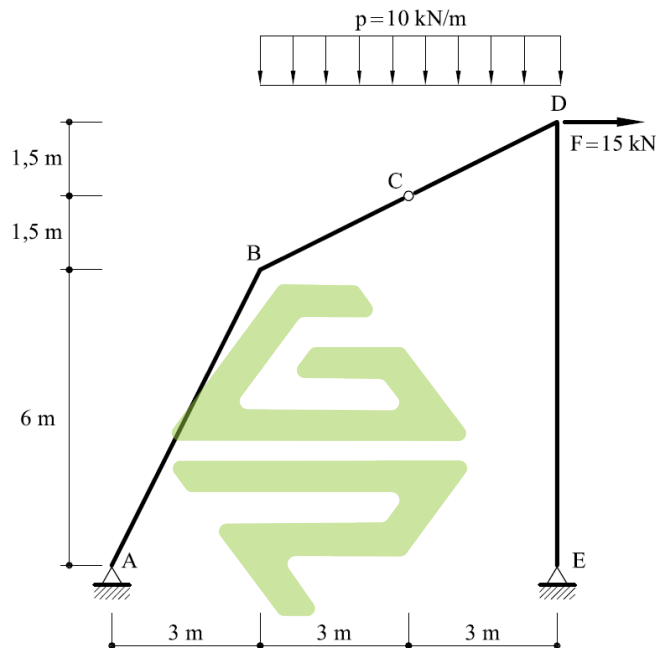
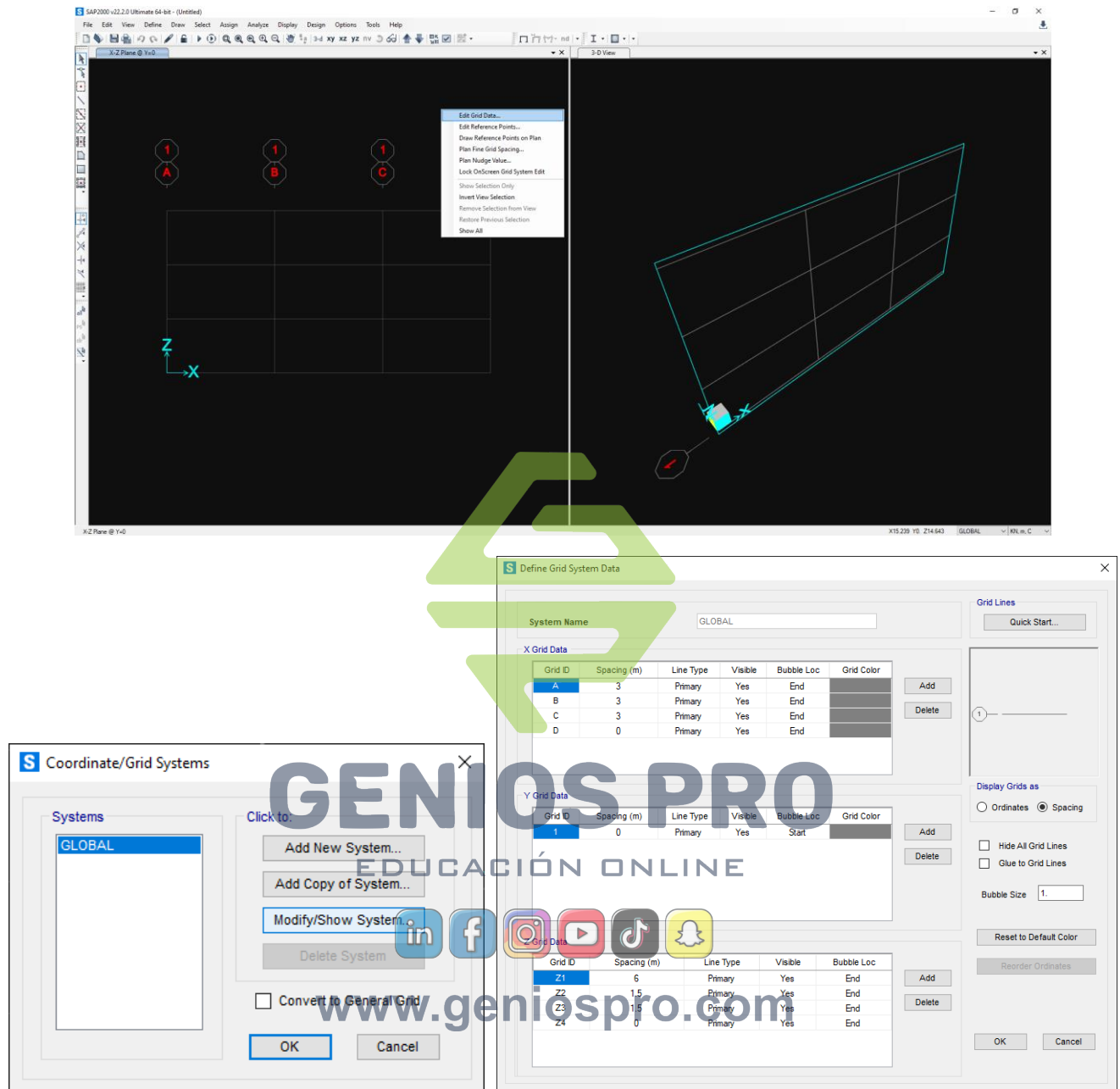




PÓRTICOS

EJERCICIO 1: En el pórtico de la figura, determinar las reacciones en los apoyos, así como dibujar las leyes de momentos flectores, esfuerzos cortantes y esfuerzos axiales. El nudo "C" presenta rotula.

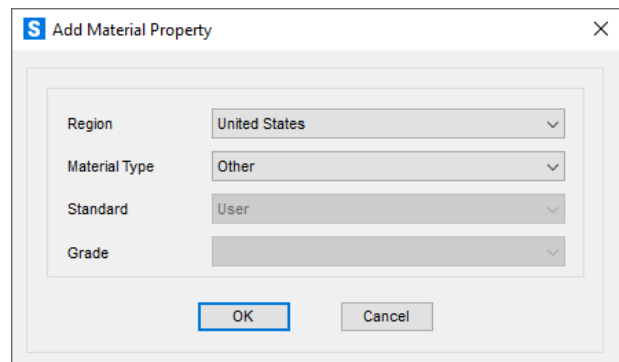
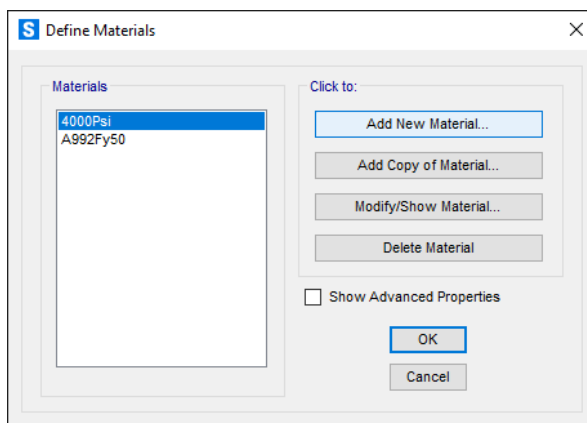
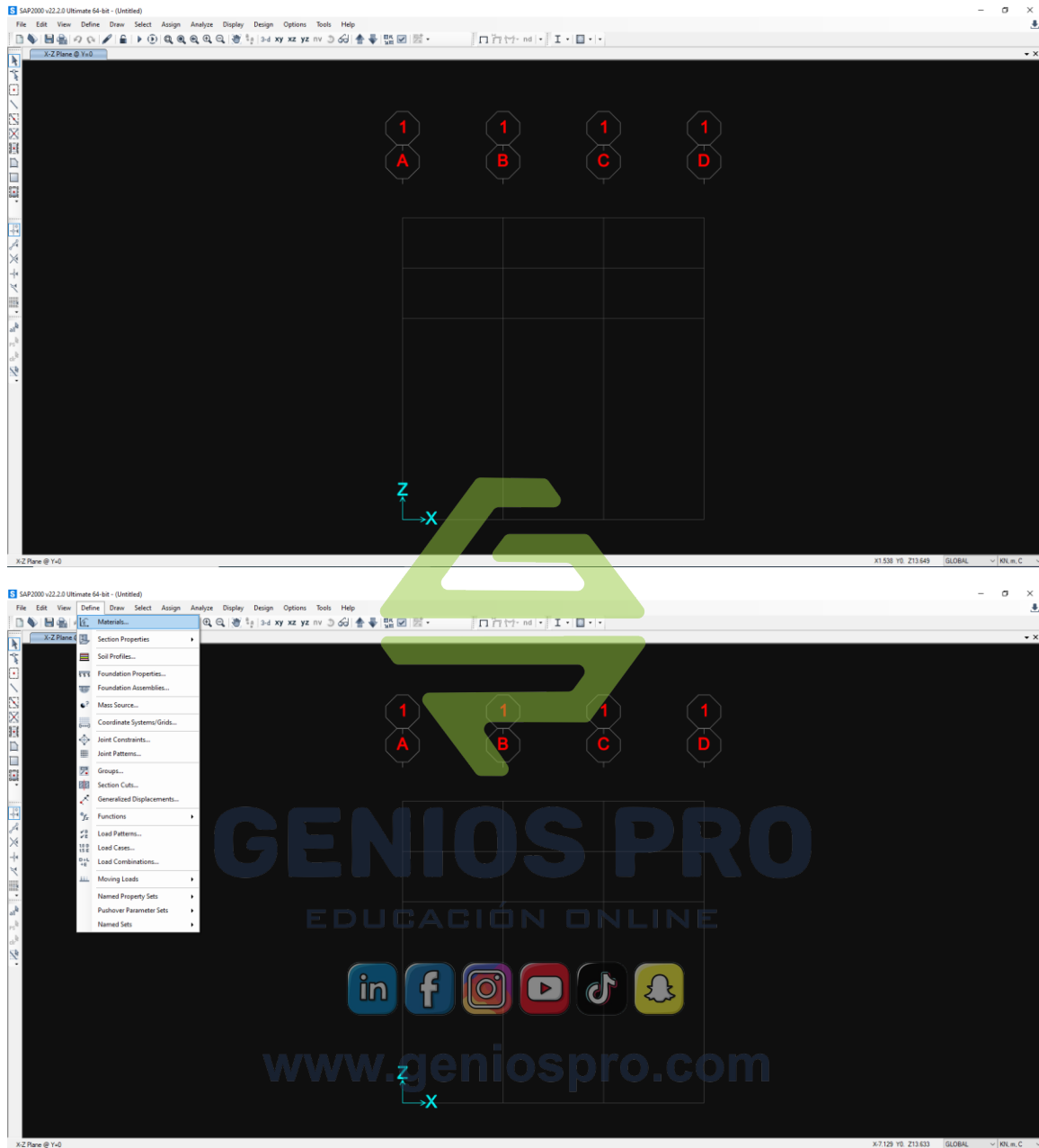






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S Material Property Data

General Data

Material Name and Display Color: MATERIAL 1

Material Type: Other

Material Grade:

Material Notes: Modify/Show Notes...

Weight and Mass

Weight per Unit Volume: 0

Mass per Unit Volume: 0

Units

KN, m, C

Isotropic Property Data

Modulus Of Elasticity, E: 1

Poisson, U: 0.3

Coefficient Of Thermal Expansion, A: 1.170E-05

Shear Modulus, G: 0.3846

☐ Switch To Advanced Property Display

OK Cancel

S Define Materials

Materials

4000Psi
A992Fy50
MATERIAL 1

Click to:

Add New Material...

