



The Future of Structural Detailing

Advance Steel, Revit, and NISD's CD-BIM

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Steel Fab



Class summary

This session will present the new National Institute of Steel Detailers (NISD) curriculum for the Certificate of Detailing in Building Information Modeling (CD-BIM). This progressive new curriculum is free online and was done in a collaborative partnership with Autodesk, Inc. It highlights the foundational elements of BIM and additionally covers key topics such as model element Level of Development (LOD) in conjunction with the 2015 BIMForum's LOD Specification. The course will show the fundamentals of creating and implementing good modeling practices as well as quality control and checking. It will also include the creation of shop drawings, details, erection drawings, and other fundamental elements of steel fabrication, such as advanced bills of materials. The curriculum is geared toward high school students and secondary education, and it introduces individuals to the structural steel industry, creating the next generation of steel detailers as well as structural engineers and steel fabricators.

Key learning objectives

At the end of this class, you will be able to:

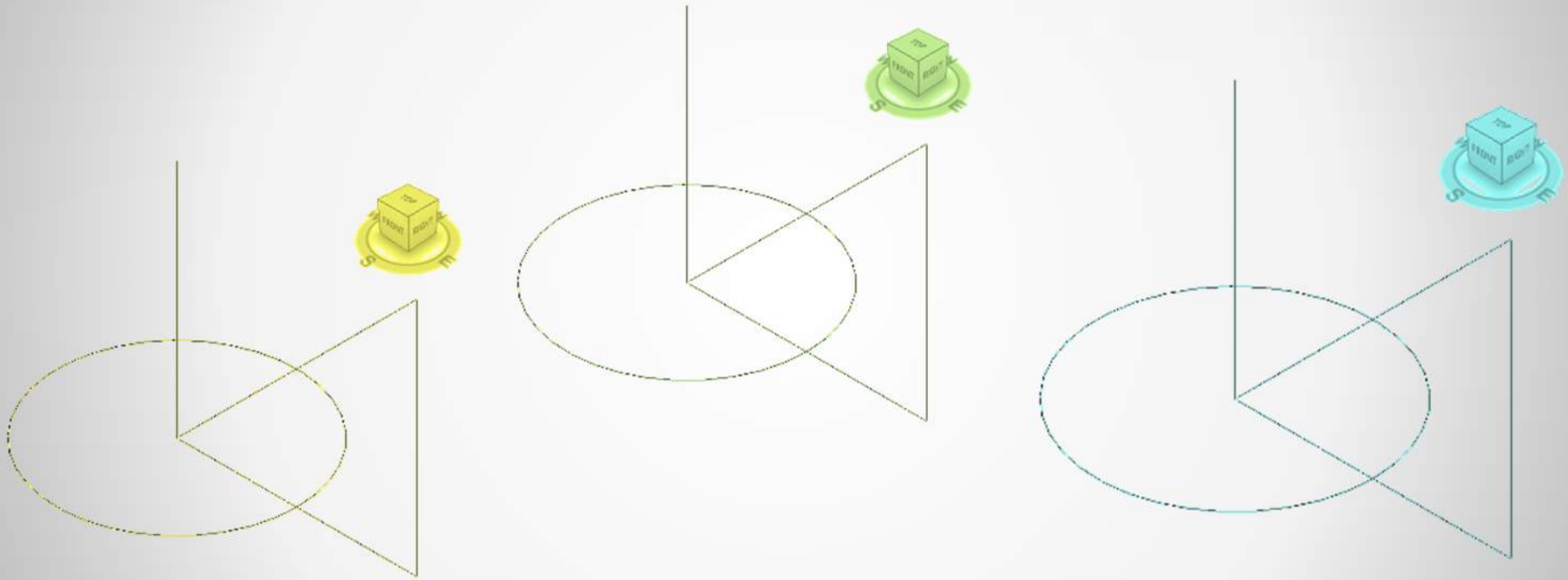
1. Discover the role of steel detailing
2. Discover the certification for steel detailing
3. Discover the role of Advance Steel & Revit Structure
4. Discover NISD and the CD-BIM

Discover the role of Advance Steel in the process of structural steel fabrication and how it works with Revit Structure

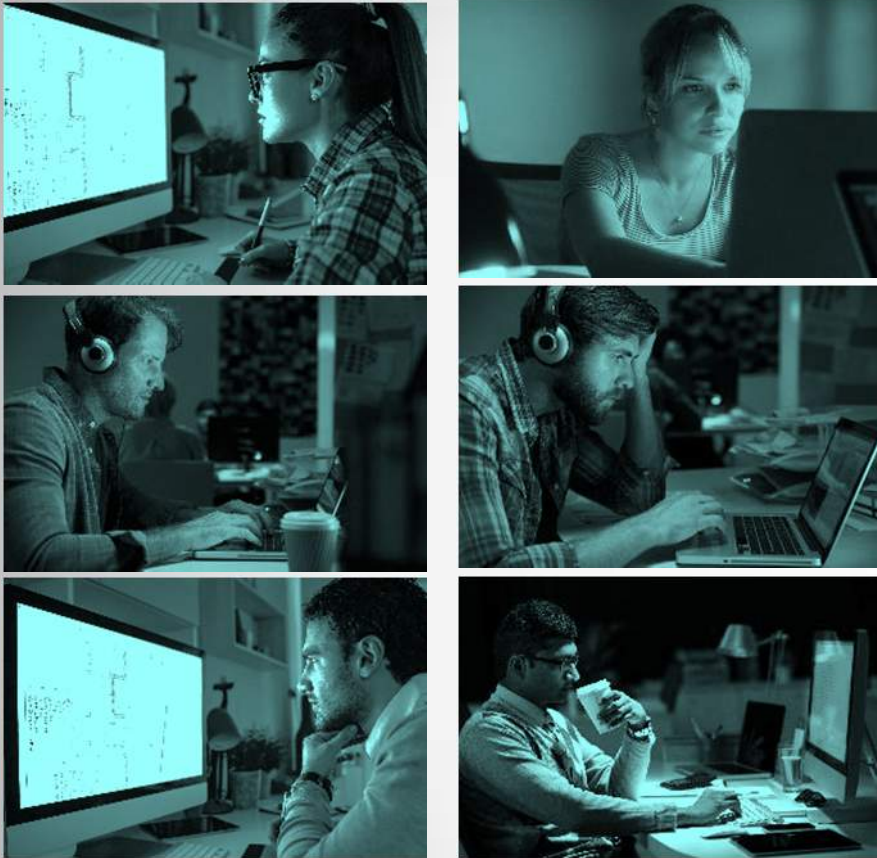
POOR MEETING ATTENDANCE



BAD ORIGINS



INCOMPETENT MODELER



..... SLEEPING AT THE
SWITCH....
While the team works...

MODELERS NOT IN SYNC WITH TEAM



BIM for the Modeler Masses

The whole team needs know
modelers/detailer have training with:

- 1) BIM Fundamentals
- 2) Easy Access
- 3) Affordable
- 4) Certifies Competency



Solution: CD-BIM

Certificate of Detailing in BIM

- 1) Free Training Content
- 2) Basics of BIM for Modelers
- 3) Simple Online 1 hr Exam
for a nominal fee



The Solution

CD-BIM



National Institute of Steel Detailing

**Certificate of Detailing
in Building Information Modeling
CD-BIM Part 2 : Structural Steel**

John Doe Detailer

*Has met the requirements of the CD-BIM program for part 2 Discipline Specific
Structural Steel.*

Helen Walker Head

Helen Walker Head, BIMd, Program Director for CD-BIM

Dec. 1, 2015 | #XXXXXXXX

Issue Date | CD-BIM #

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Why CD-BIM?

- Clarity at Modeler Level
- Aids BIM Manager and Coordinator in training
- Unify the process with consistency & competency (level the playing field)
- Next Generation Training in BIM
- BIM Enabling Existing Modelers
- Provide meaningful education credits

HOW DO YOU DEFINE DETAILERS/MODELERS (WHAT IS IN IT FOR YOU)

- Design
 - Fabricate
 - Build
 - Operate
-
- **Modelers/Detailers are at all stages of projects.**



Office of Today




McCarthy BIM Field Station



What is CD-BIM?

- Certificate of Detailing in BIM
- Free online training
- Assessment to validate training
- Targeted at beginning and experienced BIM team members

What is CD-BIM?

- CD-BIM is intended to work with AGC CM-BIM
- NISD developed with publisher and training content provider: BIMxD Solutions, LLC
- Project Supported by  **AUTODESK**®

CD-BIM Sample BIM Execution Plan (BXP)

- CD-BIM curriculum
 - Include questions in assessment
- Represents common BxP provisions

CD-BIM Sample BIM Execution Plan (BXP)

BIM Execution Plan (BXP): WHY?

- Plan + Organize + Execute = Goals
- Defines Risk
- Affects profit
- Team needs a rules and a play book to win.
- Balance precision, accuracy, and tolerances

CD-BIM Sample BIM Execution Plan (BXP)

BXP General Topics

- Clash detection
 - Between trades
 - Verify constructability
- Frequent model sharing
 - Improves coordination
 - Proactive clash avoidance

CD-BIM Sample BIM Execution Plan (BXP)

