

# PROCONCRETE

Powered by Bentley Rebar

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Senior Engineering Consultant

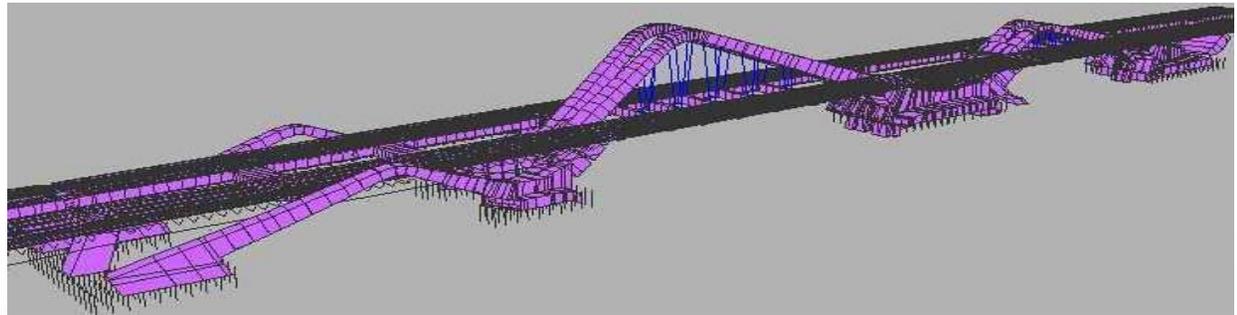
# Agenda

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- Why ProConcrete?
- Transitioning from 2D to 3D Design
- ProConcrete Overview
- Design sample
- Benefits

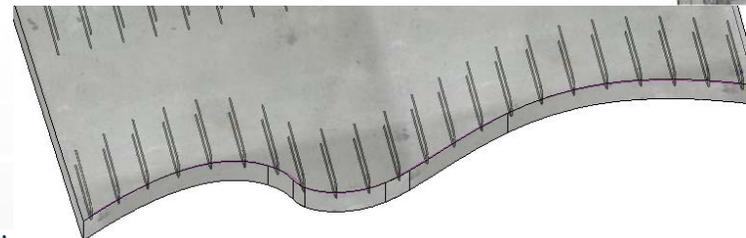
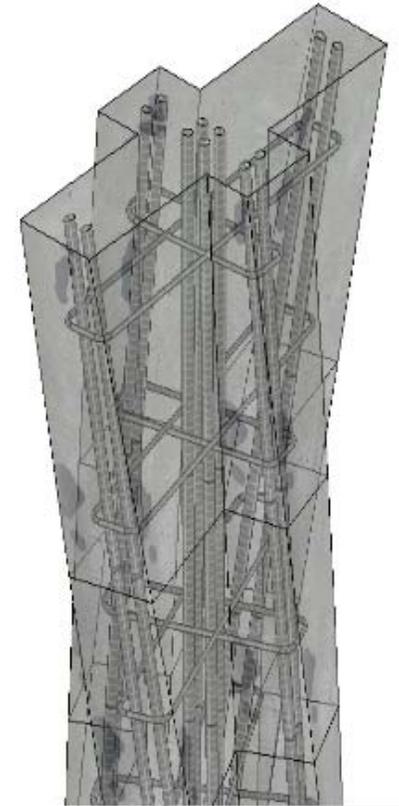
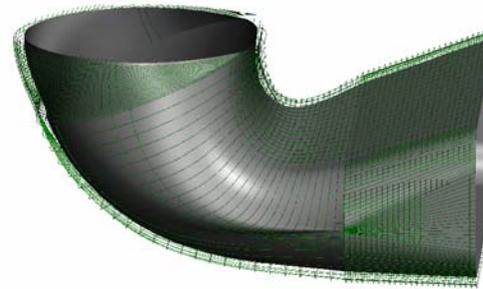
# Why ProConcrete?

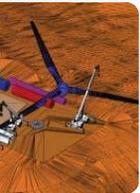
- Complex structures were 2D plans hardly depict what needs to be constructed.
- We live in a 3D world...BIM/BrIM
- Interaction with other software applications that required intelligent data inside.
- 3D Model is the single source of truth of the structure.
- Reports and plans will be generated from the model.



# Transitioning from 2D to 3D Design

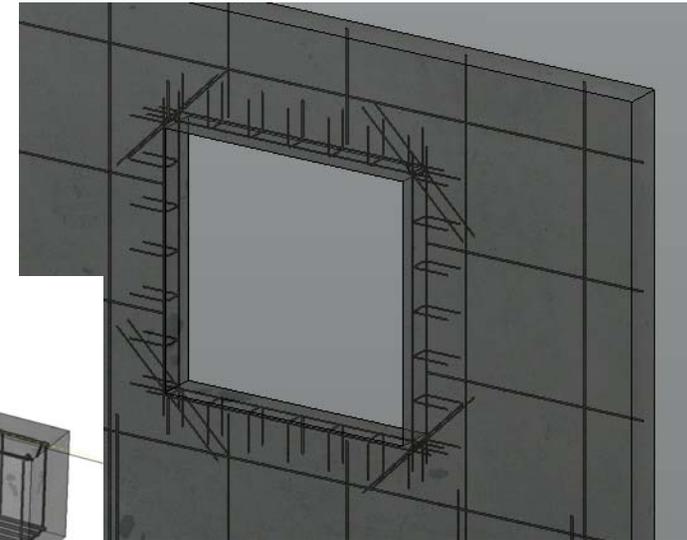
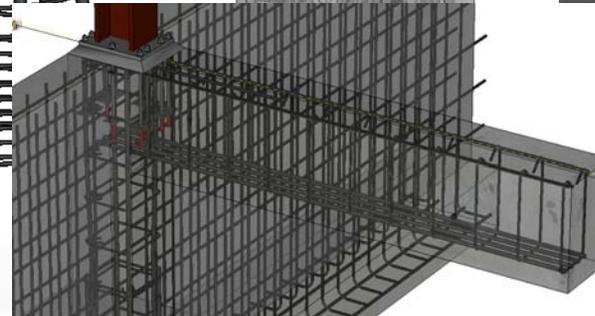
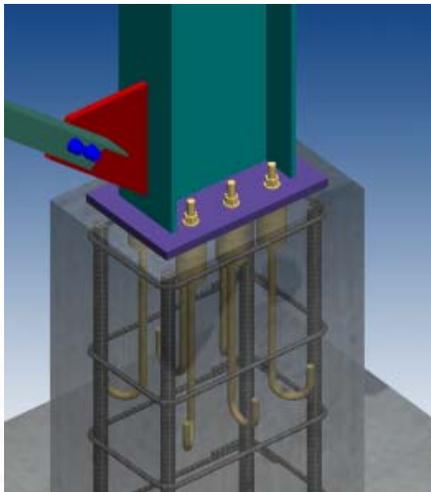
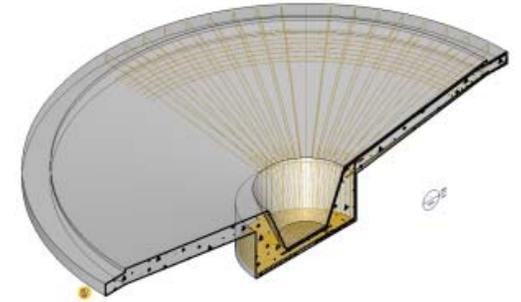
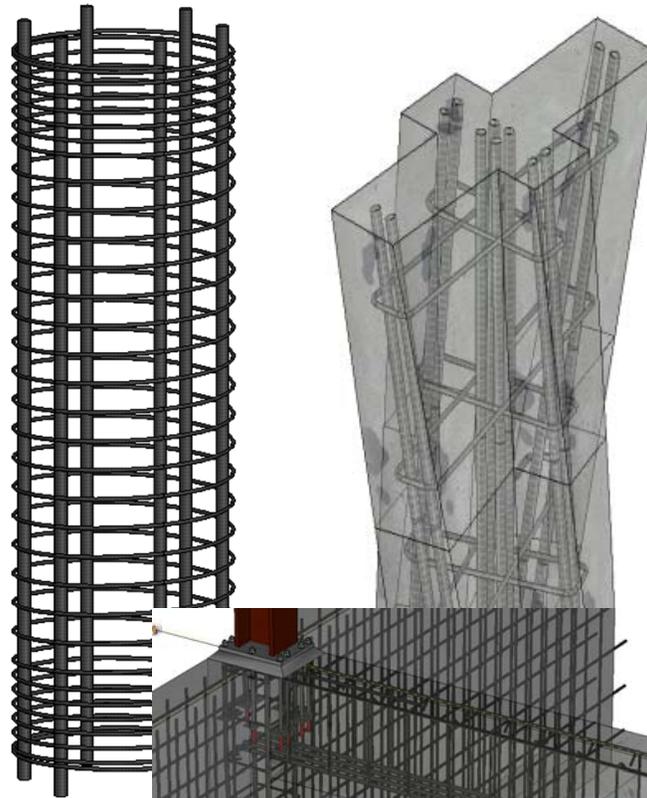
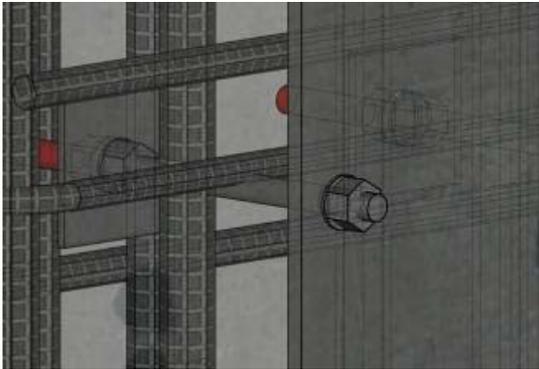
- Plans still need to be submitted as per legal/contractual requirements.
- Generate a 3D model of the detailing
- Multiple “views” will be generated from the 3D model: plan, elevation, sections still allowing the development of plan sheets.
- Intelligent 2D annotation of the views using Bentley Rebar tools, gathering the intelligence of the 3D model.
- Parametric environment: any changes in the 3D model will affect the developed plan sheets and their annotation.
- Automated bar list and bar bending charts generation.



