

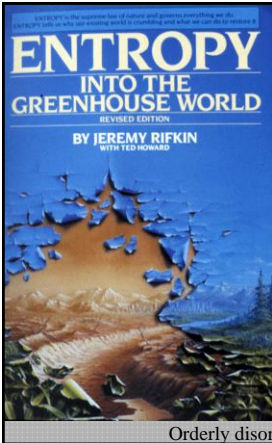


Systems Integration


Mechanical
Spatial
Structural

Centre Pompidou 1977
-Rogers and Piano

1



Natural Systems vs. Mechanical Systems



Orderly disorder vs Disorderly order?

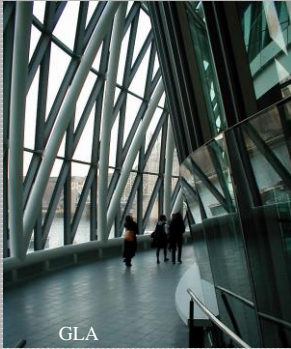
2

Mechanical Systems Integration Issues

- Aesthetics
- Efficiency
- Appropriateness
- Energy conservation
- Human comfort
- Structural integration
- Climate change

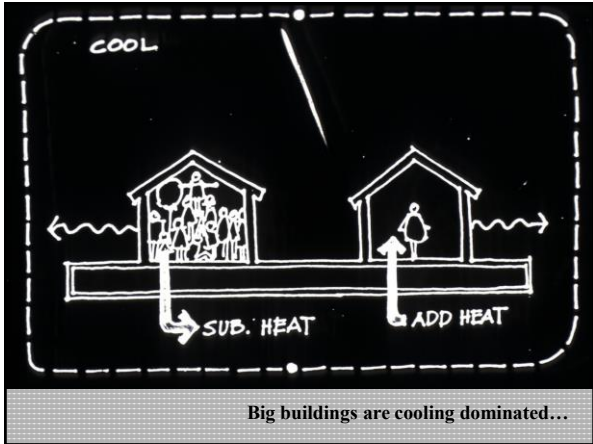
Equipment

- Cooling towers
- Mechanical floors
- Distribution

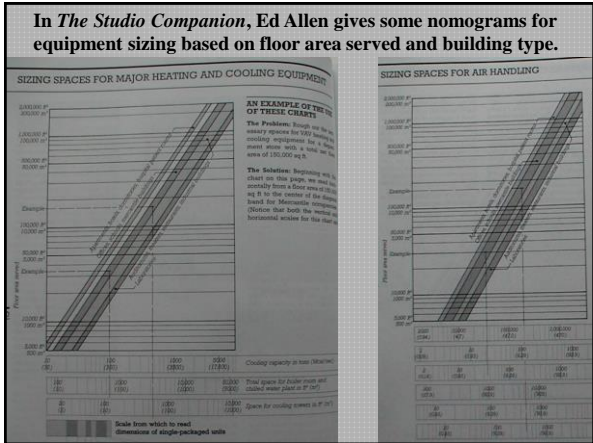


GLA

3



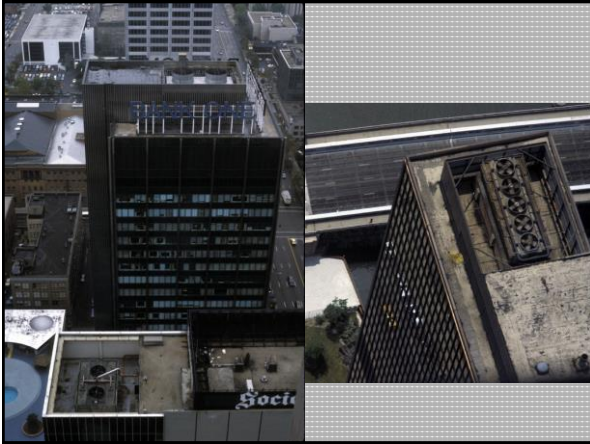
