

CHALLENGING THE STATUS QUO

SESSION # AAJ1510LE

The Future of Justice: The New San Bernardino Justice Center



2015 AIA ACADEMY OF ARCHITECTURE
FOR JUSTICE CONFERENCE

MIAMI
NOVEMBER 18-21, 2015

NOVEMBER 19, 2015 | 9:45 AM

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Course Description

Contextual, sustainable resilient design, coupled with state-of-the-art technology, the recently completed San Bernardino Justice Center changed the future of justice in San Bernardino County, California.

The Justice Center represents the partnership of the Judicial Council of California, the Superior Court of San Bernardino, Skidmore, Owings & Merrill LLP, Shen Milsom and Wilke, and other design consultants.

This presentation will cover the project's:

- Contextual Design
- Integrated Sustainable Design
- Resilient Design
- Information Technology

Learning Objectives

1. Discussion of contextual design on future courthouses.
2. Discussion of integrated, sustainable design strategies.
3. Resilient design and implications on building elements.
4. How a converged network technology impacts the ability to efficiently deliver data and information.





THE FUTURE OF JUSTICE: THE NEW SAN BERNARDINO JUSTICE CENTER

20 November 2015

Judicial Council of California
Superior Court of CA – County of San
Bernardino
Skidmore, Owings & Merrill LLP
Shen Milsom & Wilke LLC



S. Pearl Freeman, AIA
Manager - Capital Program
Judicial Council of California



Christina M. Volkers
Court Executive Officer
Superior Court of California,
County of San Bernardino



Stephen R. Shea,
Associate Principal
Director, San Francisco Office
SMW



Michael Duncan, FAIA
Design Director
SOM



Steven K. Sobel, FAIA
Managing Director
SOM



Owner

Judicial Council of California
State of California

JUDICIAL COUNCIL OF CALIFORNIA

Capital Program

S. PEARL FREEMAN, AIA

MANAGER – CAPITAL PROGRAM

DESIGN AND CONSTRUCTION UNIT

CAPITAL PROGRAM HISTORY

LEADERSHIP

Chief Justice & Judicial Council of California

- Create a Judicial Branch
- State funding of operations
- Consolidation of over 200 trial courts into 58 Superior Courts
- State funding of court facilities



JUDICIAL COUNCIL
OF CALIFORNIA

LEGISLATION

Lockyer-Isenberg Trial Court Funding Act of 1997

- State funding of court operations
- Task Force on Court Facilities
 - State and county officials
 - Court
 - Bar and community



JUDICIAL COUNCIL
OF CALIFORNIA

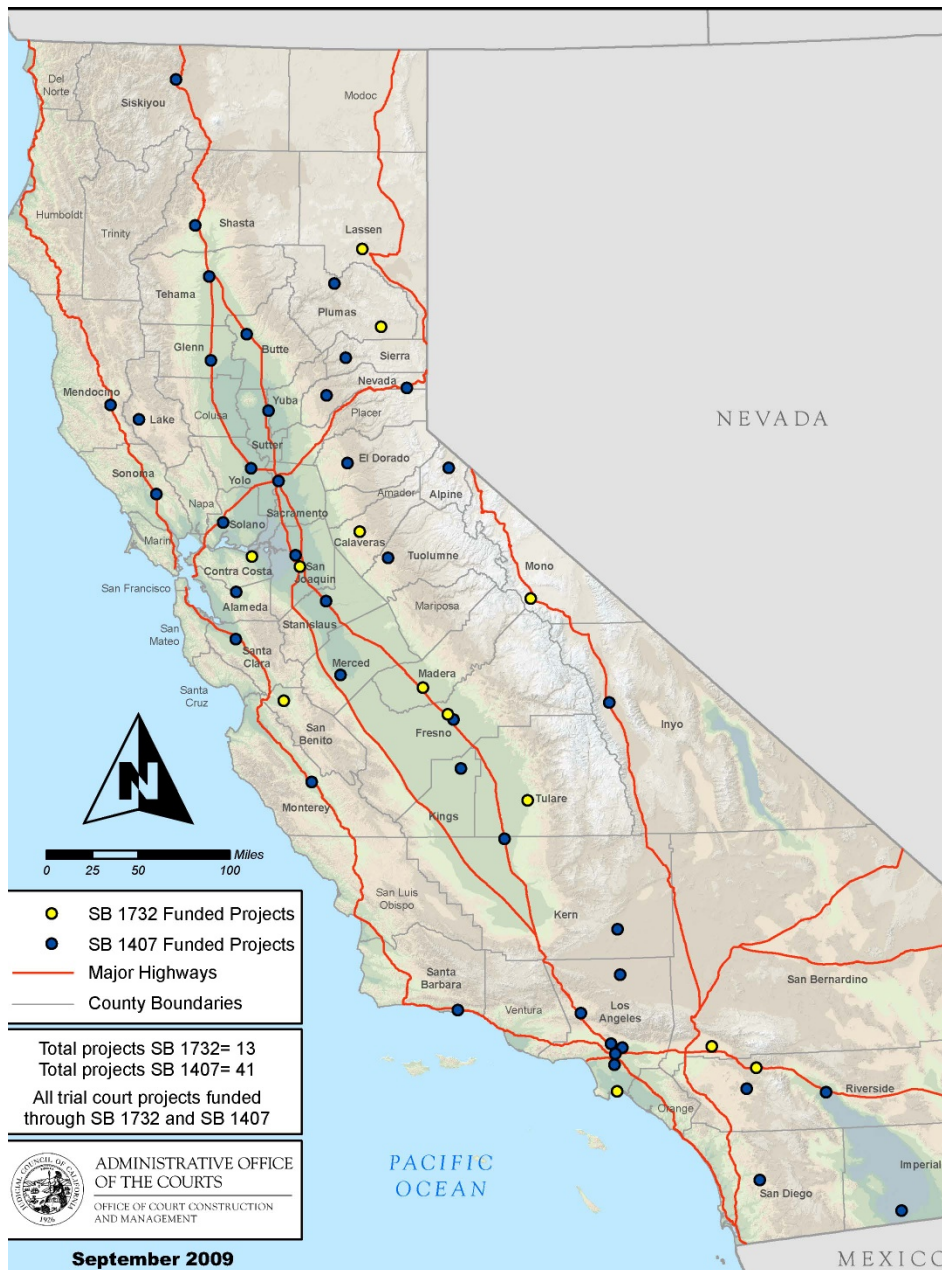
STATEWIDE PLAN

Task Force on Court Facilities

- Hired consultant team to evaluate facilities
- Developed broad based plan for the 58 Superior Courts in California
- Recommended state ownership for facilities



JUDICIAL COUNCIL
OF CALIFORNIA



LEGISLATION

SB 1732: Trial Court Facilities Act (2002)

- Judicial Council responsible for facilities
- Transfer of county facilities – completed December 2009
- Master plans for each Superior Court
- Funds 14 projects; 13 completed projects

SB 1407 (2008)

- Established special revenues to fund projects
- Up to \$5 billion bonds
- Funds 42 projects and 1 site acquisition
 - Cancellations (2) and indefinite delays (10) due to fund redirections

SAN BERNARDINO JUSTICE CENTER

PROJECT FUNDING

- SB 1732
 - Prioritized at “immediate need” project
 - Transfer of Responsibility of 9 court facilities by June 30, 2007
 - Consolidation of court operations
 - Site donated by City of San Bernardino
 - \$8.8M participation by County of San Bernardino
 - First high-rise to test California Trial Court Facilities Standards



HEART OF JUSTICE

Historic
Courthouse



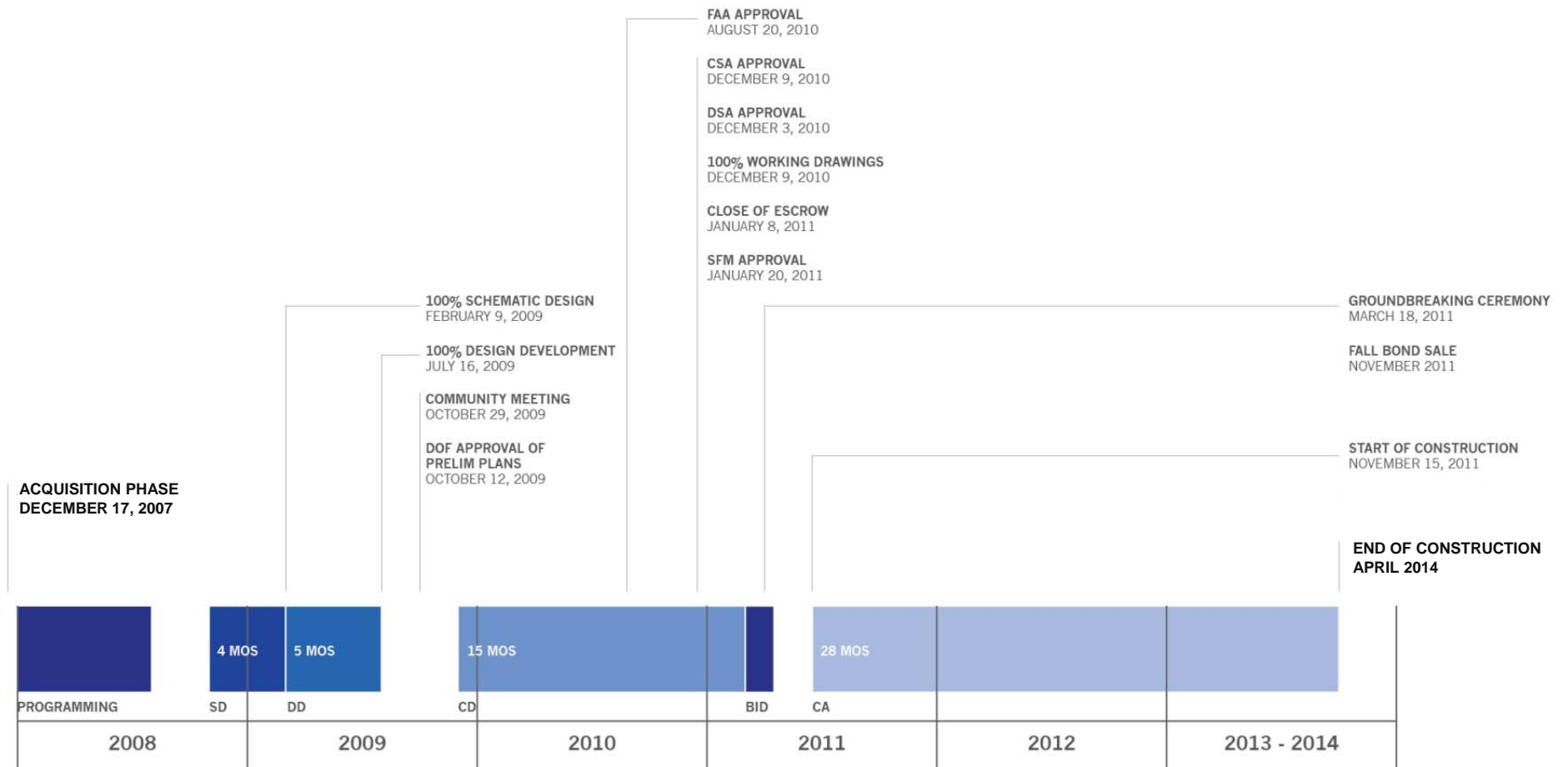
PROJECT MISSION STATEMENT

- APRIL 2008

“To serve the community’s entitlement to justice under the law, while reaffirming the historical significance of the Superior Court to the City and County of San Bernardino.”



PROJECT SCHEDULE



California Trail Court Facilities Standards

PRINCIPLES

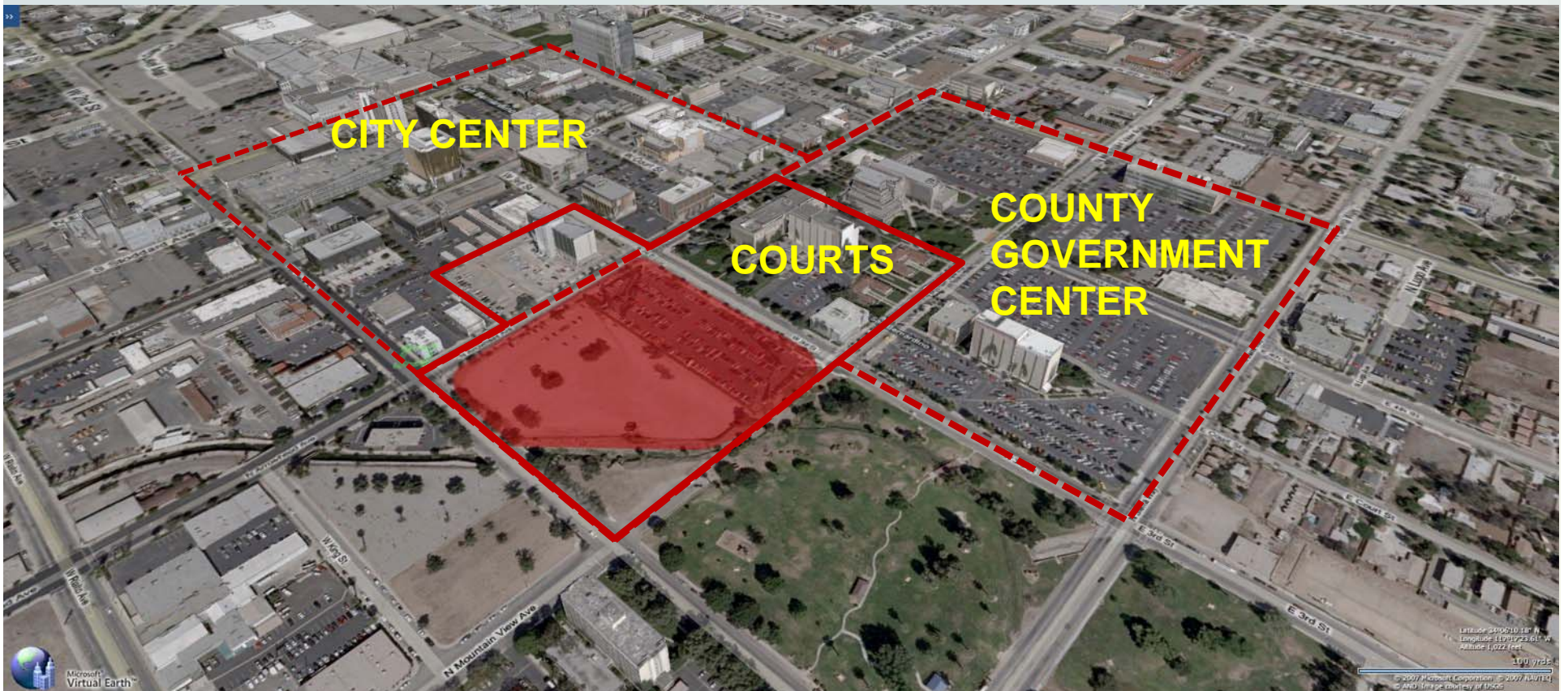
- Dignified and permanent
- Contemporary and creative
- Incorporate local geography, culture, history & art
- Cost of ownership
- Flexible
- Accessible
- Functional
- Efficient
- Secure
- Sustainable



JUDICIAL COUNCIL
OF CALIFORNIA

SUSTAINABILITY FOR ACCESS TO JUSTICE

- San Bernardino Justice Center
- Establish civic presence to enhance long term goals of city development and economic vitality