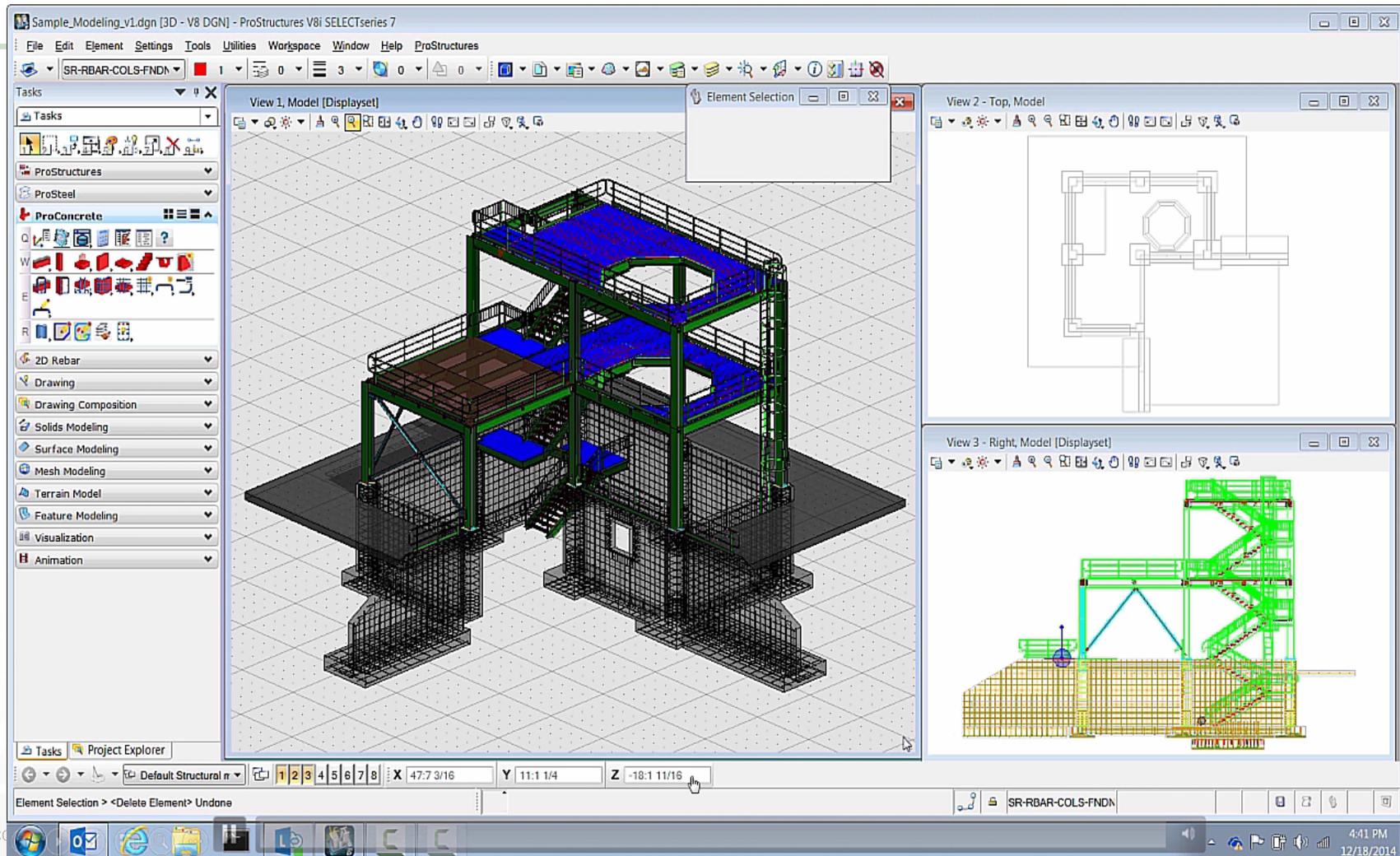


# ProConcrete Overview

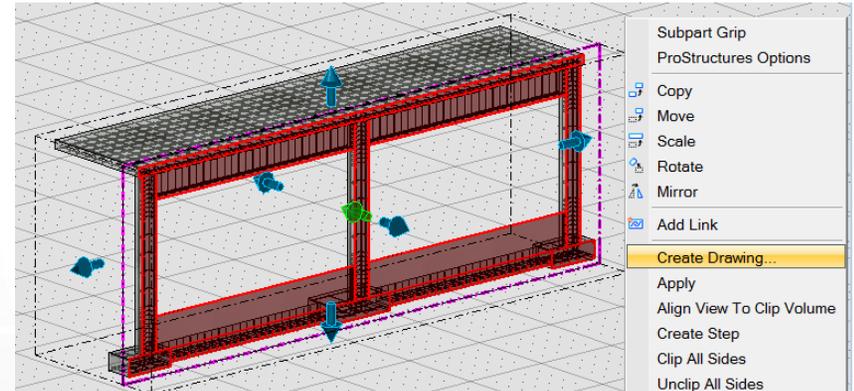
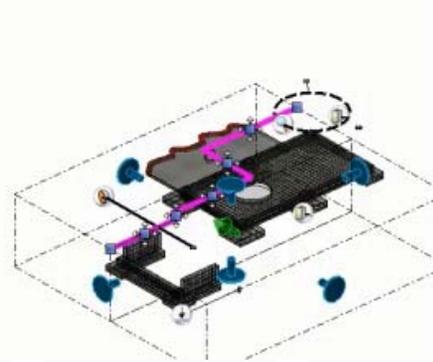
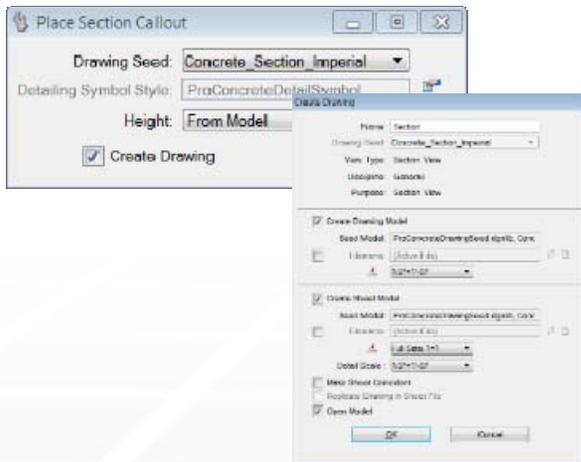
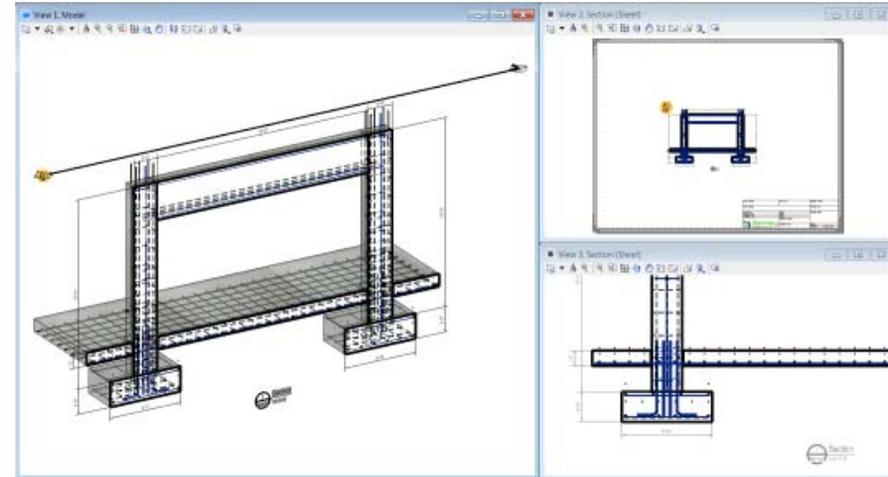
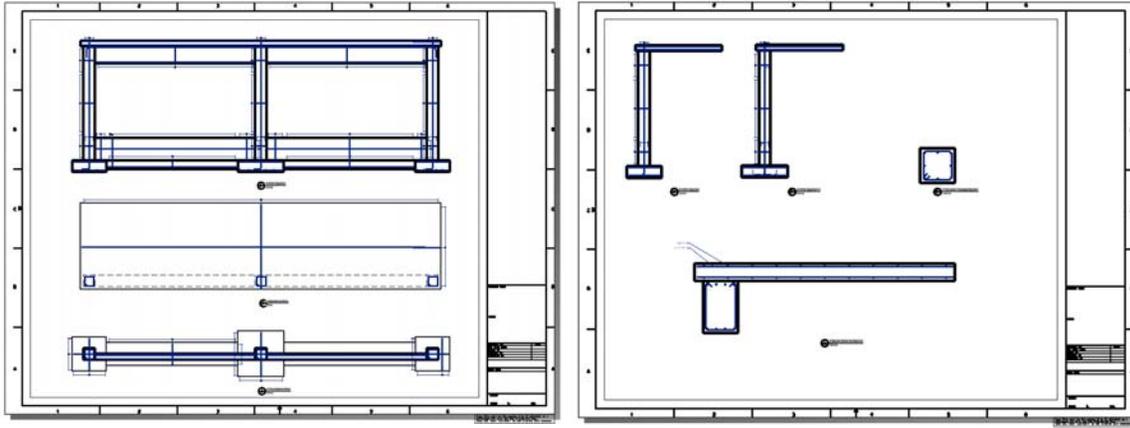
# 3D Parametric Concrete and Rebar Modeling



