II Foro de Tecnología para la Consultoría de Ingeniería de FEPAC

MODELADO PARAMÉTRICO Y CÁLCULO DE PUENTES CON ALLPLAN BRIDGE

Francisco Javier Padilla Peinado
Key Account Manager - Allplan Systems España S.A.
Teléfono: +34 660 23 03 07
E-mail: jpadilla@allplan.com

AGENDA

1. GRUPO NEMETSCHEK
2. SOLUCIONES ALLPLAN
3. FLUJO DE TRABAJO CON ALLPLAN BRIDGE
4. MODELADO PARAMÉTRICO
5. CÁLCULO DE PUENTES

Λ

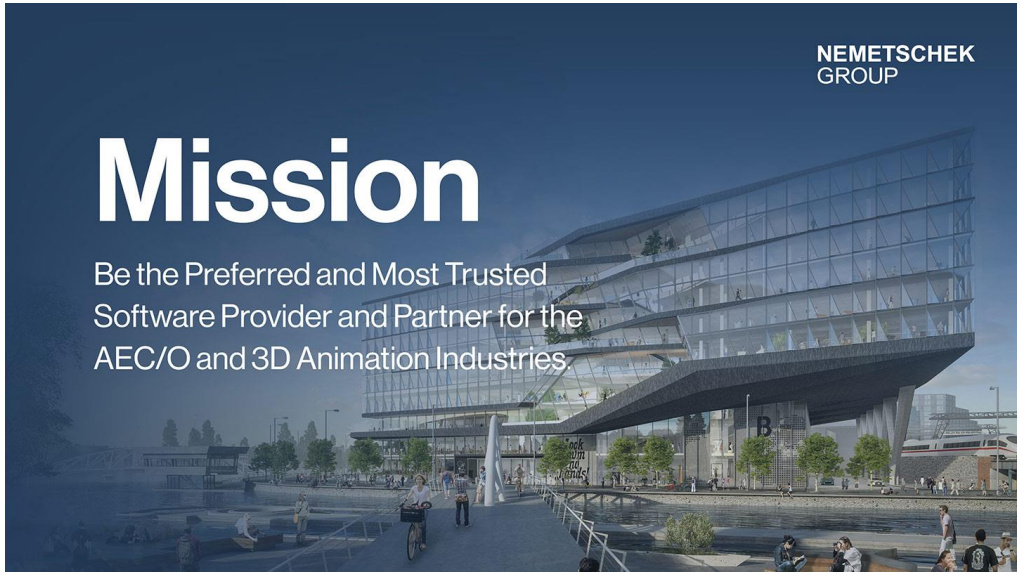
1. GRUPO NEMETSCHEK

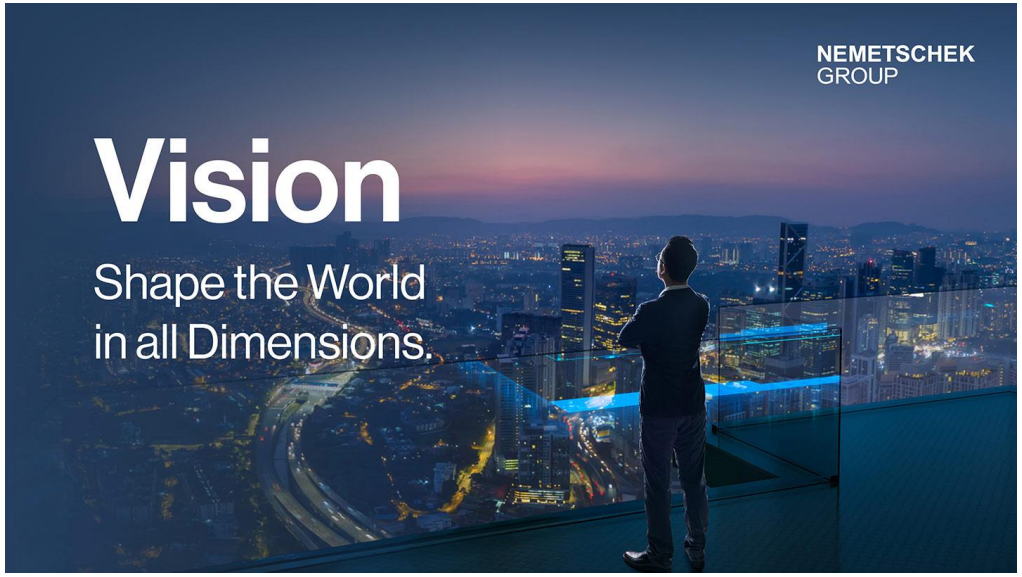
ALLPLAN ES PARTE DEL GRUPO NEMETSCHEK

\ CIFRAS

Tanto las marcas del grupo Nemetschek como sus soluciones están estableciendo nuevos estándares para el sector AEC.

- Más de 60 años de innovación
- Pionero y proveedor de 5D
- 13 marcas consolidadas
- 4 millones de usuarios en todo el mundo
- IPO 1999, cotiza en el TecDax
- €802 milliones ventas (2022)
- Más de 3.400 empleados
- 18% crecimiento ventas (2021)
- €5.508 millones capital mercado



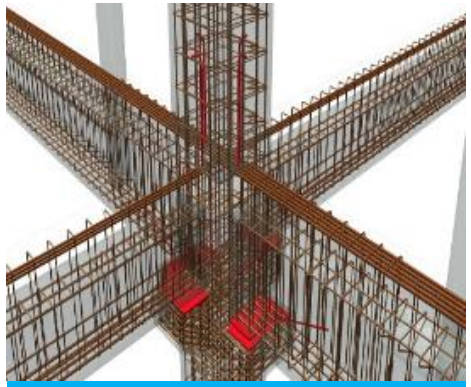


2. SOLUCIONES ALLPLAN

SOLUCIONES ALLPLAN

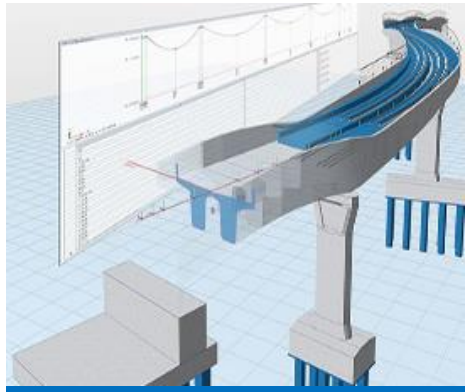
ARQUITECTURA

Solución para arquitectos desde el diseño conceptual hasta el diseño muy detallado



INGENIERIA

Diseño y detalles de estructuras con multiples materiales (hormigón, acero, madera, mixtas)



INFRAESTRUCTURAS

Modelado, cálculo, diseño y detalles de puentes, modelado y trazado de carreteras, modelado de estructuras de ingeniería civil

PREFABRICADO

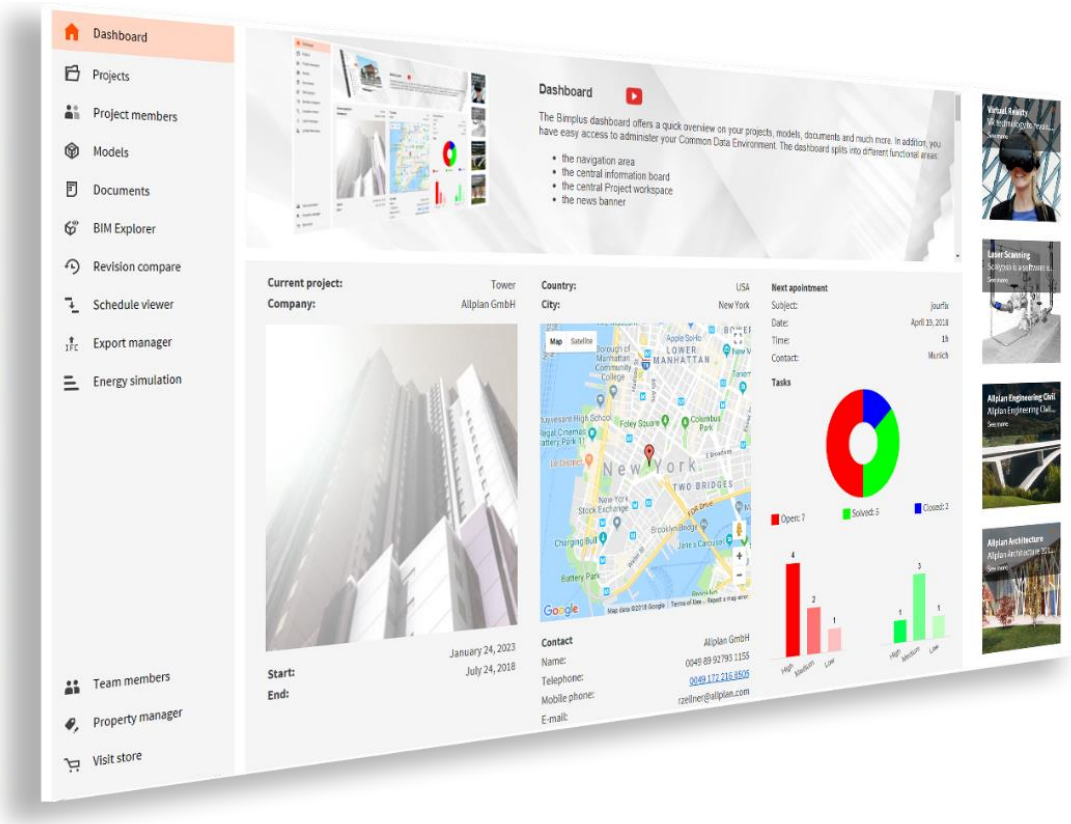
Herramienta para el modelado, detalles y fabricación de elementos prefabricados de hormigón

