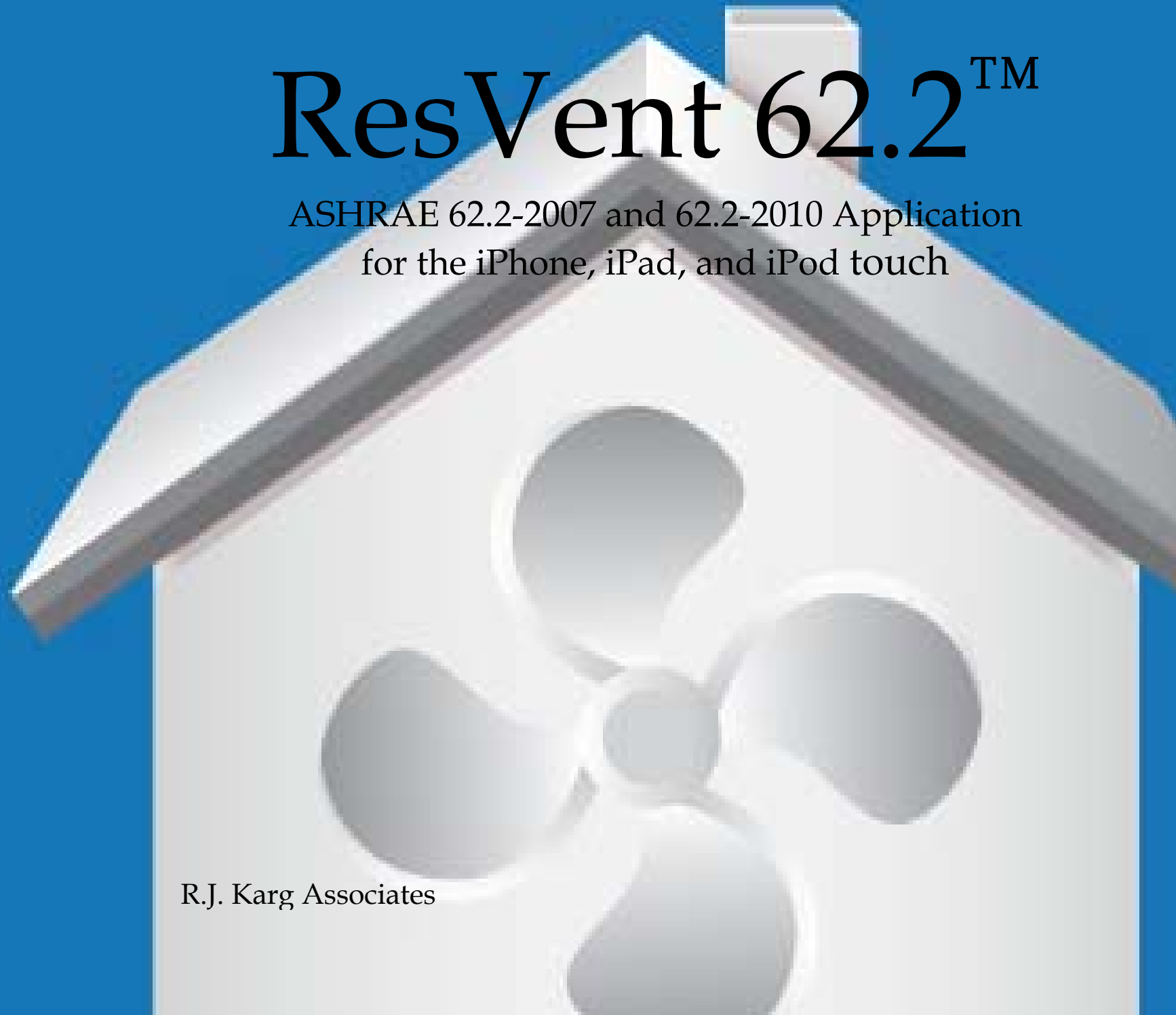
ResVent 62.2™

ASHRAE 62.2-2007 and 62.2-2010 Application
for the iPhone, iPad, and iPod touch



R.J. Karg Associates

ResVent 62.2™

ASHRAE 62.2-2007 and 62.2-2010 Application for the iPhone, iPad, and iPod touch

VERSION 1.1

Application Instructions

R.J. Karg Associates

596 Grover Hill Road

Bethel, Maine 04217

www.karg.com

Software License Agreement and Limited Warranty

When using this application, the user agrees that in no event shall R.J. Karg Associates or Carmel Software Corporation be liable for any direct, indirect, special, incidental or consequential damages (including loss of profit), to the user of this application, whether based on contract, tort, or any other legal theory.

Acknowledgements

ResVent 62.2 was designed by Rick Karg of R.J. Karg Associates, Stephen Roth of Carmel Software, and Charlie Holly, PhD, of Kennebec Home Performance. Stephen Roth was the primary programmer.

Table of Contents

Introduction 1

Quick Start 2

ResVent 62.2 Tab 3

Global Settings Tab 4

Help Tab 4

Project Screen 5

Ventilation Inputs 6

Reports 6

Input Ranges 7

Default Project 8

Choosing a Weather Location 9

ASHRAE 62.2-2007 11

Existing Dwellings 11

New Dwellings 15

ASHRAE 62.2-2010 17

Existing Dwellings 17

New Dwellings 23

Appendices 25

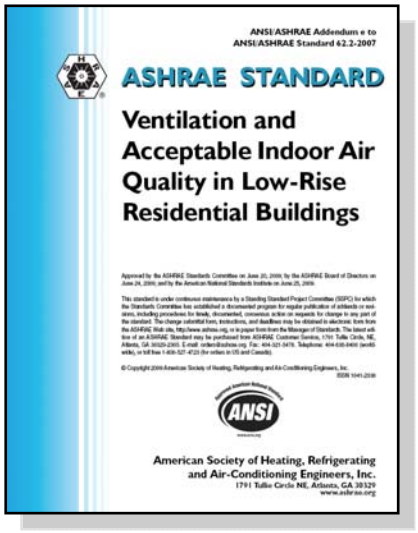
Additional ASHRAE 62.2 Requirements 25

Weather Factors for North America 26

Weather Factors for North America (W in units of ACH) 27

Sample ResVent 62.2 Report 30
ASHRAE 62.2 Equations 31
Ordering Information 32
Support and Updates 32
Software Training 32
Glossary 33

Introduction



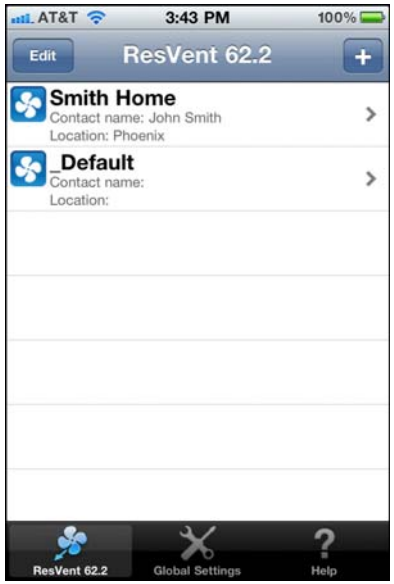
The ResVent 62.2 application allows you to quickly perform comprehensive whole-building ventilation calculations for residential buildings based on ASHRAE Standards 62.2-2007 and 62.2-2010.

Before using this tool, it is important to understand that ASHRAE 62.2, *Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings*, requires local and whole-building ventilation. *Local* ventilation of 50 CFM (25 L/s) is the minimum required in each bathroom and 100 CFM (50 L/s) is the minimum required in the kitchen. The required *whole-building* ventilation rate is calculated by this application.

Regarding whole-building ventilation, the Standard states: "A mechanical exhaust system, supply system, or combination thereof shall be installed for each dwelling unit to provide whole-building ventilation with outdoor air each hour at no less than the rate specified . . ." According to the Standard, all *new* dwellings require whole-building ventilation, but some *existing* dwellings do not.

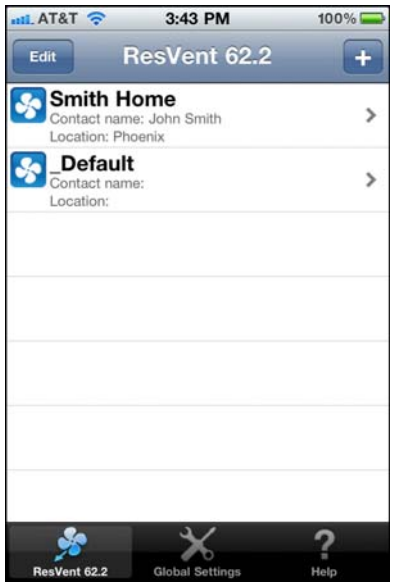
Please refer to Additional ASHRAE 62.2 Requirements on page 25. Of course, the best source of information for Standard ASHRAE 62.2 are the Standards themselves. The 2007 and 2010 versions are available for purchase at www.ashrae.org. Additionally, refer to the *62.2 User's Guide* and ASHRAE Guideline 24-2008 for practical application of the Standards. These documents are also available at the ASHRAE website.