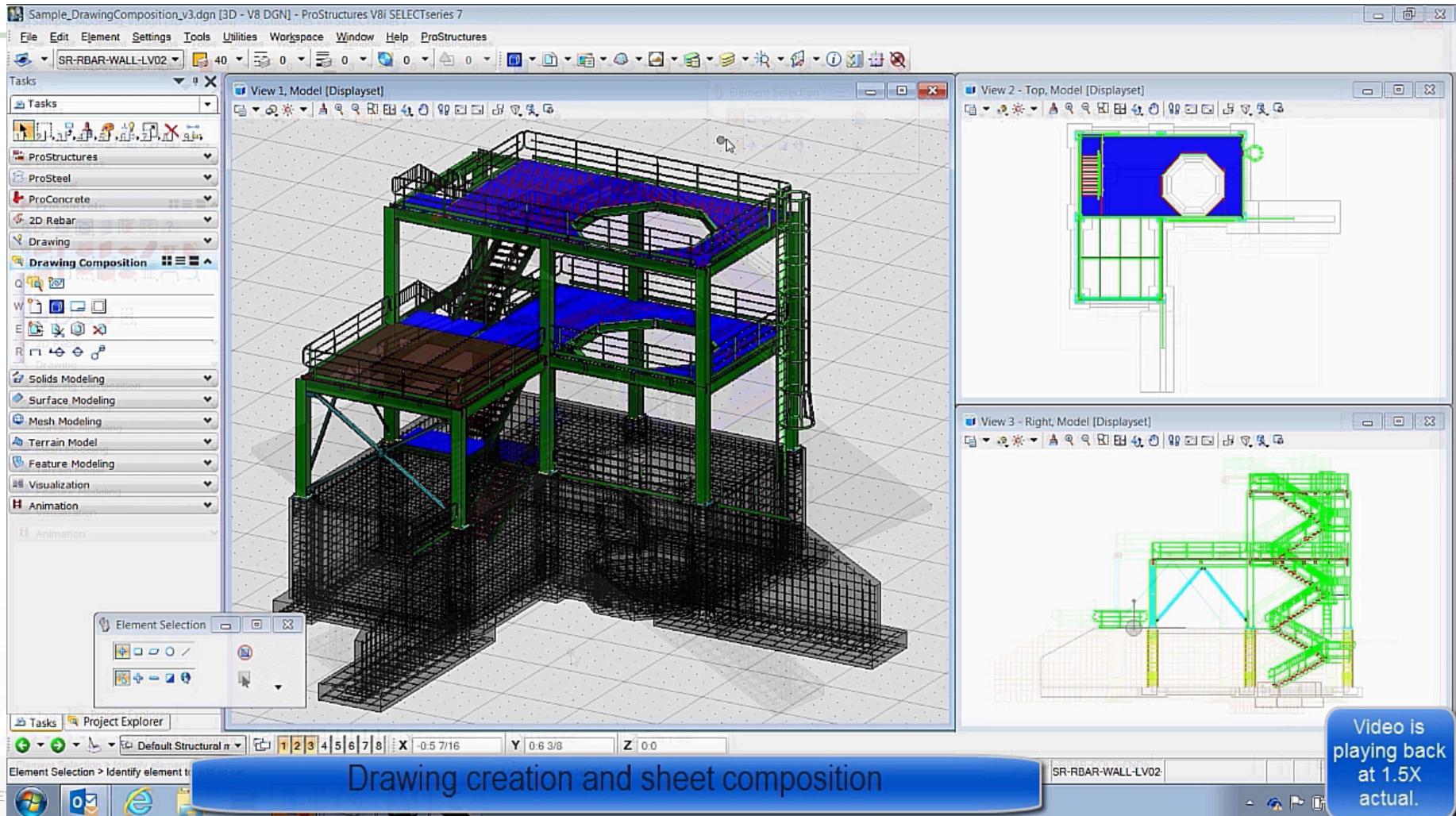
# 3D Parametric Concrete and Rebar Modeling



# Drawing Creation and Sheet Composition



# Drawing Creation and Sheet Composition



# Customized Bar Bending Schedules and Quantity Reports

- Volume quantities with or without rebar:

**Options**

Start Partlist

Subtract rebar from concrete volume

**Elements**

Beams

Columns

Footings

Slabs

Walls

Panels

Inserts

Free parts

Concrete shapes report Page 1

Object Type	Position	Grade	Name	Qty	S.Area (SF)	Volume (Yd <sup>3</sup> )	Weight (Lbs)	Height	Width	Length
Column	2	5000 psi	Concrete 1'-4"x1'-4"	1	40.0	0.40	1,000	1'-4"	1'-4"	7'
Column	2	5000 psi	Concrete 1'-4"x1'-4"	1	40.0	0.40	1,000	1'-4"	1'-4"	7'
Column	3	5000 psi	Concrete 1'-4"x1'-4"	1	30.2	0.33	1,292	1'-4"	1'-4"	5'
Footing	4	3000 psi	Footing	1	53.8	0.60	2,373	1'	2'	6'-2"
Footing	5	3000 psi	Footing	1	76.7	1.23	4,843	1'-4"	5'	5'
Footing	5	3000 psi	Footing	1	76.7	1.23	4,843	1'-4"	5'	5'
Footing	6	3000 psi	Footing	1	32.0	0.35	1,505	1'	2'	4'-8"
Footing	7	3000 psi	Footing	1	42.0	0.55	2,241	1'	2'	4'-3"
Panel	10	5000 psi	Panel	1	200.0	2.00	13,760	8'	3'	11'-0"
Panel	11	5000 psi	Panel	1	106.0	1.06	4,764	8'	1'	11'-0"
Panel	12	5000 psi	Panel	1	157.8	1.58	6,184	8'	1'	11'-0"
Panel	13	5000 psi	Panel	1	103.0	1.03	4,266	8'	1'	7'-11"
Panel	6	5000 psi	Panel	1	130.0	1.33	5,100	10'	1'	14'-5"

Quantity: 15  
Volume: 21.00 Yd<sup>3</sup>  
Weight: 85,830 Lbs

Page 1 of 1





# Customized Bar Bending Schedules and Quantity Reports

**Concrete shape**

Order Name: 007-008

Project Name: Training Project

ObjectType	PosNum	Grade
Column	2	5000 psi
Column	2	5000 psi
Column	3	5000 psi
Footing	4	3000 psi
Footing	5	3000 psi
Footing	5	3000 psi
Footing	5	3000 psi
Footing	6	3000 psi
Footing	7	3000 psi
Footing	8	3000 psi
Panel	10	5000 psi
Panel	11	5000 psi
Panel	12	5000 psi
Panel	13	5000 psi
Panel	9	5000 psi

