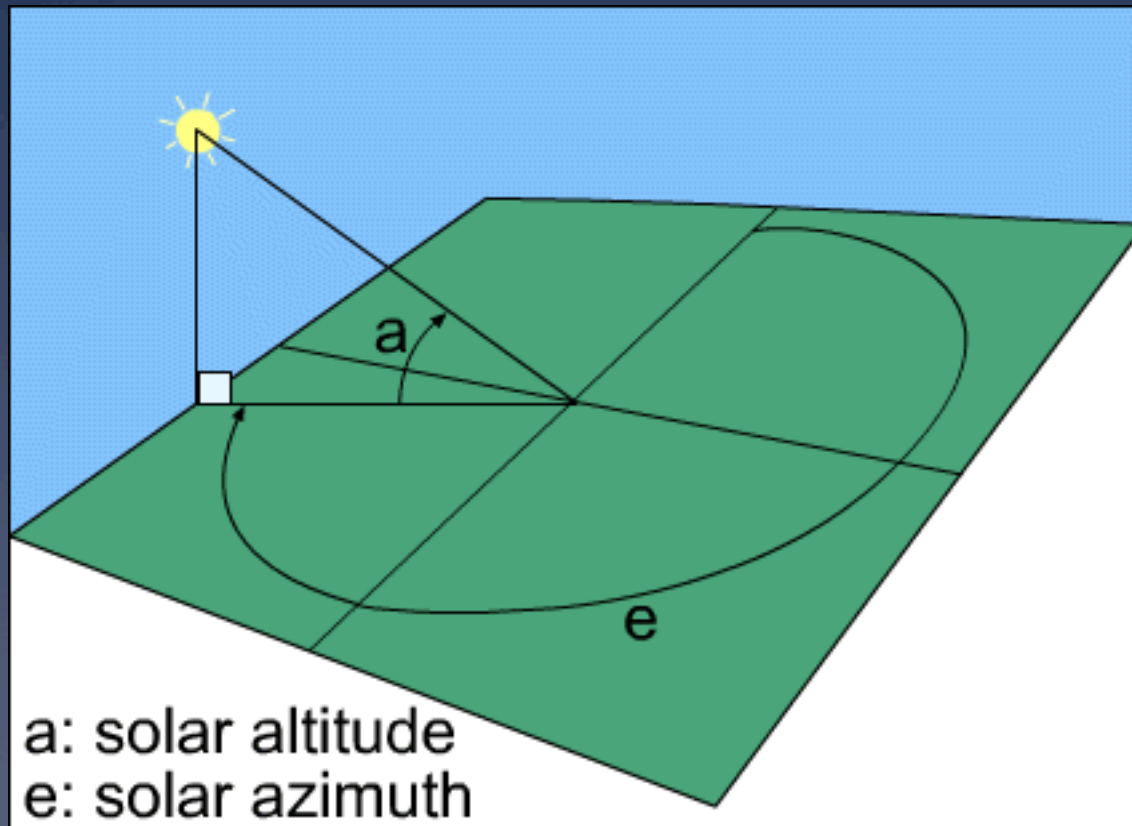


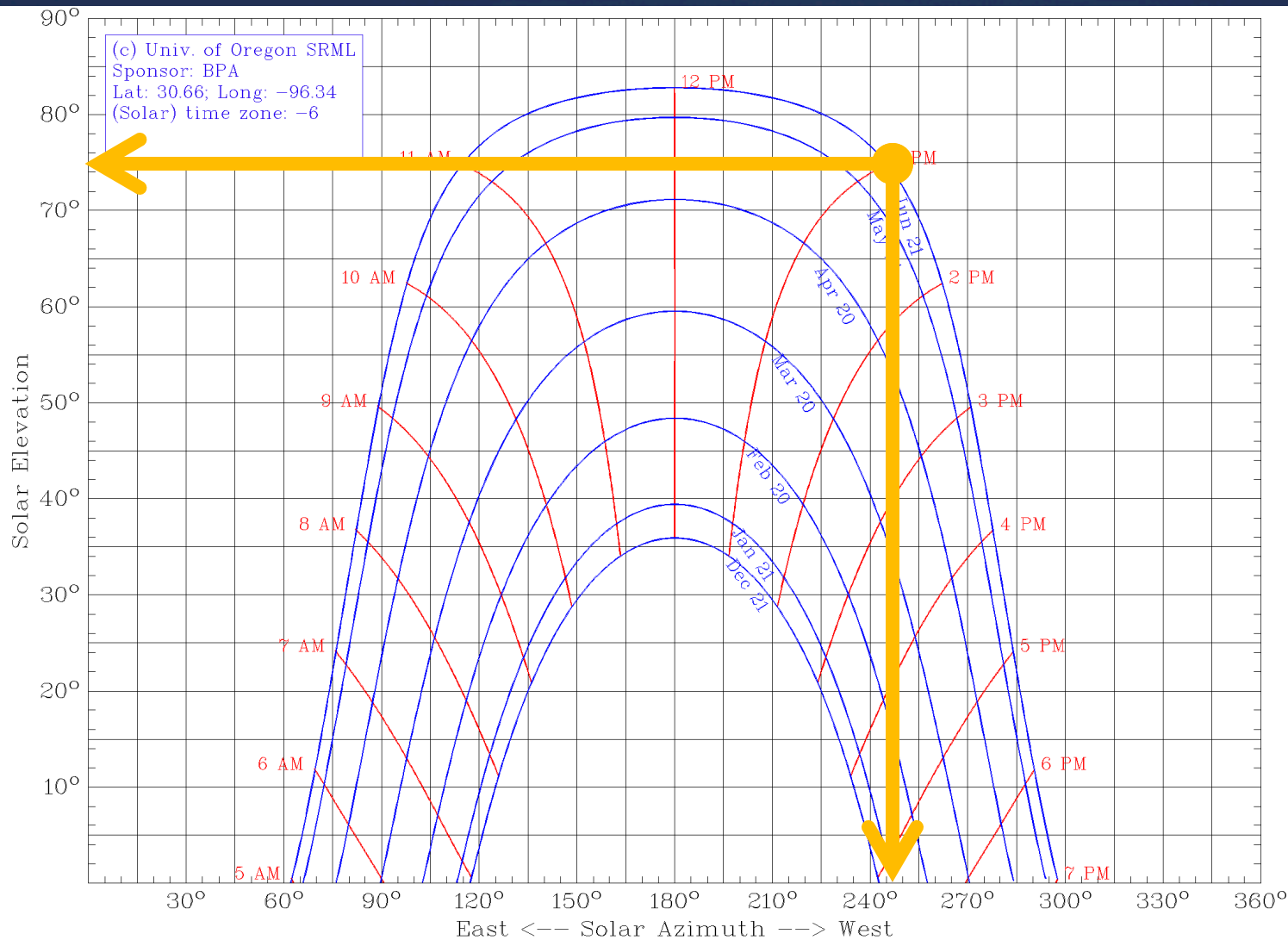
Texas Architects

...first...make shade

Two key words tell you where the sun is in the sky





Where is the sun at 1pm June 21?



