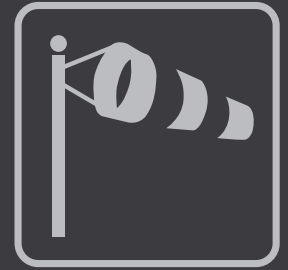


CADS VelVenti

ENGINEERING SOFTWARE



Overview

VelVenti enables the rapid calculation of peak wind speeds and pressure in accordance with a number of structural design standards. Used as a standalone tool, it will provide the effective wind speeds at varying heights of a building or structure that can then be passed to any structural design software. VelVenti is available as a desktop application or as a cloud-based web service which can be integrated into your Excel spreadsheets, software program or web application. The web service also returns the characteristic snow load data for UK and Irish sites.

Summary

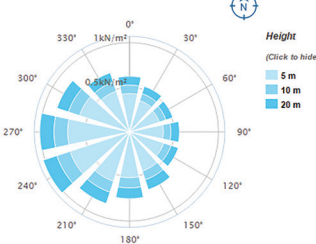
- Wind speeds are calculated according to requirements of BS 6399-2, EN 1991-1-4 with UK and Irish national annexes and ASCE 7-10
- When integrated with CADS products, such as SMART Portal 2D or SMART Portal 3D, the design process is completely automated and streamlined saving time and reducing errors!
- A selection of methods is available for entering the site locations including a postcode, a national grid reference or using a simple drag and drop pointer over Google Maps
- The relevant national design code is automatically selected based on the location including support for the Channel Islands and the Isles of Scilly
- Users will enjoy the modern single screen user interface that makes it simple to learn and use
- VelVenti takes into account the seasonal factor and the design life of the structure, making it suitable for temporary structures e.g. scaffolding
- Takes into account the vicinity of the site with sheltering effects and height of neighbouring structures allowed for
- Standard and Directional/Hybrid methods according to BS 6399-2 are included
- Clear, concise reporting in both brief or detailed format
- Export as a PDF or directly to Word

Features

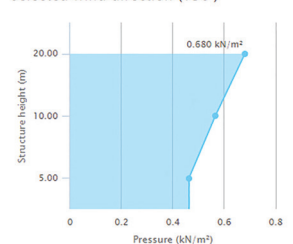
Google Maps

Powered by Google maps, users will enjoy the modern user interface that makes it exciting to use and a simple product to learn. Input of data is via a single screen which includes a digital world map, prompt boxes for site information and printout options.

Pressure variation across compass directions



Pressure variation with height in selected wind direction (150°)



Clear and concise reporting

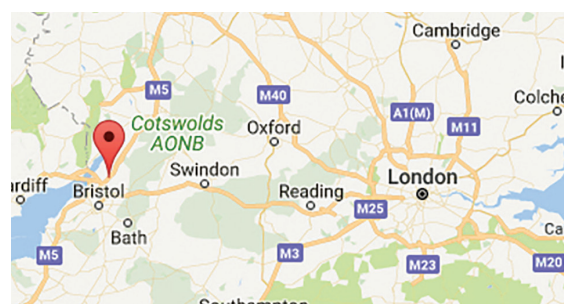
	A	B	C	D	E	F	G	H
2	Longitude	-0.61135						
3	Building Height (m)	20.0	API Status: OK					
4								
5	Basic Wind Speed	23.0 m/s						
6	Basic Snow Load	6.1 kN/m²						
7	Altitude Factor							
8	Directional Factor							
9	Seasonal Factor	1.00						
10	Probability Factor							
11	Orography Factor							
12	Exposure Factor							
13	Correction Factor							
14	Peak Velocity Pressure							
15								
16	Site Altitude	4 m						
17	Distance to Sea							
18	Effective Height							
19								
20	Wind Sector Type	12 sectors of 30°						
21	Dominant Wind Sector (°)	270						
22								
23	Wind Direction (°)	0	30	60	90	120	150	180
24	Directional Factor	0.78	0.73	0.73	0.74	0.73	0.8	0.85
25	Altitude Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
26	Orography Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
27	Distance To Sea (km)	0.68	0.64	0.64	1.19	3.21	8.01	84.34
28	Exposure Factor	3.21	3.21	3.21	3.21	3.10	3.00	2.79
29	Peak Velocity (m/s)	32.29	30.22	30.22	30.63	29.71	31.99	32.81
30	Peak Velocity Pressure (kN/m²)	0.64	0.56	0.56	0.58	0.54	0.63	0.66
31	Effective Height (m)	20.00	20.00	20.00	20.00	20.00	20.00	20.00
32	Terrain Category	Sea	Sea	Sea	Country	Country	Country	Country
33								
34	Peak Velocity Pressure per Height							
35		5	0.46	0.40	0.40	0.40	0.37	0.43

Cloud based service integrated into Excel

Design codes

To switch between national design codes, the user simply moves the pointer to the site location and the program automatically switches to that country's code.





