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SYSTEM REQUIREMENTS

In order to use Plan Analyst, you must have the following:

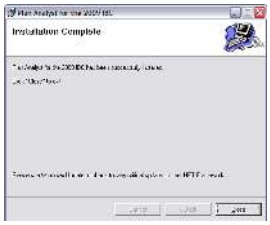
1. Computer running Windows XP, Vista or newer.
2. Hard drive with at least 5 MB available for Plan Analyst.
3. CD drive (Used for installation only).
4. Printer.
5. Mouse.

INSTALLING PLAN ANALYST ON YOUR COMPUTER

1. First insert the Plan Analyst CD into your CD drive, usually drive D.
2. Click Start located in the lower left corner of your screen.
3. Click Run
4. In the box labeled Open, type d:setup (match the letter to your CD drive).
5. Press Enter or click OK. Note: you may use the Browse... button.

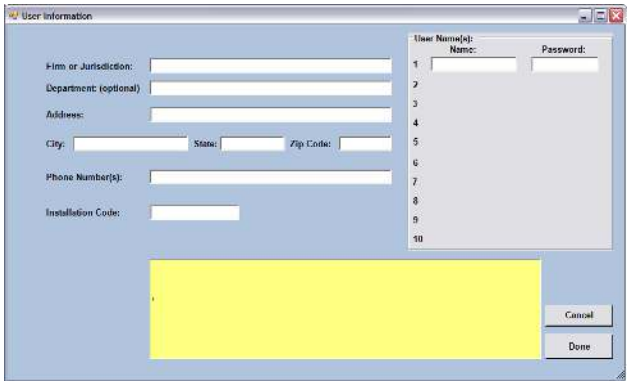
Click next on the 1st 3 screens

Click close on the last screen



RUNNING PLAN ANALYST FOR THE FIRST TIME

This screen will be displayed



NOTE: This information must be filled out completely before you can continue.

The Installation code you will be asked to input is located on the back of the software case near the bottom.

The information you enter may be changed at a later time using the Setup part of Plan Analyst.

Note: The number of name boxes displayed is based on the number of users you purchased.

PLAN ANALYST FEATURES

USING THE KEYBOARD

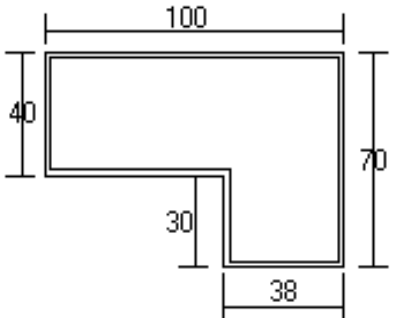
Pressing Enter will accept your selections and move cursor to the next field or screen.
Pressing Esc will move the cursor back to the last field or screen.
Pressing Tab will move the cursor to the next field or screen.
Pressing Shift+Tab will move the cursor to the previous field or screen.

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.

USING THE 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)



There is no need to reach for your calculator.
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 10 feet 5 inches, you enter either 10.4167 or 10_5.

CUT OR COPY AND PASTE USING THE WINDOWS CLIPBOARD

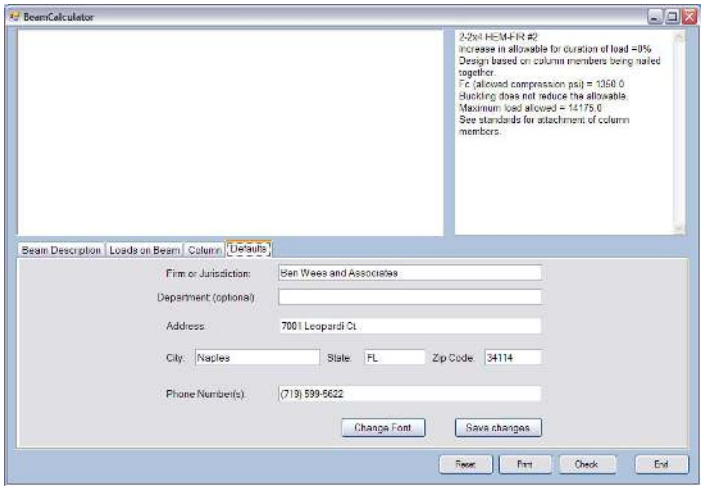
1. Highlight the word or words that you want to move to or from Plan Analyst.
2. If you want to delete the highlighted words and copy them to the clipboard, simply press Shift + Delete (**at the same time**).
3. To copy the highlighted words to the clipboard, simply press Ctrl + Insert or Ctrl + C (**at the same time**).
4. Move the cursor to the new location.
5. To place the selected text at the new location, press Shift + Insert or Ctrl+V (**at the same time**).

