



SESSION # LE-02

SEPTEMBER 20, 2013 | 00:00 AM

Design Excellence through Design-Build



**The
Future
Is Now:
Alternative
Project Delivery**

AIA AAJ NATIONAL CONFERENCE
PORTLAND, OR | SEPTEMBER 18-21 2013



THE AMERICAN INSTITUTE
OF ARCHITECTS
Academy of Architecture for Justice

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Course Description

Can your design build team achieve design excellence in a design build project?

What is design excellence in a civic building, correctional facility, a Federal Courthouse?

A panel of industry experts will discuss the meaning of design excellence and best practices.



Learning Objectives

1. Learn how to facilitate a discussion on design excellence, and define what constitutes design excellence to the Owner, users and designers
2. Discuss strategies to achieve design excellence through integrated project delivery methods with a focus on design build
3. Understand the roles and relationships of a design build entity, the team structure and the business risks of design build in the real world
4. Discuss best practices for project procurement where design excellence is a high value target





Design Excellence through Design-Build

Panelists

- Praful Kulkarni AIA DBIA, President, CEO gkkworks
- Beverly Prior FAIA, LEED® BD+C, NCARB / Civic and Justice Practice, HMC
- Rick del Monte, AIA, Managing Director - Beck Architecture LLC
- Curt Fentress, FAIA, Fentress Architects
- Kay Compton, AIA NBBJ

Moderator

- Greg Gidez, AIA DBIA, Corporate Design Services, Hensel Phelps



Greg Gidez, AIA DBIA, Corporate Design Services, Hensel Phelps



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A photograph of a person's hands and arms as they work on architectural drawings. The person is holding a pen and appears to be drawing or writing on a set of plans. The plans are spread out on a table, showing various architectural drawings, including what looks like a site plan or a floor plan. The lighting is soft, and the focus is on the hands and the drawing process.

Design Excellence through Design-Build

Vitruvius inferred to us that the essence of design excellence was if it fulfilled the criteria of Firmness, Commodity and Delight.

- Is Design Excellence only about aesthetics or is it about the firmness and the commodity too?
- Can your design build team achieve design excellence in a design-build project?
- What is design excellence in a city hall, correctional facility, a Federal Courthouse?
- Is Design Excellence just “beauty in the eye of the beholder”?



Design Excellence Challenges

These are unique to each project:

- Can range from site and design requirements to customer concerns and tight budgets.

What is important:

- Put them in context of the big picture in a way that does not compromise Design Excellence.



Design Excellence

- Design Excellence is not the exclusive domain of any particular contractual relationship or delivery system.
- Excellence reflects the practice of good judgment and sound decision making within the limits of budget, scope and schedule.



Praful Kulkarni, AIA, DBIA, President, CEO, gkkworks



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Design Excellence in Design-Build

- Design-build is often stigmatized for delivering mediocre design quality.





Design-Build Desired Objectives

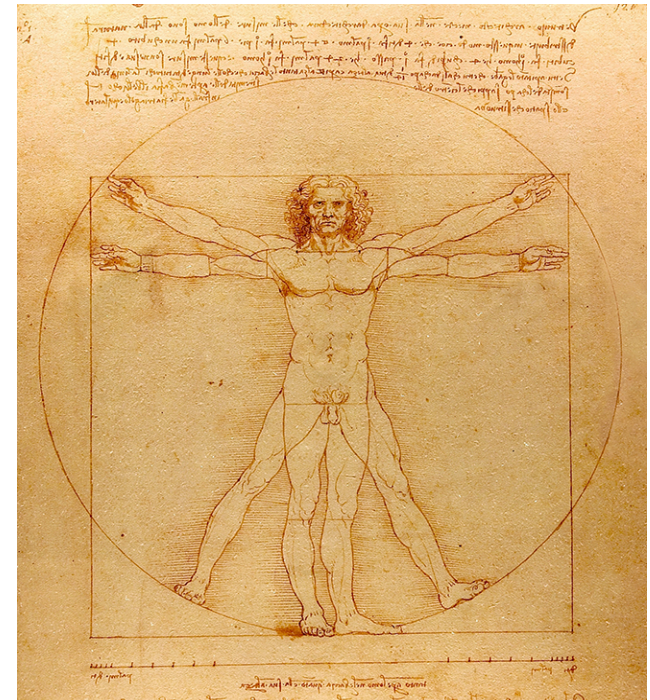
- Rumors of our failure to define design excellence are indeed exaggerated.





Design Excellence in Design-Build

- The architect is painfully aware that he has no clothes.





Design Excellence in Design-Build

- The builder who would be King.





Design Excellence in Design-Build

- Design excellence starts with procurement.





Design Excellence in Design-Build

- Design-build can better provide for design excellence only when:





Design Excellence in Design-Build

- How other industries embody design excellence.



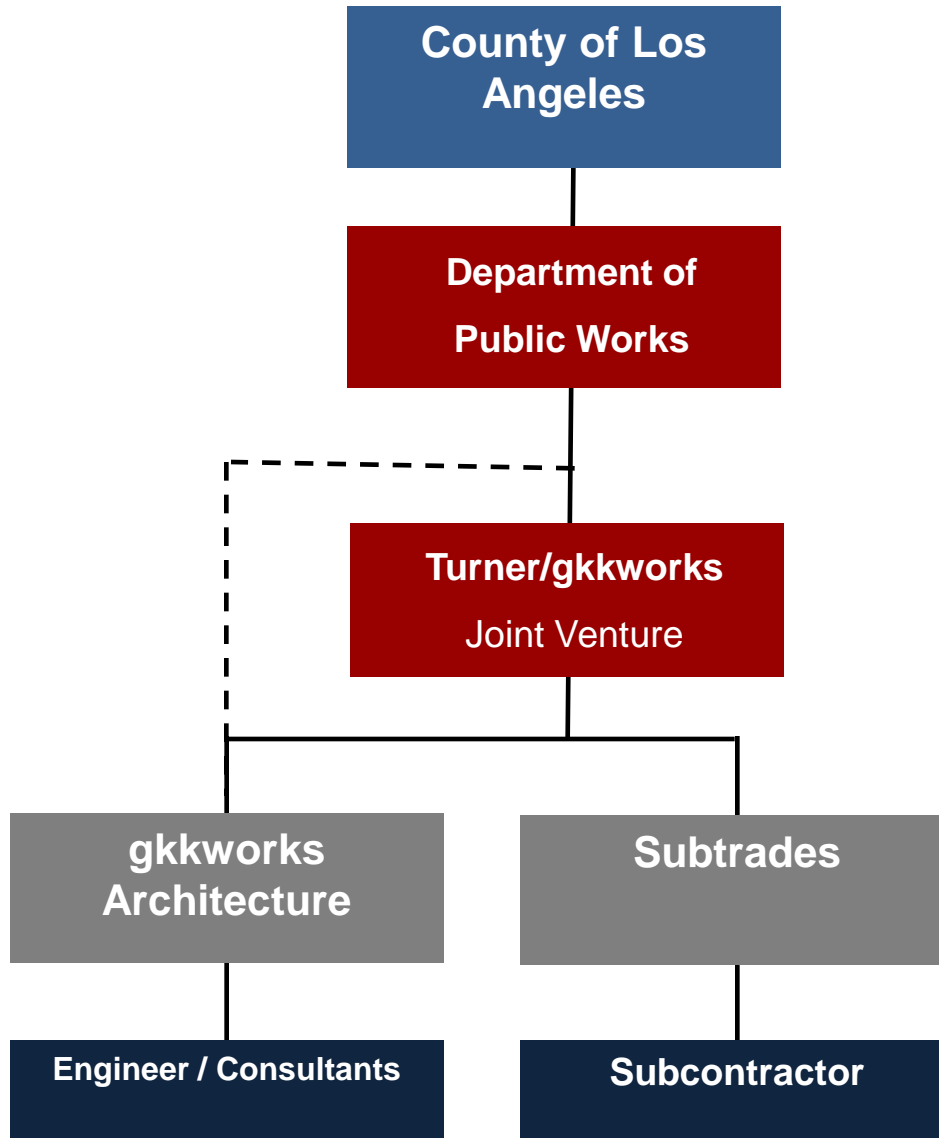


Design Excellence in Design-Build

- How history proves design excellence through design-build.



Contractual / Organizational Structure





Los Padrinos Juvenile Hall, County of Los Angeles, CA



Los Padrinos Juvenile Hall, County of Los Angeles, CA



Los Padrinos Juvenile Hall, County of Los Angeles, CA



Los Padrinos Juvenile Hall, County of Los Angeles, CA



Beverly Prior FAIA, LEED AP, BD+C, NCARB

Civic and Justice Practice, HMC



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Alameda County Juvenile Justice Center

The Basics

- 360 medium and maximum security beds
- 5 courtrooms
- 379,000 gsf
- Best value design-build at \$135 million



Hensel Phelps Construction Co.
HOK in association with HMC Architects



The Vision

- Best practices in care and services
- Minimal maximum security movement
- A normative environment for medium security
 - Family-style dining
 - Going to school
- Collocation of courthouse and detention
- Sustainable design
- Integration of public art
- Community contractors

A photograph of three people in an office setting. A woman with dark hair is in the center, looking towards the right. A man with grey hair is on the right, looking towards the center. Another person's head is visible on the left. They are sitting at a table in front of a window with blinds. A blue semi-transparent banner is overlaid on the bottom of the image.