BXP General Provisions

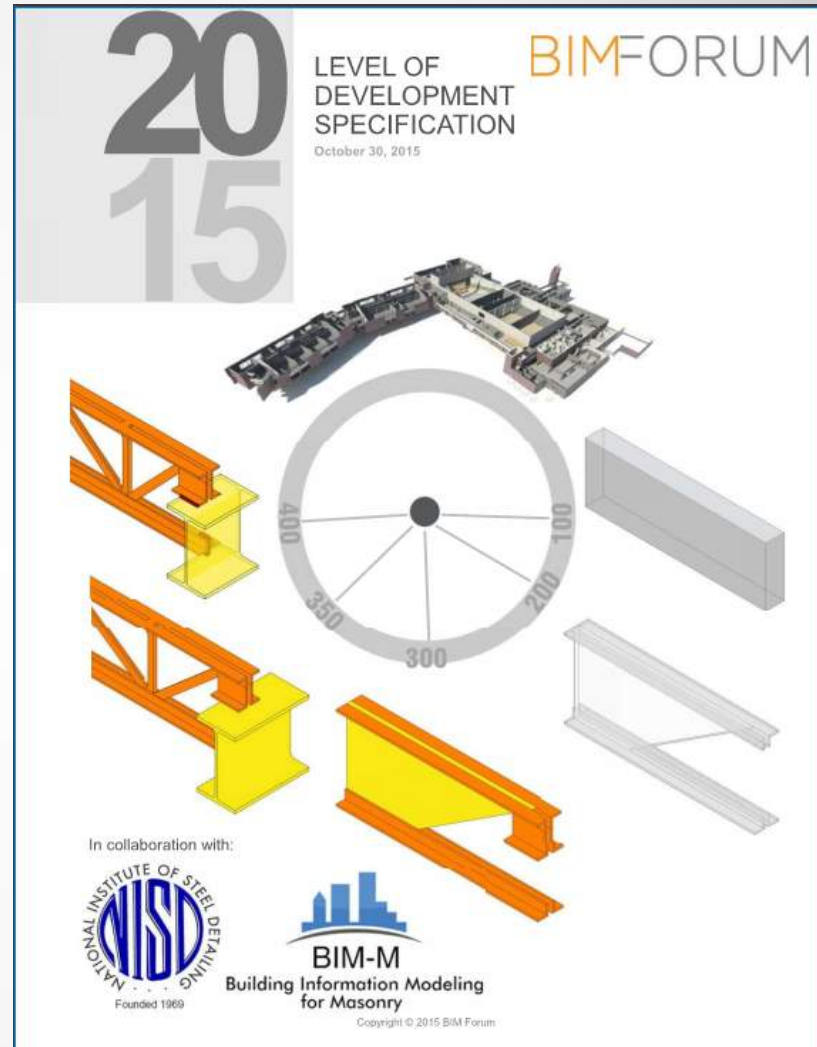
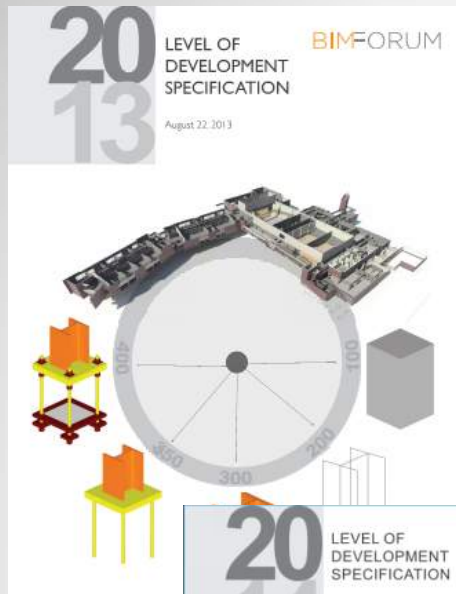
- File Sharing Site
- File uploading
- Upload deadlines

CD-BIM Sample BIM Execution Plan (BXP)

BXP PM Requirements

- Minimum BIM qualifications
 - BIM Managers = AGC CM-BIM
 - Detailers/ Modelers = NISD CD-BIM
- Kickoff meeting
- Software requirements

CD-BIM Sample BIM Execution Plan (BXP)



**BIM Forum
LOD SPEC.**

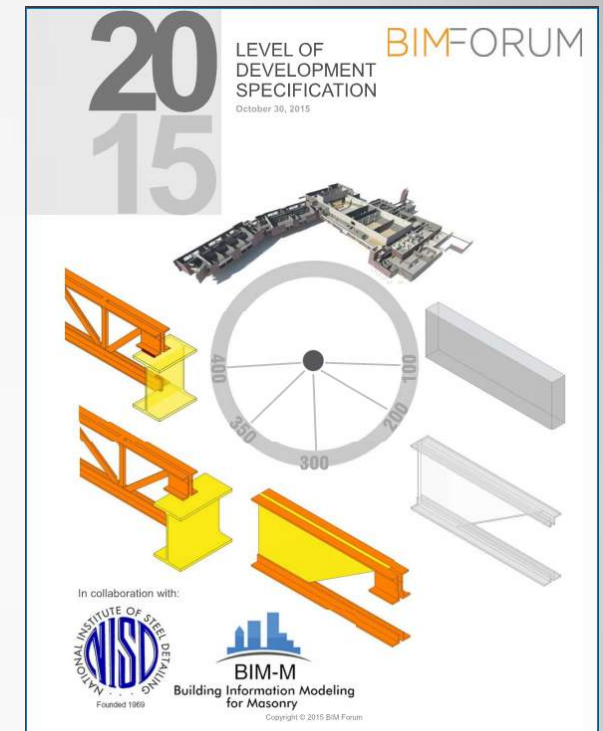


4.1 Fundamental LOD Definitions ³

LOD 100	The Model Element may be graphically represented in the Model with a symbol or other generic representation, but does not satisfy the requirements for LOD 200. Information related to the Model Element (i.e. cost per square foot, tonnage of HVAC, etc.) can be derived from other Model Elements.
LOD 200	The Model Element is graphically represented within the Model as a generic system, object, or assembly with approximate quantities, size, shape, location, and orientation. Non-graphic information may also be attached to the Model Element.
LOD 300	The Model Element is graphically represented within the Model as a specific system, object or assembly in terms of quantity, size, shape, location, and orientation. Non-graphic information may also be attached to the Model Element.
LOD 350	The Model Element is graphically represented within the Model as a specific system, object, or assembly in terms of quantity, size, shape, orientation, and interfaces with other building systems. Non-graphic information may also be attached to the Model Element.
LOD 400	The Model Element is graphically represented within the Model as a specific system, object or assembly in terms of size, shape, location, quantity, and orientation with detailing, fabrication, assembly, and installation information. Non-graphic information may also be attached to the Model Element.
LOD 500	The Model Element is a field verified representation in terms of size, shape, location, quantity, and orientation. Non-graphic information may also be attached to the Model Elements.

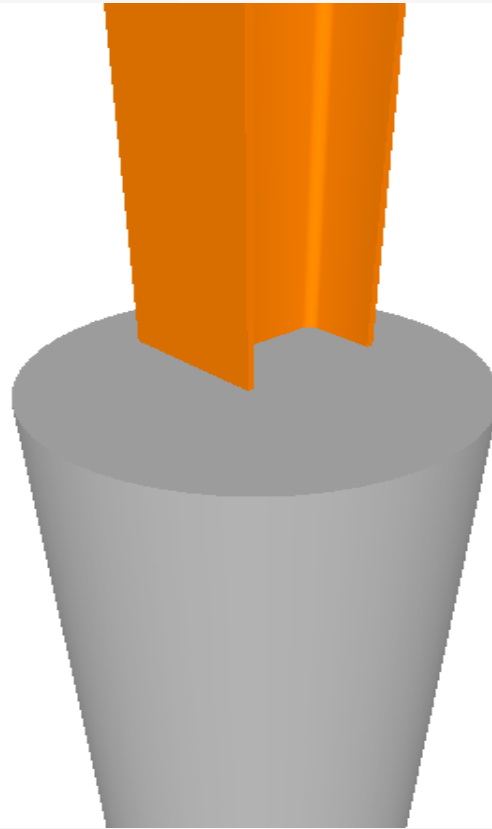
**BIM Forum
LOD SPEC.**





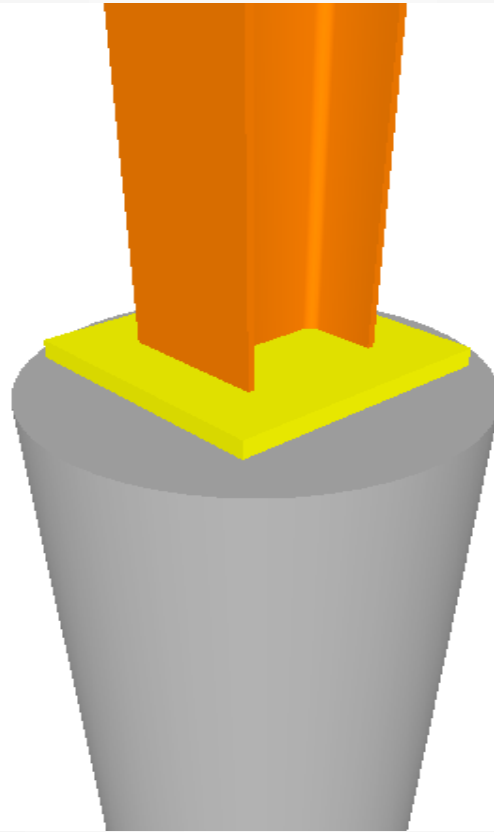
<http://bimforum.org/LOD>

BASE PLATE LOD 300



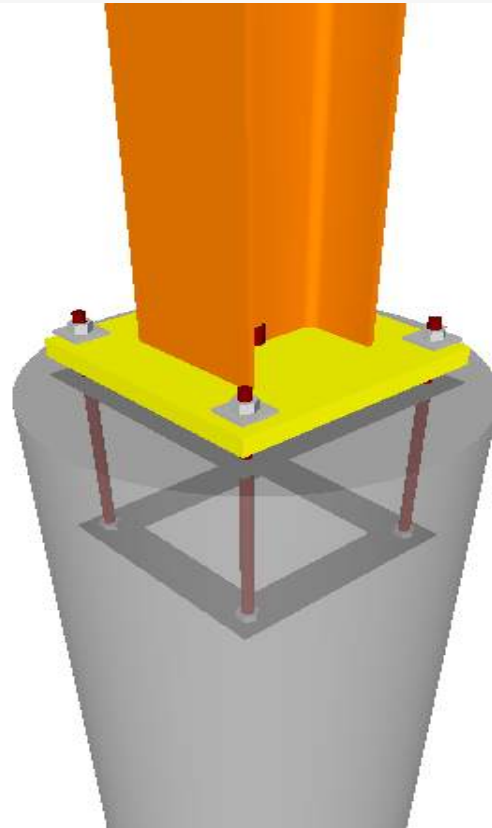
BIMFORUM

BASE PLATE LOD 350



BIMFORUM

BASE PLATE LOD 400



BIMFORUM

300 → 350 → 400



PERMIT



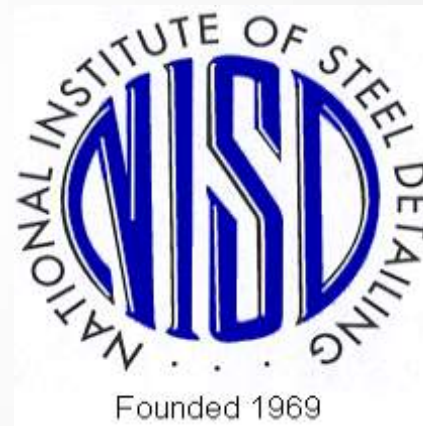
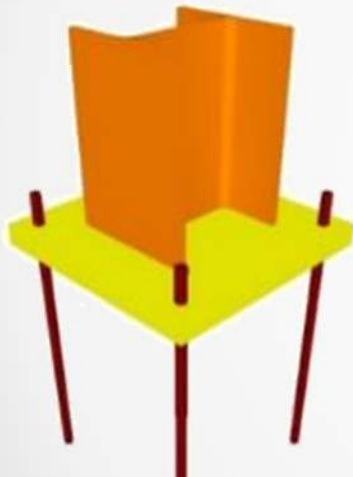
PRE-CON



PLACEMENT

BXP Trade Requirements

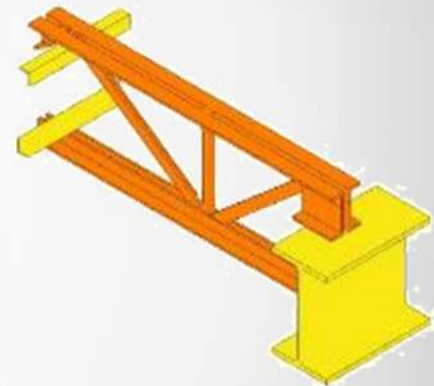
- National Institute of Steel Detailing



CD-BIM Sample BIM Execution Plan (BXP)