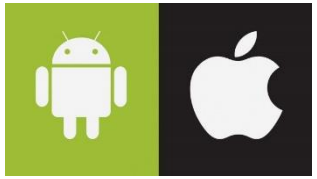
CONSTRUCCIÓN

Solución para preparación y organización de obra

ALLPLAN – Solución para todo el sector AEC

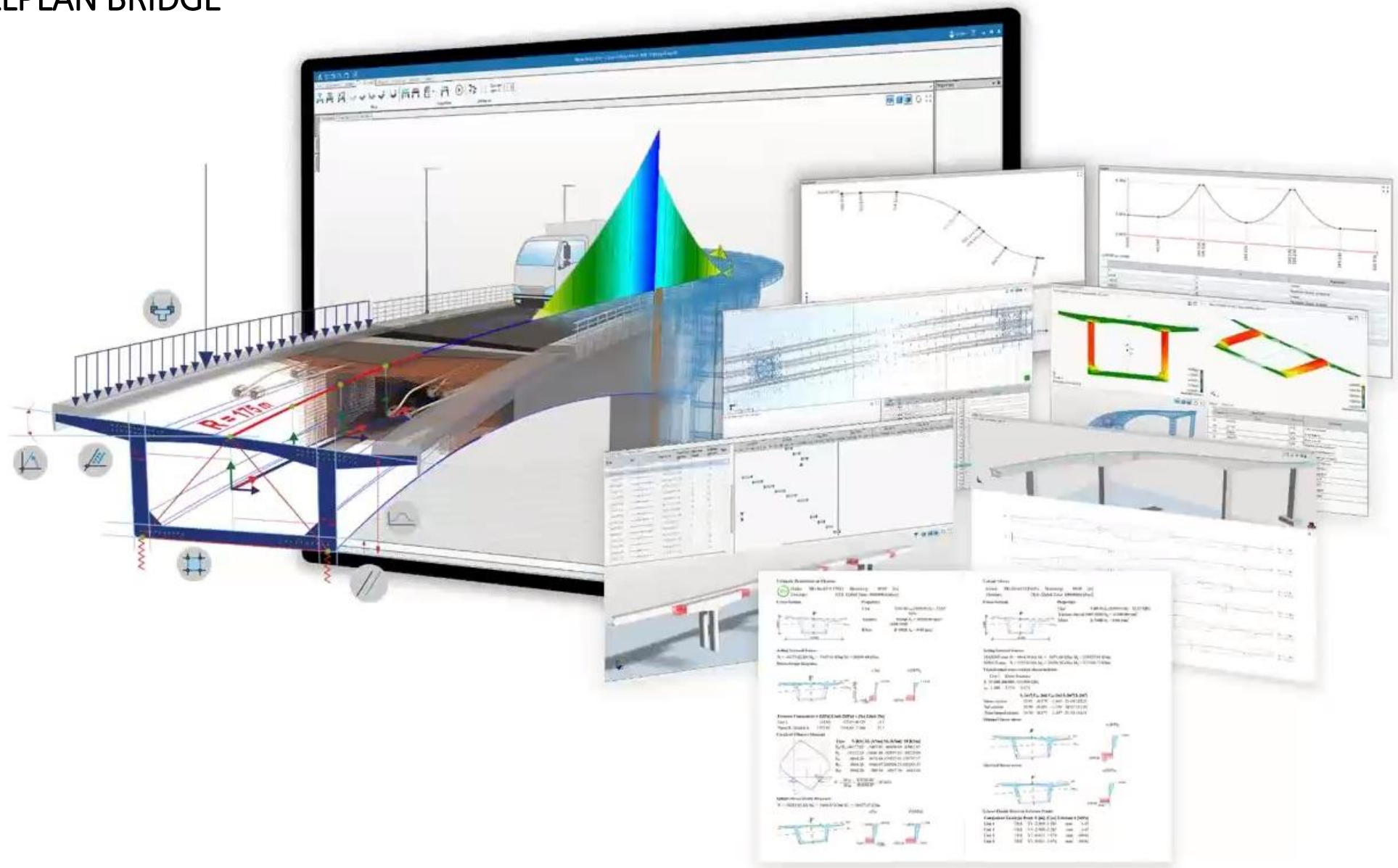
BIMPLUS – OPEN BIM



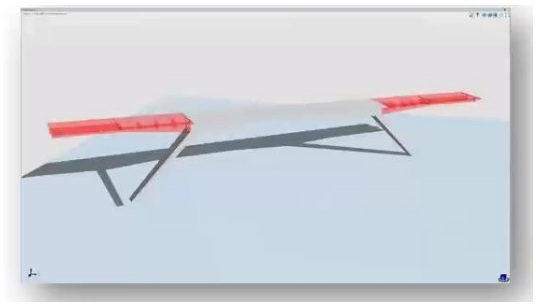


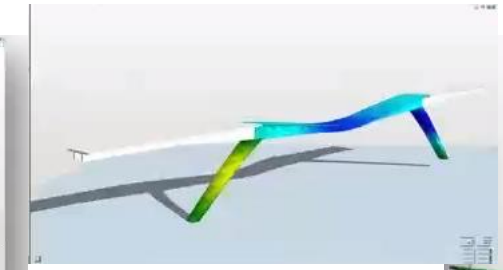
3. FLUJO DE TRABAJO CON ALLPLAN BRIDGE

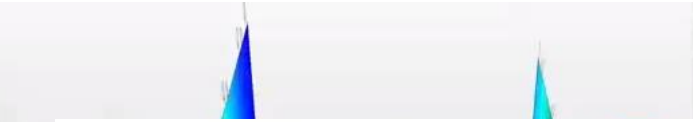
\ ALLPLAN BRIDGE

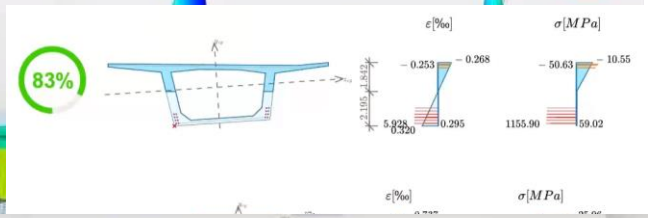


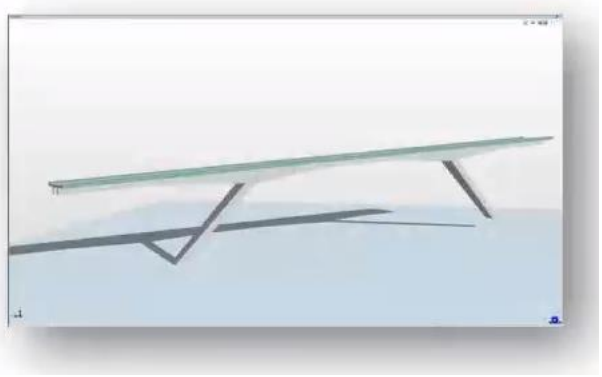
\ MODELADO, ANÁLISIS Y PLANOS (DETALLES) EN UNA SOLA SOLUCIÓN BIM