Altitude
75 degrees
Above the
horizon

Azimuth
245 degrees
West of north

And at any given moment...



NOAA ESRL
Solar Position Calculator
Earth System
Research Lab

*** [Click here to try NOAA's New Solar Calculator](#) ***

City:		Deg:	Min:	Sec:	Time Zone	
<div>Houston, TX</div>	<div>Lat: North→ South←</div>	29	45	0	Offset to UTC (MST=+7):	<div>Daylight Saving Time:</div>
Click here for help finding your lat/long coordinates	<div>Long: East→ West←</div>	95	21	0	6	<div>No</div>

Note: To manually enter latitude/longitude, select **Enter Lat/Long ->** from the City pulldown box, and enter the values in the text boxes to the right.

Month:	Day:	Year (e.g. 2000):	Time: (hh:mm:ss)		
<div>August</div>	24	2011	15	: 09	: 22 <input type="radio"/> AM <input type="radio"/> PM <input checked="" type="radio"/> 24hr

Calculate Solar Position

Equation of Time (minutes):	Solar Declination (degrees):	Solar Azimuth:	Solar Elevation:	cosine of solar zenith angle
-2.36	10.99	252.88	47.22	0.734

Azimuth is measured in degrees clockwise from north.
Elevation is measured in degrees up from the horizon.
Az & El both report dark after [astronomical twilight](#).

<http://www.srrb.noaa.gov/highlights/sunrise/azel.html>

More precisely...

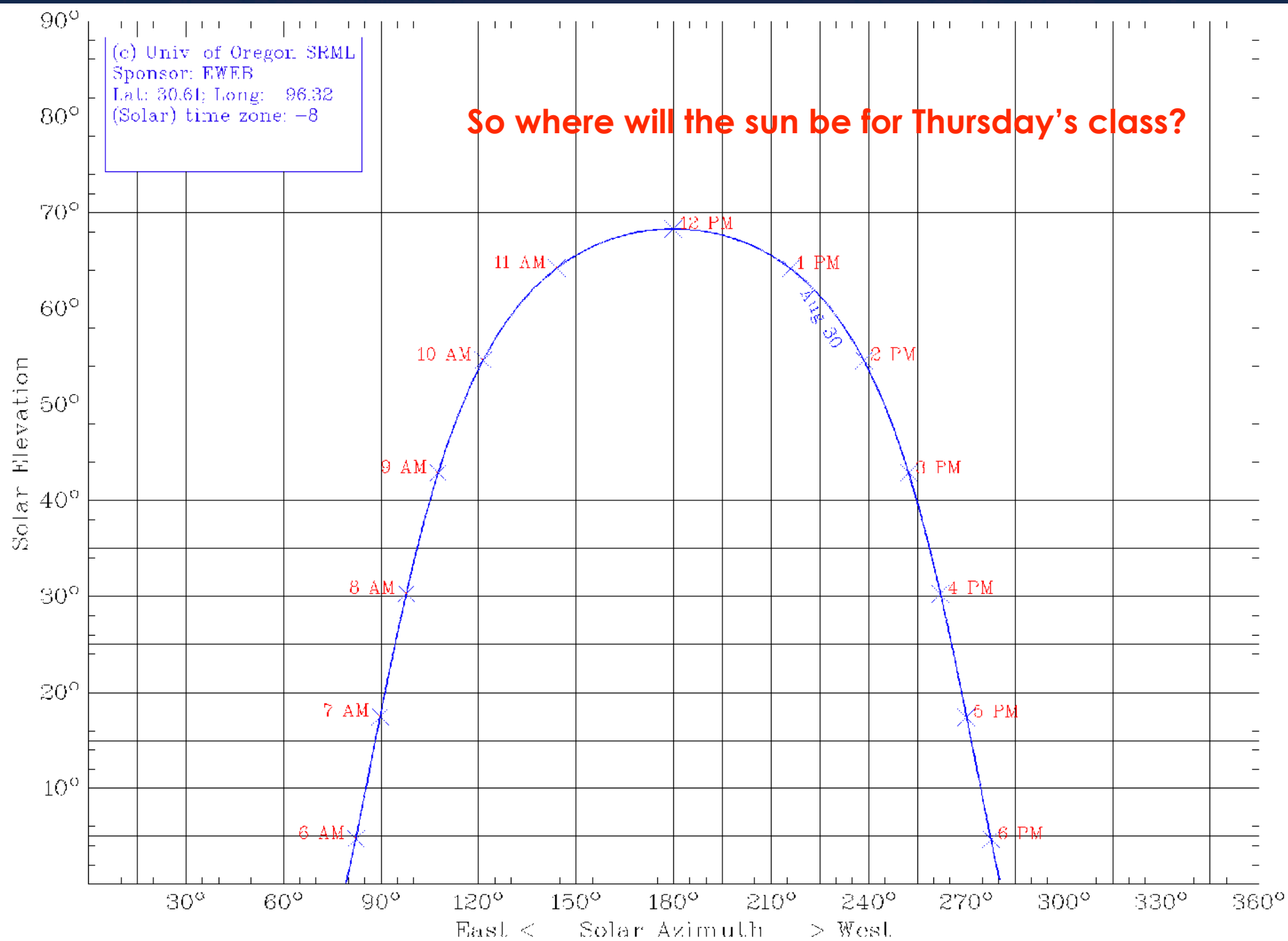
First you need to know where you are,
College Station is located at: 30.61°N
96.32°W

Second, open up the solar calculator at
<http://solardat.uoregon.edu/SunChartProgram.html>

144 deg az 65 deg alt

(c) Univ of Oregon: SRML
Sponsor: EWEB
Lat: 30.61; Long: -96.32
(Solar) time zone: -8

So where will the sun be for Thursday's class?

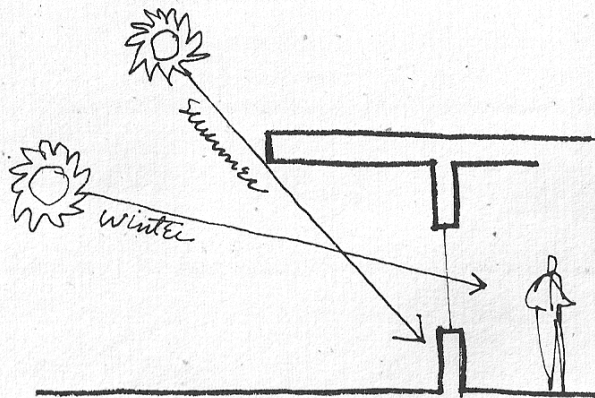


TAMU Ancestors

C.R.S.

