A decorative border featuring a dense arrangement of tropical plants and flowers. In the upper right, a vibrant red hibiscus flower is prominent. To its left, a large, light pink hibiscus flower with a yellow center is visible. The background is filled with various green leaves, including long, slender palm fronds and broad, dark green monstera leaves. The border is split by a white diagonal band that runs from the top left towards the bottom right, creating a frame for the central text.

Hindsight is 20/20: Lessons Learned in Courthouse Construction

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Continuing education questions can be directed to aaj@aia.org.

Course Description

Changes made in the field during construction can be costly and have a negative impact on project schedules. How can we ensure that what we as architects envision in the design becomes achievable in the built form? By using case studies of completed projects, the session will focus on construction implementation pitfalls that are typical in courthouse projects and how to avoid common mistakes on future projects.

Some components that will be discussed include:

- Mock Ups
- Integration of technology and electronic security
- Courtroom Features
- Courthouse Components
- Move Management
- BIM
- LEED

Learning Objectives

The overall objective of this course is "continuous improvement" - to utilize the experience gained from one project to benefit future ones.

- Learn from the case studies to avoid similar mistakes
- Design and detail components in working drawings so contractors can build correctly
- Review handicap requirements in the courtroom to ensure the design meets those requirements in the built environment
- Understand building systems focusing on electronic security and AV, for integration into a successful courthouse project.



Lessons Learned in Courthouse Construction

Presenters:

Nina Gladstone, AIA, LEED AP
Associate Principal
AECOM

Amy Rice, P.E.
Architect/ Project Manager
USDC, Southern District of Alabama

Kristine Bishop Johnson, AIA, LEED AP
Justice Practice Lead - DC Metro
AECOM

Dr. Janine Clifford, AIA/AICP/ASID
Managing Principal
Clifford Planning & Architecture LLC

- Academy of Architecture for Justice
- Fall Conference November 3, 2016

Case Study: Broward County Judicial Complex

- **Planning started in 2005**
- **741,000 GSF**
- **20 Stories + PH**
- **42 Courtrooms**
- **35 Hearing rooms**
- **Juvenile, Civil, and Criminal Courtrooms**
- **Design-Bid-Build**
- **Total cost, including 500-car secured parking garage, \$213 million.**
- **Courthouse Cost - \$270 SF**



Case Study: Prince Jonah Kuhio Kalanianaʻole Courthouse

- **High-Performance Mechanical, Electrical and Plumbing Modernization Project**
- **Historically Significant Structure**
- **GSA First Impressions Project**
- **\$121 M Fully Occupied Renovation**
- **GMP CMc delivery system**
- **9 phases**
- **7 existing and 1 new courtroom**
- **New jury assembly**
- **New pretrial and probation offices**
- **New USMD offices,**
- **New security entry pavilion**



Case Study: Montgomery County Circuit Court

- **Programming started 2007**
- **Addition complete 2014**
- **Renovation complete 2015**
- **Fully operational during construction**
- **209,683 GSF Addition, 249,281 GSF Renovation**
- **10 New Courtrooms**
- **8 New Hearing rooms**
- **Juvenile, Civil, and Criminal Courtrooms**
- **Design-Bid-Build**
- **Total cost - \$88,407,000.00**



MOCK UPS

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Mock ups - PJKK

Lighting

- Require lighting mockups
- Chambers to be task oriented
- Review locations for light switches, thermostats, duress alarms, floor boxes, and card readers prior to rough in



