



**Warming up
exercises
for Open
Building**



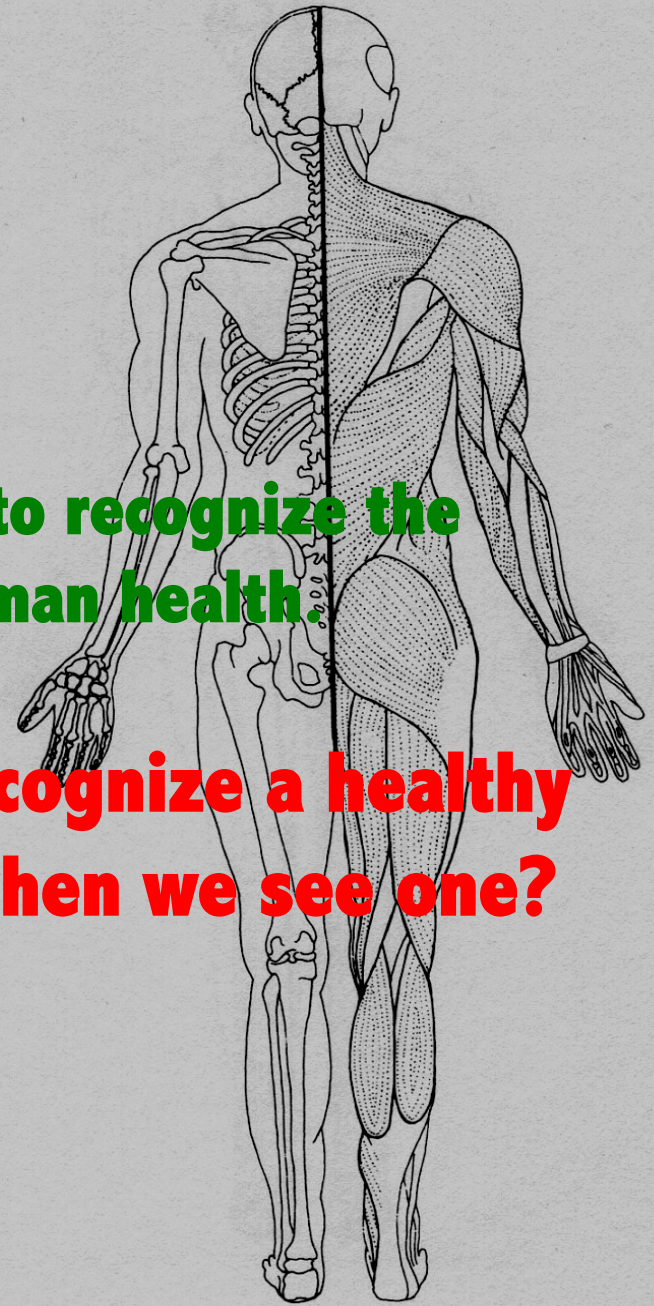
- **Some questions**
- **Some theory**
- **Some examples**
- **What we will do**

Does it help to study built environment transformation in the past as a guide for how to prepare built environment for future transformation?

If so, what do we look for?

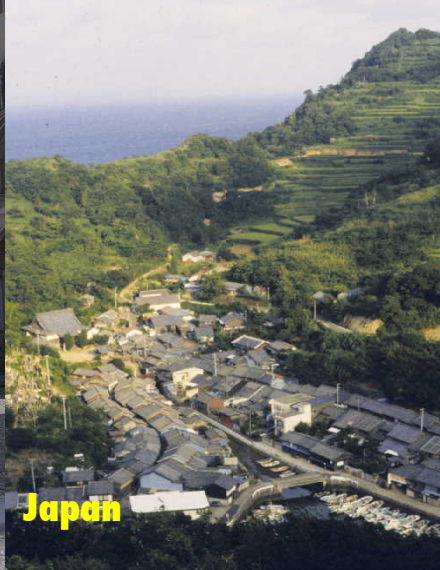
Doctors are trained to be able to recognize the conditions that lead to human health.

How do we – as architects - recognize a healthy built (housing) environment when we see one?





Italy



Japan



Spain



China



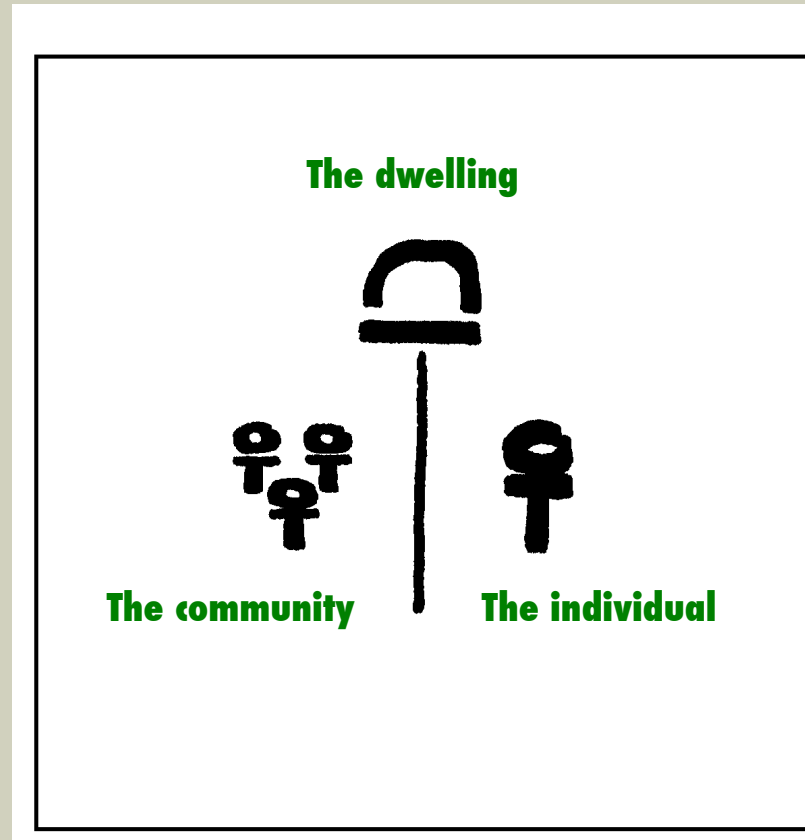
Indonesia



Mexico

We know of everyday environment, sometimes of quite extraordinary quality, often built without much help from architects

We have learned that housing is a result of action in two spheres



John Habraken / ABC's for Housing

The big question:
As the built environment continues to transform, who controls what?



Control (territory)





SOCIAL HOUSING:

SUSTAINABLE ?

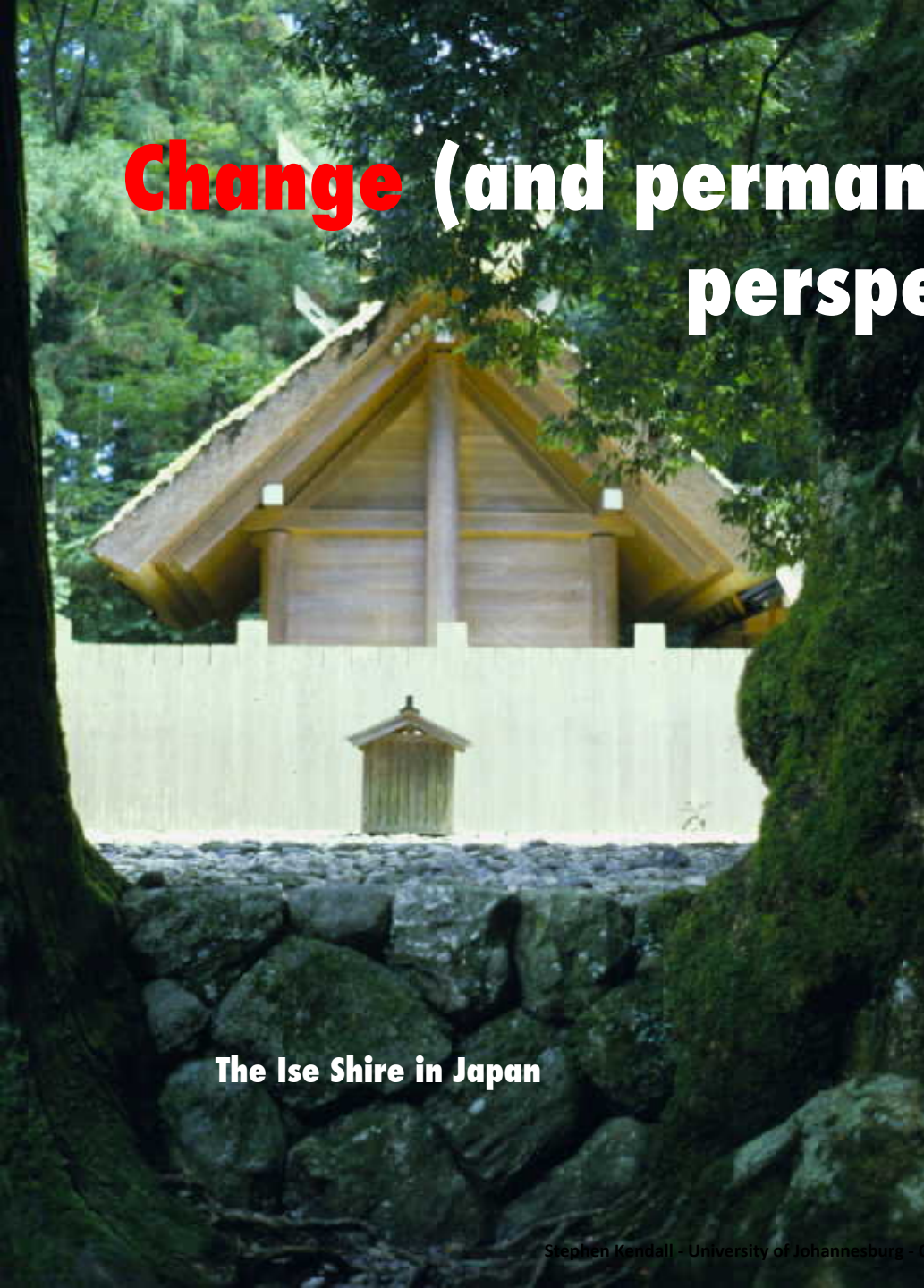
(Mexico City)

**Centralized or top-down control = rigidity
The first thing to be eliminated is the individual**

Unsustainable and ultimately very wasteful



Change (and permanence) is a matter of perspective



The Ise Shire in Japan



Remodeling an apartment in Beijing



We recognize environment as having desirable qualities when it can gradually change

Townhouses in transformation



An interior undergoing transformation



**Most buildings will
undergo gradual
change
spontaneously**



These changes add up to a huge economic reality

An aerial photograph showing a neighborhood in its early stages. The lots are large and rectangular, with many of them being mostly empty or containing only a few small, simple buildings. The overall appearance is sparse and undeveloped.

From meager beginnings....

An aerial photograph showing the same neighborhood as in the first image, but now it is a thriving, densely packed urban area. The lots are much smaller, and the buildings are numerous and closely packed together. There are many trees and a well-developed street grid, indicating significant growth and development.

