



Wind Check

Product Book

Content

The document contains a detailed product description for the greenpass Wind Check.

What is the Wind Check?	4	What is assessed at a Wind Check?	16
Where can I use the Wind Check?	6	What are the results?	18
What does a Wind Check bring?	8	Can I extend my Wind Check?	20
How does the Wind Check work?	10	What is behind the Wind Check?	22
What do I get from a Wind Check?	12	Mengerstraße Linz	24
What is the greenpass editor?	14		



Wind Check

What is the Wind Check?

Evaluate and optimize the wind situation of real estate & open spaces with ease

The greenpass Wind Check is part of the Environmental Impact Kit and enables properties and open spaces to be checked and optimized with regard to wind (comfort). The software-based & scientifically developed Wind Check analyzes real estate & open spaces with regard to the urban challenge:

• Air



Fact-based Wind Check for buildings & open spaces



Digital twin as single source of truth (SSOT) for Environmental Impact Kit & expert simulations



Scientific KPIs & effective measures for optimizing the wind situation & pleasant wind comfort



environmental
impact
kit



Find your use case

Wind Check use cases

Where can I use the Wind Check?

Wind Check for real estate & open spaces with pleasant wind comfort

The Wind Check can be used in new buildings as well as in existing buildings and for a large number of use cases worldwide. For individual buildings, high-rise projects as well as entire quarters and districts with a size of up to approx. 200 ha.

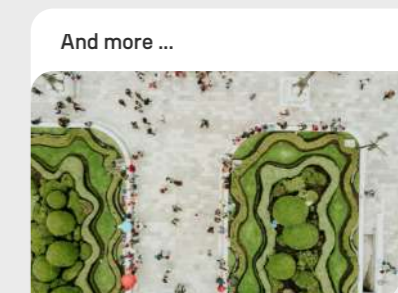
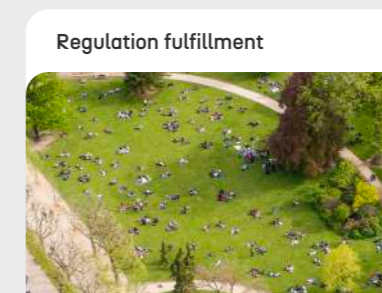
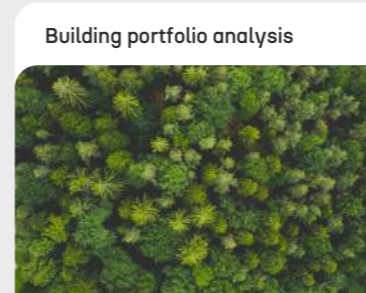
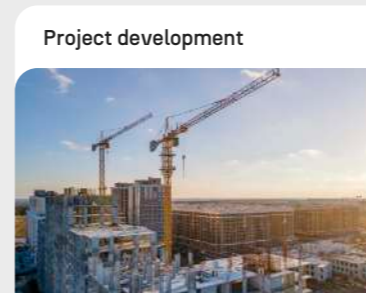
The Wind Check can be modularly combined with other checks from the Environmental Impact Kit. Together with the climate check, the quality of stay in projects can be optimized. With a (pre-)certification, projects can then be optimized in terms of cost/benefit and also officially certified. In addition, the regulatory requirements and criteria of the EU Taxonomy can be met with the EU Taxonomy Check.



New



Stock





What does a Wind Check bring?

Real estate & open spaces with high wind comfort & without problems

The greenpass Wind Check has many advantages. In addition to a quantitative wind comfort assessment as a fact-based basis for decision-making, the Wind Check enables wind comfort to be optimized and regulatory requirements to be met with official quality confirmation. In this way, windproof real estate and open spaces with a high quality of stay as well as future and investment security can be developed.

In addition to the advantages mentioned, additional added value can be achieved with the Wind Check through additional add-ons, e.g. securing wind static challenges through wind pressure or strong wind analyses.

Wind Check benefits



Quantitative assessment & analysis of wind comfort



Fact-based & well-founded basis for decision-making



Optimization of wind comfort



Fulfillment of regulatory requirements



Data-driven quality assurance



No wind damage



Windproof real estate & open spaces



Future & investment security



Higher quality of stay

How does the Wind Check work?