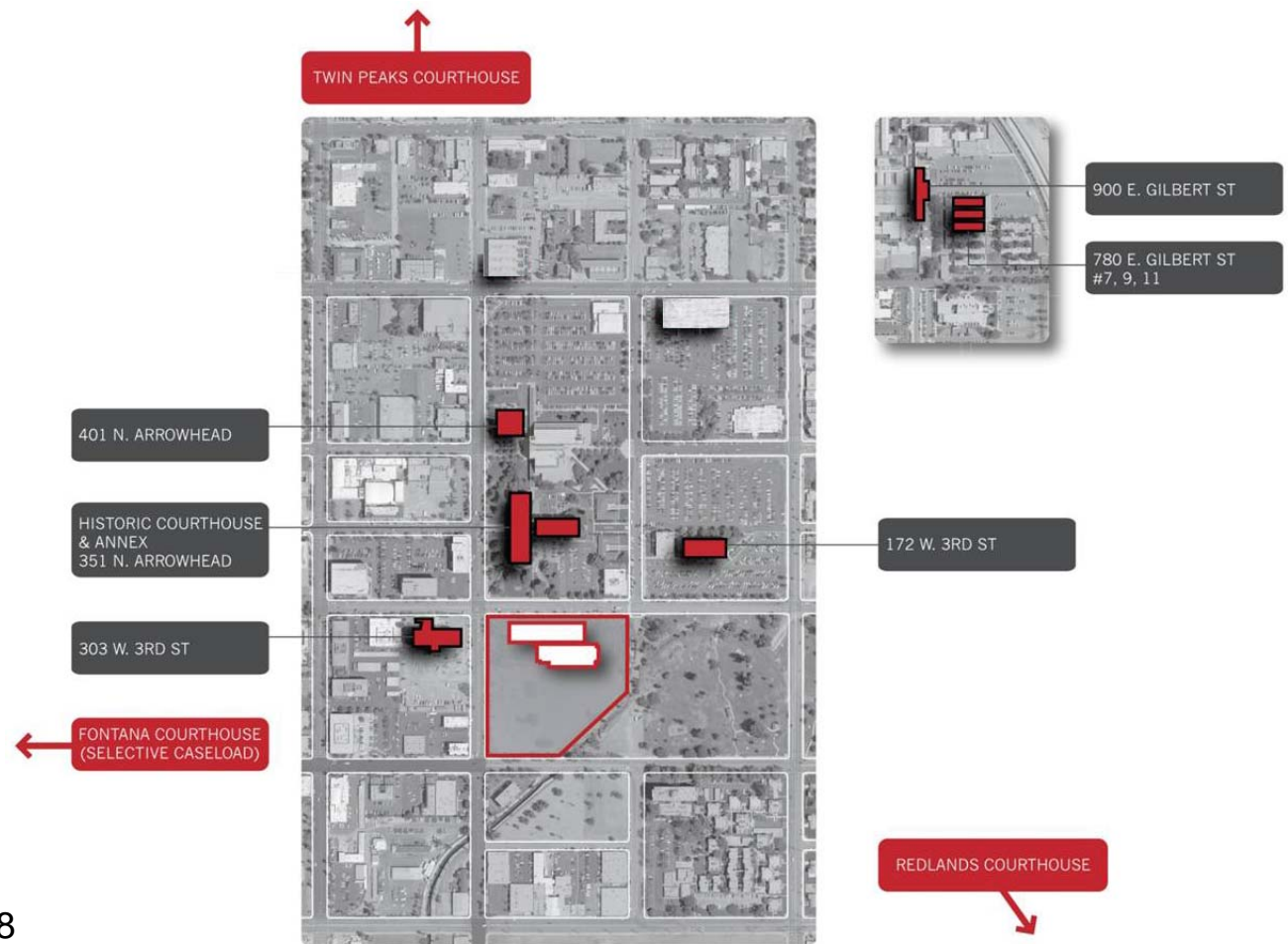
SUSTAINABILITY FOR ACCESS TO JUSTICE

Provide accessibility to justice for the largest county in CA



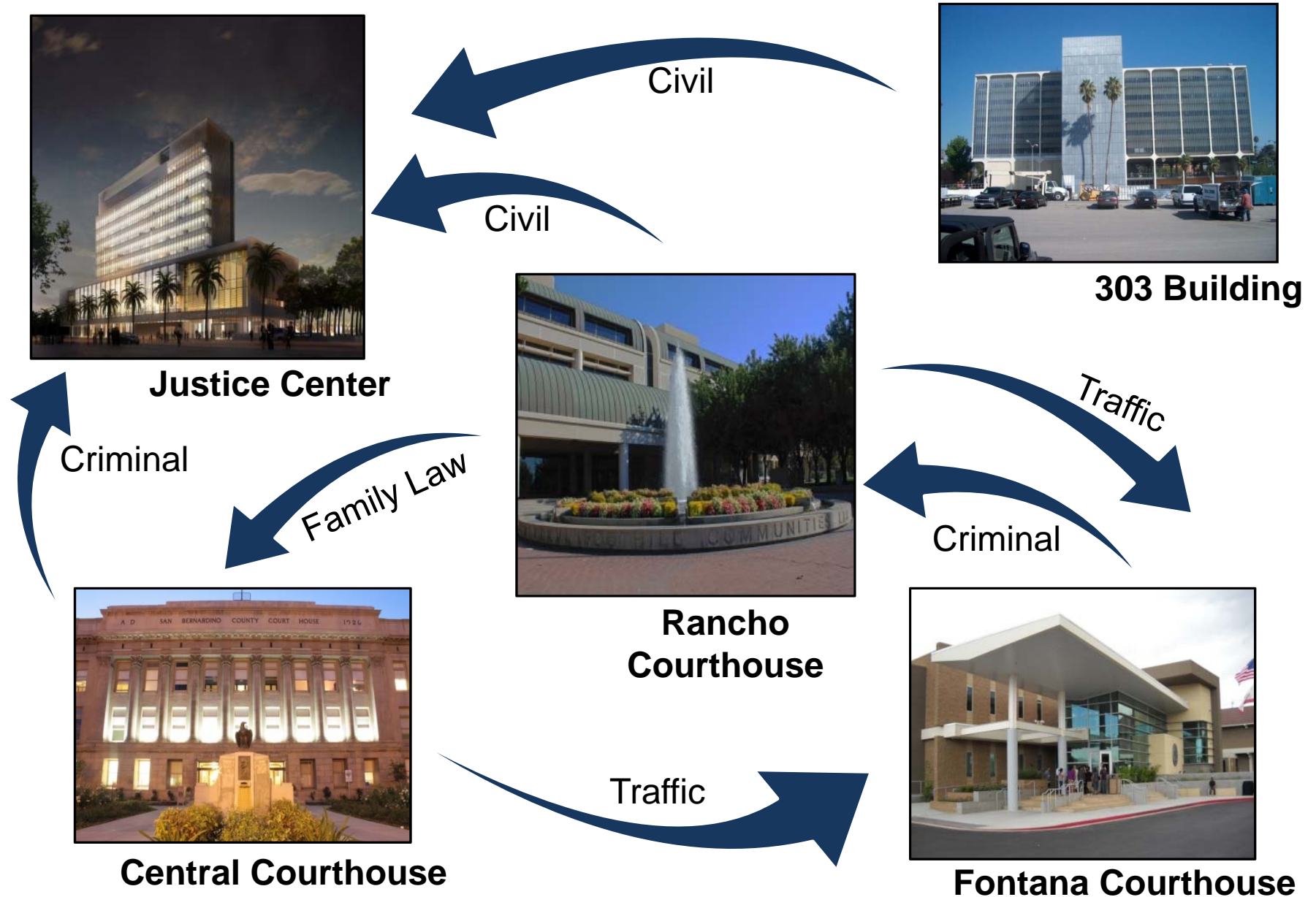
SUSTAINABILITY FOR ACCESS TO JUSTICE

Support current court operations
and flexibility for future change

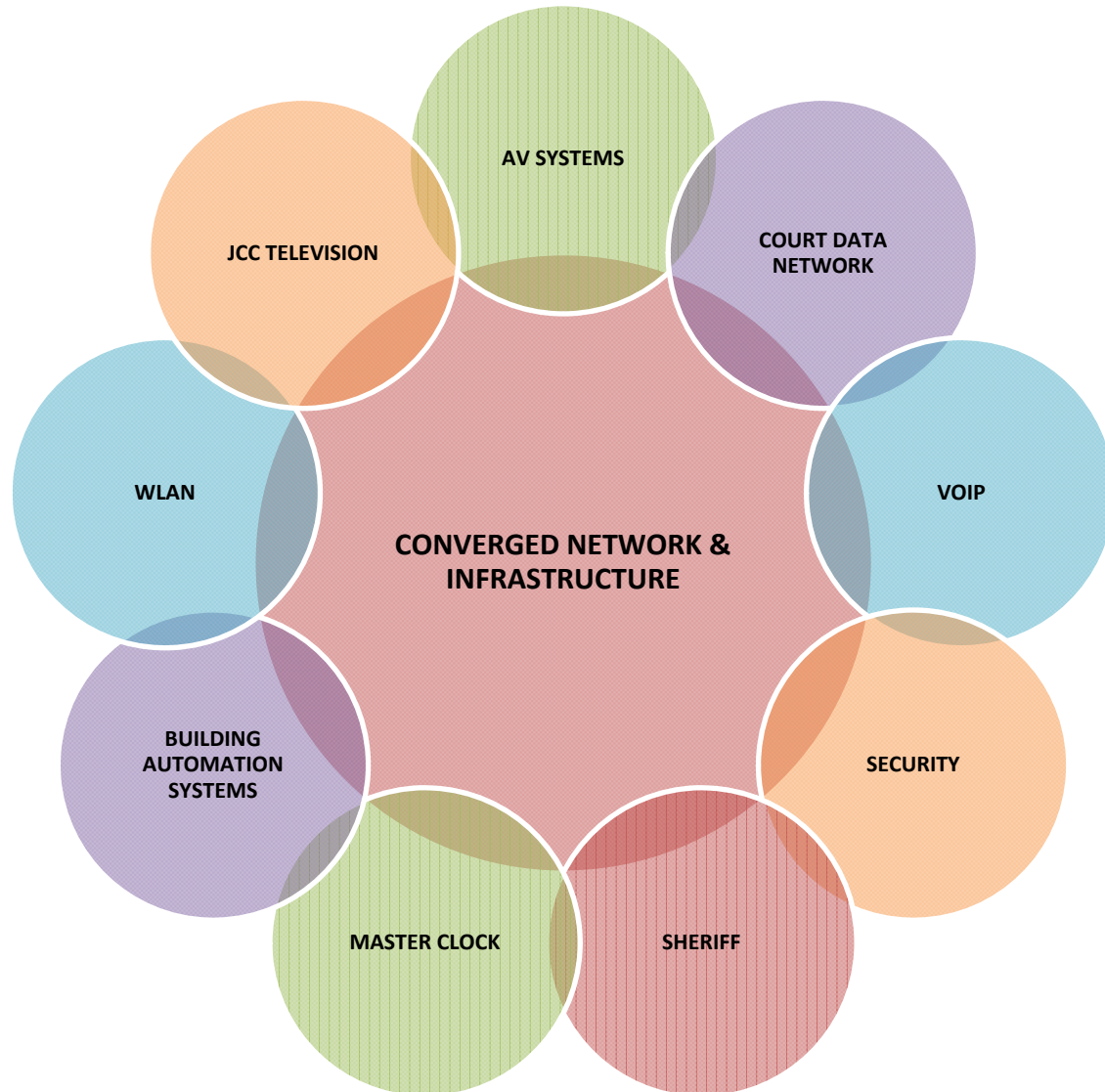


CONSOLIDATION IN 2008

REALIGNMENT IN 2014



SOLUTION – CONVERGED NETWORKS



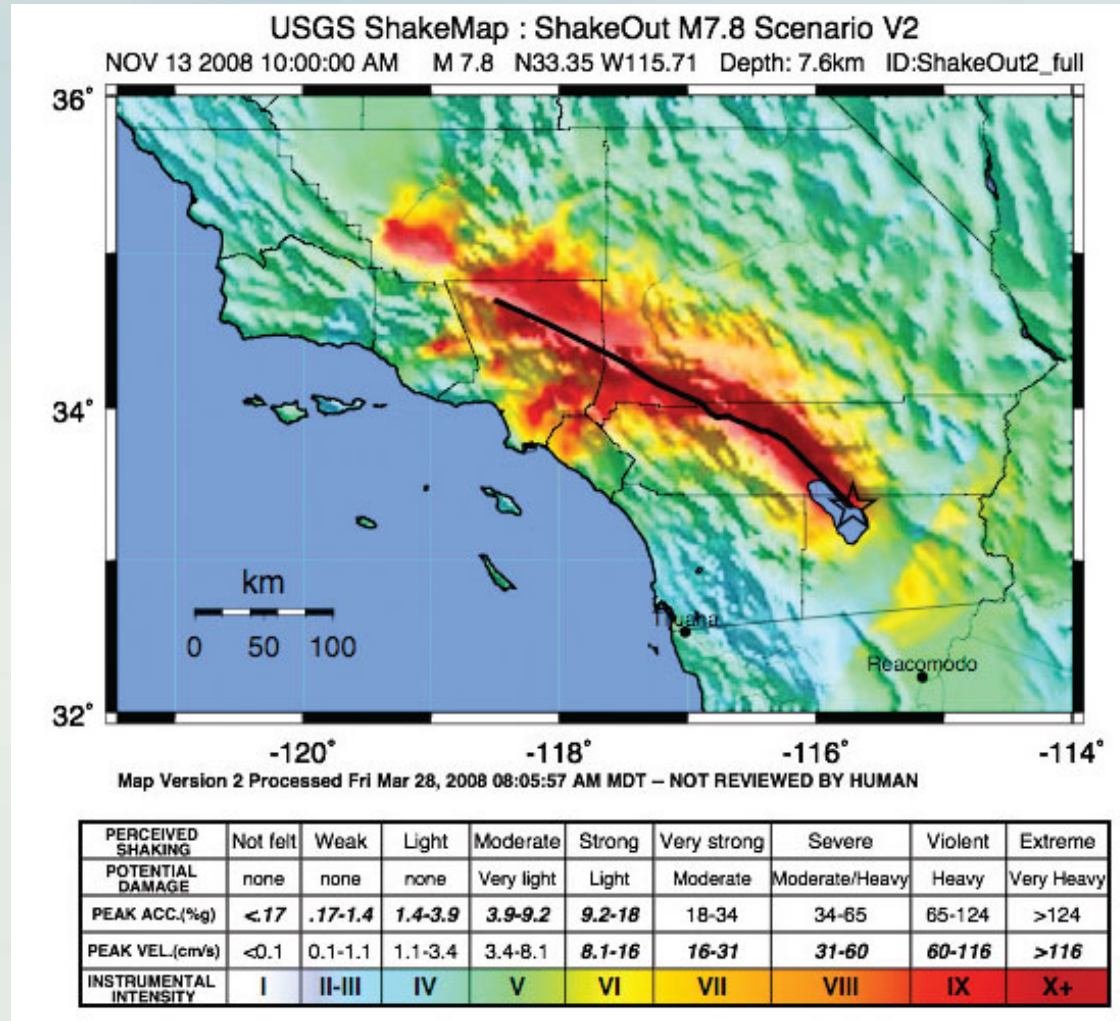
SUSTAINABILITY FOR ACCESS TO JUSTICE

Material selections for
permanence, dignity and
transparency of justice



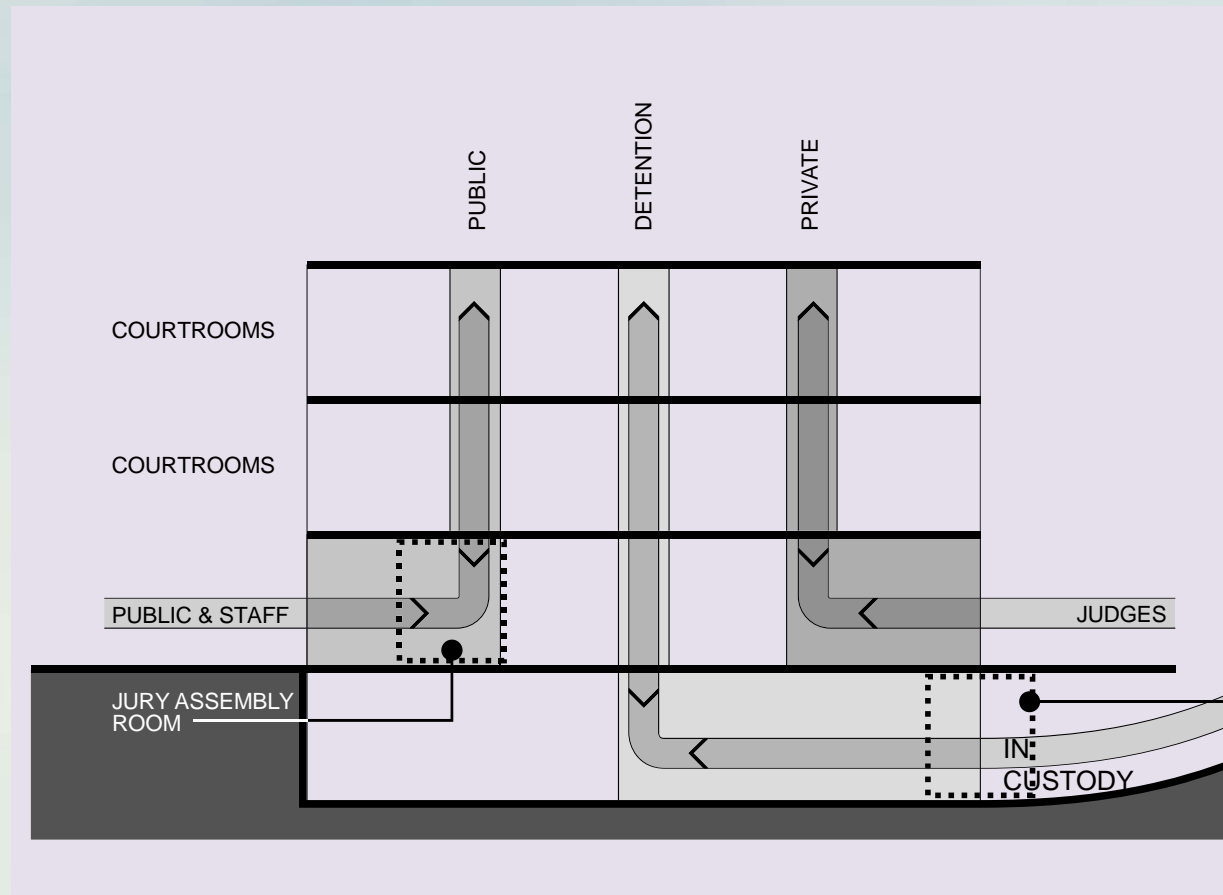
SUSTAINABILITY FOR ACCESS TO JUSTICE

Enhance seismic performance for protection and permanence of one of the state's largest building assets



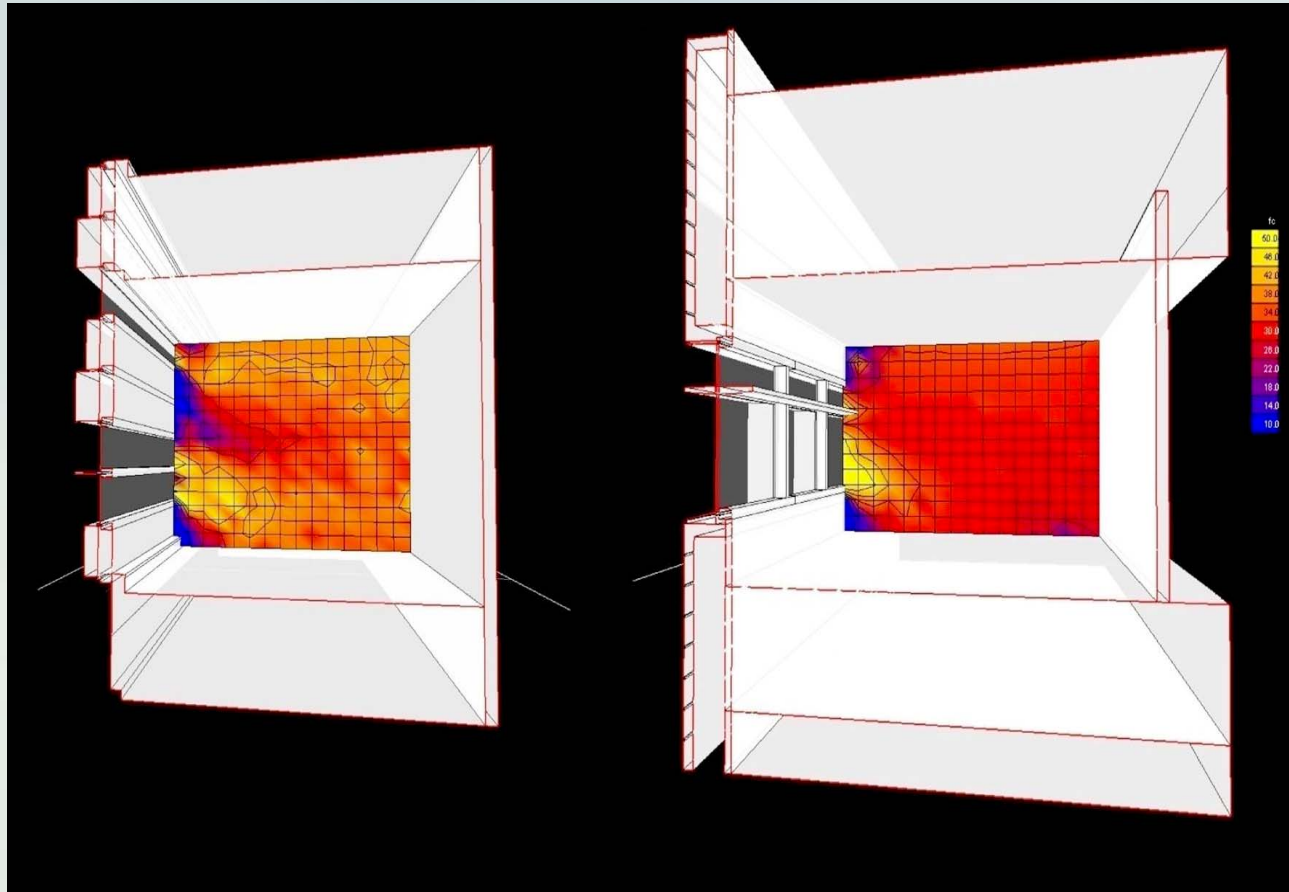
SUSTAINABILITY FOR ACCESS TO JUSTICE

Ensure security
separation for
protection of justice



SUSTAINABILITY FOR ACCESS TO JUSTICE

Design efficient building systems using fewer resources to sustain thermal comfort



SUSTAINABILITY FOR ACCESS TO JUSTICE

Support the Chief Justice's goal for Access 3-D in the Capital Program

- **Enhance ease of way-finding** through clear circulation, organization of space and informational signage
- **Enhance public service** through self help centers and exterior clerk windows
- **Provide accessibility** – physical and language
- **Support increasing electronic access** with technology backbone







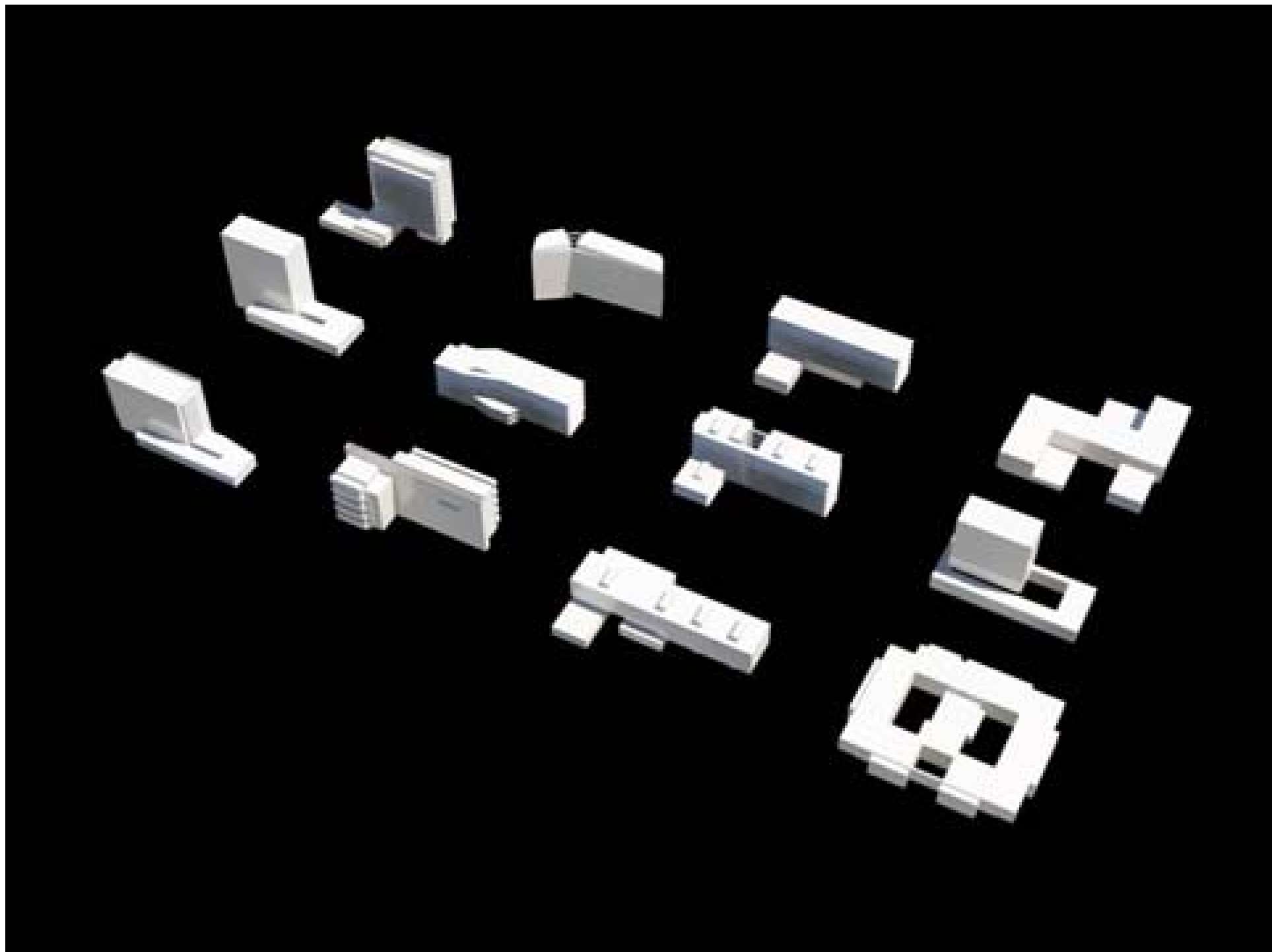
Architecture and Engineering
Skidmore, Owings & Merrill, LLP
San Francisco, CA

