

United States Courthouse Los Angeles California



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Scope:

Construction of a new sustainable, secure, and cost-effective United States Courthouse in Los Angeles, California to provide the necessary space for the district court and the public it serves. The approx. 625,000 gsf facility includes 24 courtrooms and 32 judicial chambers houses the U.S. District Court, Central District of California, U.S. Marshals Service, U.S. Attorneys' Office, Federal Public Defender, and GSA.

Budget: \$365,000,000,

| | | |
|---------------|-----------------------|---------------|
| Actual Costs: | Design Build Contract | \$345,993,516 |
| | CM Contract | \$7,641,742 |

Features:

The design is one of symbolic, social, cultural, environmental, and economic significance and is a modern interpretation of classic tripartite design; that of Base, Body and Cornice. It has a strong civic presence and incorporates state-of-the-art technology and sustainable features. The LEED Platinum courthouse uniquely responds to its downtown location. The courthouse's serrated façade is designed to achieve a north/south orientation that will maximize daylight harvesting and views, while reducing solar heat gain by 47 percent. The facility incorporates energy conservation strategies to achieve a target energy consumption of 35 EUI and includes 450 kW roof mounted photovoltaic array.. The design also includes an innovative structural engineering concept that allows the cubic courthouse volume to appear to float over its stone base while being one of the Nation's safest buildings.

The courthouse joins a neighborhood of important, modern Los Angeles buildings, such as the Disney Concert Hall, the Los Angeles Cathedral, Caltrans and Los Angeles Police Department, while simultaneously joining a respected portfolio of GSA Design Excellence buildings. It will be contemporary in form and materials, yet embrace the principles of archetypal Federal architecture.

Schedule:

| | |
|------------------------|---------------|
| Contract Award | December 2012 |
| Ground Breaking | August 2013 |
| Substantial Completion | August 2016 |
| Rent Start | November 2016 |

Project Team:

Design Builder Architect:

Skidmore, Owings & Merrill LLP

Design Builder General Contractors:

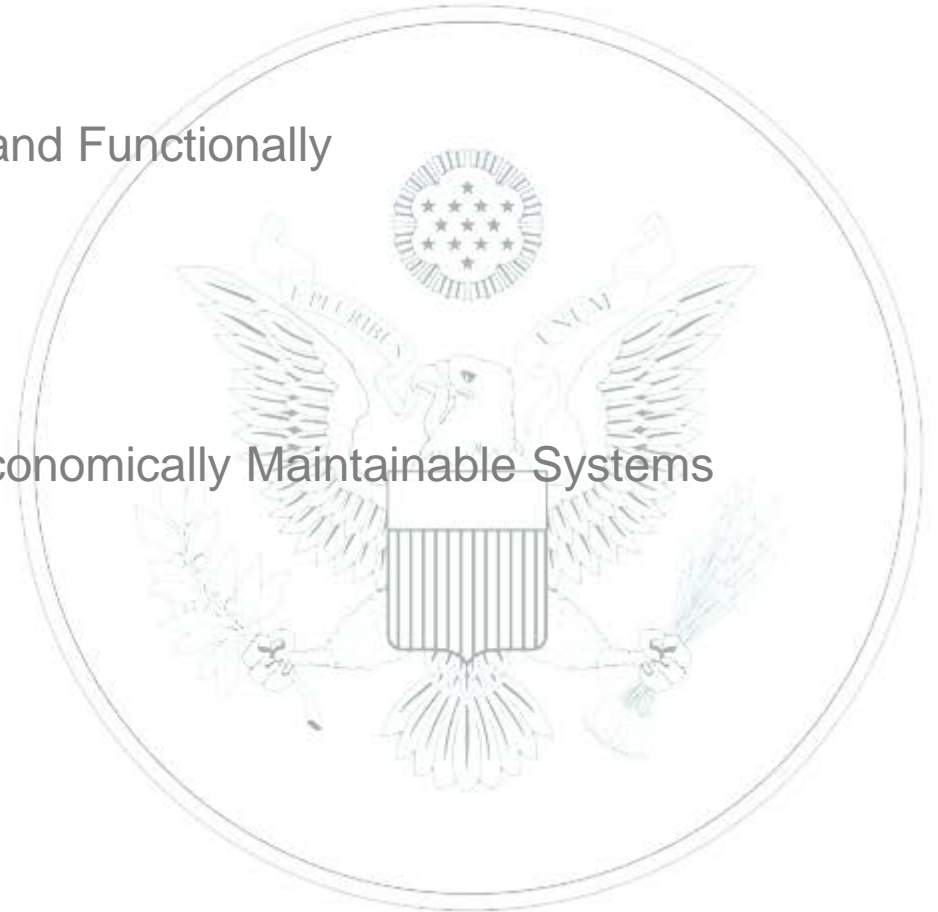
Clark Construction Group

Construction Managers/Commissioning:

Jacobs Project Management

Project Goals

- Design Excellence!
- Must house the Program Efficiently and Functionally
- High Sustainability
- 21st Century and Timeless Design
- Must Fit the Community
- Must be Flexible for the Future
- Functional, Adaptable, Easily and Economically Maintainable Systems
- Durable and Attractive Finishes\
- Must allow for Future Expansion
- Make way for Art in Architecture
- Bring Best Value for Tax Payer!



