

How I Approach Interdisciplinary Education

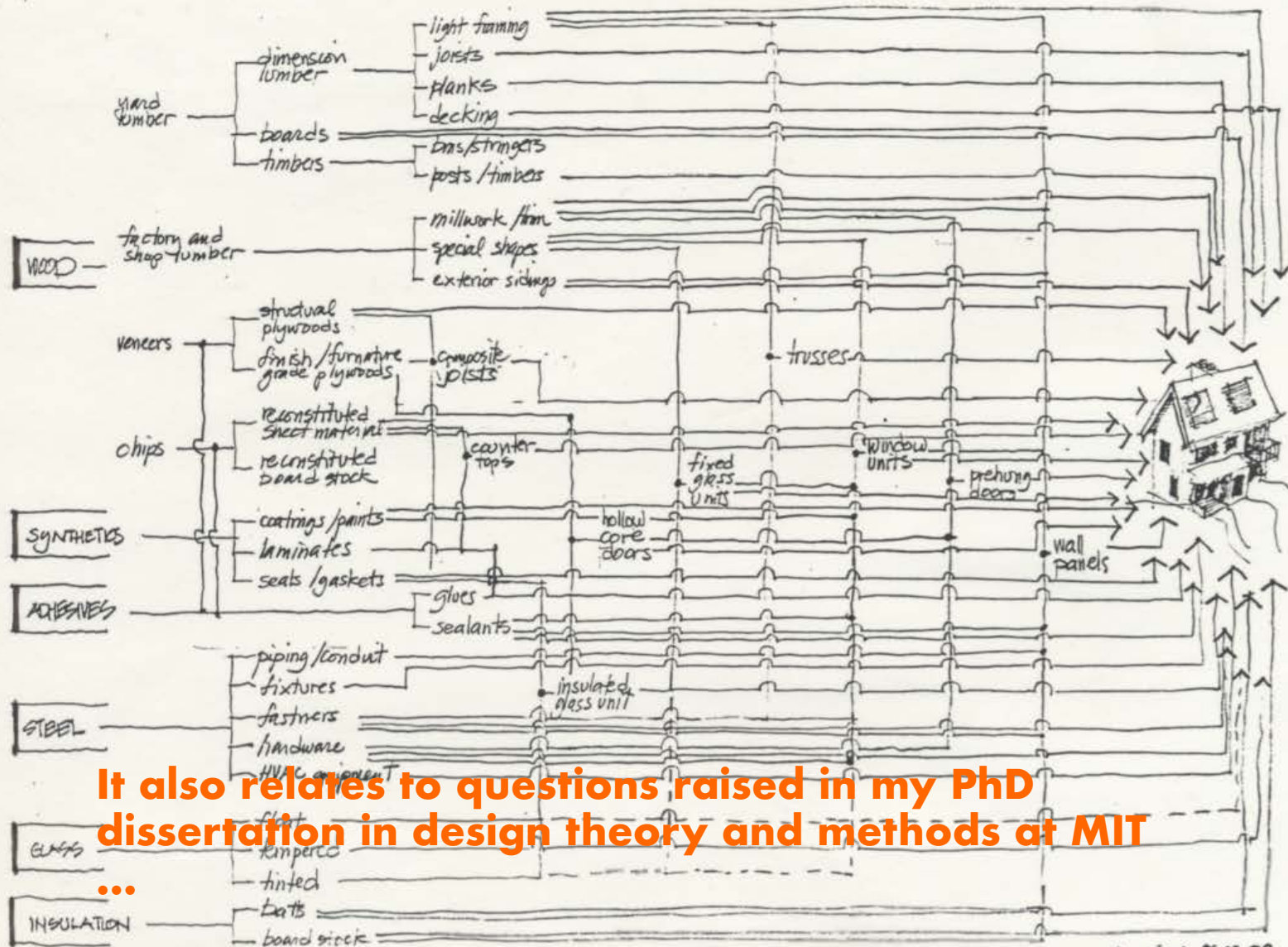
or

Working on Levels of Intervention

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My early years in practice were inescapably interdisciplinary, something possible because there were in fact experts with various kinds of disciplinary knowledge working on what they knew best...