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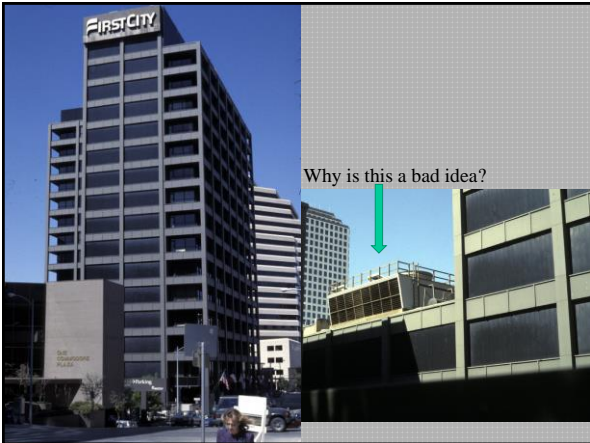
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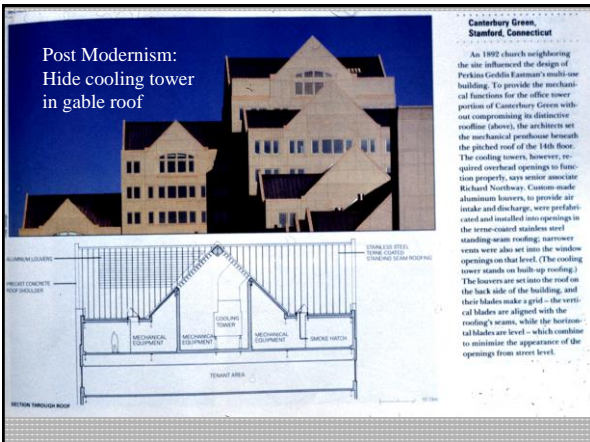
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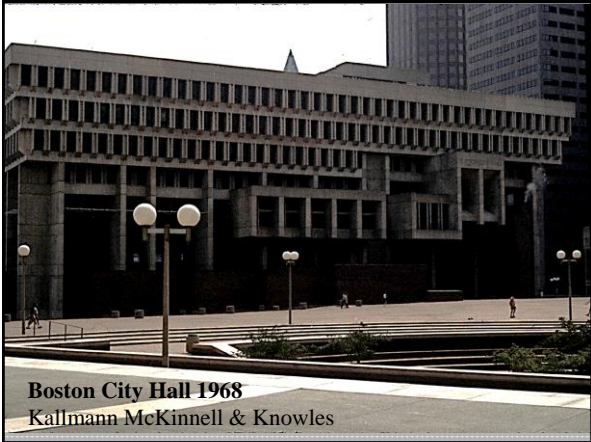
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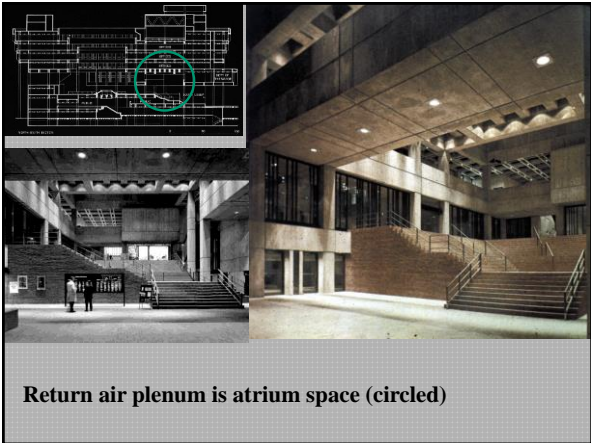


9



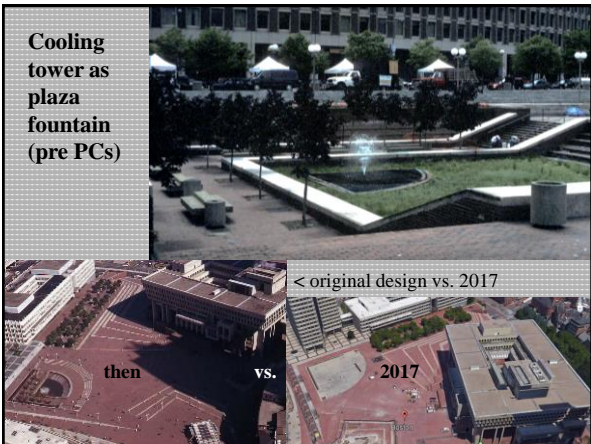
Boston City Hall 1968
Kallmann McKinnell & Knowles

13



Return air plenum is atrium space (circled)

14



Cooling tower as plaza fountain (pre PCs)

< original design vs. 2017

then

vs.