Road, Rail,
Bridge Engineering
Models

Bridge
Analysis & Design

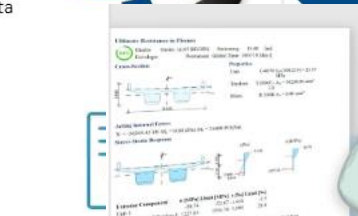
Geotechnical Data

Detailing

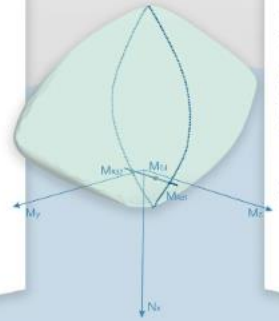
GIS and Map Data

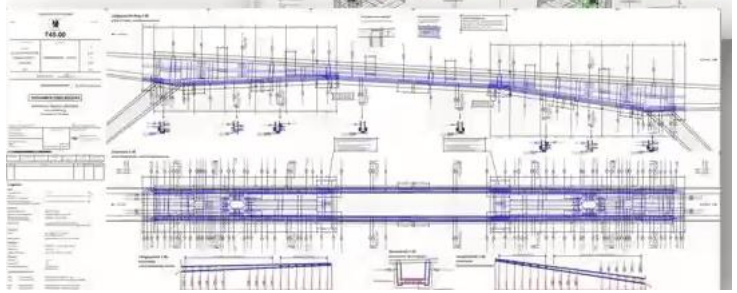
Survey Data

er Drawings



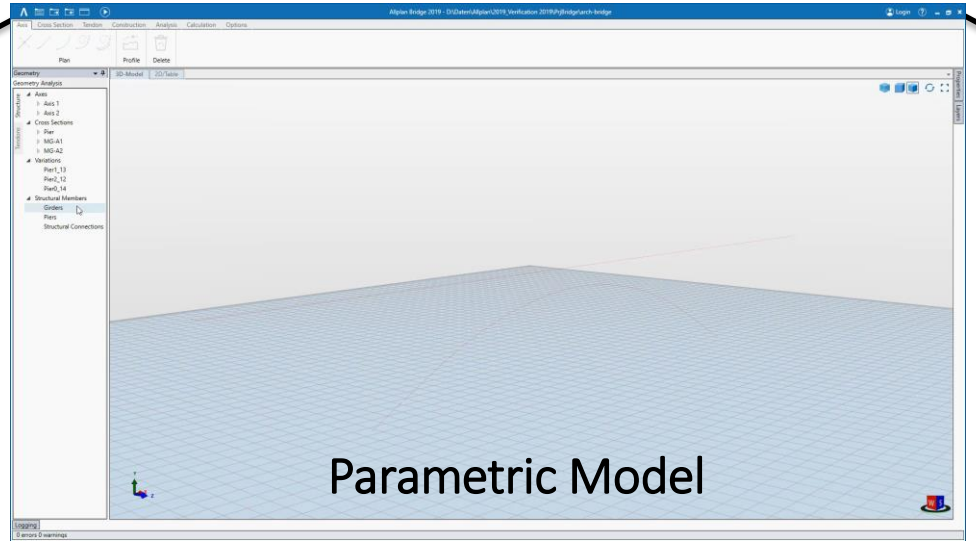
Inspect



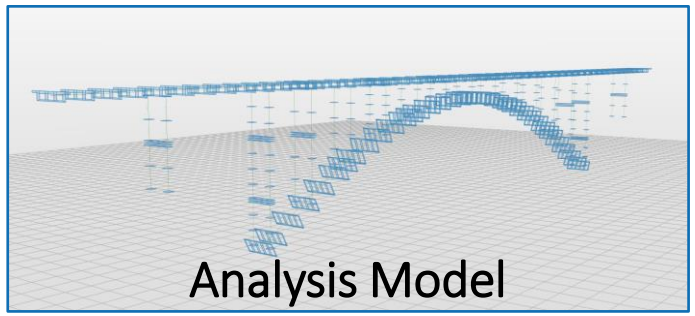


ALLPLAN BRIDGE UN SOLO MODELO

ALLPLAN BRIDGE

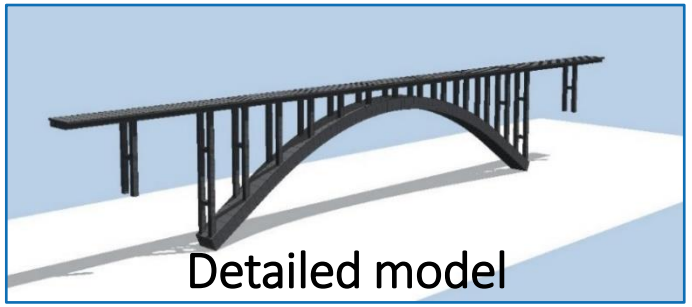


ALLPLAN BRIDGE



Structural Analysis

ALLPLAN ENGINEERING



Detailing, Drafting, Deliverables[2D]