This straightforward approach therefore requires no input of the design code by the user, thus fully utilising the flexibility of VelVenti for worldwide design projects and is an example of the programs' intelligent user interface.



Location can be selected via Google Maps

Location affects

To improve accuracy, account is taken of the local vicinity of the site. The sheltering effects of surrounding structures or the influence of a tall neighbouring structure are taken into account. The height and location of neighbouring buildings can be input as well as the location e.g. town, country or near the sea.

 1.07 Altitude factor	 1.107 Orography factor	 1.00 Local effects factor	
Hide details -			
Orography category Cliff or Escarpment 			
Upwind base altitude	70.3 m	Downwind base altitude	58.4 m
Upwind slope height	12.4 m	Downwind slope height	32.4 m
Upwind slope length	158.1 m	Downwind slope length	500.0 m

Altitude, sheltering and coastal proximity included

 **Site and building information** 

M5, South Gloucestershire, BS35

 51.583 °N
Latitude

 -2.505 °E
Longitude

 365090 m
Easting

 187198 m
Northing

 ST 65090 87198
OS grid reference

 **BS EN 1991-1-4** 

 21.9 m/s
Fundamental basic wind velocity

 85 m
Site altitude

 20.00 m
Structure height

 Design life in year(s) 



 1.00
Probability factor

 0°
Structure orientation from North


Site and building information


Standard, Directional and Hybrid methods

Both Standard and Directional/Hybrid methods according to BS6399-2 are included. The Standard Method applies to projects where the form of the building is well defined but the site is not. Where only the standard orthogonal load cases are required but a better allowance for site exposure is desired because topography is significant and/or the site is in a town, the Directional or Hybrid method is available.

 **Snow Load** 

BS EN 1991-1-3 A1:2015 and UK national annex



 0.40 kN/m²
Characteristic snow load at 100 m altitude



 0.40 kN/m²
Characteristic ground snow load



Snow loading


Sector



For all codes VelVenti will divide the site location in up to 12 sectors. The number of sectors can be edited so users can specify their own required number depending on the required level of detailed analysis. For each of these sectors, if online, VelVenti will automatically calculate the effective wind speed and pressure curve taking account of the local topography and altitude of the site. If not online, this topography and altitude can be manually input.


 **Wind sector information** 


 12 sectors of 30° 


 135° to 165° 

 0.80
Directional factor

Orography  **Terrain** 

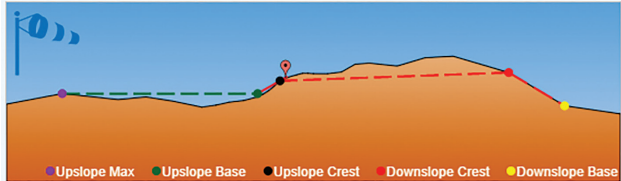
 1.07
Altitude factor

 1.107
Orography factor

 1.00
Local effects factor

[Show details +](#)

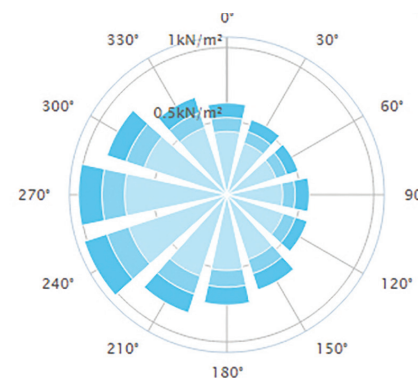
Escarpment/cliff upwind of site and crest near. Orography Significant



Wind direction divided into 12 sections

Gusting

Using the Eurocode, input parameters are automatically made available for gusting if the height of the building and topography of the site is significant.



Eurocode input parameters for gusting

Edits shown

The user has full control to view and edit design parameters which are clearly marked in the report so it is clear what has been used that deviates from the code.