

Efficiency Through Advanced Detailing



GHPhipps
CONSTRUCTION COMPANIES

MARTIN/MARTIN
CONSULTING ENGINEERS



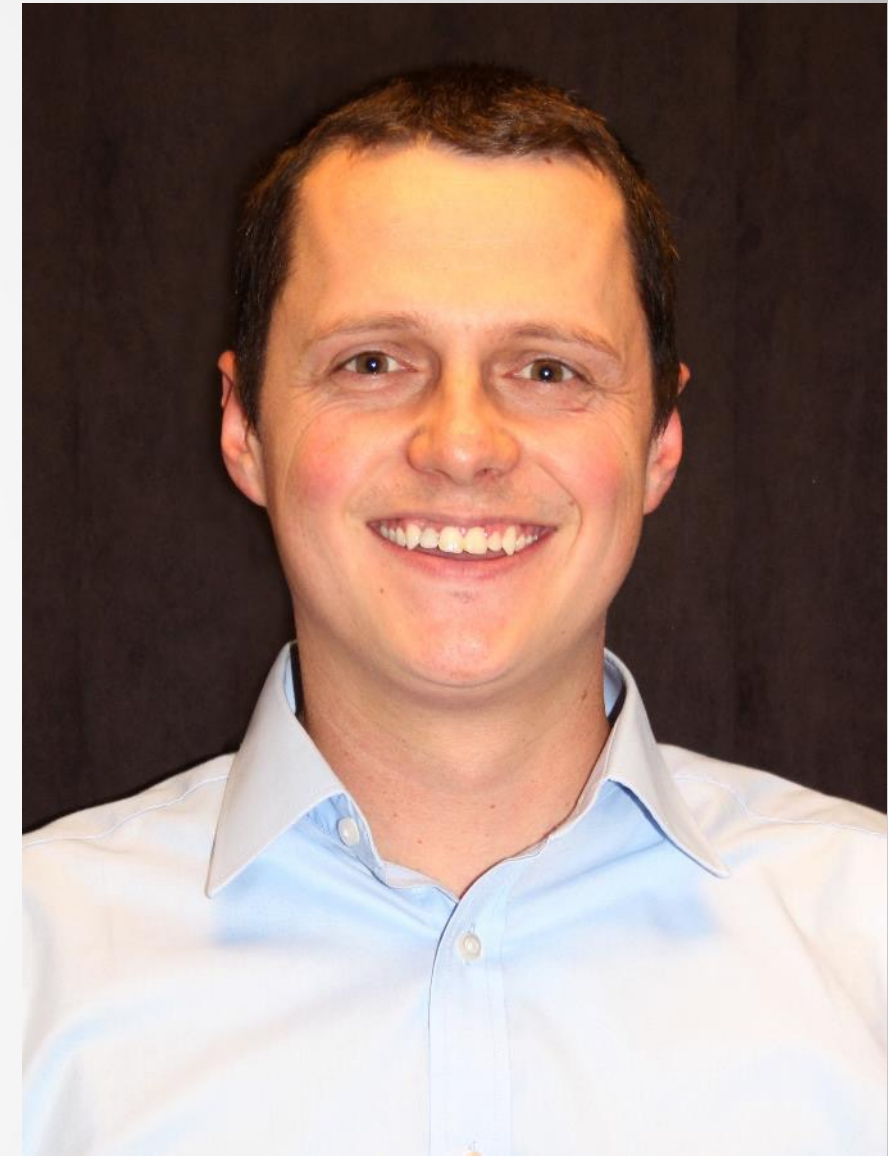
Shane Ewing, PE DBIA

Principal
Martin/Martin, Inc.



Gregg Behmer

VDC Manager
GH Phipps Construction



Grant Doherty

Project Manager
Martin/Martin, Inc.



