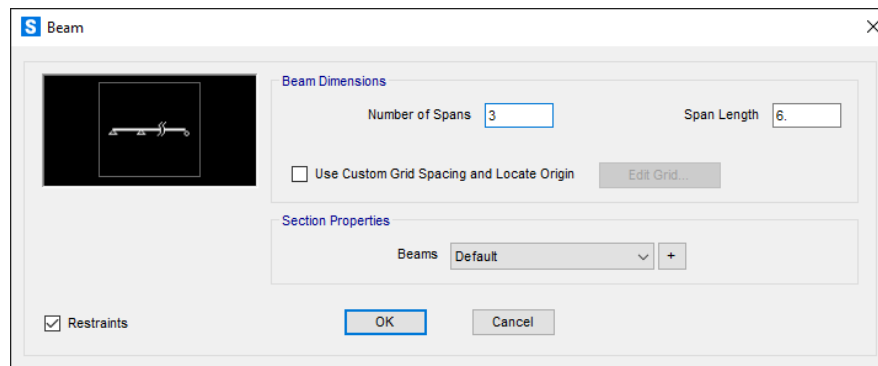
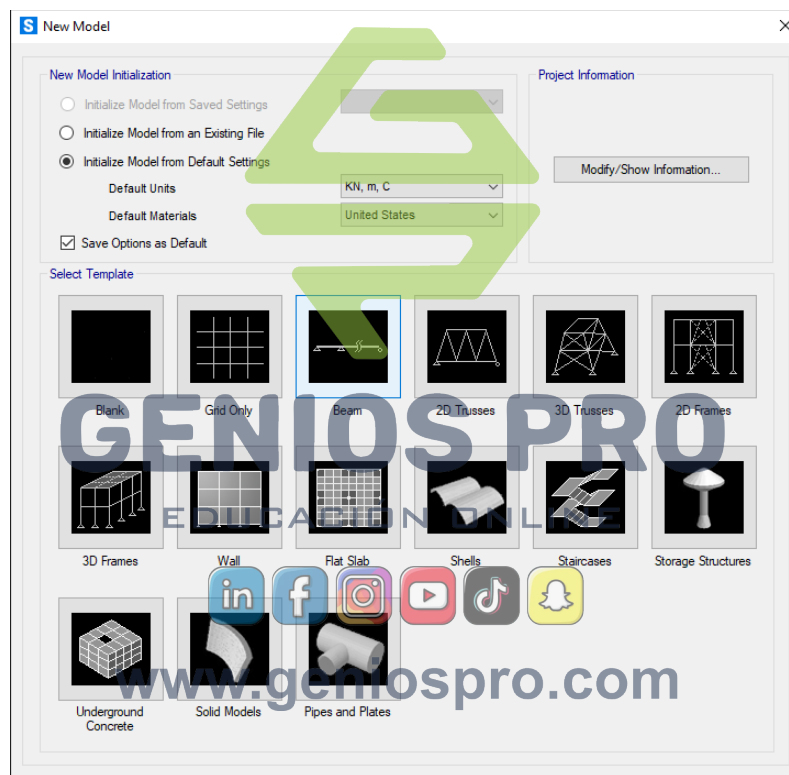
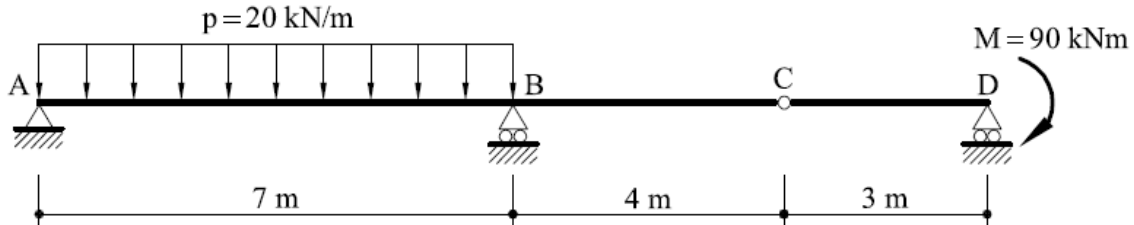
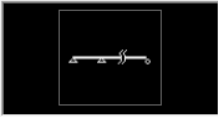


VIGAS

EJERCICIO 1: En la viga de la figura hallar las reacciones y dibujar las leyes de momentos flectores y esfuerzos cortantes. El nudo "C" presenta rotula.



S Beam



Beam Dimensions

Number of Spans: Span Length:

☒ Use Custom Grid Spacing and Locate Origin

Section Properties

Beams:

☒ Restraints

S Define Grid System Data

System Name:

X Grid Data

Grid ID	Spacing (m)	Line Type	Visible	Bubble Loc	Grid Color
A	7	Primary	Yes	End	
B	4	Primary	Yes	End	
C	3	Primary	Yes	End	
D	0	Primary	Yes	End	

Y Grid Data

Grid ID	Spacing (m)	Line Type	Visible	Bubble Loc	Grid Color
1	0	Primary	Yes	Start	

Z Grid Data

Grid ID	Spacing (m)	Line Type	Visible	Bubble Loc	Grid Color
Z1	0	Primary	Yes	End	

Grid Lines

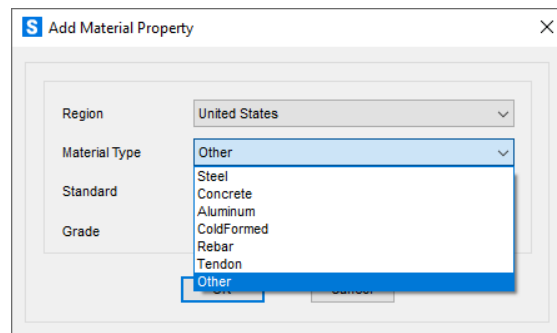
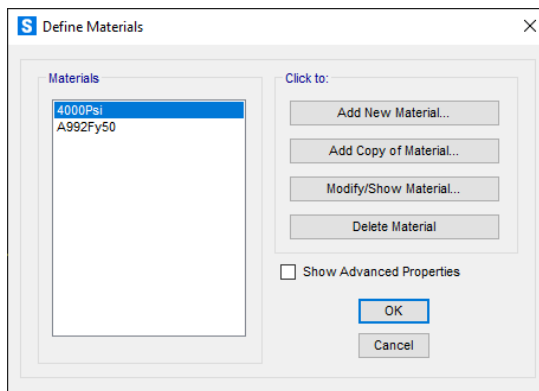
Display Grids as

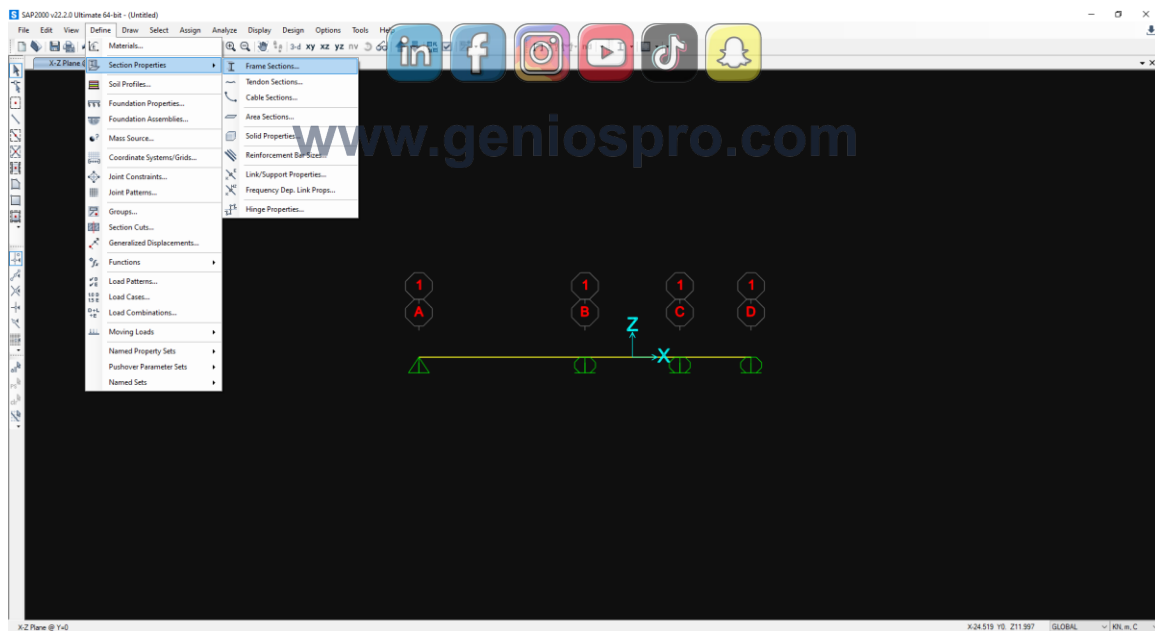
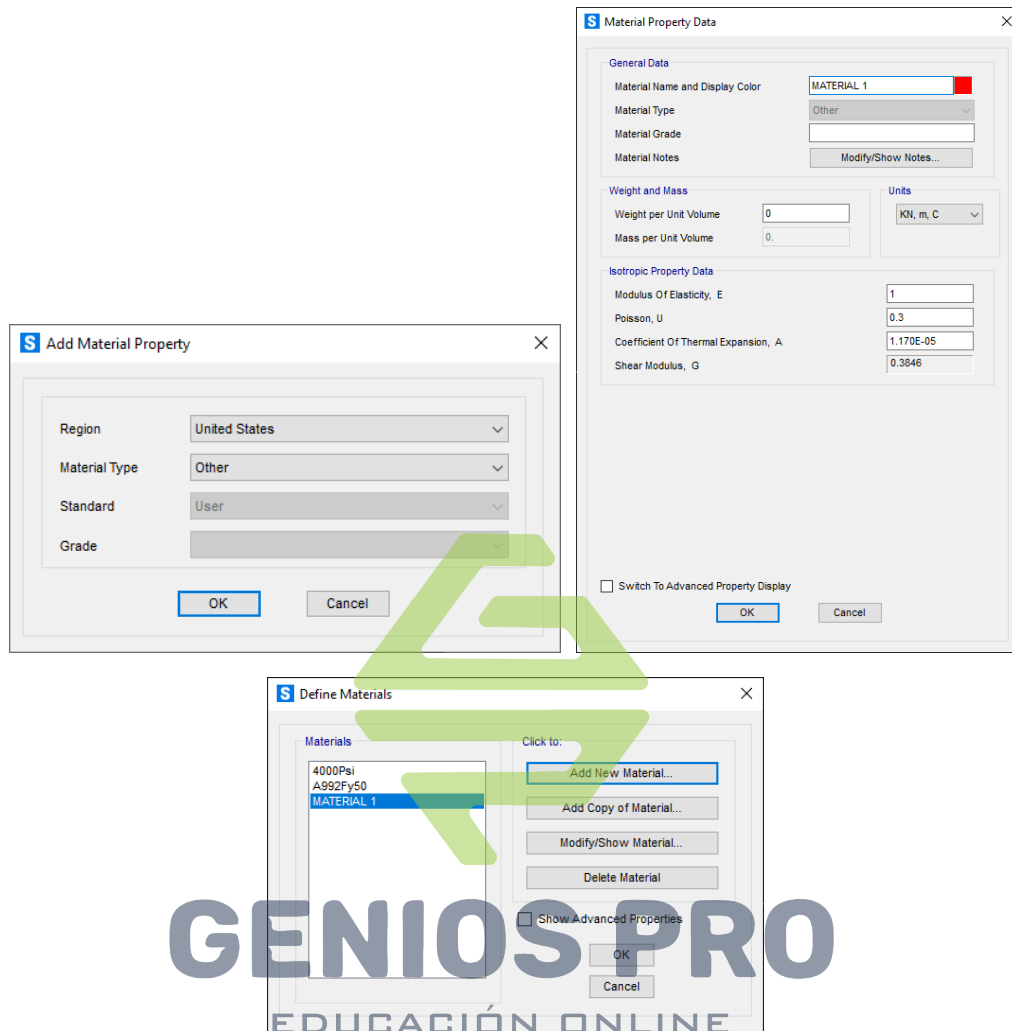
☐ Ordinates ☒ Spacing

