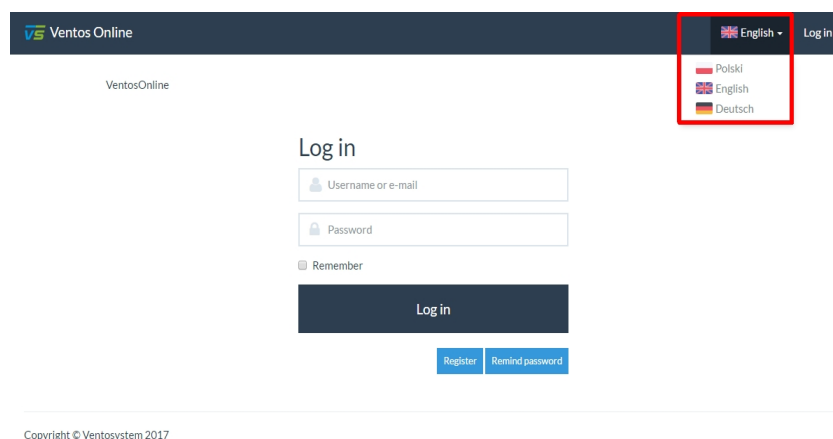


Instructions for use - Ventos Online

VENTOS ONLINE is intended for use by designers to calculate natural ventilation. The program is mainly suitable for industrial facilities in which, as a result of a manufacturing process, a significant thermal load is created. The a thermal current generated by a heat source in industrial facilities is a sufficient “driving force” behind ventilation which gusts of wind are not able to disturb.

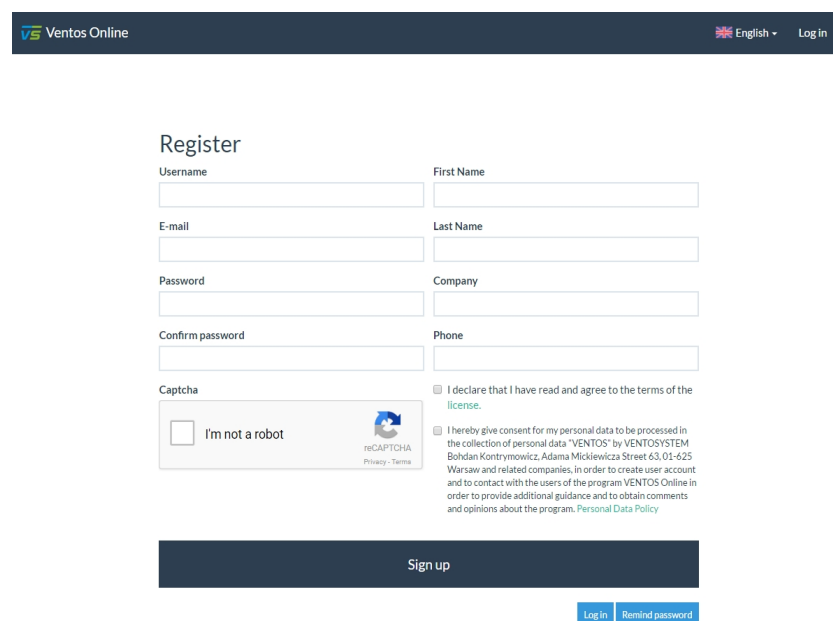
Language

There are 3 language versions available (Polish, German and English). Language can be changed by using the button in upper right corner of page.



Register

In order to Register, please click on the “Register” button. When registering you must fill in all required fields. Your registered account will need to be activated by the administrator. Which can take up to # working days. Only after your account has been registered and activated, you will be able to login using your login data.



Log in and Remind password

After the registration and activating process, the user is able to put in his credentials to have access to the Ventos program. If by chance the user forgets his login credentials, they may select the "Remind password" button and use their registered email to be resent a link to change their password.