Simple principles

- at noon
 - summer sun is high
 - winter sun is low
- each day
 - morning sun is low
 - noon sun is high
 - afternoon sun is low
- horizontal shades work on the south
- vertical shades work on the east and west



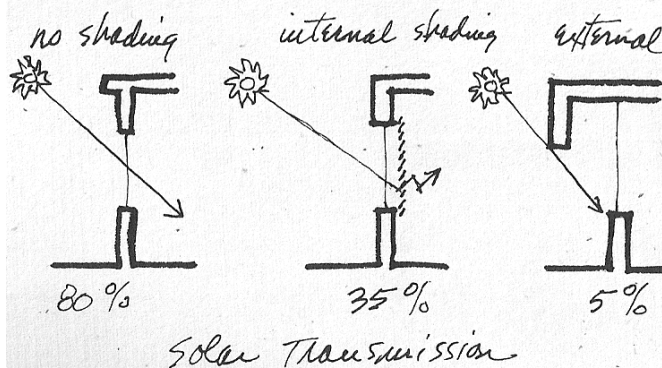
Summer sun is high; winter sun low, This allows shading devices to selectively admit the warming sun rays during the coldest months and to exclude the direct rays at the time of year when the additional heat is unwanted. The sun's path is precise and predictable. The designer uses this as an opportunity to control the sun's effect on his building. The most effective way to reduce unwanted solar transmission is to use external shading like trees, fins, overhangs or awnings, which stop solar transmission, leaving the glass in shade. Solar radiation is also transmitted by reflection from surfaces such as white building materials, glassy water and sand.

Internal devices like blinds, drapery and shades help reduce solar transmission through glass, but are less effective than external shading.

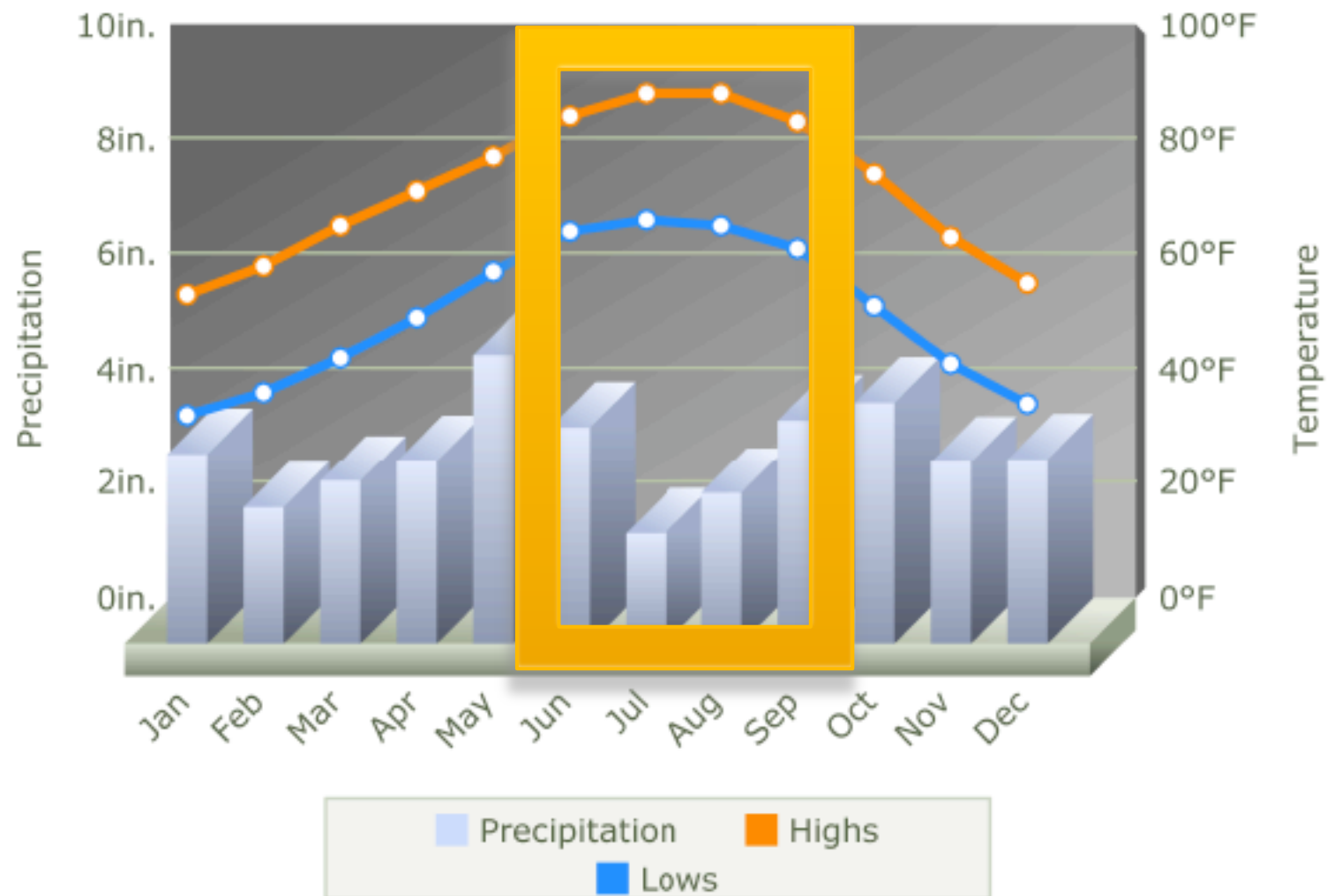
Under the best conditions, internal devices can only reduce transmission by 65 percent. When direct sunlight falls on $\frac{1}{4}$ " plate glass, as much as 80 percent of the sun's energy will be transmitted into the space. At night, the problem is reversed, and the drapery keeps the heat from escaping to the atmosphere while the overhang becomes ineffective. Again,

there is no single solution to use or stop solar radiation.

Each case must be handled as a specific application of sun control.



But what sun angles do I use?
When should we shade?



Can't I just insulate?

Insulation flavors... plain vanilla

- * Expanded polystyrene (“beadboard or EPS”) - available in
 - * white
 - * light grey
- * Open cells - Holds water (which reduces “R” value)
- * “R” value approx 3.5 per inch
- * Lowest price range



Rainbow flavors

- * Extruded polystyrene (“styrofoam”) - available in
 - * blue (dow)
 - * Pink (Owens Corning)
 - * Green (Amoco)
 - * Yellow (Certainteed)
- * Closed cells - Won't hold water
- * “R” value approx 5 per inch
- * Middle price range