SKIDMORE OWINGS & MERRILL, LLP

Sustainability and Resiliency

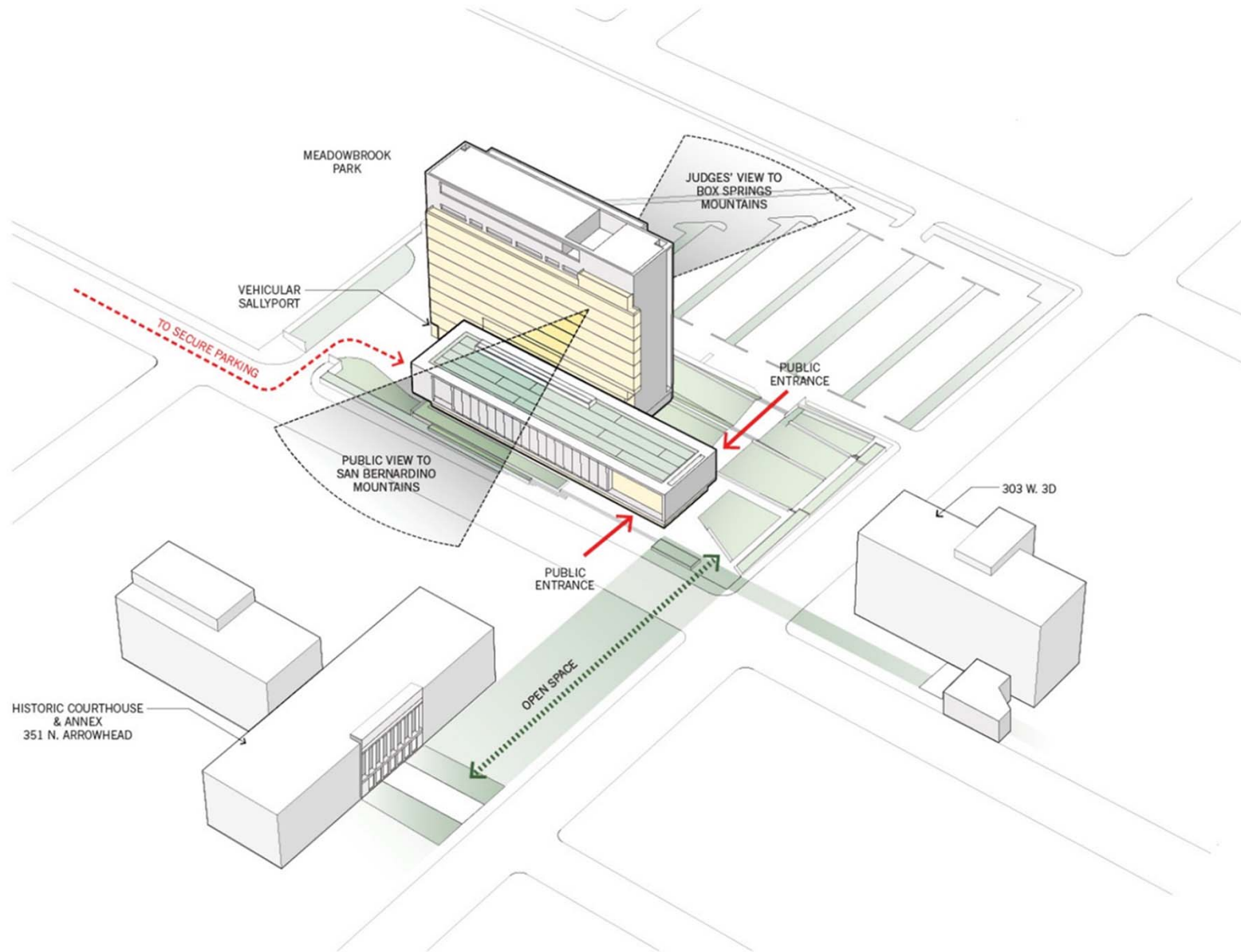
MICHAEL DUNCAN, FAIA
DESIGN DIRECTOR

STEVEN K. SOBEL, FAIA
MANAGING DIRECTOR

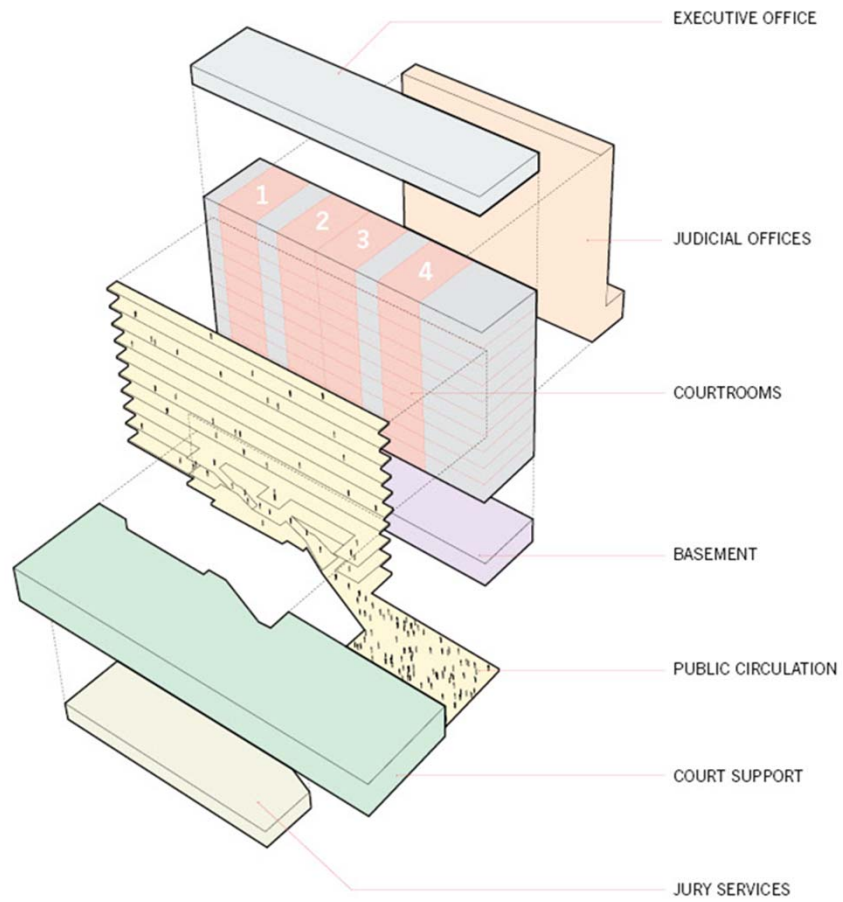


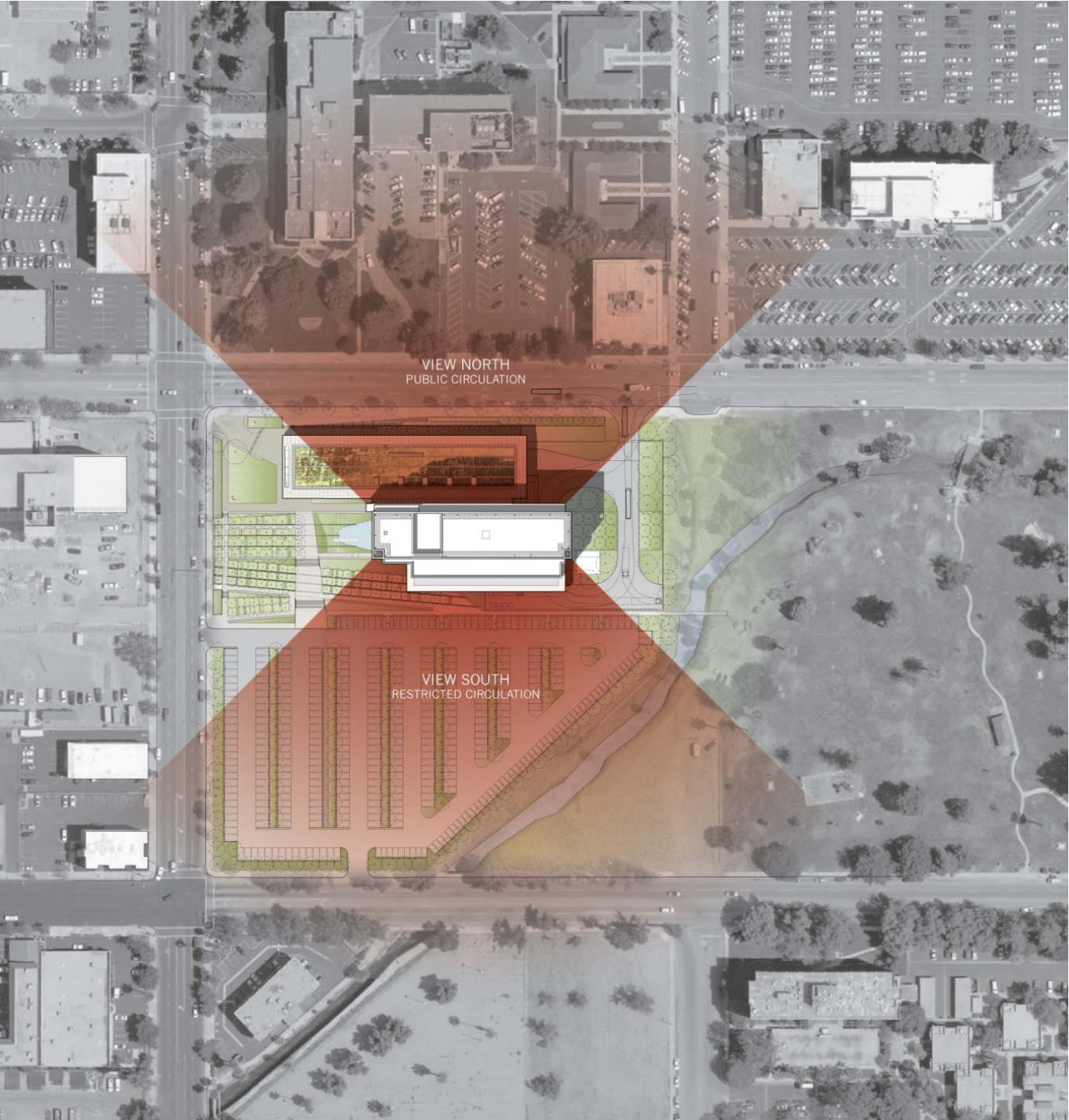


COURTHOUSE CONTEXT

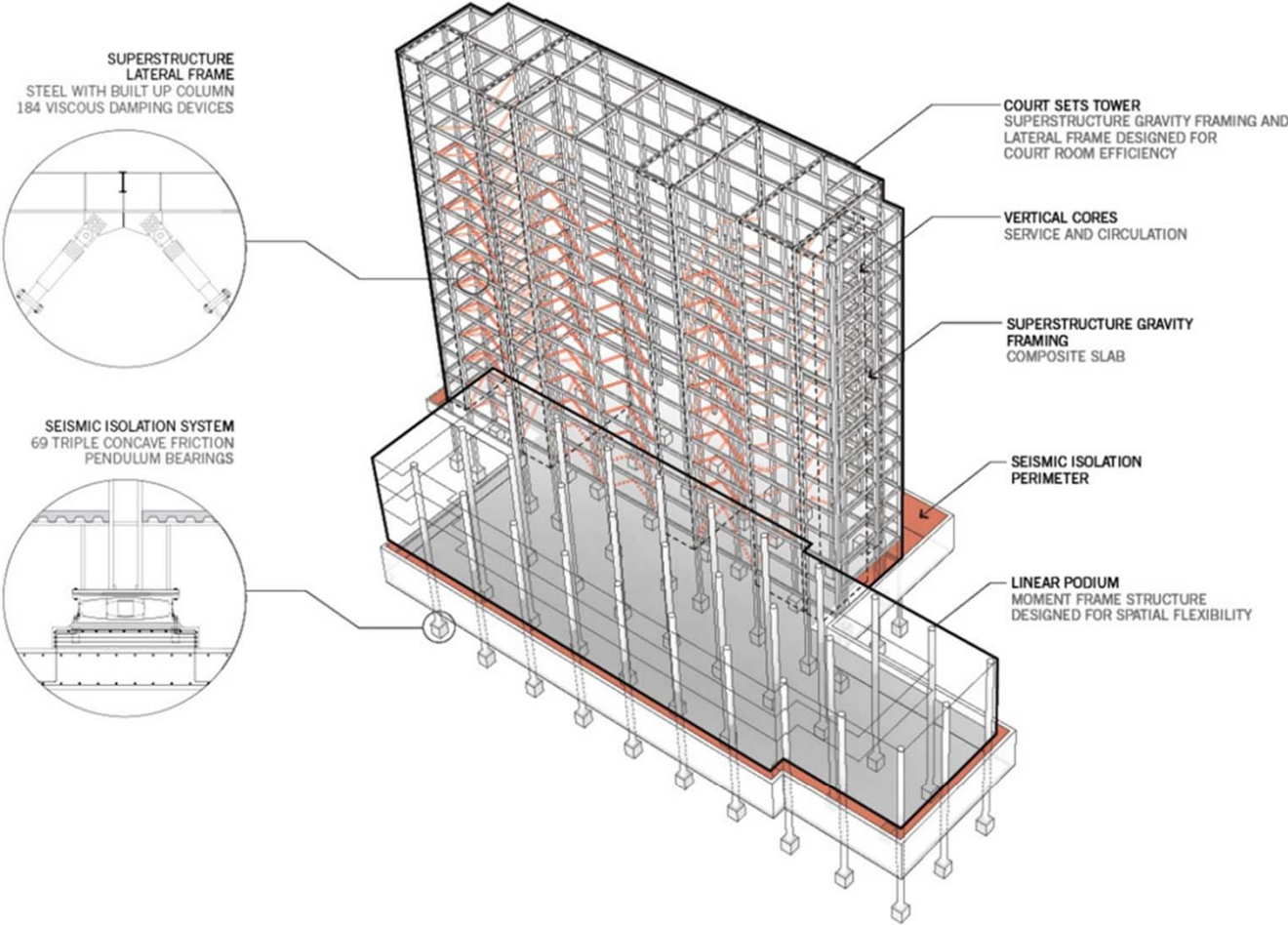


PROGRAM DIAGRAM





STRUCTURAL DESIGN STRATEGIES















SUPERIOR COURT OF CALIFORNIA
COUNTY OF SAN BERNARDINO

BUILT BY AND FOR THE PEOPLE OF CALIFORNIA, IN HONOR OF OUR SHARED
COMMITMENT TO A FUNDAMENTAL PRINCIPLE OF OUR DEMOCRACY:
"EQUAL JUSTICE UNDER LAW"

DEDICATED 2014

JUDICIAL COUNCIL OF CALIFORNIA

HON. TANI CANTIL-SAKAUYE
- CHIEF JUSTICE -

HON. MARSHA G. SLOUGH
- PRESIDING JUDGE -

HON. LARRY W. ALLEN
- CHAIR, COURT FACILITIES COMMITTEE -

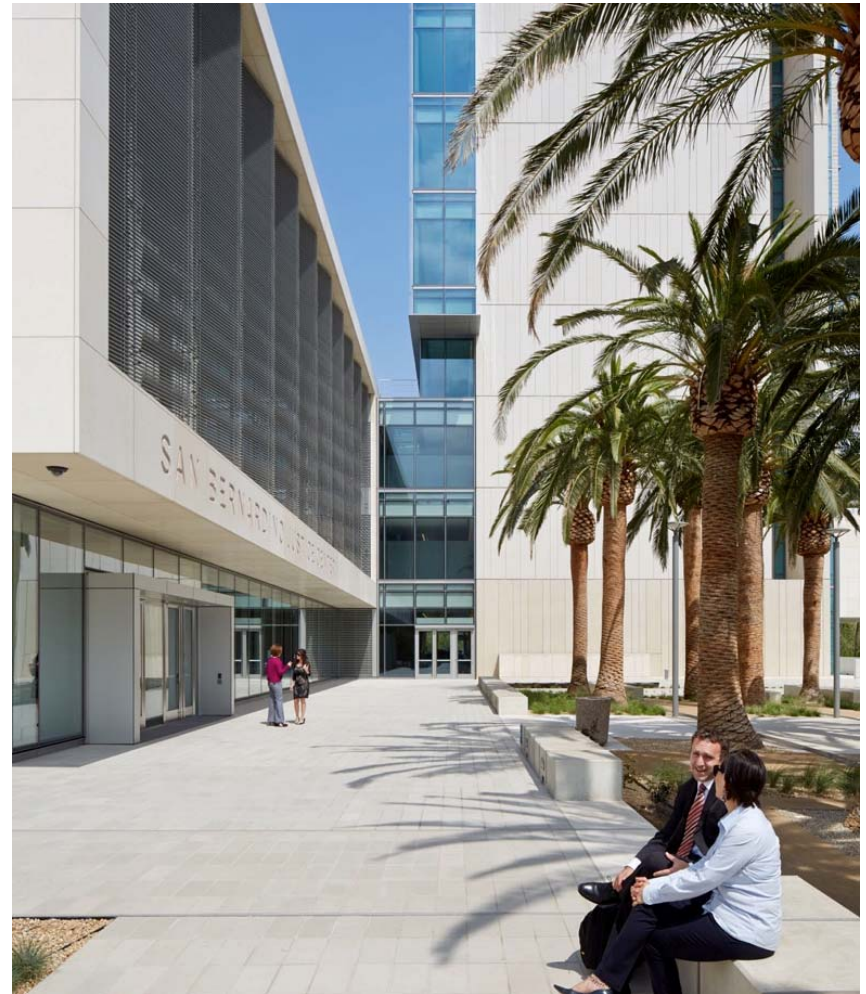
ADMINISTRATIVE OFFICE OF THE COURTS
JUDICIAL BRANCH CAPITAL PROGRAM OFFICE
- PROJECT MANAGEMENT -

SKIDMORE, OWINGS & MERRILL LLP - ARCHITECT -
RUDOLPH AND SLETTEN, INC. - CONSTRUCTION MANAGER -

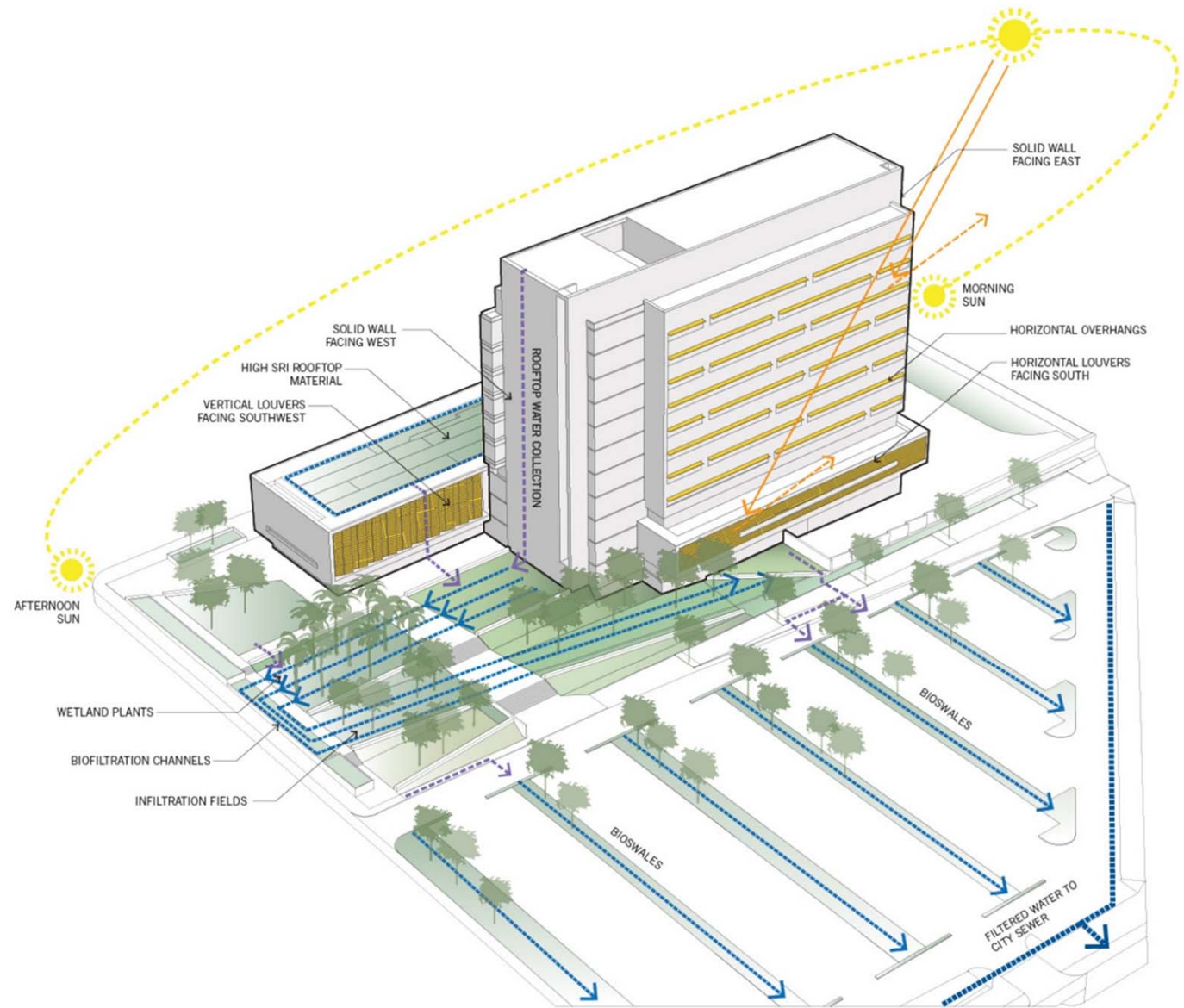




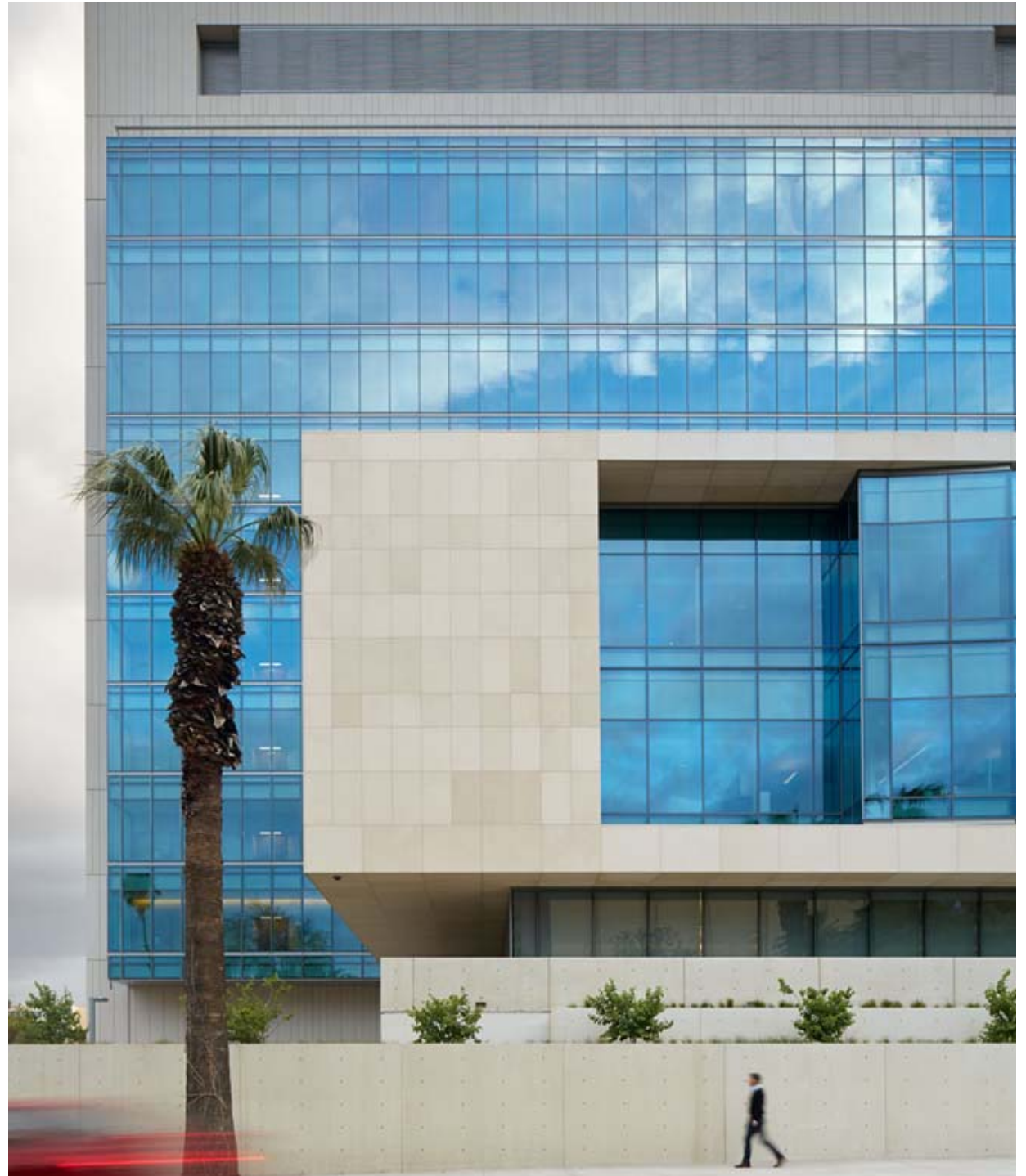




SUSTAINABILITY STRATEGIES



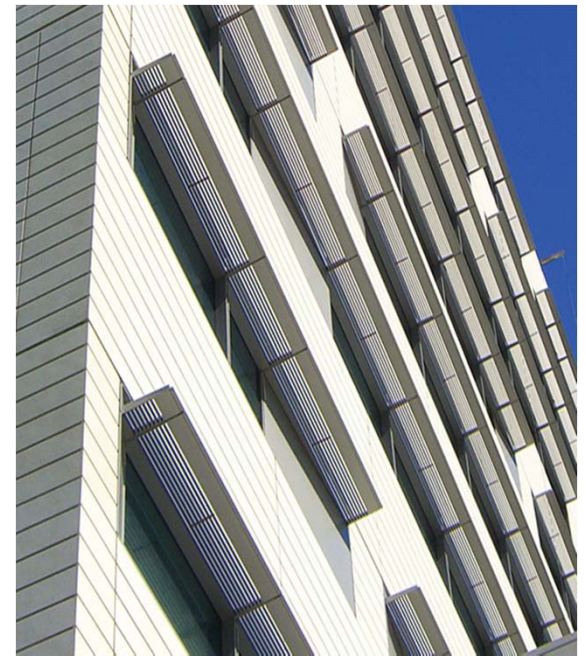
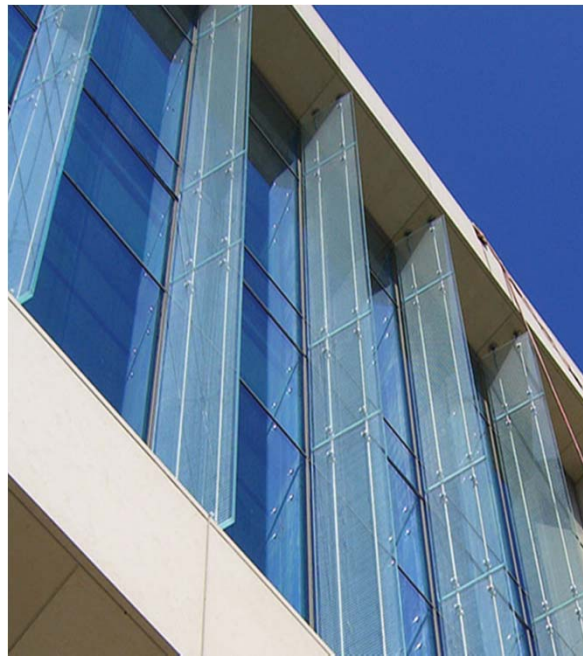
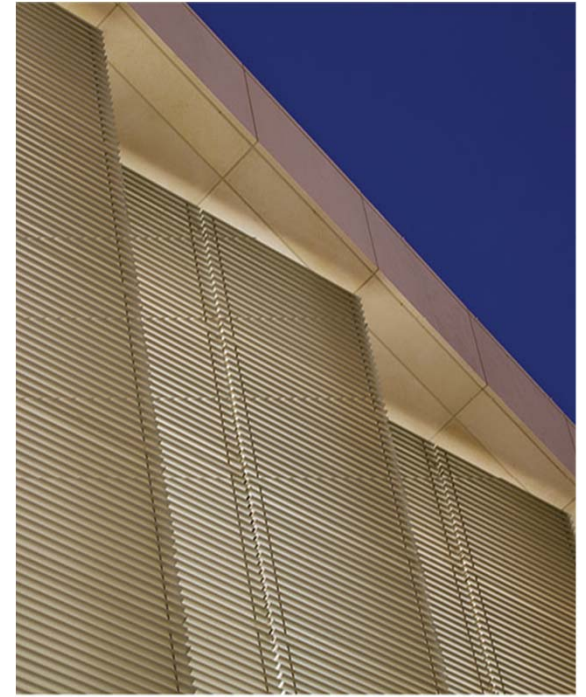


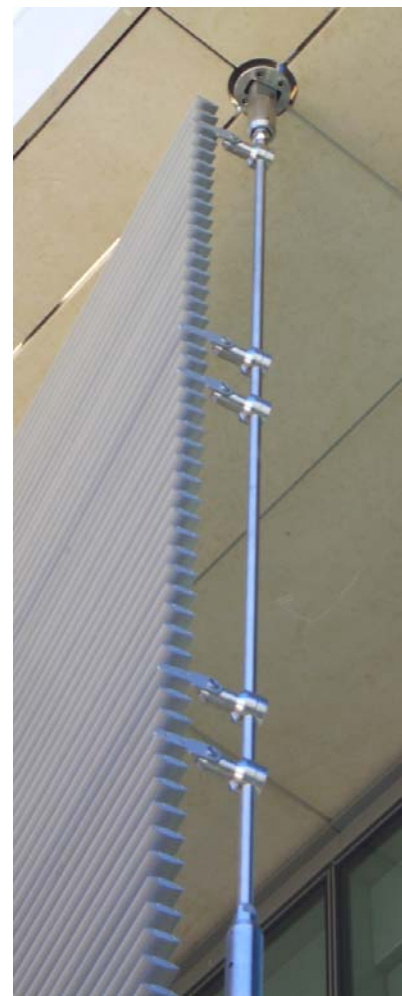
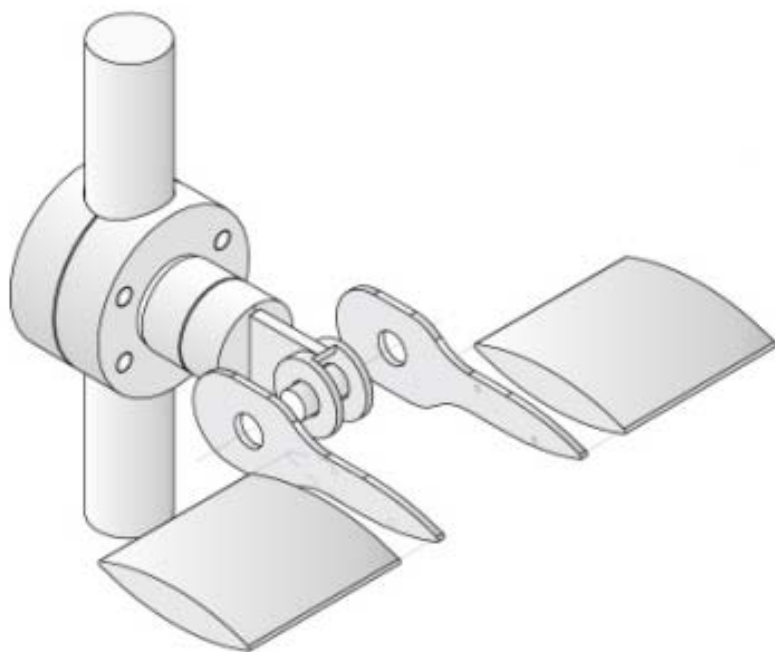