COMMON MODEL

ALLPLAN BIMPLUS

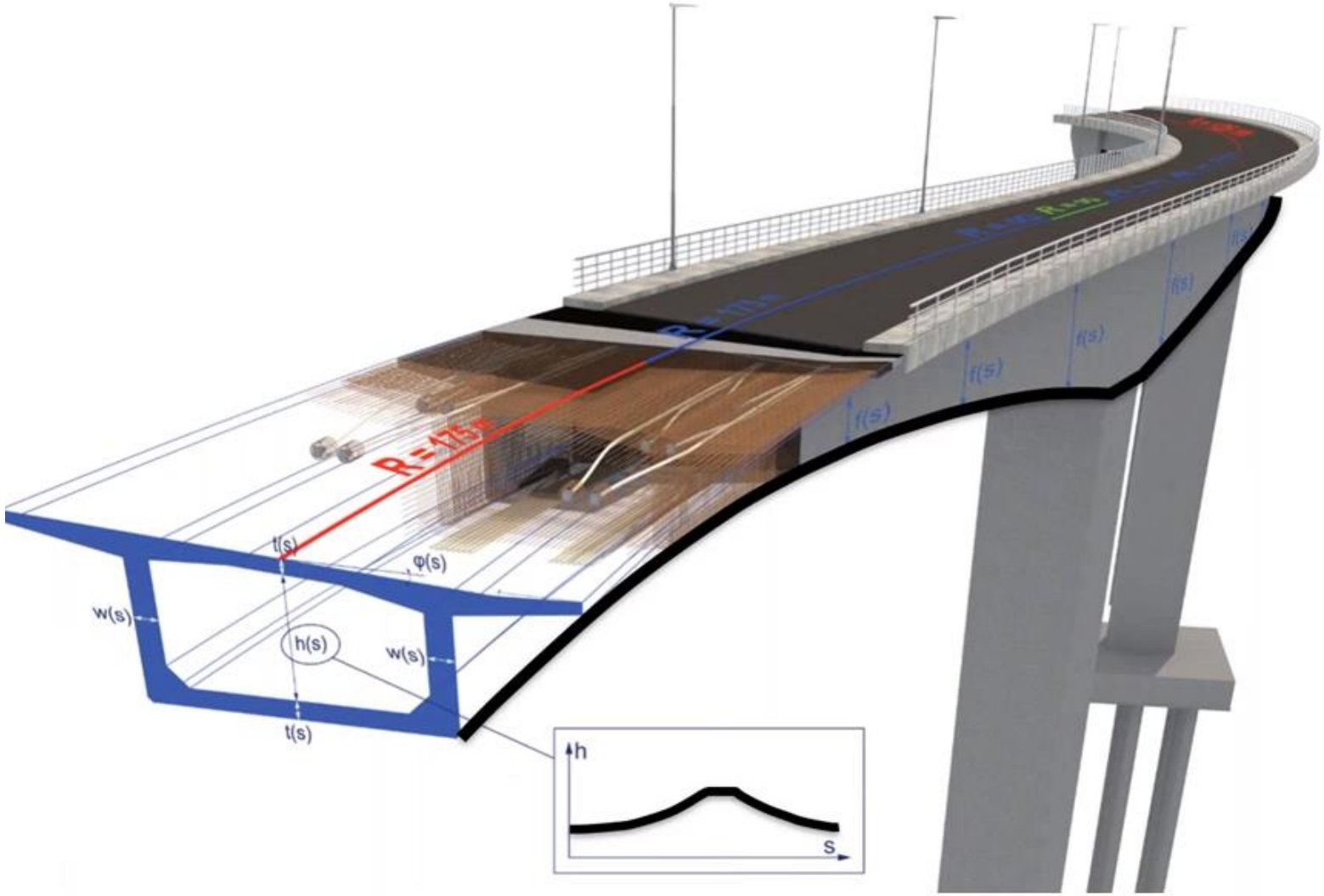
Λ

4. MODELADO PARAMÉTRICO

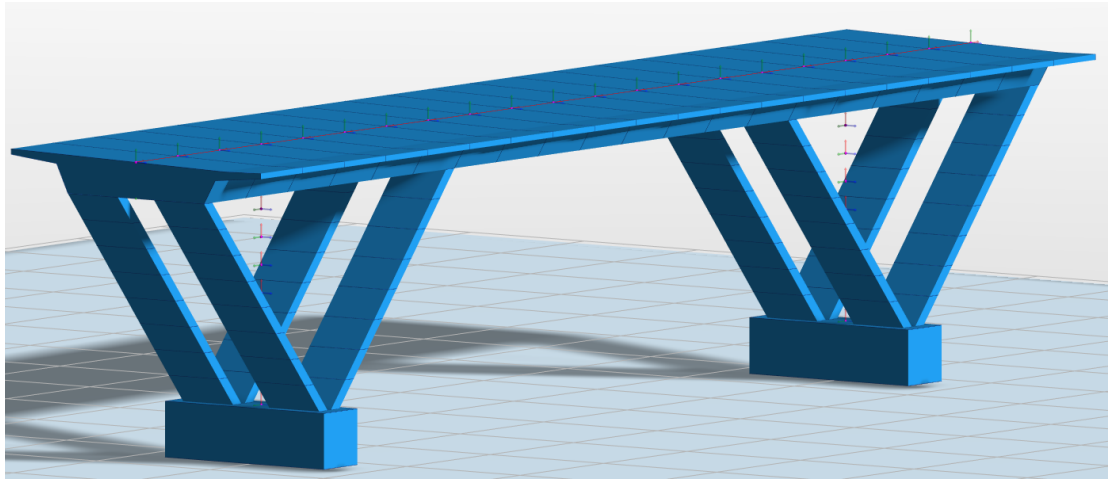
\ ALLPLAN BRIDGE MODELER

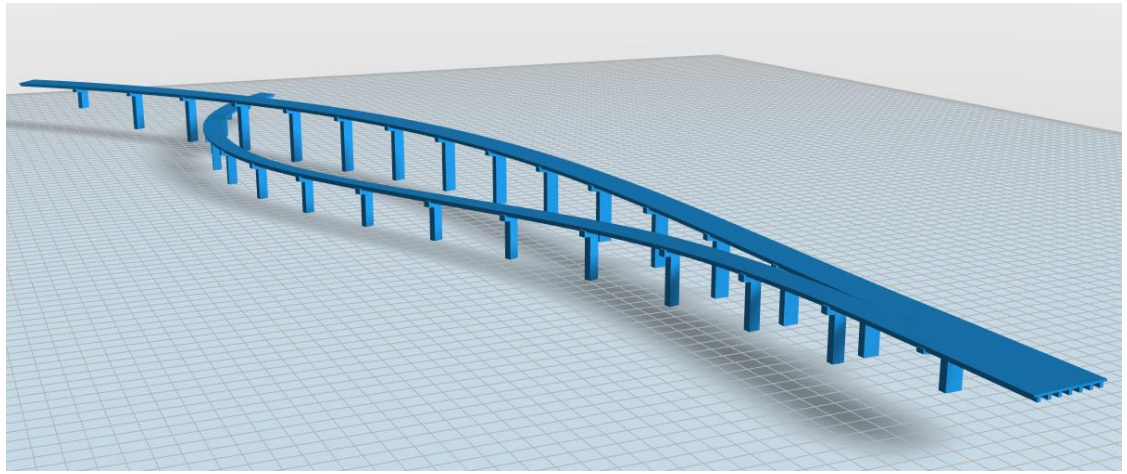
- Modificaciones posibles en cualquier momento, incluso con el modelo geométrico acabado

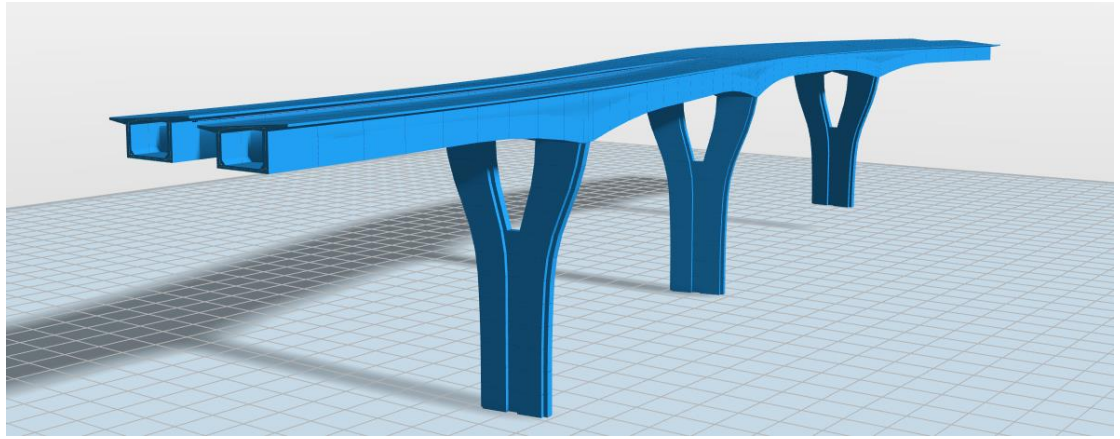
- Elementos paramétricos:
  - **EJES**
  - **SECCIONES TRANSVERSALES**
  - **VARIACIONES**

