



AccuLoad

Residential HVAC Load Calculation Software



Inside This Manual

- How to Input Data for Load Calculations.
- View Load Summaries and Print Reports.
- Using AccuLoad on a Tablet PC.
- Use AccuCheck to Double Check your work

Table of Contents

<i>Informational Notes</i>	<i>Page No.</i>
Overview.....	4
System Requirements.....	4
Recommended Hardware.....	4
Installing and Unlocking the Program.....	5
<i>Section I. Input Basics</i>	<i>Page No.</i>
Screen Layout.....	6
The Menu Toolbar.....	7-9
The Item Toolbar.....	10
The Node Frame & Data Frame.....	11
<i>Section II. How to Setup your System</i>	<i>Page No.</i>
The Setup Screen.....	12-16
<i>Section III. Data Input</i>	<i>Page No.</i>
Customer Information Screen.....	17
Adding a System.....	18-20
Adding a Zone.....	21
Adding a Room.....	22
Adding a Wall.....	23
Adding a Window.....	24
Adding a Door.....	25
Adding a Ceiling.....	26
Adding a Skylight.....	27
Adding a Floor.....	28

Section III. Data Input.....continued **Page No.**

Infiltration “Square Ft. Method” 29

Infiltration “Blower Door Test” & “Component Leakage Method” 30

Ventilation 31

Duct Load 32

Section IV. Equipment Selection **Page No.**

Brand Selection (Customize Database) 33

Equipment Selection 34

Expanded Manual-S Data 35

Section V. Reports **Page No.**

Previewing and Printing Reports 35

Section VI. Case Study “Block Loads” **Page No.**

General Information 36

Entering Data “Block Load Example” 37 – 40

Block Load Summary 41

Block Load Reports 42 – 44

Appendix 1 **Page No.**

Infiltration Definitions 45

Notes 46

Overview

Thank you for purchasing our AccuLoad software program! If you have comments for this manual or the software program please fax, email or call us, we appreciate your input.

We would recommend that all users purchase a copy of the ACCA Manual MJ8 from ACCA. You can order this from their website at www.acca.org. It is an excellent reference manual that explains heating and cooling loads for all types of residential construction.

This manual is intended to show the end user how to properly use this software. It assumes that the user has general knowledge of construction practices and a basic knowledge of residential loads. We have attempted to show each screen and show how data is entered into the fields. We designed the interface to be used with a tablet PC. You will notice that very little typing is required. You could walk around the home with the tablet PC and enter data as you measure.

Look for *Hints*:

Throughout this workbook, you will find boxes like this with additional information or hints that are informative and helpful.

System Requirements:

- Windows® 98 or higher, NT, or XP operating system. (ME not recommended)
- Pentium® 100 or higher processor.
- 64 megabytes of RAM.
- CD-ROM or DVD drive.
- High color monitor.
- 30 MB hard drive space available.

Recommended hardware for best performance:

- Pentium® 300 or higher processor.
- 128 megabytes of memory or more.
- 1 GB or more of storage (hard drive).
- Portable printer.
- External mouse

The information contained herein is **Confidential and Proprietary** and is for the sole use of the Adtek Software and its customers. Any other use is strictly forbidden without the written permission of the Adtek Software.



516 NW 20th St. | Oklahoma City, OK 73103
Phone: 815-452-2345 | Fax: 405-844-6314
www.adteksoft.com | sales@adteksoft.com

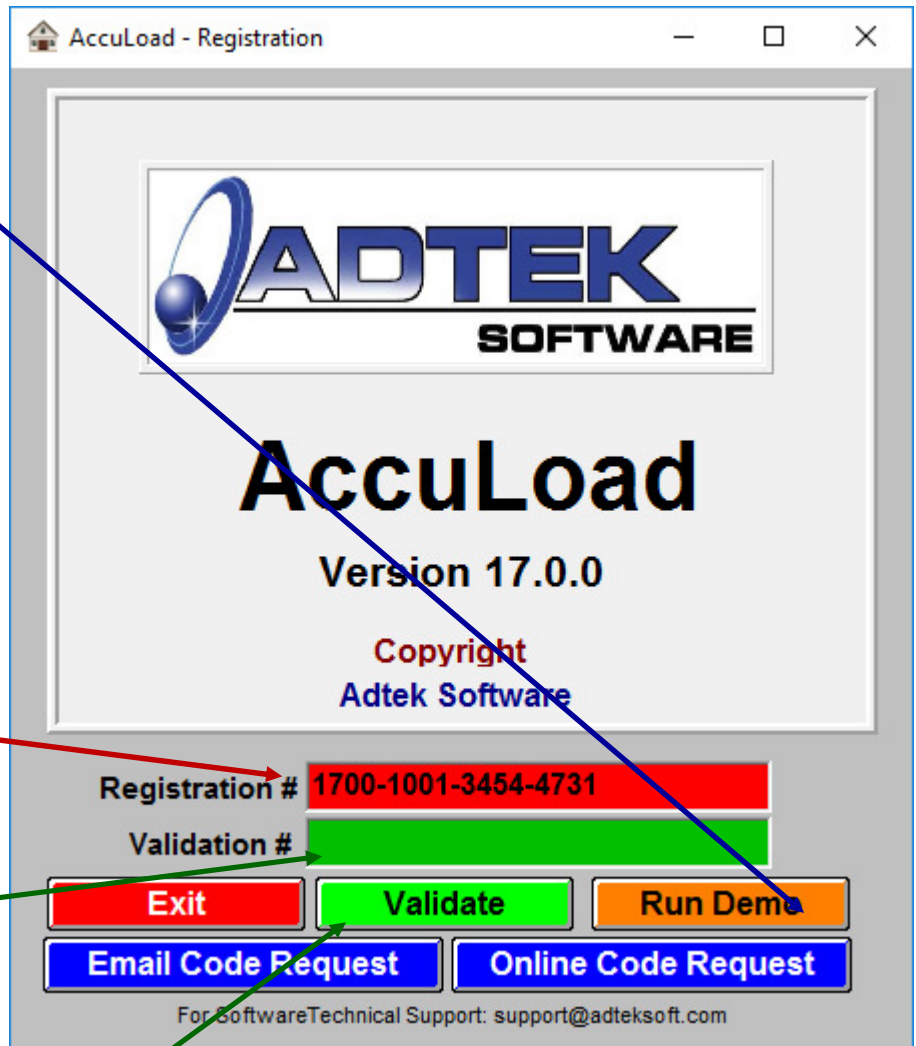
Unlocking your Program

Once the software is successfully installed, the Registration screen will pop-up.

Click on the **Run Demo** button. You can then navigate through the program in demo mode.

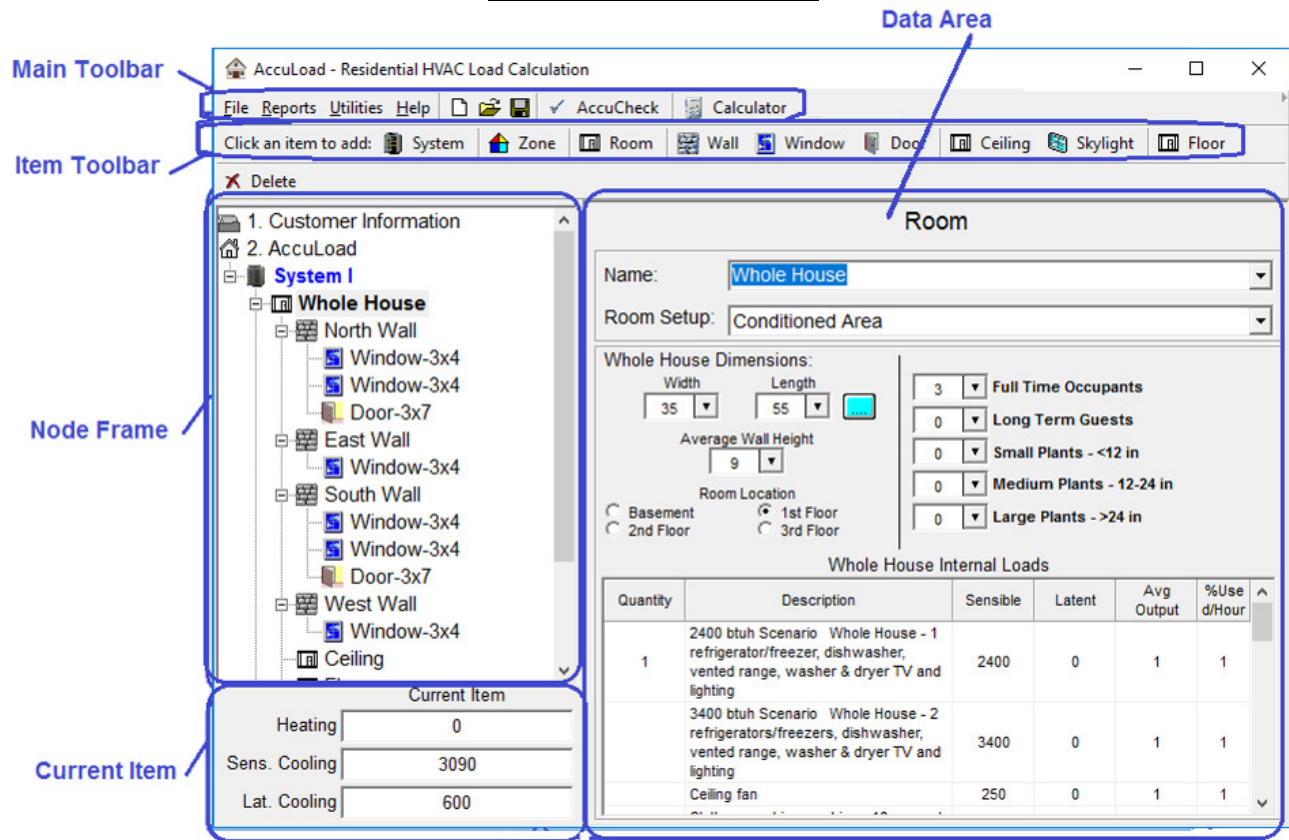
After you have completed the demo and want to purchase the product, you can order the program online at www.adteksoft.com or you can call us at 815-452-2345.

Once you pay for the program and provide the **Registration number** in the **RED** box, an unlock Validation number will be provided (through email or over the phone) to be typed in the **Green** box.



Finally, click the **Validate button** to unlock the full program capabilities.

Section I. Input Basics Screen Layout



The areas above are explained in detail in the following pages, however the basic flow is as follows:

The **Main Toolbar** will allow some of the standard Window’s features such as save, update, etc. Our AccuCheck feature as well as a popup calculator and a keyboard for the tablet PC are also accessible.

The **Item Toolbar** allows windows, doors, zones, additional systems, etc to be added to the project.

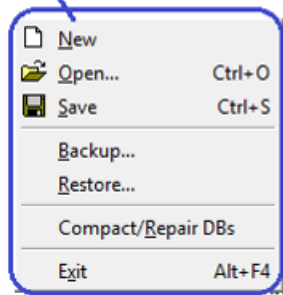
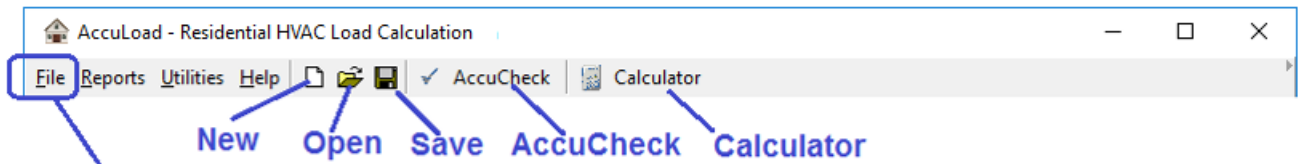
The **Node Frame** will let the user view the systems, zones, rooms, windows, etc that have been added to the project. Clicking on the node (room, window, etc) will allow the user to view the data settings in the data frame as well as the load calculations in the Current Item area.

The **Data Area** will allow the user to select the appropriate item values, such as window type, insulation, duct location, etc.

The **Current Item** displays the load information about the current item selected in the Node Frame.

Section I. Input Basics

The “Menu” Toolbar

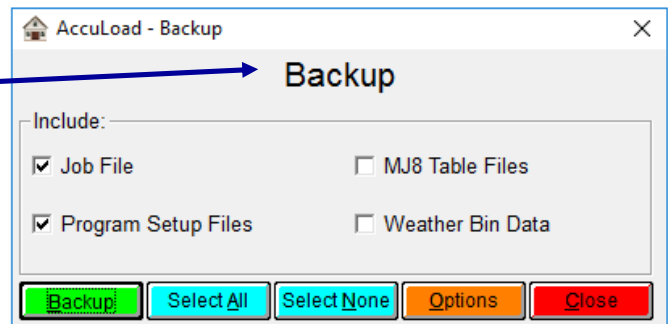


The File Menu

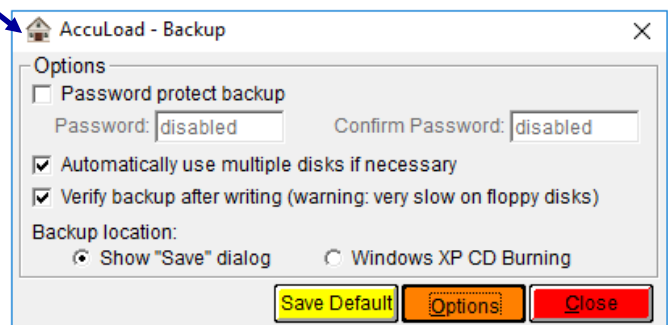
When you click File on the toolbar, you will see this menu.

1. **New**: Allows the user to clear existing job and start a new one.
2. **Open**: Allows user to select a saved job to modify or print saved data.
3. **Save**: You may save the current job for future use.
4. **Backup**: This feature will allow you to backup all of your jobs, this is recommended monthly in case of computer failures.
5. **Restore**: Allows the user to restore data from a previously backed up source.
6. **Compact/Repair DB's**: This feature provides data maintenance for all databases. If a file becomes corrupted, this feature may repair the database.

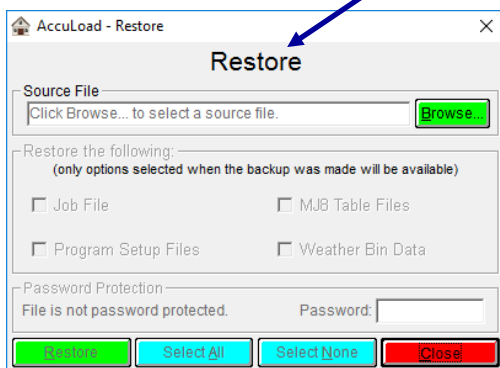
Selecting **Backup** will open the backup option box. You may select the data files that you wish to backup.



Clicking on **Options** will allow you to select backup options. You may password protect the backup file if needed. You can also select multiple backup disks or write directly to a CD-R Rom if using Windows XP.

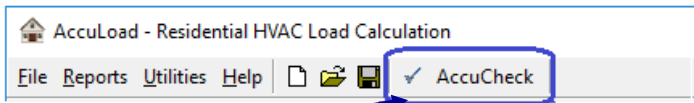


Selecting **Restore** from the file menu will allow you to restore files from a previous backup. Locate the backup file, then select the desired files, click on restore.



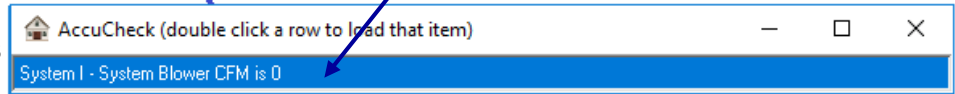
Section I. Input Basics

The “Menu” Toolbar



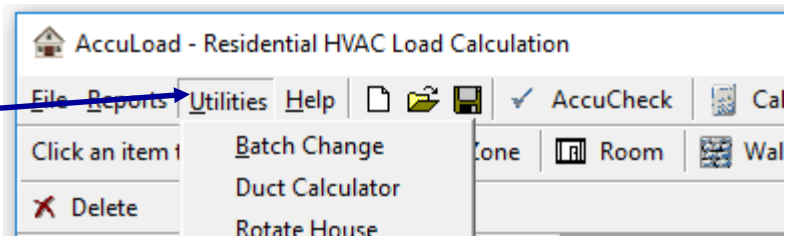
Hint: Double-Click on any item in the AccuCheck box to go to the entry error.

AccuCheck: This feature will verify that all data has been entered. Click on AccuCheck any time during the procedure to verify data.



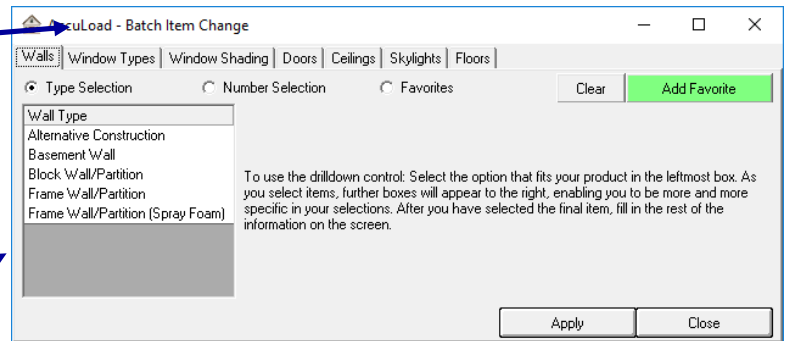
The Utilities Menu:

When you click Utilities on the toolbar, you will see this menu.