Urban Analysis

Civic Center Complex

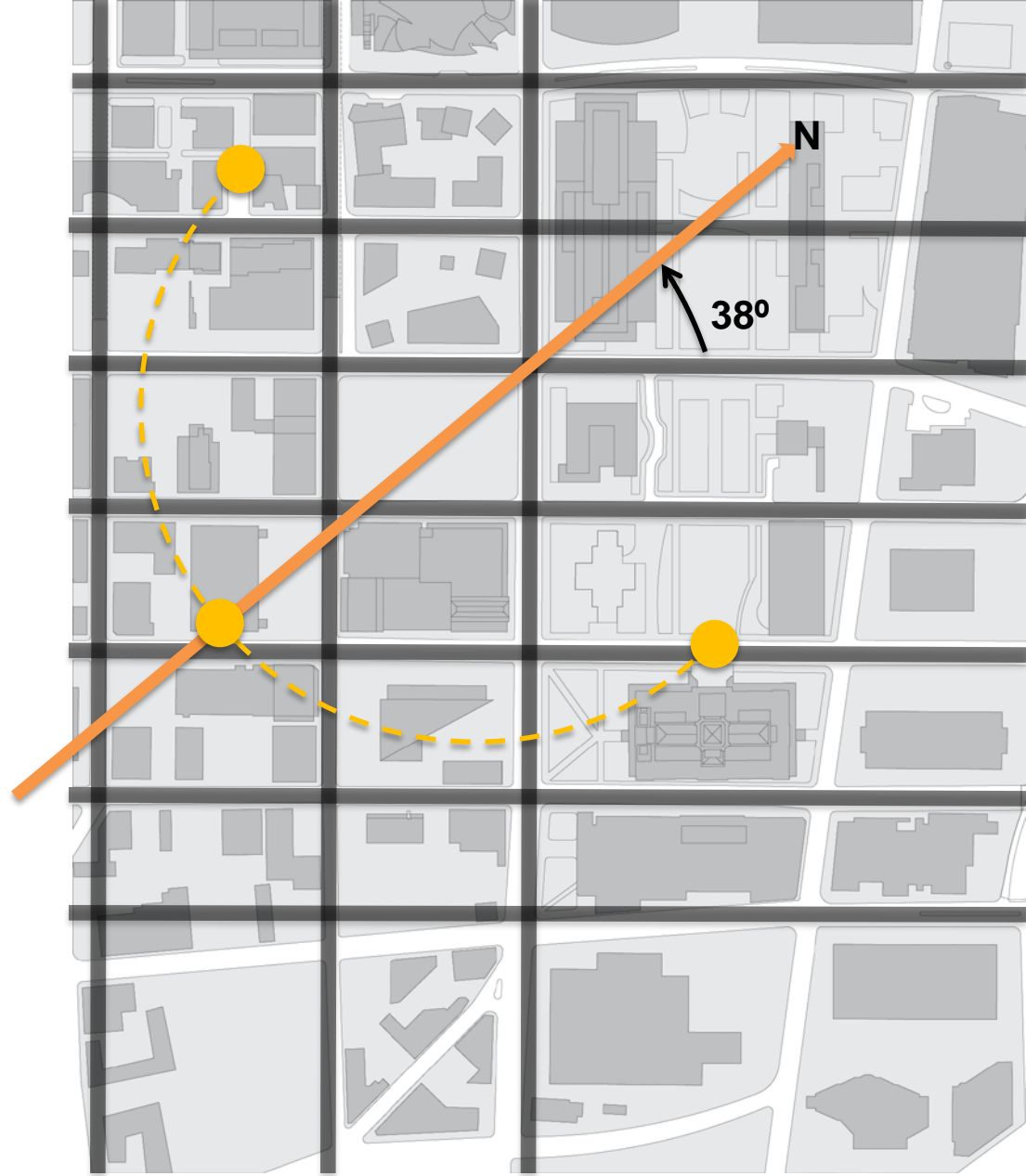
Open Space and Adjacent Civic Structures



A Courthouse For 21st Century Los Angeles

Urban Grid is 38 degrees off true North

Direct Sun on all 4 sides



HILL ST.

N

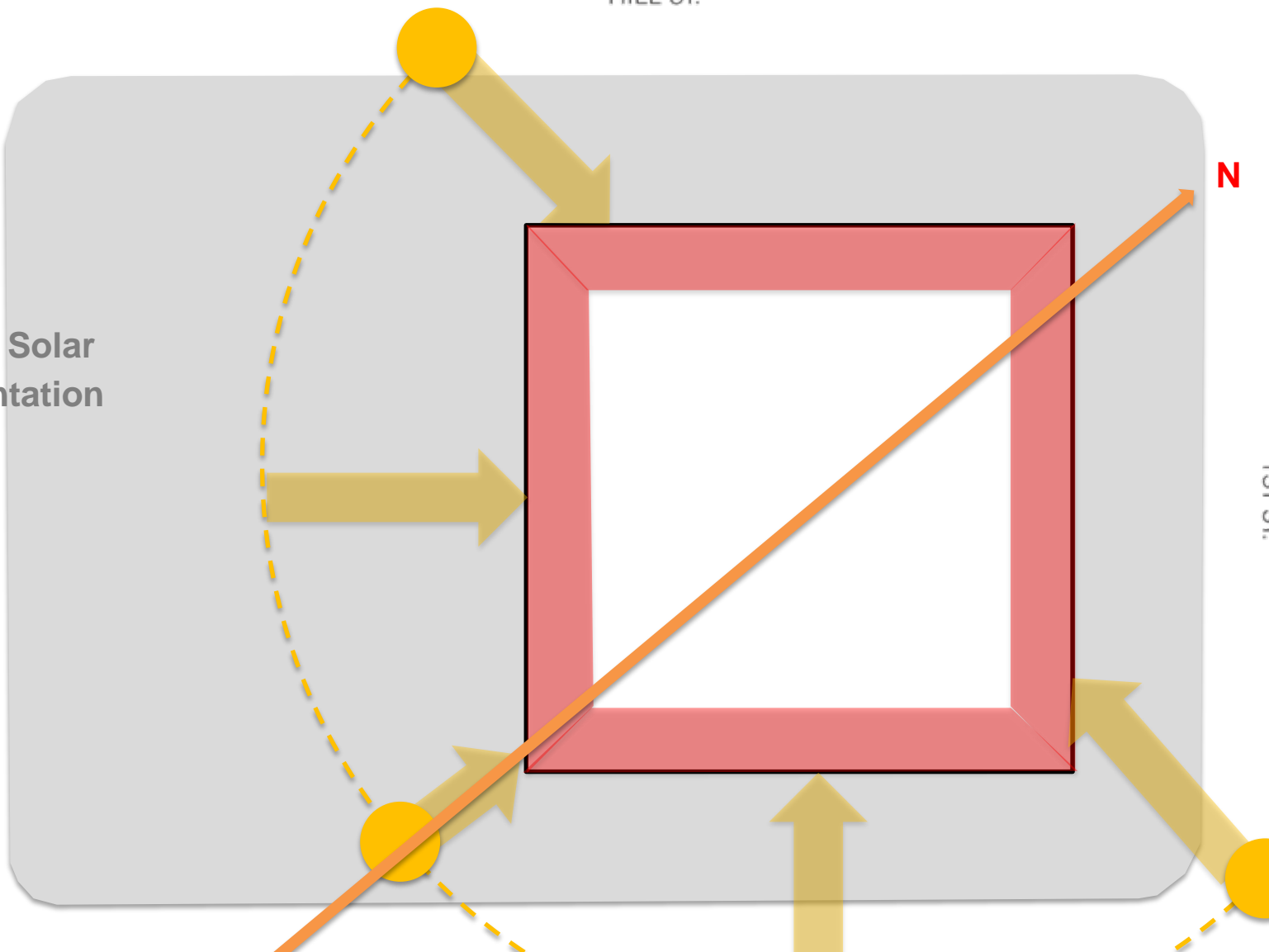
Poor Solar Orientation

2ND ST.

