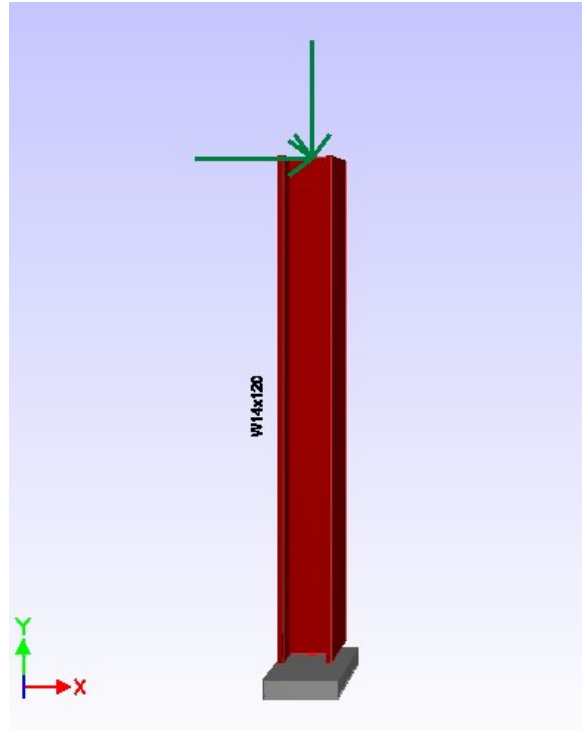


# Base Plate Design

## **Introduction:**

The purpose of this example is to introduce you to the Base Plate Design Tool. The problem is to design a base plate for the following model.



## *Building the Model*

The column is a 12 ft long W14x120 A992 Grade 50 member. It is fixed at its base and free at its top. It has a 100 kip axial load and a 5 kip load in the X-direction at the top.

If you need help creating the model please consult the VisualAnalysis User's Guide (**Help | Contents**).

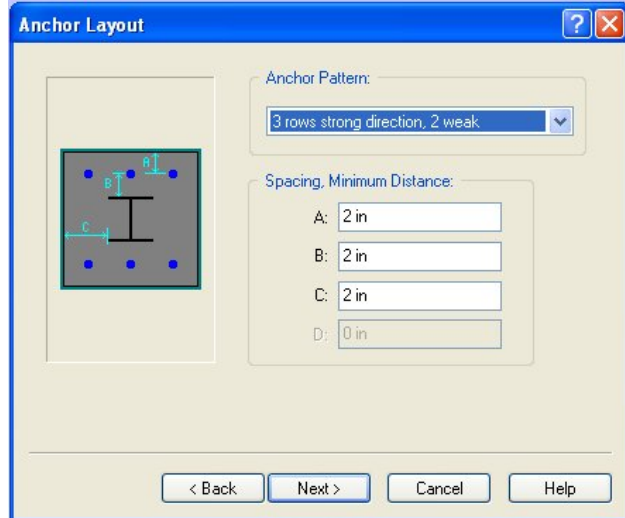
## *Starting the Tool*

After creating the model, you will need to analyze, before the tool can be started. Once you have analyzed choose the **Design | Steel Base Plate Design** menu item.

## Using the Tool

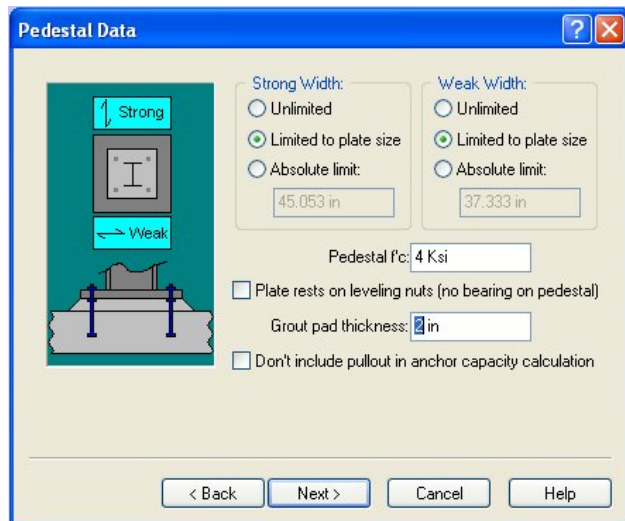
Once the tool has started up, choose the node corresponding to the bottom of the column and ASD for the design type.

**Anchor Layout:** Choose “3 rows strong direction, 2 rows weak” for the anchor pattern. This pattern is chosen because the transverse 5 k load will create a moment about the member’s strong axis. Choose 2 in for all three of the spacing minimum distance.



**Anchor Data:** For the ultimate stress, enter a value of 65 ksi (assuming anchors will be made of A992 Grade 50 steel). Let the tool determine the diameter and embedment for the anchors.

**Pedestal Data:** Limit both the strong and weak pedestal widths to the plate size. Use an  $f'_c$  of 4 ksi for the Pedestal concrete. The grout pad thickness will be 2 in.



**Plate Data:** For the thickness choose auto to allow the tool to calculate it for you. For the strong width, use the auto mode as well. Use 24 in for the starting size and increment by 2 in. For the Weak width, use auto as well. Use a starting size of 20 in and increment by 2 in. The plate yield stress should be set to 50 ksi.

## Reporting Results

Once you have set up the parameter as mentioned, you are brought to the Design Results dialog. This dialog contains information on the base plate design. At the top it indicates whether the design was successful or not. Note the Generate Report on finish check box at the bottom of the dialog. With this option checked a report of the base plate design is generated when you **click** finish. Using the model and design parameter described above, you should end up with a base plate around 24 in by 20 in, 1.25 in thick.