BXP Trade Requirements

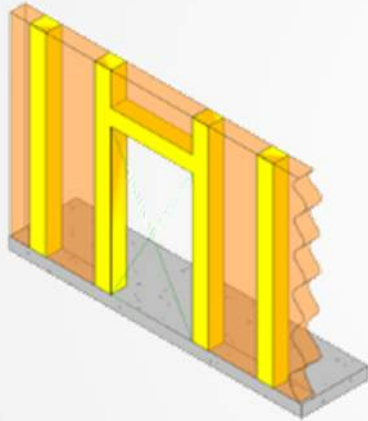
- Steel Joist Institute



CD-BIM Sample BIM Execution Plan (BXP)

BXP Trade Requirements

- Masonry BIM

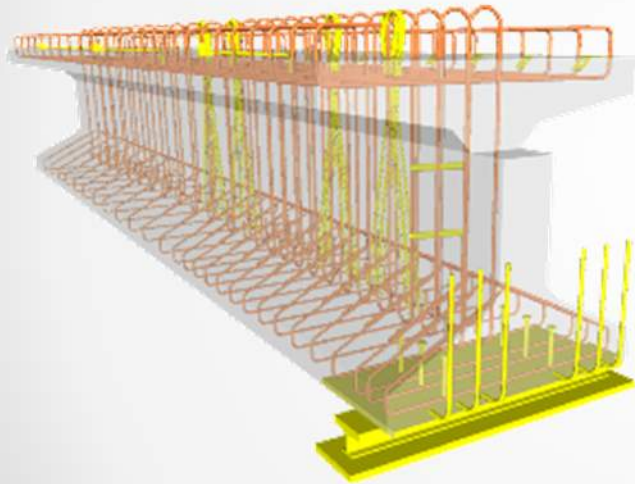


CD-BIM Sample BIM Execution Plan (BXP)



BXP Trade Requirements

- Precast Concrete Institute



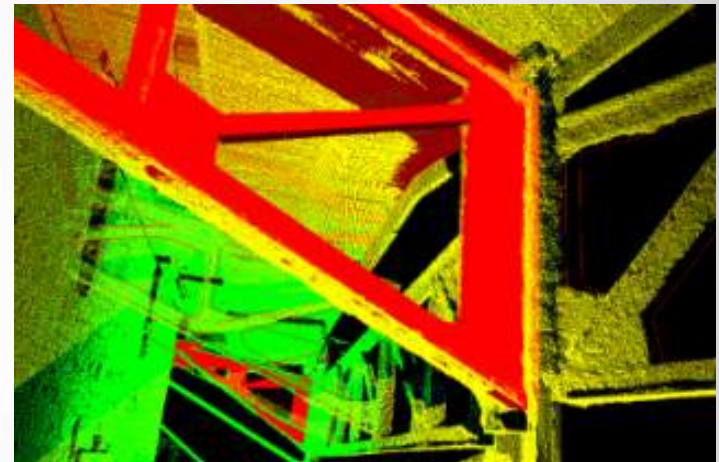
CD-BIM Sample BIM Execution Plan (BXP)



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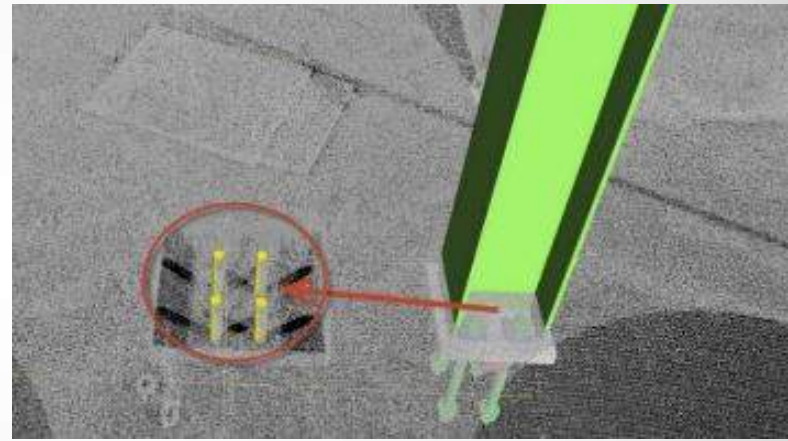
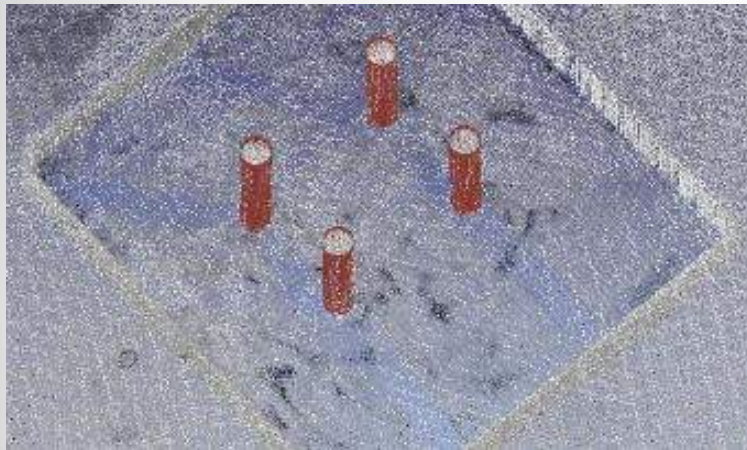


BXP Reality Capture



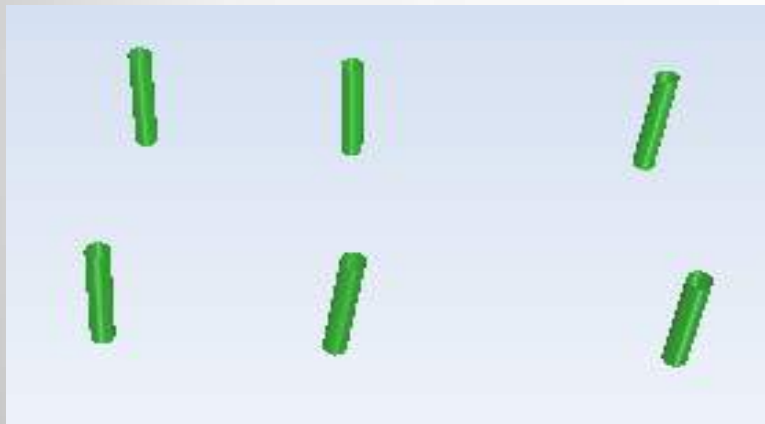
CD-BIM Sample BIM Execution Plan (BXP)

