: Sprouting Cities and Tabula Rasa Cities. Sprouting City suggests the complete transformation, or re-branding, of an existing city through a surge in construction and upgrading. Tabula Rasa City refers to the development of entirely new, planned cities on previously undeveloped, or nearly undeveloped, land.



Time-lapse photography at significant public spaces in new cities became a dominant form of time-based documentation. My role was active participant and observer on site.



Drive-by shooting (rapid photography) was a way to capture tours through cities and the speed and movement of the immediate mode of travel.



New cities unprecedented in rate and scale warranted a critical examination of established urban **Performance dimensions**. This list represents a re-thinking of criteria across cultural boundaries. The performance of public space served as a barometer, or indicator species, for the success, or health of new cities.

untested city

Today, entire new cities are designed and built virtually overnight. China alone plans to build 400 new cities within 30 years. Fueled by economic growth and urban migration, these 'instant cities' have become vast fields of urban experimentation, the impetus behind unprecedented scales and rates of architectural development and public infrastructure. However, the imperative for haste in construction preempts serious reflection on the quantity of outcome. The realities of these untested environments impact personal space and public life in the city, and the effects are best revealed, although notably overlooked, in the performance of public space.

As the gauge of urban success and failure, public space warrants specific evaluation. In this historically unique context, it requires an objective assessment based on the rethinking of established criteria. This boom in city building is happening as a series of massive but scattered experiments. I propose to kickstart the feedback loop to influence the design of future cities with an examination of public spaces in significant new developments around the world.

This Branner Traveling Fellowship proposes the cross-comparison of new cities through the lens of public space. I seek to understand how public landscapes have been influenced by existing conditions, how they are affected by the pace of development, and how they begin to shape the fabric of the emerging city. I intend to study the disparate pieces that form a system within the city and how the performance and co-existence of these zones could inform future implementations that are both responsive and multi-scalar.

MASTRANGED MASTRANGED



reception /exhibit opening to fo 2.10.2010 - 3.10.2010 Wurster Hall collery 108

the untested city

Unprecedented urbanism and the performance of new public space

John K. Branner Fellowship, 2009

12 months of international travel and research, lecture and exhibition

2.10.10 - 3.10.10

spring 2010

ASTANA, 2009







Астана

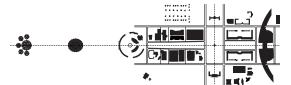
Akmola, Kazakhstar 51°10′ N 71°26′E

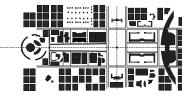
founded: 1994 population: 802,980 area: 258 km²/100 sq. mi

distance to Almaty: 966 km/600 mi

Master Planner: Kisho Kurokawa

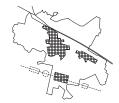














instant city / mega projec

New Cities are erected at speeds that far exceed initial demand or need for public space. The result? Public space is either non-existent or overwhelming until density reaches a critical mass. This thesis proposes an infrastructural intervention for the interim – a catalyst for city life through a re-design of the public realm, a barometer of health for the city.

New capital city and former soviet republic Astana, Kazakhstan, was realized in just under a decade. Its remote location and extreme climate in combination with a transitory, uprooted population, and lack of adequate public infrastructure has resulted in a vast, empty core at the heart of the city.

Monolithic and disconnected buildings support the notion that the needs of the people (perceived as a passive mass) are secondary to prominent individuals and political figures. Prioritizing image over spatial relationships has produced a series of follies rather than functional buildings and public space.

This thesis proposes challenging the axiality of the site and diffusing the formal power of the state in the built environment. It is a reconfiguration of the public realm through new layers of density -by carving through the open space and re-inventing the monumental core.

The thesis challenges the role of the planner, architect and urban designer, in the ongoing global economic crises. Ultimately, this is not only an idea for public space issues in Kazakhstan, but a template for resolving the compromised public realm of new cities world wide.