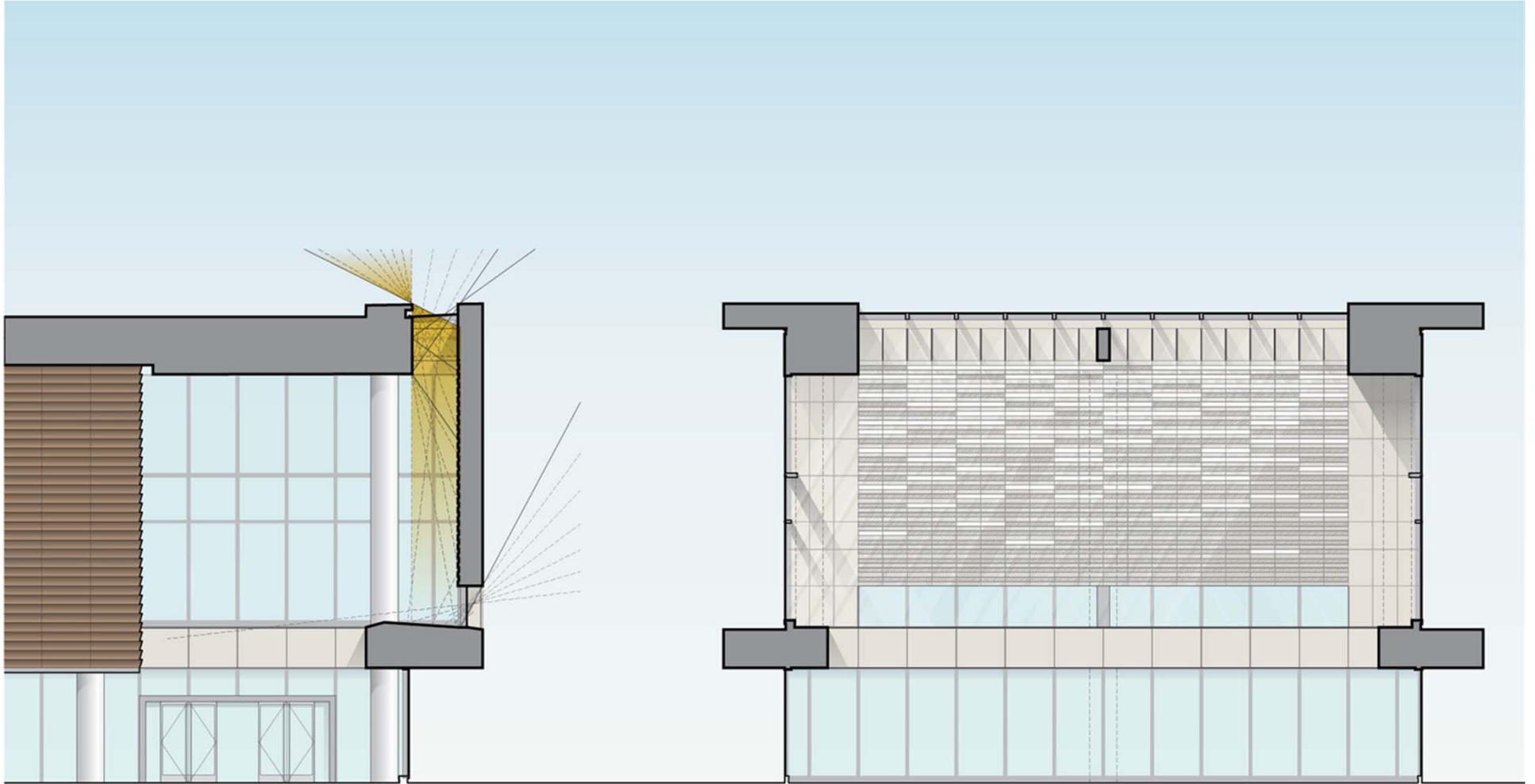
MICRO-LOUVER
SCREENS
SOUTH ENTRY

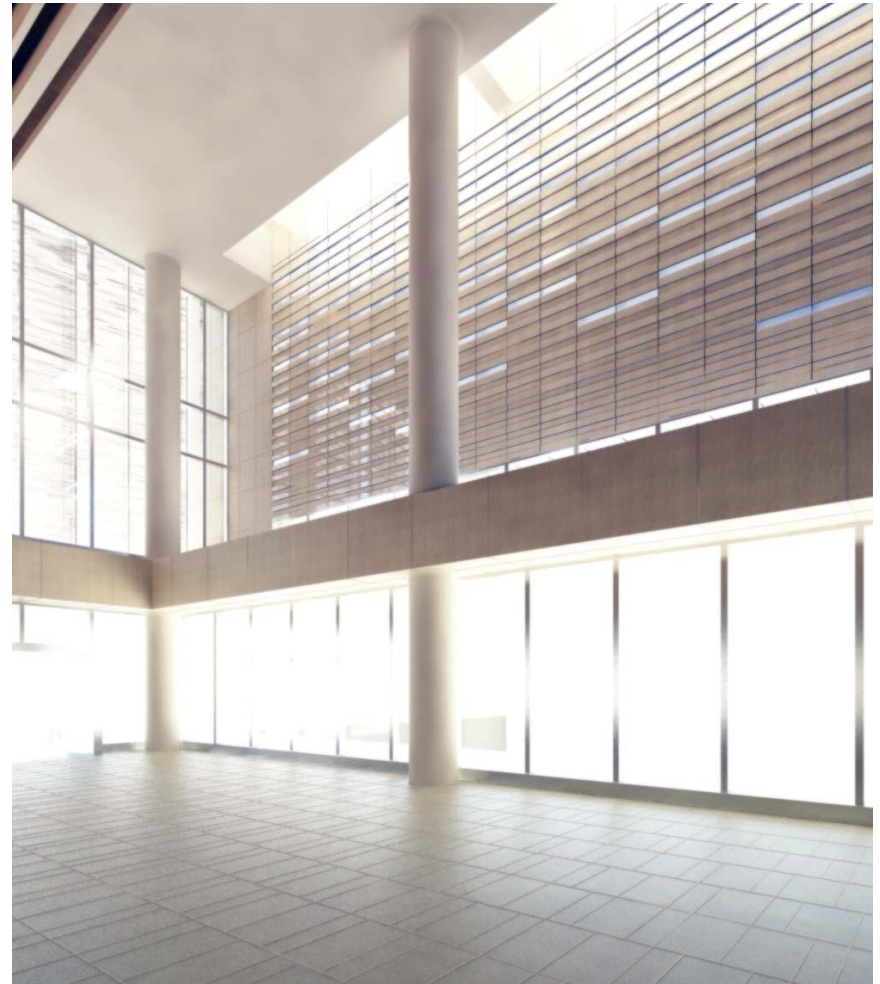
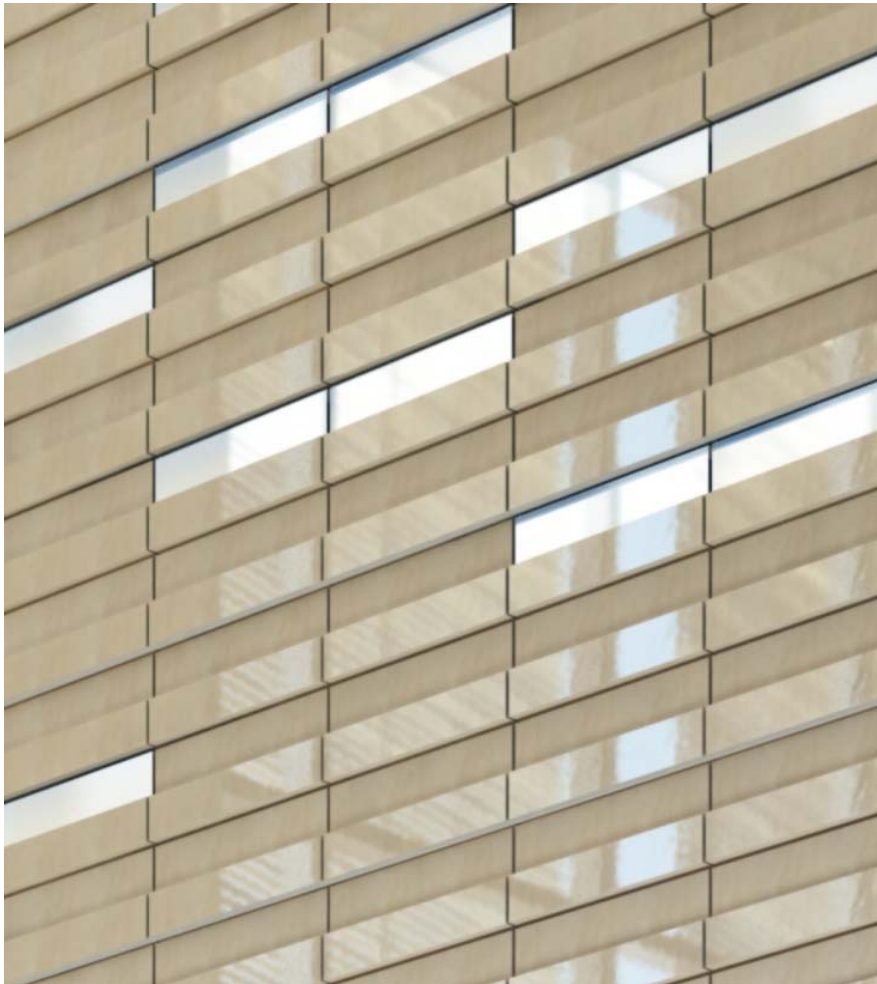


This architectural floor plan illustrates the layout of the 1st floor of the University of Applied Sciences. The plan includes a variety of rooms such as lecture halls, seminar rooms, and administrative offices. A prominent red arrow indicates a specific path or route through the building, starting from the left side and moving towards the center. The plan also features a scale bar and a north arrow for orientation.



