



Integrated

PROJECT DELIVERY
SEMINAR SERIES

09

Integrated Project Delivery:

AUTODESK

One Market Street, San Francisco

Produced by:



HansonBridgett

McGraw Hill
CONSTRUCTION



AIA California Council



AGC
CALIFORNIA



Project

Design Center	16,500 sf
Office space	29,300 sf



Final Floor Plan
GALLERY AND OFFICES AT ONE MARKET 19



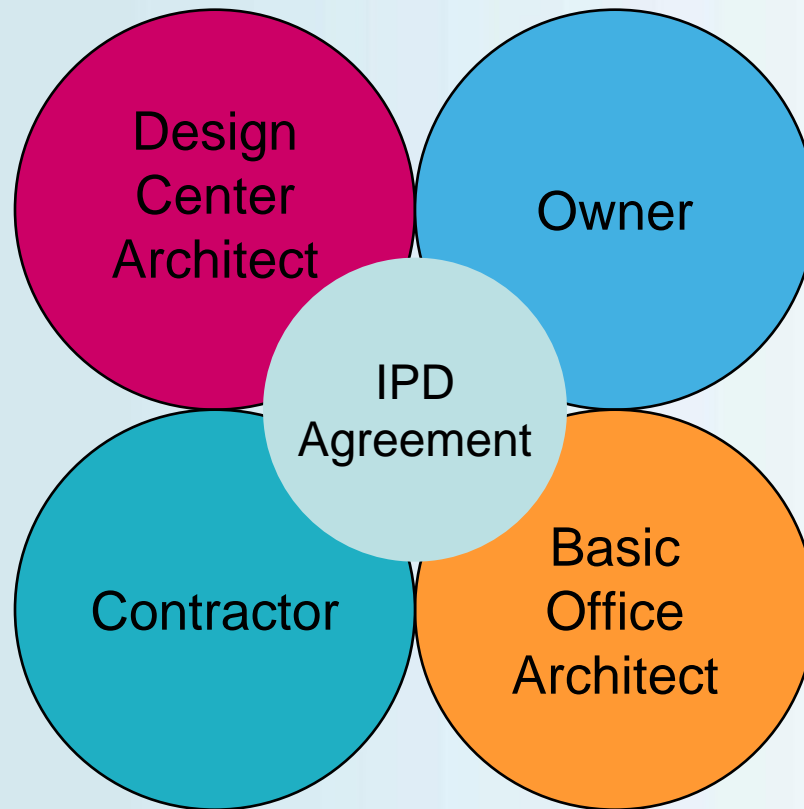


Players in Project

- Owner - Autodesk
- Contractor - DPR Construction
- Design Center Architect – Anderson Anderson Architect
- Basic Office Architect - HOK



Basis of Contract





Schedule

Start design	11/1/2007
Start Construction	2/19/2008
Complete Construction	8/22/2008



Contract Highlights

- Incentive Compensation Layer (ICL)
- Targeted adjustments to incentives
- Project managed by team - one from each firm (PMT)
- Require unanimous decisions for good of project
- No litigation clause



Incentive Compensation

Non-Owner Participants

- Basic compensation at break even
- All profit at risk
- Started with estimated profits being the incentive pool



Adjustments to Incentive Compensation Layer (ICL)

Project costs

- If under, 50% added to ICL
- If over, excess comes out of ICL until it is exhausted

Project Schedule

- If under scheduled date, add \$7500/day to ICL
- If over scheduled date, deduct \$2500/day from ICL



Adjustments to Incentive Compensation Layer

Project Design Targets

- Determined by 3rd party
- Reward if beat target standards, penalty if under target
 - Target quality
 - Innovation
 - LEED Platinum target
- ICL could adjust from +20% to -20%



What Didn't Work

Decision to go IPD made too late

- Program set
- Budget Set and didn't match Program
- Move-in deadline already set



Effects on the Project

- Budget increase by CO to meet Autodesk desires
 - Increased ICL profit pool
 - No incentive compensation for beating budget
- Schedule extended
 - No incentive compensation for beating schedule

