

# SAFE WORK PRACTICES

## CALCULATE SLING LOADINGS

*\*This information does not take precedence over OH&S. All employees should be familiar with the Saskatchewan Employment Act and the OH&S Regulations.*

1. Use sling length and distance from the hook to the load.

$$\text{Load on each sling leg} = \frac{\text{load (W)} \times \text{sling length (L)}}{2 \times \text{height to hook (H)}}$$

On "basket" hitches, use the "effective" length of the sling which is the sling from the hook to contact with load. "Height" is the vertical distance from the hook to the sling contact point with load.

2. Use sling length and distance between pick-up points.

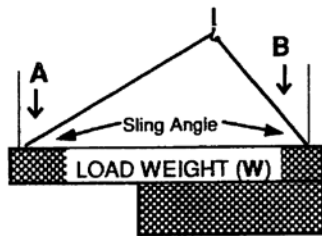
- 1) Divide  $S \times L$  to get **A**.
- 2) Find **A** in table. If not the same, use the next highest number.
- 3) Select number beside it on column **B**.
- 4) Multiply the weight of the load by **B** to get the load on each sling.

3. Use sling angle to the load.

- 1) Select known sling angle from column **C**.
- 2) Select number beside it in column **B**.
- 3) Multiply the weight of the load by **B** to get the load on each sling.

4. For unequal sling lengths, calculate each sling separately.

Sling angle is the "inside" angle. A and B are the "outside" angles for slings to 90° verticals from the load.



5. Determine angles **A** and **B**. Example:  $A = 90^\circ - \text{sling angle}$   
 $B = 90^\circ - \text{sling angle}$
6. Select sine for angles **A** and **B** from chart.
7. Select sine for angle **C** from chart, where  $\text{Angle } C = 180^\circ - (\text{angles } A + B)$   
Calculate load on each sling separately using sine values for angles **A**, **B** and **C**.

**Example:** 
$$\frac{\text{load on left sling} = W \times \text{sine (A)}}{\text{Sine (C)}}$$

$$\frac{\text{load on left sling} = W \times \text{sine (A)}}{\text{sine (C)}}$$

A	B	Sling Angle C
1.97	2.88	10°
1.94	1.93	15°
1.88	1.47	20°
1.81	1.19	25°
1.73	1.00	30°
1.64	.88	35°
1.52	.78	40°
1.42	.71	45°
1.29	.66	50°
1.15	.61	55°
1.00	.58	60°
.85	.56	65°
.68	.54	70°
.52	.52	75°
.35	.51	80°
.18	.50	85°

SINE TABLE		
Angle	Sine	Angle
0°	0.000	180°
5°	.087	175°
10°	.173	170°
15°	.258	165°
20°	.342	160°
25°	.422	155°
30°	.500	150°
35°	.573	145°
40°	.642	140°
45°	.707	135°
50°	.766	130°
55°	.819	125°
60°	.866	120°
65°	.906	115°
70°	.939	110°
75°	.965	105°
80°	.984	100°
85°	.966	95°
90°	1.000	90°