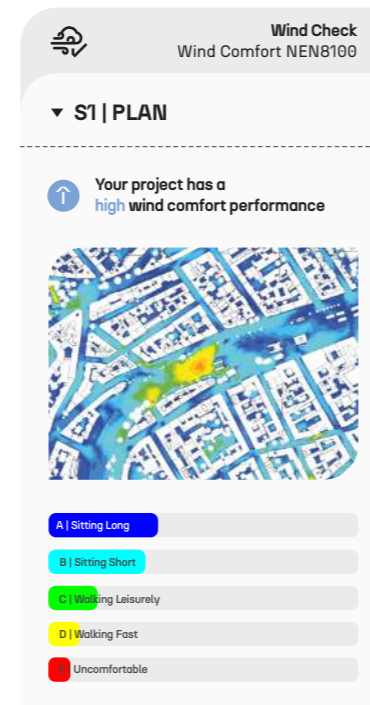
State-of-the-art technology that enables fact-based performance optimization and high wind comfort

The Wind Check includes a data-driven & holistic 3D wind analysis with meaningful KPIs. The check is based on a digital twin from the greenpass editor software and a 3D CFD flow simulation (OpenFoam).

Based on a standardized process, the Wind Check enables:

- a quantitative impact assessment
- a scenario comparison
- a performance optimization

In order to achieve the greatest leverage, it is advisable to start as early as possible and to check and optimize the project or planning with regard to wind comfort.

