SE2984: Bridging the Gap with Autodesk Revit Structure

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About The Speaker

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Aaron Krovance

Thanks for Attending!

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workflow
developing

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ams, post

Aaron Krovance

- 2000 Nebraska State Champion Bagger
- 5th Place at Nationals in Las Vegas

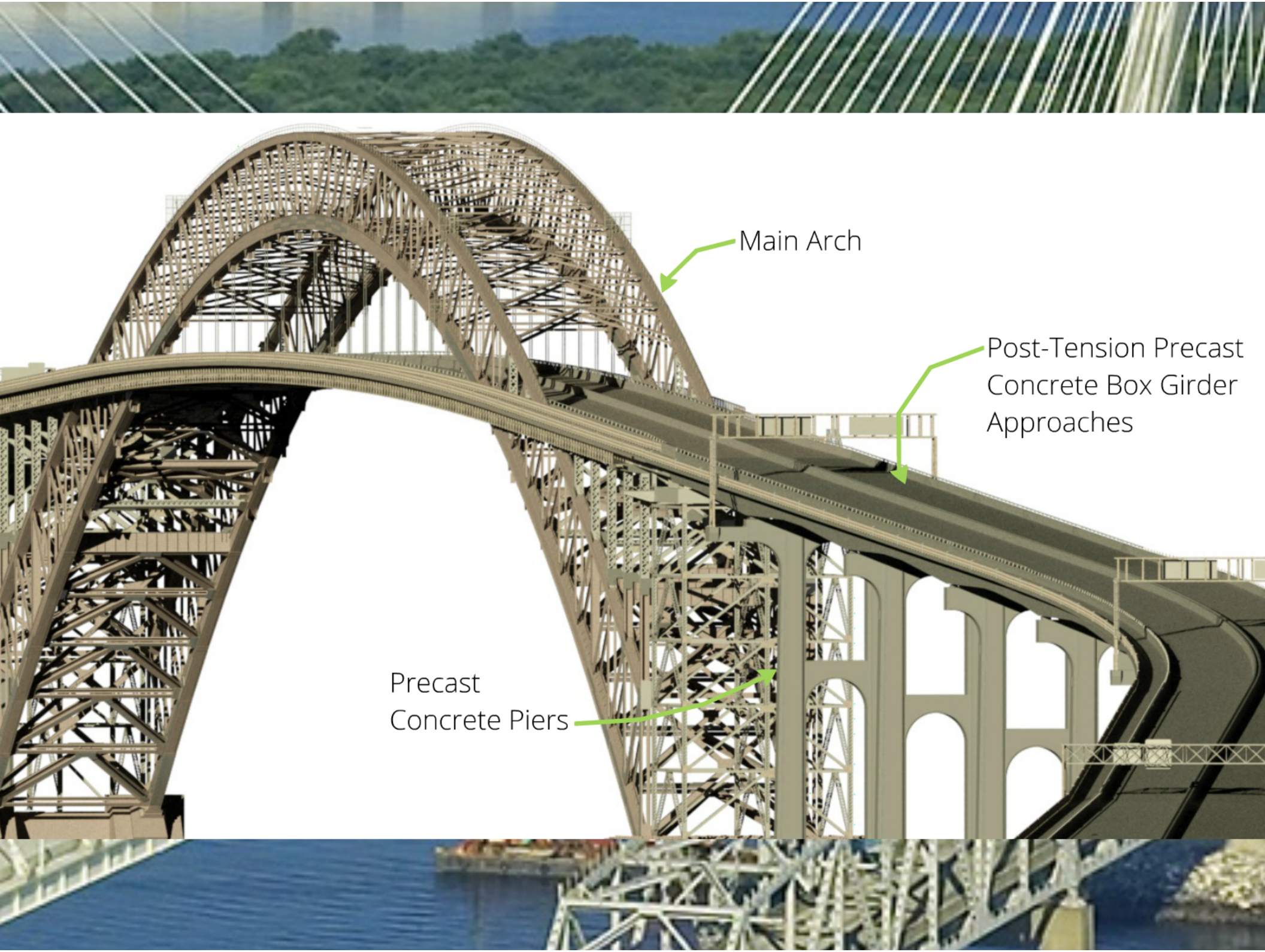

1999
Best Bagger
1ST PLACE
Best Bagger
2ND PLACE

Class Summary

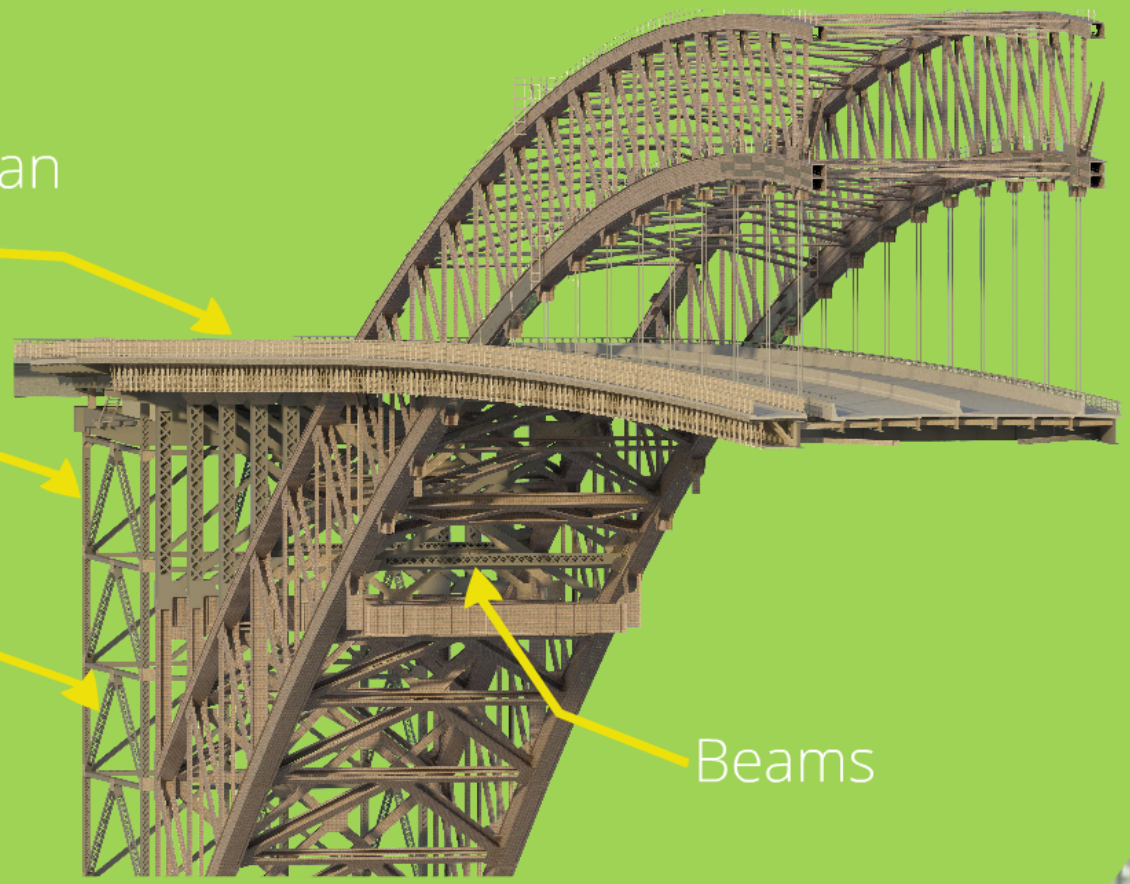
This class covers the use of Autodesk Revit Structure software as a Bridge Modeling tool and evolving the information with additional tools like Autodesk's Navisworks. We will use recent examples of bridge projects as case studies in creating bridge model elements and integrating them into a larger model. Challenges to creating these elements as well as lessons learned will also be discussed.

