

# Integrated Practice – with BIM

*Presented by:*

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**Principal**

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# Introduction

Do integrated practice and BIM actively change the AEC Industry?

New tools allow virtual design and real-time collaboration:

- Interoperability allows exchange of 3d models
- Change of design sequence due to front-loading
- Diverse project teams require real-time conversions
- In-house integrated design groups develop applications for this collaborative approach

# AIA - Integrated Practice Document

- Design partners freely share and jointly develop digital content (models, data bases, etc).
- Design partners agree on data schemas and exchange processes.
- Design partners engage in a multi-party agreement.

AIA National | AIA California Council  
The American Institute of Architects

2007  
version 1

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## **Integrated**

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## **Project Delivery:**

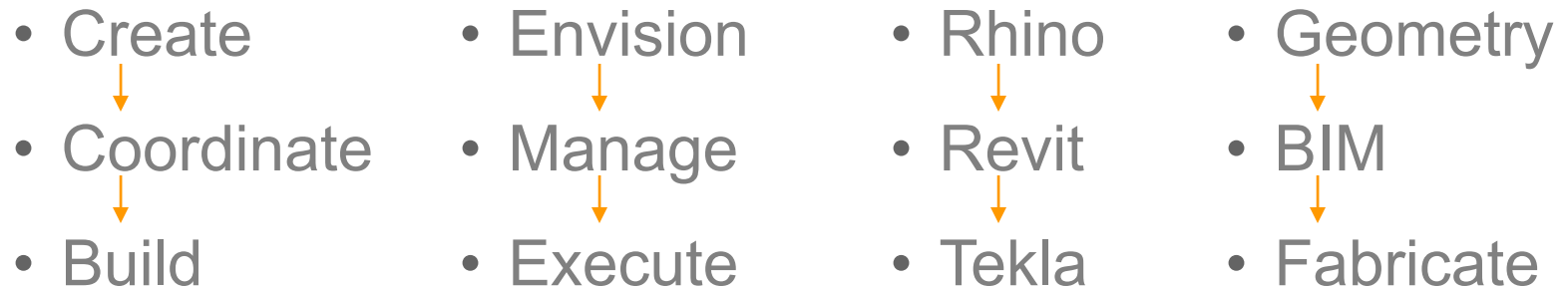
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## **A Guide**