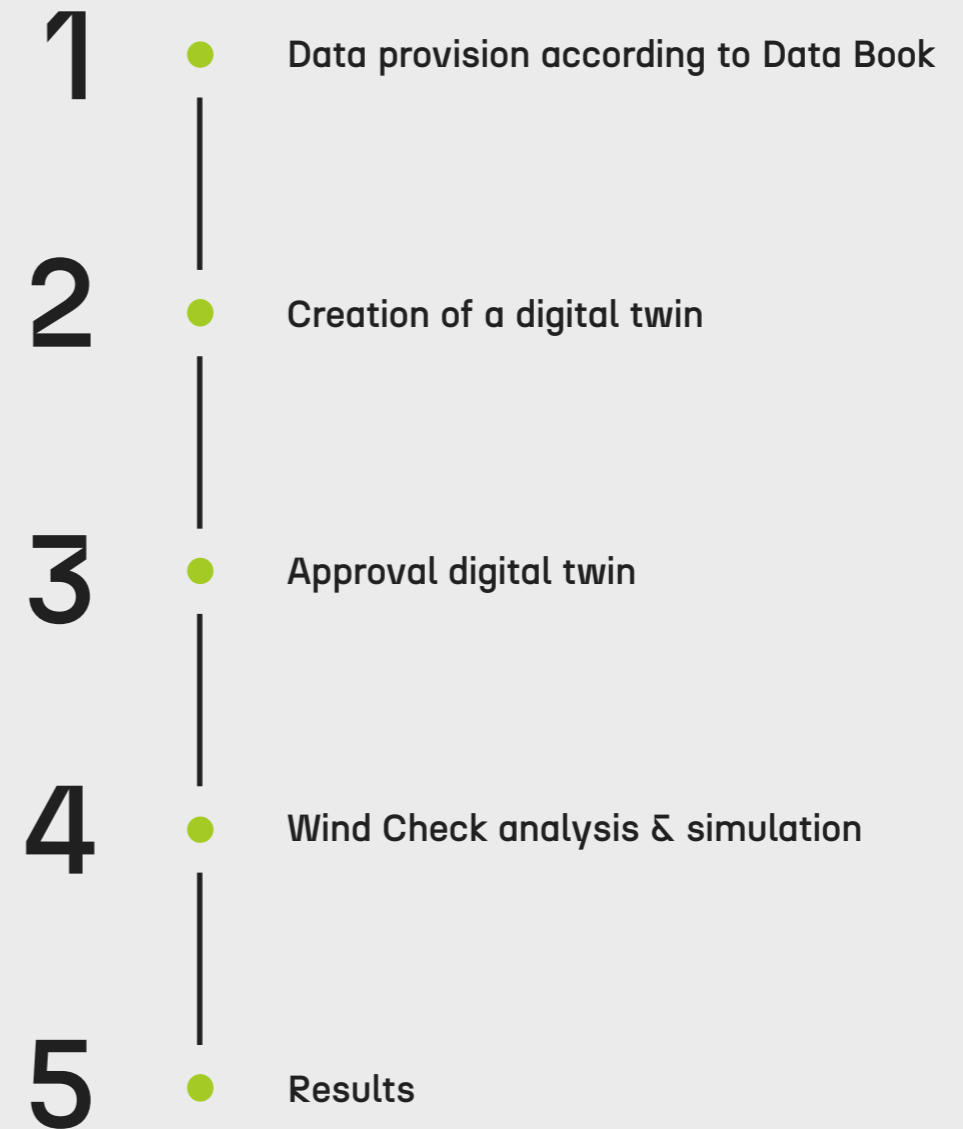


powered by

OpenFOAM

You can find more information and examples of how to use the Wind Check in the Use Case Book and the Reference Book.

Wind Check process



optional: further add-ons

optional: optimization loop with workshop & re-simulation



Wind Check product features



Fact-based wind check for buildings & open spaces



1 urban challenge
Air



3 meaningful KPIs for high wind comfort



Digital twin as single source of truth (SSOT) for expert simulation & area analysis



Level of Detail (LOD) 1 for digital twin & assessment



High-resolution CFD expert simulation for 4 most common wind directions with OpenFoam



Clear optimization recommendations for high wind comfort



Clear graphics & windmaps for a targeted optimization of wind comfort



Easy to understand & transparent report with all results including an executive summary

What do I get from a Wind Check?

Analysis & evaluation of real estate & open spaces with regard to wind comfort

The Wind Check includes an assessment of wind comfort with numbers, graphs and recommendations for optimization summarized in an easy-to-understand report. The analysis is based on a CFD expert simulation (OpenFoam) for the 4 most common wind directions with LOD 1. The level of detail of the analysis or the report varies depending on the scope of services or the add-ons selected.

Fact-based results including effective optimization recommendations enable real estate and open spaces to be designed windproof with ease and to compare different scenarios with each other.



Get your kit

editor

What is the greenpass editor?

The greenpass Editor (GP.e) software is the basis for the Environmental Impact Kit & digital twin

The greenpass editor is a 3D & GIS-based software for a digital twin of real estate & open spaces. The digital twin serves as a uniform basis and single source of truth (SSOT) for the greenpass Environmental Impact Kit and the Impact Checks & allows a holistic and valid assessment of the environmental impact of real estate & open spaces around the world.

You can find more information and specifications for the necessary data basis for the Wind Check in the Data Book.



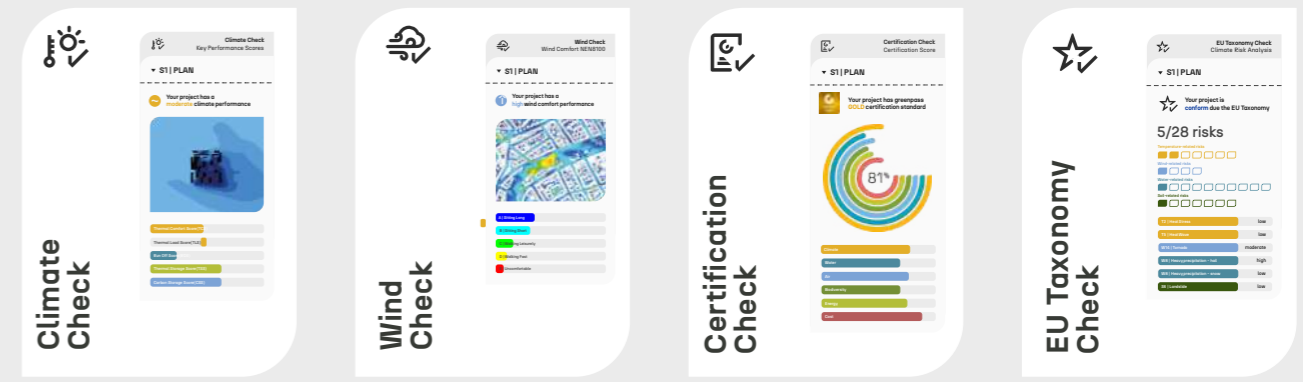
3D & GIS-based modeling software for real estate & open spaces with import of common planning data (e.g. CAD, GIS)



Easy & fast modeling of projects with comprehensive database of 100+ materials & all types of vegetation



Digital twin as a single source of truth (SSOT) for environmental impact checks & high-resolution expert simulations



What is assessed at a Wind Check?