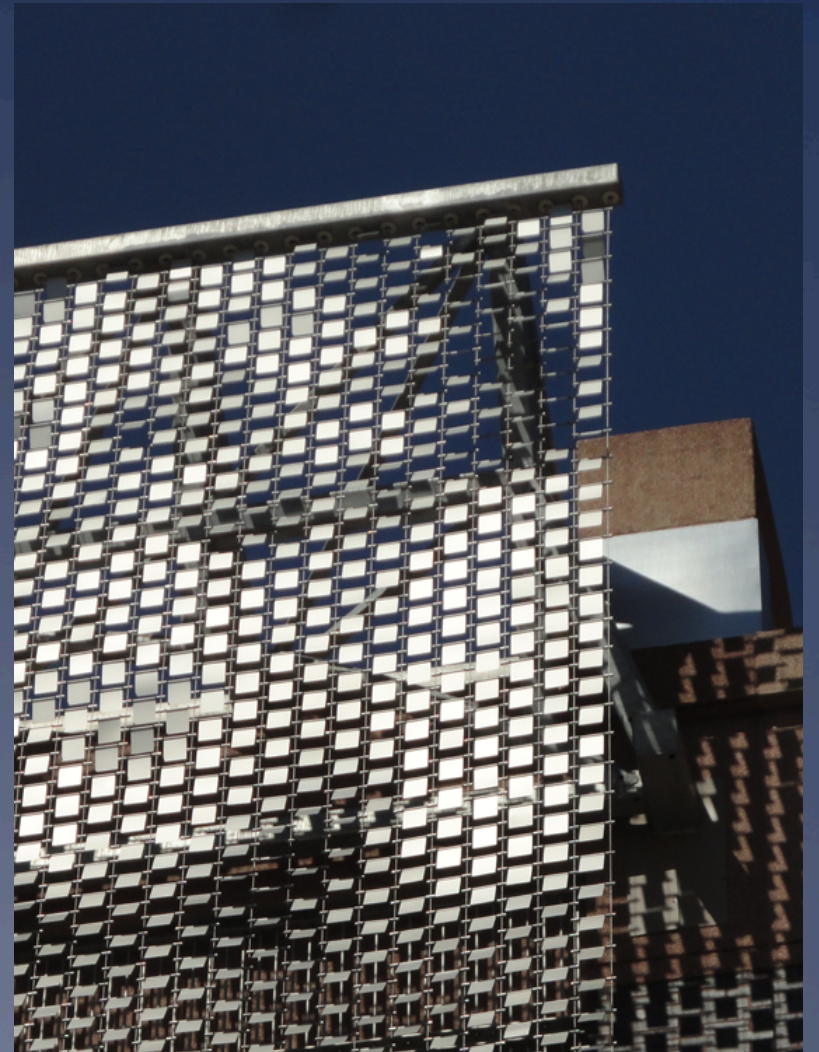
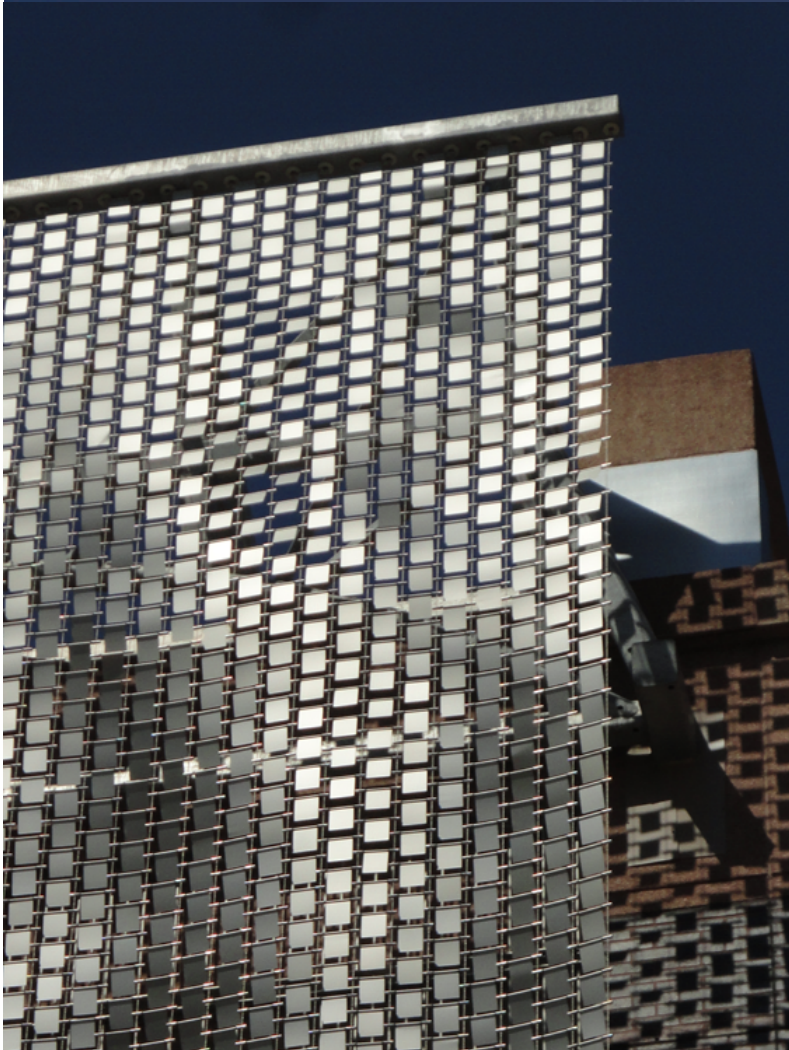
Dirty yellow

- * Polyisocyanurate
("polyiso") - available in
 - * yellow
 - * Closed cells - Won't hold water
 - * "R" value approx 10 per inch
 - * highest price range



Blank walls...a sustainability concept?...design opportunity?

