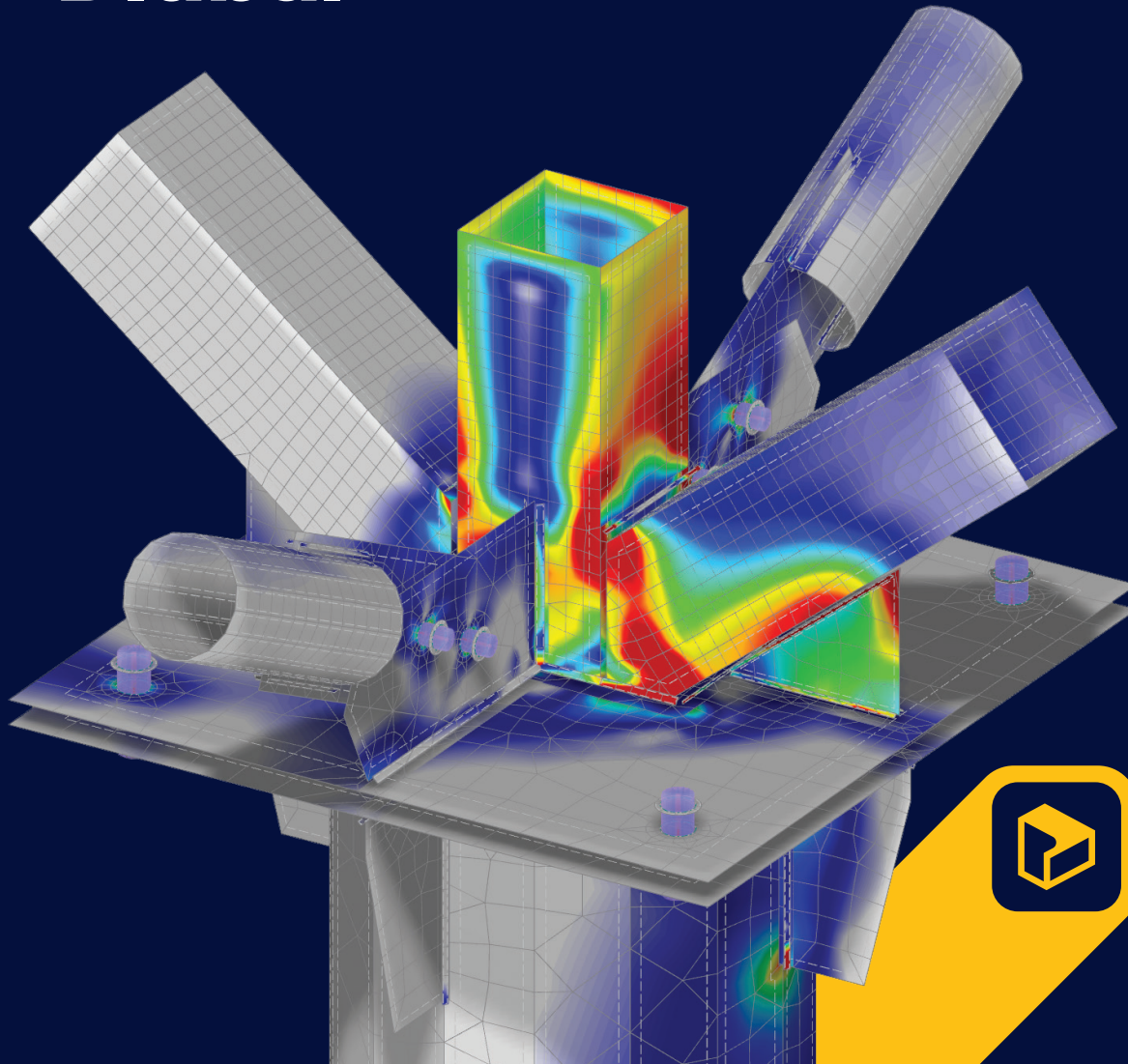


Diubal

**Your All-In-One
Structural Analysis
& Design Software**



RFEM⁶

3D Finite Element Analysis Software

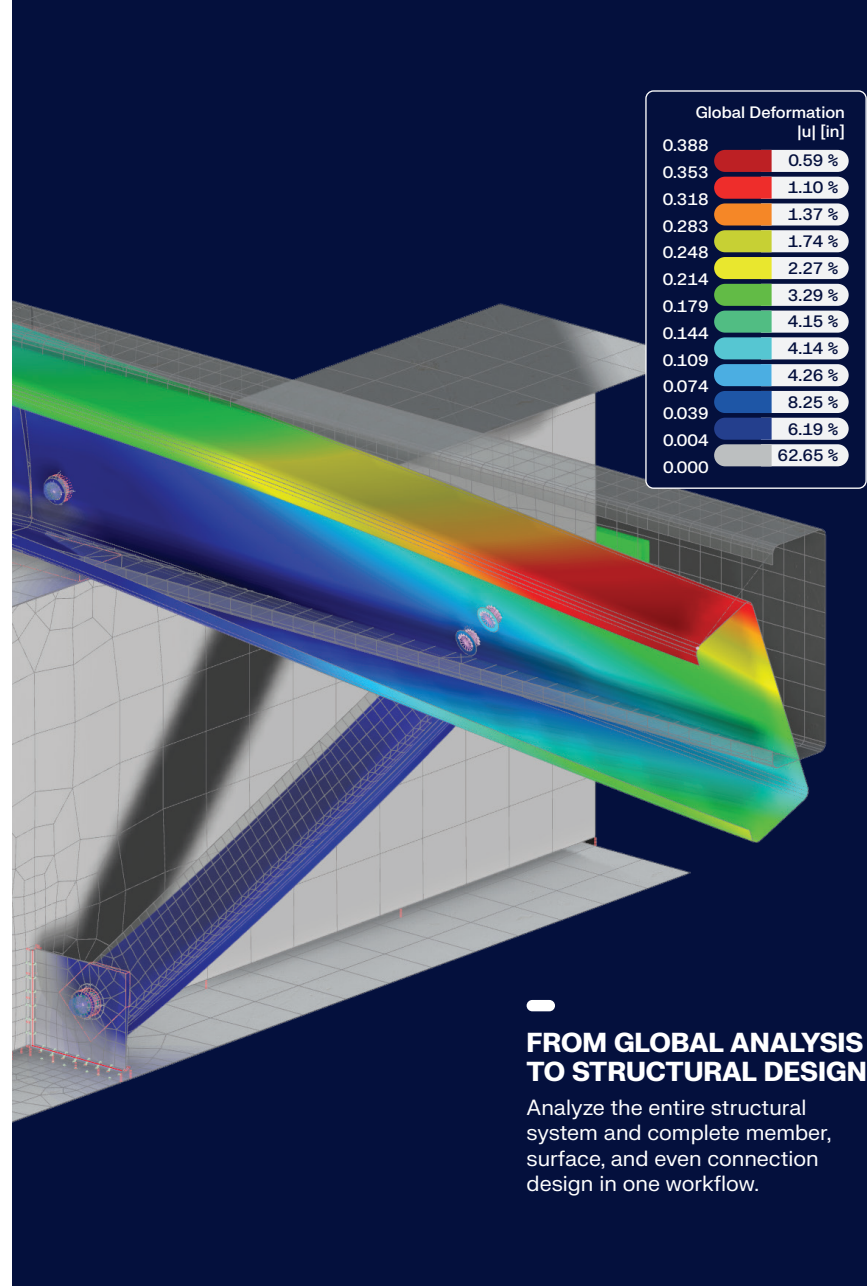
FEA Software for Structural Analysis & Design

RFEM⁶ is an all-in-one solution for every type of structure, from simple single-span beams to complex 3D shell models and NURBS solids. At its core is a flexible, modular add-on system that allows you to customize your RFEM⁶ package to fit your exact needs.

This system optimizes your workflow with automated load wizards and powerful structural analysis capabilities. Integrated add-ons ensure seamless design checks in accordance with standards like AISC, ACI, NDS, CSA, and more, giving you a fully tailored, efficient solution for any project.



