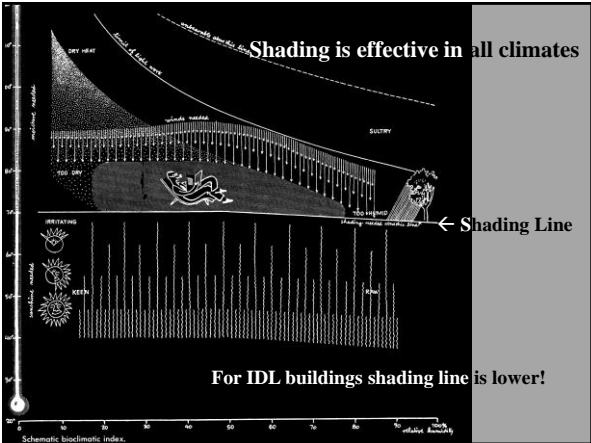
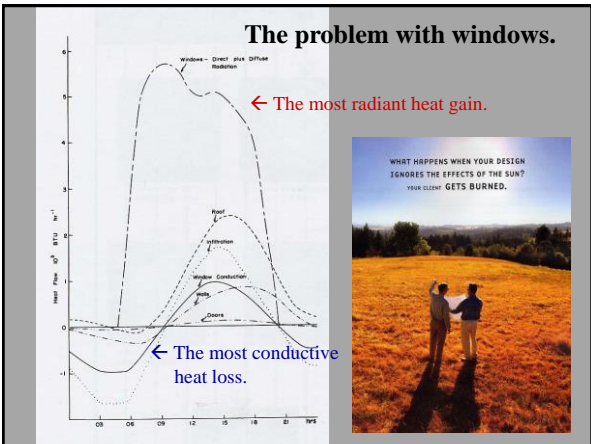




1

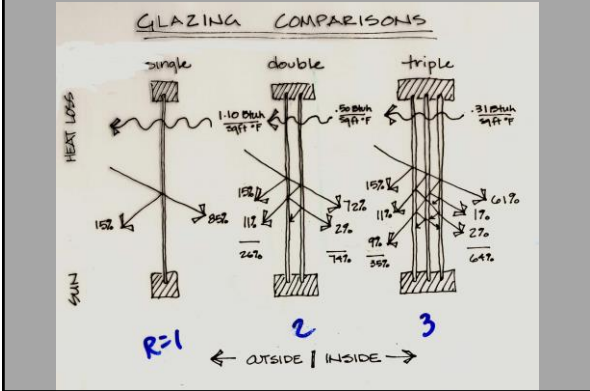


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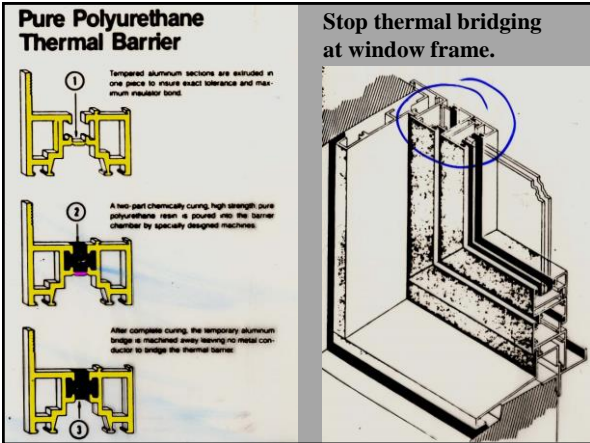


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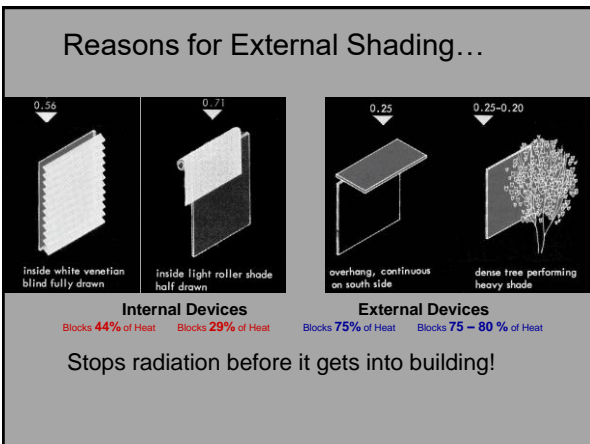
The glass itself is a bit of a shading device and insulator.