The key is variation and repetition

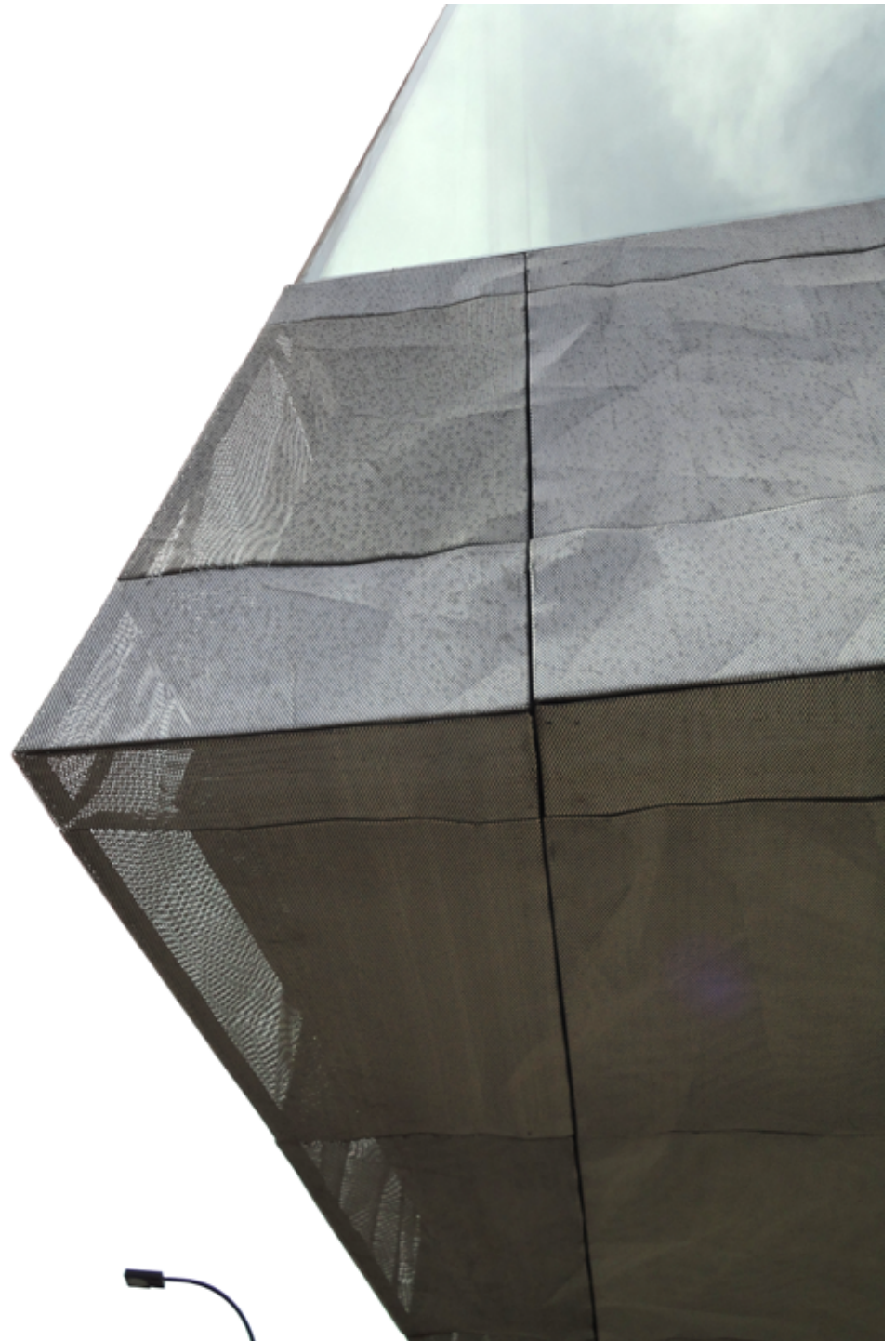




Enjoying no
windows,
Herzog &
deMuron

Pressed Metal wrinkles

Walker Art Center Addition

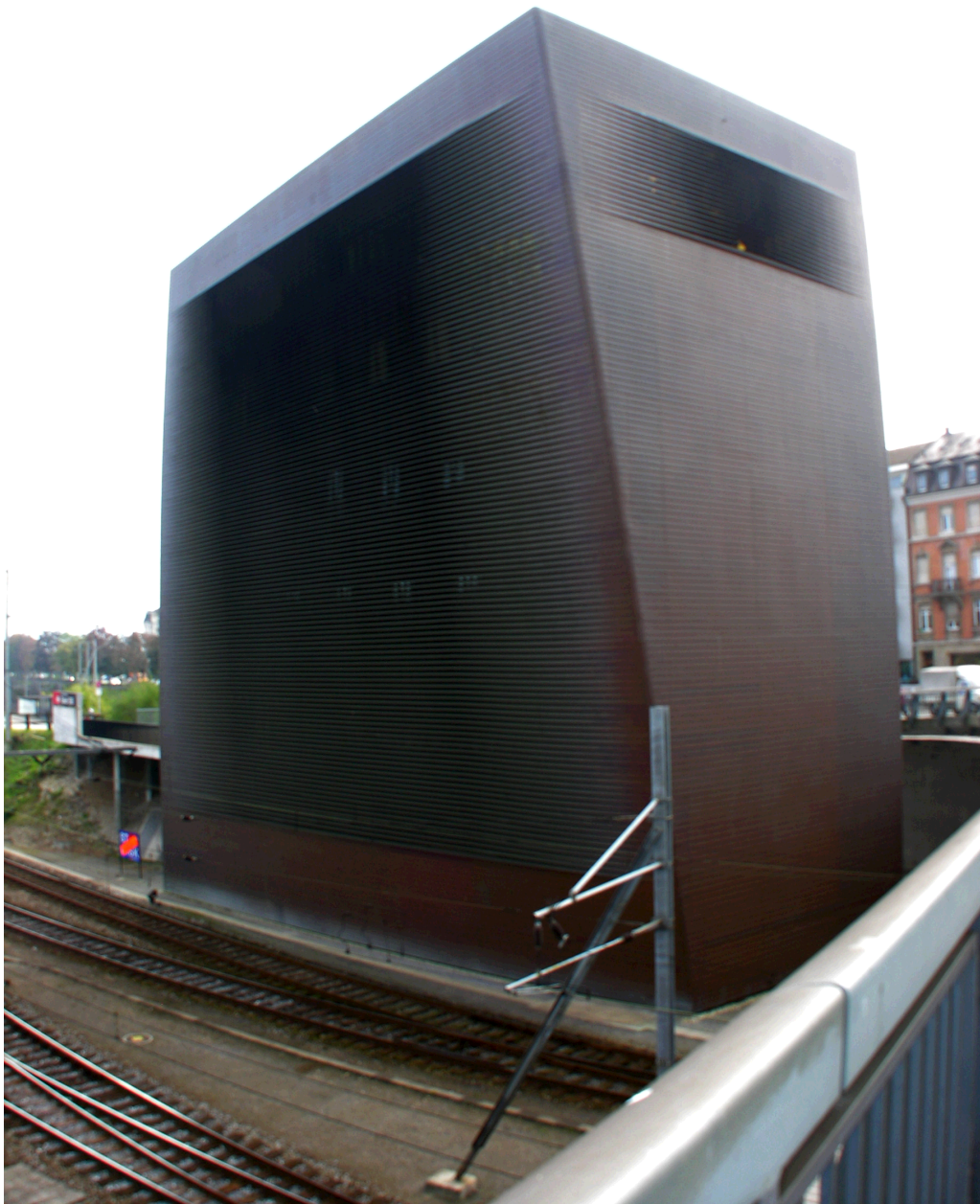




The blank wall
needs either
the restraint of
process marks
or...
exuberance!



And moments of the sublime...



Our responsibility...Transforming the ordinary into the sublime



And the lines
we draw, say
it all



Variation is critical





Finnish Embassy Washington D.C. Haakinen and Kommenen



Variation through subtraction



Herzog & deMuron, Pfaffenholz gymnasium



And
blank
walls can
be
beautiful!