Why Design-Build

Need for cost and schedule certainty

- \$33 million State grant

To facilitate late changes in project scope and location

- “Books not Bars”
- Community reaction to siting
- Green building goals
- Contractor diversity goals



BRUNNEN
100-111-1111

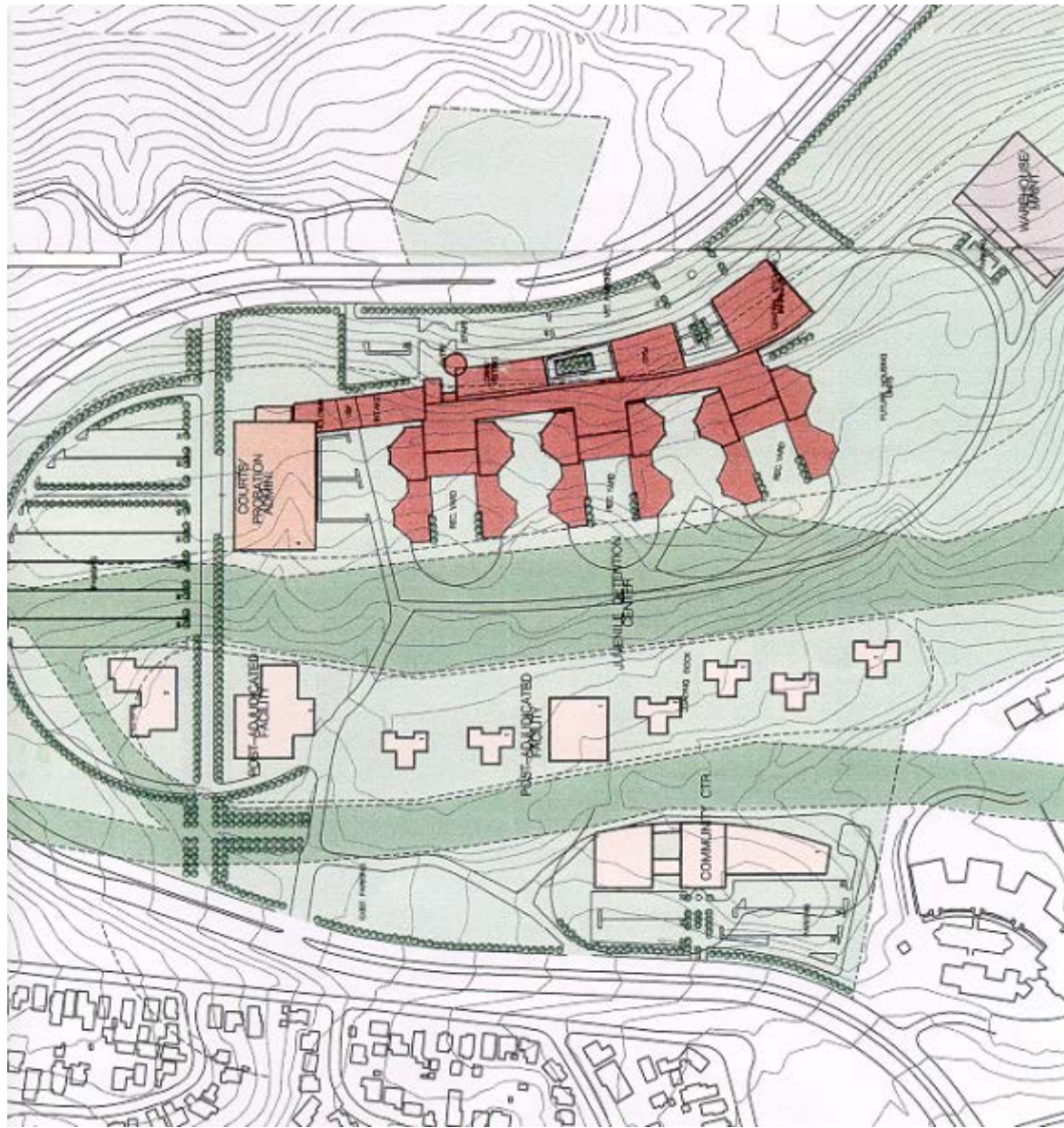
9-6-2000

1" = 240'

B K F

007399

3-2





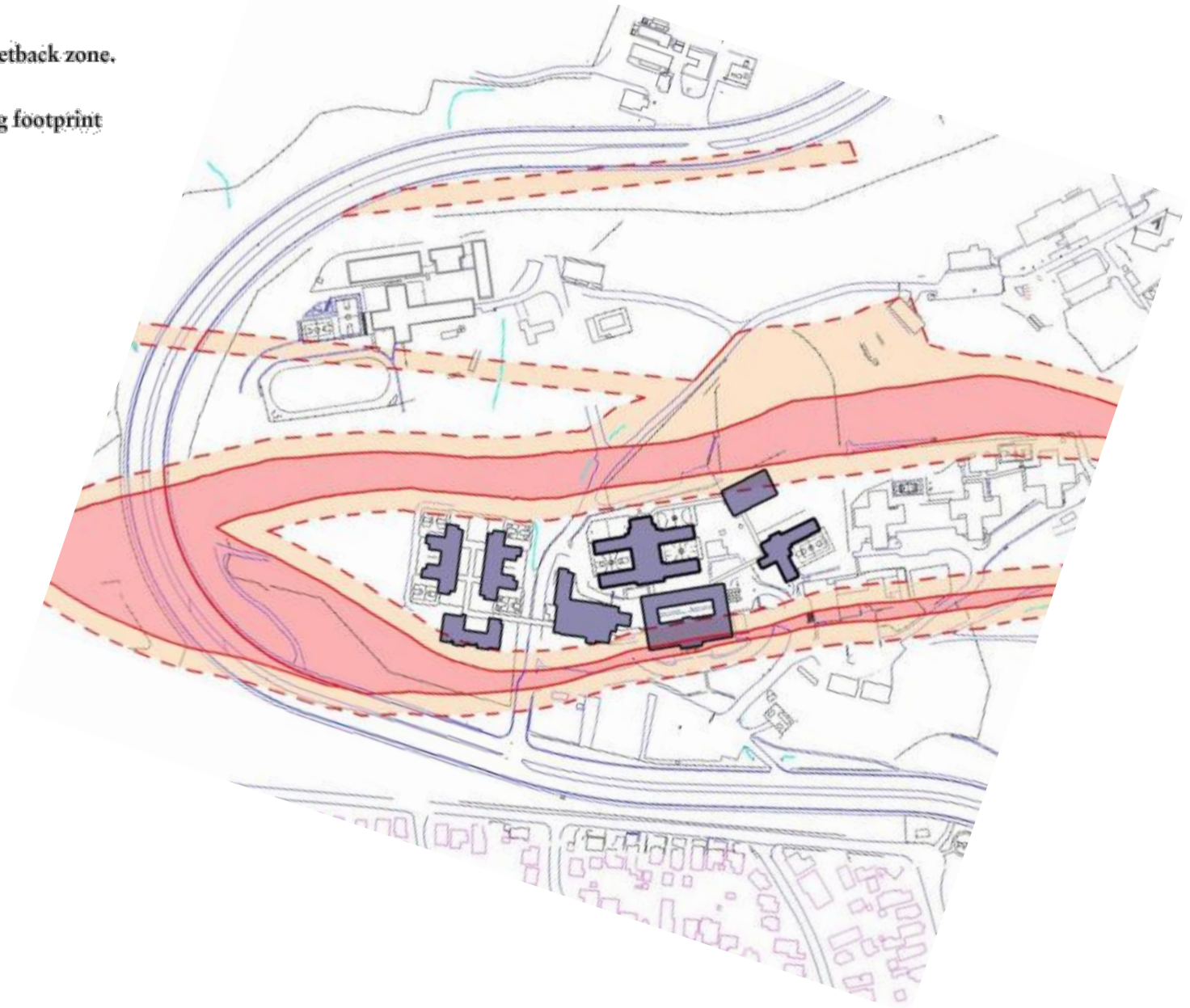
Limits of main active trace as defined by Woodward-Clyde Consultants (1978).



