

## DESIGNING OR CHECKING A SIGN USING PLAN ANALYST

- FIRST YOU SIMPLY FILL IN THE PLAN ANALYST FORMS TO COMPLETE THE SIGN DESCRIPTION AS SHOWN BELOW.
- PLAN ANALYST WILL THEN COMPLETE ALL OF THE TIME CONSUMING CALCULATIONS AND CREATE A DETAILED DRAWING OF THIS SIGN.
  1. IF YOU ARE IN THE DESIGN FIELD, YOU CAN QUICKLY TRY DIFFERENT FOOTING SIZES, SUPPORT SIZES OR TYPES OF MATERIAL TO DETERMINE THE BEST SIGN DESIGN FOR THIS LOCATION. NOW YOU HAVE COMPLETE CONFIDENCE IN CODE COMPLIANCE, PREVENTING DELAYS WHEN THE PLANS ARE SUBMITTED FOR APPROVAL.
  2. IF YOU ARE CHECKING THE PLANS FOR CODE COMPLIANCE, PLAN ANALYST WILL MAKE THE PROCESS FASTER AND MORE EFFICIENT. PLAN ANALYST CONTAINS MANY DIFFERENT TYPES OF SUPPORT MATERIAL SO THERE IS NO NEED TO CHANGE SOFTWARE OR THE PROCEDURE YOU USE WHEN PROJECTS CONTAIN DIFFERENT TYPES OF MATERIAL. THIS WILL MAKE THE PLAN REVIEW PROCESS FASTER, EASIER AND MORE ACCURATE.

### USING THE BASIC INFORMATION TAB

The screenshot shows the 'Plan Analyst Sign Calculator' software window. The 'Basic Information' tab is active. The form contains the following fields and options:

- Identification: [Text field]
- Address: [Text field]
- Number of Signs: [Dropdown menu with options: 1 sign, 2 signs, 3 signs]
- Number of Supports/Poles: [Dropdown menu with options: 1 support, 2 supports]
- Connection to footing: [Dropdown menu with options: Buried in concrete, Bolted to concrete]
- Diameter of Footing: [Text field with value 2\_6]
- Feet\_Inches: [Text field]
- Soil bearing pressure – Table 1804.2: [Dropdown menu with value 3000/200 - Sandy gravel and/or gravel]
- Basic wind speed (mph): [Dropdown menu with value 90 mph]
- Exposure to wind: [Dropdown menu with options: Exposure D, Exposure C, Exposure B, Exposure A]

A yellow box next to 'Exposure C' contains the following text: "Open terrain with scattered obstructions including surface undulations or other irregularities having heights generally less than 30 feet extending 1,500 feet in any full quadrant. Extends into adjacent Exposure B type terrain in the downwind direction for a distance of 1,500 feet or 10 times the height of the sign."

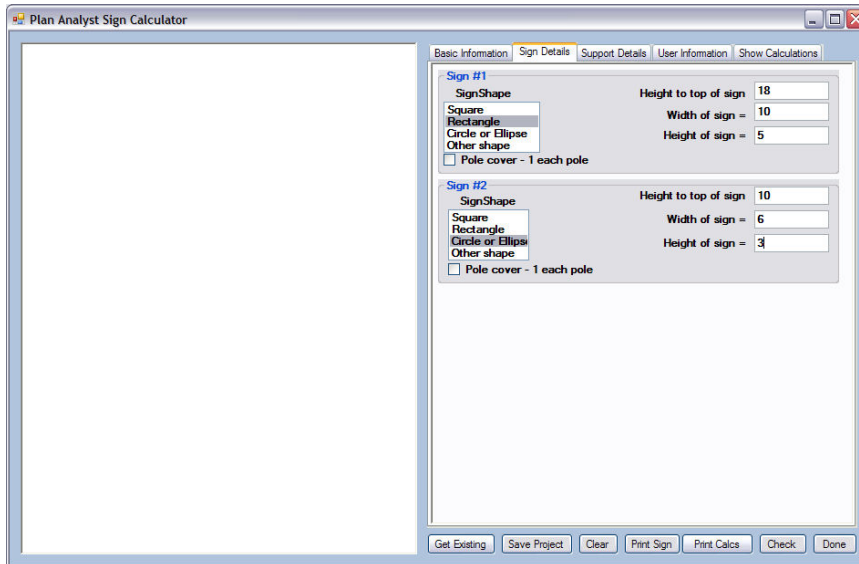
Buttons at the bottom include: Get Existing, Save Project, Clear, Print Sign, Print Calcs, Check, Done.