Quantity  
Volume  
Weight

<b>11-07</b>	Quantity <b>25</b>	Size <b>5</b>	Grade <b>60</b>	Length <b>11-11</b>	Mark <b>5A8</b>
Job: 06-145 Rel: 1 CC: AAP		Shp: T1 Pm: 0-022 BC: L			
Qty: 25 Size: 5 Lgth: 11-11 Mark: 5A8 Grd: 60 BC: L		Session: 000010 Run: <b>130047</b> ID: 3			
Bndl: 1 of 1 Page: 1 Item: 2 MB: 2J Lbs: 311		1: 135°/F 2: 90°/F 3: 90°/F 4: 90°/F 5: 135°/F		<b>Applied Systems Associates 1.800.CALL.ASA</b>	
Run: 130047 Session: 000010		Job: <b>06-145</b> Dwg: Ref:			
Run Date: 11/14/2008 Ship: Nov 27 Print: 3 Ver: 6.30.227		<b>AAP</b>			

Municipal Works

Concrete Construction

F301 thru F304

0-08

8-08

0-08

7-00

0-08

6-00

0-08

5-11

0-08

5-07

0-08

5-04

0-08

4-09

0-08

0-08

0-11

4-04

0-08

4-06

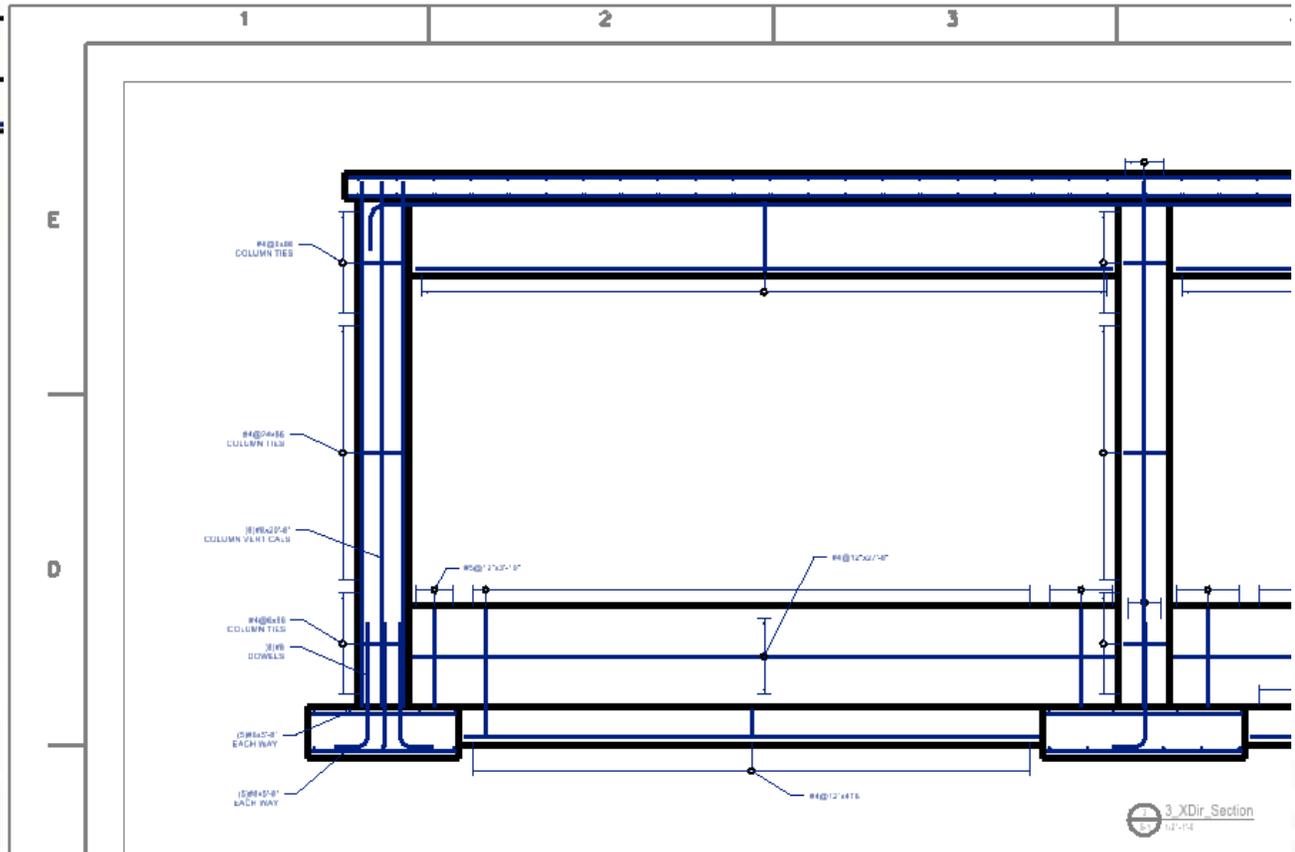
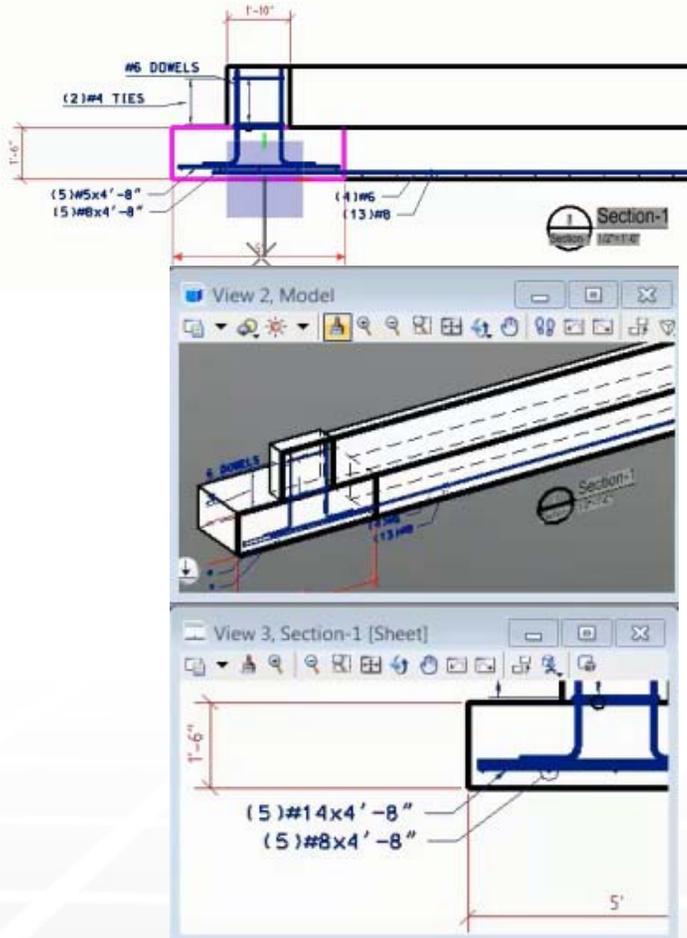
# Customized Bar Bending Schedules and Quantity Reports

The screenshot displays the ProStructures V8i SELECTseries 7 interface. The main window shows a 3D model of a multi-level structure with reinforcement bars. A table titled "ProConcrete Positioning: Results of reinforcements" is overlaid on the right side of the model. The table lists 17 reinforcement bars with their respective properties.

No.	Pos. No.	Name	Length	Shape	BarMark	Qty	Diameter	Weight	Ma
1	101-64-297	5	40.1		5T14	36	0.0 5/8	1505.1067	
2	101-64-298	5	39.11		5T15	5	0.0 5/8	208.1734	
3	102-77-299	5	37.5		5T16	10	0.0 5/8	390.2708	
4	102-77-300	5	30.1		5T17	10	0.0 5/8	313.7812	
5	102-77-301	5	28.11		5T18	2	0.0 5/8	60.3225	
6	101-64-302	5	25.0		5T19	1	0.0 5/8	26.0964	
7	101-64-303	5	24.9		5T20	1	0.0 5/8	25.0210	
8	101-64-304	5	24.1		5T21	1	0.0 5/8	25.0764	
9	101-64-305	5	23.10		5T22	1	0.0 5/8	24.8157	
10	101-64-306	5	23.1		5T23	1	0.0 5/8	24.0451	
11	101-64-307	5	22.10		5T24	1	0.0 5/8	23.7726	
12	101-64-308	5	22.1		5T25	1	0.0 5/8	23.0338	
13	101-64-309	5	21.10		5T26	1	0.0 5/8	22.7420	
14	112-65-310	5	21.6		5T27	6	0.0 5/8	134.5522	
15	101-64-311	5	21.5		5T28	5	0.0 5/8	111.6922	
16	113-69-312	5	21.2		5T29	7	0.0 5/8	154.6657	
17	112-65-313	5	20.7		5T30	1	0.0 5/8	21.4765	