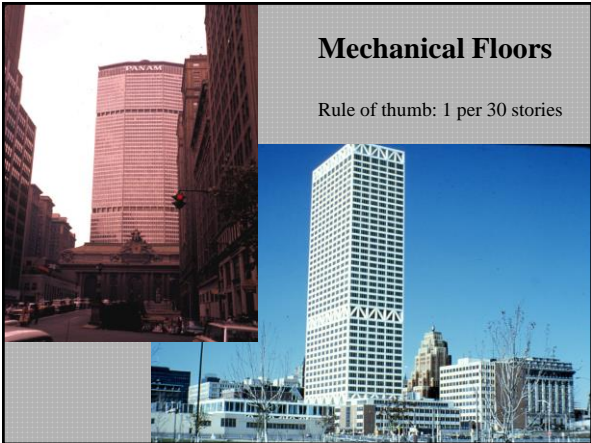
2017

15



...as design elements...

16



Mechanical Floors

Rule of thumb: 1 per 30 stories

17



**Denver office (top) hotel
(below) mixed-use**

Mechanical floor between uses.

Also supports window washing platforms.

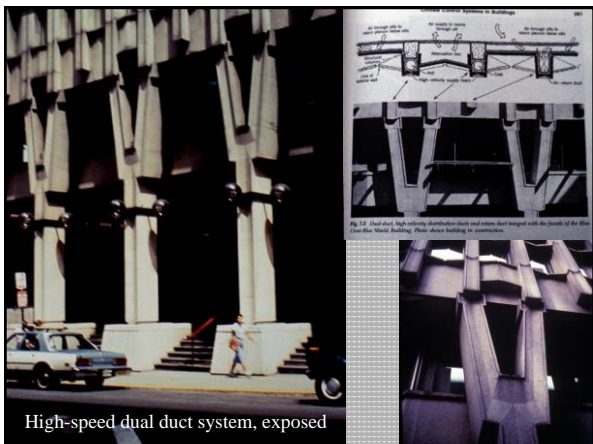
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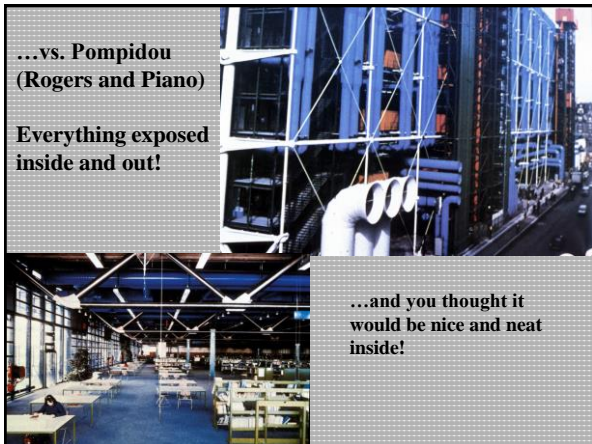
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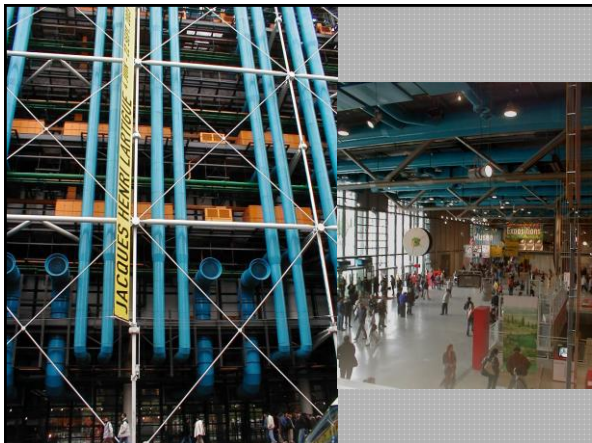
20



21



22



23



24



Lloyd's of London
Rogers

25

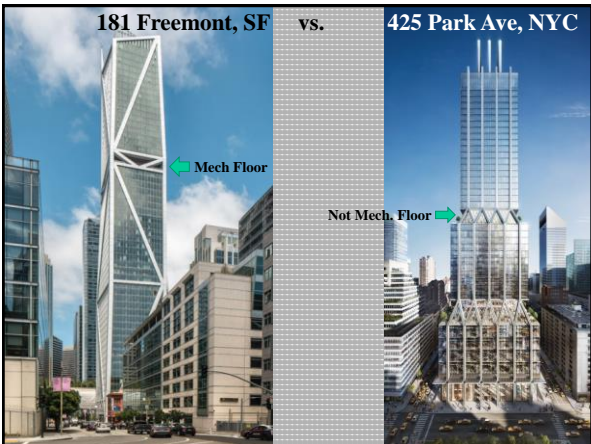


Context!

