The built field is not a solo act!

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What does it mean that the built field is not a solo act?

The built field is the result of distributed work
(All designing is partial)

The built environment is never finished
(We always add to what is there, and set the stage for others who follow)

But you may ask, isn't distributed design a subject for schools of management?!

What do these ideas have to do with architecture and studio education?

1.Studios are central to design education everywhere…

2.Studios are where the master-apprentice approach to design special buildings still dominates…

The reason I want to discuss this is because of my view that the quality of the commons - the everyday built environment - is too important to leave to the old model of studio education.

The old studio model is very good ifor some kinds of teaching and learning, and should not be abandoned.

BUT

The studio model is not good for building transferrable skills.

Unlike in structural design classes…

Or in environmental systems classes...

Where are cooperative design skills taught…skills good for use in many circumstances?

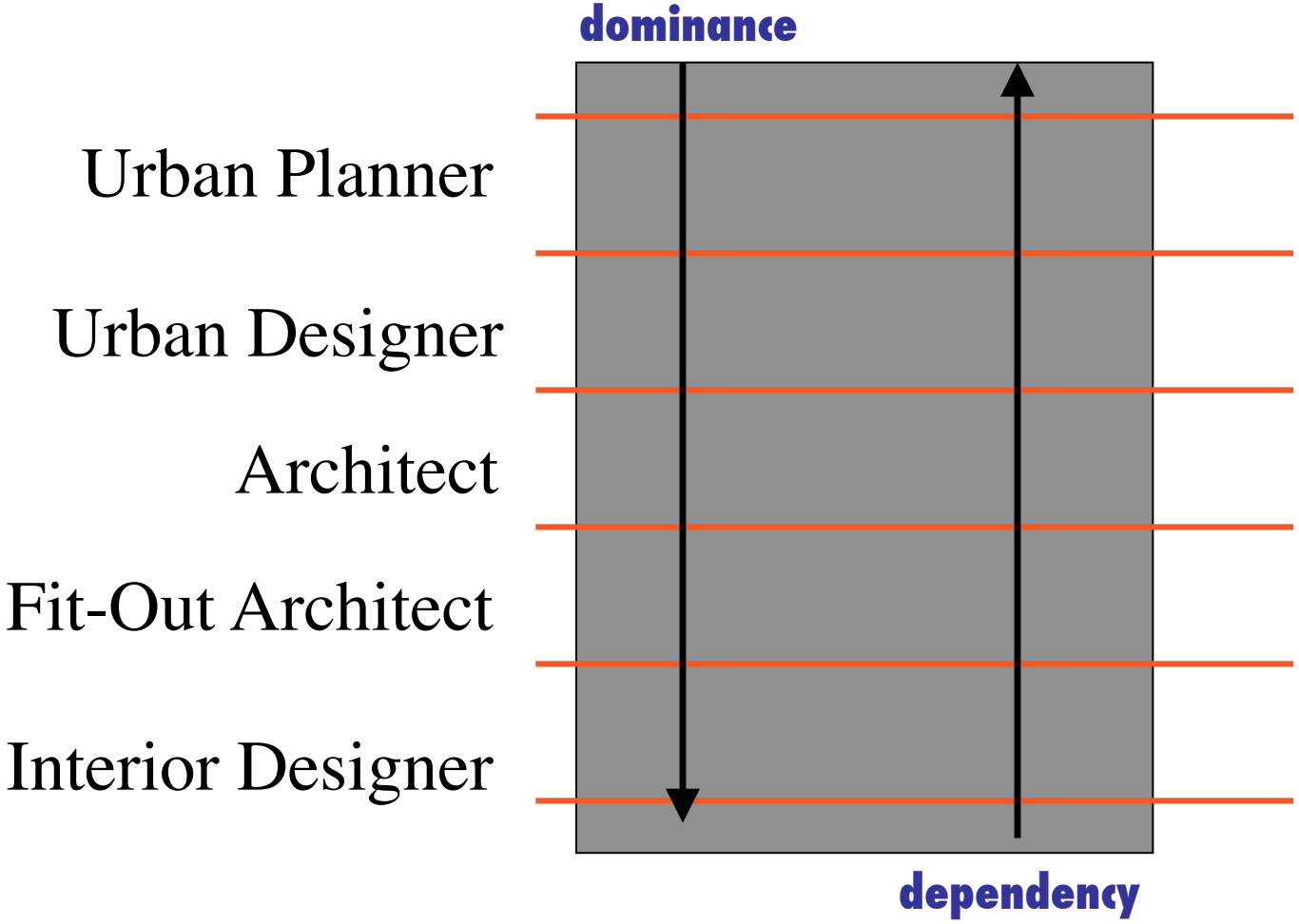
We need design exercises to help us do a better job making the built field bloom…

Kinds of Exercises

based on a concept of levels, as for example:

Urban Structure	Urban Planning
Urban Design	Urban Designer
Base Building	Architect
Infill	Interior Architect
Furnishings	Product Designer

Levels of intervention guide our work



Kinds of Exercises

- *Documenting environmental themes, patterns and systems*
- *Taking account of how environment transforms;*
- *Revealing many actors;*
- *Designing constraints for others to follow, and to follow constraints set by others;*

The Street Space Exercises

Bern, Switzerland

- Studying precedents as one basis for designing;
- Documenting themes
- Selecting constraints we want to emulate.

The Street Space Exercises
Bern, Switzerland

Kinds of Constraints

1. **Ways of building**
2. **Defining Territories**
3. **Sharing territory**
4. **The street façade as part of the urban tissue**
5. **Thinking in section**
6. **Entries**

The Street Space Exercises

Bern, Switzerland

Themes

Diagrams were Made to capture the basic themes of the Bernese arcade typology

The Street Space Exercises

Bern, Switzerland

Students were given adjacent sites in a city where we would explore variations on the Bernese theme.

The Street Space Exercises
Bern, Switzerland

Explorations

Another graduate studio: An urban design studio focused on a new academic quad on the Ball State campus, using collectively developed "form-based codes" to guide each student's scheme.