Laser Scanning for As-Builts

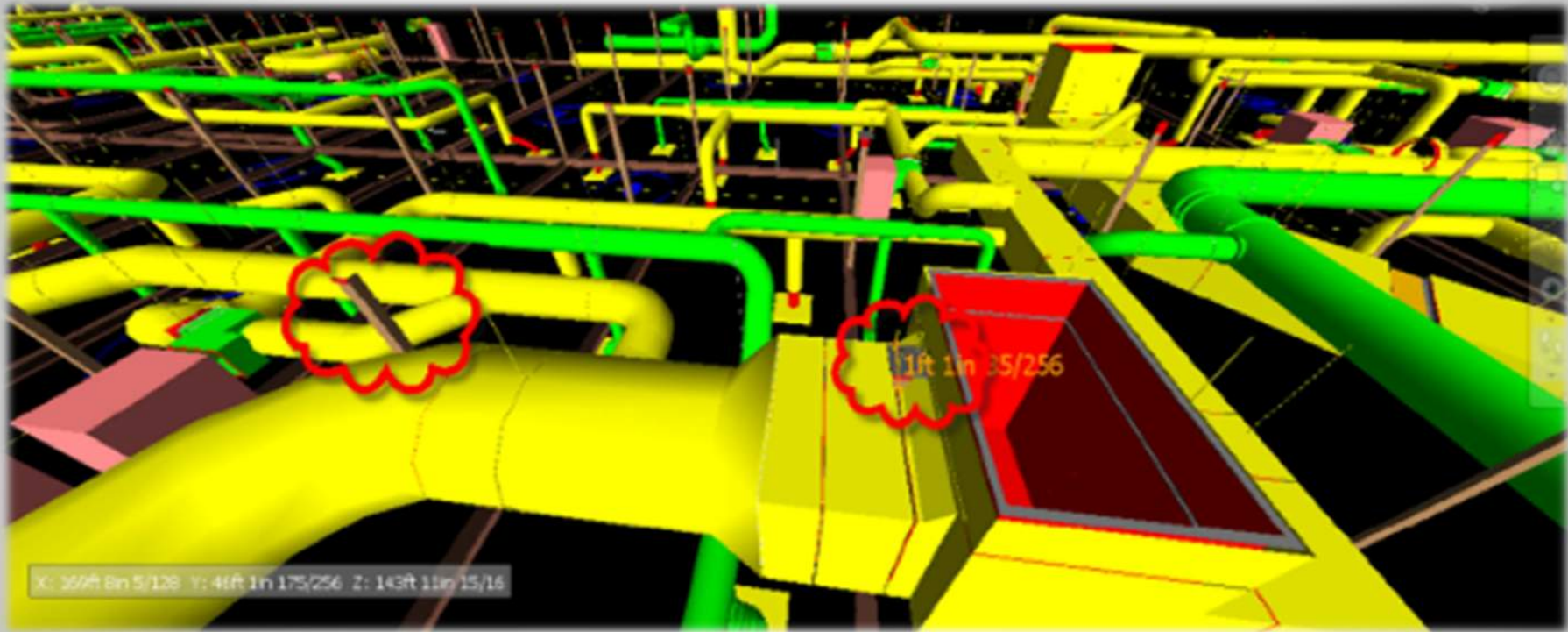


Laser For Construction Coordination & Repair

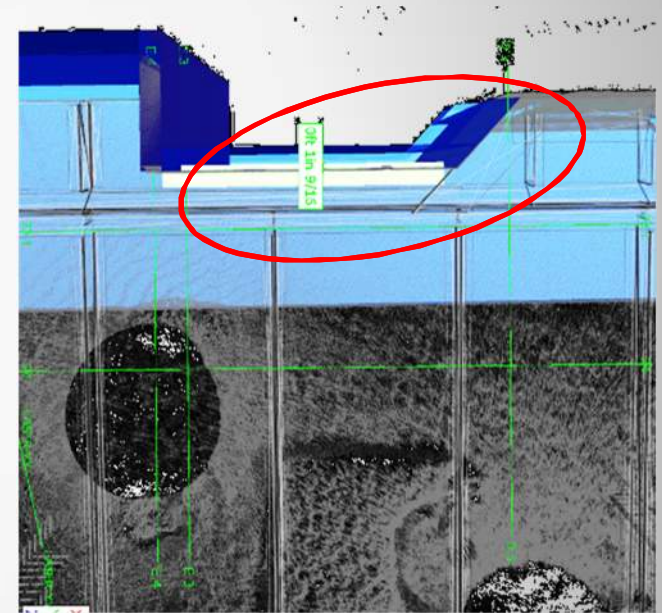
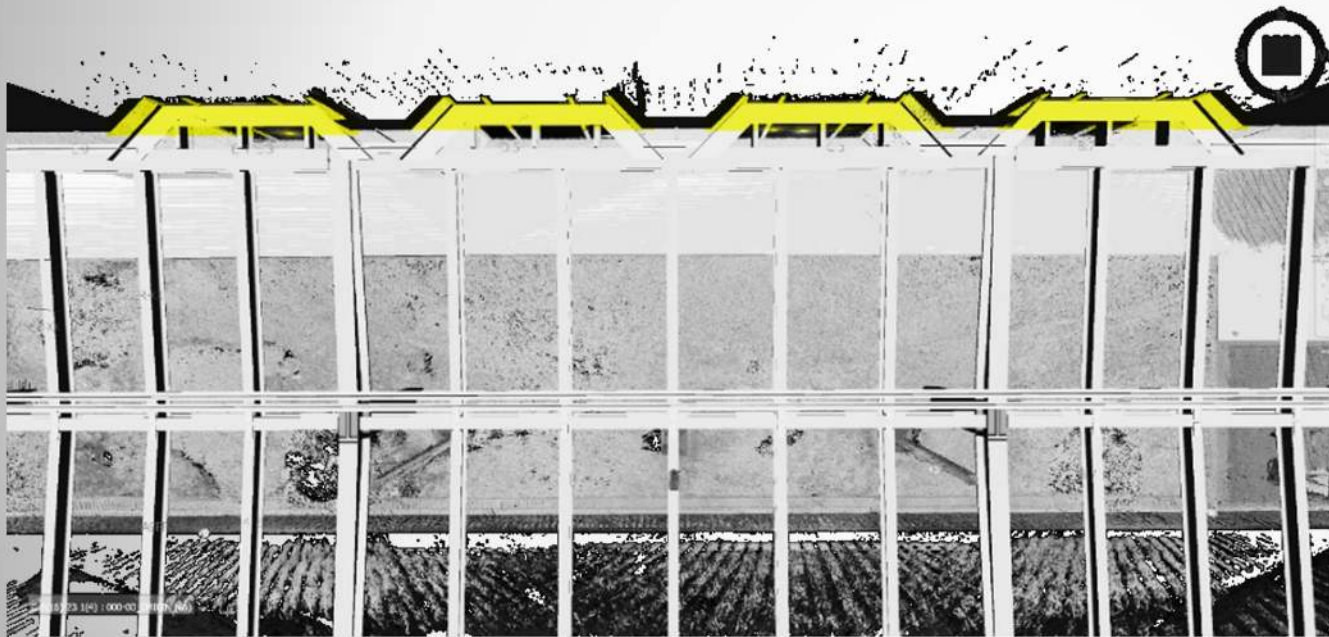




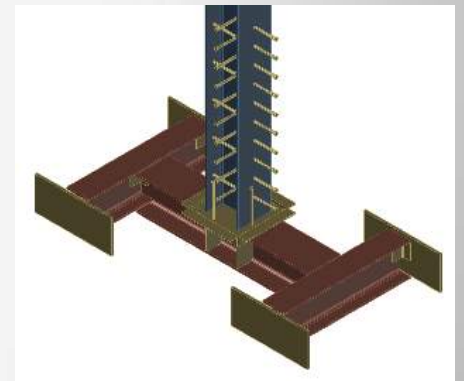
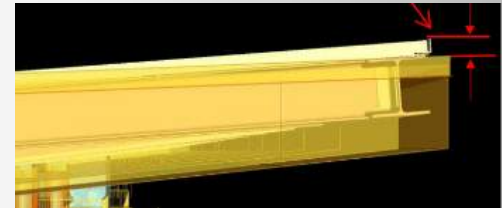
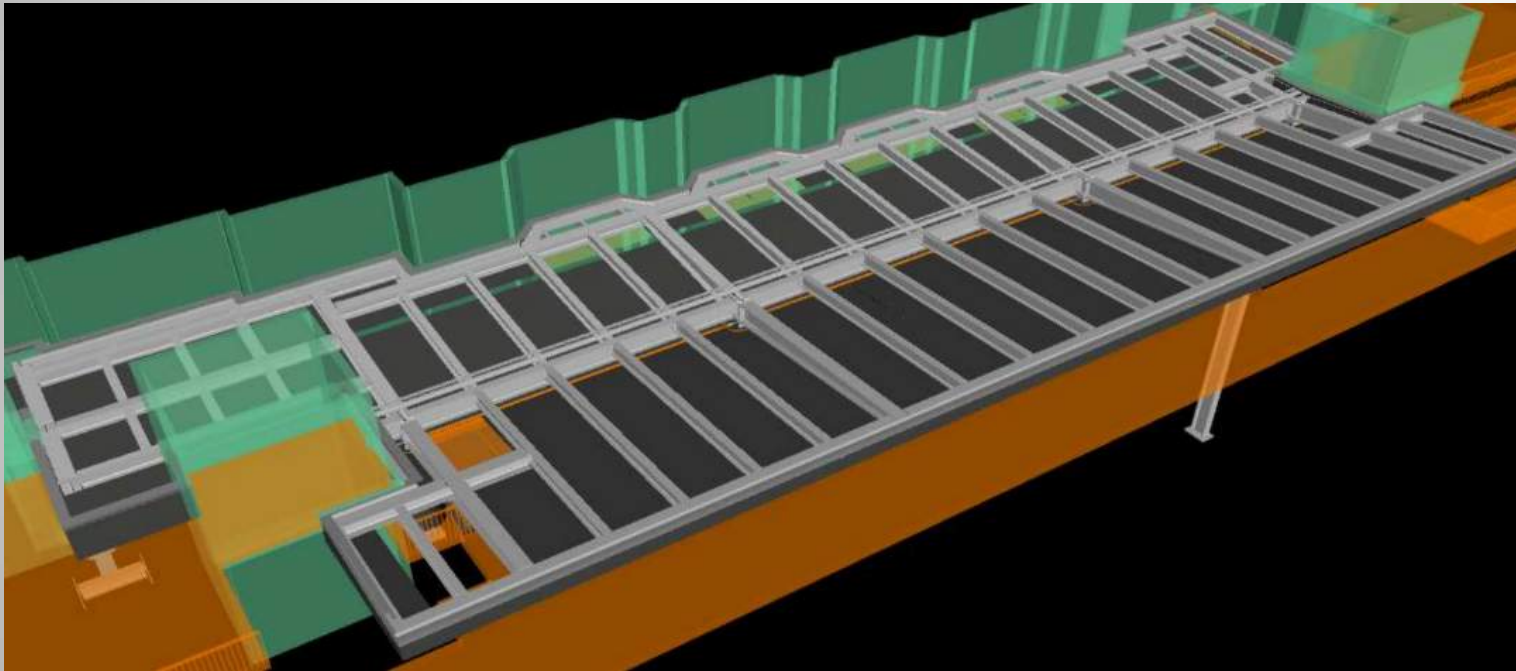
BIM AND TRADE COORDINATION LEVEL 350