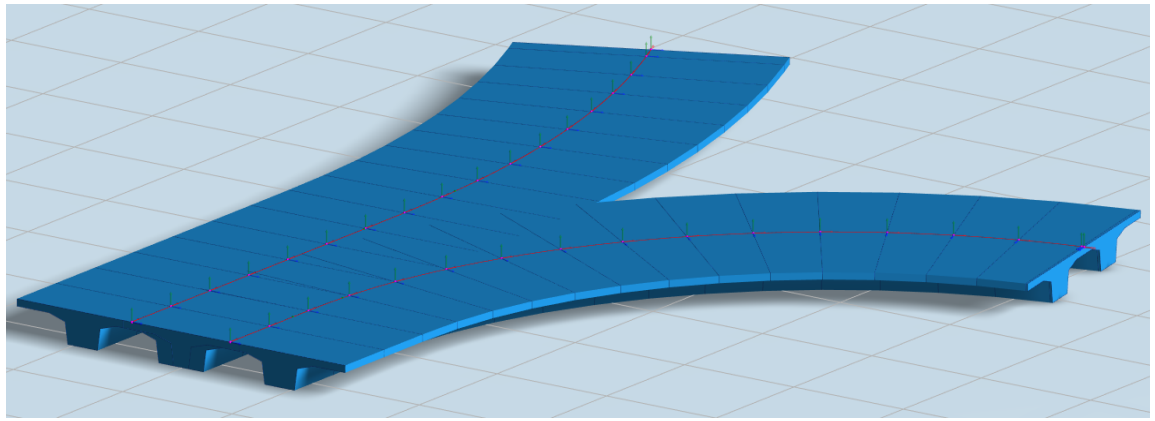


CUALQUIER TIPOLOGÍA Y FORMA

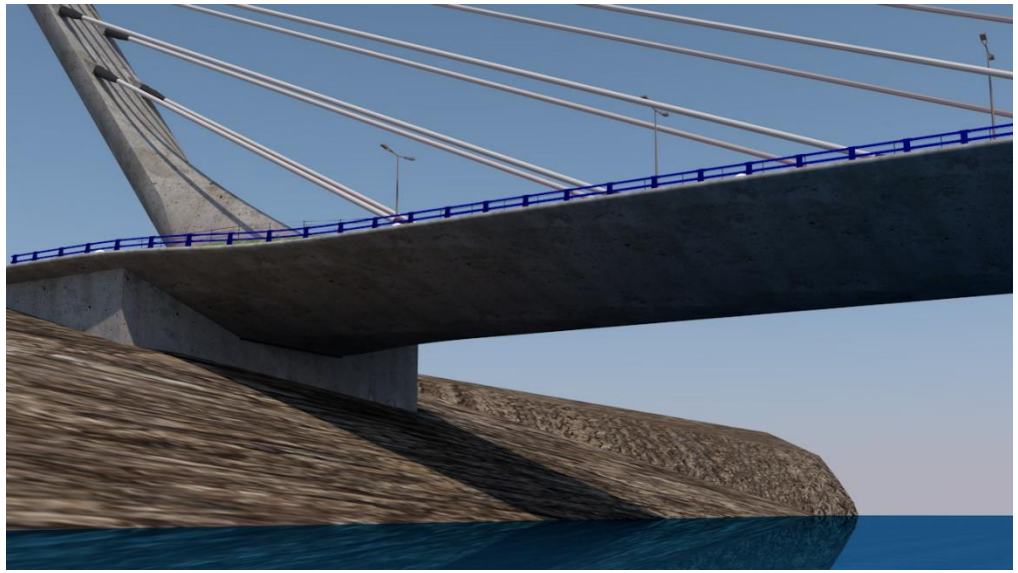






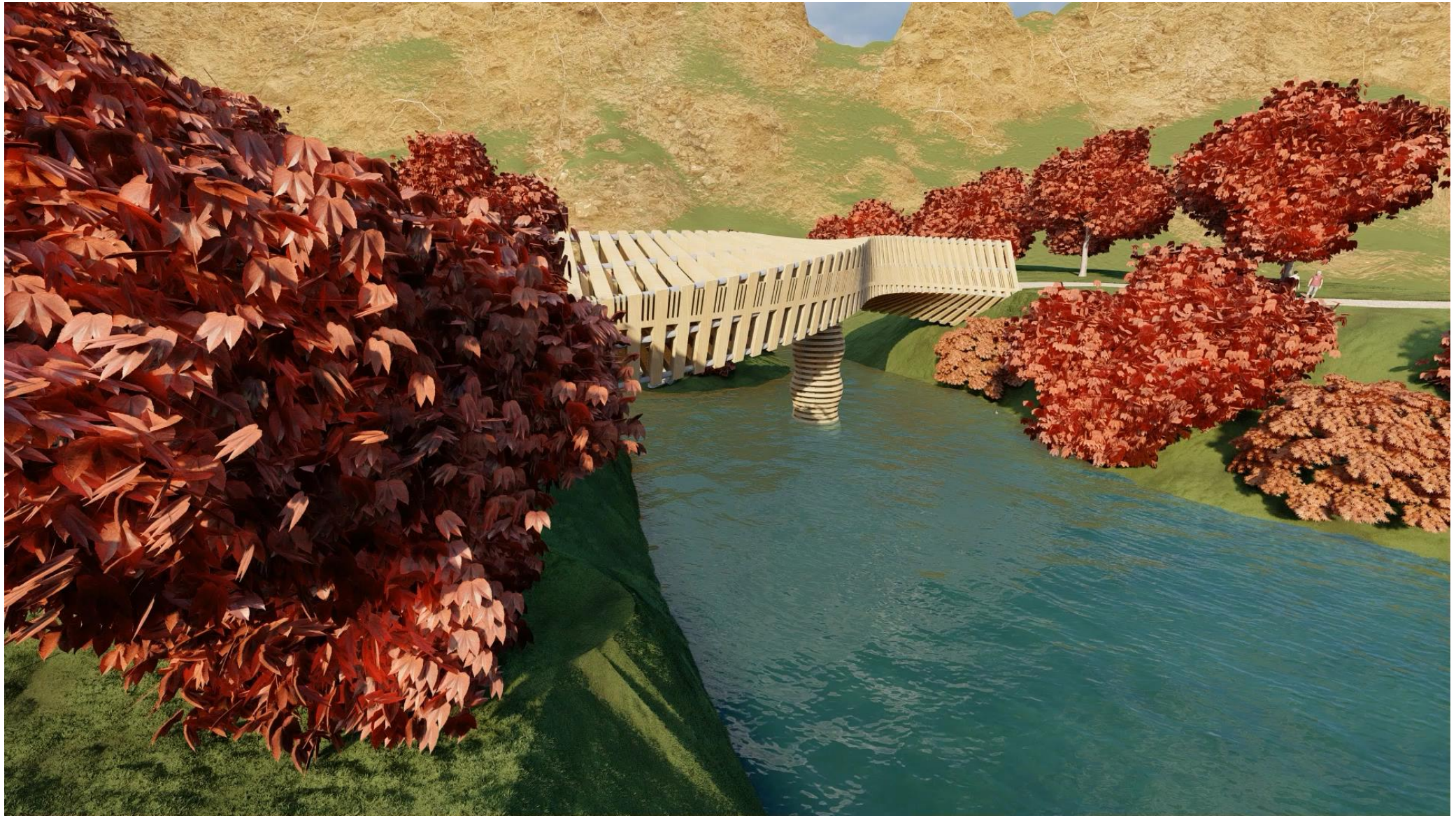


\ ALLPLAN BRIDGE



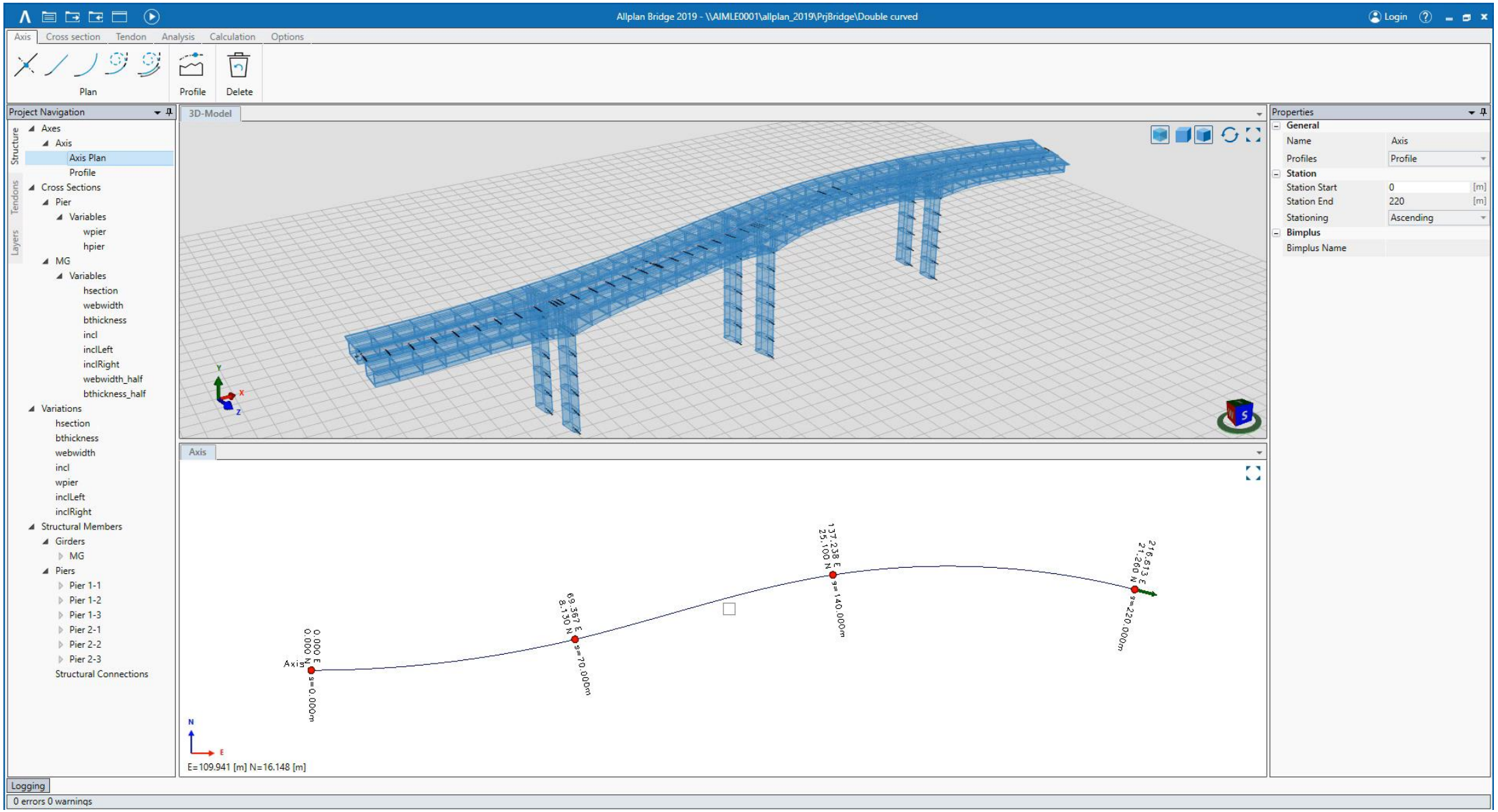
\ BRIDGE: MODELADO DE ALTA CALIDAD

