

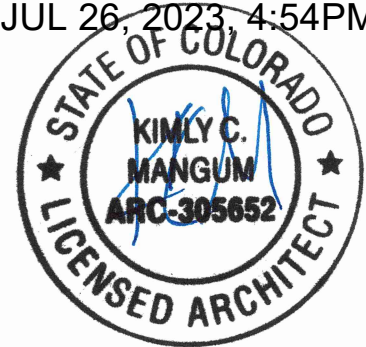
JOB #: 17-307
 CLIENT: WHISPER CREEK LOG HOMES
 MEYERS RESIDENCE
 LOCATION: CABIN SITE 66
 SAN MIGUEL COUNTY, CO
 ALG



DESIGN CRITERIA

1 GOVERNING CODE:	2021 IBC	
2 ROOF LOADING		
2.1 ROOF DEAD LOAD	15	PSF
2.2 ROOF LIVE LOAD	20	PSF
2.3 ROOF SNOW LOAD	100	PSF
GROUND SNOW LOAD, P_g	130	PSF
FLAT ROOF SNOW LOAD, P_f	100	PSF
SNOW EXPOSURE FACTOR, C_s	1.0	
THERMAL FACTOR, C_t	1.1	
IMPORTANCE FACTOR, I	1.0	
3 FLOOR LOADING		
3.1 FLOOR DEAD LOAD	12	PSF
3.2 FLOOR LIVE LOAD	40	PSF
4 WALL WEIGHTS		
4.1 TYP WALL DEAD LOAD	16	PSF
5 SEISMIC PARAMETERS		
5.1 SEISMIC RISK CATEGORY	II	
5.2 SEISMIC DESIGN CATEGORY	B	
5.3 SPECTRAL RESPONSE ACCELERATIONS		
SHORT PERIOD, S_s	0.294	
ONE-SEC PERIOD, S_1	0.080	
SHORT PERIOD SITE COEF., F_a	1.00	
LONG PERIOD SITE COEF., F_v	1.50	
SHORT PERIOD ACCEL., S_{DS}	0.307	
ONE SEC PERIOD ACCEL., S_{D1}	0.127	
5.4 SEISMIC FORCE RESISTING SYSTEM	PLYWOOD SHEAR WALLS AND ROOF DIAPHRAGM	
RESPONSE MOD. COEF., R	6.5	
DEFLECTION AMP. FACTOR, C_d	4.0	
OVERSTRENGTH FACTOR, Ω_0	3.0	
5.5 IMPORTANCE FACTOR, I	1.0	
5.6 DESIGN BASE SHEAR, V	0.047 *W (FROM ASCE 12.8-2)	
5.7 ANALYSIS PROCEDURE USED	EQUIVALENT LATERAL FORCE	
6 WIND PARAMETERS		
6.1 ULTIMATE DESIGN WIND SPEED, V_{ult}	115	MPH
6.2 WIND RISK CATEGORY	II	
6.3 WIND EXPOSURE	C	
6.4 INTERNAL PRESSURE COEFFICIENT	0.18	
6.5 COMPONENTS & CLADDING PRESSURE	16	PSF
7 SOILS CRITERIA		
7.1 SOIL BEARING PRESSURE	1,500	PSF
7.2 SOIL SITE CLASS	D	
7.3 FROST DEPTH	36	INCHES
7.4 GEOTECH STUDY USED	NO	

JUL 26, 2023 4:54PM



STRUCTURAL ONLY

USGS Design Maps Summary Report

User-Specified Input

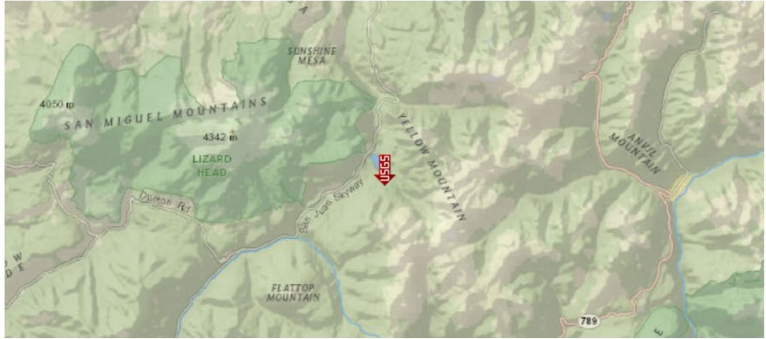
[View Detailed Report](#) [Print](#)

Building Code Reference Document ASCE 7-10 Standard
(which utilizes USGS hazard data available in 2008)

Site Coordinates 37.82°N, 107.88°W

Site Soil Classification Site Class D - "Stiff Soil"

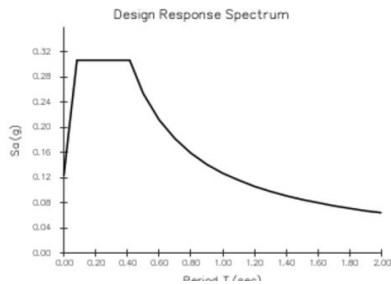
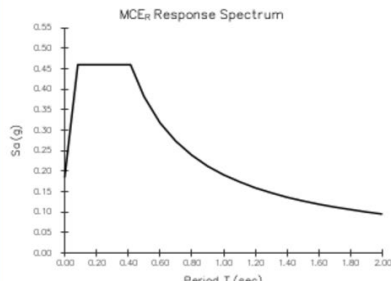
Risk Category I/II/III



USGS-Provided Output

$S_s = 0.294 \text{ g}$	$S_{MS} = 0.460 \text{ g}$	$S_{DS} = 0.307 \text{ g}$
$S_1 = 0.080 \text{ g}$	$S_{M1} = 0.191 \text{ g}$	$S_{D1} = 0.127 \text{ g}$

For information on how the S_s and S_1 values above have been calculated from probabilistic (risk-targeted) and deterministic ground motions in the direction of maximum horizontal response, please return to the application and select the "2009 NEHRP" building code reference document.



STRUCTURAL DESIGN INFORMATION

	F _b (PSI)	F _v (PSI)	F _c _ _ (PSI)	E (PSI)
SELECT STRUCTURAL	1,350	180	625	1.90E+06
SPF#1	900	125	425	1.30E+06
DF#2	900	180	625	1.00E+06
DF#1 & BTR	1,150	180	625	1.80E+06
HF#2	850	150	405	1.30E+06
LVL (1.9E)	2,600	285	750	1.90E+06
PSL (2.0E)	2,900	290	750	2.00E+06
GLB	2,400	265	650	1.80E+06
ASTM A-992 STEEL	33,000	20,000	N/A	2.90E+07

TUDS DOUGLAS FIR DF #2 OR BTR

	F _b =	1,148	PSI	LUMBER F _b
	F _t =	500	PSI	0.82
SPF = SPRUCE-PINE-F	F _v =	180	PSI	1.00
DF = DOUGLAS FIR	F _c _ _ =	625	PSI	
HF = HEM FIR	F _c II =	1,400	PSI	
BTR = BETTER	E =	1.60E+06	PSI	

	NAILED @	7/16"	15/32"
ALLOWABLE SHEAR	2" O.C. =	585 PLF	640
T 2306.4.1	3" O.C. =	450 PLF	490
	4" O.C. =	350 PLF	380

FW-1 7/16" APA 24/16 EXT GRADE SHEATHING NAILED W/8d @ 3-1/8" ALL PANEL EDGES & 12" O.C. MAX IN THE FIELD.

GOOD FOR 438 PLF MAX

FW-2 15/32" APA 24/16 EXT GRADE STRUCTURAL I SHEATHING NAIL 2" O.C. AT ALL PANEL EDGES & 12" O.C. MAX IN THE FIELD. 3" NOM FRMG MEMBERS REQ'D.