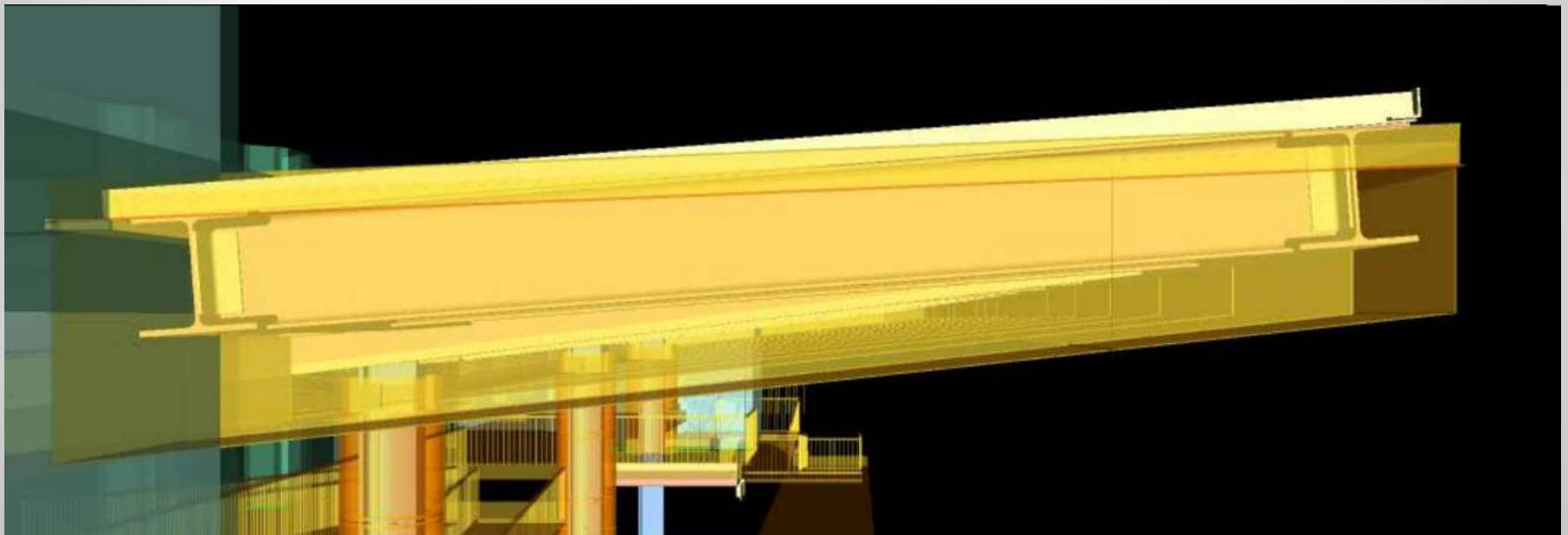
Understanding Existing Fit-up



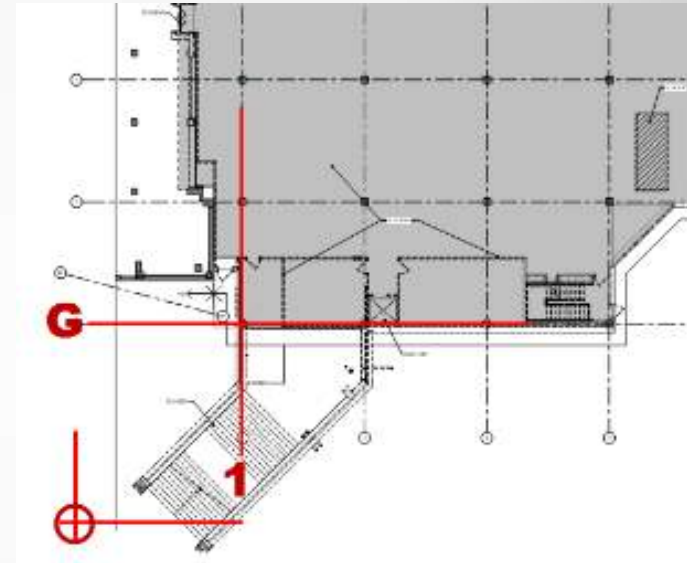
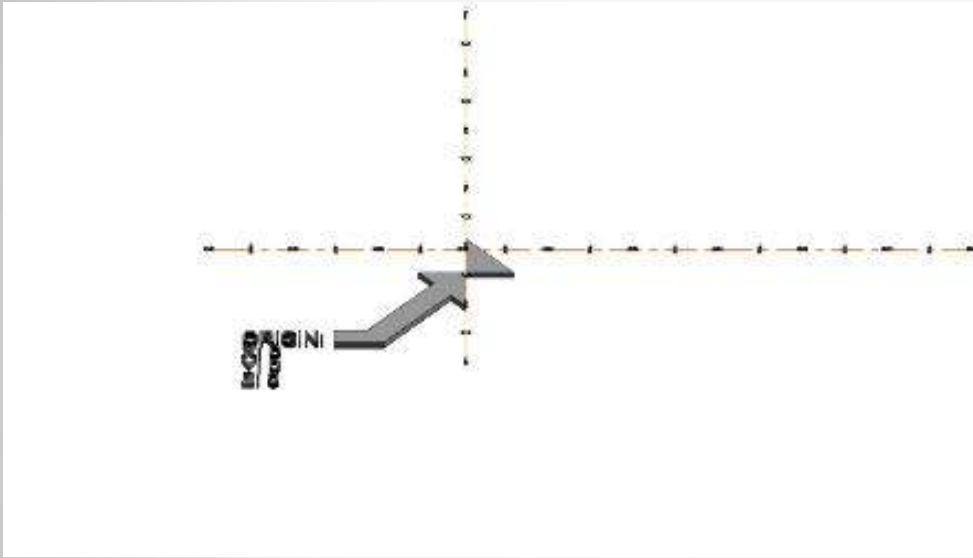
Memorial Herman



Not All Modelers Participated



BXP Project Coordinates



CD-BIM Sample BIM Execution Plan (BXP)

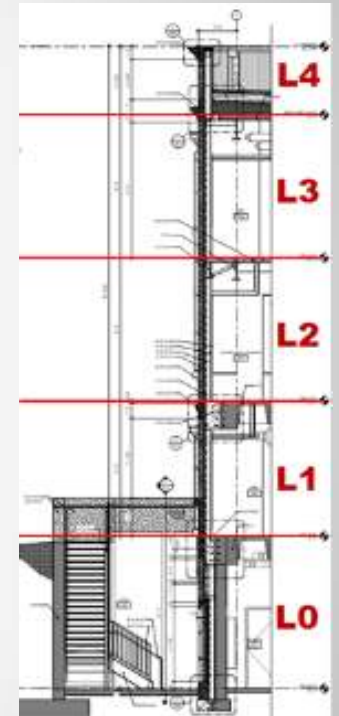


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BXP Project Zones

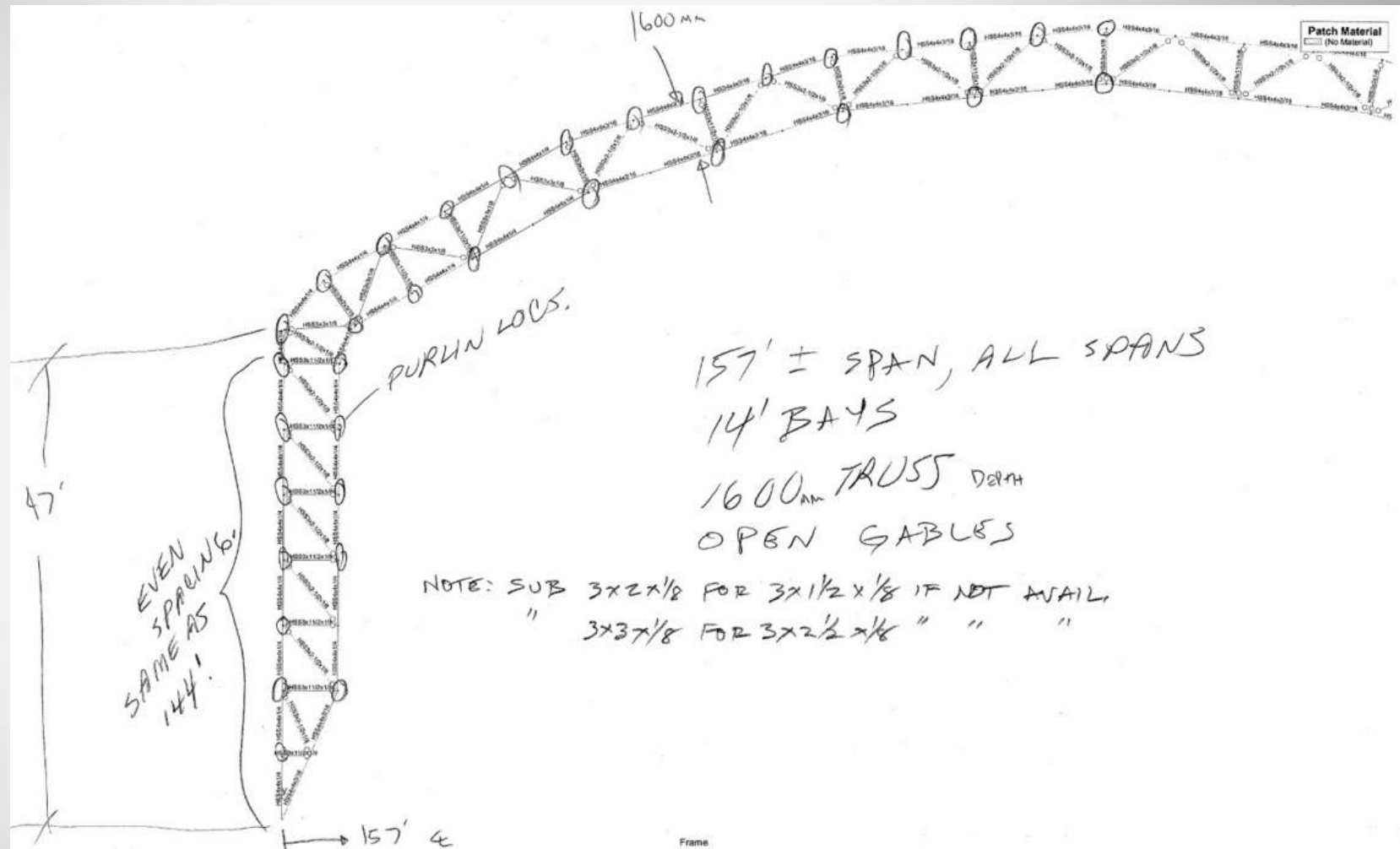
- Defining zones and levels of project
- Note: zones \neq structural steel sequ.
- Sample Convention



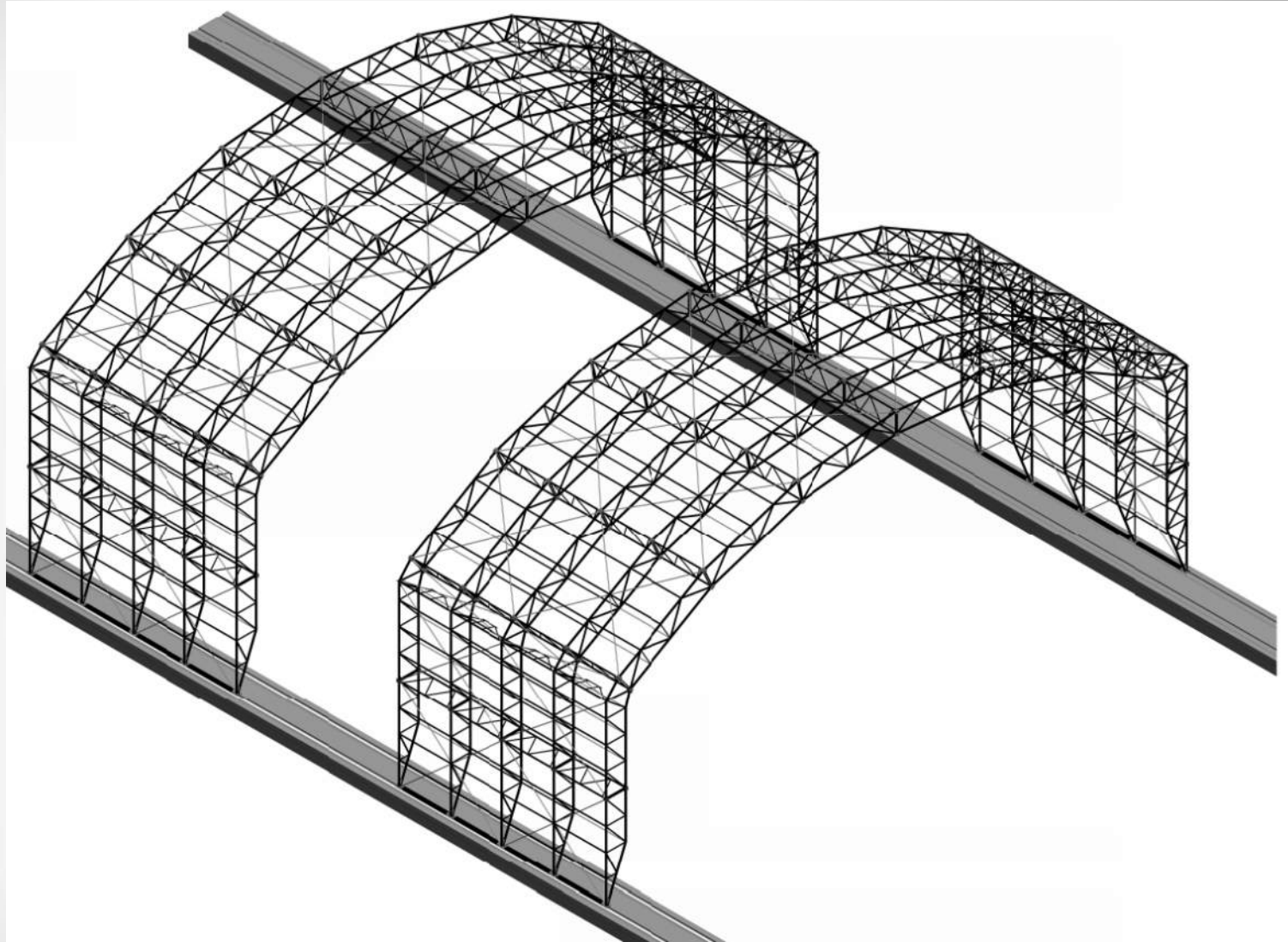
CD-BIM Sample BIM Execution Plan (BXP)