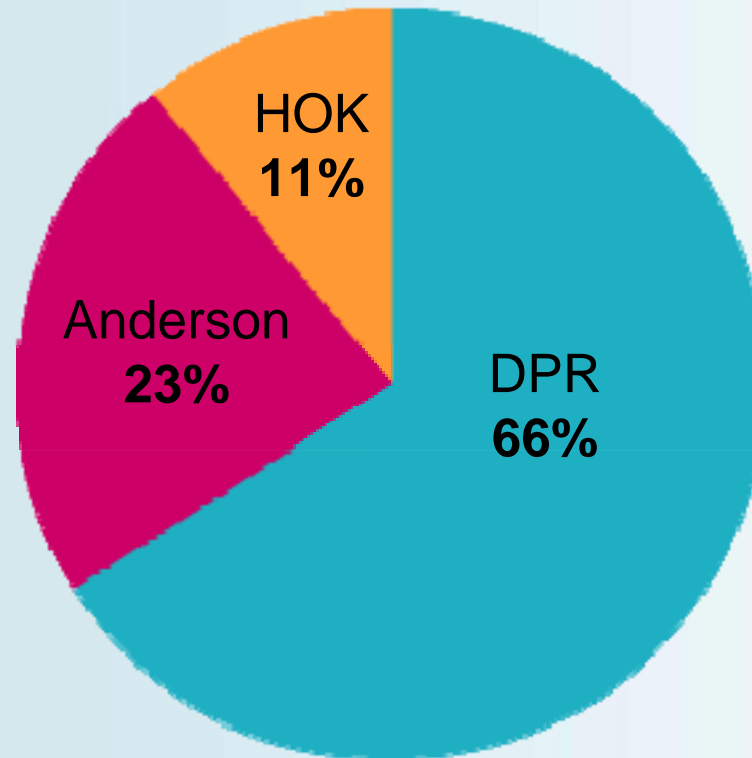


Incentive Compensation Pool – Profit totals

Original pool from 3 parties		558,000
Adjusted by CO		73,000
Design Target premium +20%		128,000
	Total Pool	<u>\$769,000</u>