It also relates to questions raised in my PhD dissertation in design theory and methods at MIT

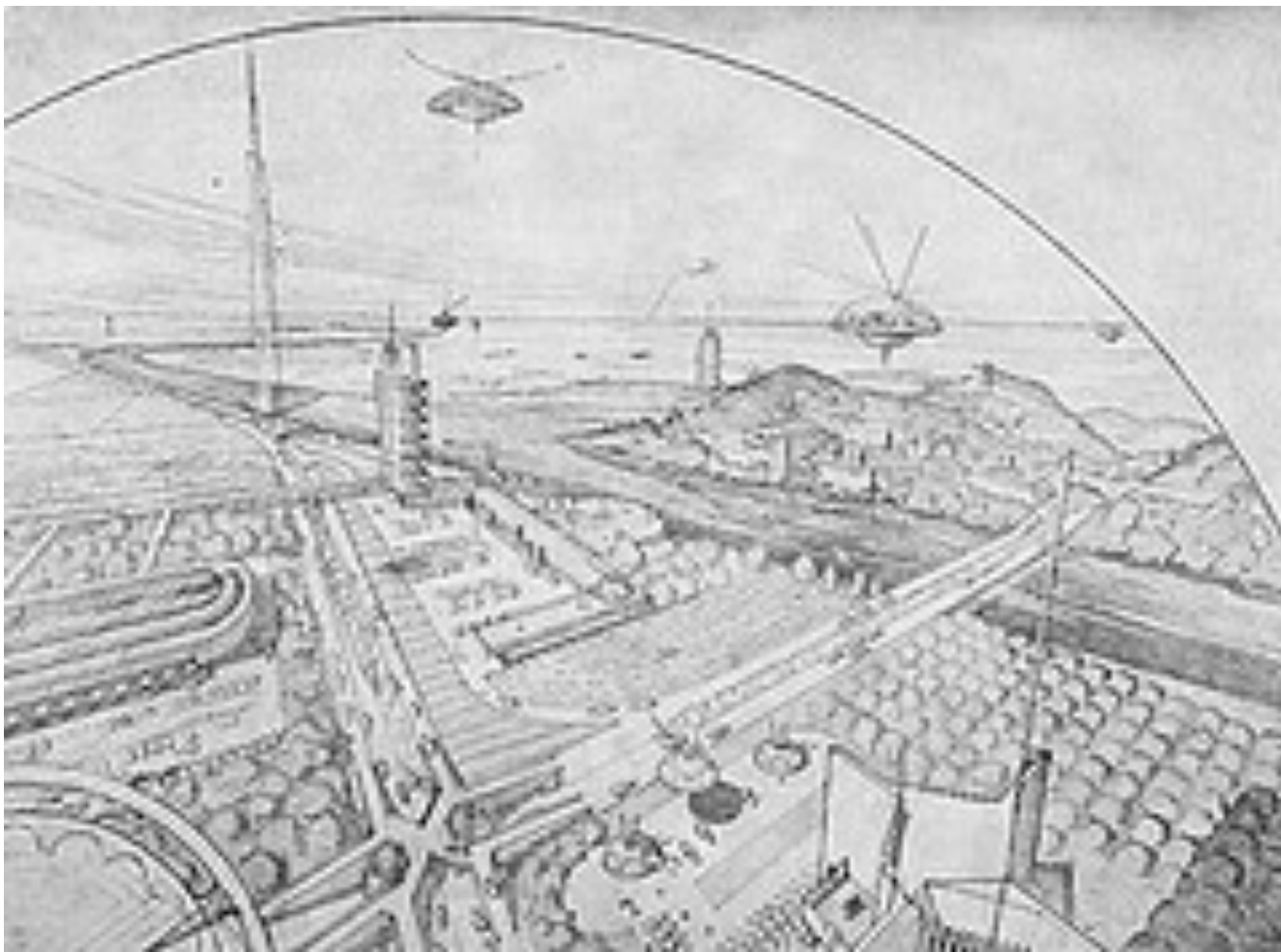
...that was to study the relations of "agents" (various parties including the species called "designers") in value chains...or parts making in the building industry...

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 06.03.24

In the life of the built field, partitioning complex tasks is normal...no single discipline can know it all, and no single designer can do it all:

we have learned to recognize specialization (but less so in architecture...)

**engineers of various sorts
landscape architects
planners of various specialties
architects
interior designers
code consultants
cost estimators
construction managers
programmers
and so on**



But we still operate with the dream of integrated or centralized control...that ideally one person can and should do it all...

An aerial, top-down view of a complex printed circuit board (PCB). The board is green and densely packed with various electronic components, including integrated circuits, capacitors, and resistors. A network of intricate copper traces connects these components across the board. The overall appearance is highly detailed and organized, resembling a complex urban grid or a sophisticated architectural plan.