INSTANT/MEGA CITY/PROJECT

instant city / mega project [masters thesis]

The execution of monumental vision and the production of public space a re-configuration, re-invention of Astana, Kazakhstan's administrative core

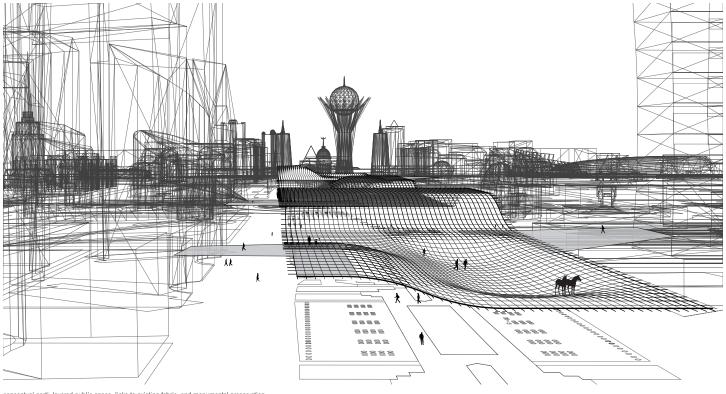
Committee in Charge: Profs. Nezar AlSayyad (Chair), Renee Y. Chow, Rene Davids. Michael Southworth

spring 2010

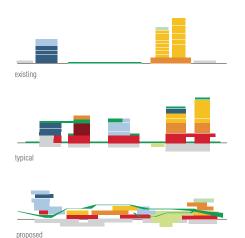
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thesis 1

- mono-functional to multi-functional use with the creation of permanent and transitional
- 2. Carve out, or sever, the uninterrupted horizontality of the site to create spaces scaled for a variety of human activities,
- with a protected, pedestrian-oriented public
- 4. Create vistas within vistas to shift focus from the state to the people who comprise it and define its values – highlighting the multiple publics of Astana and encouraging a citywide
- routines and episodic citywide events.

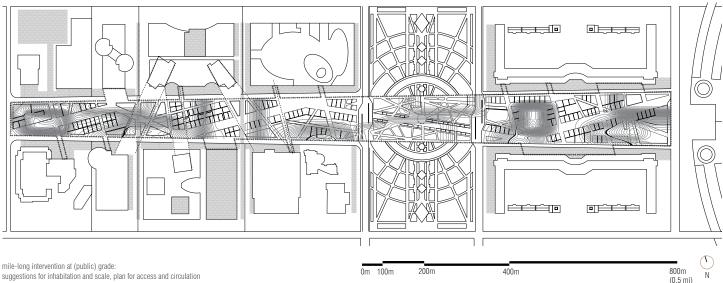


conceptual parti: layered public space, links to existing fabric, and monumental preservation

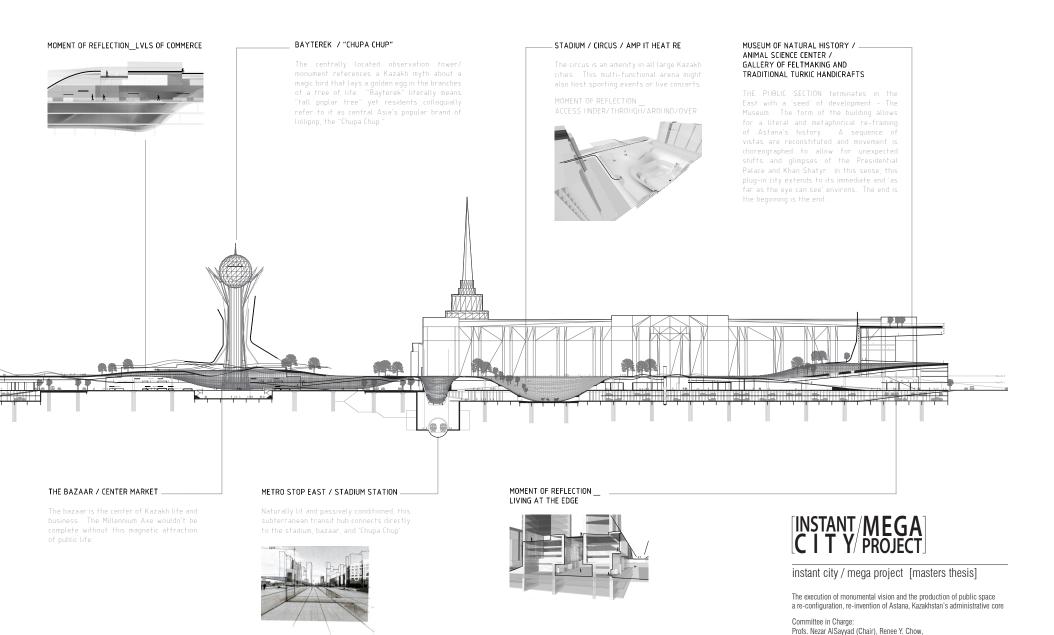


The Networked Whole

The overlap, or slipping of program generates a more infrastructural approach to development.

