Plan Analyst

Deck Design & Compliance Calculator

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Deck Design & Compliance Calculator

System Requirements

In order to use the Deck Design & Compliance Calculator we recommend the following:

- Computer running Microsoft Windows
- Hard drive with at least 6 MB available
- Mouse
- Printer

Download

Download the program from the online Account (https://www.plananalyst.com/my-account/) you created during the purchase checkout process. You can find the Download link (and your license/installation code) under Orders -> View.

Install

Before installing: It is important to exit (close) any other programs/applications that may be running before installing any new Microsoft based software, including Plan Analyst. During the setup process, Plan Analyst will check your Windows directory to determine which libraries need to be added before installation. If another program is using one of these libraries, Plan Analyst cannot complete the setup process.

Note: Many systems start programs during the boot process and do not indicate that they are running in the background. To close programs running in the background:
1. launch the Task Manager from the Microsoft Taskbar by right-clicking on the Taskbar and then select the option "Task Manager."
2. Click on a program, then click "End Task", to close programs - except for 'Windows Explorer'.

Install Instructions
1. Create a directory on your PC into which you will deposit files during the following process
2. Download the program from your Plan Analyst account https://www.plananalyst.com/my-account/
3. Double click on the zip file
4. Microsoft Explorer should open and show the file DeckCalcNewUser.exe – double click this file.
5. "Winzip self extractor" dialog displays. Click Browse button
6. Navigate to the directory you created at the beginning of this process, then click the "Unzip" button.
7. Dialog will say 4 files successfully unzipped, click OK, then click the "Close" button
8. Open Microsoft Explorer and navigate to the directory you created. Double click setup.exe and follow the installation prompts
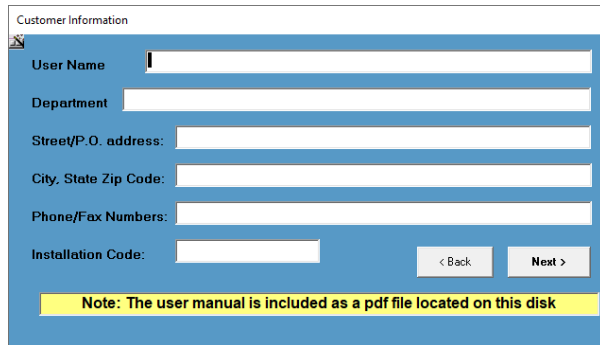
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a. Necessary library and setup files will be copied to your hard drive. **Note:** On some computers, you may need to reboot your computer to update libraries and then run Setup again.

b. Click the OK button or press < Enter > on the welcome screen. **Note:** This is only a reminder to close/end programs that may conflict with the installation of Plan Analyst.

c. If you want to change the location where the Plan Analyst files are copied, click the Change Directory button and enter the new location.

d. Click the button with the picture of the computer on it.

e. Click the Continue button.

f. Wait while files are copied.

g. Click the OK button.

9. Navigate to c:/Program Files (x86)/DeckCalculator2021 in Microsoft Explorer (the example shows 2021: replace with whatever version year of the software you purchased if necessary).

10. Click on DECKDSGN.EXE, then right click and create a shortcut to place an icon on your desktop (you can right click on the icon on the desktop to also pin to your Windows Taskbar, if you want)

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Running the Deck Design & Compliance Calculator for the First Time

The first time you use the Deck Design & Compliance Calculator, the **User Information** screen below will be displayed. You must fill this out completely before you can continue.

> The **Installation Code** can be found either on one of the emails you were sent after purchasing the software or in your online Account (that you created during Checkout when purchasing the software) under Order -> View. The code format looks something like this: 12g465d25d8n

Note: The information entered will be included on all reports. To change any of the default settings:

- Click the **User Information** tab
- Change information
- Click the **Save changes** button

Deck Design & Compliance Calculator Features

Using the Keyboard

- Pressing **Enter** will accept your selections and move cursor to the next field or screen.
- Pressing **Esc** will move the cursor back to the last field or screen.
- Pressing **Tab** will move the cursor to the next field or screen.
- Pressing **Shift+Tab** will move the cursor to the previous field or screen.