Scientifically developed & meaningful indicators for wind & people

The Wind Check standard scope includes an evaluation of a selected scenario (e.g. planning draft, master plan, status quo situation, ...) for the four most common wind directions. The Wind Check evaluates 3 meaningful Key Performance Indicators (KPIs) from the urban challenge air.

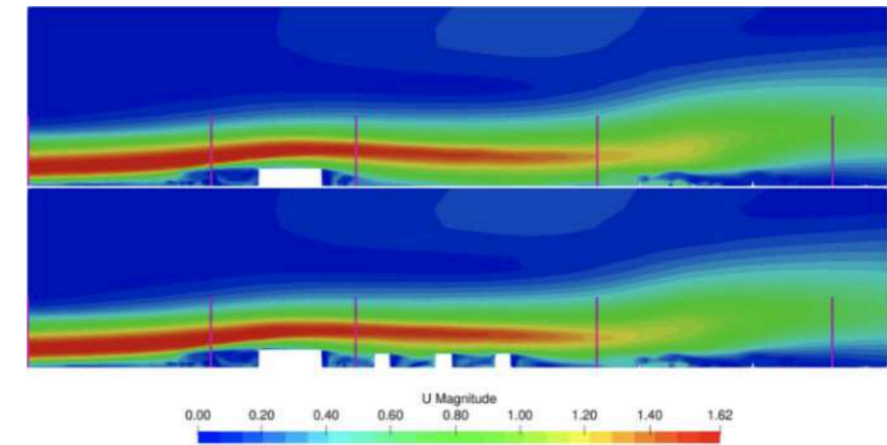
Additional add-ons can be used to tailor the standard scope of the Wind Check to individual requirements and needs.

Wind Check Key performance indicators (KPIs)

Air

- WIC | Wind comfort
- WS | Wind speed
- WF | Wind flow

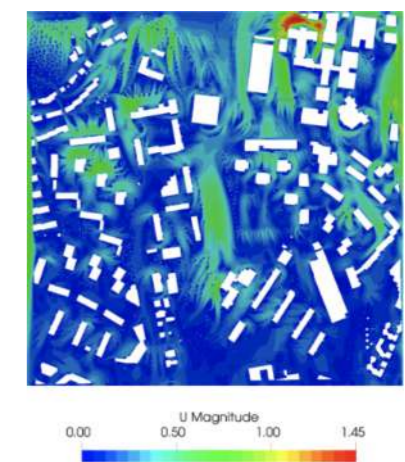
Cold air stream - wind flow speed



Scenario A
Wind speed



Scenario B
Wind speed



powered by

OpenFOAM

Wind Check reporting

What are the results?

Briefly & comprehensibly summarized and all information at a glance

The results of the Wind Check are transparently summarized and documented in the form of a clear and readable digital report. The scope of the Wind Check report depends on the scope of services and is typically around 15-50 pages.

The report contains the following chapters or summarizes the following content in an overview:

- Intro
- Project information
- Scenario(s)
- Results in form of
 - Numbers
 - Heat maps
 - Graphics
 - if possible - comparative graphics
- Optimization recommendations
- Executive summary
- Annex
 - Wiki





Choose your add-ons

Can I extend my Wind Check?

One kit with add-ons for all your needs & requirements

In addition to the combination with other checks of the Environmental Impact Kit, the standard scope of the Wind Check can be expanded with add-ons as required - e.g. an optimization round, further planning or reference scenarios, extra wind directions or additional evaluations such as wind pressure or storm scenarios.

The add-ons for the Wind Check are divided into the following categories:

- **Scenarios**
additional scenarios & variants such as optimization, planning, status quo, worst, moderate or maximum
- **Conditions**
extended analysis conditions such as additional wind directions (up to 16 wind directions), strong winds or storm scenarios
- **Analysis**
additional analysis evaluations such as wind comfort according to NEN8100, wind pressure, ...
- **Services**
additional services such as processing time

Simply select your add-ons & assemble your Environmental Impact Kit modularly & tailor-made for your situation.

