Structural Analysis

CLIENT

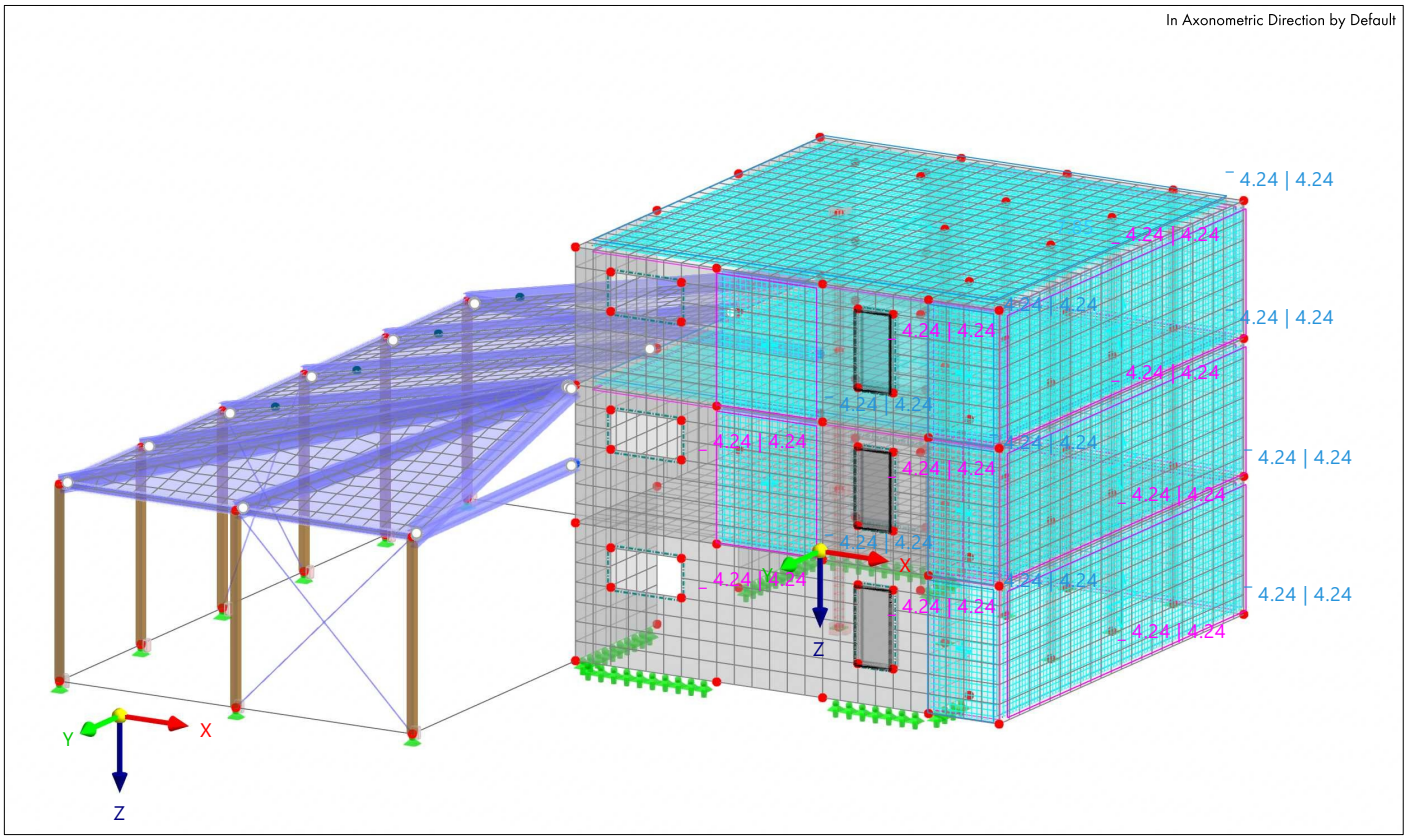
CREATED BY

PROJECT

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MODEL



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A MODEL - BASE DATA

Main

Model name	:	Short PR.rf6
Model description	:	
Type of model	:	3D

Add-ons

- Concrete Design
- Steel Design
- Timber Design
- Glass Design

Standards I

Load case classification & combination wizard	:	EN 1990 | Base + Timber CEN | 2010-04
Load Wizard	:	EN 1991 CEN | 2015-09
Standard group for concrete design	:	EN 1992 CEN | 2014-11
Standard group for steel design	:	EN 1993 CEN | 2020-12
Standard group for steel design (cold-formed)	:	EN 1993 CEN | 2020-12
Standard group for timber design	:	EN 1995 CEN | 2014-05
Standard group for glass design	:	-- --