To thriving neighborhoods



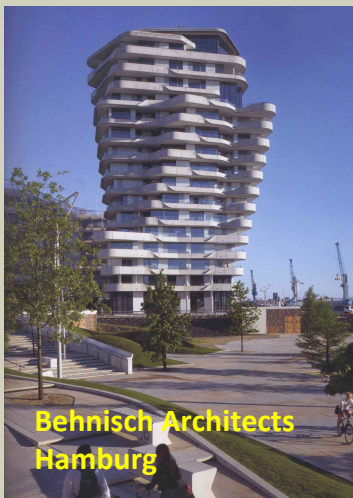
**By a process of incremental
development...**

Permanence and Change

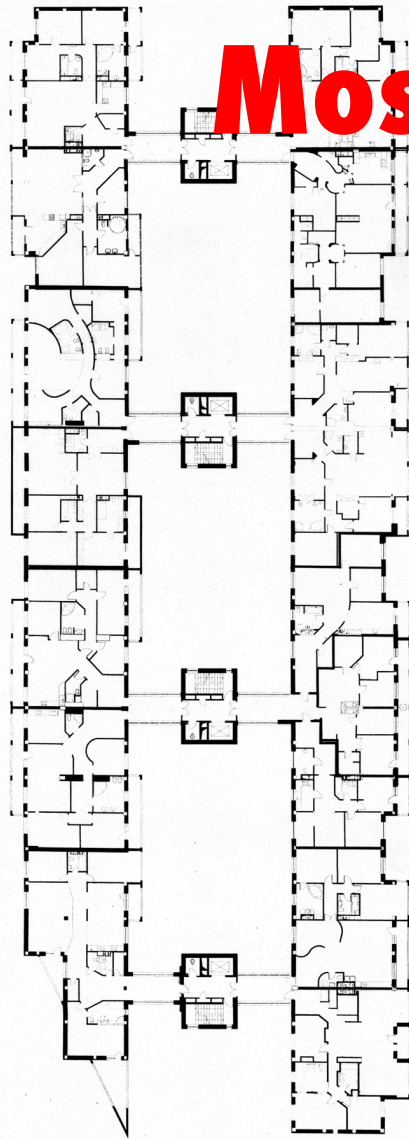
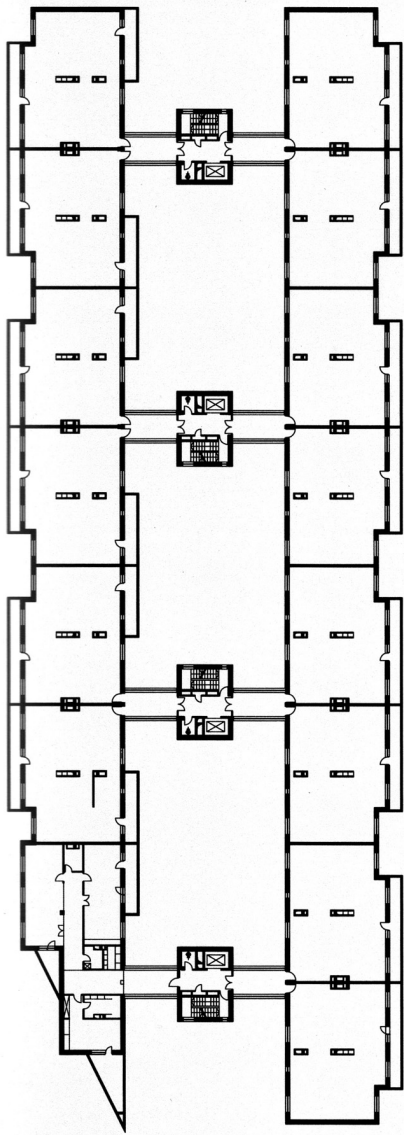
An aerial photograph of a city skyline. In the foreground, there are several multi-story residential or commercial buildings with balconies. The middle ground is dominated by a cluster of tall, modern high-rise apartment buildings with repetitive window patterns. To the left, a prominent cylindrical building with a grid of windows is visible. The background shows a hazy cityscape under a clear blue sky. The overall scene illustrates a dense urban fabric with varying building heights and styles.

- The city structure is permanent to the urban fabric
- The urban fabric is permanent to the building
- The building is permanent to the fit-out

Open Building in Practice



Moscow



The Catamaran Project / Moscow / Reserve Architects

ТПО «Резерв»
Жилой дом в Москве. 2000
план дома
планы квартир

TPO Reserv
Apartment block in Moscow, 2000
plan of the building
plans of the apartments





**Base building
pipe shafts and
ventilation
risers in several
places**

The empty shell space

The Netherlands



Kendall



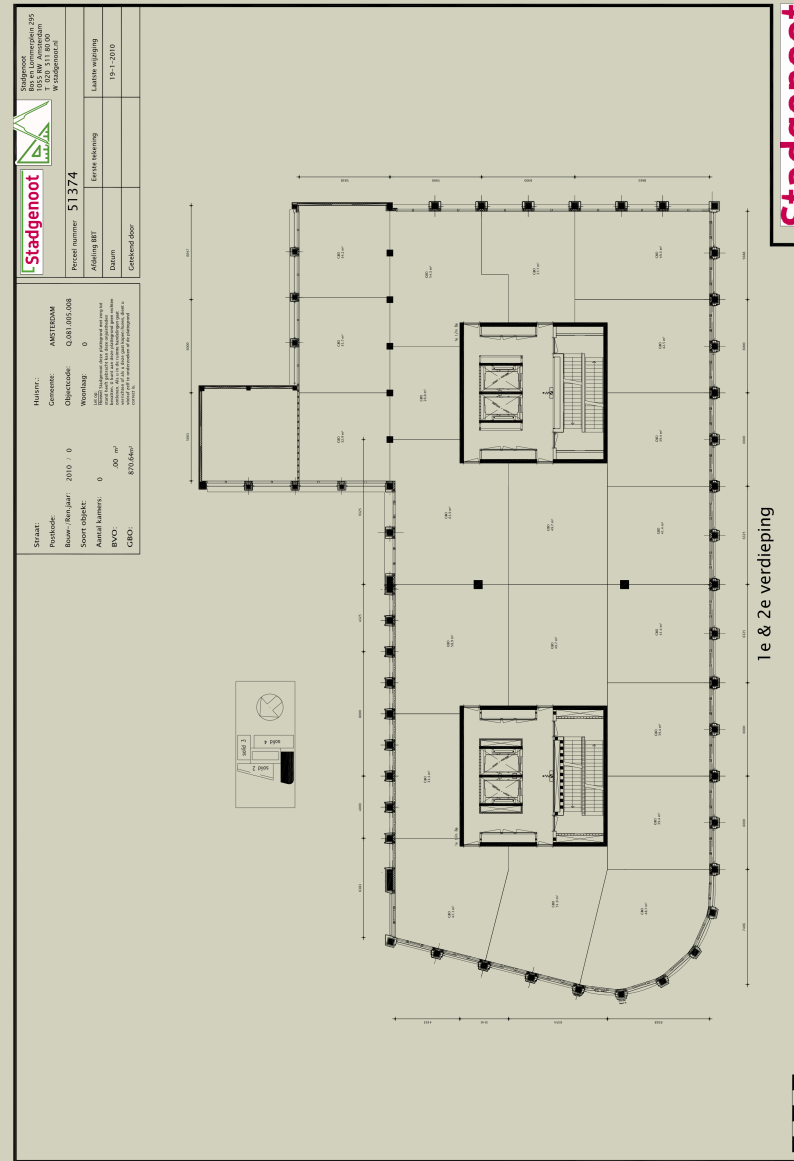
The architect designed a façade kit of parts, which each household decides how to use in their house.

Wenswonen / The Netherlands / van den Brink, Architects



The SOLIDS / Amsterdam
Architect: Baumschlager Eberle

Space is leased in an internet lottery. Lower income people are not disadvantaged. Each occupant is responsible for buying its own fit-out.



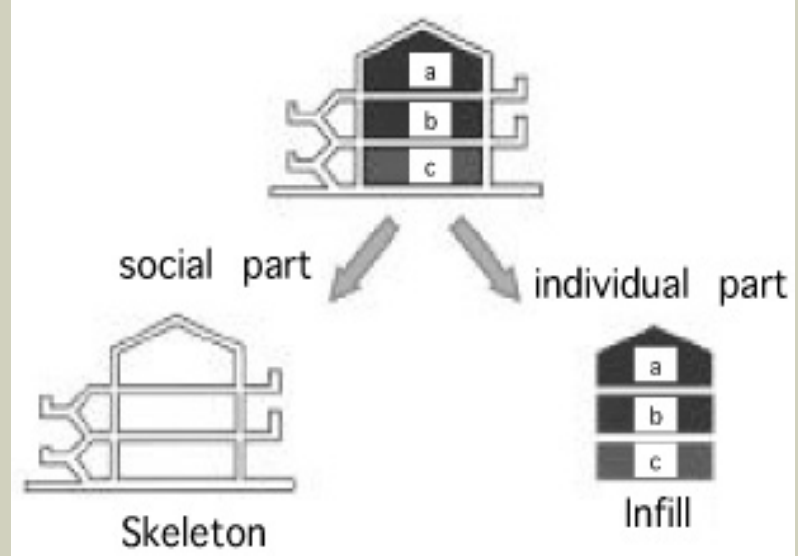
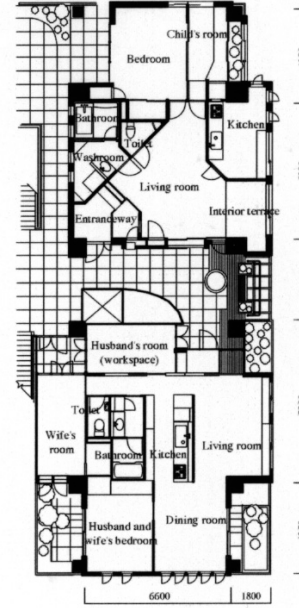
The SOLIDS / Amsterdam
Architect: Baumschlager Eberle

Japan

A facade system designed by one firm is used by different architects each charged with designing a dwelling in the building's serviced skeleton

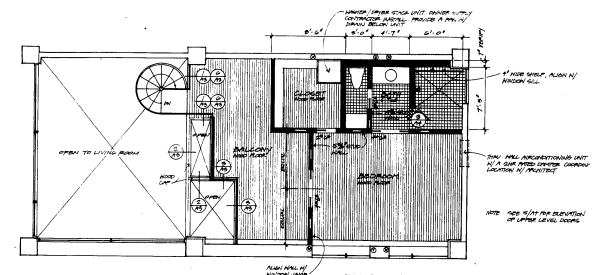


One big house divided into two

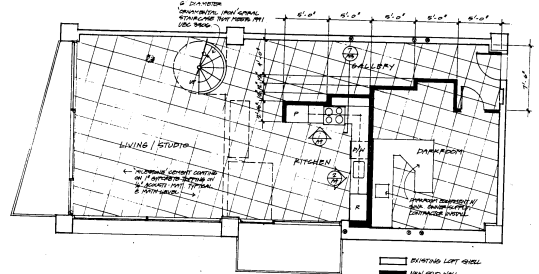


Next 21 / Osaka, Japan / Yositika Utida and the Next 21 Design Team

USA



UPPER FLOOR PLAN
12' x 11' 0"



MAIN FLOOR PLAN
16' 4" x 11' 0"



Banner Building / Seattle, USA / Copeland and Weinstein, Architects



Each family buys an empty space and decides how it wants to use it.



FINLAND

Each occupant is responsible for its own fit-out.