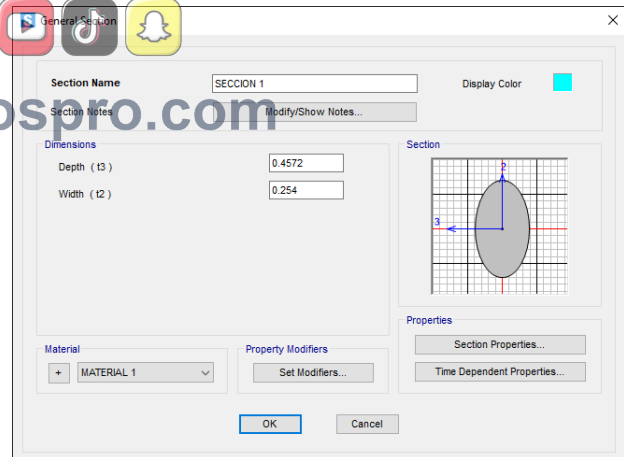
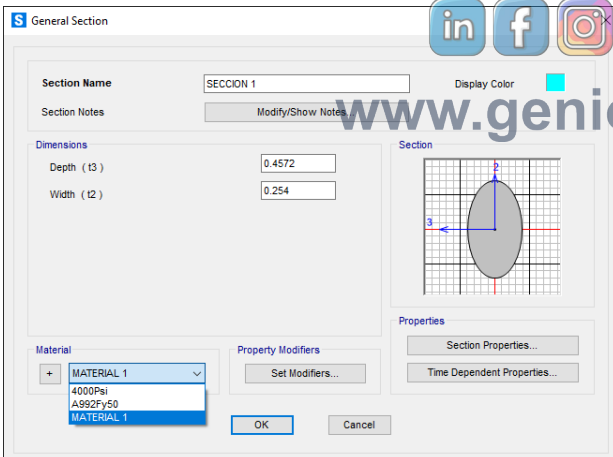
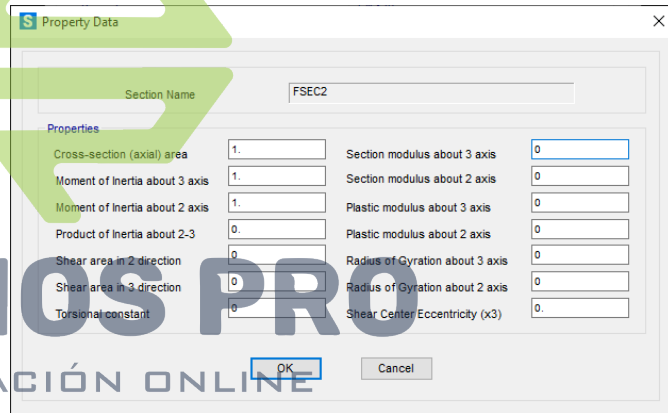
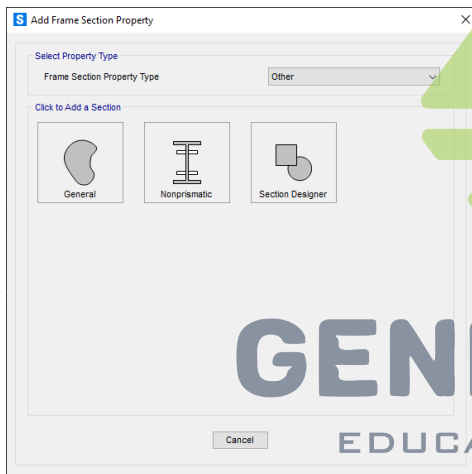
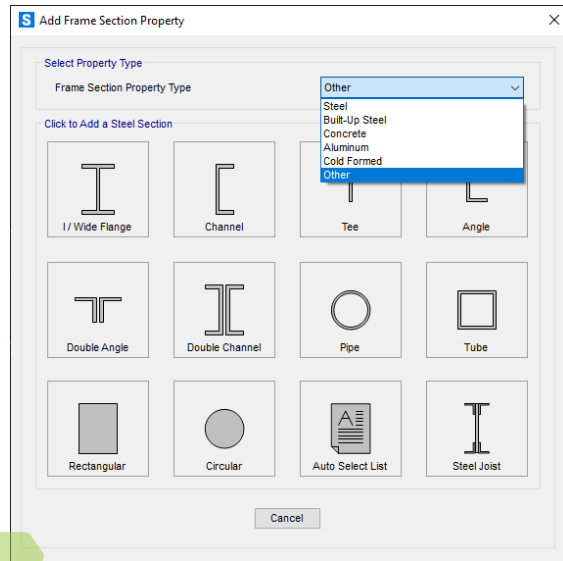
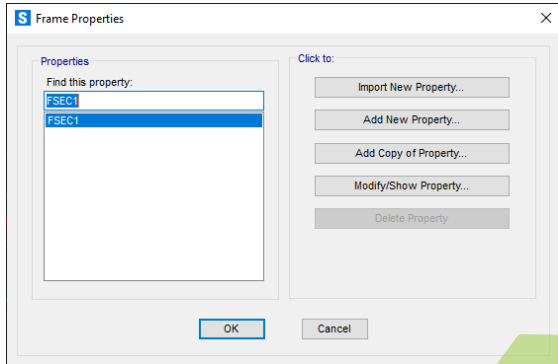
☐ Hide All Grid Lines