Standards II

Standard group for tower design	:	Dummy Standard Group Tower Design Edition for group Dummy Standard Group Tower Design
Standard group for piping design	:	Dummy Standard Group Piping Design Edition for group Dummy Standard Group Piping Design

Settings & Options

Acceleration of gravity / mass conversion constant	g	:	10.00 m/s²
Date of day zero in time diagram		:	01.01.2016
Global axes XYZ		:	Z downward
Local axes xyz		:	z downward

Tolerances

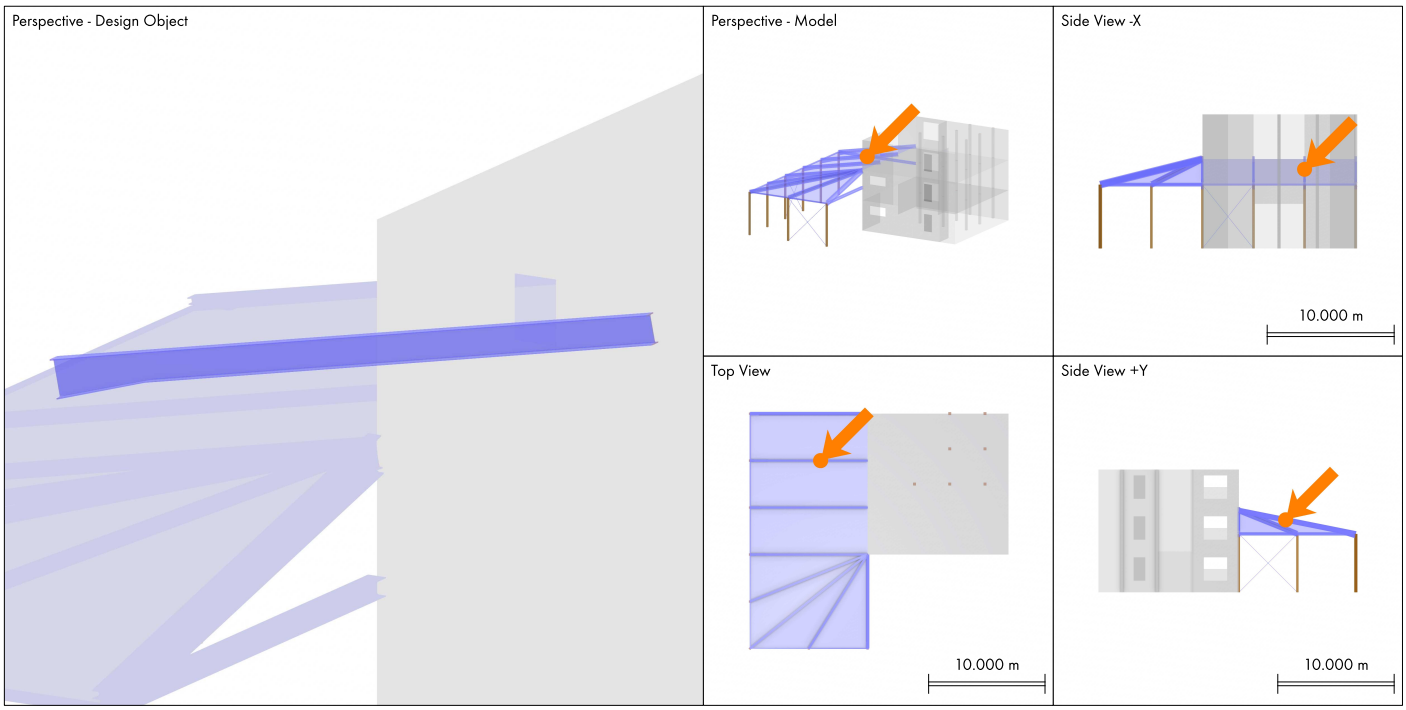
Tolerance for nodes	:	0.00050 m
Tolerance for lines	:	0.00050 m
Tolerance for surfaces/planes	:	0.00050 m
Tolerance for directions	:	0.00050 m