Thus the idea of “integrated design” is widespread...but no one really can explain it...

maybe “coordinated” design is what is really meant...or needed?





How do we explain the ways in which the various design disciplines relate to each other in decision-making processes?

Not very well!!

One way to explain how disciplines (agents of the species called designers) relate to each other and the objects of their affection is through a general model of environmental structure –

a “LEVELS” model

(following diagrams of Levels is drawn from John Habraken’s work)

urban structure

urban tissue

building

interior fit-out

furnishings/equipment



**Related to scale, but
more importantly...
a dependency
hierarchy ...**

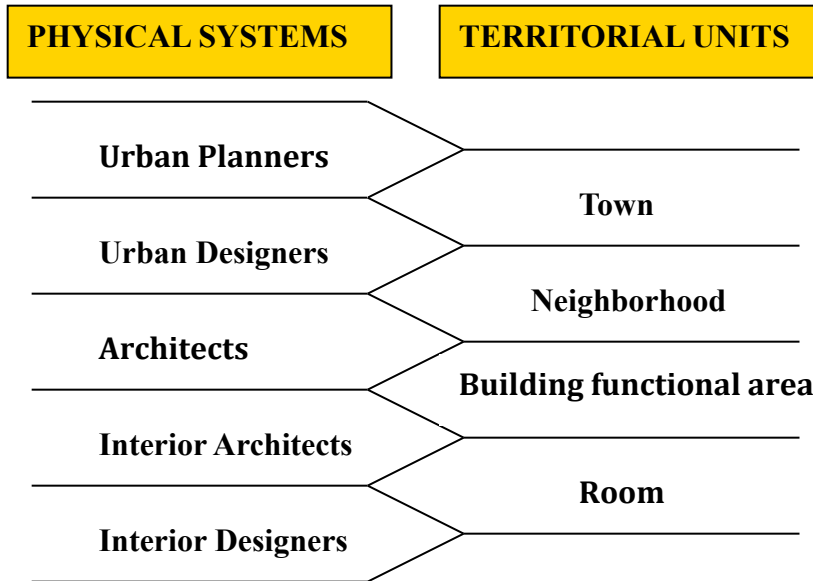


the urban structure is permanent to the neighborhood, which is permanent to the building, which is permanent to the interior fit-out, which is permanent to the furnishings and finishes

....

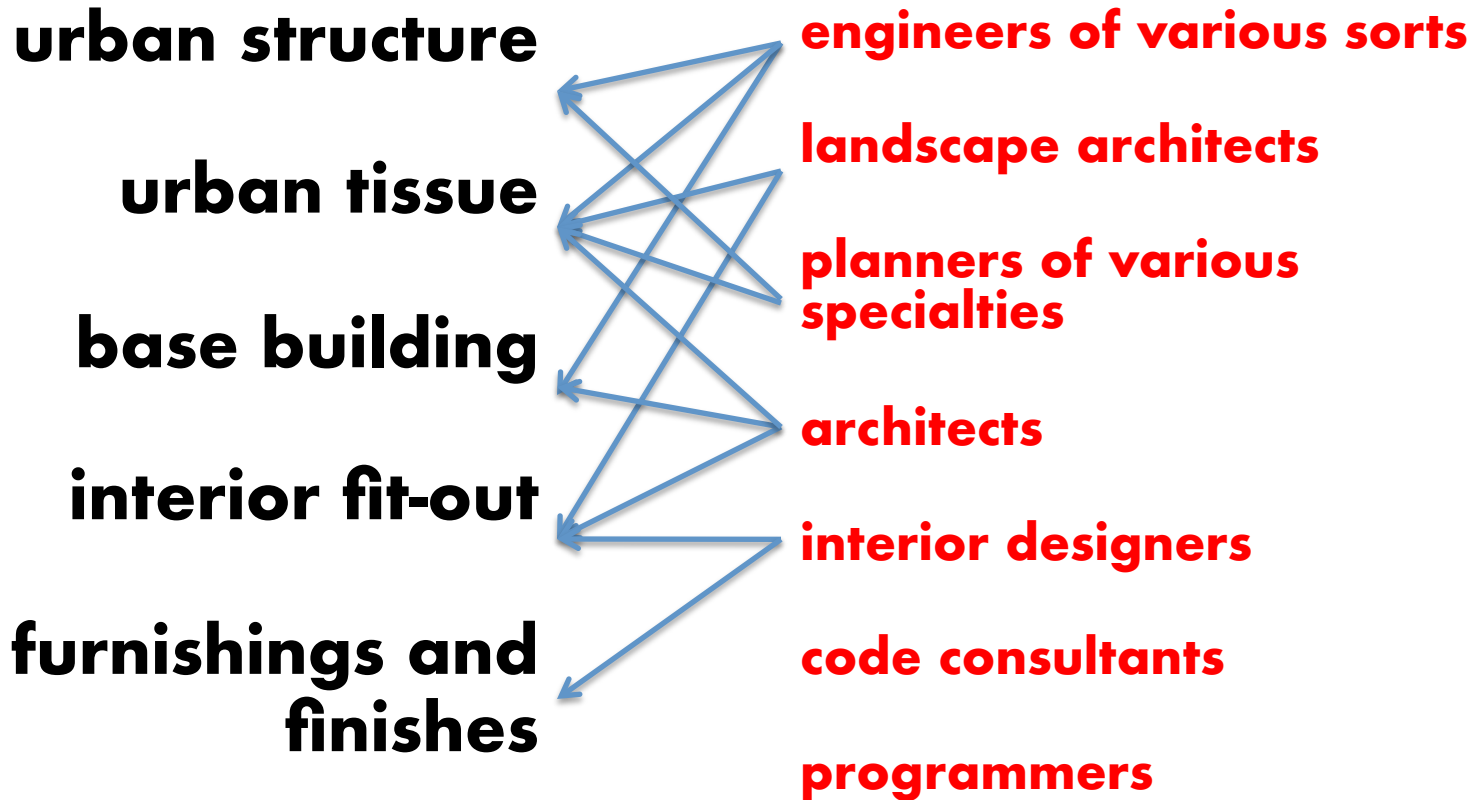
generally speaking....