VentosOnline

Log in

Username or e-mail

Password

☐ Remember

Log in

Register Remind password

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Calculations

After logging in, the home page will be presented and the program license will be found here. In order to access the calculations screen, selected the "Projects" button from the top menu.

Ventos Online Projects Help

English Hello test!

We offer you a new version of Ventos. Any mistakes that you observe during use, please submit the following address: biuro@ventosystem.pl

Licence agreement

1. This licence agreement applies only to the SOFTWARE in professional-version of the VENTOS program.
2. The firm VENTOSYSTEM Bohdan Kontrymowicz is the Owner of the program and the Company maintains the legal copyright to this program.
3. This program is dedicated to designers for calculation natural ventilation of workshops, specially industrial buildings with high thermal load. Any final reports produced with the assistance of this software may be included into the User's projects, but in its original form only. No changes, especially those that do not credit the origin of the software's ownership are allowed.
4. This licence empower the User for legal use of the program after registration and activate account by the Owner. This program is free of charge.
5. The login data to VENTOS program in professional version can not be available to the third party (no registered) without Owners knowledge and agreement.
6. Legal liability restrictions apply. The contents of these restrictions are displayed on program's homepage and also on the report of the calculation printout.
7. VENTOSYSTEM reserves the right to contact the User of the program in order to offer any additional or new information and to solicit the User's comments and opinions, in order to improve the next upgraded versions of the program.

Formulas in this program are created to determine equilibrium between all thermal gains produced by industrial processes within a building as well as air flow exhausted by the ventilation system. Based on this principle, the program is not intended to calculate air exhaust used to prevent thermodynamic disasters such as fires or an explosion blast in the case of accidental discharge of flammable gases. This program requires the user to possess and apply engineering knowledge and to understand physical phenomena occurring in the natural ventilation of buildings. The results of the program's calculations will always correspond to the adopted criteria and the input data which have been entered, for which only the user is responsible.

We cannot be held responsible the for the design assumptions and data / Legal liability disclaimer:

All data, information and theoretical assumptions for calculations used in our program have been carefully analyzed and verified by Ventosystem. However, the possibility of the occurrence of errors cannot be ruled out completely. Despite thorough verification we cannot be held responsible for the correctness, completeness and the ongoing pertinence of calculations results obtained on the basis of input data which were not authorized by us.

In particular, Ventosystem is not responsible for any damage and consequences arising as a result of indirect or direct application of calculations which have not been authorized by us. Ventosystem is not responsible for uncritical use of the results for applications which have not yet been tested. Please send remarks and suggestions for corrections to biuro@ventosystem.pl

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Add project

As a first step before starting calculations, add a new project by entering data such as:

- Object (e. g. power plant)
- Client (e.g. Investor, General Contractor, etc.)
- Project Number

The screenshot shows the Ventos Online web application. At the top, there's a navigation bar with 'Vents Online', 'Projects', and 'Help'. Below it, there are three main sections: '1. Project', '2. Venting zone', and '3. Saved calculations'. Each section has a dropdown menu and a '+', '-', and 'x' icon. The '1. Project' dropdown is highlighted with a red box. Below these sections, there are input fields for 'Report Nr', 'Date', and 'Remarks'. A 'Profile' dropdown is set to 'No profile'. A dark blue message box in the center says: 'Before filling the Input Data, please fill the fields: 1. Project, 2. Venting Zone, 3. Saved Calculations'. Below this, there's a '4. Input data' section with a table of input fields and a '5. Openings of natural ventilation - intakes and outlets' section with a list of openings.