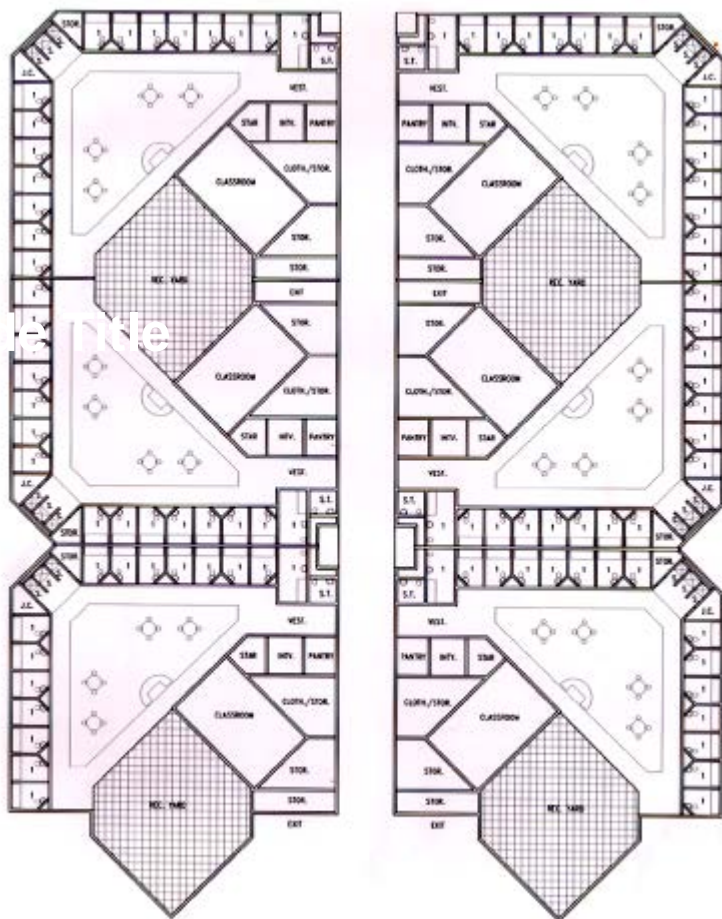
Recommended setback zone.