Add Copy of Material...

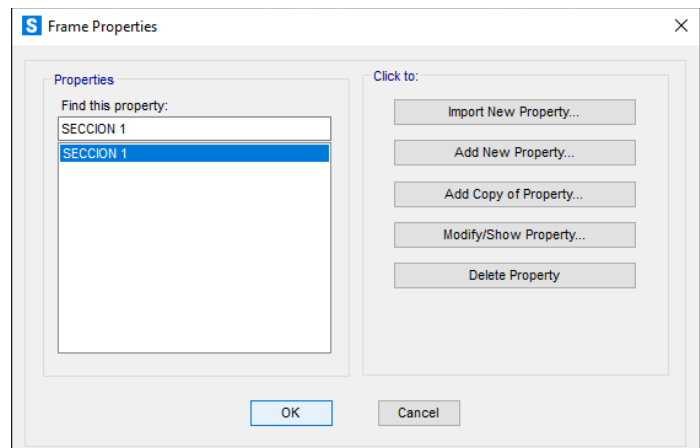
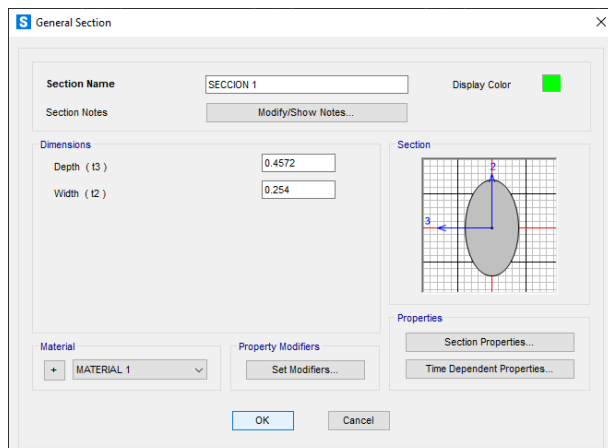
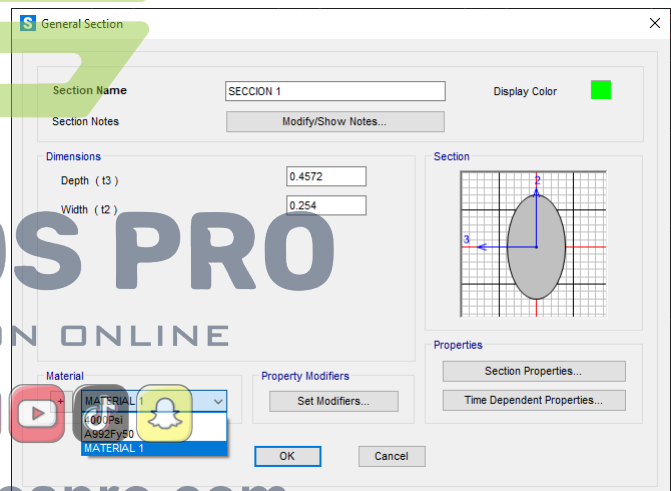
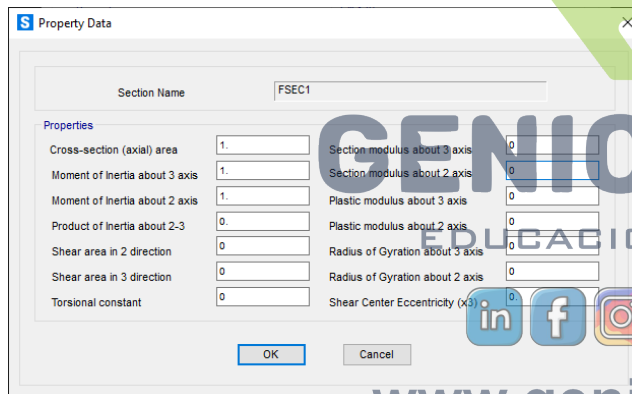
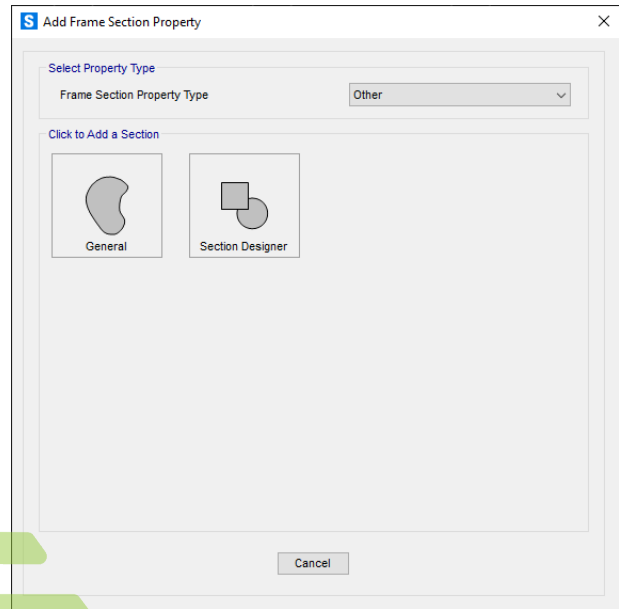
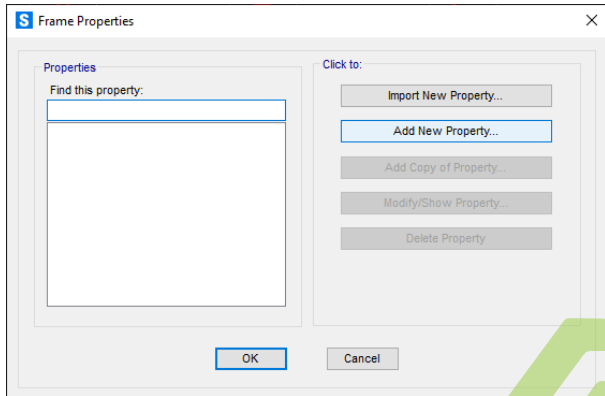
Modify/Show Material...

Delete Material

☐ Show Advanced Properties

OK Cancel

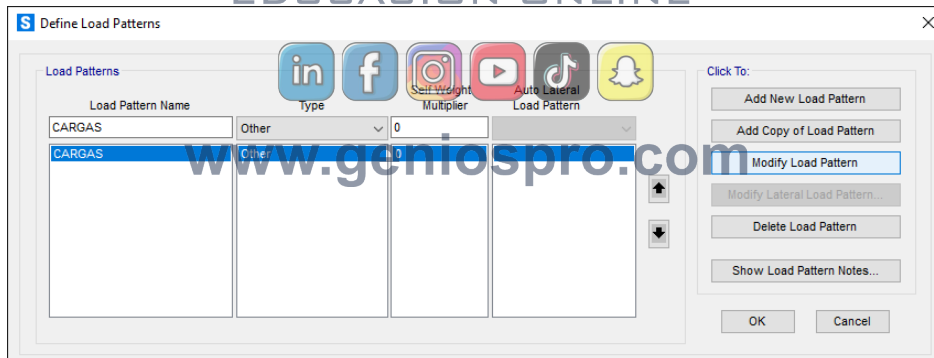
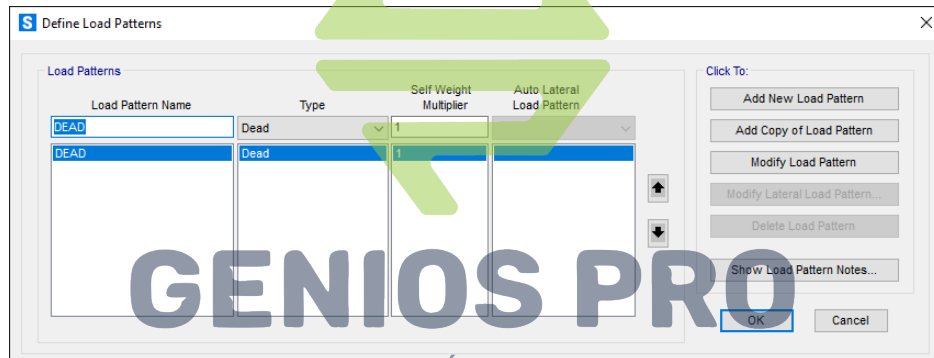
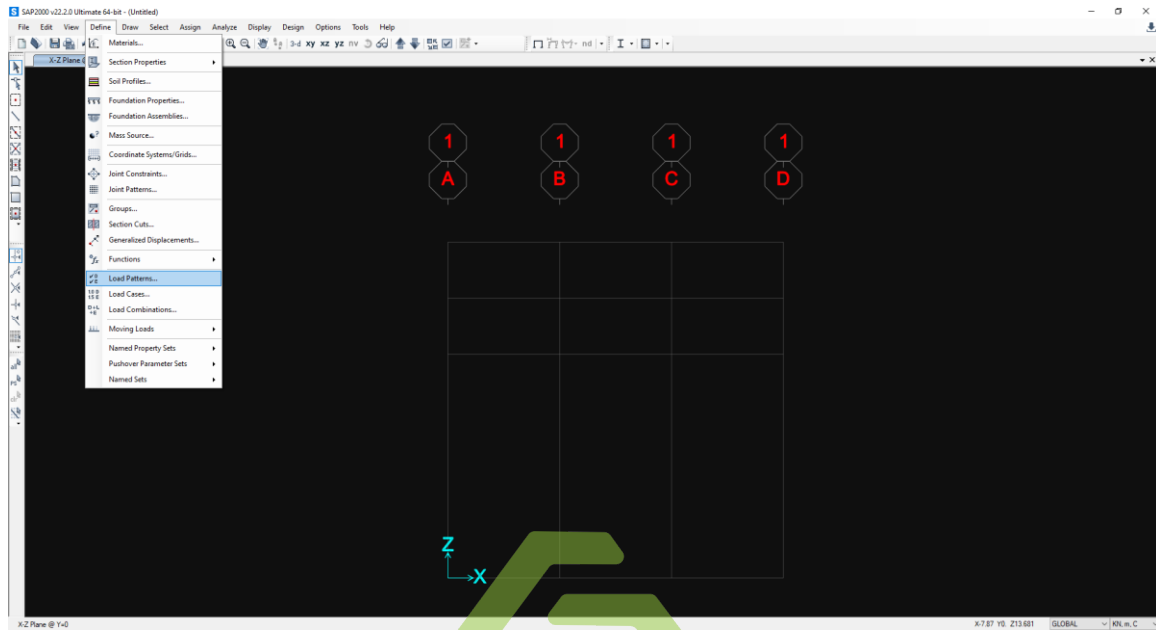