USING THE TABS AND BUTTONS

DEFAULT TAB

THERE ARE FOUR TABS LOCATED ACROSS THE CENTER OF THE BEAM AND COLUMN SCREEN. EACH TAB WILL DISPLAY INFORMATION AND ALLOW PROJECT DESCRIPTION AND OPTIONS.

USING THE DEFAULT TAB

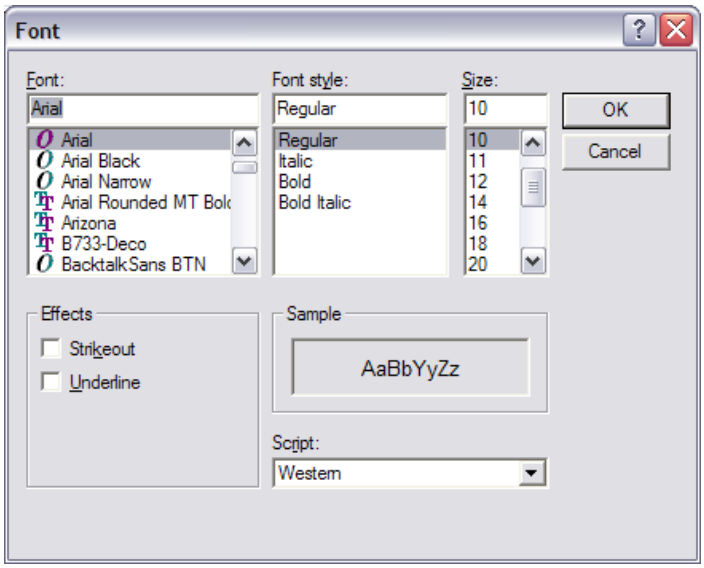


THE INFORMATION ASKED ON THIS FORM IS NEEDED TO PRODUCE THE HEADER ON ALL PLAN ANALYST REPORTS. ONCE THIS INFORMATION IS INPUT IT WILL BE USED UNTIL YOU CHANGE IT. TO CHANGE THE DEFAULT HEADER INFORMATION SUCH AS A CHANGE IN ADDRESS, CONTACT NUMBERS OR CONTACT PERSON SIMPLY RETURN TO THIS FORM AND REPLACE THE OUTDATED INFORMATION.

BUTTONS

THERE ARE TWO BUTTONS LOCATED ON THE DEFAULT SCREEN NEAR THE BOTTOM
NOTE: THE ONLY WAY TO CHANGE THE FONTS IS BY GOING TO THIS DEFAULT SCREEN