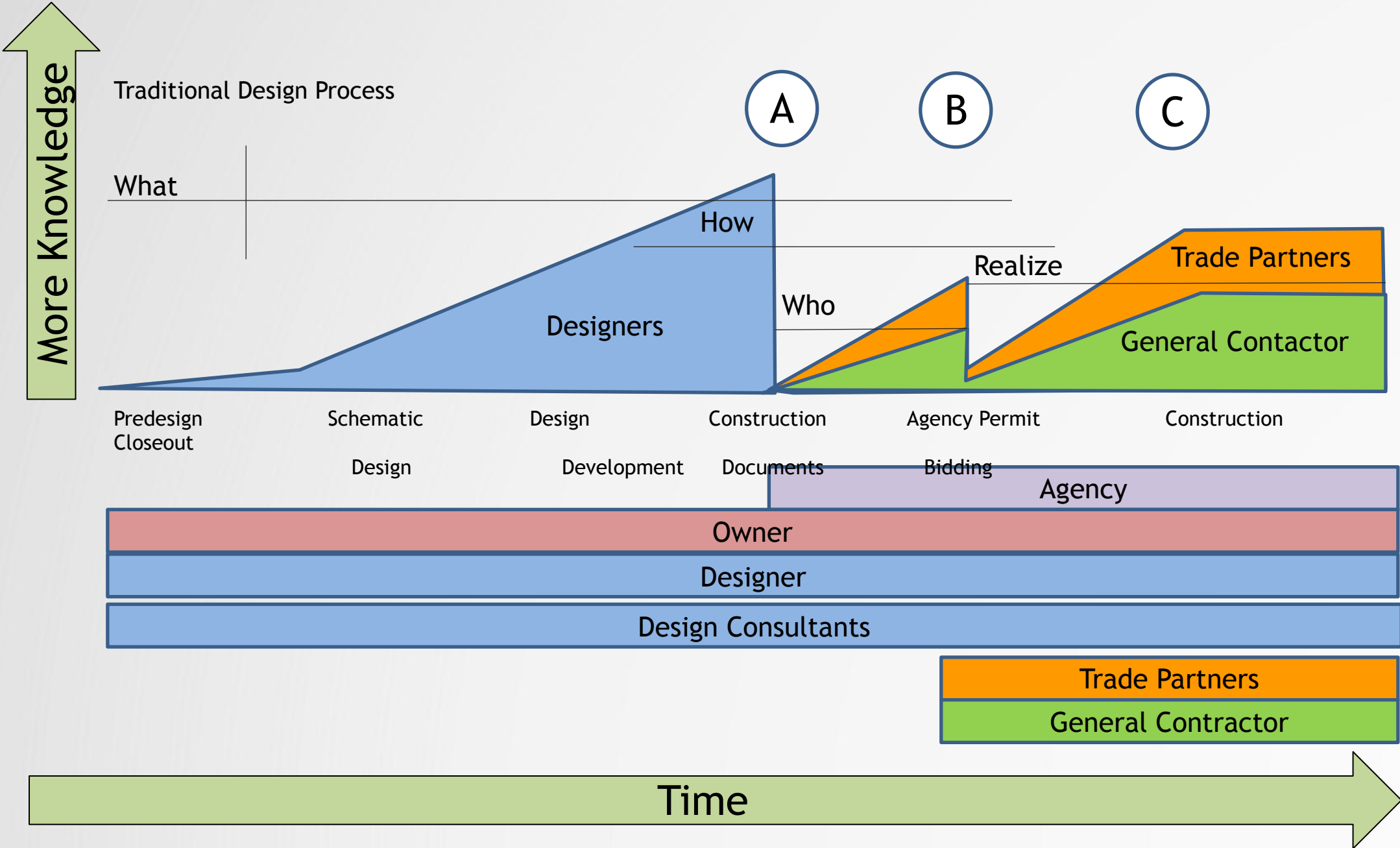
Efficiency Through Advanced Detailing

- Introduction and Background with Advanced Detailing
- The Process
- Advantages
- Challenges/Lessons Learned
- Opportunities

Introduction – GH Phipps

Knowledge vs. Information

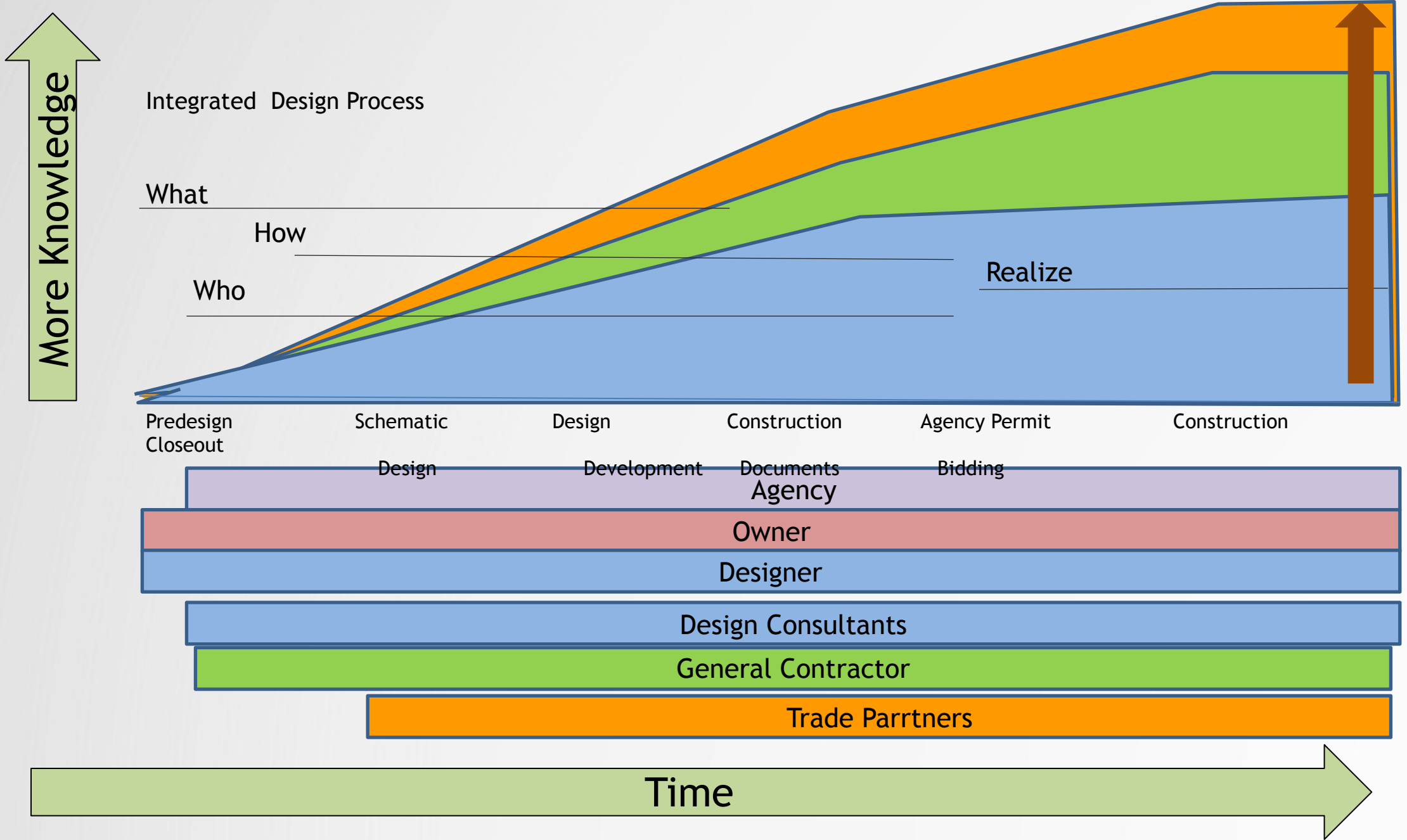
How knowledge is lost in Traditional Process