Name	Designation	Value	Unit
Room length	a	<input type="text"/>	[m]
Room width	b	<input type="text"/>	[m]
Maximum building height (roof ridge)	h	<input type="text"/>	[m]
Mean room height	h av	<input type="text"/>	[m]
Degree of obstruction	VB	<input type="text"/>	[-]
Mean wind speed	U _w	<input type="text"/>	[m/s]
Inlet air temperature	t _e	<input type="text"/>	[°C]
External temperature	t _{ext}	<input type="text"/>	[°C]
Thermal load from the Q _c -process	Q'	<input type="text"/>	[kW]

Add venting zone

Next, add a venting zone for which calculation will be done. Each project can have multiple venting zones added. Adding the area entering data such as:

- Venting zone (e. g. boiler-house, machine-room)
- Calculations author

The screenshot shows the Ventos Online web application. At the top, there's a navigation bar with 'Vents Online', 'Projects', and 'Help'. Below it, there are three main sections: '1. Project', '2. Venting zone', and '3. Saved calculations'. Each section has a dropdown menu and a '+', '-', and 'x' icon. The '2. Venting zone' dropdown is highlighted with a red box. Below these sections, there are input fields for 'Report Nr', 'Date', and 'Remarks'. A 'Profile' dropdown is set to 'No profile'. A dark blue message box in the center says: 'Before filling the Input Data, please fill the fields: 1. Project, 2. Venting Zone, 3. Saved Calculations'. Below this, there's a '4. Input data' section with a table of input fields and a '5. Openings of natural ventilation - intakes and outlets' section with a list of openings.

Name	Designation	Value	Unit
Room length	a	<input type="text"/>	[m]
Room width	b	<input type="text"/>	[m]
Maximum building height (roof ridge)	h	<input type="text"/>	[m]
Mean room height	h av	<input type="text"/>	[m]
Degree of obstruction	VB	<input type="text"/>	[-]
Mean wind speed	U _w	<input type="text"/>	[m/s]
Inlet air temperature	t _e	<input type="text"/>	[°C]
External temperature	t _{ext}	<input type="text"/>	[°C]
Thermal load from the Q _c -process	Q'	<input type="text"/>	[kW]

User always can edit entered information about project and venting zone.

New calculation

To perform a new calculations, select from the list, or push the green button “+” add or import the data from your disc. Remember to save your data using the "Options" button as pressing the "+" will clear all data thats been filled:

- 4. Input data
- 5. Openings of natural ventilation – intakes and outlets
- 6. Devices of mechanical and hybrid ventilation.

For each venting zone User can add many calculations entering information such as:

- Report Number
- Date
- Remarks

The screenshot displays the Ventos Online web application interface. At the top, there's a navigation bar with 'Vents Online', 'Projects', and 'Help'. Below this, three dropdown menus are visible: '1. Project' (set to 'TEST'), '2. Venting zone' (set to 'TEST'), and '3. Saved calculations' (with a red box highlighting the '+', '-', and 'Import' icons). To the right of these are 'Options' and 'Calculations compare' buttons. Below the dropdowns are input fields for 'Report Nr', 'Date', and 'Remarks'. A 'Profile' dropdown is set to 'No profile'. A dark blue message box in the center states: 'Before filling the Input Data, please fill the fields: 1. Project, 2. Venting Zone, 3. Saved Calculations'. Below this, the '4. Input data' section contains a table with columns 'Name', 'Designation', 'Value', and 'Unit'. The table lists various parameters like Room length, Room width, Maximum building height, Mean room height, Degree of obstruction, Mean wind speed, Inlet air temperature, External temperature, and Thermal load from the Q'-process. To the right of the table are two sections: '5. Openings of natural ventilation - intakes and outlets' and '6. Devices of mechanical and hybrid ventilation', each with a green '+' button. At the bottom of the interface are 'Results', 'Calculate', and 'Report' buttons.

Name	Designation	Value	Unit
Room length	a	<input type="text"/>	[m]
Room width	b	<input type="text"/>	[m]
Maximum building height (roof ridge)	h	<input type="text"/>	[m]
Mean room height	h av	<input type="text"/>	[m]
Degree of obstruction	VB	<input type="text"/>	[-]
Mean wind speed	U=	<input type="text"/>	[m/s]
Inlet air temperature	te	<input type="text"/>	[°C]
External temperature	t ext	<input type="text"/>	[°C]
Thermal load from the Q'-process	Q'	<input type="text"/>	[kW]

Entering data

Enter input data about object, openings of natural ventilation and devices of mechanical or hybrid ventilation. Next openings can be added by using plus symbol (+). Names of devices offered by Ventosystem are available from the drop-down list. There are help tips for many input data. At least two devices at two different heights are required.