USING THE CHANGE FONT BUTTON

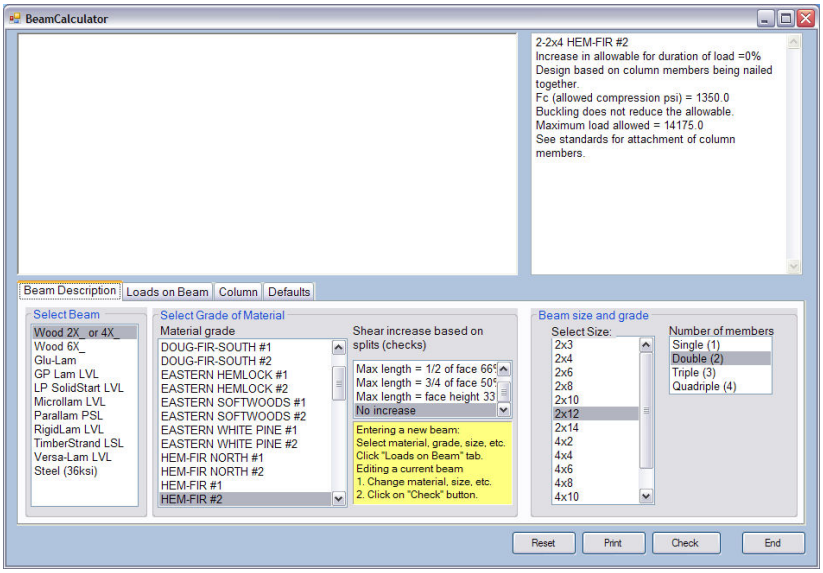


CLICKING THE CHANGE FONT BUTTON WILL SHOW THIS FONT CHANGE SCREEN

THIS SCREEN ALLOWS YOU TO CHANGE THE FONT STYLE OR SIZE FOR ALL REPORTS. YOU SIMPLY CHOOSE THE FONT, STYLE AND SIZE. THEN CLICK OK.

BEAM DESCRIPTION TAB

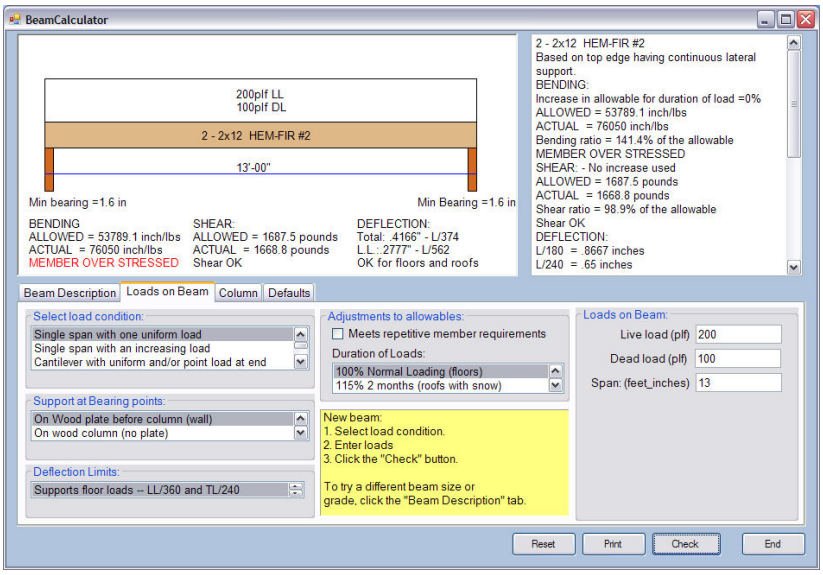
USING THE BEAM DESCRIPTION TAB



1. SELECT BEAM MATERIAL FROM THE LIST BOX ON THE LEFT BOTTOM OF THE SCREEN. CLICK ON THE NAME OF MATERIAL
2. NOW SELECT THE GRADE OF MATERIAL. NOTE: THE MATERIALS GRADE BOX WILL CHANGE DEPENDING ON THE MATERIAL NAME YOU CHOOSE IN THE FIRST BOX AND WILL ONLY SHOW IF THERE IS MORE THAN ONE GRADE AVAILABLE. CLICK ON THE DESIRED GRADE. NOTE: GRADE WILL ALWAYS DEFAULT TO LAST ONE SELECTED.
3. SHEAR INCREASE WILL ONLY SHOW FOR 2X_, 4X_ AND 6X_ MATERIAL.
4. SELECT THE SIZE OF THE BEAM BY CLICKING THE SIZE IN THE SELECT SIZE LIST BOX.
5. IF MULTIPLE MEMBERS ARE ALLOWED, CLICK THE NUMBER OF MEMBERS. IF MULTIPLE MEMBERS ARE NOT ALLOWED, BOX WILL NOT SHOW.

LOAD ON BEAM TAB

USING THE LOADS ON BEAM TAB



1. SELECT LOAD CONDITION. NOTE: THE LOADS ON BEAM BOX WILL CHANGE TO MATCH THE LOAD CONDITION SELECTED.
2. SELECT SUPPORT AT BEARING POINTS.

IN THIS BOX, IF YOU SELECT:

A. ON WOOD PLATE BEFORE COLUMN THE BEARING SIZE WILL BE BASED ON THE FC PERPENDICULAR FOR DEFAULT WOOD SPECIES/GRADE. THIS PROCEDURE IS USED FOR ALL BEAM MATERIAL.