Quick Start



The following is a list of hints and suggestions to quickly get started using the ResVent 62.2 application:

1. The application comes preinstalled with one sample project and a "default" project. The "default" project is the base project used to create all new projects. You can edit this project at any time and assign values more appropriate to the jobs that you perform. It is easy to delete projects, but we recommend you retain the default project in your list of projects.
2. To create a new project, select the "+" button in the upper right-hand corner of the first screen that appears when you start the application. You can start a new project using the default project data or select another existing project to copy data from. In all cases, you will be asked to name the project.
3. You can enter values by using the slider bars (where available) or by touching the box and entering the value from the keyboard. The ranges and step values for each of the sliders can be set on the Input Ranges screen, described on page 7.
4. When you open ResVent 62.2 application, you will see three tabs at the bottom of your screen:
    a. The ResVent 62.2 tab is the first screen that appears when you start up the application and allows you to perform the ResVent 62.2 whole-building ventilation calculations. Please see ResVent 62.2 Tab on page 3 for more information.
    b. The Global Settings tab allows you to specify global settings such as whether to use IP (inch/pound) or SI (metric) units. Please see the Global Settings Tab on page 4 for more information.
    c. The "Help" tab displays this help screen.
5. The number of screens and types of inputs and results depends upon whether you choose to calculate according to the 2007 or 2010 versions of the ASHRAE 62.2 Standard, and also whether the dwelling is new or existing. Chapters 1 and 2



explain the use of the four possible scenarios – ASHRAE 62.2-2007, existing and new dwellings; and ASHRAE 62.2-2010, existing and new dwellings. The procedure for finding the minimum whole building ventilation rate for new dwellings is essentially the same for ASHRAE 62.2-2007 and 62.2-2010.

6. Math-on-the-fly is a feature we added to make the use of ResVent 62.2 easier for you. This feature allows you to calculate areas, volumes, etc. within the input boxes. For example, when entering the Living area, you can touch the Living area box, delete what is in it, and enter the dimensions of the building to calculate the living area. If the building is 30 feet by 60 feet on one floor, just enter 30*60 with the keypad and then press Done. “1800” will appear in the Living area box. You may use multiplication (*), division (/), addition (+), subtraction (-), exponents (^), and parentheses for mathematical operations in any of the input boxes.

ResVent 62.2 Tab

This tab/screen automatically appears when you first start the ResVent 62.2 application. It lists all of the projects that have been created. The following describes how to create, edit, and delete projects.

- Create a New Project: To create a new project, click the "+" button located in the upper right-hand corner of the screen. A new screen will appear allowing you to enter a new project name. You can start a new project using the default project data or select another existing project (“Copy from existing project>>”) to copy data from. If you wish to copy from another created project, just press this button bar. A list of all existing projects will appear allowing you to select one. After you select an existing project, you will be returned to the “Add Project" screen to enter the new project name. If you do not copy from an existing project, type in the new project name and the "_Default" project will be used as the basis for creating the new one. See Template (or Default) Project on page 8 for more information on the "_Default" project.

- Edit an Existing Project: To edit an existing project, select the project name and the next screen will slide onto view allowing you to enter information about the project.

- Delete an Existing Project: Swipe your finger across the name of the project that you wish to delete. A "delete" button will appear allowing you to press it to delete the project.

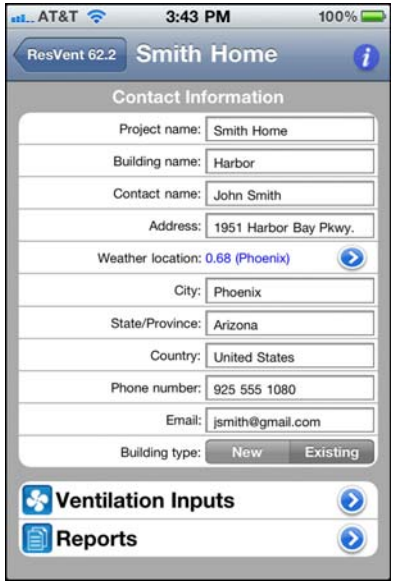
Global Settings Tab

This screen can be accessed by selecting the Global Settings tab on the home-page screen that first appears when you start the ResVent 62.2 application. The following is an explanation of each of the inputs:

1. *Units:* This selector allows you to specify whether to display all values in IP (inch/pound) or SI (metric) units. When you return to the main input form, all values will reflect the units you choose.
2. *ASHRAE Standard:* This selector allows you to specify for which ASHRAE 62.2 Standard to calculate; either 2007 or 2010. The primary difference between these two versions is that the 2010 includes the alternative compliance supplement for existing dwellings; the 2007 edition does not.
3. *Digit Group Separator:* This selector allows you to specify whether a thousands-separator (for example - a comma - "1,000.00") should be utilized in all the input and output values. Specify "On" to include it, or "Off".

Help Tab

This screen explains the workings of the application; it is an abbreviated version of this document.



Project Screen

Contact Information box

The following describes the overall project input information (Project Name is the only mandatory entry):

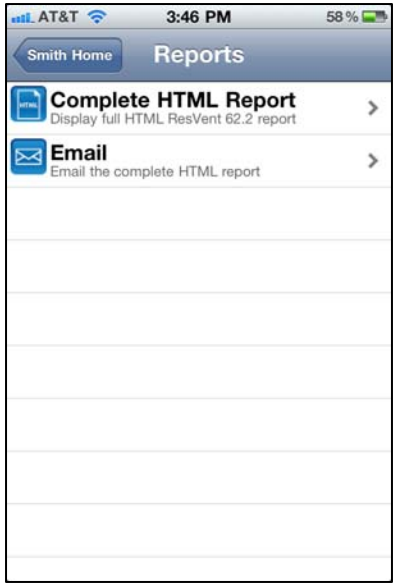
- ***Project Name:*** This is the name of your project that you originally created (see Create a New Project, above). You can change the project name in this text box. To do so, tap your finger within the text box and the standard iPhone keyboard will pop up allowing you to type in a new name. This keyboard will appear anytime you tap your finger within any of the textboxes in this application.
- ***Building name:*** Enter the name of the building being analyzed for compliance with ASHRAE 62.2.
- ***Contact name:*** Enter the client contact name for which these calculations are being performed.
- ***Address:*** Enter the contact address.
- ***Weather location:*** This displays the weather factor and corresponding weather location name – in parentheses – that was selected from the weather factor city picker list. To move to this picker list, touch the blue arrow icon (or anywhere on this row) to display the weather location list. This Select City screen contains a list of more than 200 cities in the U.S. and Canada with corresponding weather factors. See page 9 for more details about this weather location picker list.
- ***City:*** Enter the project city that corresponds with the address.
- ***State/Province:*** Enter the project state or province and the postal code.
- ***Country:*** Enter the project country.
- ***Phone number:*** Enter the contact phone number.
- ***Email:*** Enter the contact email address.
- ***Building type:*** This selector control allows you to choose whether the dwelling being analyzed is new or existing. Your selection (along with the year you select, 2007 or 2010) will determine the types of ventilation inputs and results displayed.

Ventilation Inputs (displayed at the bottom of the project screen): Select this option to display a new screen that allows you to enter all of the required ASHRAE 62.2 ventilation inputs. (See Ventilation Inputs below.)
Reports (displayed at the bottom of the Project Screen)**:** Select this option to display a screen that will display an HTML report that you can view on your phone or email to your desktop computer or a colleague. When you select this option, the new screen will display 2 options:

1. ***Complete HTML Report:*** Select this option to display a complete HTML report on your phone that includes all inputs and results.
2. ***Email:*** Select this option to email the HTML report along with a spreadsheet attachment.

Ventilation Inputs

When you select this option from the bottom of the project screen, you are transferred to a screen or screens that allow you to enter your inputs and view your results. Touch anywhere on this row to move to the next screen.

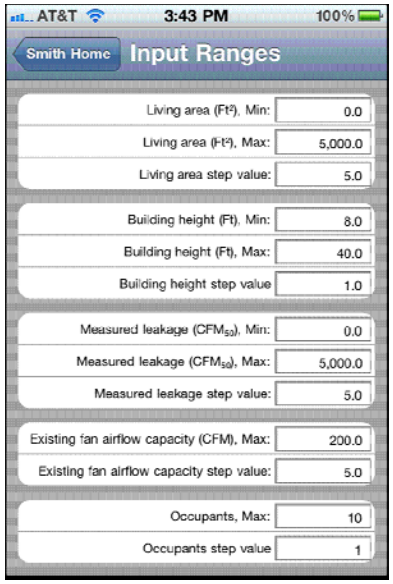


Reports

When you select this option, the new screen will display 2 options:

1. ***Complete HTML Report:*** Select this option to display a complete HTML report on your phone that includes all inputs and results.
2. ***Email:*** Select this option to email the HTML report along with a spreadsheet attachment.

A sample e-mailed report is reproduced in the Appendix on page 30.



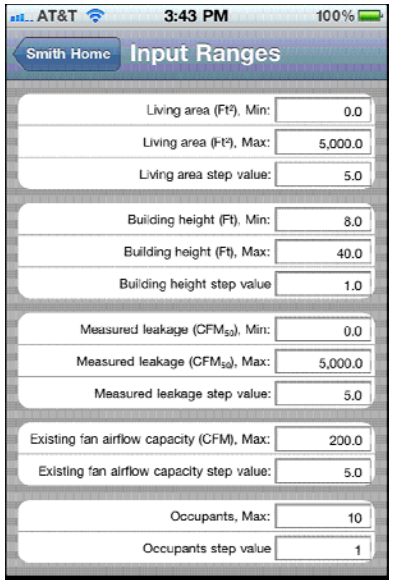
Input Ranges

The input ranges screen is viewed by clicking the small blue "i" icon located in the upper right-hand corner of the ventilation input screens. The following is a list of the input ranges you can adjust:

- Living area (Ft² or m²), Min: Enter the minimum living area value that will be displayed on the slider control associated with the living area input. This value appears on the Building Inputs box.
- Living area (Ft² or m²), Max: Enter the maximum allowable living area value that will be displayed on the slider control associated with the living area input. This value appears on the Building Inputs box.
- Living area step value: This input allows you to specify the step value as you move the indicator along the living-area slider control. For example, if you specify a value of 5, as you move the indicator to the left or right, the living area will decrease/increase by 5. If you specify 0, the increment is continuous.