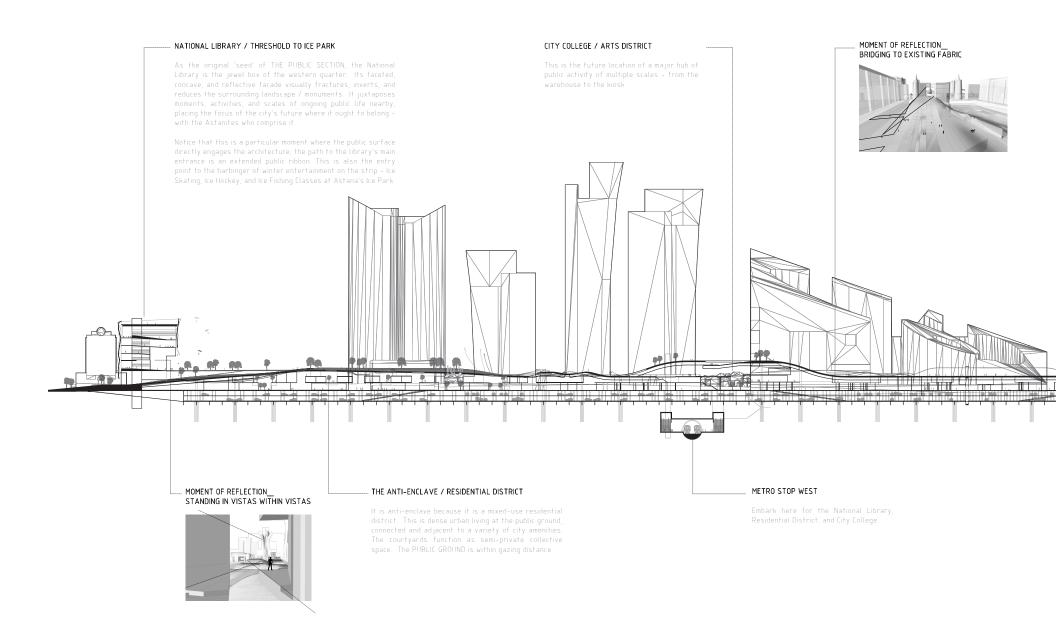


suggestions for inhabitation and scale, plan for access and circulation



spring 2010

Rene Davids, Michael Southworth



thesis 4 NICOLETTE MASTRANGELO architecture urbanis





View from Market Street

SURFACE ANALOGS: STUDIES IN STRUCTURAL SKINS



Inspired by lamella domes and funicular bridge design, these paper analog models attempt to illustrate the types of long spans and adjacent geometries generated by the reshuffling of program on the site. Experimentation included laser cutting slits in material at varying widths and lengths. This produced a corresponding change in curvature and size of aperture which, in turn, affected the opacity and transparency along the length of the site. Further studies would explore structural thickness and would optimize depth-to-span ratios. This type of form and structural generation has substantial potential at the scale of the building and the scale of the mega project.



The structure was more of a diagram about how light and air could penetrate a series of parallel, undulating public ribbons, at a gradient of scales. (Thickness of the lattice was 3D printed in the starch 1:500 model.)

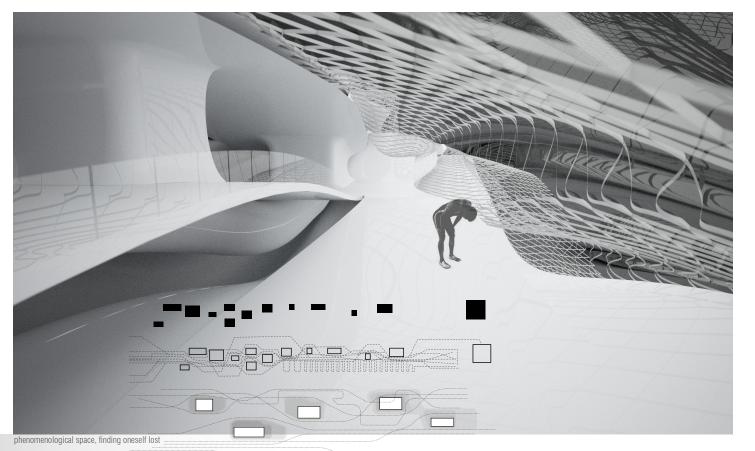
INSTANT/MEGA CITY/PROJECT

instant city / mega project [masters thesis]

