

FORM DESIGN CHARTS

Form Design Charts are based on:

1. 3/4 in. plywood with face grain across supports.
2. Deflection limited to L/360.
3. Douglas Fir or Southern Pine #2 lumber supports.
4. Continuous span conditions.

The information presented here is intended to be adequate for most common concrete forming situations. These tables are not appropriate for all forming conditions. Additional information may be found in ACI Publication SP-4 "Formwork for Concrete" 5th Edition. For Burke Engineering assistance in evaluating varying forming conditions, contact your Burke Field Representative.

FIRST ESTIMATE OR SELECT:

1. Pour rate.
2. Concrete temperature in the forms.
3. Lumber sizes.

THEN DETERMINE FROM THE CHARTS

Single Waler

1. Form pressure.
2. Plywood span (single waler spacing).
3. Tie spacing.

NEXT CALCULATE TIE LOADS AND SELECT TIES.

Example Single Waler

Pour rate: 4 ft./hr., 80°F (27°C) Concrete Temperature
Pour Height: h= 8 ft.
3/4 in. Plywood, 2 in. x 4 in. lumber

1. Determine form pressure (Table 1, pg. 155)
 $P_{max} = 600$ psf. Verify that it is less than full liquid head ($150h = 1200$ psf.)
2. Determine plywood span (Table 2, pg. 155)
Span = Waler Spacing = 14 in. with plywood vertical (face grain across supports).
3. Determine single waler load.
 600 psf x 14 in. span ÷ 12 in./ft. = 700 lb./LF of waler
4. Determine tie spacing at 700 lb./LF. (Table 3, pg. 155) 24 in. spacing is allowable for 2 x 4's.
5. Determine tie load.
24 in. spacing ÷ 12 in./ft. x 700 lb./LF = 1400 lb. For architectural concrete, use a safety factor of 2. Ultimate Tie Load required is 2800 lb.
6. Select tying system
Use Standard 3000 lb. Penta-Ties. Ultimate tie load capacity = 4500 lb. Although Standard Penta-Ties could safely support greater tie spacing this would result in increased deflection and stress which might be unacceptable.

Lumber Weights	
2 in. x 4 in.	1.4 lb./LF
2 in. x 6 in.	2.2 lb./LF
4 in. x 4 in.	3.2 lb./LF
3/4 in. Plywood	2.2 lb./SF