TILA/ Helsinki

Architect: TALLI - Pia Illonen



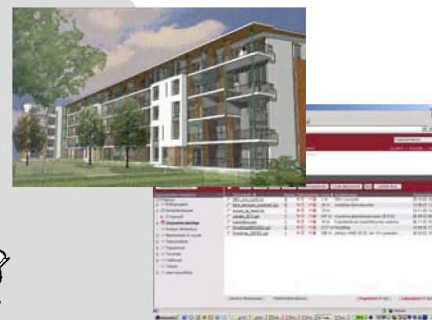
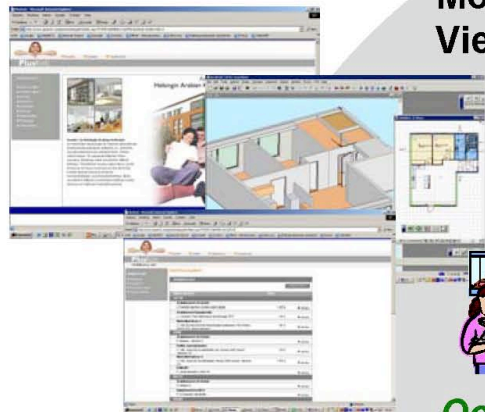
PlusHome - Concept with wide occupants choices

Occupant service

Design management

Model & Occupant View

Model & Drawings View



Occupant

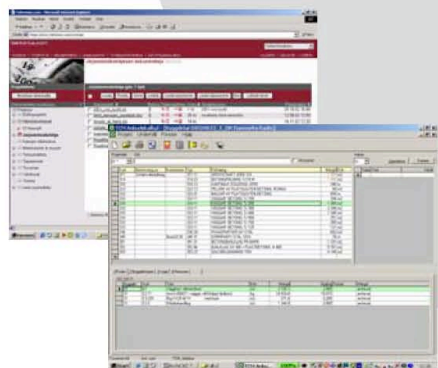
Architect

Project management

Quantities & Documents

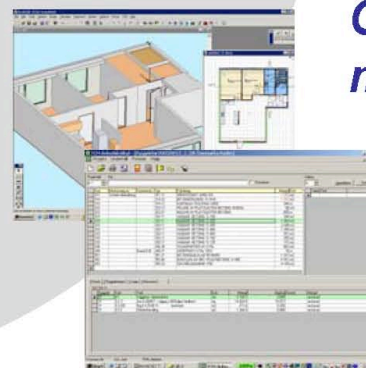
Model & Quantity View

Quantity & Cost management



Project manager

Quantity surveyor



Chile



Social housing in Chile, in which each family has extended its starter-house and make the inside their own, too.



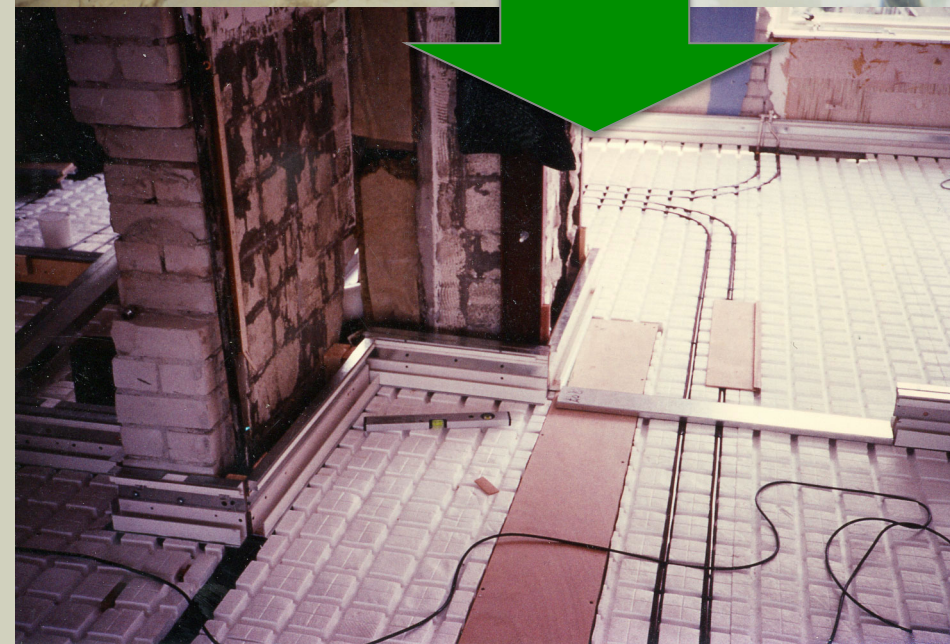
QUINTA MONROY Social Housing, Iquique, Chile
Architect: Alejandro Aravena



The Netherlands



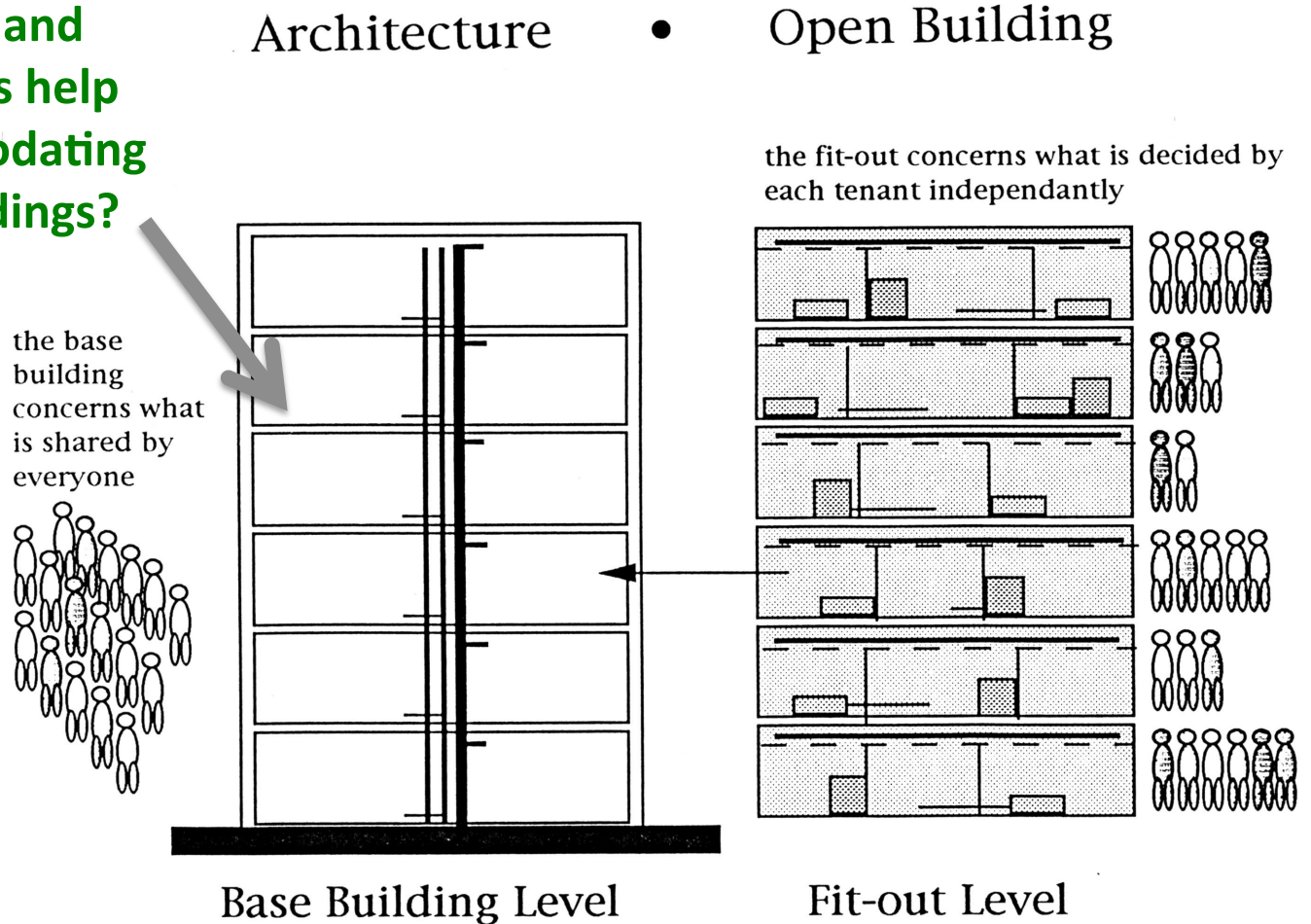
Re-activation of a 1960's apartment building of small, standard apartments



Patrimonium Woningun Voorburg, the Netherlands

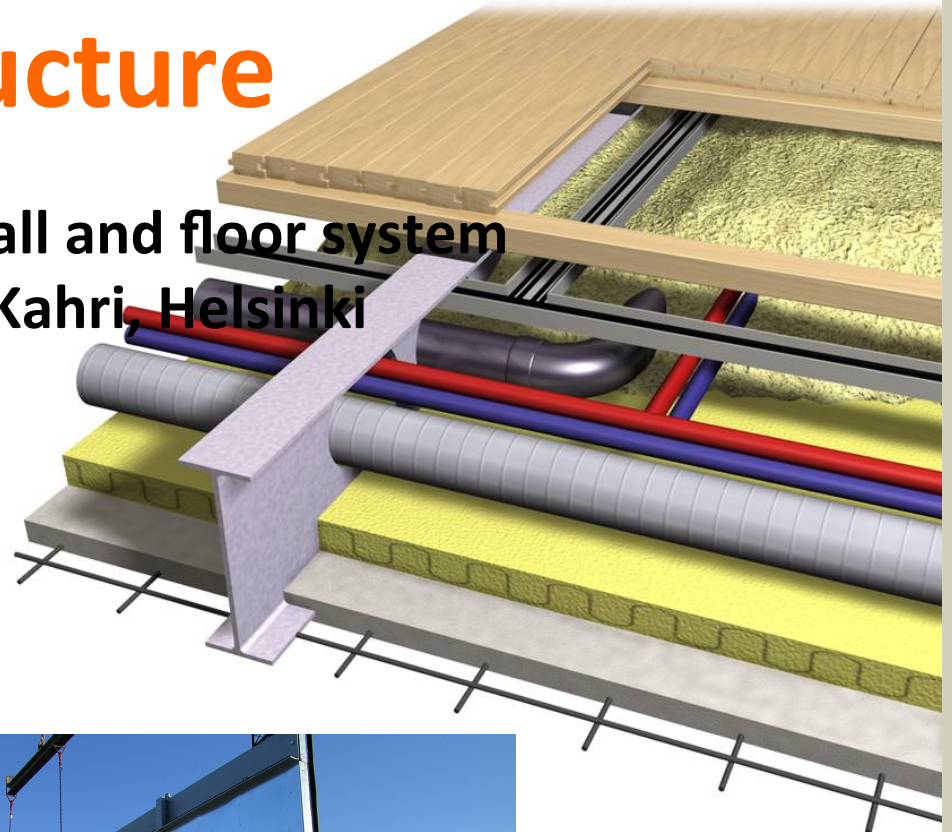
Making good base buildings

What products and design methods help make accommodating NEW base buildings?