***- Building height (Ft or m), Min*:** Enter the minimum building height value that will be displayed on the slider control associated with the building height input. This value appears on the Building Inputs box.
- Building height (Ft or m), Max: Enter the maximum building height value that will be displayed on the slider control associated with the building height input. This value appears on the Building Inputs box.
- Building height step value: This input allows you to specify the "step" value as you move the indicator along the building-height slider control. For example, if you specify a value of 1, as you move the indicator to the left or right, the building height will decrease/increase by 1. If you specify 0, the increment is continuous.

- Measured leakage (CFM$_{50}$ or L/s$_{50}$), Min: Enter the minimum measured leakage value that will be displayed on the slider control associated with the measured leakage input. This value appears on the Building Inputs box.



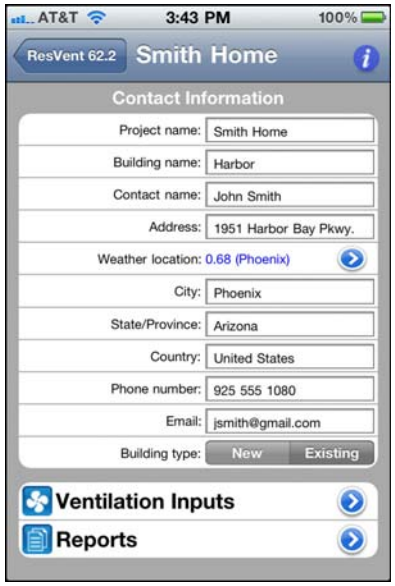
- Measured leakage (CFM$_{50}$ or L/s$_{50}$), Max: Enter the maximum measured leakage value that will be displayed on the slider control associated with the measured leakage input. This value appears on the Building Inputs box.
- Measured leakage step value: **This** input allows you to specify the step value as you move the indicator along the measured-leakage slider control. For example, if you specify a value of 10, as you move the indicator to the left or right, the measured leakage will decrease/increase by 10. If you specify 0, the increment is continuous.

- Existing fan airflow capacity (CFM or L/s), Max: Enter the maximum existing fan airflow capacity that will be displayed on the slider control associated with the existing fan airflow capacity input. This value appears in the Fan Run-Time Tool.
- Existing fan airflow capacity step value: This input allows you to specify the step value as you move the indicator along the existing-fan-airflow-capacity slider control. For example, if you specify a value of 10, as you move the indicator to the left or right, the existing fan airflow capacity will decrease/increase by 10. If you specify 0, the increment is continuous.

- Occupants, Max: Enter the maximum number of occupants that will be displayed on the slider control associated with this input. This value appears on the Building Inputs box.
- Occupants step value: This input allows you to specify the step value as you move the indicator along the occupants slider control. For example, if you specify a value of 1, as you move the indicator to the left or right, the number of people will decrease/increase by 1.

Default Project

The ResVent 62.2 application includes a default project (called "_Default"). This default project data is used as the basis for all new projects that are created (except for those that are copied from an existing project entered by you). You can edit all of the data in this default project by selecting the "_Default" and editing as you would any normal project. The data you enter in the "_Default" project will automatically be saved.



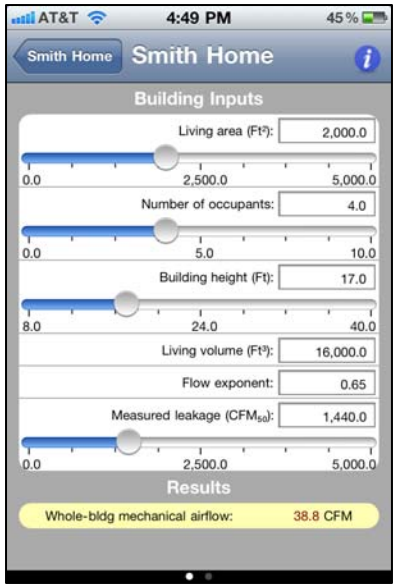
Choosing a Weather Location

The weather location list is accessed from the Contact Information box by touching the blue arrow icon (or anywhere on this row) to display the weather location list. This screen allows you to select the closest weather-factor location to the subject building anywhere in North America. The weather picker list contains over 200 cities in the U.S. and Canada. Each city includes a weather factor. When this screen appears, you can select whether to display U.S. or Canadian cities. After making this selection, you can scroll through the list of cities to find the one closest to the location of the building that you are analyzing.

You can override the weather factor value, but the override will apply to the current project only. We do not recommend doing this, but if you have good reason, simply touch the Weather Factor box to activate the keyboard and then enter the weather factor you wish. The weather factors are listed in a chart in the Appendix starting on page 26

ASHRAE 62.2-2007

Existing Dwellings



Calculating the ASHRAE 62.2-2007 results for an existing building includes the following inputs and results.

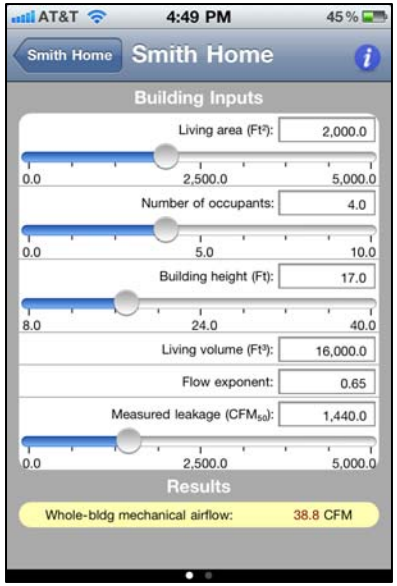
▶ *Screen 1 (Project name at top of screen)*

Building Inputs box

- Living area (Ft² or m²): Enter the area of the occupiable floor space. Note that the minimum, maximum, and step value for the "Living area" can be set on the Input Ranges screen, described on page 7. Remember, you can use the math-on-the-fly feature for filling in this value. See a description under Quick Start on page 1.

- Number of occupants: Enter the number of bedrooms, plus one (this assumes two people use the master bedroom). If the actual number of occupants is higher than this, enter the actual number. "When approved by the authority having jurisdiction, lower occupant densities may be used." (ASHRAE 62.2-2007 and 2010.) Note that the maximum number and step value for the "Occupants" can be set on the Input Ranges screen (see page 7).

- Building height (Ft or m): Enter the height of the conditioned part of the building. This height should include the above-grade part of a basement if the basement is within the thermal/pressure enclosure. If the conditioned building height varies (for example, a two-story section attached to a one-story section) enter the average building height. Do not include an attic if it is not within the thermal/pressure enclosure. This value is divided by an 8 foot ceiling height to determine the number of stories. The minimum, maximum, and step value for the Building height can be set on the Input Ranges screen.



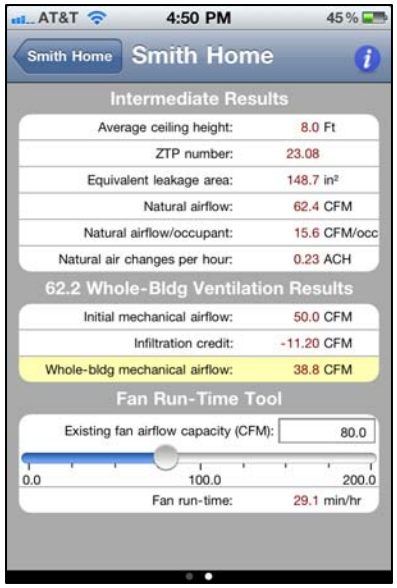
- Living volume (Ft³ or m³): This value is used only for the calculation of the Average ceiling height and Natural air changes per hour (ACH); it does not affect any other results. If you set this value to zero, the Average ceiling height and the ACH results on the next screen will be zero. If you set this value other than zero, the Average ceiling height on the next screen will be calculated by dividing the Living volume by the Living area. If you wish to calculate the Natural air changes per hour (ACH), you must enter the volume of the conditioned living space. Remember, you can use the math-on-the-fly feature for filling in this value. See a description under Quick Start on page 1.

- Flow exponent: This is the slope of the leakage curve of the blower-door tested building (refer to the next entry below, Measured leakage). The typical value for the flow exponent is 0.65. The range for the flow exponent is 0.5 to 1.0. A flow exponent of 0.5 characterizes a building with large leaks through which air flows in a turbulent fashion. A flow exponent of 1.0 characterizes a building with small, crack-like leaks through which air flows in a laminar fashion. If you perform a single-point blower door test, use 0.65 as the flow exponent. If you perform a multi-point blower door test, you will know and should enter the actual flow exponent for the subject building.

- Measured leakage (CFM_{50} or L/s_{50}): Enter the measured leakage from a standard blower door test. This is usually the post-weatherization blower door value because this is the leakage measurement that helps determine the final whole-building ventilation rate. Note that the minimum, maximum, and step value for the Measured leakage can be set on the Input Ranges screen.

Results box

- Whole-bldg mechanical airflow (CFM or L/s): This result updates according to the inputs discussed above. It is the continuously operating minimum whole-building mechanical ventilation required for compliance with ASHRAE 62.2-2007. This value assumes the ventilation fan runs 100 percent of the time when the windows of the house are closed. This result is shaded with light yellow.



Comment
The red font color of most of the numbers in the screen above indicates the value is calculated and cannot be overwritten.