1 Steel Design

1.1 Members

1.1.1 MEMBER NO. 25 | Pos. 202 Rafter 0.861 ✓

1.1.1.1 MODEL



1.1.1.2 PROPERTIES

IPE 600 IPE 450



Property	Value
Cross-Section & Material	8 | IPE 600 | 1 - S235, 9 | IPE 450 | 1 - S235
Member Length	10.200 m
Member Type	Beam
Standard	EN 1993
Edition	CEN | 2020-12

1.1.1.3 DESIGN CHECKS

Design Check Category	Loading	Utilization	Design Check Ratio η [-]
Section Proof Shear acc. to EN 1993-1-1, 6.2.6(4) | Elastic design	**CO12** DS2 - ULS (STR/GEO) - Permanent and transient - Eq. 6.10		0.769 ✓
Stability Compression and/or bending acc. to EN 1993-1-1, 6.3.4 | General method - Jo...	**CO13** DS2 - ULS (STR/GEO) - Permanent and transient - Eq. 6.10		0.861 ✓
Serviceability Deflections in z-direction	**CO26** DS6 - SLS - Characteristic		0.465 ✓

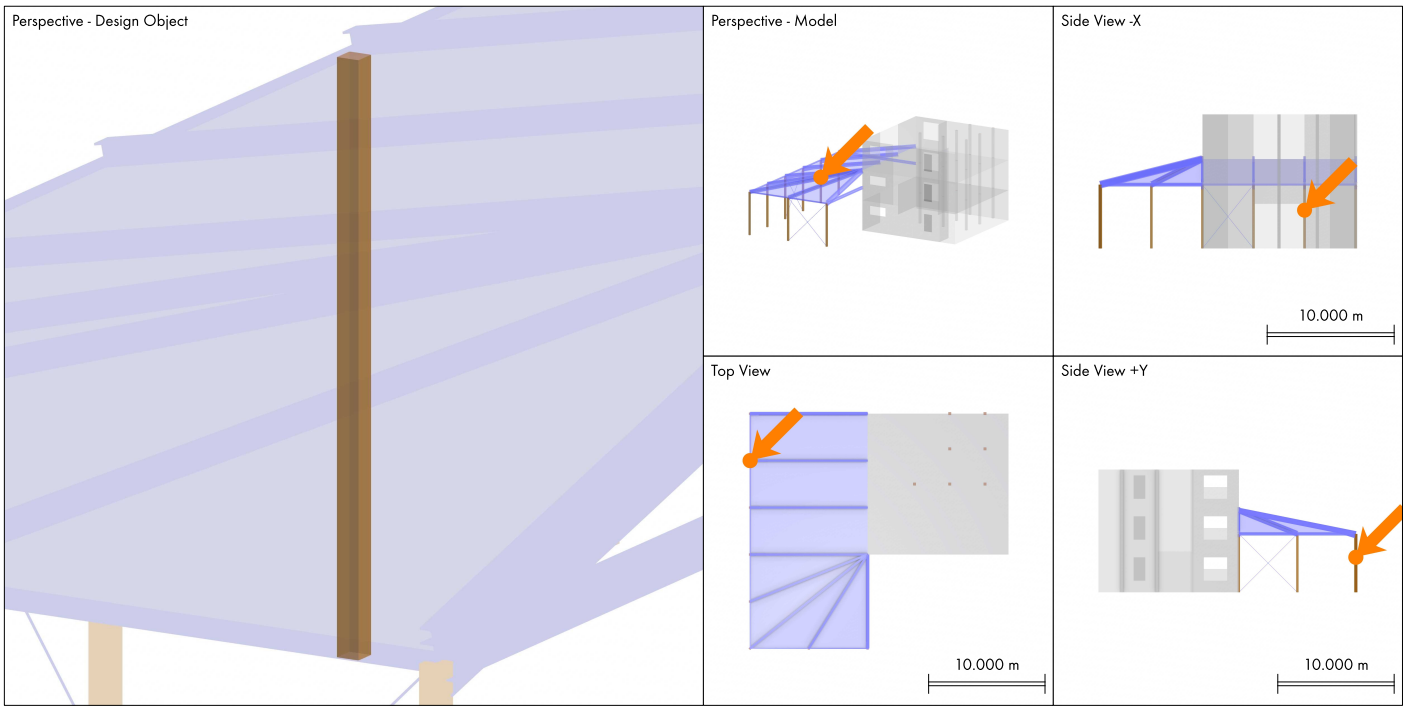
2 Timber Design

2.1 Members

2.1.1 MEMBER NO. 24

0.669 ✓

2.1.1.1 MODEL



2.1.1.2 PROPERTIES

R_M1
200/200



Property	Value
Cross-Section & Material	3 | R_M1 200/200 | 11 - C24
Member Length	5.000 m
Member Type	Beam
Service Class	2 - Moist
Standard	EN 1995
Edition	CEN | 2014-05

2.1.1.3 DESIGN CHECKS

Design Check Category	Loading	Utilization	Design Check Ratio η [-]
Section Proof Biaxial bending and compressive axial force acc. to 6.2.4	**CO1** DS2 - ULS (STR/GEO) - Permanent and transient - Eq. 6.10		0.315 ✓
Stability Biaxial bending and compression with buckling about both axes acc. to 6.3.2	**CO1** DS2 - ULS (STR/GEO) - Permanent and transient - Eq. 6.10		0.669 ✓
Serviceability Characteristic | z-direction acc. to 7.2	**CO26** DS6 - SLS - Characteristic		0.138 ✓