GOOD FOR 640 PLF MAX



WEIGHTS

ROOF

ROOFING:	6.00 PSF
7/16" SHTG:	2.50 PSF
INSULATION (.1 X 12):	1.20 PSF
JOISTS & BEAMS:	2.50 PSF
SHT ROCK 5/8":	2.00 PSF
TOTAL	14.20 PSF
USE	15.00 PSF



MAIN FLOOR

FLOORING:	3.00 PSF
3/4" SHTG:	2.50 PSF
MISC:	1.00 PSF
JOISTS & BEAMS:	3.00 PSF
SHT ROCK 5/8":	2.00 PSF
TOTAL	11.50 PSF
USE	12.00 PSF

DECK

FLOORING:	4.00 PSF
MISC:	1.00 PSF
JOISTS & BEAMS:	5.00 PSF
TOTAL	10.00 PSF
USE	10.00 PSF

EXTERIOR WALLS

SHT ROCK 1/2":	2.20 PSF
INSULATION (.1 X 5.5):	0.55 PSF
STUDS:	1.40 PSF
7/16" SHTG:	1.70 PSF
SIDING:	10.00 PSF
TOTAL	15.85 PSF
USE	16.00 PSF



FLOOR BEAMS**SIMPLE SPAN BEAM OR HEADER**

LOCATION: PORCH DECK BM

FB - 7

DURATION INCREASE (D) = 1.00
 BEAM SPAN = 19.5 FT
 VENEER YES/NO: NO

TRIBUTARY LOADING DECK

TOTAL LOAD (TL) = 70 PSF
 LIVE LOAD (LL) = 60 PSF
 JOIST SPAN (l) = 6.0 FT
 JOIST CANT (c) = 0.0 FT
 $wTL = TL * [(l+c) * 2/2 * l] = 210$ PLF
 $wLL = LL * [(l+c) * 2/2 * l] = 180$ PLF

BEAM LOADING

TOTAL LOAD (wTL) = 20 PLF
 LIVE LOAD (wLL) = 0 PLF

TOTAL UNIFORM LOADING

wTL = SUM(TL) = 230 PLF
 wLL = SUM(LL) = 180 PLF

POINT LOAD

TOTAL LOAD P(TL) = 0 LBS
 LIVE LOAD P(LL) = 0 LBS
 LOCATION (a) = 9.8 FT (FROM RHS)
 $b = L - a = 9.8$ FT ($a > b$)
 EQUIV. UNIFORM TL = 0 PLF
 EQUIV. UNIFORM LL = 0 PLF

REACTIONS

RIGHT R(rt) $wTL * L/2 + P(TL)b/L = 2243$ LBS
 $wLL * L/2 + P(LL)b/L = 1755$ LBS
 LEFT R(lt) $wTL * L/2 + P(TL)a/L = 2243$ LBS
 $wLL * L/2 + P(LL)a/L = 1755$ LBS
 $R_{rt}/wTL = 9.8$ FT $x' = 9.8$ FT

SUPPORT

RIGHT: POST/HGR/FDN: 2X4 1 STUDS
 HEIGHT: 8
 LEFT: POST/HGR/FDN: 2X4 1 STUDS
 HEIGHT: 8

MAXIMUM MOMENT

$M_{max} = R(rt) * x' - wTL * x'^2/2 = 10,932$ FT LBS

δ CRITERIA: L/ 480 L.L. δ L/ 360 T.L. δ

STRUCTURAL COMPOSITE LUMBER**TYPE: GLB**

DEPTH (d)est. = 10 1/2 IN. Fb = 2,400 PSI
 WIDTH (b)est. = 6 3/4 IN. Fv = 265 PSI
 E = 1.80E+06 PSI
 Areq = 11.55 IN(2) CF = 1.00
 Sreq = 54.66 IN(3) A = 70.88 IN(2)
 Ireq(TL) = 426.36 IN(4) S = 124.03 IN(3)
 Ireq(LL) = 500.50 IN(4) I = 651.16 IN(4)
 BRGreq = 3 IN.

δmax OCCURS @ 9.8 FT. (FROM RHS)

δmax (T.L.) = 0.64 IN. L/ 367

δmax (L.L.) = 0.50 IN. L/ 468

USE**6-3/4" X 10-1/2" GLB**

NOTE:

SAFETY FACTOR = 1.30



SIMPLE SPAN BEAM OR HEADER

LOCATION: GAR HDR

FB - 6

DURATION INCREASE (D) = 1.00
 BEAM SPAN = 16.5 FT
 VENEER YES/NO: NO
TRIBUTARY LOADING

	FLOOR	ROOF
TOTAL LOAD (TL) =	70 PSF	115 PSF
LIVE LOAD (LL) =	60 PSF	100 PSF
JOIST SPAN (l) =	10.5 FT	25.0 FT
JOIST CANT (c) =	0.0 FT	0.0 FT
wTL = TL*[(l+c)*2/2*l] =	368 PLF	1438 PLF
wLL = LL*[(l+c)*2/2*l] =	315 PLF	1250 PLF

BEAM LOADING

TOTAL LOAD (wTL) = 20 PLF
 LIVE LOAD (wLL) = 0 PLF

TOTAL UNIFORM LOADING

wTL = SUM(TL) = 1825 PLF
 wLL = SUM(LL) = 1565 PLF

POINT LOAD

TOTAL LOAD P(TL) = 0 LBS
 LIVE LOAD P(LL) = 0 LBS
 LOCATION (a) = 8.3 FT (FROM RHS)
 b = L-a = 8.3 FT (a > b)
 EQUIV. UNIFORM TL = 0 PLF
 EQUIV. UNIFORM LL = 0 PLF

REACTIONS

RIGHT R(rt) wTL*L/2+P(TL)b/L = 15056 LBS
 wLL*L/2+P(LL)b/L = 12911 LBS
 LEFT R(lt) wTL*L/2+P(TL)a/L = 15056 LBS
 wLL*L/2+P(LL)a/L = 12911 LBS
 Rrt/wTL = 8.3 FT x' = 8.3 FT

SUPPORT

RIGHT: POST/HGR/FDN: N/A 1 STUDS
 HEIGHT: 8
 LEFT: POST/HGR/FDN: N/A 1 STUDS
 HEIGHT: 8



MAXIMUM MOMENT

$$M_{max} = R(rt) * x' - wTL * x'^2 / 2 = 62,107 \text{ FT LBS}$$

δ CRITERIA: L/ 480 L.L. δ L/ 360 T.L. δ

STRUCTURAL COMPOSITE LUMBER

TYPE: GLB

DEPTH (d)est. =	21 IN.	Fb =	2,400 PSI
WIDTH (b)est. =	6 3/4 IN.	Fv =	265 PSI
		E =	1.80E+06 PSI
Areq =	67.15 IN(2)	CF =	0.94
Sreq =	330.44 IN(3)	A =	141.75 IN(2)
Ireq(TL) =	2049.53 IN(4)	S =	496.13 IN(3)
Ireq(LL) =	2636.32 IN(4)	I =	5209.31 IN(4)
BRGreq =	10 IN.		
	δmax OCCURS @	8.3 FT. (FROM RHS)	
	δmax (T.L.) =	0.32 IN. L/ 610	
	δmax (L.L.) =	0.28 IN. L/ 711	

USE **6-3/4" X 21" GLB**

NOTE:

SAFETY FACTOR = 1.50

STEEL BEAM

DEPTH =	10.10 IN.	Fb =	33,000 PSI
WIDTH =	8.02 IN.	Fv =	20,000 PSI
		E =	2.90E+07 PSI
Areq =	1.13 IN(2)		
Sreq =	22.58 IN(3)	A =	13.30 IN(2)
Ireq (TL) =	127.21 IN(4)	S =	49.10 IN(3)
Ireq (LL) =	163.63 IN(4)	I =	248.00 IN(4)
	δmax @:	8.3 FT. (FROM RHS)	
	δmax (T.L.) =	0.42 IN. L/ 468	
	δmax (L.L.) =	0.36 IN. L/ 546	

OR **W10X45**

NOTE:

SAFETY FACTOR = 1.52



BEAM WITH POINT LOAD

LOCATION: BASEMENT HALL

FB - 5

DURATION INCREASE (D) = 1.00
 BEAM SPAN = 8.0 FT

TRIBUTARY LOADING	FLOOR	ROOF
TOTAL LOAD (TL) =	52 PSF	115 PSF
LIVE LOAD (LL) =	40 PSF	100 PSF
JOIST SPAN (l) =	1.3 FT	4.0 FT
JOIST CANT (c) =	0.0 FT	2.0 FT
wTL = TL*[(l+c)*2/2*1] =	34 PLF	518 PLF
wLL = LL*[(l+c)*2/2*1] =	26 PLF	450 PLF