4

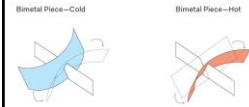


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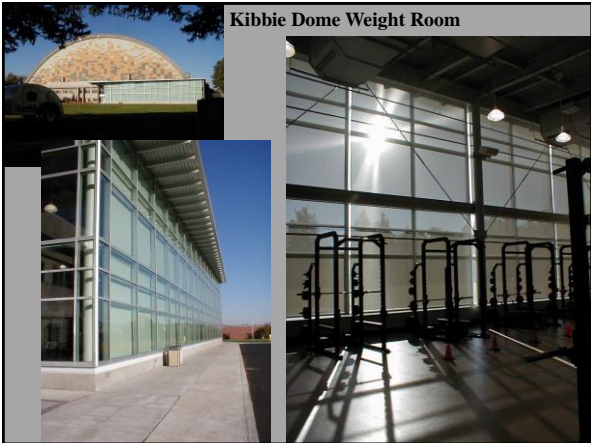


6

Compromise:
shading between glass panes
Invert BiMetal Self-shading glazing



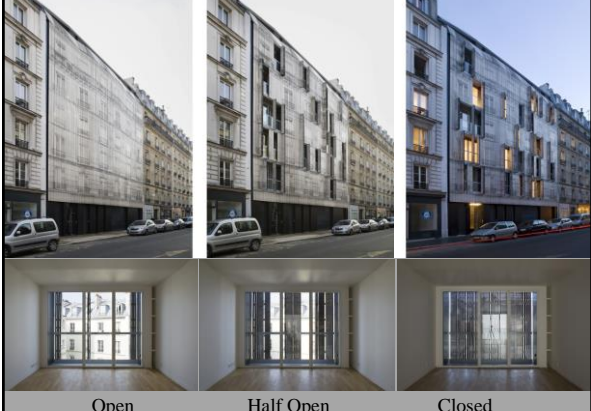
7



Kibbie Dome Weight Room

8

Hausmann Stories, Paris--image of old bldg. as movable ext. shading



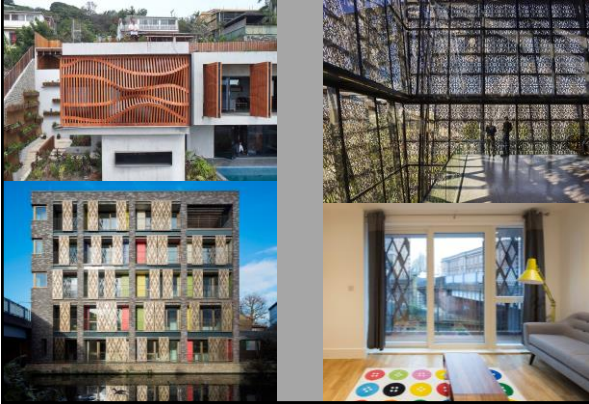
Open

Half Open

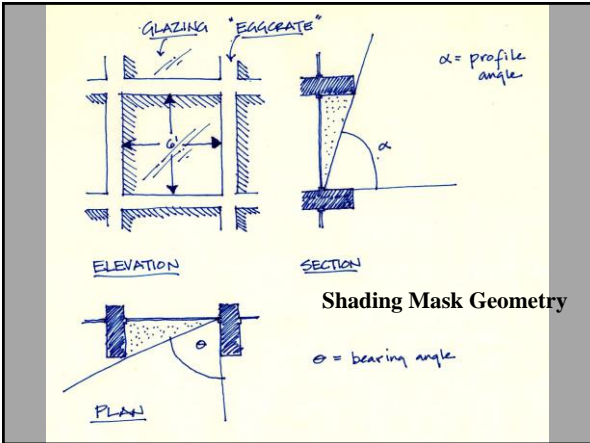
Closed

9

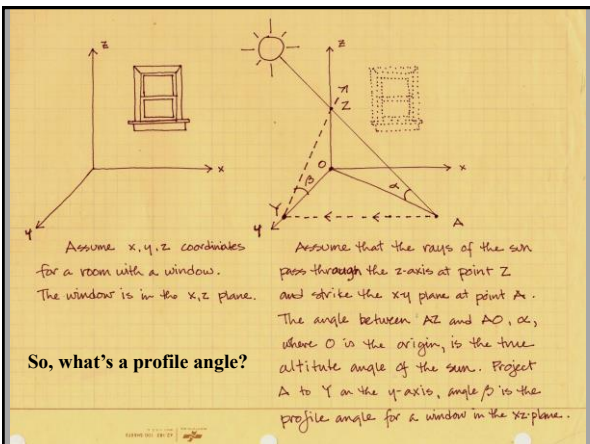
The Unusual Suspects: Brise Soleil



13

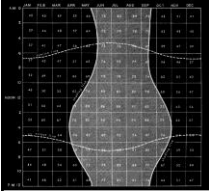


14

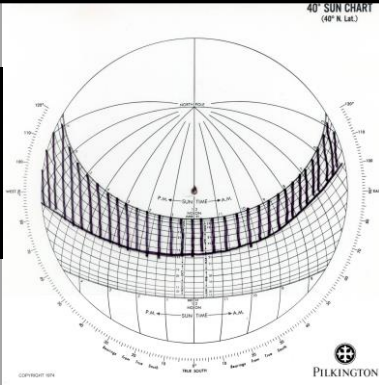