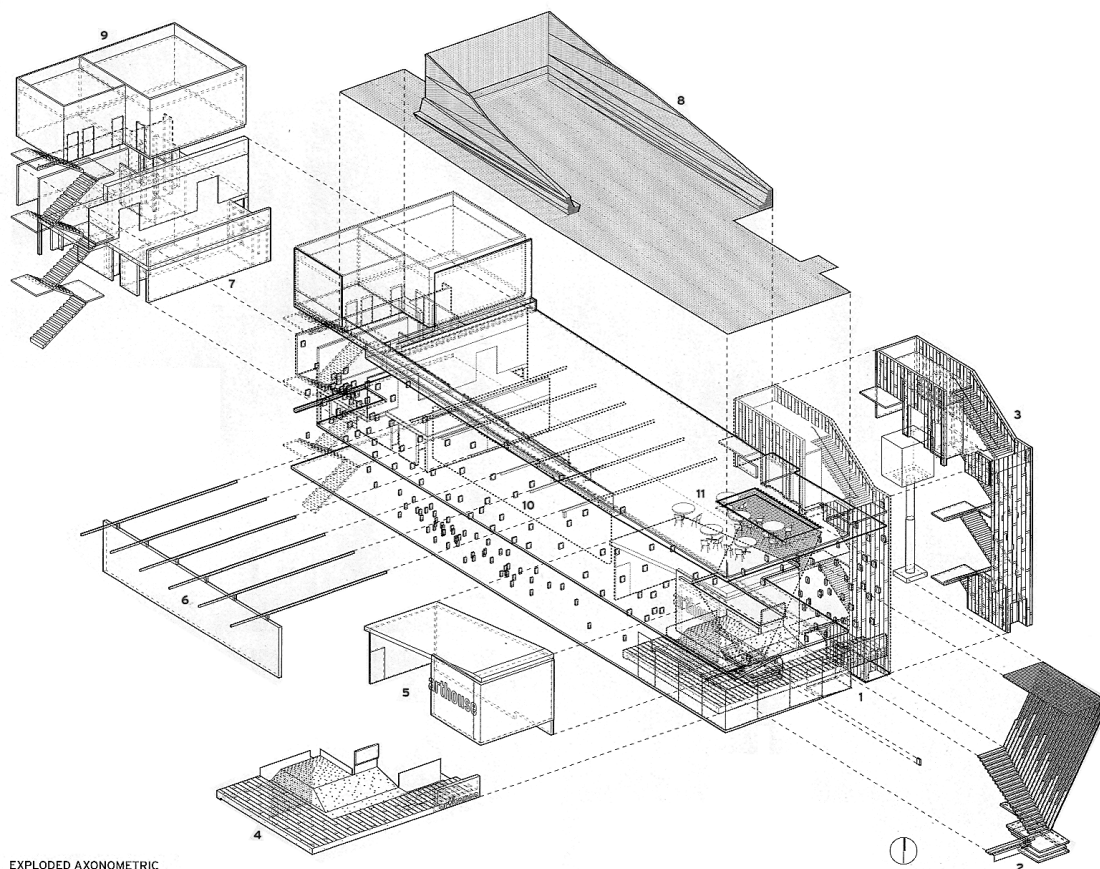
Art-house Austin

Two details...

Lewis Tsurmaki Lewis Architects
2010 (coming to talk to you Nov. 2!)







EXPLODED AXONOMETRIC

- 1 ENTRANCE
- 2 CENTRAL STAIR
- 3 STAIR AND ELEVATOR
- 4 AWNING
- 5 SCREENING
- 6 MOBILE GALLERY WALL
- 7 MECHANICAL
- 8 ROOF DECK
- 9 TWO ARTIST STUDIOS
- 10 GALLERY
- 11 GALLERY/LOUNGE

CREDITS

ARCHITECT: Lewis.Tsurumaki.Lewis Architects – Paul Lewis, AIA, Marc Tsurumaki, AIA, David Lewis, principals; Jason Dannenbring, project manager
ENGINEERS: MJ Structures (structural); Kent Consulting Engineers (m/e/p); Garrett-Ihnen (civil)
CONSULTANTS: Lumen Architecture (lighting); Blue House Design (media)
CLIENT: Arthouse at the Jones Center
SIZE: 20,830 square feet
COST: \$4.4 million
COMPLETION DATE: October 2010

SOURCES

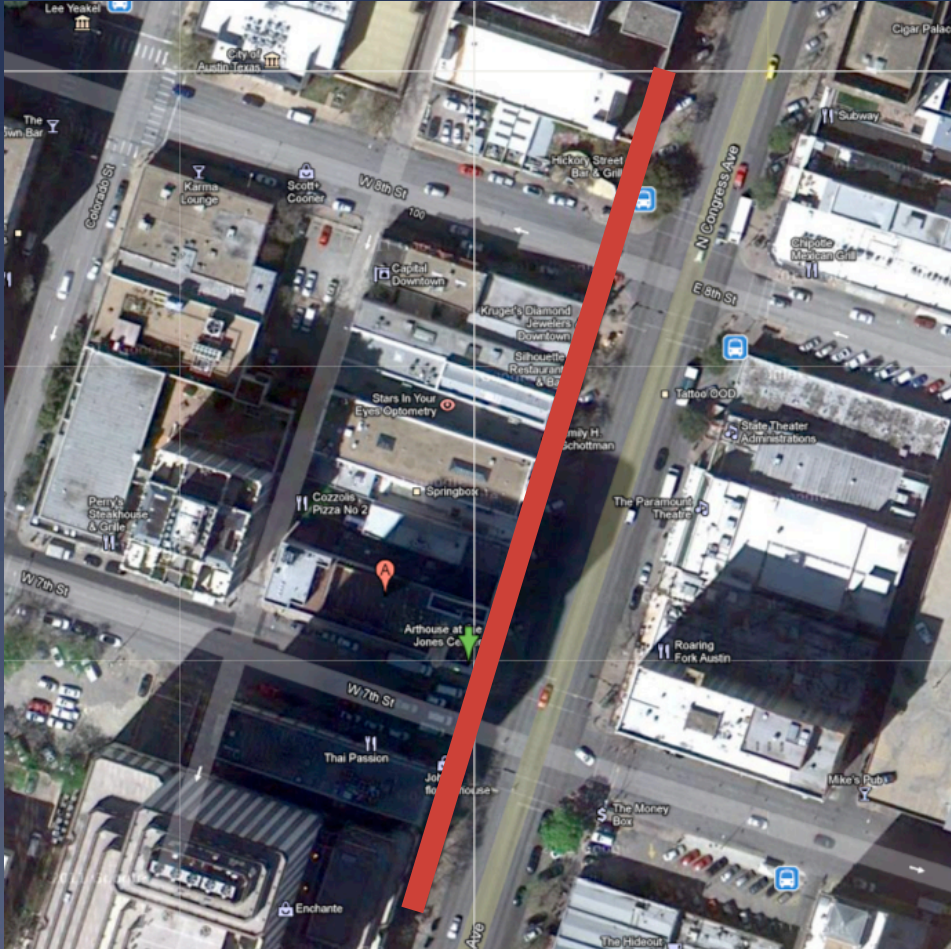
METAL PANELS: Rimex Metals Group (Granex stainless steel)
PRECAST CONCRETE: Advanced Cast Stone
GLASS: Oldcastle BuildingEnvelope
CUSTOM GLASS BLOCKS: LTL with M3 Glass Technologies and Dupont SentryGlas Plus
SKYLIGHTS: Skyline Sky-Lites; Solatube
STUCCO: LaHabra Wall
LOCKSETS, CLOSERS, EXIT DEVICES: Stanley