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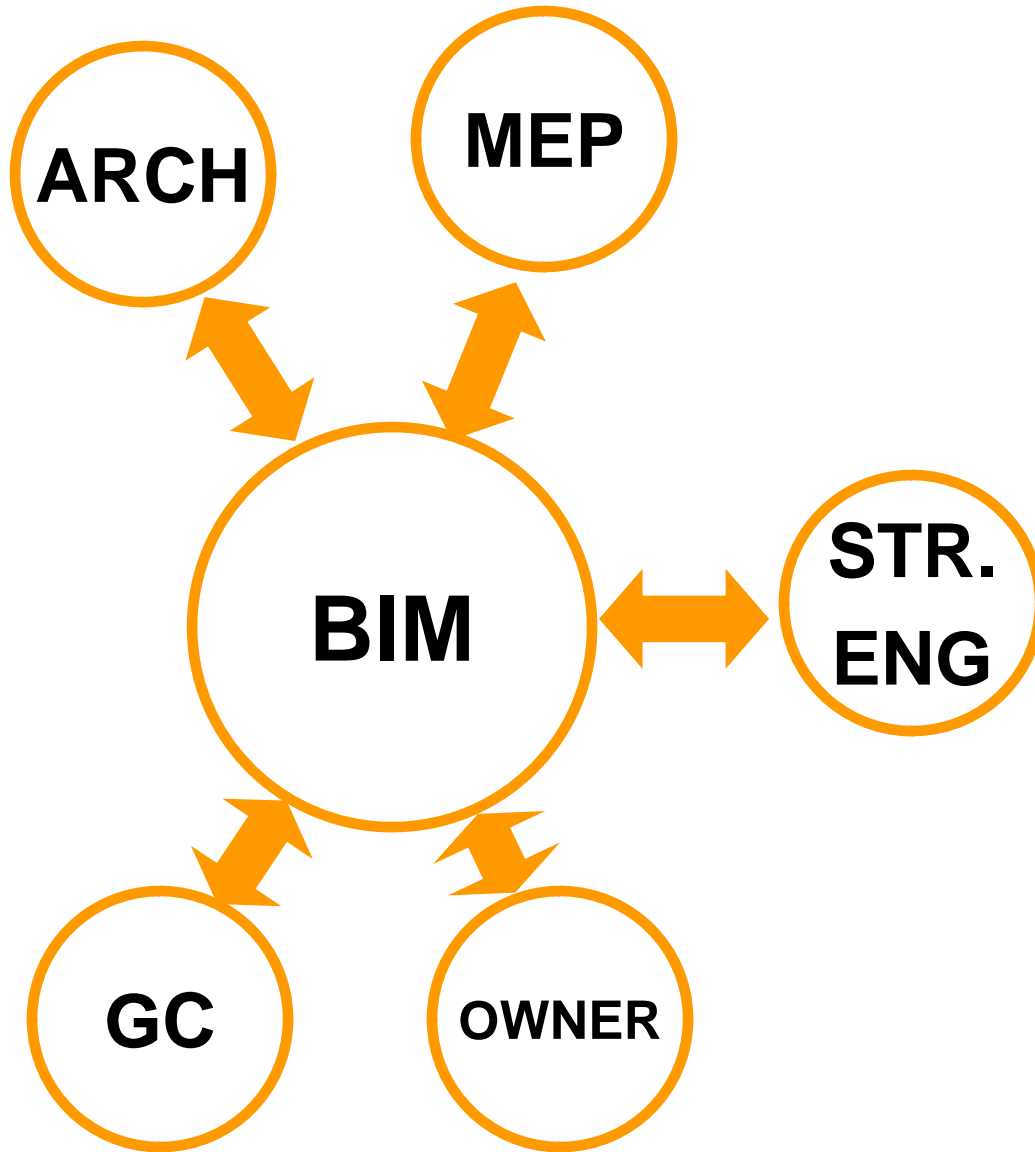
# Allow Team to Focus on the Process

- Moving away from the traditional process of  
SD → DD → CD → Construction



- It was possible to change the process because the tools changed.