Mock ups - PJKK

Lighting

- Chambers before and after
- Task driven, energy considerate lighting scenes



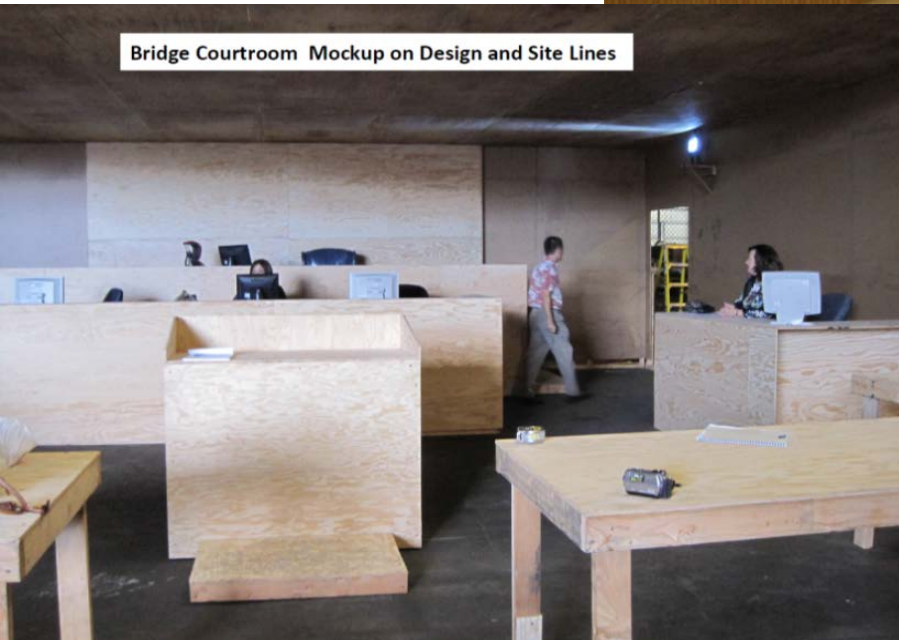
Mock ups - PJKK

Courtroom

- Design
- Mockup
- Actual



Bridge Courtroom Mockup on Design and Site Lines



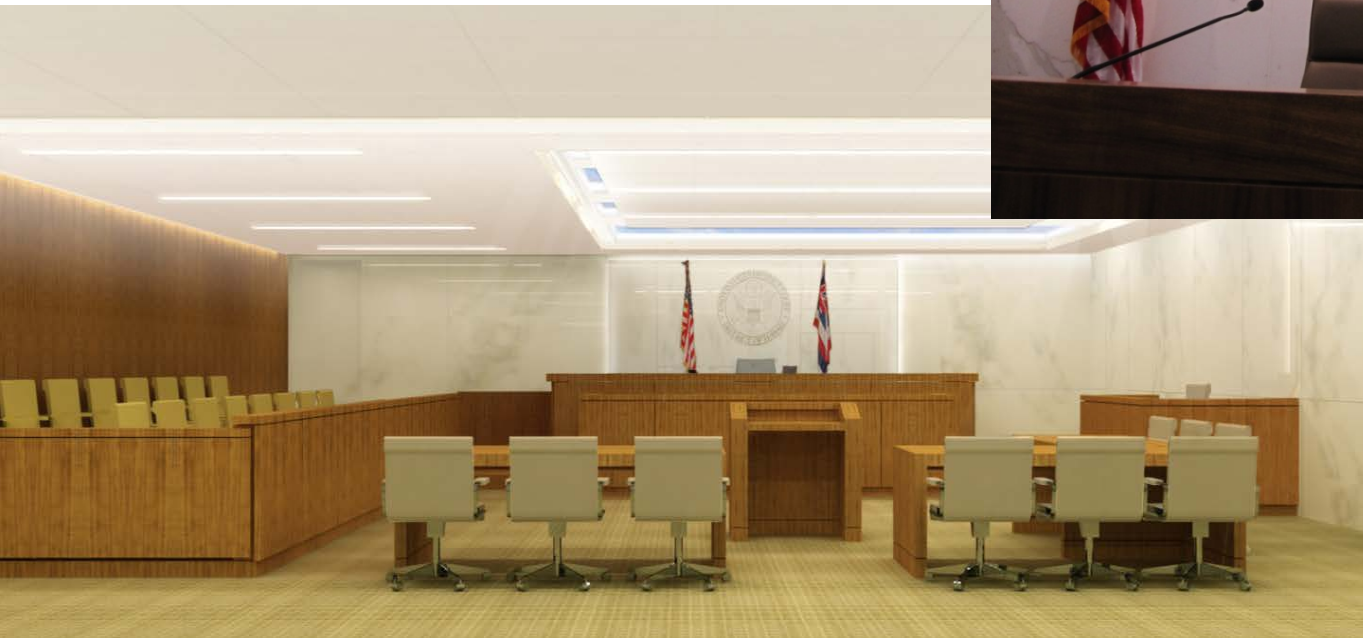
Mock ups - PJKK

Bridge Courtroom Bench Mockup



Mock ups - PJKK

- Design versus reality



Mock ups - Mobile, AL



Make the mockup as real as possible for clients



Mock ups - Mobile, AL



Mock ups - Mobile, AL

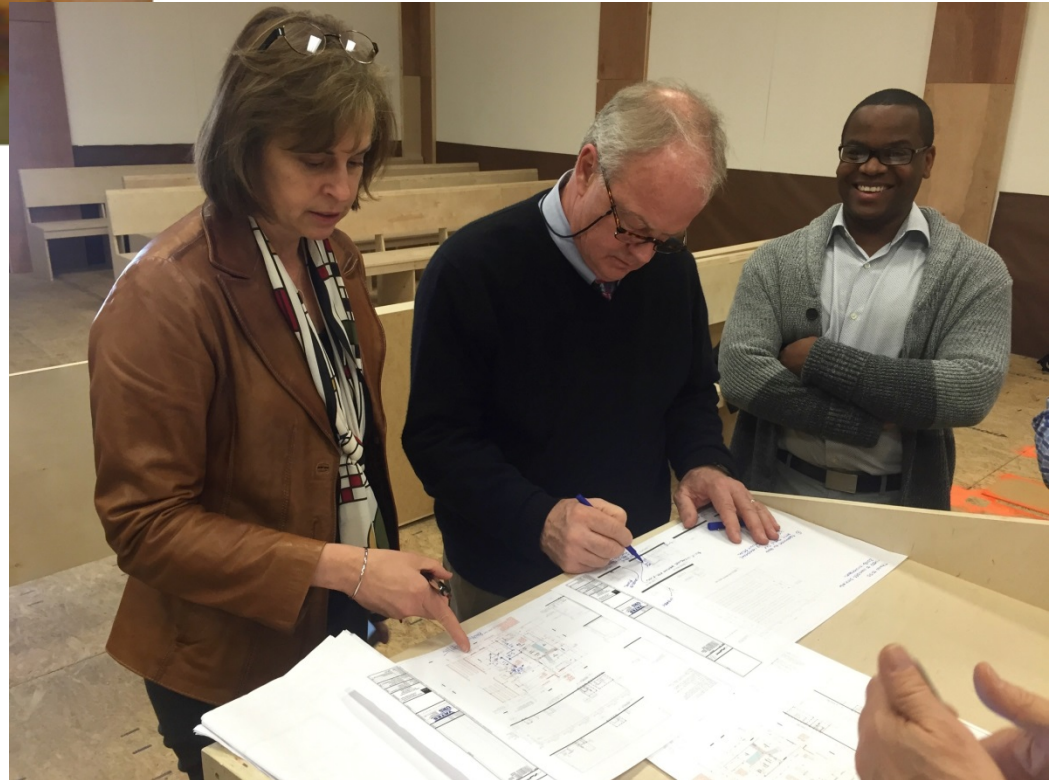
Bring all interested parties to the Mockup



Mock ups - PJKK and Mobile



**Lesson:
Get the Chief Judge to sign off
on the plan!!**



Mock ups - Broward County



- Accessible Location
- Timing
- All Courtrooms

Mock ups - Broward County

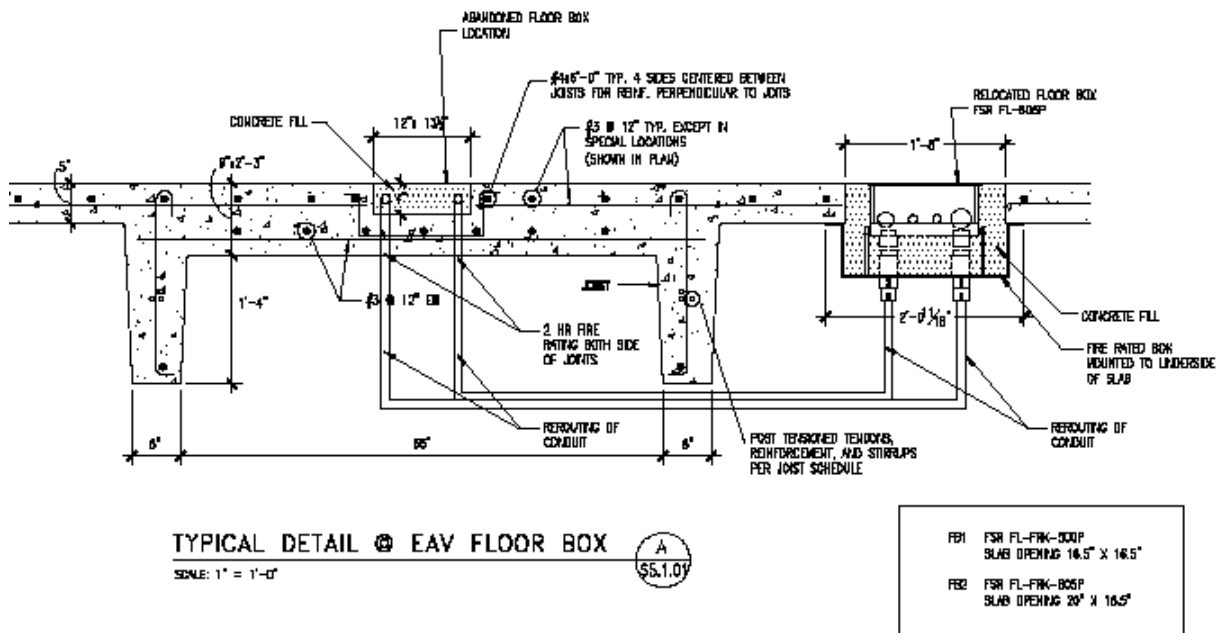


- Accessible Location
- Timing for mock up
- All Courtrooms



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Mock ups - Broward County



- **What happens when the mock up is not done before slabs are poured.**

Mock ups – Montgomery County Circuit Court

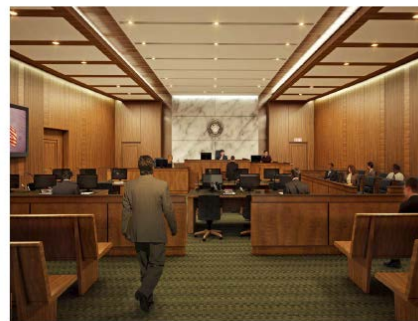


- Modular components
- All Courtroom types
- Timing – late SD or start of DD
- Furnishing, Fixtures and Equipment
- Do it again on site!