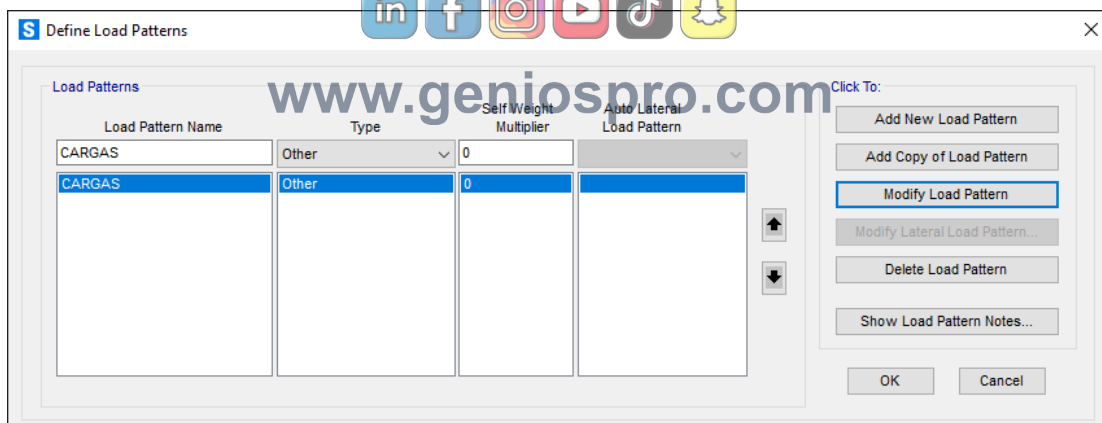
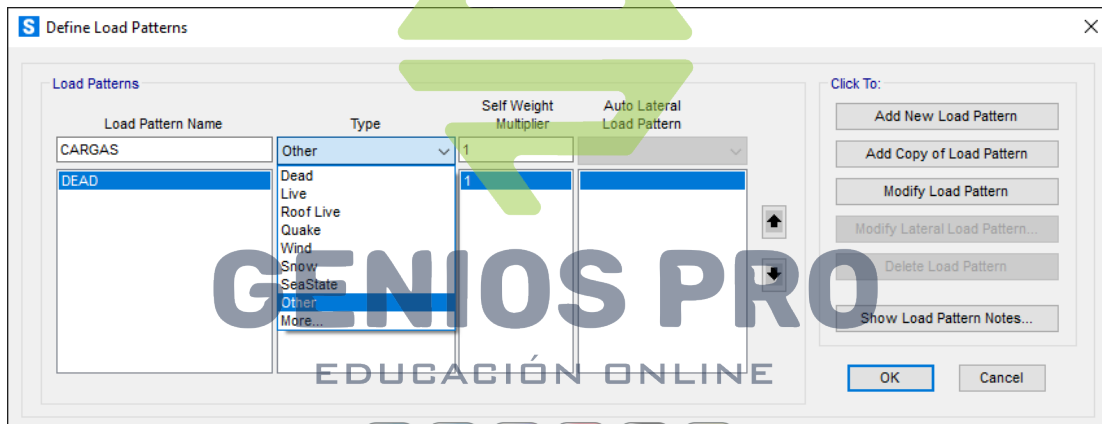
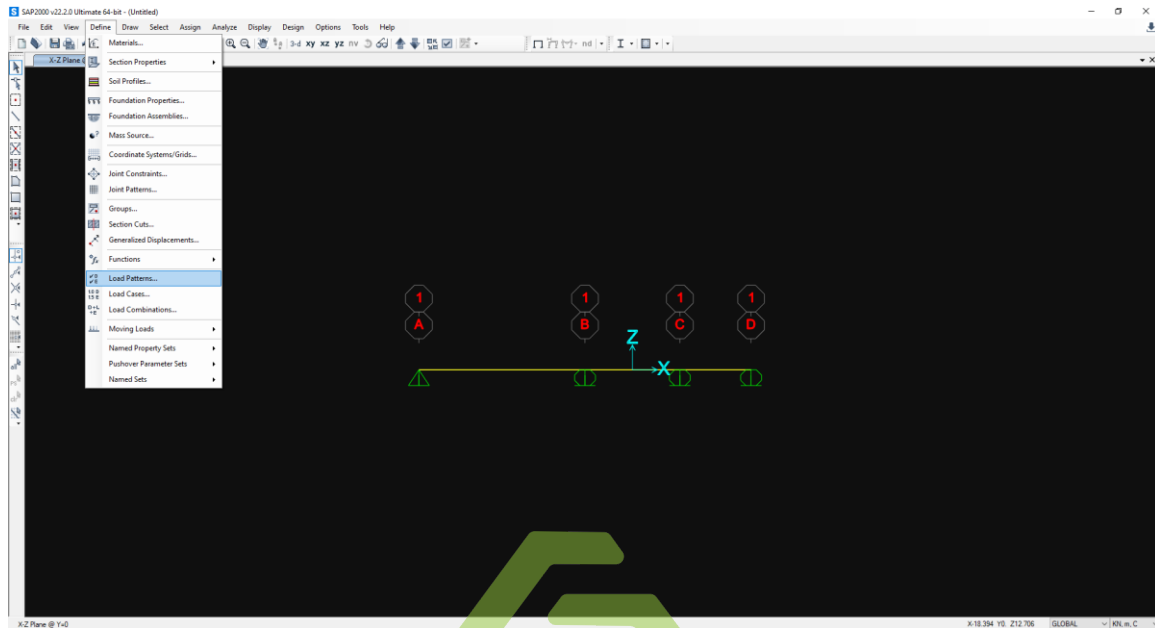
☐ Glue to Grid Lines

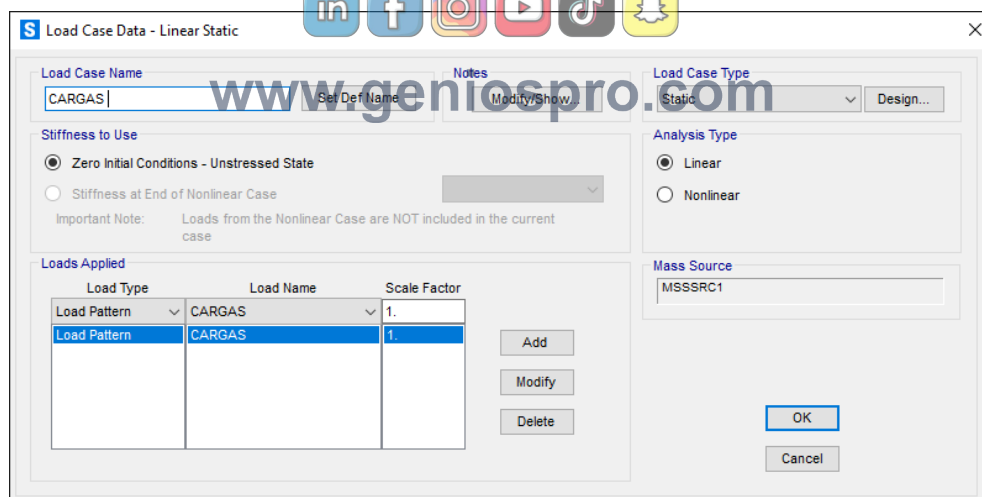
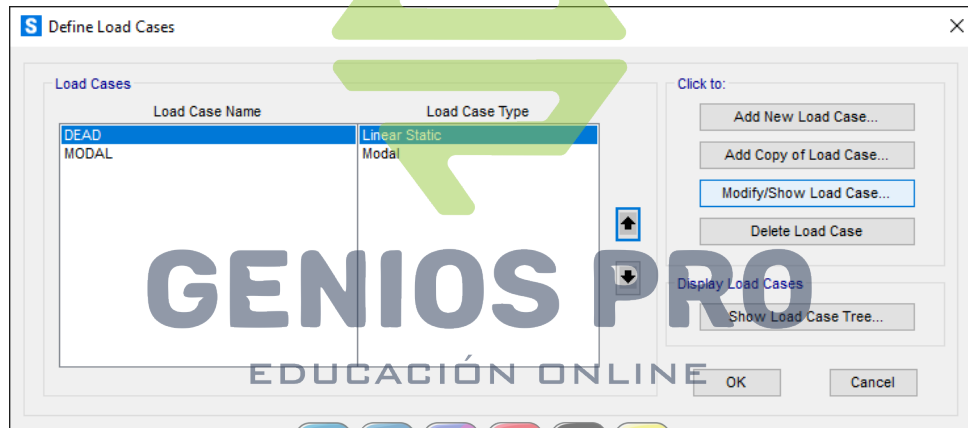
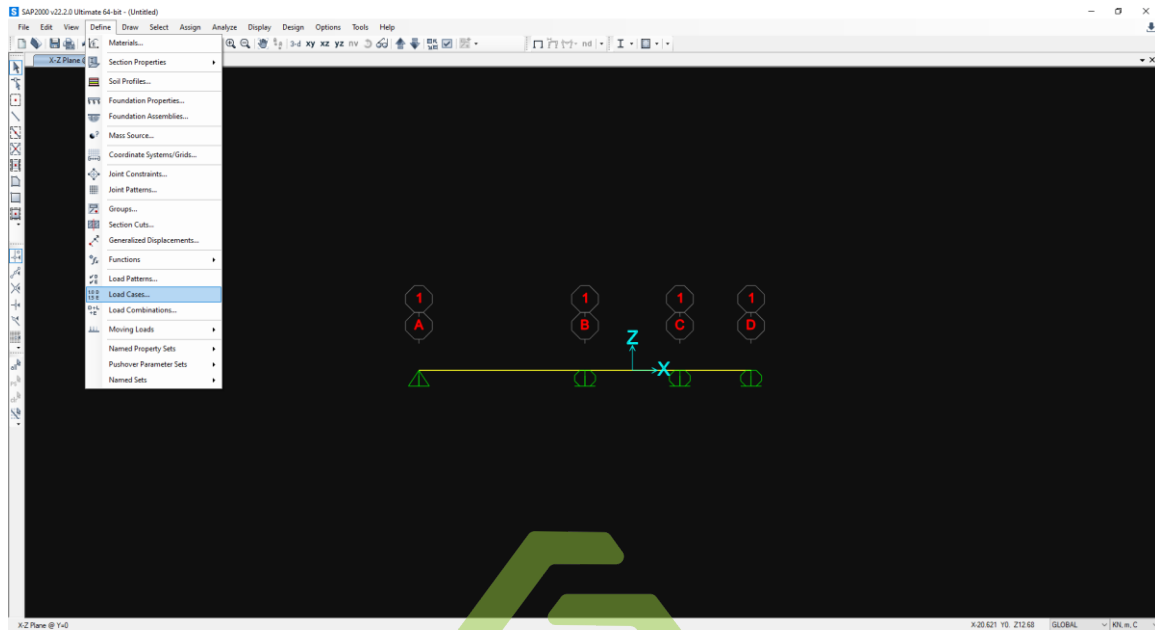
Bubble Size:





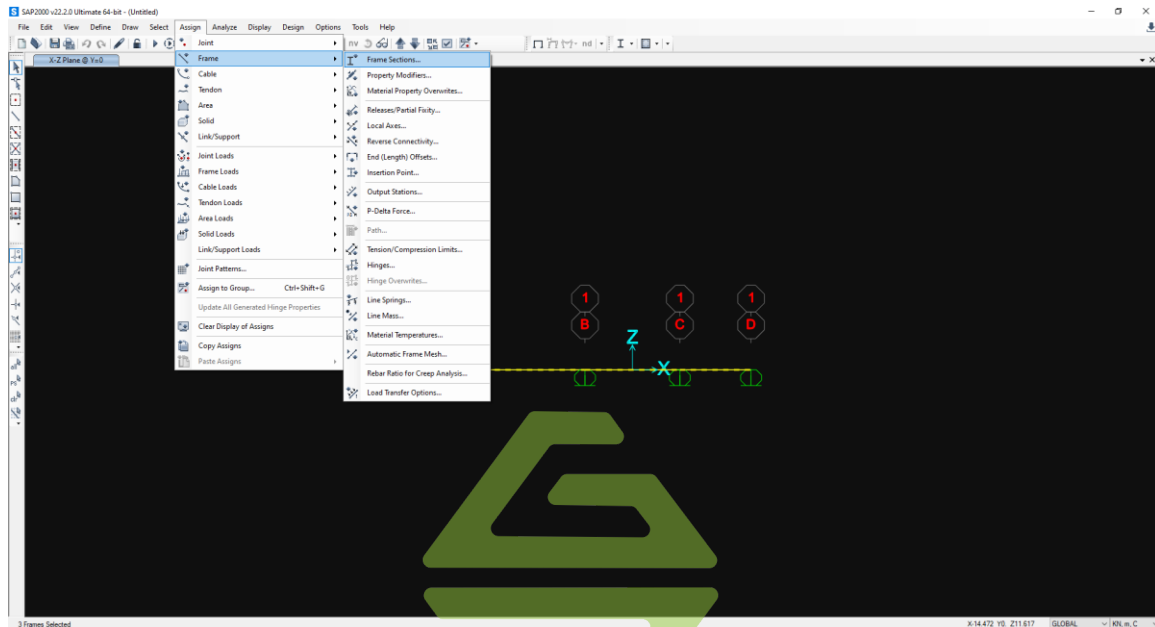


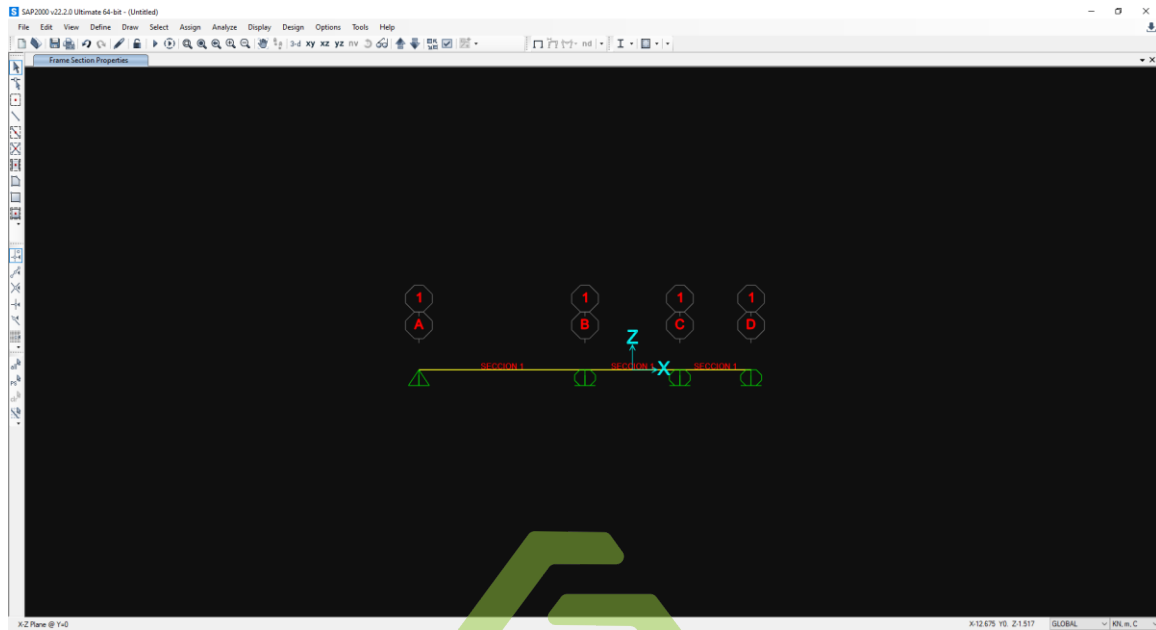




ASIGNAMOS LA SECCION DE LA VIGA

Seleccionamos todo





ASIGNAMOS CARAGA DISTRIBUIDA

Seleccionamos la viga



S Assign Frame Distributed Loads

General

Load Pattern: CARGAS

Coordinate System: GLOBAL

Load Direction: Gravity

Load Type: Force

Options

☐ Add to Existing Loads

☒ Replace Existing Loads

☐ Delete Existing Loads

Uniform Load: 20 kN/m

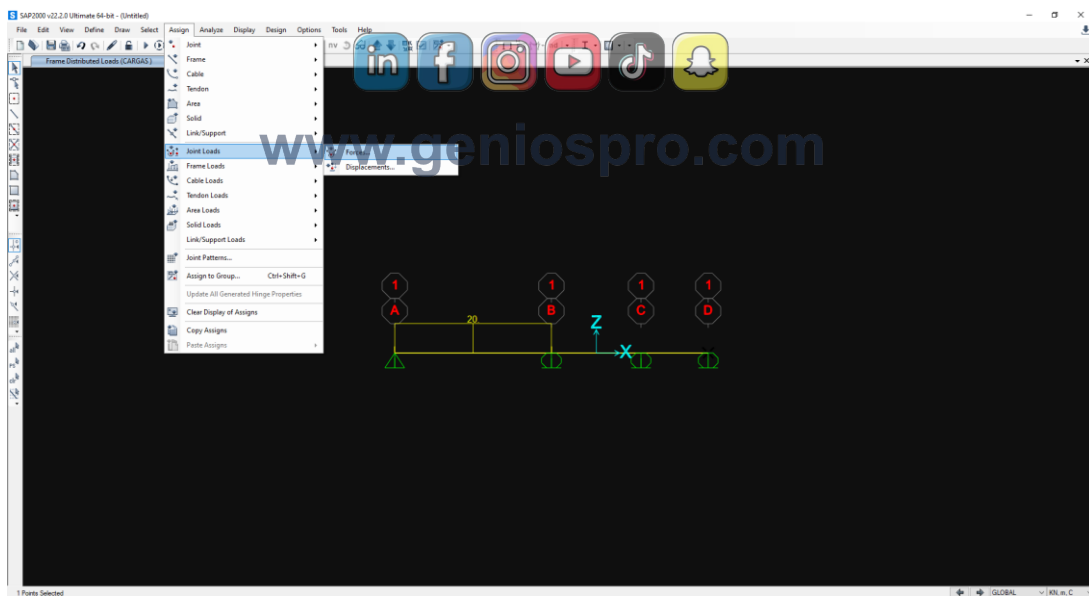
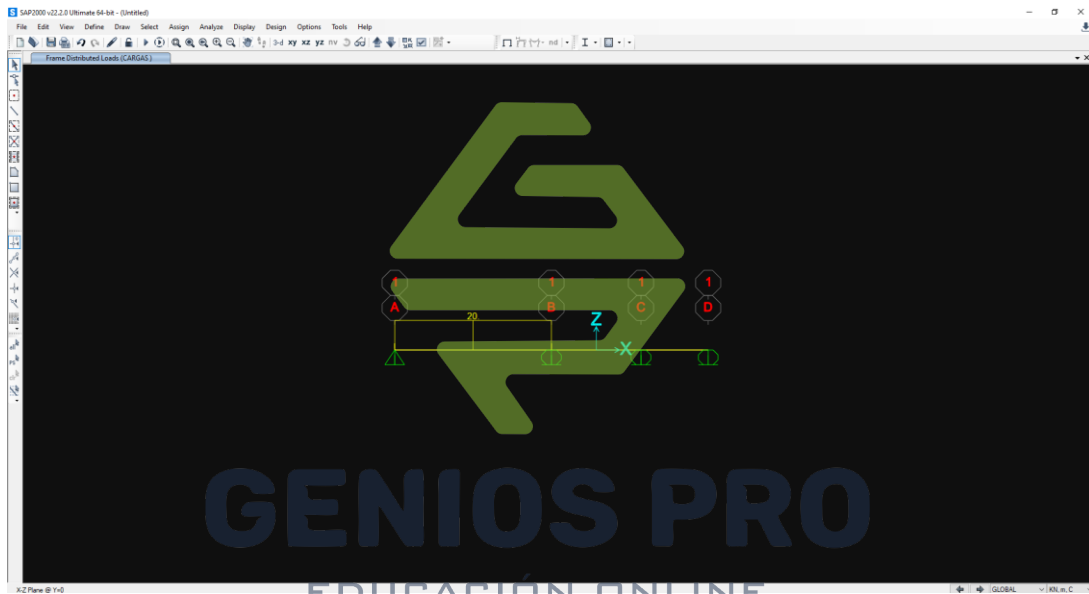
Trapezoidal Loads

	1.	2.	3.	4.
Relative Distance	0	0.25	0.75	1
Loads	0	0	0	0 kN/m

☒ Relative Distance from End-I ☐ Absolute Distance from End-I

Reset Form to Default Values

OK Close Apply



S Assign Joint Forces [X]