1ST ST.

S

BROADWAY



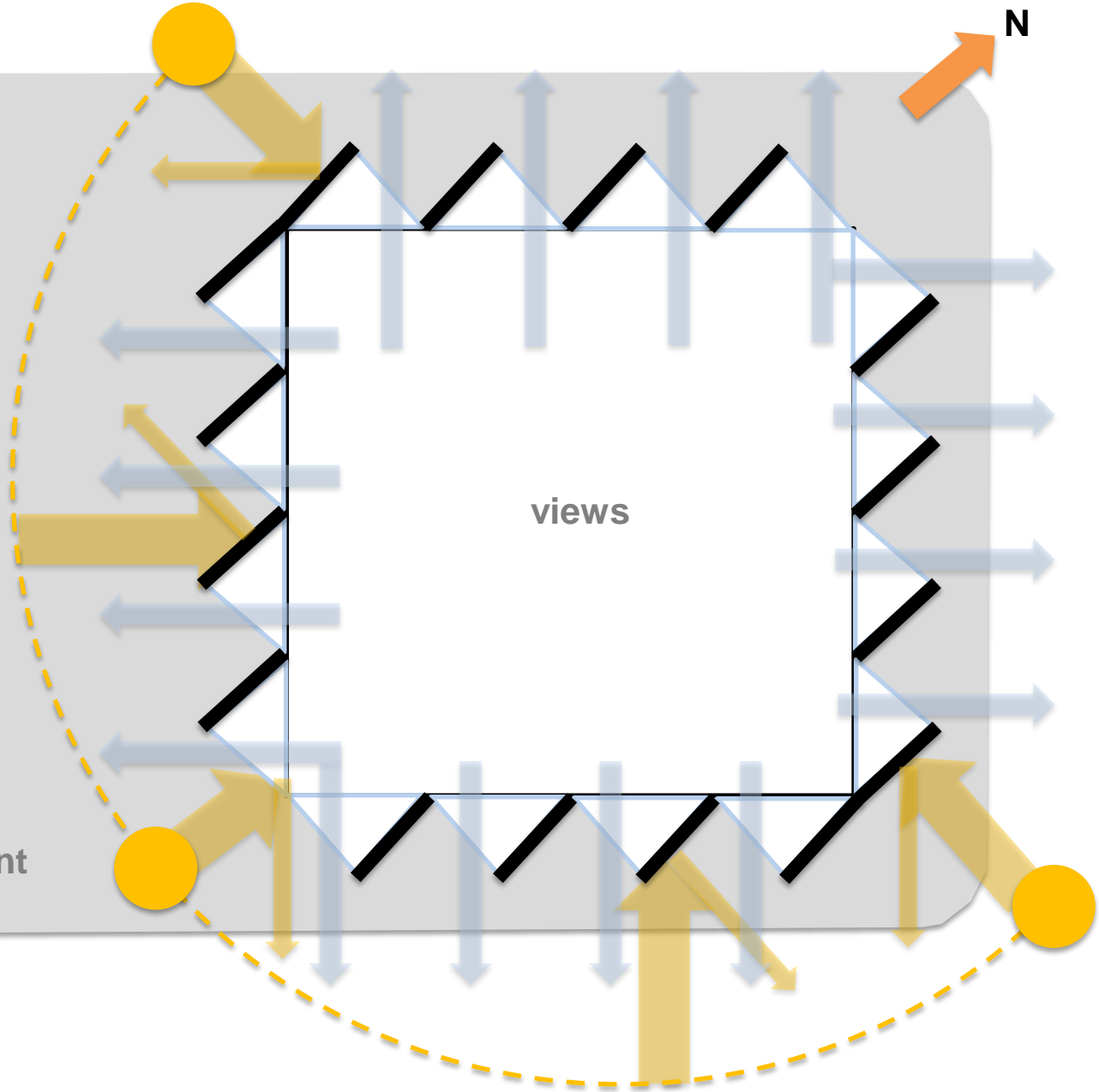
Façade Solution:

Solid Facing
East-West

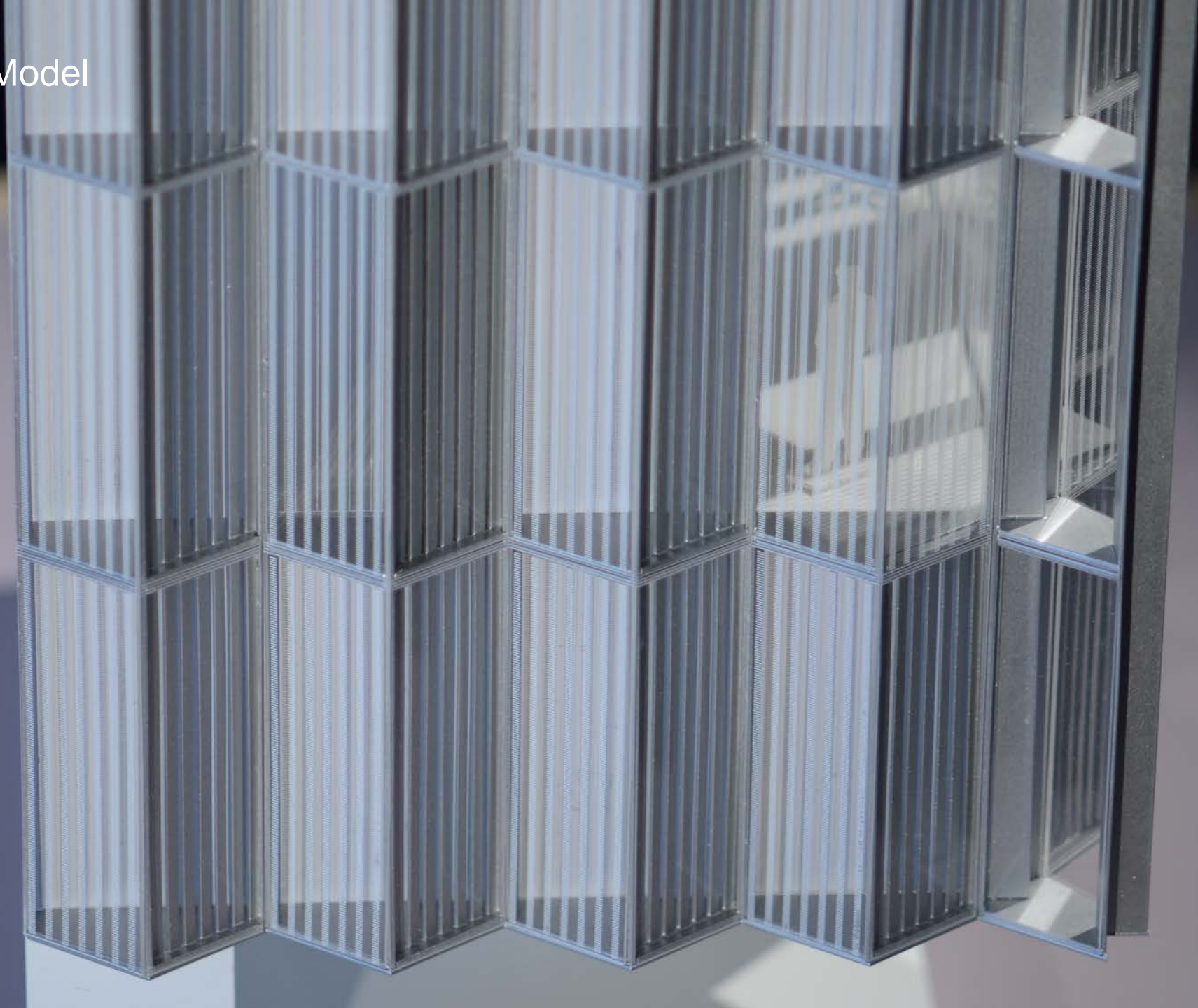
Transparent Facing
North South

47%

Reduction of Incident
Solar Radiation



Model

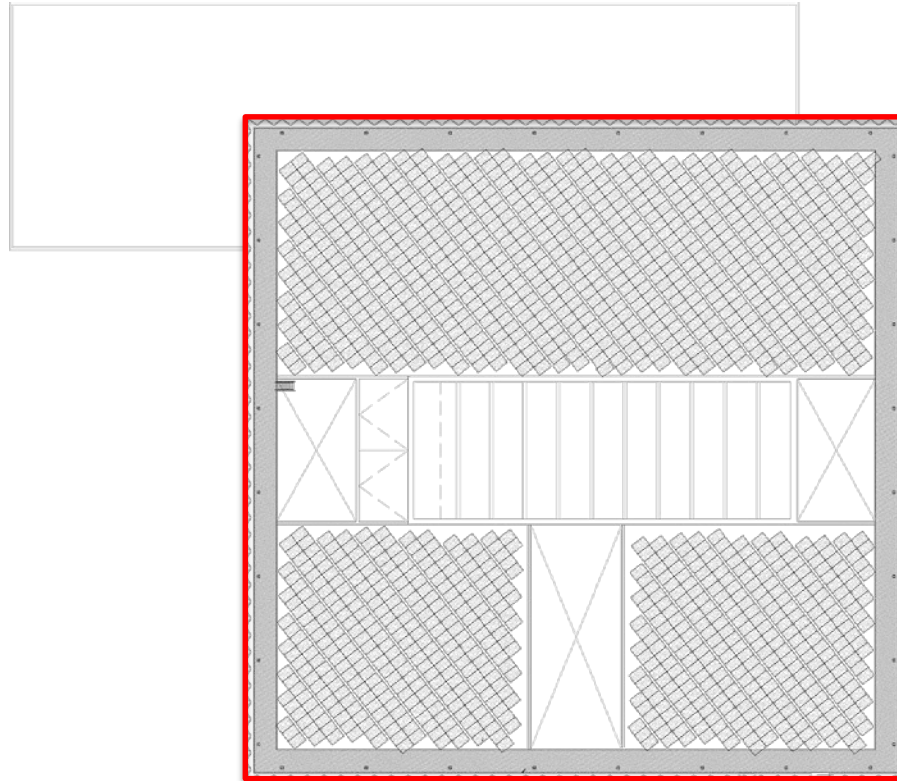