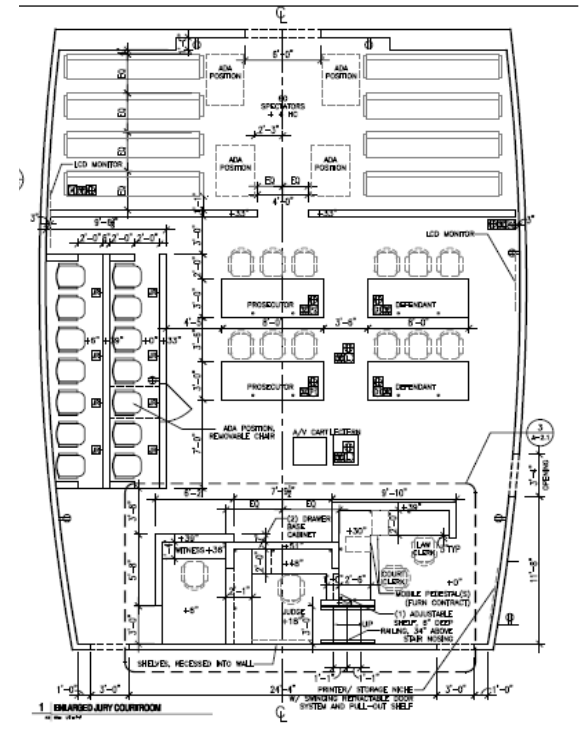
COURTROOM MOCK-UP REPORT

January 25, 2010



Montgomery County Judicial Center Annex

Montgomery County, Maryland



AECOM

TECHNOLOGY

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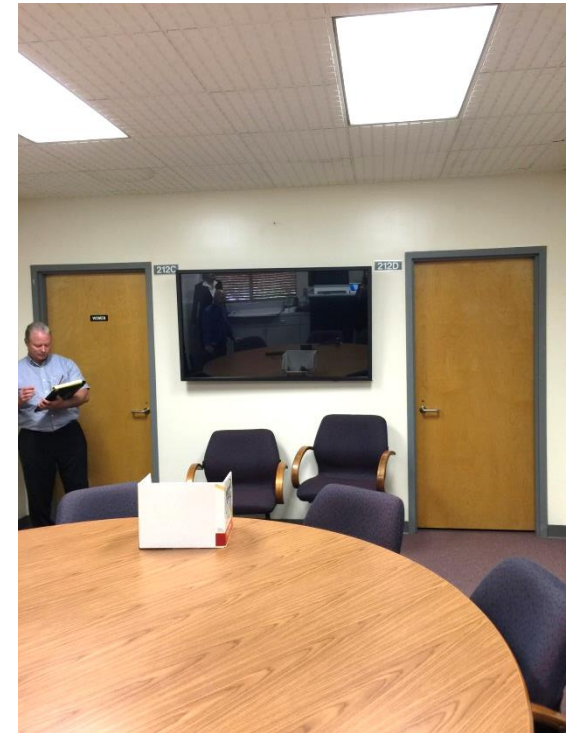
Technology – Broward County



Technology – LA Superior Court Model Courtroom



Technology – LA Superior Court Model Courtroom



Technology - PJKK

Provided a redundant server room in Federal Building.