Key Learning Objectives

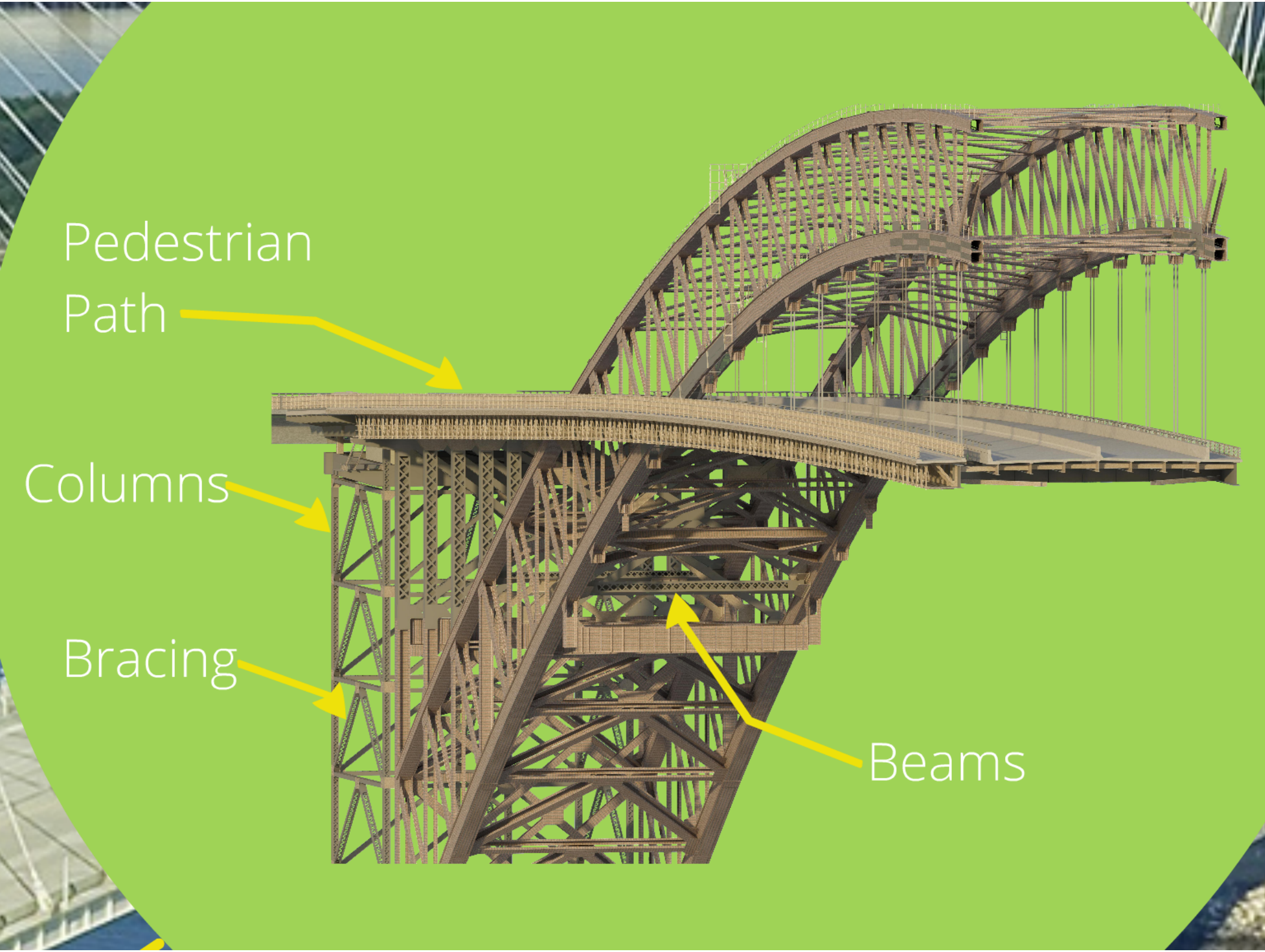
- Implement and manage a modeling production workflow that facilitates a smooth and efficient process to developing and managing the complex bridge components.
- Develop custom families to meet the requirements of the project. Examples include custom columns & beams, post tensioned precast concrete elements, etc.
- Utilize the power of parametric families in bridge modeling to create a flexible model that can be updated throughout the course of design and beyond.
- Coordinate with the design team and update a BIM model quickly and efficiently.


Main Arch
Post-Tension Precast
Concrete Box Girder
Approaches
Precast
Concrete Piers

Main Arch

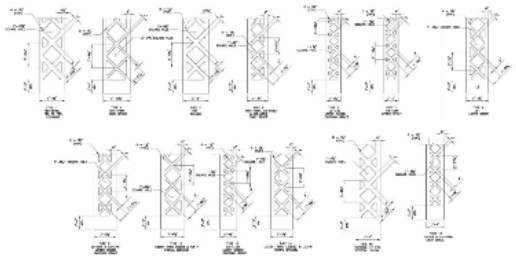


an Path

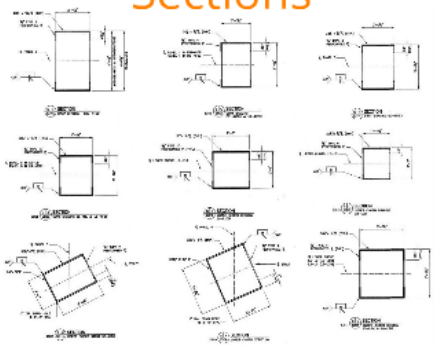

Pedestrian Path
Columns
Bracing
Beams

Beam, Brace, & Column Families

Perforations

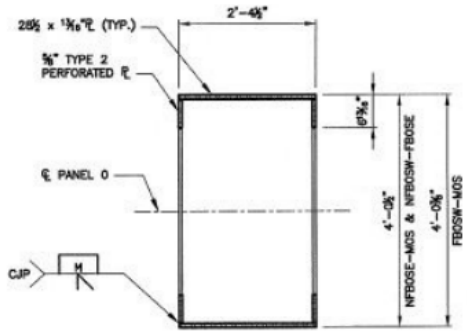


Sections

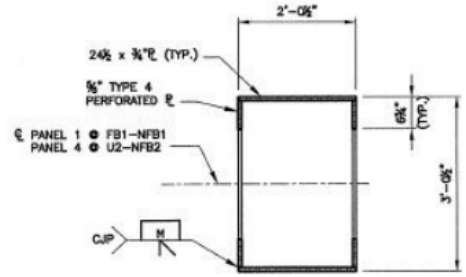


Family Creation

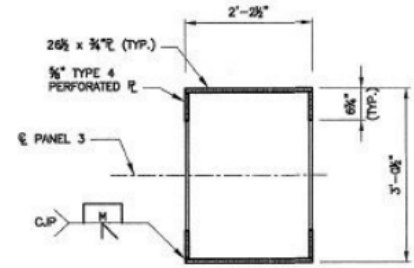
Sections



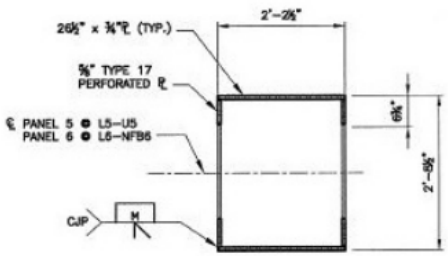
S F SECTION
S3103 SWAY BRACING FBO-NFBO



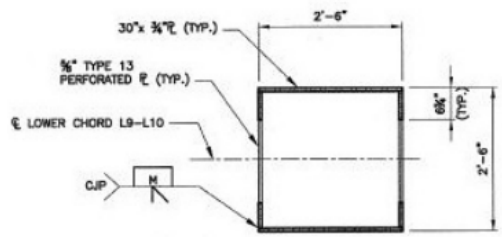
S G SECTION
S3110 S3107 SWAY BRACING FB1-NFB1 & U2-NFB2



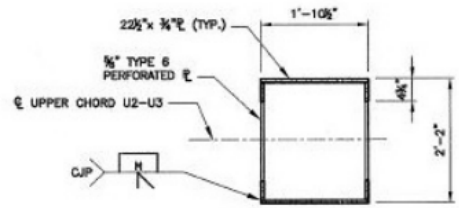
S H SECTION
S3114 SWAY BRACING U3-NFB3,



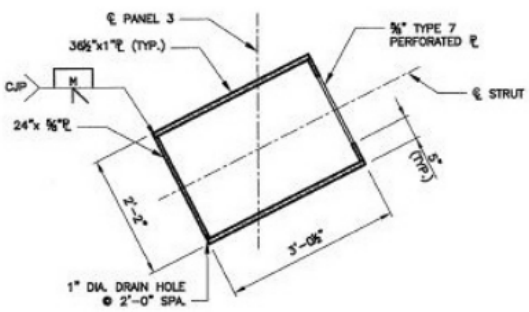
S J SECTION
S3126 S3122 SWAY BRACING L5-U5, & L6-NFB6