The built field is continuous in time and space...it renews itself part by part...

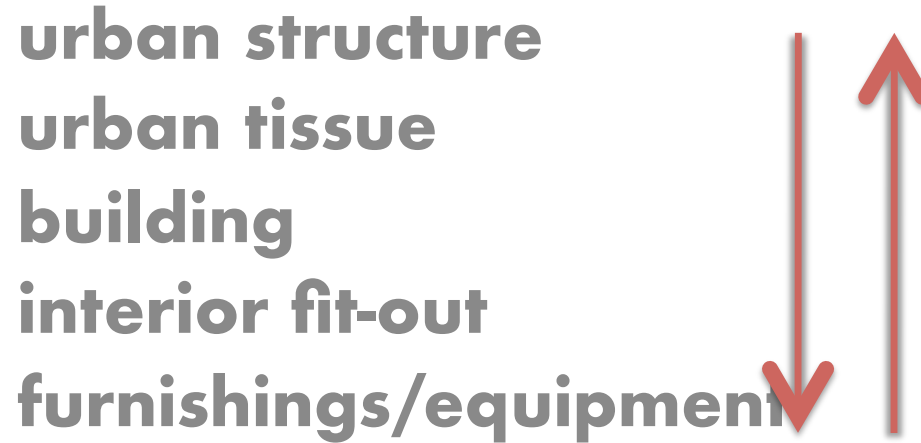


...here is a “levels” model in which professional domains are related to territorial units of occupancy...

But the story is more complex...we have disciplines that are capable of operating on more than one level...



But what is the structure of such relations?

