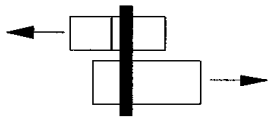
Wood Connection Design Worksheet (refer to 2005 NDS)

Diameter of Bolt, D =	0.625	in	Z =	1258	lbs/bolt
Bending Yield Strength of Bolt, F_{yb} =	45000	psi	C_D =	1.15	
Thickness of Main Member, t_m =	9.5	in	C_M =	1.00	(NDS Table 10.3.3)
Dowel Bearing strength of Main, F_{em} =	6160	psi (NDS Table 8A)	C_t =	1.00	(NDS Table 10.3.4)
Thickness of Side Member, t_s =	0.25	in	C_g =	1.00	
Side member Material =	Steel		C_Δ=	1.00	
Dowel Bearing strength of Side F_{es} =	87000	psi (NDS Table 8A)	Z' =	1447	lbs/bolt
Angle of load to Grain, θ_{max} =	0	degrees			
Specific Gravity, G =	0.55		Load Required =	0	lbs
Angle of Load to Grain, θ_m =	0	degrees	# Bolts Required =	0	
Angle of Load to Grain, θs =	0	degrees			

	Yield Mode			
$\frac{D\, l_m\, F_{em}}{R_d}$	MODE 1m	Z =	9143.8 lbs	
$\frac{D\, l_s\, F_{es}}{R_d}$	MODE 1s	Z =	3398.4 lbs	
$\frac{k_1\, D\, l_s\, F_{es}}{R_d}$	MODE 2	Z =	4124.5 lbs	
$\frac{k_2\, D\, t_m\, F_{em}}{(1+2R_e)\, R_d}$	MODE 3m	Z =	4721.8 lbs	
$\frac{k_3\, D\, t_s\, F_{em}}{(2+R_e)\, R_d}$	MODE 3s	Z =	1257.6 lbs <----- CONTROLS	
$\frac{D^2\, (2\, F_{em}\, F_{yb})^{0.5}}{R_d\, (3+3R_e)^{0.5}}$	MODE 4	Z =	1603.6 lbs	



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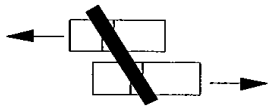

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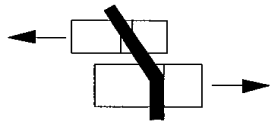
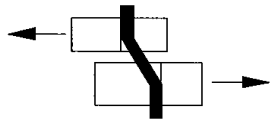


Mode III s



Mode IV