\ BRIDGE: MODELADO DE ALTA CALIDAD



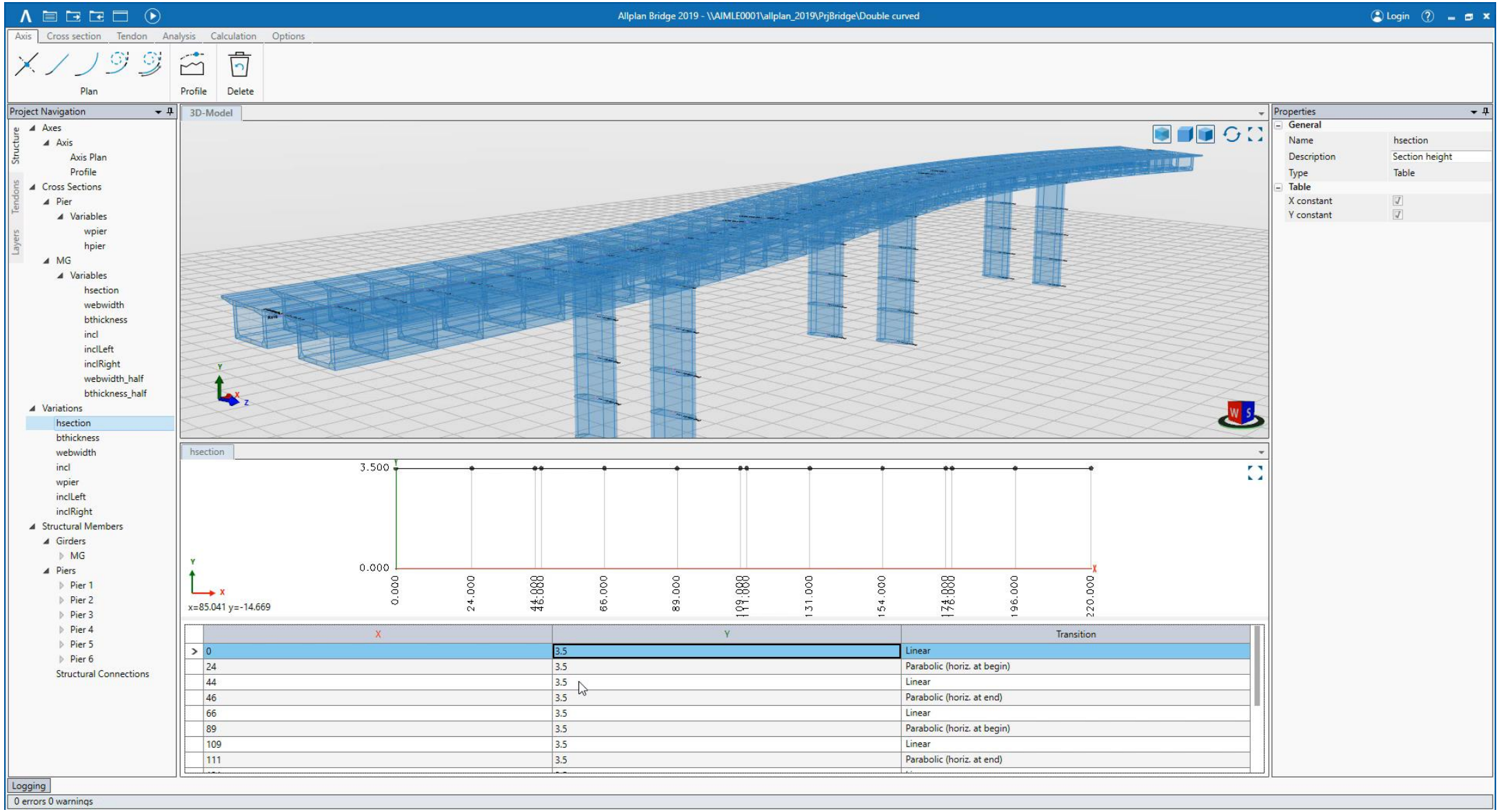
ALLPLAN BRIDGE MODELER

FÁCIL MANEJO DE CAMBIOS - EJES

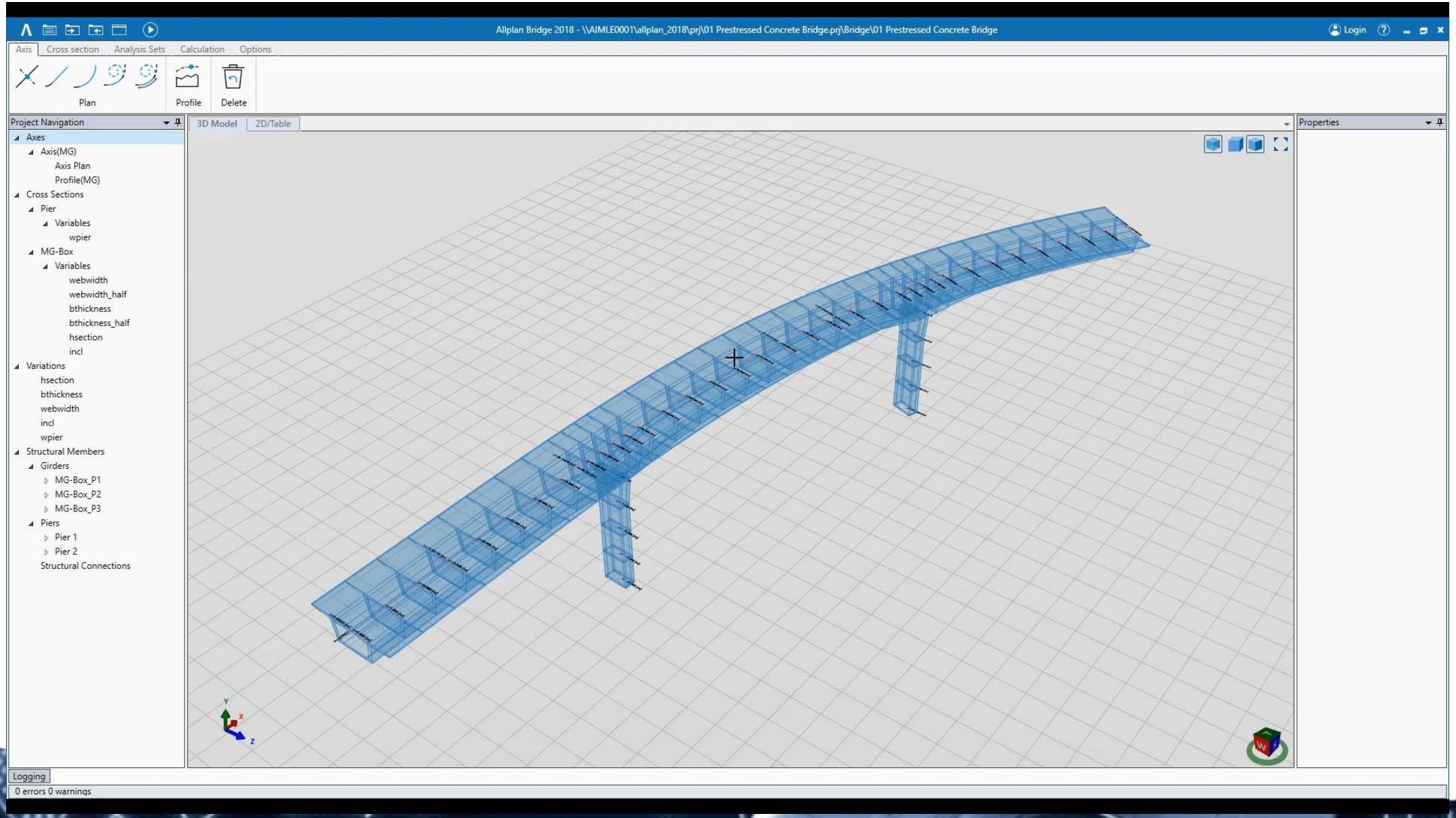


ALLPLAN BRIDGE MODELER

FÁCIL MANEJO DE CAMBIOS EN GEOMETRÍA



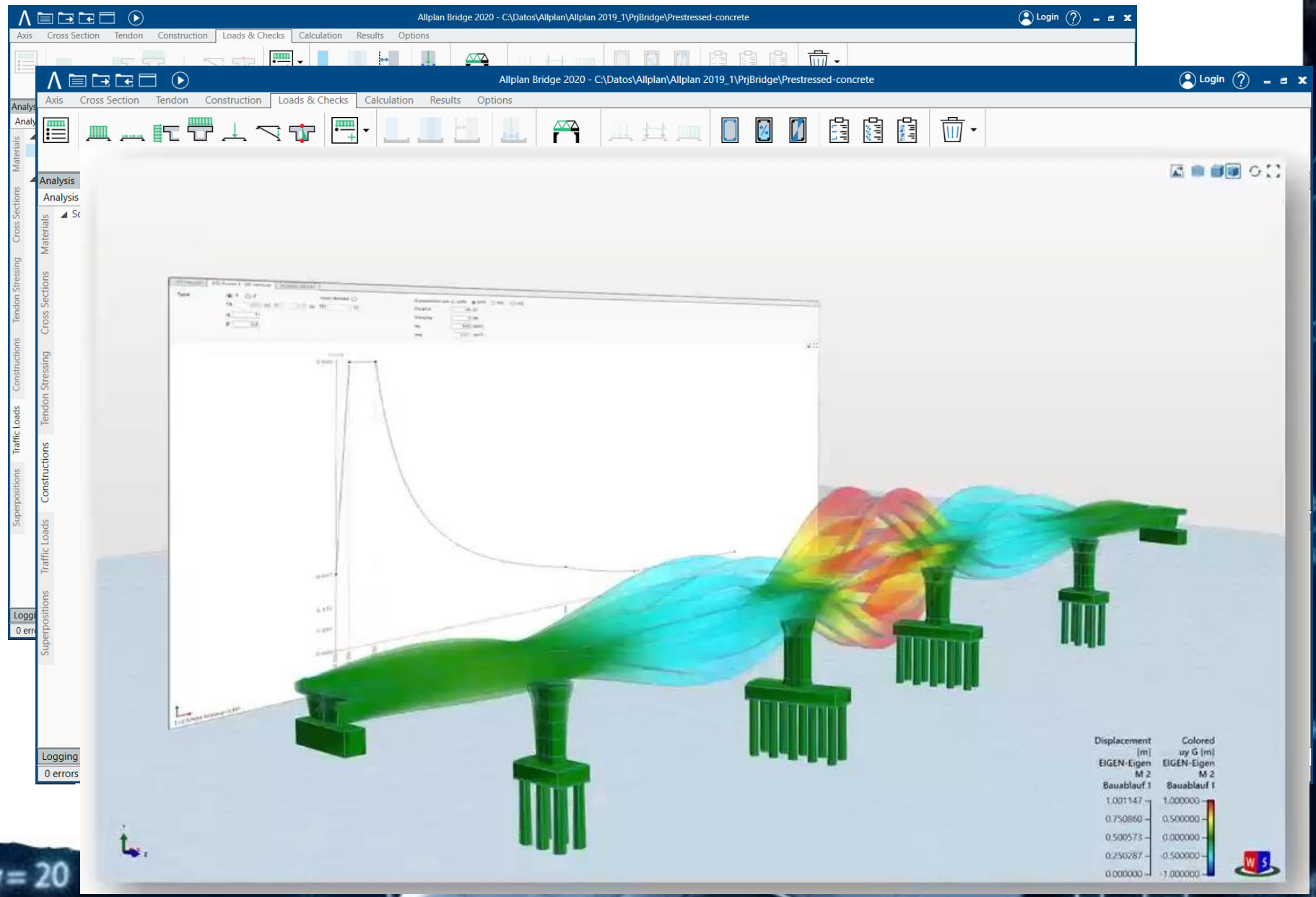