Text Boxes

When you are entering information into a text box, all standard editing capabilities are available, delete, insert, overtype, etc. *If you need to delete characters and type new ones in their place*, highlight the characters to be deleted first. You may do this by using your mouse to highlight the word or drag the mouse cursor over the characters with the left button pressed. Then type the new replacement characters.

Note: You may also use this method to delete characters or words. Highlight characters/words to be deleted and press the Delete key.

Calculator

There is no need to reach for your calculator!

When numbers, such as dimensions and square footage, are required, a four function calculator is built into plan analyst. use the + for addition - for subtraction x or * for multiplication and / for division. Algebraic logic is used, i.e. division and multiplication are always done before addition and subtraction.

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When asked for the floor area enter: 100 x 40 + 30 x 38 and the floor area will be calculated for you.
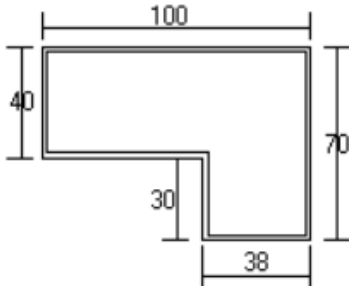
Entering Dimensions

Dimensions may be entered using either decimals of a foot (10.4167) or by using the Feet_inches (10_5) format. For example, for 10 feet 5 inches, you enter either 10.4167 or 10_5.

Copy and Paste using the Windows Clipboard

Highlight the word or words that you want to move to or from Plan Analyst.

- *To delete the highlighted words and copy them to the clipboard*, simply press Shift + Delete (at the same time).
- *To copy the highlighted words to the clipboard*, simply press Ctrl + Insert or Ctrl + C (at the same time). Move the cursor to the new location.
- To place the selected text at the new location, press Shift + Insert or Ctrl+V (at the same time).
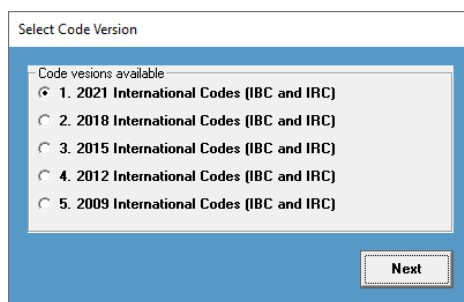
Location of Project Files

The default location for files is C:\Program Files (x86)\DeckCalculatorXXXX (where XXXX is the code year)

Setup Pull Down Menu

Set Code version: To change the code used for Decks, click Setup and then Set Code Version on the first screen.
1. Click the code version that you purchased (this should already be set)
2. Click Next

Edit User Information

If your address or phone number changes, click Setup and then Edit User Information on the first screen. This will allow you to edit the header information that you entered the first time you ran Plan Analyst. See Screen on the last page.

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Printer & Font Information

To change, click Setup and then Printer and Font Information. Plan Analyst uses the Windows default printer.
Note: If you change the printer in Plan Analyst, the Windows default printer will be changed to the new selection. Changing fonts will only affect the printed drawing. The information on the screen is very tight and changing the font will cause information to write over other information. If some information writes over other information when you change printer font, try a smaller size.

Printing Problems - Solutions

1. If some information writes over other information when you change printer font, try a smaller size or a different font.
2. Get error every time you print
   a. Verify that the printer is turned on.
   b. Verify that Windows has the correct printer selected.
   c. Verify that the font selected is valid for the printer selected.

Edit Lumber Grades

Plan Analyst is shipped with 6 common lumbers selected. You may change the selected list to match the species and grades of lumber used in your area.

To make Plan Analyst easier to use, you select only the lumber that is used in your area. Click the box beside the lumber name to add or remove a lumber grade. Grades with a check in the box will show up on the list of available lumbers on the "Structural information" form. You may select up to 9 grades of lumber.

Click Next when you have finished.

On the next screen, select the grade used most in your area for the default. To select, click the name of the lumber that you want to be the default grade.

Click Next when you have finished, then Next again.

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When designing or checking a deck, normally you do not have access to the wood being used on this project. We recommend that you leave the default set to "No increase" since you cannot verify the condition of the lumber.