B. ON WOOD COLUMN (NO PLATE) PLAN ANALYST WILL CHECK THE REQUIRED BEARING SIZE FOR THE BEAM MATERIAL AND FOR THE WOOD COLUMN AND USE THE GREATER OF THE TWO.

C. ON STEEL BEAM OR COLUMN AND ON MASONRY OR CONCRETE THE MINIMUM BEARING WILL BE BASED ON THE BEAM MATERIAL.

NOTE: FOR ALL CONDITIONS, WHEN THE REQUIRED BEARING IS SMALLER THAN THE CODE MINIMUM OR MANUFACTURE'S MINIMUM, THE MINIMUM BEARING IS ALWAYS USED.

3. Select Deflection limits
   A. If any portion of the load is from a floor then select Supports Floor Load.
   B. If no portion of the load is from floors then select Only Supports Roof Loads.

4. Select Meets repetitive member requirements
   To use repetitive member, click to place a √ in the box.
   The bending allowable for visually graded wood members may be increased 15% when three or more members are in contact or are spaced less than 24inches on center. Use this when checking joist, rafters or triple beams. **Note:** This will only be displayed when you have selected visually graded wood.

5. Select Duration of Load
   This option is only available for wood members since wood has the property of carrying substantially greater loads for short durations than for long durations. The allowable bending will be adjusted based on the duration selected. If the allowable bending is 1000 psi and you select 115%, the allowable will be increased 15% to 1150 psi. **Note:** Some areas with heavy snow loads do not allow an increase for duration.

LOADS ON BEAM TAB

How do I calculate loads?

The loads indicated in the codes are listed in pounds per square foot. To check a beam, you need to enter the pounds per lineal foot.

Common symbols for pounds per square foot pounds/square foot are:
- psf
- #/sq.ft.
- #/ft^2

Common symbols for pounds per lineal foot are:
- pounds/foot
- plf
- lbs/ft
- #/ft

Distribution of loads

For simple spans with uniform loads, one-half of the load goes to each support.

For a RAFTER OR JOIST:
The plf is the spacing of the rafter or joist times the pounds per square foot. For a rafter spaced at 16 inches on center and supporting 30 pounds per square foot, the plf would be 30*1.3333 or 40 plf

For a BEAM:
For a beam supporting one end of a 12 foot floor joist, the plf would be 12 divided by 2 times the pounds/square foot. plf on beam = 12/2*30 or 180 plf

Input of Span

Span must be input in decimals of a foot or feet_inches.

For	Enter		For	Enter	
10'-0"	10		10'-6"	10.5	or 10_6
10'-1"	10.0833	or 10_1	10'-7"	10.5833	or 10_7
10'-2"	10.1667	or 10_2	10'-8"	10.666	or 10_8
10'-3"	10.25	or 10_3	0'-9"	10.75	or 10_9
10'-4"	10.3333	or 10_4	10'-10"	10.8333	or 10_10
10'-5"	10.4167	or 10_5	10'-11"	10.9167	or 10_11

Type of Loading (You can select from the following load conditions.)

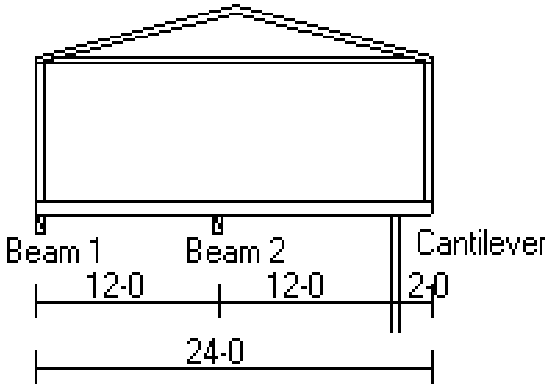
1. **If you select Single span with one uniform load**
   This is the most common loading condition. You can also use this for multiple span beams since it is conservative.