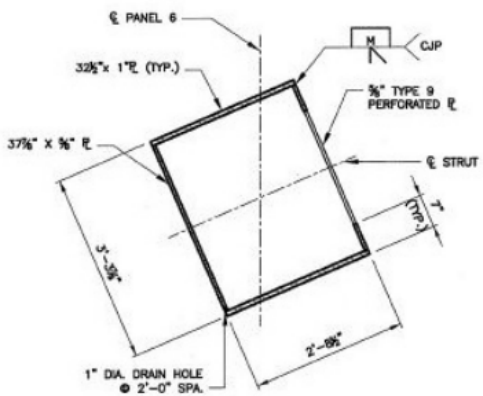
S K SECTION
S3519 LOWER CHORD BRACING L9-L10M



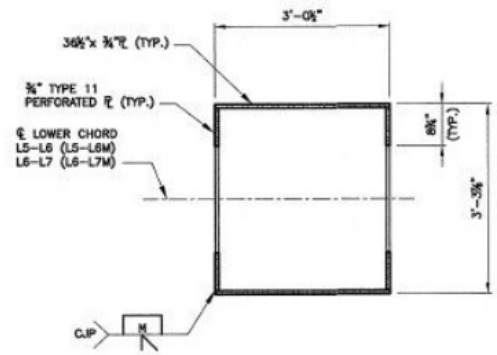
S L SECTION
S3513 S3205 UPPER CHORD BRACING U2-U3M