15

When to Shade



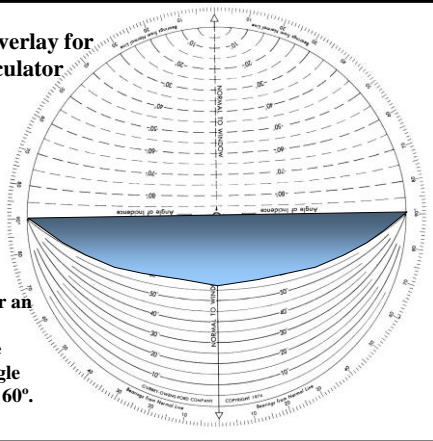
Transfer Times and Dates to Shade from Bioclimatic Timetable to Sun Angle Calculator



16

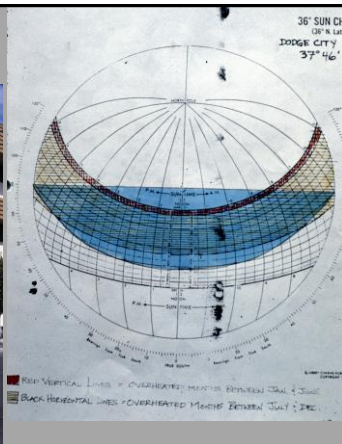
Profile Angle overlay for Sun Angle Calculator

Shading mask for an infinitely long horizontal device with a cut-off angle (profile angle) of 60°.



17

Horizontal Devices Think south side



18

Provide Enough Width to Shade Window

Figure 9.6.1c: Long strip windows. For the same width as the window, use a wider overhang or vertical fins on each side of the window.

Design Elements don't always have to line up.