General

Load Pattern: CARGAS

Coordinate System: GLOBAL

Forces

Force Global X: 0 kN

Force Global Y: 0 kN

Force Global Z: 0 kN

Moment about Global X: 0 kN-m

Moment about Global Y: 90 kN-m

Moment about Global Z: 0 kN-m

Options

☐ Add to Existing Loads

☒ Replace Existing Loads

☐ Delete Existing Loads

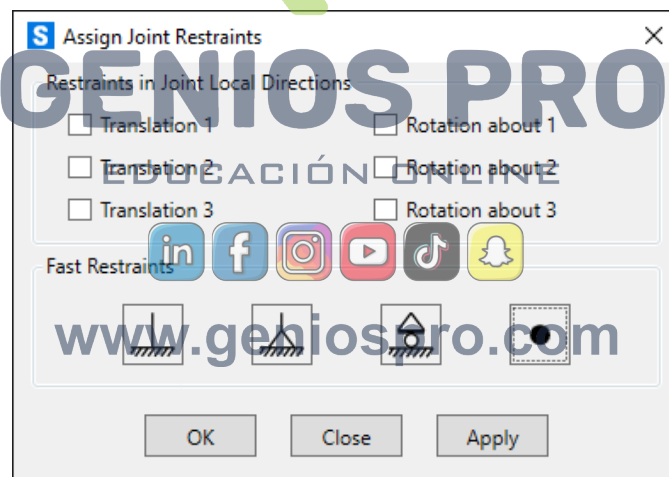
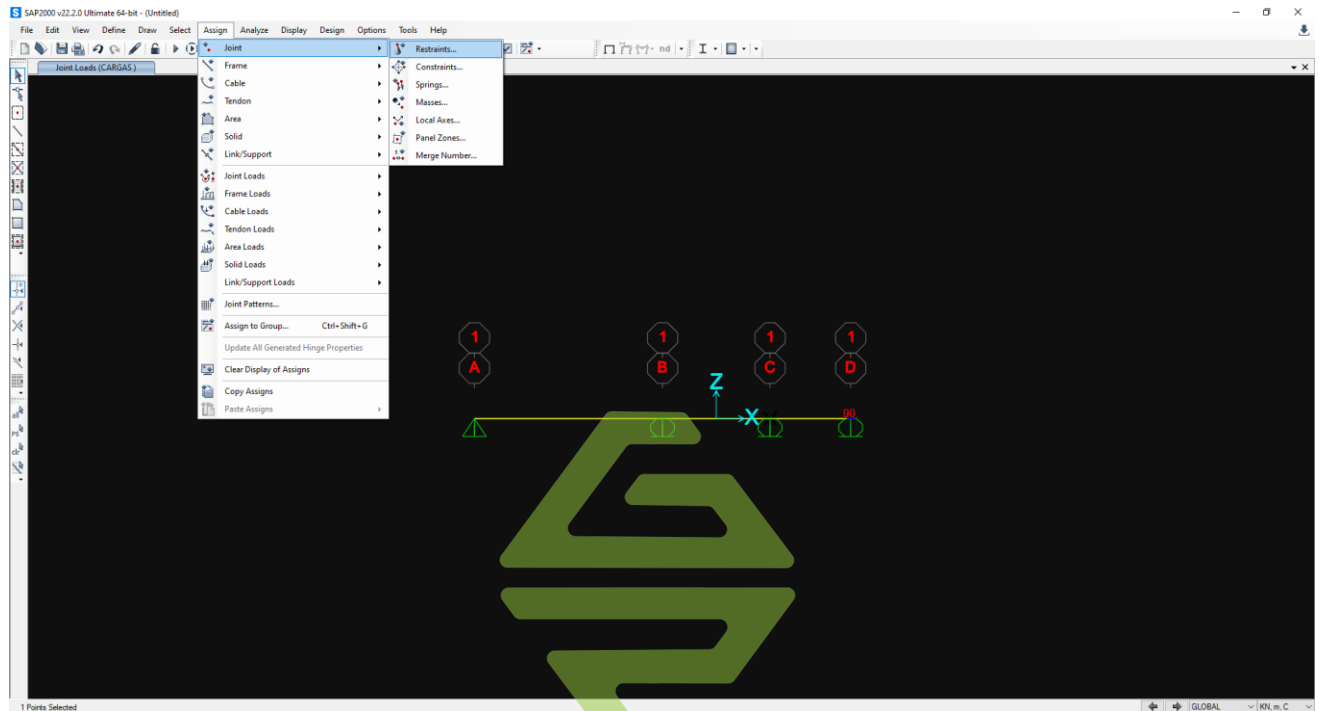
Reset Form to Default Values

OK Close Apply

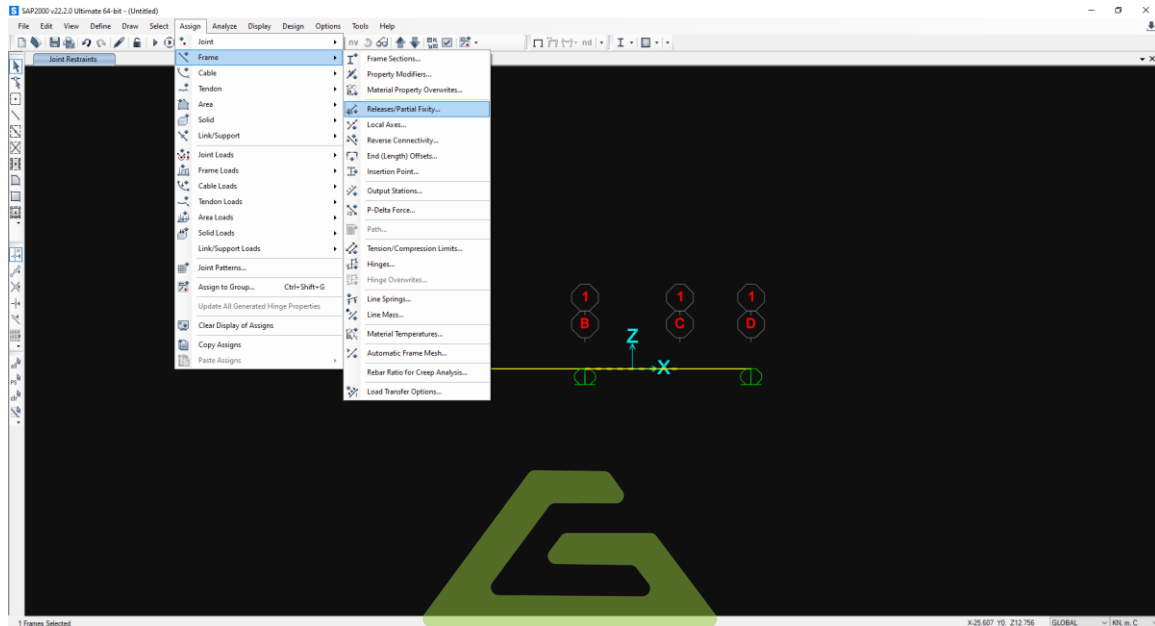


RESTRICCIONES

En el nudo c tenemos una rotula



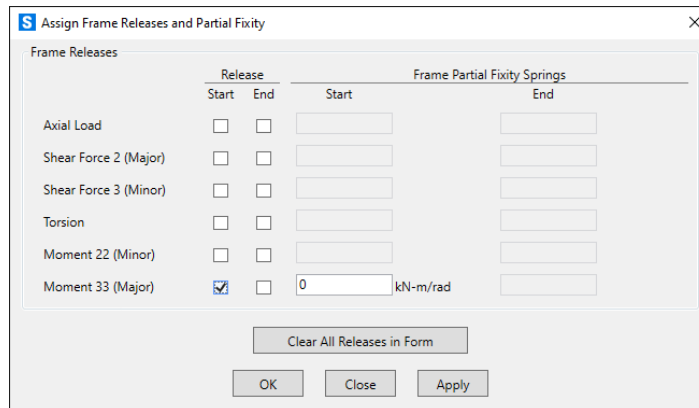
ASIGNACION DE LA ROTULA

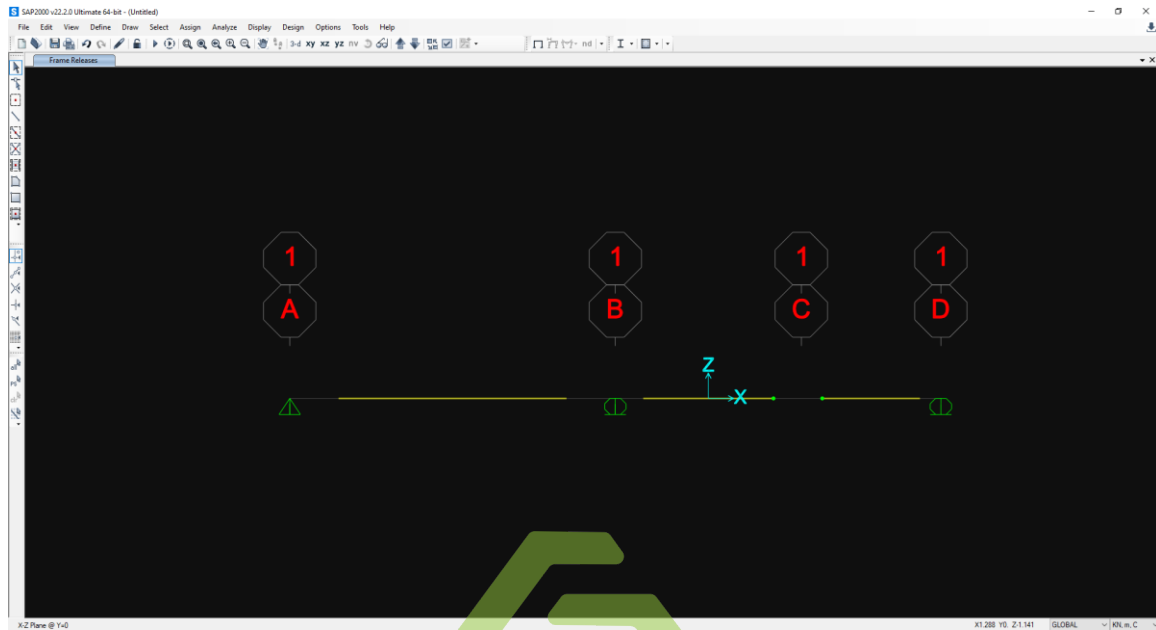


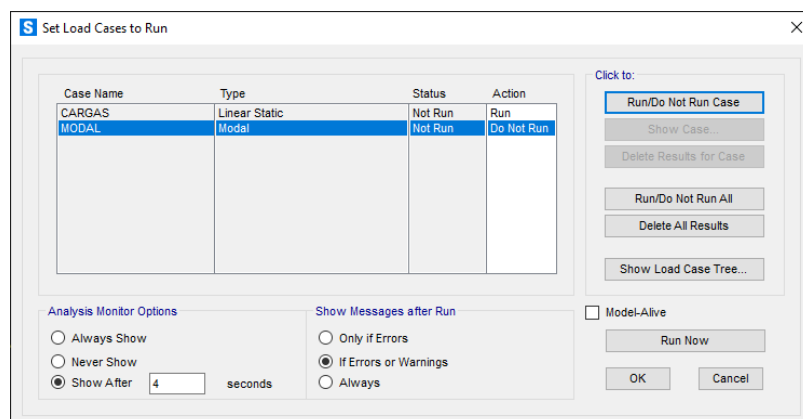
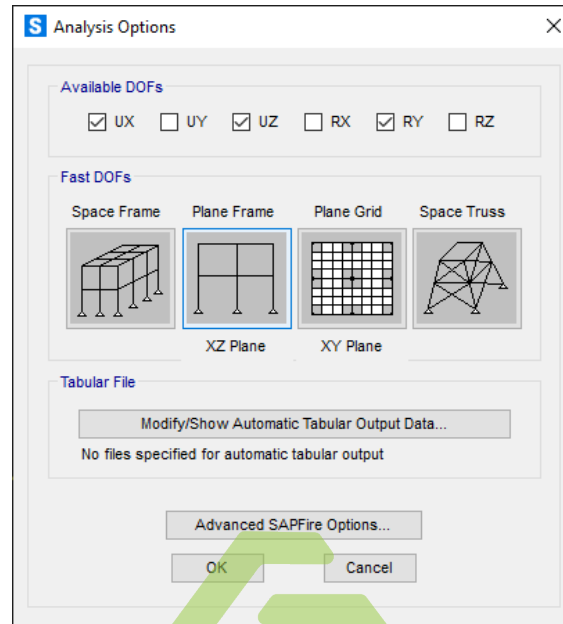
Seleccionamos viga BC