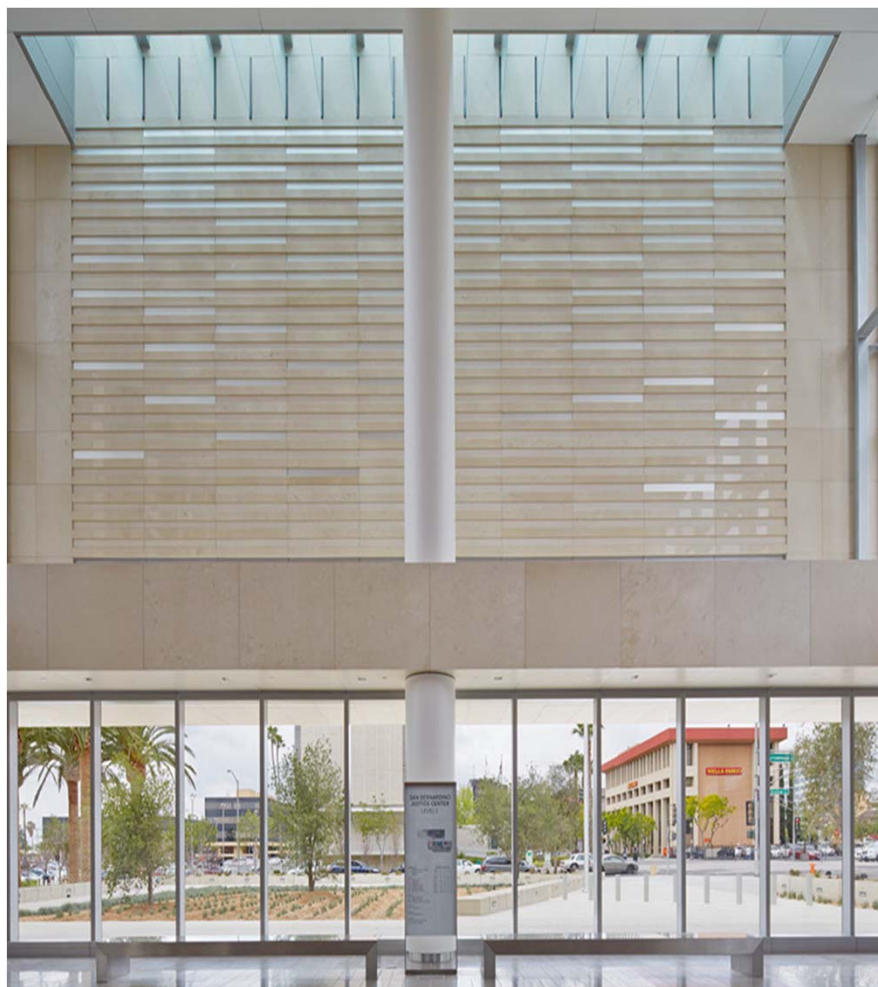




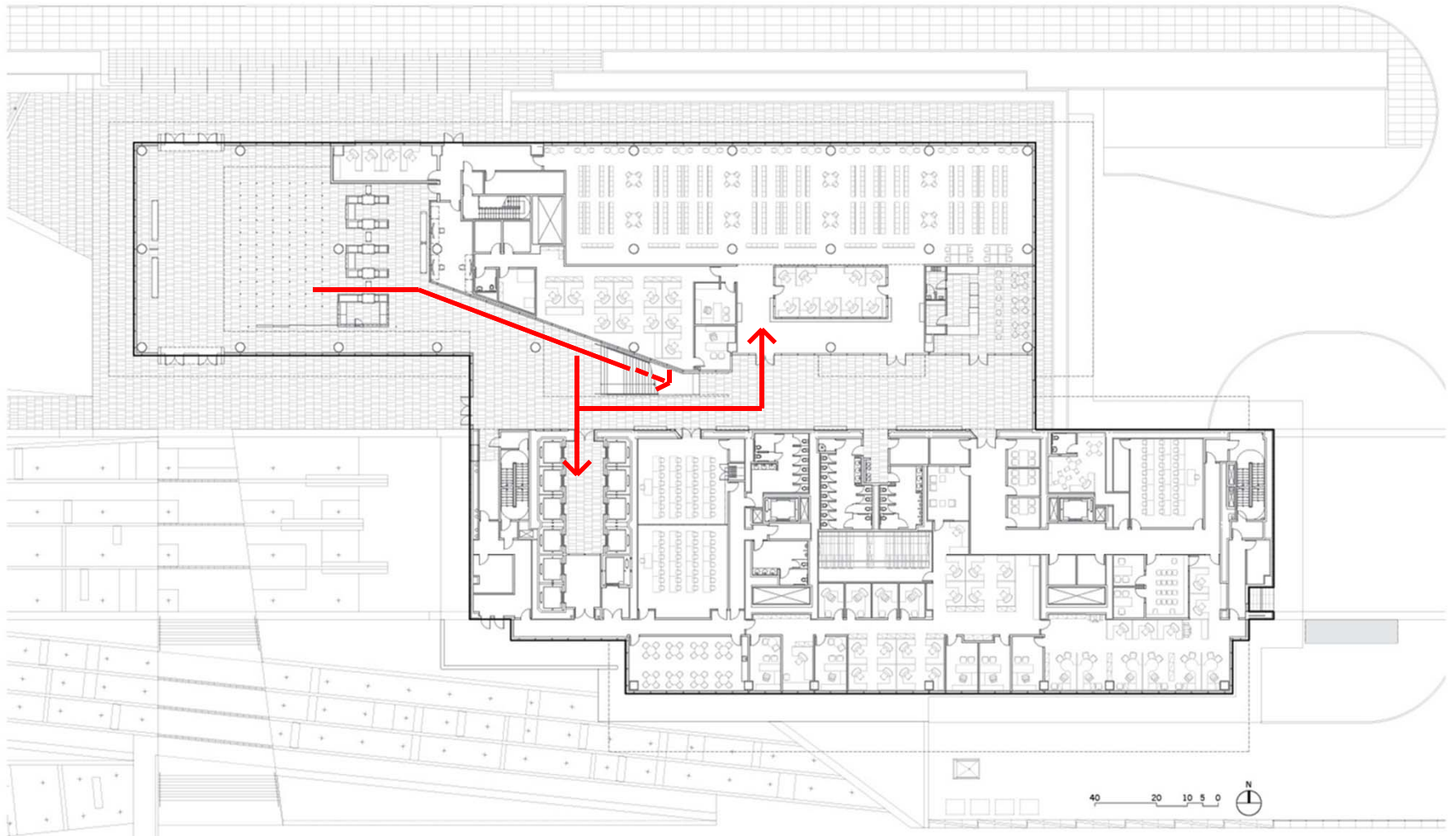


PUBLIC LOBBY

ART WALL

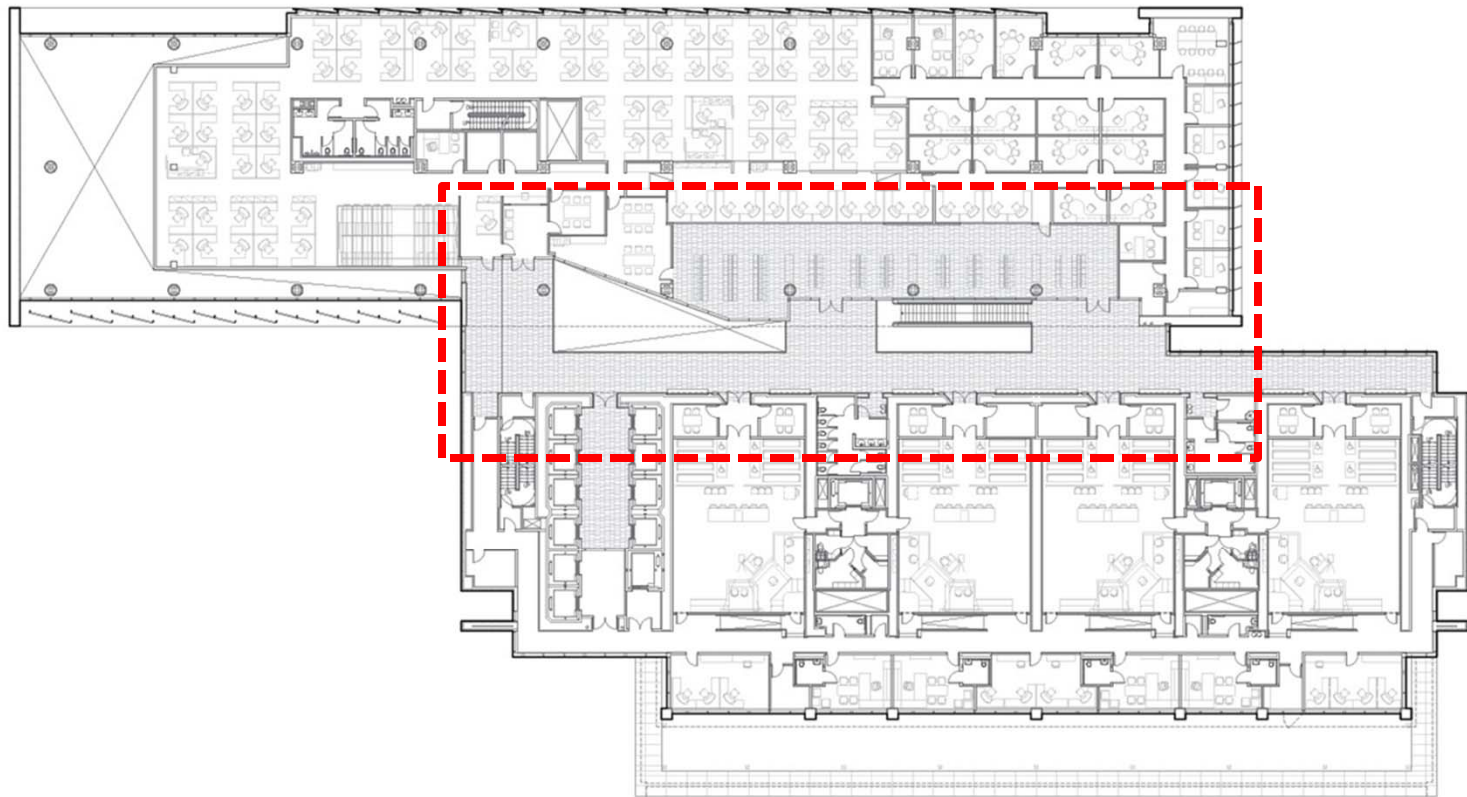


GROUND FLOOR PLAN

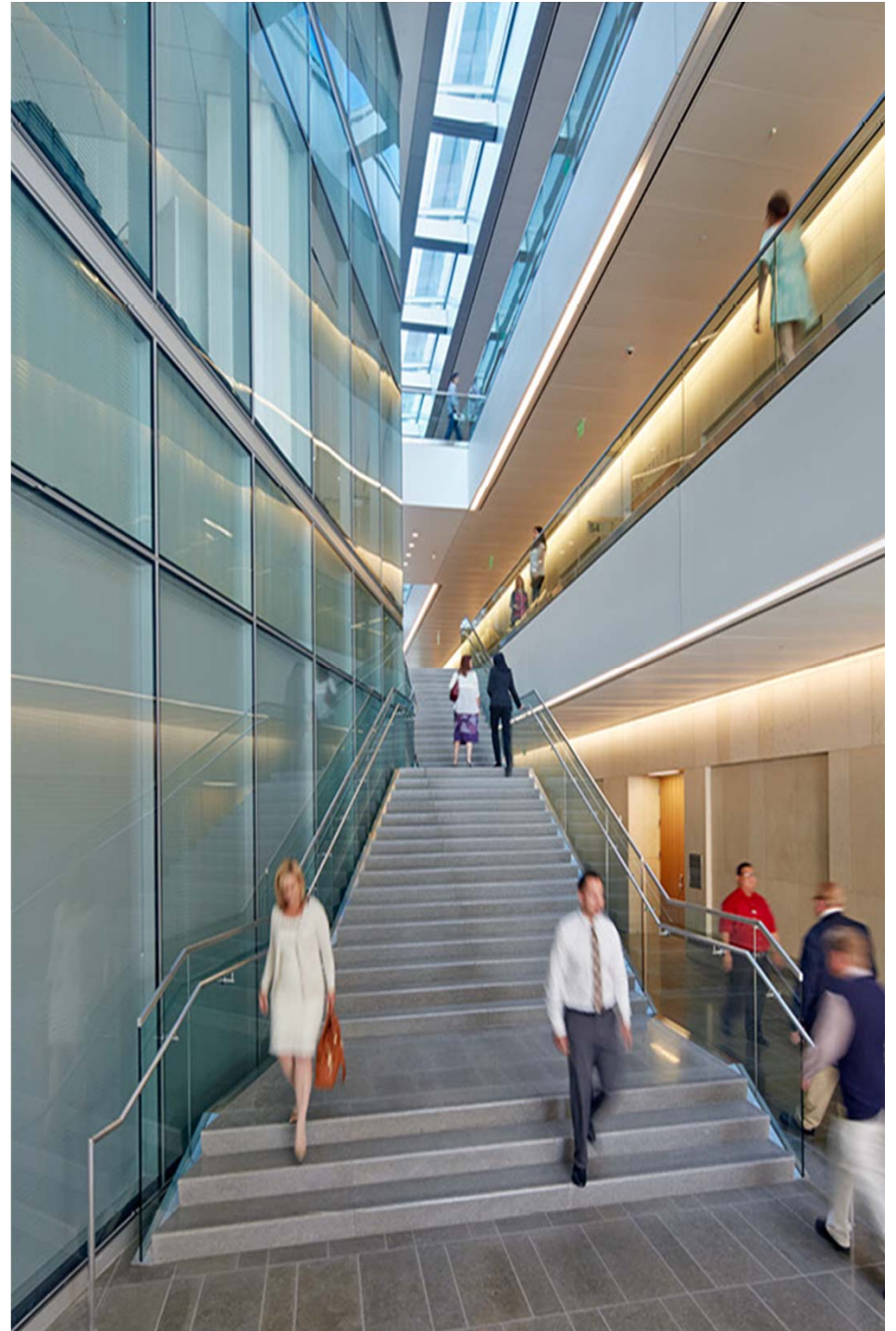




LEVEL 3 PLAN

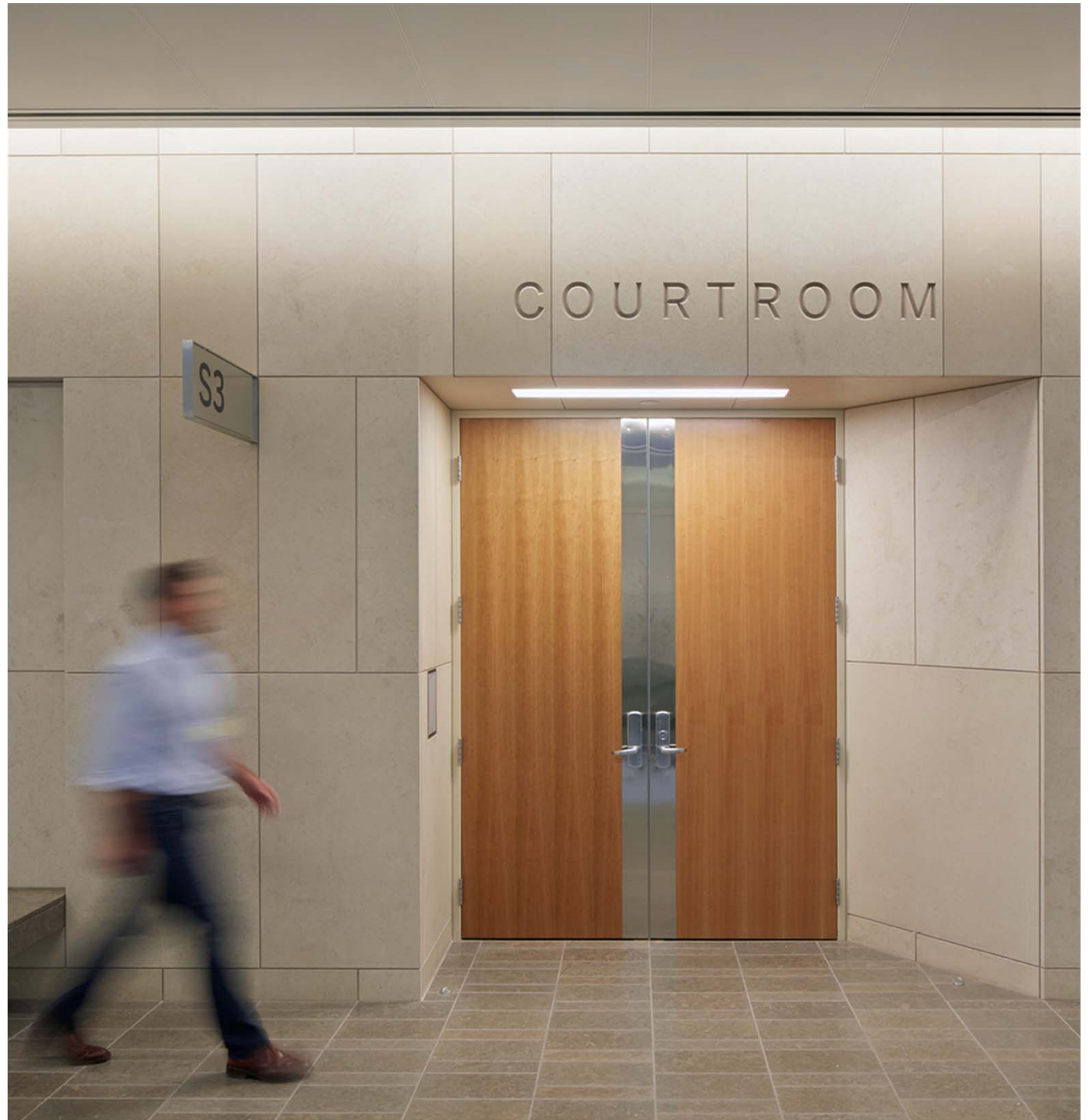


SECTION THROUGH ATRIUM

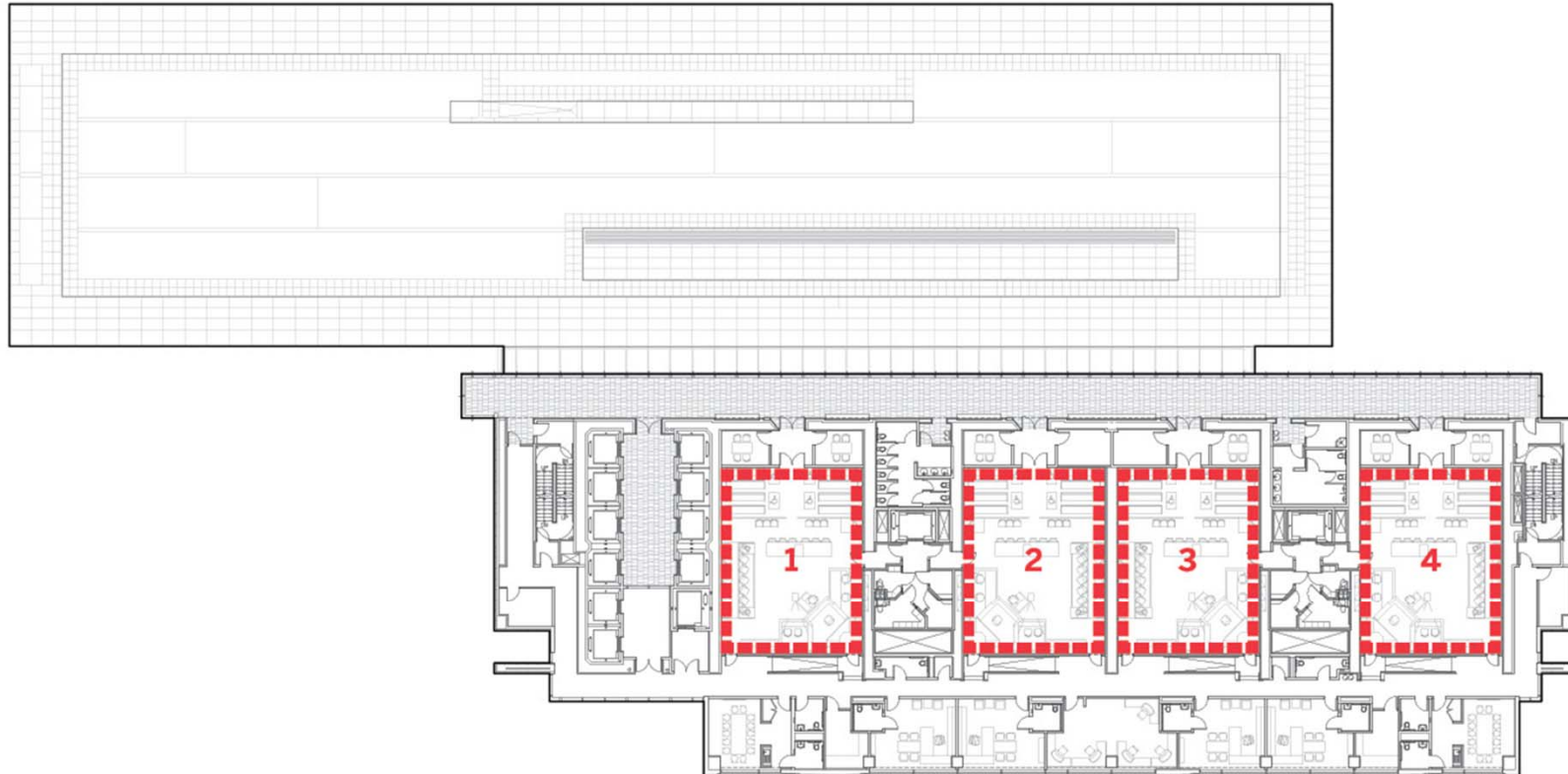




COURTROOM
ENTRY

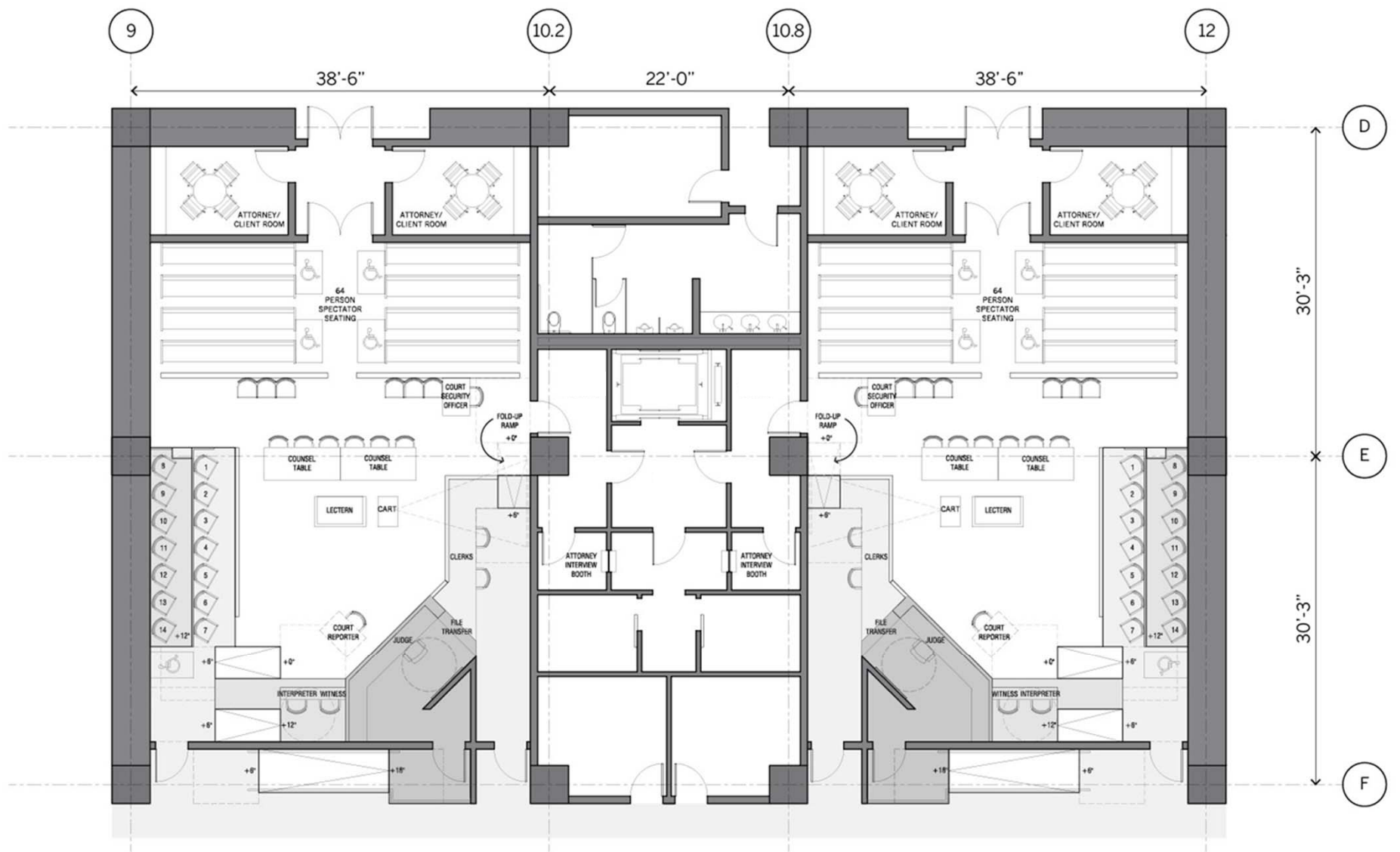


TYPICAL FLOOR PLAN

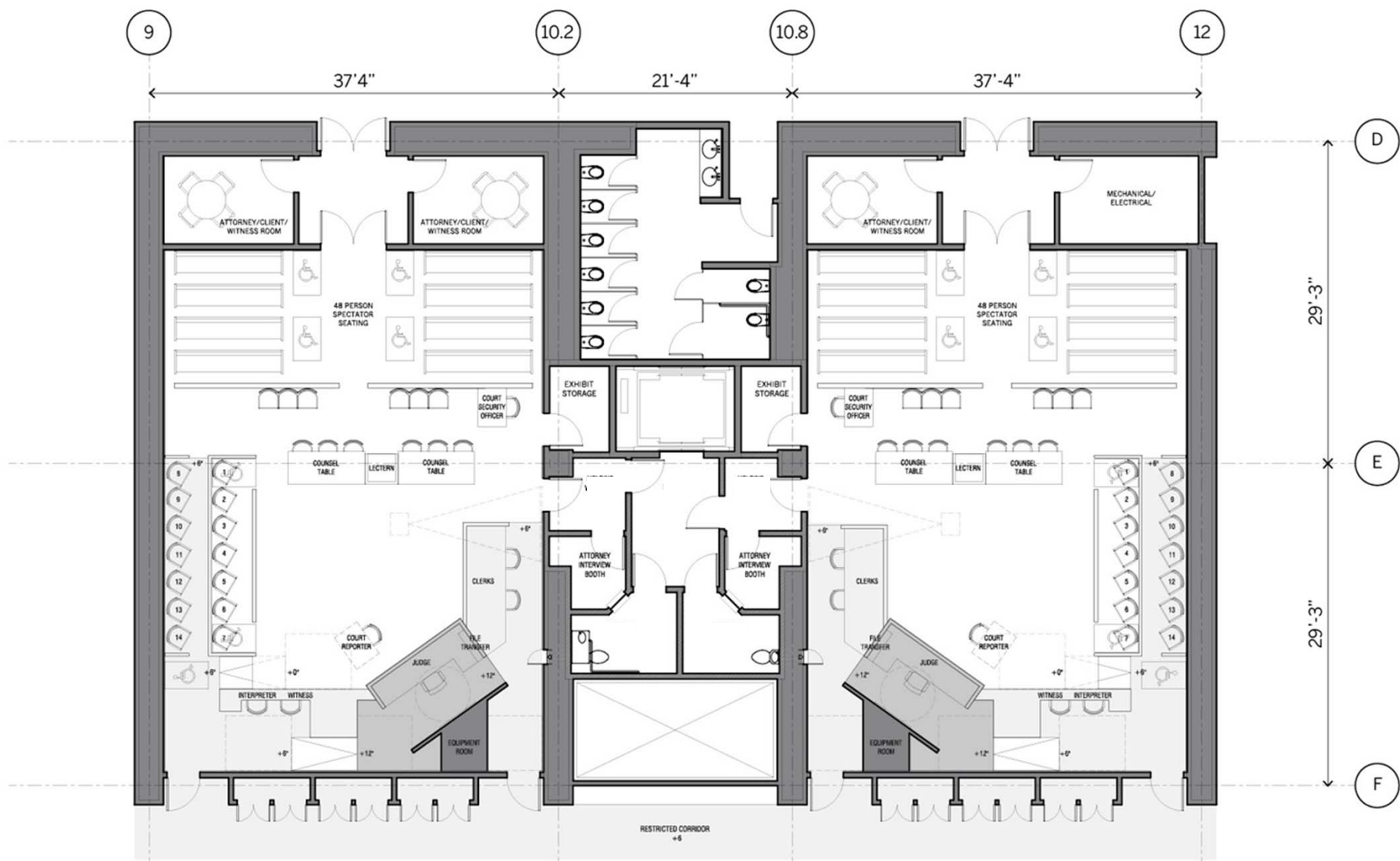


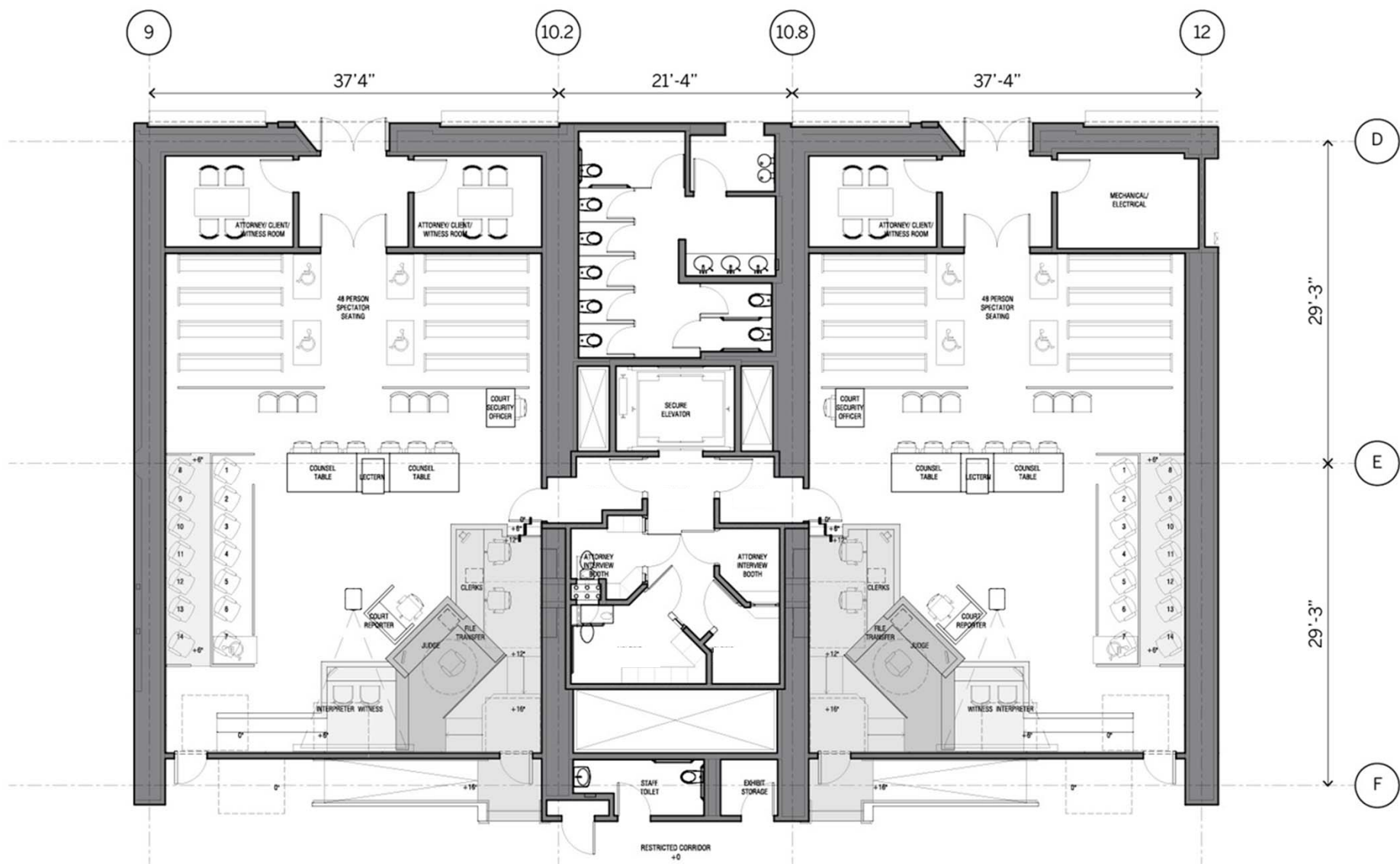
A B C D E F G





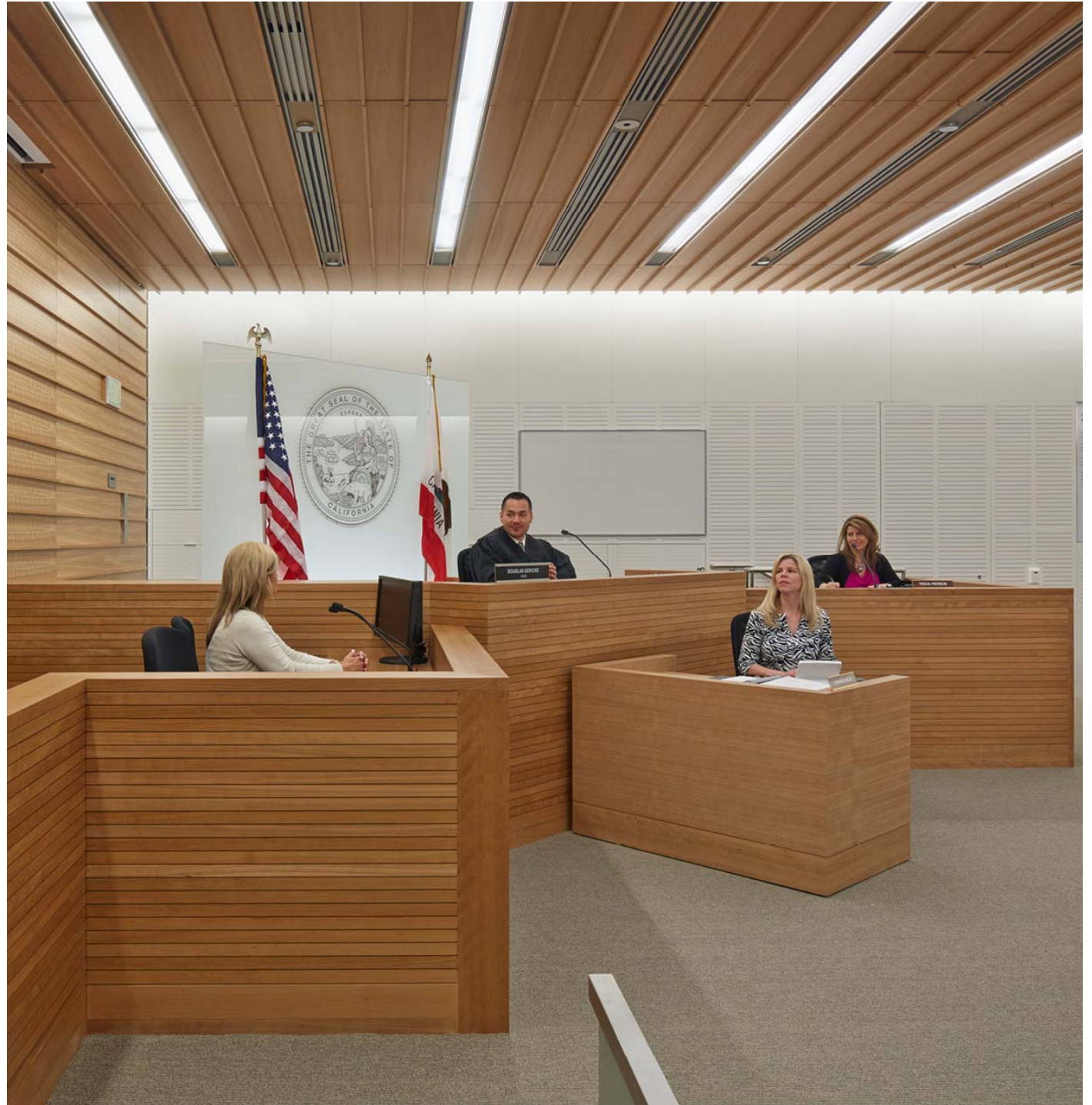




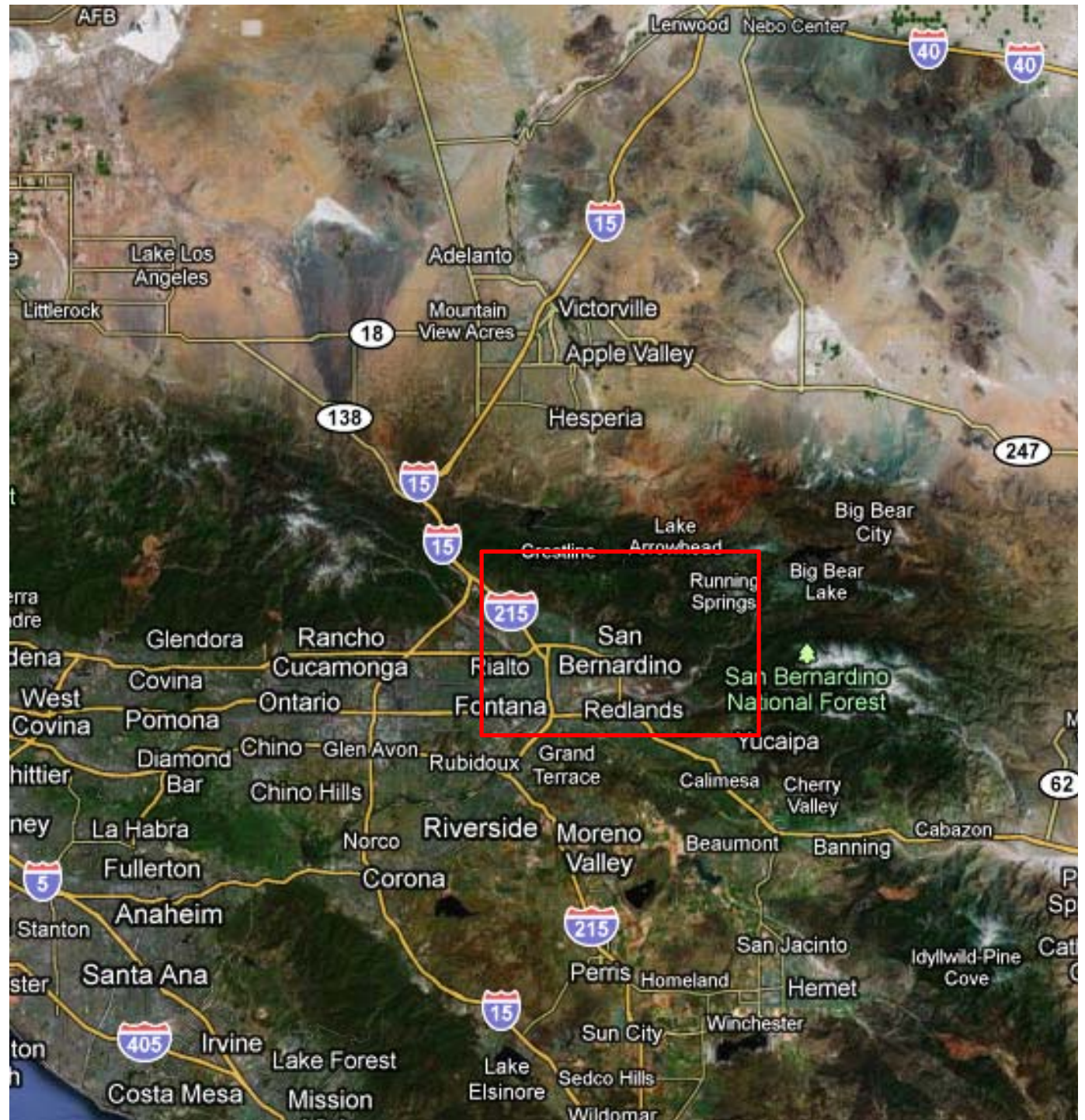


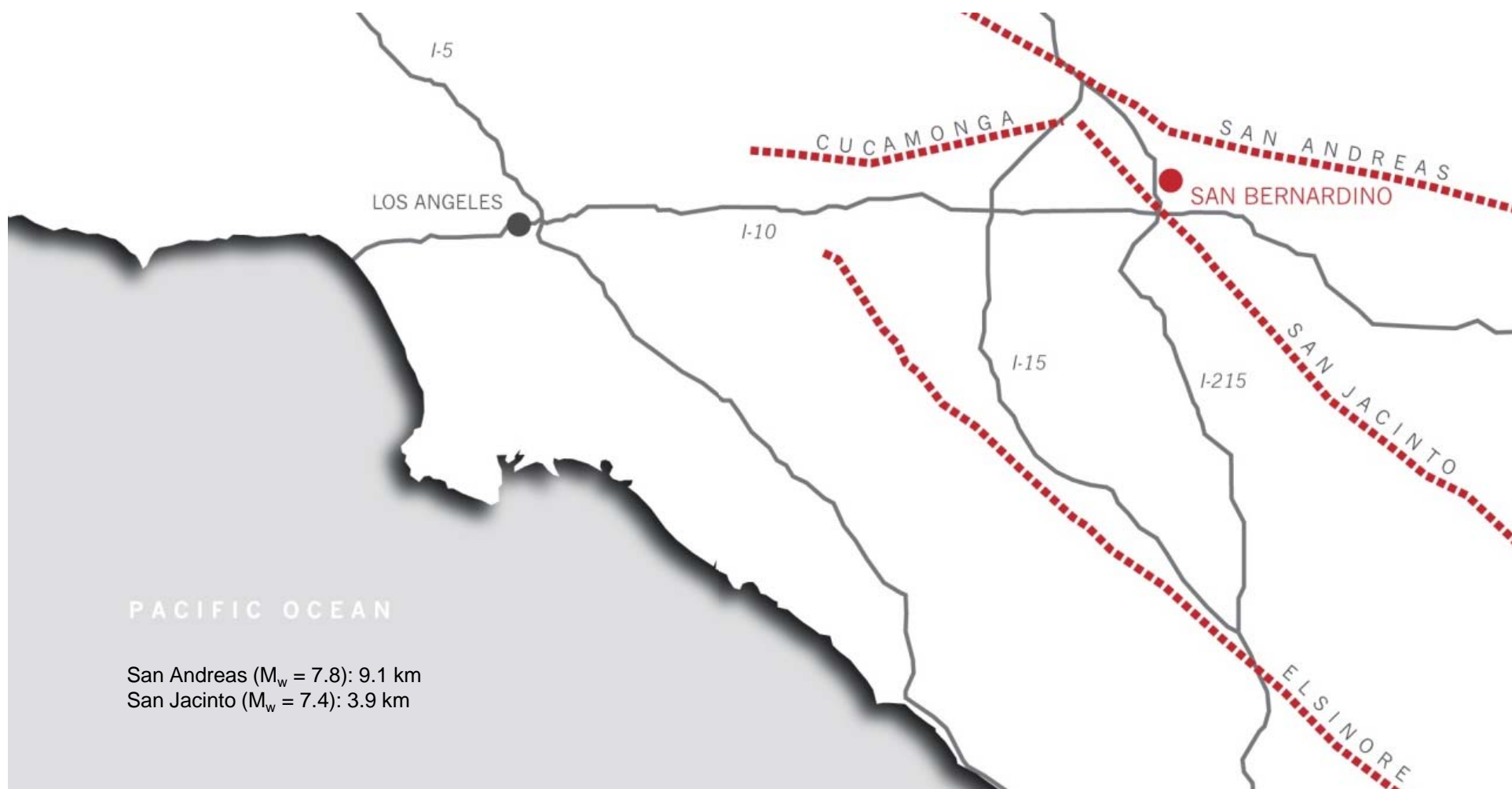




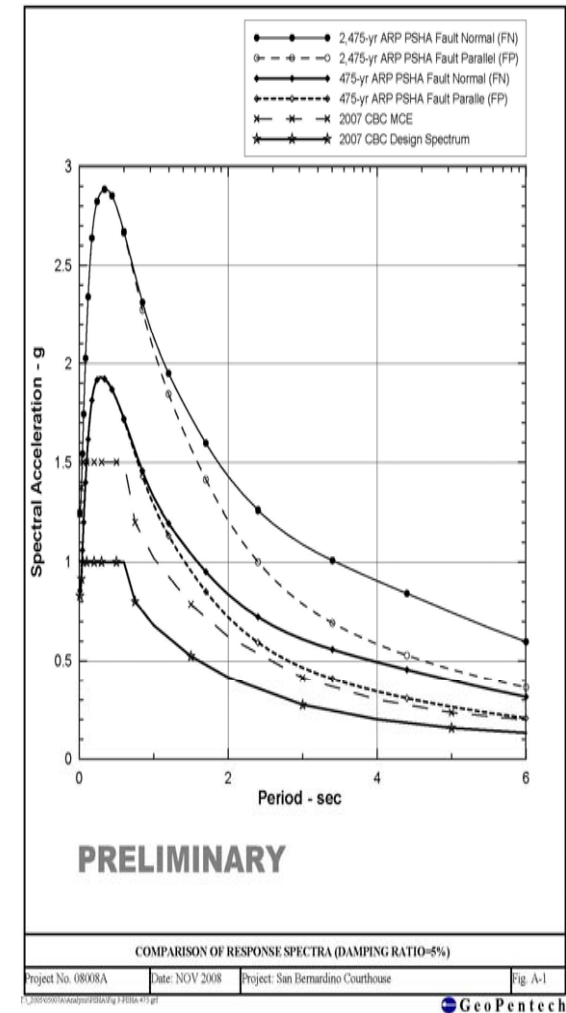




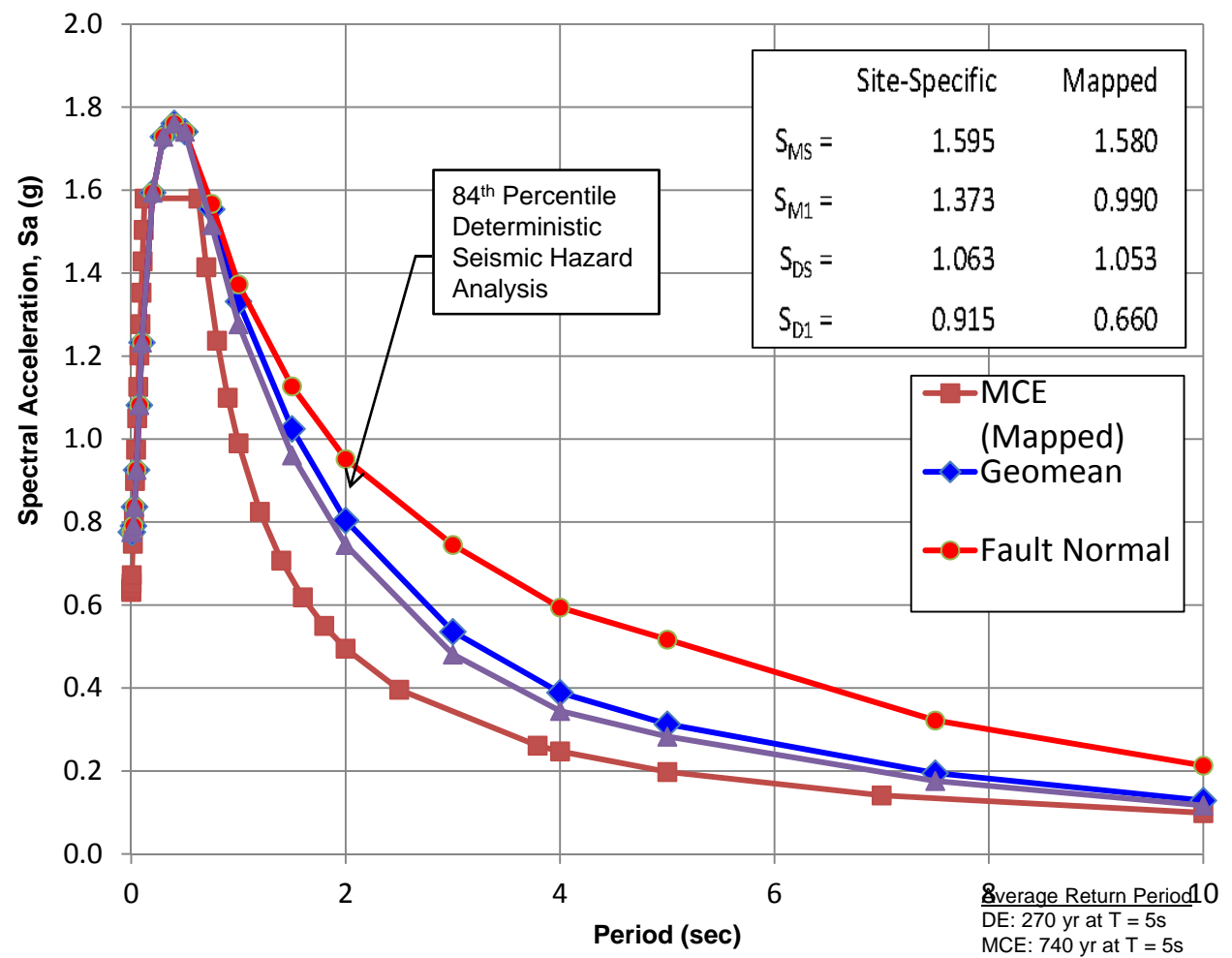




SITE-SPECIFIC SEISMIC HAZARDS & GROUND MOTIONS



SITE-SPECIFIC SEISMIC HAZARDS & GROUND MOTIONS



CALIFORNIA TRIAL COURT FACILITIES STANDARDS

Chapter 4: Courthouse Security

- Threat Assessment, Setbacks, Hardening, Blast Pressures, Progressive Collapse

Chapter 12: Structural Criteria

- Structural Systems, Service Loads, Rare Loads - Earthquakes, Wind
- Nonstructural Components

Seismic Performance Objectives

- “Normal” – Life-Safety (CBC)
- “Enhanced” - Performance Based

Life-Cycle Cost/Benefit Analysis