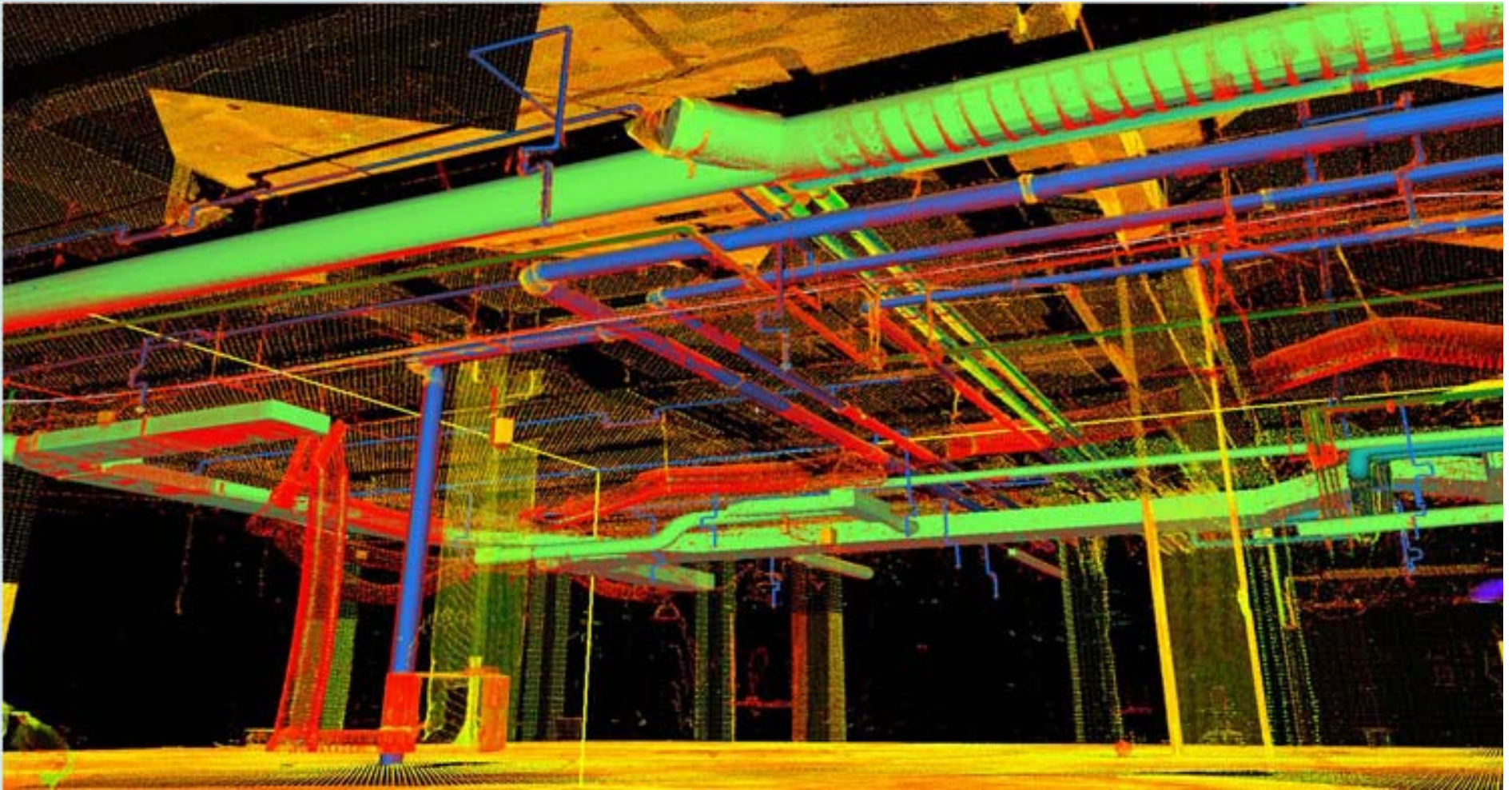


Incentive Compensation Split





BIM Images





BIM Images

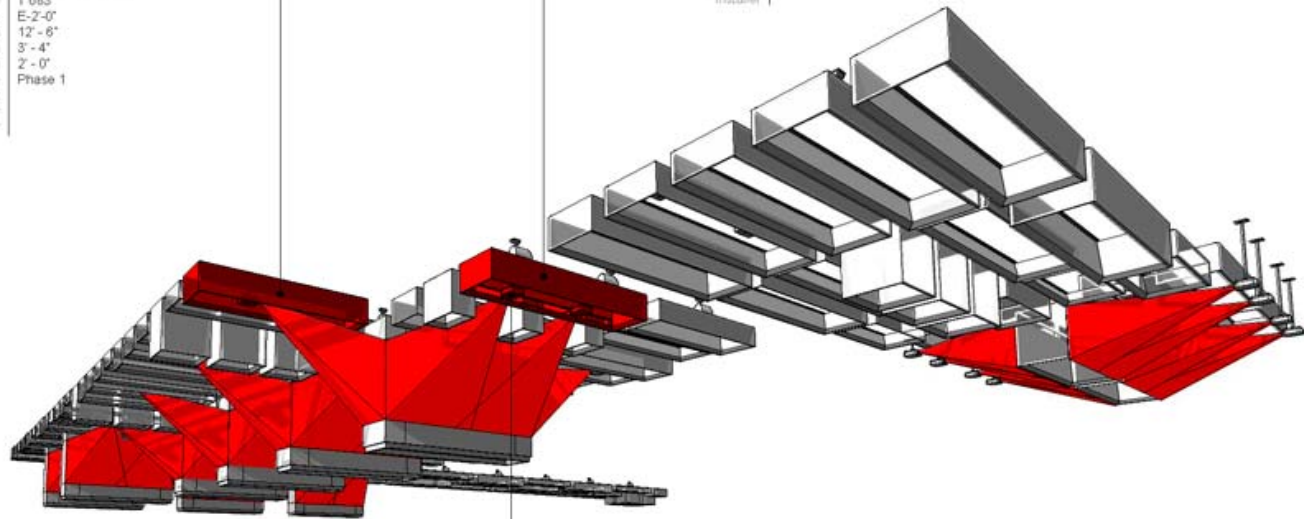
DIGITAL ENVIRONMENT Video Projection Systems

Fabric Ceiling Box

Assembly Type	Standard Baffle Box
Box ID	T 083
Box Type	E-2-0'
Length	12' - 6"
Width	3' - 4"
Depth	2' - 0"
Delivery Phase	Phase 1
Architect	
Fabricator	
Installer	

Fabric Ceiling Box

Assembly Type	Slotted Projector Baffle Box
Box ID	S 050
Box Type	MX-2-0'
Length	14' - 6"
Width	3' - 4"
Depth	2' - 0"
Delivery Phase	Phase 1
Architect	
Fabricator	
Installer	