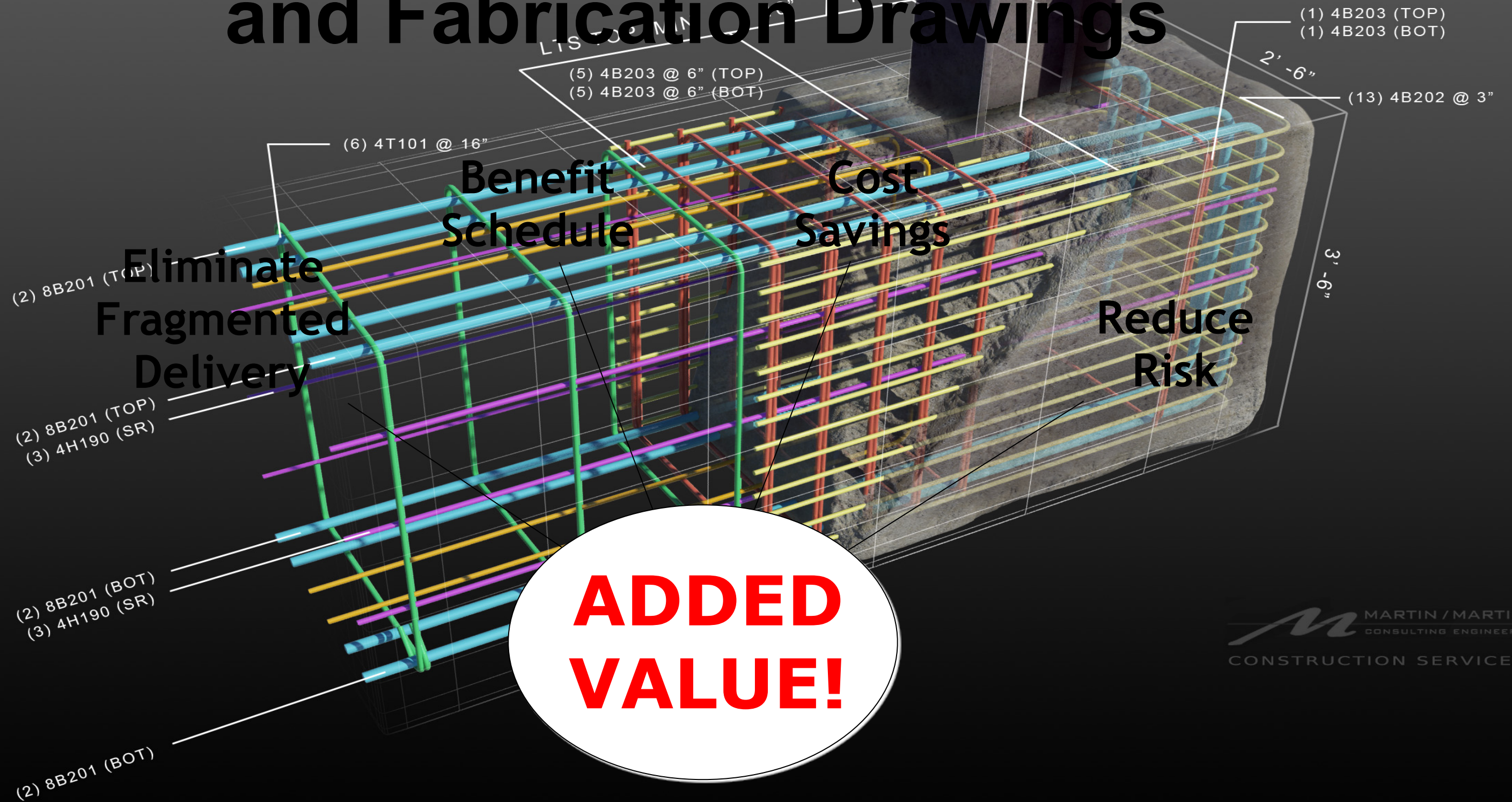
Introduction – GH Phipps

Knowledge vs. Information

How knowledge is retained through integrated process.