Structure

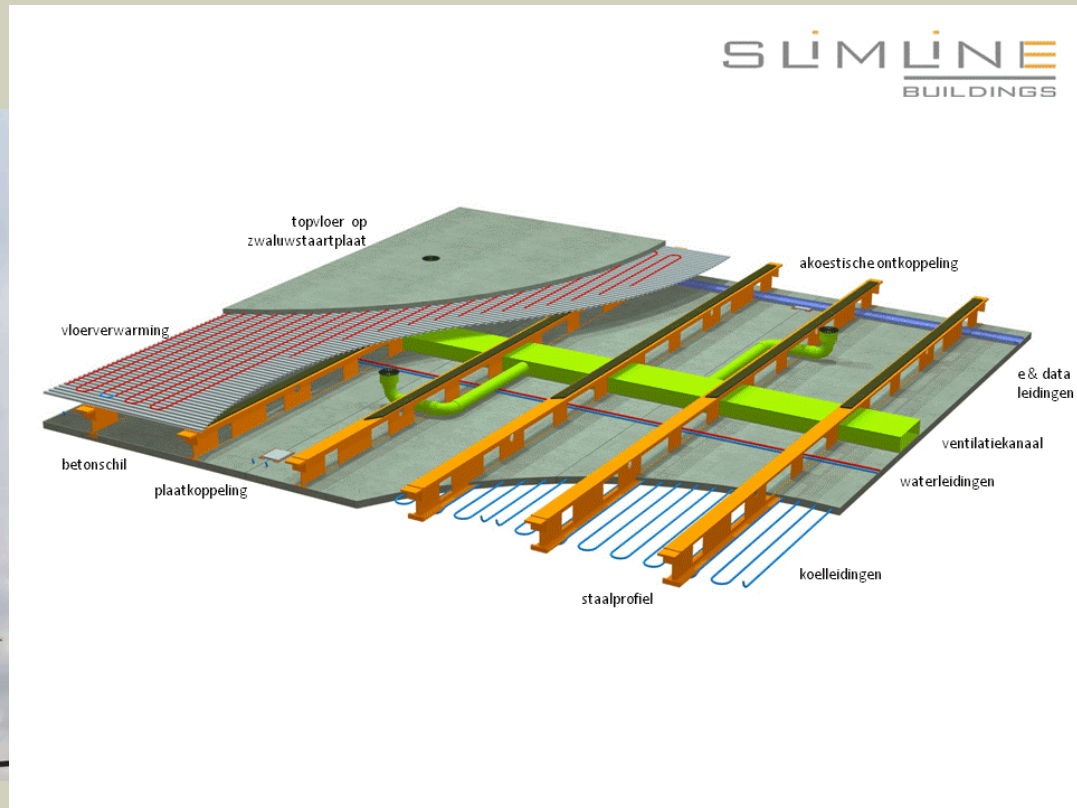
Steel bearing wall and floor system
Architect: Esko Kahri, Helsinki



Structure

Slimline Floor System

On the market in the Netherlands

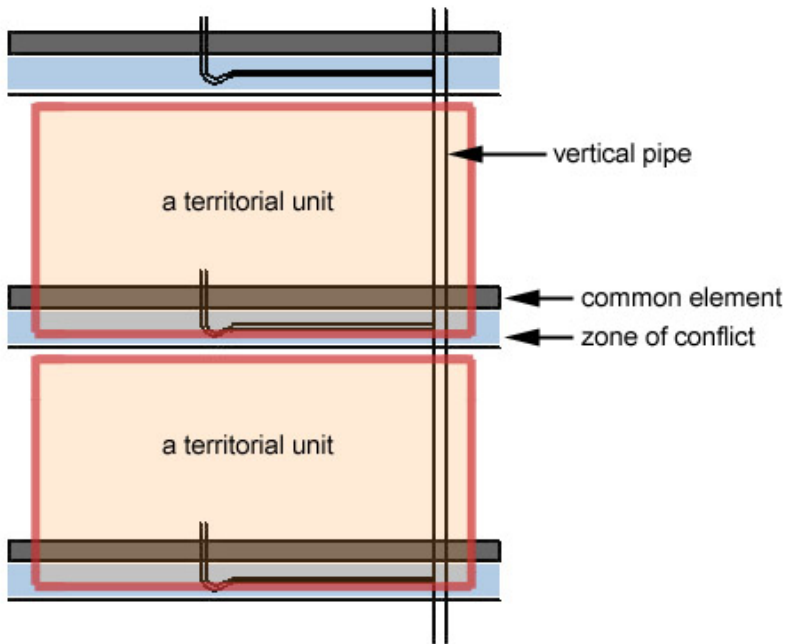


Structure

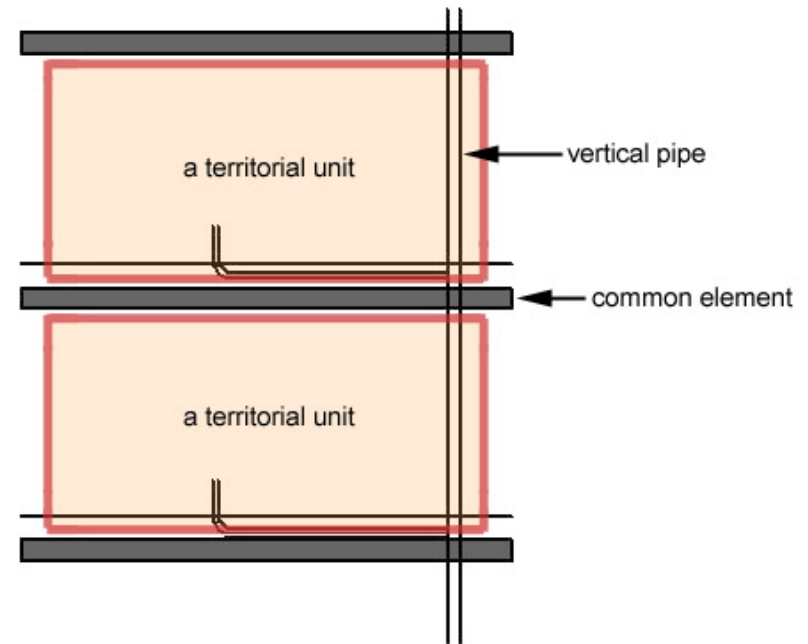
Conventional wood-frame construction using an open-web wood joist system, with a “trench” in a strategic place to enable variable floor plans...



Base Building MEP Systems



Chinese conventional way has problem of conflicts



OB way offers clean autonomy of dwelling unit decisions that avoids conflict

Diagrams prepared by Dr. Qiong Huang, Tianjin University



Base building air handling connections



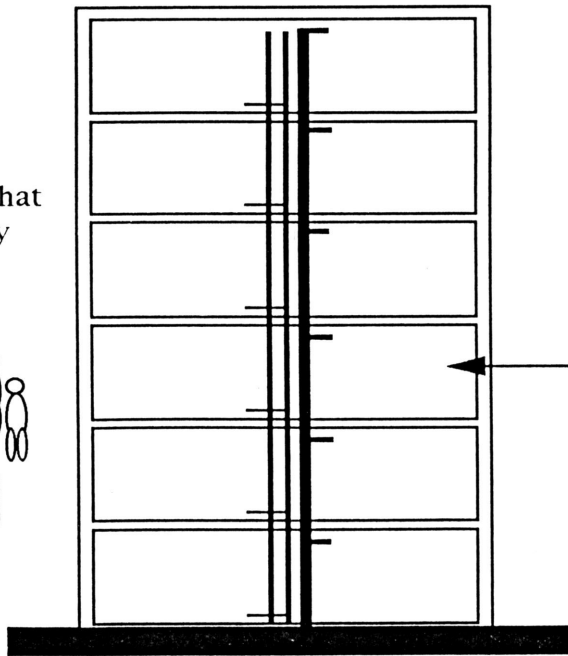
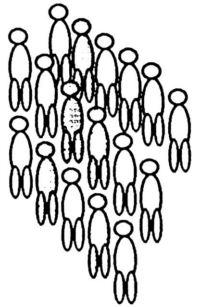
Base building drainage pipe connections (the tenant floor is 15cm lower than the corridor floor)