Video Projector

Manufacturer	NEC
Model	NP 3150
Resolution	1024 x 1200
ANSI Lumens	5000
Wattage	490
A/V Design	
Installer	



Photographs of Finish Space



PHOTO IMAGES OF FINISHED GALLERY AND OFFICE LOUNGE



Photographs of Finish Space



PHOTO IMAGES OF FINISHED GALLERY SPACE



IPD: Autodesk Project Metrics

- Fee
 - 100% at Risk
 - \$0 Fee Erosion
- Contingency Summary
 - BIM Modeled Changes = \$632 (0.1%)
- Efficiencies Gained
 - DPR Construction returned \$50,158 to the ICL
 - 1 day turnaround time on millwork shop drawings (standard 2 to 4 weeks)
- RFI's
 - Average turnaround = 3 days
 - 72 on project. Zero related to changes to modeled elements
 - 20 minute average turnaround on design questions
- Bonus Pool
 - IPD Team award full ICL Enhancement based on 3rd party evaluation (20%)



Lessons Learned (1)

Involvement of key players in conceptual phase

- Commitment to business case
- Which subs add value early?
- Develop new skills by subcontractors
- Laser scan of existing space



Lessons Learned (2)

Open info and knowledge exchange

- BIM interoperability
- Draw the right stuff – Why?
- Who draws the model
- Integrated design has different milestones – areas or floors vs. SD/DD/CD
- Requires “freezing” of areas to allow reliable work flow in an integrated delivery
- Drywall framing can now be detailed!



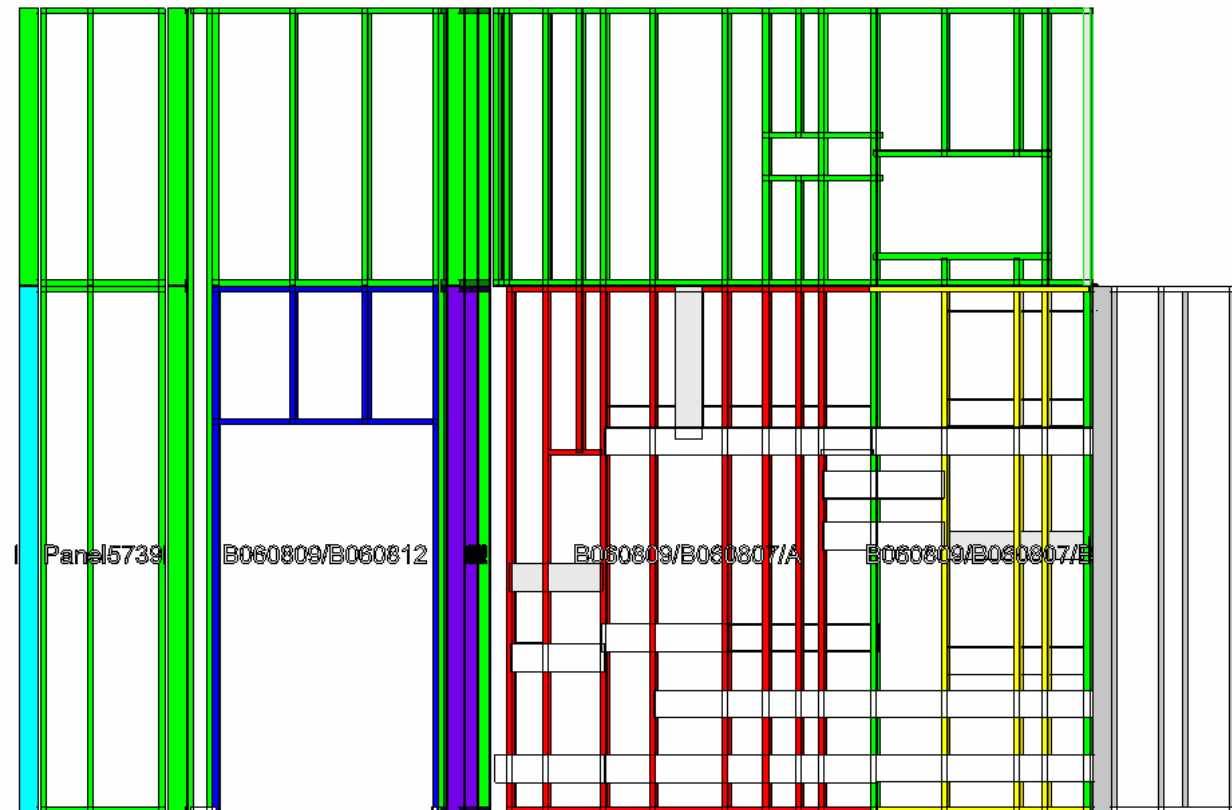
Duct taking out walls...a little late to find out about this.