1. Batch Change:

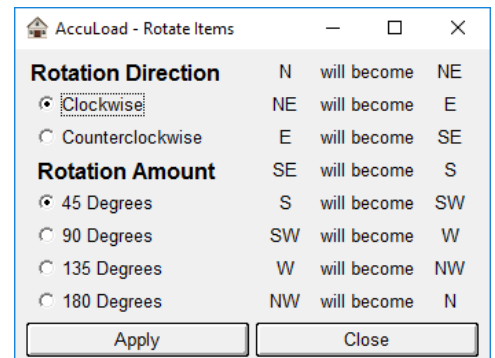
Globally change items. You may make data changes to all windows, doors, ceilings, etc., globally all at one time.



Hint: Batch change can be useful when comparing operating cost saving with window replacement or added insulation. The new load can be used in the **Energy Analyzer** software for an estimated savings based on the changes made.

2. Rotate House:

Rotates the house direction. You may select the direction and amount of rotation. This will completely rotate the whole house.

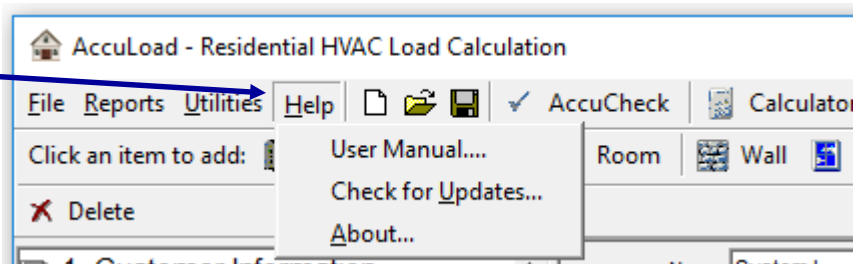


Section I. Input Basics

The “Menu” Toolbar

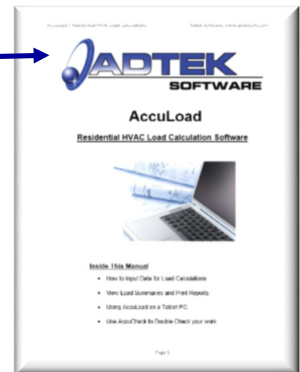
The Help Menu:

When you click Help on the toolbar, you will see this menu.



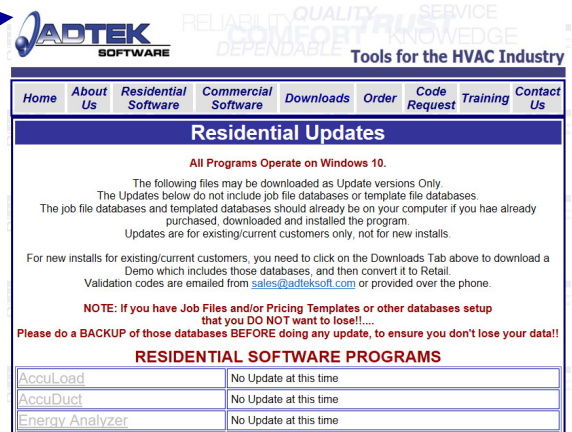
1. User Manual:

Opens the User Manual PDF File.



2. Check for Updates:

Opens the Update Webpage.



3. About:

View software version and system information.

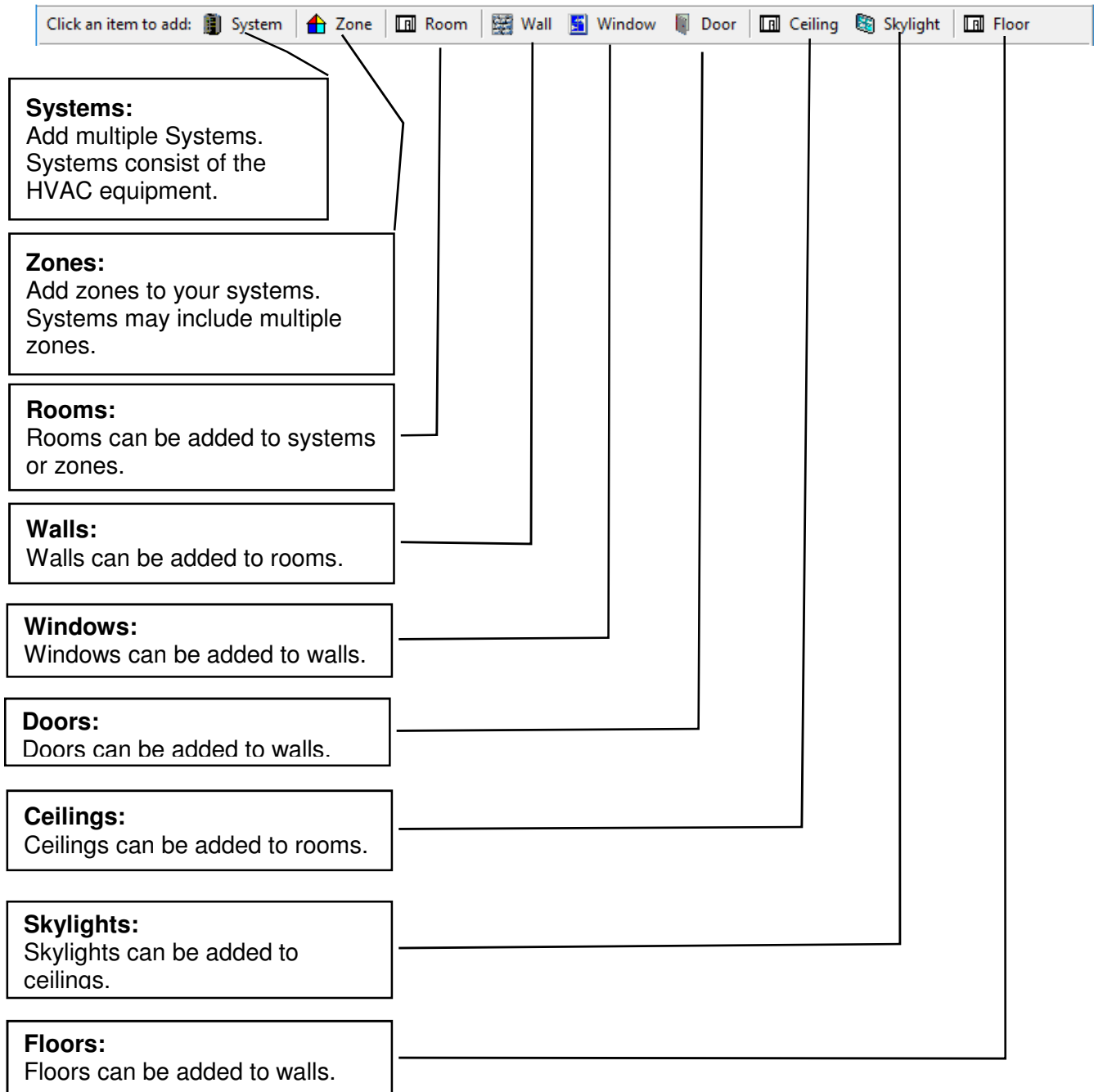


Hint: You may view your computer's system information, such as memory, etc., by clicking on "System Info"

Section I. Input Basics

The “Item” Toolbar

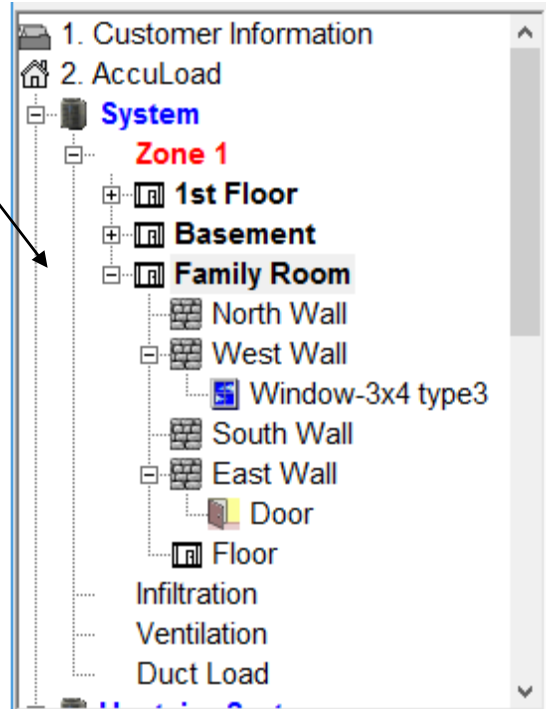
The “Item Toolbar” will allow you to add multiple systems, zones, windows, doors, etc. Just click on the desired items to add to the project. Items can be deleted by highlighting, then clicking on the “Delete” item or by right clicking on the desired item, then select “Delete”.



Section I. Input Basics

The “Node Frame” & “Data Frame”

The Node Frame will allow you to view the items that have been added to the project. You may click on the item in this frame to view the data in the “Data Frame”. The Node frame can contain many zones and systems if desired. Zones will be within the systems. Rooms can be located in zones or systems, if the system does not have zones.



The Data Frame will allow you to view the data that has been selected for the item in the Node Frame. You may change the data, such as r-value, wall size, etc. at any time.

Room

Name:

Room Setup:

Family Room Dimensions:

Width: Length:

Average Wall Height:

Room Location: Basement 1st Floor 2nd Floor 3rd Floor

Full Time Occupants
 Long Term Guests
 Small Plants - <12 in
 Medium Plants - 12-24 in
 Large Plants - >24 in

Family Room Internal Loads

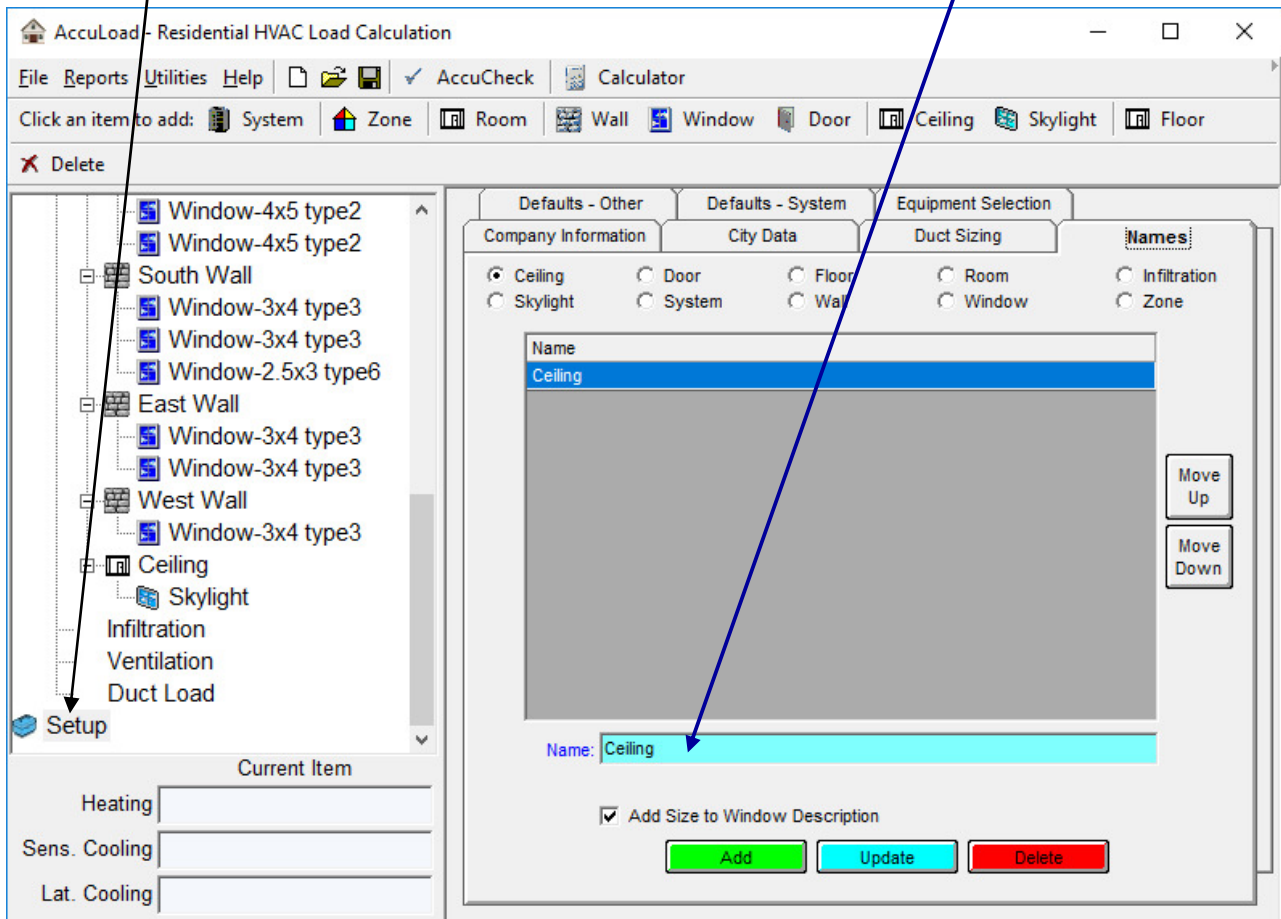
Quantity	Description	Sensible	Latent	Avg Output	%Use d/Hour
	Above average lighting load	1705	0	1	1
	AV equipment in use during late afternoon in midsummer	1400	0	1	1
	Ceiling fan	250	0	1	1
	Cooking range, no hood, outdoor vent, or Unvented dishwasher used in late afternoon, or Simultaneous use of range and dishwasher	850	600	1	1
	Kitchen	1000	0	1	1

Section II. Setup Your Software The “Setup Screen”

Access your software setup by clicking on the “Setup” item in the node screen. You may have to scroll down by clicking on the scroll bars on the side if you have added items to your project. Company information, default room names, etc can be set as default on this screen.

The following pages will explain the setup procedures. You may change the settings at any time. After using the software, you may decide to customize names in the drop down boxes for rooms, windows, etc.

Hint: Customizing names will save on typing in the home!



Section II. Setup Your Software The “Setup Screen”

Your Company information can be changed on this screen.

1. Type information
2. Click on the “Apply” button to save.

Names Defaults - Other Defaults - System
Company Information City Data Duct Sizing

Company Name: Adtek Software Co
Address: 516 NW 20th St.
City: Oklahoma City
State: OK
Zip: 73103
Phone: 815-452-2345
Fax: 405-844-6314
Email: sales@adteksoft.com
Sales Consultant: Jerry Faw

Apply Cancel

Defaults - Other Defaults - System Equipment Selection
Company Information City Data Duct Sizing Names

Ceiling Door Floor Room Infiltration
 Skylight System Wall Window Zone

Name	Check Walls	Check Floors	Check Ceiling
Room	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Whole House	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Wing 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wing 2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Main Living Area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Basement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1st Floor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2nd Floor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Master Bedroom	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bedroom	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bedroom 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bedroom 2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Name: Room
 Auto Check Walls Auto Check Floors Auto Check Ceiling
 Add Size to Window Description

Add Update Delete

Move Up
Move Down

Names can be updated, deleted or added as desired.

To Add:

1. Type name in box
2. Click on “Update”

To Update:

1. Click on desired name to update.
2. Type name in box
3. Click on “Update”

To Delete:

1. Click on desired name to delete.
2. Click on “Delete”

Change Order in list:

1. Click on desired name.
2. Click on the “Move Up” or “Move Down” button.

Section II. Setup Your Software

The “Setup Screen”

Wall prefixes as well as window shading settings can be customized in this screen.

Measurement options for inches or feet may be set for windows, doors and skylights.

1. Change desired settings
2. Click on “Save Defaults”

Hint:

You may also temporarily change the measurement options in the “Customer Information” screen. When the software is restarted, the settings will return to the default values set on this screen.

Hint:

Save time by using the Tablet Drag Mode

Tablet Drag Mode:

Checking the “Tablet Drag Mode” option will let you drag and drop with just the mouse or stylus on a tablet PC. If your using a Tablet PC, you will find this feature very convenient.

Using a Mouse:

1. Hold down on the left mouse button while selecting the item to move or copy.
2. Move the cursor to the location that you want to move or copy.
3. Release the mouse button, then select “Copy” or “Move” from the drop down menu

Using a Stylus (Tablet PC):

1. Drag the item to copy or move with the stylus.
2. Lift up the stylus, then select “Copy” or “Move” from the drop down menu

If the “**Table Drag Mode**” is **not checked**, you may move the item by just dragging it or copy the item by holding the “Ctrl” key down while dragging.

Turn on October Warning Flag:

This will produce a warning if the flag is triggered by the possibility of a October Peak for sensible heat gain.

Auto-Set Peak Load Calculations for Zoning:

This box checked will use the Peak Load Procedure when calculating rooms and zones for systems that have a zone. The block load will be calculated using the Average Load Procedure. If the system has no zones, the Average Load Procedure will be used for everything.

Section II. Setup Your Software The “Setup Screen”

Defaults - System

Hint:
Check the “Auto-Set Peak Load” check box in the Default-Others tab to automatically set these option buttons

System Calculation Perimeters:
Select the Heating supply air temperature of the system. If you would like the CFM calculations sized based on the Sensible Heat Ratio (SHR), check this box, if not input the Cooling supply air temperature.

Blower Heat:
Select the appropriate default setting for this option.