Select Default for Shear

The published horziontal shear values may be increased if splits in the wood are small. Select the value that you want to be the default. (If unknown, select 5)

Available increases

- 1) No Split — 100% increase
- 2) Max 1/2 times wide face — 66% increase
- 3) Max 3/4 times wide face — 50% increase
- 4) Max of width of wide face — 33% increase
- ● 5) 1 1/2 times wide face or more — No increase

Back   Next

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Designing and or Checking a Deck

- Enter the depth (a) and width (b) of the basic deck.

- If the deck includes stairs, click the checkbox.

- If the deck is to be used for anything other than a single-family dwelling, click "Any other use".

- The deck shape will be redrawn when you leave dimension boxes. You may also click the Redraw button to see the new shape.

- Enter the Project ID. This may be anything, e.g., number, name, etc., or you may leave it blank.

- Enter the Project Address. This may be anything, e.g., number, name, etc., or you may leave it blank.

When all of the information is entered click the Next button.

Additional Features of the Deck Form

This example drawing shows all of the options available. Normally, you would only use a few of these. Notice the long list of options that we have used for this example on the right side of the screen, and the complexity of the resulting design.

Example Deck Design

To create deck shape:

- Click the Corner 1 picture icon.
- Then the Corner 2 picture icon
- Then the Stair landing picture icon
- Then the Fireplace picture icon

Plan Analyst adds the dimension input boxes on the right side of the screen for each of the options selected.

As you enter the dimensions, the drawing adjusts based on the dimensions entered. You see the exact shape of the deck instantly.

To remove a feature, simply click the picture icon again.

When all of the information is entered click the Next button.

Location of House Form

Select the location(s) of the house walls adjoining the deck by clicking the box that matches the Numbers on the drawing. If no walls are selected, the deck will be designed as a free standing deck.

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- Click on "House along back side".
- Click "Fireplace is cantilevered" checkbox.

   Note: The "Fireplace is cantilevered" option is displayed as "Fireplace" was selected on the previous screen.

When all of the information is entered click the Next button.

Stair Information / Details Form

Plan Analyst has added the stair information / details form to the input as the design includes stairs.

- Enter "Total Height". Distance from ground to top of decking.
- Enter "Width of Stairs"
- The Number of Risers will default to the minimum number of risers required by code. You would only change this if you want the rise to be shorter than required.
- The Tread Length defaults to 11 inches (two 2x6's). You would only change for special conditions.
- "Stair location". Numbers are shown on the plan where stairs are allowed. Scroll to the number matching the side where you want the stairs and click on it. The selected number will be shown in blue. Steps will be shown on the side selected.
- "Distance from corner at left of stairs". If the stairs are in the middle of the side, enter the distance from the corner on the left side of the stairs. In this example, the box blank is left blank, this will locate the stairs at the left corner of the side.

Click Next to go to the next screen.

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Structural Information Input Screen

For Beam at Front of Deck:

1. Number of members: click on 2.

2. Size of Beam: click "Minimum size 2x" (Plan Analyst will then find the minimum size beam).

3. Grade of Lumber: click on Hem-Fir #2.

For Joist Details:

1. Spacing of Joist: click 16"o.c.

2. Size of Joist: click "Minimum size 2x" (Plan Analyst will then find the minimum size joist).

3. Joist Lumber Grade: click on Hem-Fir #2.

4. Click in the checkbox "Check with beam(s) in center of joist span?"

   Note: to leave the center beam out, click the box again.

For Beam at Center of Deck

1. Number of members: click on 2.

2. Size of Beam: click "Minimum size 2x" (Plan Analyst will then find the minimum size beam).

3. Grade of Lumber: click on Hem-Fir #2.

Soil Information

Select "1500 – Clay, sandy clay, silty clay" type of soil so you do not using sidewall friction in the footing design.

Note: Wall friction should only be used if permitted by the local building department and you are pouring concrete without a form in the hole.

Design Live Load

Select "60-Residential".

Click Next to go to the next screen.

Structural Details

The yellow picture options are the default selections.

Note: These options can be changed by clicking the picture icons of your choice.