19

Open Slats Mean

- Heat is not Trapped
- More Light Enters
- Little wind or snow load

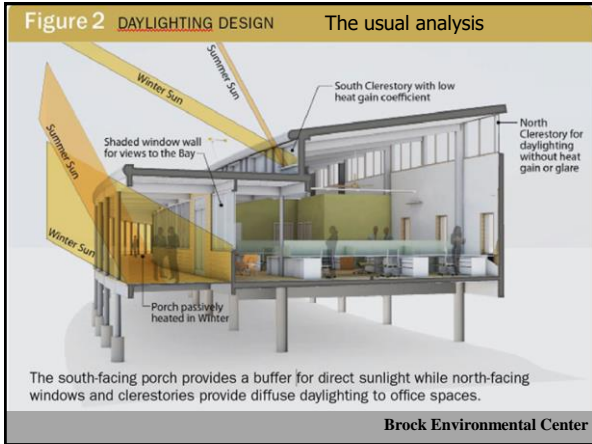
(Softer Diffused Light)

Keep in mind that rain also needs to be kept away from windows and walls

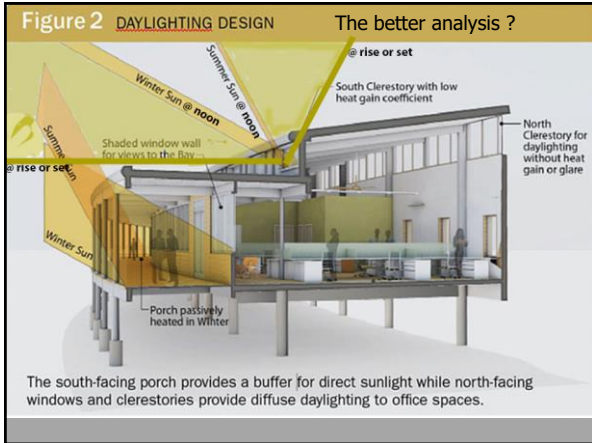
20

Pride in Shading!