The screenshot shows the 'Defaults - System' window with the following settings:

- System Calculation Parameters:**
 - Heating Supply Air Temperature (*F): 120
 - Cooling CTD Calculated Based on SHR:
 - Cooling Supply Air Temperature (*F): 55
 - BTU per linear ft. of Hydronic Baseboard: 530
 - Default to CFM/Ton Auto Calc Feature:
 - Show Nominal Sensible Cooling:
 - Show Nominal Total Cooling:
 - Show KW Value on Reports:
- Blower Heat:**
 - Manufacturer performance data is adjusted for blower heat:
 - Manufacturer performance data is not adjusted for blower heat; specific motor data is not known. Use 500 Watts (1707 Btuh):
- Load Calculation Time:**
 - July Load:
 - October Load:
- System Type:**
 - Constant Volume:
 - Variable Air Volume:
- Motor Rating:** 500 Watts

Buttons: Save Defaults

Load calculation time:
This will set the default for July or October sensible heat gain calculations.

System Type:
Constant Volume will calculate the project using the Average Load Procedure.
Variable Air Volume will calculate room and zones using the Peak Load Procedure.

Section II. Setup Your Software The “Setup Screen”

City Data Screen:

This screen will allow you to view cities in the database. You cannot modify the cities that are included in the default database. You may however, slightly change the city name or enter a city not in the database, then type in the correct data and enter the information in the database.

Hint:

Enter your city in the database if it is not listed in the default database. If you want to SAVE design data you enter, you MUST Re-Name the City to one not in the MJ8 Database. Check on-line to verify the data.

Duct Sizing

AccuLoad allows you to set duct sizing default parameters as shown. Design/Sizing factors can easily be specified here for both Supply and Return duct runs.

Section III. Data Input

“The Customer Information Screen”

Hint:
Enter the customer information while in your office, then click “Save”. Your job can then be opened in the customer’s home with no typing needed!

Clicking on “Customer Information” in the “Node” frame will display the customer information screen and allow data input. The “**Import**” button will import the customer information entered into the Electronic Consultant™ program.

Select the State, then City from the drop down boxes. This will provide you with the recommended outdoor design conditions. You may change the settings if desired, however it is not recommended to design for extreme conditions.

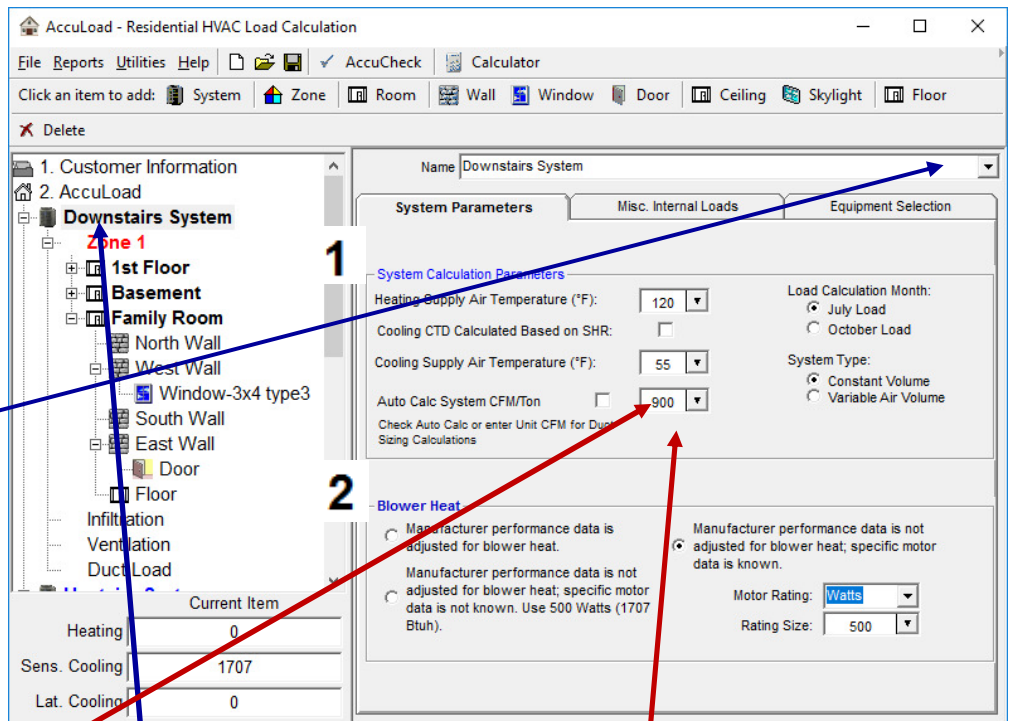
Select the desired indoor design conditions. You have the choice of measuring the doors, windows or skylights in inches or feet.

You may save notes about the project by clicking on the “**Note**” button. Type your information in the note box that is displayed after clicking on the “Notes” button. Click on the “Job Settings Design Conditions” button to return to the above screen.

Section III. Data Input “Adding a System”

A system consists of the heating and/or air conditioning equipment that will be used in the project. Multiple systems can be added to the project. In other words, you may have a system for the 1st floor and a system for the 2nd floor of the home. You may add or delete system as desired. Please remember that if you delete a system, you will delete everything contained within that system. You may however, drag and drop rooms, zones, etc from one system to another system.

Hint:
Additional systems can be added at anytime during the project. You can drag & drop the rooms from one system to another. Change the system names from the drop down menu or type a desired name.



Don't forget to enter your CFM!!!

Clicking on “System I” in the “Node” frame will display the system screen and allow data input.

1. System Calculation Parameters: Choose your design hours, along with your load calculation month and system type. Input your system heating supply air temperature, this will be used in calculating the duct loss. For example, using electric heat, you may have a lower temperature than you would for fossil fuel heat.

2. Blower Heat: This option will add the sensible heat for your blower motor. Check with your equipment manufacturer to see if the sensible load is included. Check the appropriate option.

Note: Cooling CTD & Cooling Supply Air Temperature: These two options are used in the equation to calculate CFM. The following sensible heat equation (SHR) is used:

TD = Supply Air Temperature - Return Air Temperature
Sensible Load = sensible heat load from software

$$CFM = \frac{\text{Sensible Load}}{1.1 \times TD}$$

If the “Cooling CTD Calculated Based on SHR” checkbox is checked, the desired “TD” value is determined from a table based on the relationship between the SHR and the temperature of the air leaving the coil. Please refer to ACCA Manual S for details.

Section III. Data Input

“Adding a System” continued

Hint:
Use the option in the “Setup Screen” to automatically calculate peak loads when adding zones. See Section III for more setup information.

3. Load Calculation Month: Rooms with a large amount of south facing glass area may have a peak load in the fall of the year. This software will trigger a flag under 3 conditions:

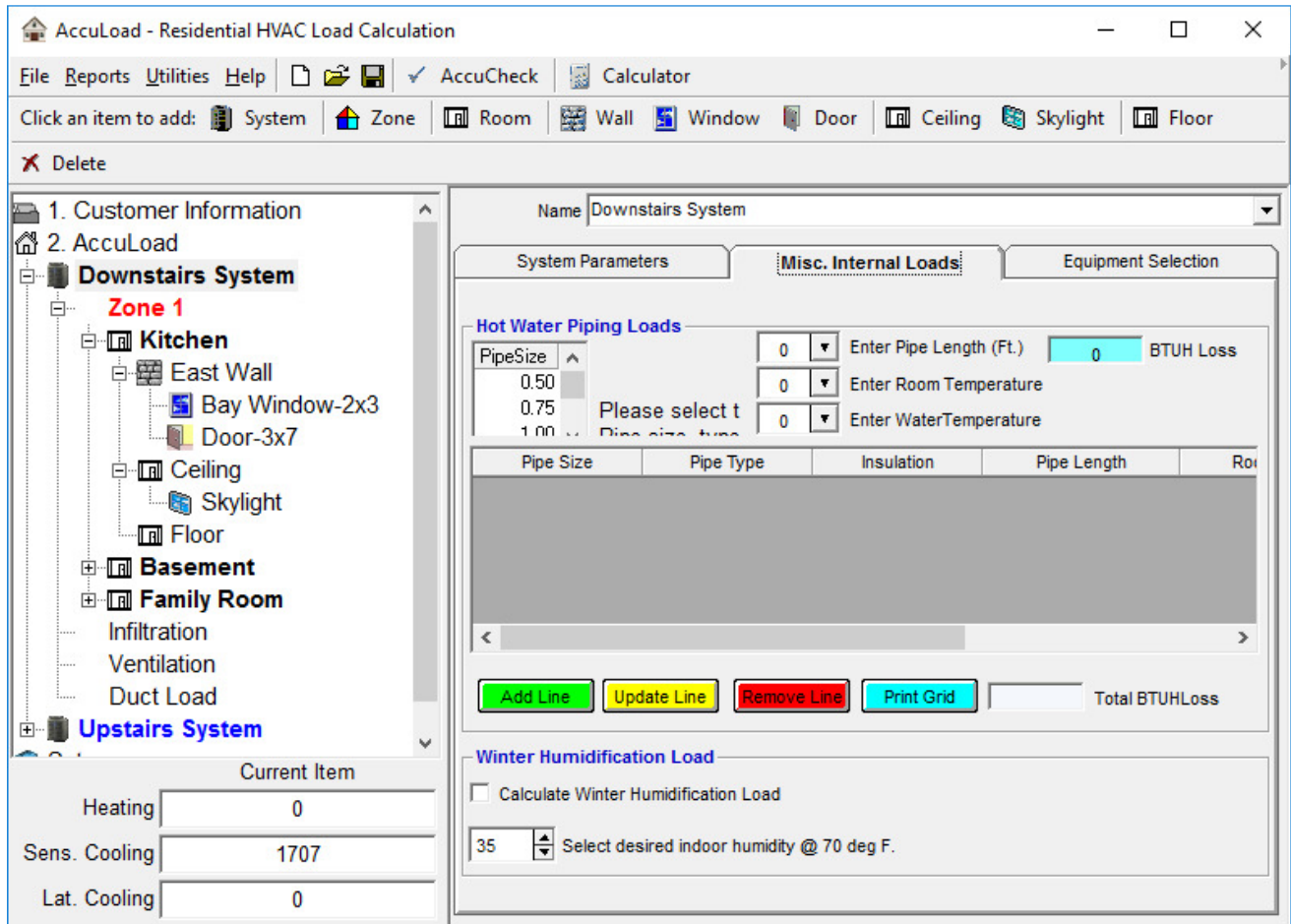
- The total glass area installed in a room or zone that has a South-East, South or South-West exposure exceeds 15% of the room or zone floor area.
- The total glass area (windows, glass doors and tilted skylights) facing a South-East, South or South-West direction exceeds 25% of the gross exposed wall area facing the direction of interest.
- The total glass area (horizontal skylight areas, window and glass door areas) facing a South or South-West direction exceeds 25% of the gross wall area facing the direction of interest.

The “**Turn on October Warning Flag**” checkbox in the Setup screen must be checked to activate this flag option (see Section III “Setting Up Your Software” for setup information).

The flags will be displayed after clicking on the “Report” menu item. They may be printed if desired. If a flag does indicate a possible October peak, click on “October Load”, then view the reports for the October Calculations. You may toggle back to the “July Load” at anytime.

4. System Type: Checking the “Constant Volume” option will calculate the loads using the Average Load Procedure. This option will not indicate any peak loads due to fenestration direction. Checking the “Variable Air Volume” option will calculate the loads using the Peak Load Procedure. This option will calculate the loads based on a peak load that could occur between the hours of 8:00 am and 8:00 pm. This is only calculated for the room or zone load. The system load is always calculated using the Average Load Procedure. This feature is automatically calculated when adding a zone if the checkbox “**Auto-Set PeakLoad Calculations for Zoning**” is checked (see Section II “Setting Up Your Software” for more setup information).

Section III. Data Input “Adding a System” continued



Misc. Internal Loads

Hot Water Piping Loads

If your system deals with hot water piping, this is where you can add in your additional load. Simply choose your Pipe Size, Length, Room/Water Temperatures and it will automatically calculate your BTUH Loss. Click on Add line to add the load to your system. If you need to change anything, click on your item and then click update. If you need to delete a line, click on remove. If you would like to print your calculations, click on Print Grid.

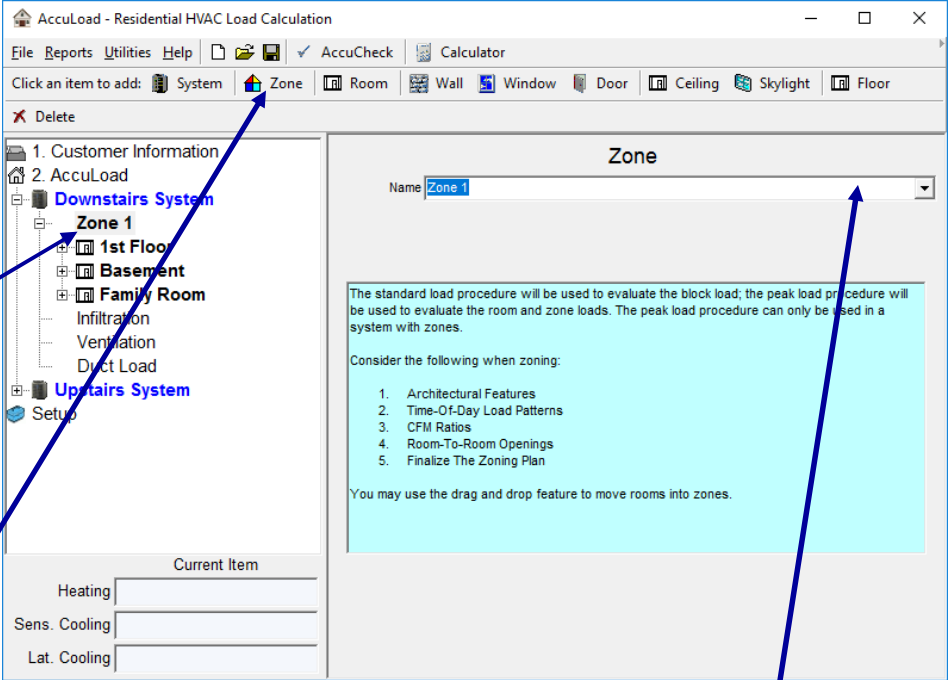
Section III. Data Input

“Adding a Zone”

Multiple zones may be added to a system. Clicking on “Zone” on the toolbar will add a zone to the selected system. If rooms are existing in the project, they will be moved to the first zone. After you add your 2nd zone, you may drag and drop rooms into the desired zone. There are no limits to the number of rooms, zones or systems that you may have.

If zones are added to the system, the zones and rooms in the zones will be calculated using the Peak Load Procedure. The system will be calculated using the Average Load Procedure. You must have the “Auto Peak Load Option” checked in the setup screen. Please refer to the setup section for this setting. By using the Peak Load Procedure, you will be selecting the correct CFM for your rooms and zones for peak periods.

Hint:
 Drag and drop rooms into the desired zone.
 Turn on the “Tablet Drag Mode” in the setup screen for one button dragging.



The screenshot shows the AccuLoad software interface. The toolbar at the top includes icons for System, Zone, Room, Wall, Window, Door, Ceiling, Skylight, and Floor. The 'Zone' icon is highlighted with a blue box. The project tree on the left shows a 'Downstairs System' with 'Zone 1' containing '1st Floor', 'Basement', and 'Family Room'. The 'Zone' dialog box is open, showing a 'Name' field set to 'Zone 1' and a list of instructions for zoning. A blue arrow points from the 'Zone' toolbar icon to the 'Zone' dropdown menu. Another blue arrow points from the 'Zone' dropdown menu to the 'Zone' dialog box.

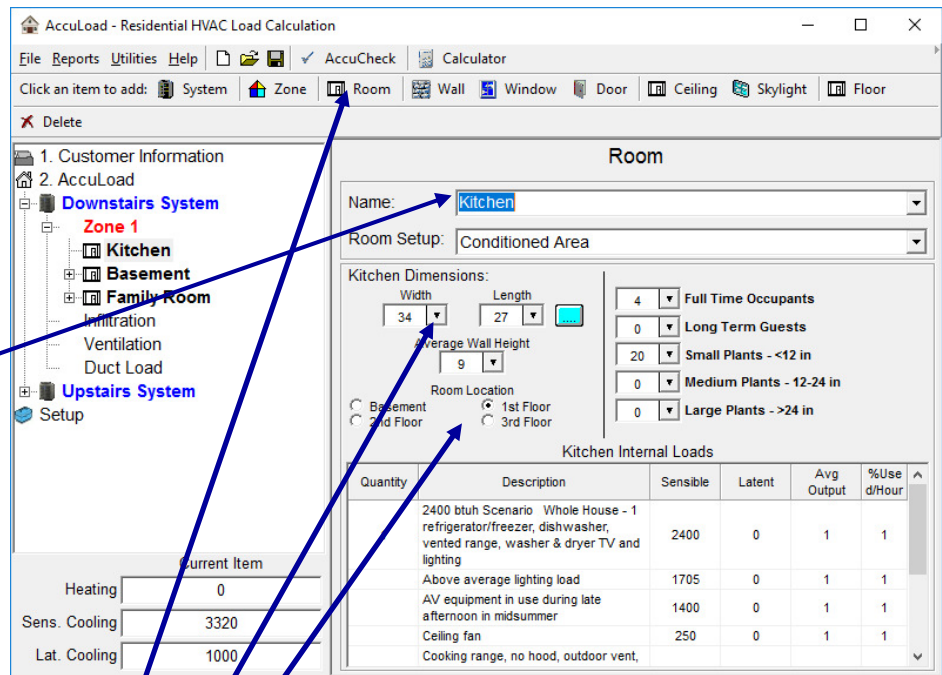
Click on the “**Zone**” icon in the toolbar to add a zone. You may then use the dropdown box and select a zone name or type your desired name in the box. You may also customize the zone names in the setup screen. This will allow easy input during the process.