The execution of monumental vision and the production of public space a re-configuration, re-invention of Astana, Kazakhstan's administrative core

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spring 2010

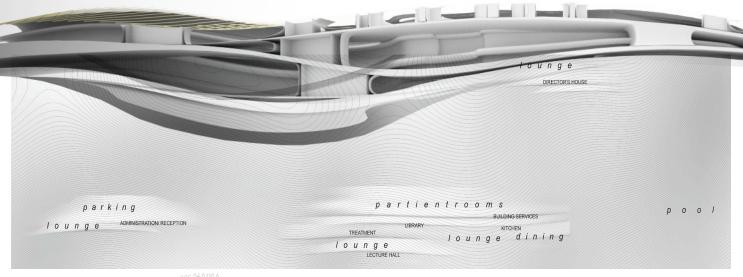


and forces by weaving new scales of activity

It exploits the notion of stretchscape, an unstable, and ambiguous. Nodes of stability

vastness of the site, but to become a sort of 'endless walk' for the occupants, to create the

Program within the stretchscape is overlapping, areas, pool and recreational areas, and patient marked by panoramic views, ambiguous heights, and natural light. They harvest light, water, and wind.



free time [unstructured time]

stretchscape of a sanatorium, Big Sur, California for patients undergoing treatment for chronic fatigue syndrome

Arch 201: Prof. Zoë Prillinger & Luke Orgridziak

fall 2007

Within the structured nodes, program is and building services. These spaces are rigid, views, and controlled lighting. In the stretch until complete immersion that one gains an

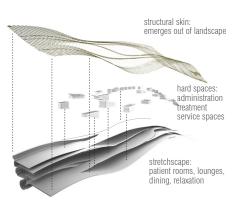
views stretch the program in a terraced field condition along the terrain.

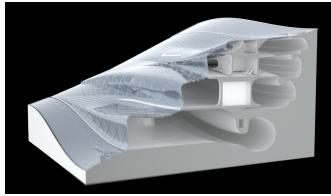
between structured and unstructured time and

an endless walk, a physical relaxation and

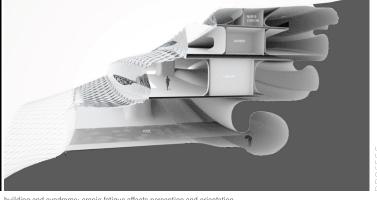
structured spaces. They are the administration,

environment. Further investigation into the stretched field condition reveals the surface becomes caught up in its own rippled, find themselves lost in space.

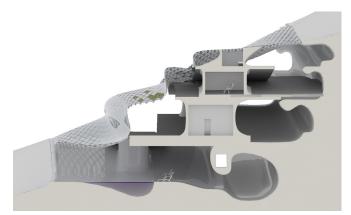




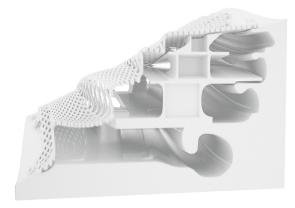
building as continuum: from soft undulation to ripple, folding condition