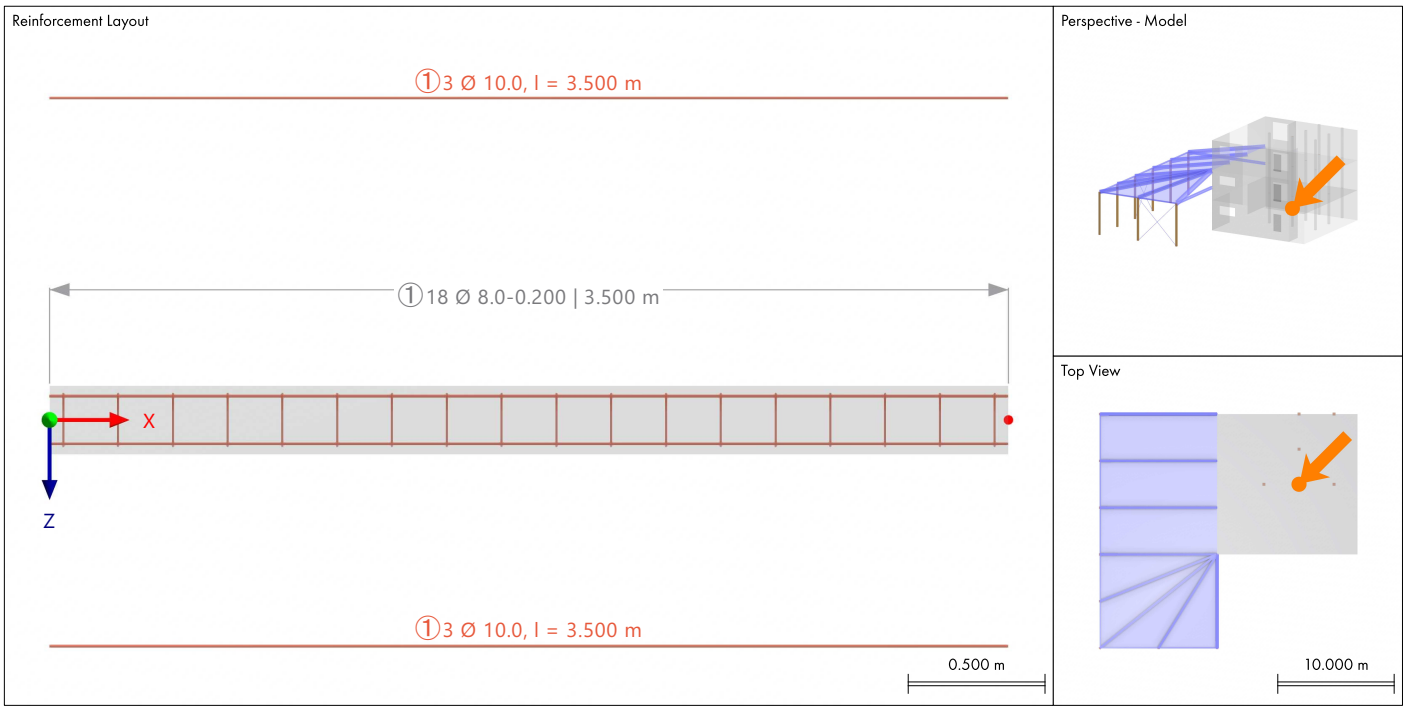
3 Concrete Design

3.1 Members

3.1.1 MEMBER NO. 6 | Pos. 306 Column

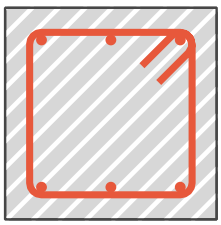
1.000 ✓

3.1.1.1 MODEL



3.1.1.2 PROPERTIES

SQ_M1 250 (x = 3.500 m)



Property	Value
Cross-Section & Material	1 | SQ_M1 250 | 2 - C25/30
Member Length	3.500 m
Member Type	Beam
Concrete Cover	25.0 mm
Reinforcing Material	3 | B500S(B)
Longitudinal Reinforcement	A | 3 Ø10.0
$A_{s,prov,-z\ (top)}$; $A_{s,prov,+z\ (bottom)}$; $A_{s,prov,tot}$	2.36 cm²; 2.36 cm²; 4.71 cm²
Stirrups	A | 18 Ø8.0 @0.200
$a_{sw,prov}$	5.03 cm²/m
Standard	EN 1992
Edition	CEN | 2014-11

3.1.1.3 DESIGN CHECKS

Design Check Category	Loading	Utilization	Design Check Ratio η [-]
Ultimate Limit State Section resistance for bending with or without axial force, acc. to 6.1	**CO5** DS2 - ULS (STR/GEO) - Permanent and transient - Eq. 6.10		0.394 ✓
Ultimate Limit State Shear resistance - Reinforcement shear capacity acc. to 6.2	**CO11** DS2 - ULS (STR/GEO) - Permanent and transient - Eq. 6.10		0.017 ✓
Ultimate Limit State Interaction resistance - Utilization of torsional stirrups due to torsion and shear ...	**CO10** DS2 - ULS (STR/GEO) - Permanent and transient - Eq. 6.10		0.013 ✓
Serviceability Limit State Stress limitation in reinforcement acc. to 7.2(5)	**CO19** DS6 - SLS - Characteristic		0.000 ✓
Detailing Maximum spacing of transverse reinforcement acc. to 9.5.3(3)	**CO1** DS2 - ULS (STR/GEO) - Permanent and transient - Eq. 6.10		1.000 ✓