S M SECTION
S3513 S3114 UPPER CHORD STRUT U3-U3M

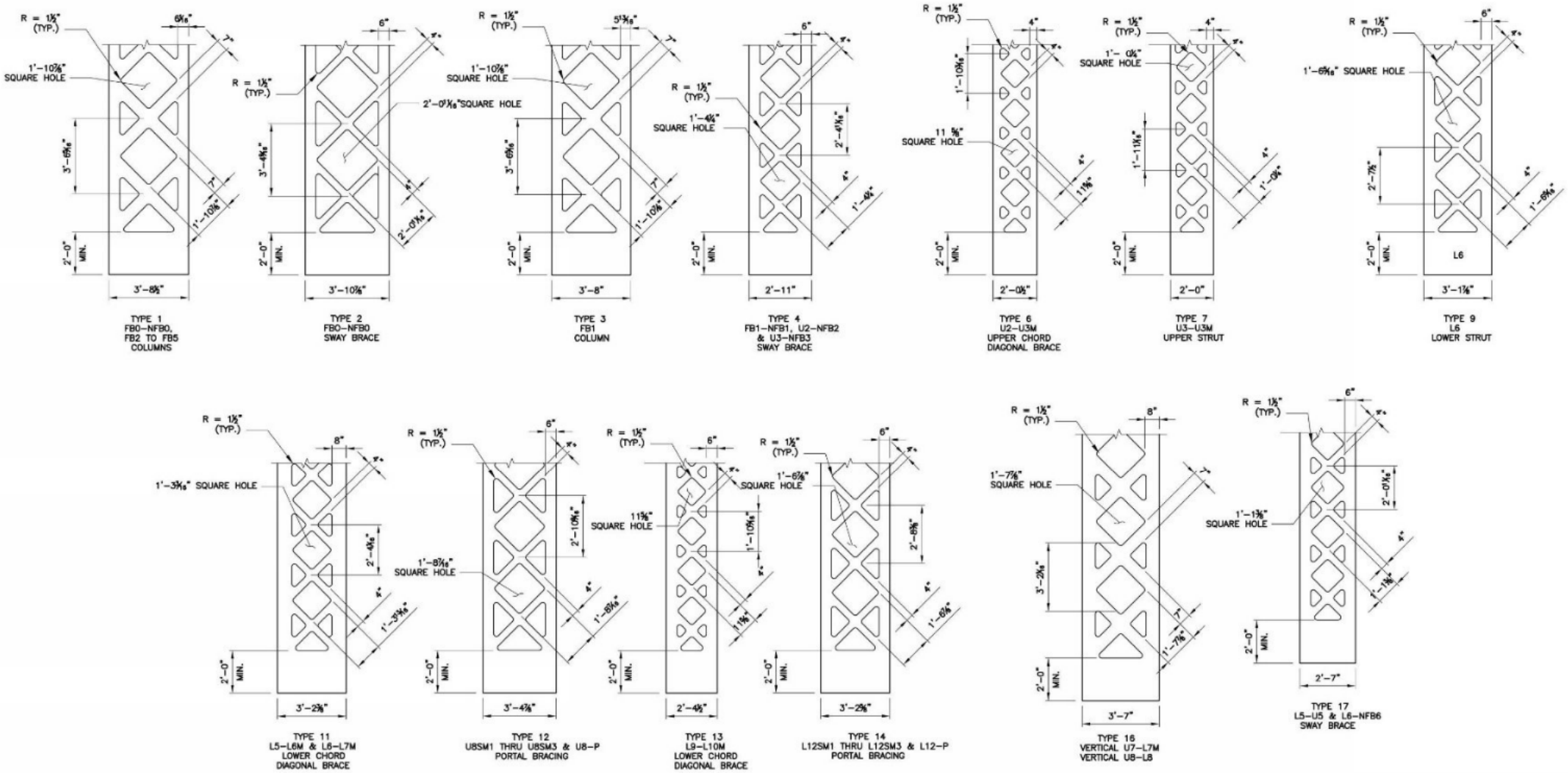


S N SECTION
S3516 S3126 LOWER CHORD STRUT L6



S O SECTION
S3517 S3516 LOWER CHORD BRACING L5-L6M & L6-L7M

Perforations

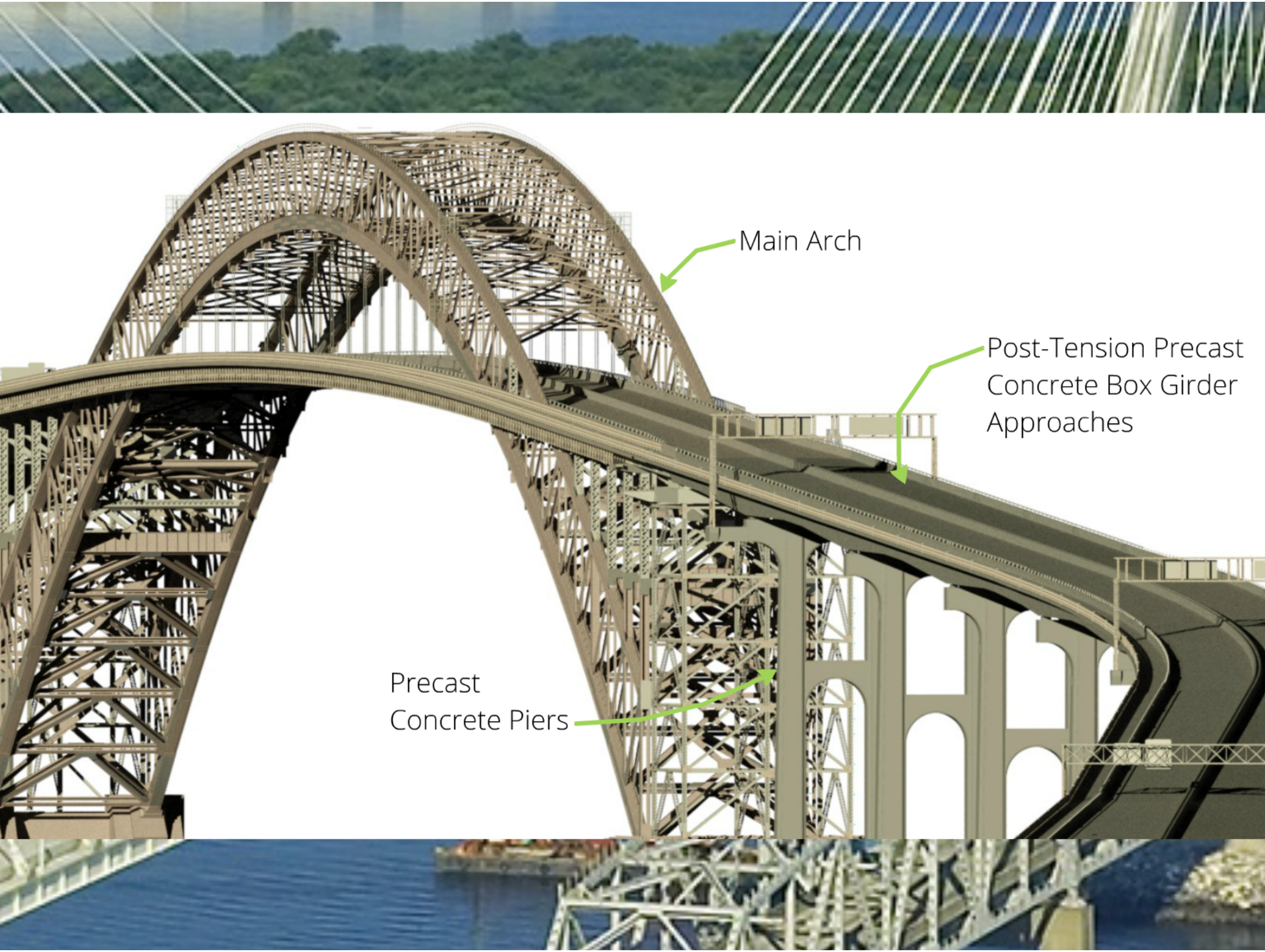


Family Creation

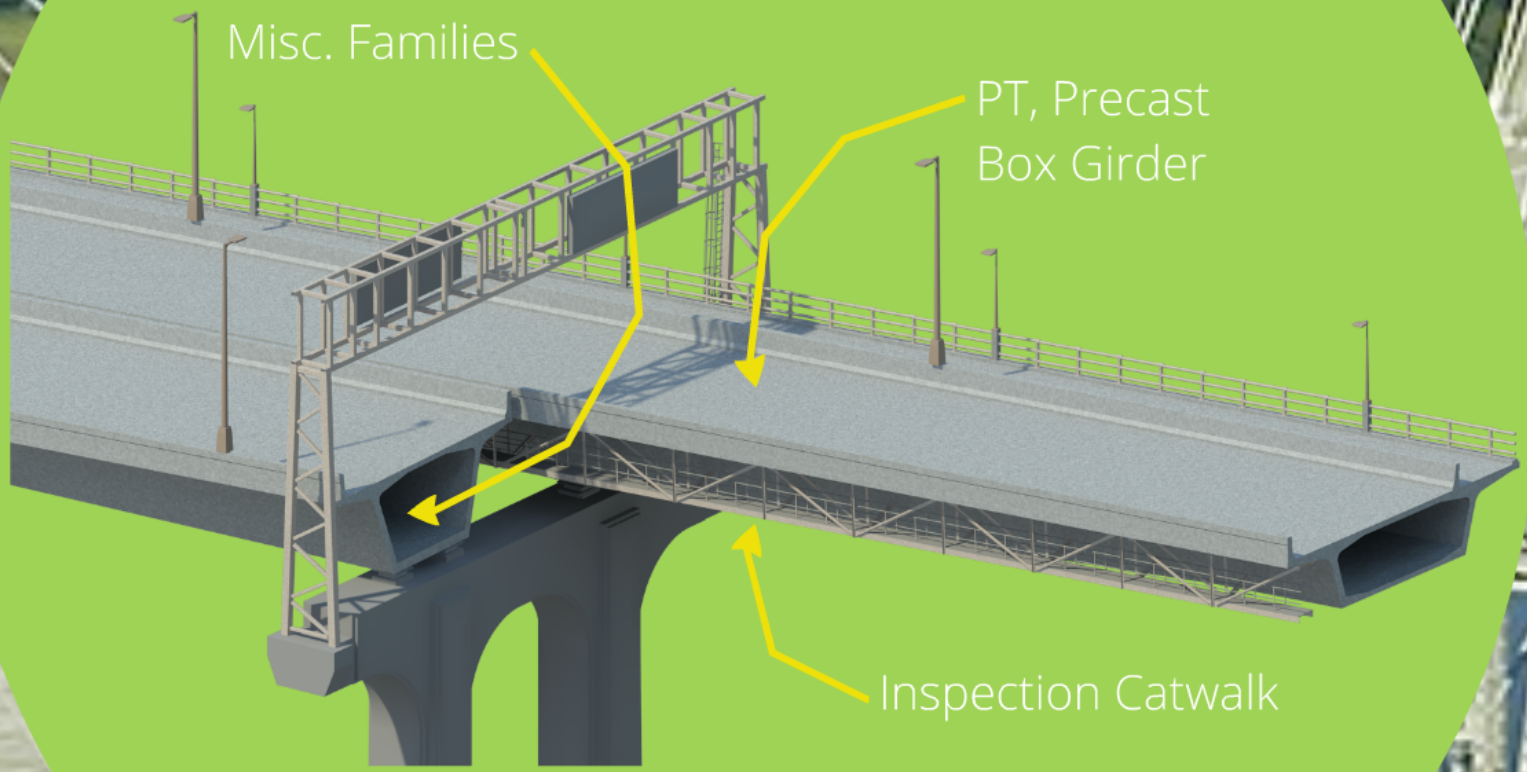