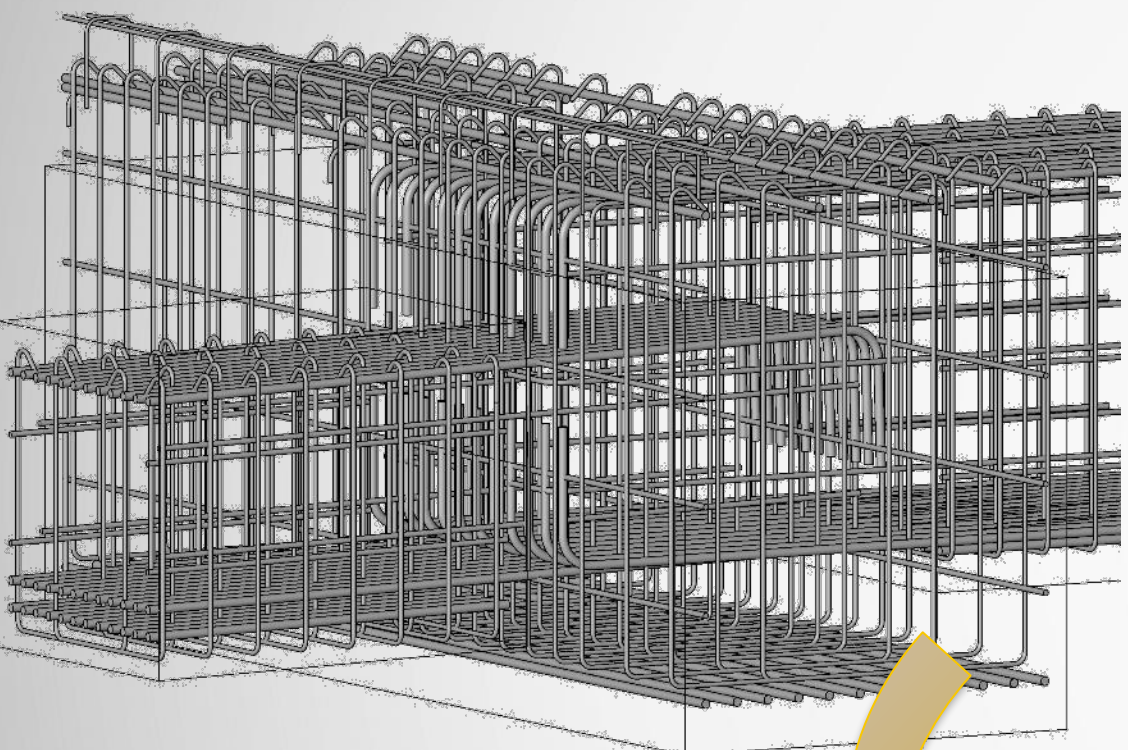


Integrated Specialty Engineering and Fabrication Drawings



Introduction – The Evolution

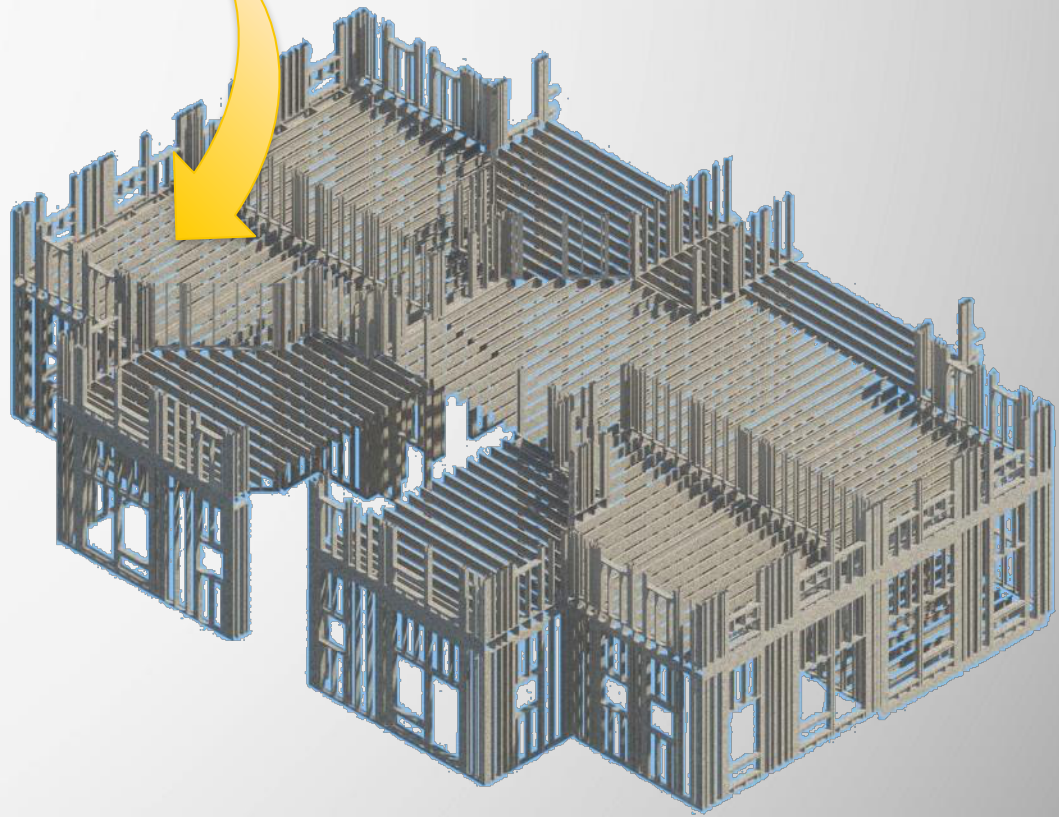
Rebar



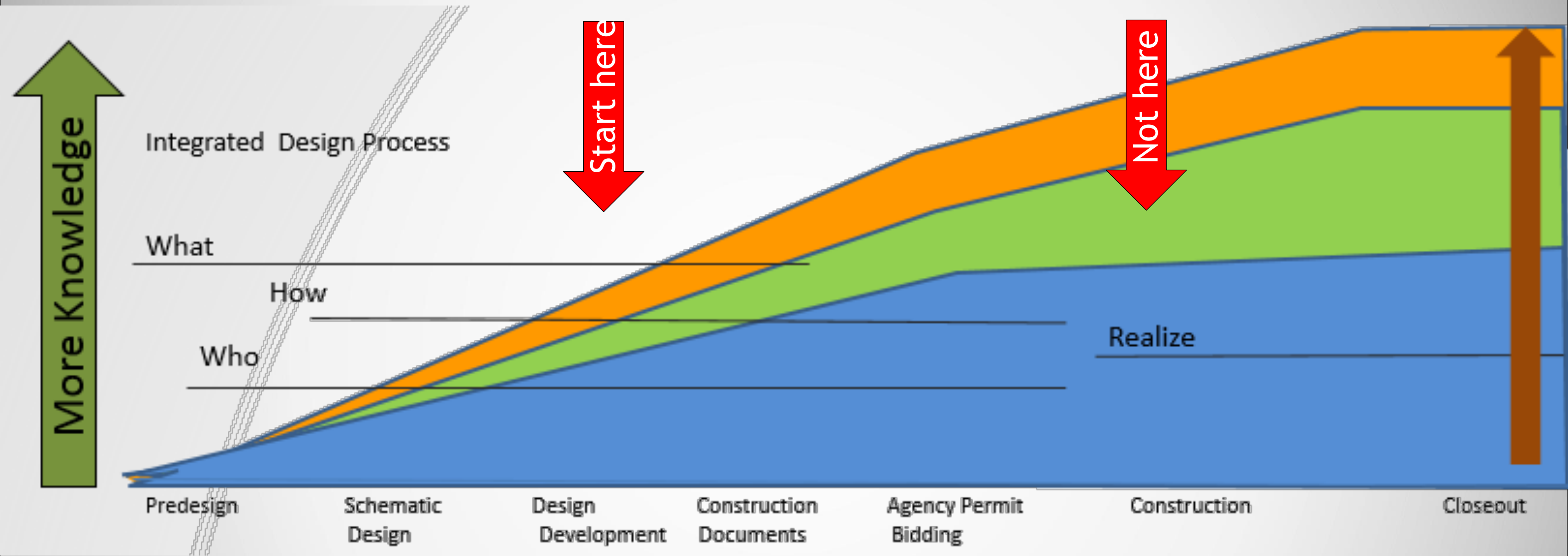
Steel



Cold Formed Steel



The Process – Does it Make Sense



The Process – Getting Started



The Process – Getting Started



AGENDA

Martin/Martin, Inc.
Platte Valley MOB Pre-Detailing Meeting Agenda
November 11, 2014

ATTENDEES:

General Contractor:	GH Phipps
PM Superintendent:	
M/M Detailing Project Manager:	
Rebar Fabricator:	
Rebar Installer:	

AGENDA ITEMS:

1. Structural Steel
 - a. Structural Steel Connection Types
 - b. Bolted vs Welded
 - c. Level of Development
2. Rebar
 - a. Maximum Reinforcement Length
 - b. Pour Break Locations
 - c. Level of Development