building and syndrome: cronic fatigue affects perception and orientation



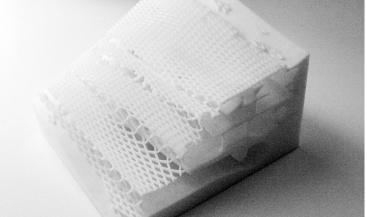
section rendering, material development



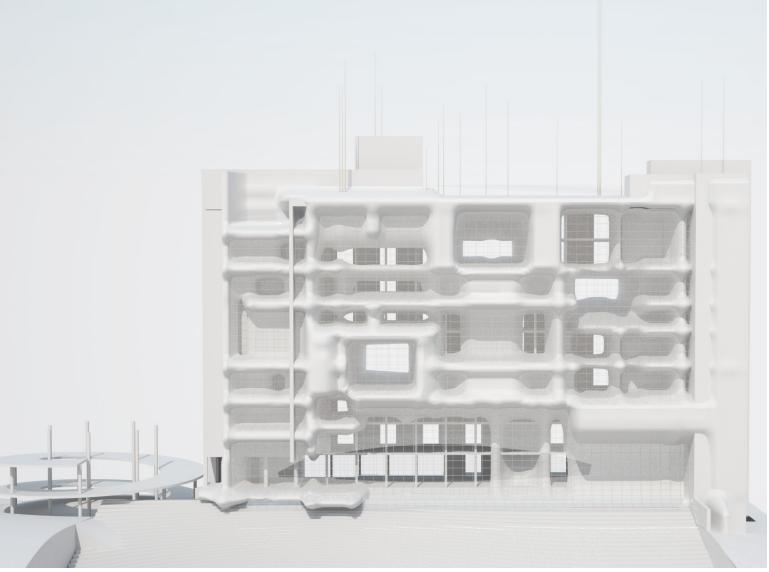
digital rendering of proposed sectional model

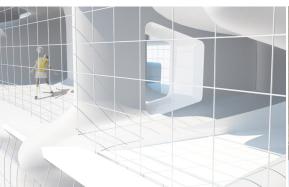


printed architecture: +40 hrs College of Engineering: plastic print, soluble build



testing the limits of 3D printing: assembled physical model skin = +42 hrssectional base = +40 hours total print time = +82 hours









adaptive chirality

The call for a boarding school and soccer academy bears the baggage of Monrovia's wartorn past and its current dilapidated, bombedout, built condition. Monrovia is a squatter city, void of large-scale infrastructure, separated by sporadic enclaves of wealthy politicians.

The site is the ten-story, Ducor Hotel, formerly a resort destination and Intercontinental Hotel located at the city's highest elevation. Once a gleaming prototype of the International Style, the Ducor now crumbles in disrepair and is home to hundreds of displaced residents.

The site, the building orientation, the double-loaded building armature, the city, the political context, the climate, the new soccer agenda all tell a story about sides. This sidedness, or pronounced chirality, become the generator of a new architecture and a new strategy for change. Using the building armature as framework, new program emerges through the hypermodification of the existing structure.

The proposal aims to amplify the sidedness of the building with the addition of new program and functions

A SIDE FOR LIVING

The west side of the building is subject to the most heat gain, therefore, it is the more closed, protected side of the building. It preserves the existing structure and interior spaces. The new boarding school dormitories replace the standard hotel rooms

A SIDE FOR LEARNING

The east side of the building faces the city. It reveals the new school and soccer facilities to the city they will serve. This side of the building deviates from the existing structure, eliminates large portions of the existing building and replaces and reinforces the



adaptive chirality

strategy for change through the hypermodification of existing structures proposal for a soccer academy and boarding school in Monrovia, Liberia