▶ *Screen 2 (Project name at top of screen)*

Swipe you finger from right to left to view screen two. This screen displays all the calculated results, including:

Intermediate Results box

- Average ceiling height (Ft or m): This is the calculated average building ceiling height, based upon the building living volume, divided by the living area. *Note that the value you enter for the volume is your choice, it is not determined by other entries.* If you enter zero for the volume, the average ceiling height will be zero.

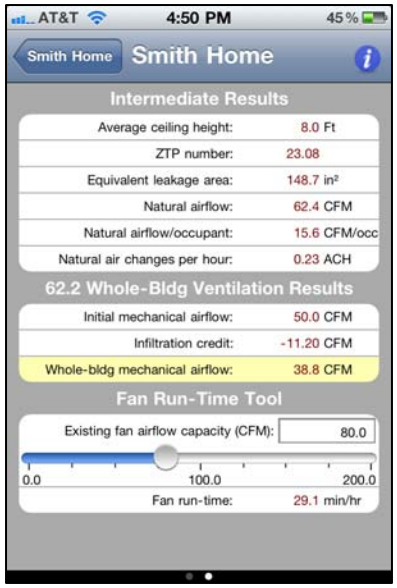
- ZTP number: The ZipTest Pro number represents the relationship between the building leakage at 50 Pascals of pressure during a standard blower door test and the leakage on average under natural conditions. For example, if the ZTP number is 25 and the tested leakage rate of the building is 2500 CFM_{50}, the natural leakage of the building is approximately 2500/25 = 100 CFM. The derivation of the ZTP number is based on ASHRAE Standards 119 (*Air Leakage Performance for Detached Single-Family Residential Buildings)* and 136 (*A Method of Determining Air Change Rates in Detached Dwellings*).

- Equivalent leakage area (in² or cm²): This is the equivalent leakage area of the pressure enclosure of the house. This number generally is very close to 10 percent of the entered CFM_{50} value. If all the holes in a building could be gathered together into one larger representative hole, it would be approximately this size.

- Natural airflow (CFM or L/s): This is the average airflow leakage under normal conditions.

- Natural airflow/occupant (CFM per occupant or L/s per occupant): This is the average airflow leakage per reported occupant (usually the number of bedrooms, plus one) under normal conditions.

- Natural air changes per hour (ACH): This is the average leakage over the heating season expressed as Air Changes per Hour. You must enter the correct Living volume on the previous screen for the Natural air changes per hour value to be correct. If you enter zero for the volume, Natural air changes per hour will be zero (but this will not affect the whole-building ventilation result).



62.2 Whole-Bldg Ventilation Results box

- Initial mechanical airflow (CFM or L/s): This is the initial (before the infiltration credit is applied) minimum whole-building ventilation required by ASHRAE 62.2-2007.

- Infiltration credit (CFM or L/s): This is the infiltration credit calculated according to ASHRAE 62.2-2007 using the guidelines of ASHRAE 119 and 136, as specified by ASHRAE 62.2-2007. This credit is subtracted from the "Initial mechanical airflow" described above, to find the "Whole-bldg mechanical airflow", described below.

- Whole-bldg mechanical airflow (CFM or L/s): This is the continuously operating minimum mechanical ventilation required for compliance with ASHRAE 62.2-2007. This value assumes the fan runs 100 percent of the time when the windows of the house are closed. This value is shaded with light yellow.

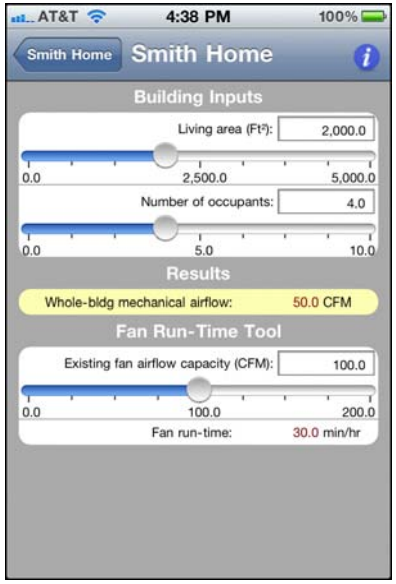
Fan Run-Time Tool box

This tool allows you to determine the fan run-time for an existing fan (already installed or one that will be installed with known fan airflow capacity). The required inputs are the Whole-bldg mechanical airflow, a calculated value, and the capacity of the existing fan, a value you enter.

- Existing fan airflow capacity (CFM or L/s): Enter this value by using the slider bar or entering a value directly in the box. Note that the maximum capacity and step value for the "Existing fan airflow capacity" can be set on the Input Ranges screen, described on page 7. If you enter an existing fan airflow capacity that is less than the required whole-building ventilation rate, "N/A" will appear as the result of Fan run-time.

- Fan run-time (min/hr): This result is the minutes the fan must run per hour based upon the existing fan capacity and the calculated whole-building mechanical airflow requirements.

Please note that this fan run-time tool is valid for ASHRAE Standard 62.2-2007 only if the fan operates at least once every three hours. For more information, please refer to the Standard.



New Dwellings

The methods for determining the minimum whole-building ventilation requirement for new dwellings are essentially the same for ASHRAE 62.2-2007 and 62.2-2010. Because this calculation is quite simple, only one screen appears when you touch Ventilation Inputs. The following explains the inputs and results on this screen.

Building Inputs box

- Living area (Ft² or m²): Enter the area of the occupiable floor space. Note that the minimum, maximum, and step value for the Living area can be set on the Input Ranges screen. Remember, you can use the math-on-the-fly feature for filling in this value.

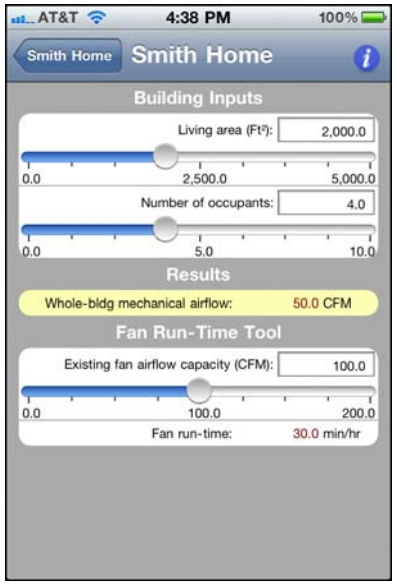
- Number of occupants: Enter the number of bedrooms, plus one (this assumes two people use the master bedroom). If the actual number of occupants is higher than this, enter the actual number. "When approved by the authority having jurisdiction, lower occupant densities may be used." (ASHRAE 62.2-2007 and 2010.) Note that the maximum number and step value for the "Occupants" can be set on the Input Ranges screen.

Results box

- Whole-bldg mechanical airflow (CFM or L/s): This result updates according to the inputs discussed above. It is the minimum continuously operating whole-building mechanical ventilation required for new-building compliance with ASHRAE 62.2-2007. This value assumes the whole-building fan runs 100 percent of the time. This result is shaded with light yellow.

Fan Run-Time Tool box

This tool allows you to determine the fan run-time for an existing fan (already installed or one that will be installed with known fan airflow capacity). The required inputs are the Whole-bldg mechanical airflow, a calculated value, and the capacity of the existing fan, a value you enter.



- Existing fan airflow capacity (CFM or L/s): Enter this value by using the slider bar or entering a value directly in the box. Note that the maximum capacity and step value for the Existing fan airflow capacity can be set on the Input Ranges screen. If you enter an existing fan airflow capacity that is less than the required whole-building ventilation rate, "N/A" will appear as the result of "Fan run-time".

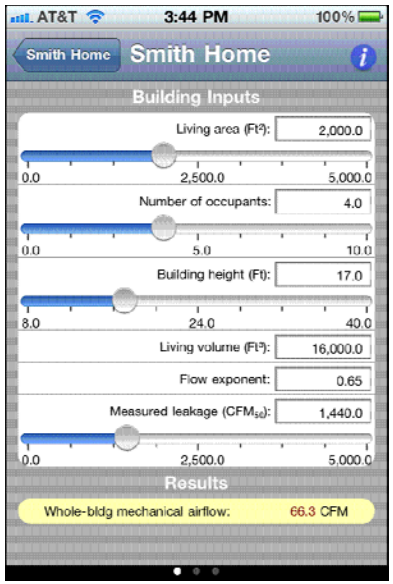
- Fan run-time (min/hr): This result is the minutes the fan must run per hour based upon the existing fan capacity and the calculated whole-building mechanical airflow requirements.

Please note that this fan run-time tool is valid for ASHRAE 62.2-2007 only if the fan operates at least once every three hours.

ASHRAE 62.2-2010

Existing Dwellings

Calculating the ASHRAE 62.2-2010 results for an existing building includes the following inputs and results.



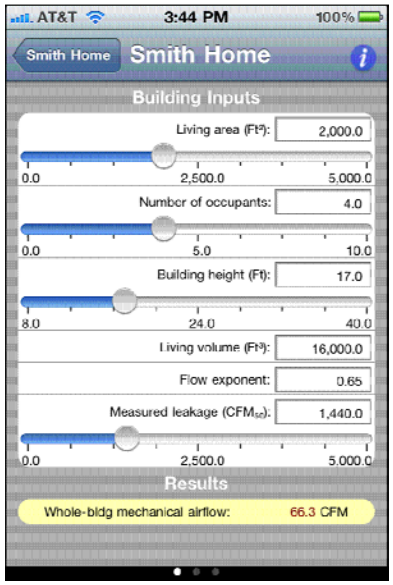
▶ *Screen 1 (Project name at top of screen)*

Building Inputs box

- Living area (Ft² or m²): Enter the area of the occupiable floor space. Note that the minimum, maximum, and step value for the Living area can be set on the Input Ranges screen. Remember, you can use the math-on-the-fly feature for filling in this value. See a description under Quick Start on page 1.