	LOADING ROOF	FLOOR
LIVE	30 psf	40 psf
DEAD	15 psf	10 psf

Weight of wall = 10 plf, height = 8'

Note: psf = Pounds per square foot

Span of Beam #1 = 9 feet
Span of Beam #2 = 8 feet



Dead = 11*10 or 110 plf
Span of beam = 8 feet

Load on Beam #1

This beam supports roof, wall, and floor loads. The beam supports ½ of the roof plus an 8 foot high wall plus ½ of an 11 foot floor joist.

Live = 24/2*30+11/2*40 = 580 plf
Dead = 24/2*15+8*10+11/2*10 = 315 plf
Span of beam = 9 feet

Load on Beam #2

This beam supports ½ of an 11 foot floor joist from each side. This would be ½ of 11 plus ½ of 11 or a total of 11.
Live = 11*40 or 440 plf

Example of rafter input

Live (snow) Load = 30 psf
Dead Load = 15 psf
Spacing of rafters = 24" or 2'
Span of Rafter = 14'-6"
Live = 30*2 or 60 plf
Dead = 15*2 or 30 plf
Span = 14.5

2. **If you select Cantilever with uniform and/or point load at end**

You may enter a uniform load and/or a point load at the end of the cantilever. With the easy editing, you can quickly check several load combinations. Place all loads on the beam to get maximum stresses and reactions. Place only uniform dead loads and full end load to see if there is an uplift problem (empty house with full snow on the roof).

Example

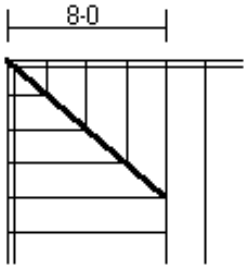
The floor joist on the right side of the section is cantilevered 2 feet and supports a wall and roof. The plf on the cantilever is the load times the spacing of the joist. The load at the end is the weight of the wall plus ½ of the roof times the spacing of the joist. If the floor joists are spaced at 16" o.c.

To calculate the plf on cantilevered joist:
Live = 40*1.3333 = 53.333 plf
Dead = 10*1.3333 = 13.333 plf

To calculate the Load at end of cantilever:
Live = 12*30*1.3333 = 480 pounds
Dead = 12*15*1.3333+8*10*1.3333= 346.6666 pounds

3. If you select Single span with an increasing load

The most common use for this option is for the corner rafter of a hip system or for a valley rafter. This loading condition starts at zero and increases to a maximum at the other end.



Hip (corner) rafter
Live (snow) Load = 30 psf
Dead Load = 15 psf

Note: The easiest way to find the span when the rafter is at 45 degrees is to multiply the setback by 1.414. The span of this hip rafter is 8 times 1.414.

Example

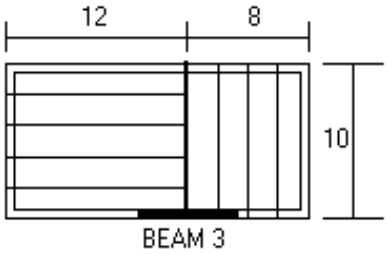
Rafter span = 8 X 1.414 = 11.312 feet

Since the rafter is at a 45 degree angle to the loading, we can reduce the plf. This reduction is the sin (45) or 0.707. The maximum load on this hip rafter is:

Live = 8 X 30 X .707 = 169.68 plf
Dead = 8 X 15 X .707 = 84.84 plf
Span = 11.312 feet

4. If you select Multiple uniform and/or point loads

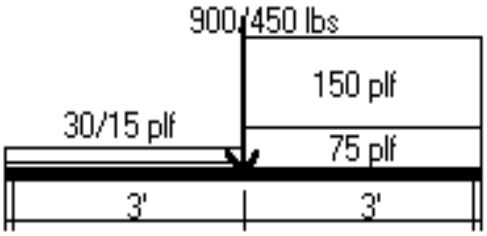
This is good for a beam that supports another beam plus rafters and/or joists. It is also good for beams supporting joists and/or rafters that vary in length. Another use is for a beam that supports rafters on part of the beam and supports joists on the other part of the beam.



Framing Plan (Top view)

Beam #3 spans 6 feet between supports. The load changes direction 3 feet from the left end of beam #3. This beam (header) has 2 different plf loads and one point load. The point load is the load from the end of the beam or girder. For the 1st 3 feet, the uniform load is the psf times the spacing of the trusses. For the last 3 feet, the uniform load is ½ of the span of the trusses times the psf.