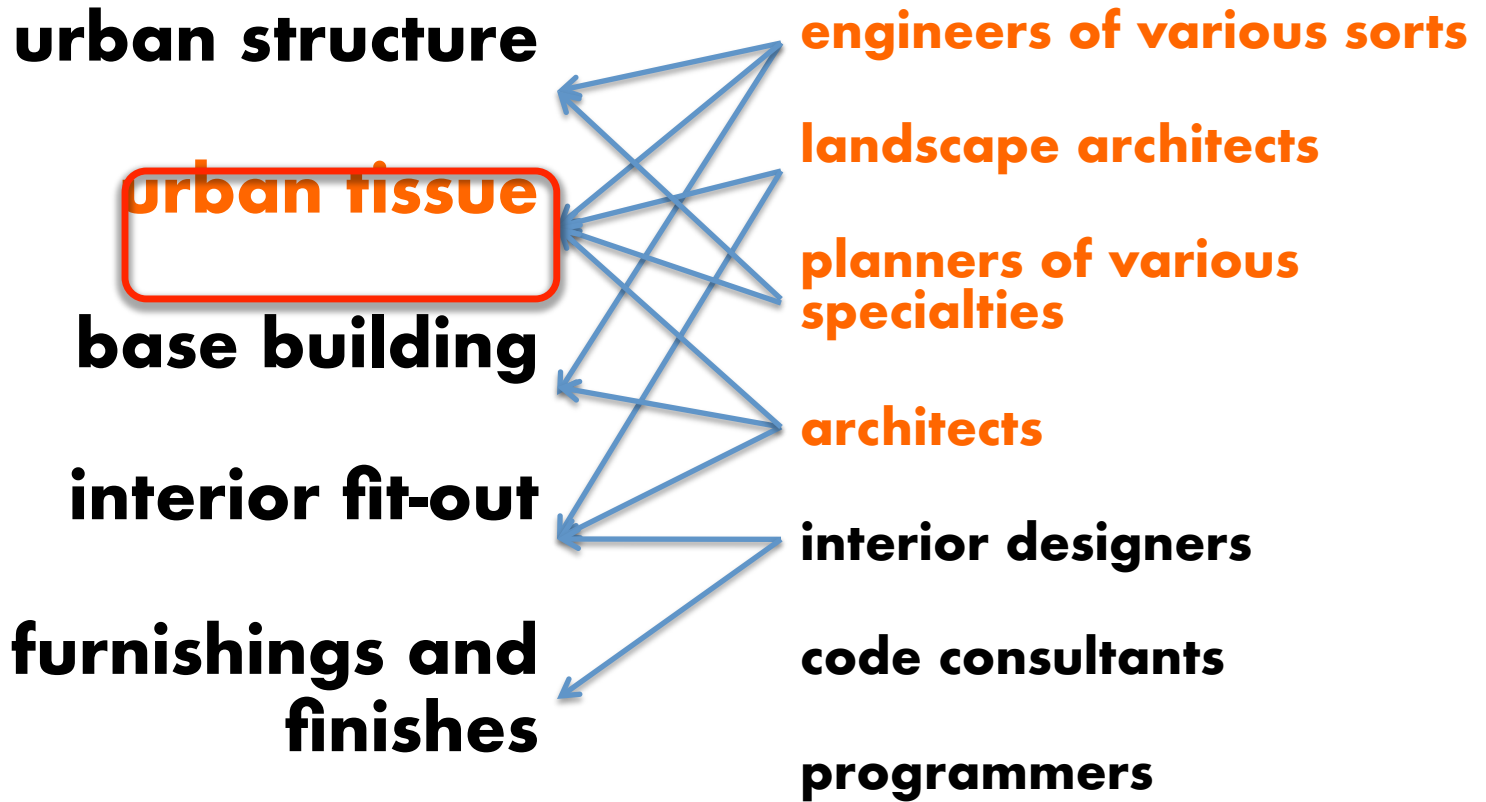


Implementation proceeds DOWN the levels

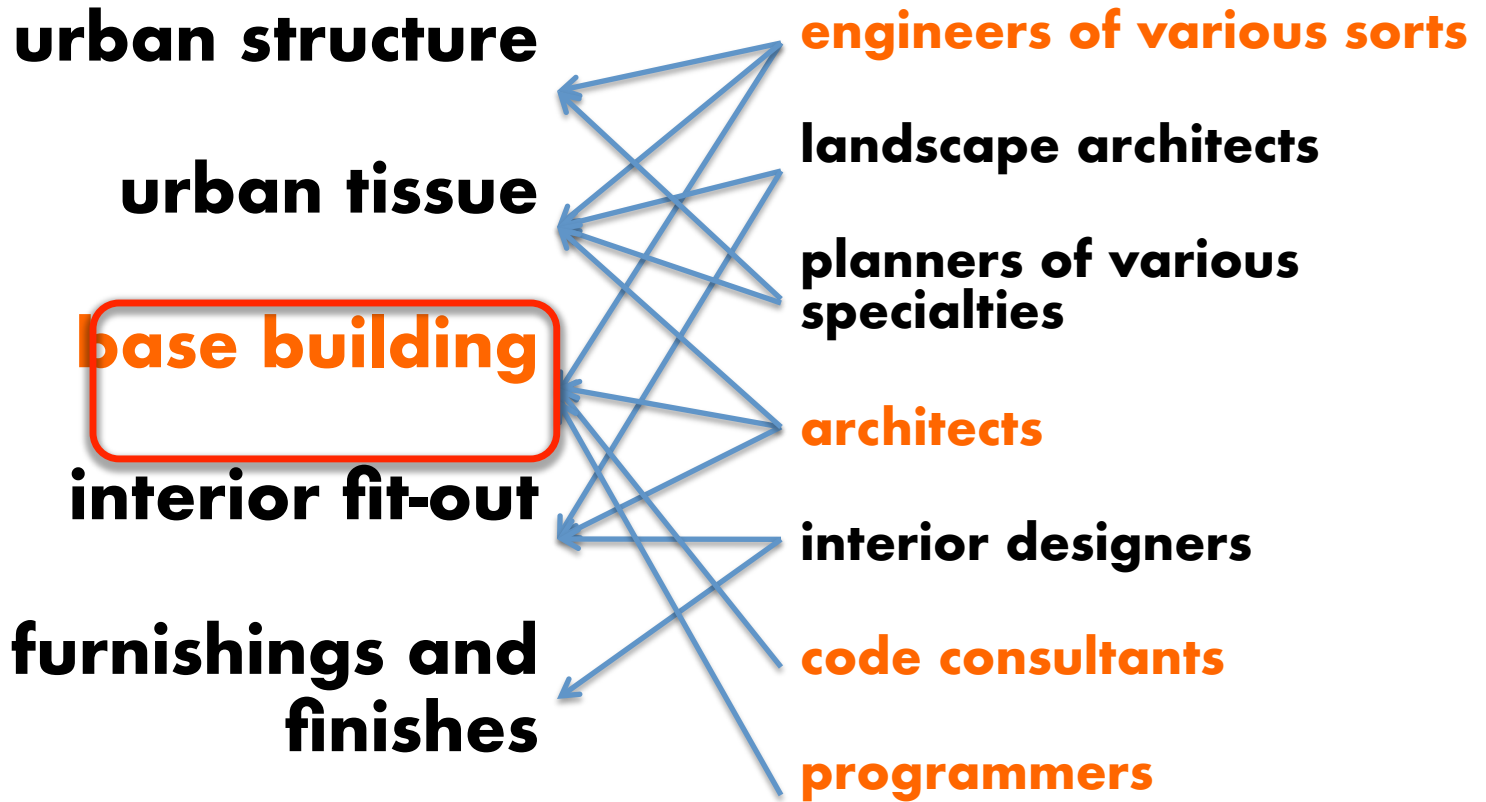
Design goes UP and DOWN

Change is possible at a lower level without disturbing the higher level

At any LEVEL, many design disciplines may be taking part on a project




Or...



**Practitioners know that its
one thing to work with other
disciplines at the same level**

**and another thing to work
with other disciplines ACROSS
LEVELS**



**urban structure
urban tissue
building
interior fit-out
furnishings/equipment**

**That distinction is the subject of my
explorations in pedagogy**

The Greek God Janus points the way!



We need to understand interdisciplinary relations at the same level

We need to look both ways!

And we need to understand interdisciplinary relations across levels

This leads to the question of
Learning to make rules (or themes)
Learning to work with rules (or themes)



FOR EXAMPLE:

A team working on the urban tissue level **makes rules** for the (many) teams working on the building level over time...

The various teams working on different buildings **shares these rules** and work within their constraints.