This form includes 4 options:

1. Style of guardrail.
2. Connection of post to foundation.
3. Location of beam at the front of the deck.
4. Connection to house (This option is only shown if the deck is attached to the house).

Example:

1. Style of Guardrail: 2x6 on top – 2x4's with 2x2's between 4x4
2. Maximum Post Spacing: 8 (feet between post for railing)
3. Connection to foundation: click on Post Anchor
4. Location of beam at the front of the deck: click on Beam under deck
5. Connection to house: click Hanger on ledger

   Note: An attachment method needs to be chosen when Hanger on ledger is selected.

   Click on "Bolts through rim joist with nut and washer on inside of rim"

Options Explained: Select method to connect ledger to house

- "Bolts through rim joist with nut and washer on inside of rim". This is the strongest way to attach the deck to a rim joist.

  Note: You must have access to the inside of the rim joist to use this method (new construction or unfinished basement).

- "Lag Screws into 1 1/2 inch thick rim joist". Use this method if you do not have access to the inside of the rim joist.

  Note: Some homes do not have a structural rim joist. A special design would be required.

- "Lag Screws into studs at 16 inches on center"

- "Lag Screws into studs at 24 inches on center"

Support Post Form

Continuing input for our example:

- Select a post spacing of between 6 and 10 feet.

  Note: Max spacing is not available since the option for Plan Analyst to find the size of beams was chosen. Enter a specific size of beam for the Max spacing option to become available.

- Enter 30 inches for the depth of the footing. This is usually controlled by local code requirements (frost depth).

- Select beams to have a 2 foot distance from end of beam (cantilever).

- Choose to let Plan Analyst determine the minimum size of post.

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Plan Analyst Results

Once your design / review is complete Plan Analyst will create three drawings.

- To *view* the drawings, click the Top View, Framing Plan or Cross Section tabs.
- To *print* the drawings, click the Print Current Deck button on the left side.
- To *edit* the deck design, click Input and then click Edit on the menu bar and then click on the part you want to change. As changes are made the drawings are automatically adjusted to reflect the new information.

There is also an option to show the **Material Take-off List** which you can also print.

Top View

Framing Plan

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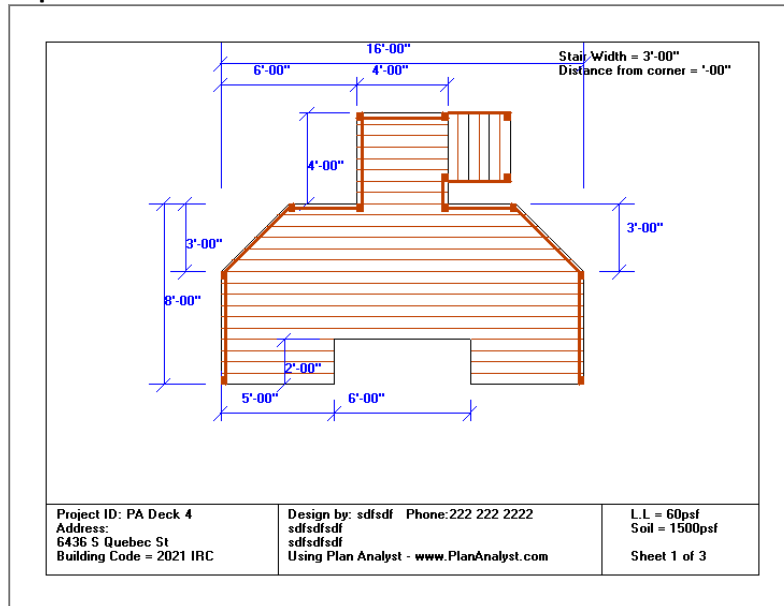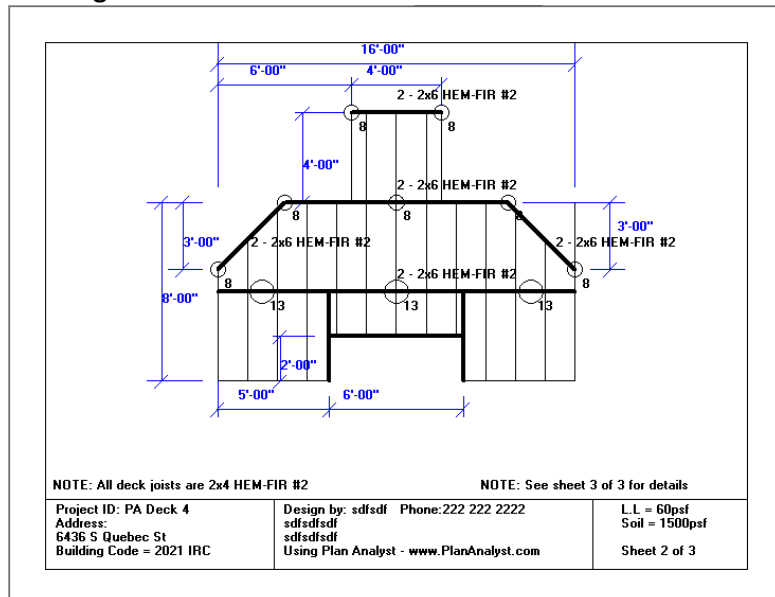
Cross Section