Example



PLF - first three feet
LL = 2/2*30 or 30 plf
DL = 2/2*15 or 15 plf

PLF - last three feet
LL = 10/2*30 or 150 plf
DL = 10/2*15 or 75 plf

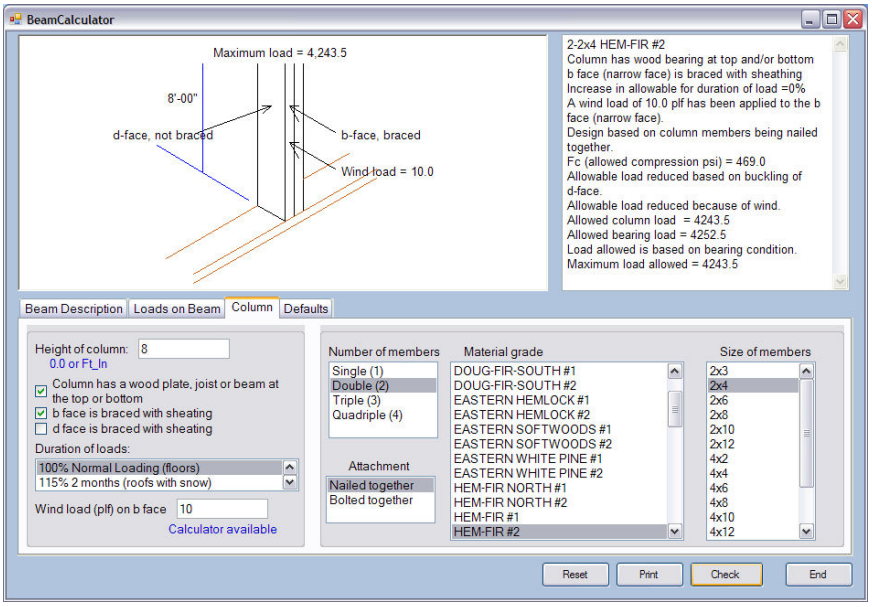
POINT LOAD
Using the distribution rules explained above. We will use ½ of the beam/girder span and ½ of the span of the joist that it is supporting.

Total point load
LL = 10/2*12/2*30 = 900 pounds
DL = 10/2*12/2*15 = 450 pounds

5. If you select Continuous beam over two spans

The input for this beam is the same as the example #1 for the simple span beam shown above. Note: For the span, **enter the distance between supports, not the total length.**

COLUMN TAB

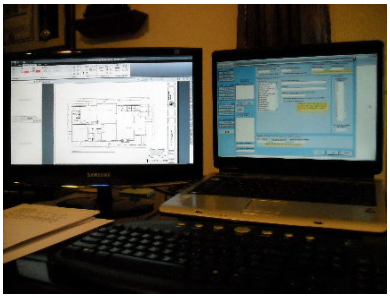


1. Enter height of the column.
2. Column on plate, joist or beam. Wood cannot support as much weight on sides as it can on ends. If you select this, compression perpendicular to grain will be check and allowable adjusted if necessary.
3. If column is braced with sheathing, it controls buckling, therefore increasing allowable. Note: Some sheathing is not strong enough to control buckling. Check sheathing before selecting this.
4. Rest of input similar to beam input. See information in beam section for additional details.

The Column Calculator is interactive. Current results show each time you change something. There is no need to click the Check button to see results.

The maximum load that the column can support is shown above the column in the picture and at the bottom of the results.

ALL DIGITAL (PAPERLESS) CODE STUDIES



What is needed?

1. Computer with 2 monitors connected (1 to display Plan Analyst and 1 to display AutoDesk)
2. Plan Analyst software
3. AutoDesk Design Review software (Currently, free of charge from AutoDesk)

Use the features of AutoDesk Design Review to get information (dimensions, Square feet, etc). Enter the information into Plan Analyst. As you create the correction report, copy and paste required corrections from Plan Analyst to the callout boxes in AutoDesk Design review. Using this system, you have reviewed the plans without handling a paper copy of the plans.
This system speeds up the plan check process, adds convenience and a popular green factor feature.

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