Eat like a modernist!

...or not Leadenhall Market (next door)

26



181 Fremont, SF

vs.

425 Park Ave, NYC

Mech Floor

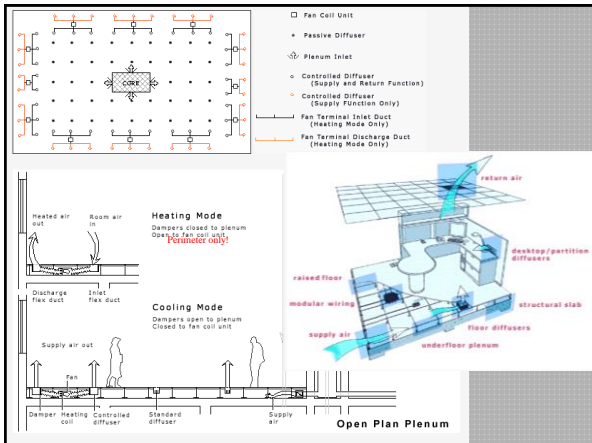
Not Mech. Floor

27

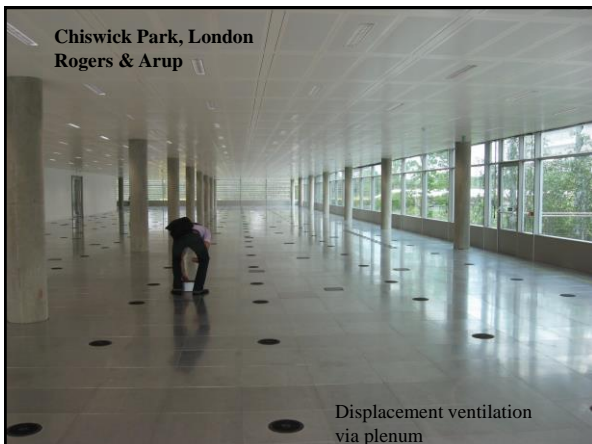
Hidden vs. Integral



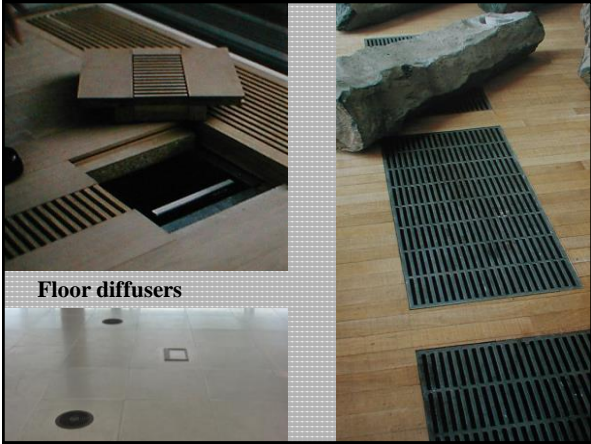
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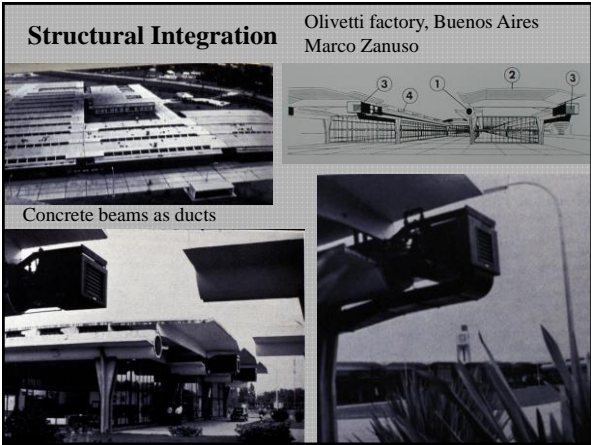
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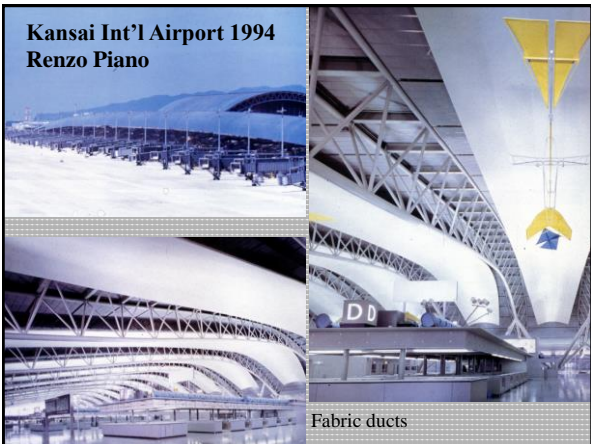
30



