



# **Structural Analysis & Design Software**

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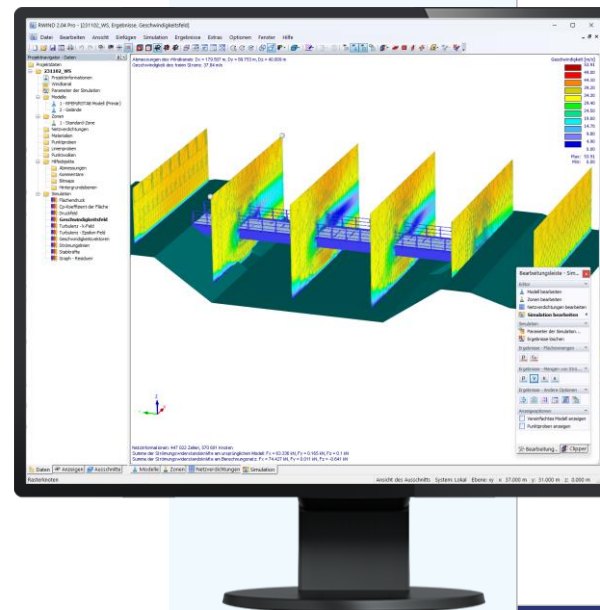


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**Webinar**

# RWIND 2 - Wind Simulation in Digital Wind Tunnel



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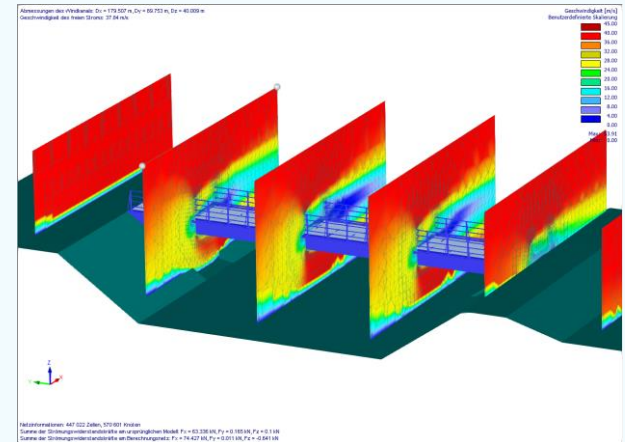
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# Content

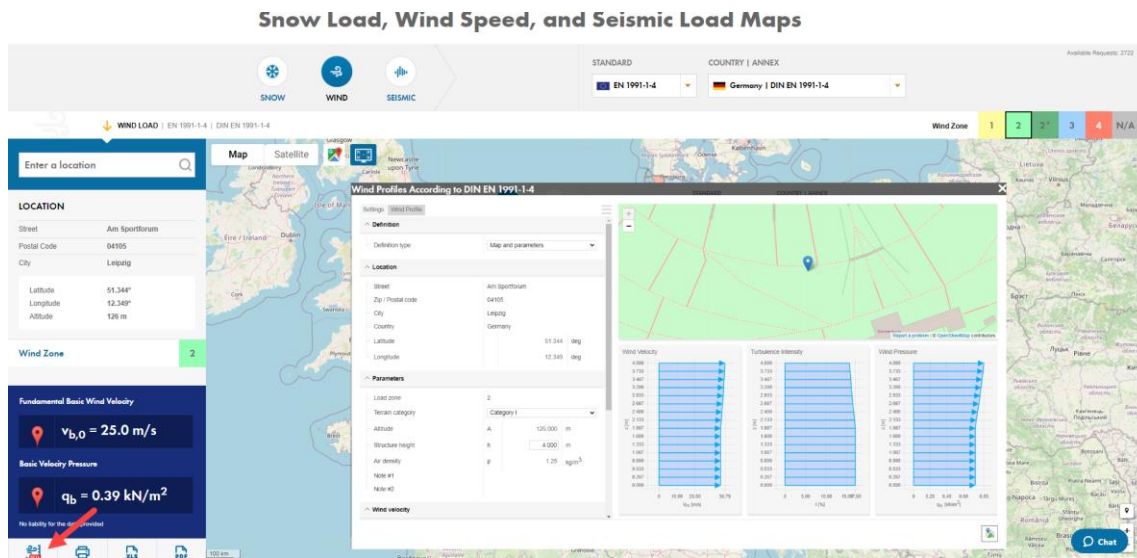
- 01 Wind profile - Geo-Zone-Tool Load map (BETA)
- 02 Introducing new features
- 03 Comparison of results with experimental data
- 04 Prospect