Pedestrian Path

Pedestrian Path Animation

Pedestrian Path Animation

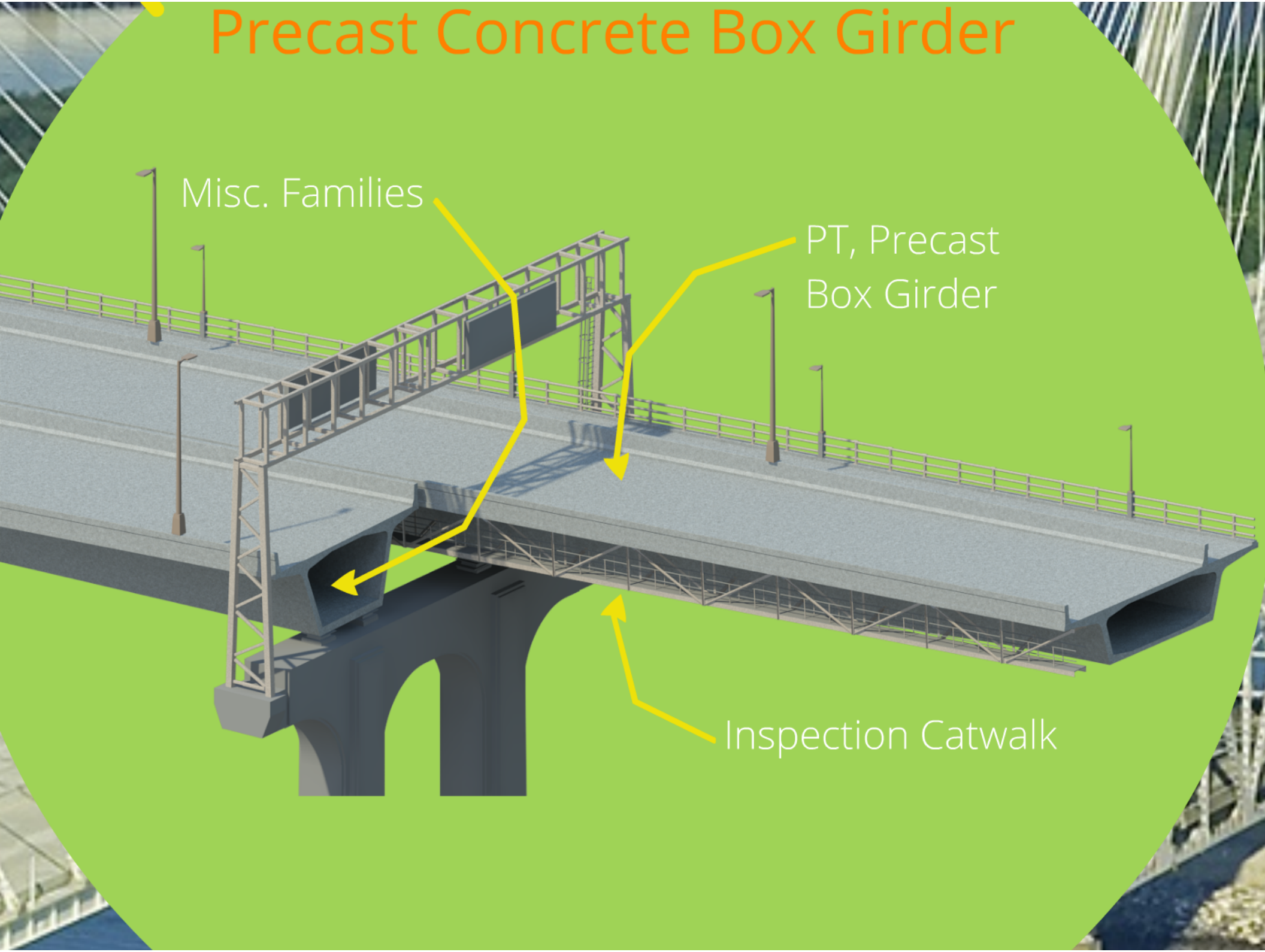

Main Arch
Post-Tension Precast
Concrete Box Girder
Approaches
Precast
Concrete Piers

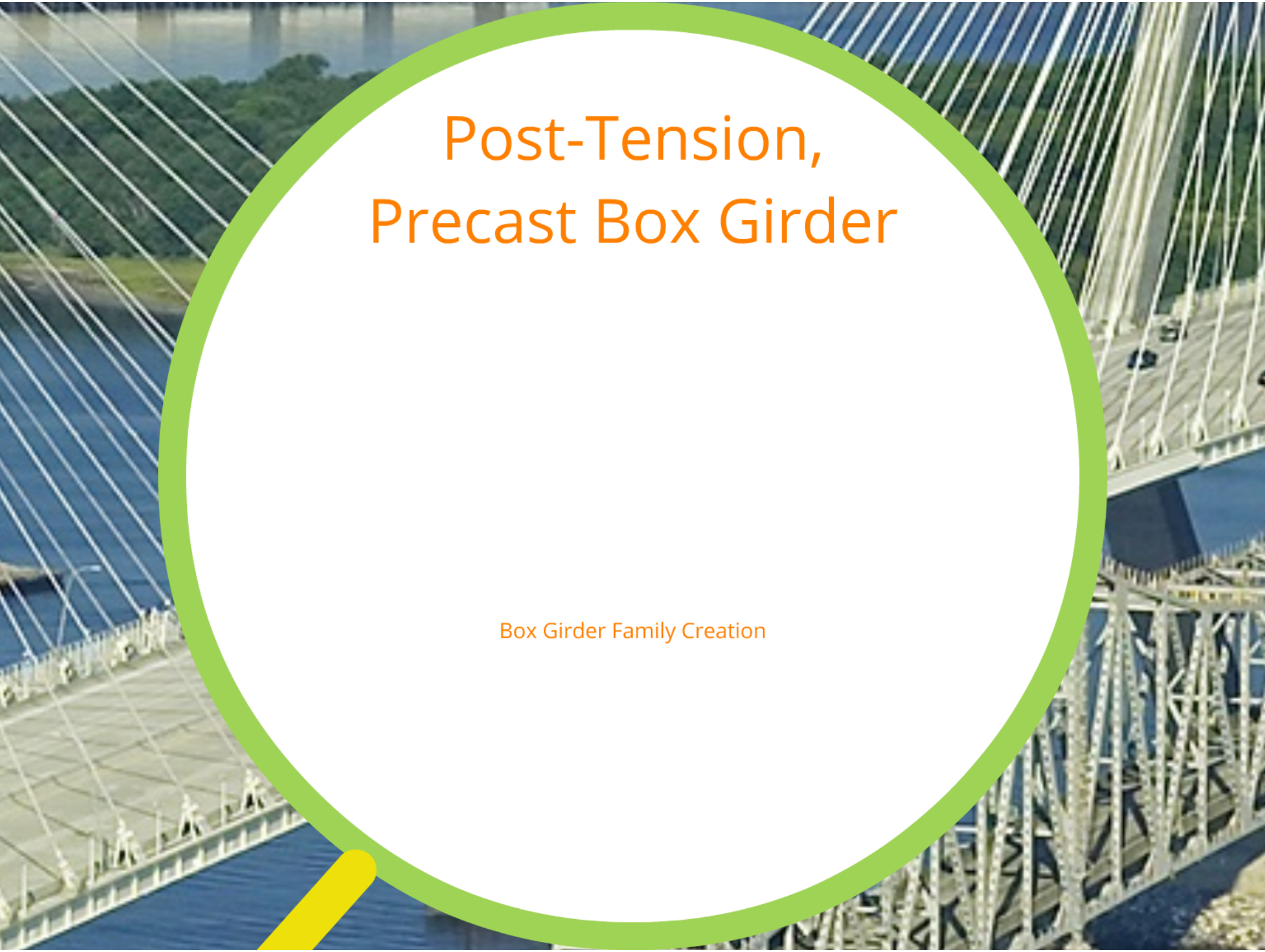
Approach Post-Tension Precast Concrete Box Girder