The Process – Doing the Work

“C” is for
Cookie...&
Collaboratio
n

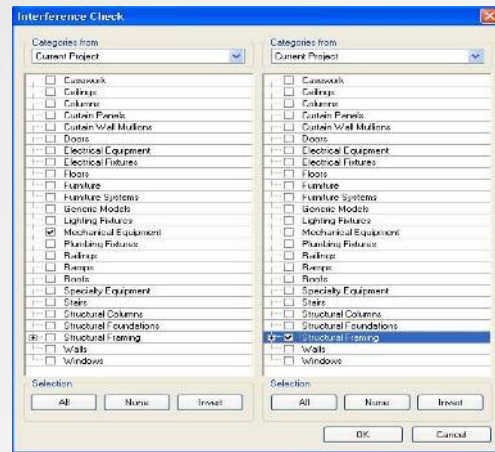
3 C's of BIM and Design

Build

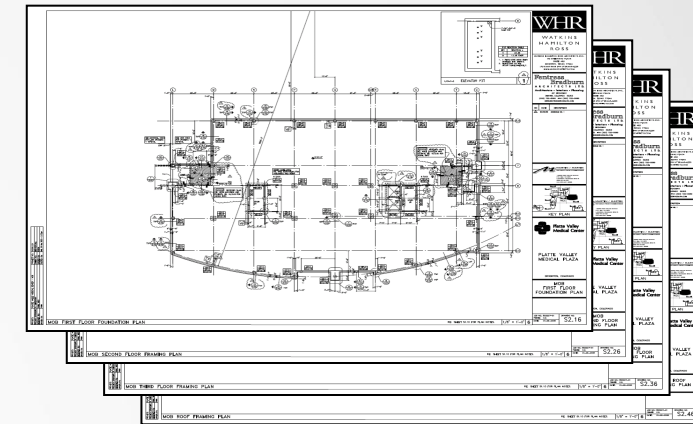
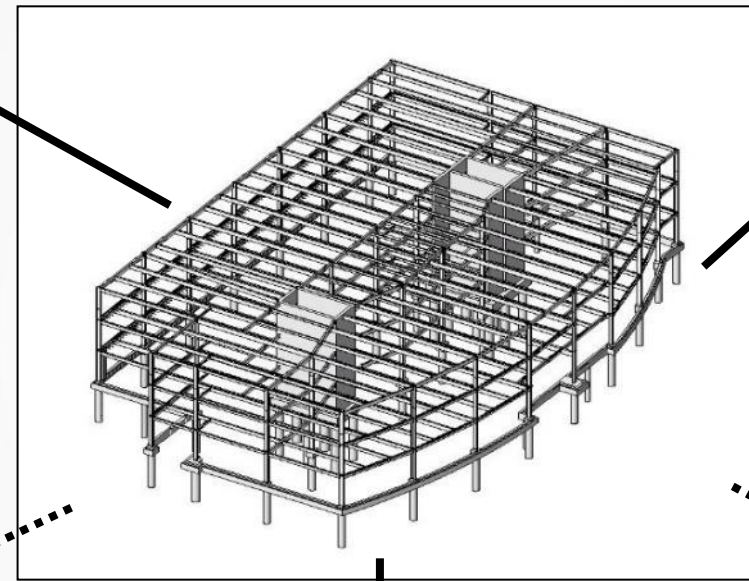
- Coordination
- Communication
- Collaboration



