

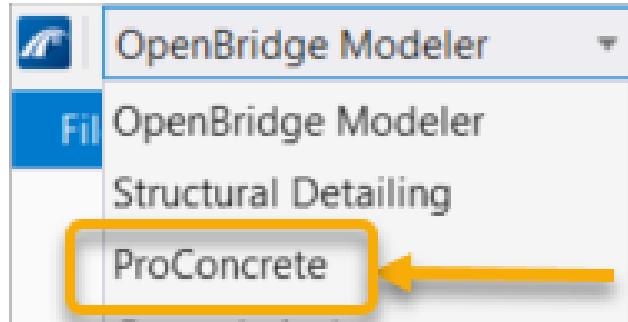


Detailing of Bridge Elements using ProStructures

Sye Chakraborty, Sr. Consultant, Bridge Services, Americas

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ProStructures: ProConcrete Capabilities (*within OBM*)



Reinforce concrete members such as beams, piers, abutments, barriers and decks

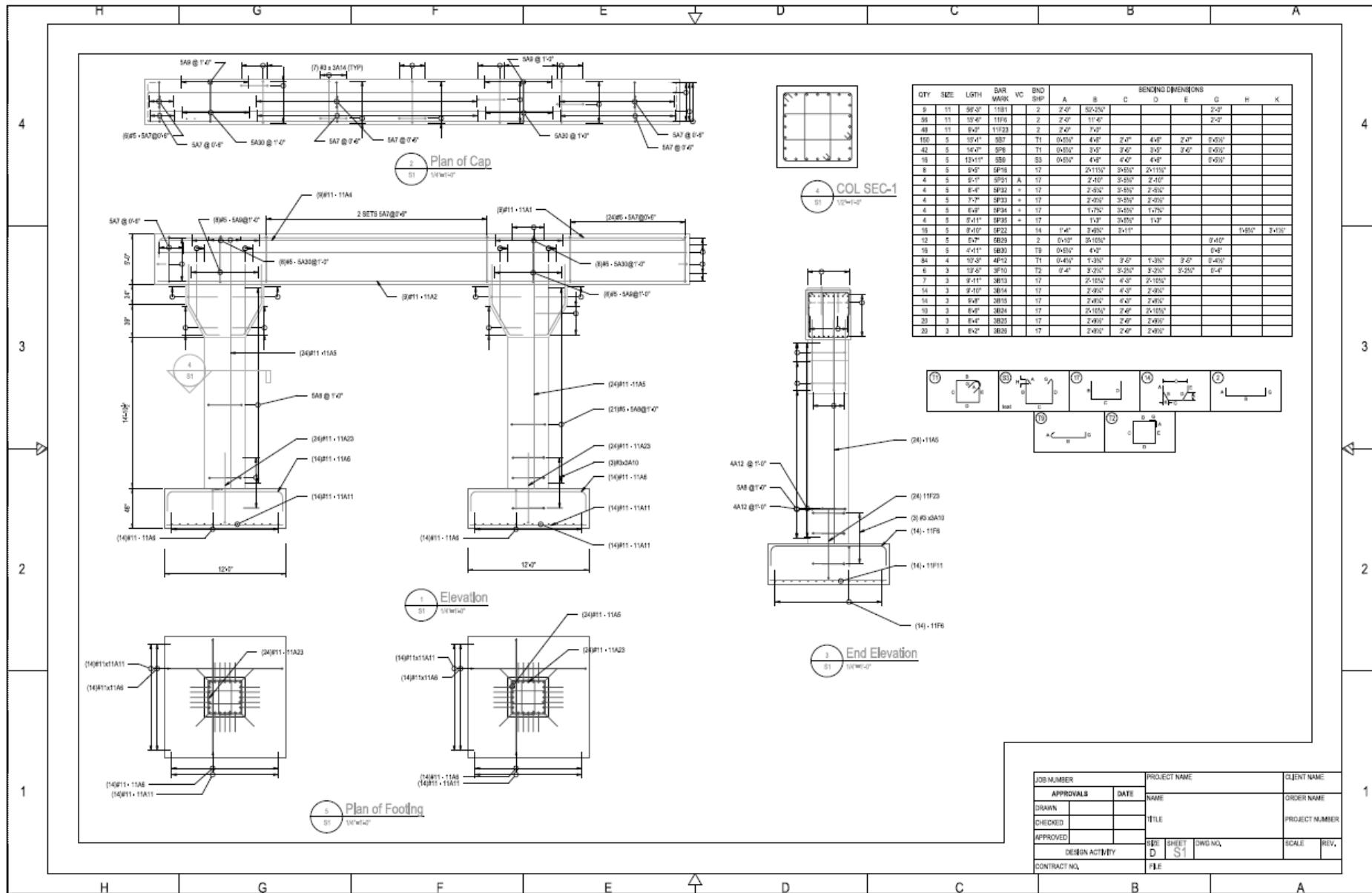


Modify Rebar Tools



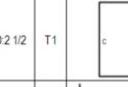
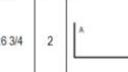
Bar Positioning, Analytics, Marking tools

Drawing Generation



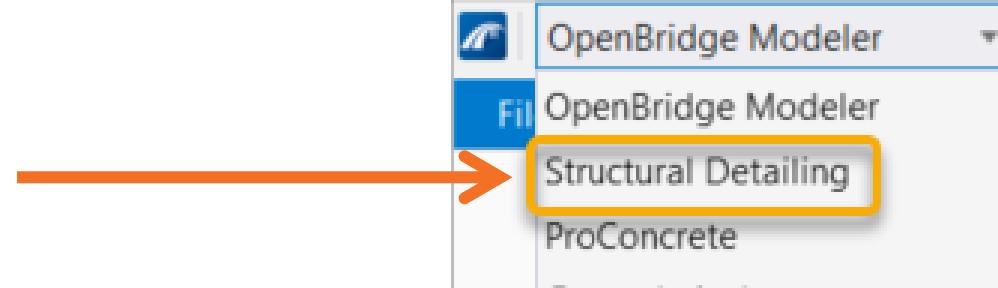
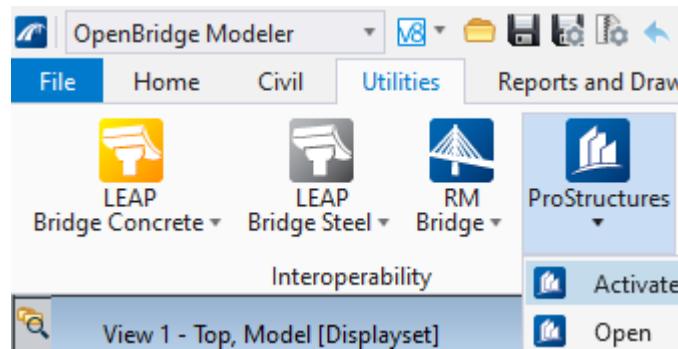
Bar Bending Schedule

Page 2

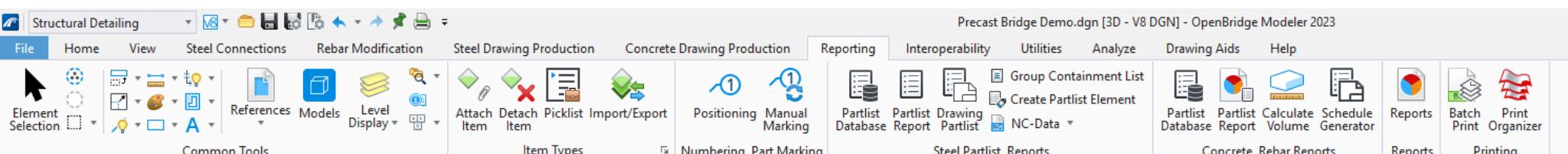
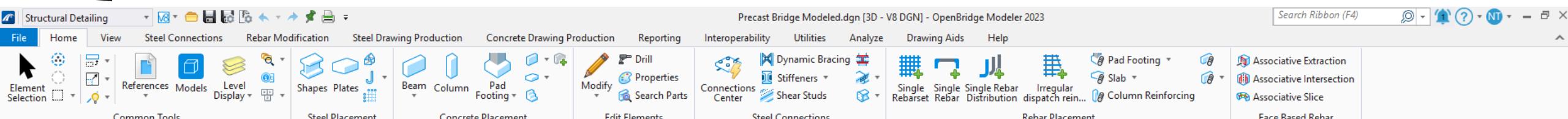
 ProStructures CONNECT Edition						Bar Bending Schedule		Status:	007-008				
								Revision:					
Project: Training Project						Prepared by:		Date:	Friday, September 6, 2024				
Model / Pour: D1-3D Platform						Checked by:		Last revised:					
Qty.	Bar Mark	Bar Size	Length of each bar	Shp.	Sketch (labels)	A	B	C	D	E	F	G	Total Weight
84	4A12	#4	10 2 1/2	T1		0 4 1/2	1 3 3/4	3 5	1 3 3/4	3 5		0 4 1/2	573
8	5A16	#5	9 4 1/2	17			2 11 1/2	3 5 1/2	2 11 1/2				78
16	5A22	#5	8 9 3/4	14		1 4	3 6 3/4	3 11					147
8	5A27	#5	7 0										58
8	5A28	#5	5 6										46
12	5A29	#5	5 6 3/4	2		0 10	3 10 3/4					0 10	70
10	5A3	#5	5 2 5										547
16	5A30	#5	4 11 1/2	T9		0 5 1/2	4 0					0 6	83
4	5A42	#5	8 4	17			2 5 1/4	3 5 1/2	2 5 1/4				35
4	5A43	#5	7 6 1/2	17			2 0 1/2	3 5 1/2	2 0 1/2				31
4	5A44	#5	6 9	17			1 7 3/4	3 5 1/2	1 7 3/4				28
4	5A45	#5	5 11 1/2	17			1 3	3 5 1/2	1 3				25
150	5A7	#5	15 1	T1		0 5 1/2	4 6	2 7	4 6	2 7	0 5 1/2	2,360	