Thought -> FAB

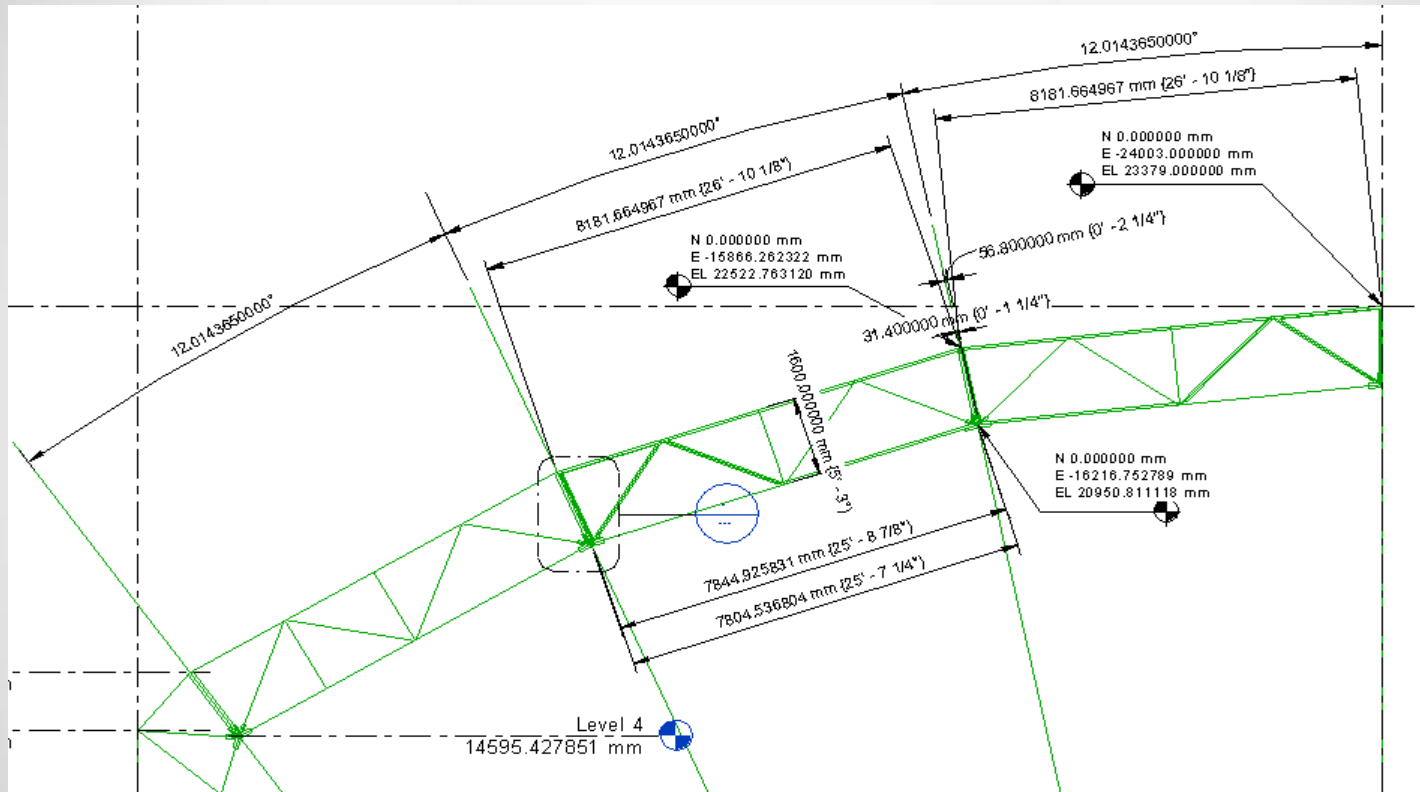
Thought

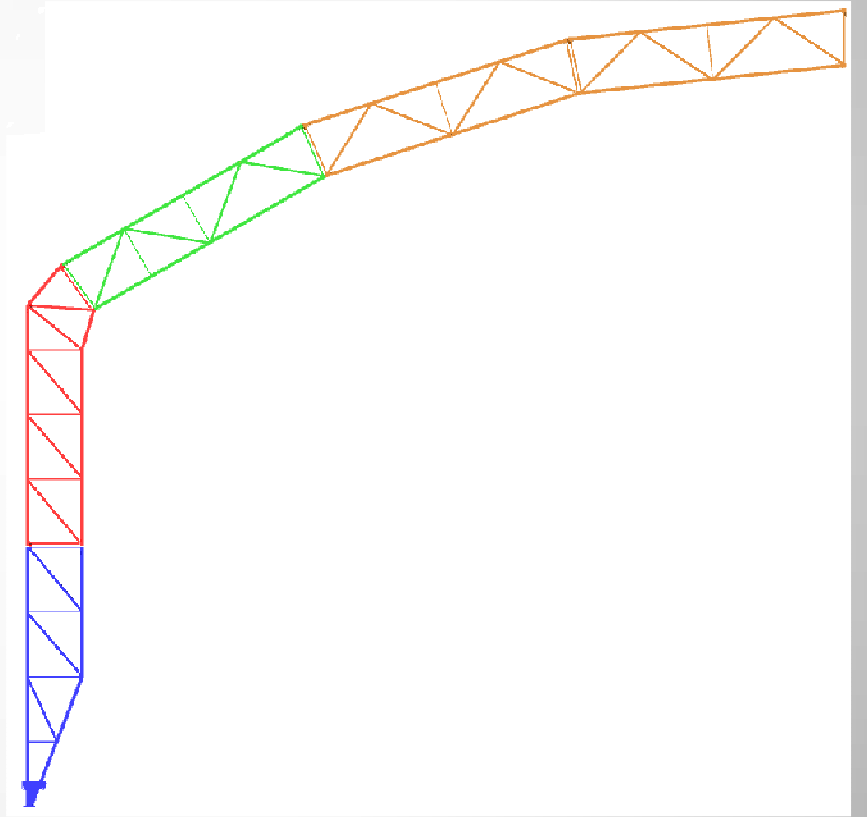
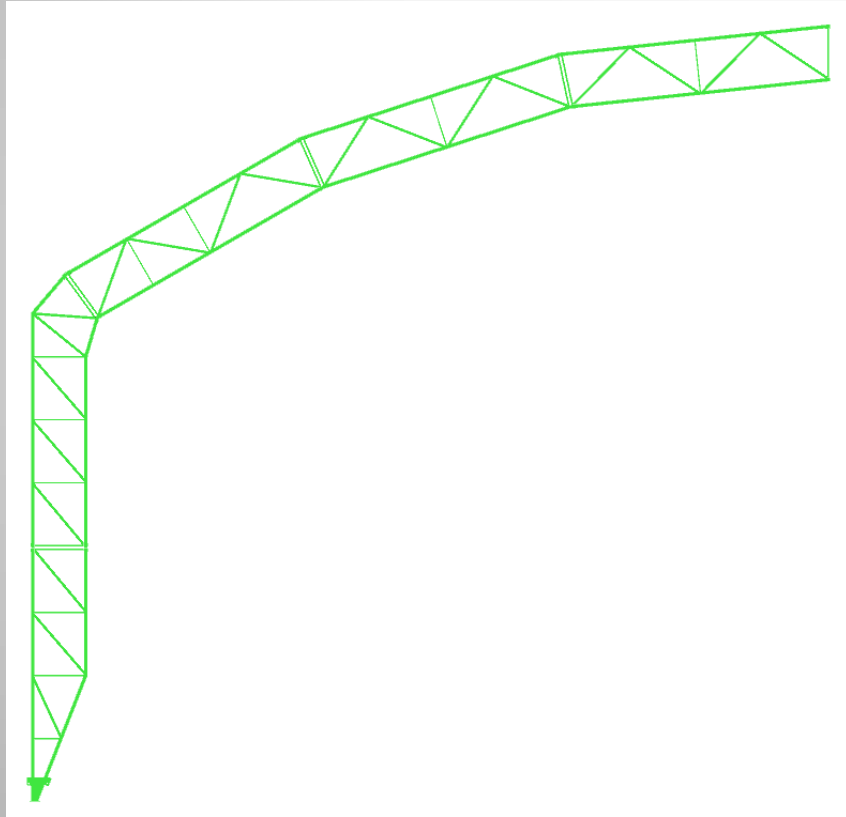


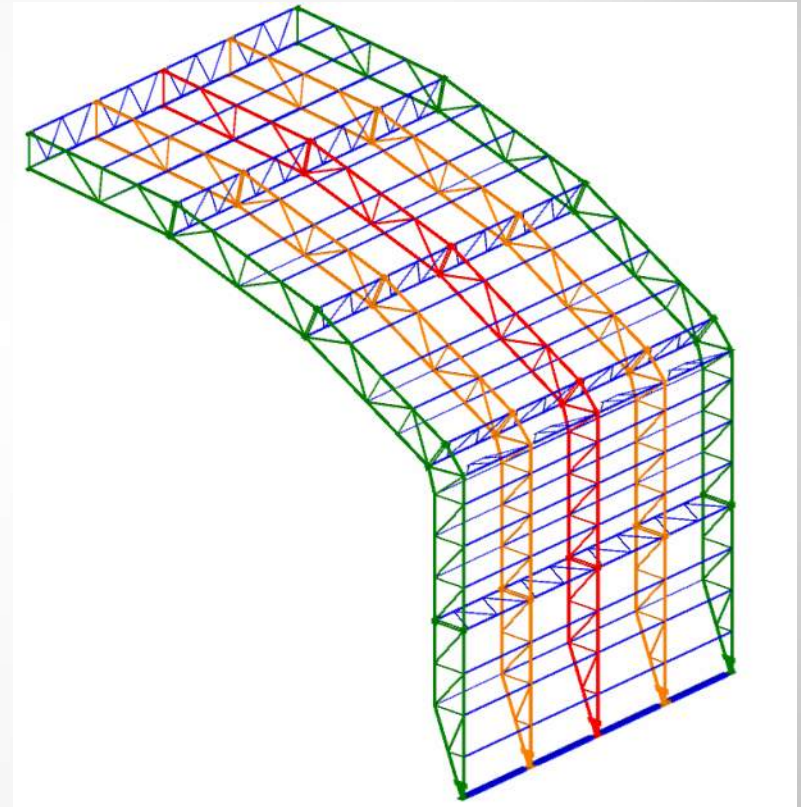
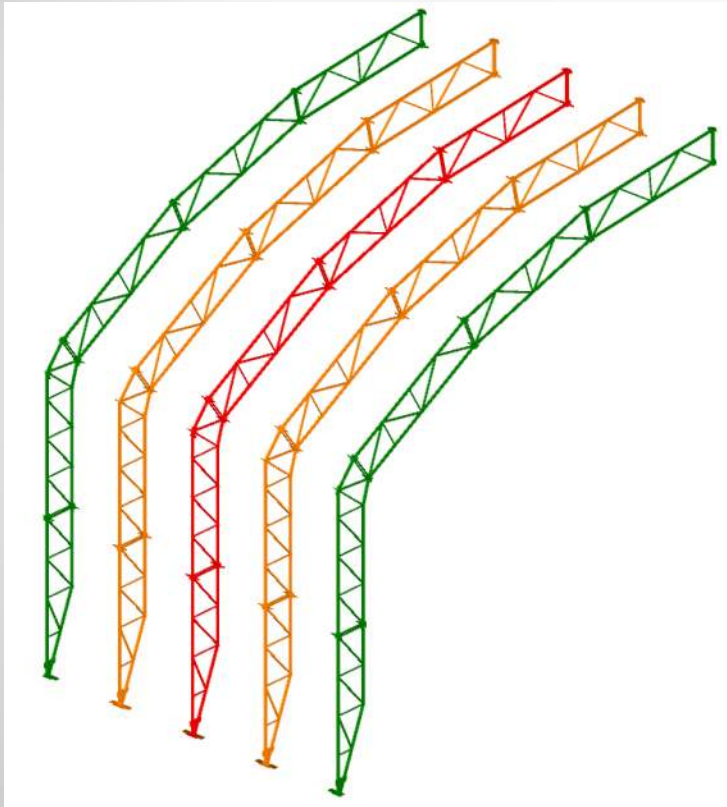
FAB