1. FIRST YOU ENTER THE **IDENTIFICATION** AND **ADDRESS** INFORMATION.
2. IF YOU NEED TO CHANGE THE **NUMBER OF SIGNS**, **NUMBER OF SUPPORTS** OR **CONDITION AT FOOTING**, CLICK THE CORRECT ONE.
3. NEXT YOU ENTER THE **DIAMETER OF FOOTING**. **NOTE:** THE CALCULATOR FUNCTION IS AVAILABLE.
4. FOR THE **SOIL BEARING PRESSURE** YOU MAY SELECT FROM THE LIST OR ENTER RESULTS OF THE SOILS REPORT.
5. FOR THE **BASIC WIND SPEED** YOU MAY SELECT FROM THE LIST OR ENTER THE REQUIRED BASIC WIND SPEED.
6. FOR THE **EXPOSURE TO WIND** YOU SIMPLY CLICK THE EXPOSURE THAT MATCHES THE WIND EXPOSURE CONDITION AROUND THE SIGN. THE YELLOW BOX TO THE RIGHT EXPLAINS THE EXPOSURE CONDITION.

**NOTE:** USE THE INFORMATION TAB TO CHANGE THE DEFAULTS.

WHEN ALL OF THE INFORMATION IS ENTERED, CLICK THE **SIGN DETAILS** TAB.

## SELECT THE SHAPE AND ENTER THE SIZE OF EACH SIGN



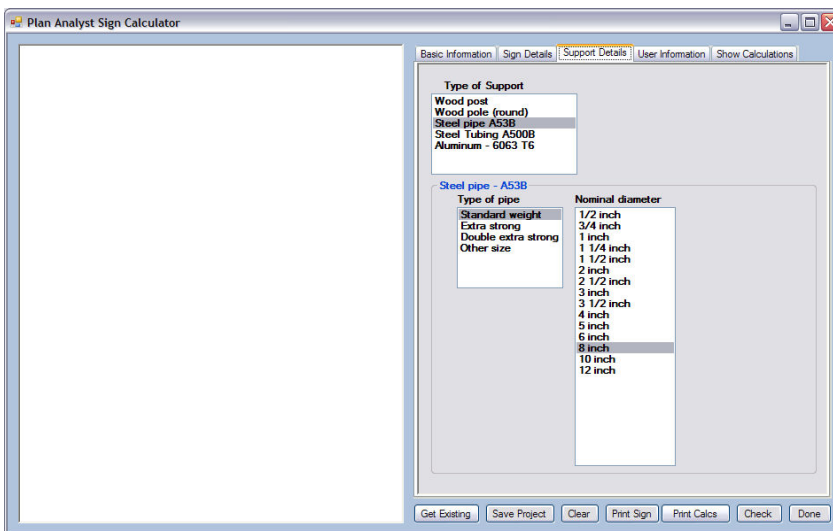
### **ONE BOX WILL SHOW FOR EACH SIGN**

FOR EACH SIGN:

1. SELECT SHAPE OF SIGN **NOTE:** THE INPUT BOXES ON THE RIGHT WILL CHANGE TO MATCH THE SIGN SHAPE YOU CHOOSE.
2. ENTER THE HEIGHT TO THE TOP OF THE SIGN FROM THE GROUND LEVEL. **NOTE:** CHOOSING **OTHER SHAPE** REQUIRES THE HEIGHT TO THE CENTERLINE OF THE SIGN.
3. ENTER THE WIDTH AND HEIGHT OF THE SIGN. **NEW FEATURE:** ELLIPSE/OVAL SIGNS ARE CREATED WHEN THE WIDTH AND HEIGHT ARE DIFFERENT.
4. IF YOU SELECTED **OTHER SHAPE**, YOU WILL NEED TO ENTER THE AREA OF THE SIGN.