Deleting a zone can be completed by selecting the zone, then right click your mouse, select delete, then left click. You may also delete the zone by clicking on the “Delete” icon in the toolbar. Please remember, you will delete everything inside the zone when deleting the zone. If you would like to remove all zones, add a new system, then drag all the existing rooms into the new system. You may then delete the old system to remove all the zones.

Section III. Data Input “Adding a Room”

Rooms may be added to systems or zones. Internal loads may also be added from this screen. You will be required to enter the length, width and height of the room before navigating from this screen. You may however, delete the room before entering the room dimensions if desired. If you decide to add zones, just drag the desired room into your zone.

Hint:
If you are calculating a block load (not room x room) you may name the room, “Whole House”, then calculate the block load as one big room.



Add a room by clicking on the “**Room**” icon in the toolbar. You may enter the room dimensions by clicking on the “**Down Arrow**” for the dropdown calculator to show, or just type in the number in the appropriate box. Indicate which level this room is located on by clicking the appropriate option button. Enter the full time occupants, internal loads, etc as desired. You should place the occupants in the rooms that they would be in at 6:00 pm.

You may change the Internal Load selection from the system screen by choosing different scenarios. Please remember that if the scenarios are changed in the system screen, you will be required to reenter all the internal loads for each room again.

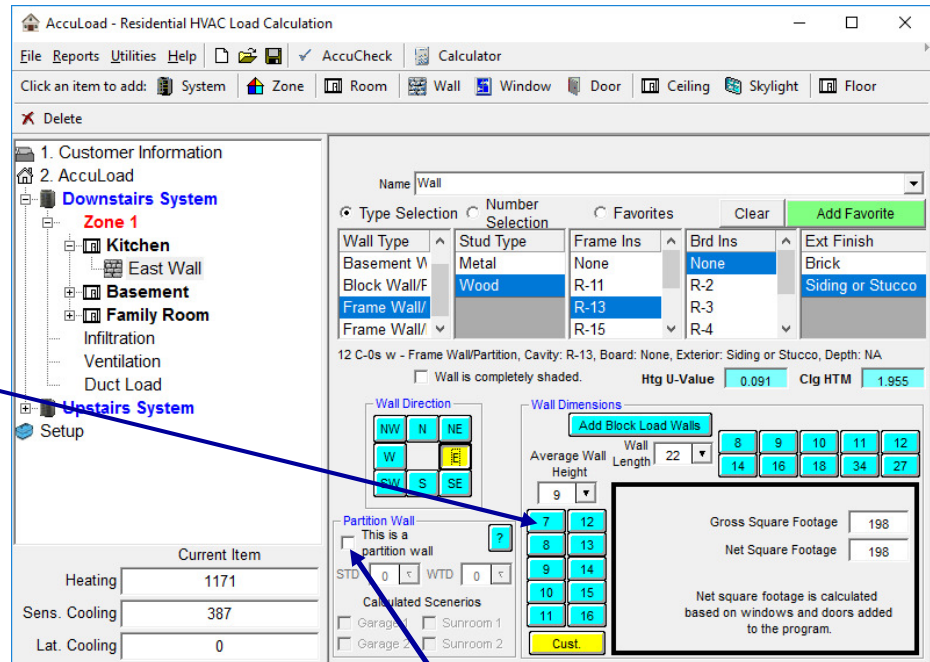
Section III. Data Input

“Adding a Wall”

Walls may be added to a room. You should only add walls that have an exposure that will cause a heat gain or loss. Walls may be copied, then pasted into a desired room. You may delete walls, however keep in mind that everything in that wall will also be deleted.

Hint:

You may customize the auto fill buttons with common heights and lengths. This will speed up the entry process. Click on the yellow “Customize” button, then type in the desired numbers.



Add a wall by clicking on the “Wall” icon in the toolbar. You may enter lengths, directions or types in any order that you desire. After working with the program, you will find a procedure that works well for you.

The following steps will add a wall and data for the wall:

1. Click on the “Wall” icon on the toolbar.
2. You may name this wall if desired from the dropdown box or typing a new name into the box.
3. Select “Type Selection”, “Number Selection”, or “Favorites” to see options for the wall type.
4. If “Type Selection” is selected, you will be asked to select the type of the wall. You will then need to select the boxes that appear to the right of the first box. Depending on the type selected, you will have different options to pick from. By selecting the type and appropriate dropdowns, you will be selecting the Htg U-Value and the Clg HTM Value for this wall.
5. Select the direction that the wall faces.
6. Select the wall height and length in the appropriate boxes
7. If this is a partition wall (wall with a different temperature on exterior side), check the “Partition Wall” box, then type in the STD (Summer Temperature Difference) and the WTD (Winter Temperature Difference). These numbers will be the difference from the indoor design temperature and the temperature on the exterior of the wall.
8. If this partition wall is a garage wall, check the “Wall is completely shaded” box, not the “Partition Wall” box. If you can be sure that the garage is heated and/or cooled, then it may be permissible to check the “Partition Wall” box, otherwise assume that it will be shaded from the sun and will be exposed to outdoor ambient.

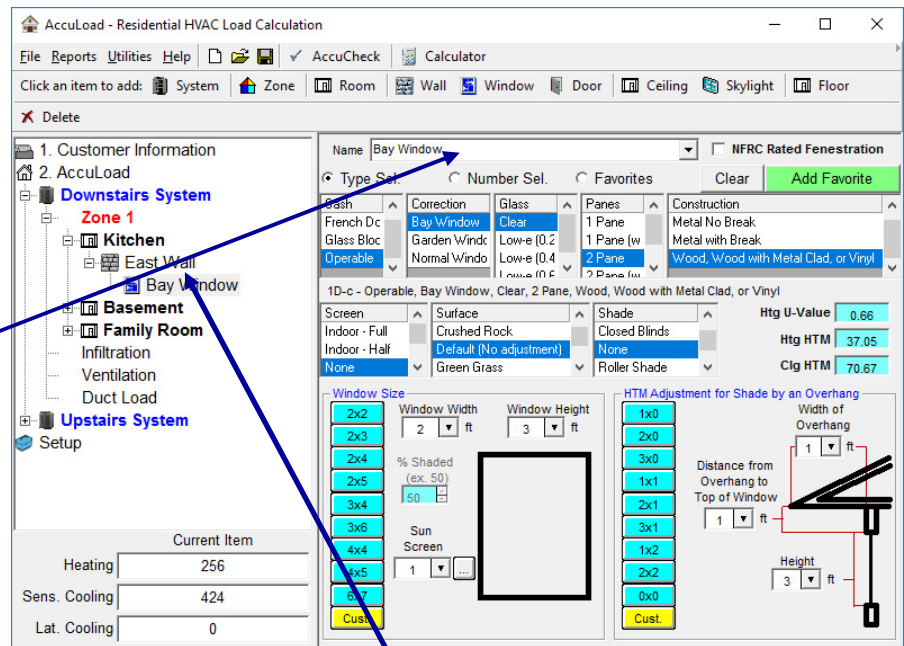
Section III. Data Input

“Adding a Window”

Windows may be added to a wall. Windows may be copied, then pasted into a desired room. You may delete windows by right clicking on the window, then select “Delete”. You can use the drag and drop feature on windows as well as any other component.

Hint:

You may want to use a unique name for a window, such as “Window A”. If you have multiple windows of the same type, you may copy and paste the window, saving time. This will aid you in identifying the Window.



Add a Window by clicking on the “Window” icon in the toolbar. Be careful to select the wall that the window belongs to. Do this by selecting the correct wall in the **Node Frame** section

The following steps will add a window and data for the window:

1. Select the wall from the Node Frame that the window belongs to.
2. Click on the “Window” icon on the toolbar.
3. You may name this window if desired from the dropdown box or typing a new name into the box.
4. Select “Type Selection”, “Number Selection”, or “Favorites” to see options for the window type.
5. You may also check the “NFRFC: box if you have the NFRFC rating on the window.
6. If “Type Selection” is selected, you will be asked to select the type of the window. You will then need to select the boxes that appear to the right of the first box. Depending on the type selected, you will have different options to pick from. By selecting the type and appropriate dropdowns, you will be selecting the Htg U-Value as well as the Htg and Clg HTM Values for this window.
7. After selecting the window type, you will need to enter the screen, outdoor surface and indoor shading information, you can set this information in the setup screen to default to desired values as you enter this screen.
8. Select the window height and width in the appropriate boxes.
9. You can select external sun screen by clicking on the button next to the “Sun Screen” box if an external sun screen is used. If not the value should be “1”.
10. Enter the overhang dimensions in the appropriate boxes.

Section III. Data Input

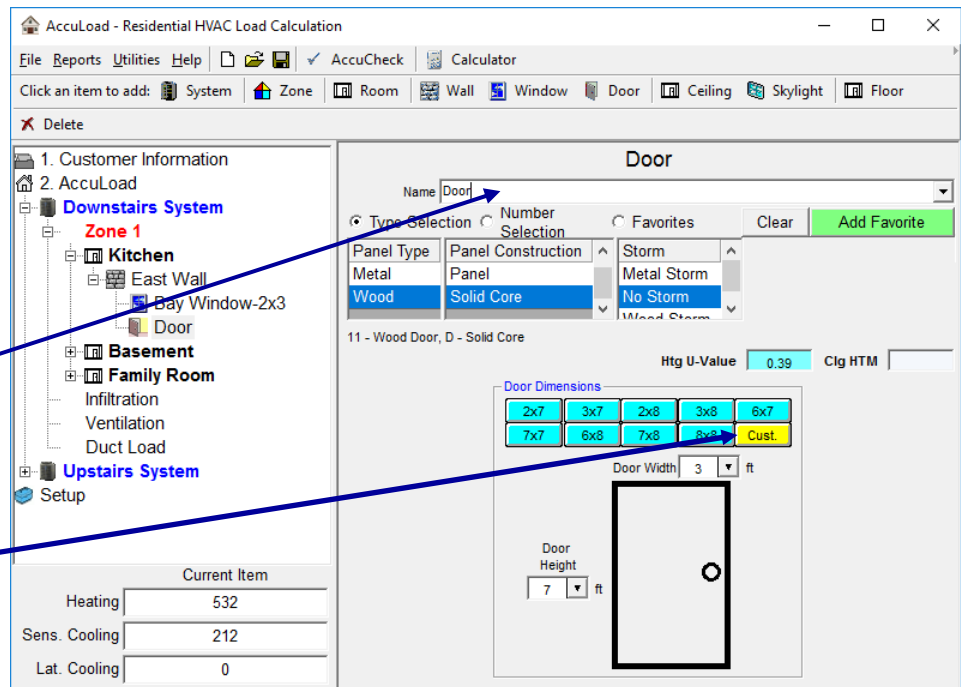
“Adding a Door”

Doors may be added to a wall. Doors may be copied, then pasted into a desired room. You may delete Doors by right clicking on the door, then select “Delete”. You can use the drag and drop feature on doors as well as any other component.

Hint:

You may want to use a unique name for a Door, such as “Door A”. If you have multiple doors of the same type, you may copy and paste the door, saving time. This will aid you in identifying the door.

Customize the “Size Buttons” to save time in entering the door dimensions.



Add a door by clicking on the “Door” icon in the toolbar. You may enter type and dimensions in any order that you desire. After working with the program, you will find a procedure that works well for you.

The following steps will add a door to a wall:

1. Click on the “Door” icon on the toolbar.
2. You may name this door if desired from the dropdown box or typing a new name into the box.
3. Select “Type Selection”, “Number Selection”, or “Favorites” to see options for the wall type.
4. If “Type Selection” is selected, you will be asked to select the type of the door. You will then need to select the boxes that appear to the right of the first box. Depending on the type selected, you will have different options to pick from. By selecting the type and appropriate dropdowns, you will be selecting the Htg U-Value and the Clg HTM Value for this door.
5. Select the door height and width in the appropriate boxes.

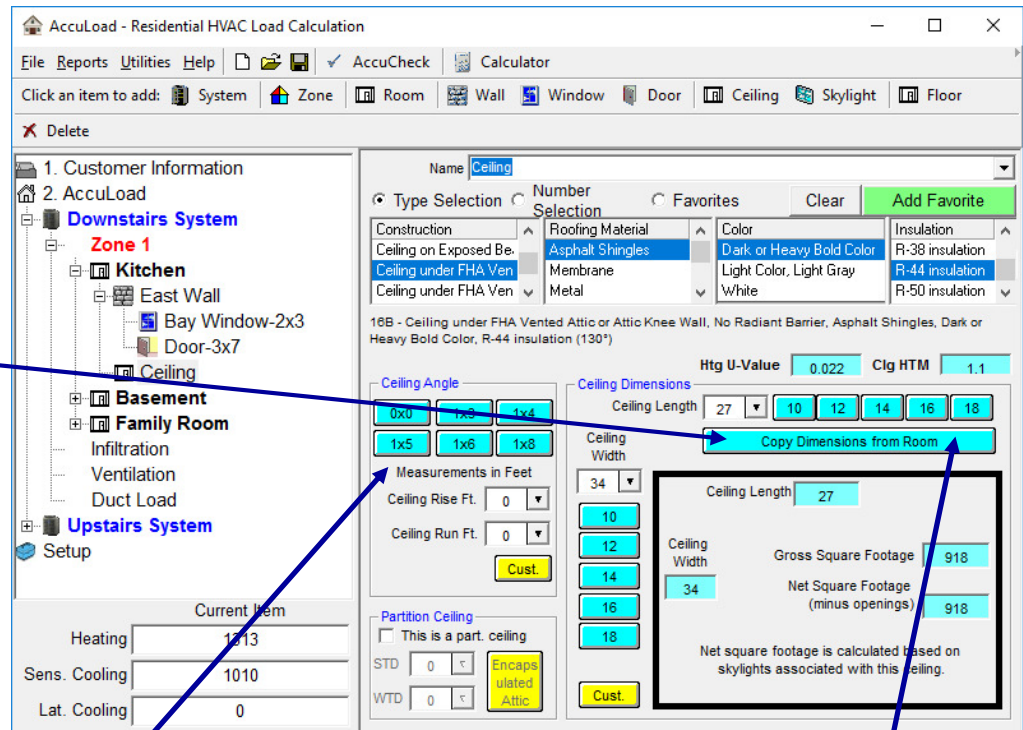
Section III. Data Input

“Adding a Ceiling”

Ceilings may only be added to a room. You may delete ceilings by right clicking on the ceiling, then select “Delete”.

Hint:

You may click on the “Copy dimensions from room” button to automatically enter the ceiling dimensions. This will be copied from the room dimensions.



Add a ceiling by clicking on the “Ceiling” icon in the toolbar. You may enter dimensions by clicking on the appropriate input box or use the customized buttons. After working with the program, you will find a procedure that works well for you.

The following steps will add a ceiling to the room:

1. Click on the “Ceiling” icon on the toolbar.
2. You may name this ceiling if desired from the dropdown box or typing a new name into the box.
3. Select “Type Selection”, “Number Selection”, or “Favorites” to see options for the ceiling type.
4. If “Type Selection” is selected, you will be asked to select the type of the ceiling. You will then need to select the boxes that appear to the right of the first box. Depending on the type selected, you will have different options to pick from. By selecting the type and appropriate dropdowns, you will be selecting the Htg U-Value and the Clg HTM Value for this ceiling.
5. If the ceiling is a not horizontal and has an angle to it, select the rise and run of the ceiling. This will calculate the square footage of the ceiling properly.
6. Select the ceiling dimensions in the appropriate boxes or click on the “Copy from room” button.
7. If this is a partition ceiling (ceiling with a different temperature on exterior side), check the “Partition Ceiling” box, then type in the STD (Summer Temperature Difference) and the WTD (Winter Temperature Difference). These numbers will be the deferece from the indoor design temperature and the temperature on the exterior of the ceiling.

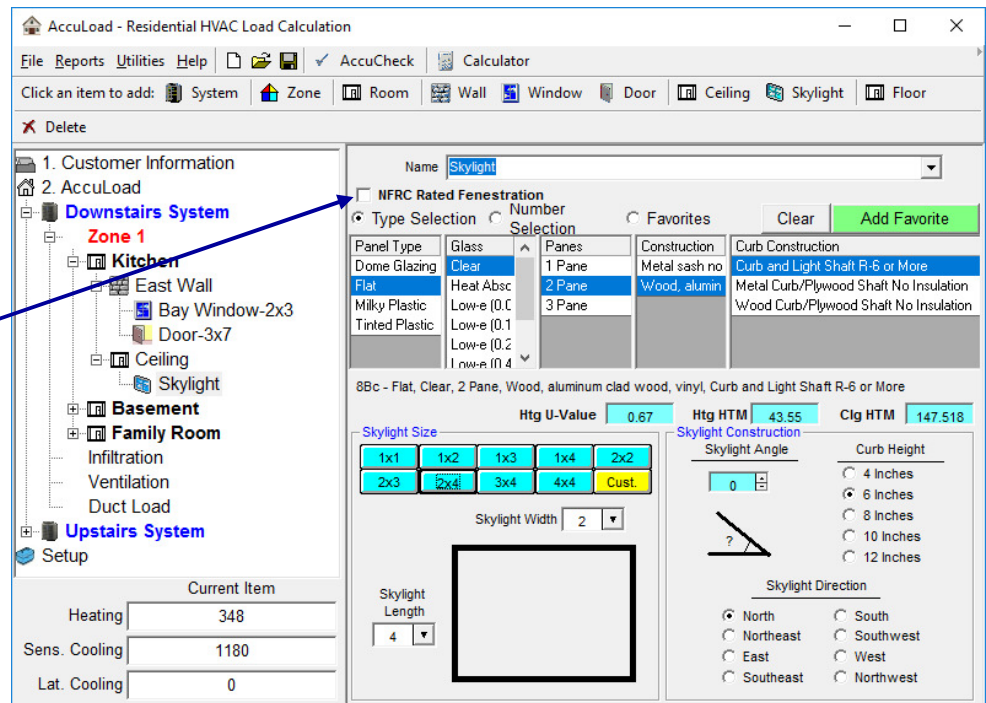
Section III. Data Input

“Adding a Skylight”

Skylights may be added to a ceiling. Skylights may be copied, then pasted into a desired ceiling. You may delete skylights by right clicking on the skylights, then select “Delete”. You can use the drag and drop feature on skylights as well as any other component.