# Wind profile - Geo-Zone-Tool Load map (BETA)

- Output of values in diagrams and tables
  - Wind speed
  - Turbulence intensity
  - Wind pressure





# Overview

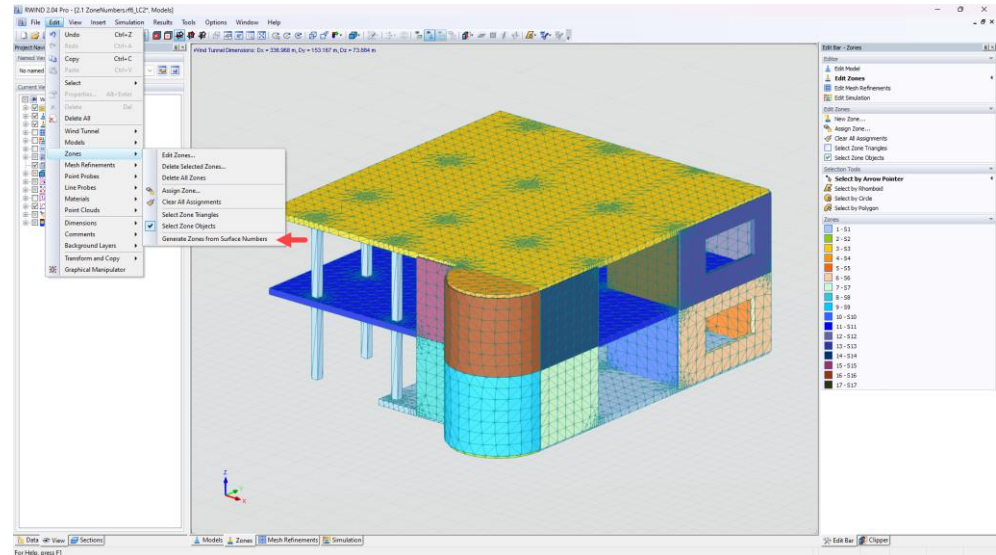
- Generating zones from RFEM – surface numbers
- Support for verification/experimental data
- New scaling function for wind tunnel optimization
- Display of max and min values in each time step

Implementierte Features   RWIND					
RWIND-Version	Erscheinungsdatum	Feature-ID	Betreff	Prod	
Alle	Alle	Alle	Alle	Alle	
2.04.0130	Di 03.10.2023	13943	Neue Skalierungsfunktion zur Windkanal-Optimierung	9;	and
2.04.0130	Di 03.10.2023	13941	Erweiterung der Templates in RWIND	9;	and
2.04.0130	Di 03.10.2023	13824	Neue Methode zur Übertragung von Ergebnissen der instationären Strömungssimulation von OpenFOAM nach RWIND.		
2.04.0130	Di 03.10.2023	13797	Einfügen von Verifikationsdaten in das XML Interface.	9;	and
2.04.0130	Di 03.10.2023	13499	Verschlinkung der Schubspannungseinstellung.	9;	and
2.04.0130	Di 03.10.2023	13452	.xml Datei zum Export von Simulationsparametern aus RWIND nach RFEM	9;	and
2.04.0130	Di 03.10.2023	11375	Anzeige von Max- und Min-Werten in jedem Zeitschritt.	9;	and
2.03.0300	Mo 31.07.2023	13462	Generieren von Zonen aus RFEM Flächennummern	9;	and
2.03.0300	Mo 31.07.2023	13461	Transiente Berechnung - Berechnungsparameter	9;	and
2.03.0300	Mo 31.07.2023	13460	Unterstützung für Verifizierung/ experimentelle Daten (VD)	9;	and
2.03.0300	Mo 31.07.2023	13459	Transiente Berechnung - Berechnungsparameter	9;	and