The Academic Village

Studies of Form Based Codes and architecture in the University context

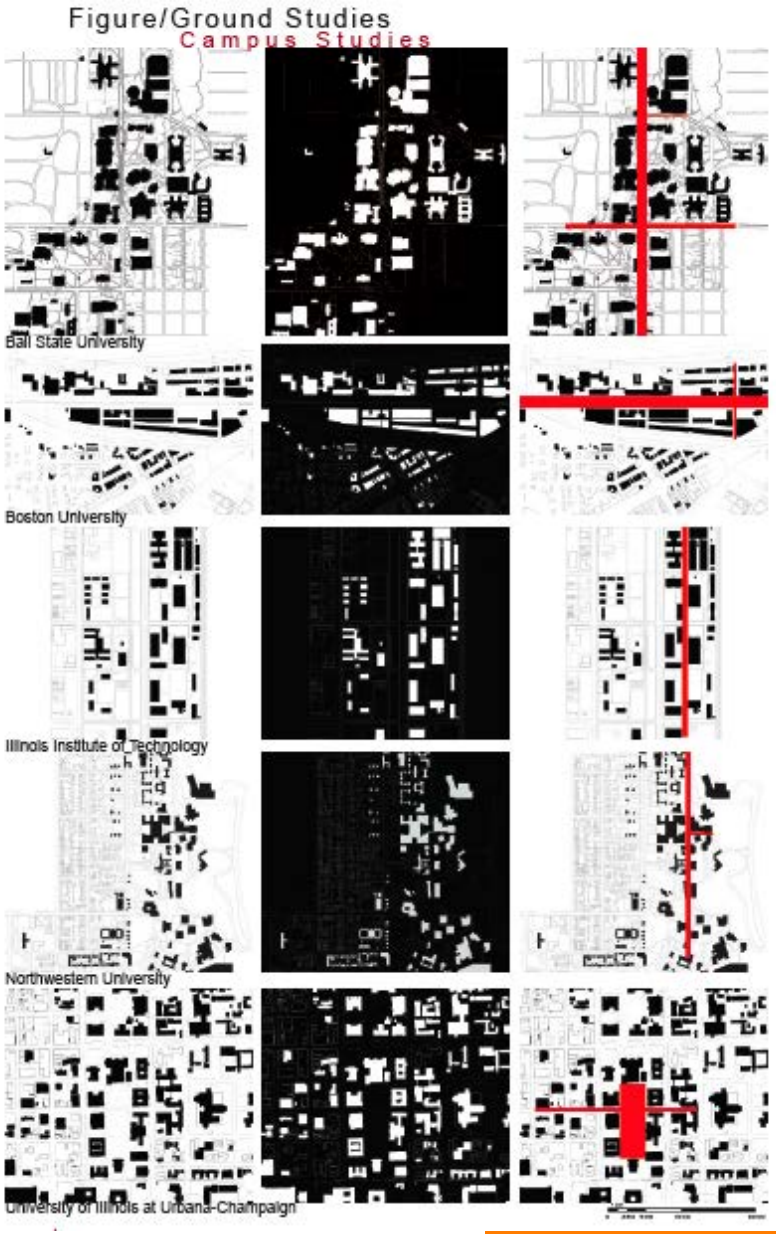
Goals of the Study

First, we studied the Ball State Campus for its history, context, patterns and themes - open space, building types, functions and so on.

The Academic Village

Studies of Form Based Codes and architecture in the University context

We also compared the campus with other university campuses.



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We also studied issues of Sustainable and “green” architecture and technology.

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Studies of Form Based Codes and architecture in the University context

Form Based Codes

Next, we developed FORM BASED CODES.

These “CODES” were developed by a consensus process.

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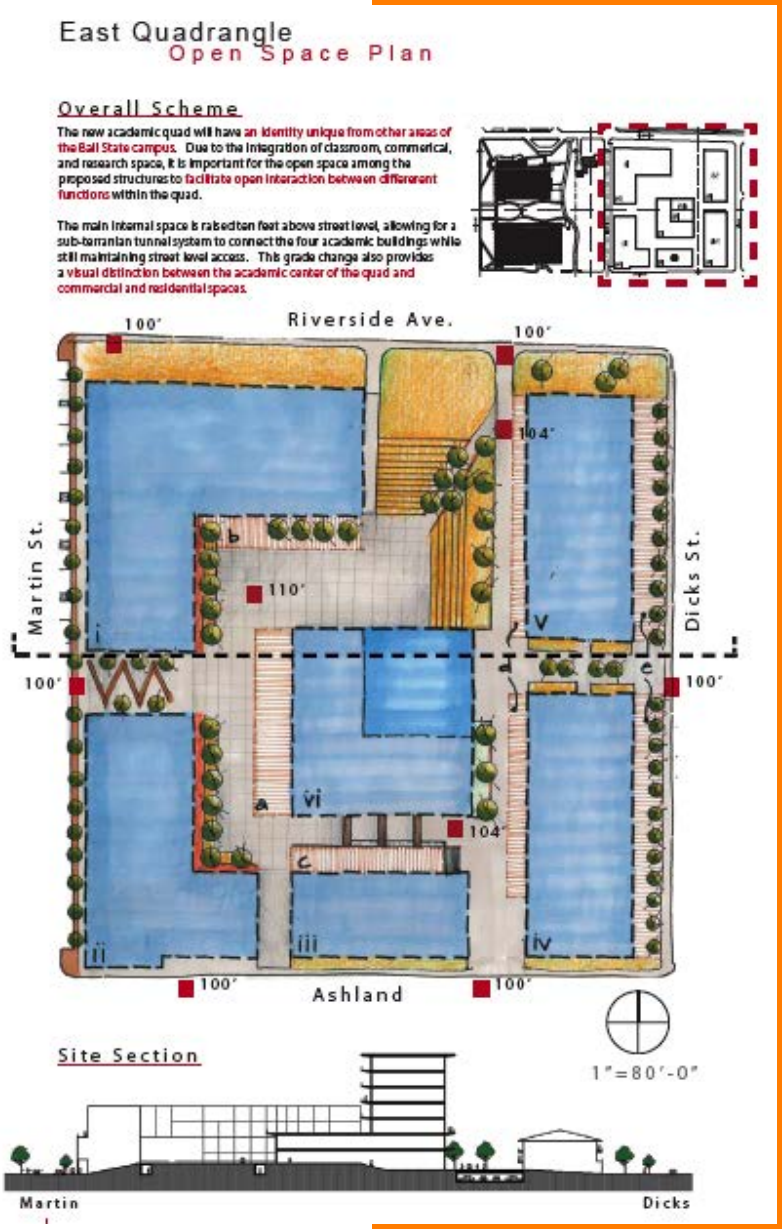
Studies of Form Based Codes and architecture in the University context

A plan and cross section of part of the new campus development area, showing the massing concept for new buildings and public space.