- Number of occupants: Enter the number of bedrooms, plus one (this assumes two people use the master bedroom). If the actual number of occupants is higher than this, enter the actual number. "When approved by the authority having jurisdiction, lower occupant densities may be used." (ASHRAE 62.2-2007 and 2010.) Note that the maximum number and step value for the "Occupants" can be set on the Input Ranges screen.

- Building height (Ft or m): Enter the height of the conditioned part of the building. This height should include the above-grade part of a basement if the basement is within the thermal/pressure enclosure. If the conditioned building height varies (for example, a two-story section attached to a one-story section) enter the average building height. Do not include an attic if it is not within the thermal/pressure enclosure. This value is divided by an 8 foot ceiling height to determine the number of stories. Note that the minimum, maximum, and step value for the Building height can be set on the Input



Ranges screen.

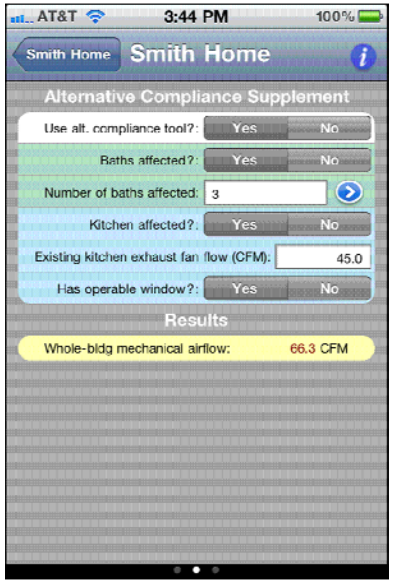
- Living volume (Ft³ or m³): This value is used only for the calculation of the Average ceiling height and Natural air changes per hour (ACH); it does not affect any other results. If you set this value to zero, the Average ceiling height and the ACH results on the next screen will be zero. If you set this value other than zero, the Average ceiling height on the next screen will be calculated by dividing the Living volume by the Living area. If you wish to calculate the Natural air changes per hour (ACH), you must enter the volume of the conditioned living space. Remember, you can use the math-on-the-fly feature for filling in this value. See a description under Quick Start on page 1.

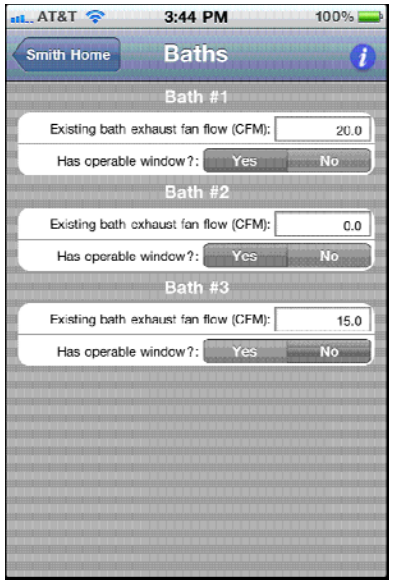
- Flow exponent: This is the slope of the leakage curve of the blower-door tested building (refer to the next entry below, Measured leakage). The typical value for the flow exponent is 0.65. The range for the flow exponent is 0.5 to 1.0. A flow exponent of 0.5 characterizes a building with large leaks through which air flows in a turbulent fashion. A flow exponent of 1.0 characterizes a building with small, crack-like leaks through which air flows in a laminar fashion. If you perform a single-point blower door test, use 0.65 as the flow exponent. If you perform a multi-point blower door test, you will know and should enter the actual flow exponent for the subject building.

- Measured leakage (CFM$_{50}$ or L/s$_{50}$): **Enter** the measured leakage from a standard blower door test. This is usually the post-weatherization blower door value because this is the one that helps determine the final whole-building ventilation rate. Note that the minimum, maximum, and step value for the Measured leakage can be set on the Input Ranges screen, described on page 7.

Results box

- Whole-bldg mechanical airflow (CFM or L/s): This result updates according to the inputs discussed above. It is the continuously operating minimum whole-building mechanical ventilation required for compliance with ASHRAE 62.2-2010. This value assumes the fan runs 100 percent of the time when the windows of the house are closed. This result is shaded with light yellow wherever it appears. This value will change if the Alternative Compliance Supplement is used (see below).





▶ *Screen 2 (Project name at top of screen)*

Swipe your finger from right to left to view screen two. This screen displays all of the alternative compliance supplement inputs, including:

Alternative Compliance Supplement box

- Use alt. compliance tool?: **This** is the alternative compliance supplement tool for existing dwellings. You may select "Yes" or "No". If you select "Yes" the appropriate inputs appear and you must enter the following data:

- Baths affected?: This row is shaded light green. Select either "Yes" or "No". A bathroom (bath) is defined as a room that has a bathtub, shower, spa or similar source of moisture. According to ASHRAE 62.2-2010 (and 2007), each bathroom shall have an exhaust fan of 50 CFM. If you have measured the flow of a bathroom exhaust fan to be 50 CFM or greater, then it is not affected and should not be included as one of your "bath affected". If you select "Yes" for this input, the following inputs will also display:

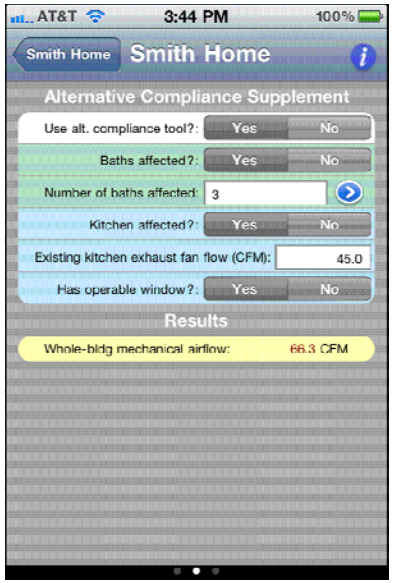
- Number of baths affected: This row is shaded light green. Enter a number between 1 and 5. If you are intending to install the whole building ventilation fan in a bathroom, do not count this bathroom. *Never enter more bathrooms than the dwelling actually has because this will unnecessarily increase the required whole-building ventilation rate.* Once you entered the number of baths affected, press the blue icon located on the right-hand side of this row to display a new screen that allows you to enter the exhaust airflow and whether an openable window exists for each bathroom specified:

▶ *Bath Screen – 2a*

- Existing bath exhaust fan flow (CFM or L/s): This is the measured flow rate of the exhaust fan in this bathroom (maximum of 50 CFM; if you enter a number greater than 50, the value will default to 50). If there is no exhaust fan, enter zero.

Has operable window?: Select either "Yes" or "No". Note that this question refers to openable windows only. If a bathroom has a window, but it does not open, answer this question "No".

After filling in this information for each bathroom affected, return to the previous screen by touching the button at the top left corner of the screen that includes the project name.



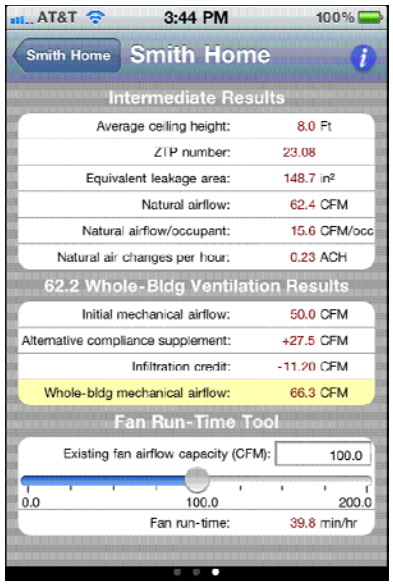
▶ *Screen 2 (continued)*

- Kitchen affected?: This row is shaded light blue. Select either "Yes" or "No". A kitchen is defined as any room containing cooking appliances. According to ASHRAE 62.2-2010 (and 2007), each kitchen shall have a vented exhaust fan of 100 CFM. If you are intending to install an exhaust fan in the kitchen as part of the whole-building ventilation and this fan will operate at a rate that is equal to or greater than 5 kitchen air changes per hour, answer "No". If you select "Yes", the following inputs must be entered:

- Existing kitchen exhaust fan flow (CFM or L/s): This row is shaded light blue. This is the measured flow rate of the exhaust fan in the kitchen (maximum of 100 CFM; if you enter a number greater than 100, the value will default to 100).
- Has operable window?: This row is shaded light blue. Select either "Yes" or "No". Note that this question refers to openable windows only. If the kitchen has a window, but it does not open, answer this question "No".

Results box

- Whole-bldg mechanical airflow (CFM or L/s): This result updates according to the inputs discussed above. It is the continuously operating minimum whole-building mechanical ventilation required for existing-building compliance with ASHRAE 62.2-2010. This value assumes the fan runs 100 percent of the time when the windows of the house are closed. This result is shaded with light yellow.



Comment
The red font color of most of the numbers in the screen above indicates the value is calculated and cannot be overwritten.

▶ *Screen 3 (Project name at top of screen)*

Swipe your finger from right to left to view screen three. This screen displays all of the calculated results, including:

Intermediate Results box

- Average ceiling height (Ft or m): This is the calculated average building ceiling height based upon the building living volume divided by the living area. *Note that the value you enter for the volume is your choice, it is not determined by other entries.* If you enter zero for the volume, the average ceiling height will be zero.