# Generating zones from RFEM – surface numbers

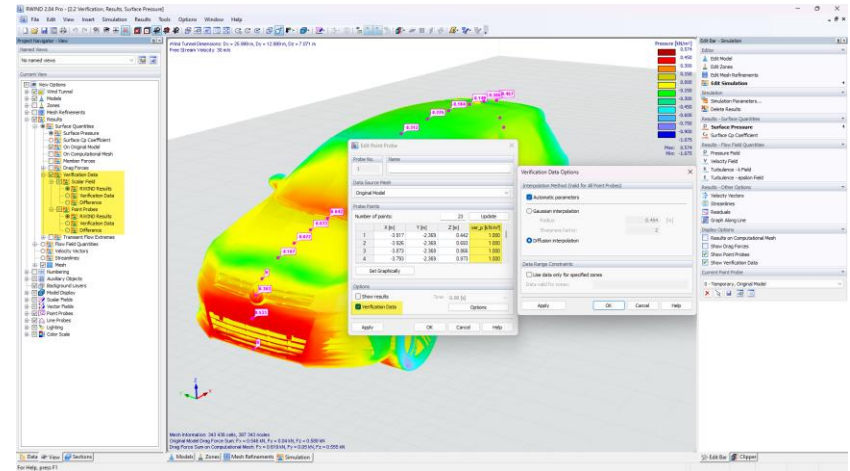
- Edit – Zones – Generate zones from surface numbers
- Each surface creates a zone
- Remaining objects (members, etc.) are assigned to zone 1





# Support for verification/experimental data

- Entering verification data into the table
- Display verification data in graphs using labels
- Graphical representation of the differences between verification data and simulation results
- Extrapolation of verification data on surfaces using various methods
- Restriction of verification data extrapolation to zones