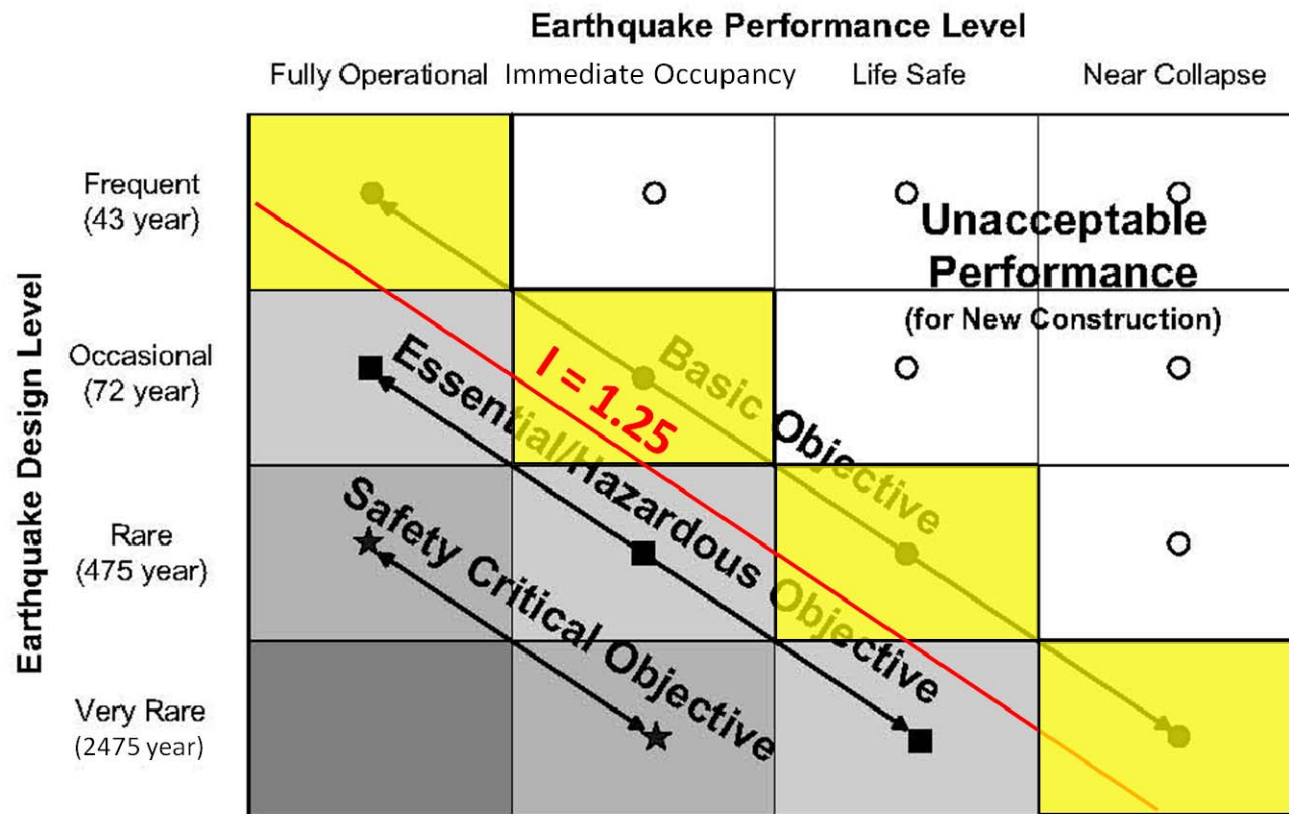
- Seismic Risk Assessments
- 25-yr Return on Investment for Options Considered

California Trial Court Facilities Standards



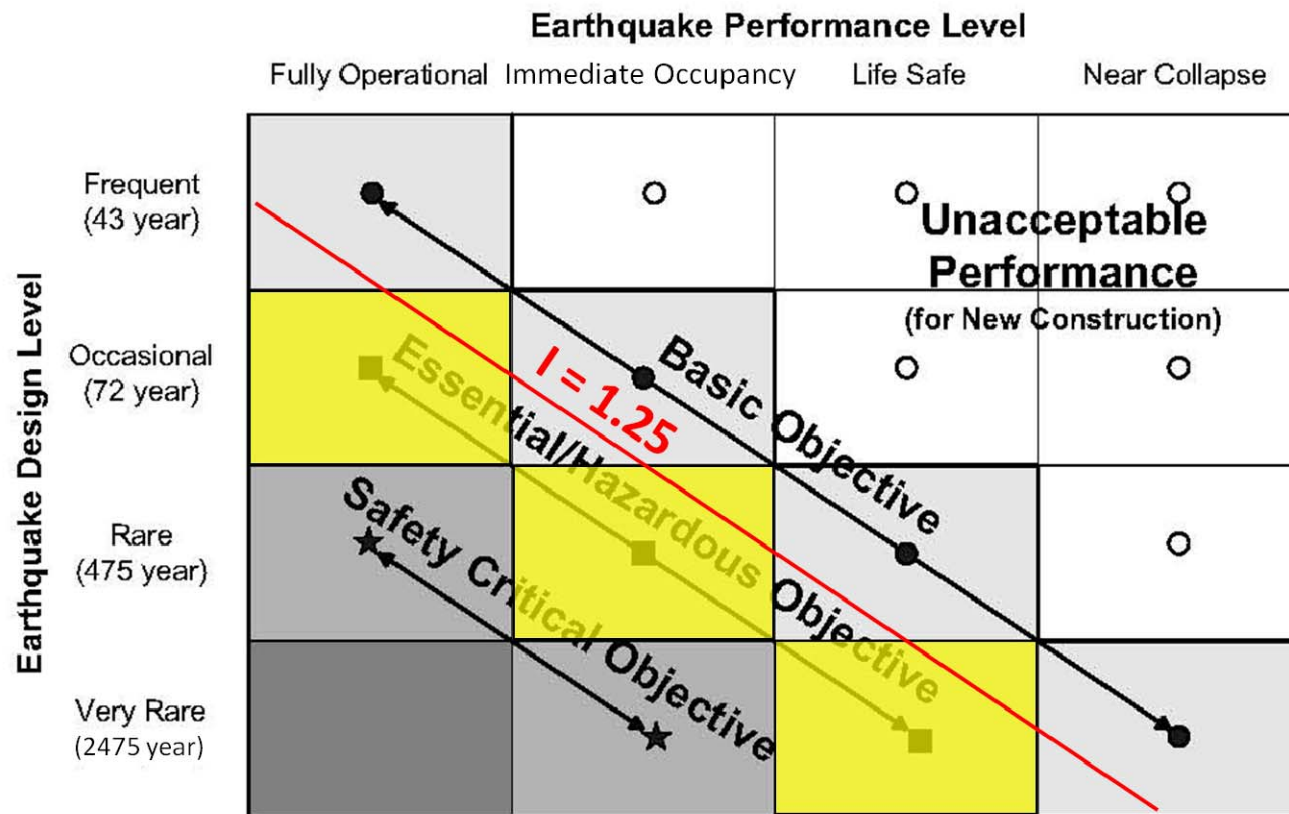
JUDICIAL COUNCIL
OF CALIFORNIA

“NORMAL” SEISMIC PERFORMANCE OBJECTIVE



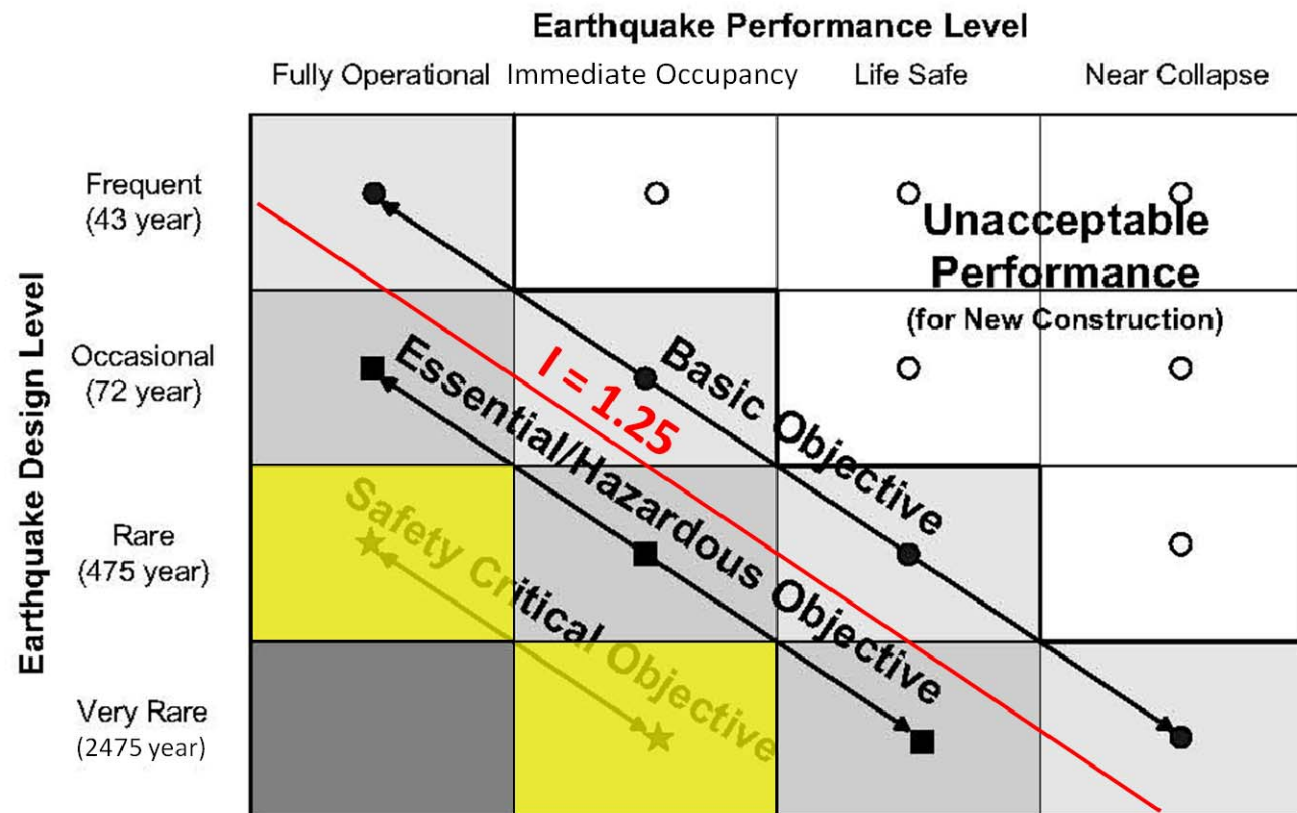
SEAOC BLUE BOOK (1999)

“ENHANCED” SEISMIC PERFORMANCE OBJECTIVE

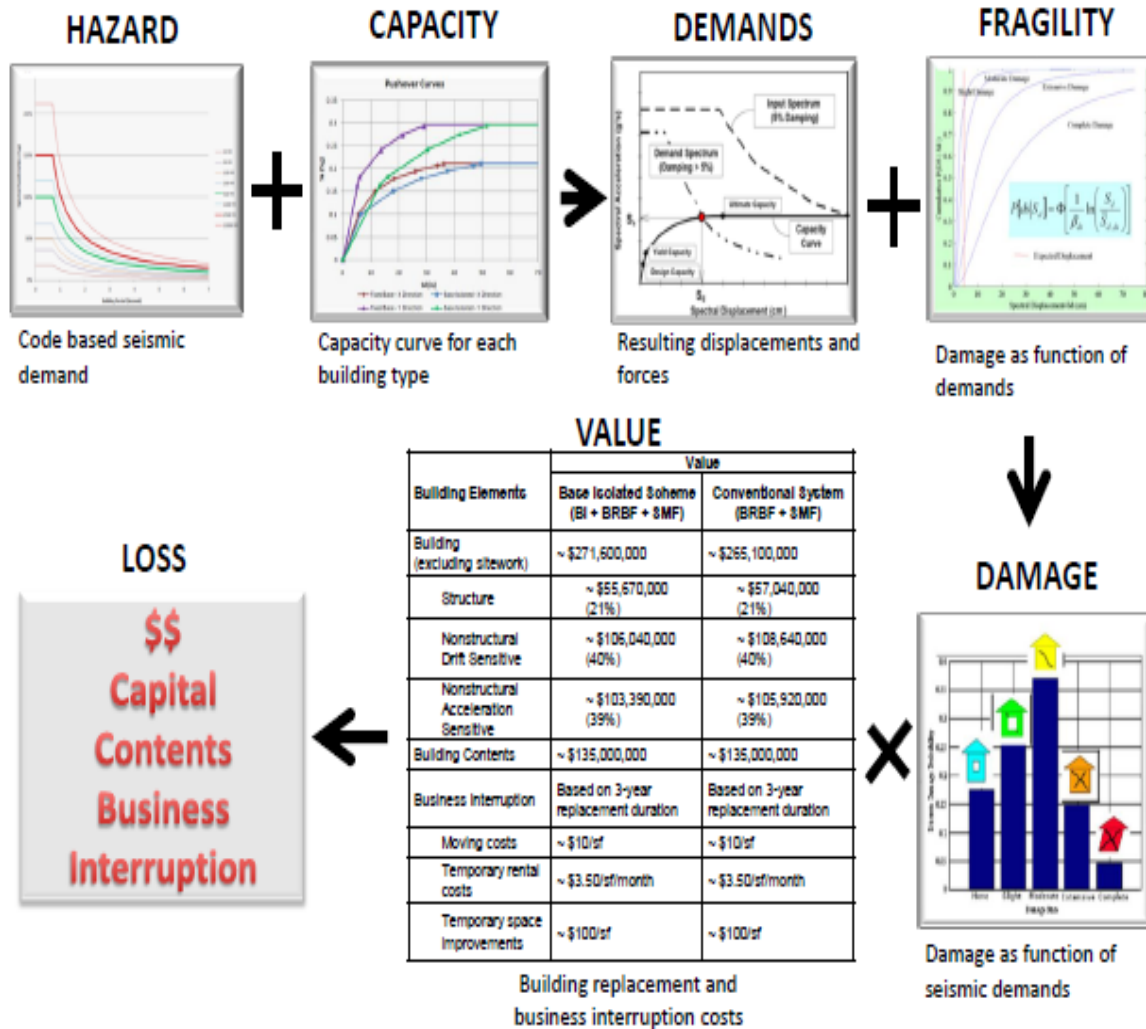


SEAOC BLUE BOOK (1999)

“ENHANCED” SEISMIC PERFORMANCE OBJECTIVE



SEISMIC RISK ASSESSMENT & LIFE-CYCLE COST ANALYSIS



SEISMIC RISK ASSESSMENT & LIFE- CYCLE COST ANALYSIS

Risk Analysis Objectives

- Life cycle risk analysis of proposed facility for earthquakes
- Estimate capital, contents and business interruption losses
- Consider a range of earthquake scenarios
- Consider fixed-base (“normal”) and damped/base isolated structures (“enhanced”)
- Estimate benefit of enhanced system in terms of reduced losses
- Calculate annual return on investment for the enhanced system
- Calculate benefit-cost ratios for a “rare” and “very rare” event

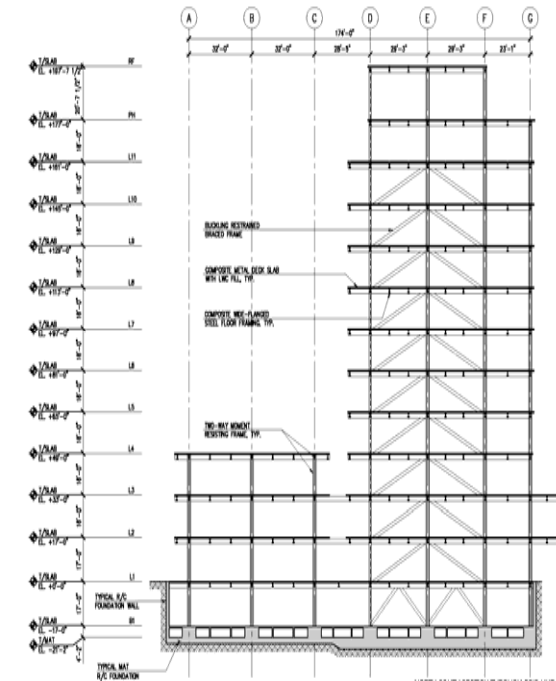


CONVENTIONAL STEEL SUPERSTRUCTURE

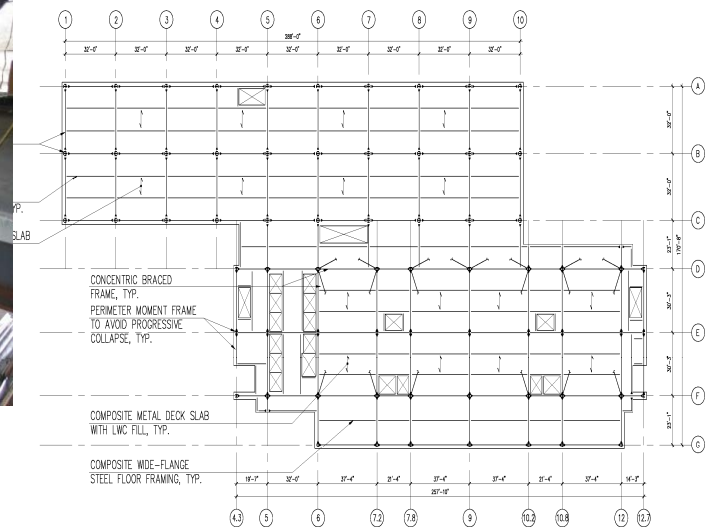
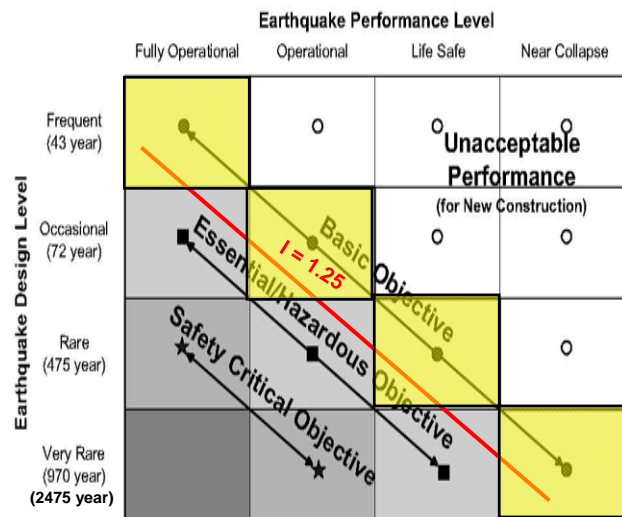