WHEN ALL INFORMATION IS ENTERED, CLICK THE **SUPPORT DETAILS** TAB.

## SELECT THE TYPE AND SIZE OF SUPPORT



FOR THE TYPE OF SUPPORT YOU SIMPLY HIGHLIGHT AND CLICK THE SUPPORT MATERIAL USED.

**NOTE:** THE INPUT INFORMATION AT THE BOTTOM WILL CHANGE BASED ON THE TYPE OF SUPPORT SELECTED.

THE FOLLOWING SCREENS SHOW EXAMPLES FOR SOME OF THE MATERIALS AVAILABLE.

### **STEEL PIPE**

SELECT THE **TYPE OF PIPE** AND **NOMINAL DIAMETER** SIZE FOR STANDARD STEEL PIPES. **NOTE:** IF YOU ARE USING A SIZE NOT LISTED, YOU MAY SELECT **OTHER SIZE** AND ENTER THE EXACT DIMENSIONS.

## STEEL TUBING

THE INPUT IS VERY SIMILAR TO STANDARD STEEL PIPES.

The screenshot shows the 'Plan Analyst Sign Calculator' software interface. The 'Support Details' tab is active. Under 'Type of Support', 'Wood post' is selected. The 'Wood post' section contains three dropdown menus: 'Depth - d (inches)' set to 5.5, 'Width - b (inches)' set to 5.5, and 'Fb of wood' set to 1200. A yellow note box states: 'NOTE: Dimensions are the actual size. For a 4X4, the input for d and b = 3.5'. A diagram of a wood post is shown to the right. At the bottom, there are buttons for 'Get Existing', 'Save Project', 'Clear', 'Print Sign', 'Print Calcs', 'Check', and 'Done'.

### WOOD POST

ENTER THE ACTUAL DEPTH AND WIDTH OF THE WOOD POST IN INCHES.

ENTER THE FB FOR THE WOOD. **NOTE:** YOU MAY SELECT FROM THE LIST OR ENTER THE FB IF IT IS NOT ON THE LIST. **NOTE:** SEE YOUR LUMBER SUPPLIERS INFORMATION FOR THE FB FOR THE WOOD THAT YOU ARE USING.

## WOOD POLE

INPUT IS VERY SIMILAR TO WOOD POST.

## ALUMINUM

The screenshot shows the 'Plan Analyst Sign Calculator' software interface. The 'Support Details' tab is active. Under 'Type of Support', 'Aluminum - 6063 T6' is selected. The 'Aluminum - 6063 T6' section contains a dropdown menu for 'Tube (square/rectar Pipe (round))' with a diagram of a square tube. To the right, there are three input fields: 'Wall thickness - t (inches)' set to .25, 'Width - b (inches)' set to 6, and 'Depth - d (inches)' set to 6. At the bottom, there are buttons for 'Get Existing', 'Save Project', 'Clear', 'Print Sign', 'Print Calcs', 'Check', and 'Done'.

SELECT THE SHAPE

ENTER THE REQUIRED DIMENSIONS IN INCHES.

## WHEN THE CHECK BUTTON IS CLICKED

The screenshot shows the 'Plan Analyst Sign Calculator' software interface. On the left, a drawing of a sign structure is displayed. The sign consists of a blue rectangle on top of a blue oval, supported by two vertical poles. Dimensions are indicated: the rectangle is 18'-00" high and 10'-00" wide; the oval is 6'-00" wide and 3'-00" high. The poles are labeled as '6 inch standard steel pipe' and are supported by '2.5' dia. X 4.2203' deep Concrete footing'. Below the drawing, the following text is shown: 'Moment at ground = 119,309.7 in-lbs. - 9,942.5 ft-lbs. Minimum 'S' = 3.8737 -- actual 'S' is 8.5 - OK Based on a wind speed of 90mph and exposure C. Footing based on a lateral soil allowable of 200 psf.'