Name	Designation	Value	Unit
Room length	a	<input type="text"/>	[m]
Room width	b	<input type="text"/>	[m]
Maximum building height (roof ridge)	h	<input type="text"/>	[m]
Mean room height	h _{av}	<input type="text"/>	[m]
Degree of obstruction	VB	<input type="text"/>	[-]
Mean wind speed	U _∞	<input type="text"/>	[m/s]
Inlet air temperature	t _e	<input type="text"/>	[°C]
External temperature	t _{ext}	<input type="text"/>	[°C]
Thermal load from the Q'-process	Q'	<input type="text"/>	[kW]

Help

In the help section there is information about the devices that Ventosystem offers with an explanation of the specific cases for the calculations.

Name	Designation	Value	Unit
Room length	a	<input type="text"/>	[m]
Room width	b	<input type="text"/>	[m]
Maximum building height (roof ridge)	h	<input type="text"/>	[m]
Mean room height	h _{av}	<input type="text"/>	[m]
Degree of obstruction	VB	<input type="text"/>	[-]
Mean wind speed	U _∞	<input type="text"/>	[m/s]
Inlet air temperature	t _e	<input type="text"/>	[°C]
External temperature	t _{ext}	<input type="text"/>	[°C]
Thermal load from the Q'-process	Q'	<input type="text"/>	[kW]

Results

Once all the data has been filled in, click the "Calculate" button for your results. Clicking the "Result" button will take you back to your filled in data.

4. Input data

Name	Designation	Value	Unit
Room length	a	50	[m]
Room width	b	30	[m]
Maximum building height (roof ridge)	h	32	[m]
Mean room height	h _{av}	32	[m]
Degree of obstruction	VB	0.25	[-]
Mean wind speed	U _∞	0	[m/s]
Inlet air temperature	t _e	30	[°C]
External temperature	t _{ext}	30	[°C]
Thermal load from the Q _c -process	Q _c	500	[kW]

5. Openings of natural ventilation - intakes and outlets

Name	Opened	All
Vulcan II	10	10

Height of hole middle over ground h [m]: 32
Coefficient of the flow C_v [-]: 0.58
Width [m]: 1.5
Height/length [m]: 2.7
Coefficient of the wind resistance C_w [-]: 0

6. Devices of mechanical and hybrid ventilation

Report

The final result of the calculation is a report containing all input data and results. It presents the results for each opening and for each device. At the end of the report there is a schematic drawing of the building with a pressure difference distribution. The report can be displayed in Polish, English or German, regardless of the language in which we work in the program. You can download the report in PDF format.

Calculation results

Name	Designation	Value	Unit
Surface area of shop	A	1 500	[m ²]
Volume of shop	VR	48 000	[m ³]
Net volume of shop	VRN	36 000	[m ³]
Total thermal flow	Q _{Tg}	500	[kW]
Specific internal heat of net shop volume	Q _i	14	[W/m ³]
Temperature under top	t _{out}	38.3	[°C]
Difference between the exhaust and inlet temperature	Δt _{out}	8.3	[K]
Air displacement (per hour)	LW	5.14	[1/h]
Height of the neutral zone from ground	NZ	17.72	[m]
Pressure difference under roof	p _t	3	[Pa]
Pressure difference in ground floor	p _b	-4	[Pa]
Opened for incoming air (asymmetric)	A _{in}	66.94	[m ²]