90
DAY FREE
TRIAL



FROM GLOBAL ANALYSIS TO STRUCTURAL DESIGN

Analyze the entire structural system and complete member, surface, and even connection design in one workflow.

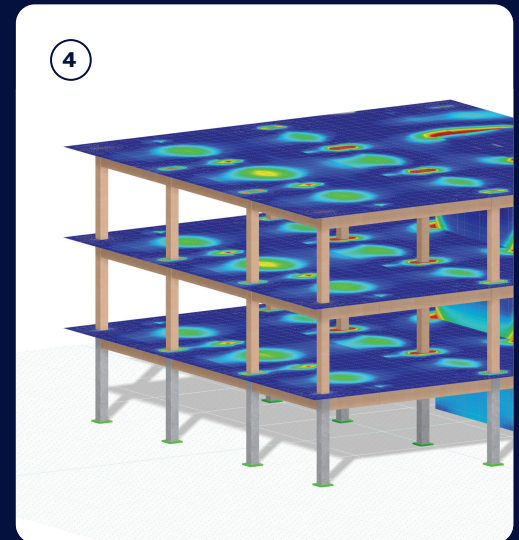
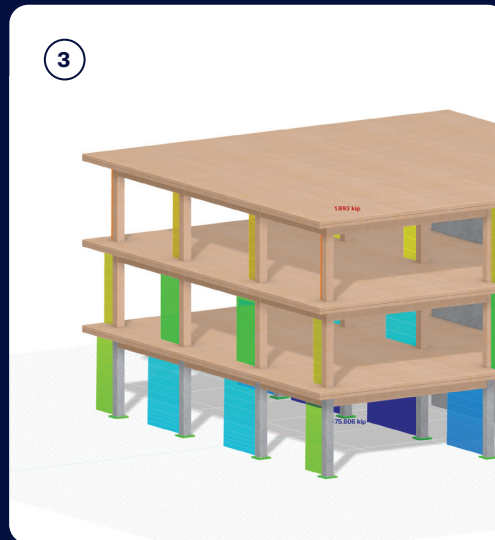
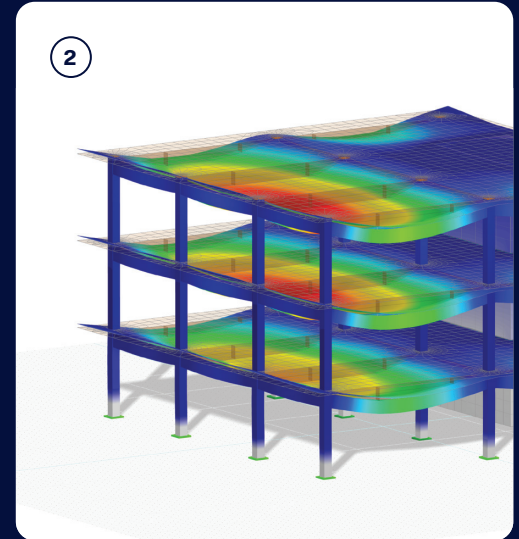
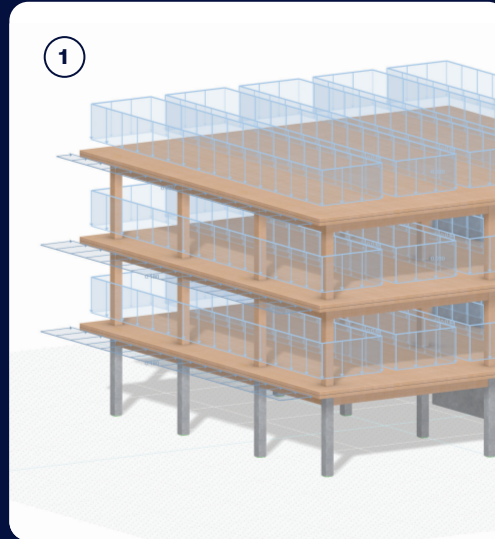
A Powerful and Precise Analysis Tool

1 LOADING AND COMBINATIONS
Easily apply wind and snow loads with intuitive wizards or manual input. Effortlessly generate load combinations based on ASCE 7 and NBC standards.