Hint:

If this building is new construction, check the “NFRC” box, then input the “U-Value” and “SHGC” found in the manufactures data. You will then need to input information about the curb and light shaft, if any.



Add a skylight to the ceiling by clicking on the “Skylight” icon in the toolbar. You may skylight information in any order that you desire. After working with the program, you will find a procedure that works well for you.

The following steps will add a skylight to the ceiling:

1. Click on the “Skylight” icon on the toolbar.
2. You may name this skylight if desired from the dropdown box or typing a new name into the box.
3. Select “Type Selection”, “Number Selection”, “NFRC Rated” or “Favorites” to see options for the skylight type.
4. If “Type Selection” is selected, you will be asked to select the type of the skylight. You will then need to select the boxes that appear to the right of the first box. Depending on the type selected, you will have different options to pick from. By selecting the type and appropriate dropdowns, you will be selecting the Htg U-Value and the Clg HTM Value for this skylight.
5. Select the skylights size.
6. Select the angle, direction and curb height of the skylight.

Section III. Data Input

“Adding a Floor”

Floors may only be added to a room. You may delete floors by right clicking on the floors, then select “Delete”.

Hint:
You may click on the “Copy dimensions from room” button to automatically enter the floors dimensions. This will be copied from the room dimensions.

“Radiant” in the type selection box refers to radiant heating.

The screenshot shows the 'AccuLoad - Residential HVAC Load Calculation' window. The 'Delete' dialog is open, showing a list of floor types and their properties. The 'Type Selection' is set to 'Floor Over Enclosed L'. The 'Number Selection' is 'No Insulation on Expc'. The 'Floor Type' is 'Radiant'. The 'Insulation' is 'R-4 board'. The 'Htg U-Value' is 0.144 and the 'Clg HTM' is 1.2. The 'Floor Dimensions' section shows 'Floor Length' as 27 and 'Floor Width' as 34. The 'Gross Square Footage' is 918. The 'Copy Dimensions from Room' button is highlighted in blue. The background shows a project tree with 'Zone 1' containing 'Kitchen', 'Basement', and 'Upstairs System'.

Add a floor by clicking on the “Floor” icon in the toolbar. You may enter dimensions by clicking on the appropriate input box or use the customized buttons. After working with the program, you will find a procedure that works well for you.

The following steps will add a floor to the room:

1. Click on the “Floor” icon on the toolbar.
2. You may name this floor if desired from the dropdown box or typing a new name into the box.
3. Select “Type Selection”, “Number Selection”, or “Favorites” to see options for the floor type.
4. If “Type Selection” is selected, you will be asked to select the type of the floor. You will then need to select the boxes that appear to the right of the first box. Depending on the type selected, you will have different options to pick from. By selecting the type and appropriate dropdowns, you will be selecting the Htg U-Value and the Clg HTM Value for this floor.
5. Select the floor dimensions in the appropriate boxes or click on the “Copy from room” button.
6. If this is a partition floor (floor with a different temperature on exterior side), check the “Partition Floor” box, then type in the STD (Summer Temperature Difference) and the WTD (Winter Temperature Difference). These numbers will be the deference from the indoor design temperature and the temperature on the exterior of the floor.

Section III. Data Input

“Infiltration - Square Ft. Method”

Infiltration can be calculated by one of three screens, “Square Ft.,” “Blower Door Test” or “Component Leakage” method. The “Square Ft.” method is probably the most common method used. If you are utilizing a Blower Door Test, you may enter the numbers into the program for accurate infiltration calculations.

Hint:

You may view the heating and cooling sq. ft. areas on this screen.

When calculating a block load for a building, you should enter each living level in separately. This will calculate the proper sq. ft. of the building.

When entering a basement in the room screen, only use the above grade height for the room height.

The screenshot shows the 'Infiltration' screen in the AccuLoad software. The 'Square Ft. Method' is selected. The 'Areas' table lists the following data:

Name	Htg. Sq. Ft.	Htg. Volume	Clg. Sq. Ft.	Clg. Volume
Family Room	312	2808	312	2808
Kitchen	918	8262	918	8262
Basement	918	2754	918	2754

The 'Envelope Settings' section shows: # of Exposures: 3-4, 2 or more floors; Fireplaces: 1; Envelope Tightness: Average; Fireplace Tightness: Average.

The 'Infiltration Calculations' section shows the following results:

Heating Infiltration		Cooling Infiltration	
Heating SqFt.:	2148	Cooling SqFt.:	2148
Heating Volume:	13824	Cooling Volume:	13824
Door CFM:	0	Door CFM:	0
Total Heating CFM:	114	Total Cooling CFM:	48
Heating Infiltration Load:	8184	Cooling Sensible Infiltration Load:	798
		Cooling Latent Infiltration Load:	1053

Rooms are added to the grid as they are added in the node frame. This saves a double entry for this screen.

The following steps will calculate infiltration using the Square Ft. Method:

1. Select the number of exposures along with the number of floors in your application.
2. Select the envelope tightness (see page 35 for details).
3. Enter the number of fireplaces.
4. Select the fireplace tightness.

Section III. Data Input

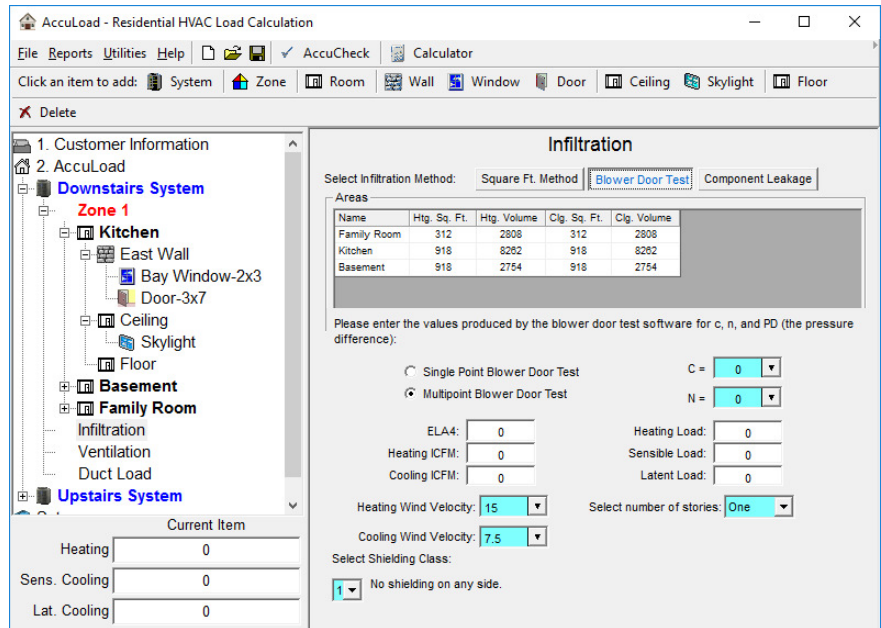
“Infiltration - Blower Door Test” & Component Leakage Method”

Infiltration can be calculated by one of three screens, “Square Ft.,” “Blower Door Test” or “Component Leakage” method. The “Square Ft.” method is probably the most common method used. If you are utilizing a Blower Door Test, you may enter the numbers into the program for accurate infiltration calculations.

”Blower Door Test Method”

Steps for Blower Door Test:

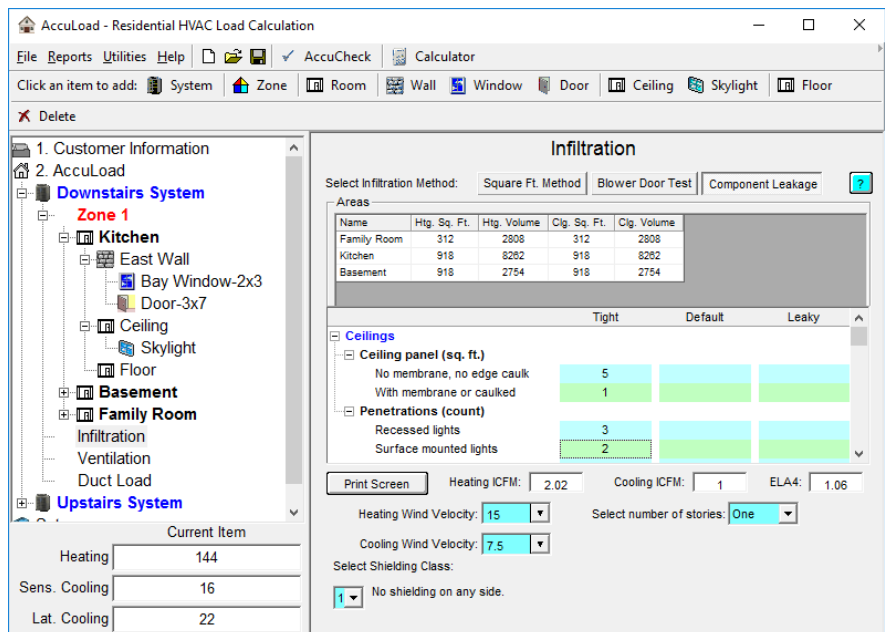
1. Select Single Point or Multiple Point test.
2. Enter “ELA4” reading for single point or “C” and “N” readings for multiple point test.
3. Enter the Heating & Cooling wind velocity if different than default values.
4. Select # of stories.
5. Select Shielding Class.



”Component Leakage Method”

Steps for Component Leakage:

1. Enter the components recorded in the home in the grid. Click on the desired cell, then enter the number.
2. Enter the Heating & Cooling wind velocity if different than default values.
3. Select # of stories.
4. Select Shielding Class.



Section III. Data Input

“Ventilation”

Ventilation can be determined from local code requirements or MJ8 recommendations. MJ8 recommendations should only be followed if there are no local code requirements.

Hint:
The top two boxes are for determining ventilation requirements. No load will be calculated until the desired cfm#'s are entered into the two lower input sections. If you are using a HRV or ERV, you will enter the cfm and SER's into this section. If fresh air is introduced thru a vent, use this input section.

Ventilation using a fresh air vent (no ERV or HRV):

1. Enter the cfm being introduced into the home.
2. Enter the exhaust cfm, if any. Do not include kitchen or bath fans if they are less than 150 cfm. They are not considered engineered ventilation.

Ventilation using a ERV or HRV:

1. Click on the check box for using an ERV or HRV.
2. Enter the cfm being introduced thru the unit.
3. Type in the correct SER#'s for the unit efficiency.

When selecting “Code Requirements”, you have a choice to include the infiltration as part of your ventilation if your local code allows this.

Section III. Data Input

“Duct Load”

Duct loads will be calculated in this screen. If the ductwork is located in a conditioned area, this input screen may be omitted.

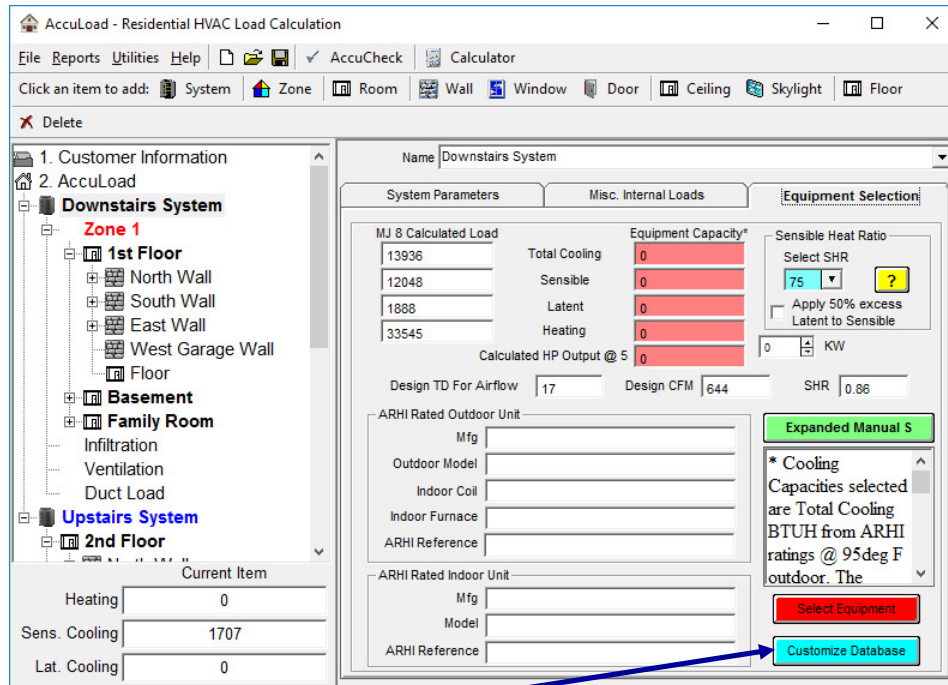
Hint:

You may select a duct type, then click the button “Add To Favorites” to save the duct type. If this is a common scenario, you can then click on the “Favorites” option button for your saved favorites. This will save steps in selecting common duct types.

The following steps will add the duct load to your project:

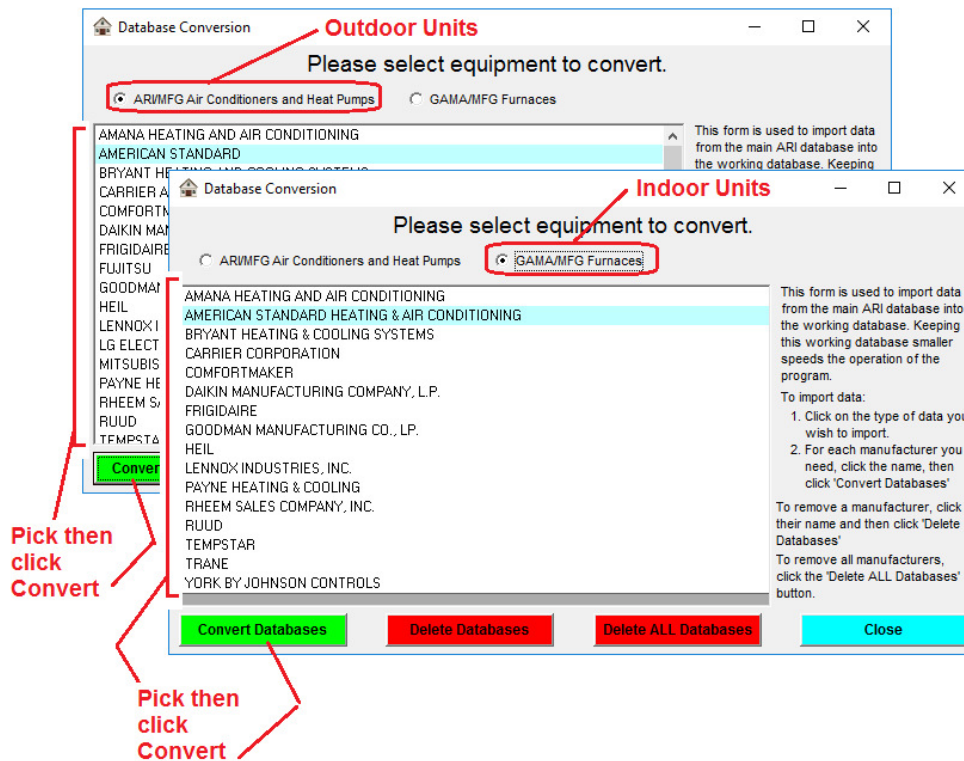
1. Select the location of the ducts in each scenario. You may have more than 1 supply and return air run as noted by the 8 tabs at the top of the screen.
2. Select the type of duct and location by clicking on the “Type Selection”, “Number Selection” of “Favorites” option buttons.
3. You may the select the appropriate duct and location.
4. Select the insulation R-Value if in an unconditioned space. (Use R-2 if not insulated)
5. Select the duct leakage factor. See Page 35 for explanation of values.
6. If the surface area of ductwork is not known, check the “Base duct surface areas off percentage of system” box. This is probably the most common and easiest to use. If are to measure the surface area of the ductwork, you may uncheck the above box, then use the drop down calculators next to the supply and return boxes. Another method to estimate the duct load is to estimate the surface area by clicking on the “Estimate” button. You will be asked to enter the number of returns, then click on the “Return” button to enter the values into the appropriate boxes.
7. **You may click on the “Preview” button to view the ductloads**, this is not necessary to calculate the loads, however you may want to view the numbers.