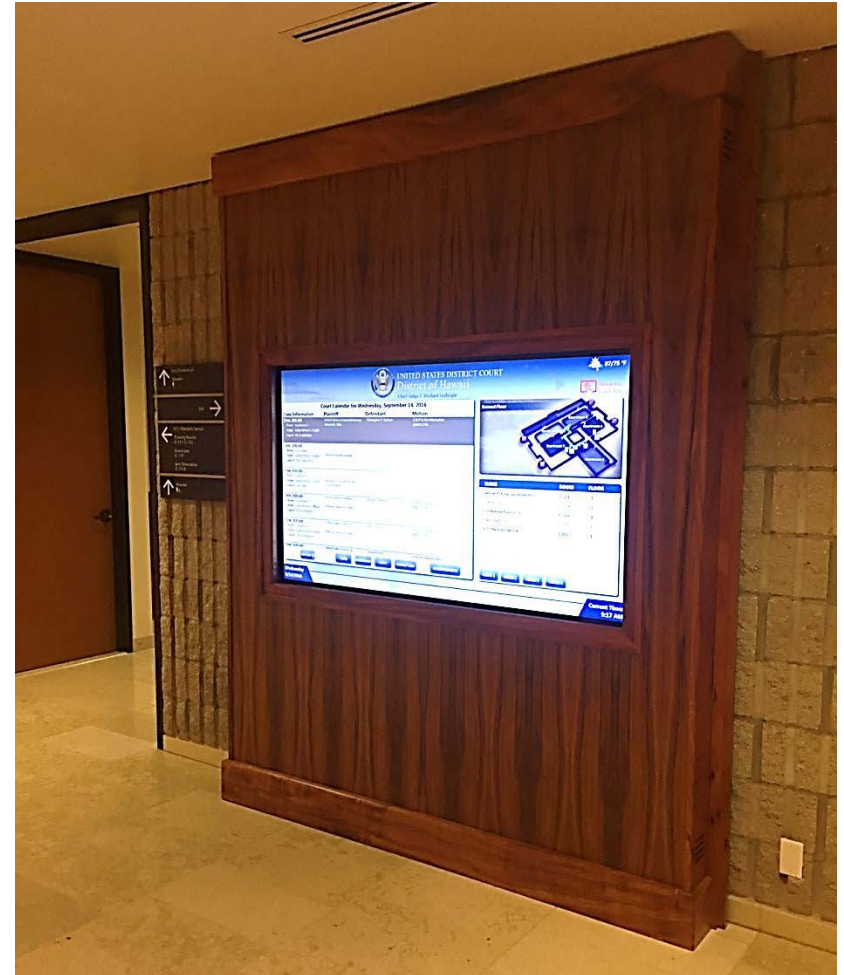


New Court Server Room



Technology - PJKK

Improved Wayfinding Technology

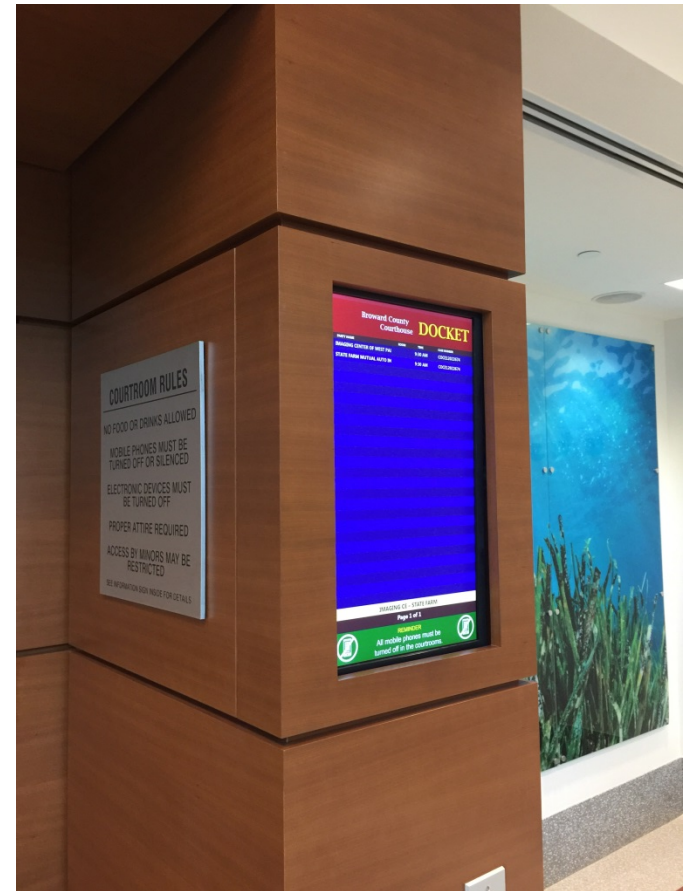


Improved Courtroom Technology

Technology- Broward County



- Electronic docket locations
- Security versus Maintenance



COURTROOM FEATURES

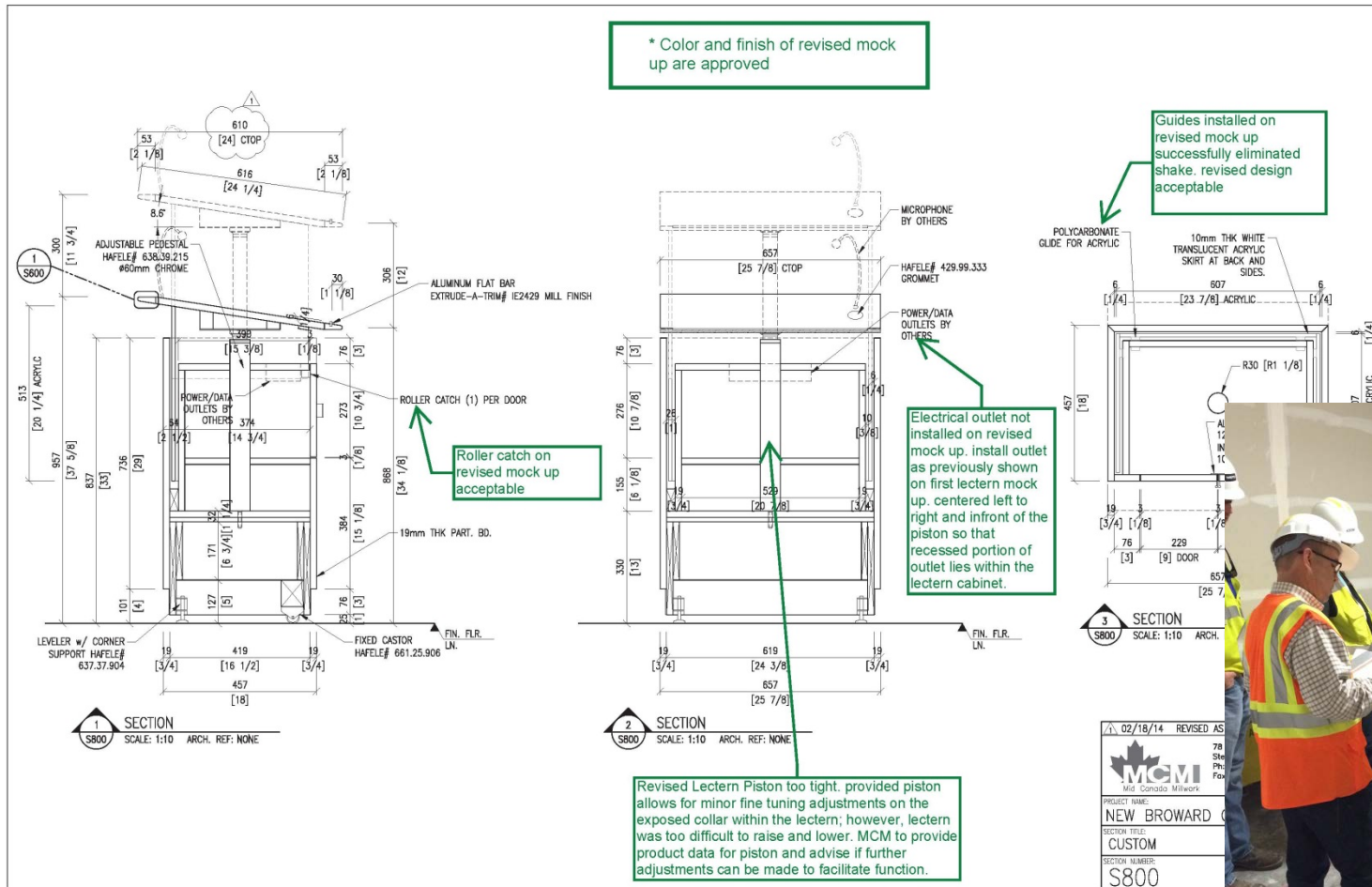
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Courtroom Features – Broward County- Lectern



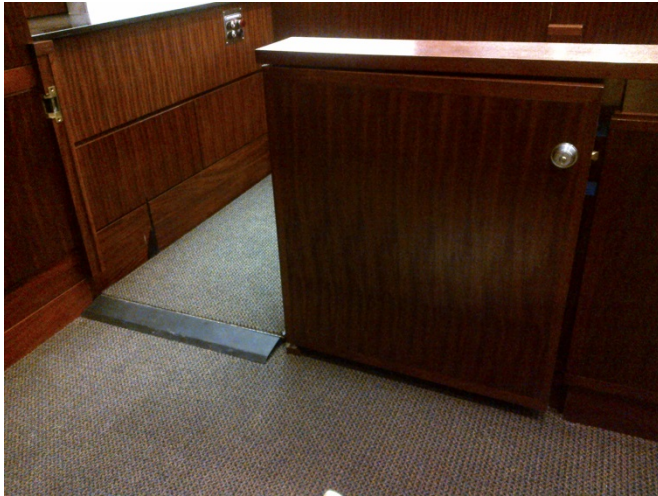
- Who specifies lectern?
- ADA Accessibility
- Adjustability
- Mobility

Courtroom Features – Broward County- Lectern

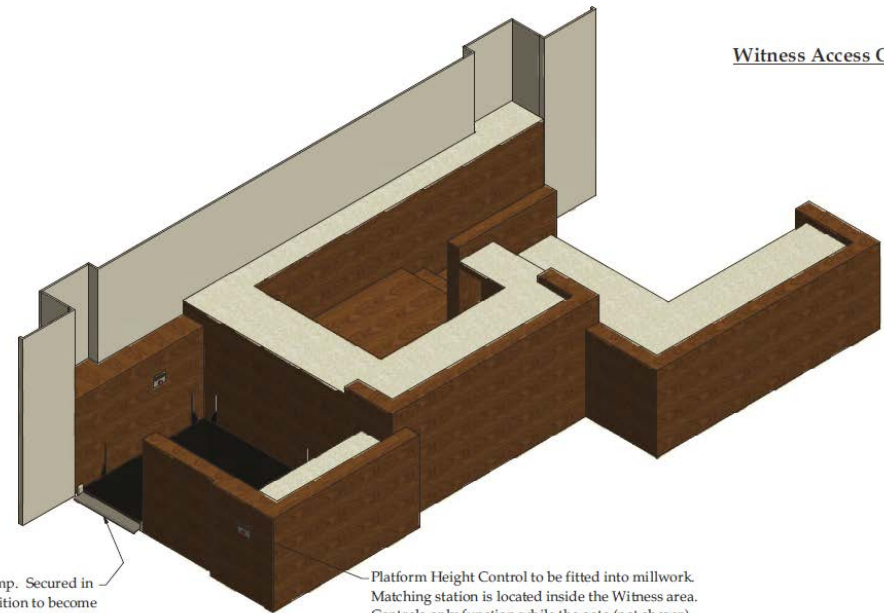
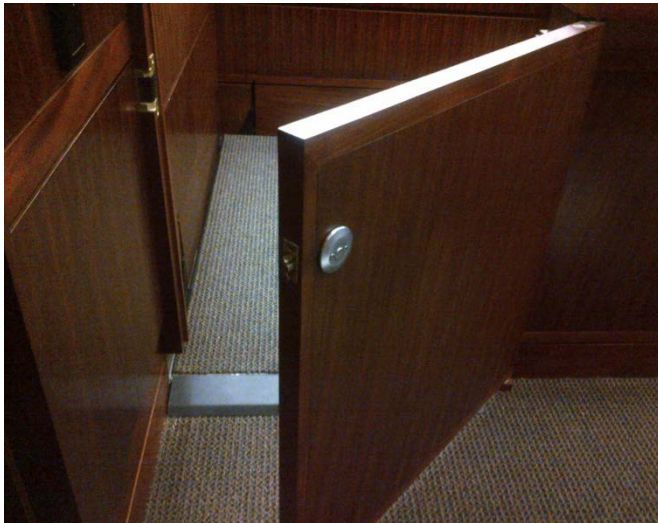


Mock up comments

Lift - Montgomery County Circuit Court



- Accessible vs Adaptable
- Integration with Millwork
- Specifications
- Acceptance by AHJ



Witness Access Only

Hinging ramp. Secured in the vertical position to become the riser for deck when the platform is kept at witness height

Platform Height Control to be fitted into millwork. Matching station is located inside the Witness area. Controls only function while the gate (not shown) is closed.