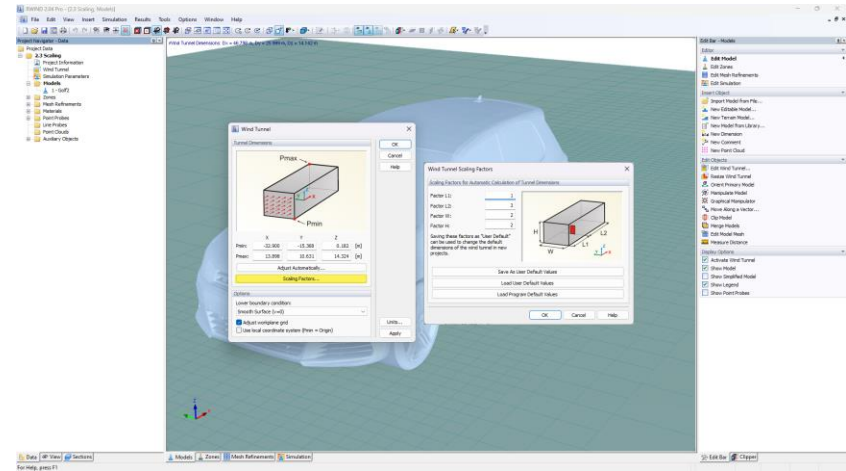






# New scaling function for wind tunnel optimization

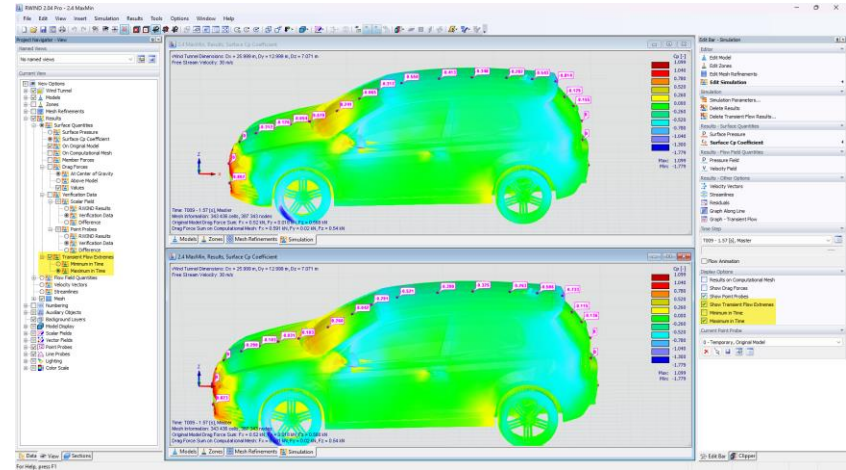
- Scaling factors to automatically adjust dimensions
- Ability to save user defined scaling factors



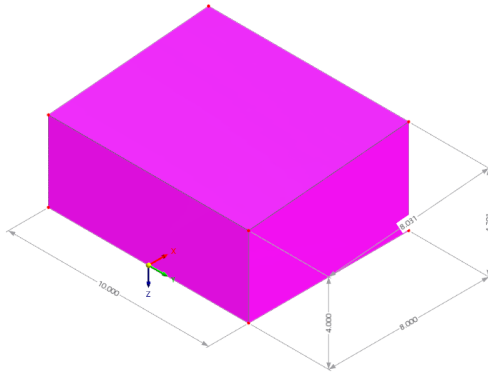


# Display of max and min values in each time step

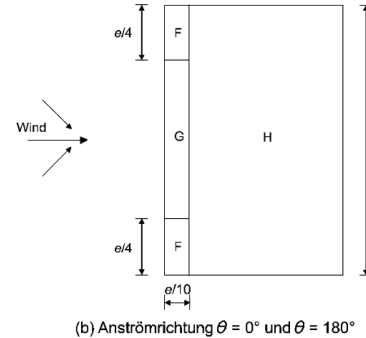
- Display of minimum and maximum values in the transient calculation per time step for the results
  - Surface pressure
  - Cp coefficient



# Example



## ■ WLZ 2, GK II (Leipzig)



(b) Anströmrichtung  $\theta = 0^\circ$  und  $\theta = 180^\circ$

$e = b$  oder  $2h$   
der kleinere Wert ist  
maßgebend

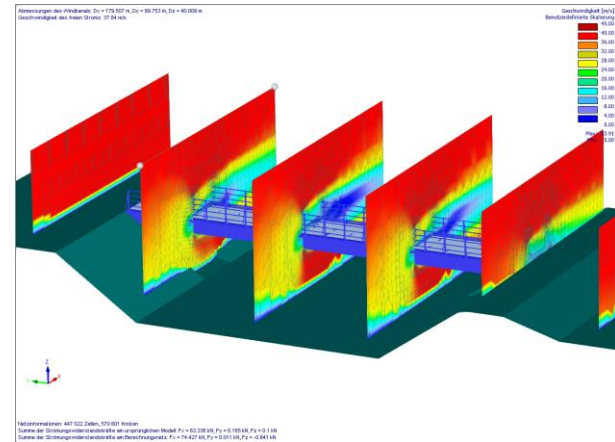
$b$ : Abmessung quer zum  
Wind

Zone dimensions		
Zone F width	$b_{F,1}$	2.350 m
Zone F width	$b_{F,2}$	2.350 m
Zone F depth	$d_F$	0.940 m
Zone G width	$b_{G,1}$	5.300 m
Zone G width	$b_{G,2}$	5.300 m
Zone G depth	$d_G$	0.940 m
Zone H depth	$d_{H,1}$	7.060 m
Zone H depth	$d_{H,2}$	7.060 m

Zone F			
External pressure coefficient	$c_{pe}$	-1.70	--
External wind pressure	$W_e$	-1.19	kN/m <sup>2</sup>
Zone G			
External pressure coefficient	$c_{pe}$	-1.20	--
External wind pressure	$W_e$	-0.84	kN/m <sup>2</sup>
Zone H			
External pressure coefficient	$c_{pe}$	-0.60	--
External wind pressure	$W_e$	-0.42	kN/m <sup>2</sup>