BEAM LOADING
 TOTAL LOAD (wTL) = 20 PLF
 LIVE LOAD (wLL) = 0 PLF

TOTAL UNIFORM LOADING
 wTL = SUM(TL) = 571 PLF
 wLL = SUM(LL) = 476 PLF

POINT LOAD
 TOTAL LOAD P(TL) = 13160 LBS FROM RB-1
 LIVE LOAD P(LL) = 11200 LBS
 LOCATION (a) = 5.5 FT (FROM RHS)
 b = L-a = 2.5 FT (a > b)
 EQUIV. UNIFORM TL = 2827 PLF
 EQUIV. UNIFORM LL = 2406 PLF

REACTIONS
 RIGHT R(rt) wTL*L/2+P(TL)b/L = 6398 LBS
 wLL*L/2+P(LL)b/L = 5404 LBS
 LEFT R(lt) wTL*L/2+P(TL)a/L = 11333 LBS
 wLL*L/2+P(LL)a/L = 9604 LBS
 Rrt/wTL = 11.2 FT x' = 5.5 FT

SUPPORT
 RIGHT: POST/HGR/FDN: POST 6.6 POST
 HEIGHT: 8
 LEFT: POST/HGR/FDN: POST 4.6 POST
 HEIGHT: 8

MAXIMUM MOMENT
 $M_{max} = R(rt)*x' - wTL*x'^2/2 = 26,546$ FT LBS
 δ CRITERIA: L/ 480 L.L. δ L/ 360 T.L. δ

STRUCTURAL COMPOSITE LUMBER - W/ PT. LOAD

TYPE: GLB

DEPTH (d)est. =	12 IN.	Fb =	2,400 PSI
WIDTH (b)est. =	6 3/4 IN.	Fv =	265 PSI
		E =	1.80E+06 PSI
Areq =	60.91 IN(2)	CF =	1.00
Sreq =	132.73 IN(3)	A =	81.00 IN(2)
Ireq(TL) =	351.00 IN(4)	S =	162.00 IN(3)
Ireq(LL) =	446.12 IN(4)	I =	972.00 IN(4)
BRGreq =	7 IN.		
	δ_{max} OCCURS @	4.3 FT. (FROM RHS)	
	δ_{max} (T.L.) =	0.14 IN. L/ 666	
	δ_{max} (L.L.) =	0.10 IN. L/ 1008	

USE

6-3/4" X 12" GLB

NOTE:

SAFETY FACTOR = 1.22



SIMPLE SPAN BEAM OR HEADER

LOCATION: PORCH BEAM

FB - 4

DURATION INCREASE (D) = 1.00
 BEAM SPAN = 6.5 FT

TRIBUTARY LOADING FLOOR

TOTAL LOAD (TL) = 70 PSF
 LIVE LOAD (LL) = 60 PSF
 JOIST SPAN (l) = 6.0 FT
 JOIST CANT (c) = 0.0 FT
 $wTL = TL * [(l+c) * 2/2 * l] = 210$ PLF
 $wLL = LL * [(l+c) * 2/2 * l] = 180$ PLF

BEAM LOADING

TOTAL LOAD (wTL) = 20 PLF
 LIVE LOAD (wLL) = 0 PLF

TOTAL UNIFORM LOADING

wTL = SUM(TL) = 230 PLF
 wLL = SUM(LL) = 180 PLF

POINT LOAD

TOTAL LOAD P(TL) = 0 LBS
 LIVE LOAD P(LL) = 0 LBS
 LOCATION (a) = 3.3 FT (FROM RHS)
 $b = L - a = 3.3$ FT (a > b)
 EQUIV. UNIFORM TL = 0 PLF
 EQUIV. UNIFORM LL = 0 PLF

REACTIONS

RIGHT R(rt) $wTL * L/2 + P(TL) * b/L = 748$ LBS
 $wLL * L/2 + P(LL) * b/L = 585$ LBS
 LEFT R(lt) $wTL * L/2 + P(TL) * a/L = 748$ LBS
 $wLL * L/2 + P(LL) * a/L = 585$ LBS
 $R_{rt}/wTL = 3.3$ FT $x' = 3.3$ FT

SUPPORT

RIGHT: POST/HGR/FDN: 2X4 1 STUDS
 HEIGHT: 8
 LEFT: POST/HGR/FDN: 2X4 1 STUDS
 HEIGHT: 8

MAXIMUM MOMENT

$M_{max} = R(rt) * x' - wTL * x'^2/2 = 1,215$ FT LBS

δ CRITERIA: L/ 480 L.L. δ L/ 360 T.L. δ

DIMENSIONAL LUMBER

TYPE: DF#2

CF = 1.1

DEPTH (d)est. = 9 1/4 IN. Fb = 900 PSI
 WIDTH (b)est. = 4 1/2 IN. Fv = 180 PSI
 E = 1.00E+06 PSI
 $A_{req} = 4.75$ IN(2)
 $S_{req} = 14.72$ IN(3)
 $I_{req}(TL) = 28.42$ IN(4)
 $I_{req}(LL) = 33.37$ IN(4)
 $BRG_{req} = 3$ IN.

δmax OCCURS @ 3.3 FT. (FROM RHS)

δmax (T.L.) = 0.03 IN. L/ 2506

δmax (L.L.) = 0.02 IN. L/ 3202

USE

(3) - 2 X 10 (S)

NOTE:

SAFETY FACTOR = 4.36



SIMPLE SPAN BEAM OR HEADER

LOCATION: BASEMENT BEDROOM

FB - 3

DURATION INCREASE (D) = 1.00
 BEAM SPAN = 12.0 FT
 VENEER YES/NO: NO

TRIBUTARY LOADING FLOOR

TOTAL LOAD (TL) = 52 PSF
 LIVE LOAD (LL) = 40 PSF
 JOIST SPAN (l) = 19.0 FT
 JOIST CANT (c) = 0.0 FT
 $wTL = TL * [(l+c) * 2/2 * l] = 494$ PLF
 $wLL = LL * [(l+c) * 2/2 * l] = 380$ PLF

BEAM LOADING

TOTAL LOAD (wTL) = 20 PLF
 LIVE LOAD (wLL) = 0 PLF

TOTAL UNIFORM LOADING

wTL = SUM(TL) = 514 PLF
 wLL = SUM(LL) = 380 PLF

POINT LOAD

TOTAL LOAD P(TL) = 0 LBS
 LIVE LOAD P(LL) = 0 LBS
 LOCATION (a) = 6.0 FT (FROM RHS)
 b = L-a = 6.0 FT (a > b)
 EQUIV. UNIFORM TL = 0 PLF
 EQUIV. UNIFORM LL = 0 PLF

REACTIONS

RIGHT R(rt) $wTL * L/2 + P(TL)b/L = 3084$ LBS
 $wLL * L/2 + P(LL)b/L = 2280$ LBS
 LEFT R(lt) $wTL * L/2 + P(TL)a/L = 3084$ LBS
 $wLL * L/2 + P(LL)a/L = 2280$ LBS
 $Rrt/wTL = 6.0$ FT $x' = 6.0$ FT

SUPPORT

RIGHT: POST/HGR/FDN: POST 1 POST
 HEIGHT: 8
 LEFT: POST/HGR/FDN: POST 1 POST
 HEIGHT: 8

MAXIMUM MOMENT

$M_{max} = R(rt) * x' - wTL * x'^2/2 = 9,252$ FT LBS

δ CRITERIA: L/ 480 L.L. δ L/ 360 T.L. δ

STRUCTURAL COMPOSITE LUMBER**TYPE: GLB**

DEPTH (d)est. = 10 1/2 IN. Fb = 2,400 PSI
 WIDTH (b)est. = 5 1/8 IN. Fv = 265 PSI
 E = 1.80E+06 PSI
 Areq = 14.91 IN(2) CF = 1.00
 Sreq = 46.26 IN(3) A = 53.81 IN(2)
 Ireq(TL) = 222.05 IN(4) S = 94.17 IN(3)
 Ireq(LL) = 246.24 IN(4) I = 494.40 IN(4)
 BRGreq = 3 IN.
 δ_{max} OCCURS @ 6.0 FT. (FROM RHS)
 δ_{max} (T.L.) = 0.27 IN. L/ 534
 δ_{max} (L.L.) = 0.20 IN. L/ 723

USE**5-1/8" X 10-1/2" GLB**

NOTE:

SAFETY FACTOR = 2.01



SIMPLE SPAN BEAM OR HEADER

LOCATION: FAMILY ROOM

FB - 2

DURATION INCREASE (D) = 1.00
 BEAM SPAN = 12.5 FT
 VENEER YES/NO: NO

TRIBUTARY LOADING FLOOR

TOTAL LOAD (TL) = 52 PSF
 LIVE LOAD (LL) = 40 PSF
 JOIST SPAN (l) = 29.0 FT
 JOIST CANT (c) = 0.0 FT
 $wTL = TL * [(l+c) * 2/2 * l] = 754$ PLF
 $wLL = LL * [(l+c) * 2/2 * l] = 580$ PLF

BEAM LOADING

TOTAL LOAD (wTL) = 20 PLF
 LIVE LOAD (wLL) = 0 PLF

TOTAL UNIFORM LOADING

wTL = SUM(TL) = 774 PLF
 wLL = SUM(LL) = 580 PLF

POINT LOAD

TOTAL LOAD P(TL) = 0 LBS
 LIVE LOAD P(LL) = 0 LBS
 LOCATION (a) = 6.3 FT (FROM RHS)
 $b = L - a = 6.3$ FT ($a > b$)
 EQUIV. UNIFORM TL = 0 PLF
 EQUIV. UNIFORM LL = 0 PLF

REACTIONS

RIGHT R(rt) $wTL * L/2 + P(TL)b/L = 4838$ LBS
 $wLL * L/2 + P(LL)b/L = 3625$ LBS
 LEFT R(lt) $wTL * L/2 + P(TL)a/L = 4838$ LBS
 $wLL * L/2 + P(LL)a/L = 3625$ LBS
 $Rrt/wTL = 6.3$ FT $x' = 6.3$ FT

SUPPORT

RIGHT: POST/HGR/FDN: POST 1 POST
 HEIGHT: 8

LEFT: POST/HGR/FDN: POST 1 POST
 HEIGHT: 8

MAXIMUM MOMENT

$M_{max} = R(rt) * x' - wTL * x'^2/2 = 15,117$ FT LBS

δ CRITERIA: L/ 480 L.L. δ L/ 360 T.L. δ

STRUCTURAL COMPOSITE LUMBER

TYPE: GLB

DEPTH (d)est. = 12 IN. Fb = 2,400 PSI
 WIDTH (b)est. = 5 1/8 IN. Fv = 265 PSI
 E = 1.80E+06 PSI
 Areq = 23.00 IN(2) CF = 1.00
 Sreq = 75.59 IN(3) A = 61.50 IN(2)
 Ireq(TL) = 377.93 IN(4) S = 123.00 IN(3)
 Ireq(LL) = 424.80 IN(4) I = 738.00 IN(4)
 BRGreq = 3 IN.
 δ_{max} OCCURS @ 6.3 FT. (FROM RHS)
 δ_{max} (T.L.) = 0.32 IN. L/ 469
 δ_{max} (L.L.) = 0.24 IN. L/ 625

USE

5-1/8" X 12" GLB

NOTE:

SAFETY FACTOR = 1.63



SIMPLE SPAN BEAM OR HEADER

LOCATION: GARAGE

FB - 1

DURATION INCREASE (D) = 1.00
 BEAM SPAN = 19.5 FT
 VENEER YES/NO: NO

TRIBUTARY LOADING FLOOR

TOTAL LOAD (TL) = 52 PSF
 LIVE LOAD (LL) = 40 PSF
 JOIST SPAN (l) = 14.5 FT
 JOIST CANT (c) = 0.0 FT
 $wTL = TL * [(l+c) * 2/2 * l]$ = 377 PLF
 $wLL = LL * [(l+c) * 2/2 * l]$ = 290 PLF

BEAM LOADING

TOTAL LOAD (wTL) = 20 PLF
 LIVE LOAD (wLL) = 0 PLF

TOTAL UNIFORM LOADING

wTL = SUM(TL) = 397 PLF
 wLL = SUM(LL) = 290 PLF

POINT LOAD

TOTAL LOAD P(TL) = 0 LBS
 LIVE LOAD P(LL) = 0 LBS
 LOCATION (a) = 9.8 FT (FROM RHS)
 $b = L - a = 9.8$ FT (a > b)
 EQUIV. UNIFORM TL = 0 PLF
 EQUIV. UNIFORM LL = 0 PLF

REACTIONS

RIGHT R(rt) $wTL * L/2 + P(TL)b/L$ = 3871 LBS
 $wLL * L/2 + P(LL)b/L$ = 2828 LBS
 LEFT R(lt) $wTL * L/2 + P(TL)a/L$ = 3871 LBS
 $wLL * L/2 + P(LL)a/L$ = 2828 LBS
 $Rrt/wTL = 9.8$ FT $x' = 9.8$ FT

SUPPORT

RIGHT: POST/HGR/FDN: POST 1 POST
 HEIGHT: 8
 LEFT: POST/HGR/FDN: POST 1 POST
 HEIGHT: 8

MAXIMUM MOMENT

$M_{max} = R(rt) * x' - wTL * x'^2/2 = 18,870$ FT LBS

δ CRITERIA: L/ 480 L.L. δ L/ 360 T.L. δ

STRUCTURAL COMPOSITE LUMBER

TYPE: GLB

DEPTH (d)est. = 12 IN. Fb = 2,400 PSI
 WIDTH (b)est. = 6 3/4 IN. Fv = 265 PSI
 E = 1.80E+06 PSI
 Areq = 19.66 IN(2) CF = 1.00
 Sreq = 94.35 IN(3) A = 81.00 IN(2)
 Ireq(TL) = 735.93 IN(4) S = 162.00 IN(3)
 Ireq(LL) = 806.37 IN(4) I = 972.00 IN(4)
 BRGreq = 3 IN.

δmax OCCURS @ 9.8 FT. (FROM RHS)

δmax (T.L.) = 0.74 IN. L/ 317

δmax (L.L.) = 0.54 IN. L/ 434

USE

6-3/4" X 12" GLB

NOTE:

SAFETY FACTOR = 1.21



ROOF BEAMS**SIMPLE SPAN BEAM OR HEADER**

LOCATION: PB3

RB - 5

DURATION INCREASE (D) = 1.15
 BEAM SPAN = 19.0 FT
 VENEER YES/NO: NO

TRIBUTARY LOADING**ROOF**

TOTAL LOAD (TL) = 115 PSF
 LIVE LOAD (LL) = 100 PSF
 JOIST SPAN (l) = 6.0 FT
 JOIST CANT (c) = 2.0 FT
 $wTL = TL * [(l+c) * 2 / 2 * l] = 613$ PLF
 $wLL = LL * [(l+c) * 2 / 2 * l] = 533$ PLF

BEAM LOADING

TOTAL LOAD (wTL) = 20 PLF
 LIVE LOAD (wLL) = 0 PLF

TOTAL UNIFORM LOADING

wTL = SUM(TL) = 633 PLF
 wLL = SUM(LL) = 533 PLF

POINT LOAD

TOTAL LOAD P(TL) = 0 LBS
 LIVE LOAD P(LL) = 0 LBS
 LOCATION (a) = 9.5 FT (FROM RHS)
 $b = L - a = 9.5$ FT (a > b)
 EQUIV. UNIFORM TL = 0 PLF
 EQUIV. UNIFORM LL = 0 PLF

REACTIONS

RIGHT R(rt) $wTL * L / 2 + P(TL) * b / L = 6017$ LBS
 $wLL * L / 2 + P(LL) * b / L = 5067$ LBS
 LEFT R(lt) $wTL * L / 2 + P(TL) * a / L = 6017$ LBS
 $wLL * L / 2 + P(LL) * a / L = 5067$ LBS
 $R_{rt} / wTL = 9.5$ FT $x' = 9.5$ FT

SUPPORT

RIGHT: POST/HGR/FDN: 2X6 3 STUDS
 HEIGHT: 8

LEFT: POST/HGR/FDN: 2X6 3 STUDS
 HEIGHT: 8

MAXIMUM MOMENT

$M_{max} = R(rt) * x' - wTL * x'^2 / 2 = 28,579$ FT LBS

δ CRITERIA: L/ 360 L.L. δ L/ 240 T.L. δ

DIMENSIONAL LUMBER

TYPE: DF#1 & BTR

CF = 0.9

DEPTH (d)est. = 13 1/2 IN.

Fb = 1,150 PSI

WIDTH (b)est. = 11 1/2 IN.

Fv = 180 PSI

E = 1.80E+06 PSI

Areq = 38.44 IN(2)

Sreq = 288.13 IN(3)

A = 155.25 IN(2)

Ireq(TL) = 1086.01 IN(4)

S = 349.31 IN(3)

Ireq(LL) = 1371.80 IN(4)

I = 2357.86 IN(4)

BRGreq = 4 IN.