Section IV. Equipment Selection

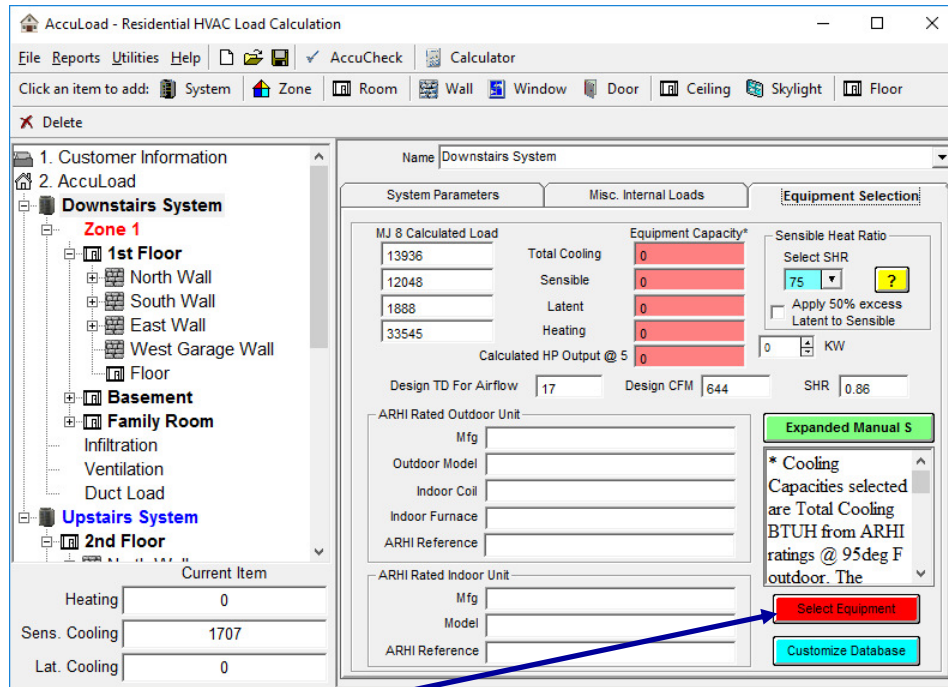


Equipment Selection

Step 1) Click on Customize Database, and Choose the manufacturer you want and click on Convert Database. Note: There is separate databases for outdoor and indoor unit and you will have to convert your database once for each database.

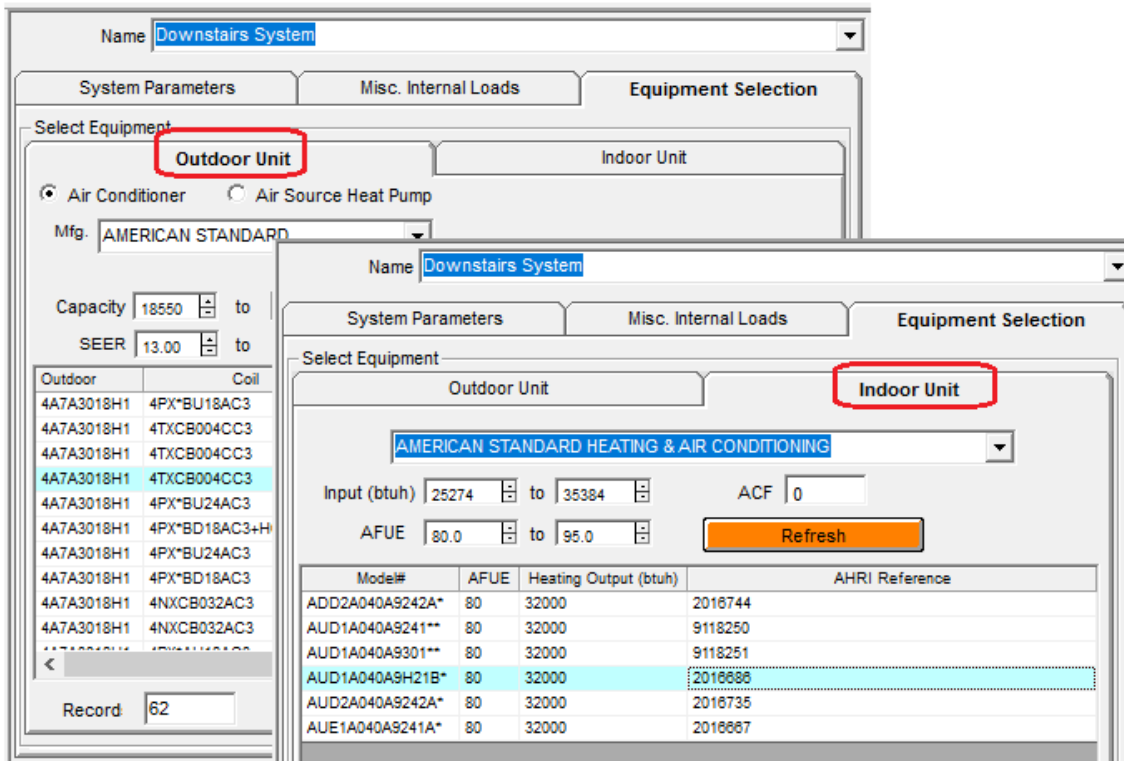


Section IV. Equipment Selection...continued

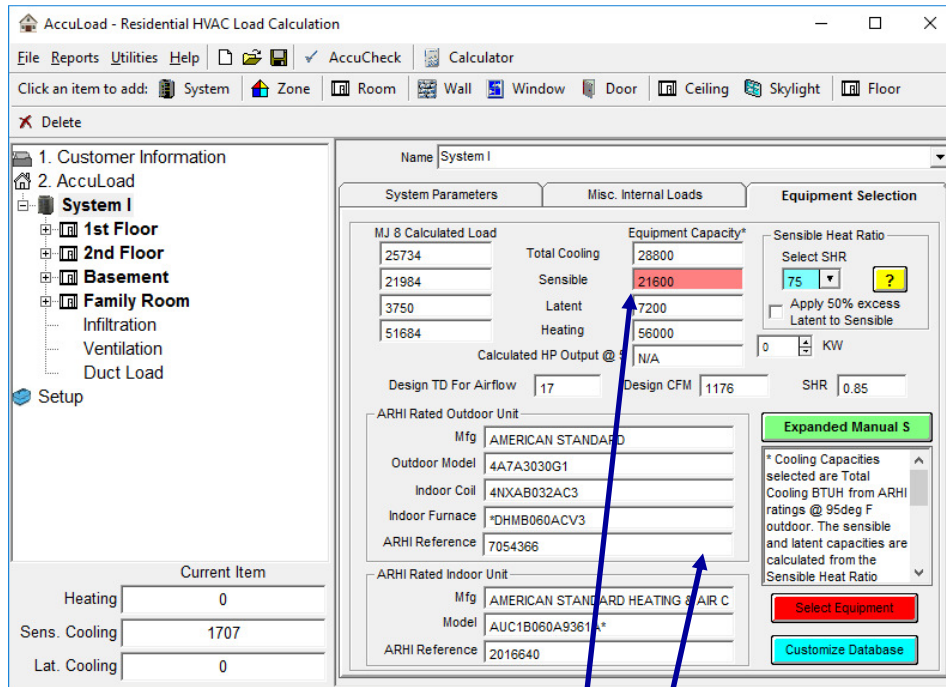


Equipment Selection

Step 2) Click on Select Equipment. The program now automatically populates the equipment that qualifies based upon the load you have already done in the system. Click on the desired equipment, then click Close to populate the performance.



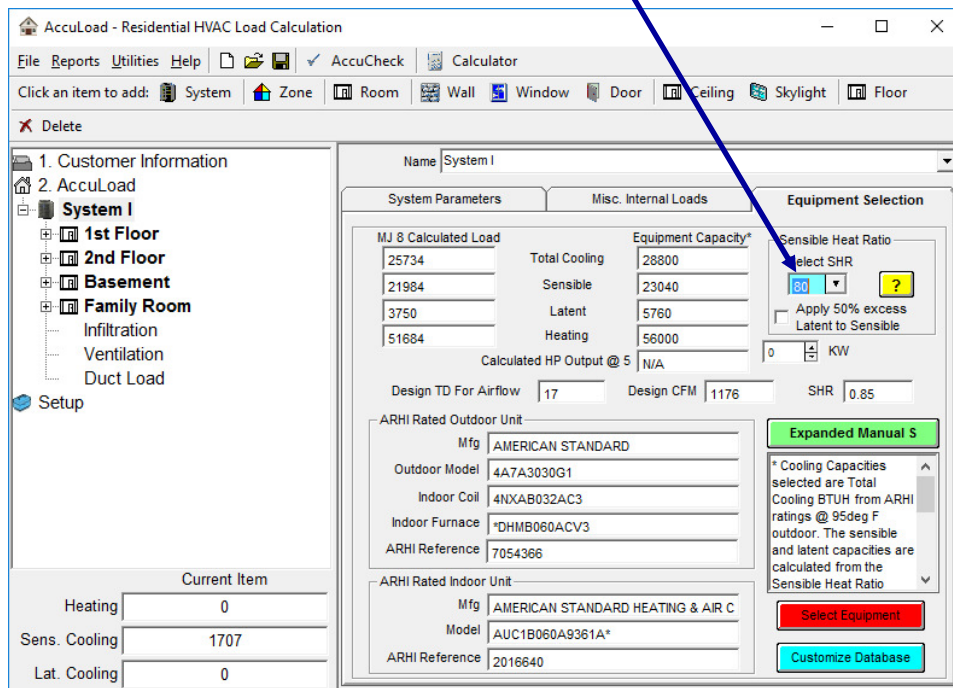
Section IV. Equipment Selection...continued



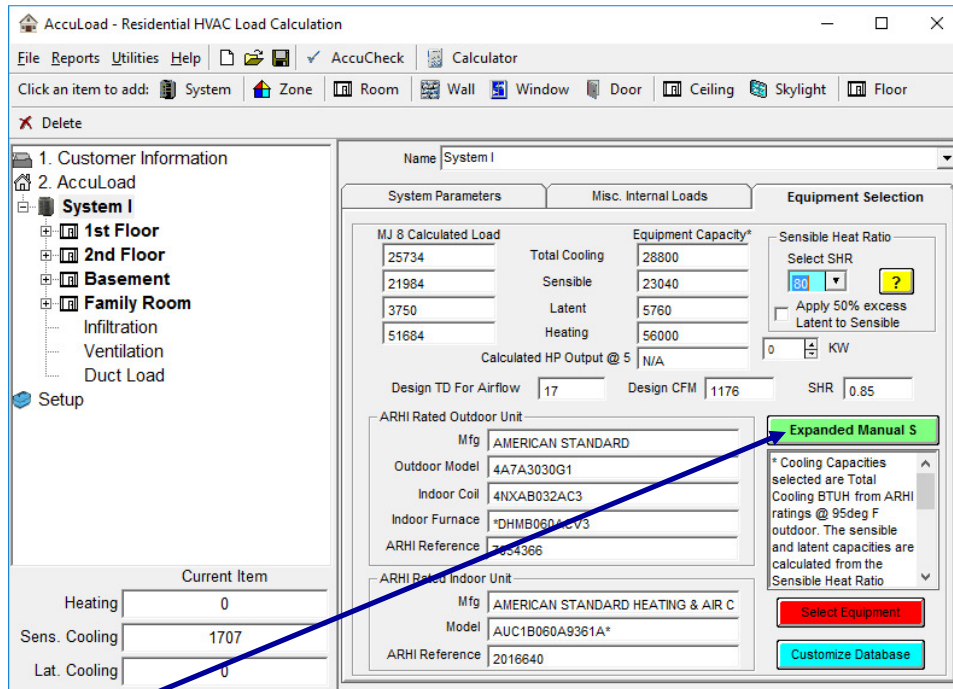
Equipment Selection

After clicking Close, the performance auto-populates on screen.

Areas where performance do not meet load show up in RED. Adjusting the SHR will help correct, adjusting capacities between Sensible and Latent.



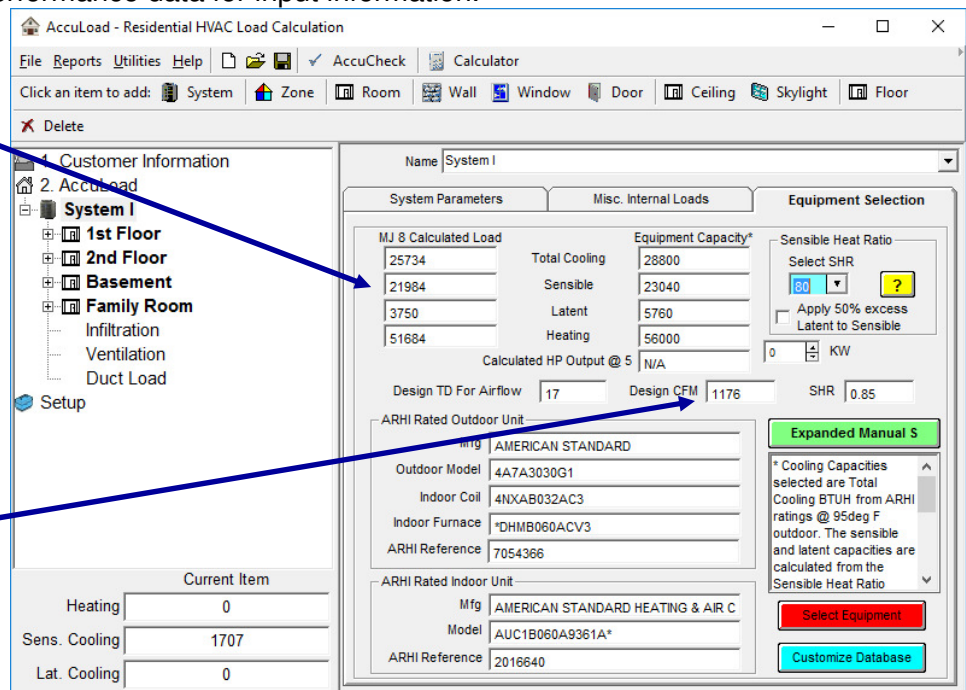
Section IV. Equipment Selection – Expanded Manual S



Equipment Selection – Expanded Manual S

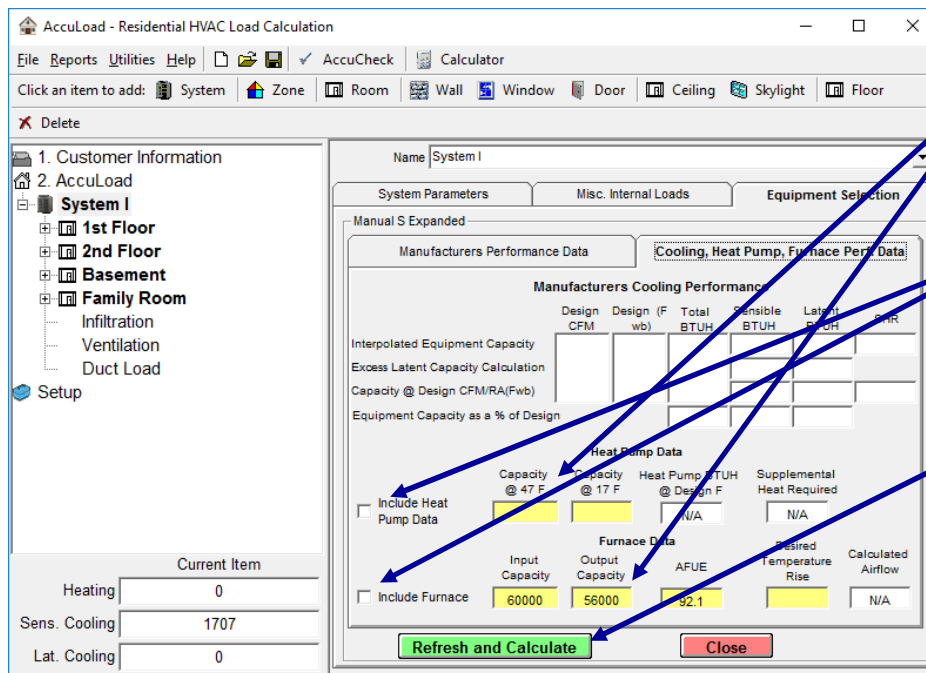
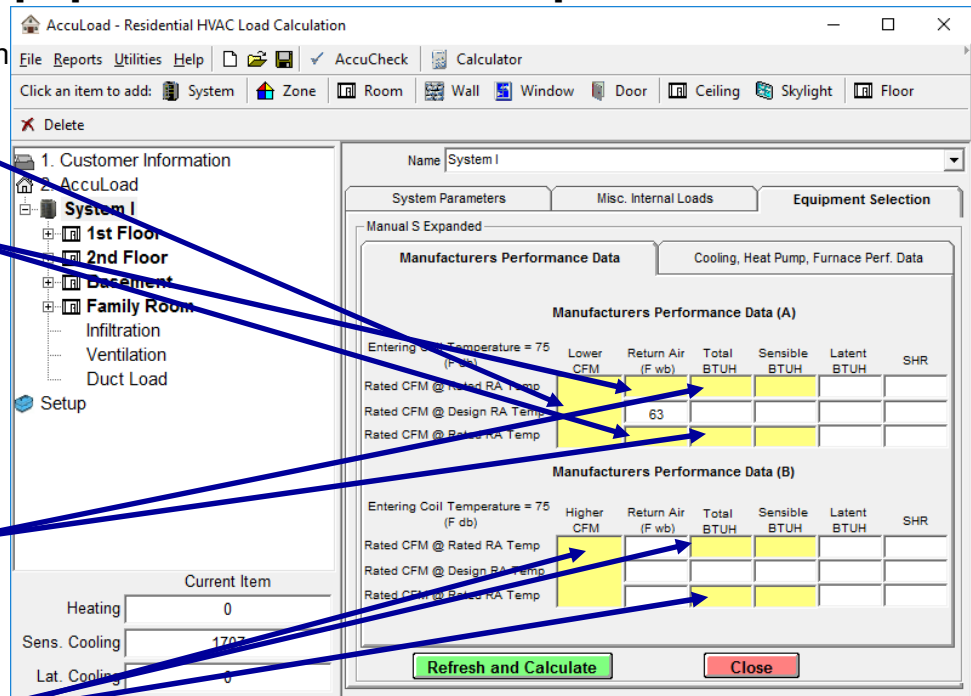
Click on the “Expanded Manual S” button to use OEM expanded performance data tables to correlate equipment performance capacity with operating conditions calculated with ACCA Manual J. Consult manufacturers performance data for input information.