Solar Strategies

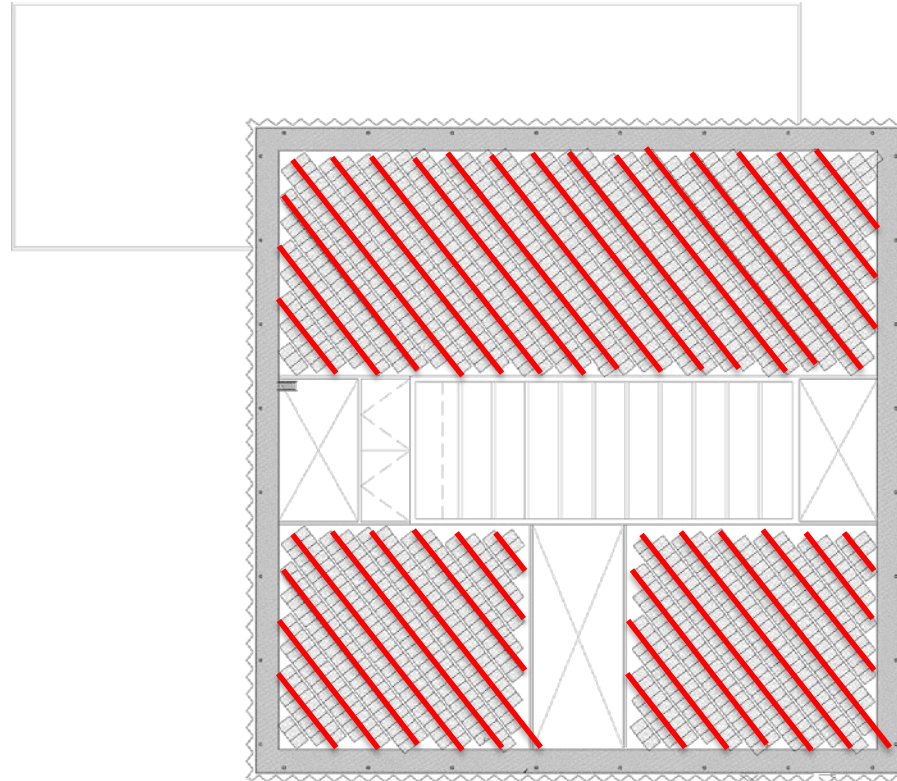
Faceted Facade



Solar Strategies

Faceted Facade

Solar Harvesting

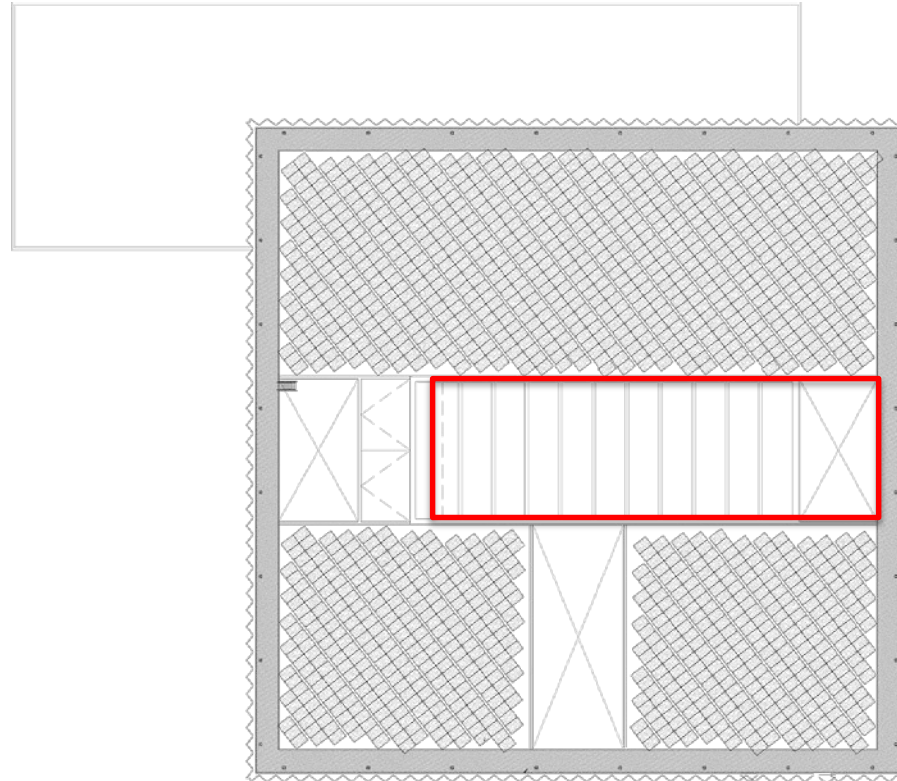


Solar Strategies