ProStructures: Structural Detailing Workflow

(requires activation)

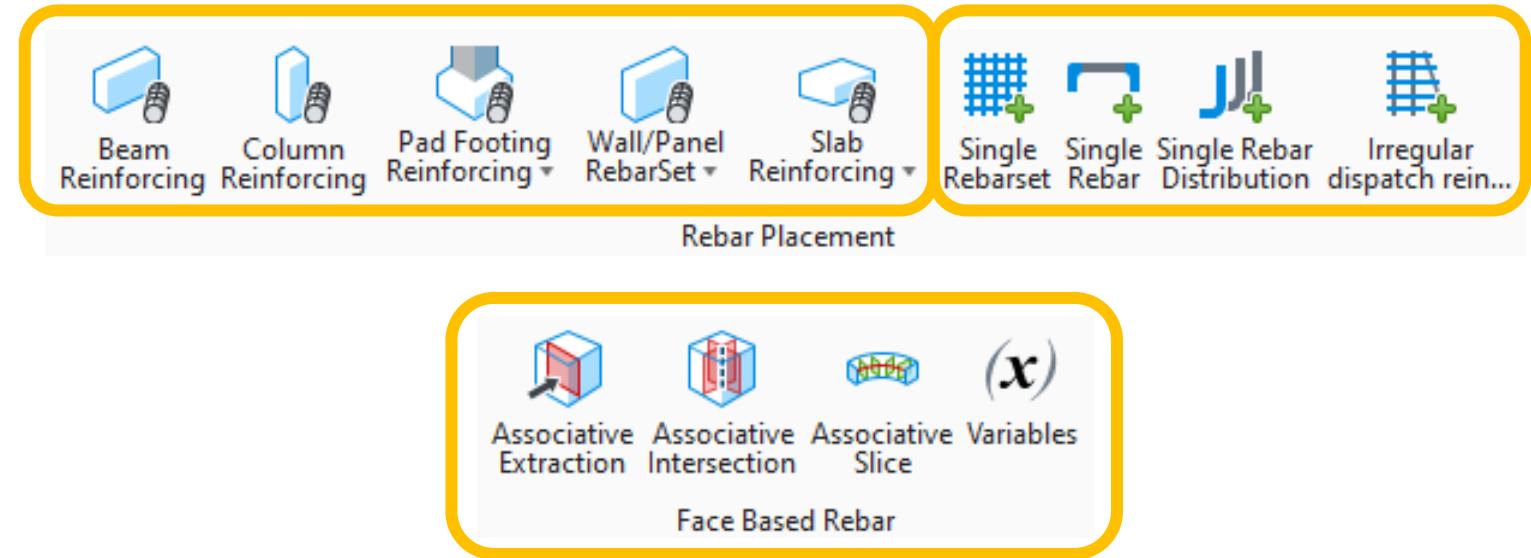


Structural Detailing Workflow (ProSteel)



Rebar Placement Tools

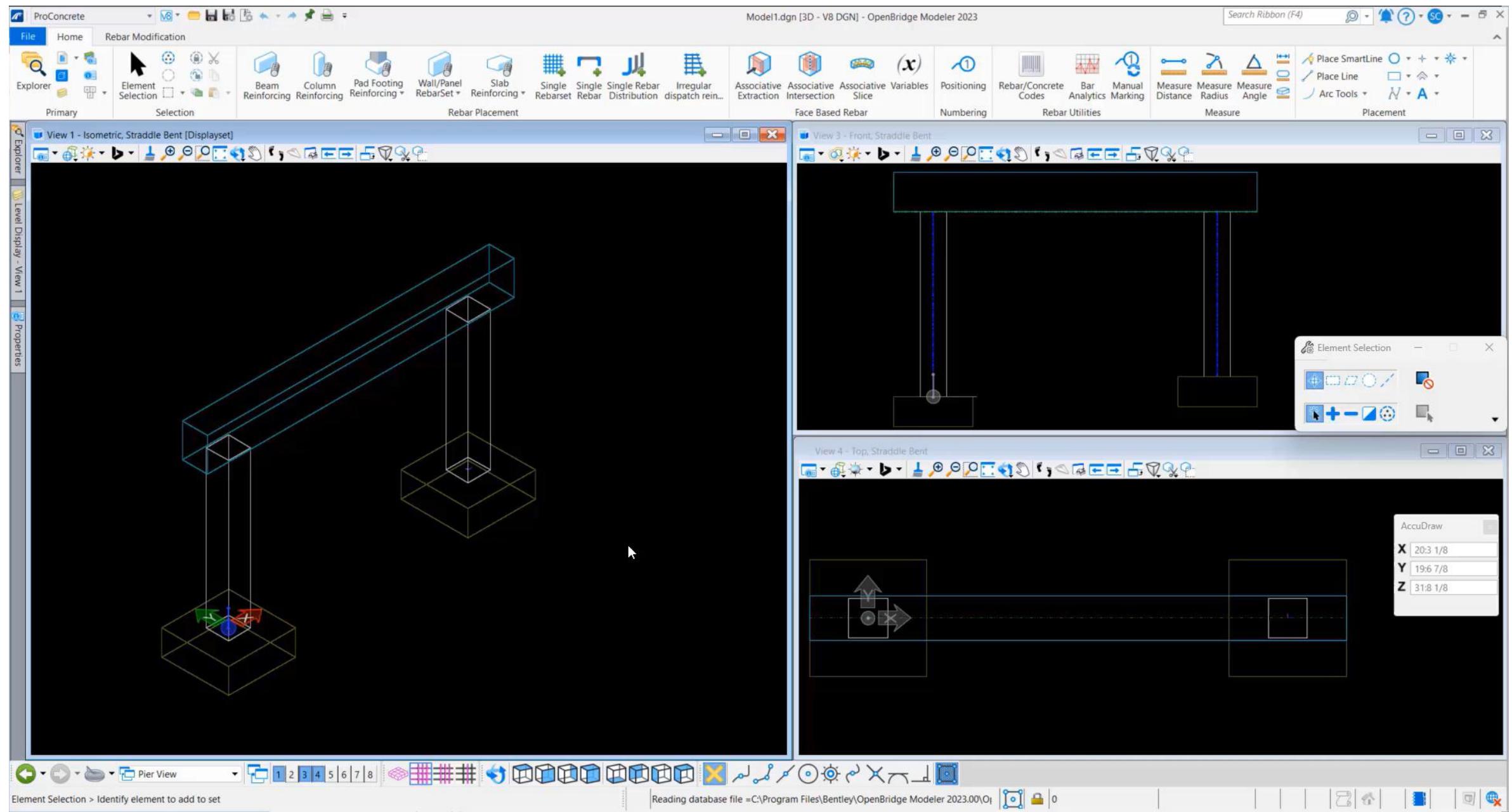
- Parametric
 - Beam
 - Column
 - Pad/Continuous Footing
 - Wall/Panel
 - Slab
- Non-parametric
 - Single Rebarset
 - Single Rebar
 - Single Rebar Distribution
 - Irregular Dispatch
- Face Based Rebar