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Studies of Form Based Codes and architecture in the University context

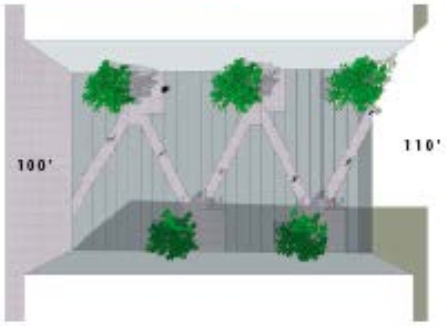
East Quadrangle
Open Space Plan

Vertical Transition [1]

The transition space between the business school and the science building is part of a major axis that terminates at the research tower. This space will be a grand entry into the academic plaza at the top of the grade change.

In order to allow all users to equally appreciate this space, a ramp will be incorporated into the steps to create an interesting merging of the two paths of travel. This type of staircase was accomplished by Rem Koolhaas in the Illinois Institue of Technology Student Center, noted in the photos below.

Grand Stairway



Aerial view of staircase

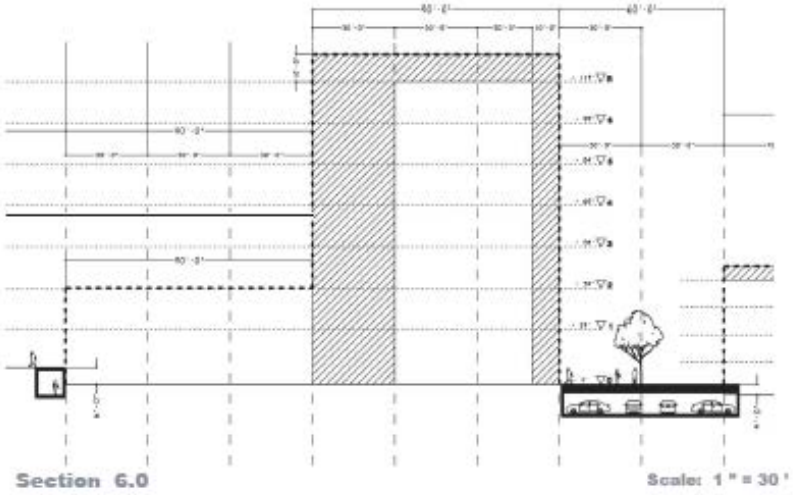
Perspective from Martin St.

Images of Koolhaas staircase from University of Waterloo

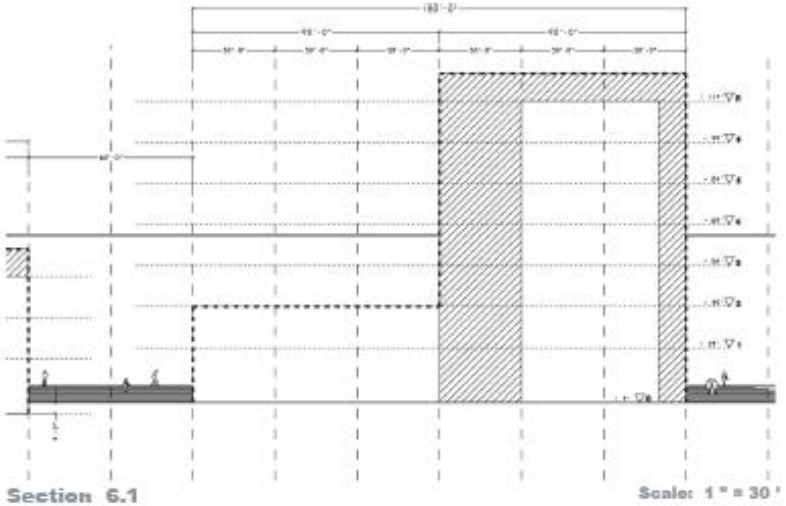
details of some of the public spaces…

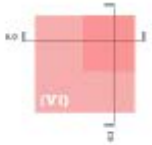
The Academic Village

Studies of Form Based Codes and architecture in the University context



Cross sections showing maximum and minimum building bulk and the required floor-to-floor dimensions all buildings would follow.





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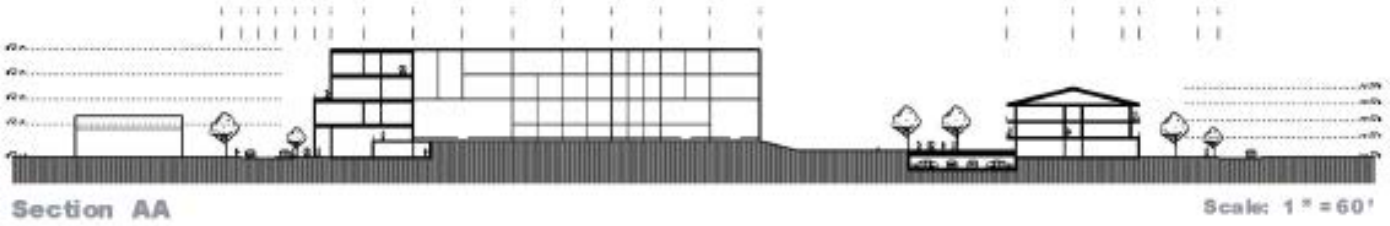
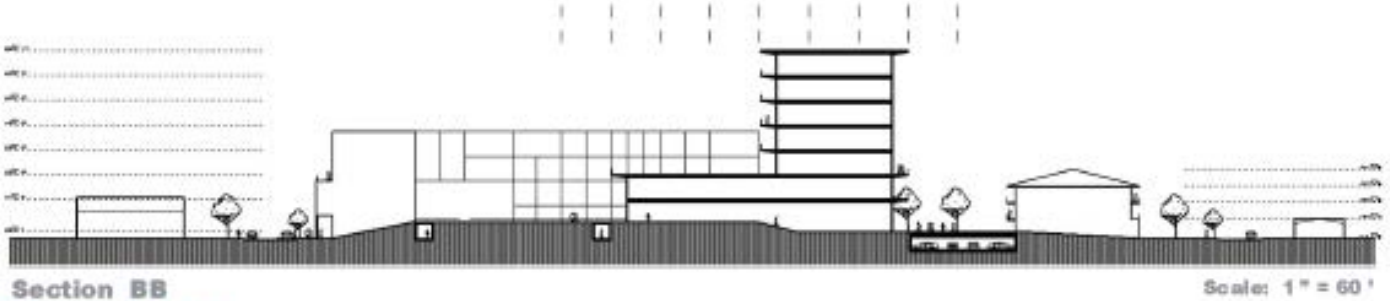
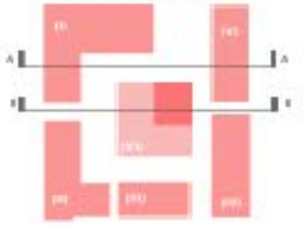