2 DEFORMATION DISPLAY
Quickly visualize how the structure deforms under loading, providing immediate, clear insights into performance and stability.

3 INTERNAL FORCES
Instantly view member forces to ensure optimal cross-section selection and make informed decisions on load-bearing capacity.

4 STRESS ANALYSIS
Gain in-depth stress analysis with FEA results for slabs, walls, and solids. Quickly pinpoint critical stress areas and ensure designs within material limits.










Add-On Based







The RFEM⁶ base program offers a comprehensive analysis solution for all structure types. Enhance and customize your software with optional add-ons for member and surface design, seismic and dynamic analysis, advanced features, connection design, and more. Keep your software flexible, cost-effective, and perfectly aligned with your unique design requirements.







DESIGN

-  Steel
-  Concrete
-  Timber
-  Aluminum
-  Glass
-  Stress-Strain

ADDITIONAL ANALYSIS

-  Form-Finding
-  Stability
-  Nonlinear Materials
-  Construction Stages
-  7 DOF
-  Geotechnical

DYNAMIC ANALYSIS

-  Modal
-  Response Spectrum
-  Time History
-  Pushover

SPECIAL SOLUTIONS

-  Building Model
-  Multilayer (CLT)
-  Cutting Patterns

CONNECTIONS

-  Steel Joints

STANDALONE
PROGRAMS



RWIND³



RSECTION

Structural Design Software for Every Industry

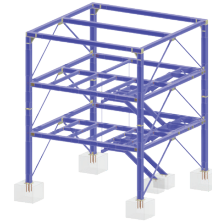
RFEM⁶ is a truly versatile solution, designed to meet any engineering challenge. Whether you're working on standard building designs, specialized industrial projects, or unique art installations, RFEM⁶ provides the tools you need in one unified platform. Its broad capabilities enable you to seamlessly switch between sectors and material types, offering a flexible and efficient solution for all your structural design needs.



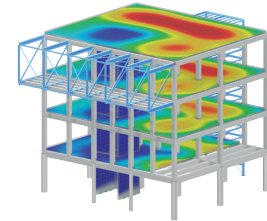
AVAILABLE STANDARDS

Wind & snow load wizards	ASCE 7, NBC, EN 1,	...
Load Combinations	ASCE 7, IBC, NBC, EN 0,	...
Hot-rolled steel	AISC, CSA S16, EC 3,	...
Steel connections	AISC, CSA S16, EC 3,	...
Cold-formed steel	AISI, CSA S136, EC 3,	...
Reinforced concrete	ACI, CSA A23.3, EC 2,	...
Timber	NDS, CSA O86, EC 5,	...
Aluminum	ADM, CSA S157, EC 9,	...
Glass	ASTM, DIN,	...
Dynamics	ASCE 7, IBC, NBC, EC 8,	...

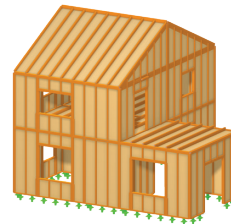
Hot-Rolled & Cold-Formed Steel Structures



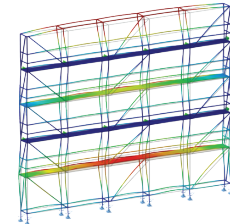
Reinforced Concrete Structures



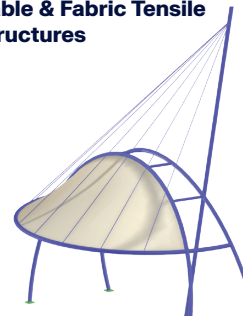
Mass Timber & Light-Frame Wood Structures



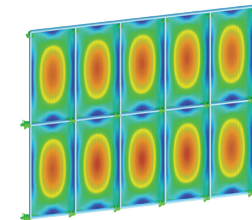
Aluminum Structures



Cable & Fabric Tensile Structures



Glass & Facade Structures



Special Solutions

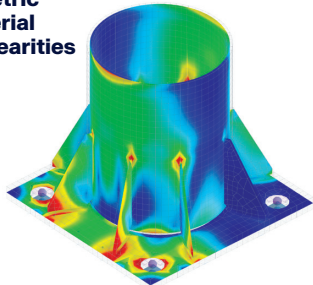
Discover a software environment where no project is too complex. RFEM⁶ is designed to take on the full spectrum of structural engineering challenges, offering special solutions for unique problems and advanced simulations. RFEM⁶ provides the tools you need to handle even the most demanding projects for any structure type and any industry.