- Parametric Rebar Modeling Tools



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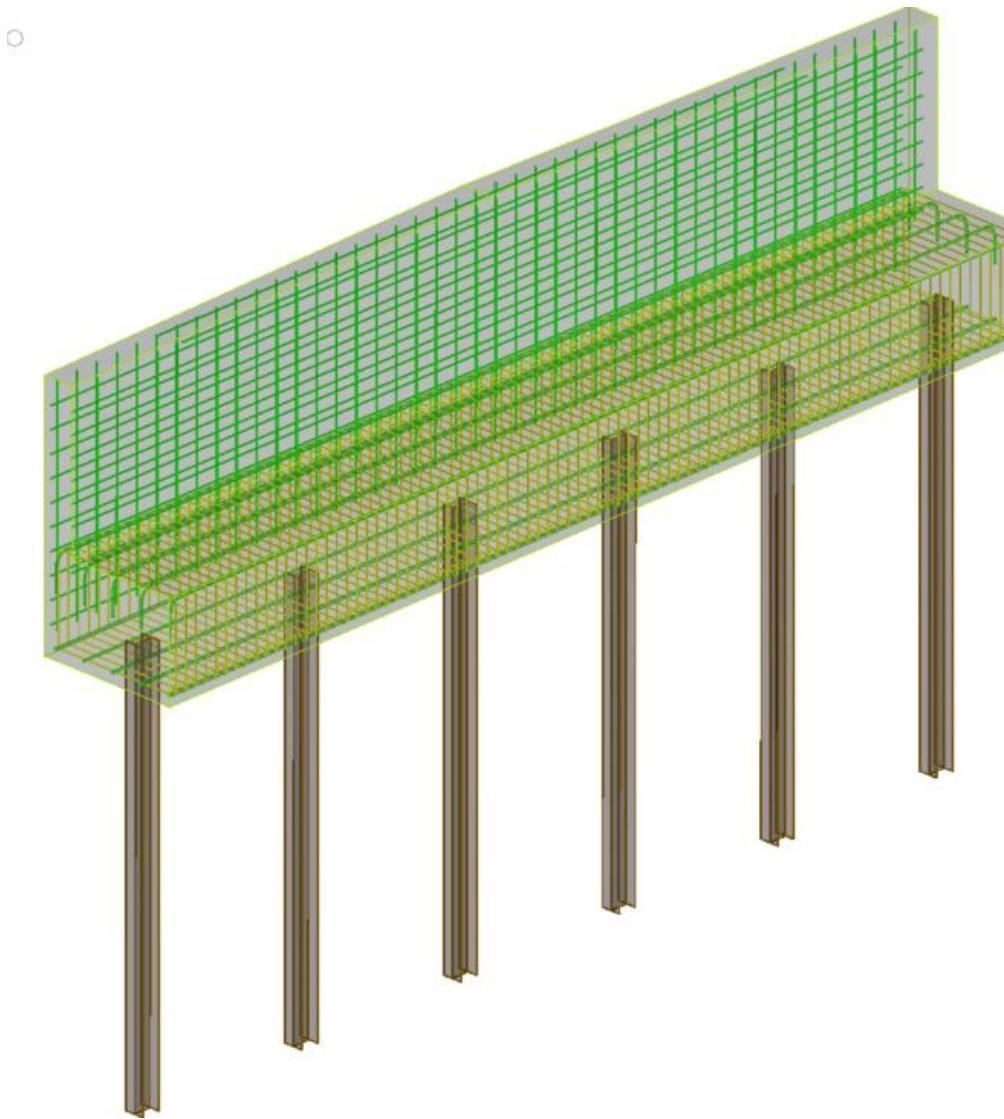


- Non-Parametric Rebar Modeling Tools

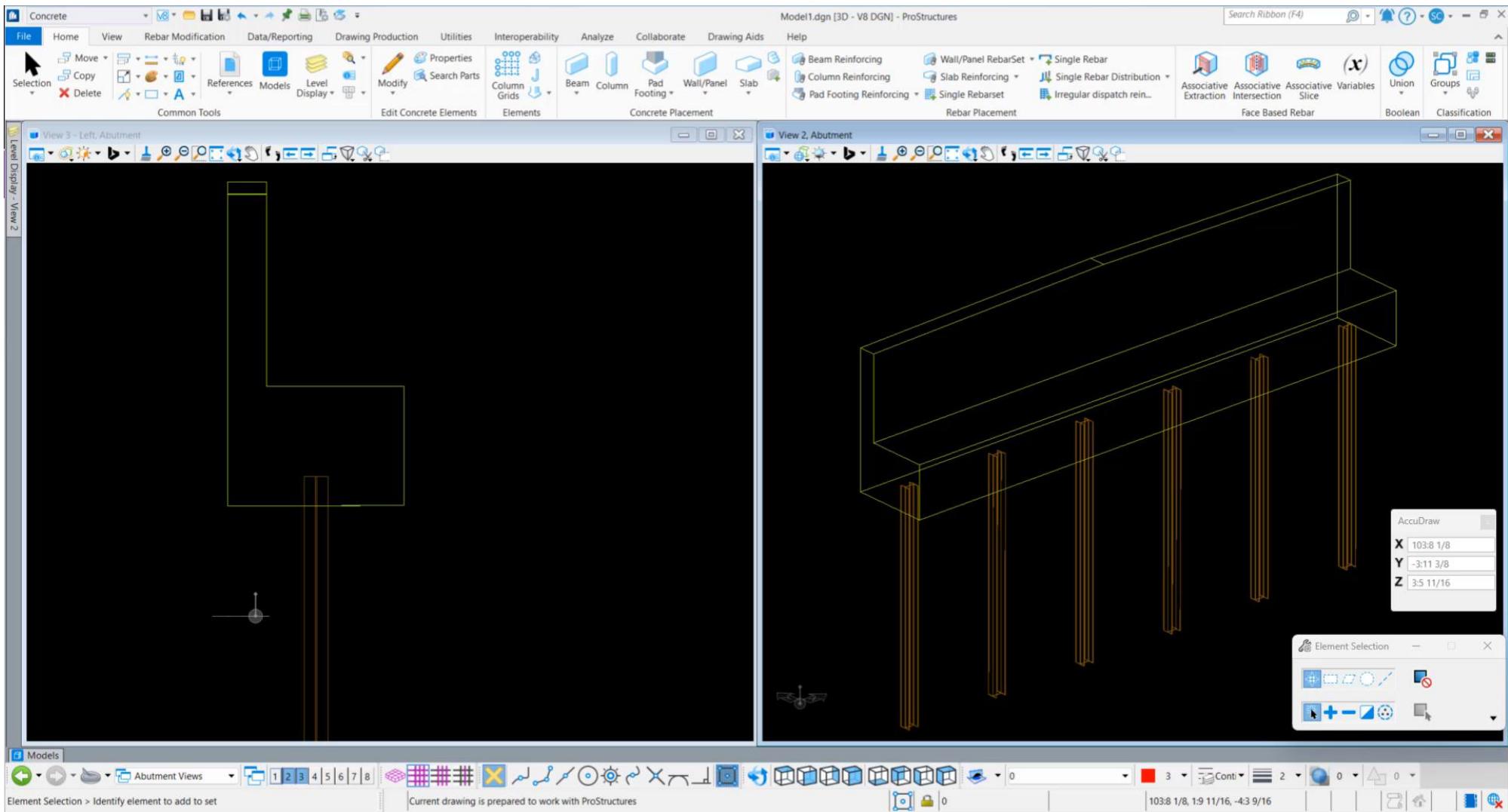


Bentley[®]