# Prospect

- Constant expansion of our database of [verification examples](#)
- Connection of the results from RWIND to the RFEM GUI
- Expansion of the result values ([Q iso surfaces](#))
- More wind tunnel scaling options





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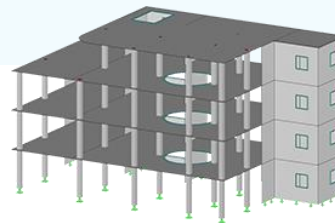
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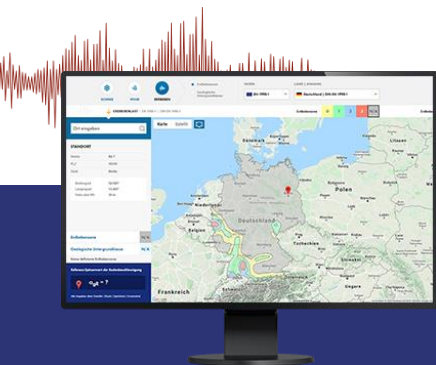


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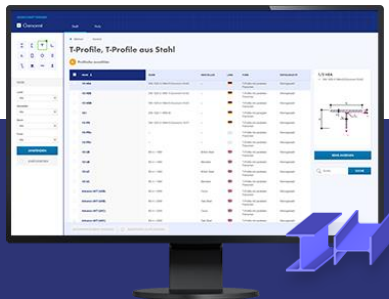
## Geo-Zone Tool

Dlubal Software provides an online tool with snow, wind and seismic zone maps.



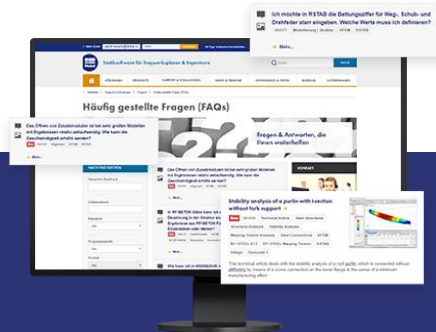
## Cross-Section Properties

With this free online tool, you can select standardized sections from an extensive section library, define parametrized cross-sections and calculate its cross-section properties.



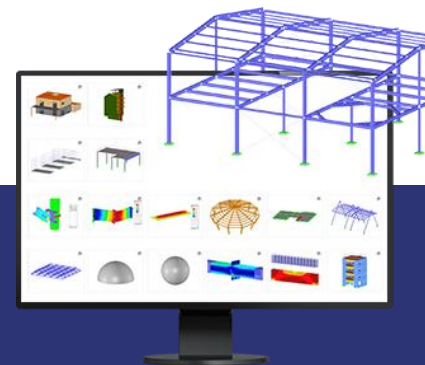
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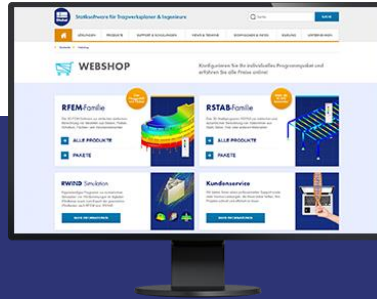
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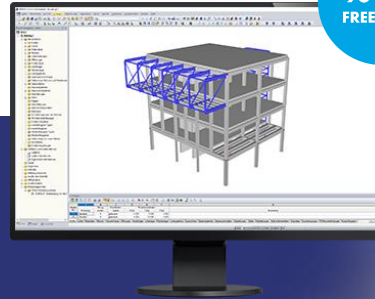
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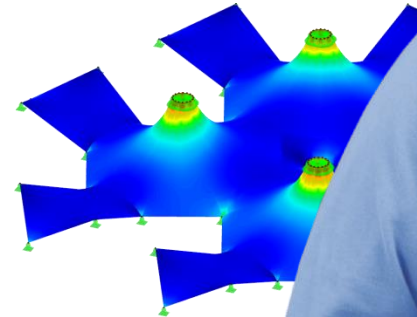
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