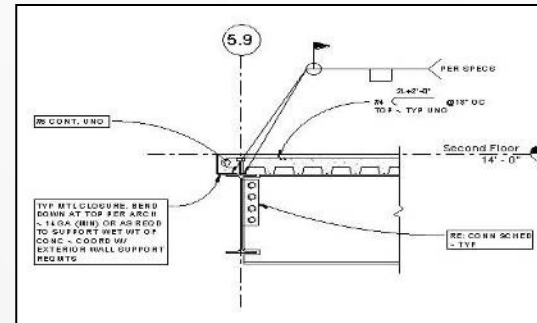
BIM The Google of your Building



Interference Checking & Coordination



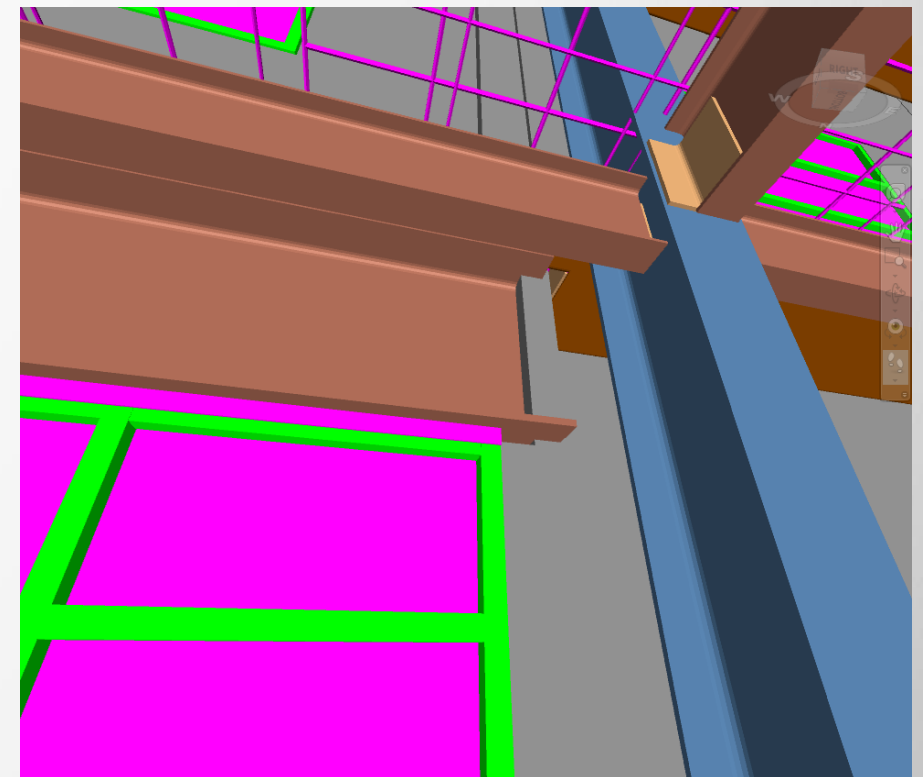
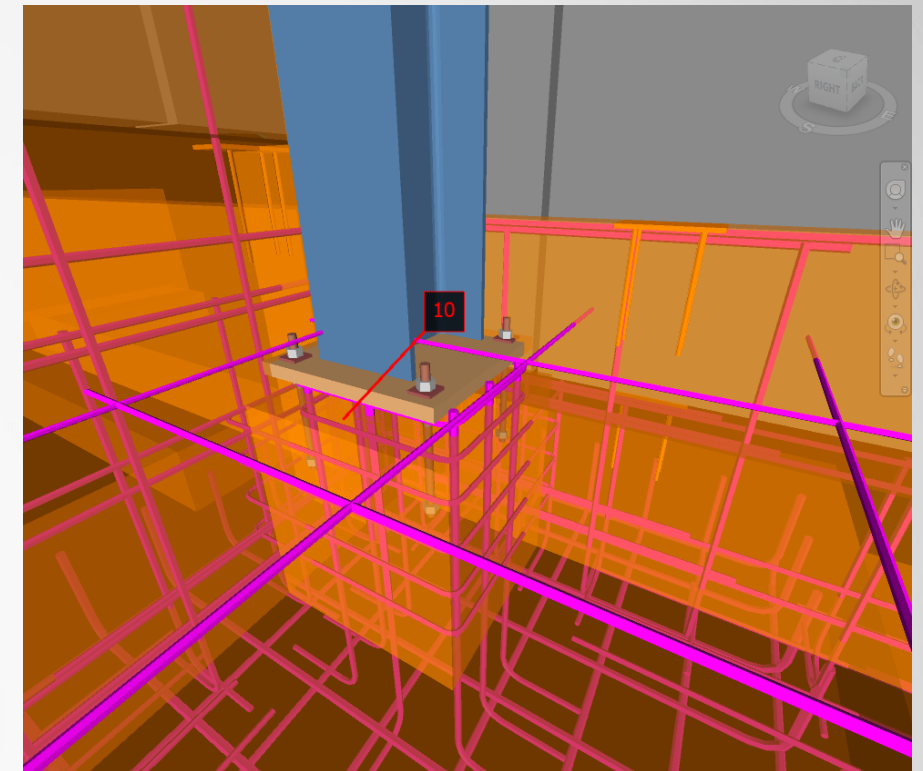
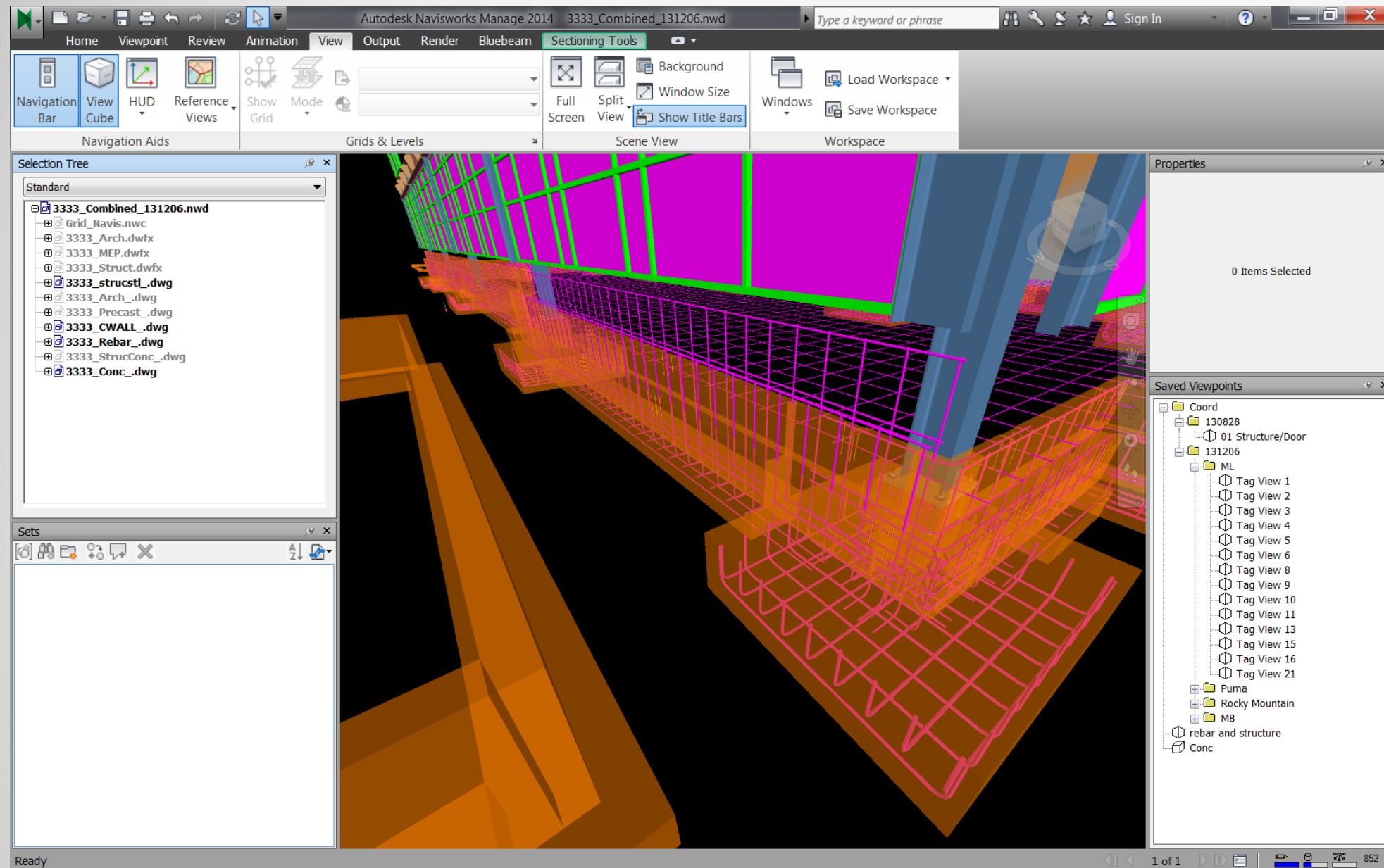
Drawings & Documentation