δmax OCCURS @ 9.5 FT. (FROM RHS)

δmax (T.L.) = 0.44 IN. L/ 521

δmax (L.L.) = 0.37 IN. L/ 619

USE**12 X 14 TIMBER**

NOTE:

SAFETY FACTOR = 1.21



CANTILEVER BEAMLOCATION: **STRUCTURAL FASCIA****RB - 4****(1) 1-3/4" X 14" LVL(S)**

DURATION INCREASE (D) = 1.15
 BEAM SPAN (L) = 4.0 FT
 BEAM CANT (a) = 2.0 FT

TRIBUTARY LOADING	BACK-SPAN	CANTILEVER
TOTAL LOAD (TL) =	115 PSF	115 PSF
LIVE LOAD (LL) =	100 PSF	100 PSF
JOIST SPAN (l) =	6.0 FT	0 LBS (TL POINT) 0 LBS (LL)

BEAM LOADING

TOTAL LOAD (wTL) =	20 PLF	20 PLF
LIVE LOAD (wLL) =	0 PLF	0 PLF

TOTAL UNIFORM LOADING

wTL = TL*/2 =	365 PLF	cTL =	365 PLF
wLL = LL*/2 =	300 PLF	cLL =	300 PLF
		PTL =	0 LBS
		PLL =	0 LBS

REACTIONS

LHS	$w*L/2 - c*a^2/2L - Pa/L =$	418 LBS (MIN) 698 LBS (MAX)
RHS	$/2+c*a(2l+a)2L+P(L+a)/L=$	1643 LBS (MAX)

MAXIMUM MOMENT

Mmax (@ MID SPAN) =	430 FT LBS
Mmax (@ CANTILEVER) =	730 FT LBS

MAXIMUM SHEAR @ REACTION PT

Vmax (FOR SPAN) =	698 FT LBS
Vmax (@ CANTILEVER) =	730 FT LBS

DEFLECTION * EI	TL & PART	LL ONLY
@ END OF CANTILEVER =	-2330	-2200

@ MID SPAN =	1087	1000
@ L/SQRT(3) (FROM CANT) =	-539	-616
MAX DEFLECTION *EI =	1087	1000

STRUCTURAL COMPOSITE LUMBER - CANTILEVER BEAMTYPE: **LVL (1.9E)**

DEPTH (d)est. =	14 IN.	Fb =	2,600 PSI
WIDTH (b)est. =	1 3/4 IN.	Fv =	285 PSI
OF MEMBERS =	1	E =	1.90E+06 PSI
Areq =	2.73 IN.(2)	CF =	0.98
Sreq =	2.93 IN.(3)	A =	24.50 IN(2)
Ireq(TL) =	10.60 IN.(4)	S =	57.17 IN(3)
Ireq(LL) =	15.01 IN.(4)	I =	400.17 IN(4)
BRGreq =	3 IN.		

USE (1) 1-3/4" X 14" LVL(S)

SAFETY FACTOR = 8.98



SIMPLE SPAN BEAM OR HEADER

LOCATION: MAIN ROOF

RB - 3

DURATION INCREASE (D) = 1.15
 BEAM SPAN = 28.0 FT
 VENEER YES/NO: NO

TRIBUTARY LOADING ROOF

TOTAL LOAD (TL) = 115 PSF
 LIVE LOAD (LL) = 100 PSF
 JOIST SPAN (l) = 16.0 FT
 JOIST CANT (c) = 0.0 FT
 $wTL = TL * [(l+c) * 2/2 * l] = 920$ PLF
 $wLL = LL * [(l+c) * 2/2 * l] = 800$ PLF

BEAM LOADING

TOTAL LOAD (wTL) = 20 PLF
 LIVE LOAD (wLL) = 0 PLF

TOTAL UNIFORM LOADING

wTL = SUM(TL) = 940 PLF
 wLL = SUM(LL) = 800 PLF

POINT LOAD

TOTAL LOAD P(TL) = 0 LBS
 LIVE LOAD P(LL) = 0 LBS
 LOCATION (a) = 14.0 FT (FROM RHS)
 $b = L - a = 14.0$ FT (a > b)
 EQUIV. UNIFORM TL = 0 PLF
 EQUIV. UNIFORM LL = 0 PLF

REACTIONS

RIGHT R(rt) $wTL * L/2 + P(TL)b/L = 13160$ LBS
 $wLL * L/2 + P(LL)b/L = 11200$ LBS
 LEFT R(lt) $wTL * L/2 + P(TL)a/L = 13160$ LBS
 $wLL * L/2 + P(LL)a/L = 11200$ LBS
 $Rrt/wTL = 14.0$ FT $x' = 14.0$ FT

SUPPORT

RIGHT: POST/HGR/FDN: 2X6 3 STUDS
 HEIGHT: 8
 LEFT: POST/HGR/FDN: 2X6 3 STUDS
 HEIGHT: 8

MAXIMUM MOMENT

$M_{max} = R(rt) * x' - wTL * x'^2/2 = 92,120$ FT LBS

δ CRITERIA: L/ 360 L.L. δ L/ 240 T.L. δ

STRUCTURAL COMPOSITE LUMBER**TYPE: GLB**

DEPTH (d)est. = 24 IN. $F_b = 2,400$ PSI
 WIDTH (b)est. = 6 3/4 IN. $F_v = 265$ PSI
 $E = 1.80E+06$ PSI
 $A_{req} = 55.52$ IN(2) $CF = 0.93$
 $S_{req} = 432.55$ IN(3) $A = 162.00$ IN(2)
 $I_{req}(TL) = 5158.72$ IN(4) $S = 648.00$ IN(3)
 $I_{req}(LL) = 6585.60$ IN(4) $I = 7776.00$ IN(4)
 $BRG_{req} = 9$ IN.
 δ_{max} OCCURS @ 14.0 FT. (FROM RHS)
 δ_{max} (T.L.) = 0.93 IN. L/ 362
 δ_{max} (L.L.) = 0.79 IN. L/ 425

USE**6-3/4" X 24" GLB**

NOTE:

SAFETY FACTOR = 1.18



SIMPLE SPAN BEAM OR HEADER

LOCATION: PORCH BEAM

RB - 2

DURATION INCREASE (D) = 1.15
 BEAM SPAN = 6.5 FT

TRIBUTARY LOADING**ROOF**

TOTAL LOAD (TL) = 115 PSF
 LIVE LOAD (LL) = 100 PSF
 JOIST SPAN (l) = 6.0 FT
 JOIST CANT (c) = 2.0 FT
 $wTL = TL * [(l+c) * 2/2 * l] = 613$ PLF
 $wLL = LL * [(l+c) * 2/2 * l] = 533$ PLF

BEAM LOADING

TOTAL LOAD (wTL) = 20 PLF
 LIVE LOAD (wLL) = 0 PLF

TOTAL UNIFORM LOADING

wTL = SUM(TL) = 633 PLF
 wLL = SUM(LL) = 533 PLF

POINT LOAD

TOTAL LOAD P(TL) = 0 LBS
 LIVE LOAD P(LL) = 0 LBS
 LOCATION (a) = 3.3 FT (FROM RHS)
 $b = L - a = 3.3$ FT (a > b)
 EQUIV. UNIFORM TL = 0 PLF
 EQUIV. UNIFORM LL = 0 PLF

REACTIONS

RIGHT R(rt) $wTL * L/2 + P(TL)b/L = 2058$ LBS
 $wLL * L/2 + P(LL)b/L = 1733$ LBS
 LEFT R(lt) $wTL * L/2 + P(TL)a/L = 2058$ LBS
 $wLL * L/2 + P(LL)a/L = 1733$ LBS
 $Rrt/wTL = 3.3$ FT $x' = 3.3$ FT

SUPPORT

RIGHT: POST/HGR/FDN: 2X4 1 STUDS
 HEIGHT: 8
 LEFT: POST/HGR/FDN: 2X4 1 STUDS
 HEIGHT: 8

MAXIMUM MOMENT

$M_{max} = R(rt) * x' - wTL * x'^2/2 = 3,345$ FT LBS

δ CRITERIA: L/ 360 L.L. δ L/ 240 T.L. δ

DIMENSIONAL LUMBER

TYPE: DF#1 & BTR

CF = 1.2

DEPTH (d)est. = 7 1/2 IN.