Inspection Catwalk

Precast Concrete Box Girder





Post-Tension, Precast Box Girder

Box Girder Family Creation

Box Girder Family Creation

Inspection Catwalk

Catwalk Family Creation

Catwalk Family Creation

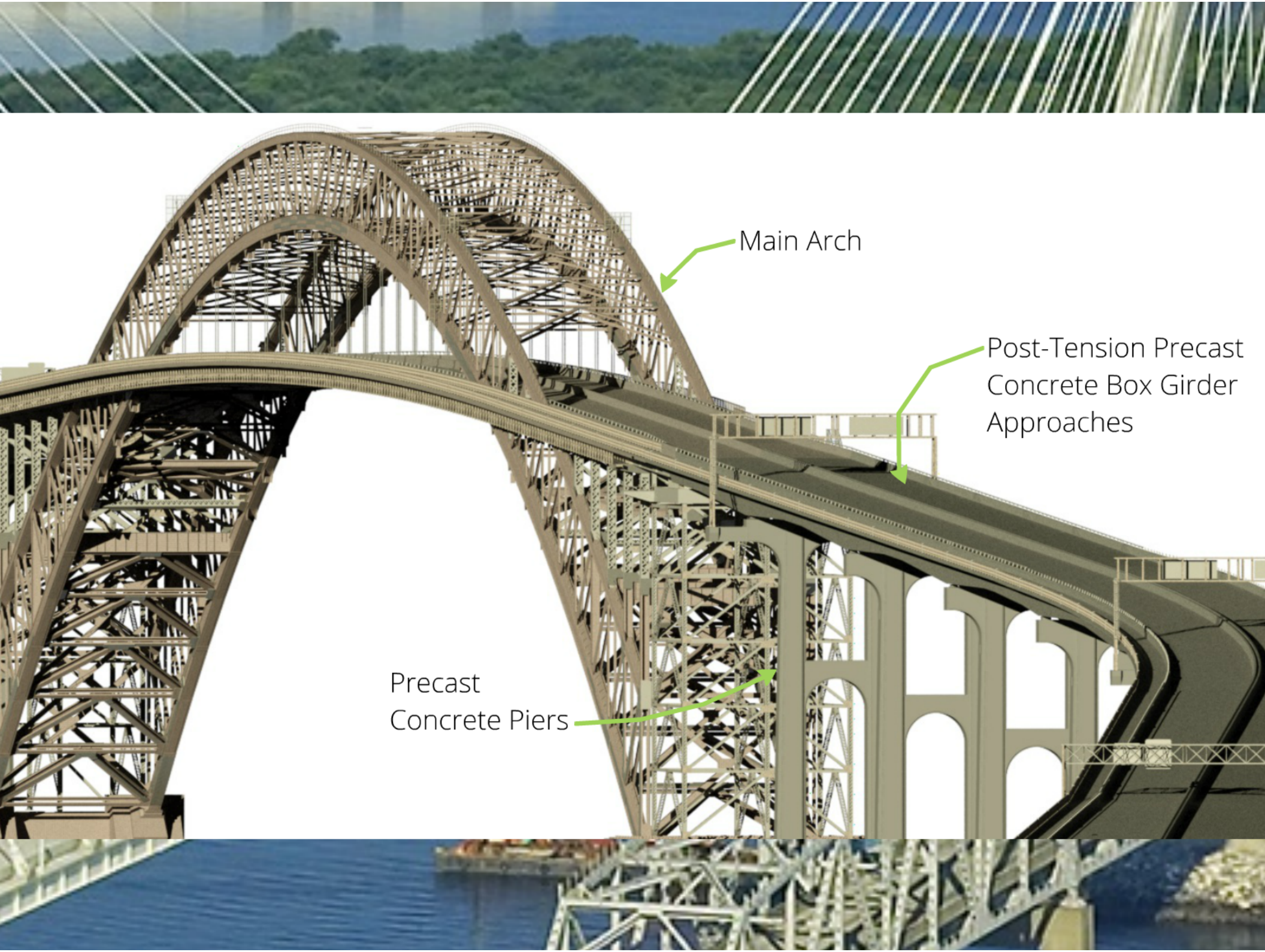
Miscellaneous Families

Pipe Support - Hanger

Pipe Support - Saddle

Pipe Support - Hanger

Pipe Support - Saddle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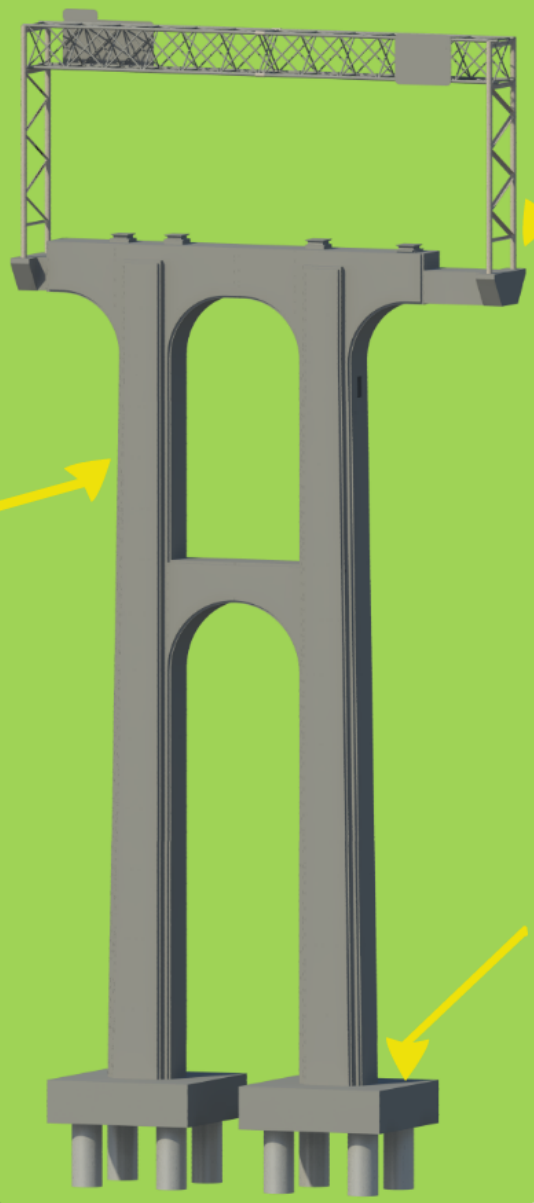
Precast Concrete Piers



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Pier Family

Pier Family Creation

Pier Family Creation


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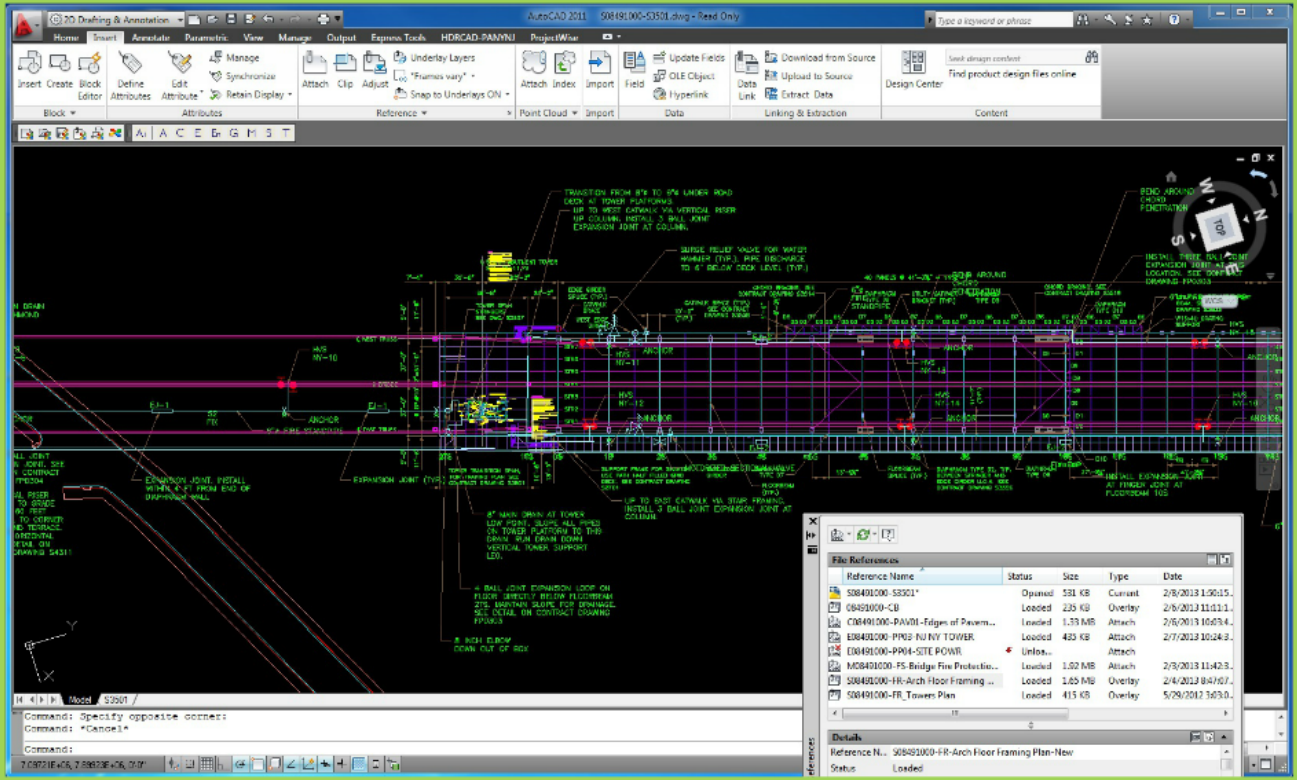
NAVISWORKS®
2014