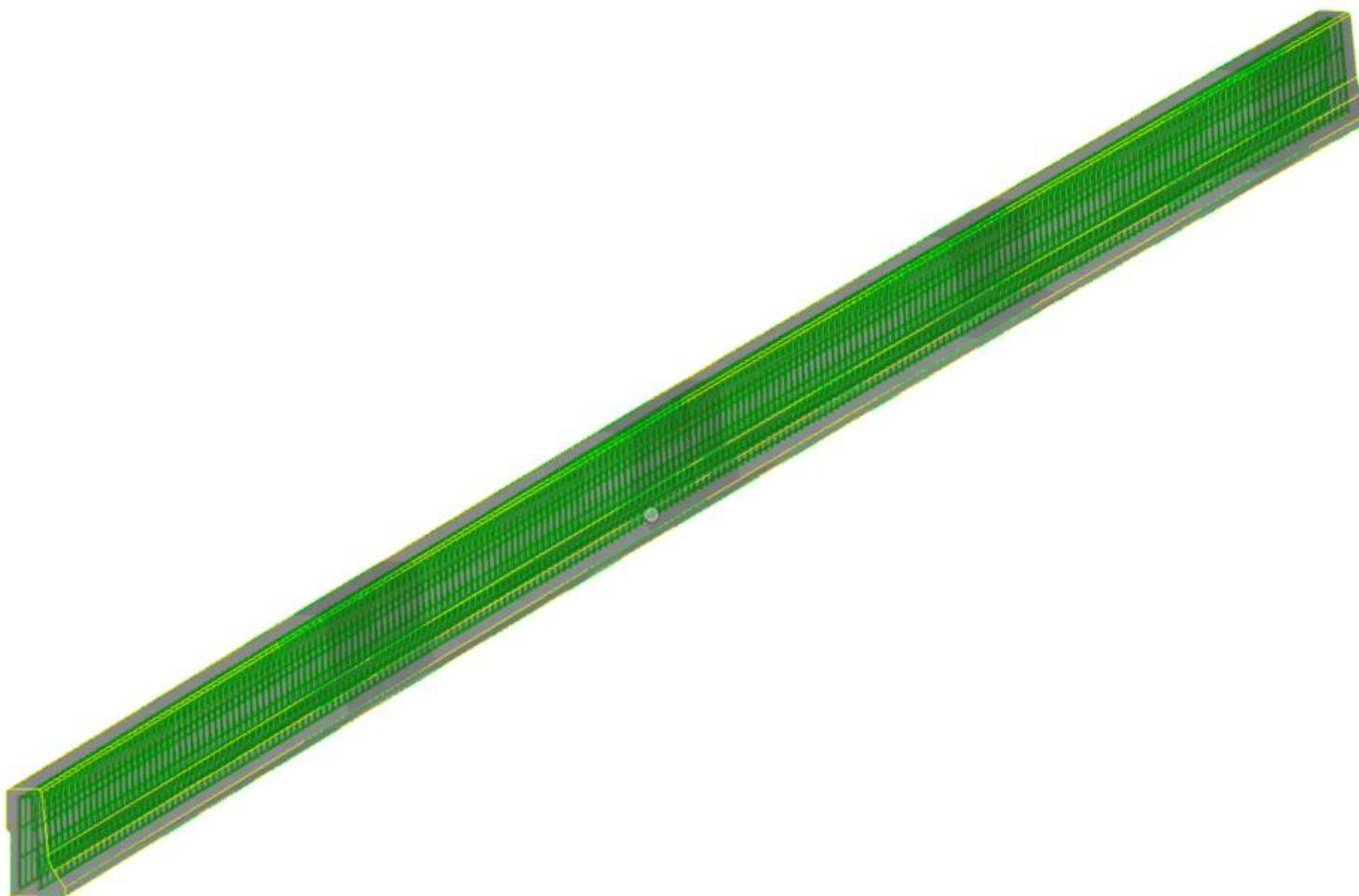
Reinforcement for Abutment



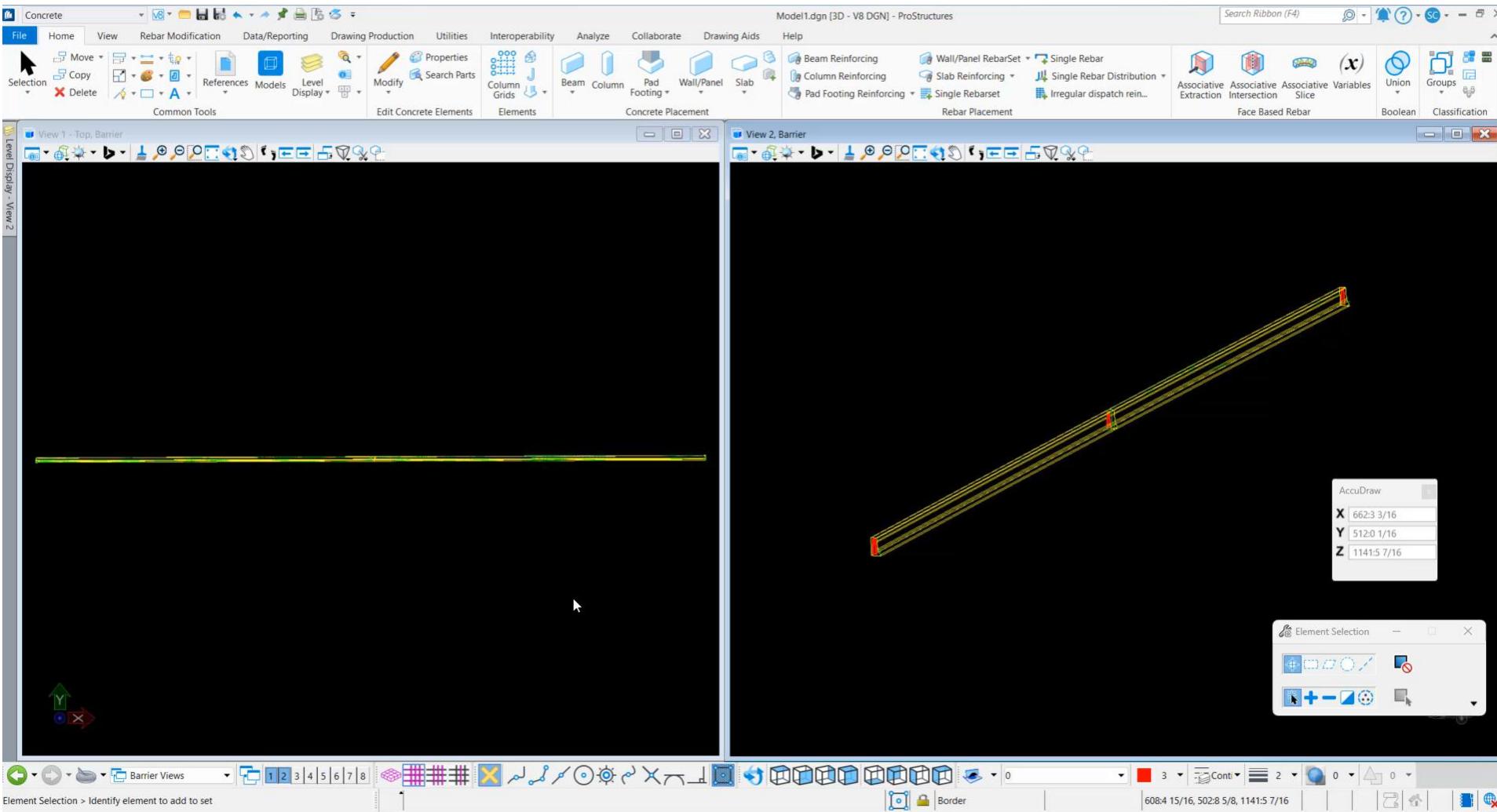
Reinforcement for Abutment



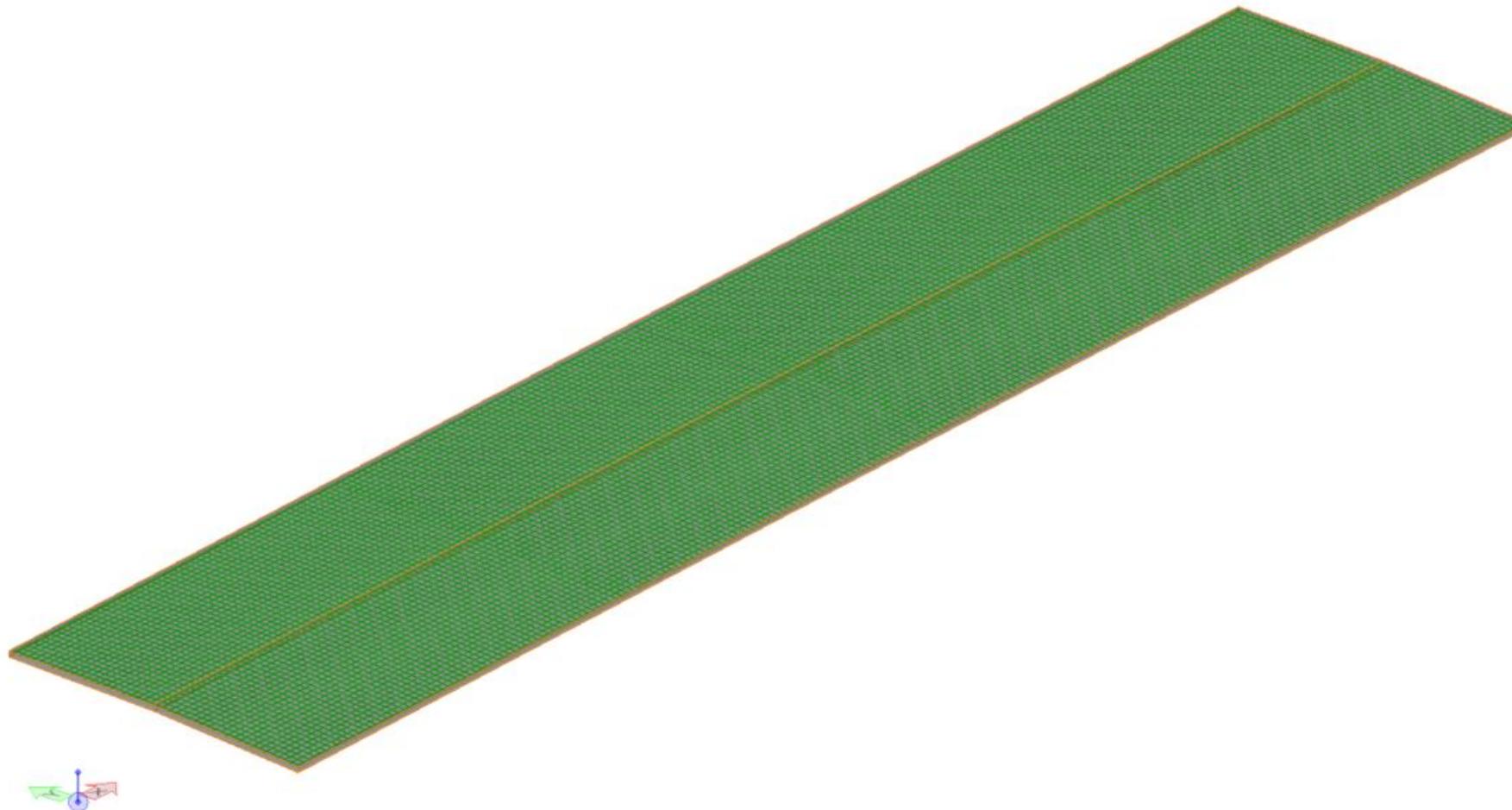
Reinforcement for Barrier



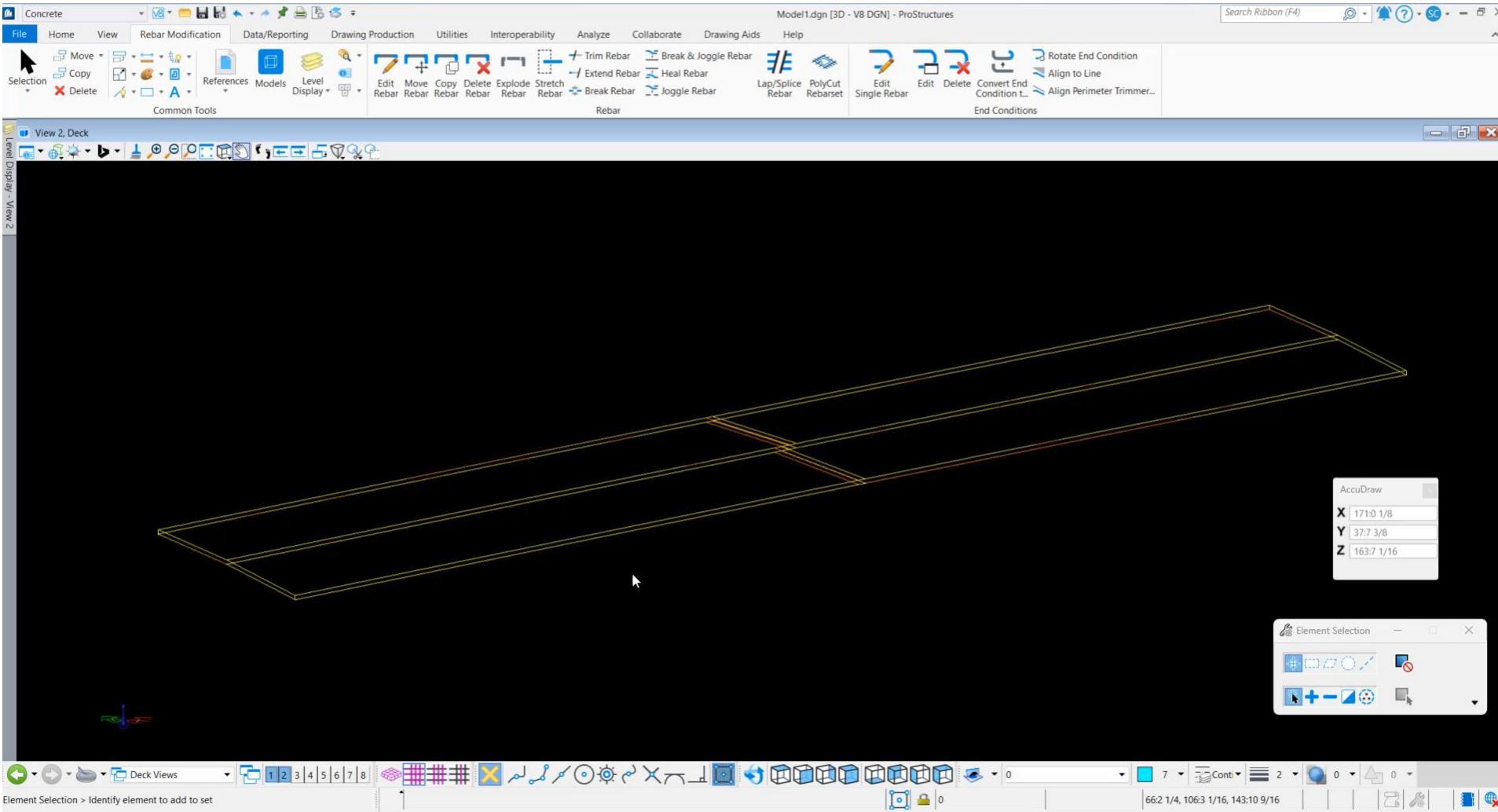
Reinforcement for Barrier



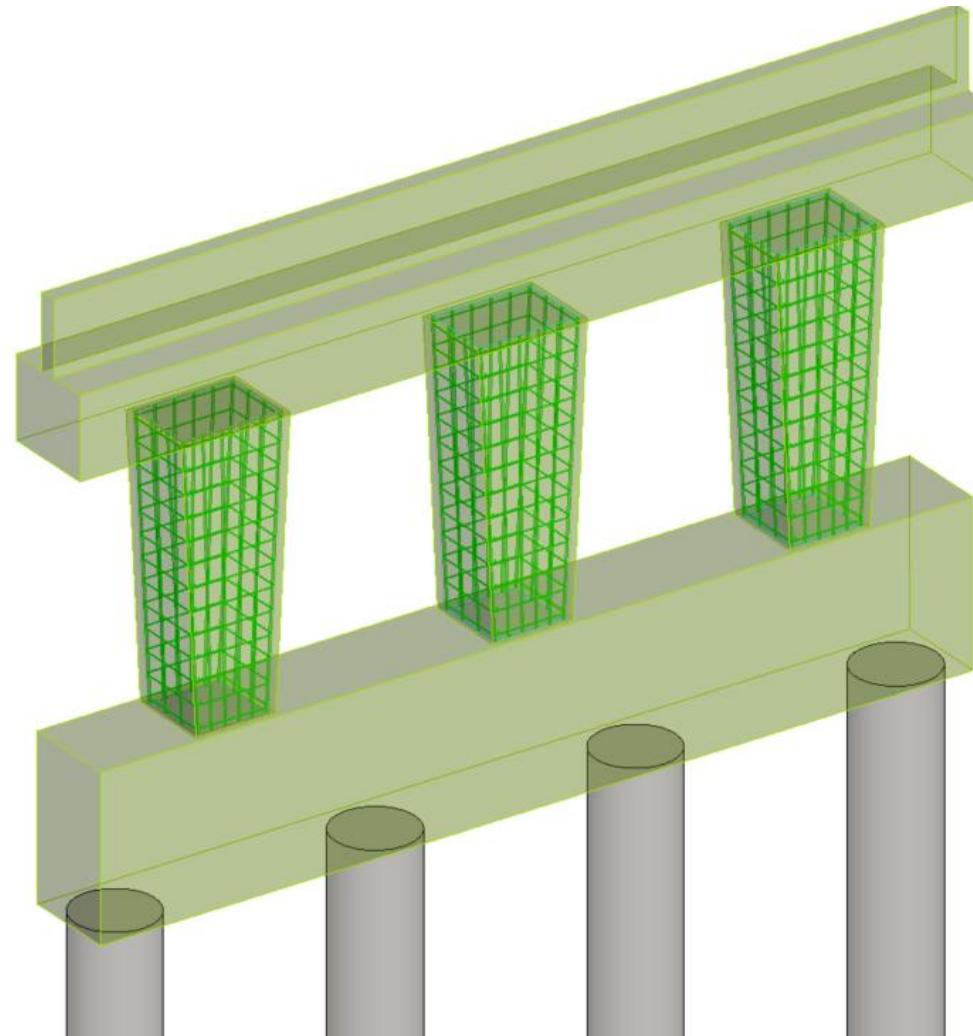