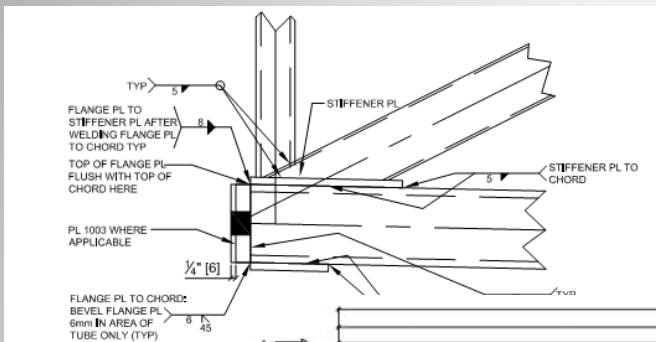


Geometry

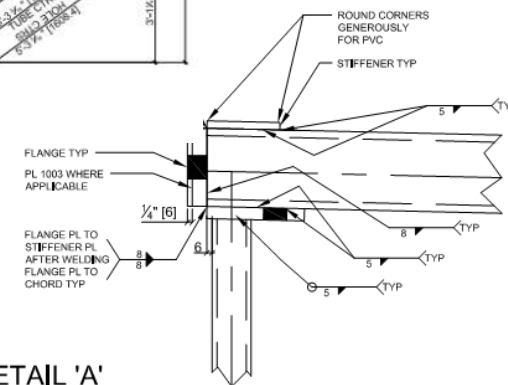
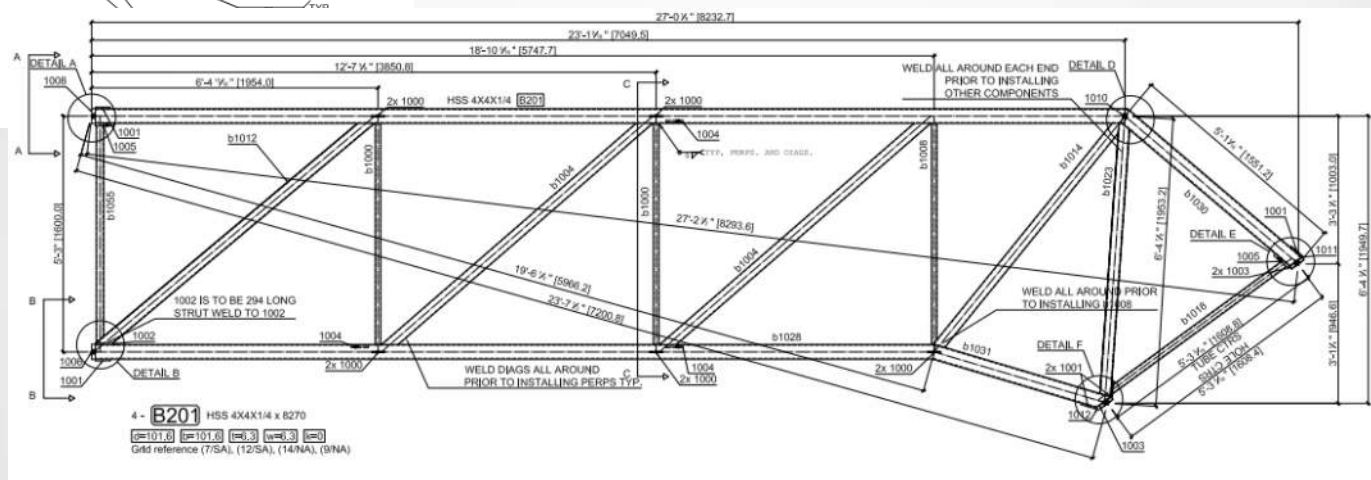






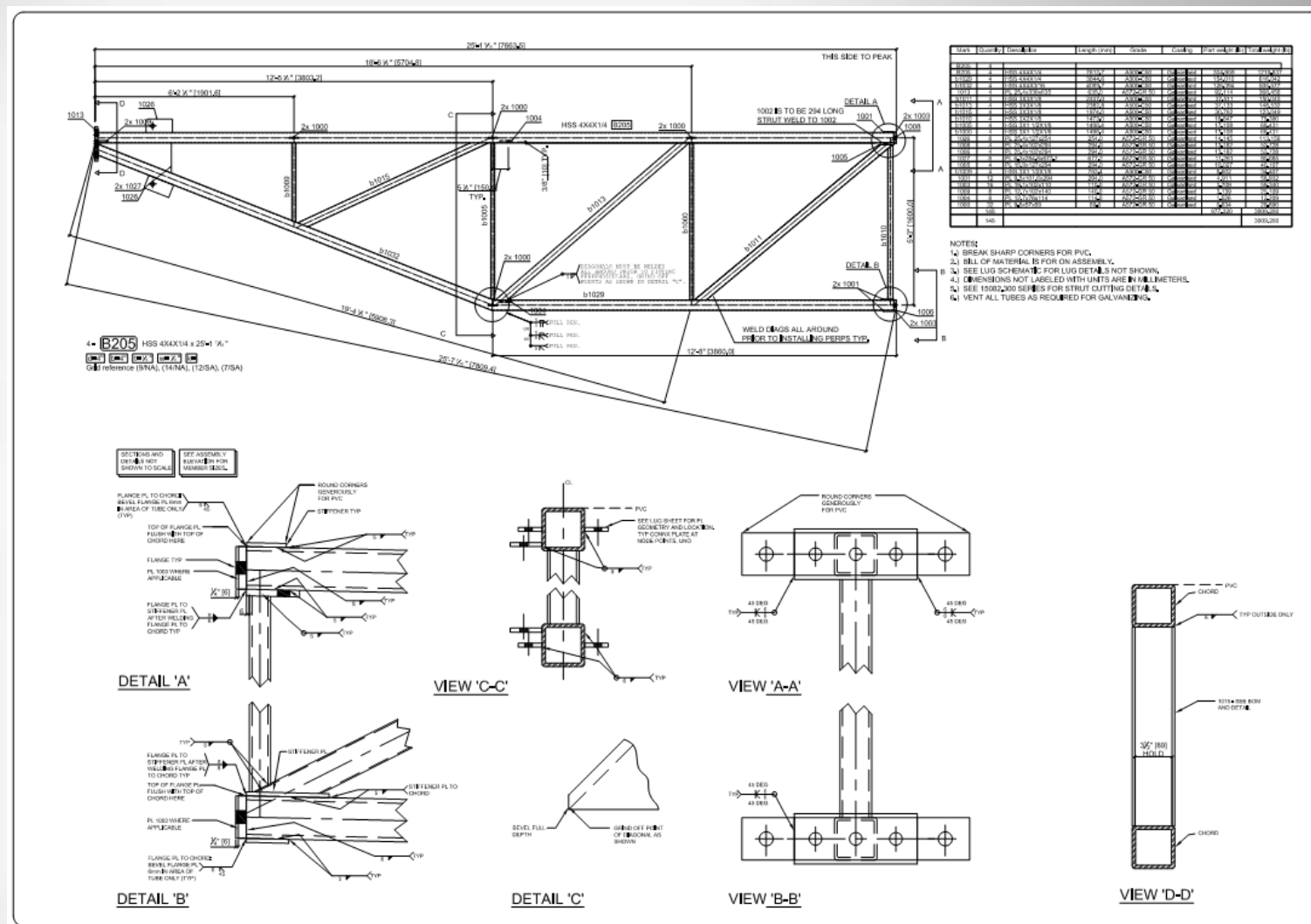


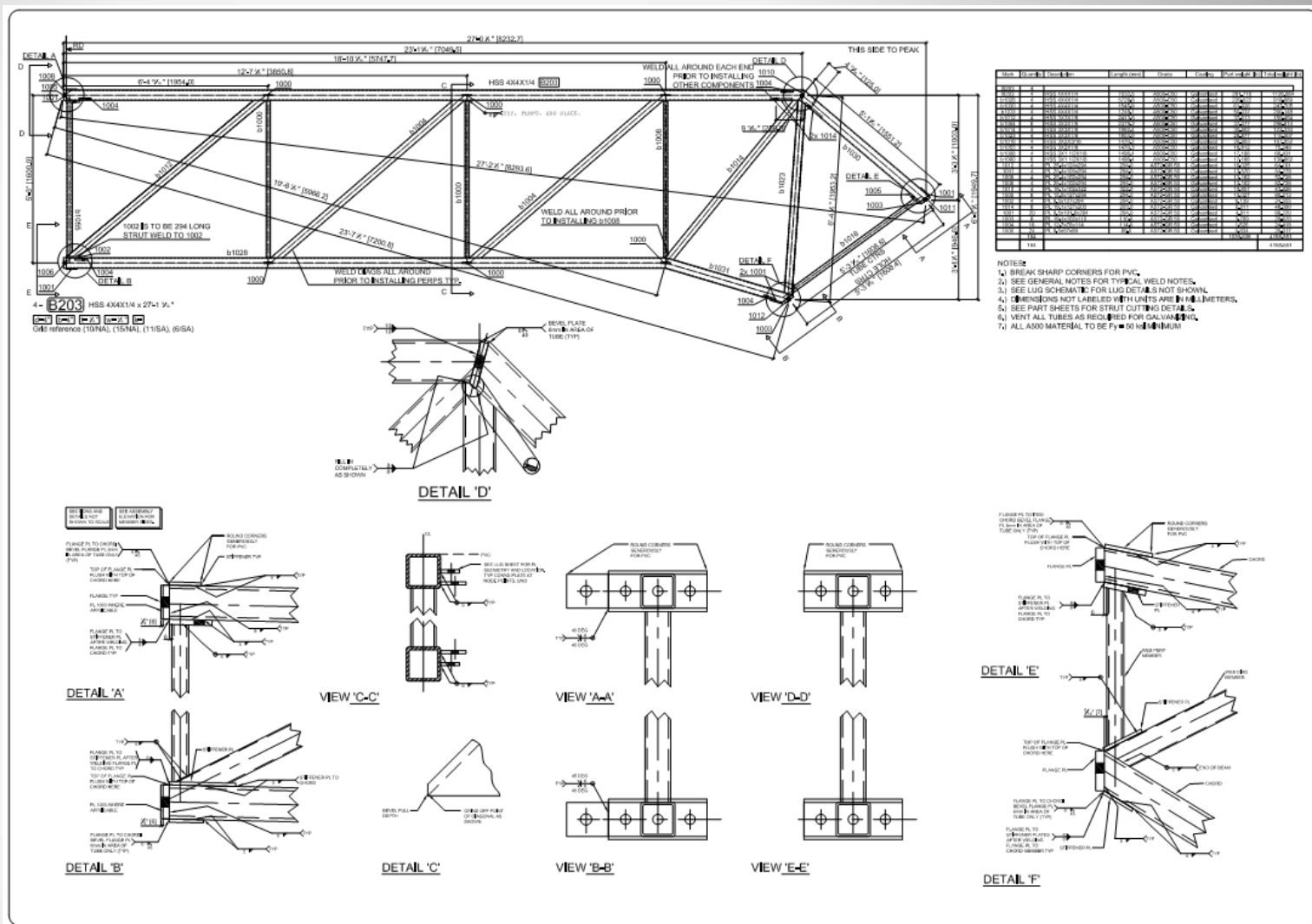
DETAIL 'B'