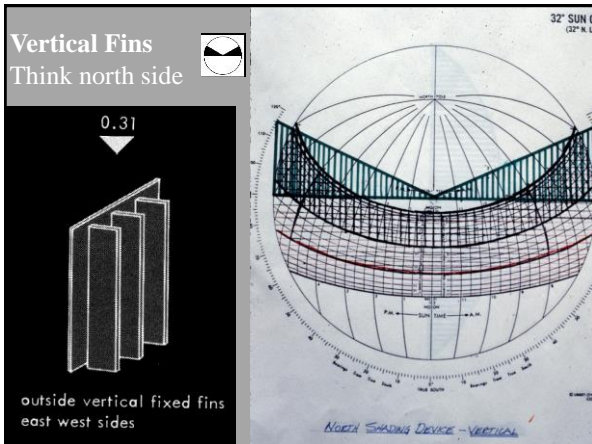
21



22

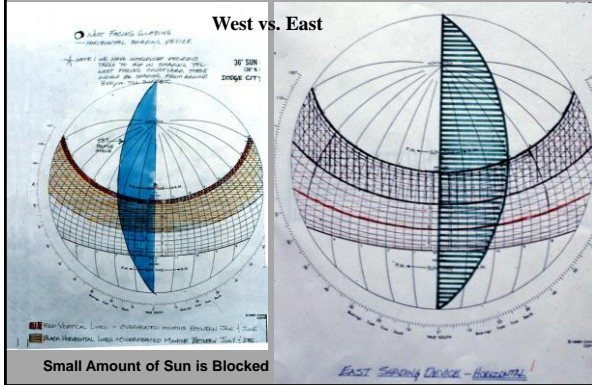


23



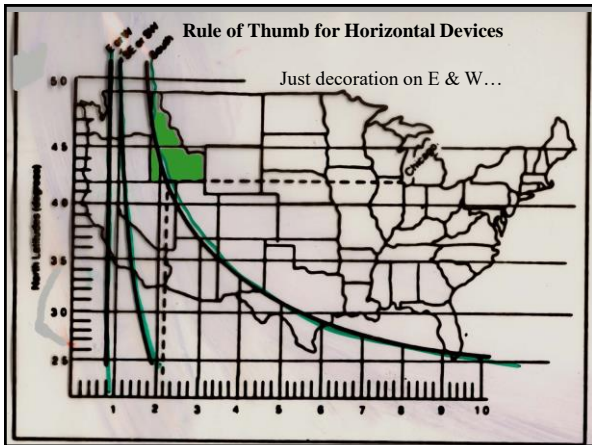
24

Horizontal West and East Shading—No!