Form Based Codes

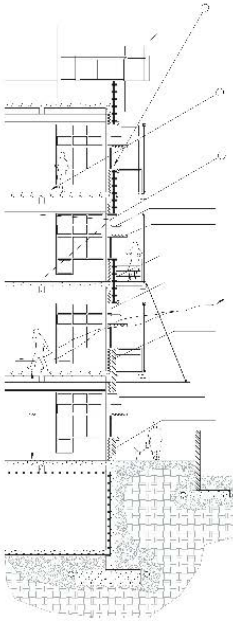
The Academic Village

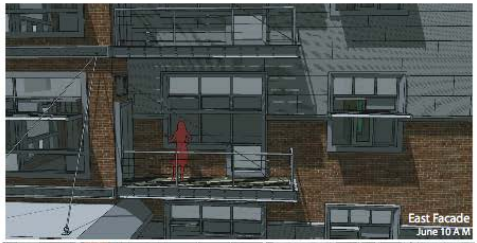
Studies of Form Based Codes and architecture in the University context

Seven different projects sharing common themes

Kendall / Teaching Architecture Students to Work with Distributed Design

d. Sustainability





- Lighting studies were conducted to ensure the accuracy of sunshading devices of the facade such as louver systems, translucent glass, and neighboring balconies

- Operable windows controlled by users of the space allow for natural ventilation to accomodate the comforts of the individual resident
  - A band of opaque, operable windows is maintaned throughout all windows in each unit
  - These windows are located just above head height allowing for wind to enter through lower windows circulate the space and exit the building
- There are green roofs located on top of each building
  - Reduces heating and cooling loads due to temperature regulation
  - Alleviates storm water draining directly into the system
  - Suppresses carbon in the atmosphere; introduces fresh oxygen

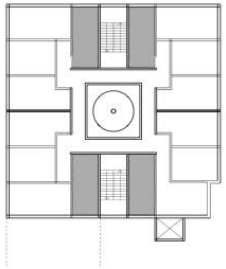
e. Facade

- Exterior materials consist of brick on the bottom third of the building and a metal panel system on the top two - thirds
  - Anywhere the two aforementioned materials come together the metal panel system overlaps the brick giving sense of "old meets the new" (see band of trim for the windows located above the woman's head in the perspectives)
  - This overlapping of materials runs congruently with my concept of the site; the idea of many layers merging at this one particular point or inhabiting the in between (i.e. town + gown relationship or university + village overlap)

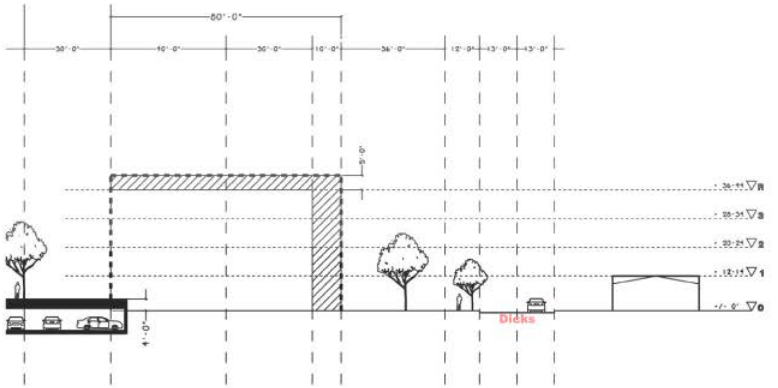
- High panels of translucent glass filter out harsh sunlight giving adequate daylight no matter the time of year

f. Capacity to Accomodate Various Scenarios

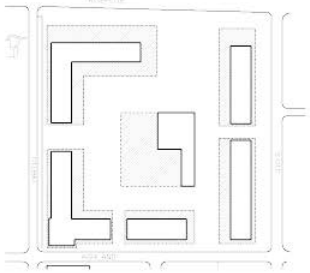
- To the right is a possible layout for a dormitory building with the same structural grid and center atrium as an ordering element

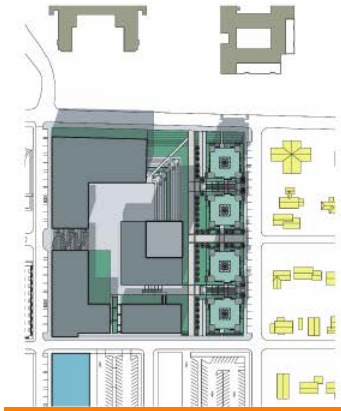


h. Compliance with "form-based codes



g. The form based codes established an approximate floor to floor height of 12' - 14' for a three story structure resulting in a maximum building height restrication of 44'.
  - This rule was broken due to a lack of housing density created on the site due to the orientation of the buildings resulting in a height of 57' from the street level to the top of the corner towers
- The rules established for building footprints compromised in a manner conducive to its overarching goals
  - The general rules for setbacks and sightlines were followed except the 2 large housing chunks were divided into four buildings
- These buildings remain joined by sub grade parking as suggested by the rules





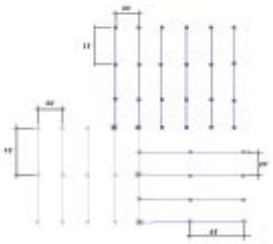
Another scheme

Structure

Type: Steel

The Research Center uses a steel structural system comprised of three major zones, where the tower has its own zone. Zone 2 runs perpendicular to zones 1 and 3 due to large lecture halls on the ground floor that require larger spans.

Structural Zones
NTS



Structural Grid
NTS

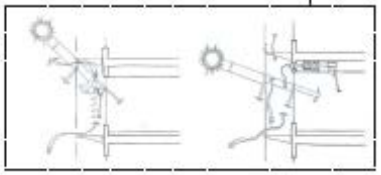
HVAC

The HVAC consists of two major shafts and one major branch along the service "corridor." The base has a separate system to cut back on energy required for 100% air intake in the laboratory tower.

Second floor HVAC
NTS

Section showing HVAC

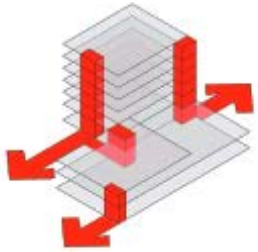
The roof/facade of the greenhouse areas is double skinned, where the air pocket minimizes summer heat gain and maximizes passive heating in the winter. This facade helps regulate the temperatures in the greenhouses.