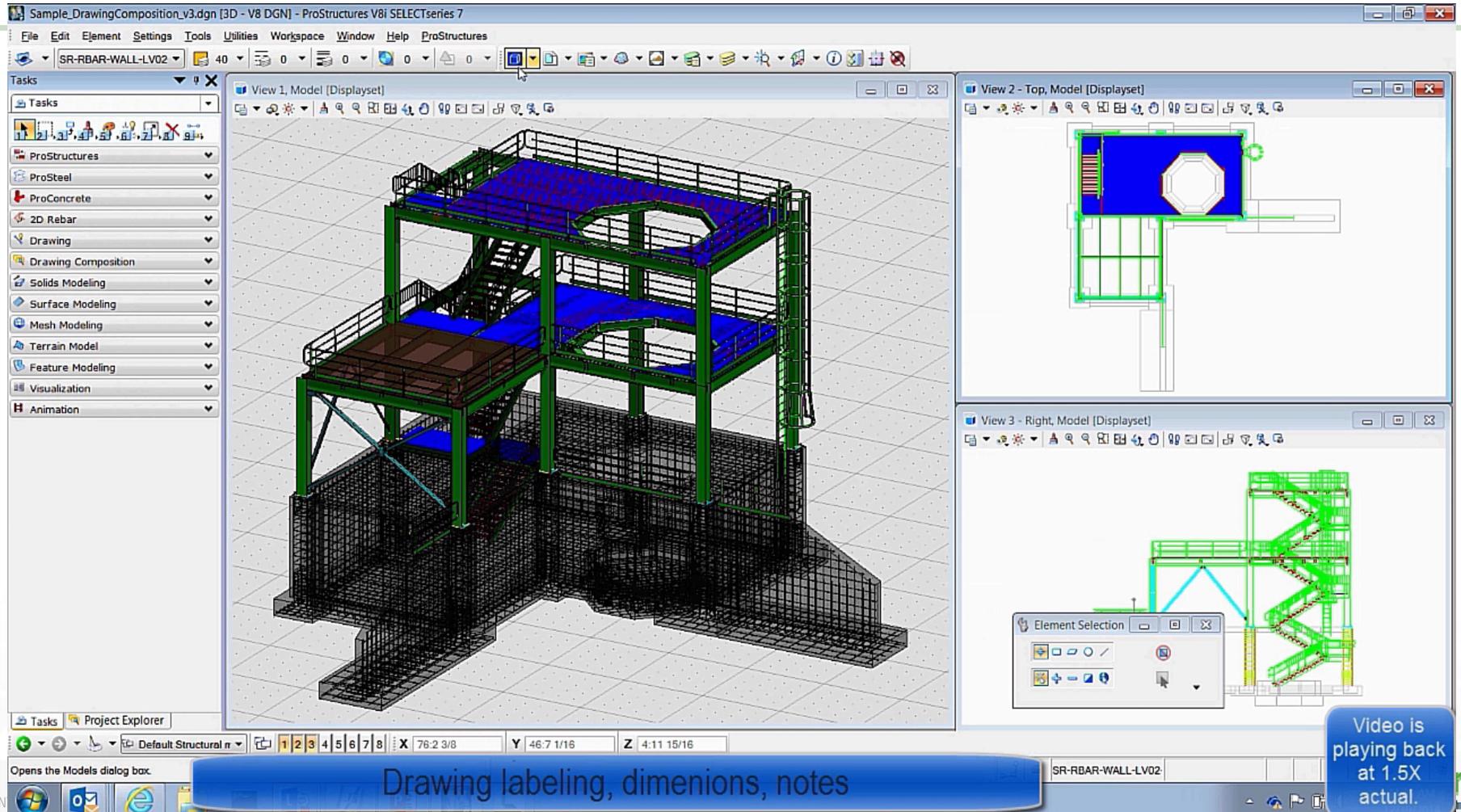
At the bottom of the screenshot, there is a blue banner with the text "Customized bar bending schedules and quantity reports". In the bottom right corner, there is a small video player window with the text "Video is playing back at 1.5X actual." and the logo "ley".