25

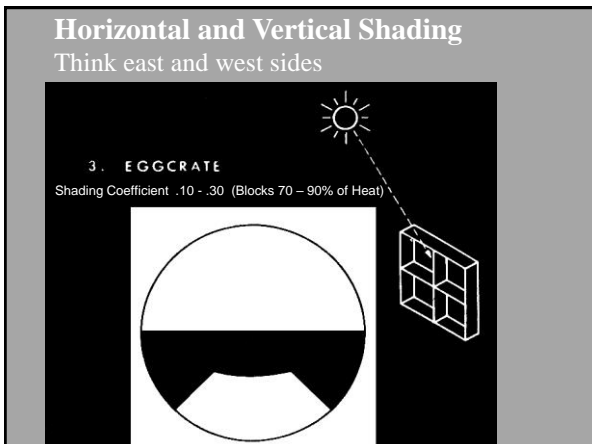
Rule of Thumb for Horizontal Devices



26

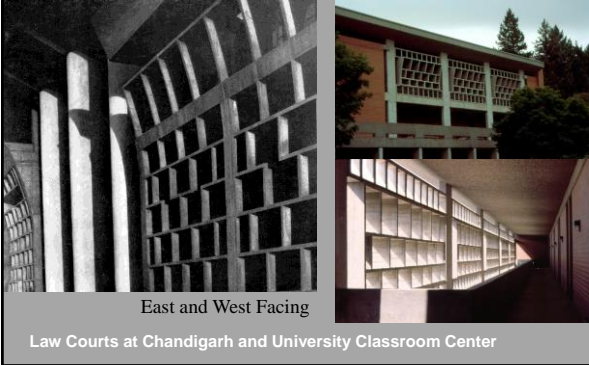
Horizontal and Vertical Shading

Think east and west sides



27

Horizontal and Vertical (Egg-Crate) Shading



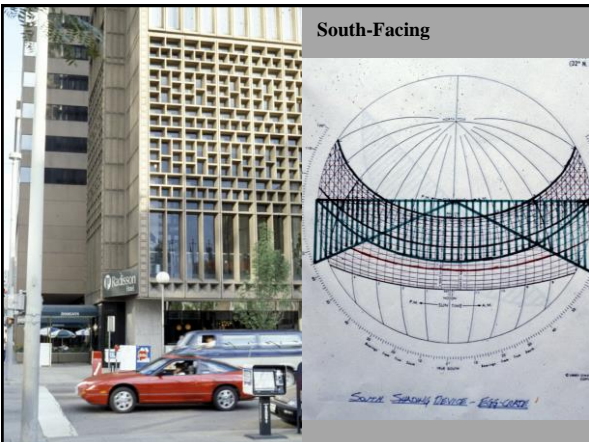
28

Post-Corbu UCC



29

South-Facing



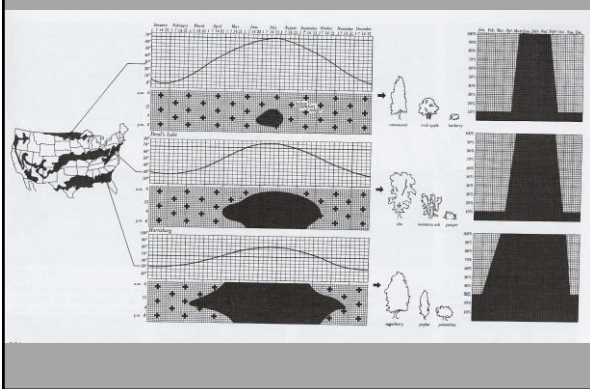
30

2015 Sterling Prize Winner: Burntwood School

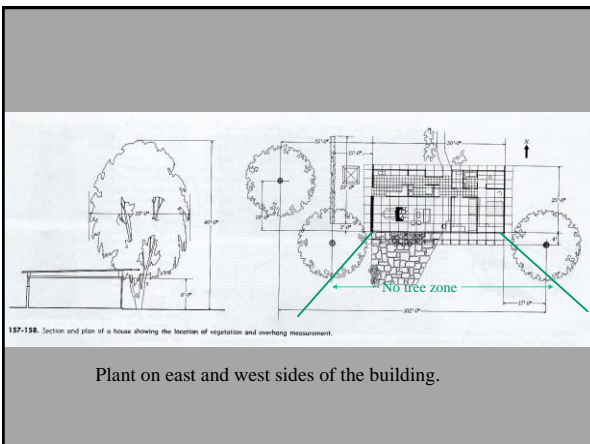


31

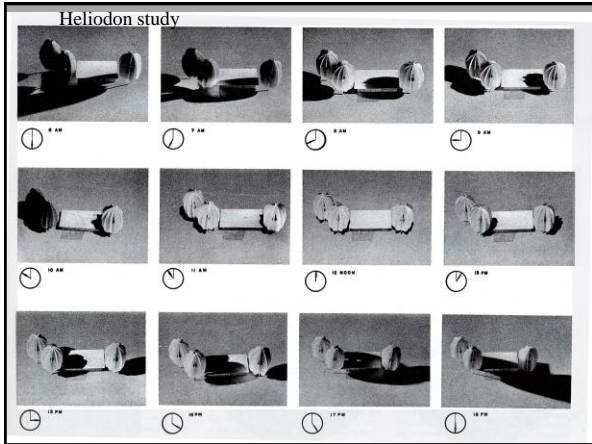
Deciduous vegetation is a dynamic shading device