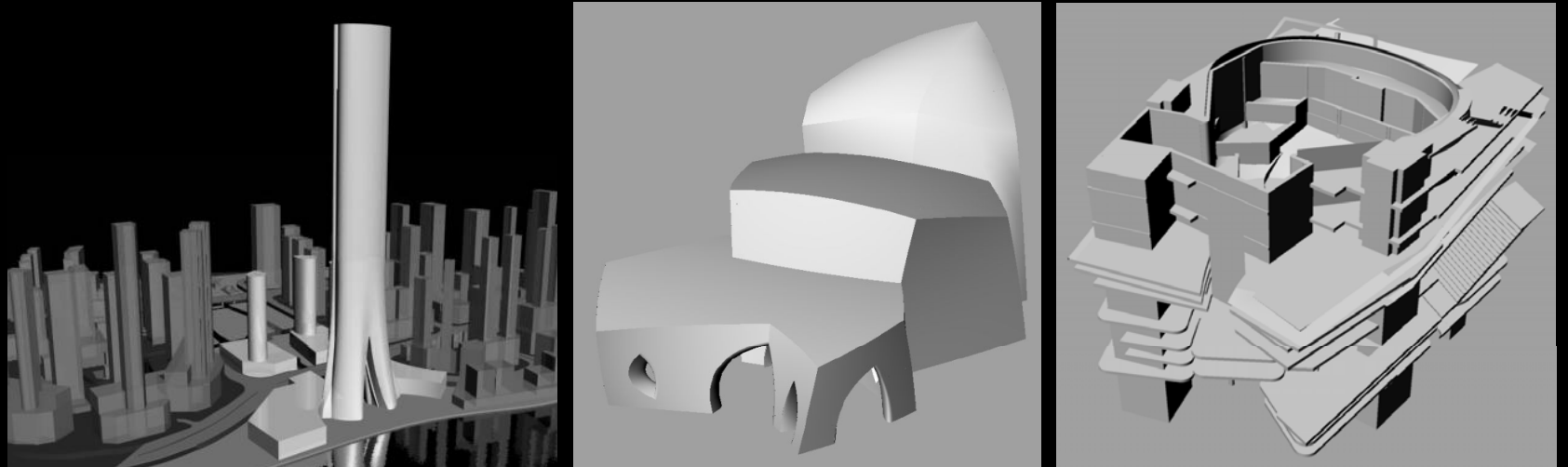
# Integrated Practice



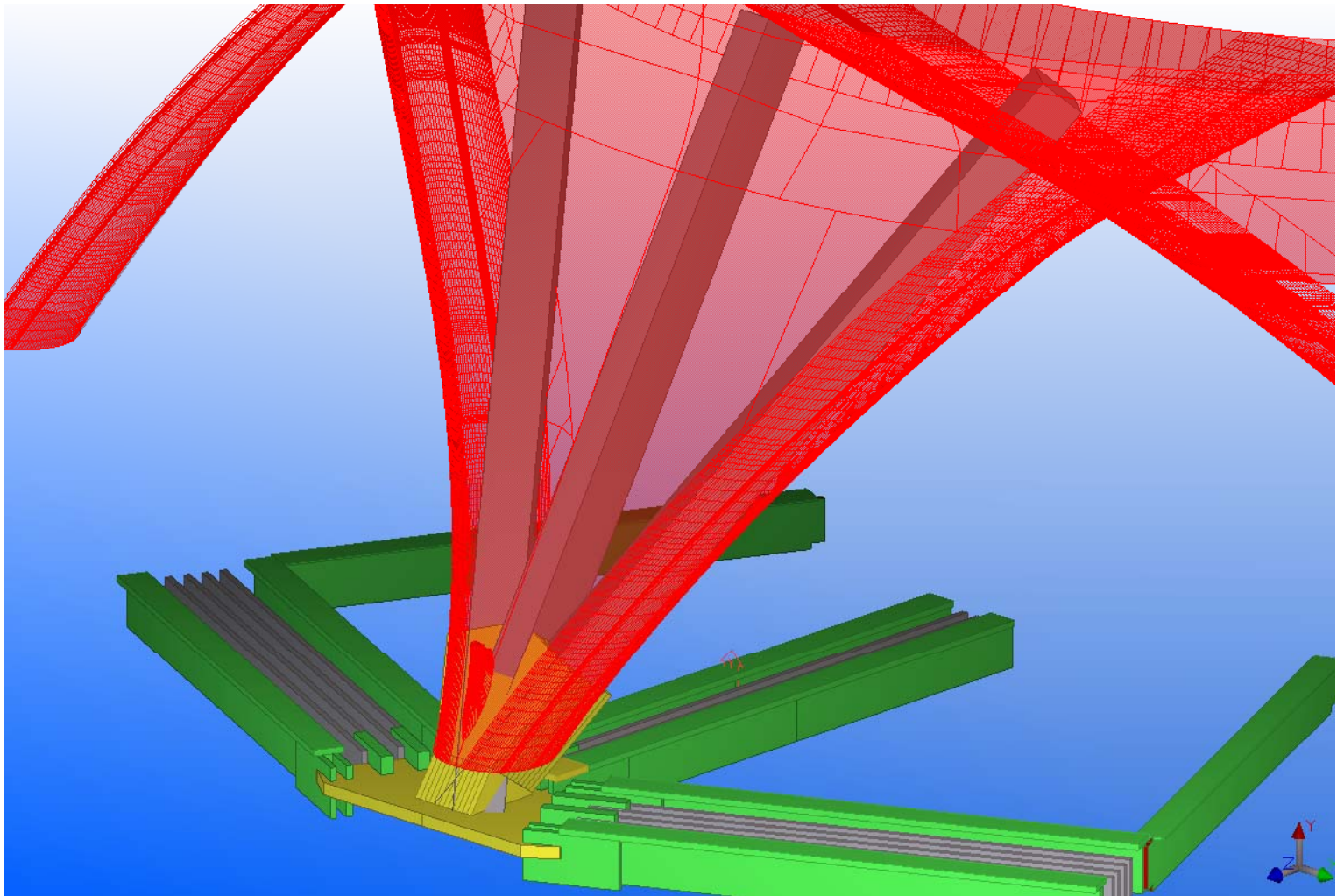
# Introduction

## Architects increasingly share 3D models:

- An excellent first stage in integrated practice
- Reference arch files into Structural BIM (SIM) tools
- Collaborate through NavisWorks
- Dynamic linking of models will improve work flows