31



32



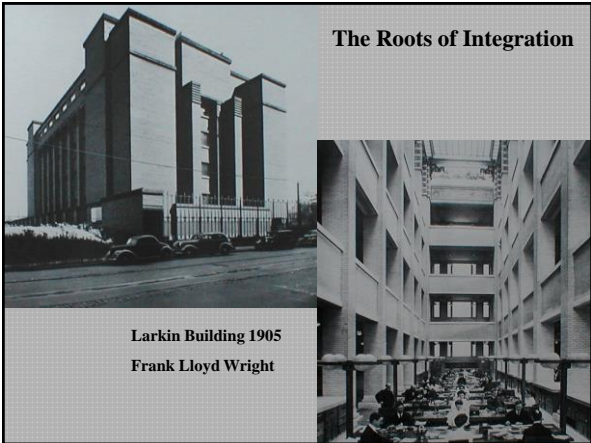
33



**Fabric Ducts
(small scale)**

**Meridian Headstart
McKibben & Cooper**

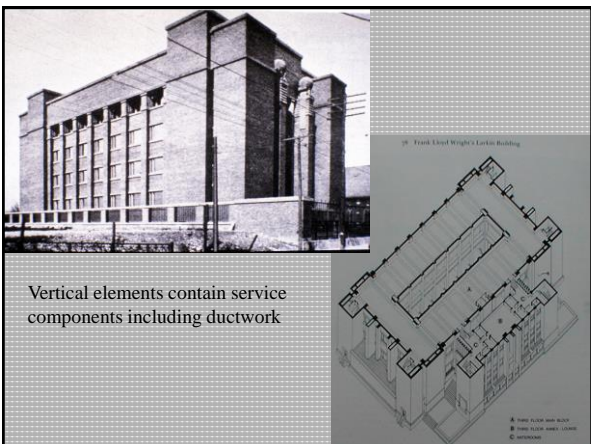
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The Roots of Integration

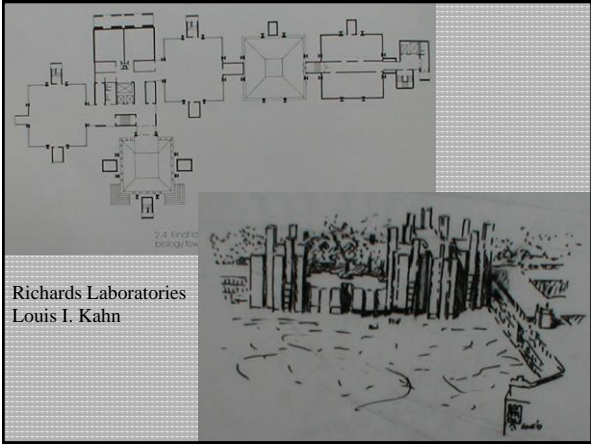
**Larkin Building 1905
Frank Lloyd Wright**

35



**Vertical elements contain service
components including ductwork**

36



37



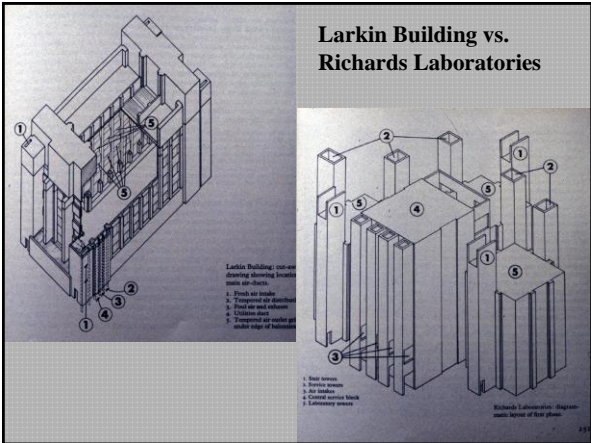
38



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40



41



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