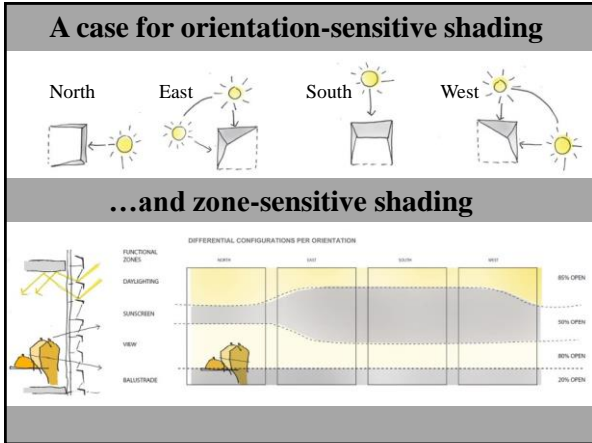
32



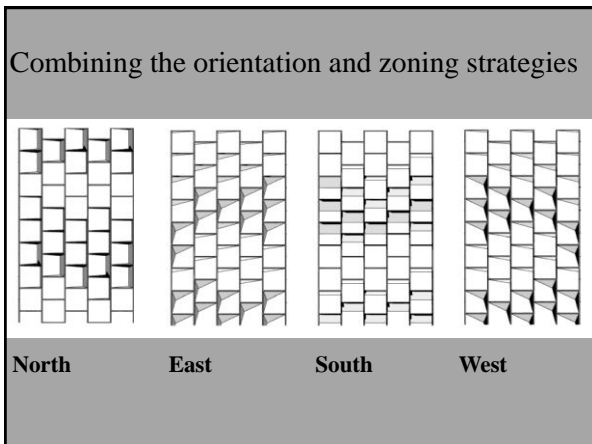
33



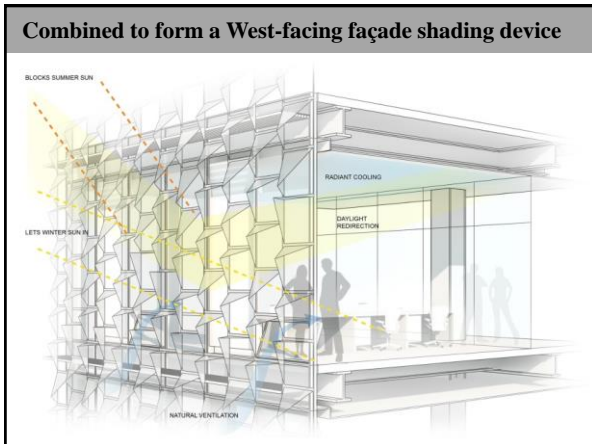
34



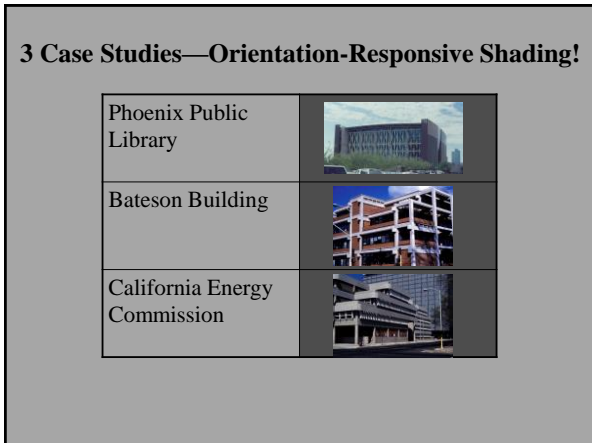
35



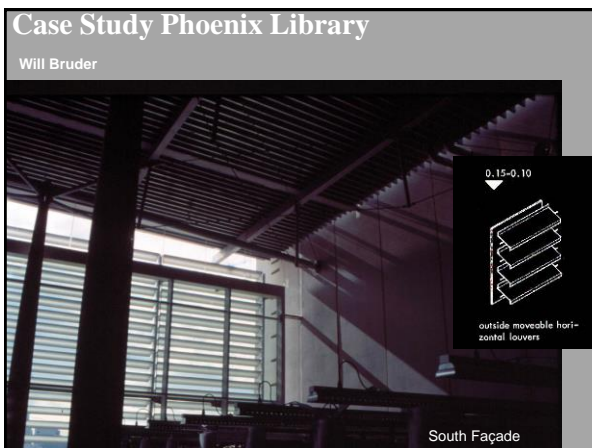
36



37



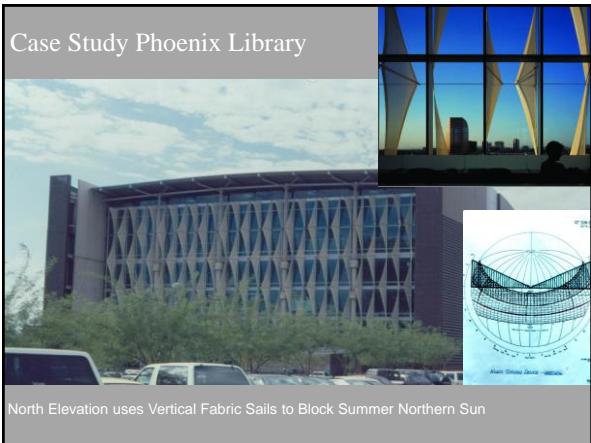
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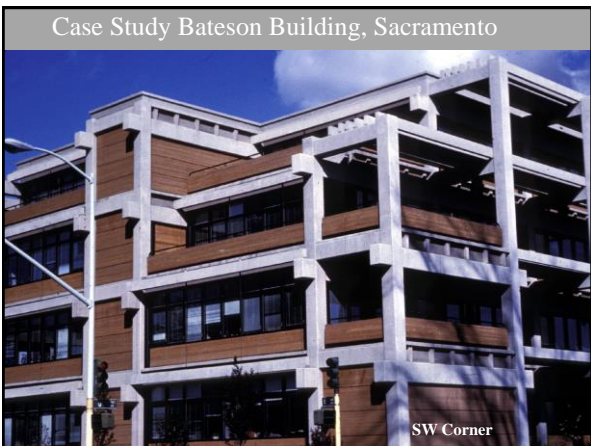
39