Lateral Force Resisting Frames

Buckling Restrained Braced Frame + Special Moment Frame



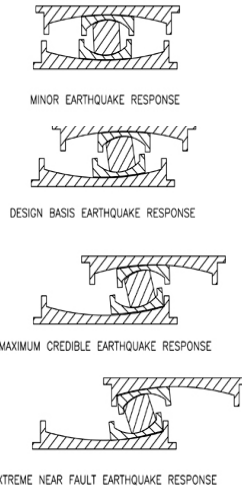
Typical Frame Elevation



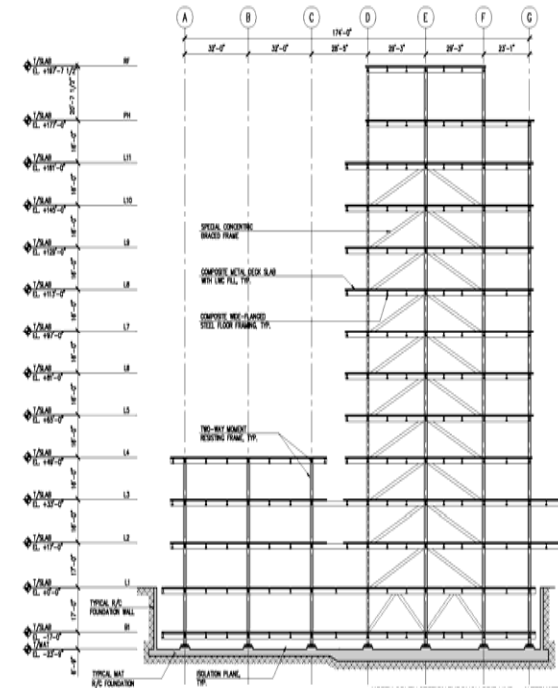
Typical Framing Plan

“Normal” Seismic Performance Objective

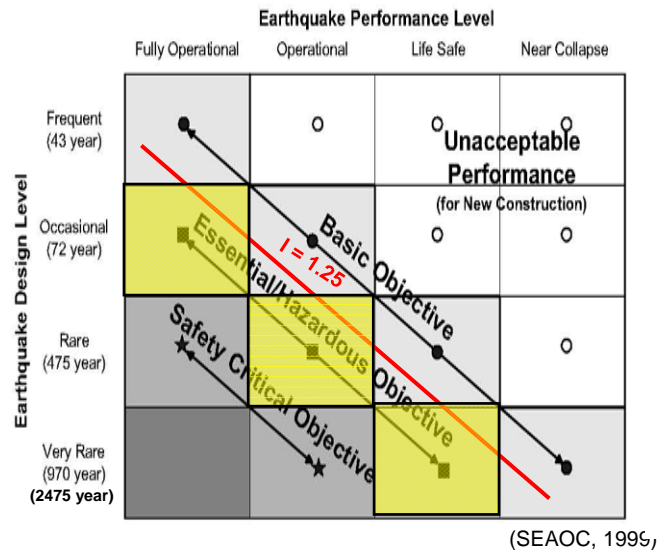
CONVENTIONAL STEEL SUPERSTRUCTURE + SEISMIC ISOLATION



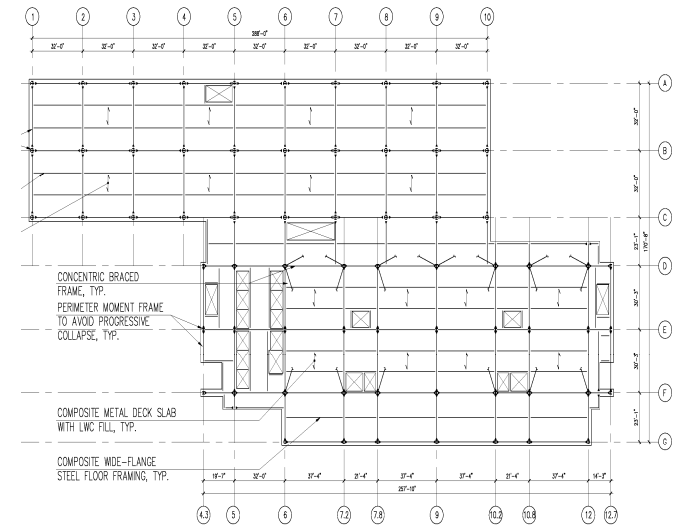
Friction Pendulum
Triple Concave
(FP-TC) Bearings



Typical Frame Elevation



“Enhanced” Seismic
Performance Objective

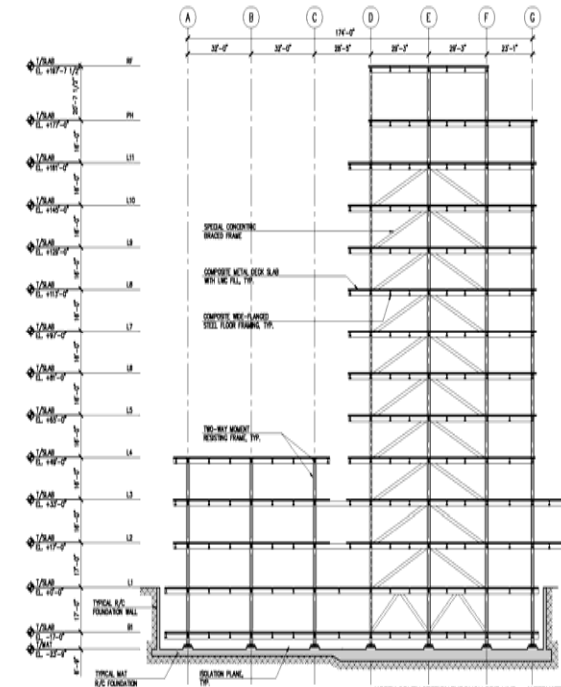


Typical Framing Plan

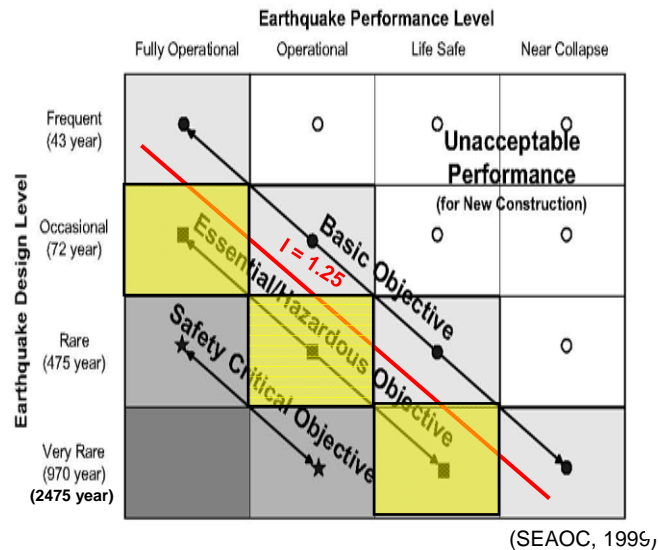
CONVENTIONAL STEEL SUPERSTRUCTURE + FLUID VISCOUS DAMPING DEVICES (VDD)



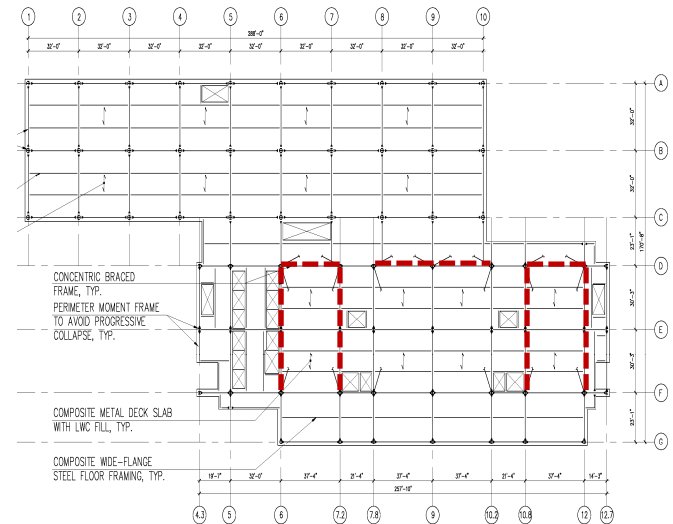
184 VDD
(16 per floor LL-L10) each
440 kip capacity
Stroke capacity = +/- 5 in



Typical Frame Elevation



“Enhanced” Seismic Performance Objective



Typical Framing Plan

SAN BERNARDINO JUSTICE CENTER – SEISMIC RISK ASSESSMENT

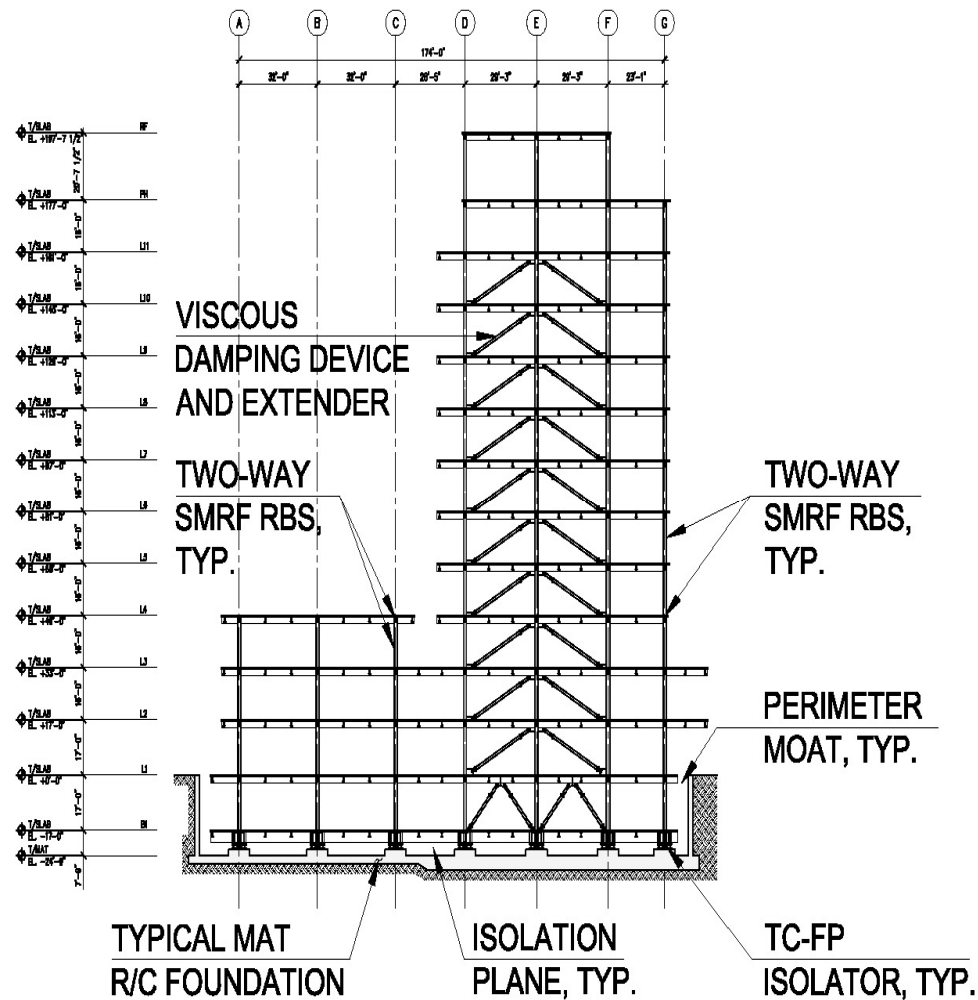
Average annual expected loss (Mean) X-DIRECTION		
Building Elements	Equivalent Loss	
	Conventional System (BRBF + SMF)	Base Isolated Scheme (BI + BRBF + SMF)
TOTAL Building + Contents + Business Interruption	\$1,800,000	\$300,000
NET EXPECTED ANNUAL BENEFIT	\$1,500,000	
NET ADDITIONAL FIRST COST (Base Isolated Scheme)	\$6,500,000	
EQUIVALENT RETURN ON INVESTMENT	23% over 25 years	

Average annual expected loss (Mean) Y-DIRECTION		
Building Elements	Equivalent Loss	
	Conventional System (BRBF + SMF)	Base Isolated Scheme (BI + BRBF + SMF)
TOTAL Building + Contents + Business Interruption	\$1,200,000	\$240,000
NET EXPECTED ANNUAL BENEFIT	\$960,000	
NET ADDITIONAL FIRST COST (Base Isolated Scheme)	\$6,500,000	
EQUIVALENT RETURN ON INVESTMENT	14% over 25 years	

Comparison of “Normal” vs. “Enhanced” Seismic Performance Summary Life-Cycle Analysis - San Bernardino Justice Center

Structural System Option	Additional First Cost	Average Annual Loss	Average Annual Return	Business Relocation	Annual Return on Investment
“Normal” (SMF + BRBF)	Baseline	\$1.5m	Baseline	210 days	Baseline
“Enhanced” (SMF+ VDD+ BI)	\$6.5m	\$0.27m	\$1.23m	0 days	+18.5%

SUPERSTRUCTURE GRAVITY & LATERAL FRAME



TYPICAL TRANSVERSE FRAME ELEVATION

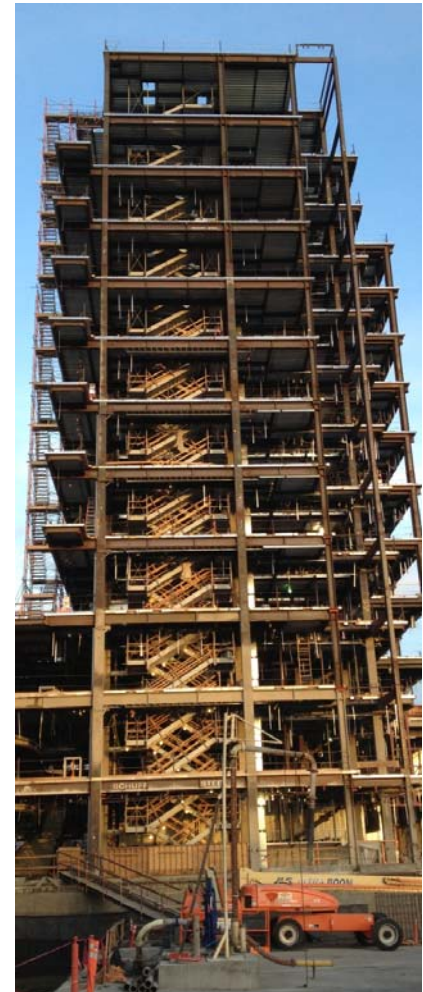
- Superstructure steel with two-way SMFs
- 69 Triple Pendulum™ seismic isolation bearings
- 42 in perimeter Isolation moat
- Isolation plane below lower level above mat foundation
- 184 viscous damping devices (VDD)
- Diagonal damper & chevron extender brace configurations
- 440 kip (+/- 5 in stroke) VDD damper capacity
- 16 ft floor-to-floor height



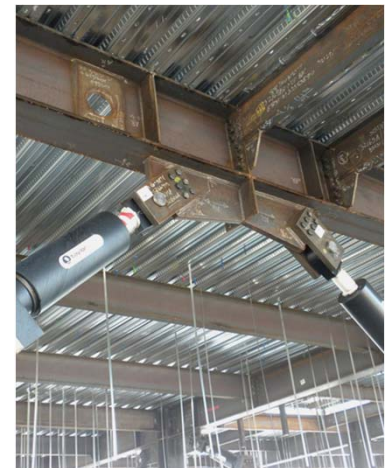
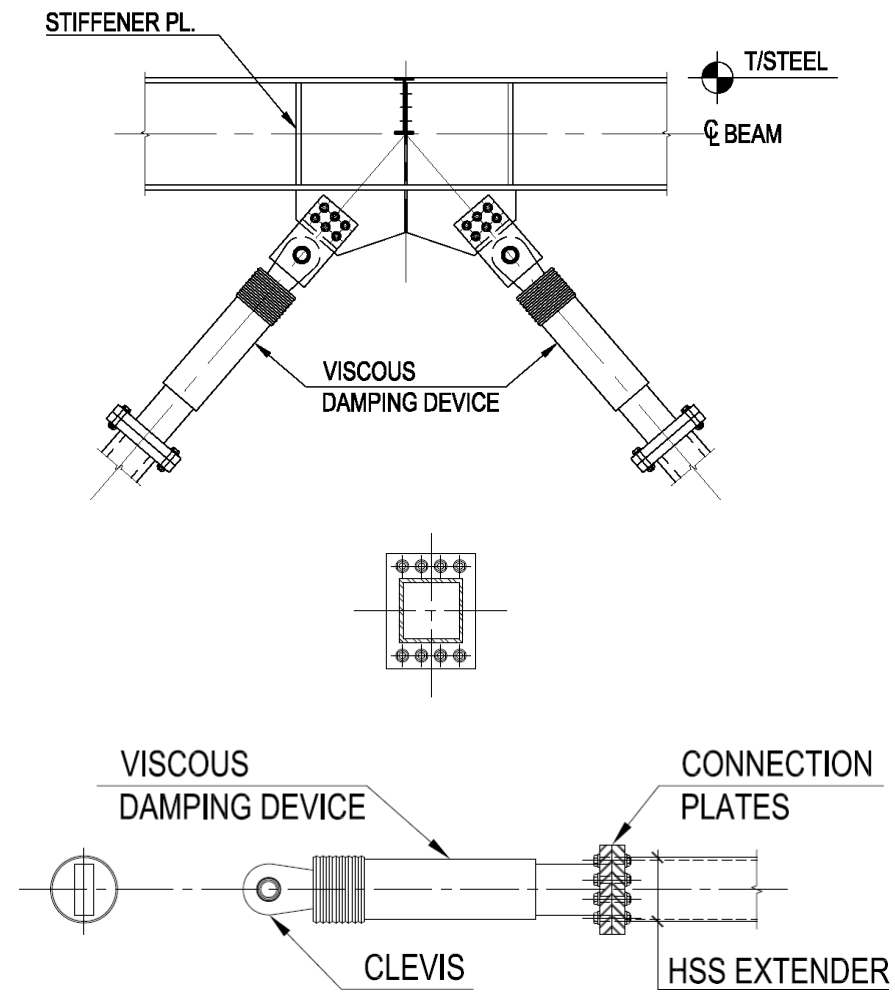
TC-FP BEARING – PROTOTYPE BEARING TESTING
MCE DISPLACEMENT = 41.8", UPLIFT = 4"



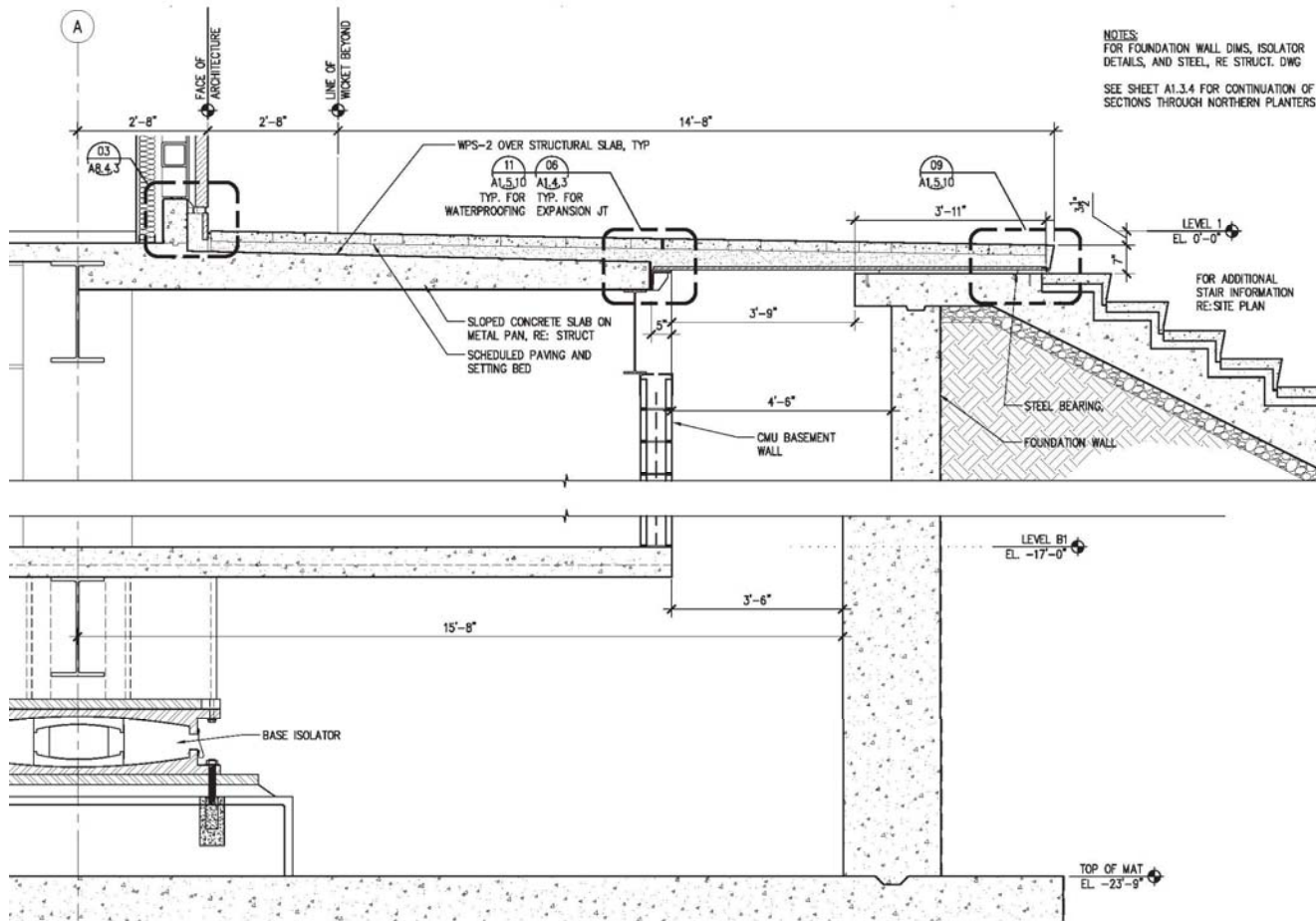
TC-FP BEARING AT ISOLATION PLANE



VDD CONFIGURATION AND DETAILS



SEISMIC MOAT AND ISOLATION PLANE







Shen Milson Wilke
AV/IT Consultant

SUPERIOR COURT OF CALIFORNIA County of San Bernardino

Information Technology

STEPHEN SHEA

Associate Principal
Director, San Francisco Office

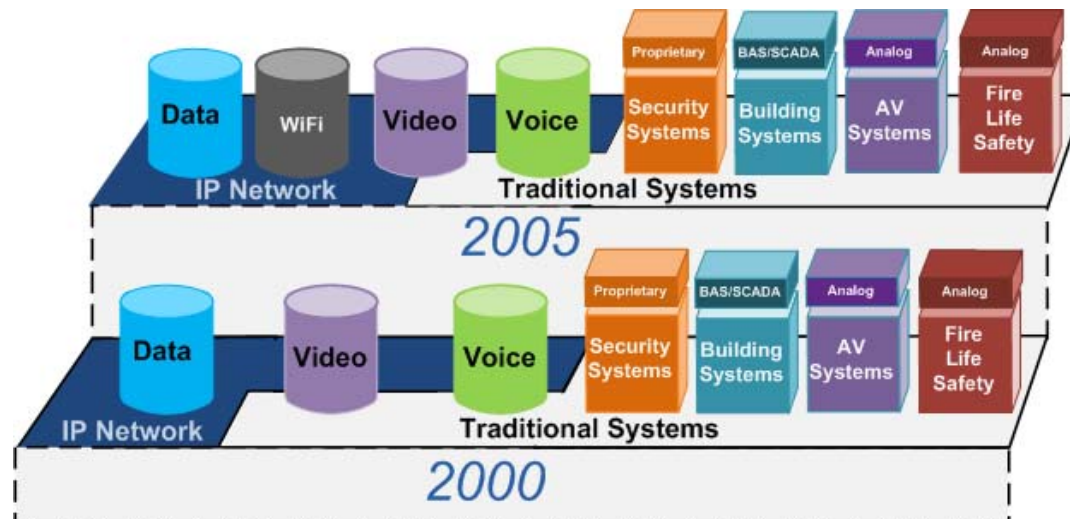
Typical Courthouse Infrastructure and Systems