Sections & Details

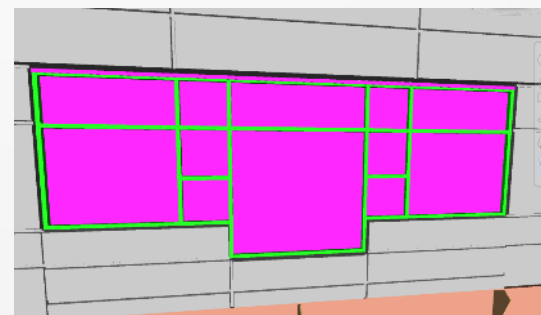


The Process – Doing the Work

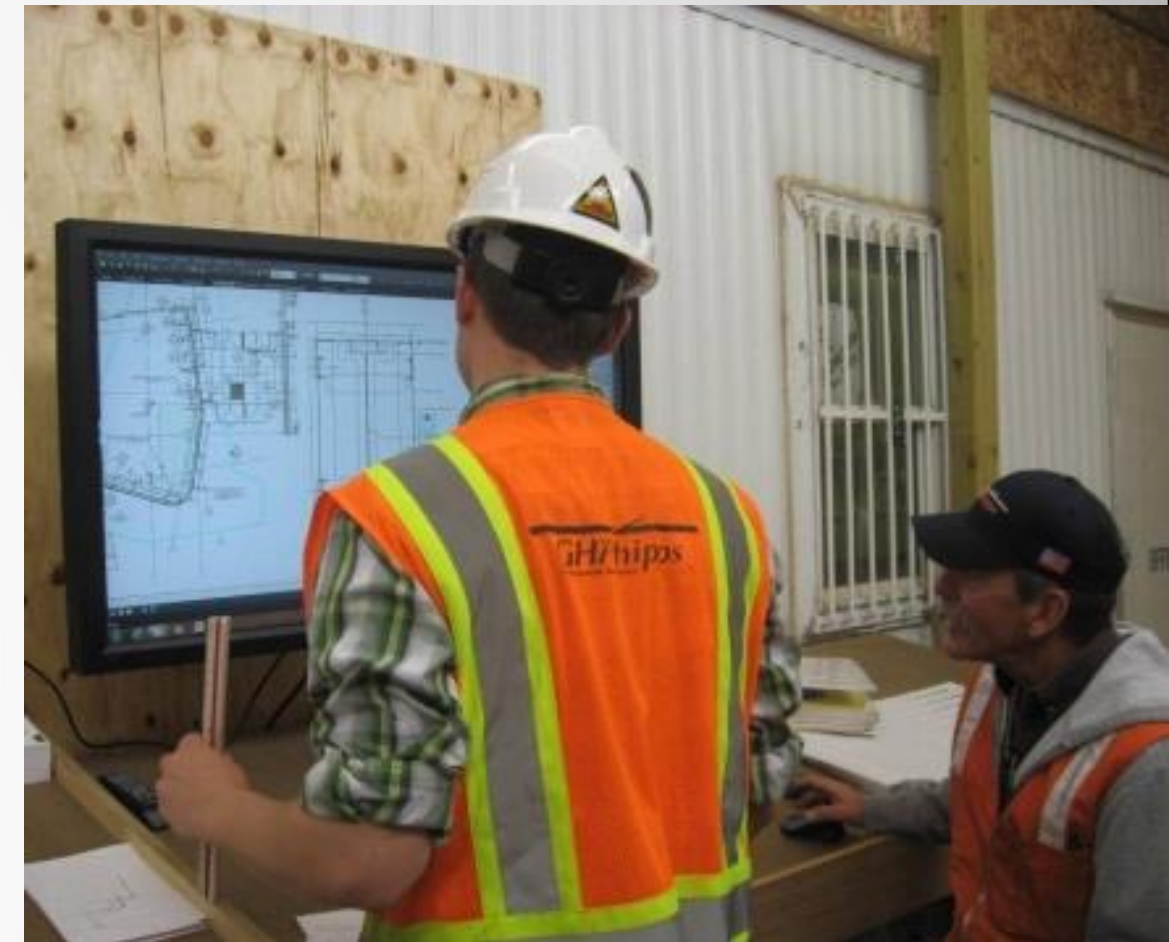
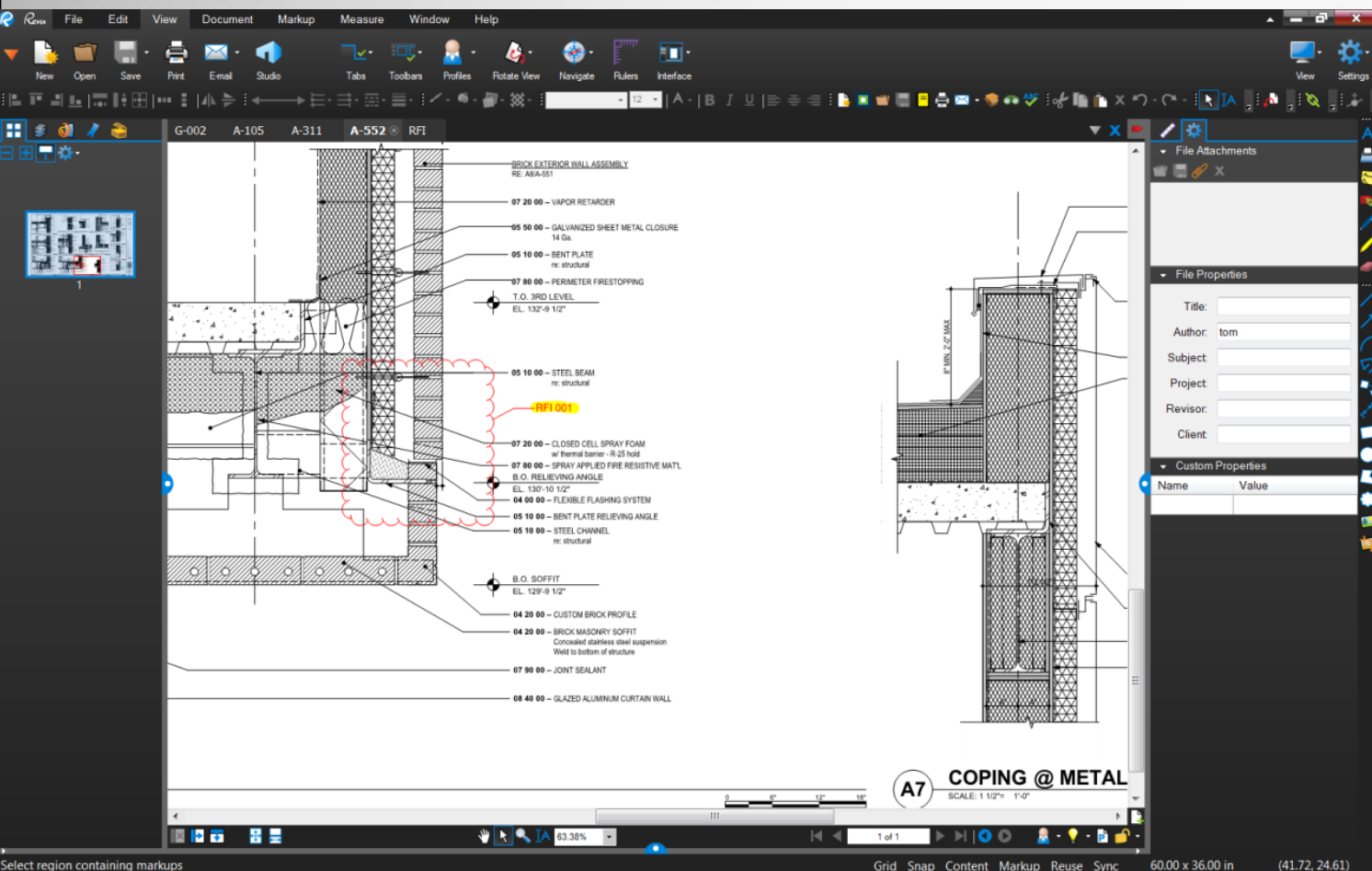