Egress

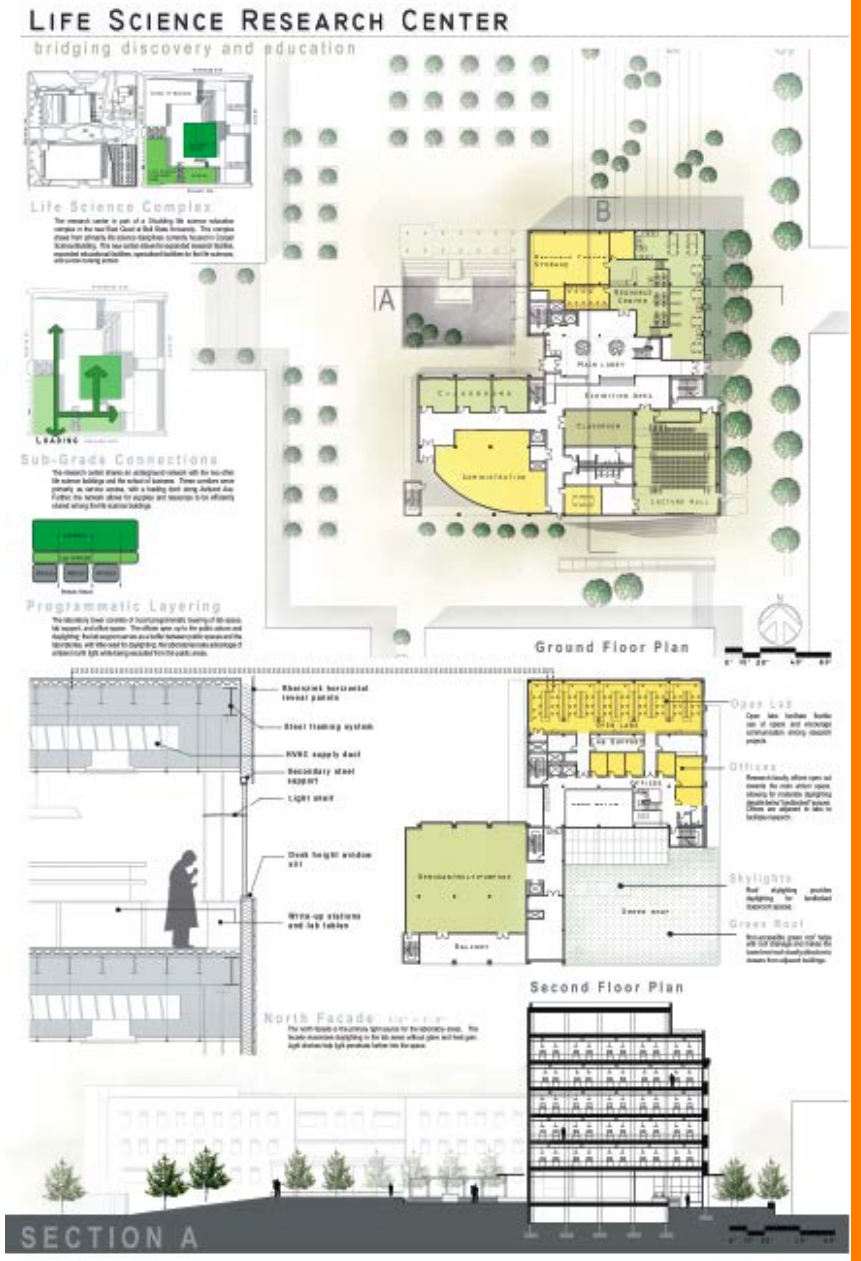
Each floor above the ground level has two means of fire-rated egress. The second floor (shown) has four due to an additional wing. All upper floors follow the same egress plan for the laboratory tower section

Second floor evacuation plan
NTS



Egress Towers

A third proposal



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Sustainability
Daylighting

The most significant sustainable principle addressed is daylighting. Daylighting not only reduces the need for electric lighting, but also increases the level of productivity and enjoyment in the building spaces.

With the use of an atrium lightwell, 100% of offices and labs have either direct or indirect access to daylight.

Programmed space with direct access to daylight

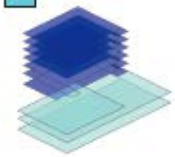
Programmed space with indirect access to daylight

Sustainability
Separate HVAC

The laboratory tower requires 100% fresh air intake for every cycle. The tower area is served by an HVAC system following this requirement, whereas the base uses a separate system that allows for recirculated, eliminating unnecessary energy spent in filtering and circulating fresh air.

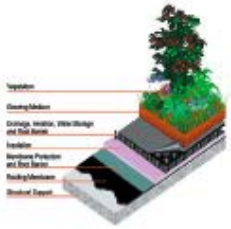
Primary air circulation system (100% fresh air intake)

Secondary air circulation system



Sustainability
Green Roof

The laboratory tower requires 100% fresh air intake for every cycle. The tower area is served by an HVAC system following this requirement, whereas the base uses a separate system that allows for recirculated, eliminating unnecessary energy spent in filtering and circulating fresh air.



Snapshots through Site

View from "Grand Stairs"

View from North entrance to the Quad.