Arch 201: Prof. Kevin Daly

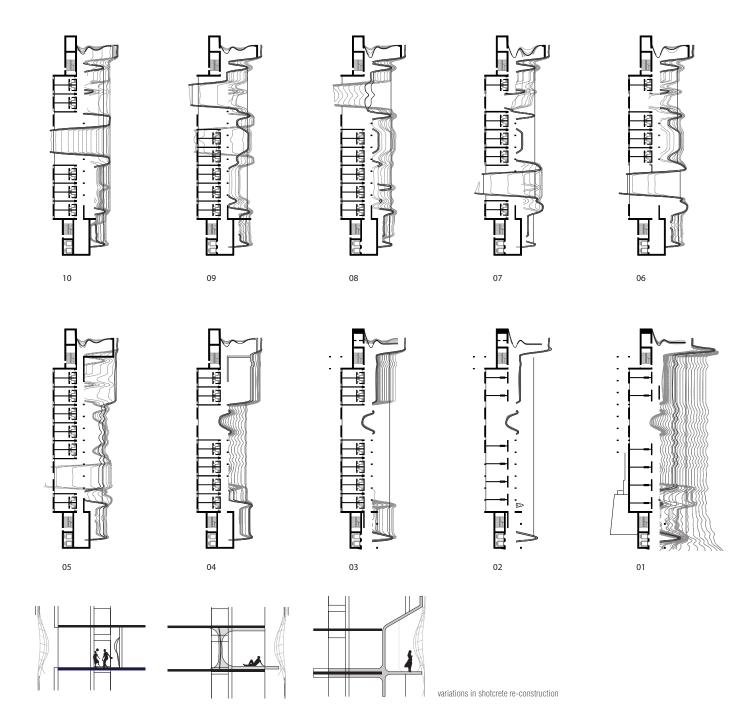
spring 2008



Construction methods: New spaces are defined and reinforced by shotcrete construction. Shotcrete can be mixed on site using local materials and labor, has high strength, durability, low permeability, excellent bond, and intrinsically takes on complex geometries and curves.

Skin: Mosquito netting wraps the building, hung from a pre-stessed cable net wall system. Netting becomes the shading, protection, and blurs the boundaries of indoor and outdoor.

Urban strategy: The proposal seeks to be a strategy for the revitalization of the city. Construction methods at the Ducor become city models while the strategic planning of a system of soccer fields throughout the city aims to act as a catalyst for change and an incubator for urban infrastructure.



















Incremental modular assembly, materials: wood, earth, corrugated metal

incremental shif

is a proposal for a new tele-medical center in Sanfe Bagar, Nepal that addresses the present and future state of the digital divide by presenting a framework for gradual change.

As digital technology is introduced to Nepal, improved access to health care through internet technologies has the potential to transform the lives of many people in the rural community. The proposal recognizes that this revolution will not happen overnight; the advance of technologies will build on and enhance the knowledge of local people, facilitating a change that will happen slowly and lightly. It encourages equity through a flexible, growth-oriented, local network of Wi-Fi access and int'l medical knowledge exchange.

This 'building as infrastructure' approach suggests new datums of thought, methods of construction, and use of materials to negotiate between the known (existing Nepali traditions and customs) and the unknown (new digital technologies and educational opportunities). Incremental Shift is the first physical phase of the tele-medical center, acknowledging the future by planning for its role as facilitator and hub of digital technologies in NW Nepal.

Incremental Shift is a converging, double-bar scheme alluding to the biased duality of the digital divide. The north-facing public 'high-tech' bar contains the computer facilities, learning labs, and meeting rooms - spaces for long-distance and local knowledge exchange. The south-facing private 'low-tech' bar consists of staff quarters and living spaces - to house staff who maintain, operate and facilitate the center. The public and private bars converge at the community multi-functioning meeting space and common courtyard. Here the division of the bars is dissolved. Interaction between bars is inevitable and encouraged, as is the interaction between rural Nepal and an equitable global digital network.

incremental shift

tele-medical center and internet hub in rural Nepal

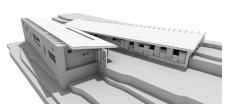
Raymond L. Watson community design award winner Architecture for Humanity Competition honorable mention [competition entry w/ Luke Perry and Matt Bitterman] summer 2008