Fb = 1,150 PSI

WIDTH (b)est. = 5 1/2 IN.

Fv = 180 PSI

E = 1.80E+06 PSI

Areq = 12.05 IN(2)

Sreq = 25.29 IN(3)

A = 41.25 IN(2)

Ireq(TL) = 43.48 IN(4)

S = 51.56 IN(3)

Ireq(LL) = 54.93 IN(4)

I = 193.36 IN(4)

BRGreq = 3 IN.

δmax OCCURS @ 3.3 FT. (FROM RHS)

δmax (T.L.) = 0.07 IN. L/ 1067

δmax (L.L.) = 0.06 IN. L/ 1267

USE

6 X 8 TIMBER

NOTE:

SAFETY FACTOR = 2.04



SIMPLE SPAN BEAM OR HEADER

LOCATION: WB1

RB - 1

DURATION INCREASE (D) = 1.15
 BEAM SPAN = 5.0 FT

TRIBUTARY LOADING**ROOF**

TOTAL LOAD (TL) = 115 PSF
 LIVE LOAD (LL) = 100 PSF
 JOIST SPAN (l) = 16.0 FT
 JOIST CANT (c) = 3.5 FT
 $wTL = TL * [(l+c) * 2/2 * l] = 1367$ PLF
 $wLL = LL * [(l+c) * 2/2 * l] = 1188$ PLF

BEAM LOADING

TOTAL LOAD (wTL) = 20 PLF
 LIVE LOAD (wLL) = 0 PLF

TOTAL UNIFORM LOADING

wTL = SUM(TL) = 1387 PLF
 wLL = SUM(LL) = 1188 PLF

POINT LOAD

TOTAL LOAD P(TL) = 0 LBS
 LIVE LOAD P(LL) = 0 LBS
 LOCATION (a) = 2.5 FT (FROM RHS)
 $b = L - a = 2.5$ FT (a > b)
 EQUIV. UNIFORM TL = 0 PLF
 EQUIV. UNIFORM LL = 0 PLF

REACTIONS

RIGHT R(rt) $wTL * L/2 + P(TL)b/L = 3466$ LBS
 $wLL * L/2 + P(LL)b/L = 2971$ LBS
 LEFT R(lt) $wTL * L/2 + P(TL)a/L = 3466$ LBS
 $wLL * L/2 + P(LL)a/L = 2971$ LBS
 $Rrt/wTL = 2.5$ FT $x' = 2.5$ FT

SUPPORT

RIGHT: POST/HGR/FDN: 2X6 1 STUDS
 HEIGHT: 8
 LEFT: POST/HGR/FDN: 2X6 1 STUDS
 HEIGHT: 8

MAXIMUM MOMENT

$M_{max} = R(rt) * x' - wTL * x'^2/2 = 4,333$ FT LBS
δ CRITERIA: L/ 360 L.L. δ L/ 240 T.L. δ

STRUCTURAL COMPOSITE LUMBER

TYPE: LVL (1.9E)

DEPTH (d)est. = 11 1/4 IN. $F_b = 2,600$ PSI
 WIDTH (b)est. = 1 1/4 IN. $F_v = 285$ PSI
 OF MEMBERS = 2 $E = 1.90E+06$ PSI
 $A_{req} = 9.92$ IN(2) $CF = 1.00$
 $S_{req} = 17.39$ IN(3) $A = 28.13$ IN(2)
 $I_{req}(TL) = 41.05$ IN(4) $S = 52.73$ IN(3)
 $I_{req}(LL) = 52.77$ IN(4) $I = 296.63$ IN(4)
 $BRG_{req} = 3$ IN.
 δ_{max} OCCURS @ 2.5 FT. (FROM RHS)
 δ_{max} (T.L.) = 0.03 IN. L/ 1734
 δ_{max} (L.L.) = 0.03 IN. L/ 2024

USE

(2) 1-1/4" X 11-1/4" LVL(S)

NOTE:

SAFETY FACTOR = 2.84



JOISTS

TJI SIMPLE SPAN WEB JOIST

LOCATION: **TYPICAL JOIST**

FLOOR LOAD

RJ - 1

DL = 15 PSF

DURATION INCREASE (D) = 1.15

LL = 100 PSF

JOIST SPACING = 16.0 IN.

TL = 115 PSF

JOIST SPAN (L) = 19.00 FT (MAX)

LOADING (w) = 153 PLF(TL)

133 PLF(LL)

REACTION = $w_{TL} * L / 2$ = 1457 $w_{LL} * L / 2$ = 1267MAXIMUM MOMENT (M) = $wL^2 / 8$ = 6,919 FT LBSMAXIMUM SHEAR (V) = $w(L/2 - d)$ = 1,278 LBS
 $\Delta (TL) = [22.5w(TL)L^4 / 9.26E+08 + 2.67 * w(TL)L^2 / (dx10^5)] = 0.58 \text{ IN.}$
 $\Delta (LL) = [22.5w(LL)L^4 / 9.26E+08 + 2.67 * w(LL)L^2 / (dx10^5)] = \Rightarrow L / 396 = 0.50 \text{ IN.}$
 $\Rightarrow L / 455$

MAXIMUM ALLOWABLE	SAFETY FACTOR
M = 11275 FT LBS	1.63
V = 2390 LBS	1.87
DEFLECTION	1.26

USE **14 IN. TJI® 560 @ 16.0 IN. O.C.**

CHECK HANGERS SAFETY FACTOR = 1.26

TJI SIMPLE SPAN WEB JOIST

LOCATION: **TYPICAL JOIST**

FLOOR LOAD

RJ - 1

DL = 15 PSF

DURATION INCREASE (D) = 1.15

LL = 100 PSF

JOIST SPACING = 24.0 IN.

TL = 115 PSF

JOIST SPAN (L) = 8.00 FT (MAX)

LOADING (w) = 230 PLF(TL)

200 PLF(LL)

REACTION = $w_{TL} * L / 2$ = 920 $w_{LL} * L / 2$ = 800MAXIMUM MOMENT (M) = $wL^2 / 8$ = 1,840 FT LBSMAXIMUM SHEAR (V) = $w(L/2 - d)$ = 652 LBS
 $\Delta (TL) = [22.5w(TL)L^4 / 4.15E+08 + 2.67 * w(TL)L^2 / (dx10^5)] = 0.08 \text{ IN.}$
 $\Delta (LL) = [22.5w(LL)L^4 / 4.15E+08 + 2.67 * w(LL)L^2 / (dx10^5)] = \Rightarrow L / 1213 = 0.07 \text{ IN.}$
 $\Rightarrow L / 1395$

MAXIMUM ALLOWABLE	SAFETY FACTOR
M = 4280 FT LBS	2.33
V = 1945 LBS	2.98
DEFLECTION	3.87

USE **14 IN. TJI® 210 @ 24.0 IN. O.C.**

SAFETY FACTOR = 2.33



SIMPLE SPAN WOOD JOISTLOCATION: **ROOF JOIST****RJ- 1****ROOF LOAD**

DURATION INCREASE (D) =	1.15	DL =	15 PSF
JOIST SPACING (I) =	24.0 IN.	LL =	100 PSF
JOIST SPAN =	6.0 FT	TL =	115 PSF
LOADING(w) =	230 PLF(TL)		
	200 PLF(LL)		
REACTION = wTL*L/2 =	690 LBS		
	wLL*L/2 = 600 LBS		

MAXIMUM MOMENT

$$M_{max} = [wTL/8*12]/(D*Fb*CF) = 1,035 \text{ FT LBS}$$

JOIST SIZE**GRADE: DF#2**

DEPTH (d)est. =	7.25 IN.	Fb =	900 PSI
WIDTH (b)est. =	1.5 IN.	Fv =	180 PSI
		Fc _L =	625 PSI
		E =	1.00E+06 PSI
Areq =	3.99 IN(2)	CF =	1.20
Sreq =	10.00 IN(3)	φ =	0.0
Ireq(TL) =	22.36 IN(4)	A =	10.88 IN(2)
Ireq(LL) =	29.16 IN(4)	S =	13.14 IN(3)
BRGreq =	3 IN.	I =	47.63 IN(4)