- Carefully select the data sheet for the equipment that adequately meets the latent, and sensible capacities.
- Notice design cfm then select the data sheet that indicates a low and high cfm value that the design cfm falls within these values.



Section IV. Equipment Selection – Expanded Manual S

3. Input the low and high cfm values from the data sheet
4. Input the return air temperatures (wb) at the indicated cfm.
5. Input the Total BTUH and Sensible BTUH capacities in the appropriate fields.
6. Complete the same information for the high cfm value from the data sheets.



For heat pump or gas furnace data, enter the appropriate data for the manufacturers performance data sheets.

Check the “Include” box to calculate for furnace or heat pump.

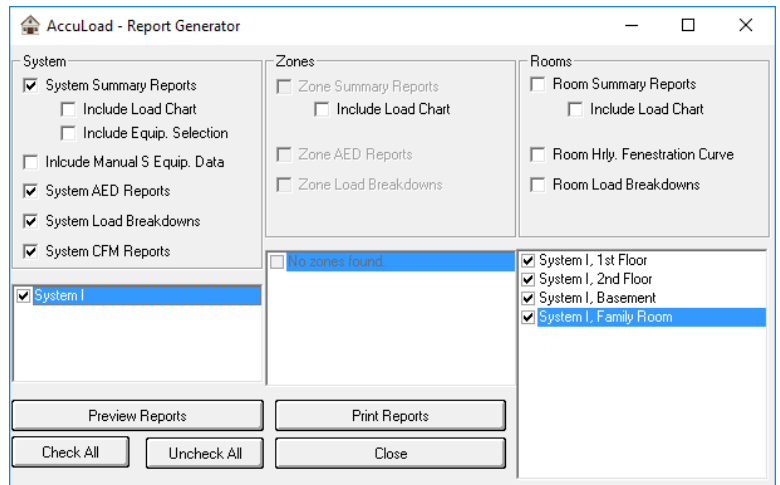
Click “Refresh and Calculate” to populate fields.

Please refer to ACCA Manual S Second Edition for detailed information and guidance in using the Expanded Data Screens.

Section V. Summary and Reports “Previewing and Printing Reports”

View Reports

1. Click “Reports” in the Toolbar.
2. The Report Generator will appear.
3. Choose which reports to Generate.
4. Choose what Systems, Zones, and Rooms will be included in the reports.
5. If you want to print the reports with out previewing them, click the “Print Reports” button on the bottom of the Report Generator Dialog.
6. To Preview Reports, click the “Preview



Previewing Reports

Previewing Reports allows you to view reports without printing them, or allow you to see the report before printing.

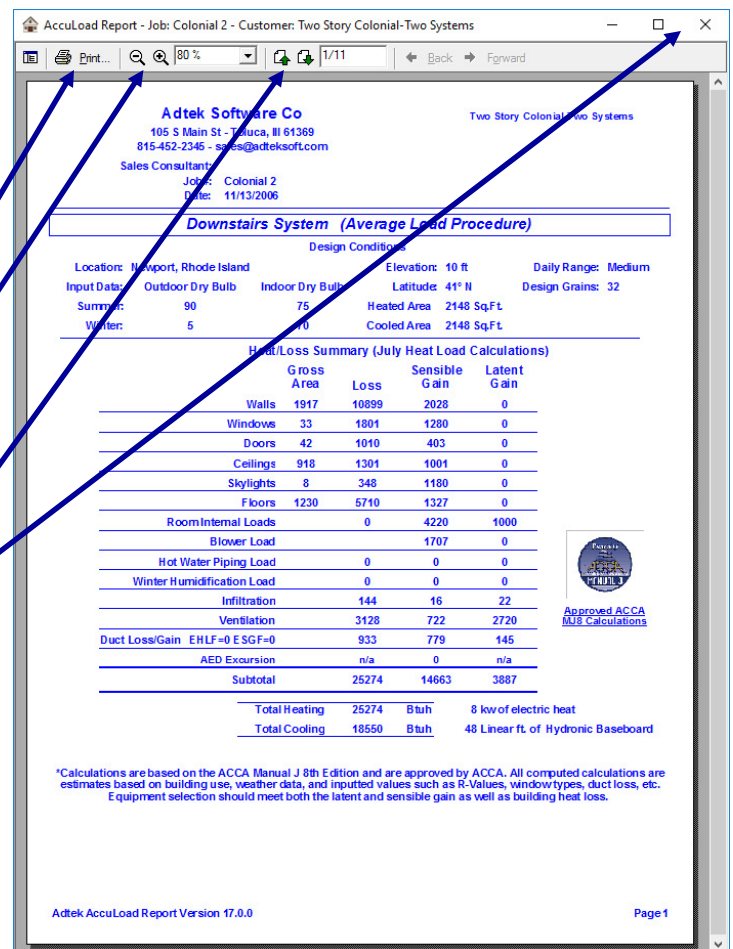
You can print at any time by hitting the Print Button.

Click on the percentage to increase or decrease the viewing area (zoom).

The number of pages.

Use These Buttons to view the next page, or go back a Page.

Click the X button to exit.



Section VI. Case Study

Case Study

Here we will walk through a working example of a block load step by step. Compare the loads as you complete each screen by viewing the current load in the bottom left corner. Please use the exact data if you wish to compare your load calculations to this example.

General Information: This is a relatively simple floor plan with a full basement located in Concordia, Kansas. The home was constructed in the mid 80's. There are 4 members in the family

Customer Information:

Client:

John and Jane Doe

123 East Main St.

Concordia, Kansas 61301

217-555-5555

Job# 807290

Sales Consultant: Joe Smith

Winter Outdoor Design: 3 deg F.

Summer Outdoor Design: 96 deg F.

Winter Indoor Design: 70 deg F.

Summer Indoor Design: 75 deg F.

RH: 50%

System Information:

2400 btu scenario

Manufacturer performance data is not adjusted for blower heat. Motor rating = 500 watts

Heating supply temperature: 120 deg F

Cooling CTD based on SHR: Checked

Calculate for July Load with a Constant Volume system

System CFM will be determined after the calculations.

Construction Information:

Windows: All windows are operable, normal, clear 2 pane glass with wood frames. Full outdoor screen with no internal shading and no adjustment for outdoor surface. All windows have a 3' overhang located 0" under the overhang. Refer to window sizes on floor plan.

Doors: All doors are solid core wood with a metal storm door. Door sizes are 3' wide x 7' high

Walls: Walls are frame wall/partition with wood studs, Frame insulation = R-11, no board insulation with siding on the exterior. Basement walls are poured concrete with no insulation.

Ceiling: The ceiling is under a FHA vented attic with no radiant barrier, Asphalt shingles, Dark in color with an R-30 insulation. This is a flat ceiling with 0x0 rise and run.

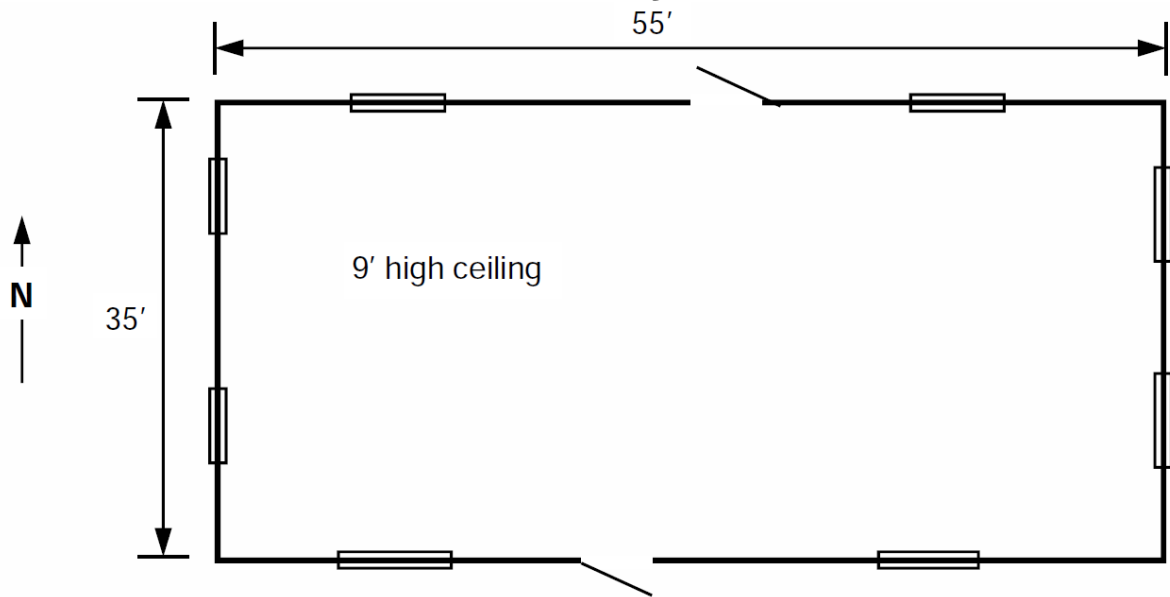
Floor: The floor is a basement floor located 6' below grade.

Infiltration: There are 4 exposures on one level with an average tightness. The home has one fireplace that is average.

Ventilation: None

Duct Load: Located in a conditioned basement. No load needs to be calculated.

Section VI. Case Study (continued...)

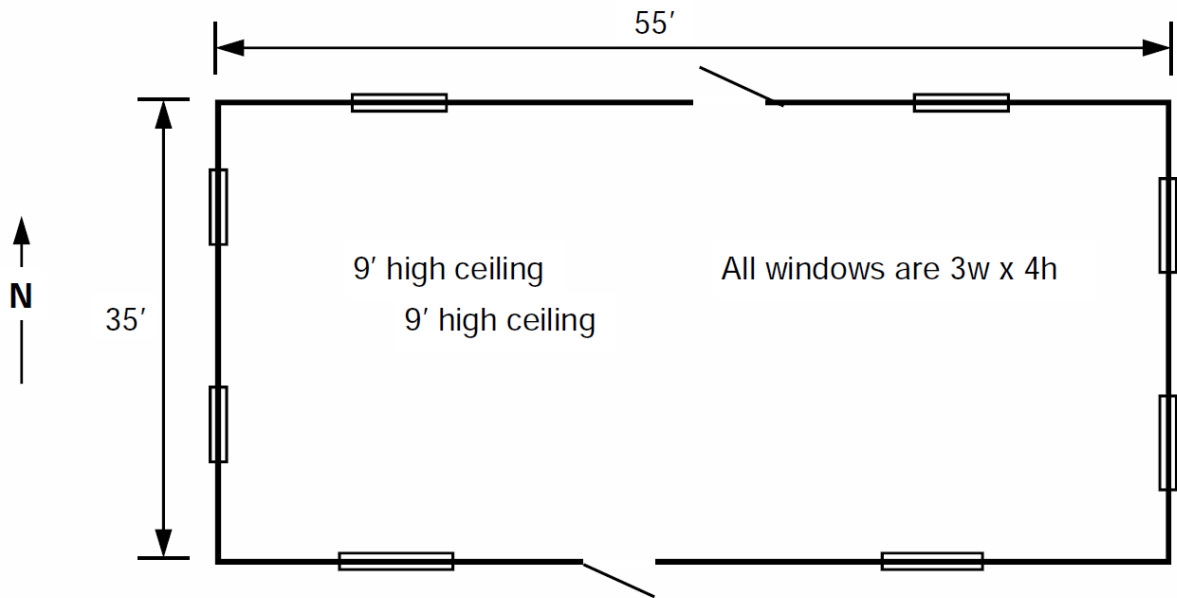


Use the above floor plan for this exercise. Refer to the previous page for construction data. Please follow the step by step example, then check the load as you progress. You will determine the fastest method of entering data after a few projects. This exercise is only an example of the sequence of entering data.

Let's Begin!

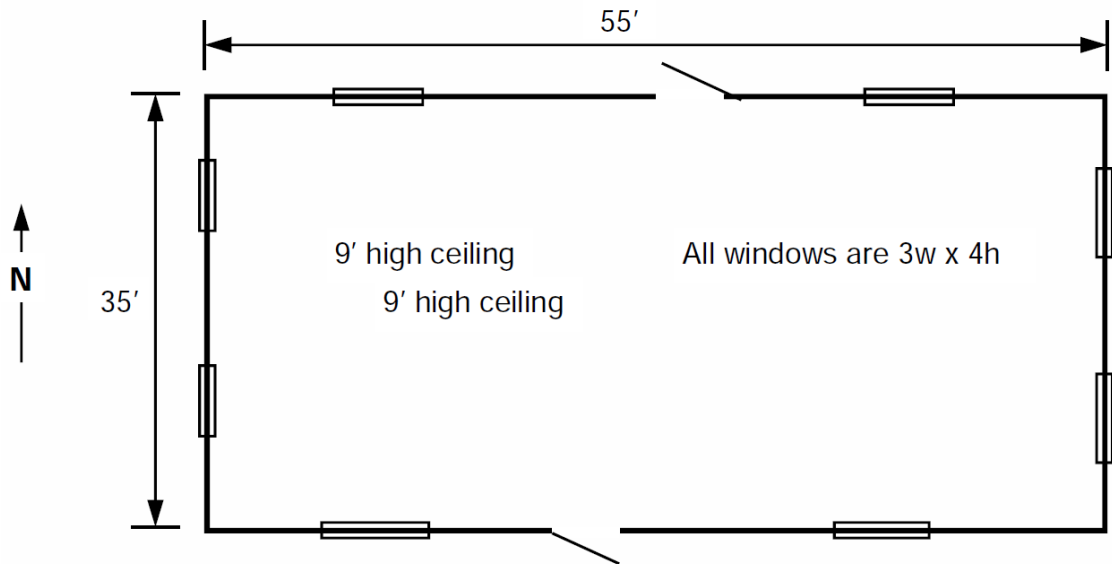
1. Start a new project, then enter the customer name, address, city, state and job#. Click on the state, then select Kansas. Click on the city, then select Concordia. Confirm that the design conditions are the same as the preceding page, if not change the numbers to match. This is an important step in calculating the correct load. Extreme conditions should never be used for the design temperatures.
2. Click on the "System" label in the node panel. This will allow us to enter general system information. Click on the 2400 btu scenario, this will not add a load at this time, however it will give us the options for each room internal loads. The loads will be added in the room screen.
3. Click on "Manufacturer performance data is not adjusted for blower heat, the motor rating is 500 watts. You should now see 1707 btu sensible cooling load in the Current item box. The heating system is a fossil fuel system so we will use 120 for the heating supply temperature. Be sure that 120 is selected in this box. The cooling CTD will be calculated from our sensible heating ratio (SHR), check this box. We will be calculating for a July load with a constant volume system.
4. We are now ready to enter the house dimensions and internal loads. Use the drop down box and select Whole House or type it in for the name. If you do not have this name in the drop down list, it can be added in the setup screen. Enter 55' for the length, 35' for the width and 9' for the height. You may enter these values by clicking on the arrow next to the box, then use the dropdown calculator or just click on the box and type the number into the field. Add four full time occupants. The room location is the first floor. Add one kitchen, one utility room, and one tv or computer and lights. This can be accomplished by clicking on the box in front of the appropriate description, then use the dropdown calculator to enter the quantities. When calculating a room x room load, you would add these internal loads to the appropriate room. You should now see 3320 btuh sensible cooling load and a latent load of 800 btuh.

Section VI. Case Study (continued...)