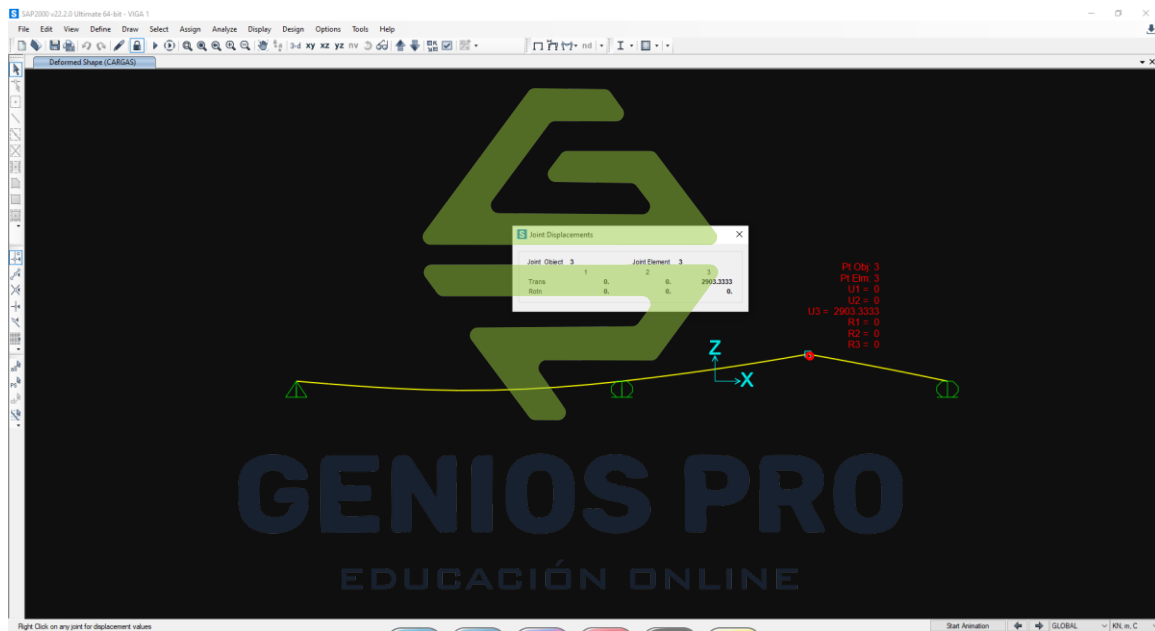
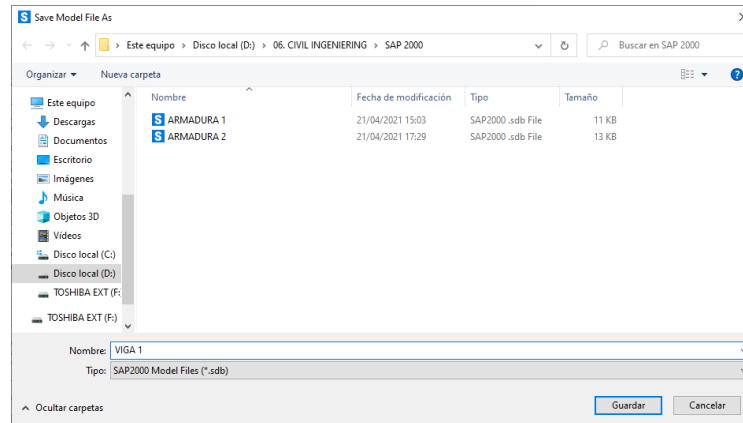


Seleccionamos viga CD



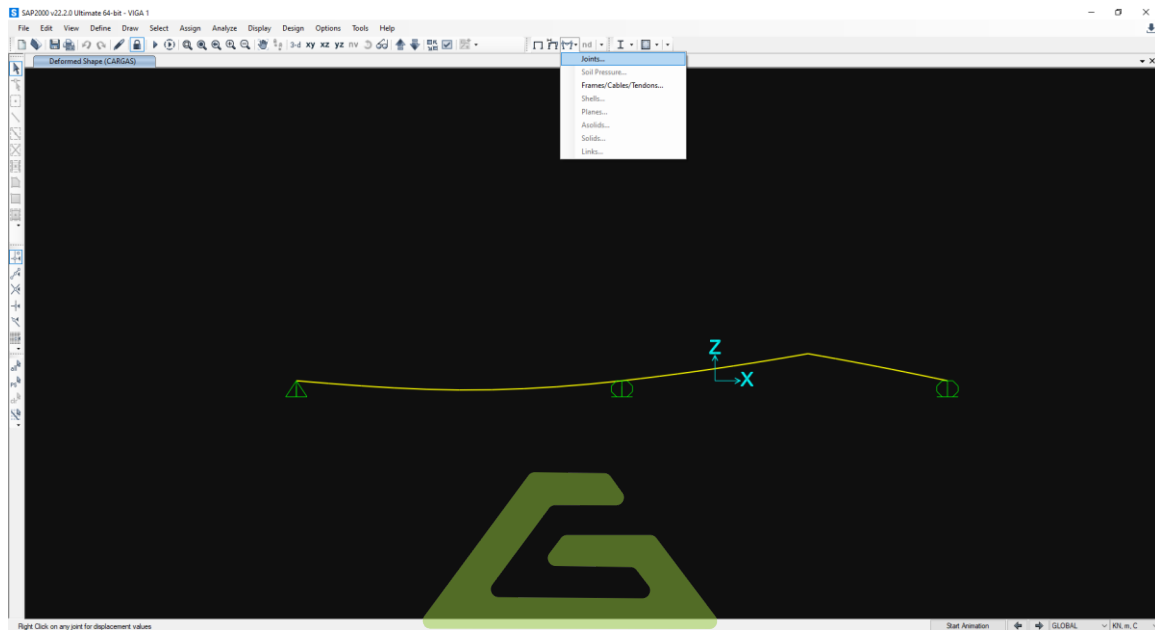






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RESULTADOS



S Display Joint Reactions

Case/Combo
Case/Combo Name: CARGAS

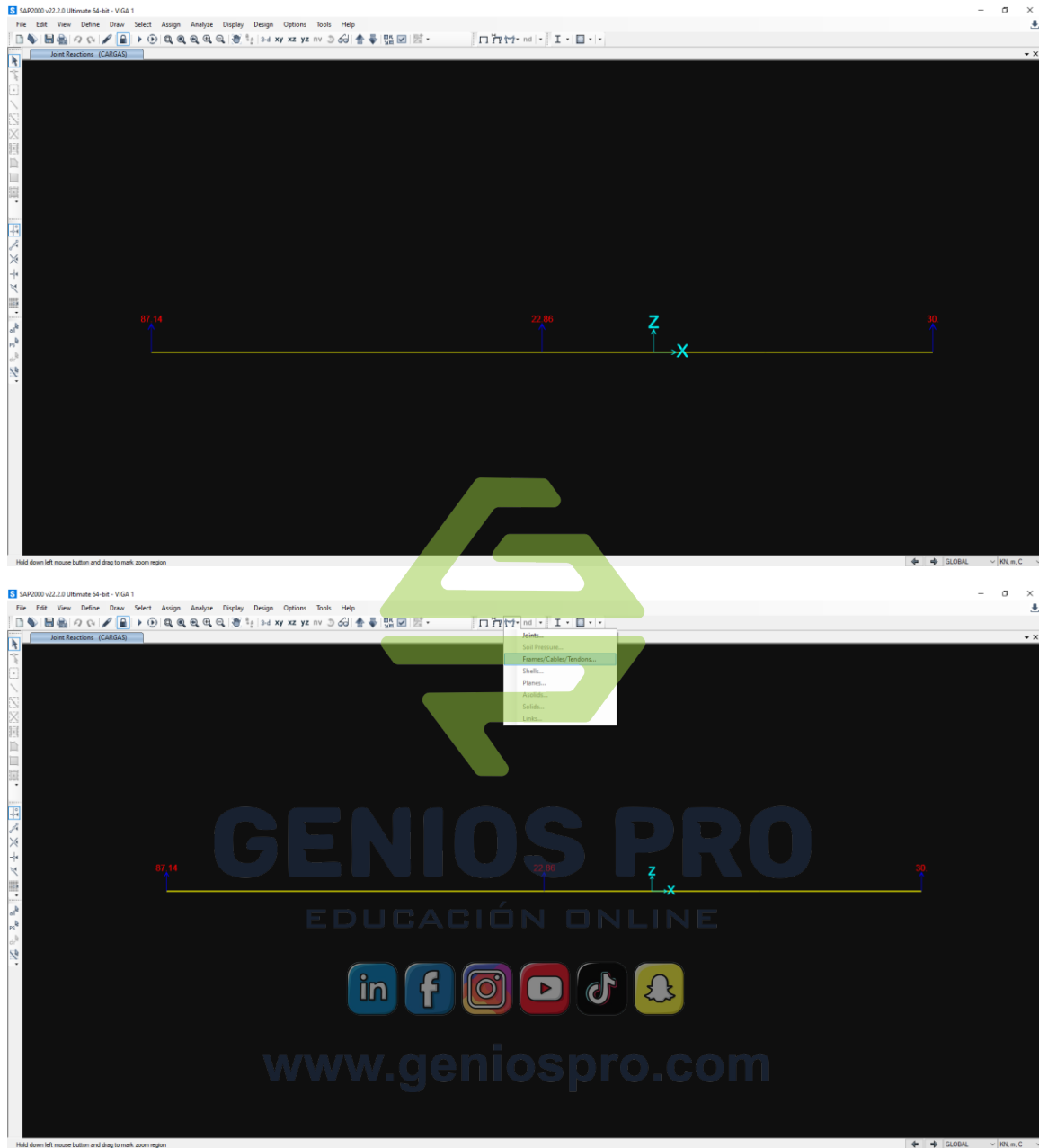
Multivalued Options
☐ Envelope (Max or Min)
☒ Step 1