5. Openings of natural ventilation - intakes and outlets

Name	Opened	All
Vulcan II	10	10

Height of hole middle over ground h [m]: 32
Coefficient of the flow C_v [-]: 0.58
Width [m]: 1.5
Height/length [m]: 2.7
Coefficient of the wind resistance C_w [-]: 0

6. Devices of mechanical and hybrid ventilation

Ventus Online

Report save Report close

Client: 2021-02
Project Number: 010
Client: 010
Venting zone: 010
Remarks: 010
Date: 2021-03-10
Calculation author: 010
Temperature profile: no profile

Report Nr 010

Input data

Room length	a	30.0[m]
Room width	b	20.0[m]
Maximum building height (roof ridge)	h	30.0[m]
Mean room height	h _{av}	20.0[m]
Degree of dissipation	1/R	0.25[-]
Mean wind speed	U _{av}	0.000[m/s]
Mean air temperature	t _{av}	20.0[°C]
External temperature	t _{ext}	20.0[°C]
Thermal load from the Q ₁ devices	Q ₁	0.000[kW]
Thermal loads from outside	Q _{ext}	0.000[kW]
Degree of room heating	η _T	0.90[-]

Calculation results

Surface area of shop	A	1.000[m²]
Volume of shop	V ₀	60.000[m³]
Net volume of shop	V _{NR}	36.000[m³]
Total thermal flow	Q _T	0.000[kW]
Specific internal heat of net shop volume	Q _i	14.000[W/m³]
Temperature under top	t _{out}	38.3[°C]
Difference between the exhaust and inlet temperature	Δt _{out}	8.3[K]
Air displacement (per hour)	LW	5.14[1/h]
Height of the neutral zone from ground	NZ	17.72[m]
Pressure difference under roof	pt	3[Pa]
Pressure difference in ground floor	pb	-4[Pa]
Opened for following air (percentage)	Alg ₀	66.660[%]

Save and Save as

Each new calculation can be saved using the „Save” or „Save as”. The “Save As” creates a new calculation and “Save” overwrites the current calculations.

Ventus Online Projects Help

English Hello test!

1. Project TEST 2. Venting zone TEST

3. Saved calculations test

Report Nr 010 Date 2017-03-10 Remarks Summer +30

Profile No profile

Save as Save Export calculations Report to check

Calculation results

Name	Designation	Value	Unit
Surface area of shop	A	1 500	[m²]
Volume of shop	VR	48 000	[m³]
Net volume of shop	VRN	36 000	[m³]
Total thermal flow	Q _T	500	[kW]
Specific internal heat of net shop volume	Q _i	14	[W/m³]
Temperature under top	t _{out}	38.3	[°C]
Difference between the exhaust and inlet temperature	Δt _{out}	8.3	[K]
Air displacement (per hour)	LW	5.14	[1/h]
Height of the neutral zone from ground	NZ	17.72	[m]
Pressure difference under roof	pt	3	[Pa]
Pressure difference in ground floor	pb	-4	[Pa]

5. Openings of natural ventilation - intakes and outlets

Name	Opened	All
Vulcan II	10	10

Height of hole middle over ground h [m] 32 Coefficient of the flow C_v [-] 0.58

Width [m] 1.5 Height/length [m] 2.7 Coefficient of the wind resistance C_w [-] 0

6. Devices of mechanical and hybrid ventilation

Delete calculations

Calculations that are no longer needed can be deleted using the "Delete calculation" button.

The screenshot shows the Ventos Online web application. At the top, there's a navigation bar with 'Ventos Online', 'Projects', and 'Help'. Below it, a header section contains three dropdown menus: '1. Project' (set to 'TEST'), '2. Venting zone' (set to 'TEST'), and '3. Saved calculations' (set to 'test'). Each dropdown has a red 'Delete' button. To the right of these is an 'Options' button and a 'Calculations compare' link. Below the header, there are fields for 'Report Nr' (010), 'Date' (2017-03-10), and 'Remarks' (Summer +30). A 'Profile' dropdown is set to 'No profile'. The main content area is titled 'Calculation results' and features a table with columns 'Name', 'Designation', 'Value', and 'Unit'. The table lists various parameters like 'Surface area of shop', 'Volume of shop', 'Net volume of shop', etc. To the right of the table, there are two sections: '5. Openings of natural ventilation - intakes and outlets' and '6. Devices of mechanical and hybrid ventilation'. The 'Delete calculation' button in the '3. Saved calculations' dropdown is highlighted with a red box.