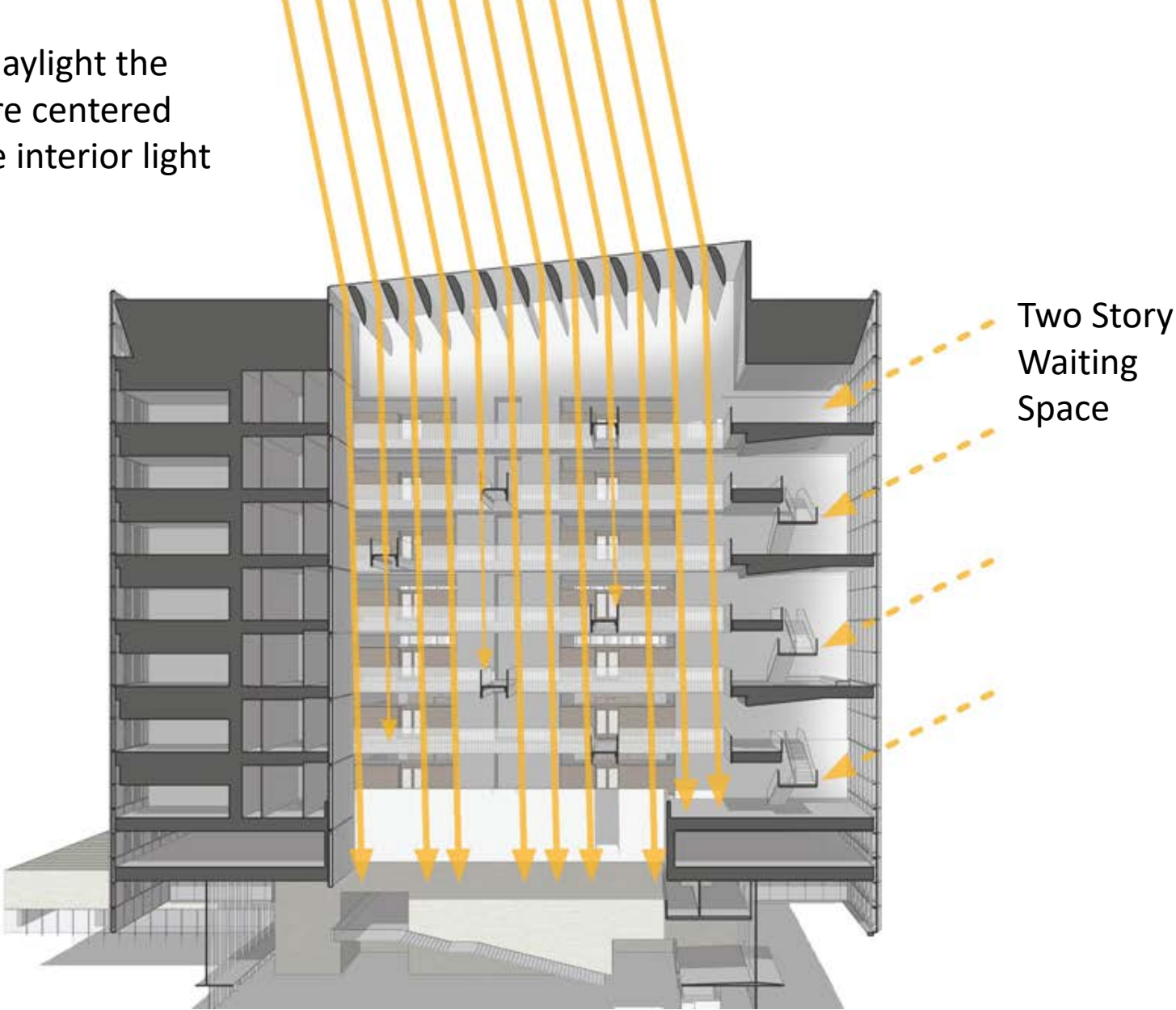
Faceted Facade

Solar Harvesting

Center Light Court

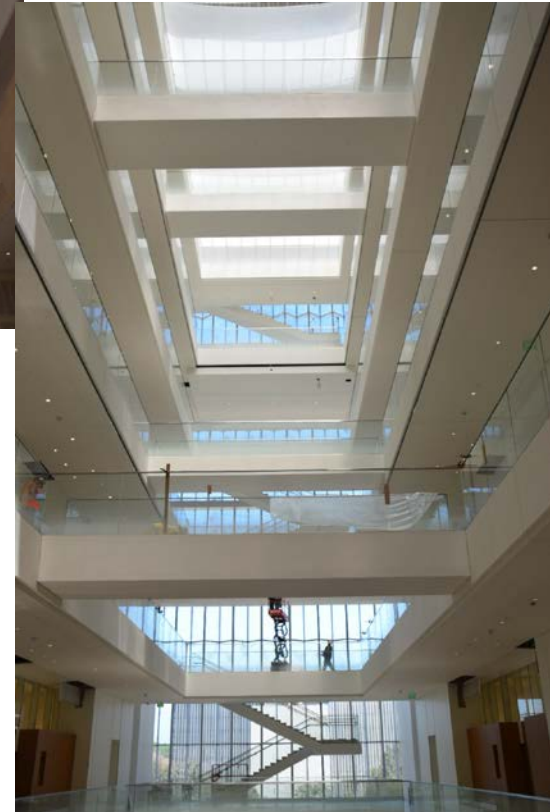


To maximize daylight the courtrooms are centered around a large interior light court