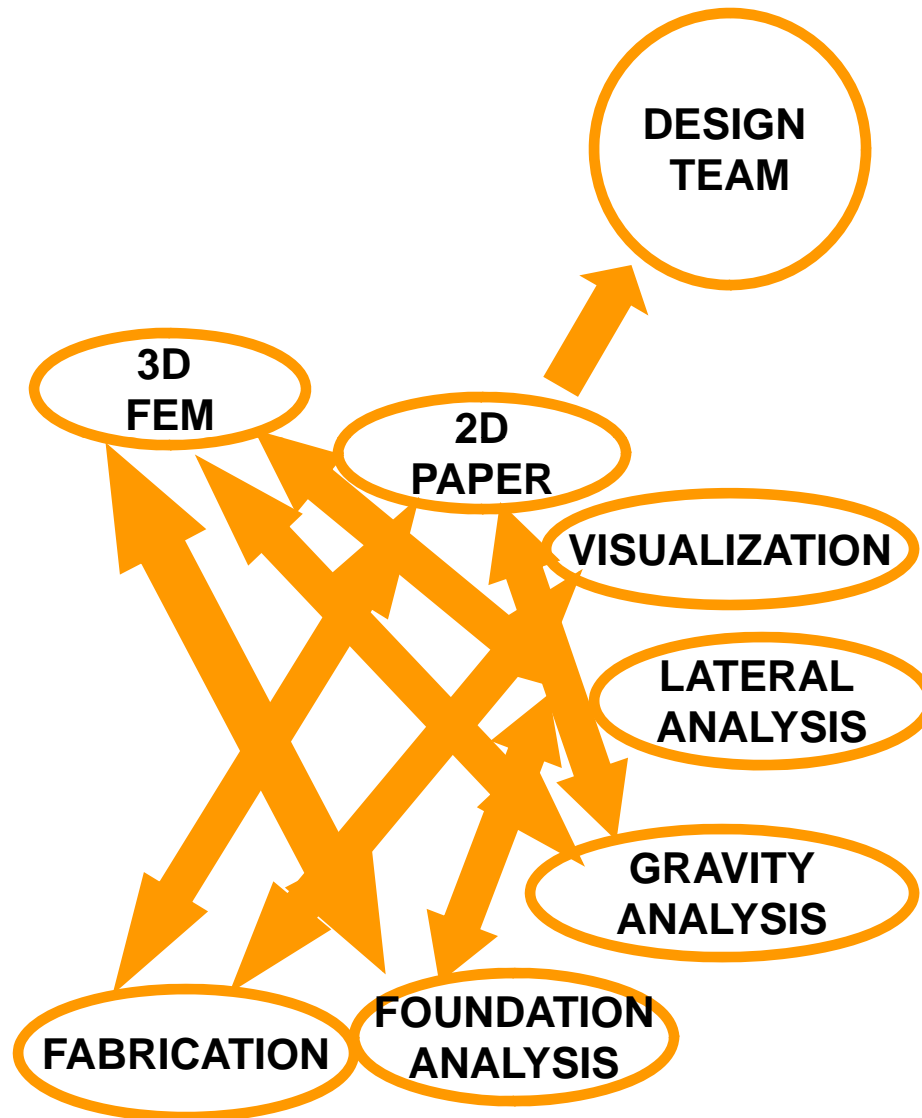


# Front – Loading of Information



- Integrate with other disciplines, e.g. cladding

# Traditional Structural Engineering Operation



## Challenges

- Coordination problems
- Incomplete information
- Re-entry of data

## Dilemma

- Silos in-house
- Silos at design partners

# Today's BIM Modeling Tools



- ACAD – ADT



- Revit BIM Suite



- Bentley BIM Suite



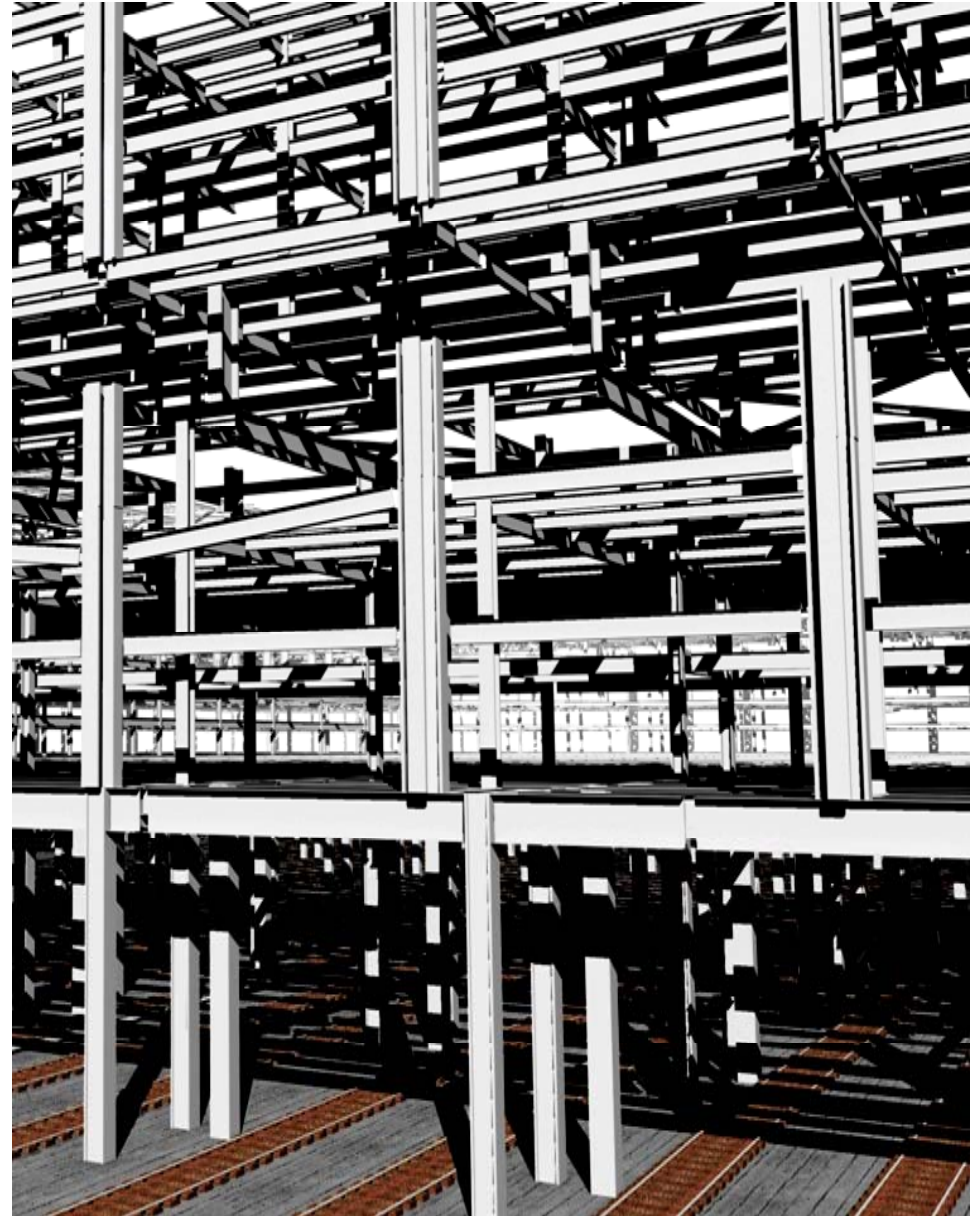
- DP / CATIA



- Rhino, Maya, Max



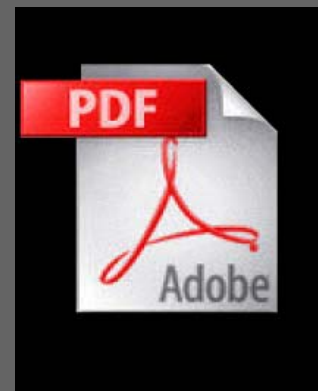
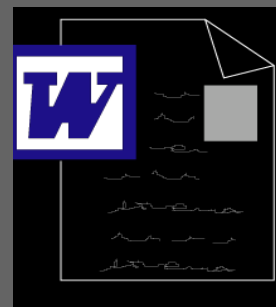
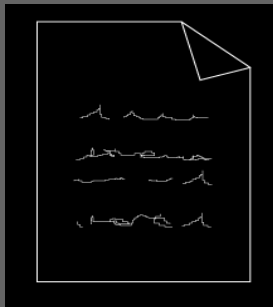
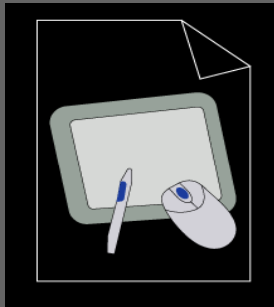
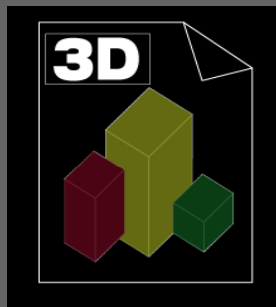
- Fabrication - Tekla