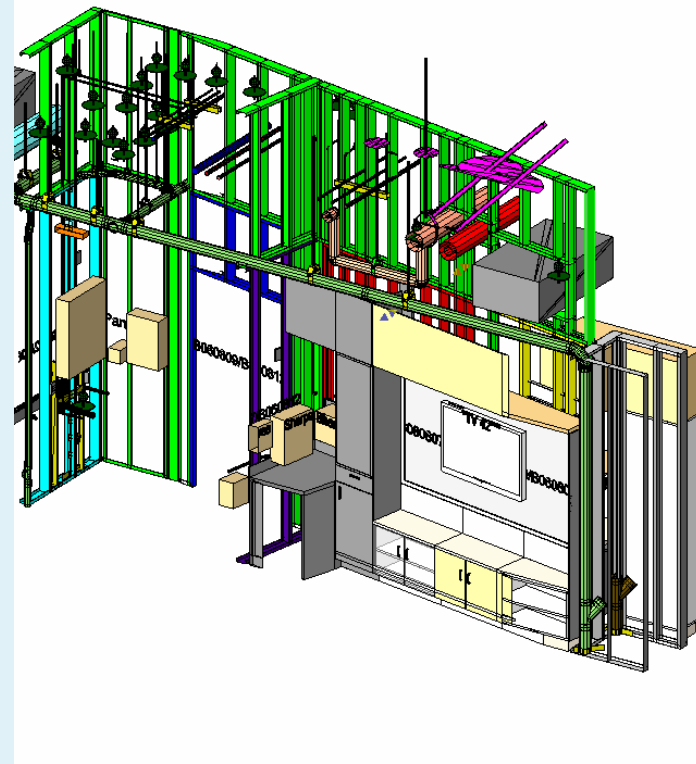
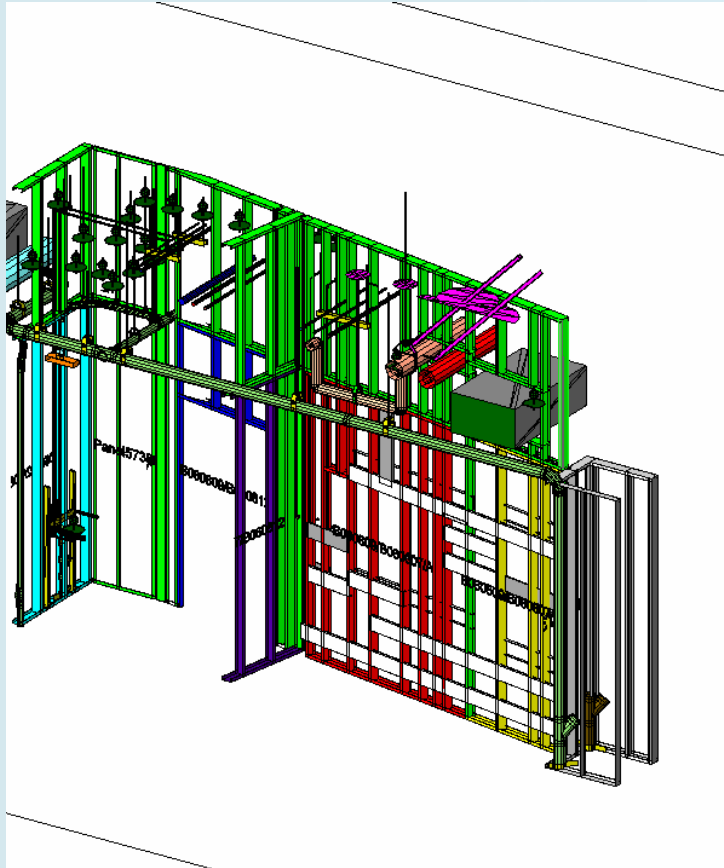
Where We're Going