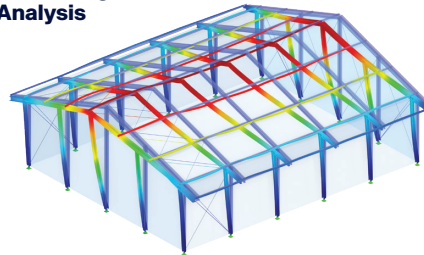
**EXPLORE
OUR
APPLICATION
AREAS**



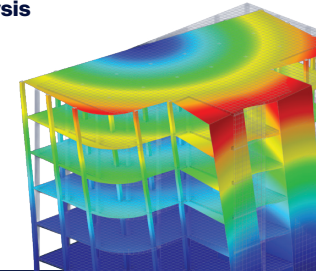
**Geometric
& Material
Nonlinearities**



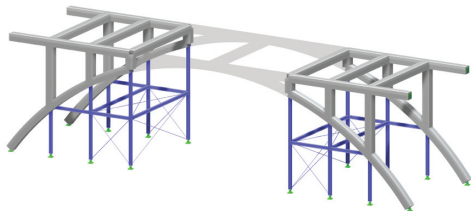
**Stability
& Buckling
Analysis**



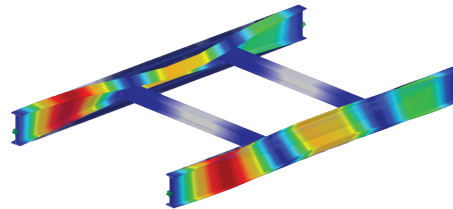
**Seismic
& Dynamic
Analysis**



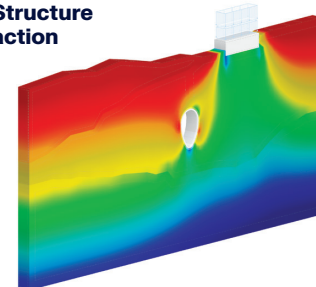
**Staged Construction
Analysis**



**Torsional
Warping (7 DOF)**



**Soil-Structure
Interaction**



Unique Solutions for Specialized Structures

MASS TIMBER & CLT DESIGN

Perform strength, serviceability, and fire design checks for glulam and CLT panels. Generate custom CLT layups or select from available North American producer libraries. Combine with other design add-ons, such as concrete shear walls, to create a complete hybrid mass timber design solution.

FABRIC TENSILE MEMBRANES

Automatically calculate the optimal form-finding shape for cables, fabric membranes, or pneumatic cushions based on prestress load input. Design the supporting structures, whether steel, timber, or other materials, all within a single file for a streamlined workflow.