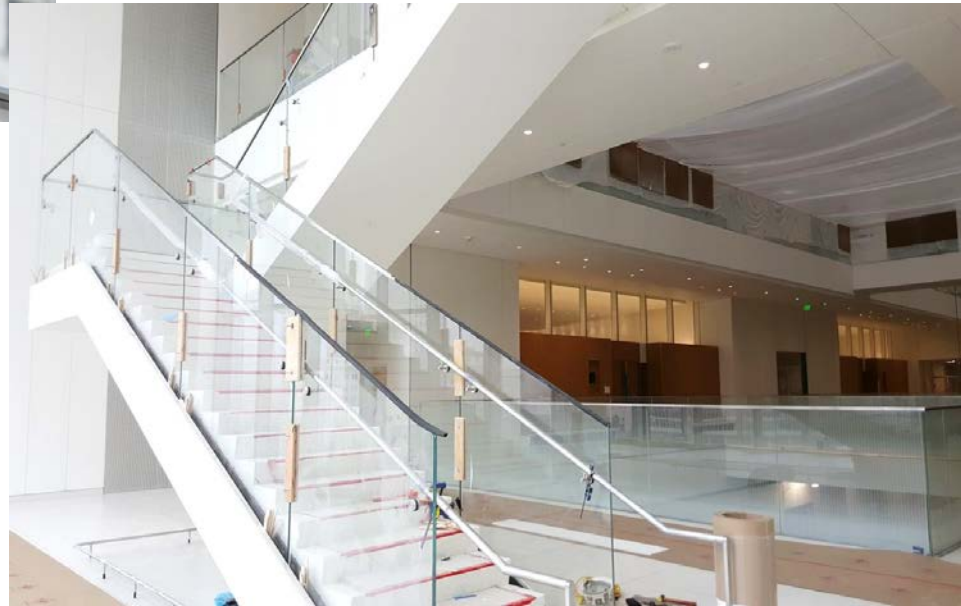


Two Story
Waiting
Space

Central Light Court



Two Story Waiting Area



Typical Court Floor Plan

Courtroom

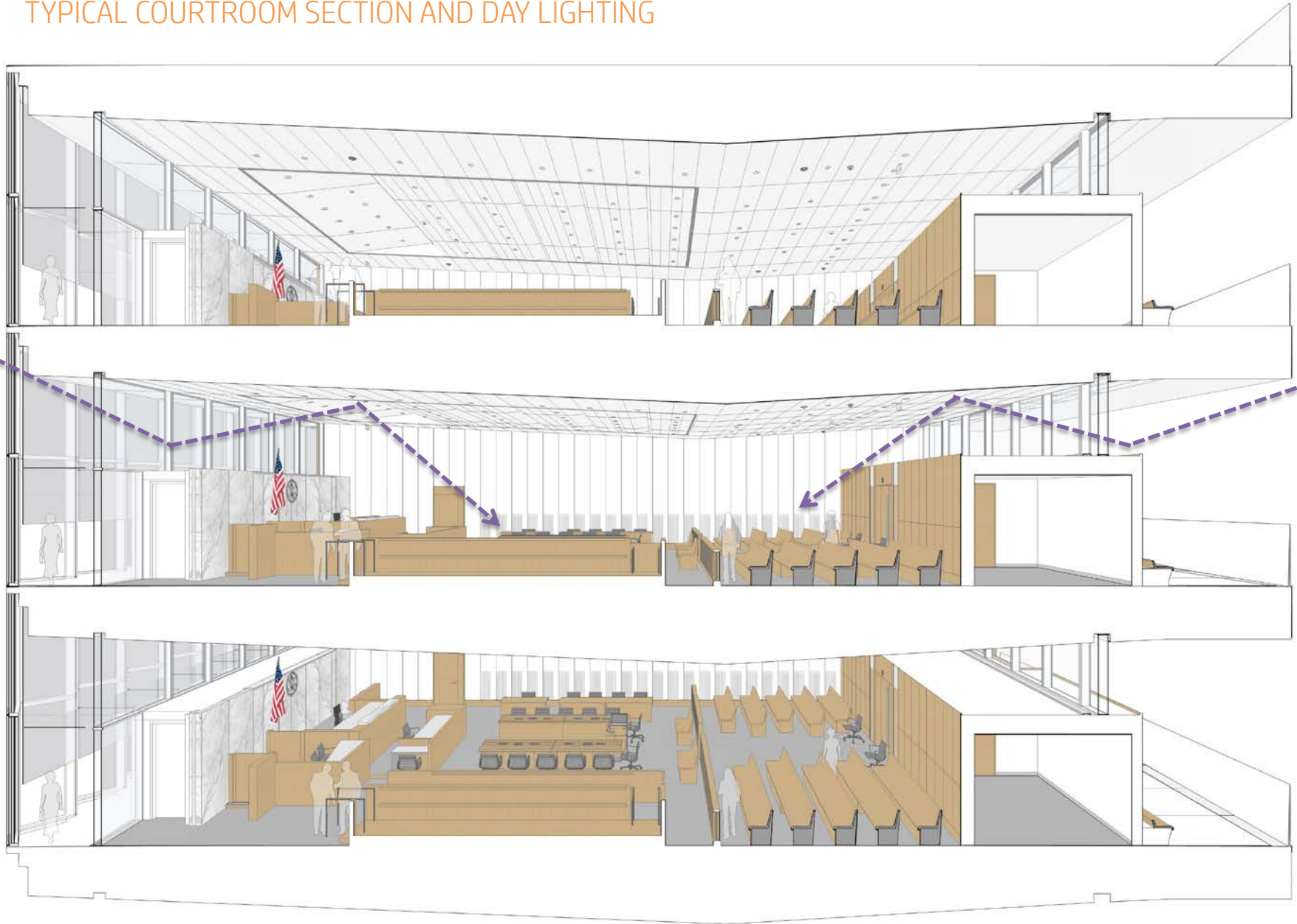
Chambers

Jury Deliberation

Detention



TYPICAL COURTROOM SECTION AND DAY LIGHTING



COMPLETED COURTROOM



PLANTING CONCEPT

To minimize water use only plants native to this climate were selected



105,00 Gallon
Cistern installed to
capture
condensate and
rain water.