Making good infill or fit-out

Architecture

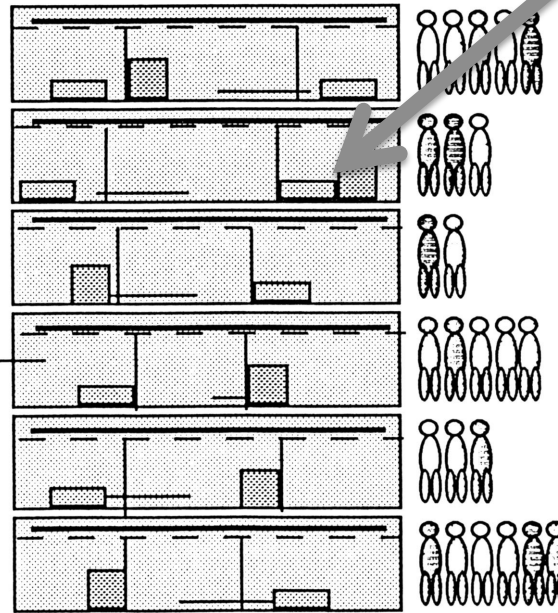
• Open Building

the base building concerns what is shared by everyone



Base Building Level

the fit-out concerns what is decided by each tenant independantly



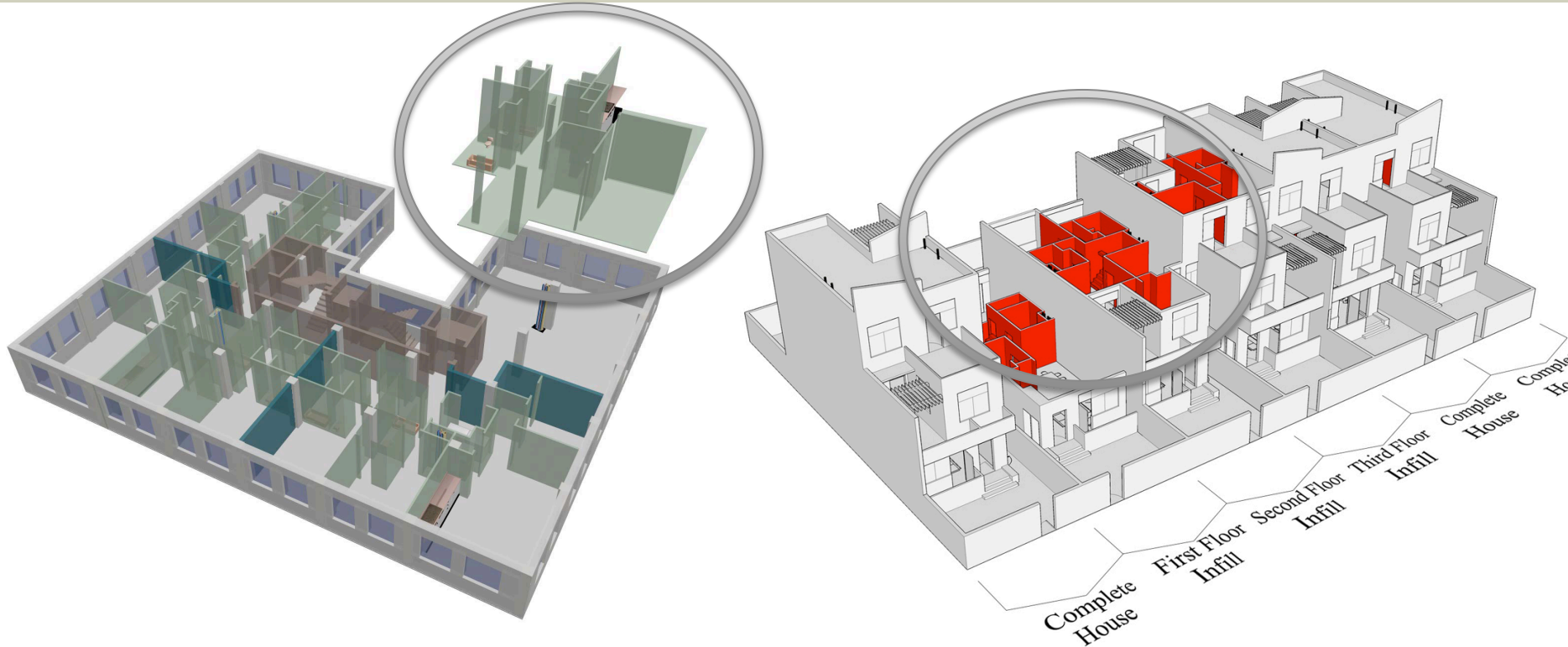
Fit-out Level

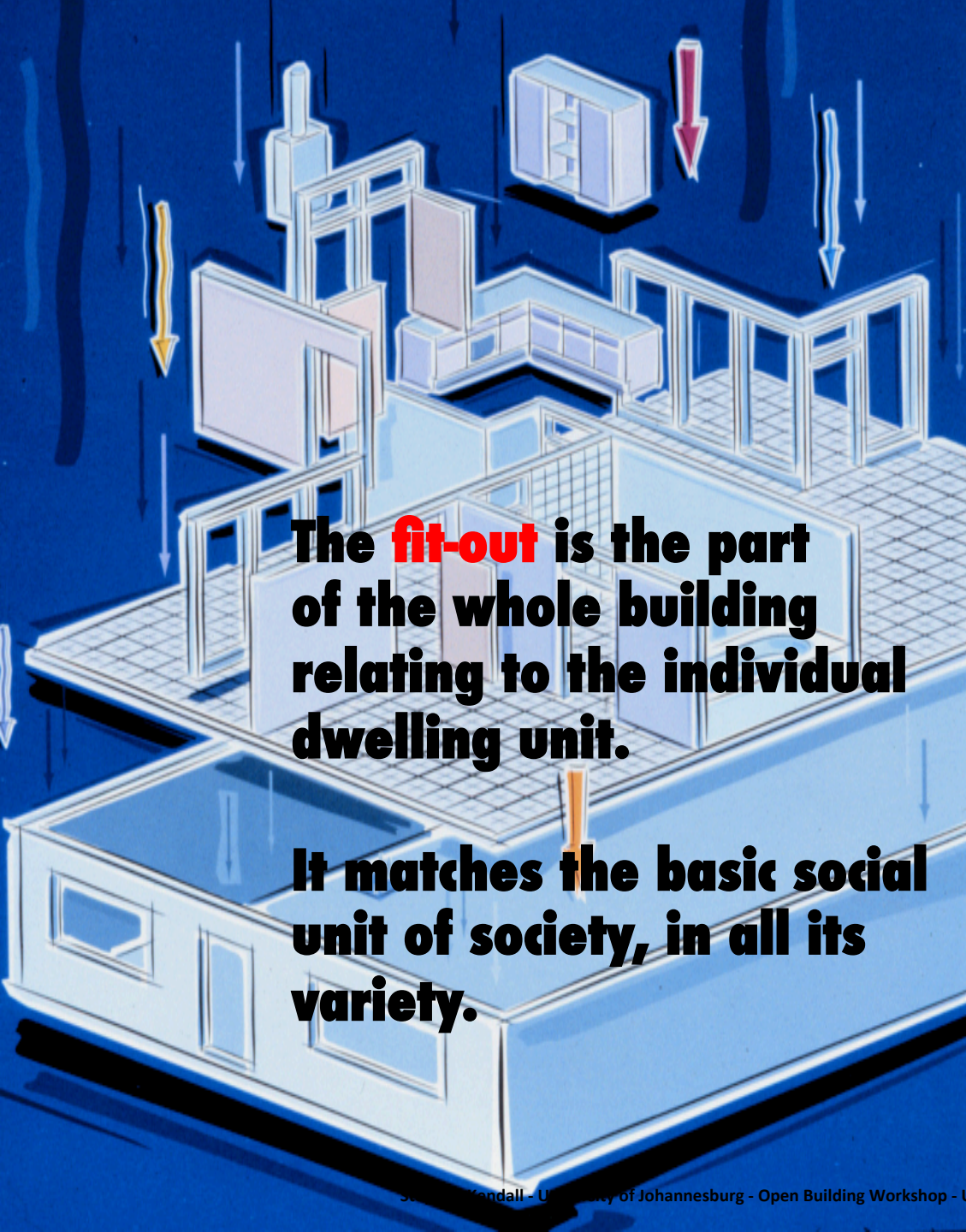
How can open buildings be fitted-out?

LOOKING TO THE FUTURE

AN INFILL INDUSTRY IS NEEDED

to help us address different cycles of change in a sustainable built field





The **fit-out** is the part of the whole building relating to the individual dwelling unit.

It matches the basic social unit of society, in all its variety.





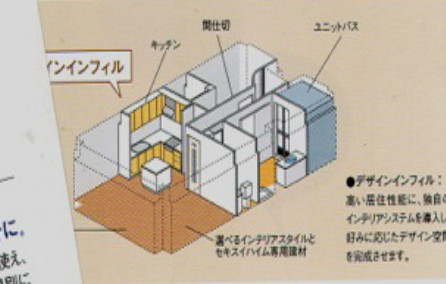
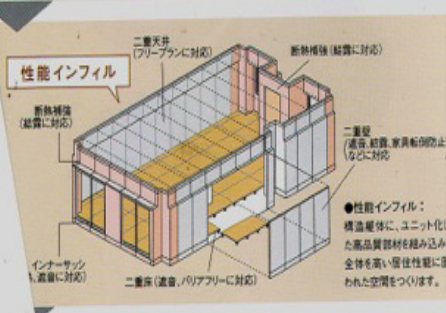
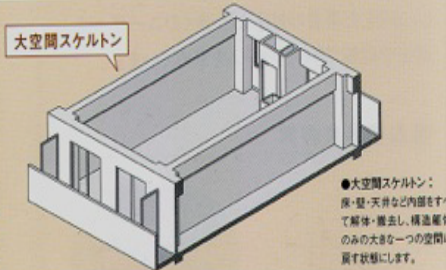
携帯電話で
ネクストインフィル工法の
詳細をご覧ください。

In Japan

アまで、
ます。

質な部材をユニット化することで、
同様の安心・快適な住空間を実現する—

NEXTInfill.



nextINFILL (now ECOCUBE),
A single apartment unit entirely renovated in several weeks time.

Beginning of an entirely new industry, which has a potential market that is comparable in size with the automobile industry.

ライフステージ別リフォーム例

将来を見据えた
フレキシブルなリフォームに。

〈リフォーム例〉

家族構成
団35歳 團30歳 団15歳

家族の団楽を重視し、
子供の成長を育む空間設計に。
多目的に使える玄関ホールやリビング、
ゆとりある洗面・バスなど、家族が
いつでも楽しくふれ合える利便性の
高い空間に設計。

家族構成
団45歳 團40歳 団15歳・10歳

子供のプライバシーを確保し、
収納も充実させた設計に。
成長した子供のプライバシーを重視し、
独立した子供部屋を確保。洗面・
バスもゆとりとり、収納機能もより
充実させて設計。

家族構成
団65歳 團60歳 団独立

夫婦がお互いの時間を
自由に楽しく過ごせる設計に。
広い土間のある玄関は多目的に使え、
ご近所との交流に。寝室は夫婦別に
設け、それぞれが時間を自由に使い
楽しめるように設計。

In new construction





...and in upgrading the existing building stock

SO.....WHAT WILL WE DO?

Learn a new way of designing

The Old Way



The New Way

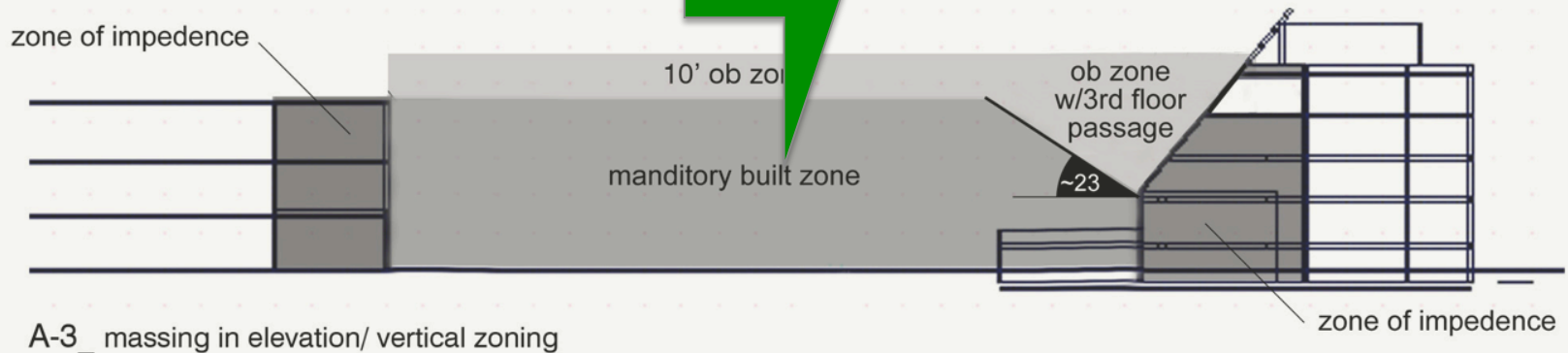


Step 1: Decide the program (fit-out)
Step 2: Design the building

A-1_ increments of massing should correlate with existing adjacent massing

Step 1: Design an open building
Step 2: Decide the fit-out

A-2_ maximum impedance on existing buildings



Three fundamental concepts:

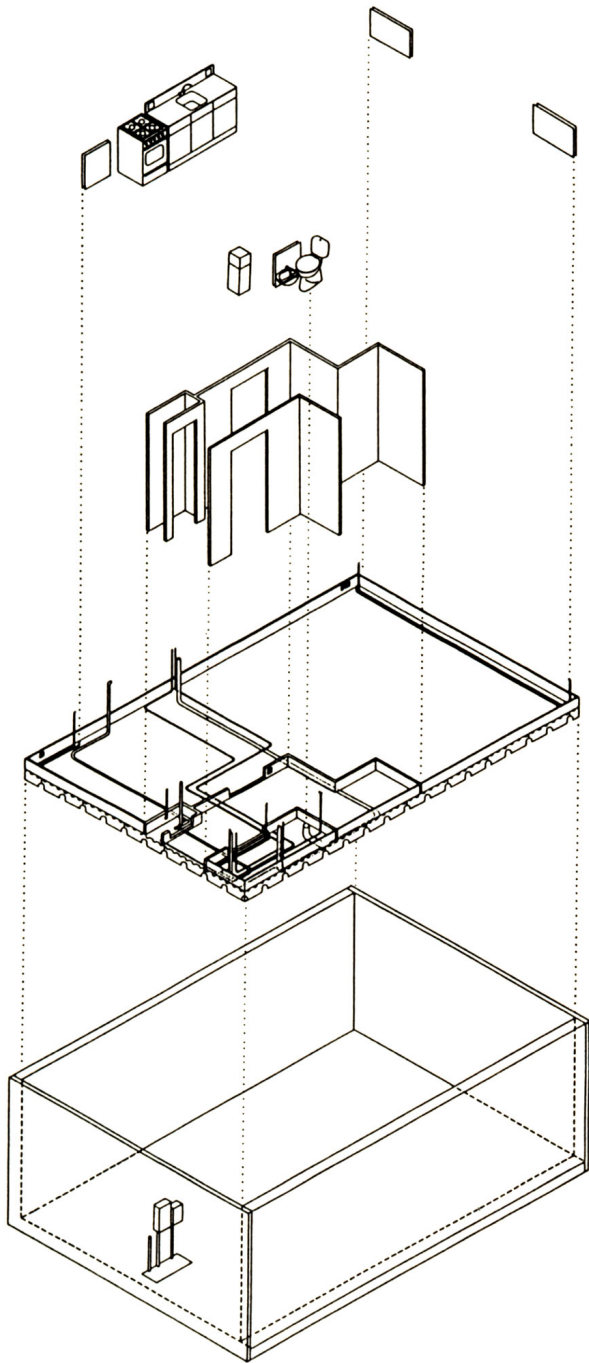
DISENTANGLEMENT

CAPACITY

DOMINANCE



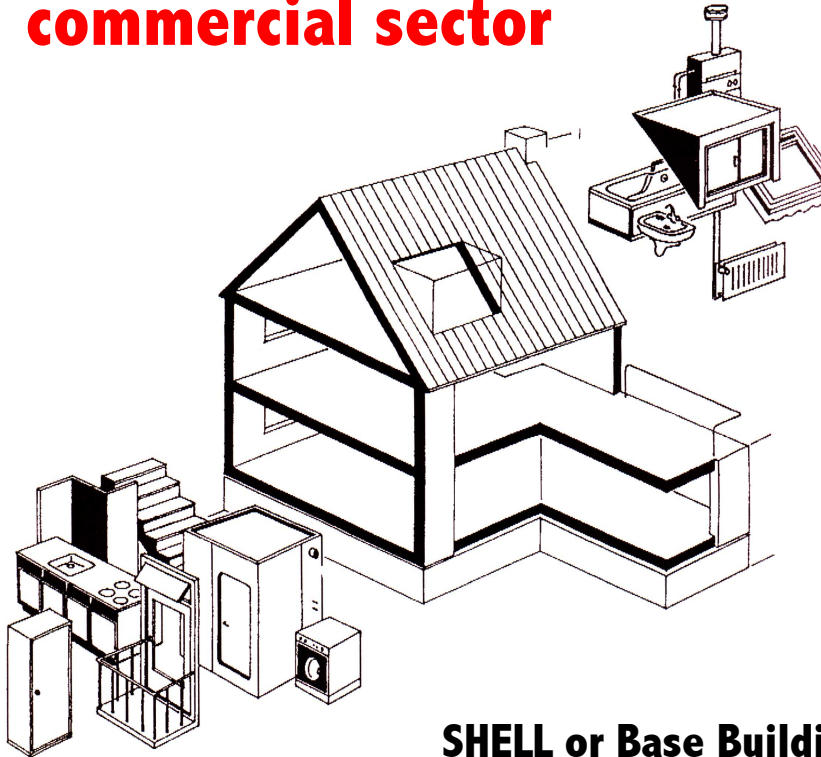
ENTANGLEMENT



DIS-ENTANGLEMENT

Accounting:

Divided construction costs is familiar in the commercial sector



SHELL or Base Building

FIT-OUT

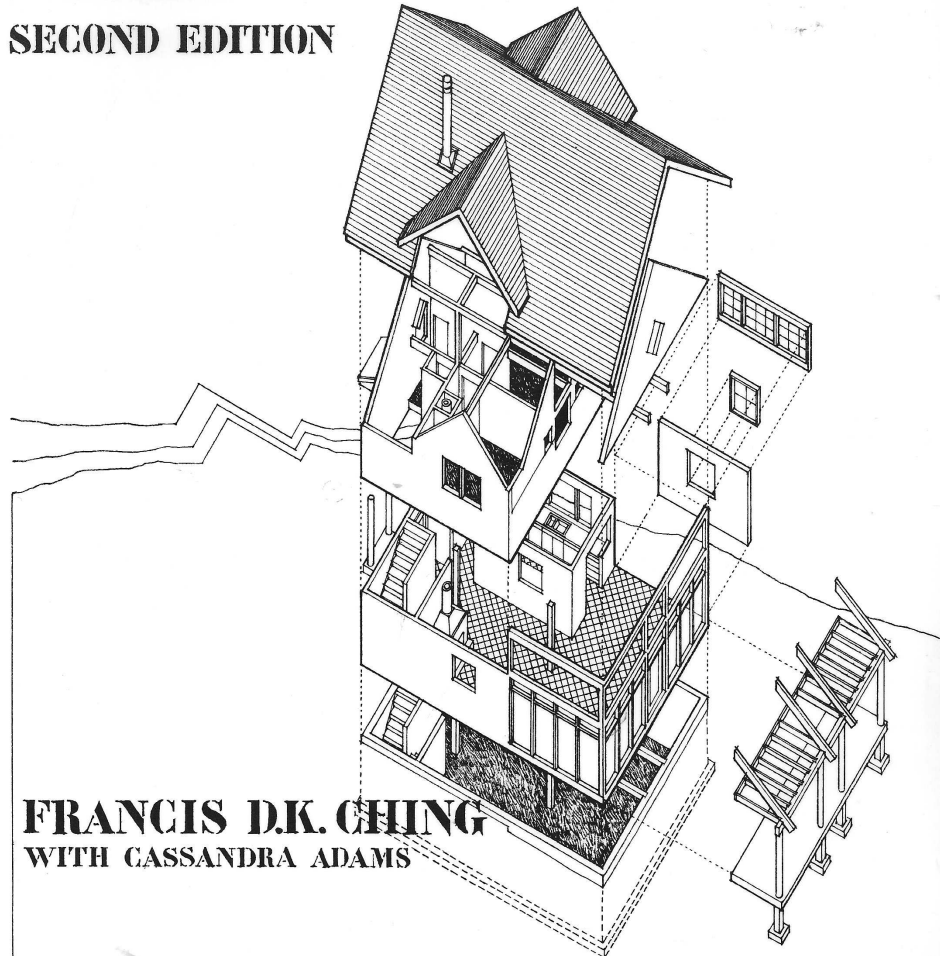
Divided Construction Costs

Base Building and Fit-out

		Base Building	Fit-Out
Preliminaries	BB+FO	.5%	.5%
Foundation		10.2%	
Rough Structure		16.6%	
Full Enclosure		15.1%	
Finishing Trades	BB+FO	3.0%	9.8%
Flooring	FO		7.0%
Interior Trim Carpentry	FO		3.0%
Interior Doors	FO		1.6%
Ceramic Tile	FO		.7%
Cabinets and Vanities	FO		4.2%
Appliances	FO		1.7%
Rough and Finish Plumbing	BB+FO	1.2%	5.0%
Rough and Finish Electrical	BB+FO	1.3%	2.3%
Lighting Fixtures	FO		1.0%
Completion		4.8%	
Specialties	BB+FO	3.6%	3.2%
Other	BB+FO	1.1%	1.0%
TOTALS		57.4%	42.6%

BUILDING CONSTRUCTION ILLUSTRATED

SECOND EDITION

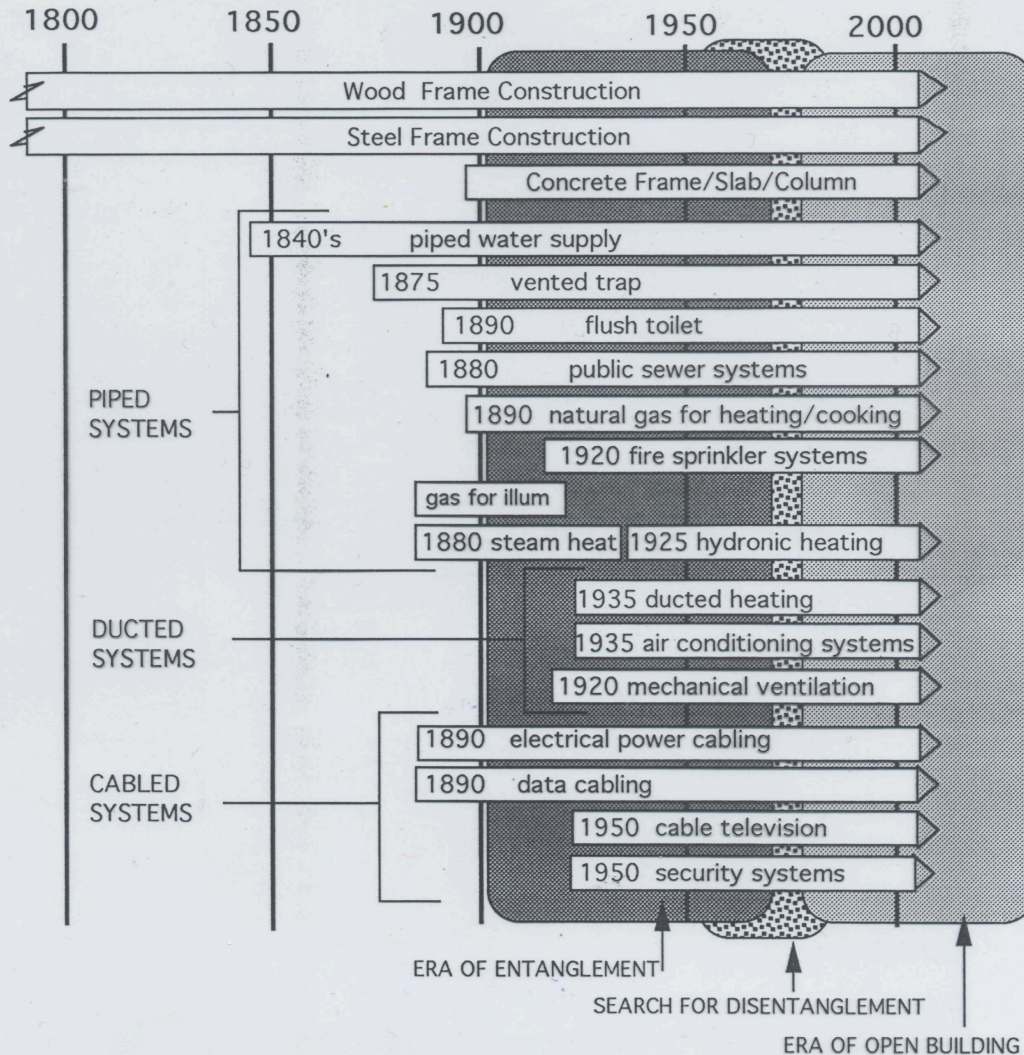


FRANCIS D.K. CHING
WITH CASSANDRA ADAMS

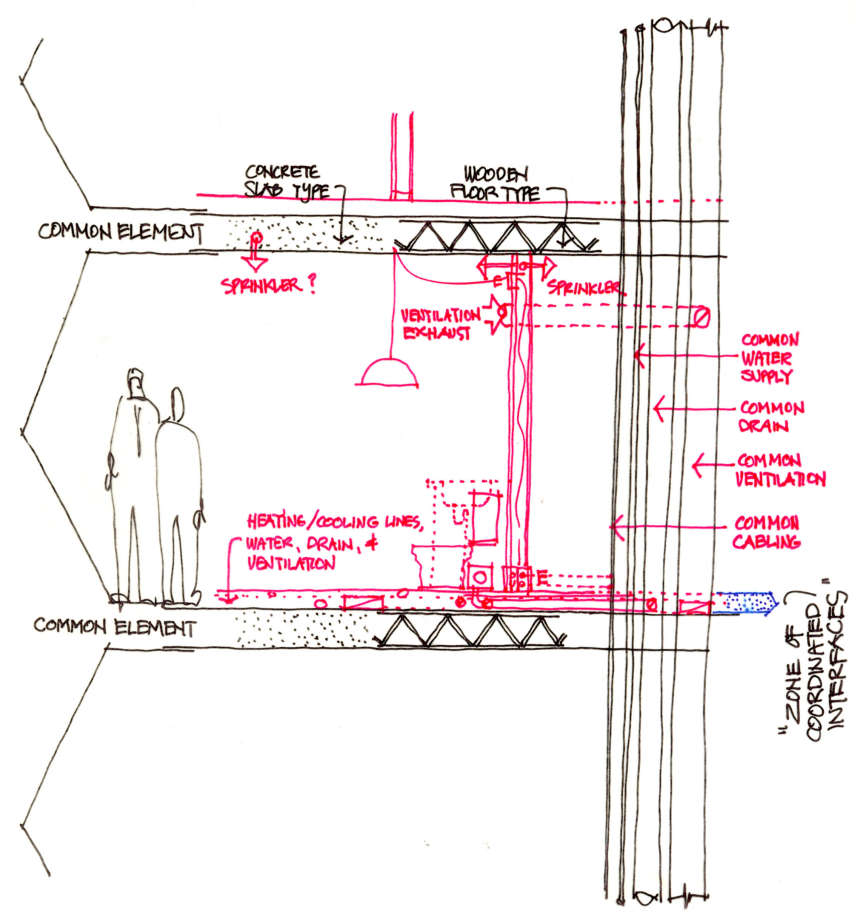
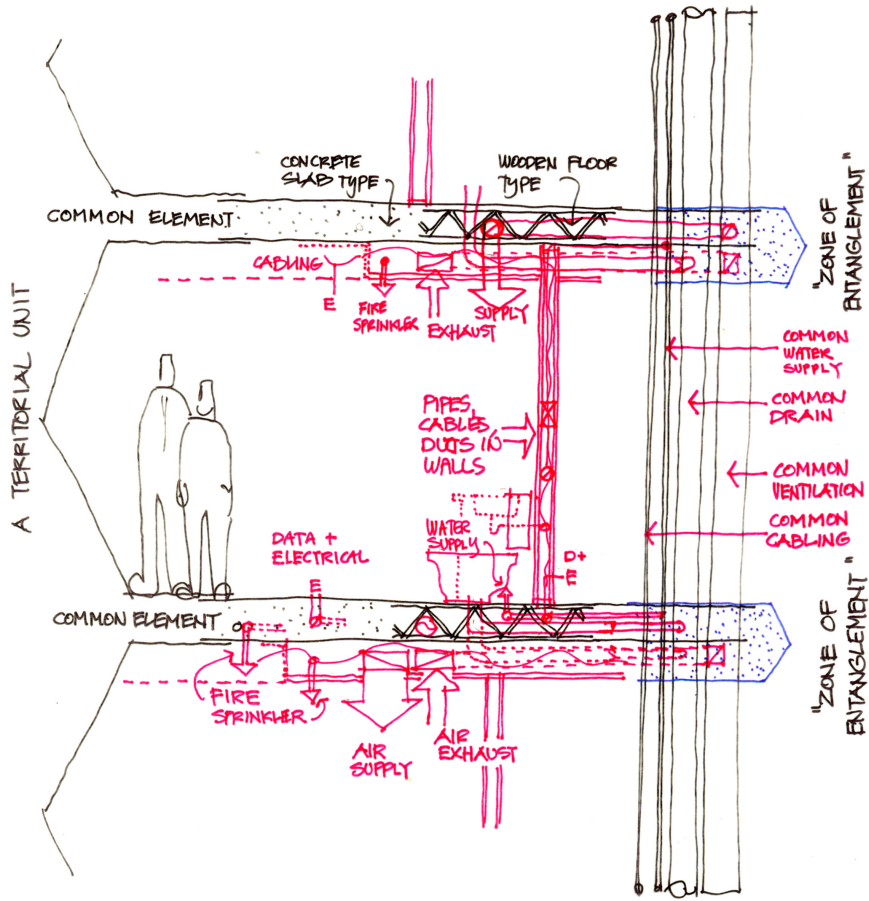
**What's missing
in our teach?**