GENIOS PRO

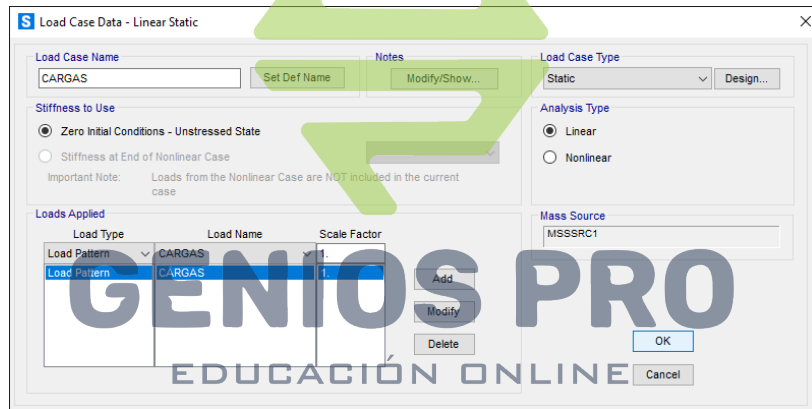
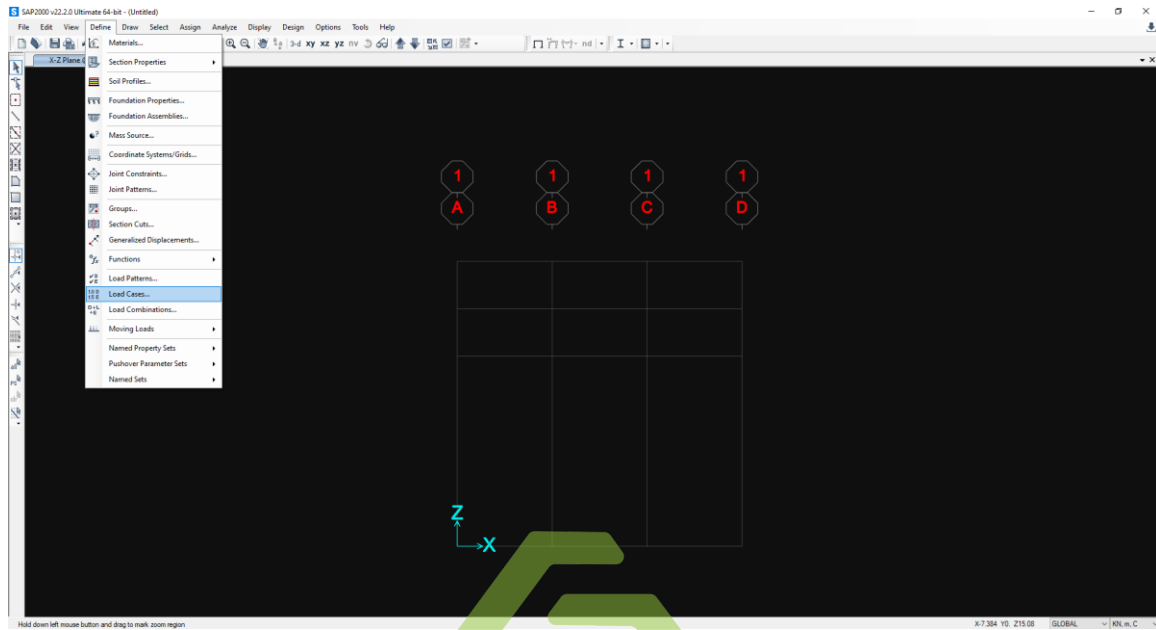
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GENIOS PRO

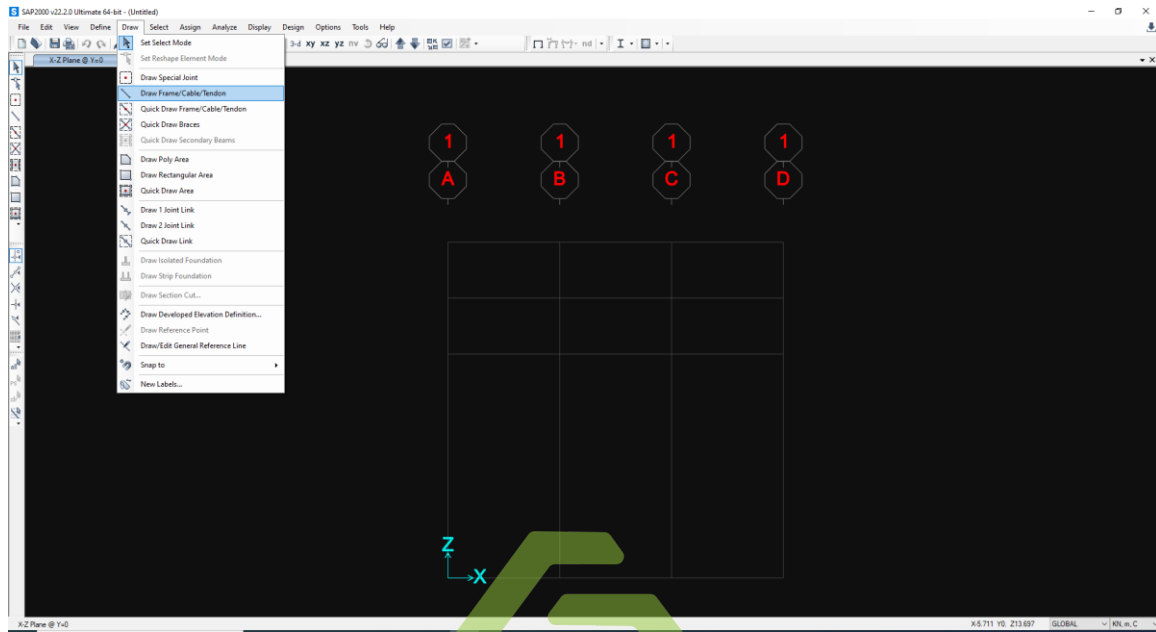
EDUCACIÓN ONLINE





GENIOS PRO

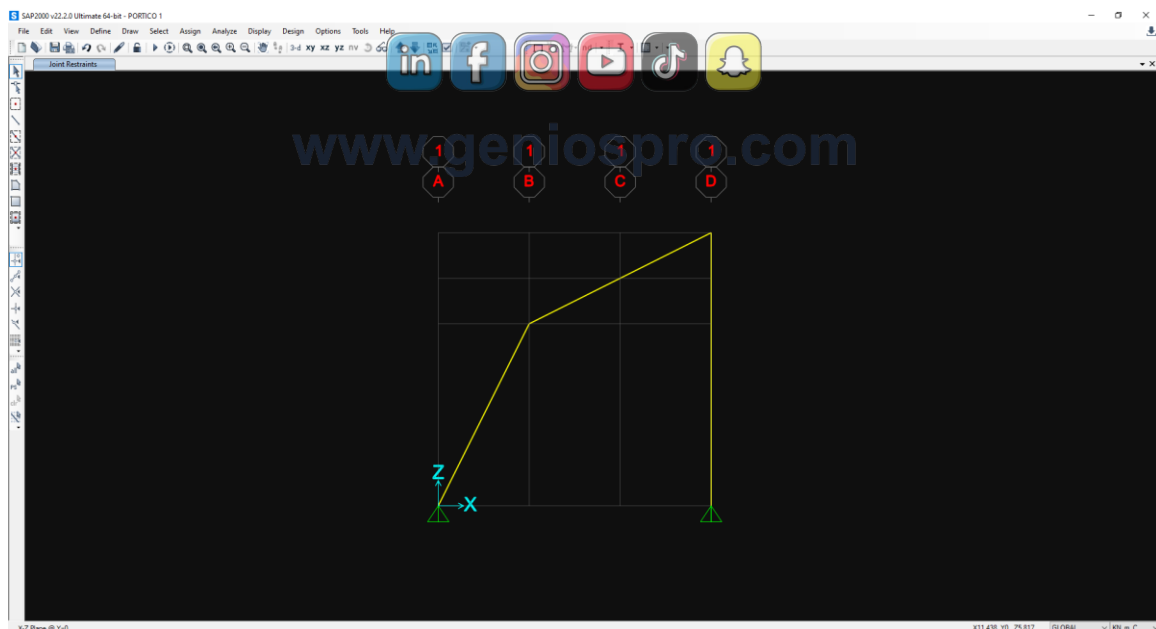
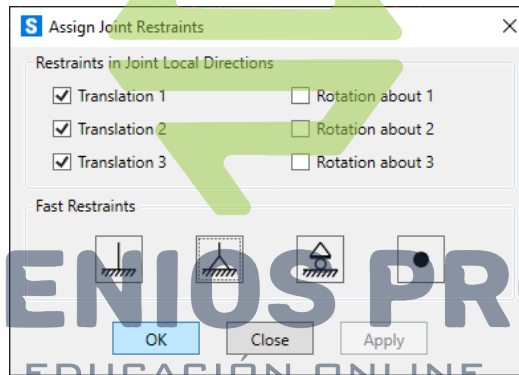
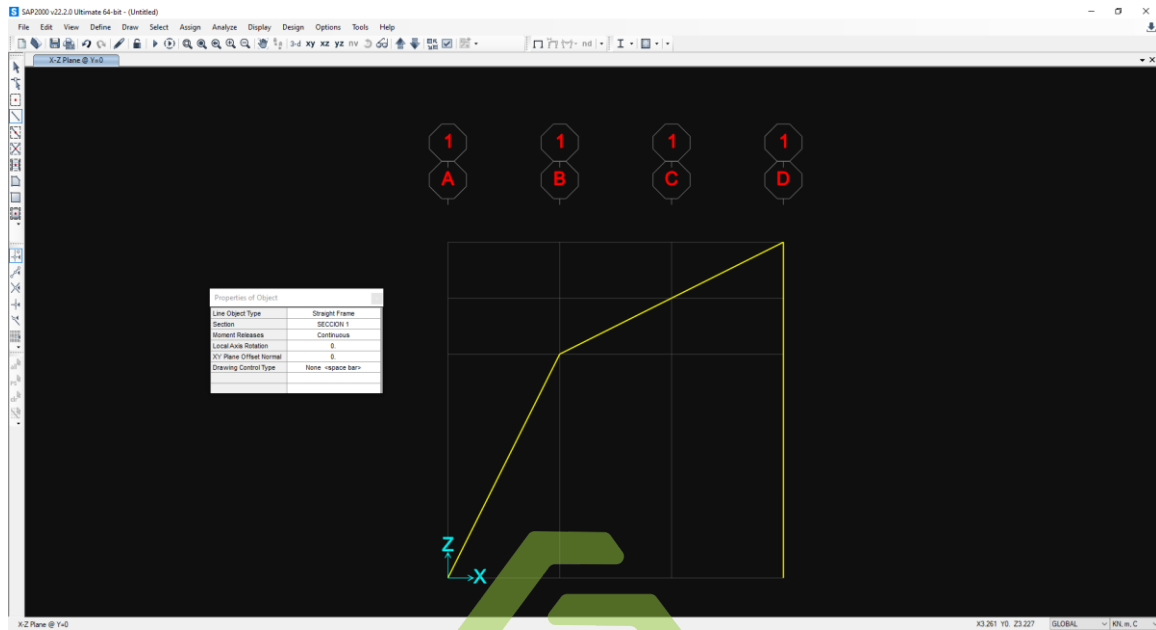
EDUCACIÓN ONLINE