- CLEAR DIVISION
- CLEAR LINES OF RESPONSIBILITY
- PROPRIETARY CABLE AND SIGNAL TYPES



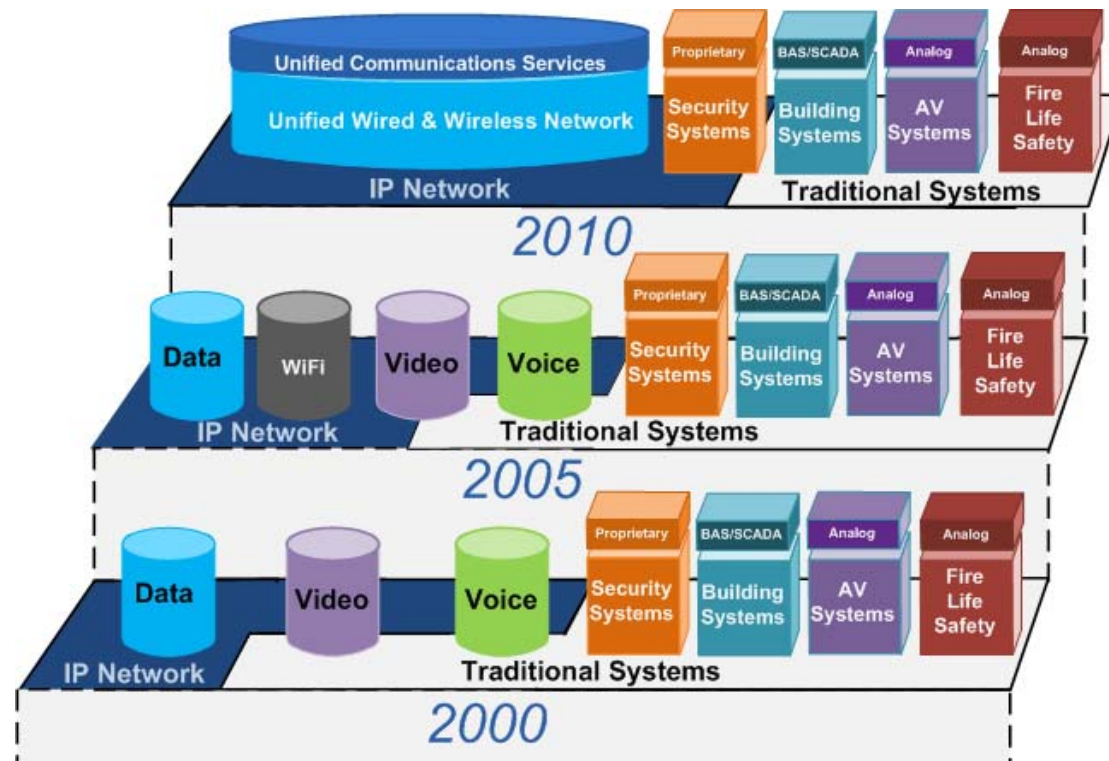
Typical Courthouse Infrastructure and Systems

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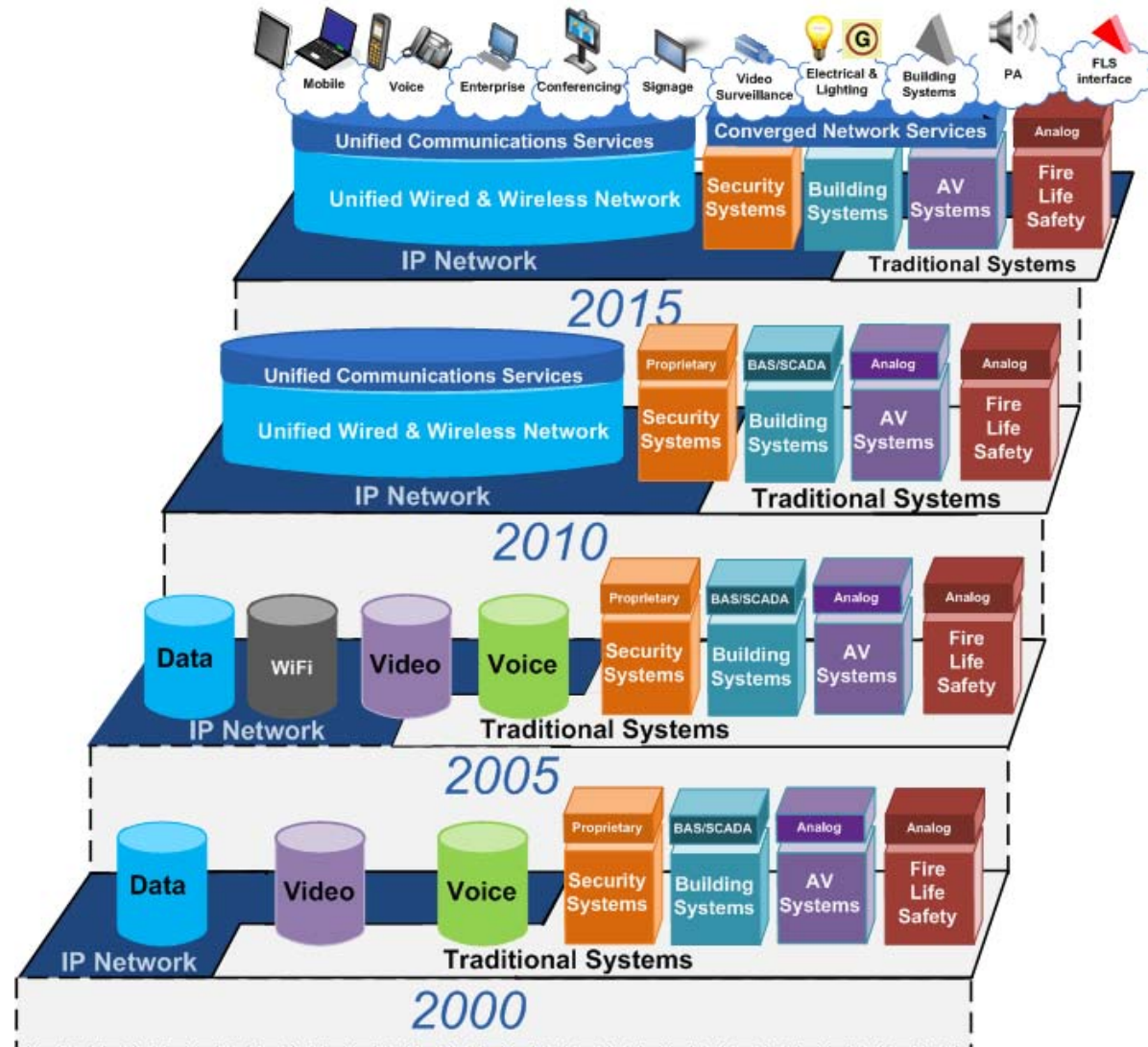
Typical Courthouse Infrastructure and Systems

- NOT SO CLEAR DIVISION
- LINES OF RESPONSIBILITY BECOME MIXED
- IP AND PROPRIETARY CABLE AND SIGNAL TYPES

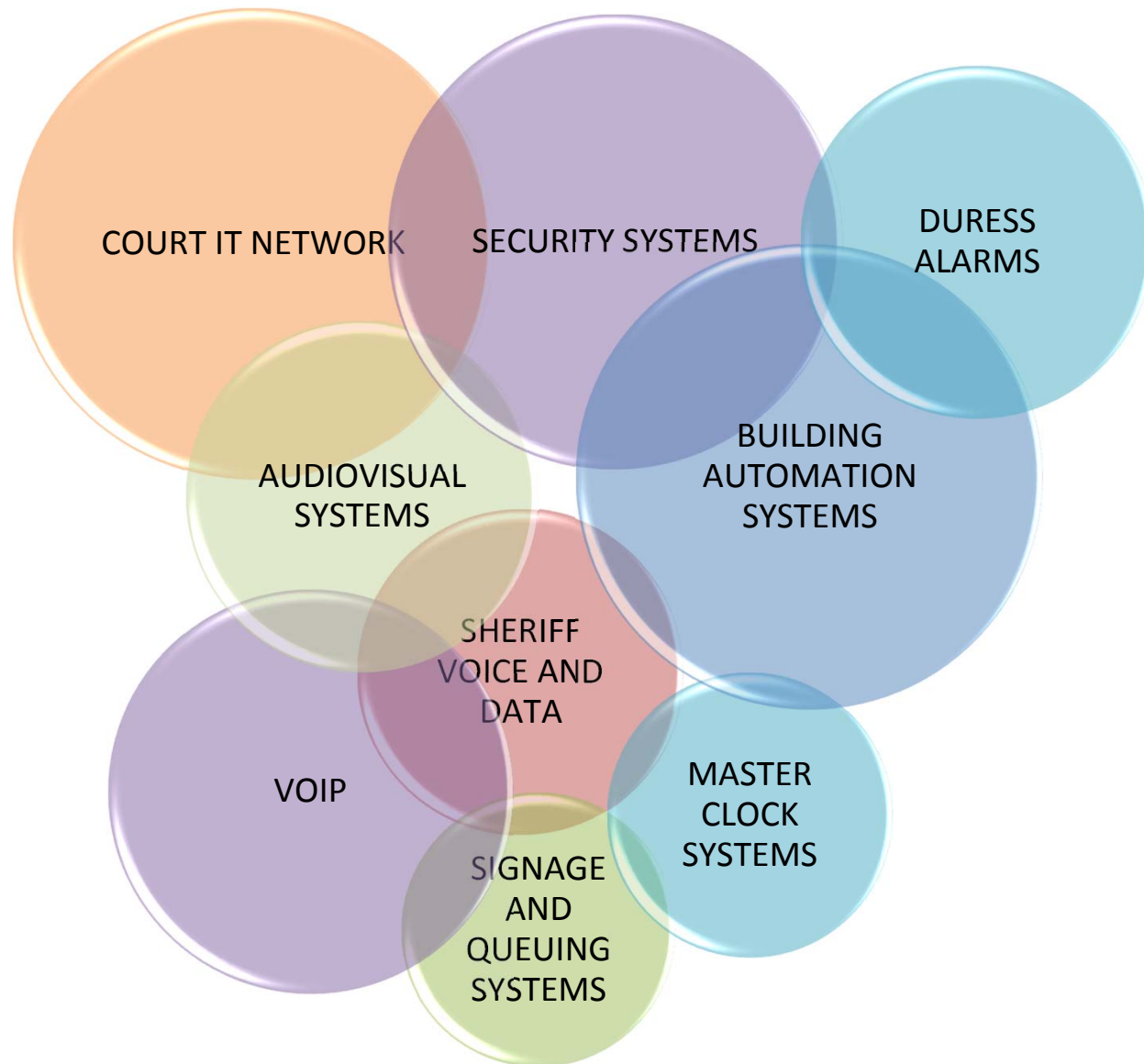


Typical Courthouse Infrastructure

- NO CLEAR DIVISION
- MIXED LINES OF RESPONSIBILITY
- IP AND PROPRIETARY CABLE AND SIGNAL TYPES
- SEPARATE NETWORKS
- INCREASED SECURITY RISKS

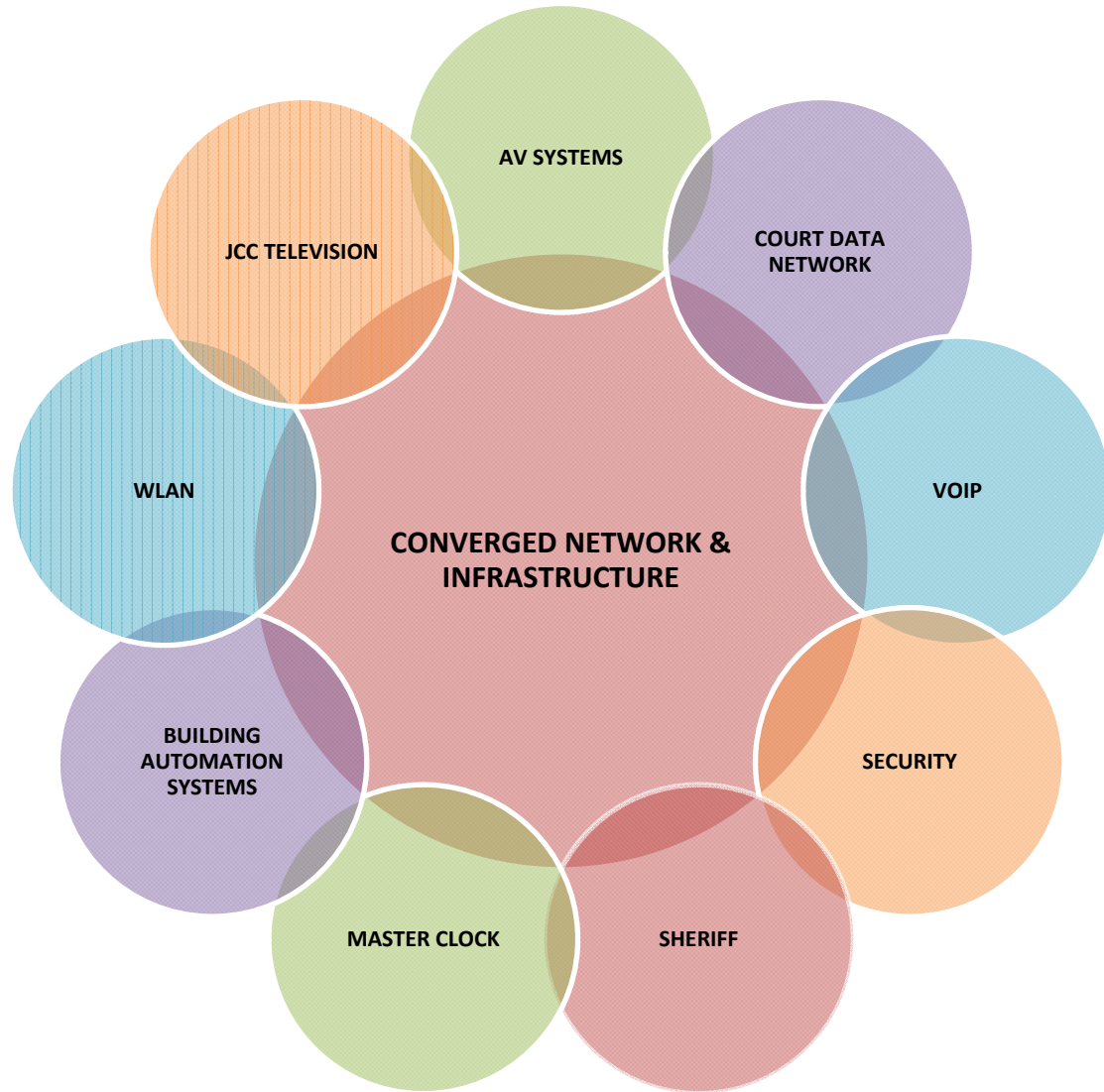


Challenge – Multiple Systems

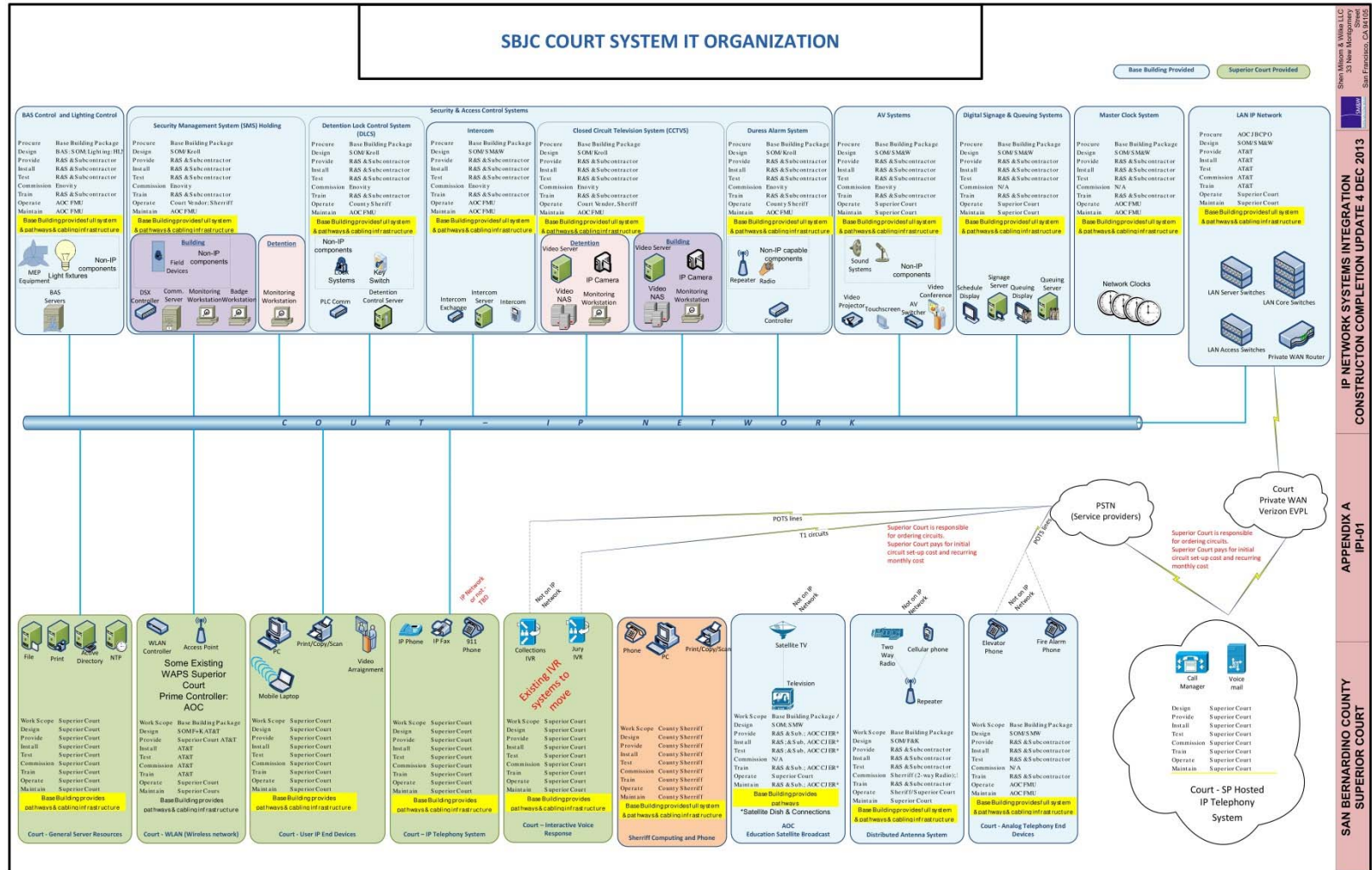


SOLUTION – Converged Network

- IMPROVED CONSISTENCY & RELIABILITY
- LOWER COST
- SHARED SERVICES
- MORE EFFECTIVE MANAGEMENT
- SECURITY – BETTER AND MORE CONSISTENT
- CLEAR UPGRADE PATH



CONVERGED NETWORK IN ACTION



Security & Access Control Systems

Security Management System (SMS) Holding

Procure	Base Building Package
Design	SOM/Kroll
Provide	R&S & Subcontractor
Install	R&S & Subcontractor
Test	R&S & Subcontractor
Commission	Enovity
Train	R&S & Subcontractor
Operate	Court Vendor; Sheriff
Maintain	AOC FMU

Base Building provides full system & pathways & cabling infrastructure



Detention Lock Control System (DLCS)

Procure	Base Building Package
Design	SOM/Kroll
Provide	R&S & Subcontractor
Install	R&S & Subcontractor
Test	R&S & Subcontractor
Commission	Enovity
Train	R&S & Subcontractor
Operate	County Sheriff
Maintain	AOC FMU

Base Building provides full system & pathways & cabling infrastructure



Intercom

Procure	Base Building Package
Design	SOM/SM&W
Provide	R&S & Subcontractor
Install	R&S & Subcontractor
Test	R&S & Subcontractor
Commission	Enovity
Train	R&S & Subcontractor
Operate	AOC FMU
Maintain	AOC FMU

Base Building provides full system & pathways & cabling infrastructure



Closed Circuit Television System (CCTVS)

Procure	Base Building Package
Design	SOM/Kroll
Provide	R&S & Subcontractor
Install	R&S & Subcontractor
Test	R&S & Subcontractor
Commission	Enovity
Train	R&S & Subcontractor
Operate	Court Vendor, Sheriff
Maintain	AOC FMU

Base Building provides full system & pathways & cabling infrastructure



Duress Alarm System

Procure	Base Building Package
Design	SOM/Kroll
Provide	R&S & Subcontractor
Install	R&S & Subcontractor
Test	R&S & Subcontractor
Commission	Enovity
Train	R&S & Subcontractor
Operate	County Sheriff
Maintain	AOC FMU

Base Building provides full system & pathways & cabling infrastructure





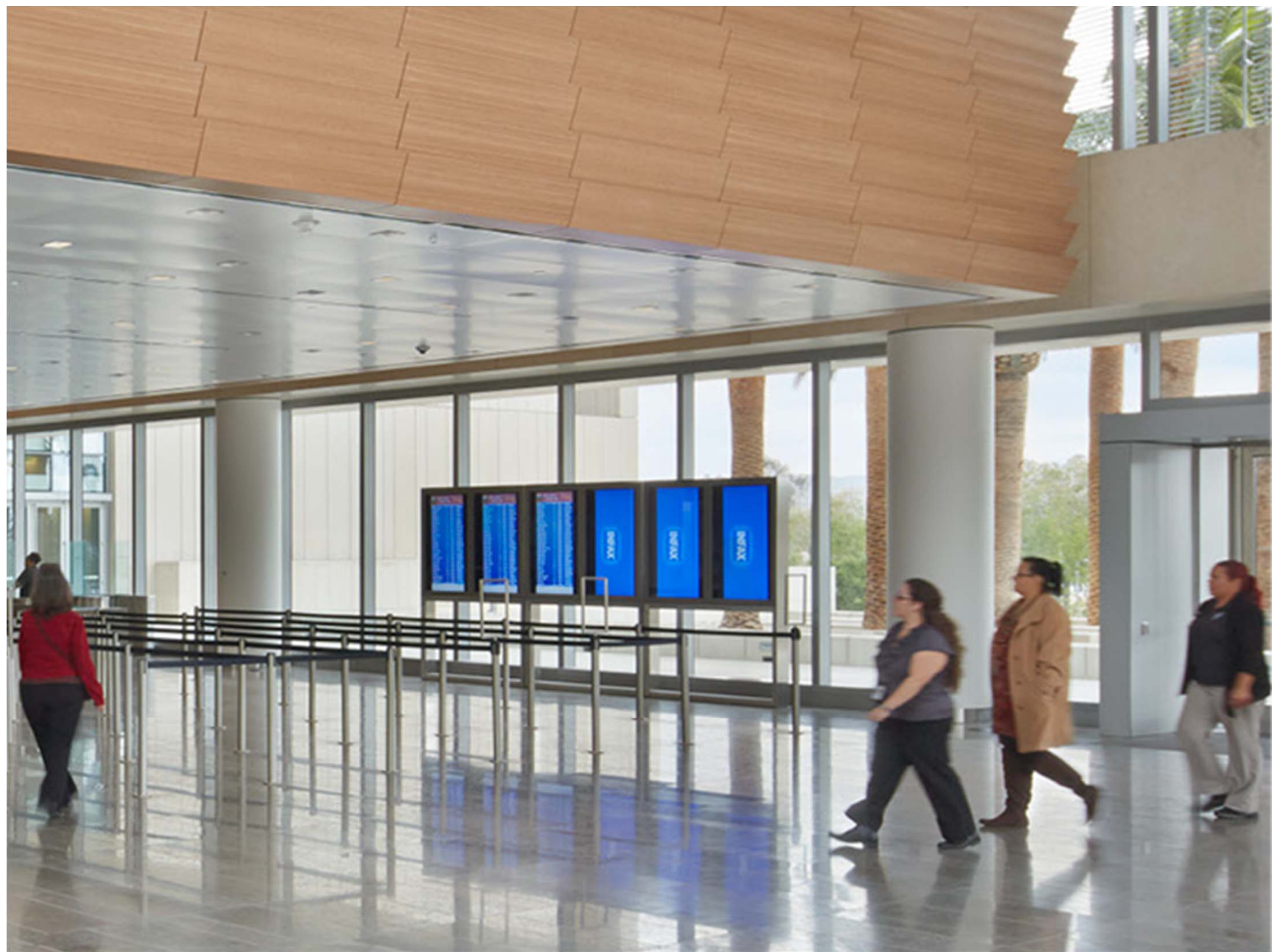
Court

Superior Court of California
County of San Bernardino

SUPERIOR COURT OF CALIFORNIA County of San Bernardino

State of the Court

CHRISTINA M. VOLKERS
COURT EXECUTIVE OFFICER



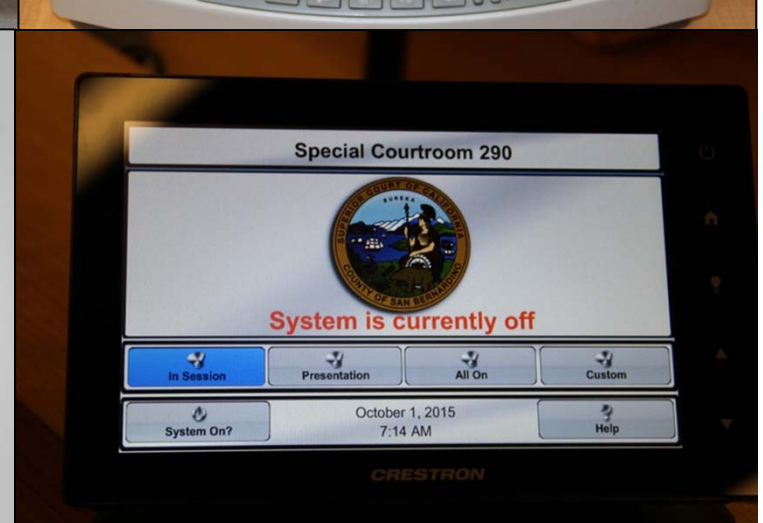


COURTROOM















E203

Window 10

B708

Window 10

A518

Window 1

A517

Window 1

E203

Window 10

B708

Window 10

A518

Window 1

A517

Window 1

A516

Window 2

A515

Window 2

Welcome to San Bernardino Justice Center.



QUESTIONS?





SOM