On the right, the 'Show Calculations' tab is active, displaying the following data:

**PROJECT DESCRIPTION:**  
 Identification: Example Sign  
 Address: 1234 Main Street

**WIND LOAD CALCULATIONS**

For sign # 1  
 $K_z = 0.9$  (Table 6-5)  
 $K_{zt} = 1$  (Sec. 6.5.7.1, and Figure 6-2)  
 $K_d = 0.85$  (Solid Sign - Table 6-6)  
 $V = 90$   
 $I = 1$  (Table 6-1, use category II from Table 1-1)  
 $G = 0.85$  (Rigid Structure - Section 6.5.8.1)  
 $C_f = \text{System.Single[]}$  (Table 6-11)  
 $q_z = 15.86304$   
 $psf = 16.1803$   
 Moment Arm = 775  
 Sign Moment = 12539.73

For sign # 2  
 $K_z = 0.85$  (Table 6-5)  
 $K_{zt} = 1$  (Sec. 6.5.7.1, and Figure 6-2)  
 $K_d = 0.85$  (Solid Sign - Table 6-6)  
 $V = 90$   
 $I = 1$  (Table 6-1, use category II from Table 1-1)  
 $G = 0.85$  (Rigid Structure - Section 6.5.8.1)  
 $C_f = \text{System.Single[]}$  (Table 6-11)  
 $q_z = 14.98176$

At the bottom of the window, there are buttons for 'Get Existing', 'Save Project', 'Clear', 'Print Sign', 'Print Calcs', 'Check', and 'Done'.

THE DRAWING SHOWN ABOVE IS CREATED.

**NOTE:** YOU MAY ALSO VIEW THE CALCULATIONS BY CLICKING THE **SHOW CALCULATIONS** TAB

## THE PROCESS TO CHECK A SIGN IS COMPLETE

YOU MAY NOW:

1. PRINT THE DRAWING.
2. SAVE THE SIGN DESCRIPTION.
3. EDIT THE SIGNS, SUPPORTS OR FOOTING INFORMATION AND CLICK THE **CHECK** BUTTON (LOCATED AT THE BOTTOM OF THE SCREEN) TO SEE THE REVISED RESULTS INSTANTLY.

## ADJUSTING SETUP AND DEFAULT SETTINGS

The screenshot shows the 'Plan Analyst Sign Calculator' software interface with the 'User Information' and 'Design Defaults' tabs active. The 'User Defaults' section includes fields for 'Firm or Jurisdiction' (City of Somewhere), 'Department' (optional) (Building Department), 'Address' (4210 Golf Club Drive), 'City' (Somewhere), 'State' (CO), 'Zip Code' (80922), and 'Phone Number(s)' ((719) 599-5622). There are 'Change Font' and 'Save changes' buttons below these fields.

The 'Design Defaults' section includes a dropdown for 'Soil bearing pressure - Table 1804.2' set to '3000/200 - Sandy gravel and/or gravel'. Below this are two columns of settings:

**Basic wind speed (mph):** 90 mph

**Type of Support:** Wood post, Wood pole (round), Steel pipe - A53B, Steel Tubing A500B, Aluminum - 6063 T6

**Exposure to wind:** Exposure D, Exposure C, Exposure B, Exposure A

**Fb of wood:** 1200

A yellow tooltip for 'Exposure C' is visible, stating: 'Open terrain with scattered obstructions including surface undulations or other irregularities having heights generally less than 30 feet extending 1,500 feet in any full quadrant. Extends into adjacent Exposure B type terrain in the downwind direction for a distance of 1,500 feet or 10'.

At the bottom of the window, there are buttons for 'Get Existing', 'Save Project', 'Clear', 'Print Sign', 'Print Calcs', 'Check', and 'Done'.

TO CHANGE THE DEFAULTS SETTINGS:

1. CLICK THE **USER INFORMATION** TAB
2. CHANGE INFORMATION
3. CLICK THE **SAVE CHANGES** BUTTON.