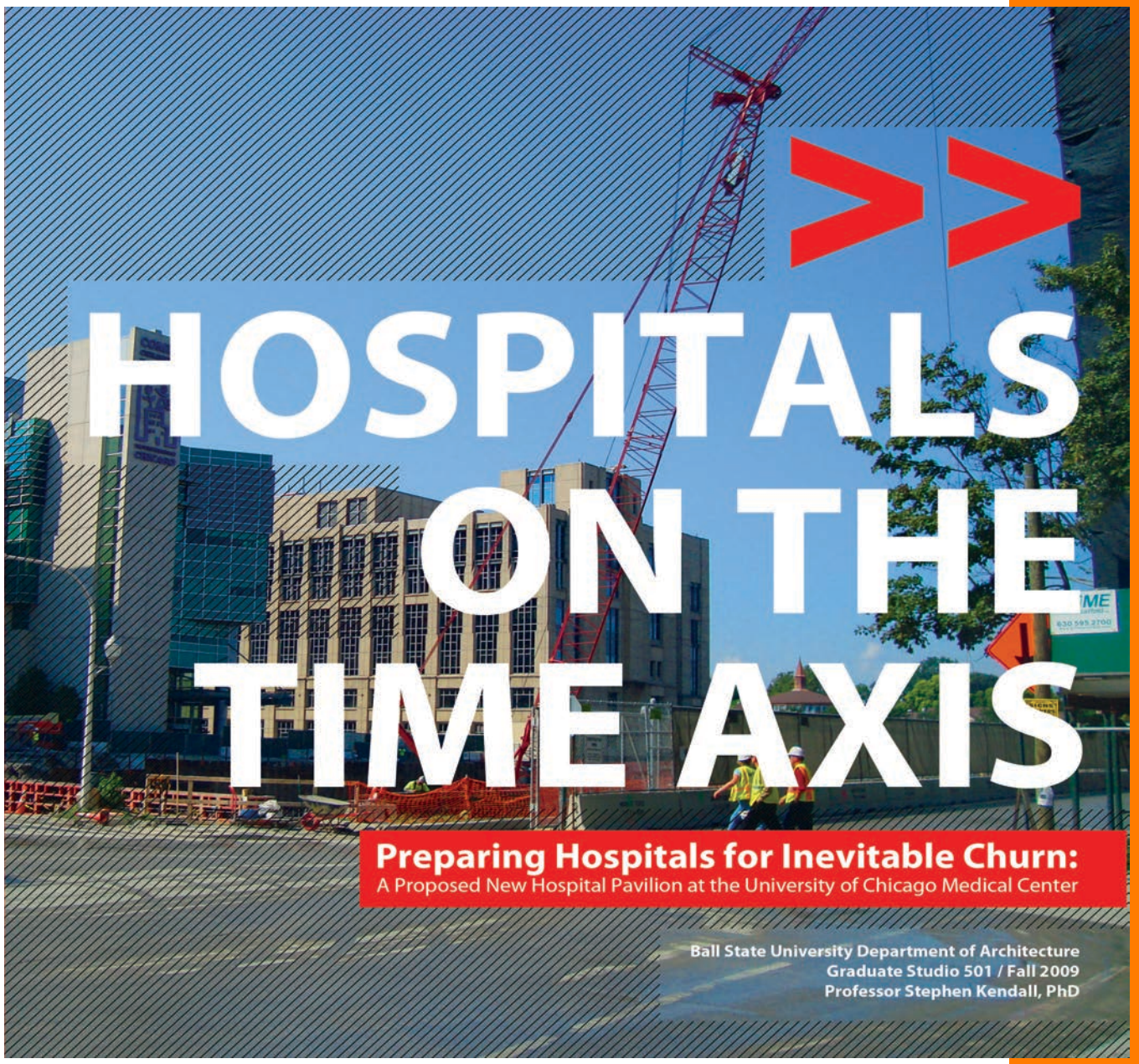
Inside the atrium

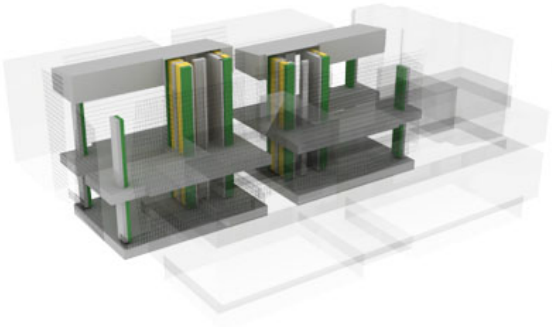
From the Science classroom building.

Facade+Materials

The facade consists of an interplay between the materials brick and rheinzink. The base is composed mainly of brick, whereas the tower is mainly of rheinzink. The brick addresses references to history and tradition, whereas rheinzink addresses ingenuity and change.

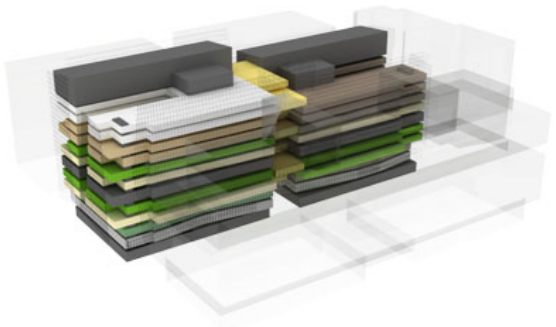
Kendall / Teaching Architecture Students to Work with Distributed Design


HOSPITALS
ON THE
TIME AXIS
Preparing Hospitals for Inevitable Churn:
A Proposed New Hospital Pavilion at the University of Chicago Medical Center
Ball State University Department of Architecture
Graduate Studio 501 / Fall 2009
Professor Stephen Kendall, PhD



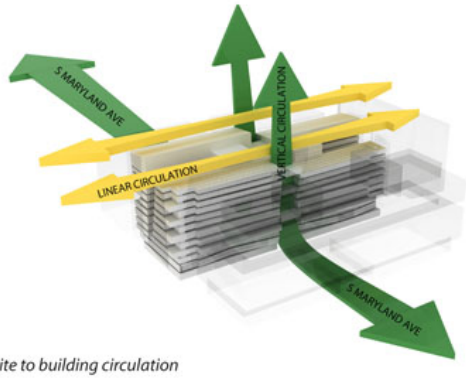
MEP/vertical circulation

- Circulation/Stairs
- Mechanical Chase
- Circulation/Elevators

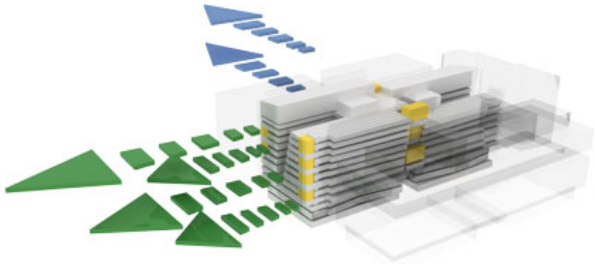


Programmatic stacking

- Mechanical
- Retail/Mechanical
- Emergency
- Diagnostic & Treatment
- Clinical
- Future Shell
- Patient Care
- Public/Lobby
- Office/Lab



Site to building circulation



Views from garden pods

Graduate Student work – a base building for a 1.2 million sq ft project on the University of Chicago Medical Center campus / Fall 2009