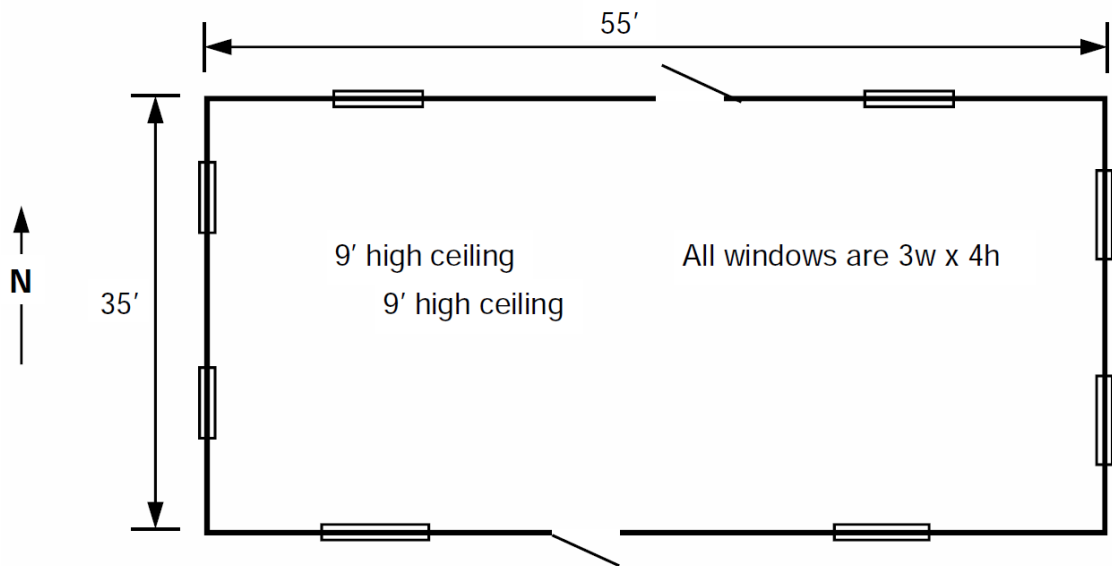
5. We are ready to enter the first wall. Click on the wall icon in the menu bar. This will create a wall in the node frame. The data entry area will be on the right side of the screen. Click on the appropriate values for the wall type. First, Frame Wall/Partition.... Second, Wood... Third, R-11.... Fourth, No Board Insulation.... Fifth, Siding. You just entered the wall construction, this will be your default values for your next wall. If the next wall is constructed different, you may change these values if needed. Select the direction by clicking on the "N", for North wall. The height will be inputted from the entry in the room height. You will now enter the wall length as 55'. Your Heating loss should be 3217 btuh and your sensible load 1397 btuh.
6. Enter the south wall by clicking on the "Wall" icon in the menu bar. Click on the "S" heading. Your length and type should be OK. Your Heating loss should be 3217 btuh and your sensible load 1397 btuh.
7. Enter the east wall by clicking on the "Wall" icon in the menu bar. Click on the "E" heading. Change the length to 35', your type should be OK. Your Heating loss should be 2047 btuh and your sensible load 889 btuh.
8. Enter the west wall by clicking on the "Wall" icon in the menu bar. Click on the "W" heading. Your length and type should be OK. Your Heating loss should be 2047 btuh and your sensible load 889 btuh.
9. You should now have the 4 walls entered. Click on the north wall in the Node Window. With the north wall selected, click on the "Window" icon in the menu bar, this will add a window to the north wall. Select the type, Operable, Normal, Clear, 2 Pane, Wood. Now select the Outdoor Full Screen. Enter the size 3'w x 4'h by clicking on the blue "3x4" button or using the dropdown calculator. Be sure to enter in the correct box for width and height. You may now enter the overhang in by selecting the "3x0" button, this will enter the 3' overhang with 0". Your Heating loss should be 458 btuh and your sensible load 219 btuh. Click on the "Window" icon to add the second window on the north wall. You will not need to change any information since both windows are identical. The gain and loss will be the same as the first window.
10. Since we are still on the north wall, click on the "Door" icon to add the door to the north wall. Select the Wood, Solid Core, Metal Storm, then click on the "3x7" button to enter the size. Your Heating loss should be 394 btuh and your sensible load 183 btuh.

Section VI. Case Study (continued...)



11. Click on the south wall in the node frame. The south wall has two windows and one door. Click on the "Window" icon twice to add the two windows. Your Heating loss should be 458 btuh and your sensible load 336 btuh for each window. Click on the "Door" icon the add the door to the south wall. Your Heating loss should be 394 btuh and your sensible load 183 btuh for the door.
12. Click on the east wall. Add two windows to this wall by clicking on the "Window" icon twice. Your Heating loss should be 458 btuh and your sensible load 622 btuh for each window.
13. Click on the west wall. Add two windows to this wall by clicking on the "Window" icon twice. Your Heating loss should be 458 btuh and your sensible load 622 btuh for each window.
14. We will now add the ceiling. Click on the "Ceiling" Icon in the menu bar. The ceiling should be visible in the data screen. Select the Construction type, Ceiling under FHA Vented attic, No Radiant Barrier, Asphalt Singles, Dark, R-30 insulation. You may now click on the blue "Copy Dimensions from Room" button at the bottom of the screen to enter the dimensions. If this were a vaulted ceiling, you would enter the rise and run to allow for the extra area in the vaulted ceiling. Your Heating loss should be 4127 btuh and your sensible load 3388 btuh for the ceiling.
15. Add the floor to the project. Click on the "Floor" icon in the menu bar. You should select the Basement Floor (2ft+ Below Grade), Slab width = 32'. Click on the "Copy Dimensions from Room" to enter the room dimensions. Your Heating loss should be 2580 btuh and your sensible load 0 btuh for the floor.
16. We will now add the basement as a room. Click on the "Room" icon in the menu bar. Change the name of the room to "Basement", then enter the dimensions 35' wide x 55' long x 2' above grade. Click on the "Basement" Option button located on the screen below the dimensions.
17. We will now add the basement walls. Make sure that the Basement is selected in the Node frame. The walls can then be added in two entries since there is only one window located on the north side. Click on the "Wall" icon in the menu bar, select Basement wall, Eight inch brick stone or concrete wall. No framing, no board insulation, above grade. You will now add the perimeter of the house for the length entry. $(35+35+55+55=180)$ 180' will be entered in the length field. The wall height will be 2' since this is the above grade dimension. If you had windows on other directions, you could add the walls individually so that the directions could be set for the windows. *Continued on next page*

Section VI. Case Study (continued...)



17. Your Heating loss should be 11771 btuh and your sensible load 3215 btuh for the above grade basement wall. Please note that the wall loads will change as windows are added due to the change in area. Select the north wall then add the window to the north basement wall, click on the “Window” icon, then select the size as 2x2. Your Heating loss should be 153 btuh and your sensible load 73 btuh. Notice that your north basement above grade wall now has a 11640 loss and a 3179 loss due the change in area by adding the window.
18. Add the below grade wall by clicking on the “Wall” icon. Change the depth from “Above Grade” to 6ft, then select the direction as north. The height will need to be entered as 6’. Your Heating loss should be 9986 btuh and your sensible load 0 btuh for the below grade basement wall.
19. We are now ready to enter the infiltration. Click on the “Infiltration” tag in the node frame. You should see the two rooms that we added in the “Areas” grid. Select the “# of Exposures” to “3-4, 1 floor”, then the Envelope tightness to “Average”. Add one fireplace by clicking on the dropdown calculator, then select the fireplace tightness as “Average”. Your Heating loss should be 8494 btuh, your sensible load 1186 btuh and your latent load 594 btuh.
20. There is no ventilation and the duct work is located in the conditioned basement. No entries will need to be added under the “Ventilation or Duct Load” tags.
21. Click on “Reports” item in the menu bar, a Report Generator screen will appear. Click on the “Preview Reports” button to preview the load.

Let’s review the reports on the next page.

Section VI. Case Study (continued...)

	Loss	Sensible Gain	Latent Gain
Walls	31258	7359	0
Windows	3817	3671	0
Doors	788	366	0
Ceilings	4127	3388	0
Skylights	0	0	0
Floors	2580	0	0
Rooms	0	3320	800
Blower Motor	0	1707	0
Infiltration	8494	1186	594
Ventilation	0	0	0
Duct Loss/Gain	0	0	0
AED Excursion	N/A	0	N/A
Subtotal	51064	20997	1394
	Total Heating		51064
	Total Cooling		22391

Check your load summary with the one above. If your loss or gain is more than a few btu's off, you may want to check the entries.

Section VI. Case Study (Reports)

ABC Heating and Air Conditioning
 123 N Main St - Chicago, Ill 61334
 312-233-1234 - sales@abcheat.com

Sales Consultant:
 Job#: 1234
 Date: 8/16/2007

System Name: **System (Average Load Procedure)**

Indicates the load procedure

Input Data:	Outdoor Dry Bulb	Indoor Dry Bulb	Heated Area	Cooled Area
Summer:	96	75	3850 Sq.Ft.	3850 Sq.Ft.
Winter:	3	70		

System breakdowns

AED excursion adjustment

System Totals

	Loss	Sensible Gain	Latent Gain
Walls	31258	7359	0
Windows	3817	4187	0
Doors	788	366	0
Ceilings	4127	3388	0
Skylights	0	0	0
Floors	2580	0	0
Rooms	0	3320	800
Blower Motor	0	1707	0
Infiltration	8494	1186	594
Ventilation	0	0	0
Duct Loss/Gain	0	0	0
AED Excursion	n/a	508	n/a
Subtotal	51064	22021	1394
Total Heating	51064		Btuh
Total Cooling		23415	Btuh

AED Excursion Flag

**Equipment Selection should match Manufacturers Performance Data. (Latent and Sensible)*
This application has glass areas that produce large cooling loads for part of the day. Variable air volume devices are required to overcome large spikes in solar load for one or more rooms. Install a zoned system or provide zone control (individual, motorized, thermostatically controlled dampers) for problem rooms. Single speed equipment may not be suitable for this application.

Adequate Exposure Diversity (AED)

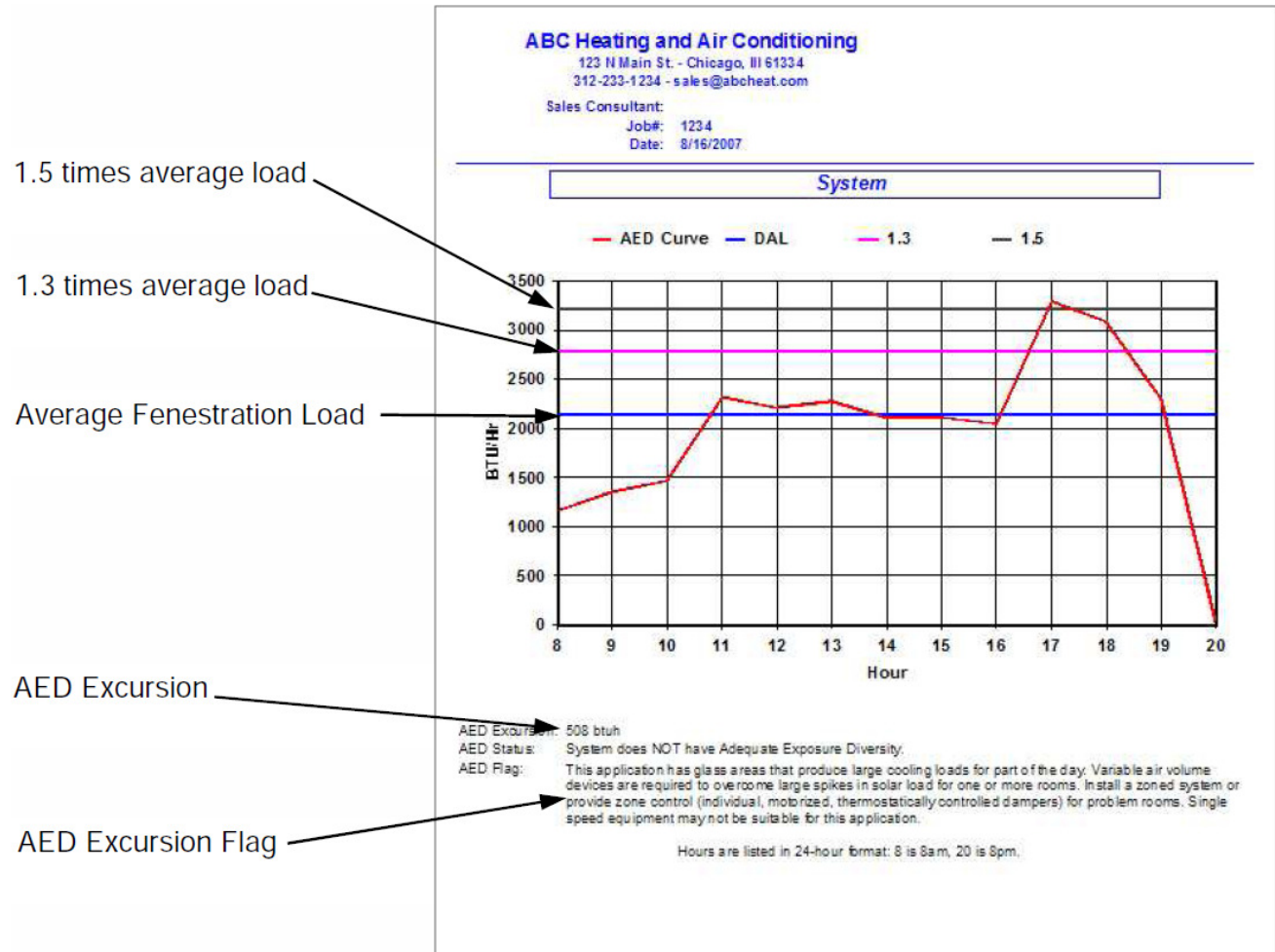
Room fenestration (glass) loads will peak at different times of the day. This software program calculates the fenestration load for every hour from 8:00 am to 8:00 pm to find the peak load. If the peak load is greater than 1.3 time the average load a warning flag will be displayed such as the one in the report above.

If the excursion is above 1.3 and less than 1.5 times the average fenestration load, variable air volume devices or zoning may be required to overcome the spikes in solar gain for one or more rooms.

If the excursion is above 1.5 times the average fenestration load, variable air volume devices or zoning will be required to overcome the spikes in solar gain for one or more rooms.

An AED excursion adjustment will be added to the load if the excursion is 1.3 times the average load.

Section VI. Case Study (Reports...continued)



Adequate Exposure Diversity (AED)

Room fenestration (glass) loads will peak at different times of the day. This software program calculates the fenestration load for every hour from 8:00 am to 8:00 pm to find the peak load. If the peak load is greater than 1.3 time the average load a warning flag will be displayed such as the one in the report above.

This report will indicate the hours of the day that the solar gain will peak. In the report above, we see a peak solar gain at 1700 hours (5:00 pm). This would indicate a peak load on the west side of the home. We could assume that the afternoon sun would cause a greater solar gain in one or more rooms on the west side. If our thermostat would happen to be located on the east side of this home, we would be uncomfortable in the west rooms that have large window areas. This solar gain would not be seen by the thermostat. Zoning would be needed to overcome this solar gain.

Section VI. Case Study (Reports...continued)

System Breakdown

This screen will print the loads for each item in the rooms or house.

ABC Heating and Air Conditioning
 123 N Main St. - Chicago, Ill 61334
 312-233-1234 - sales@abcheat.com

Sales Consultant:
 Job#: 1234
 Date: 8/16/2007

System Breakdown

Item Name	Sens. Htg.	Sens. Clg.	Lat. Clg.	Total Clg.
System	0	1707	0	1707
Basement	0	0	0	0
North Wall	5585	0	0	0
North Wall	11640	3179	0	3179
Window	153	91	0	91
Whole House	0	3320	800	4120
Ceiling	4127	3388	0	3388
Floor	2580	0	0	0
West Wall	1891	821	0	821
Window	458	778	0	778
Window	458	778	0	778
East Wall	1891	821	0	821
Window	458	778	0	778
Window	458	778	0	778
South Wall	2925	1289	0	1289
Door	394	183	0	183
Window	458	219	0	219
Window	458	219	0	219
North Wall	2925	1289	0	1289
Door	394	183	0	183
Window	458	273	0	273
Window	458	273	0	273

System CFM

This screen will show the cfm required in each room, zone or system. The system cfm that you select can be entered into the system screen, then the cfm will be proportioned into the rooms.

ABC Heating and Air Conditioning
 123 N Main St. - Chicago, Ill 61334
 312-233-1234 - sales@abcheat.com

Sales Consultant:
 Job#: 1234
 Date: 8/16/2007

System CFM

Item Name	Winter CFM	Summer CFM	System CFM
System	928	1178	1000
Basement	424	202	457
Whole House	504	976	829

Appendix 1

Infiltration Definitions

Tight: All structural panels, corners, cracks, joints and penetrations are sealed by meticulous workmanship using some combination of air barrier (film), taping, packing and caulking. Window and door assemblies are rated at less than 0.25 CFM per running foot of crack at 25 mph (wind speed). Bath exhaust fans, kitchen exhaust fans, and dryer vents are equipped with back draft dampers. The home does not have ceiling recessed light fixtures or, if so, there is a negligible amount of leakage around the fixture. No combustion equipment (furnaces, water heaters, dryers, etc.) contained within the conditioned space, or, if so, they are to be of the direct-vent variety. The house does not have powerful (i.e., 150 CFM or greater) range hoods (a high power hood that has its own source of makeup air is acceptable). Fireplaces, if any, receive combustion air from the outdoors and have tight glass doors.

Semi-Tight: Envelope conditions are approximately between Tight and Average

Average: All structural panels, corners, cracks, joints and penetrations reasonably sealed by adequate workmanship using some combination of air barrier (film), taping, packing and caulking. Window and door assemblies rated between 0.25 and 0.50 CFM per running foot of crack at 25 mph (wind speed). All bath exhaust fans, kitchen exhaust fans, and dryer vents are equipped with back draft dampers. The home does not use ceiling recessed light fixtures or, if so, there is a minor amount of leakage around the fixture. No envelope openings (per National Fuel Gas Code) are required for combustion air. The house does not have powerful (i.e., 150 CFM or greater) range hoods (a high power hood that has its own source of makeup air is acceptable). Fireplaces, if any, receive combustion air from the indoors but, have tight glass doors and a chimney damper.

Semi-Loose: Envelope conditions are approximately between Average and Loose.

Loose: There has been no effort or inadequate effort (regarding methods, materials and workmanship) to seal the structural panels, the associated corners, cracks, joints and penetrations and/or there is a large amount of ceiling recessed light fixture (or light-can) leakage. Window and door assemblies are not rated; or are rated at more than 0.50 CFM per running foot of crack at 25 mph (wind speed). Some, or all, of the bath exhaust fans, kitchen exhaust fans, and dryer vents are not equipped with back draft dampers. Envelope openings (per National Fuel Gas Code) are required for combustion air. Powerful (i.e., 150 CFM or greater) range hoods used that do not have their own source of makeup air require powered air-makeup, an open window for make-up air, or a negative pressure relief. Fireplaces, if any, receive combustion air from the indoors and do not have glass doors or chimney dampers.

Notes

The information contained herein is Confidential and Proprietary and is for the sole use of the Adtek Software and its customers. Any other use is strictly forbidden without the written permission of the Adtek Software.



ADTEK SOFTWARE
516 NW 20th St. ■ Oklahoma City, OK 73103
815-452-2345 Phone ■ 405-844-6314 Fax
www.adteksoft.com