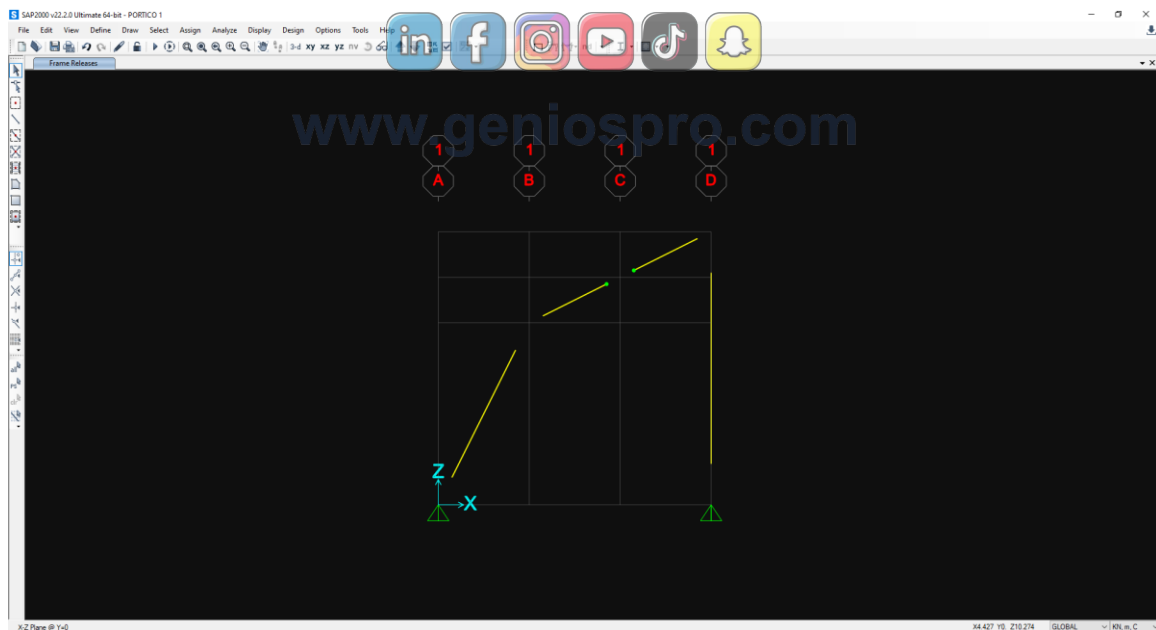
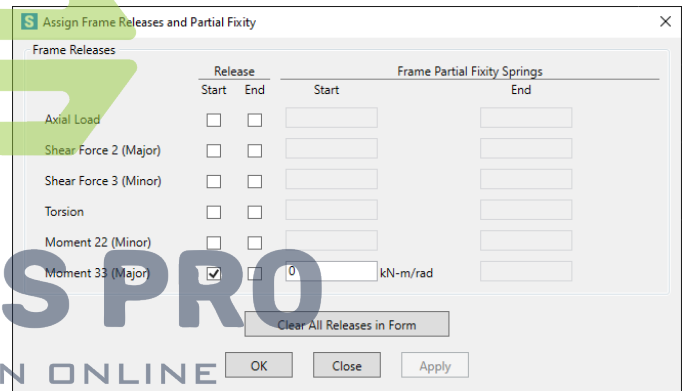
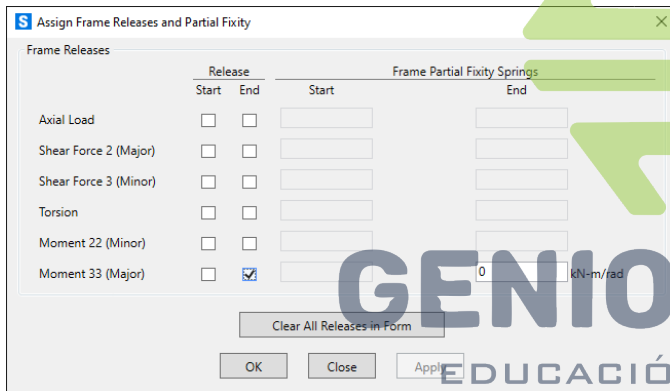
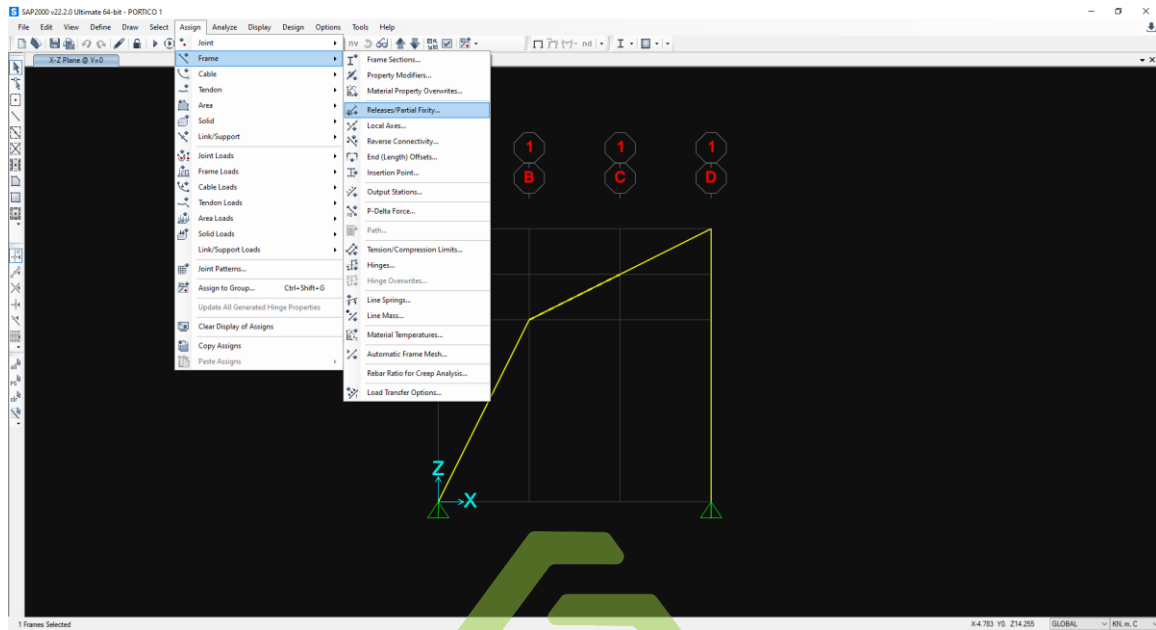
Properties of Object

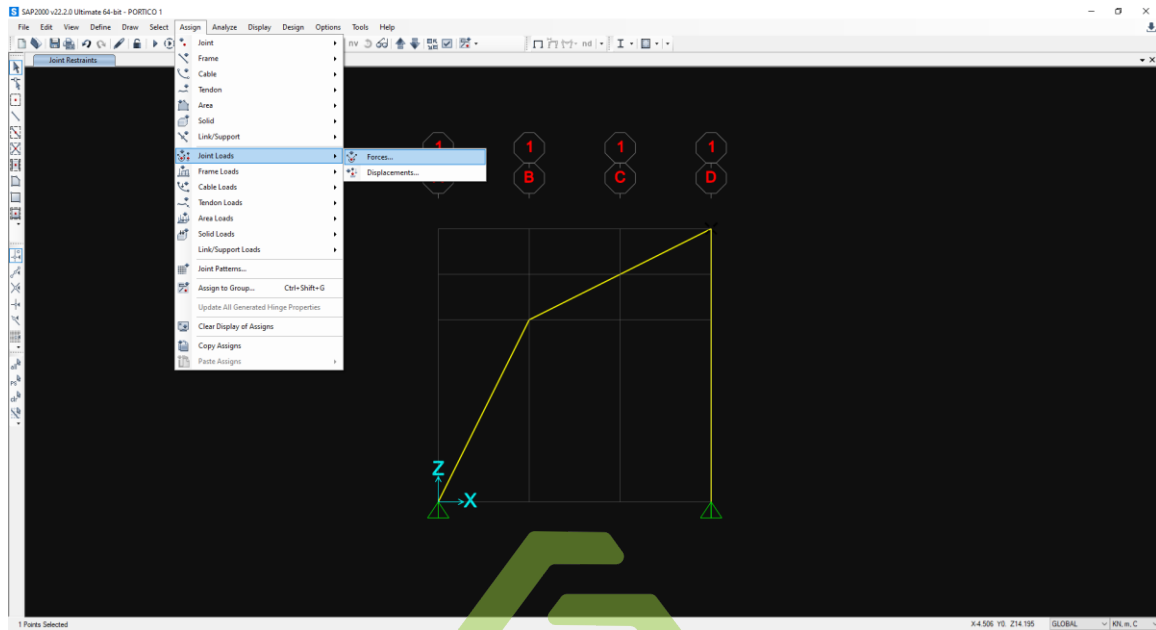
Line Object Type	Straight Frame
Section	SECCION 1
Moment Releases	Continuous
Local Axis Rotation	0.
XY Plane Offset Normal	0.
Drawing Control Type	None <space bar>





ROTULAS





S Assign Joint Forces

General

Load Pattern: CARGAS

Coordinate System: GLOBAL

Forces

Force Global X	15	kN
Force Global Y	0	kN
Force Global Z	0	kN
Moment about Global X	0	kN-m
Moment about Global Y	0	kN-m
Moment about Global Z	0	kN-m