LANDSCAPING ON BROADWAY

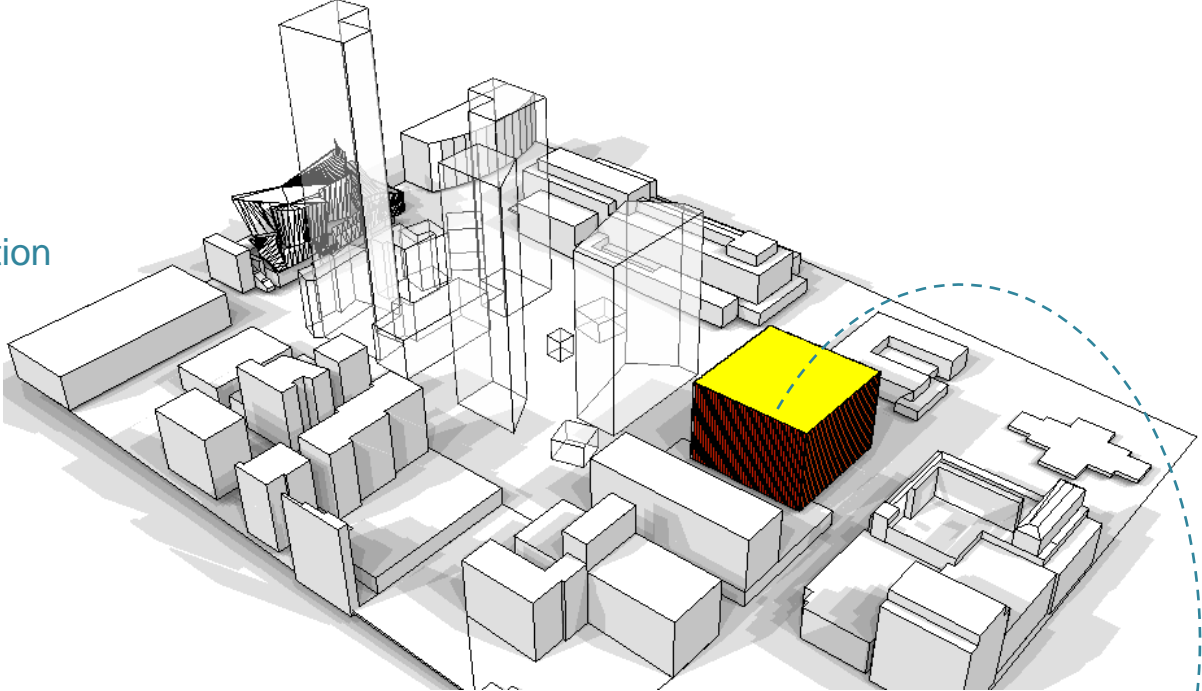


On-Site Generation

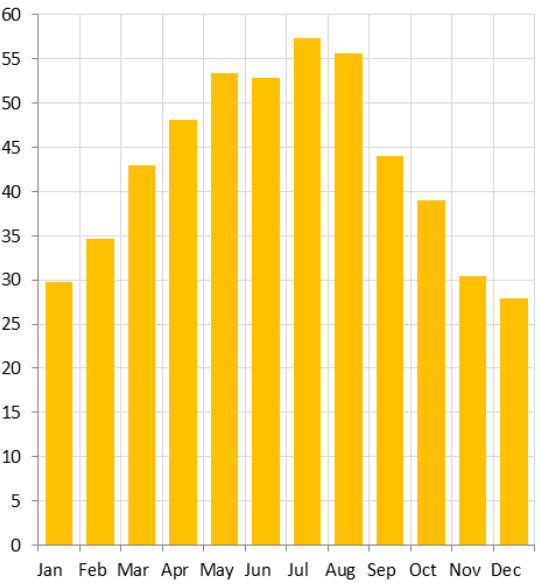
Rooftop Photovoltaic Array



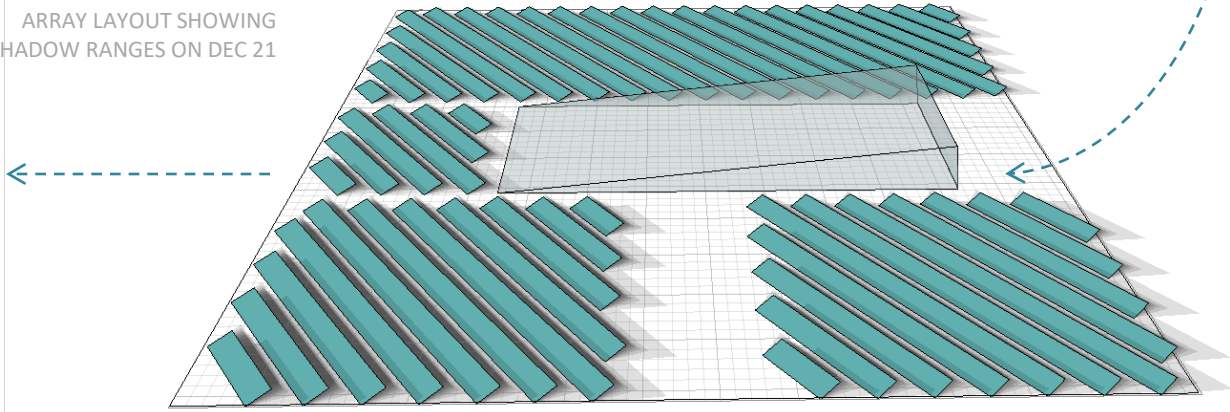
450 kW_p Array
525 MWh Annual Generation
7% Annual Energy Offset



MONTHLY ENERGY GENERATION POTENTIAL (MWh)

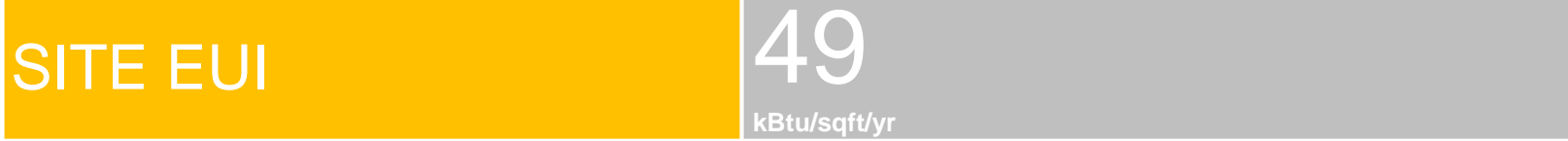


ROOFTOP PHOTOVOLTAIC ARRAY LAYOUT SHOWING SHADOW RANGES ON DEC 21



RFP Performance Goals

Energy and Water Use



Contract includes a 1 year M&V period. GSA is holding 750K, that is only paid if building performs as designed.

Drive to 35

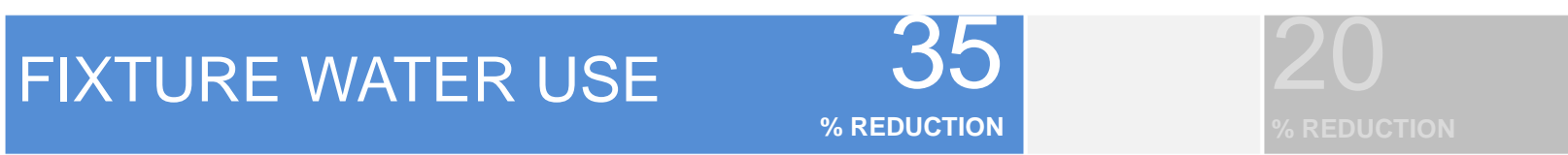
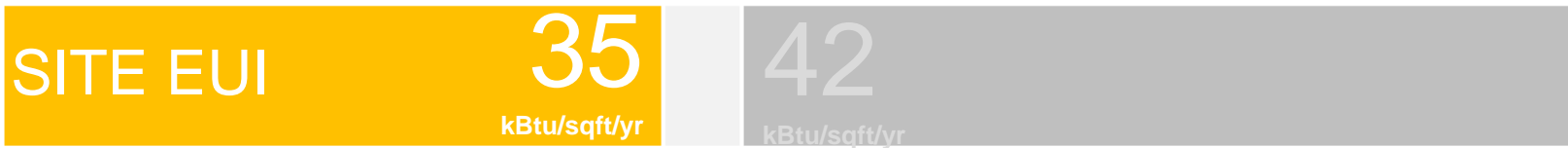
- **24 Ideas**
- **Must provide life cycle payback – 10 yrs**
- **6 ideas implemented – total cost \$2.3M**
 - **Install Controlled outlets**
 - **Develop and Apply Unique schedules for lighting, plug loads, temperature setpoints and fans base on schedules provided by the tenants**
 - **Maximize efficiency of the chiller plant, oversize cooling towers (allowed condenser water temp to be reduces from 85-80), replace primary chillers with (2) 600T magnetic bearing chillers**
 - **Replace pony chiller with heat pump chiller and eliminate 1 boiler**
 - **Harmonic mitigation transformers**
 - **Use Fan walls/arrays for primary AHU's.**

Key Mechanical Concepts

- Displacement Air with CO controls in Courtrooms and Lobby due to the high ceilings.
- Radiant Cooled Floors in the Lobby
- VAV Perimeter Zones are stacked vertically by solar orientation to optimize response to solar gain.

Design Performance

Energy and Water Use



Contract includes a 1 year M&V period. GSA is holding 750K, that is only paid if building performs as designed.

Challenges/Issues

Heat Pump Chiller is very finicky and has never worked right. No longer uses the heating mode

Took over 18 months to get local utility approval to connect the PV array to the grid.

Perspective from City Hall





View from City Hall



QUESTIONS ?