# Drawing Annotation



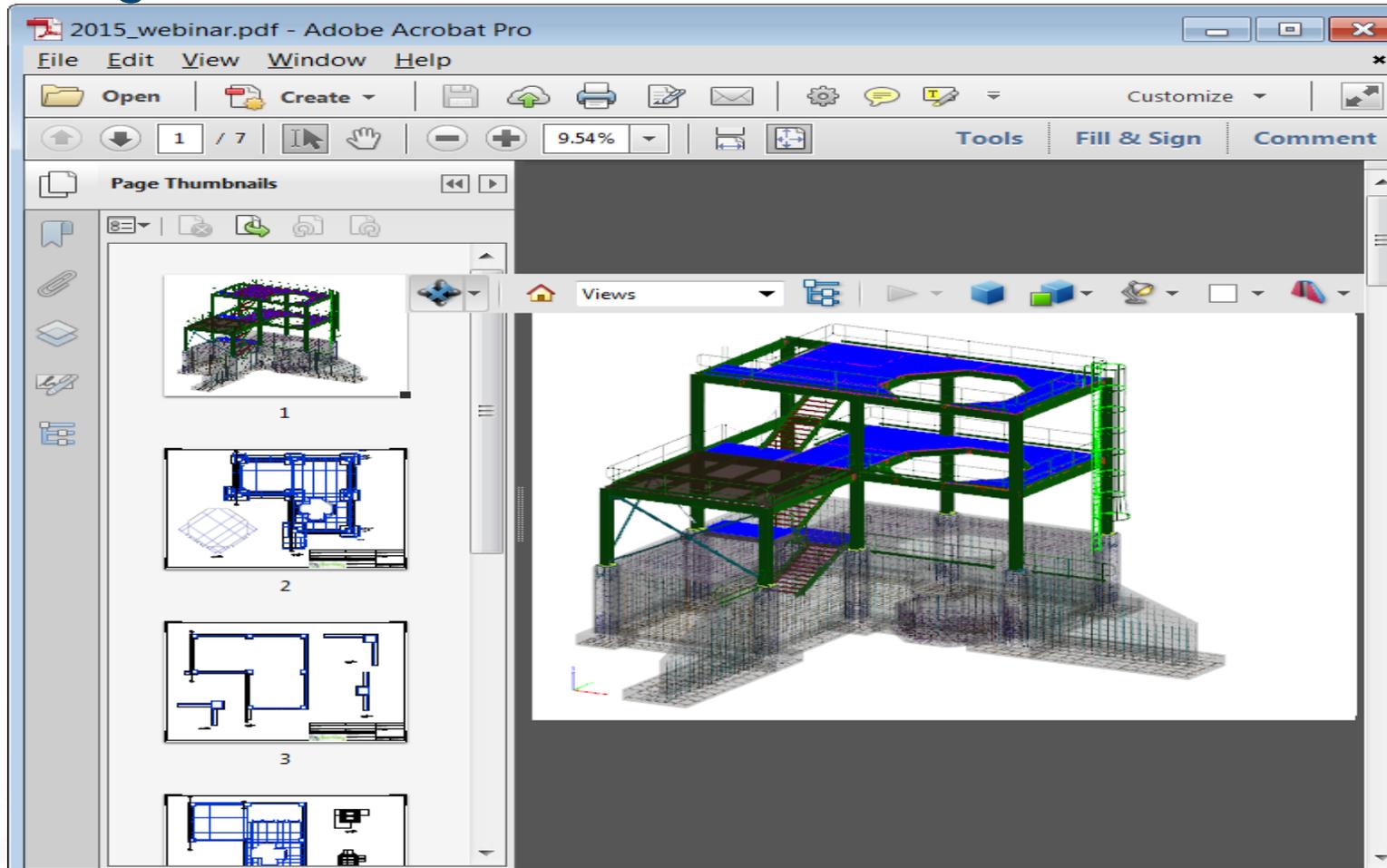
3 XDir Section  
12-14

# Drawing Annotation

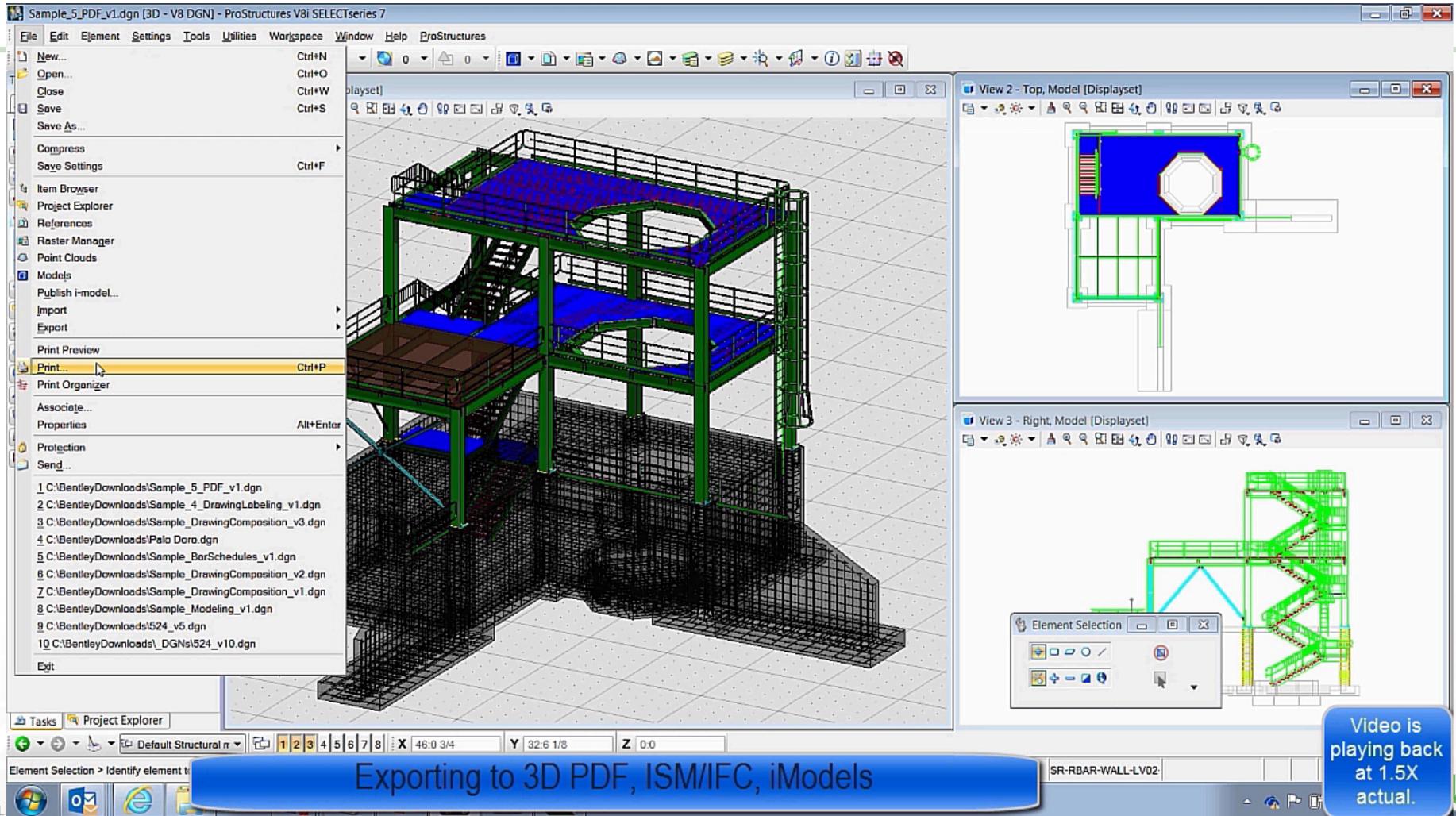


Video is playing back at 1.5X actual.

# Exporting to 3D PDF, ISM/IFC, iModels

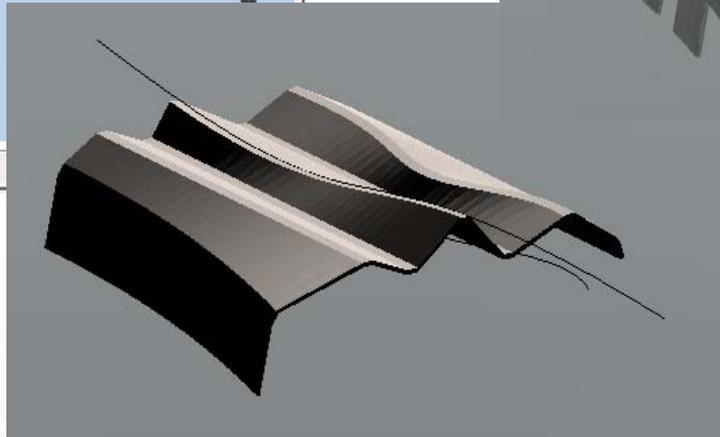
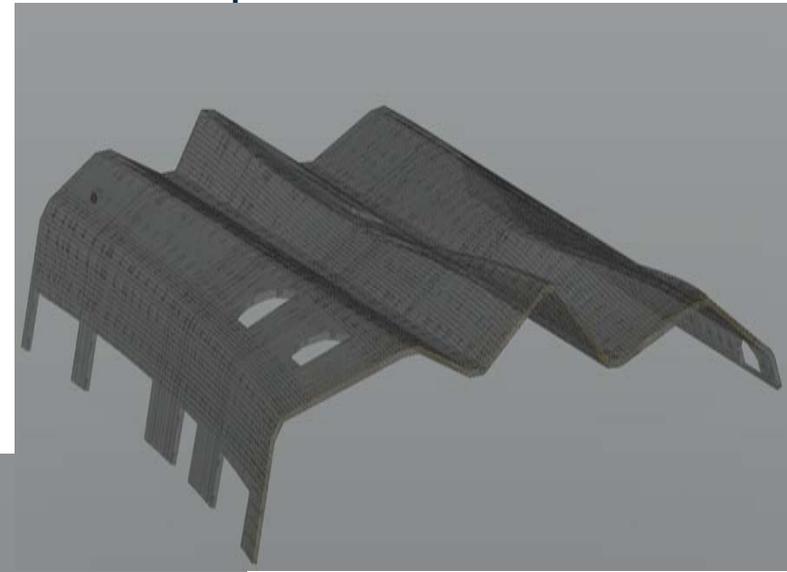
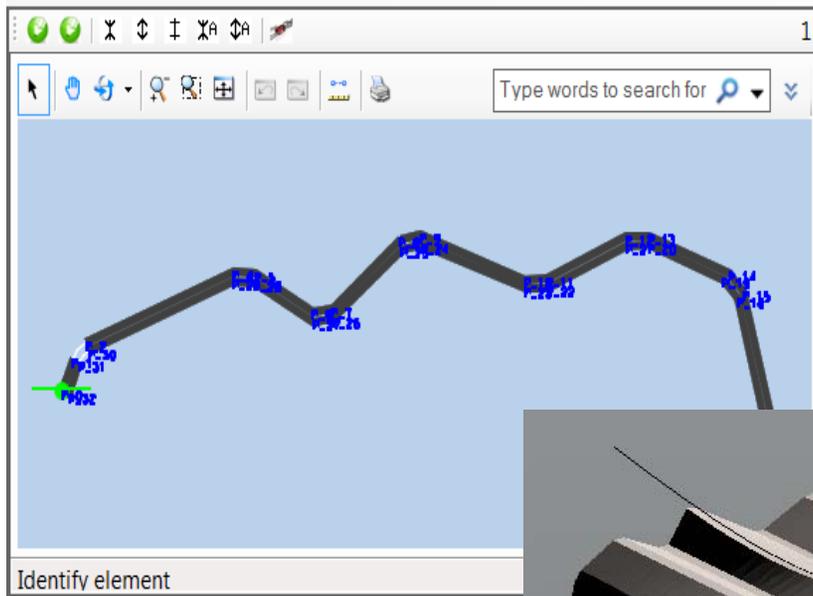