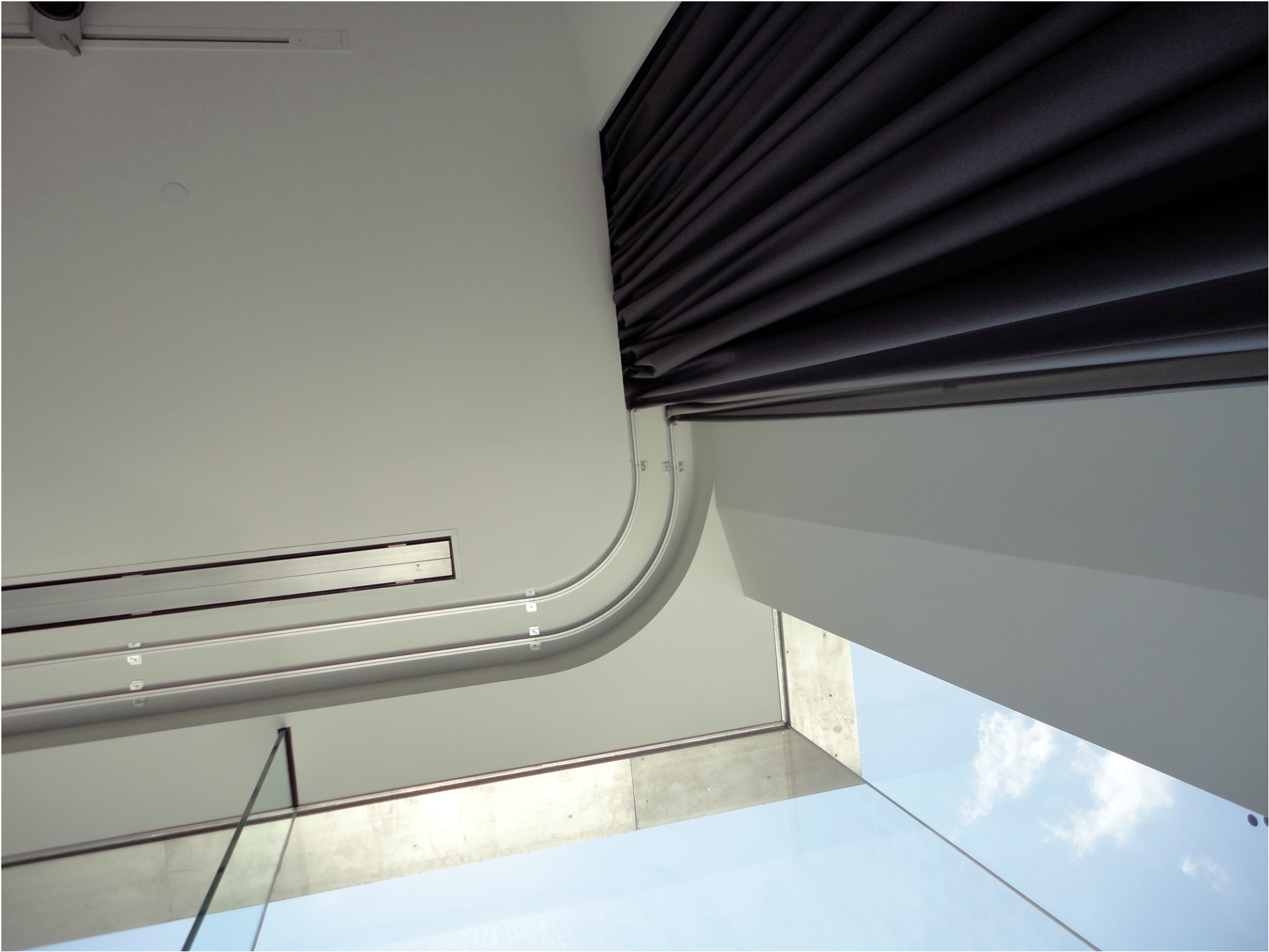


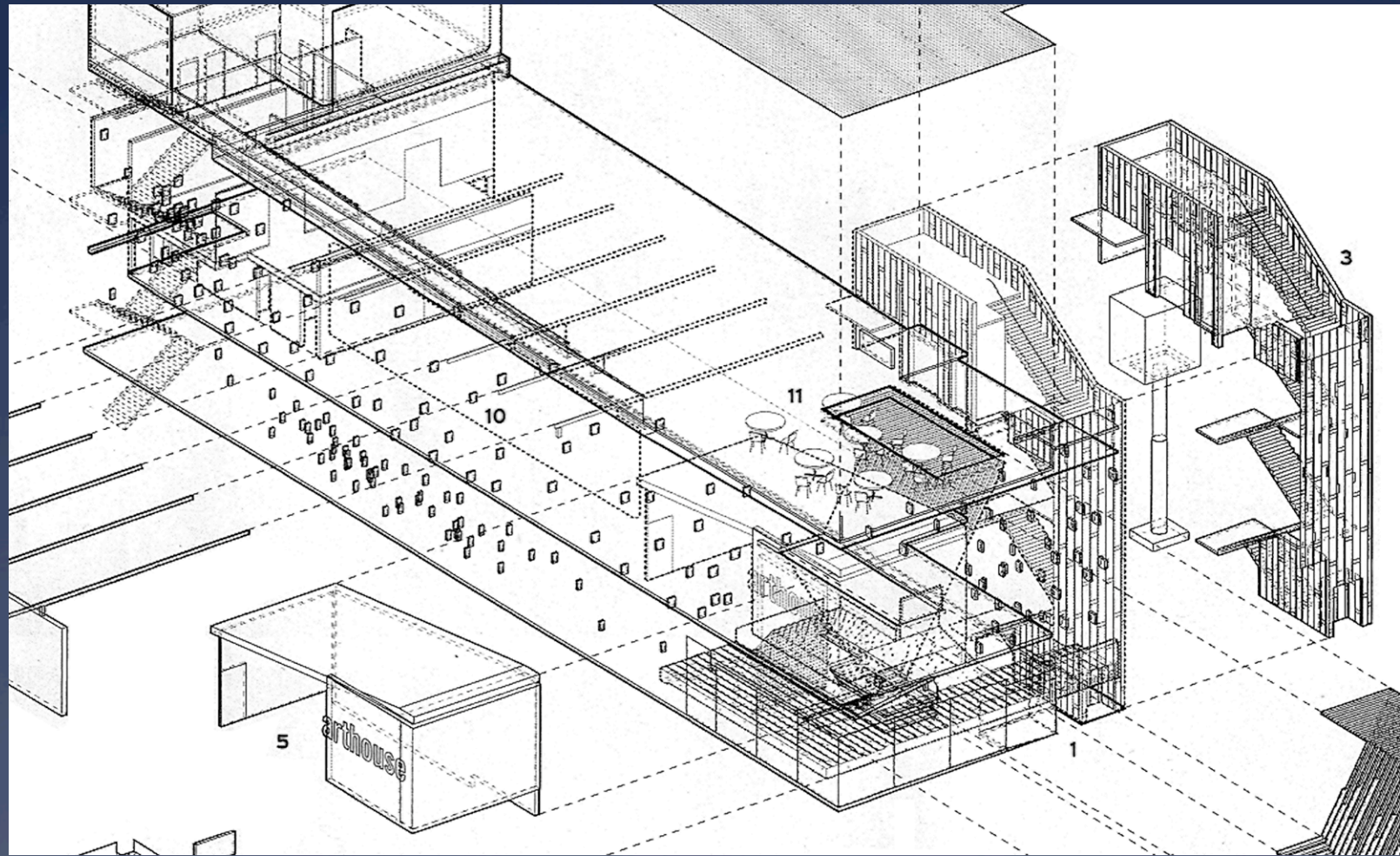


The rule of Congress St....everybody
get in line...and look straight ahead!