Name	Designation	Value	Unit
Surface area of shop	A	1 500	[m ²]
Volume of shop	VR	48 000	[m ³]
Net volume of shop	VRN	36 000	[m ³]
Total thermal flow	Q _g	500	[kW]
Specific internal heat of net shop volume	Q _i	14	[W/m ³]
Temperature under top	t _{out}	38.3	[°C]
Difference between the exhaust and inlet temperature	Δt _{out}	8.3	[K]
Air displacement (per hour)	LW	5.14	[1/h]
Height of the neutral zone from ground	NZ	17.72	[m]
Pressure difference under roof	pt	3	[Pa]
Pressure difference in ground floor	pb	-4	[Pa]

Temperature profile

In the calculation, you can use available temperature profiles. At this time profiles are available for the boiler of a power plant and a glassworks. Users are able to also create their own profiles.

This screenshot shows the same Ventos Online interface as the previous one, but with the 'Profile' dropdown menu highlighted by a red box. The dropdown menu is open, showing a list of available profiles: 'Huta szkła/Glassworks/Glashütte'. The 'Delete calculation' button in the '3. Saved calculations' dropdown is also highlighted with a red box. The 'Calculation results' table and the '5. Openings of natural ventilation' and '6. Devices of mechanical and hybrid ventilation' sections are also visible.

Name	Designation	Value	Unit
Surface area of shop	A	1 500	[m ²]
Volume of shop	VR	48 000	[m ³]
Net volume of shop	VRN	36 000	[m ³]
Total thermal flow	Q _g	500	[kW]
Specific internal heat of net shop volume	Q _i	14	[W/m ³]
Temperature under top	t _{out}	38.3	[°C]
Difference between the exhaust and inlet temperature	Δt _{out}	8.3	[K]
Air displacement (per hour)	LW	5.14	[1/h]
Height of the neutral zone from ground	NZ	17.72	[m]
Pressure difference under roof	pt	3	[Pa]
Pressure difference in ground floor	pb	-4	[Pa]

Calculations compare

For convenient and easy comparisons between different calculations in the same venting zones, click the "Calculations compare" button. This function allows you easily compare 6 calculations. To compare you can also add openings of natural ventilation or devices of mechanical and hybrid ventilation.

The screenshot shows the Ventos Online software interface. At the top, there is a navigation bar with 'Vents Online', 'Projects', and 'Help'. Below this, there are three main sections: '1. Project', '2. Venting zone', and '3. Saved calculations'. The 'Calculations compare' button is highlighted in the top bar. Below these sections, there are fields for 'Report Nr', 'Date', 'Remarks', and 'Profile'. The 'Calculation results' table is visible, showing various parameters like 'Surface area of shop', 'Volume of shop', 'Net volume of shop', etc. The '5. Openings of natural ventilation - intakes and outlets' section is also visible, showing a table with columns for 'Name', 'Opened', and 'All'.

Name	Designation	Value	Unit
Surface area of shop	A	1 500	[m ²]
Volume of shop	VR	48 000	[m ³]
Net volume of shop	VRN	36 000	[m ³]
Total thermal flow	Q _g	500	[kW]
Specific internal heat of net shop volume	Q _i	14	[W/m ³]
Temperature under top	t _{out}	38.3	[°C]
Difference between the exhaust and inlet temperature	Δt _{out}	8.3	[K]
Air displacement (per hour)	LW	5.14	[1/h]
Height of the neutral zone from ground	NZ	17.72	[m]
Pressure difference under roof	pt	3	[Pa]
Pressure difference in ground floor	pb	-4	[Pa]

Import calculations and Export calculations

This function allows you to save the file with currently open calculations on your computer (Export calculations) and load calculations with a computer (Import calculations). Imported calculations are saved in currently open venting zone. It is possible to import calculations from current and previous version of the program. Exported files are only compatible with current version.