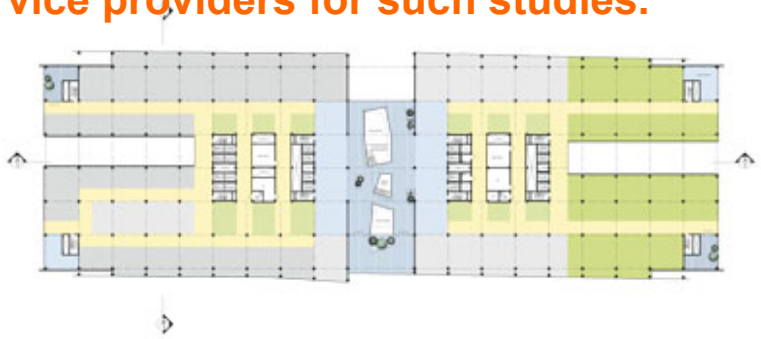
4th floor shell plan

7th floor shell plan

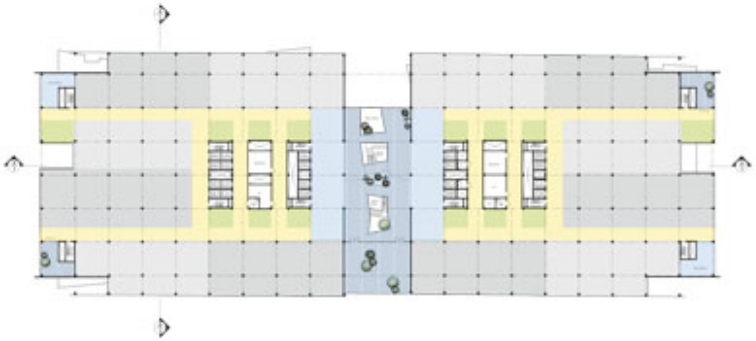
Capacity studies of two floors of the base building showing not only capacity for health care functions but other uses as well.

I advocate that clients ask their service providers for such studies.

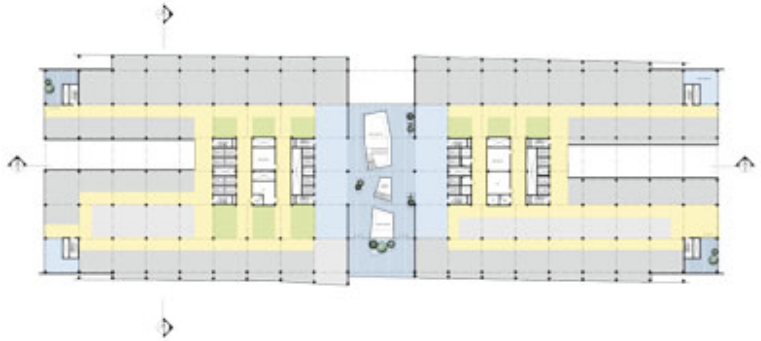
4th floor capacity #1
clinical/research



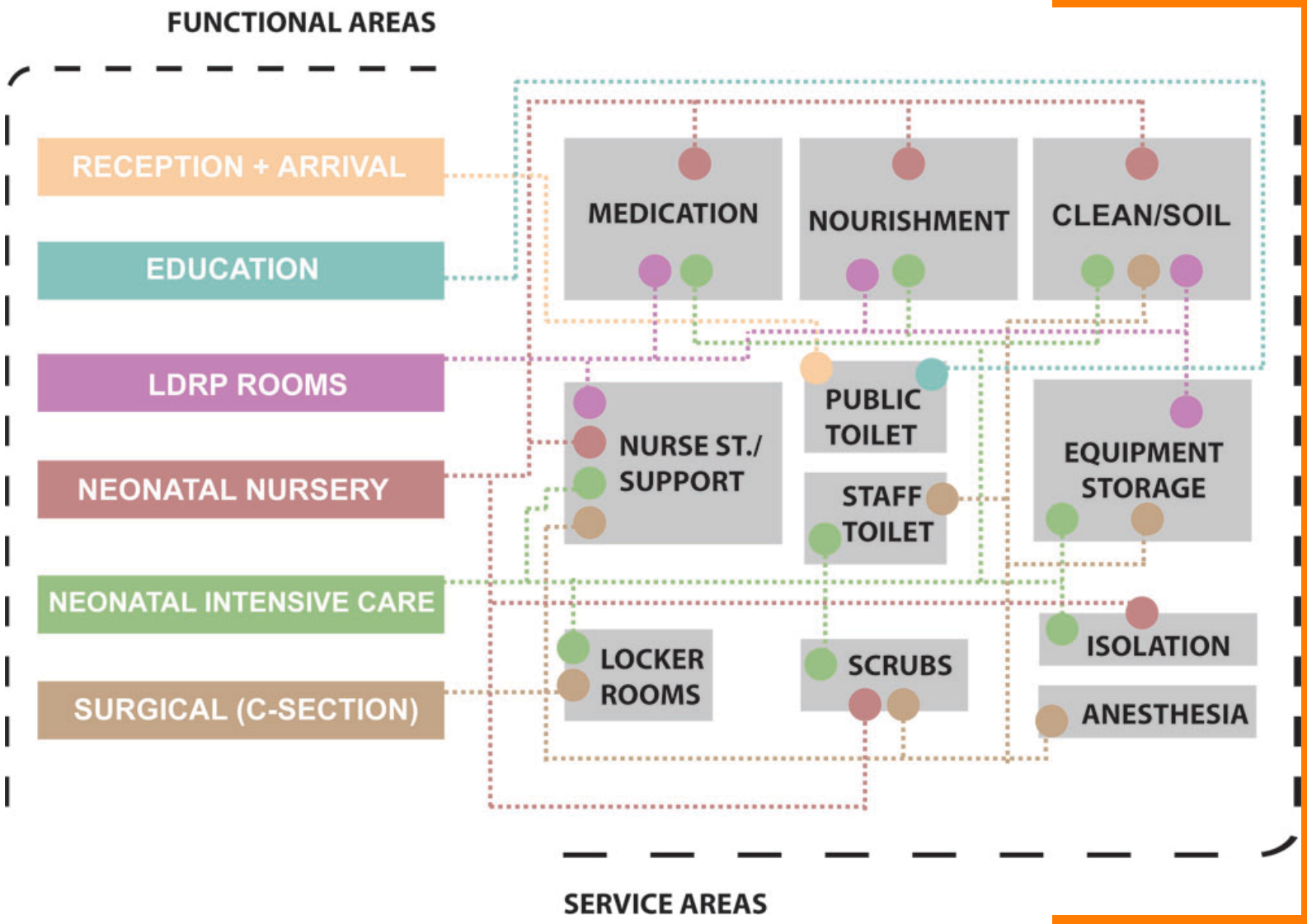
7th floor capacity #1
clinical/ research