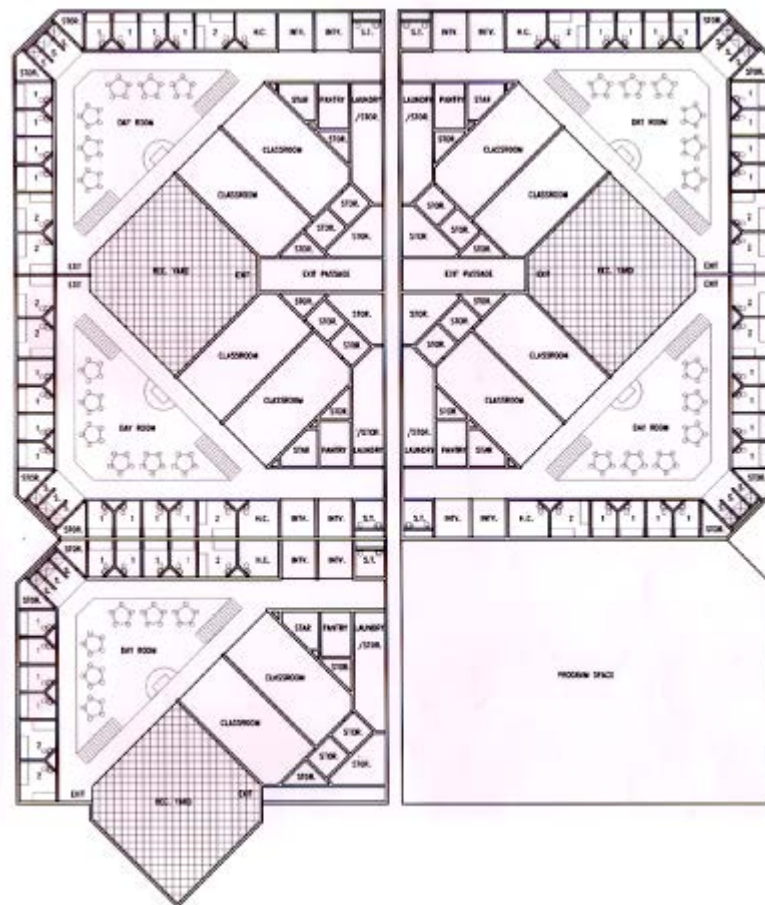
Existing building footprint



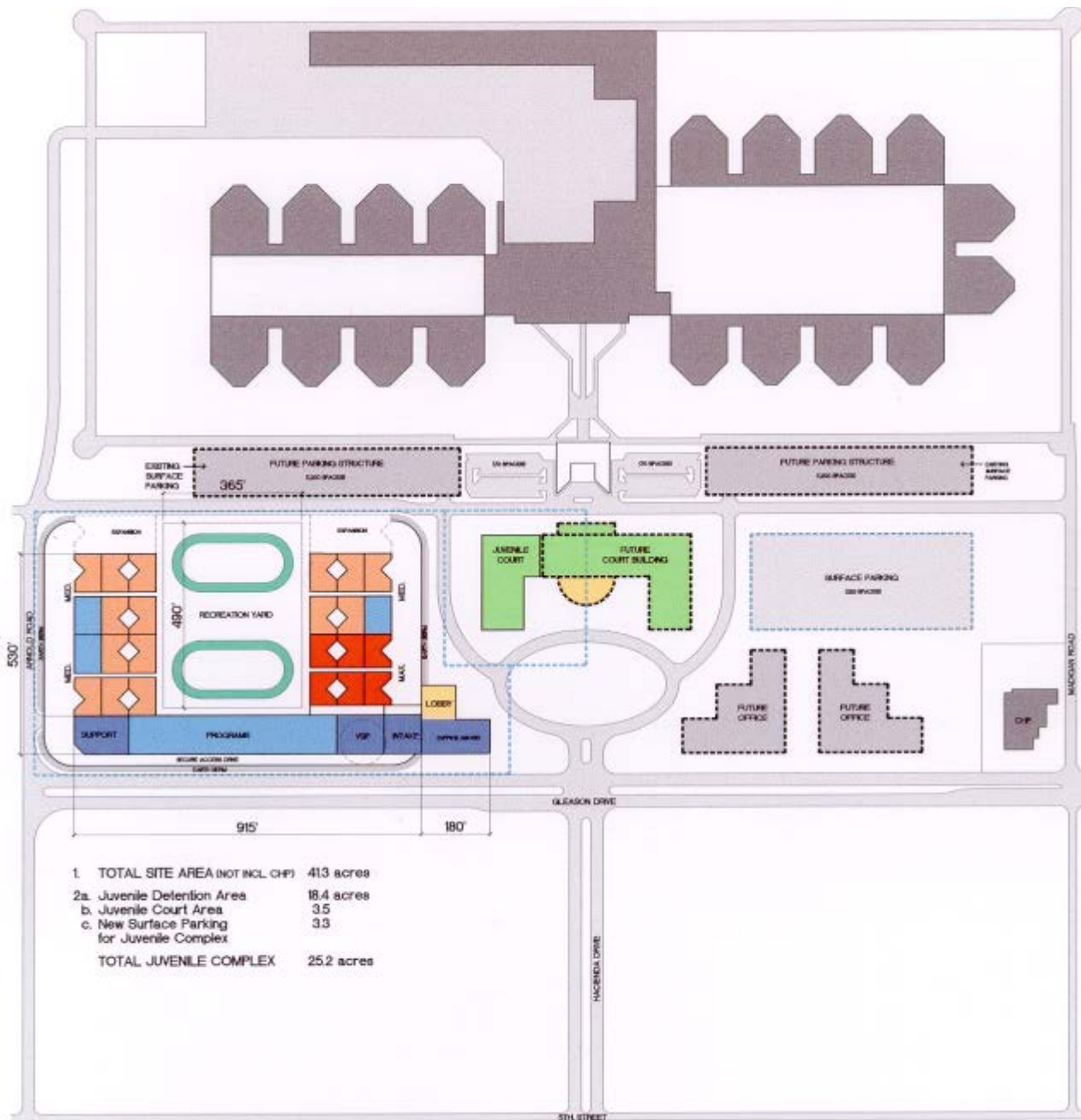




Maximum Security Units

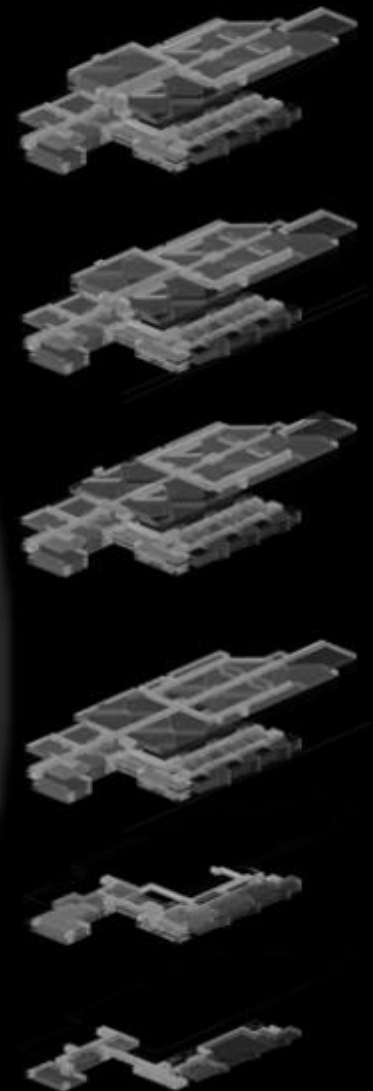


Medium Security Units





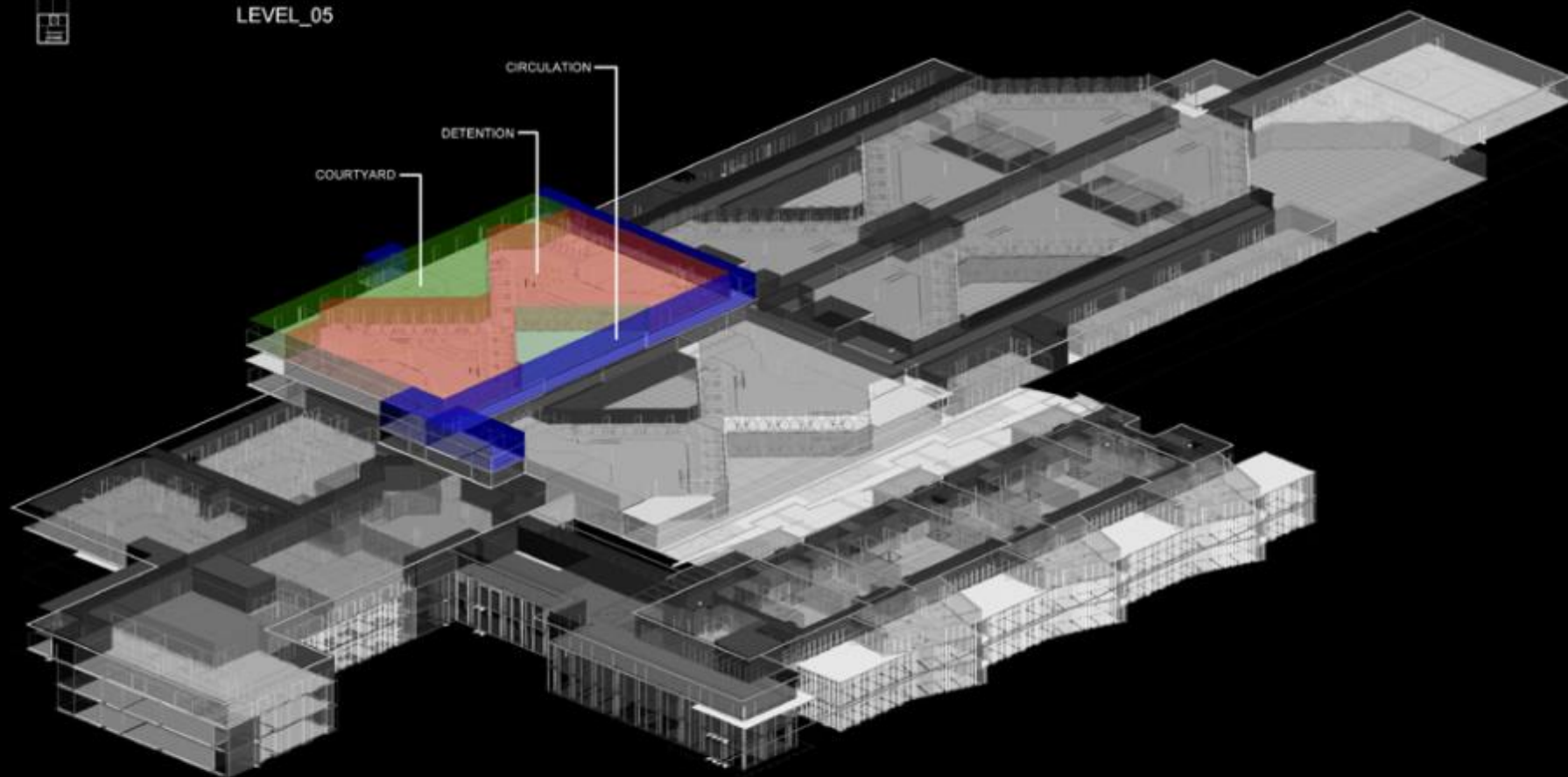
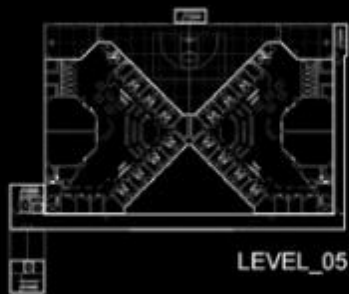
ALAMEDA COUNTY JUVENILE JUSTICE CENTER





ALAMEDA COUNTY JUVENILE JUSTICE CENTER

San Leandro, California



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VIEW OF ENTRY PLAZA



ALAMEDA COUNTY JUVENILE JUSTICE CENTER

San Leandro, California



VIEW OF UPPER COURTYARD



ALAMEDA COUNTY JUVENILE JUSTICE CENTER

San Leandro, California



County's Design-Build Criteria

- Do not vary from the Bridging Design
- LEED Silver minimum
- Significant liquidated damages
- Significant site conditions responsibility
- \$135 million best value

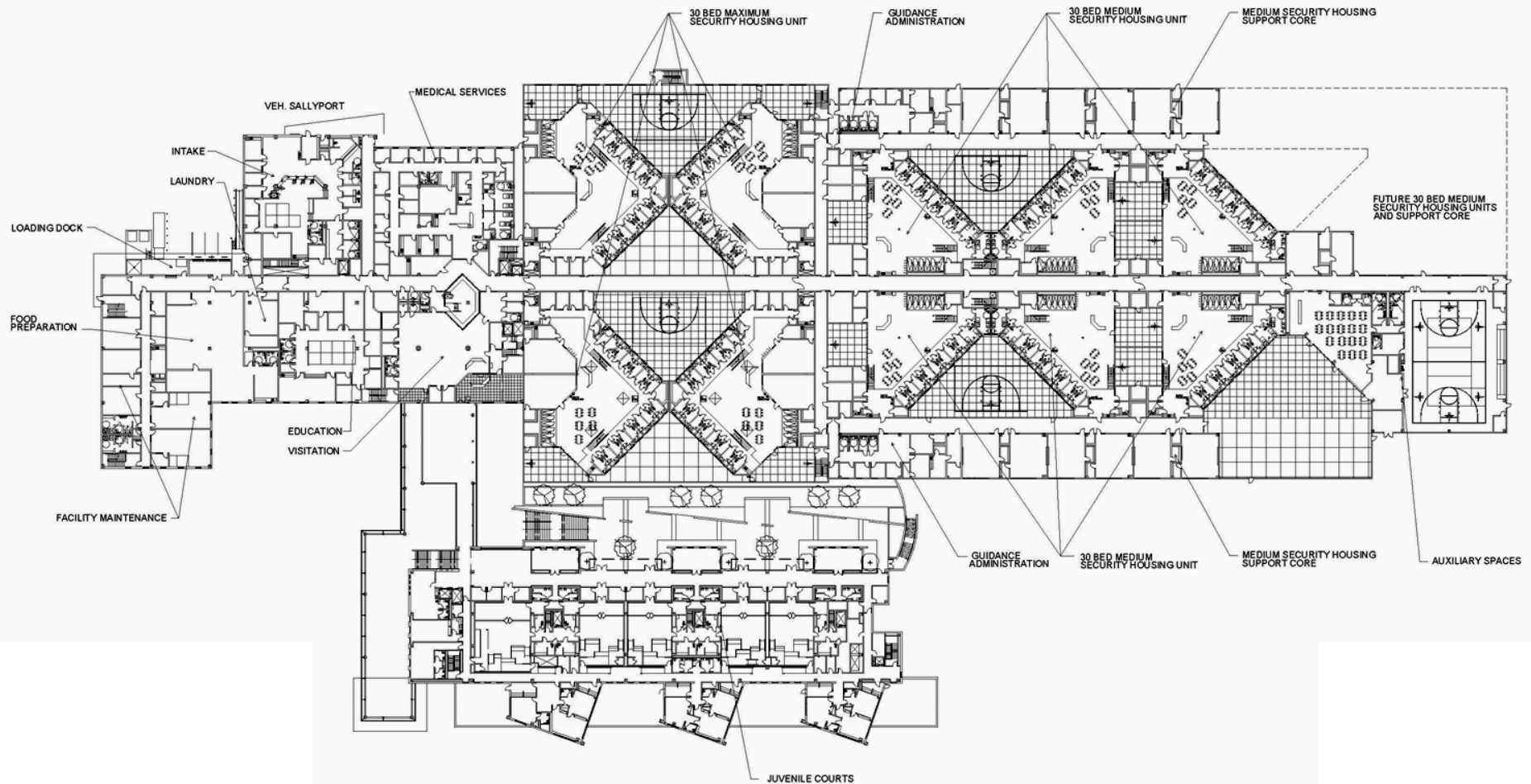
So What Happened?