Joist size = 2x4 HEM-FIR #2 at 16"o.c. - Size OK
Beam at front left corner:Beam size = 2 - 2x6 HEM-FIR #2- Size OK
Post spacing = 4'-2.91"
Beam along front of deck:Beam size = 2 - 2x6 HEM-FIR #2- Size OK
Post spacing = 5'-0."
Beam at front right corner:Beam size = 2 - 2x6 HEM-FIR #2- Size OK
Post spacing = 4'-2.91"
Beam at front of landing:Beam size = 2 - 2x6 HEM-FIR #2- Size OK
Post spacing = 4'-0."
Beams around fireplace:Beam size = 2 - 2x4 HEM-FIR #2- Size OK
Beam at center of deck:Beam size = 2 - 2x6 HEM-FIR #2- Size OK
Post spacing = 6'-0."
Post size = 4X4 OK
Max post length = 8'-00"

Bolt ledger to house using
3 1/2" long lag screws into rim joist.
Use 2-1/4 bolts at 16 inches o.c.
Guardrail:
Notch 4X4 at floor and bolt to
rim with 2-1/2" thru bolts minimum.
Note: Guards and handrails shall be
able to support single concentrated
load of 200 pounds at any point
along the top. (IBC 1607.9)
Intermediate rails, balusters and
panel fillers are required to
support 50 pounds.

In addition to attachment shown,
Hold-down tension devices shall be
installed in not less than two locations.
Minimum allowable stress is 1500 pounds.

2X6
2X4
4X4 post - 8'o.c. max
2X2's w/openings less than 4"
2X4
36" min.
2X6 Decking
Deck joist
Post Cap
Post Base
Concrete Pier
30" min. below grade
See sheet 2 for diameter

34"min. Handrail
38"max. 11"
6.8571"

Number of risers = 7
Total stair height = 4'-00"
Width of stairs = 3'-00"
NOTE: See sheet 2 of 3 for framing plan

Project ID: PA Deck 4 Address: 6436 S Quebec St Building Code = 2021 IRC	Design by: sdfsdf Phone:222 222 2222 sdfsdfsdf sdfsdfsdf Using Plan Analyst - www.PlanAnalyst.com	L.L = 60psf Soil = 1500psf Sheet 3 of 3

Material Take-off List

Material List

17-2x4x8 HEM-FIR #2
3-2x4x12 HEM-FIR #2
6-2x6x8 HEM-FIR #2
2-2x6x10 HEM-FIR #2
2-2x6x16 HEM-FIR #2
Number of 4X4 support post = 10
Number of post caps = 10
Number of post anchors = 10
Number of joist hangers = 14
Concrete - Yards = 1.446865 Bags of 80# Concrete = 21
Lags for ledger = 24-1/4 X 3 1/2 lag screws.
Decking = 15 - 2X6X16 wood decking.
Total length of guardrail = 52' feet.
156-2X2's for guardrail
8- 2X4X16's for railing.
4- 2X6X16's for railing.
13- 4X4 post for railing.
1. Stair support not included.
2. Amount may need to be adjusted for conditions requiring additional material.

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Help   Print   Done

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