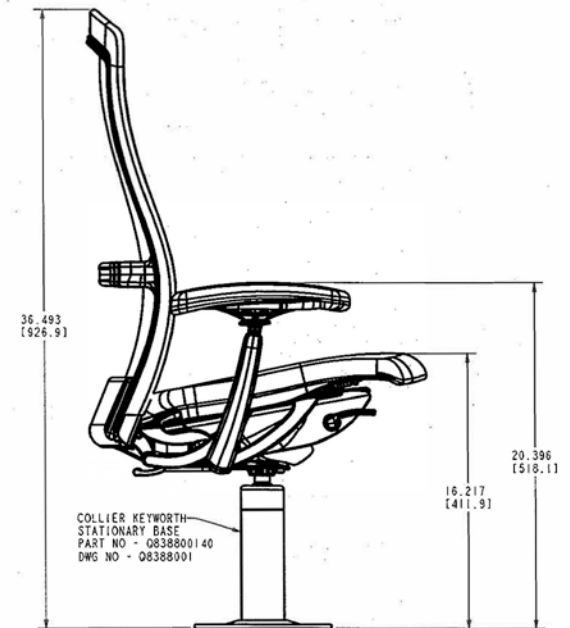
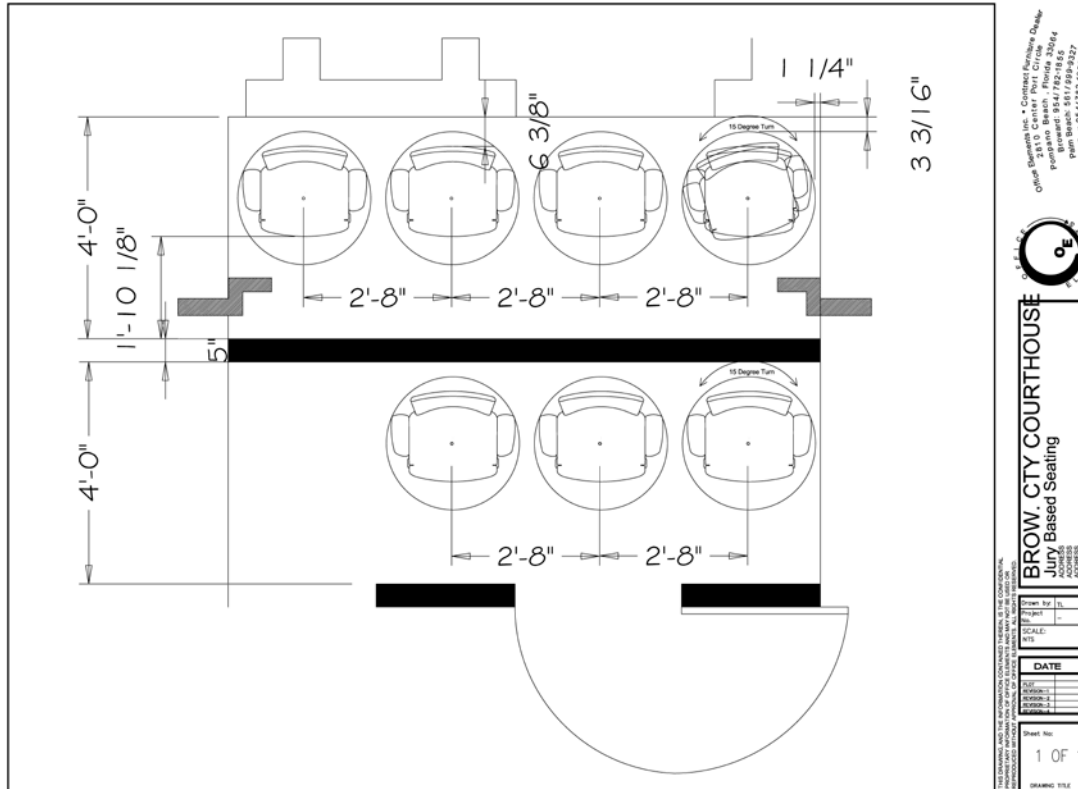
Entry gate not shown in above image

Courtroom Features – Broward County

- Ramps versus Lifts
- Adaptable
- Adjustable Well railing
- Attorney Tables



Jury Box – Broward County



Jury Box – Broward County



- Fixed versus Removable Chair
- Tolerances for Tilt/ Rotation
- Floor connection

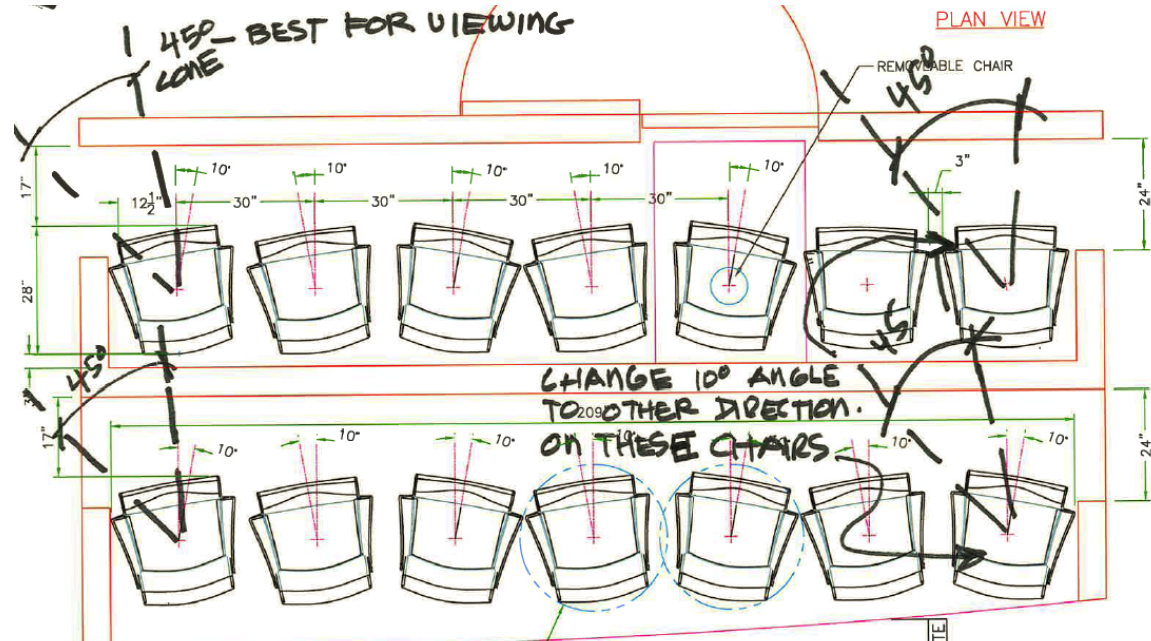
AECOM

Jury Box - PJKK



Jury Box - Montgomery County Circuit Court

- When to select a chair...
- Tolerances for Tilt/ Rotation
- Floor connection



Jury Box - Montgomery County Circuit Court

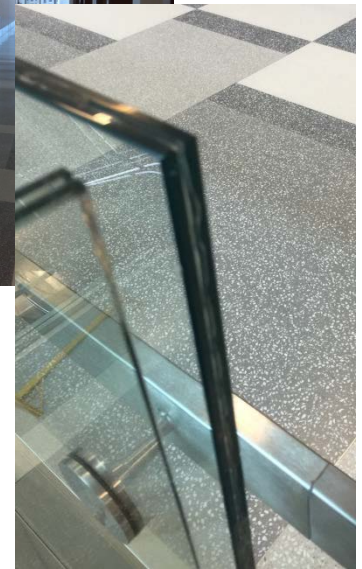
- Technology
- Ease of access
- What does jury prefer?



COURTHOUSE COMPONENTS

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Atrium Railings - Broward County



- Height of Railing
- Floor Attachment
- Security versus Aesthetics
- Workmanship

Sprinkler Coverage – Montgomery County



- Obstructions in coverage
- Concealed spaces

Signage – Montgomery County Circuit Court



- Wayfinding vs ADA
- Super graphics
- “Branding”

Partnering – PJKK

- The value of partnering and taking to heart the complexity of a Courthouse modernization.
- Modernizing in a fully operational Courthouse.