Revised Goals

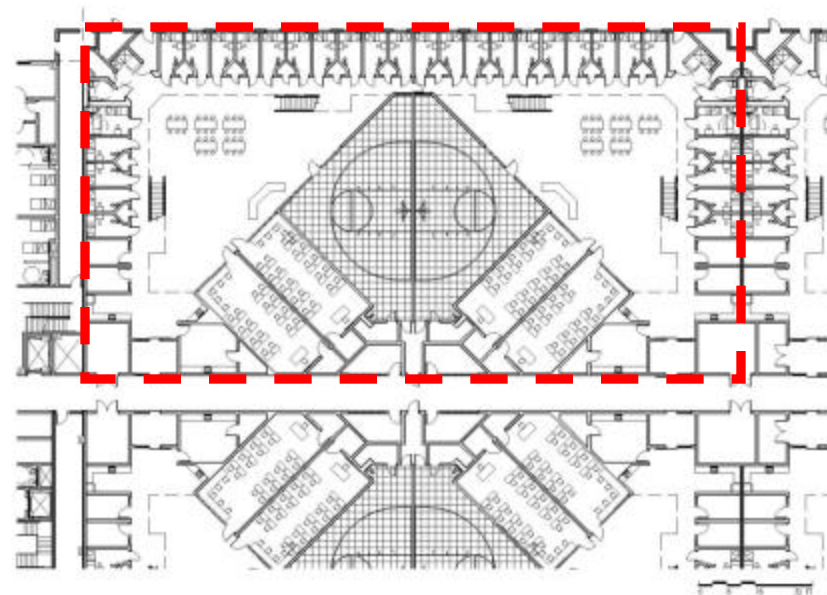
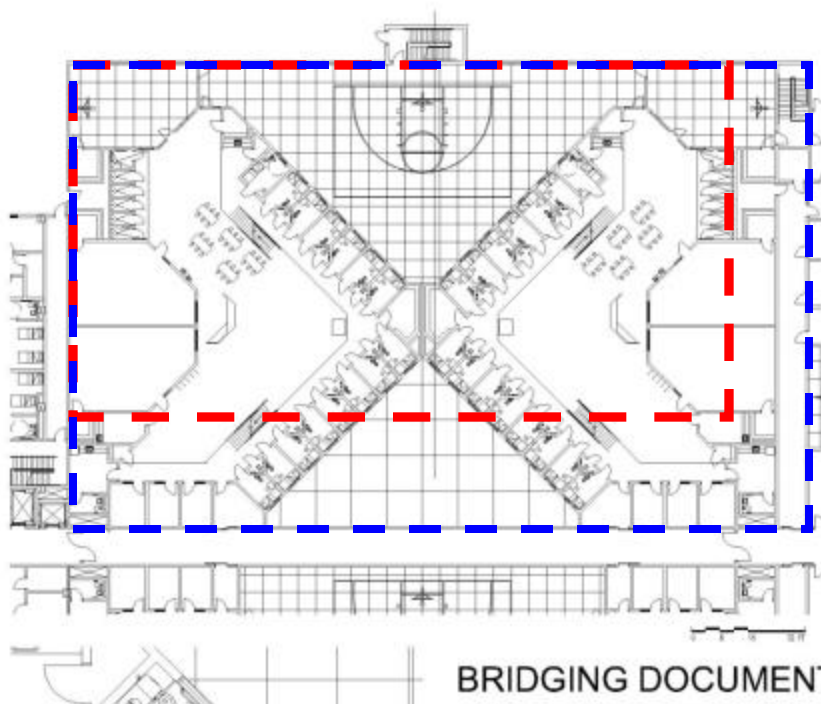
- \$135 million best value
- Can vary from the Bridging Design
- LEED certified minimum
- Easing of liquidated damages and ownership of site conditions



THIRD LEVEL PLAN - BRIDGING DOCUMENT
ALAMEDA COUNTY JUVENILE JUSTICE CENTER
 SAN LEANDRO, CA FEBRUARY 5, 2004



0 10 20 40 FT













Sustainability

- 94% of construction waste was recycled
- 100% of storm water run-off is filtered through bioswales
- 2 million gallons per year saved on domestic water
- 47.5% less energy used than Title 24, 20% is renewable
- Skylights in detention pods
- Rooftop solar - \$166,000/year savings









Recognition

- LEED Gold certified (first Juvenile Justice facility in the nation)
- Green Building Award of Merit, Best of 2007 Awards, California Construction
- 2007 Project of the Year by Construction Management Association of America, Northern California Chapter
- Excellence in Design Award, Government Building Category, Environmental Design + Construction, September 2008
- Best Justice Facilities/Courthouses Design Award, Precast Concrete Institute, 2008
- Published in Ascent, “Achieving High Sustainability,” Precast Concrete Institute, Spring 2008
- Published in AIA Justice Facilities Review, 2008



Questions

- If the client is thrilled, is it design excellence?
- What is the optimal bridging role for justice facilities?
- Are design-build and design excellence achievable together?





Rick del Monte, Managing Director, Beck Architecture LLC



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Design Problem

SCOPE

- (1) Façade
- (2) MEP System

OBJECTIVES

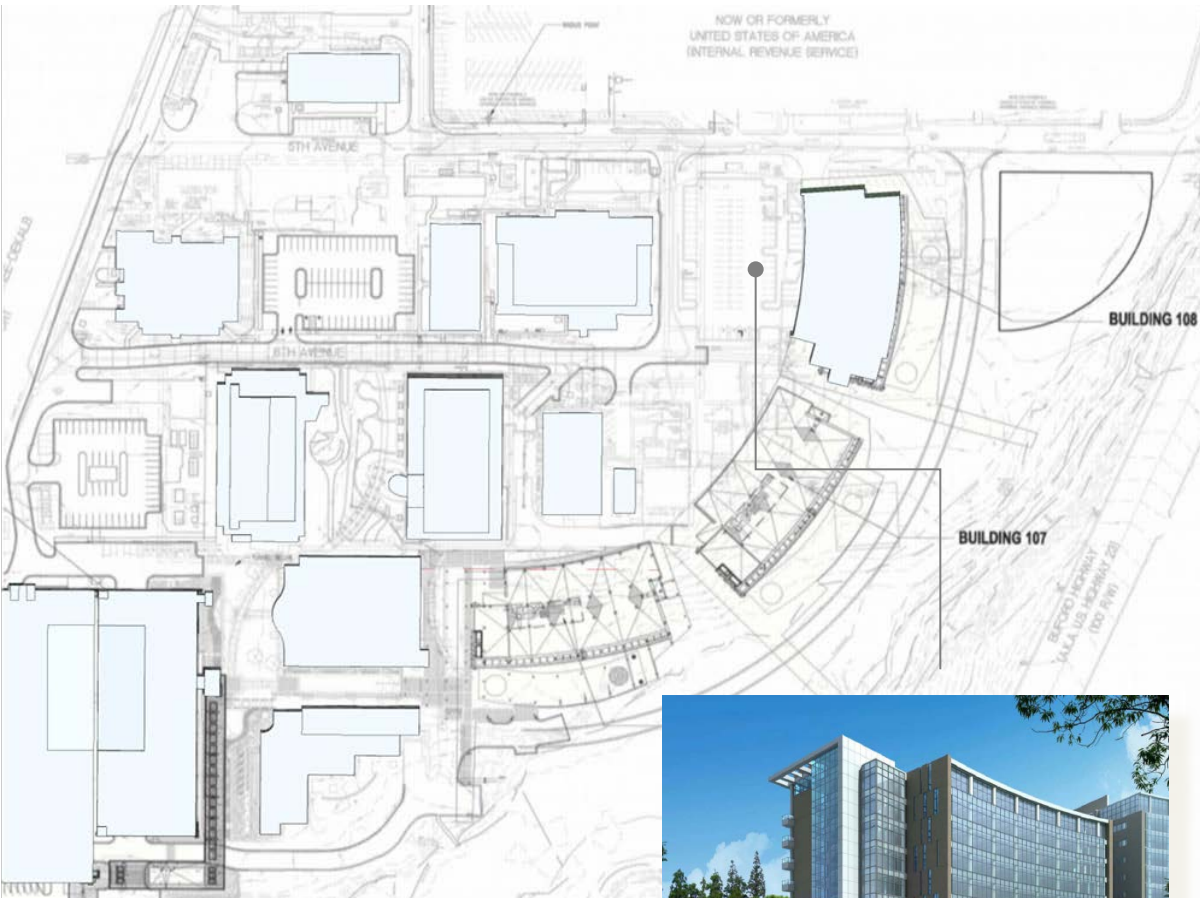
- (1) Minimize total cost of ownership
- (2) Minimize carbon footprint
- (3) Minimize energy consumption