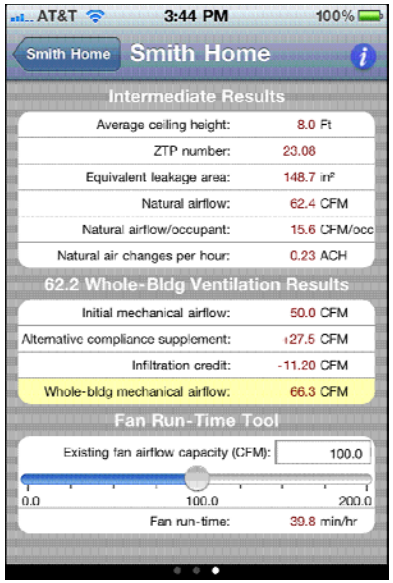
- ZTP number: The ZipTest Pro number represents the relationship between the building leakage at 50 Pascals of pressure during a standard blower door test and the leakage on average under natural conditions. For example, if the ZTP number is 25 and the tested leakage rate of the building is 2500 CFM_{50}, the natural leakage of the building is approximately 2500/25 = 100 CFM. The derivation of the ZTP number is based on ASHRAE Standards 119 (*Air Leakage Performance for Detached Single-Family Residential Buildings)* and 136 (*A Method of Determining Air Change Rates in Detached Dwellings*).

- Equivalent leakage area (in^2 or cm^2): This is the equivalent leakage area of the pressure enclosure of the house. This number generally is very close to 10 percent of the entered CFM_{50} value. If all the holes in a building could be gathered together into one larger representative hole, it would be approximately this size.

- Natural airflow (CFM or L/s): This is the average airflow leakage under normal conditions.

- Natural airflow/occupant (CFM per occupant or L/s per occupant): This is the average airflow leakage per reported occupant (usually the number of bedrooms, plus one) under normal conditions.

- Natural air changes per hour (ACH): This is the average leakage over the heating season expressed as Air Changes per Hour. You must enter the correct Living volume on the previous screen for the Natural air changes per hour value to be correct. If you enter zero for the volume, Natural air changes per hour will be zero (but this will not affect the whole-building ventilation result).



62.2 Whole-Bldg Ventilation Results box

- Initial mechanical airflow (CFM or L/s): This is the initial (before the infiltration credit is applied) whole-building ventilation required by ASHRAE 62.2-2010.

- Alternative compliance supplement (CFM or L/s): This is the alternative compliance supplement calculated according ASHRAE 62.2-2010, Appendix A. This value is added to the Initial mechanical airflow value. This value compensates for deficient local, on-demand, ventilation in bathrooms and the kitchen by increasing the whole-building ventilation rate. If you select "No" when asked on screen 2 "Use alt. compliance tool", this value will be zero.

- Infiltration credit (CFM or L/s): This is the infiltration credit calculated according to ASHRAE 62.2-2010 using the guidelines of ASHRAE 119 and 136, as specified by ASHRAE 62.2010. This credit is subtracted from the Initial mechanical airflow described above, to find the Whole-bldg mechanical airflow, described below.

- Whole-bldg mechanical airflow (CFM or L/s): This is the continuously operating minimum mechanical ventilation required for compliance with ASHRAE 62.2-2010. This value assumes the fan runs 100 percent of the time when the windows of the house are closed. This value is shaded with light yellow.

Fan Run-Time Tool box

This tool allows you to determine the fan run-time for an existing fan (already installed or one that will be installed with known fan airflow capacity). The required inputs are the Whole-bldg mechanical airflow, a calculated value and the capacity of the existing fan, a value you enter.

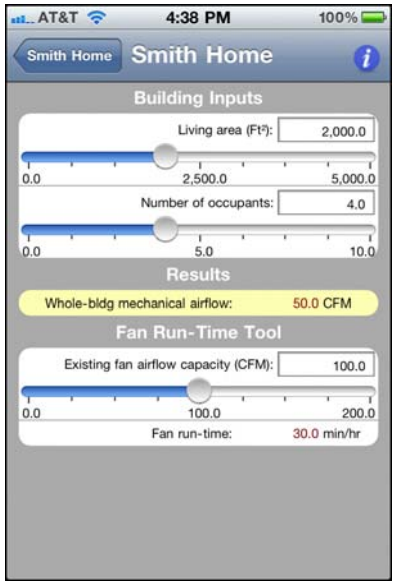
- Existing fan airflow capacity (CFM or L/s): Enter this value by using the slider bar or entering a value directly in the box. Note that the maximum capacity and step value for the Existing fan airflow capacity can be set on the Input Ranges screen, described on page 7. If you enter an existing fan airflow capacity that is less than the required whole-building ventilation rate, "N/A" will appear as the result of Fan run-time.

- Fan run-time (min/hr): This result is the minutes the fan must run per hour based upon the existing fan capacity and the calculated whole-building mechanical airflow requirements.

Please note that this fan run-time tool is valid for ASHRAE Standard 62.2-2010 only if the fan operates at least once every four hours. For more information, please refer to the Standard.

New Dwellings

The methods for determining the minimum whole-building ventilation requirement for new dwellings are essentially the same for ASHRAE 62.2-2010. Because this calculation is quite simple, only one screen appears when you touch Ventilation Inputs. The following explains the inputs and results on this screen.



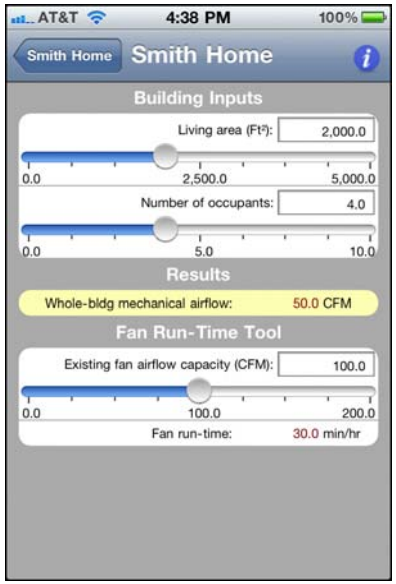
Building Inputs box

- Living area (Ft² or m²): Enter the area of the occupiable floor space. Note that the minimum, maximum, and step value for the Living area can be set on the Input Ranges screen. Remember, you can use the math-on-the-fly feature for filling in this value. S

- Number of occupants: Enter the number of bedrooms, plus one (this assumes two people use the master bedroom). If the actual number of occupants is higher than this, enter the actual number. "When approved by the authority having jurisdiction, lower occupant densities may be used." (ASHRAE 62.2-2007 and 2010.) Note that the maximum number and step value for the "Occupants" can be set on the Input Ranges screen.

Results box

- Whole-bldg mechanical airflow (CFM or L/s): This result updates according to the inputs discussed above. It is the continuously operating whole-building mechanical ventilation required for new-building compliance with ASHRAE 62.2-2007 or 2010. This value assumes the whole-building fan runs 100 percent of the time. This result is shaded with light yellow.



Fan Run-Time Tool box

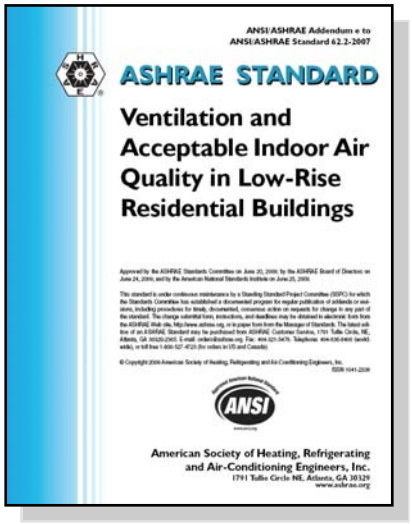
This tool allows you to determine the fan run-time for an existing fan (already installed or one that will be installed with known fan airflow capacity). The required inputs are the Whole-bldg mechanical airflow, a calculated value and the capacity of the existing fan, a value you enter.

- ***Existing fan airflow capacity (CFM or L/s):*** Enter this value by using the slider bar or entering a value directly in the box. Note that the maximum capacity and step value for the Existing fan airflow capacity can be set on the Input Ranges screen. If you enter an existing fan airflow capacity that is less than the required whole-building ventilation rate, "N/A" will appear as the result of Fan run-time.
- ***Fan run-time (min/hr):*** This result is the minutes the fan must run per hour based upon the existing fan capacity and the calculated whole-building mechanical airflow requirements.

Please note that this fan run-time tool is valid for ASHRAE 62.2-2010 only if the fan operates at least once every four hours.

Appendix

Additional ASHRAE 62.2 Requirements



It is important to refer to the ASHRAE 62.2-2007 and 62.2-2010 Standards for the specific requirements. These Standards may be purchased at www.ashrae.org. The items below are a brief overview of some of the requirements of these Standards.

Local exhaust ventilation shall be installed in each bathroom. The bathroom exhaust shall be on-demand at a rate of 50 CFM (25 L/s) or operate continuously at a rate of 20 CFM (10 L/s).

Local exhaust ventilation shall be installed in each kitchen. The kitchen exhaust shall be on-demand at a rate of 100 CFM (50 L/s) or operate continuously at a rate of 5 ACH based on kitchen volume. If the exhaust fan has an airflow rate of less than 5 kitchen air changes per hour, the fan must be a vented range hood.

Measures shall be taken to prevent airflow transfer from adjacent apartment units.

Instructions for the operation of the ventilation systems shall be provided to the owner and occupant. Controls shall be labeled.

Clothes dryers shall be vented to the outdoors.

Combustion appliances shall be provided with adequate combustion air.

Attached garages shall be adequately sealed from occupied spaces to prevent the flow of contaminants to the living space.