GLASS PANELS & FACADES

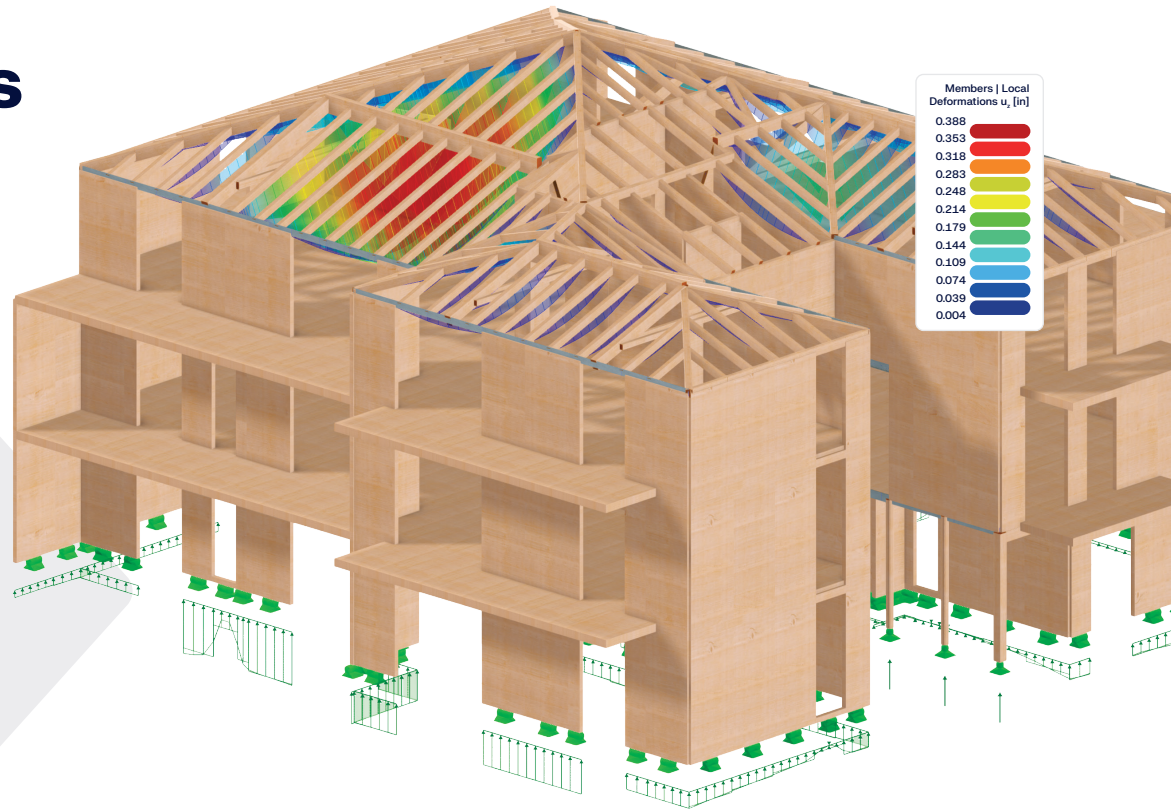
Design flat or curved glass panels (single-layer, laminated, or insulated) with strength and serviceability checks. Model full façade systems, including custom aluminum extrusions, to integrate the glass panel and supporting structure into a single design model.

BUILDING FEATURES

Define stories, diaphragms, and shear walls for building focused evaluations. Assess the structure's response under gravity and lateral design loads. View detailed table output, including story shear, story drift, and internal forces for shear walls.

NON-STANDARD STEEL CONNECTIONS

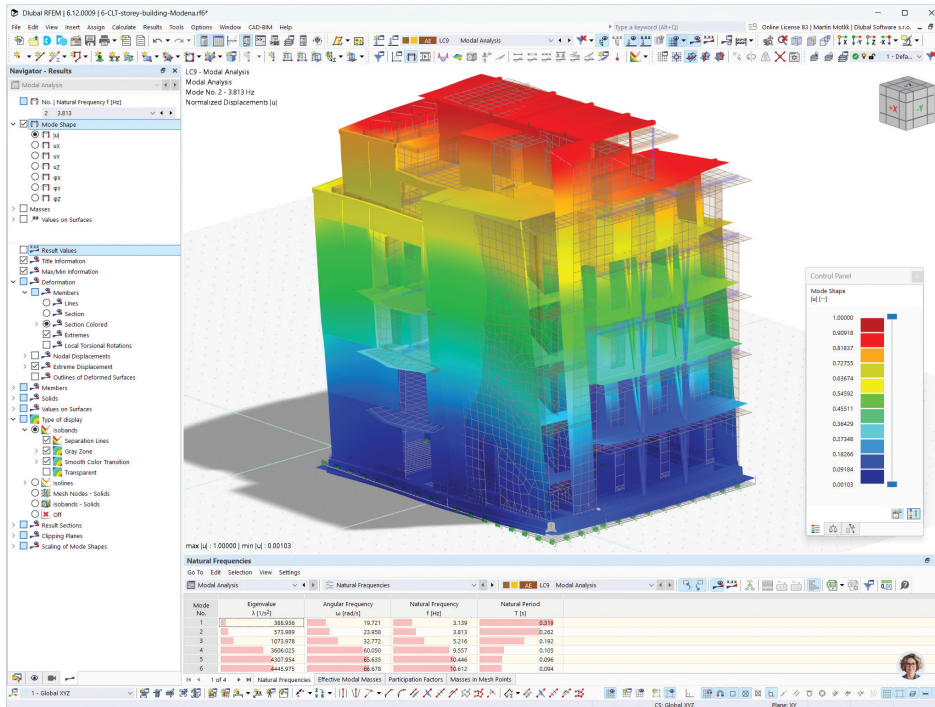
Go beyond standard connection design by creating even the most complex layouts. Automatically generate the connection's FEA model for bolt, weld, and plate checks. Further calculate connection stiffnesses and export to the global 3D model for more accurate steel structure designs.