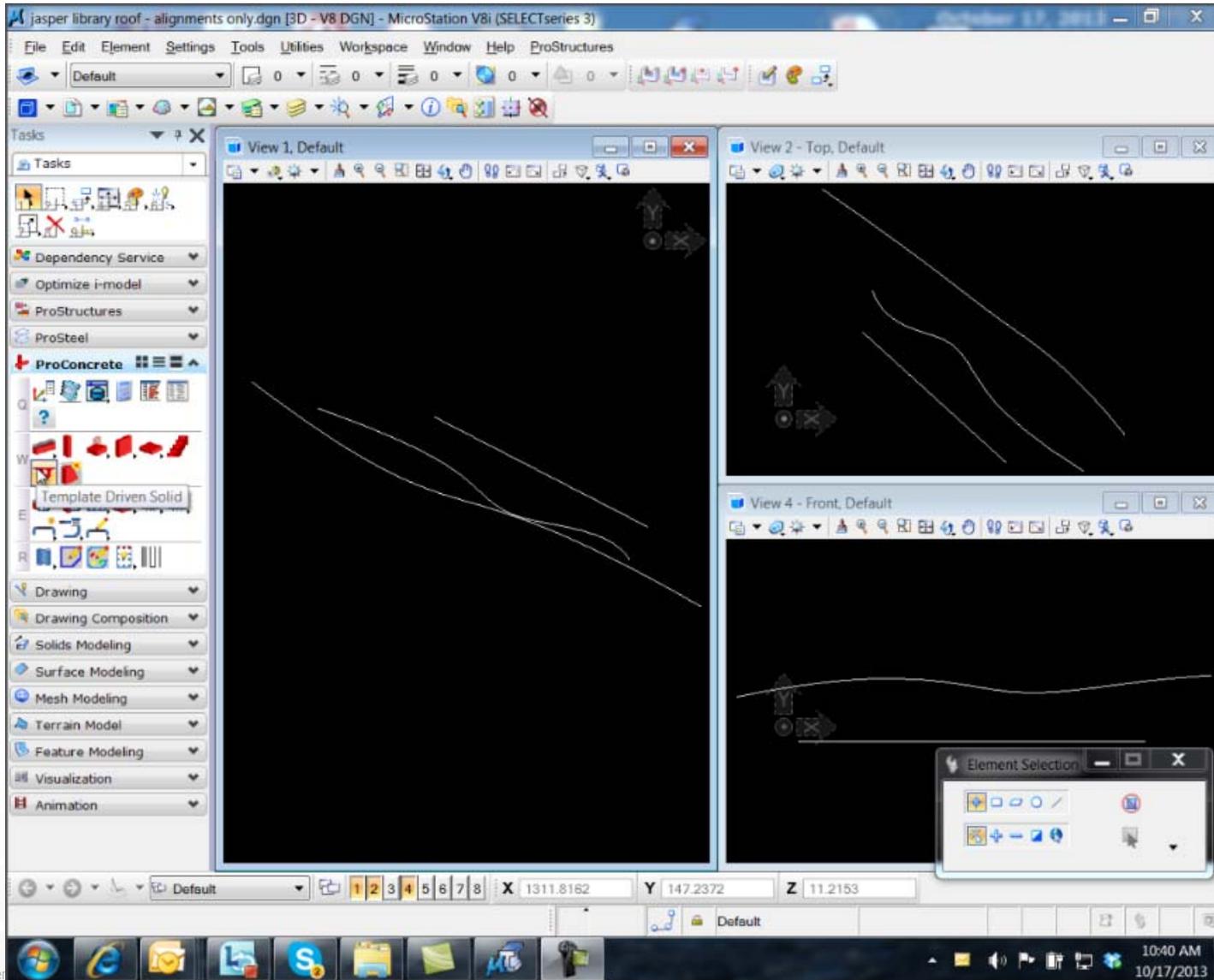
# Exporting to 3D PDF, ISM/IFC, iModels



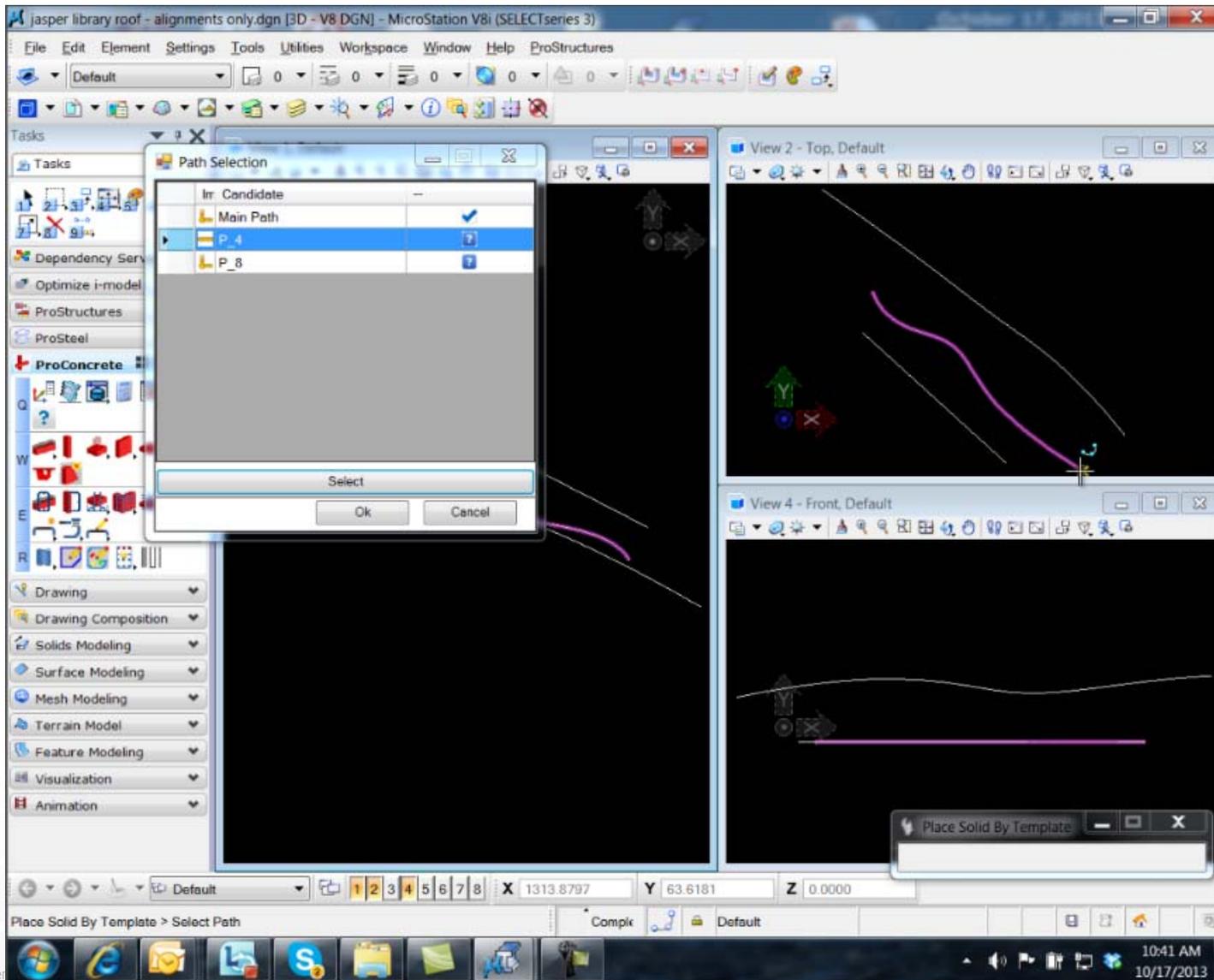
# Detailing Complex Structures...

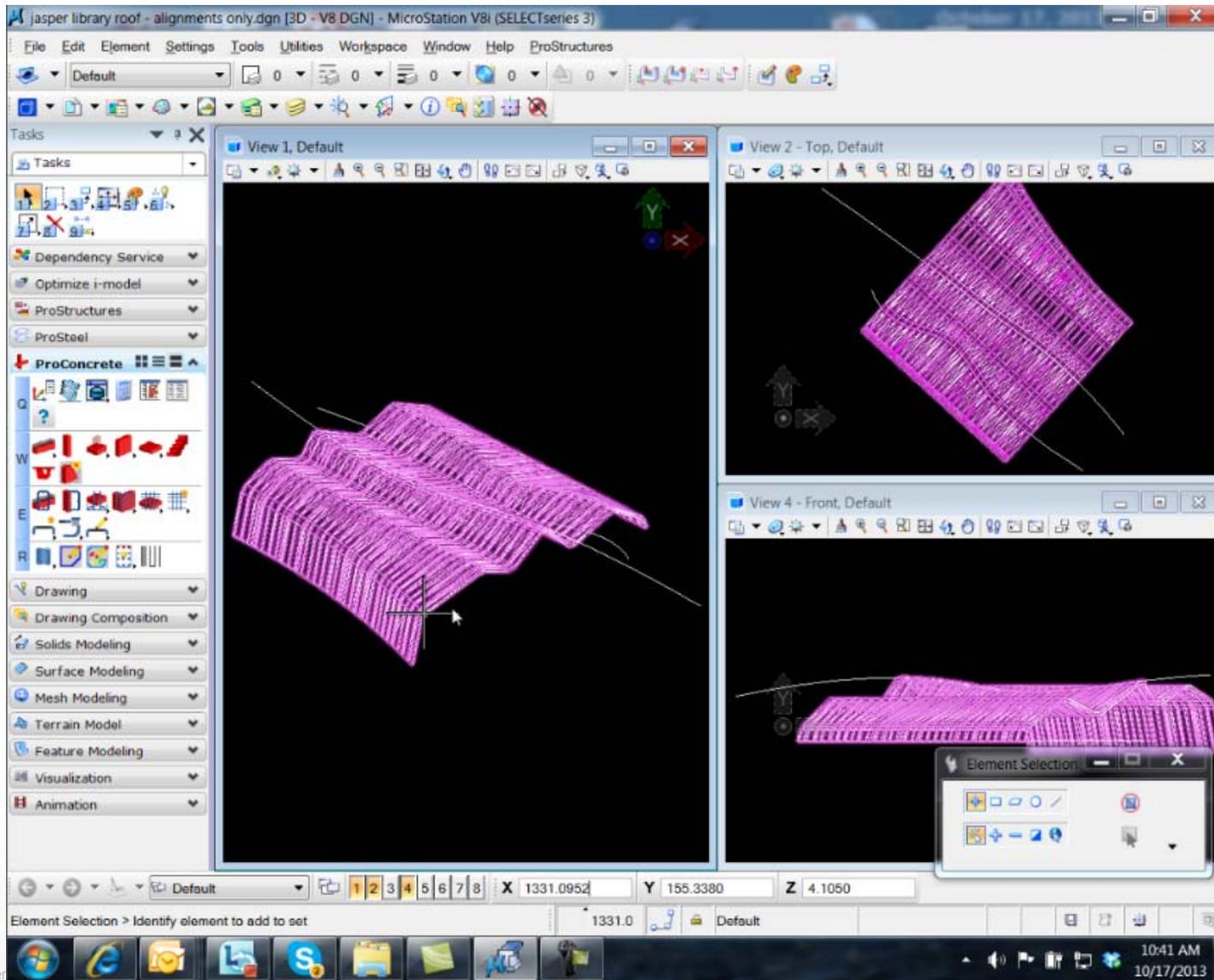
- 3D Parametric Solid Model from 2D profile template