MOVE MANAGEMENT

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Move Management - PJKK

Move Cost and Expectations

1. Minimize moves
2. Movers only move boxes
3. Temporary signs
4. Storage of items
5. Moves on weekends



Move Management - PJKK

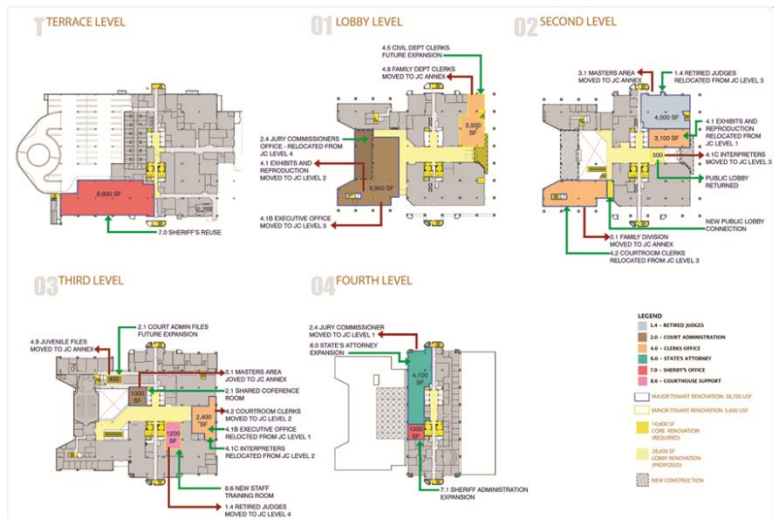
Swing Space

1. Judges use smaller chambers
2. Judges and staff share bathrooms
3. Judge and staff share the pantry
4. Judges share a conference room
5. Swing chambers were located on the first floor with windows to a public sidewalk



Phasing – Montgomery County Circuit Court

- Work sessions with County to develop phasing plan
- Swing space design within complex
- Constant communication/ advanced scheduling during CA
- Educate staff on operational plan



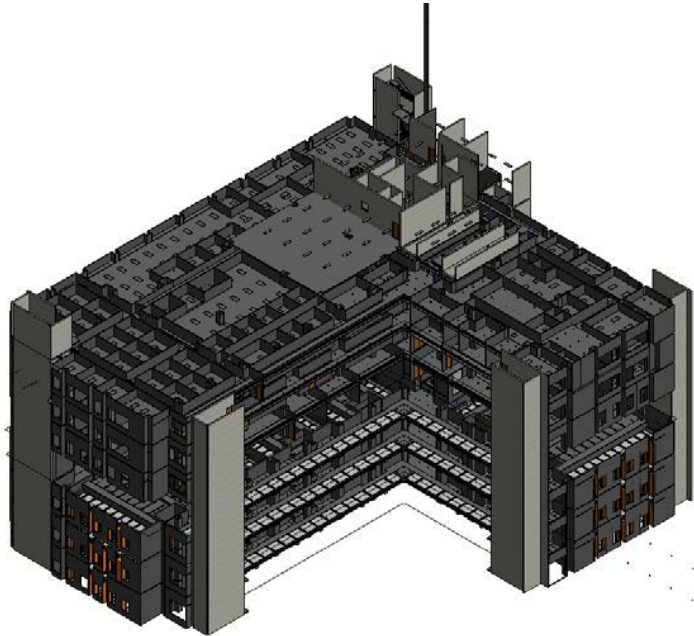
- 8 Phases
- 9 Stakeholders
- Renovated Area 58,000 SF
- Phased systems renovation/ Early Bid Package

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BIM MODEL

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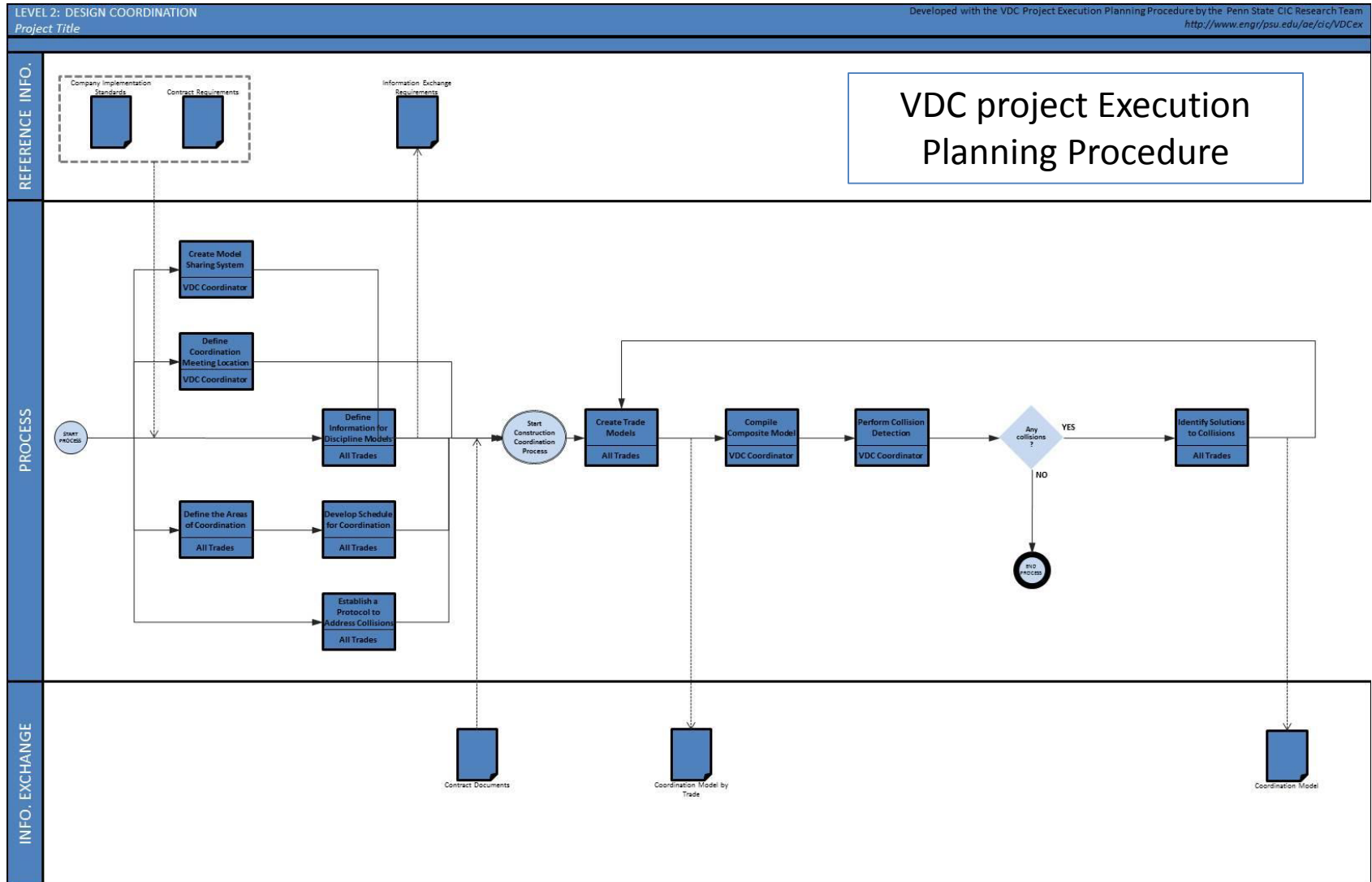
BIM Model – Broward County