Unparalleled Features

POWERFUL, USER-FRIENDLY INTERFACE

Streamline your modeling workflow with intuitive CAD-style tools like object snaps, mirroring, and drag & drop operations. You can fully customize the environment with adjustable toolbars and hotkeys while visualizing your structures in high-end 3D graphics.



TRANSPARENT DESIGN FORMULAS

No more “black box” calculations. RFEM® offers full transparency for reinforced concrete, steel, timber, and other material designs, including detailed formulas and code references. Integrate these design checks directly in your reports for complete verification.

Interaction Diagram

b	10000 in
A	100000 in ²
y-axis	
I _y	833.333 in ⁴
I _y	1666667 in ⁴
y	2.887 in
z	4.000 in
x-axis about y-axis	
I _x	125.000 in ⁴
I _x	166.667 in ⁴
I _x	83.333 in ⁴
I _x	1406.333 in ⁴
I _x	207.679 in ⁴
to shear center	
I _{xy}	3.7 in ⁴
I _{xy}	13.635 in ⁴
I _{xy}	0.264 in ⁴
I _{xy}	36.932 in ⁴
to shear center	
I _{xy}	16.914 in ⁴
I _{xy}	0.000 in ⁴
I _{xy}	0.000 in ⁴
I _{xy}	0.14 in ⁴
I _{xy}	0.000 in ⁴
I _{xy}	0.000 in ⁴

Design Check S04000 | ACI 318 | 2019

Strength Design
axial strength or combined flexural and axial strength acc. to 22.2 or 22.4

$$\phi_c = \min \left(\frac{1.05 - \rho_{cc}}{1.05}, \frac{f_{ck}}{100000} \right)$$

21.2, Tab. 21.2

$$= \max(-1.9\%, -1.9\%)$$

= -1.9%

$$P_n = 0.85 \cdot f_c \cdot (A_g - A_{st}) + \min(f_y, f_{yk}) \cdot A_{st}$$

21.2.2.2, Eq. (21.2.2)

$$= 0.85 \cdot 4000 \text{ psi} \cdot (100000 \text{ in}^2 - 353 \text{ in}^2) + \min(60000 \text{ ksi}, 80000 \text{ ksi}) \cdot 353$$

580.043 kip

$$P_{n,max} = 0.8 \cdot P_n$$

21.2.1, Tab. 21.1.1

$$= 0.8 \cdot 580.043 \text{ kip}$$

= 464.034 kip

$$f_{ct} = \frac{f_c}{2}$$

21.2, Tab. 21.2

$$= \frac{4000 \text{ psi}}{2}$$

= 2000.000 psi

$$\phi = 0.650$$

21.2, Tab. 21.2.1

$$P_{n,max} = \phi \cdot A_g \cdot f_{ct}$$

21.2.1, Eq. (21.2.1)

$$= 0.650 \cdot 100000 \text{ in}^2 \cdot 2000.000 \text{ psi}$$

= 130000.000 kip

$$P_n < \phi \cdot \min(P_n, P_{n,max})$$

= 0.67

$$= 0.67 < 0.92 < 1.0$$

OK

OK - flex. strain in extreme layer of longitudinal tension reinforcement at nominal strength