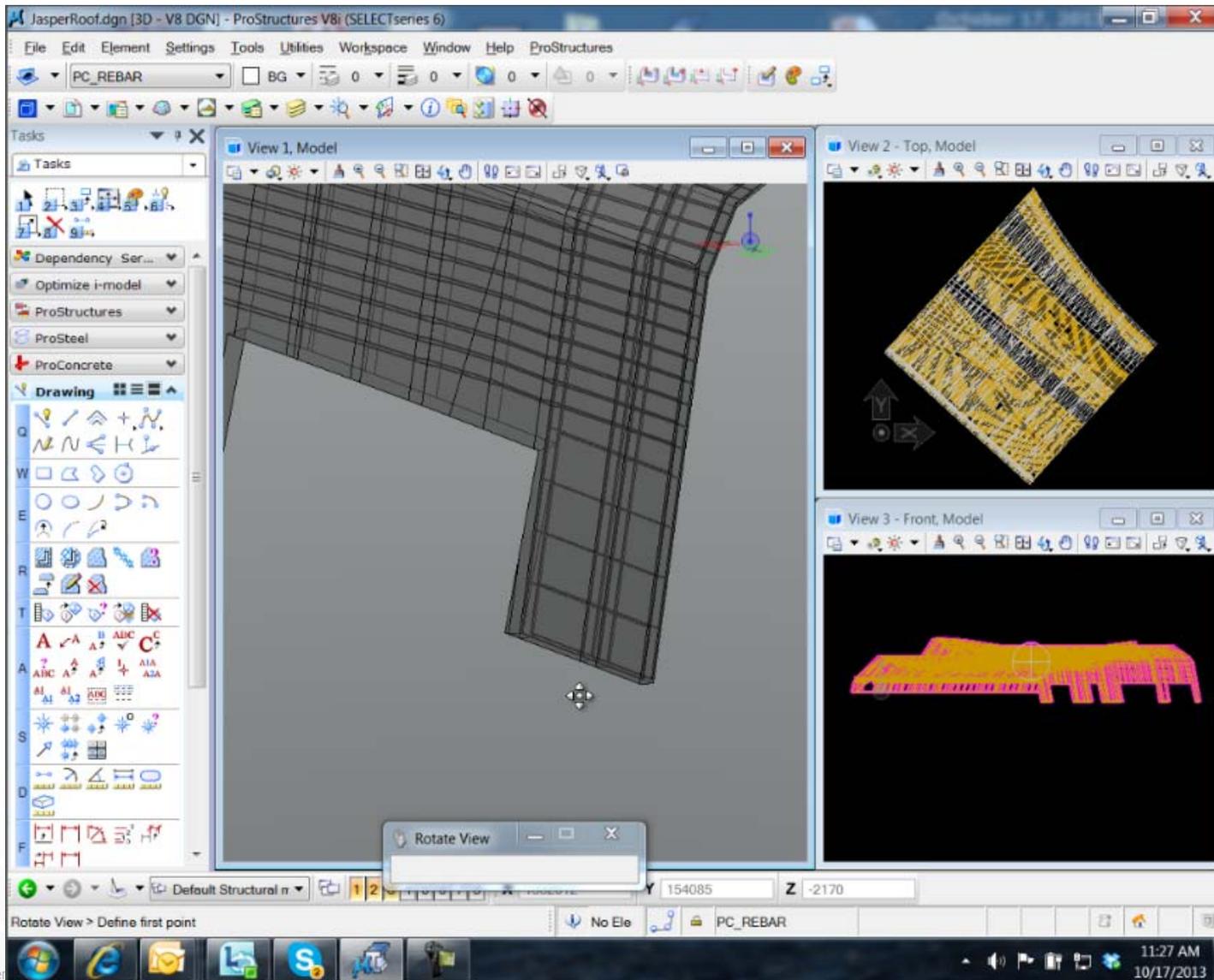


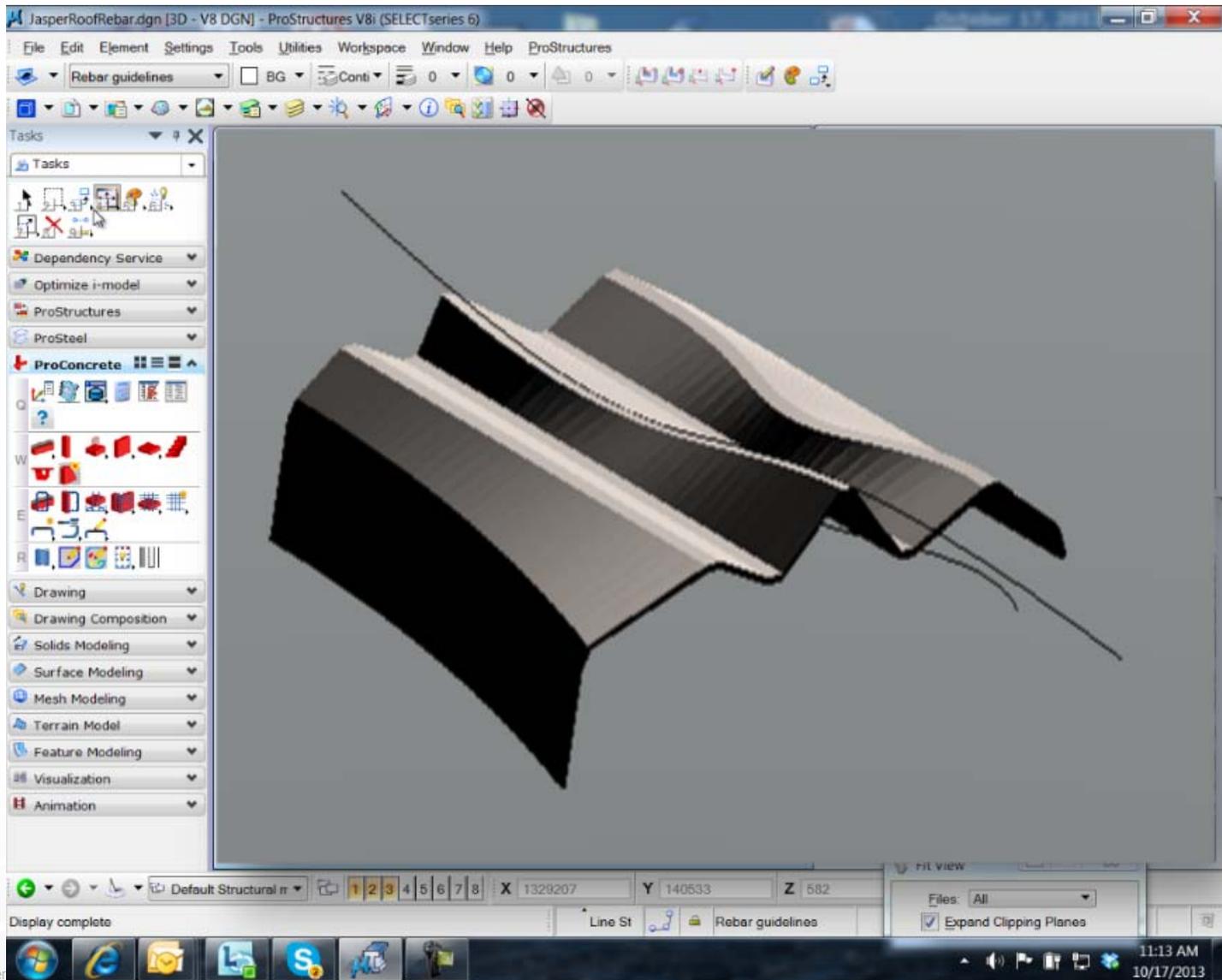












# Benefits

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- Ability to model any type of structure
- Clash detection against any element in the 3D model...not only rebars
- Automated quantities
- Intelligent i-Model for construction and inspection

Thank you!