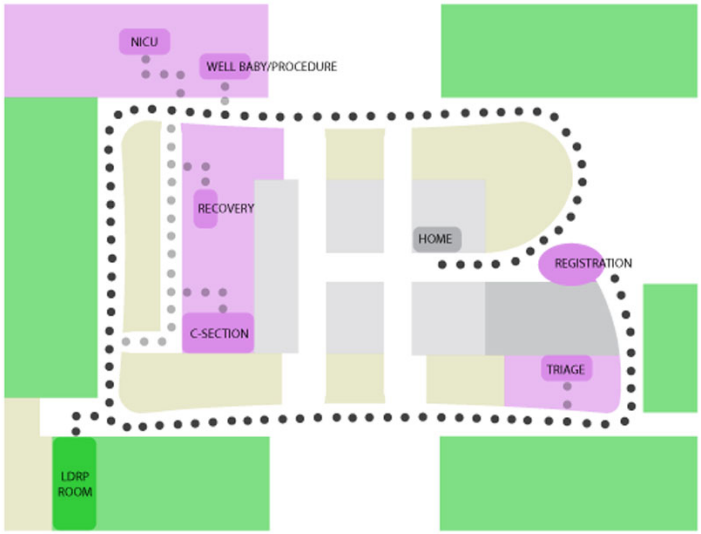
4th floor capacity #2
convention center

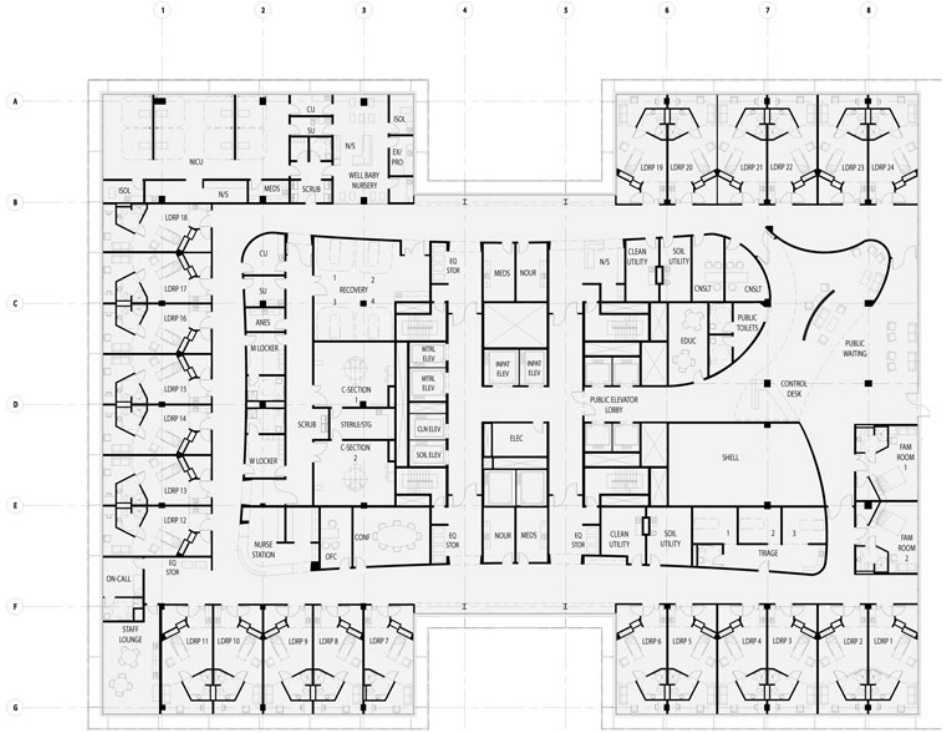


7th floor capacity #2
hotel and suites



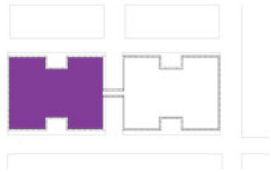
Mapping the functions and adjacencies for the OBGYN Department – a part of the fit-out programming exercise, independent of the base building.





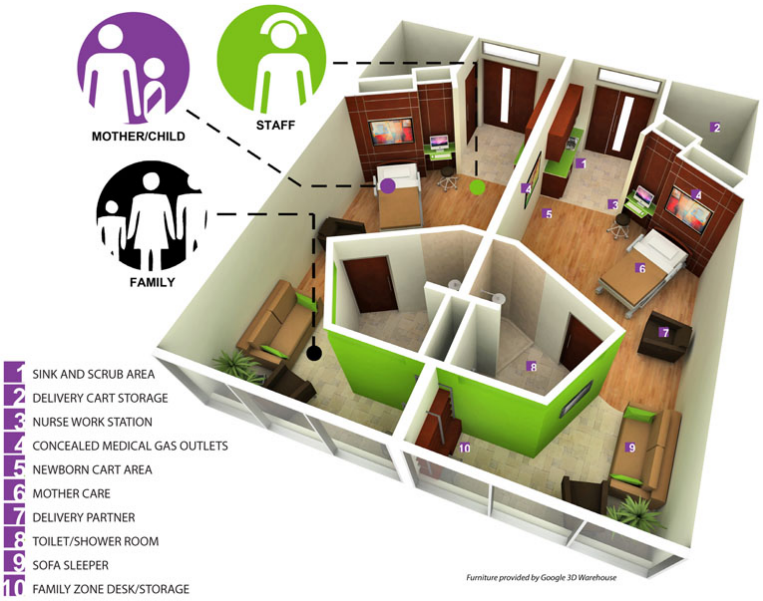
7Th floor plan, birthing center

Patient circulation



Location diagram

Patient circulation



The fit-out scheme for the labor and delivery department, done in the last 4 weeks of last semester. This team did their fit-out scheme in the base building designed by another team…

Students do not easily accept the idea that designing constraints for others to use is challenging and creative.

Students understand constraints or rules as things to be pushed or broken, to find their limits, rather than to find out what they offer and enable.

At an open building workshop I taught at National Taiwan University of Science and Technology

But eventually, students found that working with constraints did not suppress good design!

At an open building workshop
I taught at the University of Pretoria

Constraints are always embedded in socio/political situations.

It's important to find ways to give students opportunities to both **make and use** constraints. That is, to be both leaders and followers,. and to know when to do both…

Because students will find that they cannot always impose their own values on others, they need methods -design methods - that enable them to help those they work with reach agreement under quite variable conditions of practice.

WE NEED DESIGN SKILL EXERCISES

because built environment is about change and transformation as much as about permanence.

WE NEED DESIGN SKILL EXERISES

because we are not soloists…

LET US RECOGNIZE CHANGE AND DISTRIBUTED CONTROL AND LEARN TO WORK WITH THESE FACTS OF LIFE……..