40



41



42

Case Study Bateson Building, Sacramento



South Side uses horizontal slatted shading devices.

43

East and West facades use movable exterior blinds



44

North windows use vertical fins (structure).

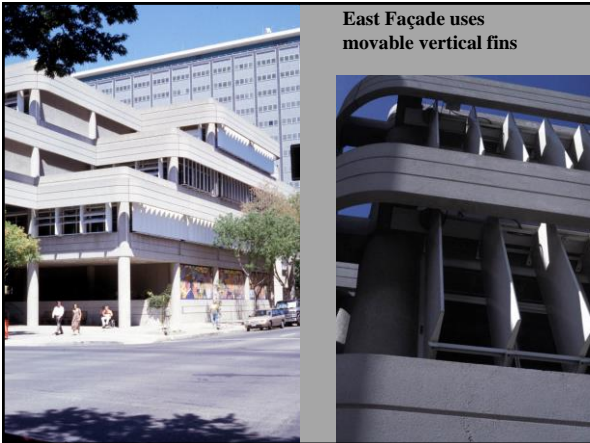


45

Case Study: California Energy Commission



46



East Façade uses movable vertical fins

47

Interior at East Façade



48

South Façade uses movable horizontal egg-crates



49

South Shading
(good performance)



East Shading
(mixed message)



50

Make Shading integral to your design thinking!



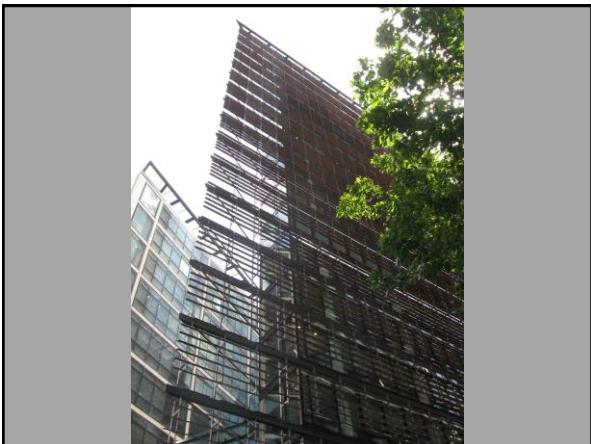
51



52



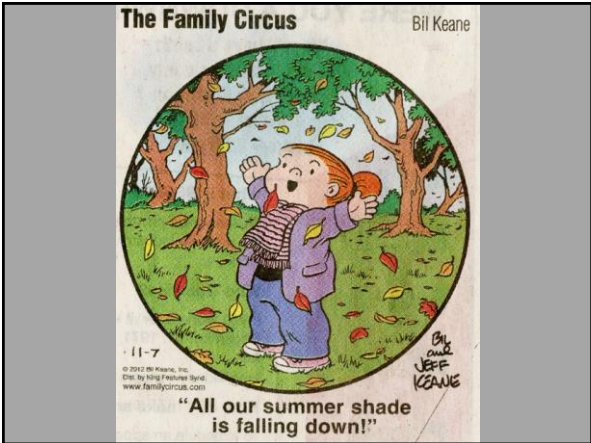
53



54



55



56