Our trained greenpass partners and the sales team will be happy to support you in finding your ideal environmental impact kit for your situation and requirements.

contact@greenpass.io

Wind Check add-ons

Scenarios

- Add-On: Optimization - normal size (<=10.000m2)
- Add-On: Optimization - large size
- Add-On: Planning scenario extra - normal size (<=10.000m2)
- Add-On: Planning scenario extra - large size
- Add-On: Reference scenario Status Quo - normal size (<=10.000m2)
- Add-On: Reference scenario Status Quo - large size

Conditions

- Add-On: 1x Wind direction extra
- Add-On: 4x Wind direction extra
- Add-On: 12x Wind direction extra
- Add-On: Storm scenario

Analysis

- Add-On: Wind comfort NEN8100
- Add-On: Wind pressure module
- Add-On: Extra analysis level

Service

- Add-On: Time-of-Service - Priority (within 4-5 weeks)
- Add-On: Time-of-Service - High Priority (within 1-3 weeks)



What is behind the Wind Check?

Developed scientifically & practically for your purpose

The greenpass Wind Check was developed in a practical manner over several years of research and development. Behind the greenpass technology are more than 16 national & international research projects as well as more than € 6 million in investments & funding.

Find out more information about the development of greenpass in the official Validation Book.

12+

years of research & development

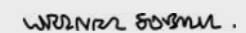
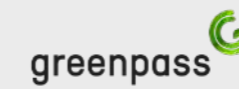
16+

R&D projects

€6.0m

investment & fundings

Technology Development Partner



Network Partner





Abb. 1: Sectional views of the residential complex in Mengerstraße Linz © Kaufmann Haas Partner Architekten

Mengerstraße Linz

Wind-optimized residential complex

Project type
Building

Customer
FIS Real Estate

Use Cases
Project development
Status quo & retrofit
Regulation fulfillment

Area
approx. 0.6 ha

Location
Linz / Austria

Completion
TBD

Customer
• FIS Real Estate

Architecture
• Kaufmann Haas Partner
Architekten

Climate resilience + Wind
• greenpass

Cold air stream flow analysis

The Mengerstraße project in Linz is located south of the JKU University. A new residential complex including a publicly accessible park is to be built on an approx. 0.6 ha large field. Since the project area is located in an important cold air corridor from the city, the project was analyzed and evaluated with a wind and climate check. According to the city's specifications, a cold air flow analysis with a before and after comparison was carried out. The future parking garage development of the JKU campus expansion in the surrounding area was also taken into account in the digital twin and the analyses. Due to a ramp-like overflow of the volume flow, the neighboring property influences the project area, so that there is only a marginal direct influence from the development. With the Wind Check, the regulatory requirements of a wind report could be fulfilled and the effects could be shown and verified.

‘Greenpass supported us with their sophisticated technology and high level of expertise in the verification, reporting and compliance with the regulatory requirements of our project development in terms of climate resilience, wind comfort and cold air stream flow mandated by the community.’



Christoph Wiesinger
CEO FIS Real Estate



Book a demo



Greenpass is a Viennese ClimateTech company founded in 2018 for climate-fit and sustainable real estate & open spaces. We are an interdisciplinary team of highly qualified & passionate climate resilience experts.

Get in touch & find your local Urban Climate Architect (UCA)

<p>315+</p> <p>climate-fit developments</p>	<p>220+</p> <p>happy customers</p>	<p>50+</p> <p>trained UCA partners</p>
--	---	---



contact@greenpass.io



Leopold-Ungar-Platz 2/4/423
1190 Vienna, Austria

awarded by

PROPTHEMAP EUROPE 2021: TOP100
Presented by BUILT WORLD in cooperation with PwC. More info at www.proptechmap.com

www.greenpass.io

in f

urban climate architect



design **climate-fit real
estate & open spaces**
for the future now!



contact@greenpass.io



Leopold-Ungar-Platz 2/4/423
1190 Vienna | Austria



www.greenpass.io