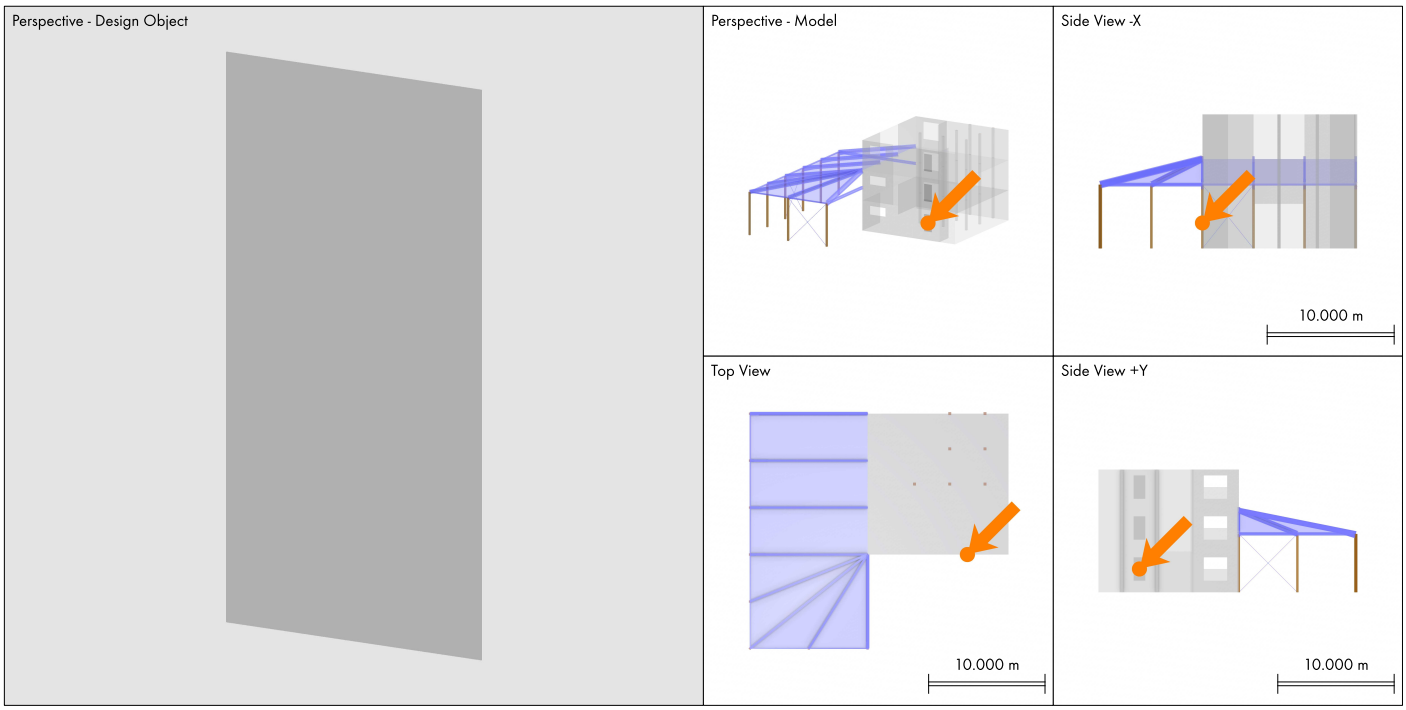
4 Glass Design

4.1 Surfaces

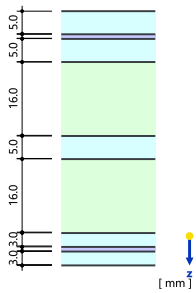
4.1.1 SURFACE NO. 57

0.069 ✓

4.1.1.1 MODEL



4.1.1.2 PROPERTIES



Property	Value
Thickness & Material	Glass Composition | d : 55.0 mm | Float glass; PMMA; Argon
Surface Area	2.000 m²
Stiffness Type	Standard
Geometry Type	Plane
Standard	--
Edition	--

4.1.1.3 DESIGN CHECKS

Design Check Category	Loading	Layer	Utilization	Design Check Ratio η [-]
Ultimate Limit State Principal stress σ_1	**CO5** DS2 - ULS (STR/GEO) - Permanent and transient - Eq. 6.10	1		0.042 ✓
Ultimate Limit State Principal stress σ_1	**CO5** DS2 - ULS (STR/GEO) - Permanent and transient - Eq. 6.10	3		0.042 ✓
Ultimate Limit State Principal stress σ_1	**CO5** DS2 - ULS (STR/GEO) - Permanent and transient - Eq. 6.10	5		0.004 ✓
Ultimate Limit State Principal stress σ_1	**CO5** DS2 - ULS (STR/GEO) - Permanent and transient - Eq. 6.10	7		0.005 ✓
Ultimate Limit State Principal stress σ_1	**CO2** DS2 - ULS (STR/GEO) - Permanent and transient - Eq. 6.10	9		0.002 ✓
Serviceability Total deflection	**CO17** DS6 - SLS - Characteristic	--		0.069 ✓