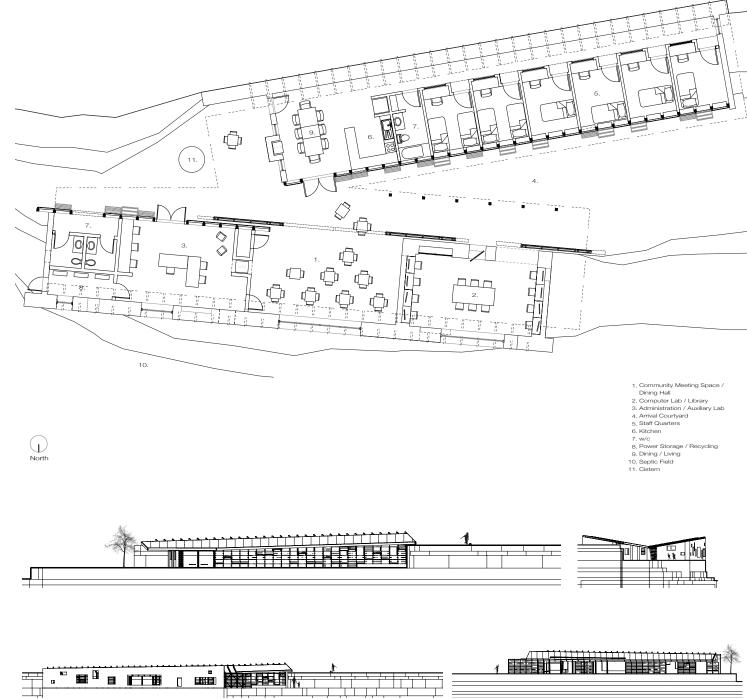
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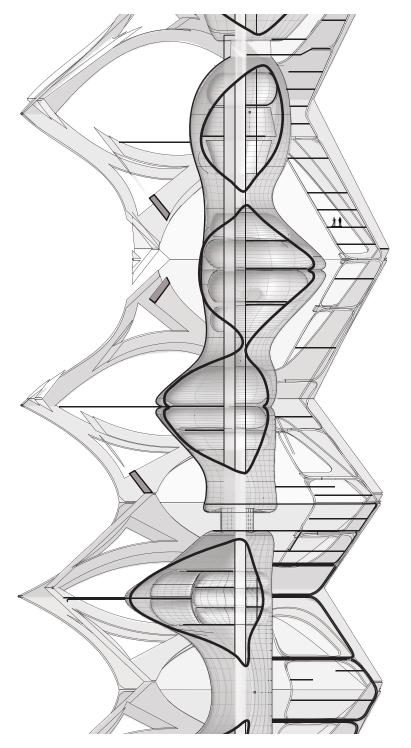
Programmatically, the center anticipates growth over time and future needs of the digital communication age through the incorporation of flexible spaces. In the private bar, staff quarters include 6 individual sleeping rooms, and up to 12 sleeping spaces allowing a flux in the number of workers employed. The staff kitchen and living area becomes communal by operable partitions. In the public bar, the largest space – a meeting room that accommodates up to 100 people – spills out onto the main courtyard space via sliding partitions. The space can be closed for digital projections and opened for larger social events. The main computer lab includes interchangeable nooks for computers and books, accommodating a small library. This learning lab facilitates supervised instruction (computers around the perimeter of the room) as well as a central collaborative workspace. A separate administration space doubles as an auxiliary computer lab.

Integrating site-responsive, passive heating and cooling strategies, the two bars open to the courtyard in warm weather to exhaust and cross-ventilate the spaces. They close in colder climate to take advantage of the insulating value of the corrugated partitions, thermal mass of the earth walls, and additional internal heat gains.

The tele-medical center exists as an extension of the Nepali landscape. The wedge scheme follows the geometry of the terraced site and integrates local, commonly used materials in innovative ways. Building materials include site-based earthen walls, mud-brick interior partitions, local recycled timber framing, and corrugated metal. The formwork used to construct the primary earthen walls becomes a panelized and operable secondary building enclosure system, regulating light, view, and ventilation. This incremental shift in building, technology, and ultimately life, will allow the introduction of the new digital age to proceed in a respectful, but necessary manner.







multithreading

Supernatural supersurface: minimizing Tootprint and maximizing volumetric difference

The proposal for a state-run redevelopment project, a high rise tower in Hong Kong Harbor, seeks to minimize its footprint and maximize its internal volume through the use of minimal surface logistics.

The spaces of the tower are engaged at the moment that the minimal surface geometries are contaminated, resisted, and customized to deal with complex connections and formations.

The proposal questions the typical tower model of repetitive stacked floor plates by seeking new methods of program and volumetric aggregation. Hotel, art center, reception, and boutique residences intertwine to take advantage of public/private conditions, vistas, and outdoor garden spaces.

Multithreading, a term borrowed from computer science, refers to increasing the efficiency of separate systems via parallel execution. In the case of the tower, this represents the inhabitable spaces of the hotel expanding and compressing, intertwining, and influencing the adjacent art gallery spaces.

Minimal surfaces: the minimum amount of surface that spans between a 'closed' set of edge curves.

Case studies included the topologocal surfaces of Frei Otto, the architectural squinch and pendentive and biological cell structures.