The screenshot shows the Ventos Online software interface. At the top, there is a navigation bar with 'Vents Online', 'Projects', and 'Help'. Below this, there are three main sections: '1. Project', '2. Venting zone', and '3. Saved calculations'. The 'Export calculations' button is highlighted in the top bar. Below these sections, there are fields for 'Report Nr', 'Date', 'Remarks', and 'Profile'. The 'Calculation results' table is visible, showing various parameters like 'Surface area of shop', 'Volume of shop', 'Net volume of shop', etc. The '5. Openings of natural ventilation - intakes and outlets' section is also visible, showing a table with columns for 'Name', 'Opened', and 'All'.

Name	Designation	Value	Unit
Surface area of shop	A	1 500	[m ²]
Volume of shop	VR	48 000	[m ³]
Net volume of shop	VRN	36 000	[m ³]
Total thermal flow	Q _g	500	[kW]
Specific internal heat of net shop volume	Q _i	14	[W/m ³]
Temperature under top	t _{out}	38.3	[°C]
Difference between the exhaust and inlet temperature	Δt _{out}	8.3	[K]
Air displacement (per hour)	LW	5.14	[1/h]
Height of the neutral zone from ground	NZ	17.72	[m]
Pressure difference under roof	pt	3	[Pa]
Pressure difference in ground floor	pb	-4	[Pa]

Report to check

Using this function will automatically send the current calculation to the administrator. The correctness of the calculations will be checked by the administrator. The administrator will be in contact with the user who reported the calculations.

The screenshot displays the Ventos Online web application interface. At the top, there is a navigation bar with 'Ventos Online', 'Projects', and 'Help' menus, along with language and user settings. Below this, a project configuration section shows '1. Project: TEST', '2. Venting zone: TEST', and '3. Saved calculations: test'. A dropdown menu is open, showing options: 'Save as', 'Save', 'Export calculations', and 'Report to check' (which is highlighted with a red rectangle). Below the menu, there are input fields for 'Report Nr' (010), 'Date' (2017-03-10), and 'Remarks' (Summer +30). A 'Profile' dropdown is set to 'No profile'.

The main content area is divided into two sections. The left section, titled 'Calculation results', contains a table with the following data:

Name	Designation	Value	Unit
Surface area of shop	A	1 500	[m ²]
Volume of shop	VR	48 000	[m ³]
Net volume of shop	VRN	36 000	[m ³]
Total thermal flow	Q'g	500	[kW]
Specific internal heat of net shop volume	Q'i	14	[W/m ³]
Temperature under top	t out	38.3	[°C]
Difference between the exhaust and inlet temperature	Δt out	8.3	[K]
Air displacement (per hour)	LW	5.14	[1/h]
Height of the neutral zone from ground	NZ	17.72	[m]
Pressure difference under roof	pt	3	[Pa]
Pressure difference in ground floor	pb	-4	[Pa]

The right section, titled '5. Openings of natural ventilation - intakes and outlets', shows a table with columns 'Name', 'Opened', and 'All'. The first row is 'Vulcan II' with 'Opened' and 'All' values of 10. Below this, there are input fields for 'Height of hole middle over ground h [m]' (32), 'Coefficient of the flow Cv [-]' (0.58), 'Width [m]' (1.5), 'Height/length [m]' (2.7), and 'Coefficient of the wind resistance Cw [-]' (0). Below this section, there is a section titled '6. Devices of mechanical and hybrid ventilation' with a green plus icon.