Virtual Design & Construction (VDC) Execution Plan

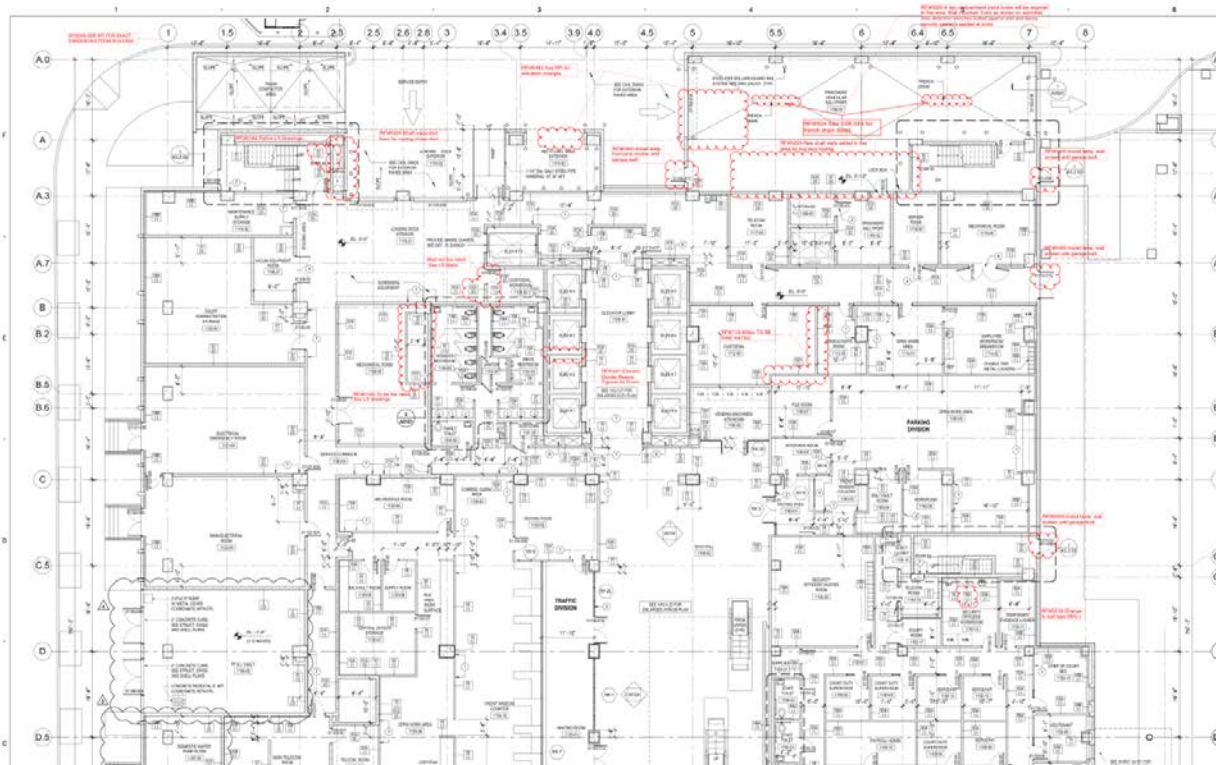
- Develop information exchanges and handoffs
- Determine how models and model data will be compiled, reviewed, and managed
- Review with Contract Documents and other trades' 3D / BIM shop drawings
- Document all issues, discrepancies, conflicts, constructability review with team
- Issue action lists with responsible parties and deadlines
- Facilitate decision process to resolve all issues discovered in 3D / BIM review
- Verify coordination assignments are completed
- Provide Owner with a final complete, coordinated model for future use with as-built conditions.

BIM Model – Broward County



BIM Model – Broward County

BIM 360- Collaborative construction management software combined with Goodreader PDF reader app.

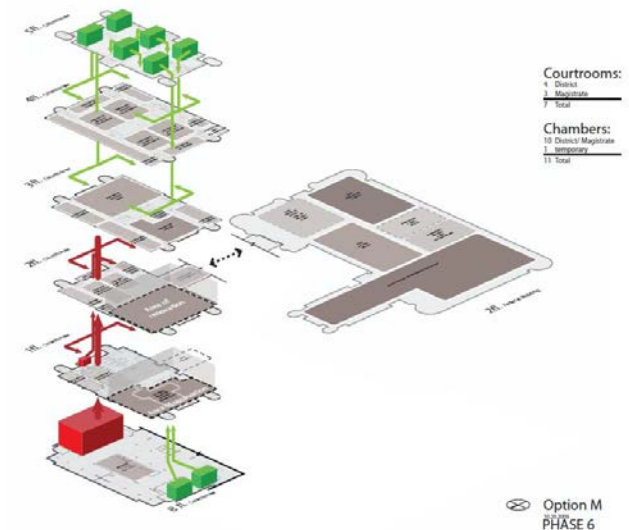
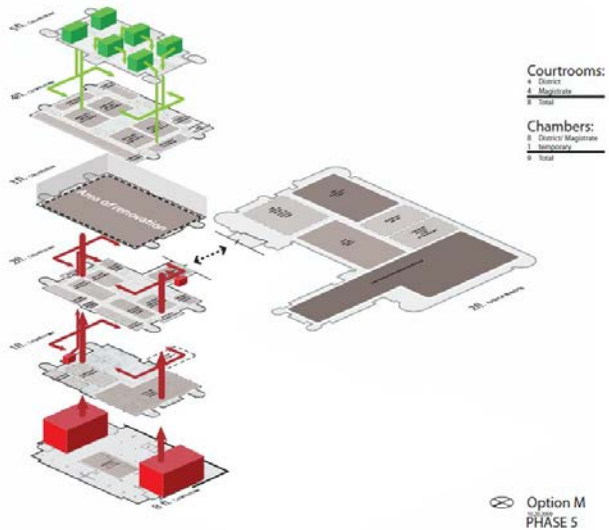
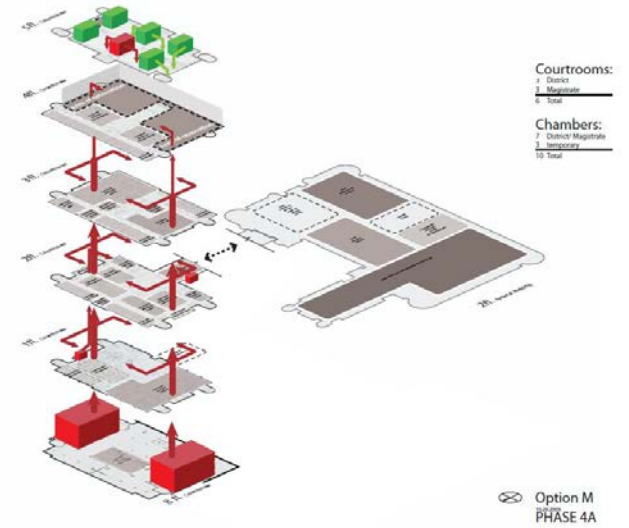
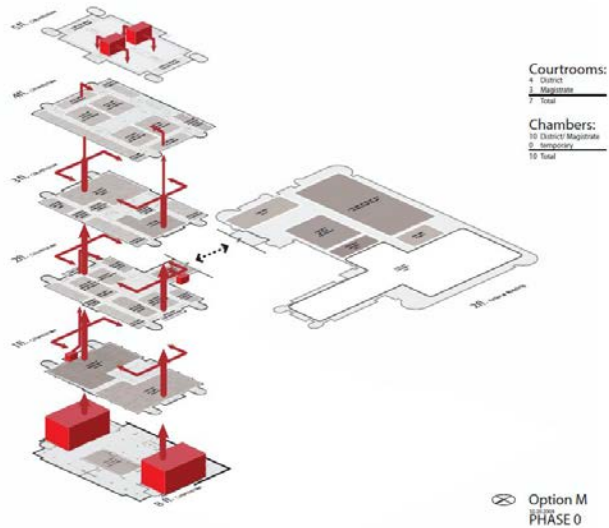


- Anywhere access to project data throughout the building construction lifecycle.
- Information is linked

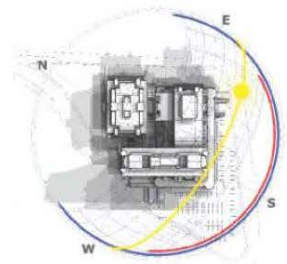
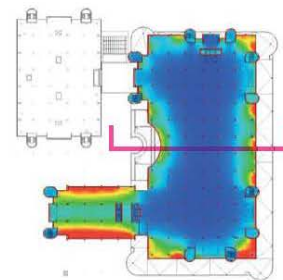
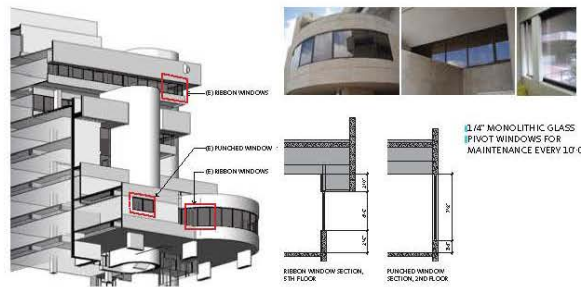
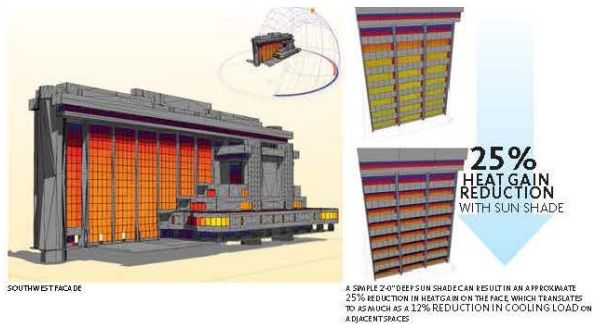
BIM Model - PJKK

- The invaluable BIM model from start to commissioning and beyond.
- Embracing systems integration and management from start to finish.