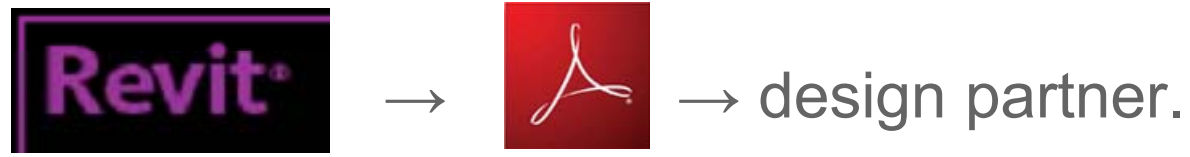
# Today's BIM Project

3d dwg's, excel, paper, word, PDF, web portals

- PRO: all digital content
- CON: not integrated yet



# Integration Challenges on BIM Projects



PDF is a dead-end - can't extract info easily

# Integrated Practice – What's next?

## To Truly Collaborate – Hurdles to overcome

- Lawyers, responsibility
- Overhead – need to setup a DFS?, CMS?
  - Distributed file system
  - Content Management systems?
- Do we want to see every change?
- Network speed issues
- Hardware issues

# Integrated Practice – What's next?

## To Truly Collaborate – Goals

- One common model vs. various 3d models
- Databases connected to these models
- Dynamic links between all design members

# Integrated Practice – What's next?

## To Truly Collaborate – Benefits

- It would enforce real time coordination
- Everyone is looking at the same data
- Coordination is more productive
- Data management is more effective

# Integrated Practice – External

## Summary

**Design team members move closer together.**

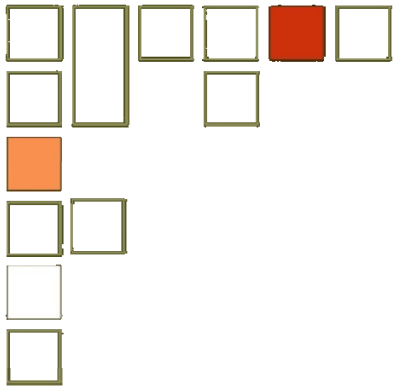
Q: What can SE contribute to an integrated work flow?

A1: Provide smooth interface into project BIM.

A2: Front-load structural coordination for critical details.

## Main Benefits

- Improved coordination.
- Advanced schedule.
- Better quality bids.



# Questions?

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