Options

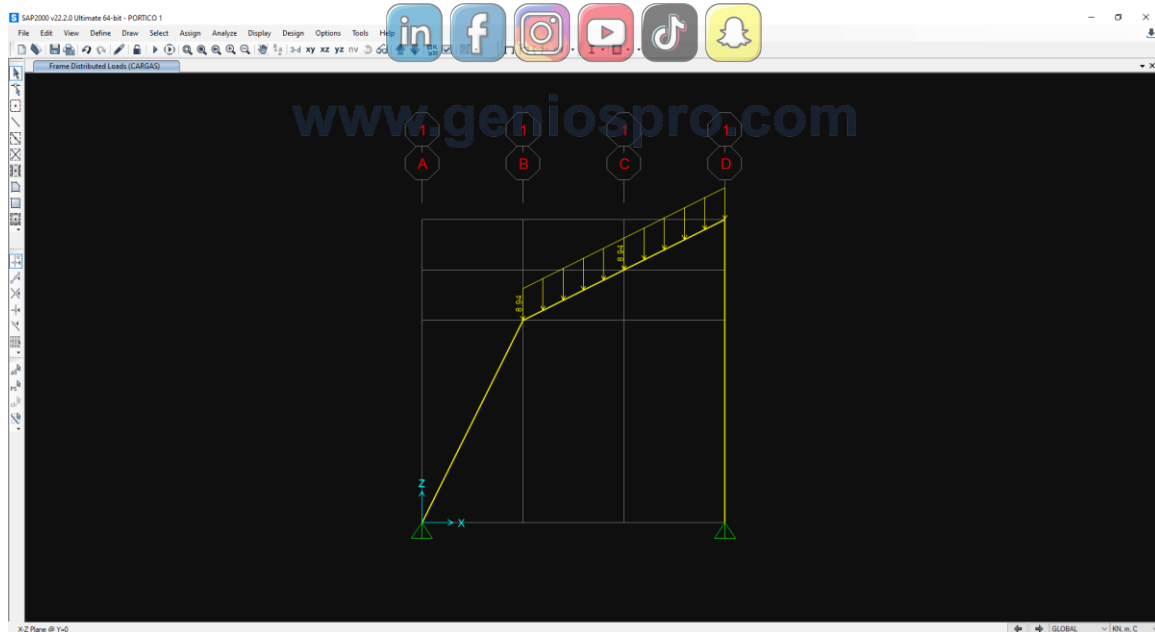
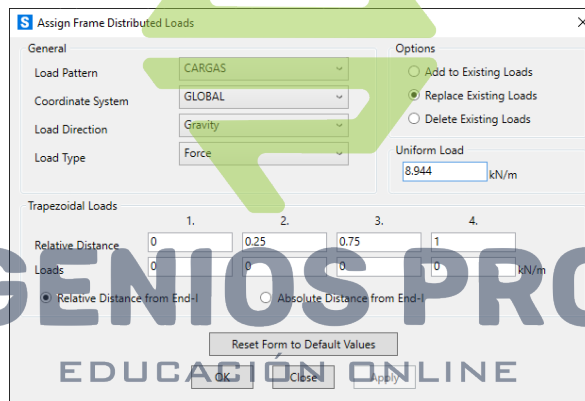
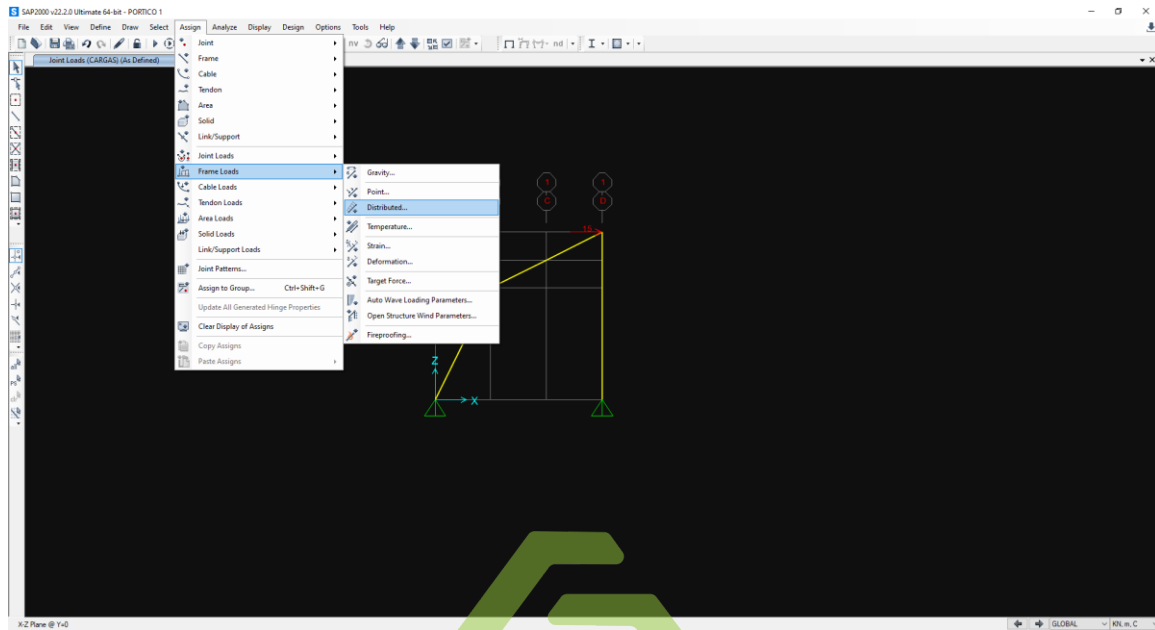
☐ Add to Existing Loads

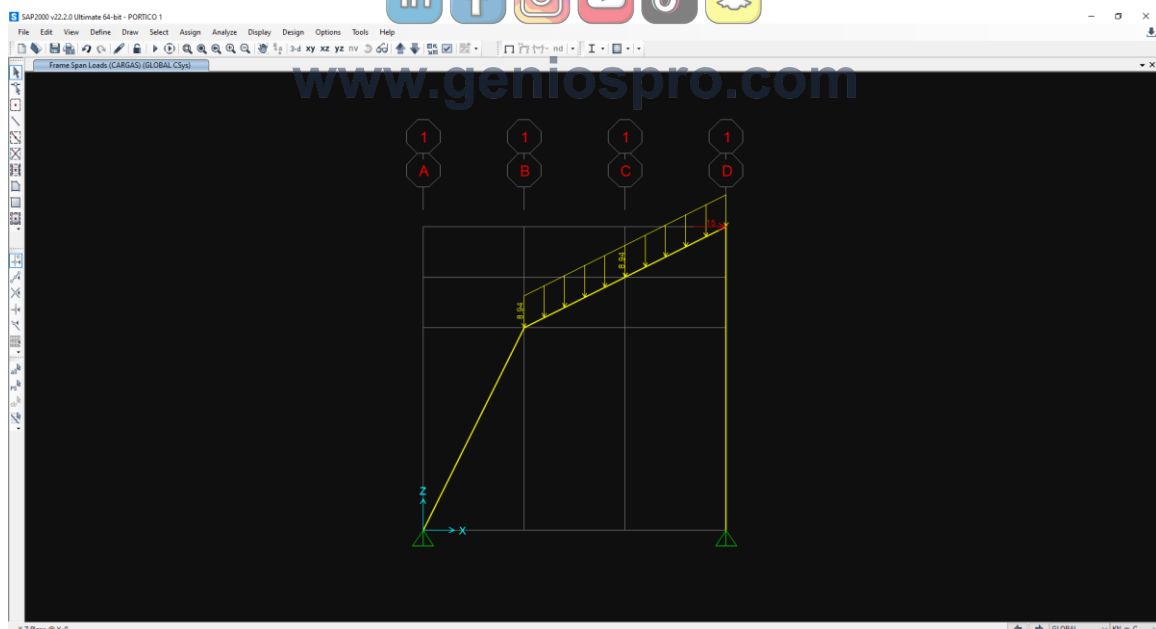
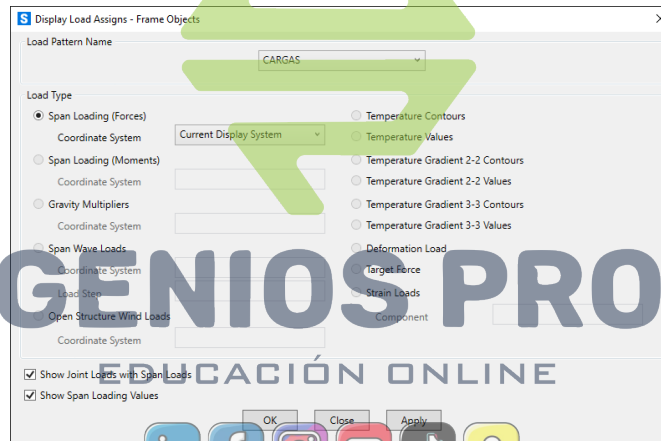
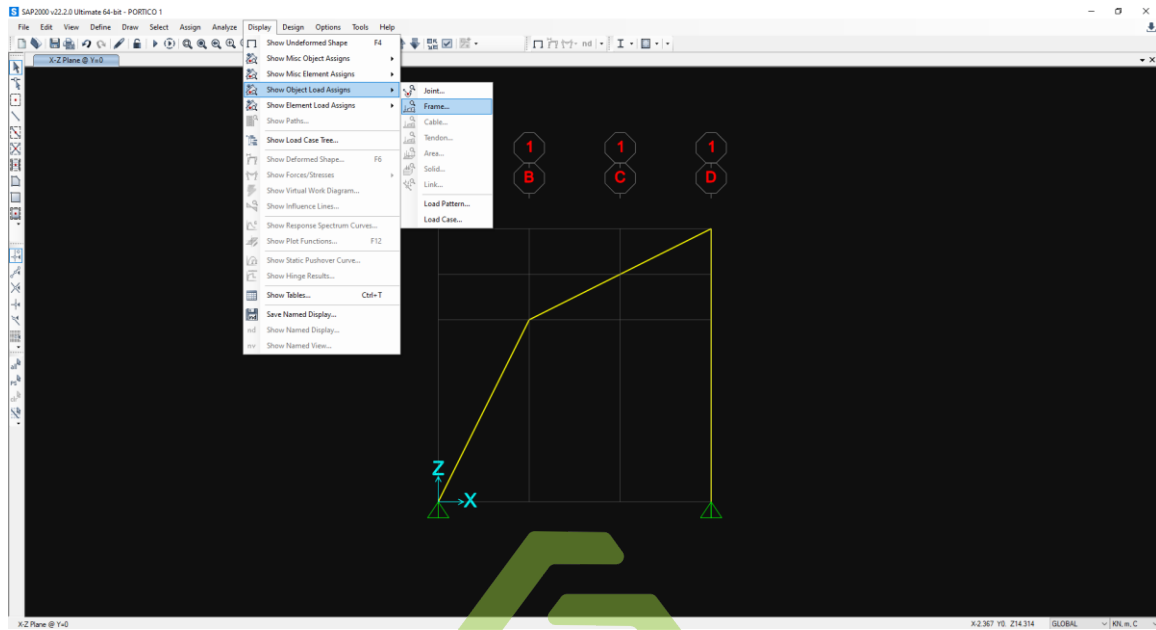
☒ Replace Existing Loads