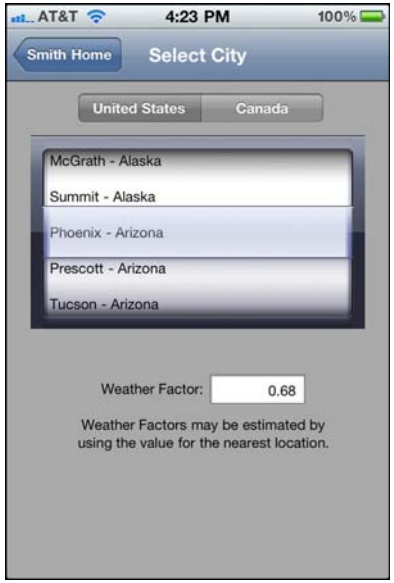
Openable windows shall meet the requirements of the Standard.

Minimum air filtration requirements must be met.

Air inlet and ventilation opening requirements must be met.

Whole-building or continuous ventilation fans must be rated at a sone level of one or less. This requirement need not be followed if the alternative compliance supplement is used for an existing dwelling.

Intermittent local exhaust fans must be rated at a sone level of three or less. This requirement need not be followed if the alternative compliance supplement is used for an existing dwelling.



We strongly recommend you refer to the version of the ASHRAE 62.2 you are using. If any program you are working with does not specify which version to use, we recommend the 2010 version because of its inclusion of the alternative compliance supplement for existing dwellings.

Weather Factors for North America

The weather factors are available in the ResVent 62.2 application on a picker wheel. Refer to the screenshot to the left. They are listed in the following table for your convenience.

Comment
Weather Factors account for the effect of local weather, in units of Air Changes per Hour (ACH). These Factors are needed to determine the infiltration credit for existing dwellings and for the calculation of the ZTP number.

Weather Factors for North America (W in units of ACH)

City, State	w[ACH]	Source
Adak, AK	1.16	TMY
Annette, AK	0.94	TMY
Bethel, AK	1.21	TMY
Big Delta, AK	0.99	TMY
Fairbanks, AK	0.90	TMY
Gulkana, AK	0.95	TMY
Homer, AK	0.87	TMY
Juneau, AK	0.95	TMY
King Salmon, AK	1.09	TMY
Kodiak, AK	0.93	TMY
McGrath, AK	0.90	TMY
Summit, AK	1.12	TMY
Birmingham, AL	0.69	TMY
Mobile, AL	0.76	TMY
Calgary, AB	0.94	CAN
Edmonton, AB	0.88	CAN
Fort Smith, AR	0.76	TMY
Little Rock, AR	0.75	TMY
Phoenix, AZ	0.68	TMY
Prescott, AZ	0.81	TMY
Tucson, AZ	0.79	TMY
Winslow, AZ	0.82	TMY
Yuma, AZ	0.77	TMY
Castlegar, BC	0.71	CAN
Fort St. John, BC	0.93	CAN
Prince Rupert, BC	0.88	CAN
Vancouver, BC	0.78	WYEC
Victoria, BC	0.69	CAN
Williams Lake, BC	0.83	CAN
Arcata, CA	0.74	TMY
Bakersfield, CA	0.68	TMY
China Lake, CA	0.67	TMY
Dagget, CA	0.90	TMY
El Toro, CA	0.57	TMY
Fresno, CA	0.69	TMY
Long Beach, CA	0.64	TMY
Los Angeles, CA	0.66	TMY
Mount Shasta, CA	0.78	TMY
Point Mugu, CA	0.63	TMY
Red Bluff, CA	0.81	TMY
Sacramento, CA	0.75	TMY
San Diego, CA	0.67	TMY
San Francisco, CA	0.92	TMY
Santa Maria, Ca	0.70	TMY
Sunnyvale, CA	0.63	TMY

City, State	w[ACH]	Source
Colorado Springs, CO	0.98	TMY
Denver, CO	0.87	TMY
Eagle, CO	0.80	TMY
Grand Junction, CO	0.87	TMY
Pueblo, CO	0.85	TMY
Hartford, CT	0.86	TMY
Washington, DC	0.76	TMY
Wilmington, DE	0.84	TMY
Apalachicola, FL	0.63	TMY
Daytona, FL	0.73	TMY
Jacksonville, FL	0.77	TMY
Miami, FL	0.69	TMY
Orlando, FL	0.73	TMY
Tallahassee, FL	0.63	TMY
Tampa, FL	0.75	TMY
Augusta, GA	0.69	TMY
Atlanta, GA	0.75	TMY
Savannah, GA	0.75	TMY
Hilo, HI	0.60	TMY
Honolulu, HI	0.81	TMY
Lihue, HI	0.94	TMY
Burlington, IA	0.90	TMY
Des Moines, IA	0.93	TMY
Mason City, IA	1.01	TMY
Sioux City, IA	0.99	TMY
Boise, ID	0.87	TMY
Lewiston, ID	0.71	TMY
Pocatello, ID	0.95	TMY
Chicago, IL	0.93	TMY
Moline, IL	0.86	TMY
Springfield, IL	0.93	TMY
Evansville, IN	0.76	TMY
Fort Wayne, IN	0.92	TMY
Indianapolis, IN	0.86	TMY
South Bend, IN	0.89	TMY
Dodge City, KS	1.11	TMY
Goodland, KS	1.09	TMY
Topeka, KS	0.87	TMY
Lexington, KY	0.80	TMY

Reproduced from *A Method of Determining Air Change Rates in Detached Dwellings*, ANSI/ASHRAE 136-1993.

City, State	w[ACH]	Source
Baton Rouge, LA	0.70	TMY
Lake Charles, LA	0.72	TMY
New Orleans, LA	0.71	TMY
Shreveport, LA	0.77	TMY
Boston, MA	1.07	TMY
Churchill, MB	1.24	CAN
Thompson, MB	0.92	CAN
Baltimore, MD	0.82	TMY
Bangor, ME	0.75	TMY
Caribou, ME	1.00	TMY
Portland, ME	0.91	TMY
Alpena, MI	0.82	TMY
Detroit, MI	0.92	TMY
Flint, MI	0.90	TMY
Grand Rapids, MI	0.89	TMY
Sault Ste Marie, MI	0.95	TMY
Traverse City, MI	0.94	TMY
Duluth, MN	1.00	TMY
International Falls, MN	0.98	TMY
Minneapolis, MN	0.97	TMY
Rochester, MN	1.03	TMY
Kansas City, MO	0.85	WYEC
Springfield, MO	0.95	TMY
St. Louis, MO	0.87	TMY
Jackson, MS	0.68	TMY
Meridian, MS	0.62	TMY
Billings, MT	1.07	TMY
Cut Bank, MT	1.04	TMY
Dillon, MT	0.90	TMY
Glasgow, MT	1.02	TMY
Great Falls, MT	1.05	TMY
Helena, MT	0.89	TMY
Lewistown, MT	0.90	TMY
Missoula, MT	0.79	TMY
Saint John, NB	0.95	CAN
Asheville, NC	0.69	TMY
Cape Hatteras, NC	0.94	TMY
Charlotte, NC	0.74	TMY
Greensboro, NC	0.72	TMY
Raleigh, NC	0.72	WYEC
Bismarck, ND	0.99	TMY
Fargo, ND	1.10	TMY
Grand Island, NE	1.06	TMY
North Platte, NE	0.95	TMY
Omaha, NE	0.87	TMY
Scottsbluff, NE	0.99	TMY

City, State	w[ACH]	Source
Stephenville, NF	1.03	CAN
Concord, NH	0.76	TMY
Lakehurst, NJ	0.70	TMY
Albuquerque, NM	0.80	TMY
Clayton, NM	1.06	TMY
Roswell, NM	0.86	TMY
Truth or Conseq, NM	0.79	TMY
Tucumcari, NM	0.87	TMY
Shearwater, NS	0.87	CAN
Baker Lake, NT	1.25	CAN
Fort Smith, NT	0.92	CAN
Inuvik, NT	1.01	CAN
Elko, NV	0.77	TMY
Ely, NV	0.98	TMY
Las Vegas, NV	0.81	TMY
Lovelock, NV	0.78	TMY
Reno, NV	0.75	TMY
Tonopah, NV	0.90	TMY
Winnemucca, NV	0.84	TMY
Yucca Flats, NV	0.77	TMY
Buffalo, NY	0.99	TMY
Massena, NY	0.90	TMY
New York Cen. Pk, NY	0.98	TMY
New York LaGuar., NY	0.99	TMY
Rochester, NY	0.92	TMY
Syracuse, NY	0.88	TMY
Akron, OH	0.91	TMY
Cincinnati, OH	0.84	TMY
Cleveland, OH	0.96	WYEC
Columbus, OH	0.86	TMY
Dayton, OH	0.86	TMY
Toledo, OH	0.90	TMY
Youngstown, OH	0.92	TMY
Oklahoma City, OK	1.05	TMY
Tulsa, OK	0.93	TMY
Kapuskasing, ON	0.92	CAN
Sault Ste. Marie, ON	0.90	CAN
Thunder Bay, ON	0.86	CAN
Toronto, ON	0.82	WYEC
Windsor, ON	0.87	CAN
Astoria, OR	0.85	TMY
Medford, OR	0.67	TMY
North Bend, OR	0.90	TMY
Portland, OR	0.76	TMY
Redmond, OR	0.80	TMY
Salem, OR	0.80	TMY

Reproduced from *A Method of Determining Air Change Rates in Detached Dwellings*, ANSI/ASHRAE 136-1993.