Clash Detection

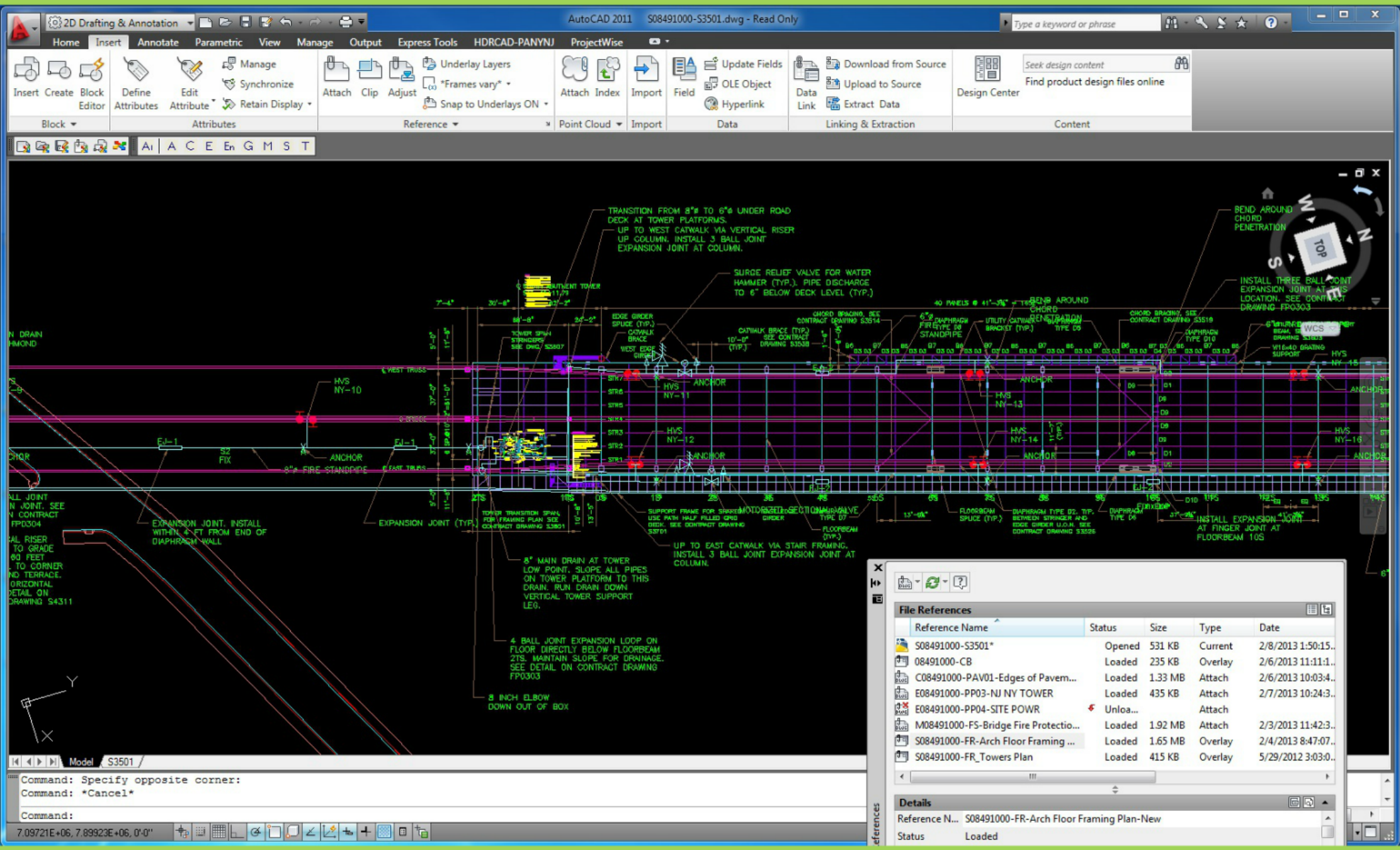


Matrix

Detection Matrix						
	Structural	Mechanical	HVAC	Electrical	Plumbing	Fire Protection
		X	X	X	X	X
		X	X	X	X	X

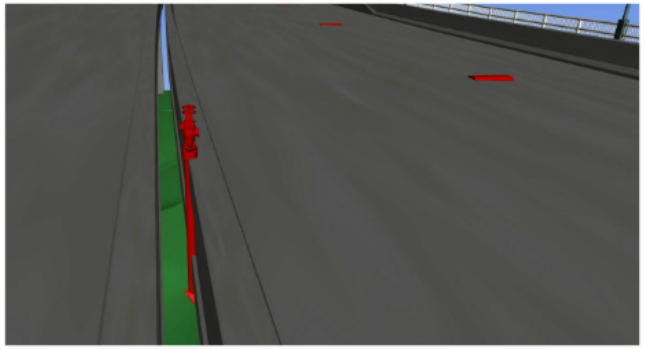
Visual Clash Dete

Clash Example #1

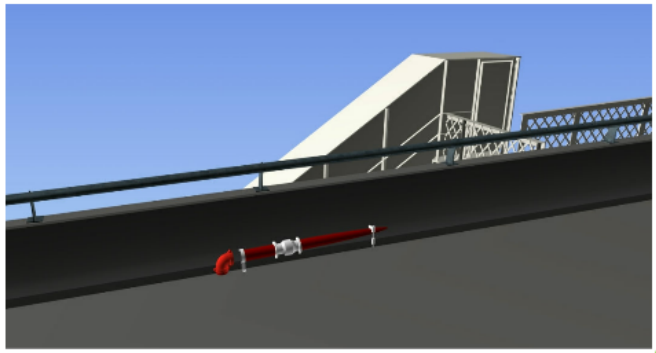

2D Drafting & Annotation
AutoCAD 2011 S08491000-S3501.dwg - Read Only
Home Insert Annotate Parametric View Manage Output Express Tools HDRCAD-PANYNJ ProjectWise
Insert Create Block Editor
Define Attributes
Edit Attribute
Manage
Synchronize
Retain Display
Attach Clip Adjust
Underlay Layers
Frames vary
Snap to Underlays ON
Attach Index
Import
Field
Update Fields
OLE Object
Hyperlink
Data Link
Download from Source
Upload to Source
Extract Data
Design Center
Seek design content
Find product design files online
Block
Attributes
Reference
Point Cloud
Import
Data
Linking & Extraction
Content
TRANSITION FROM 8"ø TO 6"ø UNDER ROAD DECK AT TOWER PLATFORMS.
UP TO WEST CATWALK VIA VERTICAL RISER UP COLUMN. INSTALL 3 BALL JOINT EXPANSION JOINT AT COLUMN.
SURGE RELIEF VALVE FOR WATER HAMMER (TYP.). PIPE DISCHARGE TO 6" BELOW DECK LEVEL (TYP.)
BEND AROUND CHORD PENETRATION
INSTALL THREE BALL JOINT EXPANSION JOINT AT THIS LOCATION. SEE CONTRACT DRAWING FP0303
EXPANSION JOINT. INSTALL WITHIN 4 FT FROM END OF DIAPHRAGM WALL
EXPANSION JOINT (TYP.)
8" MAIN DRAIN AT TOWER LOW POINT. SLOPE ALL PIPES ON TOWER PLATFORM TO THIS DRAIN. RUN DRAIN DOWN VERTICAL TOWER SUPPORT LEG.
4 BALL JOINT EXPANSION LOOP ON FLOOR DIRECTLY BELOW FLOORBEAM 2TS. MAINTAIN SLOPE FOR DRAINAGE. SEE DETAIL ON CONTRACT DRAWING FP0303
8 INCH ELBOW DOWN OUT OF BOX
UP TO EAST CATWALK VIA STAIR FRAMING. INSTALL 3 BALL JOINT EXPANSION JOINT AT COLUMN.
INSTALL EXPANSION JOINT AT FINGER JOINT AT FLOORBEAM 10S
HVS NY-10
HVS NY-11
HVS NY-12
HVS NY-13
HVS NY-14
HVS NY-15
HVS NY-16
ANCHOR
Model S3501
Command: Specify opposite corner:
Command: *Cancel*
Command:
7.09721E+06, 7.89923E+06, 0'-0"
File References
Reference Name Status Size Type Date
S08491000-S3501* Opened 531 KB Current 2/8/2013 1:50:15..
08491000-CB Loaded 235 KB Overlay 2/6/2013 11:11:1..
C08491000-PAV01-Edges of Pavem... Loaded 1.33 MB Attach 2/6/2013 10:03:4..
E08491000-PP03-NJ NY TOWER Loaded 435 KB Attach 2/7/2013 10:24:3..
E08491000-PP04-SITE POWR Unloa... Attach
M08491000-FS-Bridge Fire Protectio... Loaded 1.92 MB Attach 2/3/2013 11:42:3..
S08491000-FR-Arch Floor Framing ... Loaded 1.65 MB Overlay 2/4/2013 8:47:07..
S08491000-FR_Towers Plan Loaded 415 KB Overlay 5/29/2012 3:03:0..
Details
Reference N... S08491000-FR-Arch Floor Framing Plan-New
Status Loaded