USE **2 X 8 's @ 24.0 IN. O.C.**

SAFETY FACTOR = 1.31

TJI SIMPLE SPAN WEB JOISTLOCATION: **TYPICAL JOIST****FJ - 1****FLOOR LOAD**

DURATION INCREASE (D) =	1.00	DL =	12 PSF
JOIST SPACING =	16.0 IN.	LL =	40 PSF
JOIST SPAN (L) =	14.50 FT (MAX)	TL =	52 PSF
LOADING (w) =	69 PLF(TL)		
	53 PLF(LL)		
REACTION = wTL*L/2 =	503		
	wLL*L/2 = 387		
MAXIMUM MOMENT (M) = wL^2/8 =	1,822 FT LBS		
MAXIMUM SHEAR (V) = w(L/2-d) =	434 LBS		
Δ (TL) =	[22.5w(TL)L^4]/(2.83E+08) +		
	+2.67*w(TL)L^2/(dx10^5) =	0.28 IN.	
Δ (LL) =	[22.5w(LL)L^4]/(2.83E+08) => L/ 629		
	+2.67*w(LL)L^2/(dx10^5) =	0.21 IN.	
		=> L/ 818	

<u>MAXIMUM ALLOWABLE</u>	<u>SAFETY FACTOR</u>
M = 3620 FT LBS	1.99
V = 1655 LBS	3.81
DEFLECTION	2.27

USE **11 7/8 IN. TJI® 210 @ 16.0 IN. O.C.**

SAFETY FACTOR = 1.99



FOOTINGS

	LOCATION	DEAD LOAD				LIVE LOAD	TOTAL LOAD	FOOTING SIZE	
CONT FTGS	INTERIOR BEARING WALL	ROOF						<div><div><div><div><div>1,106 PLF</div><div>1,500 PSF</div></div><div>= 0.7 FT</div><div>FC-18</div><div>USE:</div><div>1'-4" X CONT</div></div></div></div>	
		WIDTH FT	SPAN FT	LOAD PSF		LOAD PSF			
		0	x 0	@ 15	= 0 PLF	@ 100	= 0 PLF		
		FLOOR							
		WIDTH FT	SPAN FT	LOAD PSF		LOAD PSF			
		1	x 18	@ 12	= 216 PLF	@ 40	= 720 PLF		
		936 PLF							
WALL									
WIDTH FT	HEIGHT FT	LOAD PLF							
1	x 17	@ 10	= 170 PLF		170 PLF				
FOUNDATION									
THICK IN.	HEIGHT FT	LOAD PCF							
0	x 0	@ 150	= 0 PLF		0 PLF				
386 PLF				720 PLF	1,106 PLF				
CONT FTGS	EXTERIOR BEARING WALL	ROOF						<div><div><div><div><div>1,767 PLF</div><div>1,500 PSF</div></div><div>= 1.2 FT</div><div>FC-20</div><div>USE:</div><div>1'-8" X CONT</div></div></div></div>	
	USE AS MINIMUM FOOTING	WIDTH FT	SPAN FT	LOAD PSF		LOAD PSF			
		1	x 8	@ 15	= 120 PLF	@ 100	= 800 PLF		
		920 PLF							
		FLOOR							
		WIDTH FT	SPAN FT	LOAD PSF		LOAD PSF			
		1	x 7	@ 12	= 87 PLF	@ 40	= 290 PLF		
		377 PLF							
WALL									
WIDTH FT	HEIGHT FT	LOAD PLF							
1	x 18	@ 15	= 270 PLF		270 PLF				
FOUNDATION									
THICK IN.	HEIGHT FT	LOAD PCF							
8	x 2	@ 150	= 200 PLF		200 PLF				
677 PLF				1,090 PLF	1,767 PLF				
SPOT FTGS	INTERIOR LOAD FROM BM	REACTION FROM BEAM						<div><div><div><div><div>12,195 LBS</div><div>1,500 PSF</div></div><div>= 8.1 FT</div><div>2.85 FT SQR</div><div>FS-30</div><div>USE:</div><div>3'-0" X 3'-0"</div></div></div></div>	
		TRUSS				12075 LBS			12075 LBS
		FLOOR							
		WIDTH FT	SPAN FT	LOAD PSF		LOAD PSF			
		0	x 0	@ 12	= 0 LBS	@ 40	= 0 LBS		
		0 LBS							
		COLUMN							
	HEIGHT FT	LOAD PLF							
	8	@ 15	= 120 LBS		120 LBS				
FOUNDATION									
AREA IN.	HEIGHT FT	LOAD PCF							
0	x 0	@ 150	= 0 LBS		0 LBS				
120 LBS				0 LBS	LBS				



LATERAL DESIGN

LATERAL RESISTING SYSTEM :

PLYWOOD SHEAR WALLS AND ROOF DIAPHRAGM

WIND DESIGN CRITERIA

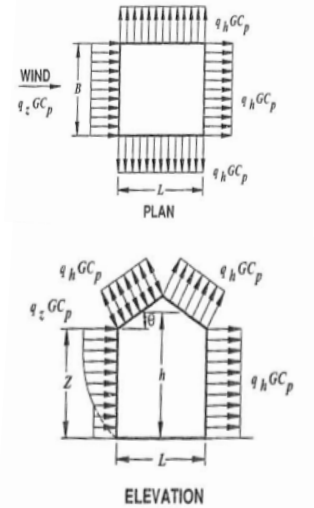
MWFRS DIRECTIONAL PROCEDURE (ASCE 7-10, CHAP 27)

BASIC WIND SPEED:	115	MPH	FIG 26.5-1A
WIND RISK CATEGORY:	II		
EXPOSURE CATEGORY:	C		
INT. PRESSURE COEF., GC_{pi} :	0.18		TBL 26.11-1
DIRECTION FACTOR, K_d :	0.85		TBL 26.6-1
TOPOGRAPHIC FACTOR, K_{zt} :	1.0		26.8.2
GUST-EFFECT FACTOR, G :	0.85		26.9.1
WINDWARD WALL C_p :	0.8		TBL 27.4-1
α :	10		
Z_g :	900		

SEISMIC DESIGN CRITERIA

EQUIVALENT LATERAL FORCE PROCEDURE (ASCE 7-10, 12.8)

SEISMIC RISK CATEGORY:	II
SEISMIC DESIGN CATEGORY:	B
IMPORTANCE FACTOR, I :	1.0
SHORT PERIOD ACCEL., S_{Ds} :	0.294
ONE SEC PERIOD ACCEL., S_{D1} :	0.080
RESPONSE MOD. COEF., R :	6.5
DEFLECTION AMP. FACTOR, C_d :	4.0
OVERSTRENGTH FACTOR, Ω_0 :	3.0
DESIGN BASE SHEAR, V :	0.047 *W



	DL (PSF)	LL (PSF)
ROOF LOAD	15	0
FLOOR LOAD	12	0
WALL LOAD	16	0



1-STORY ANALYSIS**ZONE A****WIND FORCES**

DEPTH, L =	30	FT	h/L =	1.00	
WIDTH, B =	33	FT	VELOCITY PRESSURE COEF., K_z :	0.90	TBL 27.3-1
h =	30	FT	VELOCITY PRESSURE COEF., K_h :	0.98	TBL 27.3-1
z =	20	FT	WIND VELOCITY PRESSURE, q_z :	26	PSF EQ. 27.3-1
C_{p1} =	-0.2	FROM FIG. 27.4-1	WIND VELOCITY PRESSURE, q_h :	28	PSF EQ. 27.3-1
C_{p2} =	0.2	FROM FIG. 27.4-1	ROOF WIND PRESSURE, p_1 :	-9.9	PSF
ROOF SLOPE	4	/12	ROOF WIND PRESSURE, p_2 :	9.9	PSF
ROOF SLOPE	16	DEGREES	ROOF DESIGN WIND PRESSURE, p_R :	2.8	PSF EQ. 27.4-1
			WALL DESIGN WIND PRESSURE, p_F :	22.7	PSF EQ. 27.4-1

DESIGN

	AREA	PRESSURE	LOAD (LBS)		ROOF DIAPHRAGM
ROOF	0.0	2.8	0	DIAPHRAGM LOAD =	6594 LBS
WALL	290.0	22.7	6594	SHEAR LENGTH =	33.0 FT
		TOTAL	6594	DIAPHRAGM SHEAR =	200 PLF

SEISMIC FORCES

	AREA (SF)	WEIGHTS (PSF)	ZONE WEIGHT (LBS)		ROOF DIAPHRAGM
ROOF	1220.0	15	18300	DIAPHRAGM LOAD =	1114 LBS
⊥ WALL	330.0	16	5280	SHEAR LENGTH =	33.0 FT
WALL	150.0	16	2400	DIAPHRAGM SHEAR =	34 PLF
		TOTAL	25980		
		SHEAR LOAD	1227	LBS	