**In Ching's book, there is
NOT ONE DRAWING of
how MEP systems are
handled!**

Introduction of Technical Systems into Building Construction

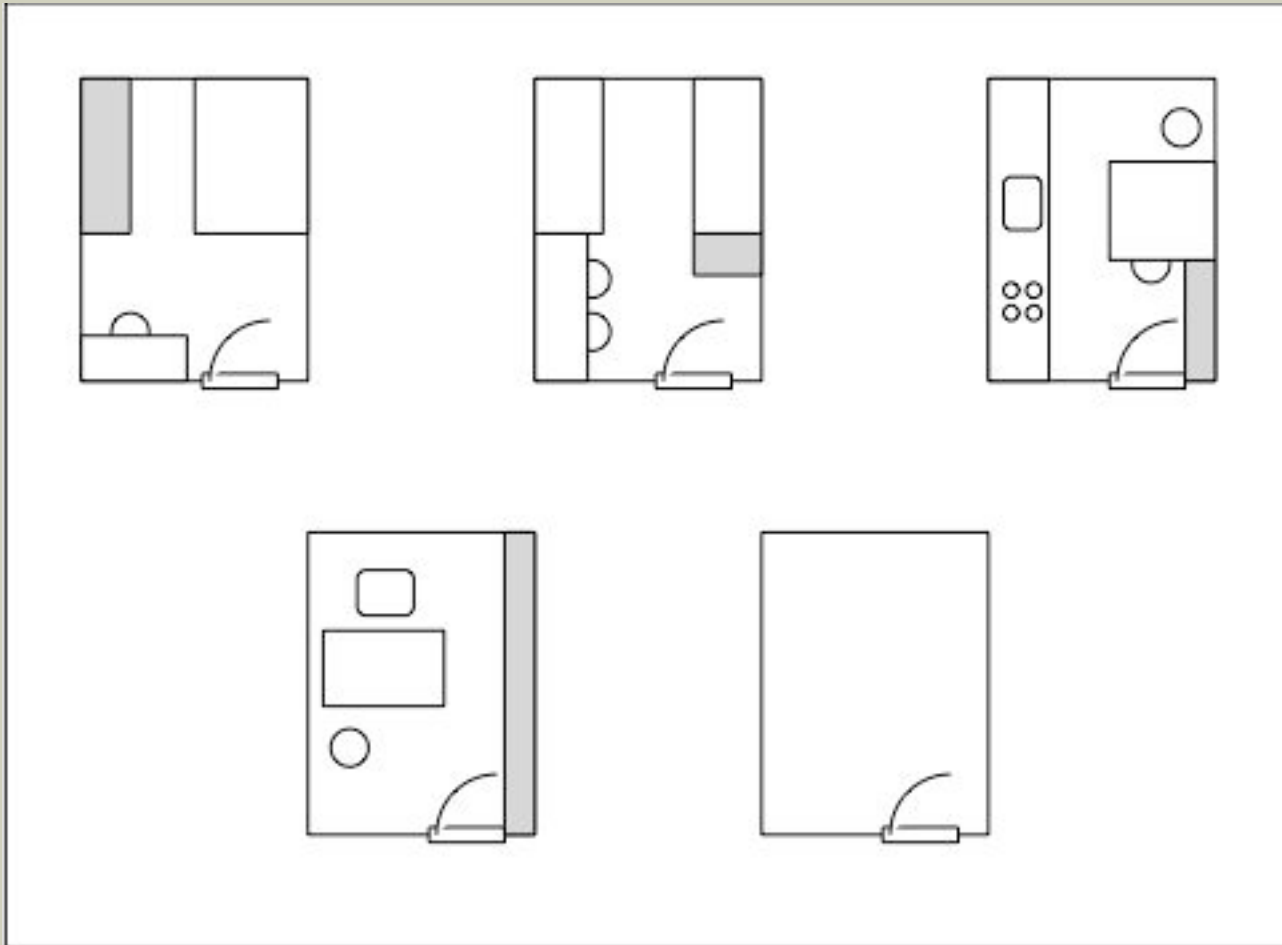


The gradual encroachment of technical systems into architecture is a fact....

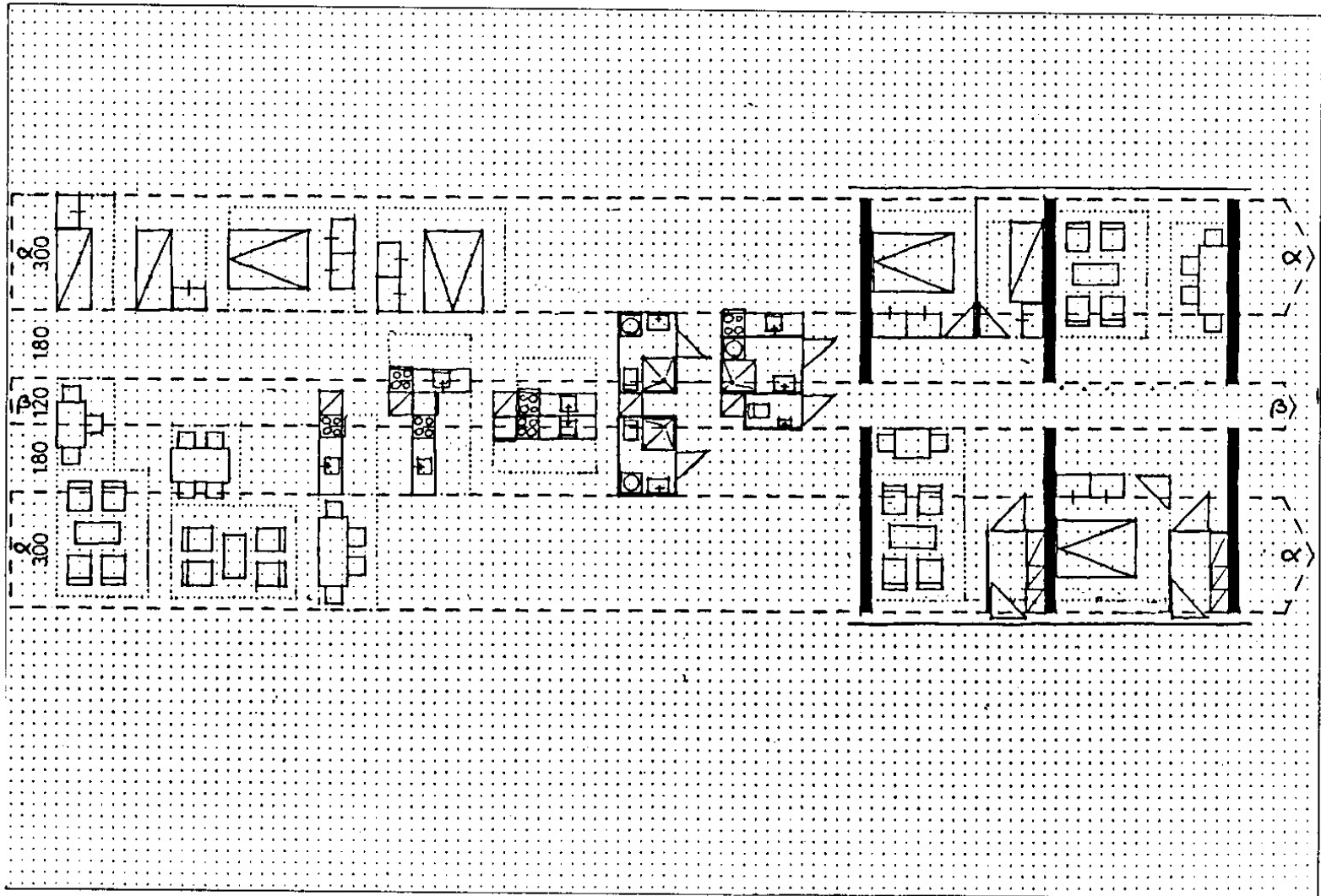


...we are moving from messy entanglement to smart disentanglement...