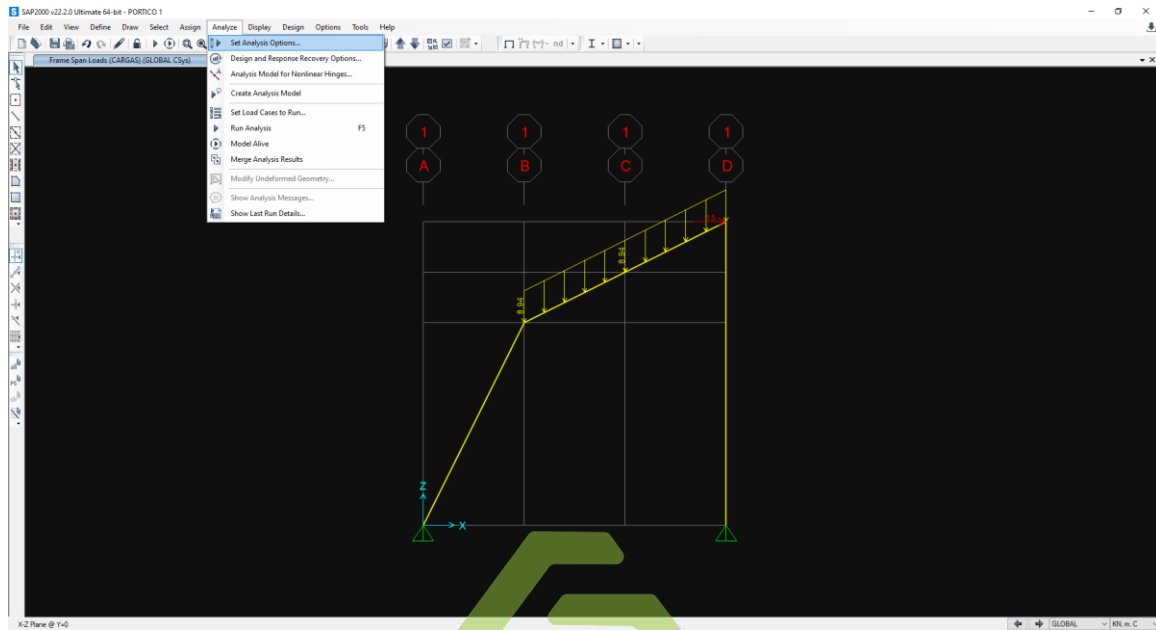
☐ Delete Existing Loads

Reset Form to Default Values

OK Close Apply

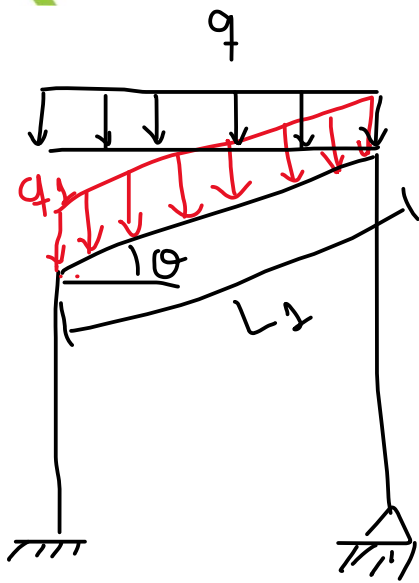






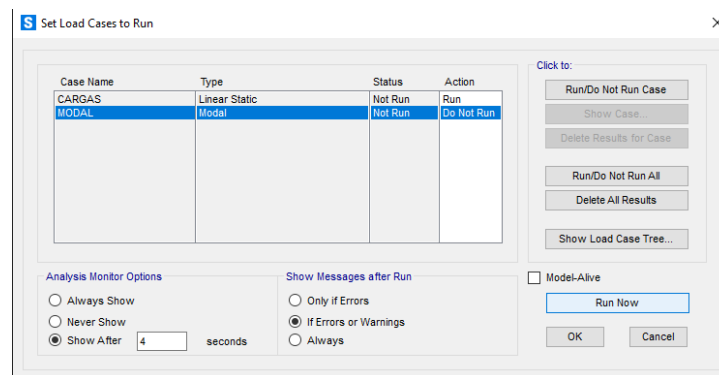


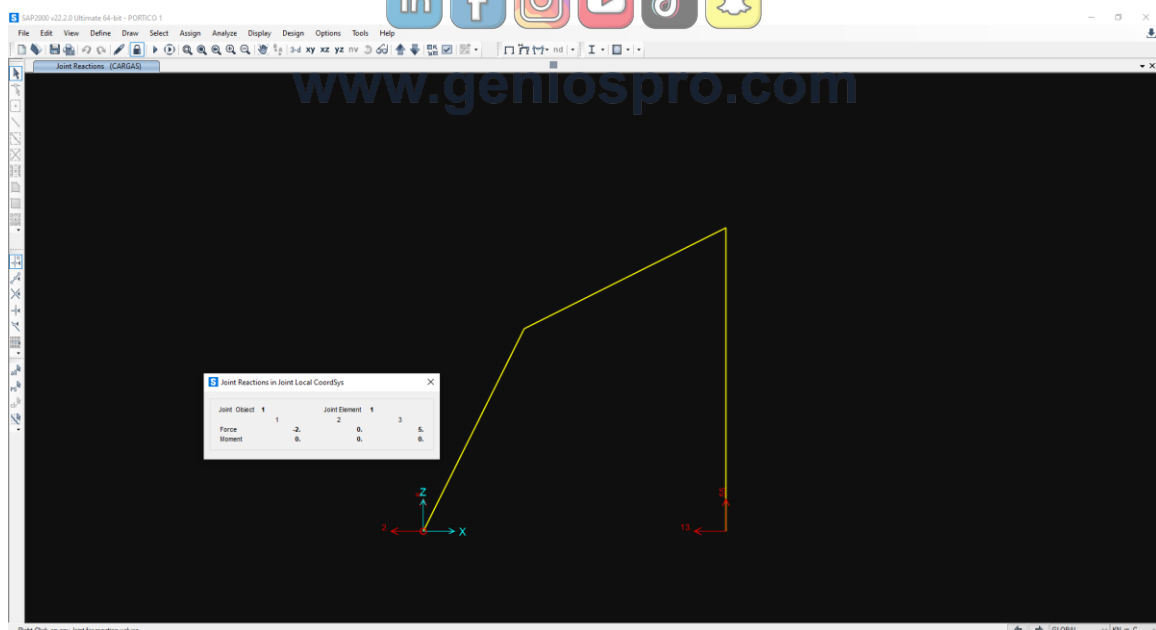
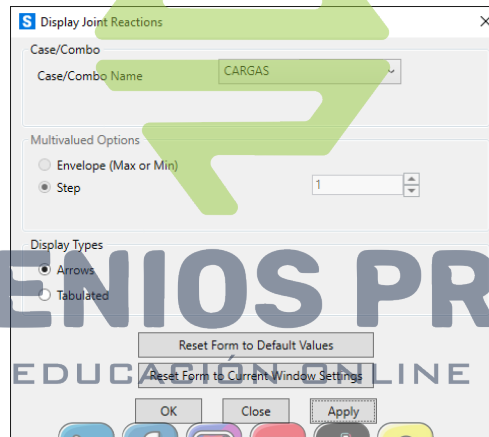
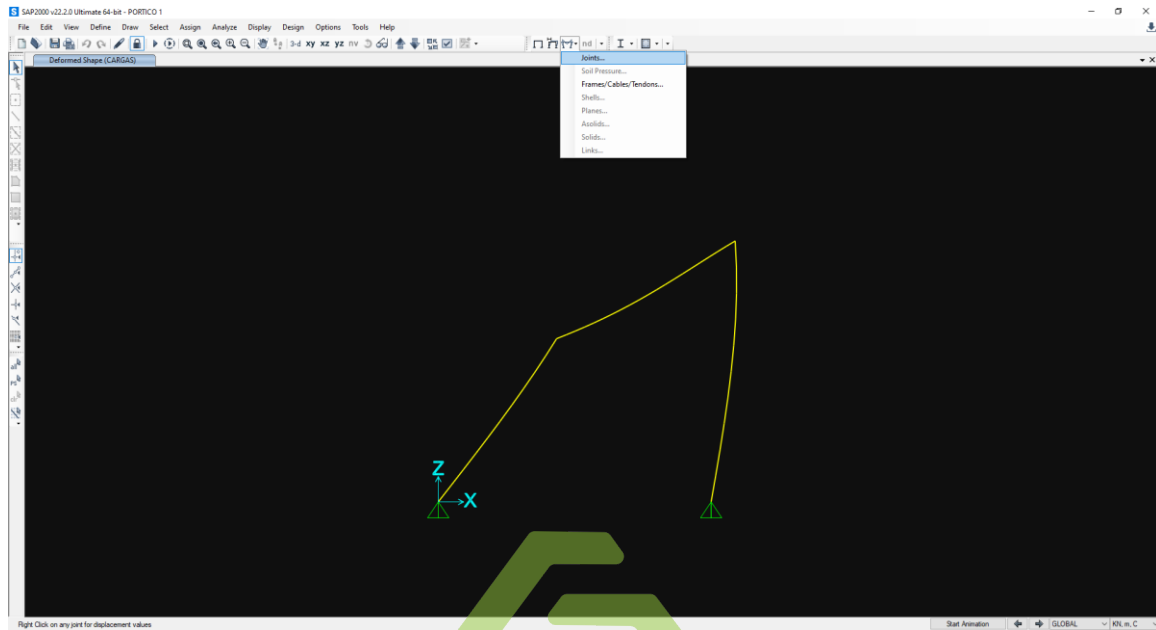
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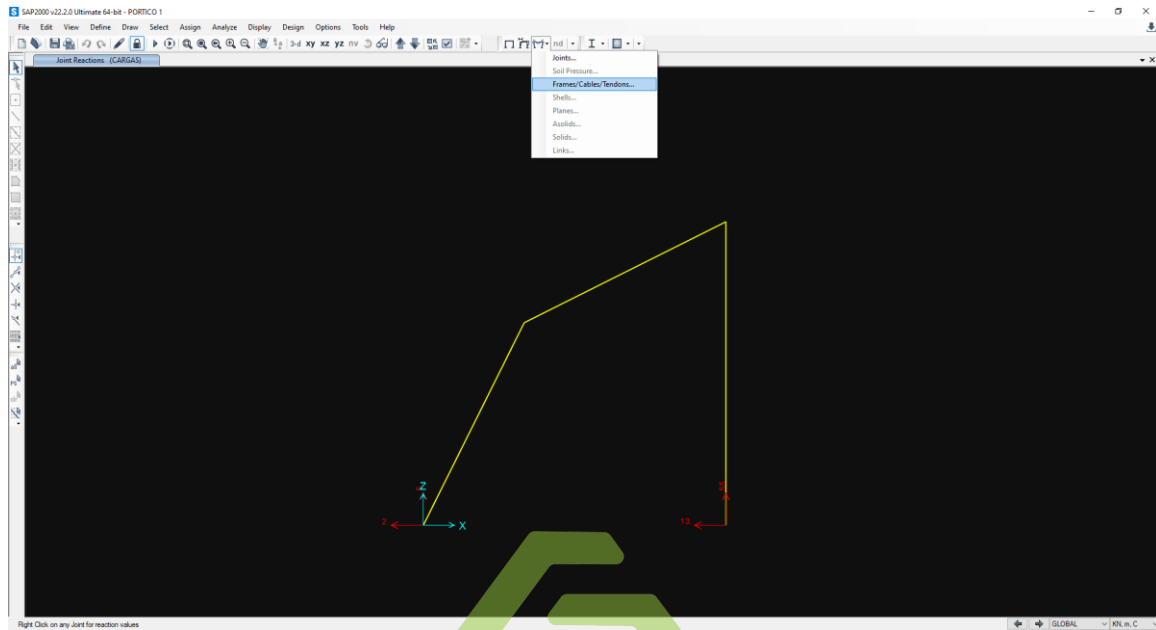