- Every Stud
- Every Opening
- Every Piece of Backing
- Panelize & Pre-fabricate





Where We're Going





Lessons Learned (3)

Shared risk and reward

- Focus on win/win
- Designer's/Builder's profit at risk together
- Focus on problem solving
- Hold partners accountable-big



Force Subs to be Accountable

- Drywall Modeling new to the industry.
- Make sure everyone knows they're responsible for coordinating with Drywall

- Case and Point:

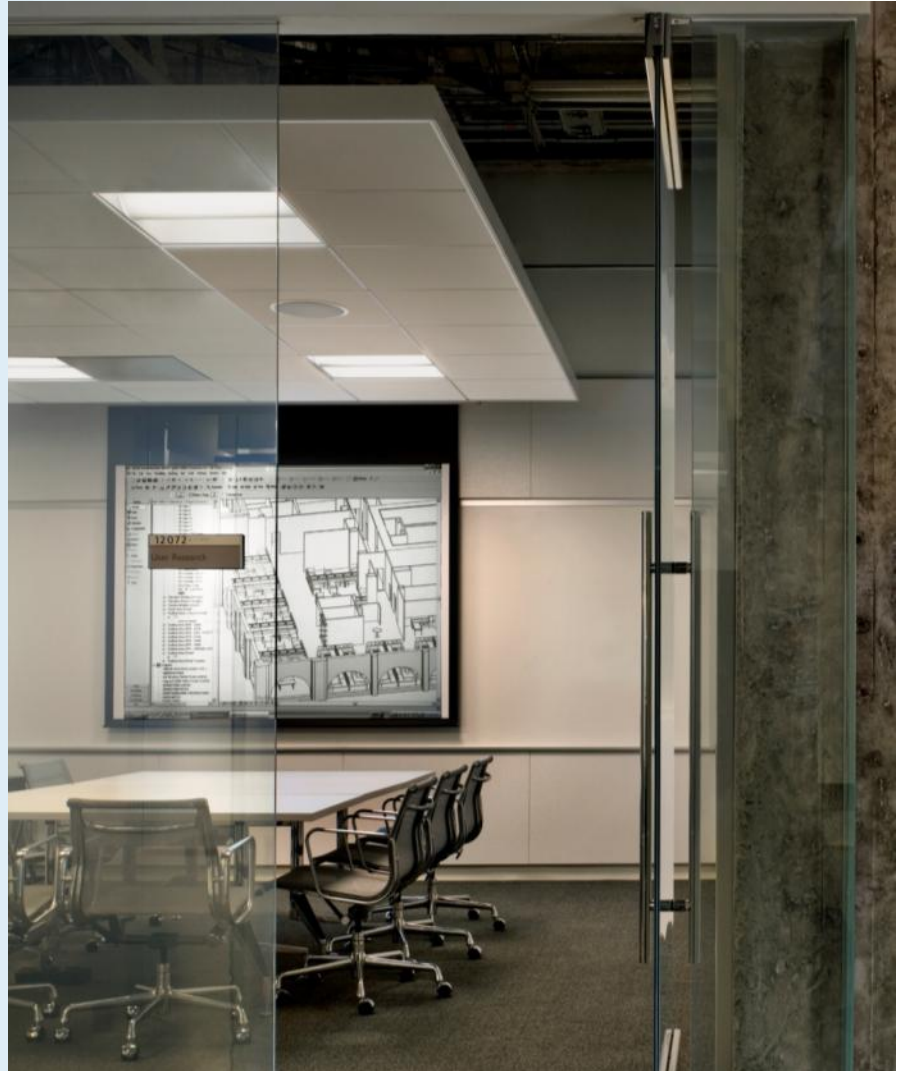
- Plumbers didn't look at DW Model in Area 4: 2,000 Clashes
- Area 3 they looked at while drawing: Roughly 600 clashes
 - 300 Meaningful clashes
 - Stud orientation changed: 150 clashes.



Lessons Learned(4)

Joint Mngt Shared Goals

- Learn new skills
- Appreciate skills of partners
- Create a social network
- Build & enforce reliable work flow





What is different for a builder in IPD?

- Behaviors and level of collaboration
- Ability to plan and support design activity
- In-house BIM capability to enable integration
- Experienced builders engaged during design
- Award of IPD subs versus “commodity” subs
- Sharing of jobsite resources during construction (i.e., clean-up, concrete coring, equipment, etc.)