BIM Model - PJKK



BIM Model - PJKK



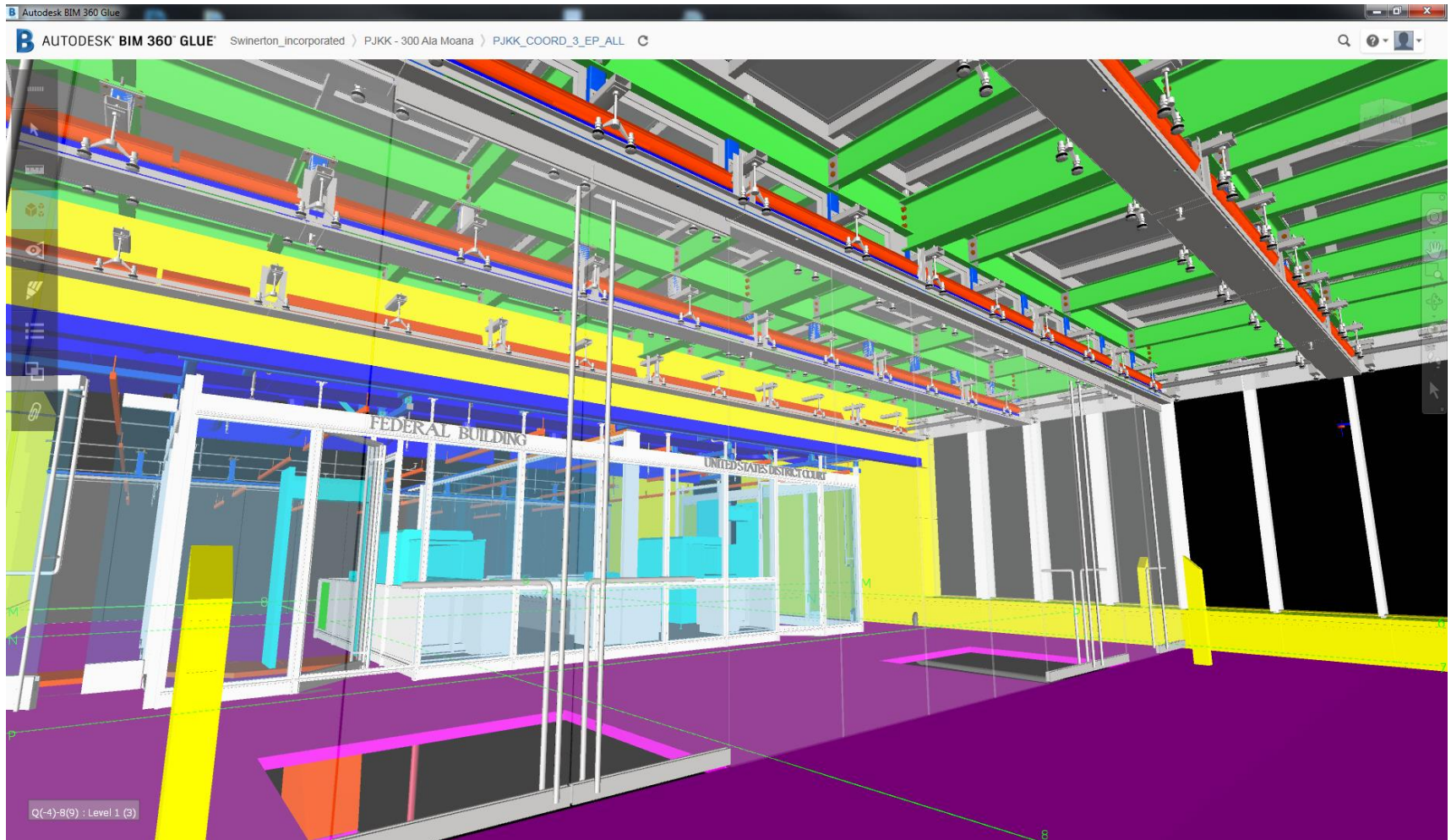
Courthouse & Federal Building Renovation & Modernization

for the GSA
in association with Gensler SFO

Gensler

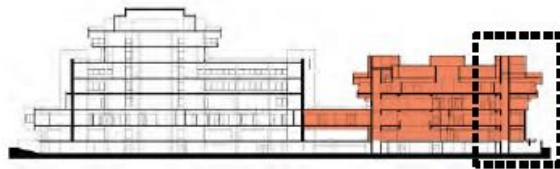
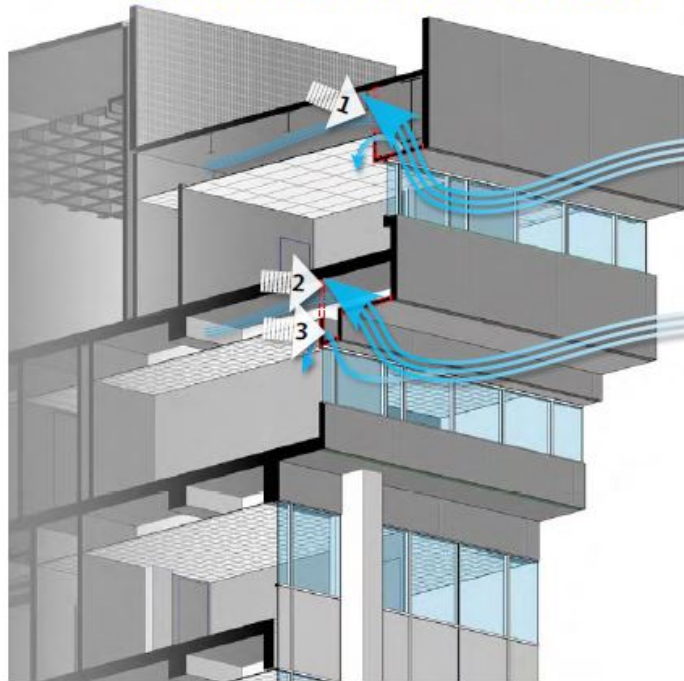
CliffordPlanning
& Architecture

BIM Model - PJKK



BIM Model - PJKK

3.1 FACADE EXISTING INFILTRATION



VERTICAL DRYWALL SEPARATING
EXTERIOR SOFFIT FROM CEILING
PLENUM, WHERE OCCURS. UNTAPED,
OPEN JOINTS

3/4" AIR GAP

VERTICAL DRYWALL SEPARATING
EXTERIOR SOFFIT FROM CEILING
PLENUM, WHERE OCCURS

VERTICAL CONCRETE WALL

SUSPENDED EXTERIOR METAL LATH
AND CEMENTITIOUS PLASTER

VERTICAL CONCRETE WALL

VERTICAL CONCRETE WALL

SUSPENDED EXTERIOR METAL LATH
AND CEMENTITIOUS PLASTER



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BIM Model - PJKK



BIM Model - PJKK



The top right corner of the slide features several thin, white, intersecting lines that create a complex geometric pattern against the solid blue background.

LEED

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LEED at PJKK



Fall Conference November 3, 2016



MET THE 39 KBTU
GOAL OF **30%**
**ENERGY USE
REDUCTION**

REDUCED DESIGN
**POWER
DENSITY** BY
50%

REDUCED **WATER**
USE BY **20%**

DRAMATICALLY
IMPROVED
**INDOOR AIR
QUALITY**
WITH **95%**
FILTRATION

Challenges at PJKK

Lessons Learned in Occupied Renovations

1. MOVE OUT if possible
2. Minimize Phases and Moves
3. Remember temporary may mean years
4. Document existing courthouse conditions



Thank you!