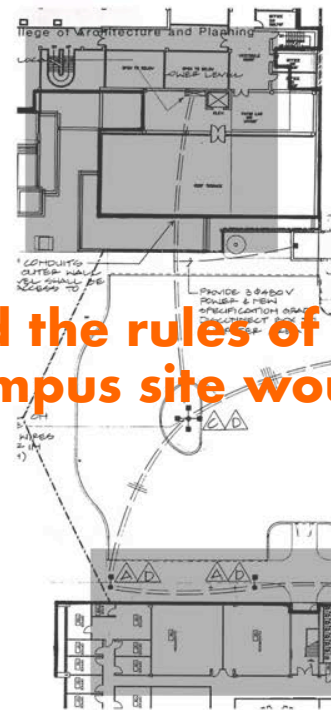
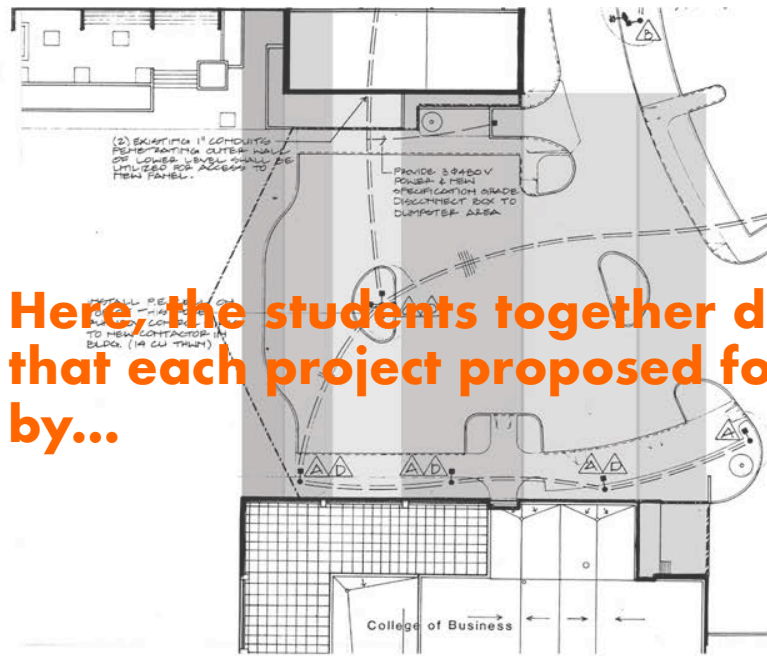
Some examples of how this has come to fruition in teaching:



A freshman Interdisciplinary exercise (the model is 8'x16')

A detailed architectural model of a campus courtyard. The model shows several multi-story buildings with flat roofs and balconies. A central courtyard area is paved and contains a fountain, several trees, and a walkway. The buildings are arranged around the courtyard, and the overall design is modern and functional. The text is overlaid on the model, providing context for the image.

A detail of that interdisciplinary exercise...urban design to start at the freshman level...to get the large picture early....

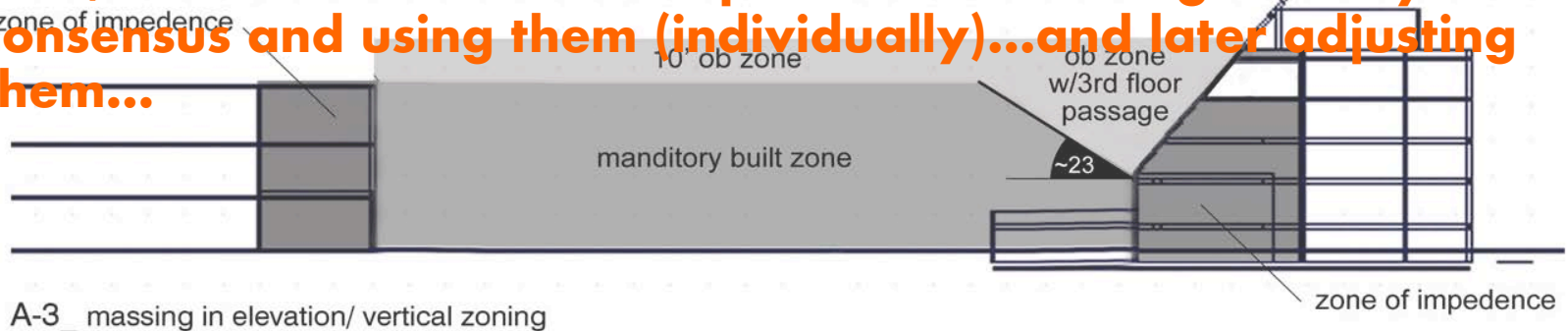


Here, the students together developed the rules of form (etc) that each project proposed for this campus site would abide by...