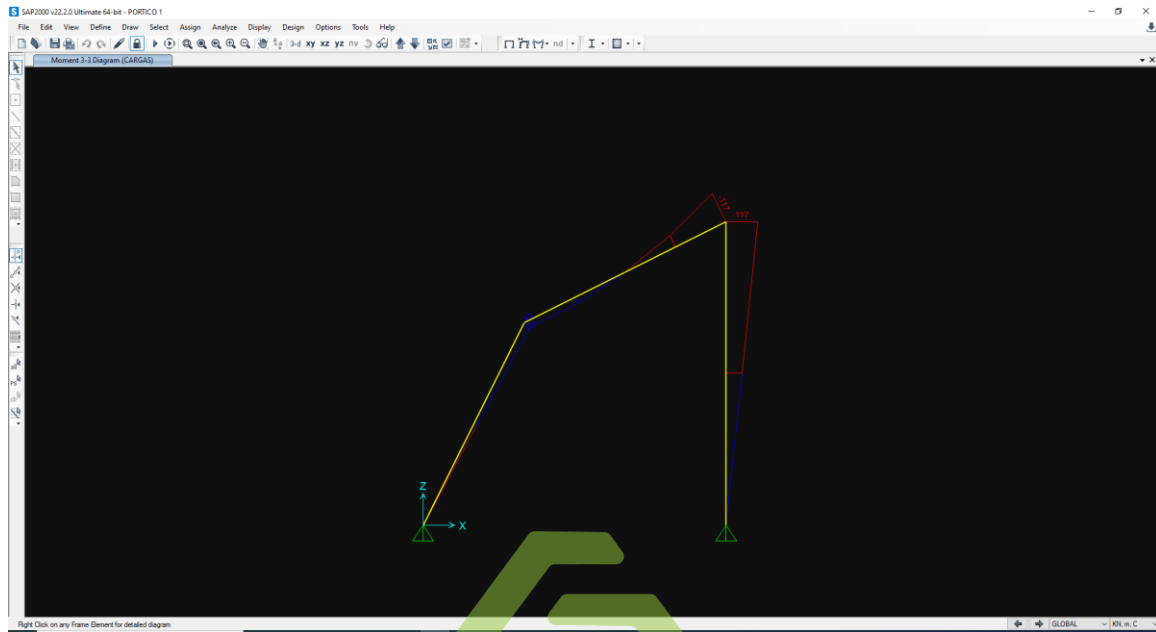
$$q_1 L_1 = q L_1 \cos \theta$$

$$q_1 = q \cos \theta$$









S Display Frame Forces/Stresses

Case/Combo
Case/Combo Name: CARGAS

Multivalued Options
☐ Envelope (Max or Min)
☒ Step

Display Type
☒ Force
☐ Stress

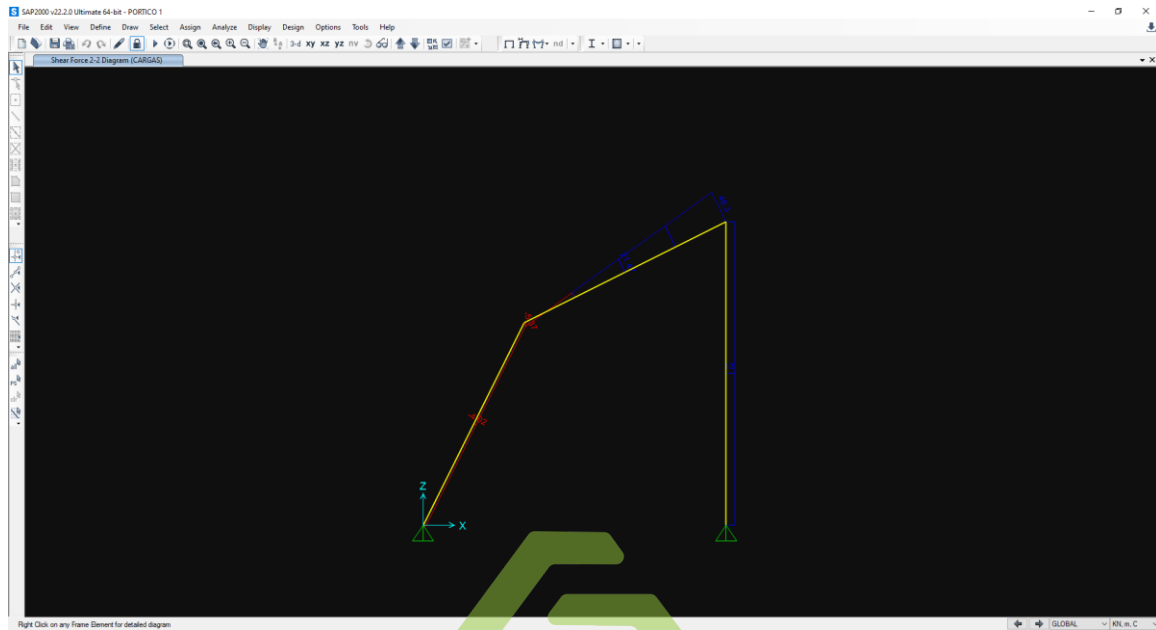
Component
☐ Axial Force
☒ Shear 2-2
☐ Shear 3-3
☐ Torsion
☐ Moment 2-2
☐ Moment 3-3

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

Case/Combo
Case/Combo Name: CARGAS

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

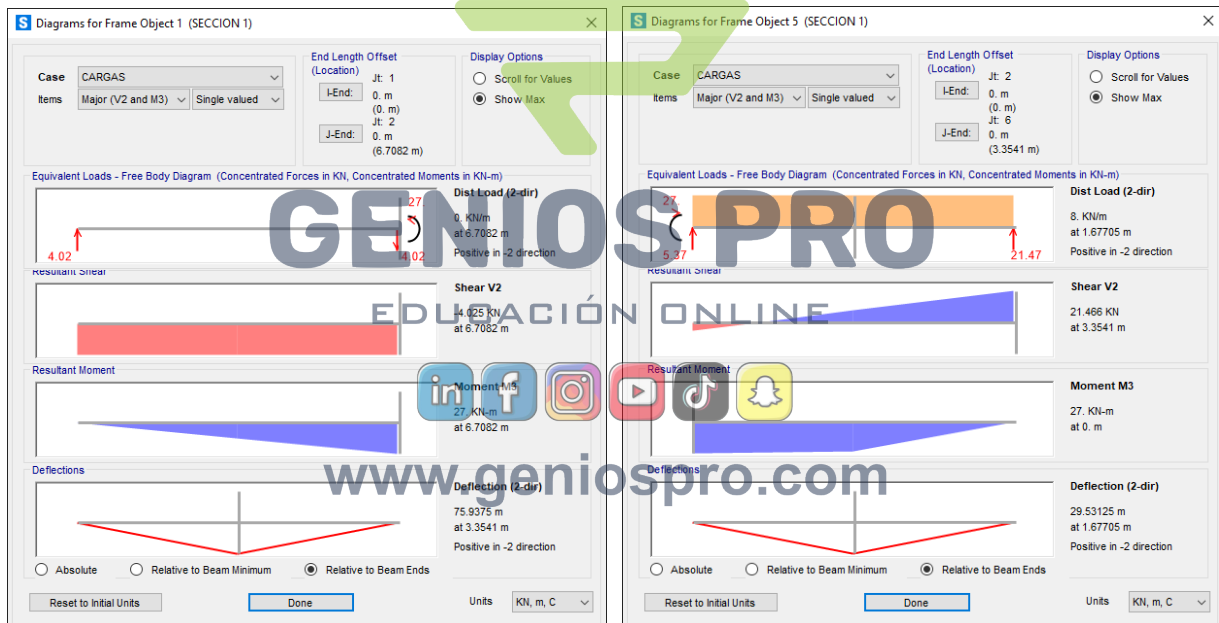
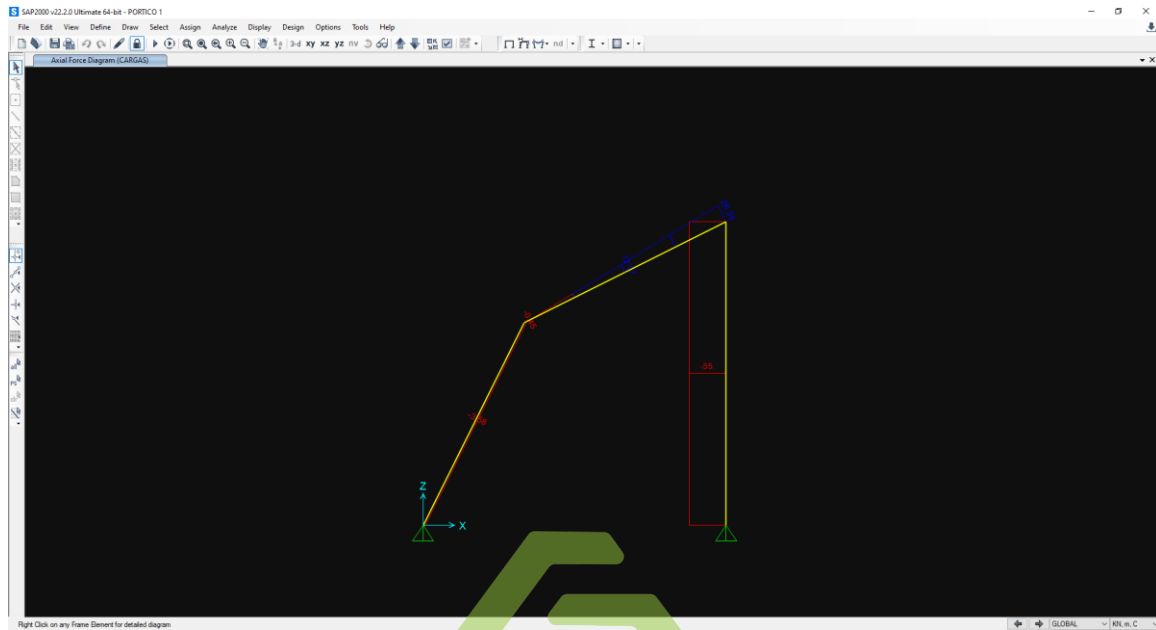
Display Type
☒ Force
☐ Stress