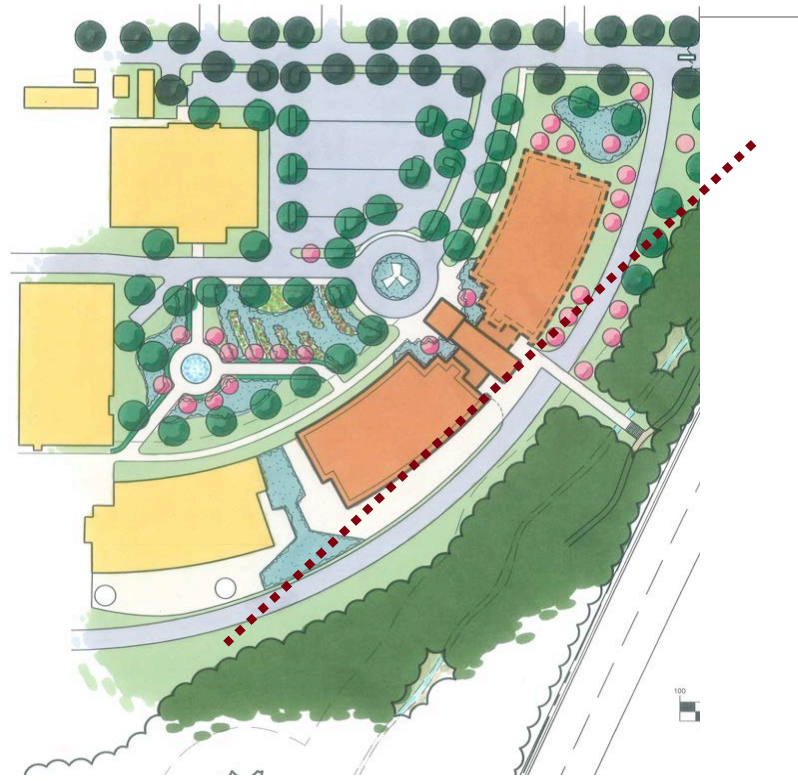
VARIABLES

- (1) Building Orientation
- (2) Glazing type
- (3) Glazing percentage by façade
- (4) Shading elements by facade

DESIGN SPACE

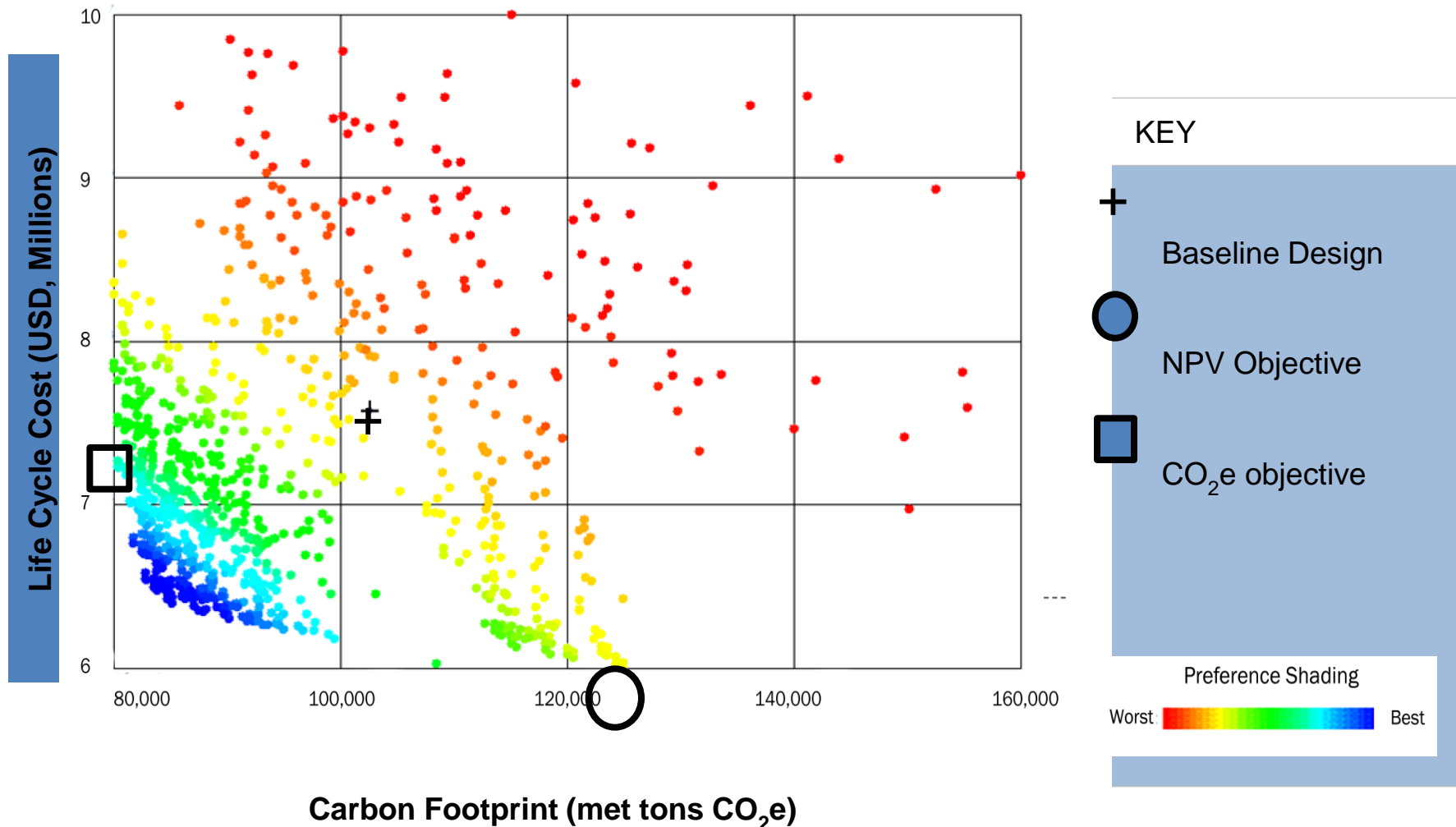
Possible design configurations:
1.458E11





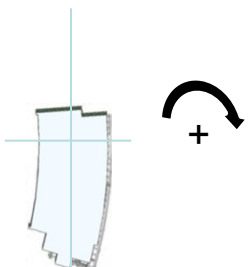
6% savings = 16 tons

Results: Life Cycle Cost vs. Carbon Footprint



Results: Optimal Glass Design Configurations

KEY



rotation angle



spandrel glass



overhang



VUE 13-50 .27



VNE 1-63 .29



VNE 13-63 .29































VS 1-08 .20



Solarban 70 XL .27

glazing type

| objective | Baseline | Carbon Footprint Reduction | | NPV Improvement | | | |
|-------------|----------|----------------------------|-------|-----------------|-------|----|-------|
| escalation | - | - | - | 3% | 15% | | |
| orientation | 0° | 0° | +6.6° | 0° | +6.7° | 0° | +7.1° |

| facade glazing % | N |  39% |  30% |  30% |  68% |  68% |  30% |  36% |
|------------------|---|--|--|--|--|--|--|--|
| | S |  39% |  30% |  30% |  68% |  59% |  31% |  30% |
| | E |  39% |  30% |  31% |  58% |  68% |  30% |  30% |
| | W |  39% |  30% |  30% |  42% |  55% |  30% |  30% |
| | | | | | | | | |