Reinforcement for Deck



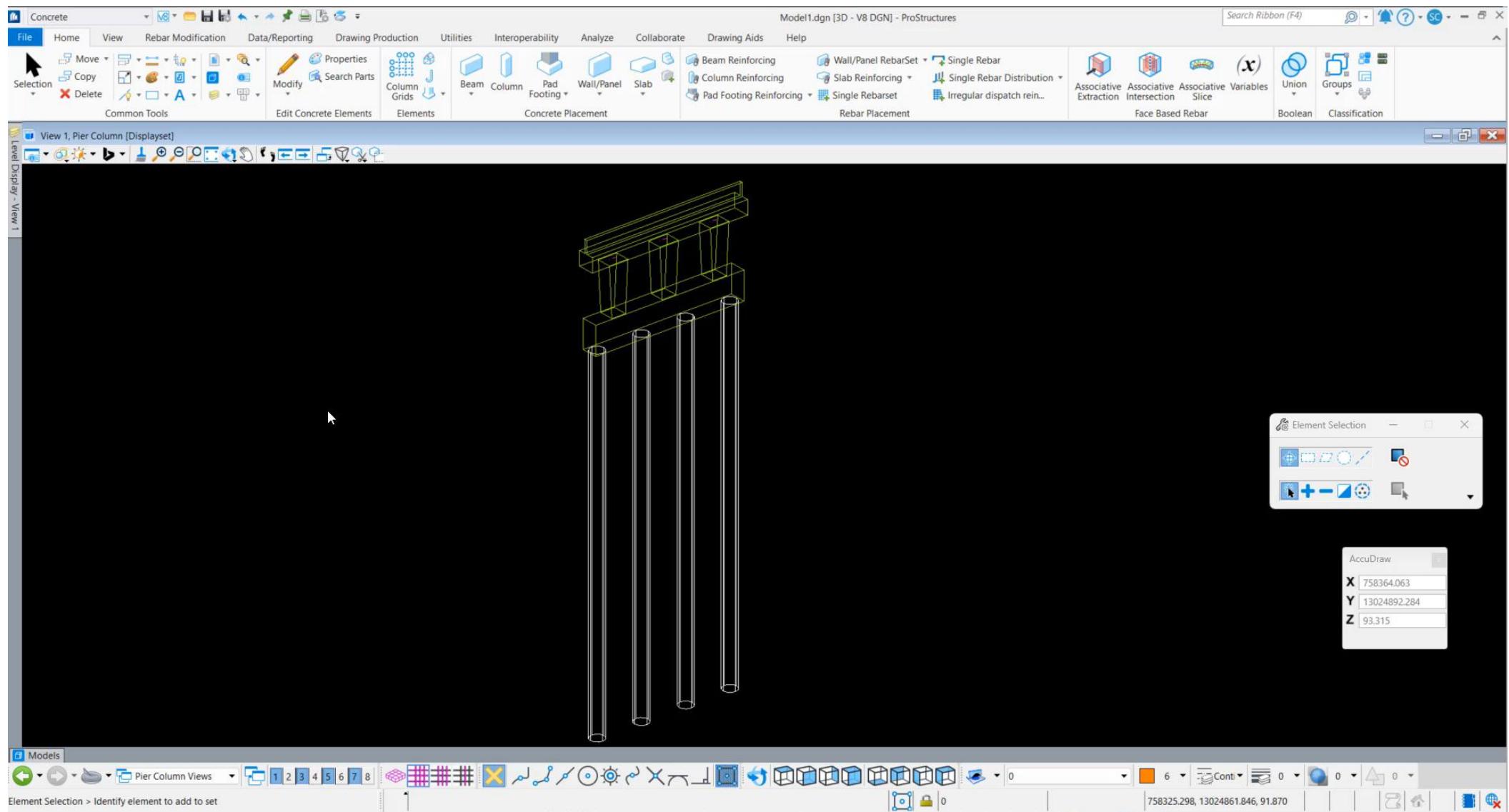
Reinforcement for Deck



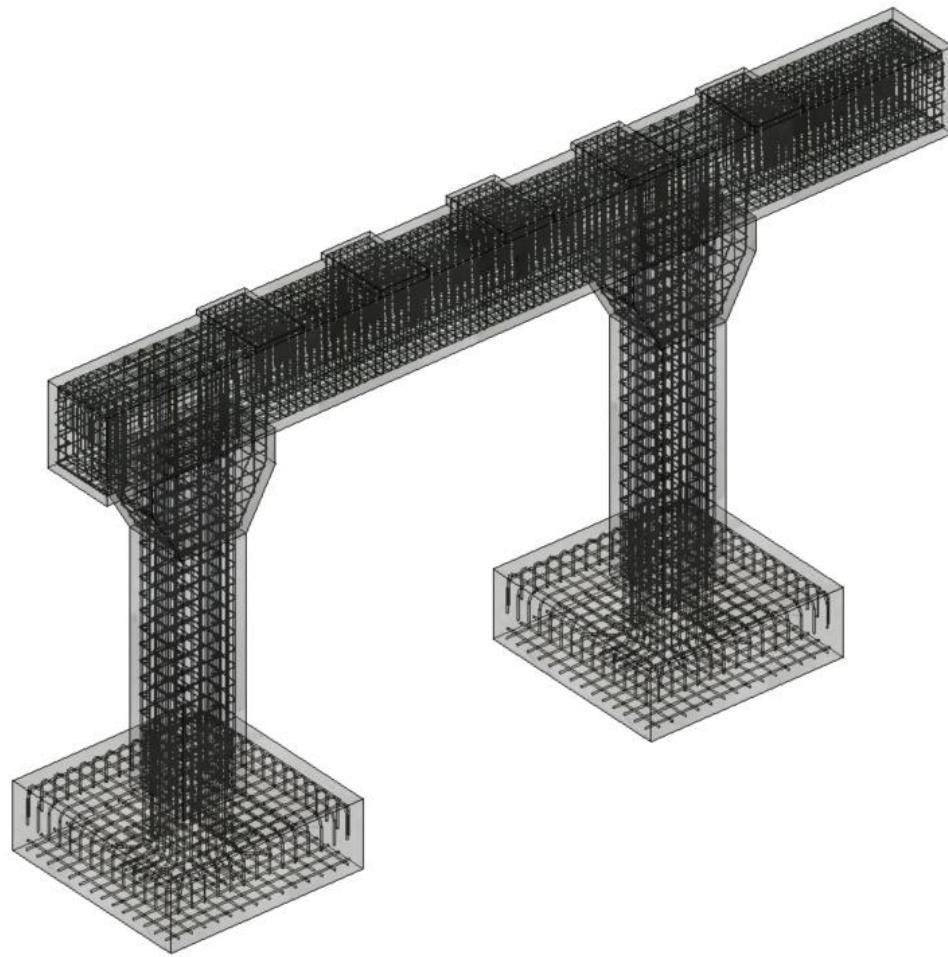
Reinforcement for Pier Column



Reinforcement for Pier Column



Rebar Modeling in 3D

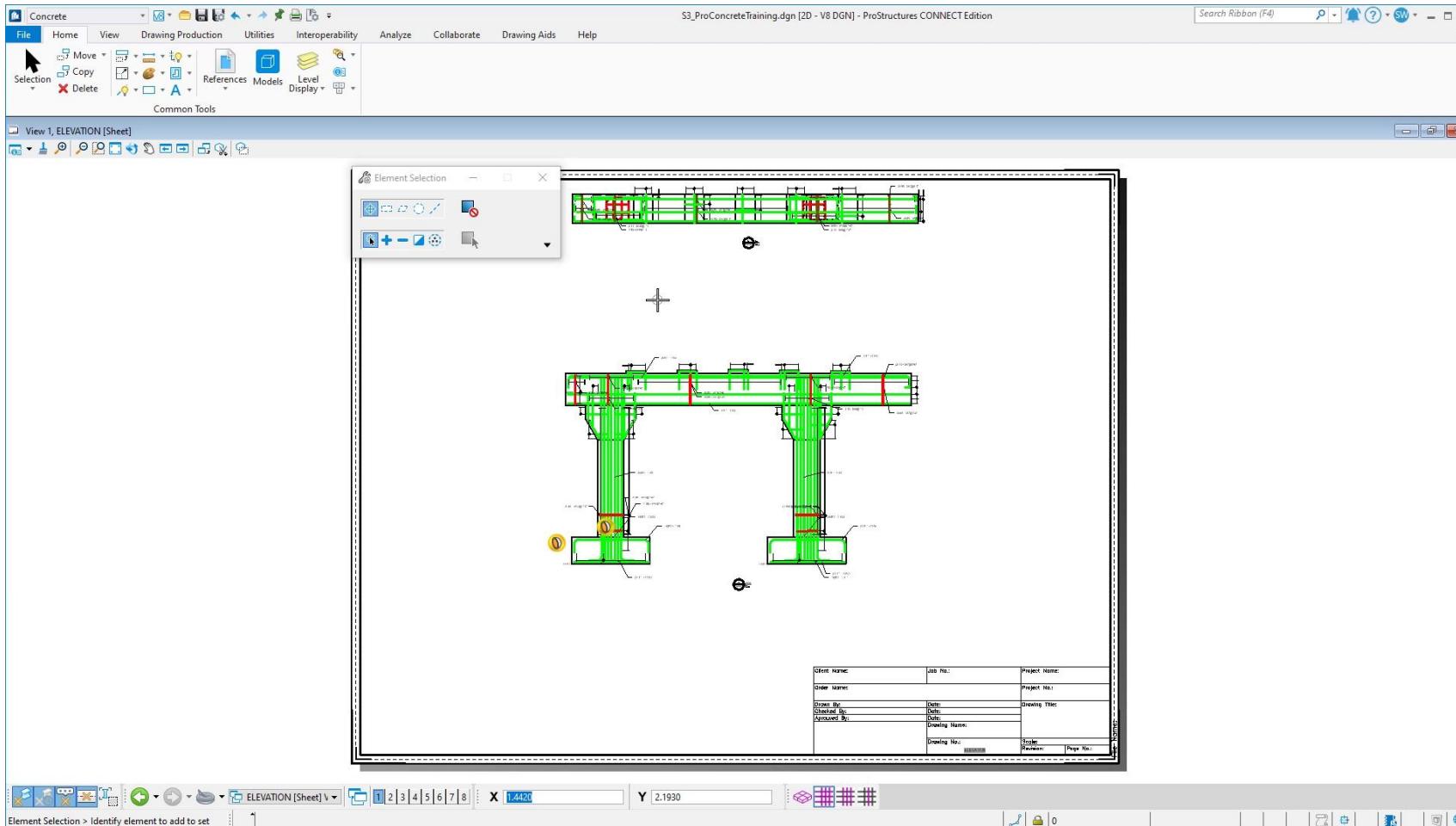


- Drawing Production,
Bar Schedules and
Charts

