HP-35s Calculator Program –

Block Shear on Steel Element

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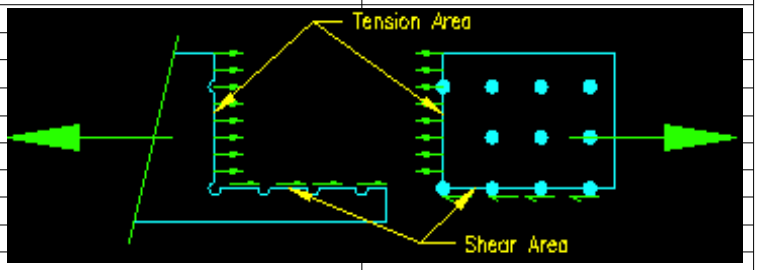
Line	Instruction	Process	User Instruction
B001	LBL B	Establishing the library	
B002	CLSTK	Clearing the stack	
B003	BLOCK SHEAR	Title	
B004	PSE		
B005	INPUT L	Length	
B006	INPUT T	Thickness	
B007	INPUT B		
B008	ELEM AREA		
B009	PSE		
B010	INPUT A	Area	
B011	X-BAR AISC		
B012	PSE		
B013	INPUT X	The $\bar{x}$ value of the element from the AISC manual	
B014	NO BOLTS		
B015	PSE		
B016	INPUT N	Number of bolts	
B017	DIA BOLTS		
B018	PSE		
B019	INPUT D	Bolt diameter	
B020	0.125	Adding 0.125 inches for the diameter of the opening	
B021	+		Nomenclature:
B022	STO D	Storing value in variable D	
B023	1		A = Cross Sectional Area
B024	STO U	Defaulting Shear lag coefficient to value of 1	B = Base Width of area in tension
B025	SHEAR LAG COEFF		D = Dia of bolts - changes to openings
B026	PSE		E = Area of Tension Plane
B027	INPUT U	Override value of U if other than “1”	F = Fy (Steel Yield Strength)
B028	FY		J = Fu (Steel Ultimate Strength)
B029	PSE		N = Number of bolts
B030	INPUT Y	Fy value of steel	P = ΦPn (Capacity in Axial Load)
B031	FU		Q = Tensile Rupture Strength (LRFD) φPn
B032	PSE		R = Block Shear strength (LRFD) φRn
B033	INPUT J	Fu	T = Thickness of Element
B034	RCL N		U = Shear Lag Coefficient (from AISC)
B035	0.5		V = Area of Shear Plane
B036	-		Z = Governing (critical) Strength
B037	RCL D		
B038	×		
B039	RCL L		
B040	-		
B041	+/-		
B042	RCL T		
B043	×		
B044	STO V		
B045	×		
B046	RCL B		
B047	RCL D		
B048	2		
B049	÷		
B050	-		
B051	RCLT		
B052	×		
B053	STO E		
B054	RCL J		
B055	×		
B056	RCL U		
B057	×		
B058	STO Z		
B059	RCL V		
B060	RCL J		
B061	×		



B062	0.6		
B063	×		
B064	+		
B065	0.6		
B066	RCL Y		
B067	×		
B068	RCL L		
B069	×		
B070	RCLT		
B071	×		
B072	RCL Z		
B073	+		
B074	x>y?		
B075	x<>y		
B076	0.75		
B077	×		÷
B078	STO R		
B079	BLOCK SHEAR		
B080	PSE		
B081	VIEW R	Viewing Block Shear strength (LRFD) φRn	
B082	RCL Y		
B083	RCLA		
B084	0.9		
B085	×		
B086	×		
B087	STO P		
B088	GR SECT YIELD		
B089	PSE		
B090	VIEW P	Viewing Gross Section Yielding capacity (LRFD) φPn	
B091	L OF BOLTS		
B092	PSE		
B093	INPUT L	Length of Shearing surface	
B094	1		
B095	RCL X		
B096	RCL L		
B097	÷		
B098	-		
B099	STO U		
B100	RCL A		
B101	RCL T		
B102	RCL D		
B103	×		
B104	-		
B105	×		
B106	RCL J		
B107	×		
B108	0.75		
B109	×		
B110	STO Q		
B111	T RUPT STRENGTH		
B112	PSE		
B113	VIEW Q	Viewing Tensile Rupture Strength (LRFD) φPn	
B114	RCL P		
B115	x>y?		
B116	x<>y		
B117	RCL R		
B118	x>y?		
B119	x< >y		
B120	STO Z		
B121	LRFD CAPACITY		
B122	PSE		
B123	VIEW Z		
B124	STOP		