Display Types
☒ Arrows
☐ Tabulated

[in](#) [f](#) [ig](#) [v](#) [d](#) [s](#)

[Reset Form to Default Values](#)
[Reset Form to Current Window Settings](#)

[OK](#) [Close](#) [Apply](#)



CORTANTES

S Display Frame Forces/Stresses

Case/Combo
Case/Combo Name: CARGAS

Multivalued Options
☐ Envelope (Max or Min)
☒ Step 1

Display Type
☒ Force ☐ Stress

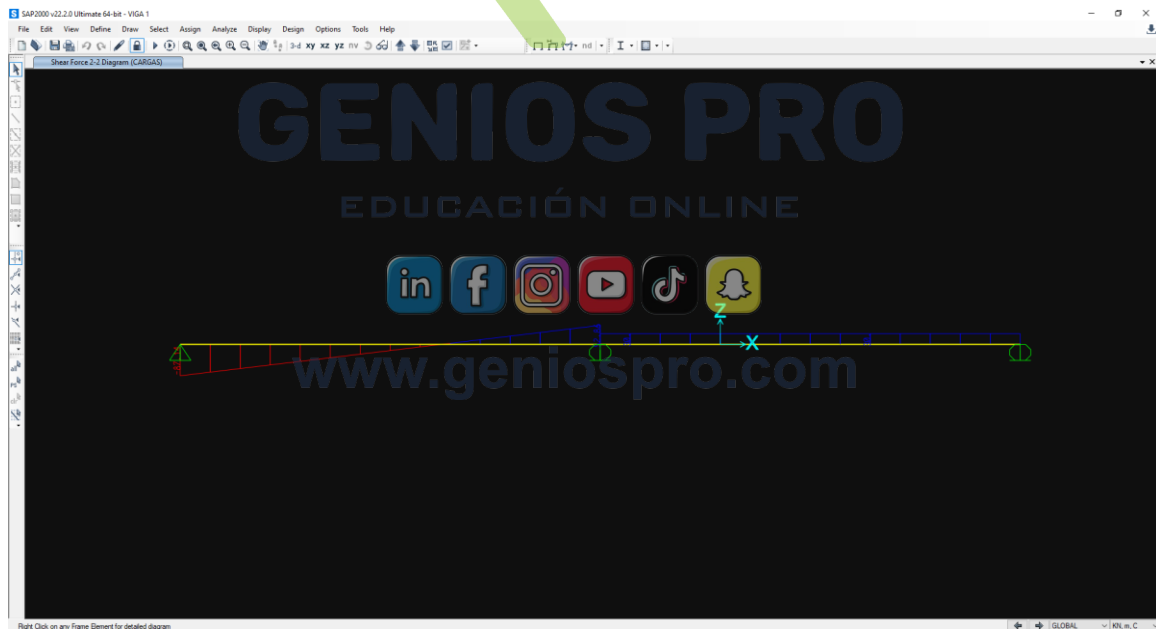
Component
☐ Axial Force ☐ Torsion
☒ Shear 2-2 ☐ Moment 2-2
☐ Shear 3-3 ☐ Moment 3-3

Scaling for Diagram
☒ Automatic ☐ User Defined

Options for Diagram
☐ Fill Diagram ☒ Show Values

Reset Form to Default Values
Reset Form to Current Window Settings

OK Close Apply



S Display Frame Forces/Stresses [X]

Case/Combo
Case/Combo Name: CARGAS

Multivalued Options
☐ Envelope (Max or Min)
☒ Step 1

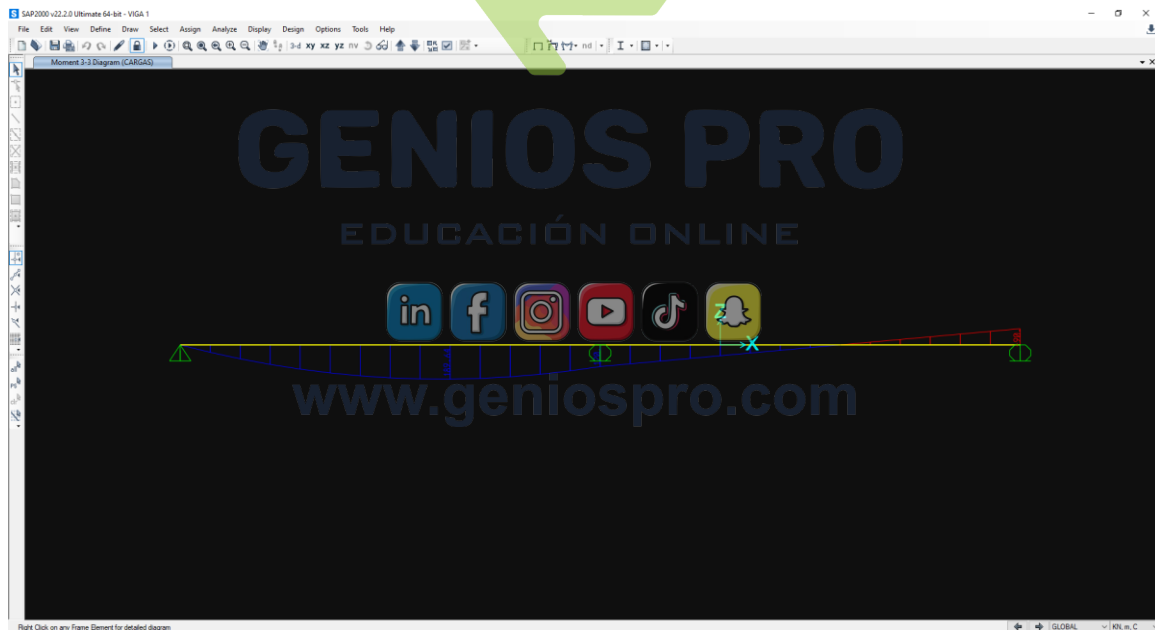
Display Type
☒ Force ☐ Stress

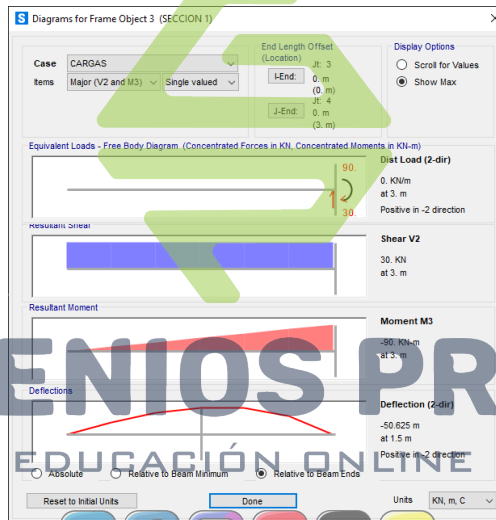
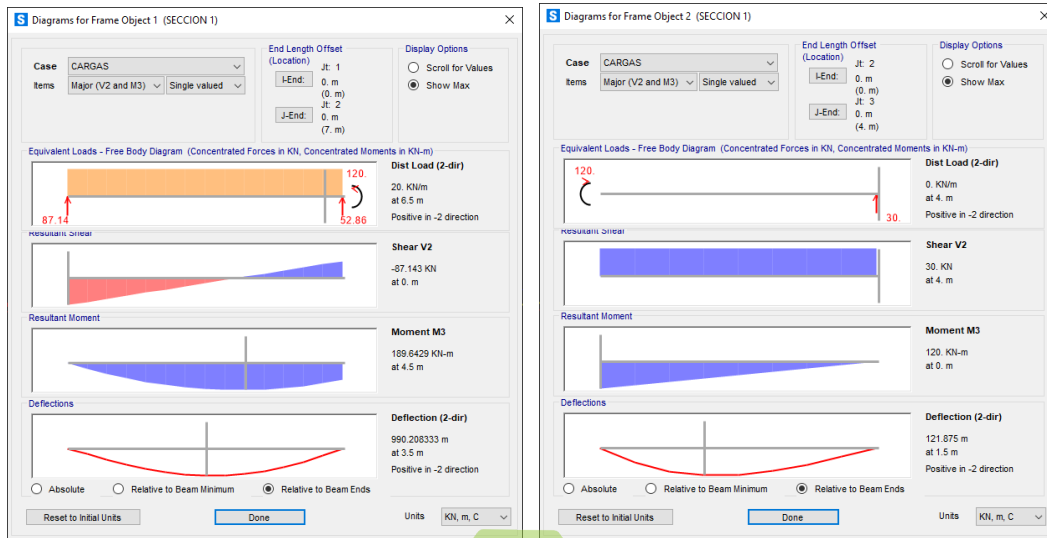
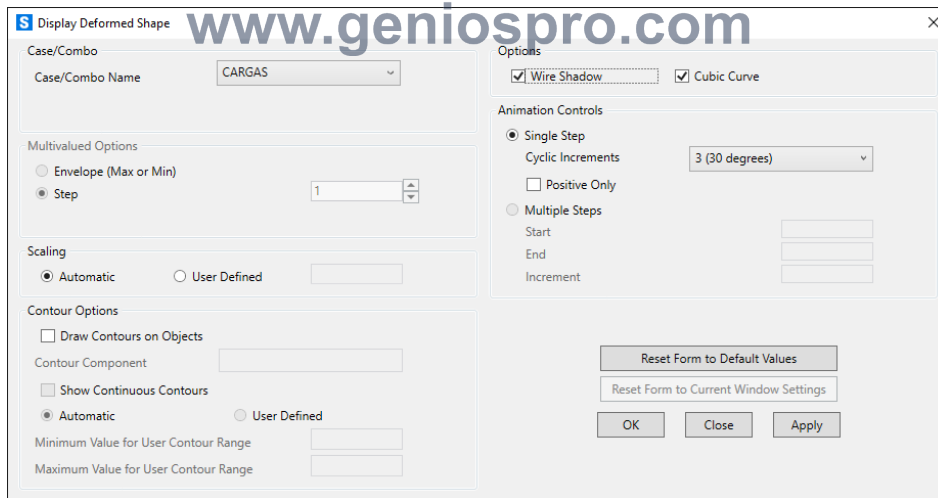
Component
☐ Axial Force ☐ Torsion
☐ Shear 2-2 ☐ Moment 2-2
☐ Shear 3-3 ☒ Moment 3-3