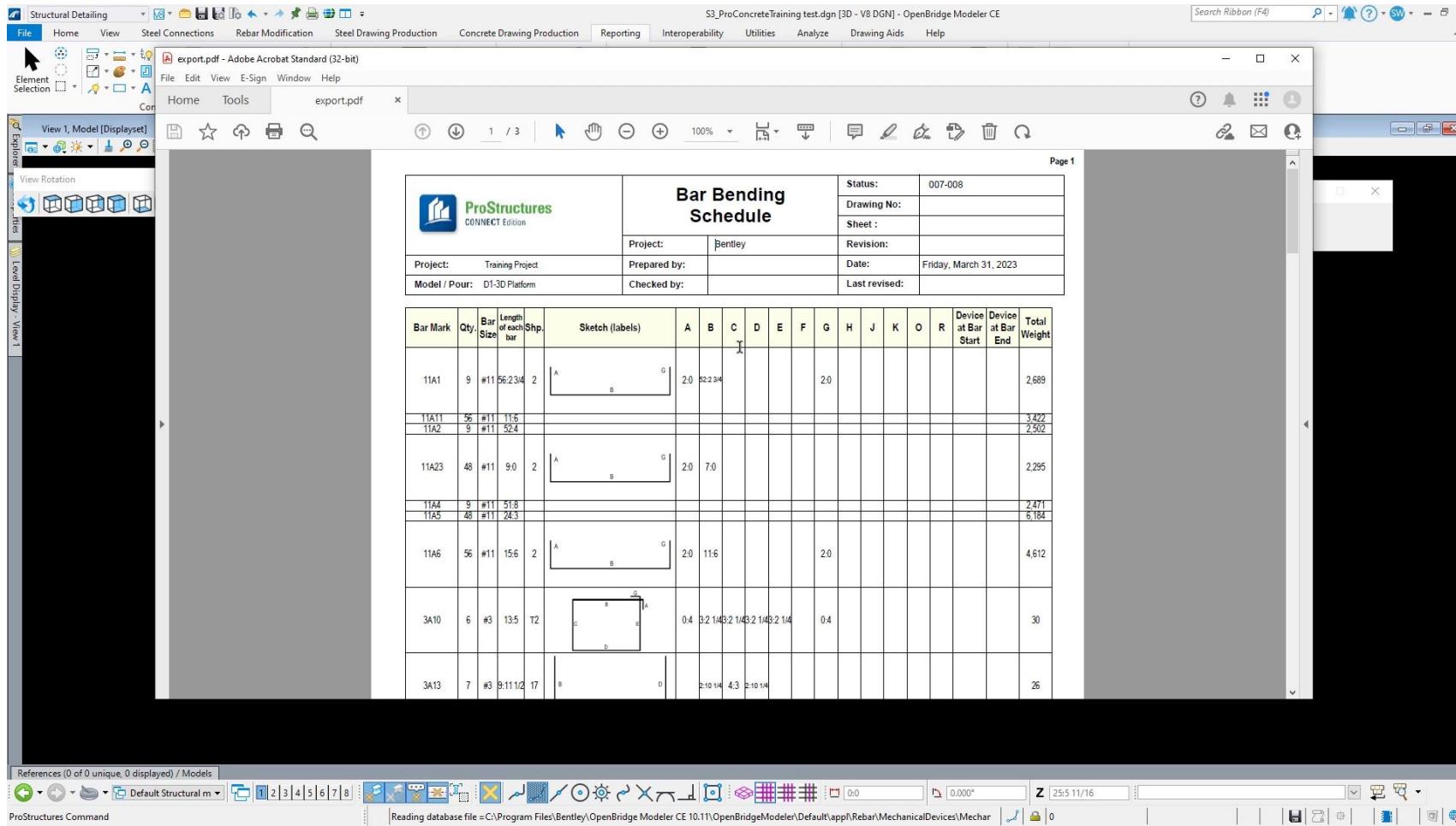
An aerial photograph of a cable-stayed bridge with two tall, white, diamond-shaped towers. The bridge spans a wide, calm body of water under a clear blue sky.

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Drawing Production



Partlist – Bar Schedule

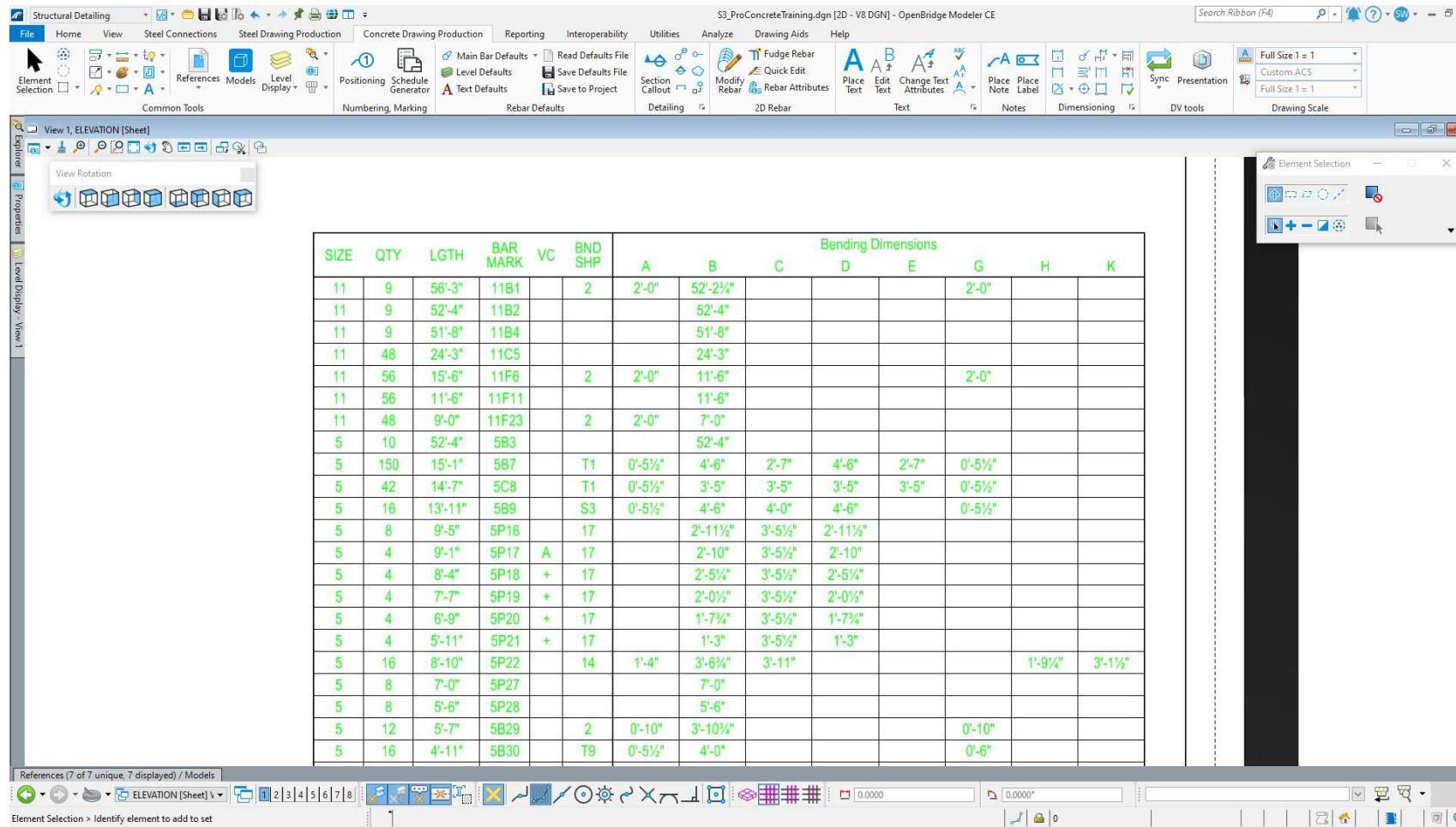


The screenshot shows the ProStructures CONNECT Edition software interface. The main window displays a 'Bar Bending Schedule' report. The report header includes the ProStructures logo, project name 'Training Project', and date 'Friday, March 31, 2023'. The table below lists the bar schedule details:

Bar Mark	Qty	Bar Size	Length of each bar	Sketch (labels)	A	B	C	D	E	F	G	H	J	K	O	R	Device at Bar Start	Device at Bar End	Total Weight
11A1	9	#11	5623/4	2	A	G	2.0	5223/4											2,689
11A11	26	#11	115																3422
11A2	9	#11	524																2502
11A23	48	#11	9:0	2	A	G	2.0	7.0											2,295
11A4	9	#11	518																2471
11A5	48	#11	243																5184
11A6	56	#11	156	2	A	G	2.0	11.6											4,612
3A10	6	#3	13.5	T2			0.4	3.214	3.214	3.214	3.214	0.4							30
3A13	7	#3	9.111/2	17	B	D	2.101/4	4.3	2.101/4										26

Below the table, there is a sketch of a rectangular frame with internal dimensions and labels A, B, C, D, E, F, G, H, J, K, O, R, and a central point X. The ProStructures ribbon menu is visible at the top, and the command bar at the bottom displays 'ProStructures Command' and 'Reading database file=C:\Program Files\Bentley\OpenBridge Modeler CE 10.11\OpenBridgeModeler\Default\app\Rebar\MechanicalDevices\Mechar'.

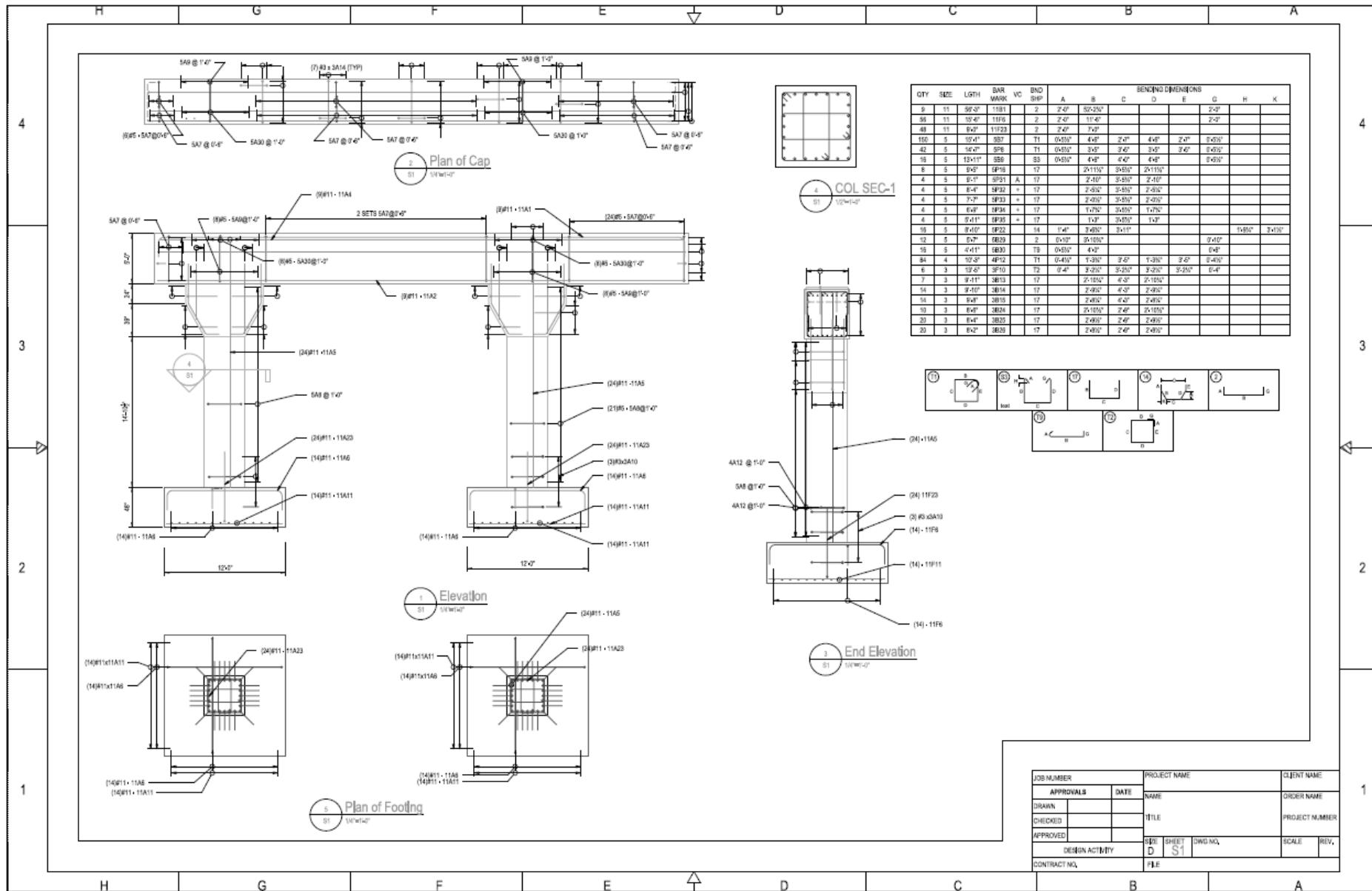
Schedule Generator



The screenshot shows the OpenBridge Modeler CE software interface with the title bar "S3_ProConcreteTraining.dgn [2D - V8 DGN] - OpenBridge Modeler CE". The ribbon menu is visible with tabs like File, Home, View, Steel Connections, Steel Drawing Production, Concrete Drawing Production, Reporting, Interoperability, Utilities, Analyze, Drawing Aids, and Help. The "Concrete Drawing Production" tab is selected. The main workspace displays a schedule table titled "Bending Dimensions" with columns for SIZE, QTY, LGTH, BAR, MARK, VC, BND, SHP, and various bending dimensions (A, B, C, D, E, G, H, K). The table contains numerous entries, mostly for size 11 and 5. The interface includes toolbars for Common Tools, Numbering, Marking, Rebar Defaults, Detailing, 2D Rebar, Text, Notes, Dimensioning, DV tools, and Drawing Scale. A "View 1, ELEVATION [Sheet]" window is open on the left, and an "Element Selection" dialog box is visible on the right. The bottom of the screen shows the standard Windows taskbar.

SIZE	QTY	LGTH	BAR	MARK	VC	BND	SHP	Bending Dimensions							
								A	B	C	D	E	G	H	K
11	9	56'-3"	11B1			2		2'-0"	52'-2 1/4"				2'-0"		
11	9	52'-4"	11B2						52'-4"						
11	9	51'-8"	11B4						51'-8"						
11	48	24'-3"	11C5						24'-3"						
11	56	15'-6"	11F6			2		2'-0"	11'-6"				2'-0"		
11	56	11'-6"	11F11						11'-6"						
11	48	9'-0"	11F23			2		2'-0"	7'-0"						
5	10	52'-4"	5B3					52'-4"							
5	150	15'-1"	5B7			T1		0'-5 1/2"	4'-6"	2'-7"	4'-6"	2'-7"	0'-5 1/2"		
5	42	14'-7"	5C8			T1		0'-5 1/2"	3'-5"	3'-5"	3'-5"	3'-5"	0'-5 1/2"		
5	16	13'-11"	5B9			S3		0'-5 1/2"	4'-6"	4'-0"	4'-6"		0'-5 1/2"		
5	8	9'-5"	5P16			17		2'-11 1/2"	3'-5 1/2"	2'-11 1/2"					
5	4	9'-1"	5P17	A		17			2'-10"	3'-5 1/2"	2'-10"				
5	4	8'-4"	5P18	+		17			2'-5 1/4"	3'-5 1/2"	2'-5 1/4"				
5	4	7'-7"	5P19	+		17			2'-0 1/2"	3'-5 1/2"	2'-0 1/2"				
5	4	6'-9"	5P20	+		17			1'-7 1/2"	3'-5 1/2"	1'-7 1/2"				
5	4	5'-11"	5P21	+		17			1'-3"	3'-5 1/2"	1'-3"				
5	16	8'-10"	5P22			14		1'-4"	3'-6 1/4"	3'-11"			1'-9 1/4"	3'-1 1/2"	
5	8	7'-0"	5P27						7'-0"						
5	8	5'-6"	5P28						5'-6"						
5	12	5'-7"	5B29			2		0'-10"	3'-10 1/4"				0'-10"		
5	16	4'-11"	5B30			T9		0'-5 1/2"	4'-0"				0'-6"		

Drawing Generation



Thank You!