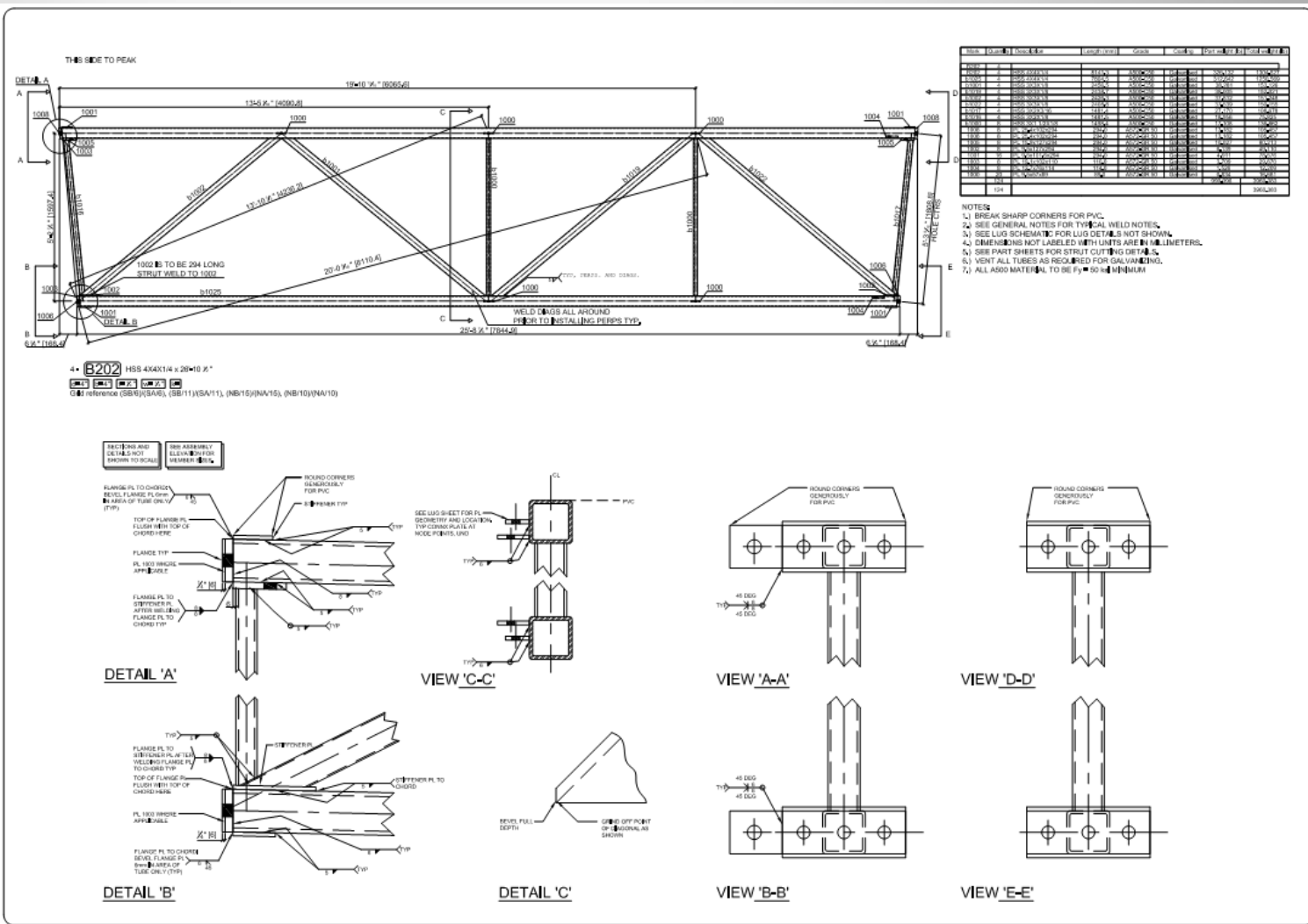


DETAIL 'A'

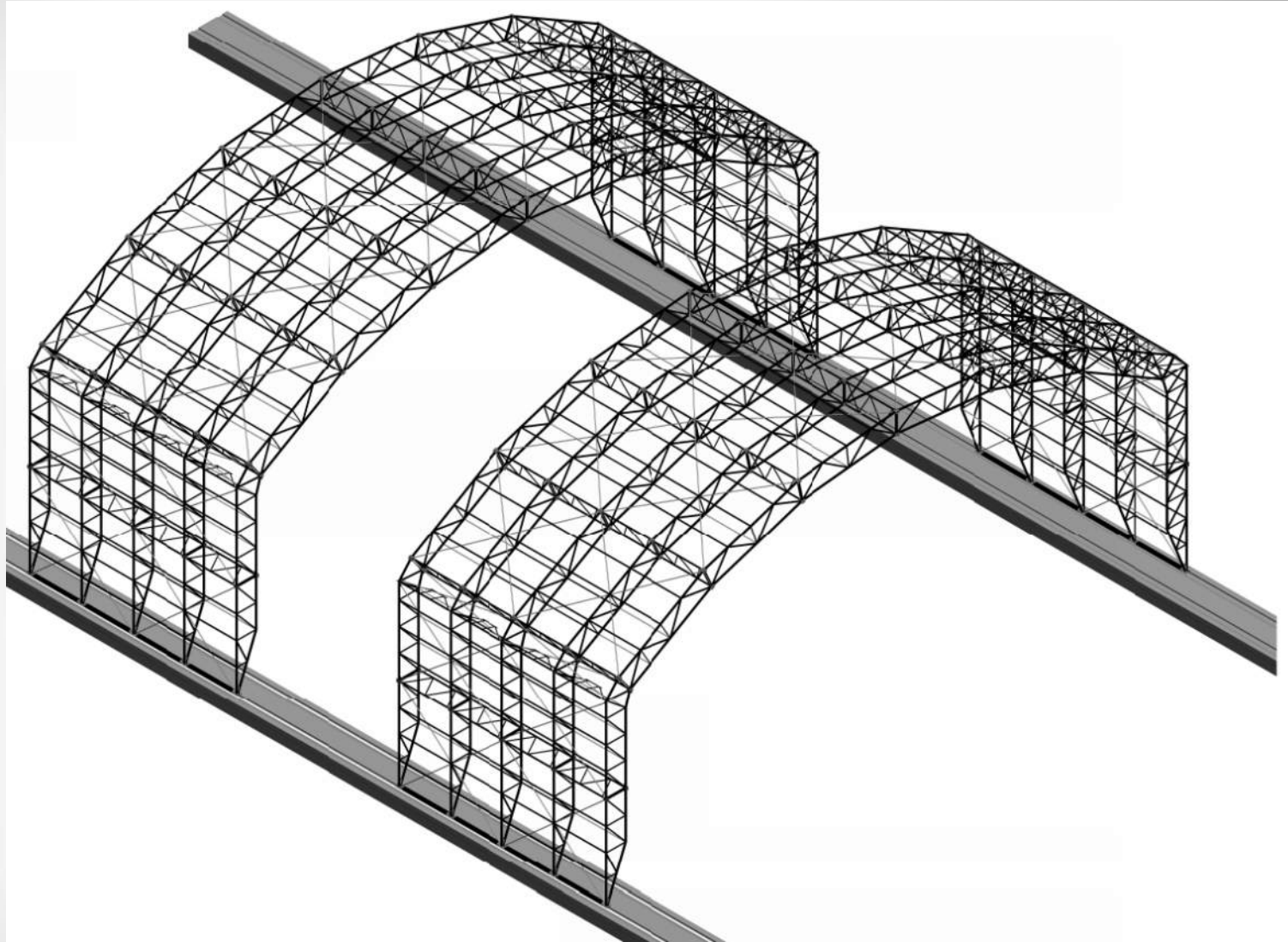








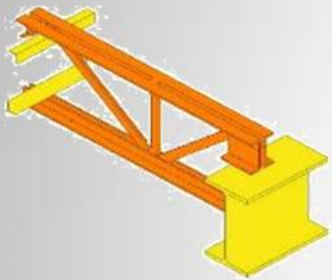
FAB



Model Examples

Future Disciplines

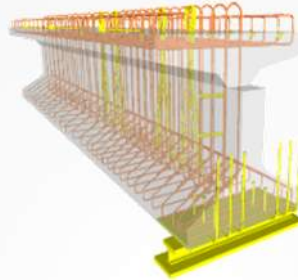
STEEL JOIST



BUILDING PC



BRIDGE PC



MASONRY



CURTAIN WALL



REBAR



ELECTRICAL



MECHANICAL



HVAC



PLUMBING



CD-BIM FAQs

- Free online course material (videos etc.)
- Online exams for nominal fee
- General Part 1 Exam: All team members
- Optional Discipline Specific Part 2: Trade specific
- Exams: 1 hour per part, ~\$120 US/ea. (approx.)

CD-BIM FAQs

- Company Pilot Application began October 20 at BIM Forum
- Free Certification Exams for Pilot Companies
- Looking for Companies with experience in BIM
- info@CD-BIM.com



IKERD

**Autodesk Advance Steel 2016
Introduction with
Revit
Navisworks, and
AutoCAD**

BIMxD.com/Advance



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