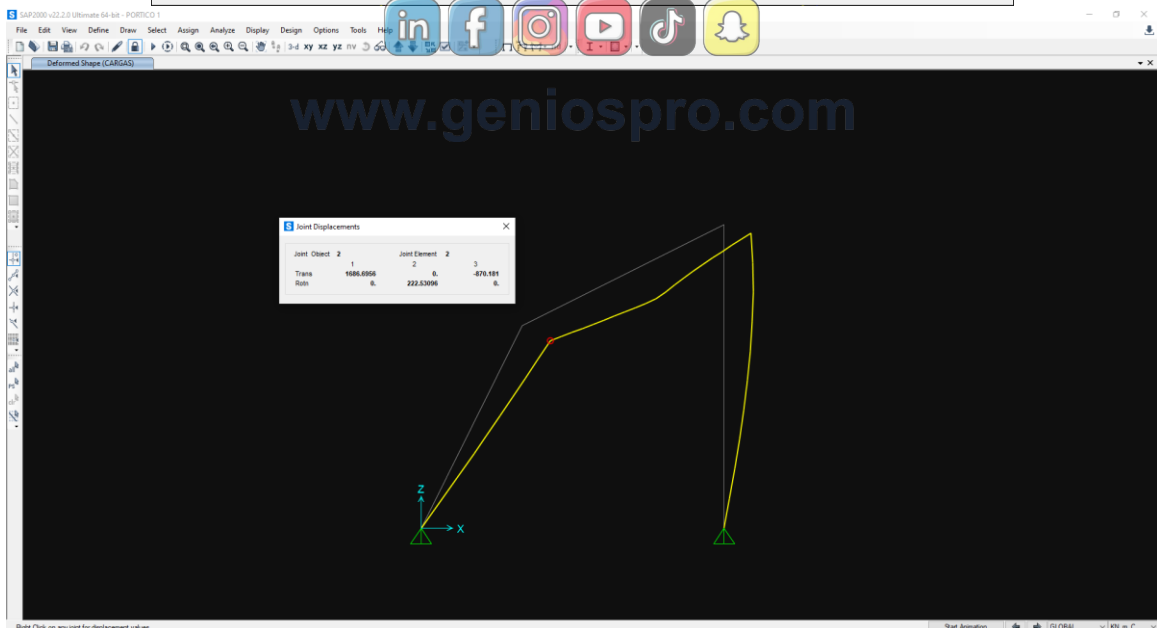
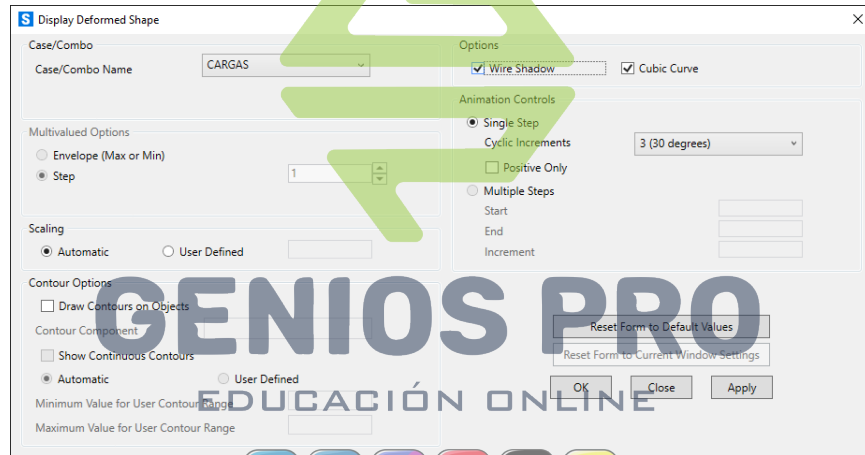
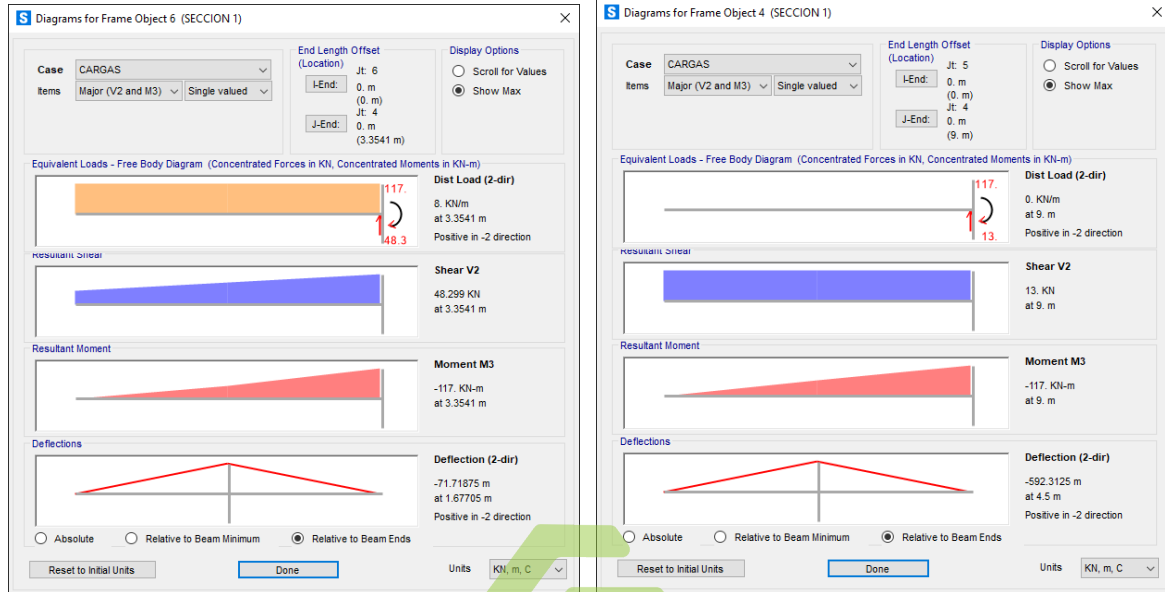
Component
☒ Axial Force
☐ Torsion
☐ Shear 2-2
☐ Moment 2-2
☐ Shear 3-3
☐ Moment 3-3

Scaling for Diagram
☒ Automatic
☐ User Defined

Options for Diagram
☐ Fill Diagram
☒ Show Values

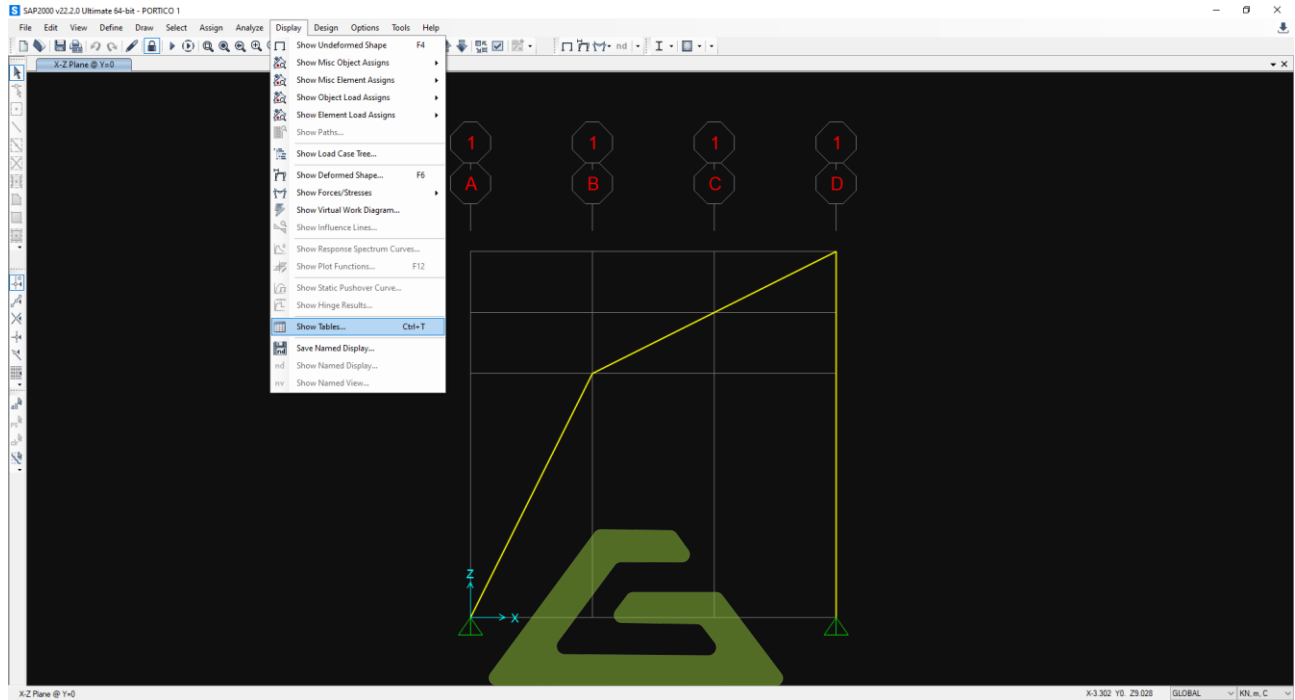
Reset Form to Default Values
Reset Form to Current Window Settings
OK Close Apply

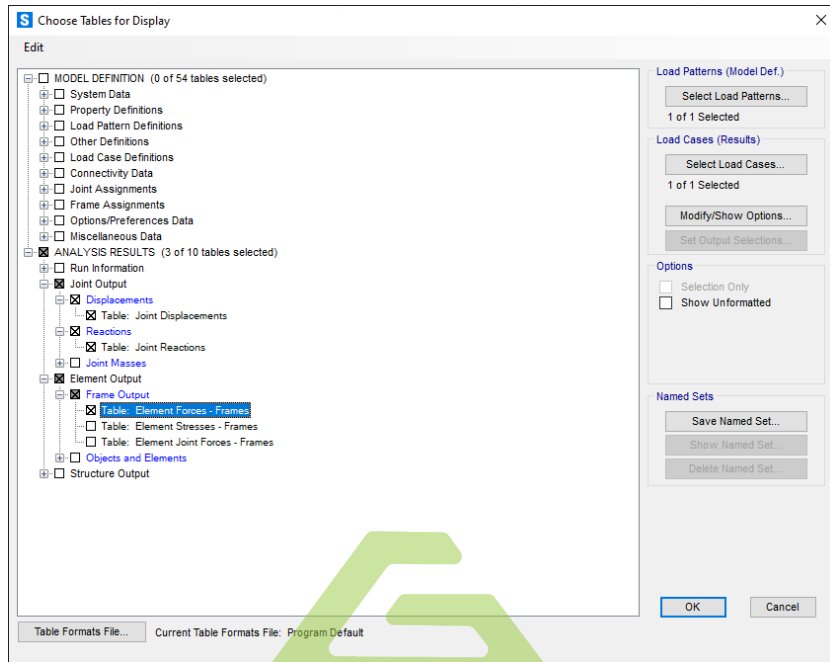






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Frame Text	Station m	OutputCase	CaseType Text	P KN	V2 KN	V3 KN	KN-m	KN-m	KN-m	Text
1	0	CARGAS	LinStatic	-3.578	-4.025	0	0	0	-5.684E-14	1-1
1	3.3541	CARGAS	LinStatic	-3.578	-4.025	0	0	0	13.5	1-1
1	6.7082	CARGAS	LinStatic	-3.578	-4.025	0	0	0	27	1-1
4	0	CARGAS	LinStatic	-55	13	0	0	0	2.842E-14	4-1
4	4.5	CARGAS	LinStatic	-55	13	0	0	0	-58.5	4-1
4	9	CARGAS	LinStatic	-55	13	0	0	0	-117	4-1
5	0	CARGAS	LinStatic	-0.447	-5.367	0	0	0	27	5-1
5	1.67705	CARGAS	LinStatic	6.261	8.05	0	0	0	24.75	5-1
5	3.3541	CARGAS	LinStatic	12.969	21.466	0	0	0	-1.332E-13	5-1
6	0	CARGAS	LinStatic	12.969	21.466	0	0	0	0	6-1
6	1.67705	CARGAS	LinStatic	19.677	34.883	0	0	0	-47.25	6-1
6	3.3541	CARGAS	LinStatic	26.386	48.299	0	0	0	-117	6-1

Frame Text	Station m	OutputCase	CaseType Text	P KN	V2 KN	V3 KN	T KN-m	M2 KN-m	M3 KN-m	FrameElem Text	ElemStation
1	0	CARGAS	LinStatic	-3.578	-4.025	0	0	0	-5.684E-14	1-1	0
1	3.3541	CARGAS	LinStatic	-3.578	-4.025	0	0	0	13.5	1-1	3.3541
1	6.7082	CARGAS	LinStatic	-3.578	-4.025	0	0	0	27	1-1	6.7082
4	0	CARGAS	LinStatic	-55	13	0	0	0	2.842E-14	4-1	0
4	4.5	CARGAS	LinStatic	-55	13	0	0	0	-58.5	4-1	4.5
4	9	CARGAS	LinStatic	-55	13	0	0	0	-117	4-1	9
5	0	CARGAS	LinStatic	-0.447	-5.367	0	0	0	27	5-1	0
5	1.67705	CARGAS	LinStatic	6.261	8.05	0	0	0	24.75	5-1	1.67705
5	3.3541	CARGAS	LinStatic	12.969	21.466	0	0	0	-1.332E-13	5-1	3.3541
6	0	CARGAS	LinStatic	12.969	21.466	0	0	0	0	6-1	0
6	1.67705	CARGAS	LinStatic	19.677	34.883	0	0	0	-47.25	6-1	1.67705
6	3.3541	CARGAS	LinStatic	26.386	48.299	0	0	0	-117	6-1	3.3541



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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	313.091711	0
	2	CARGAS	LinStatic	1686.695635	0	-870.180633	0	222.530958	0
	4	CARGAS	LinStatic	1596.374275	0	-495	0	-173.625081	0
	5	CARGAS	LinStatic	0	0	0	0	352.874919	0
	6	CARGAS	LinStatic	1975.127843	0	-1400.08762	0	0	0

Record: << < 1 > >> of 5

Add Tables... Done

S 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	-2	0	5	0	0	0
	5	CARGAS	LinStatic	-13	0	55	0	0	0

Record: << < 1 > >> of 2

Add Tables... Done

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