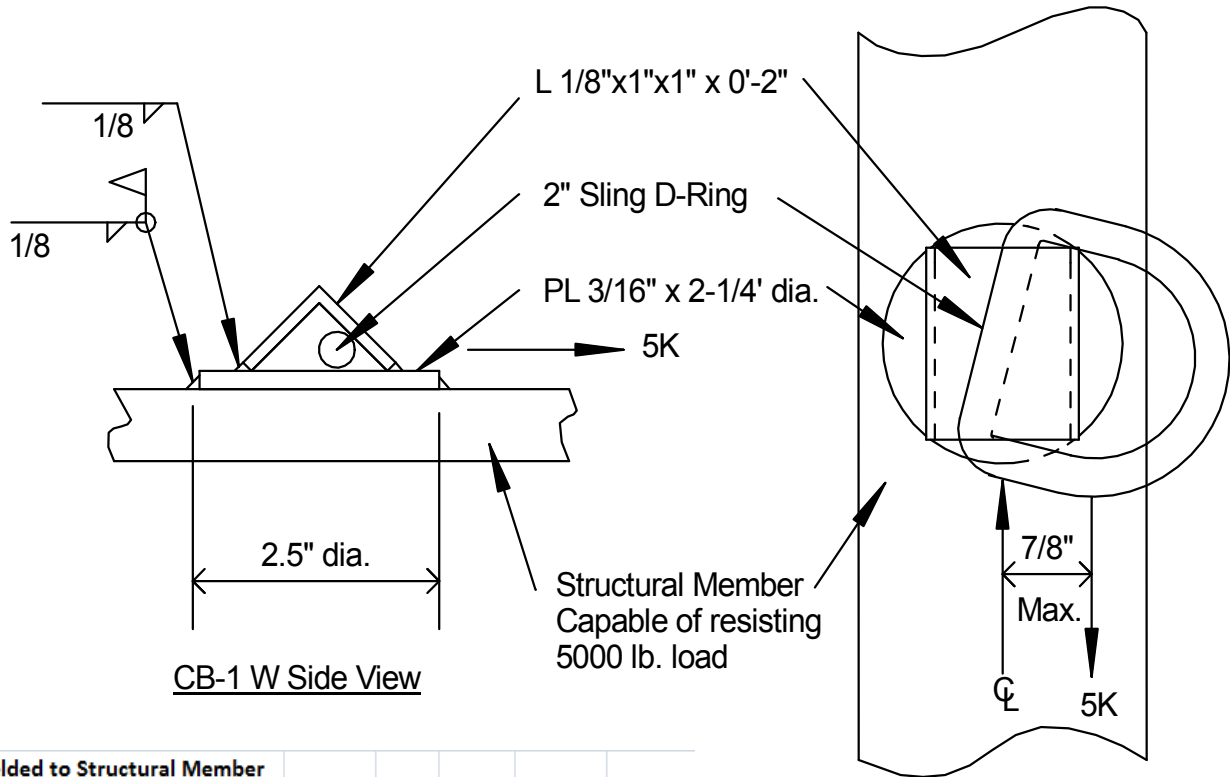


**Structural Calculations for
CB-1 W Welded to Structural Member
Guardian Fall Protection**

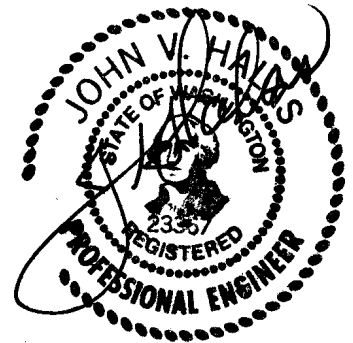
HALAS ENGINEERING
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CB-1 W Side View

CB-1 W Top View

CB-1 W Welded to Structural Member			
Total Load =	P =	5 Kips	
Check Angle welds (Each weld)			
Load per weld =	$P/2 = R =$	2.5 kips	
Effective weld length =	$L_w =$	2.0 in.	
Eccentricity of Load =	$e_h =$	0.875 in.	
Req'd weld size = $(R/22.4L^2)(L^2+20.25e_h^2)^{1/2} =$	$w_{reqd} =$	0.123 in.	
USE Weld size =	$w =$	1/8 in.	> .123in. OK
Check Disc Weld			
Load	P =	5000 lb	
Weld Thickness	$t_w =$	0.125 in.	
Diameter of disk	D =	2.500 in.	
Vertical eccentricity =	$e_v =$	0.320 in.	
Area of weld =	$A_w = \pi(d^2-d_1^2)/4 =$	1.030 in. ²	
Shear stress =	$f_w = P/A_w =$	4853 psi	
Section Modulus =	$S = \pi(d^2-d_1^2)/32d =$	0.05 in. ³	
Moment =	$M = P e_v =$	1600 in-lb.	
Bending stress =	$f_b = M/S =$	32611 psi	
Total stress =	$f = f_w + f_b =$	37464 psi	
Yield Strength	$F_y =$	70 Ksi	
Allowable Stress	$F_w = .6F_y =$	42 Ksi	
Factor of Safety	$FS = F_y/f_w =$	1.12	> 1 OK



2/4/10

SK-1