Scaling for Diagram
☒ Automatic ☐ User Defined

Options for Diagram
☐ Fill Diagram ☒ Show Values

Reset Form to Default Values
 Reset Form to Current Window Settings
 OK Close Apply



Display Deformed Shape

Case/Combo: Case/Combo Name: CARGAS

Multivalued Options: ☐ Envelope (Max or Min) ☒ Step

Scaling: ☒ Automatic ☐ User Defined

Contour Options: ☐ Draw Contours on Objects ☐ Show Continuous Contours ☒ Automatic ☐ User Defined

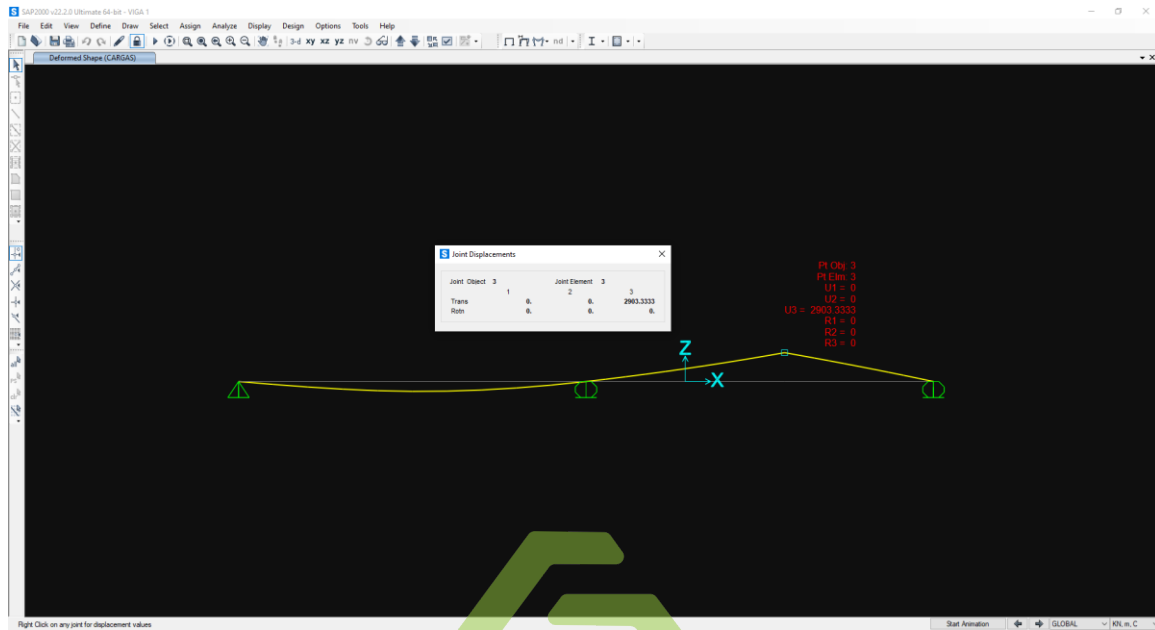
Options: ☒ Wire Shadow ☒ Cubic Curve

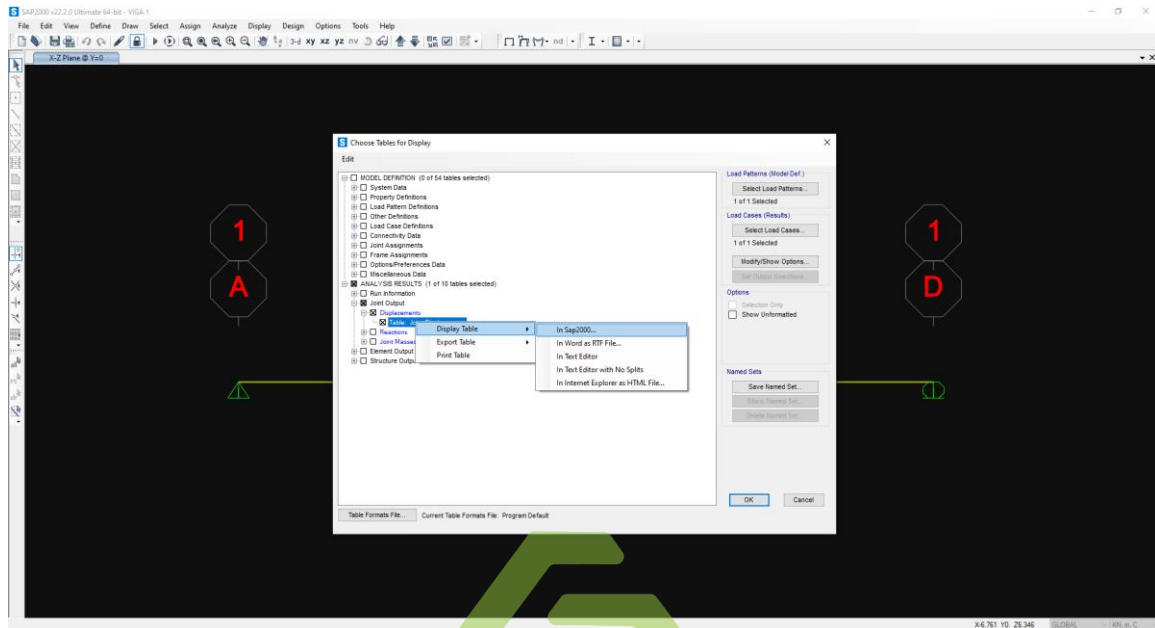
Animation Controls: ☒ Single Step ☐ Multiple Steps

Cyclic Increments: 3 (30 degrees)

Start: End: Increment:

Reset Form to Default Values
Reset Form to Current Window Settings
OK Close Apply





S Joint Displacements

File View Edit Format-Filter-Sort Select Options

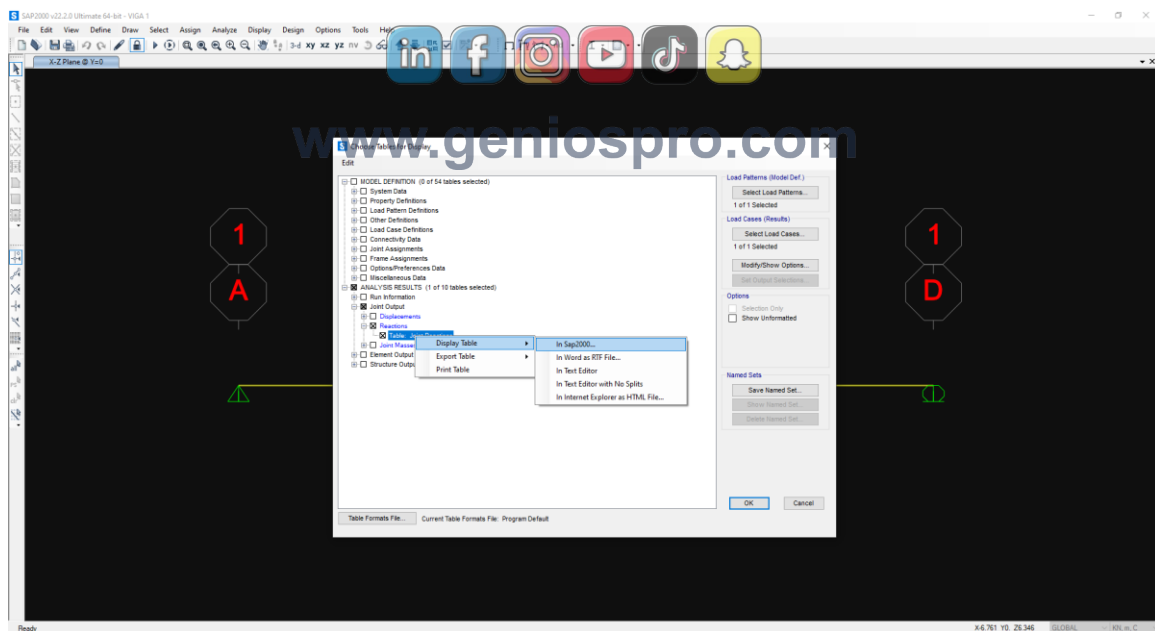
Units: As Noted

Filter:

	Joint Text	OutputCase	CaseType Text	U1 m	U2 m	U3 m	R1 Radians	R2 Radians	R3 Radians
▶	1	CARGAS	LinStatic	0	0	0	0	425.833333	0
	2	CARGAS	LinStatic	0	0	0	0	-565.833333	0
	3	CARGAS	LinStatic	0	0	2903.333333	0	0	0
	4	CARGAS	LinStatic	0	0	0	0	1057.777778	0

Record: << < 1 > >> of 4

Done





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Joint Reactions

File View Edit Format-Filter-Sort Select Options

Units: As Noted

Filter:

	Joint Text	OutputCase	CaseType Text	F1 KN	F2 KN	F3 KN	M1 KN-m	M2 KN-m	M3 KN-m
▶	1	CARGAS	LinStatic	0	0	87.143	0	0	0
	2	CARGAS	LinStatic	0	0	22.857	0	0	0
	4	CARGAS	LinStatic	0	0	30	0	0	0

Record: << < 1 > >> of 3

Done



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