DISEÑO DE ARMADURAS



5. CÁLCULO DE PUENTES

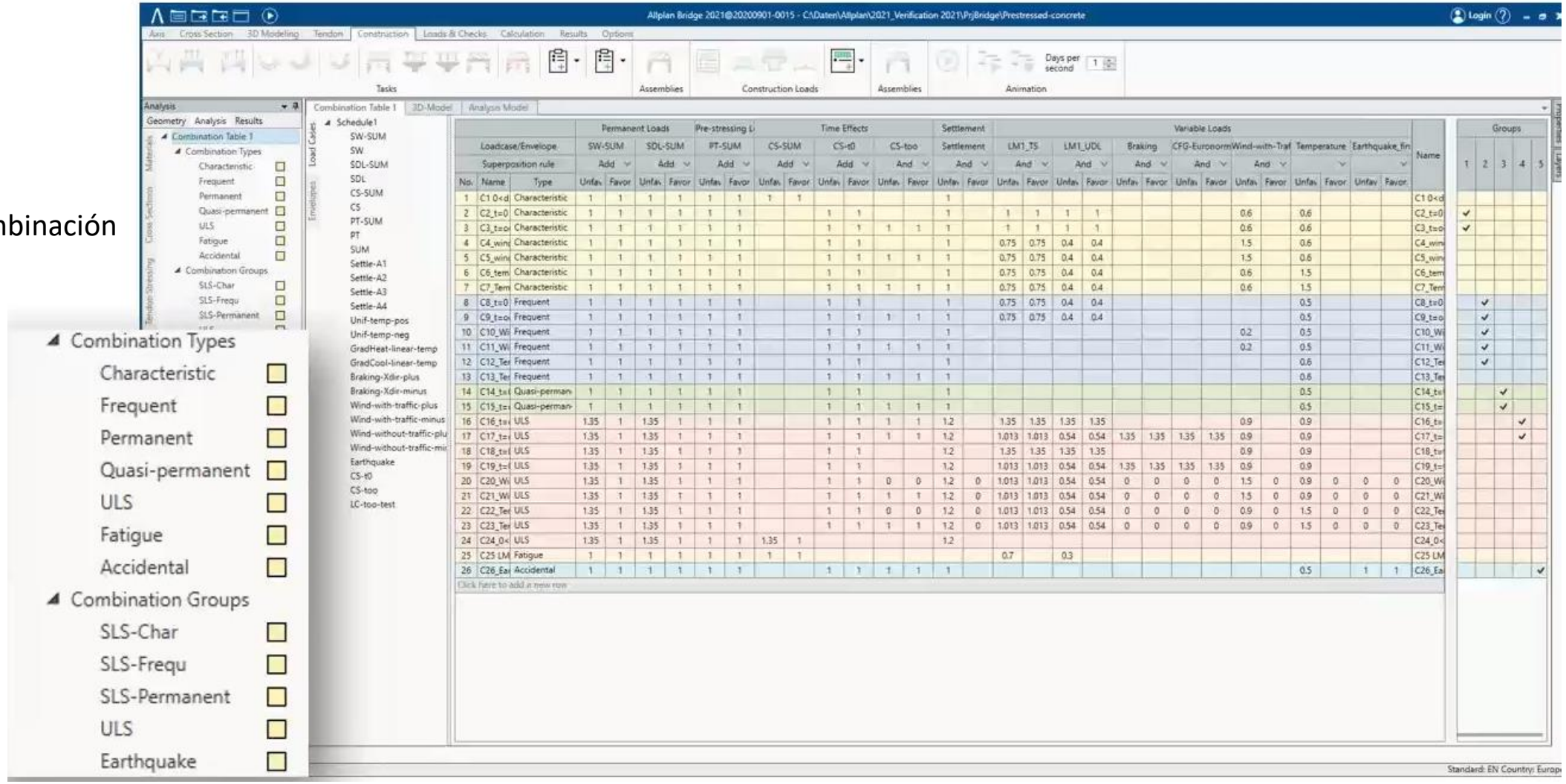
\ DEFINICIÓN DE CARGAS

- **TRÁFICO**
- **TEMPERATURA**
- **ASIENTOS DIFERENCIALES**
- **ACCELERACION / FRENADO**
- **VIENTO**
- **CARGAS PUNTUALES NUDOS**
- **CARGAS DISTRIBUIDAS**
- **SÍSMICAS**