City, State	w[ACH]	Source
Allentown, PA	0.80	TMY
Erie, PA	1.00	TMY
Harrisburg, PA	0.76	TMY
Philadelphia, PA	0.85	TMY
Pittsburgh, PA	0.85	TMY
Charlottetown, PE	1.04	CAN
Quebec, PQ	0.84	CAN
Schefferville, PQ	1.13	CAN
Sept Iles, PQ	0.96	CAN
Montreal, PQ	0.86	WYEC
Providence, RI	0.91	TMY
Charleston, SC	0.77	TMY
Columbia, SC	0.67	TMY
Greenville, SC	0.69	TMY
Huron, SD	1.09	TMY
Pierre, SD	1.00	TMY
Sioux Falls, SD	1.05	TMY
Regina, SK	1.05	CAN
Saskatoon, SK	0.98	CAN
Chattanooga, TN	0.64	TMY
Knoxville, TN	0.68	TMY
Memphis, TN	0.78	TMY
Nashville, TN	0.74	WYEC
Abilene, TX	1.05	TMY
Amarillo, TX	1.14	TMY
Austin, TX	0.80	TMY
Brownsville, TX	0.90	TMY
Corpus Christi, TX	0.86	TMY
El Paso, TX	0.76	TMY
Fort Worth, TX	0.89	TMY
Houston, TX	0.81	TMY
Kingsville, TX	0.72	TMY
Laredo, TX	0.91	TMY
Lubbock, TX	1.00	TMY
Lufkin, TX	0.64	TMY
Midland Odessa, TX	0.96	TMY
Port Arthur, TX	0.79	TMY
San Angelo, TX	0.84	TMY
San Antonio, TX	0.83	TMY
Sherman, TX	0.80	TMY
Waco, TX	0.92	TMY
Wichita Falls, TX	0.99	TMY
Cedar City, UT	0.81	TMY
Salt Lake City, UT	0.87	TMY
Norfolk, VA	0.84	TMY
Richmond, VA	0.75	TMY
Roanoke, VA	0.74	TMY
Olympia, WA	0.77	TMY
Seattle, WA	0.85	TMY
Spokane, WA	0.87	TMY
Yakima, WA	0.81	TMY
Eau Claire, WI	0.93	TMY
Green Bay, WI	0.94	TMY
La Crosse, WI	0.86	TMY
Madison, WI	0.91	TMY
Milwaukee, WI	1.00	TMY
Charleston, WV	0.66	TMY
Casper, WY	1.15	TMY
Cheyenne, WY	1.08	TMY
Rock Springs, WY	0.98	TMY
Sheridan, WY	0.83	TMY
Whitehorse, YT	0.94	CAN

Reproduced from *A Method of Determining Air Change Rates in Detached Dwellings*, ANSI/ASHRAE 136-1993.

Notes:

W[ACH] = a weather factor accounting for the effect of local weather, in Air Changes per Hour (ACH). For cities not included in the Weather Factor table, values of W may be estimated by using the value of the nearest location.

"Source" indicates the source of the weather data.

- WYEC = the weather year for the energy calculations.
- TMY = typical meteorological year.
- CAN = average of the ten recent years of weather data.

ResVent 62.2		
Contact Information		
Project name	Smith Home	
Building name	Harbor	
Contact name	John Smith	
Address	1951 Harbor Bay Pkwy.	
City	Phoenix	
State/Province	Arizona	
Phone Number	925 555 1080	
Email	jsmith@gmail.com	
Building type	Existing	
ASHRAE 62.2 version	2010	
Building Inputs	**Value**	**Units**
Living area	2,000.0	Ft^2
Number of occupants	4	
Building height	17.0	Ft
Living volume	16,000.0	Ft^3
Flow exponent	0.65	
Measured leakage	1,440.0	CFM_{50}
Weather factor	0.68	
Weather location	Phoenix	
Alternative Compliance Supplement		
Use alternative compliance path?	Yes	
Number of baths affected	3	
Bath 1 (With window)	20.0	CFM
Bath 2 (With window)	0.0	CFM
Bath 3 (Without window)	15.0	CFM
Kitchen (With window)	45.0	CFM
Intermediate Results		
Average ceiling height	8.0	Ft
ZTP number	23.08	
Equivalent leakage area	148.7	in^2
Natural airflow	62.4	CFM
Natural airflow per occupant	15.6	CFM/occ
Natural air changes per hour	0.23	ACH
62.2 Whole-Bldg Ventilation Results		
Initial mechanical airflow	50.0	CFM
Alternative compliance supplement	+27.5	CFM
Infiltration credit	-11.20	CFM
Required whole-bldg mechanical airflow	66.3	CFM
Fan Run-Time Tool		
Existing fan airflow capacity	100.0	CFM
Fan run-time	39.8	min/hr
ResVent 62.2 (C)2010 R.J. Karg Associates		
http://www.karg.com/resvent622.htm		

Sample ResVent 62.2 Report

To the left is a sample e-mailed report for the ASHRAE 62.2-2010, existing dwelling, example included in this document. This is the longest of the reports; those for new dwellings or existing dwellings using ASHRAE 62.2-2007 are shorter because there are fewer inputs and outputs.

If metric units are selected as a global choice, the units and their values automatically change in the report.

ASHRAE 62.2 Equations

The basic equation for finding the minimum whole-building ventilation rate is

$$Q_{fan\ flow} = 0.01A_{floor} + 7.5\left(N_{bedrooms} + 1\right)$$

Where:

- $Q_{fan\ flow}$ = fan flow rate, CFM.
- A_{floor} = occupiable floor area in square feet.
- $N_{bedrooms}$ = number of bedrooms plus one or actual number of occupants, whichever is larger.

$Q_{fan\ flow}$ is the minimum required whole-building ventilation required by the ASHRAE 62.2 standard. This ventilation may operate continuously or intermittently. For example, if the whole building ventilation is calculated to be 40 CFM, it must operate at a measured and verified 40 CFM if it runs continuously. If it is operated for 20 minutes of each hour (20 minutes on; 40 minutes off), or 1/3 of the time, the flow rate must be tripled to 120 CFM. The Fan Run-Time Tool screen will help you determine the number of minutes a whole-building fan must operate each hour to satisfy the minimum required airflow rate.

As part of the ASHRAE 62.2 standard, an infiltration (air leakage) credit is allowed for existing dwellings if the estimated natural infiltration is more than two times the floor area/100, or:

$$Infiltration\ Credit_{CFM} = 0.5\left(Natural\ Air\ Leakage_{CFM} - \frac{2A_{floor}}{100}\right)$$

This infiltration credit is subtracted from the $Q_{fan\ flow}$ value for the whole building ventilation, allowing for a reduced whole-building ventilation CFM. In some cases, the infiltration will be large enough to negate the need for whole-building ventilation.

For the determination of the infiltration credit, procedures from ASHRAE 119 and 136 are used to find the natural air leakage.

Ordering Information

This software may be purchased and downloaded from the Apple Application store.

Support and Updates

Support is available to registered users only. You may:

1. Write to us at:
   R.J. Karg Associates
   596 Grover Hill Road
   Bethel, ME 04217
2. Call 207-824-0025, or
3. E-mail: rjkarg@karg.com

You will be informed of updates through the Apple App store.

Software Training

Training for the use of ResVent 62.2 software is available for groups. Contact R.J. Karg Associates for information.

Glossary

Alternative Compliance Supplement – Appendix A of ASHRAE Standard 62.2-2010. This alternative compliance path for compliance is for existing dwellings only; it allows the user to increase the minimum ventilation rate for whole-building ventilation in order to compensate for local ventilation (kitchens and bathrooms) that does not meet the requirements of the Standard.

ASHRAE – American Society of Heating, Refrigerating, and Air-Conditioning Engineers. This organization regularly updates and publishes many standards, including ASHRAE 62.2, *Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings.*

ASHRAE 62.2 – American Society of Heating, Refrigeration, and Air-Conditioning Engineers publication *Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings.* This standard requires local and whole-building ventilation. *Local* ventilation of 50 CFM (25 L/s) is the minimum required in each bathroom and 100 CFM (50 L/s) is the minimum required in the kitchen. The required *whole-building* ventilation rate is calculated by this application.

Bathroom – Any room containing a bathtub, a shower, a spa, or a similar source of moisture.

Fan Run-Time – The number of minutes a ventilation fan must run per hour to satisfy ventilation requirements.

Habitable Space – Space intended for continued occupancy, such as spaces for sleeping, living, dining, and cooking; but not generally including bathrooms, toilets, hallways, storage areas, closets, or utility rooms.

Kitchen – Any room containing cooking appliances.

Local Ventilation – Bathroom, kitchen, or other exhaust ventilation designed to remove moisture or other contaminants close to their source.

Occupiable Space – Any enclosed space inside the building pressure boundaries that is intended for human activity, including toilets, closets, halls, storage and utility areas, laundry areas and habitable spaces.

Whole-Building – Term used in ASRHAE Standard 62.2 to indicate the ventilation that serves the whole dwelling.

Whole-House – See Whole-Building.

ZTP number – ZipTest Pro number, first introduced by R.J. Karg Associates in 2009 during the development of another software product, ZipTest Pro[3] building diagnostics software. The ZTP number represents the relationship between the building leakage at 50 Pascals of pressure during a standard blower door test and the leakage on average under natural conditions. For example, if the ZTP number is 25 and the tested leakage rate of the building is 2500 CFM_{50}, the natural leakage of the building is approximately 2500/25 = 100 CFM. The derivation of the ZTP number is based on ASHRAE Standards 119 (*Air Leakage Performance for Detached Single-Family Residential Buildings)* and 136 (*A Method of Determining Air Change Rates in Detached Dwellings*).