CAPACITY



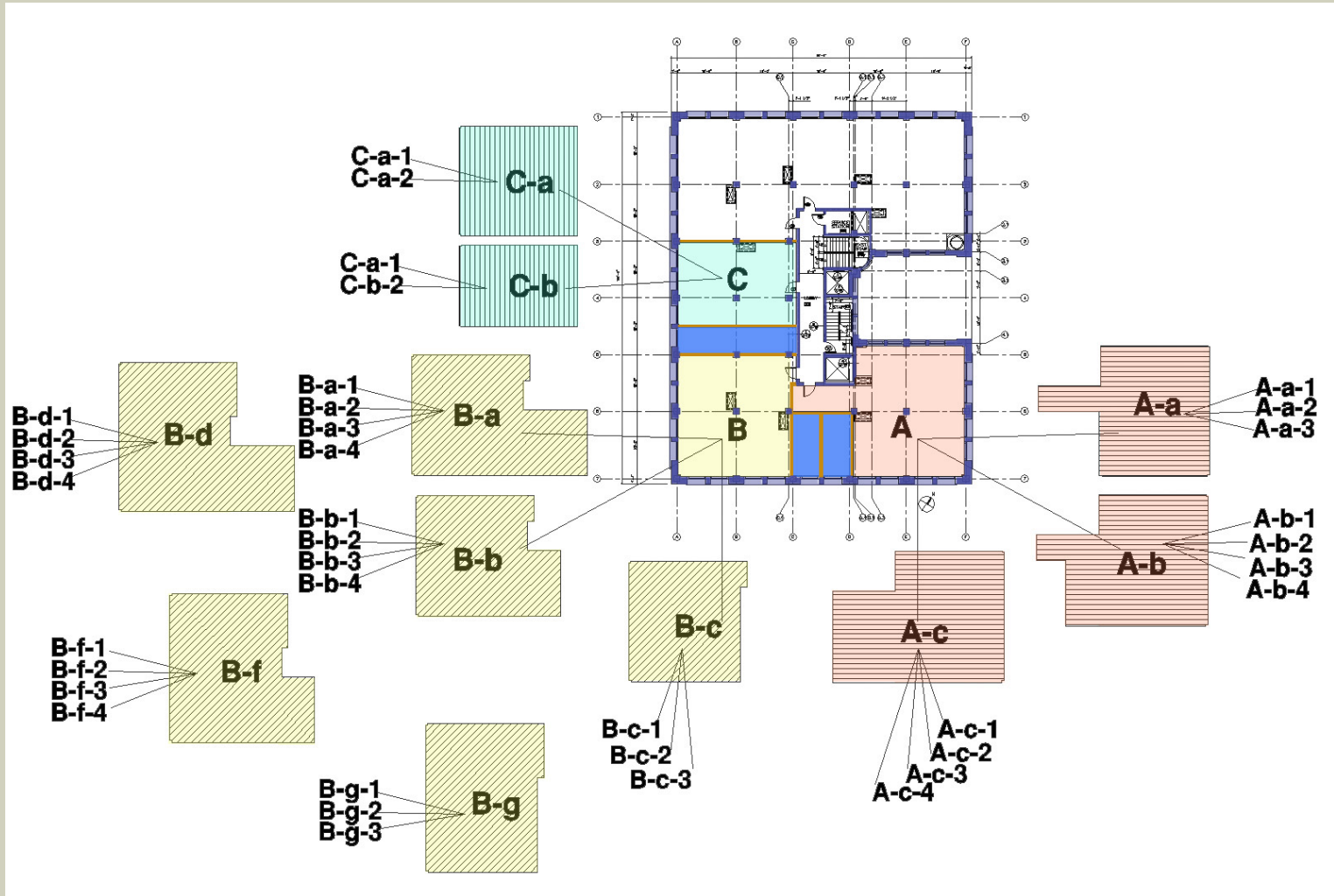
CAPACITY



CAPACITY – in new row-houses



CAPACITY – in adaptive reuse

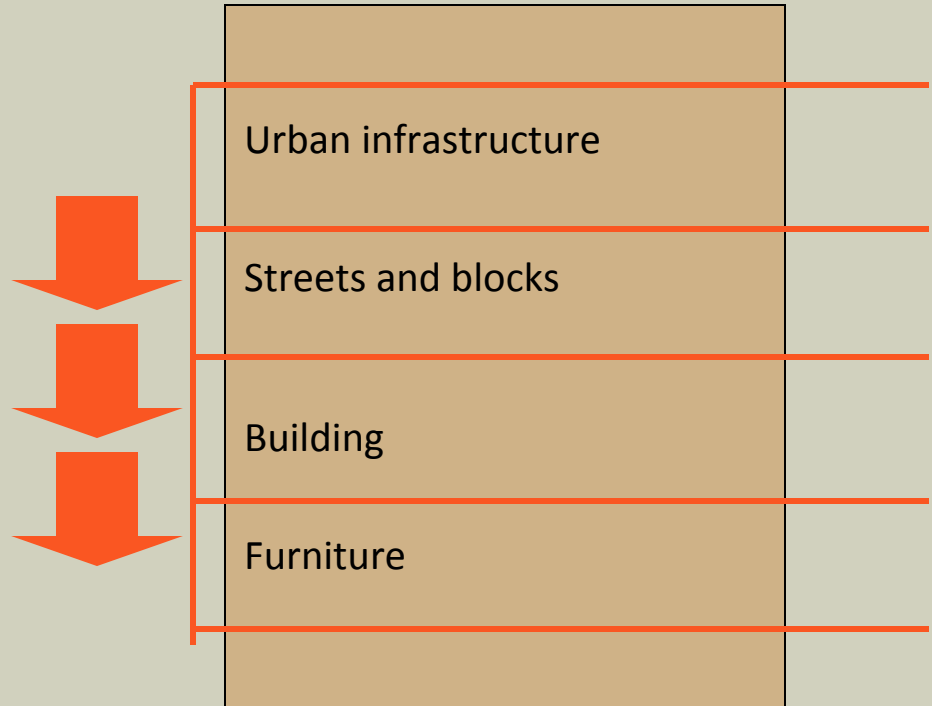


DOMINANCE and LEVELS OF INTERVENTION

- **DISTRIBUTION OF DESIGN CONTROL**

- **Levels and the identity of professionals**

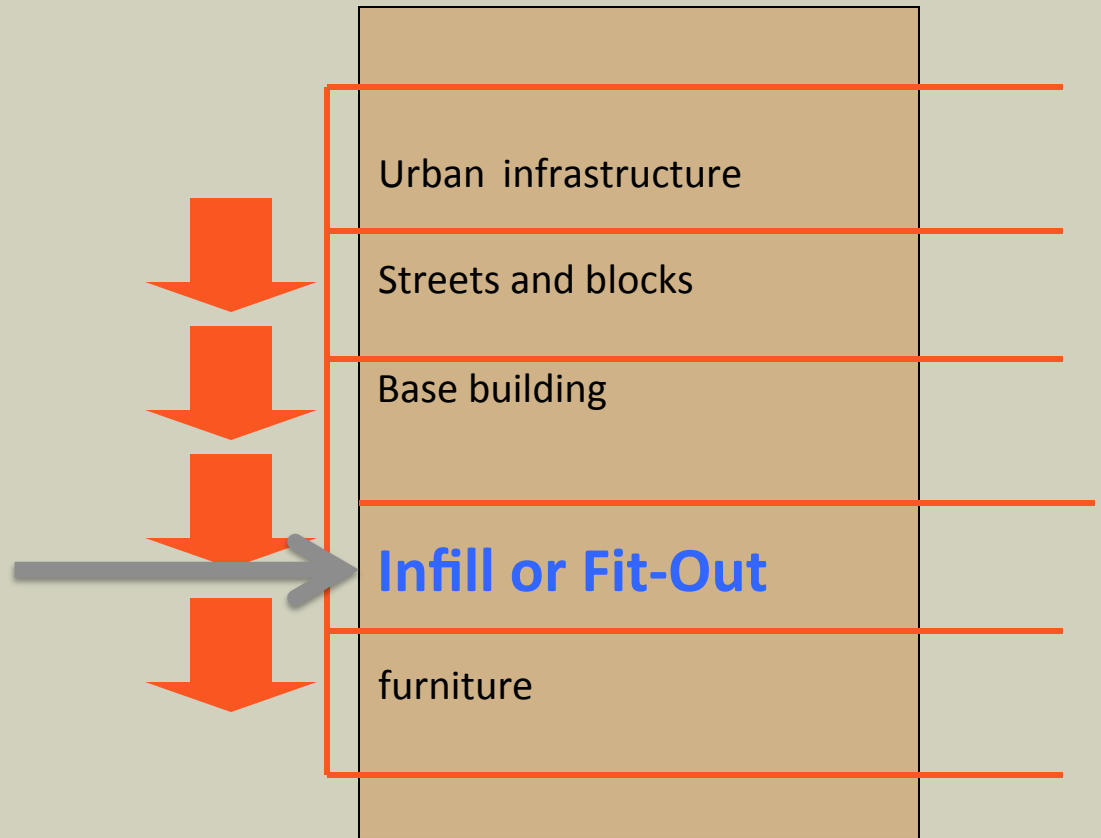
- **A vertical relationship among designers**



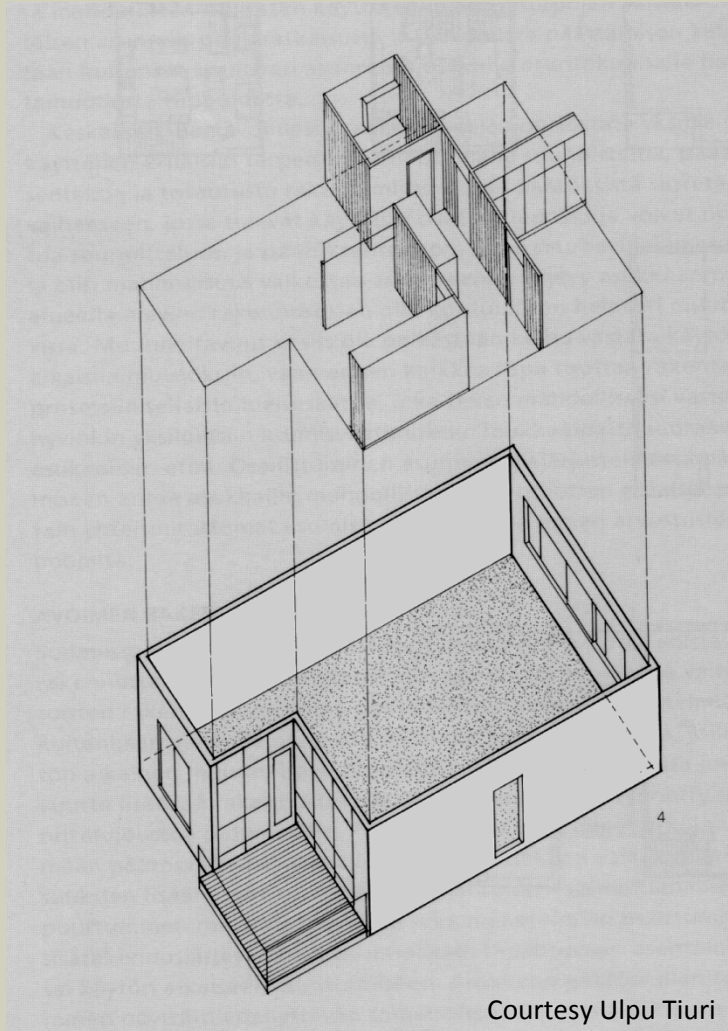
And catching sight of another level...

FURTHER DISTRIBUTION OF
DESIGN CONTROL

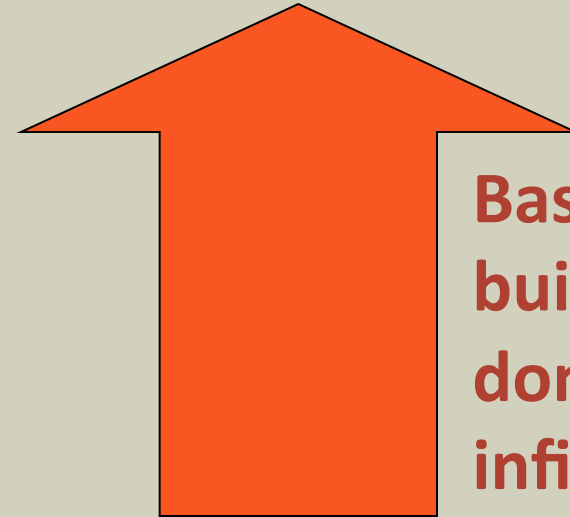
Introduction of another level



DOMINANCE



Fit-out can change without disturbing the base building



**Base
building
dominates
infill**



When the base building changes, fit-out must adjust

REBALANCING

supported by architects
and other
professionals and
emerging industrial
capability



A shift of perspective is needed

from monument to everyday environment
from static form to change
from function to capacity
from resource depletion to sustainability
from unified design control to distributed design control

**Lets explore these ideas in your
reality...**