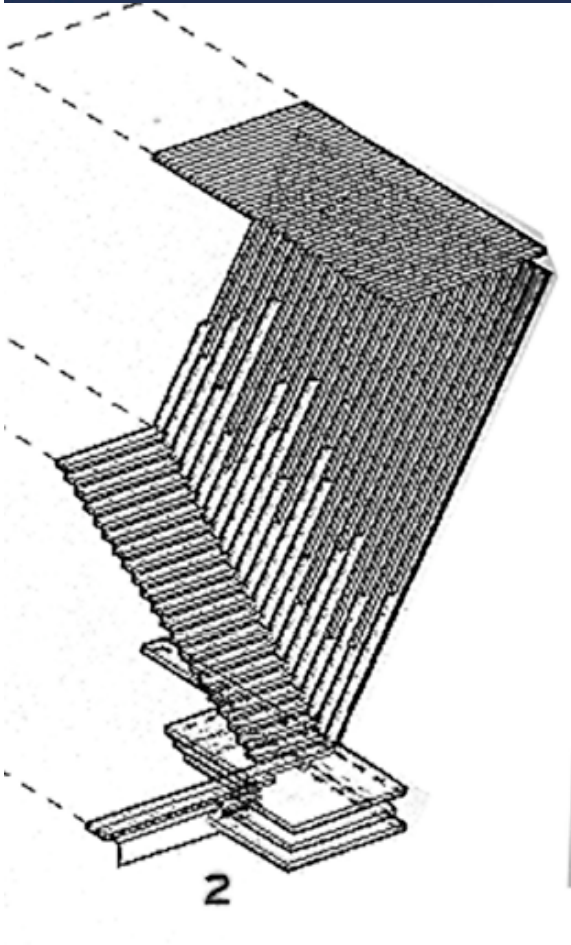






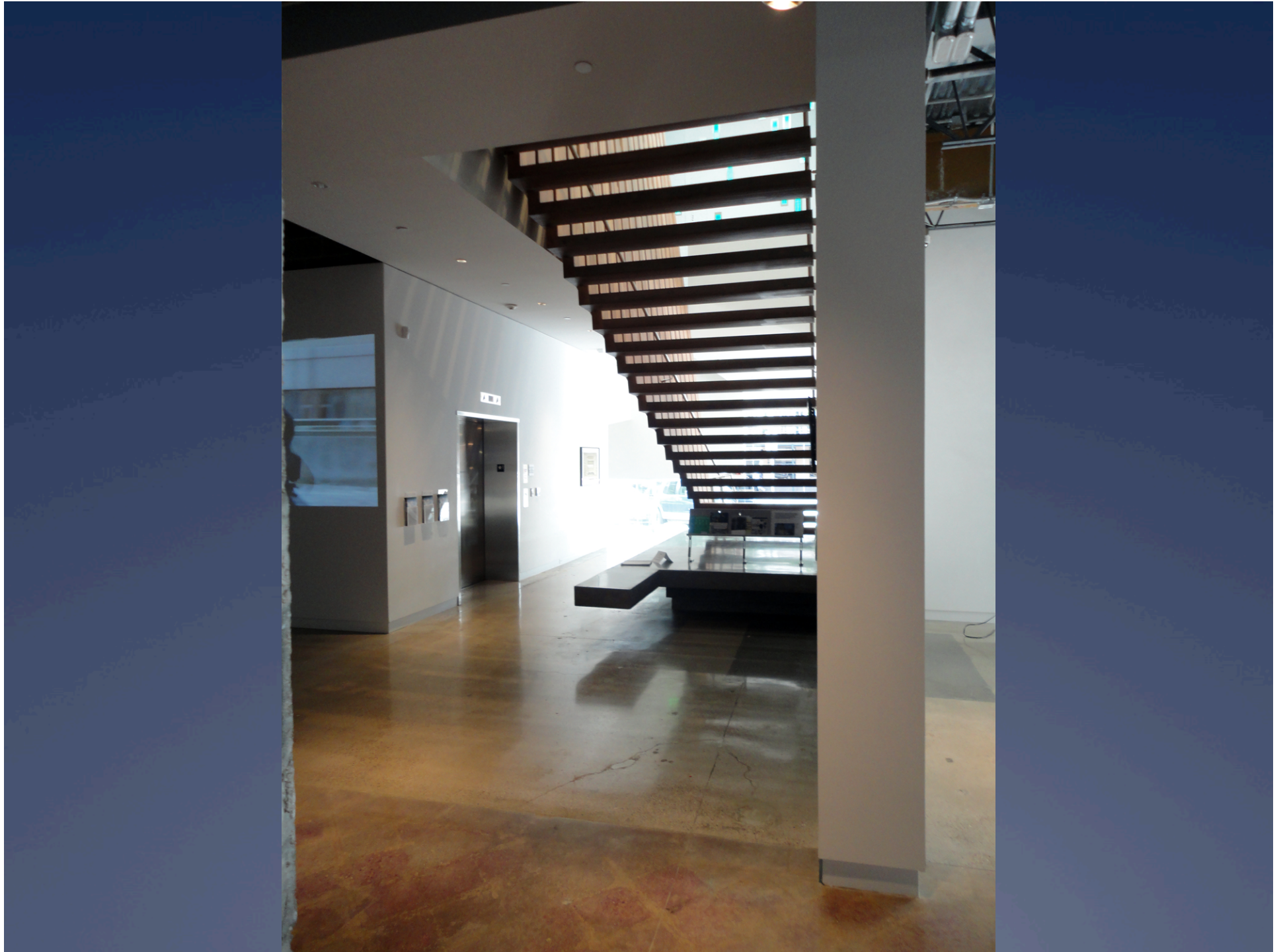


















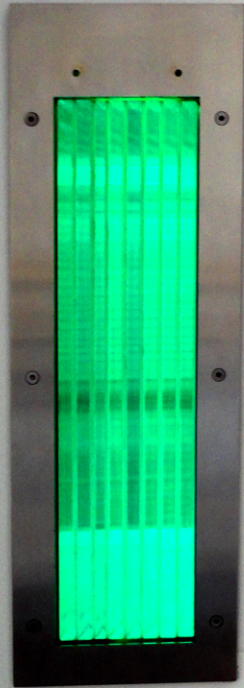












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