

Garage Ledger on South Wall

$$\text{Trib} := 12 \quad R := \text{Trib} \cdot (30 + 15 + 5) \quad R = 600$$

$$\text{With } 3/4" \text{ dia ab} \quad \text{Vall} := 880 \cdot 1.15 \quad \text{Spac} := \frac{\text{Vall}}{R} \cdot 12 \quad \text{Spac} = 20.24$$

Use: 3/4" dia x 6" emb ab @ 16" oc

2ND Floor Outdoor Room Floor Joists

$$\text{Span} := 17.66 \quad \text{Trib} := 1.33 \quad \text{wd} := \text{Trib} \cdot 20 \quad \text{wl} := \text{Trib} \cdot 40 \quad \text{wt} := \text{wd} + \text{wl}$$

$$W := 1.75 \quad D := 15 \quad A := W \cdot D \quad S := W \cdot \frac{D^2}{6} \quad I := W \cdot \frac{D^3}{12}$$

$$\text{Mt} := \text{wt} \cdot \frac{\text{Span}^2}{8} \quad \text{fb} := \text{Mt} \cdot \frac{12}{S} \quad \text{fb} = 568.861$$

$$R := \text{wt} \cdot \frac{\text{Span}}{2} \quad R = 704.634 \quad \text{fv} := \frac{R \cdot 1.5}{A} \quad \text{fv} = 40.265$$

$$\text{dl} := \frac{5 \cdot \text{wl} \cdot \text{Span}^4 \cdot 1728}{384 \cdot I \cdot 2000000} \quad \text{dl} = 0.118 \quad \text{OK} \quad \text{Use: Tapered } 1.75 \times 18 \text{ LVL @ } 16"$$

Extension @ Line B

$$D := 6.5 \quad A := W \cdot D \quad S := W \cdot \frac{D^2}{6} \quad I := W \cdot \frac{D^3}{12} \quad \text{fv} := \frac{R \cdot 1.5}{A} \quad \text{fv} = 92.919 \quad \text{OK}$$

Use: 1.75x6.5 min LVL

Connectors

$$\text{Cant} := 1 \quad \text{Backspan} := 3 \quad R1 := R \cdot \frac{(\text{Cant} + \text{Backspan})}{\text{Backspan}} \quad R1 = 939.512$$

$$R2 := R1 - R \quad R2 = 234.878 \quad \text{With SDS25312,} \quad \text{Vall} := 340$$

$$\text{NoBolts} := \frac{R1}{\text{Vall}} \quad \text{NoBolts} = 2.763 \quad \text{Use: } 3\text{-SDS25312 @ } R1 \text{ and } 2\text{-SDS25312 @ } R2$$

Entry Deck**Joists**

$$\text{Span} := 10 \quad \text{Trib} := 2 \quad \text{wd} := \text{Trib} \cdot 10 \quad \text{wl} := \text{Trib} \cdot 60 \quad \text{wt} := \text{wd} + \text{wl}$$

$$W := 1.5 \quad D := 11.25 \quad A := W \cdot D \quad S := W \cdot \frac{D^2}{6} \quad I := W \cdot \frac{D^3}{12}$$

$$Mt := wt \cdot \frac{\text{Span}^2}{8} \quad fb := Mt \cdot \frac{12}{S} \quad fb = 663.704$$

$$R := wt \cdot \frac{\text{Span}}{2} \quad R = 700 \quad fv := \frac{R \cdot 1.5}{A} \quad fv = 62.222$$

$$dl := \frac{5 \cdot wl \cdot \frac{4}{6} \cdot \text{Span}^4 \cdot 1728}{384 \cdot I \cdot 2000000} \quad dl = 0.051 \quad \text{OK} \quad \text{Use:PT2x12 @ 24"}$$

Beam

$$\text{Span} := 14.5 \quad \text{Trib} := 5 \quad wd := \text{Trib} \cdot 12 \quad wl := \text{Trib} \cdot 60 \quad wt := wd + wl$$

$$W := 5.5 \quad D := 13.5 \quad A := W \cdot D \quad S := W \cdot \frac{D^2}{6} \quad I := W \cdot \frac{D^3}{12}$$

$$Mt := wt \cdot \frac{\text{Span}^2}{8} \quad fb := Mt \cdot \frac{12}{S} \quad fb = 679.596$$

$$R := wt \cdot \frac{\text{Span}}{2} \quad R = 2610 \quad fv := \frac{R \cdot 1.5}{A} \quad fv = 52.727$$

$$dl := \frac{5 \cdot wl \cdot \text{Span}^4 \cdot 1728}{384 \cdot I \cdot 2000000} \quad dl = 0.132 \quad \text{OK} \quad \text{Use:PT6x14}$$