Curt Fentress, FAIA Fentress Architects



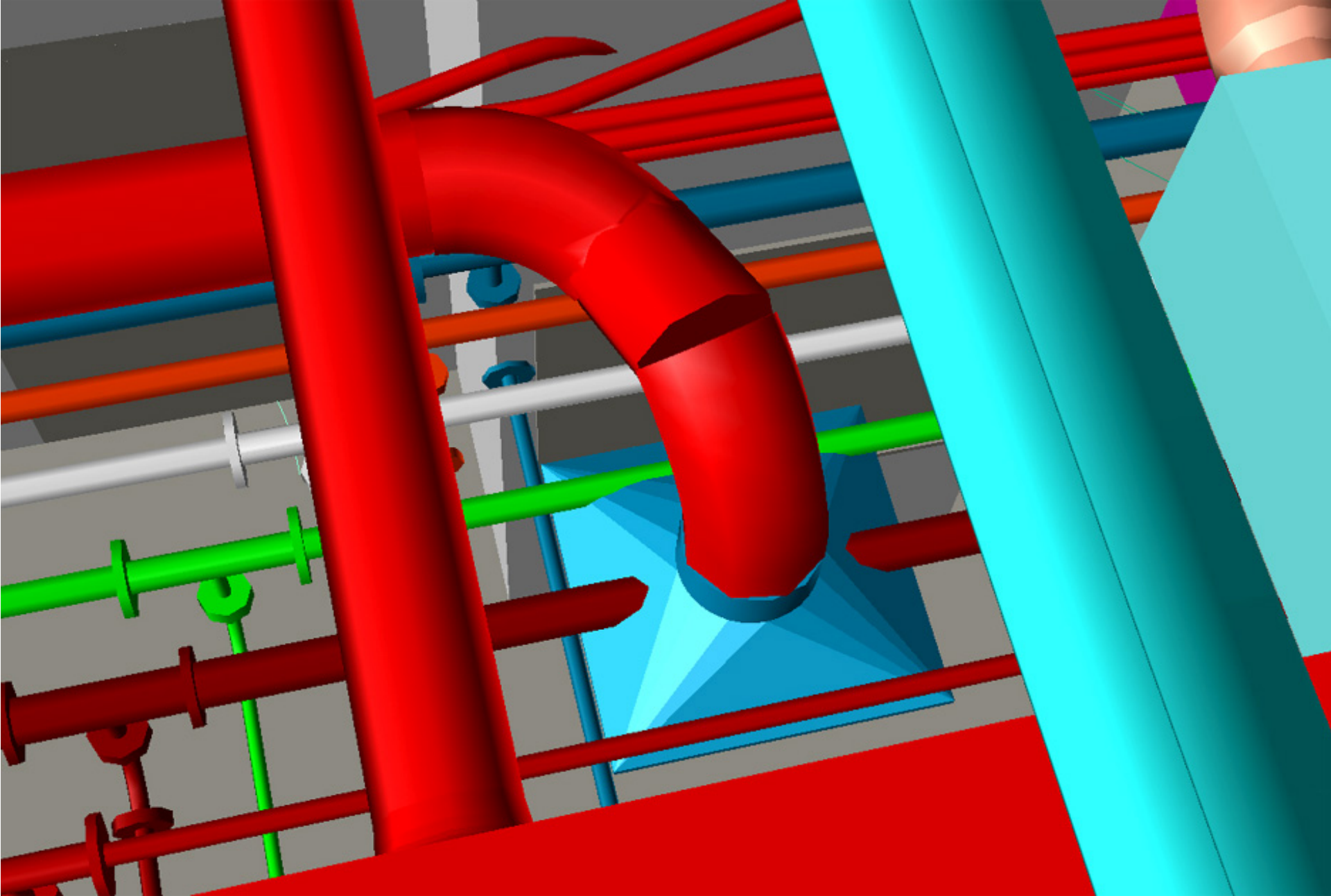
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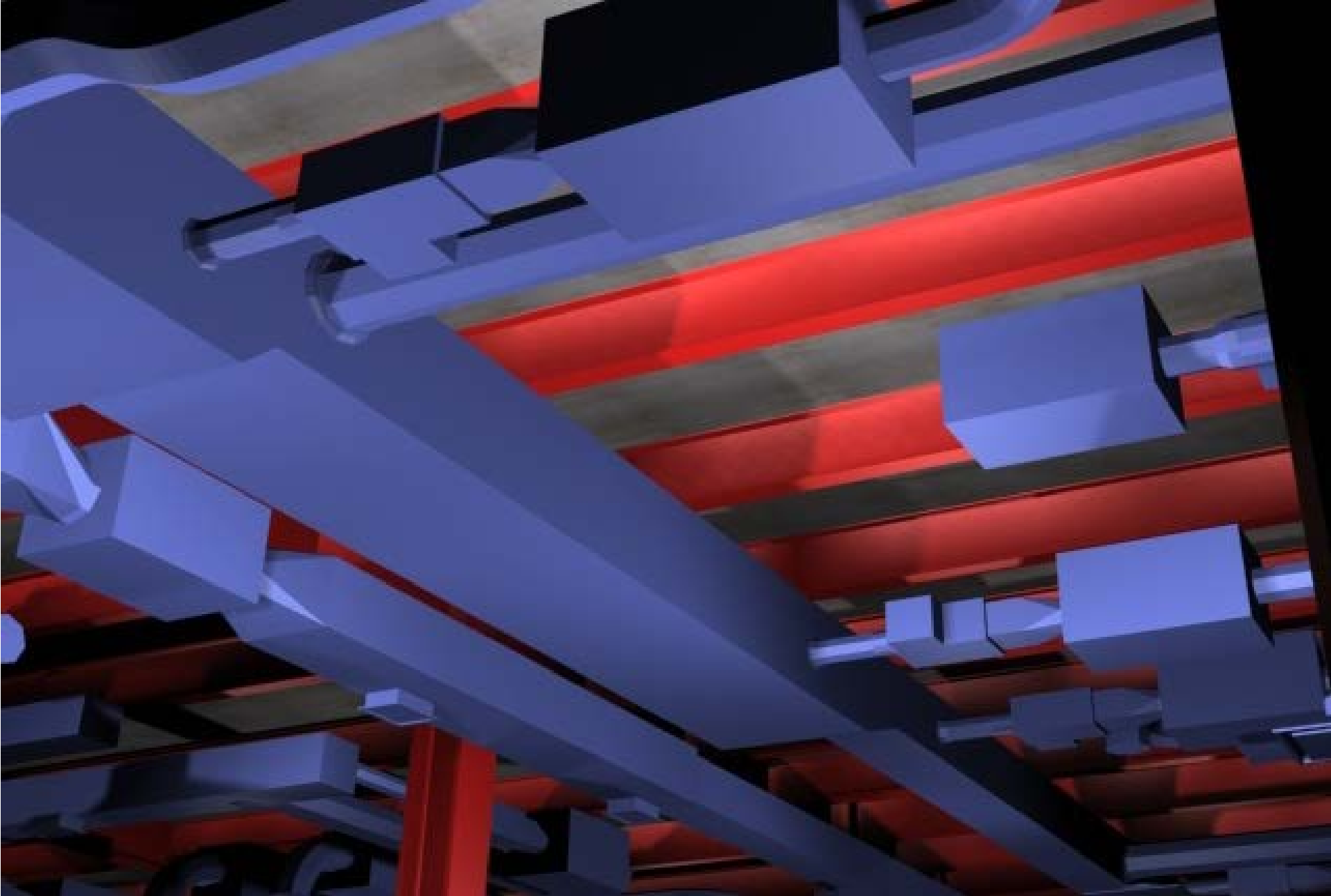


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Preservation or enhancement of design intent with lower delivery costs



Building Information Modeling (BIM)



Plan room computer dashboard interface



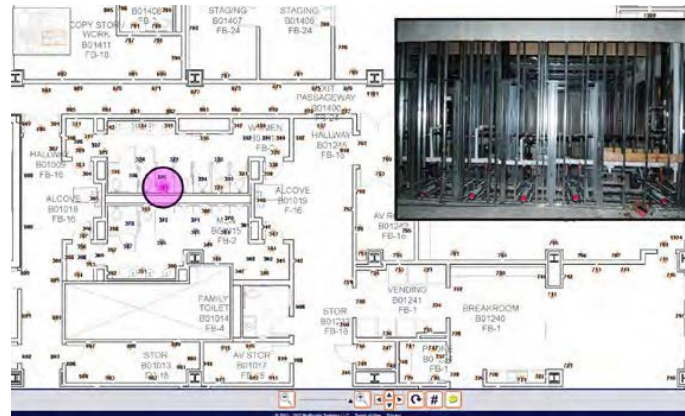
Touch screen plan room computers replace paper drawings



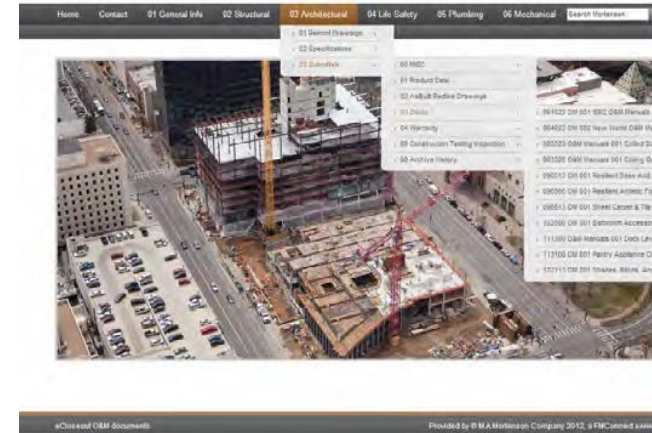
Field tablets connect directly to the cloud