Visual Clash Detection

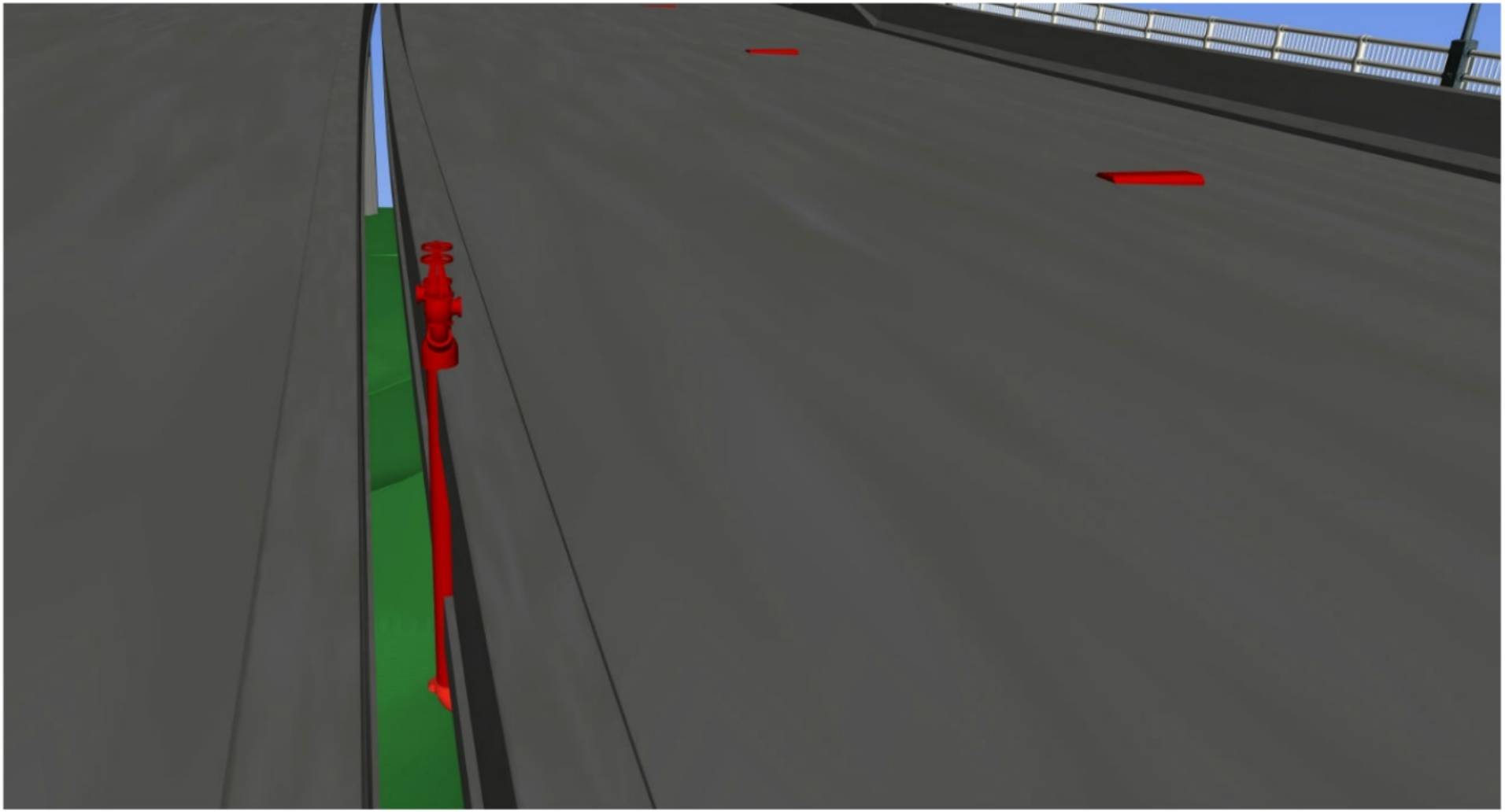
Clash Example #1



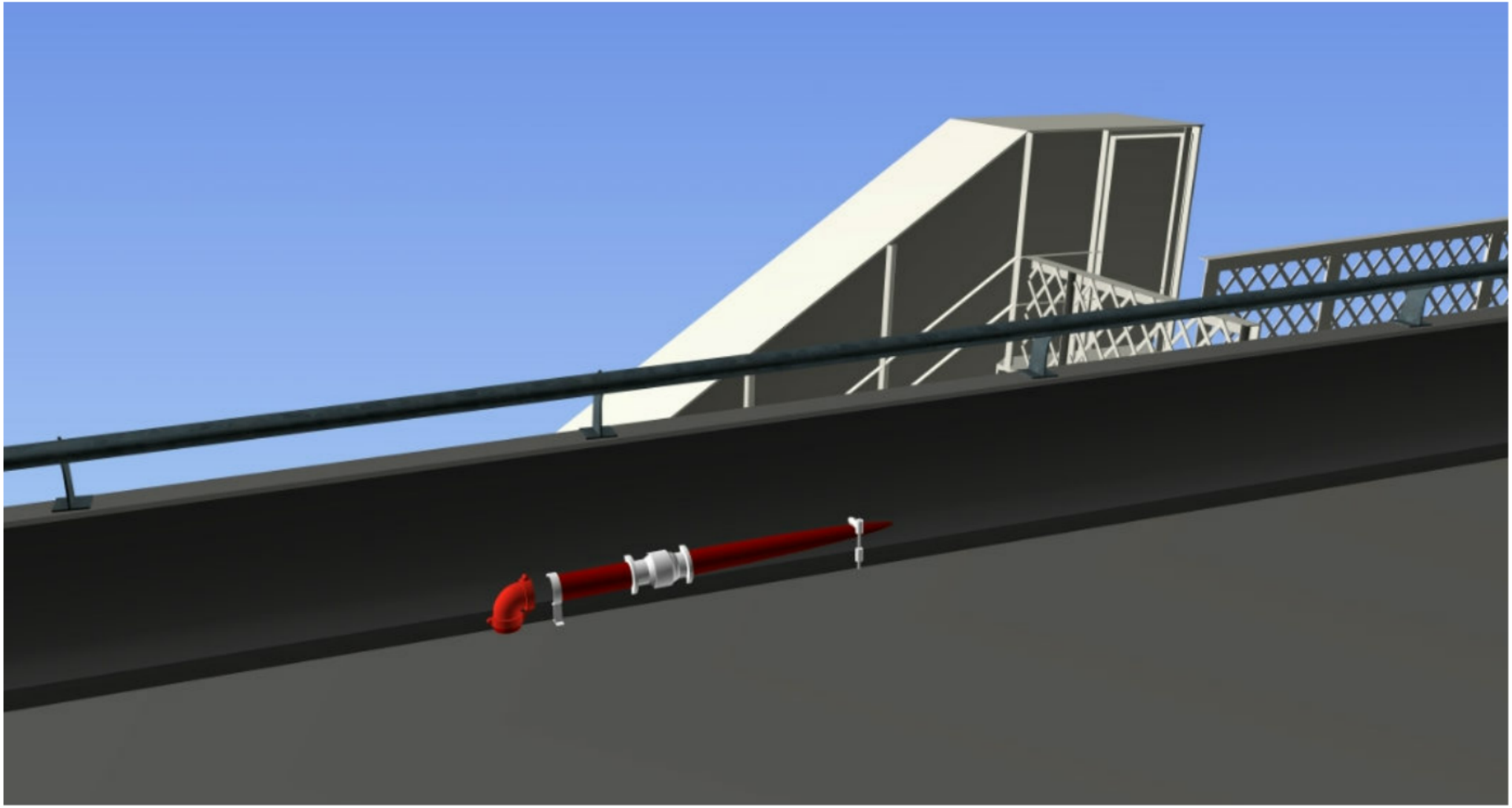
Clash Example #2



Clash Example #1



Clash Example #2



Clash Matrix

Clash Detection Matrix							
	Architectural	Structural	Mechanical	HVAC	Electrical	Plumbing	Fire Protection
Architectural			X	X	X	X	X
Structural			X	X	X	X	X
Mechanical				X	X	X	X
HVAC					X	X	X
Electrical						X	X
Plumbing							X
Fire Protection							

Clash Detection Reporting

Navisworks Clash Detection Report Example

Navisworks Clash Detection Report Example

About The Speaker

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Thanks for Attending!

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