Fabrication Models

- Concrete
- Rebar
- Precast
- Structural steel
- Glazing



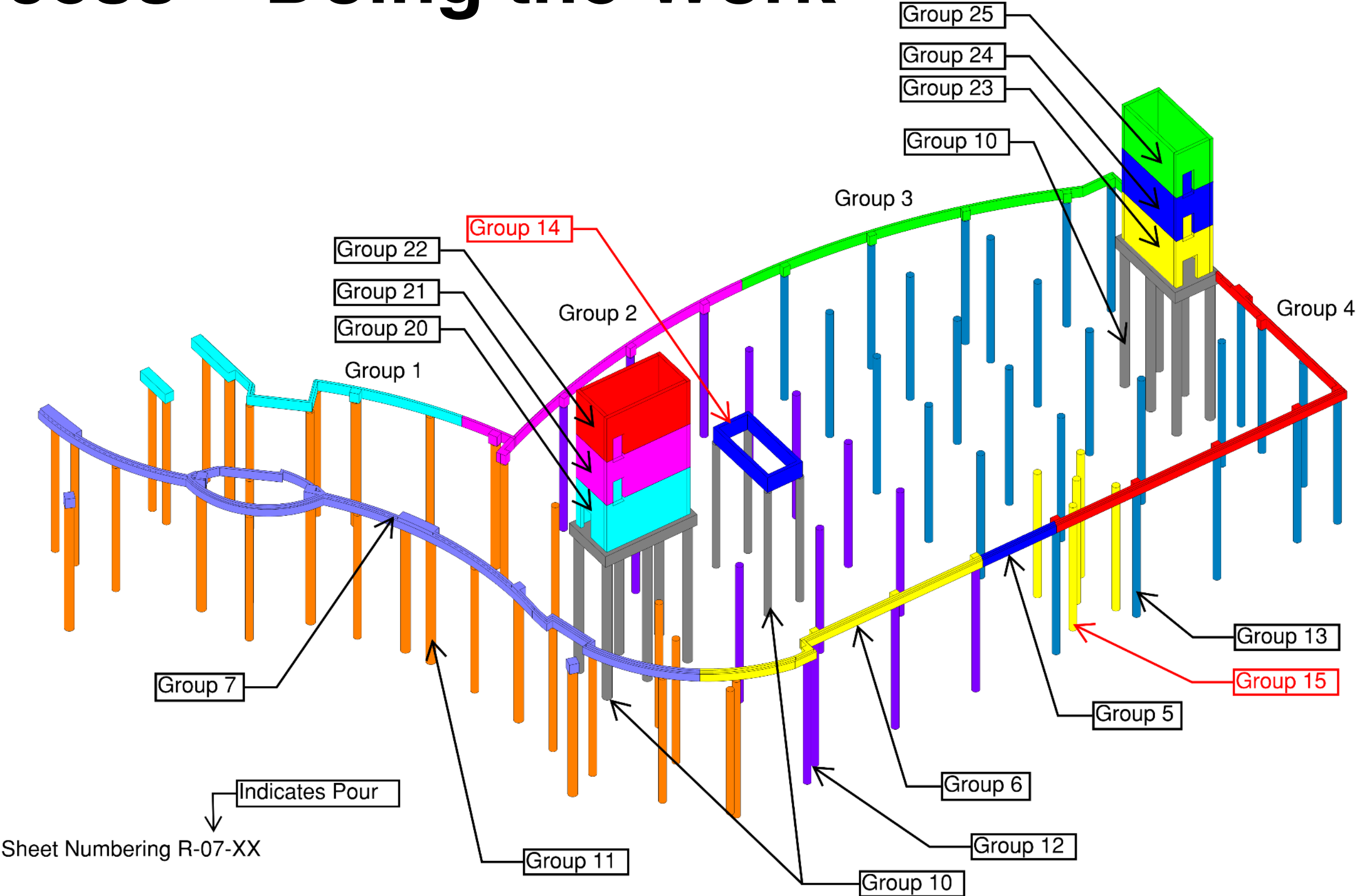
The Process – Doing the Work



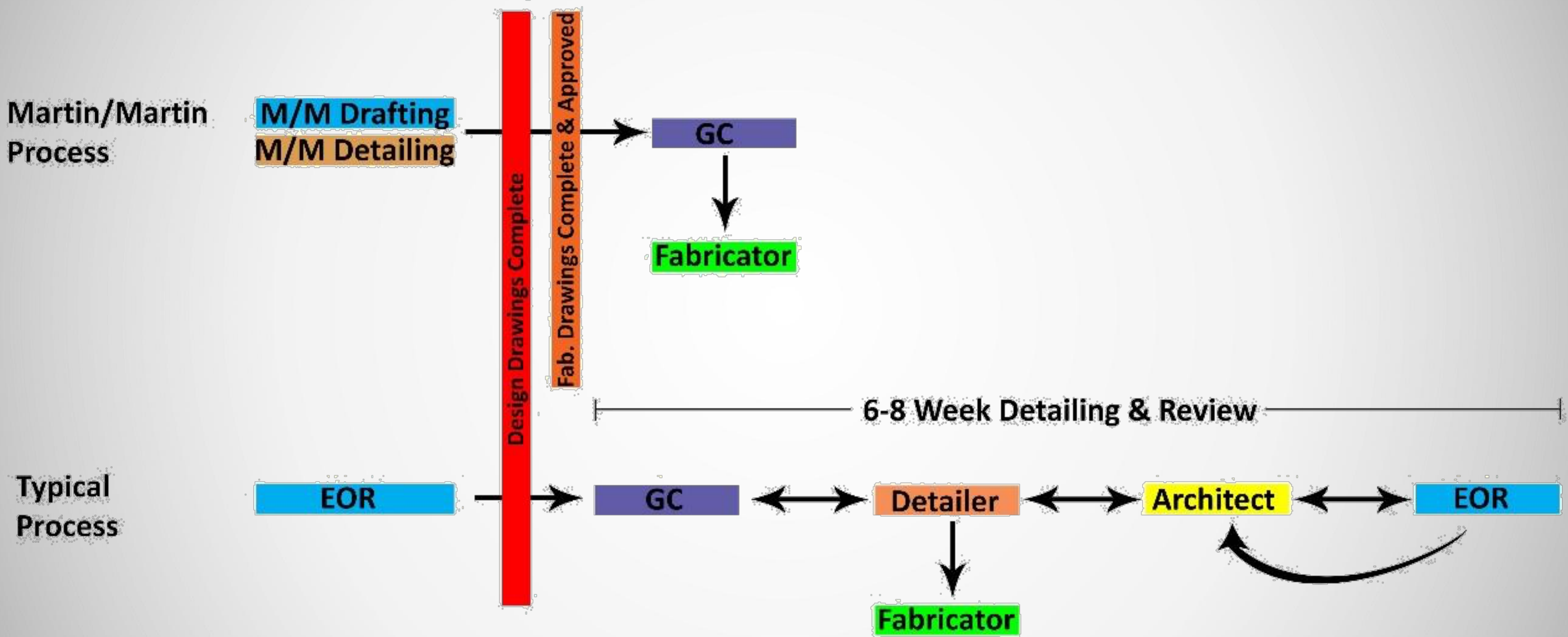
Model/Building Awareness

- Coordination with fabrication models
- Virtual plan room in trailer and kiosk in building
- Use of Bluebeam
- Use of Model viewers such as Navis

The Process – Doing the Work



Advantages - Schedule





Advantages – Quality

- More effective advanced planning and coordination
- Enhanced drawing quality (both CDs and Shops)
- Fewer field issues
- Fewer RFI's

Advantages – Cost/Risk

Cost

- Possible use in bidding
- Greater cost certainty
- Risk reduction
 - defer it
 - bring it closer and control it
- Optimized design



Challenges/Lessons Learned

- Early contracting, and perception of no competitive bidding. Can be less of an issue for D/B?
- Up front costs
- Early information that is required by design team and construction team (design decision other integrated contractor information)
- Team engagement in process/staffing





Questions?

Relationships (GH Phipps and Martin/Martin Detailing Projects)
Denver Museum of Nature and Science ECF
Powers Skilled Nursing Facility
Grand Junction Skilled Nursing Facility
Colorado State University Animal Science
University of Colorado CASE
Platte Valley Medical Center MOB