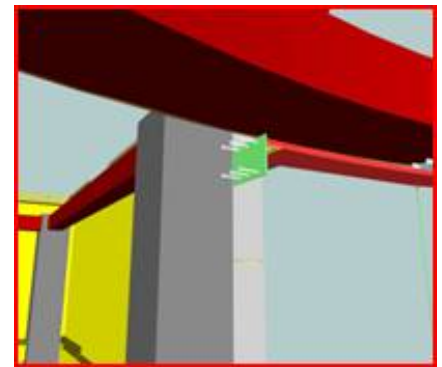
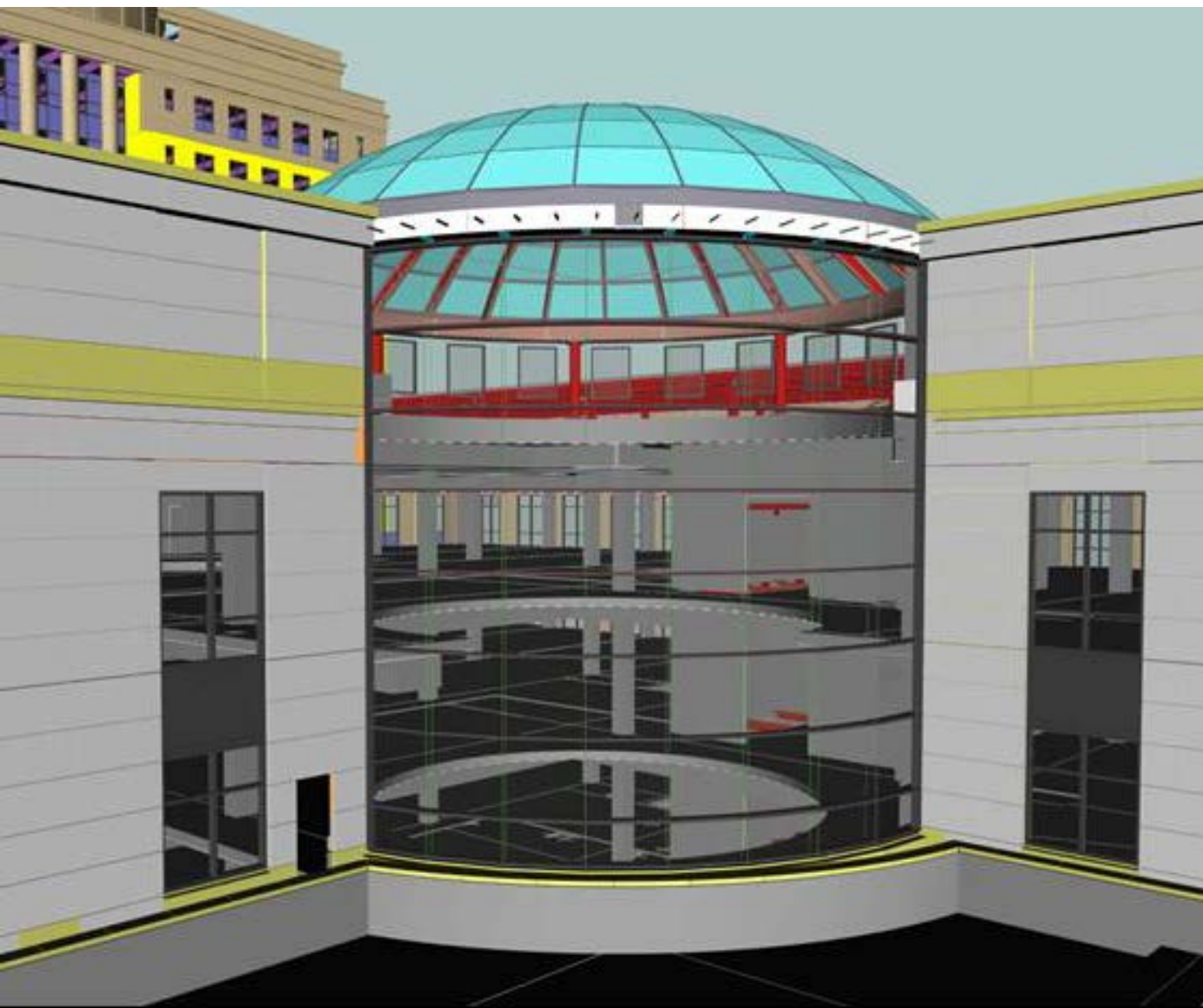
Field computer dashboard interface



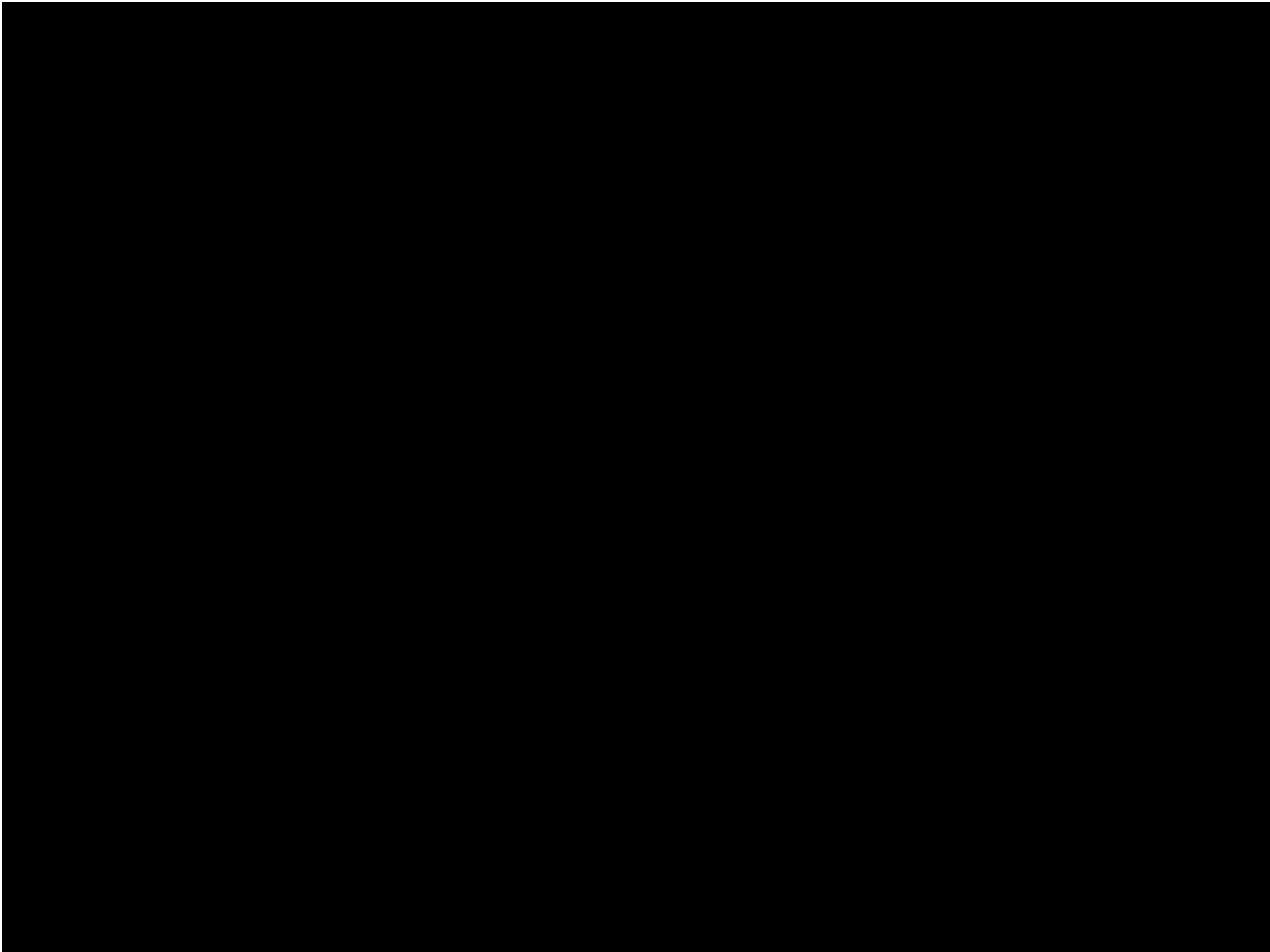
In-wall documentation for facilities maintenance



Electronic closeout and O&M interface for facilities maintenance



Building Information Modeling (BIM)











JUSTICE FOR ALL





















A GOVERNMENT

SEPARATION OF POWERS

SEPARATION OF POWERS:

The power of the government is divided among three branches: legislative, executive, and judicial. This ensures that no one person or group of people can exercise the powers of government to oppress the people.

GUARANTEED INDIVIDUAL RIGHTS





Kay Compton, AIA NBBJ



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Seattle Federal Courthouse, Seattle, WA



Seattle Federal Courthouse, Seattle, WA



Bakersfield Federal Courthouse, Bakersfield, CA



Bakersfield Federal Courthouse, Bakersfield, CA



The James F. Battin United States Courthouse, Billings, MT



The James F. Battin United States Courthouse, Billings, MT