OK - flex. strain in top reinforcement

OK - flex. strain in bottom reinforcement

P_{n0} Nominal axial strength at zero eccentricity

A_g Specified gross cross-section area of concrete

A_{st} Provided reinforcement

f_c Specified compressive strength of concrete

f_{ct} Value of tensile strength of concrete

$P_{n,max}$ Maximum nominal axial compressive strength of member

ρ_{cc} Reinforcement ratio

ρ_{cc} Reinforcement ratio used to define a compression-controlled section

ρ_{cc} Maximum ratio of elasticity of reinforcement

ϕ Strength reduction factor

ϕ_{comp} Strength reduction factor of compression controlled

$\phi_{tension}$ Maximum nominal axial tensile strength of member

ρ_{st} Reinforcement ratio

P_n Factored axial force

P_n Nominal axial compressive strength of member acc. to 22.4.1

FLEXIBLE ONLINE LICENSING

Easily manage team access with online licensing, allowing license sharing and access from any location. With purchase, subscription, or rental options, you always have access to the latest technology through frequent weekly updates.

CUSTOMIZABLE CALCULATION REPORTS

RFEM[®] generates detailed, clear, and fully customizable reports to summarize analysis and design results. Easily incorporate high-quality graphics with mass printing workflows. Set up report templates for quick, efficient report generation.

DLUBAL API (GRPC)

The Dlubal API enables you to build custom apps and workflows in any programming language, with a strong focus on Python and C#. Automate repetitive and time-consuming tasks, create customized workflows, and develop individual solutions for internal processes and specific projects.



**EXPLORE ALL
AVAILABLE
FEATURES**



BIM Integration

RFEM[®] stands out as an open BIM solution with direct interface options for Autodesk Revit, AutoCAD, Tekla Structures, and Rhino/Grasshopper. This bi-directional connectivity enables seamless synchronization of models, increasing efficiency and reducing modeling time.



ADDITIONAL FORMATS

IFC & SAF

STEP

DSTV & SDNF

ASF

ISM

XML

DXF

... and more

130K⁺
users

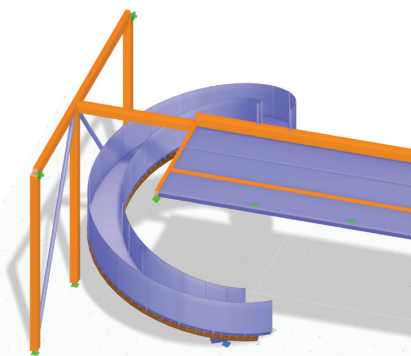
130⁺
countries

40⁺
years

Spiral Staircase in KF Aerospace Centre for Excellence

A world-first, doubly-curved timber-concrete composite (TCC) structure, engineered by StructureCraft to be a freestanding, column-free centerpiece that feels like walking on a plane.

© **StructureCraft**
Structural model & illustrative image



Trusted Globally by Engineering Experts

RFEM[®] offers a trusted, proven solution for structural analysis and design, fully compliant with both national and international standards. Engineering firms across North America and around the globe rely on it for accurate, high-quality results for every project type.



My clients are blown away by the comprehensive design and nice looking calculation package for our modular building systems. I would not be able to do this without Dlubal software, your team's expertise and excellent customer service.

Yuri Yurianto, S.E., P.E., M.Sc.

Modular Structural Consultants, LLC,
Texas, USA



The training and supporting information for RFEM is excellent. I have been able to find answers on the web for almost all my questions, and the Dlubal technical support engineers have helped with a couple of specific problems as well.

Kevin D. Below, ing., P.Eng., Ph.D.

Douglas Consultants,
Quebec, Canada



**MORE
CUSTOMER
PROJECTS**



StructureCraft



ASPECT
STRUCTURAL ENGINEERS

**Thornton
Tomasetti**

 **TIMBERLAB**



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The Graham Bldg.
Philadelphia, PA 19102

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Email: info-us@dlubal.com

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Ask me anything



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