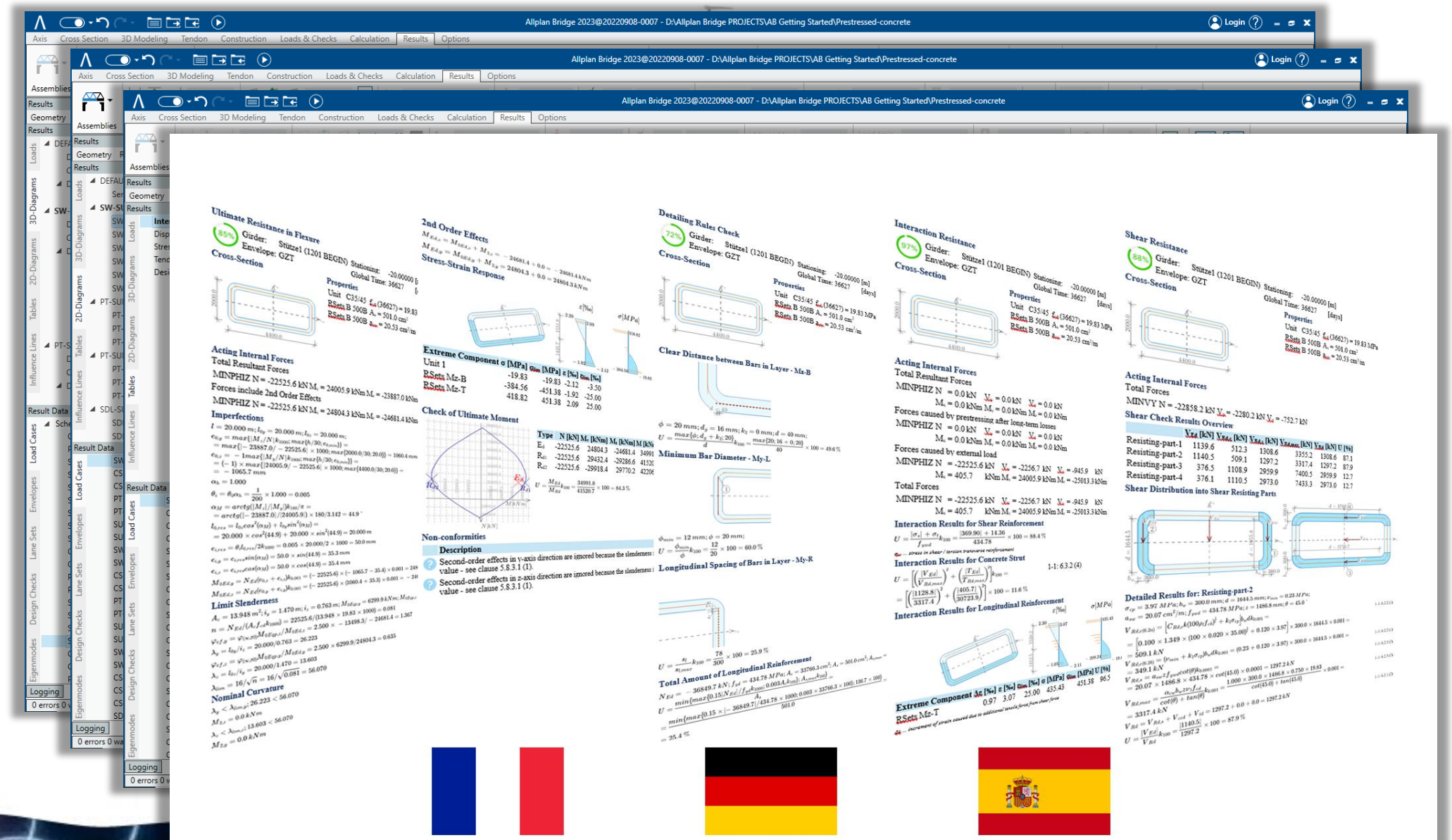


\ HIPÓTESIS Y COMBINACIONES

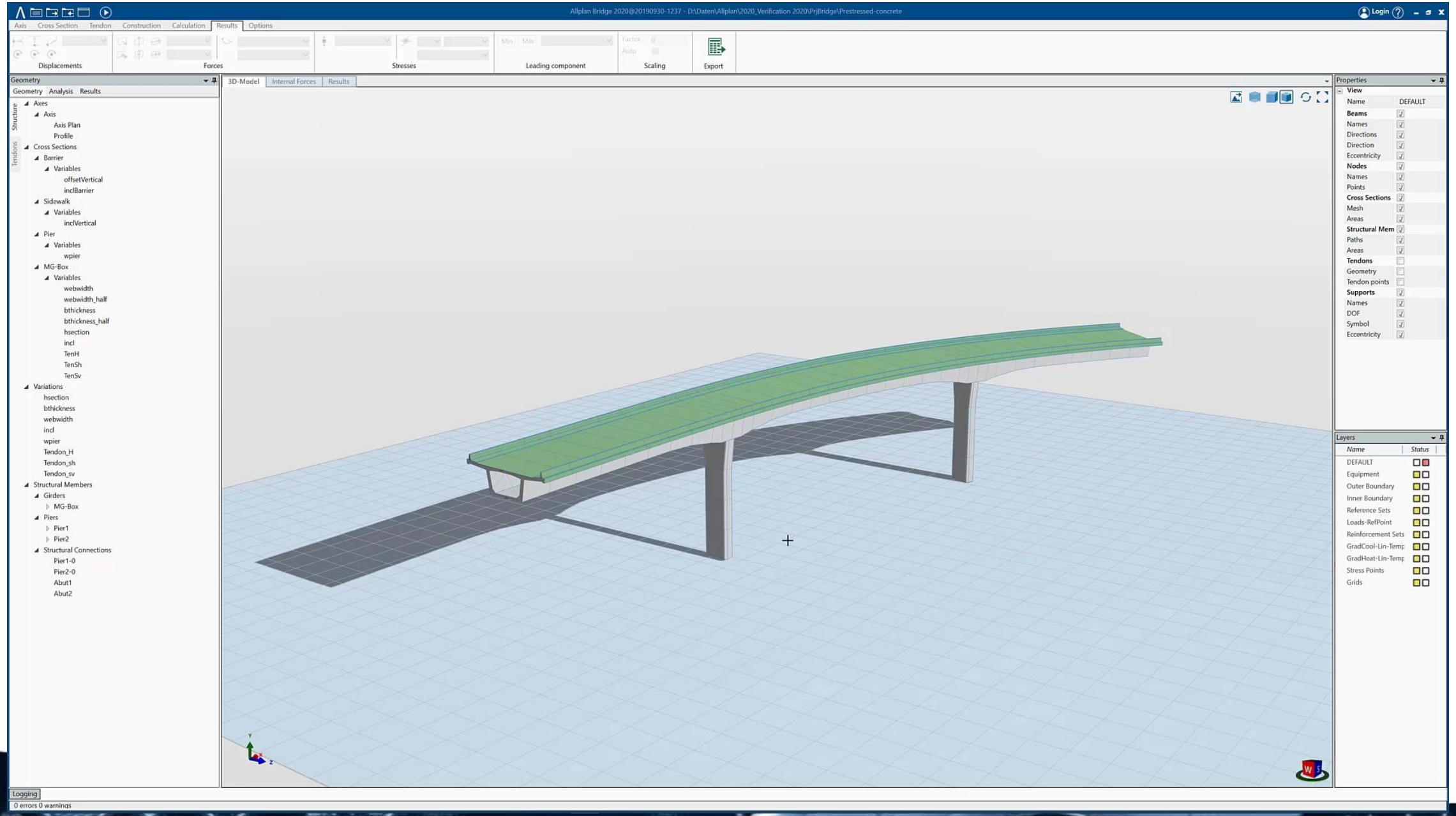
- ✓ Grupos
- ✓ Tipos de combinación
- ✓ Filtros



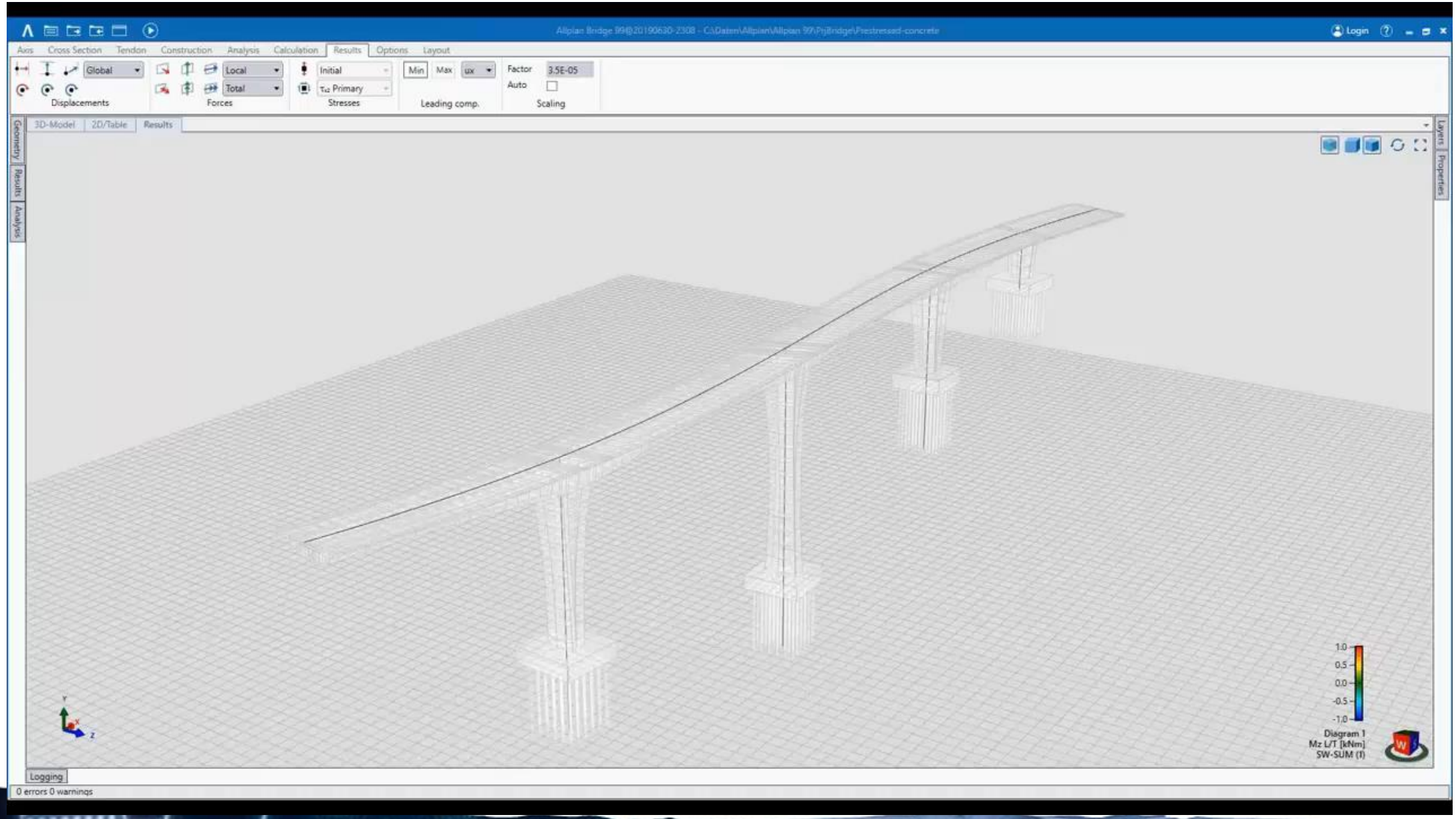
\ RESULTADOS E INFORMES



\ RESULTADOS


Allplan Bridge 2020@20190930-1237 - D:\Daten\Allplan\2020_Verification 2020\PrjBridge\Prestressed-concrete
Login
Axis
Cross Section
Tendon
Construction
Calculation
Results
Options
Displacements
Forces
Stresses
Leading component
Scaling
Export
Geometry
Geometry
Analysis
Results
Structure
Tendons
Axes
Axis
Axis Plan
Profile
Cross Sections
Barrier
Variables
offsetVertical
inclBarrier
Sidewalk
Variables
inclVertical
Pier
Variables
wpier
MG-Box
Variables
webwidth
webwidth_half
bthickness
bthickness_half
hsection
incl
TenH
TenSh
TenSv
Variations
hsection
bthickness
webwidth
incl
wpier
Tendon_H
Tendon_sh
Tendon_sv
Structural Members
Girders
MG-Box
Piers
Pier1
Pier2
Structural Connections
Pier1-0
Pier2-0
Abut1
Abut2
3D-Model
Internal Forces
Results
Properties
View
Name
DEFAULT
Beams
Names
Directions
Direction
Eccentricity
Nodes
Names
Points
Cross Sections
Mesh
Areas
Structural Mem
Paths
Areas
Tendons
Geometry
Tendon points
Supports
Names
DOF
Symbol
Eccentricity
Layers
Name
Status
DEFAULT
Equipment
Outer Boundary
Inner Boundary
Reference Sets
Loads-RefPoint
Reinforcement Sets
GradCool-Lin-Temp
GradHeat-Lin-Temp
Stress Points
Grids
Logging
0 errors 0 warnings

\ MODELO ANALÍTICO



ALLPLAN SYSTEMS ESPAÑA S.A.

JAVIER PADILLA, Civil Engineer
KAM - ALLPLAN ESPAÑA

Phone: +34 660 23 03 07
E-Mail: jpadilla@allplan.com