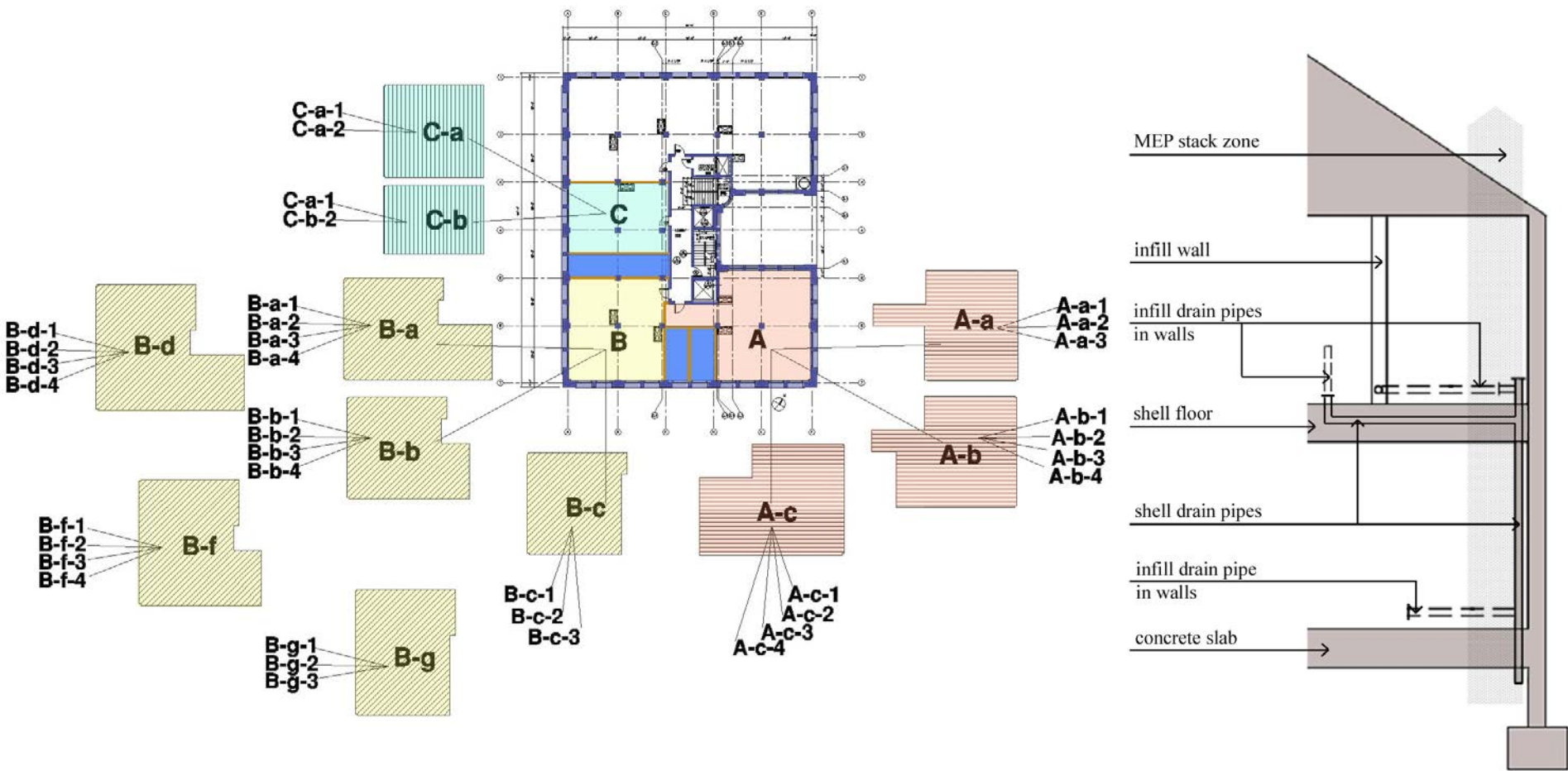
A-1_ increments of massing should correspond to existing adjacent massing

A-2_ maximum impedance on existing buildings

Thus, the students had the experience of making rules by consensus and using them (individually)...and later adjusting them...



A-3_ massing in elevation/ vertical zoning



The idea of capacity is important and very practical. Working at any level, we have a responsibility to make form for the unknown future... because function is no longer fixed...this enables an environmental form to be sustainable...to last...



Because the built field is never finished, we inescapably are looking both ways – “back” or “up” to see what others decided before we entered the scene....

...and...

we look “forward” or “down” to set the stage for others to follow... who we will never meet or talk to....

What have I learned?

- 1. Students (and faculty) benefit most from working with other design disciplines when they understand – and explore - the various relations among the them, mapped in the levels model.**
- 2. Its good for students to learn to make rules (both performance based and instantiated in form). They can use them, or hand them off to others. This demystifies “regulation”, makes it important, and connects to the way the built field comes about and transforms.**
- 3. Because the built field is never finished, learning skills of cooperation, coordination and sharing on and across LEVELS of INTERVENTION is quite practical, as well as theoretically interesting.**

Thanks