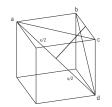
multithreading

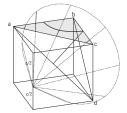
multithreading

hotel tower and event space in Hong Kong Harbor a formal study of minimal surface logic and transformation

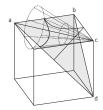
Arch 201: Prof. David Erdman

fall 2006





The batwing fundamental region is a simple surface which is bound by three edge curves and the C2 axis of its quadrirectangular tetrahe-dron.













structural assemblies



This fundamental region can be duplicated, mirrored and rotated about the C2 axis to fill the void in the tetrahedron.











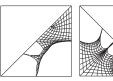


The final and fourth edge that completes the batwing fundamental region is formed by the intersection of plane acd and a cone which has an axis parallel to the C2 axis and shares intersections with both the C2 axis and edge curve 3.









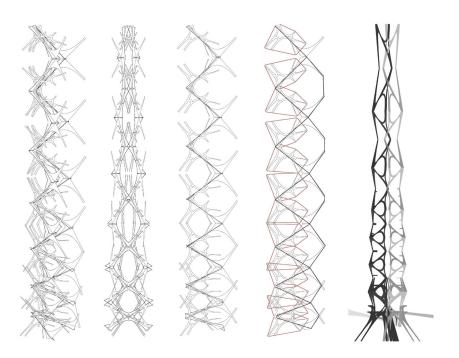








radiology studies: from minimal surface to structural assembly



assemblies: transformations

Minimal surfaces: the minimum amount of surface that spans between a 'closed' set of

of Frei Otto, the architectural squinch and

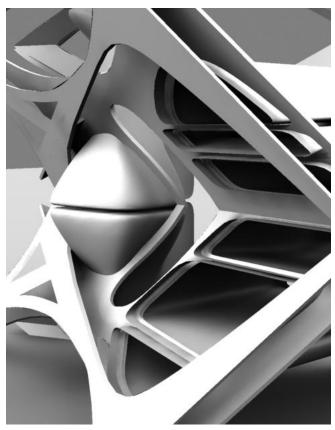
the creation of Schwartz Minimal Surfaces and a Triply periodic surface, a new surface was created. This was the first component of a structural system that was then free to transform via a host of operational techniques - scaling, rotating, mirroring, skewing.

Micro and macro scale studies generated the form of the tower. The occupiable elevator core, stair circulation, and floor plates were

accommodates absorption and through-flowing

The program: Hotel and gallery weave through the tower.

The site: The tower plugs in to the network of roadways, transit lines, and elevated walkways of Hong Kong. The bay side accommodates public waterfront access and yacht docking.









Hong Kong Harbor at dusk

multithreading

multithreading

hotel tower and event space in Hong Kong Harbor a formal study of minimal surface logic and transformation

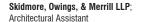
Arch 201: Prof. David Erdman

fall 2006



Burj Khalifa: 828 m (2,717 ft)

Site visit in 02/2009 on the Branner Traveling Fellowship, photo by Nicolette Mastrangelo



Chicago

<Burj Khalifa; Dubai, UAE

SD through CD on world's tallest building office annex atrium, residential hotel

Significant projects:

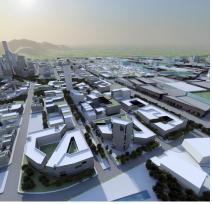
Int'l Exhibition Center: Zhongshan, China Wind turbine/trellis studies, parking / loading dock, passive earth cooling

interiors, MEP coordination

King Abdullah Economic City; Saudi Arabia Financial Island master plan City Center urban design



Rendering and animation still produced in 07/2007



The First 300 Acres: IT Mixed-Use District of Nanotechnology

Berkeley Group for Arch. and Planning; Berkeley Design Tasks Manager

<Nanocity; Haryana, India urban design architecture animation production work publication physical model exhibition



The Summerhill Residence includes main living quarters, a guest house and detached garage



Photographs courtesy of Edmonds + Lee Architects

Edmonds + Lee Architects;
Designer

San Francisco

<Summerhill Residence; Sonoma, CA construction administration landscape design

professional practice

Skidmore, Owings and Merrill, LLP Chicago 04-06
Berkeley Group for Architecture and Planning Berkeley 07
Edmonds + Lee Architects San Francisco 08

See resume for a comprehensive list of professional experience.