SHEAR WALL LOADS

WIND SHEAR LOAD = TOTAL LOAD/1.4
4710 LBS

SEISMIC SHEAR LOAD
1227 LBS

WIND GOVERNS

S.W. HT	12	FT				
SHEAR LOAD	4710	LBS				
WALL LENGTH	14.0	2.0	UNIFORM DL (PLF)	222	PT LOAD (LBS)	555
			NET OVERLIFT (FT-LB)	26991	UPLIFT (LBS):	1928
			HOLD DOWN REQUIRE D			HOU2

SHEAR FORCE = SHEAR LOAD/SHEAR LENGTH SHEAR LENGTH = 14.0 FT

FW-1SHEAR WALL SHEAR = **336 PLF**

1-STORY ANALYSIS**ZONE B****WIND FORCES**

DEPTH, L =	30	FT	h/L =	1.00	
WIDTH, B =	33	FT	VELOCITY PRESSURE COEF., K_z :	0.90	TBL 27.3-1
h =	30	FT	VELOCITY PRESSURE COEF., K_h :	0.98	TBL 27.3-1
z =	20	FT	WIND VELOCITY PRESSURE, q_z :	26	PSF EQ. 27.3-1
C_{p1} =	-0.2	FROM FIG. 27.4-1	WIND VELOCITY PRESSURE, q_h :	28	PSF EQ. 27.3-1
C_{p2} =	0.2	FROM FIG. 27.4-1	ROOF WIND PRESSURE, p_1 :	-9.9	PSF
ROOF SLOPE	4	/12	ROOF WIND PRESSURE, p_2 :	9.9	PSF
ROOF SLOPE	16	DEGREES	ROOF DESIGN WIND PRESSURE, p_R :	2.8	PSF EQ. 27.4-1
			WALL DESIGN WIND PRESSURE, p_F :	22.7	PSF EQ. 27.4-1

DESIGN

	AREA	PRESSURE	LOAD (LBS)		ROOF DIAPHRAGM
ROOF	0.0	2.8	0	DIAPHRAGM LOAD =	6594 LBS
WALL	290.0	22.7	6594	SHEAR LENGTH =	33.0 FT
	TOTAL		6594	DIAPHRAGM SHEAR =	200 PLF

SEISMIC FORCES

	AREA (SF)	WEIGHTS (PSF)	ZONE WEIGHT (LBS)		ROOF DIAPHRAGM
ROOF	1220.0	15	18300	DIAPHRAGM LOAD =	1114 LBS
_ WALL	330.0	16	5280	SHEAR LENGTH =	33.0 FT
WALL	150.0	16	2400	DIAPHRAGM SHEAR =	34 PLF
	TOTAL		25980		
		SHEAR LOAD	1227	LBS	

SHEAR WALL LOADS

WIND SHEAR LOAD = TOTAL LOAD/1.4
4710 LBS

SEISMIC SHEAR LOAD
1227 LBS

WIND GOVERNS

S.W. HT	12	FT				
SHEAR LOAD	4710	LBS				
WALL LENGTH	TRIB. SPAN	UNIFORM DL (PLF)	PT LOAD (LBS)	NET OVERLAP (FT-LB)	UPLIFT (LBS):	HOLDOWN REQUIREMENT
5.5	2.0	222	555	15793	2871	H DU2
3.0	2.0	222	555	9447	3149	H DQ8
5.5	2.0	222	555	15793	2871	H DU2

SHEAR FORCE = SHEAR LOAD/SHEAR LENGTH SHEAR LENGTH = 14.0 FT

FW-1SHEAR WALL SHEAR = **336 PLF**

1-STORY ANALYSIS**ZONE 1****WIND FORCES**

DEPTH, L =	66 FT	h/L =	0.21	
WIDTH, B =	15 FT	VELOCITY PRESSURE COEF., K_z :	0.85	TBL 27.3-1
h =	14 FT	VELOCITY PRESSURE COEF., K_h :	0.85	TBL 27.3-1
z =	14 FT	WIND VELOCITY PRESSURE, q_z :	24	PSF EQ. 27.3-1
C_{p1} =	-0.2 FROM FIG. 27.4-1	WIND VELOCITY PRESSURE, q_h :	24	PSF EQ. 27.3-1
C_{p2} =	0.2 FROM FIG. 27.4-1	ROOF WIND PRESSURE, p_1 :	-8.6	PSF
ROOF SLOPE	4 /12	ROOF WIND PRESSURE, p_2 :	8.6	PSF
ROOF SLOPE	16 DEGREES	ROOF DESIGN WIND PRESSURE, p_R :	2.4	PSF EQ. 27.4-1
		WALL DESIGN WIND PRESSURE, p_F :	21.0	PSF EQ. 27.4-1

DESIGN

	AREA	PRESSURE	LOAD (LBS)		ROOF DIAPHRAGM
ROOF	0.0	2.4	0	DIAPHRAGM LOAD =	2521 LBS
WALL	120.0	21.0	2521	SHEAR LENGTH =	15.0 FT
	TOTAL		2521	DIAPHRAGM SHEAR =	168 PLF

SEISMIC FORCES

	AREA (SF)	WEIGHTS (PSF)	ZONE WEIGHT (LBS)		ROOF DIAPHRAGM
ROOF	1072.0	15	16080	DIAPHRAGM LOAD =	873 LBS
⊥ WALL	150.0	16	2400	SHEAR LENGTH =	15.0 FT
WALL	330.0	16	5280	DIAPHRAGM SHEAR =	58 PLF
	TOTAL		23760		
		SHEAR LOAD	1122	LBS	

SHEAR WALL LOADS

WIND SHEAR LOAD = TOTAL LOAD/1.4
1801 LBS

SEISMIC SHEAR LOAD
1122 LBS

WIND GOVERNS

S.W. HT 10 FT
SHEAR LOAD 1801 LBS

WALL	TRIB.	UNIFORM	PT LOAD	NET OVERTUR N	UPLIFT	HOLDOW N REQUIRE D
LENGTH	SPAN	DL (PLF)	(LBS)	(FT-LB)	(LBS):	
11.8	7.0	265	663	-22067	-1870	NOT REQ'D
10.5	7.0	265	663	-17828	-1698	NOT REQ'D
10.5	7.0	265	663	-17828	-1698	NOT REQ'D
9.0	7.0	265	663	-13492	-1499	NOT REQ'D
8.8	7.0	265	663	-12959	-1473	NOT REQ'D

SHEAR FORCE = SHEAR LOAD/SHEAR LENGTH SHEAR LENGTH = 50.6 FT

FW-1SHEAR WALL SHEAR = **36 PLF**

2-STORY ANALYSIS**ZONE B****WIND FORCES**

DEPTH, L =	66	FT	h/L =	0.45	
WIDTH, B =	15	FT	VELOCITY PRESS. COEF., K_{z2} :	0.90	TBL 27.3-1
h =	30	FT	VELOCITY PRESS. COEF., K_{z1} :	0.85	TBL 27.3-1
z_2 =	20	FT GROUND TO ROOF EAVE	VELOCITY PRESS. COEF., K_h :	0.98	TBL 27.3-1
z_1 =	10	FT GROUND TO UPPER FLR	VELOCITY PRESS., q_{z2} :	26	PSF EQ. 27.3-1
C_{p1} =	-0.2	FROM FIG. 27.4-1	VELOCITY PRESS., q_{z1} :	24	PSF EQ. 27.3-1
C_{p2} =	0.2	FROM FIG. 27.4-1	VELOCITY PRESS., q_h :	28	PSF EQ. 27.3-1
ROOF SLOPE	4	/12	ROOF PRESS., p_1 :	-9.9	PSF
ROOF SLOPE	16	DEGREES	ROOF PRESS., p_2 :	9.9	PSF
			ROOF DESIGN PRESS., p_R :	2.8	PSF EQ. 27.4-1
			UPPER WALL DESIGN PRESS., p_{F2} :	22.7	PSF EQ. 27.4-1
			MAIN WALL DESIGN PRESS., p_{F1} :	21.7	PSF EQ. 27.4-1

DESIGN

	AREA	PRESSURE	LOAD (LBS)
ROOF	0.0	2.8	0
UPPER WALL	157.5	22.7	3581
MAIN WALL	0.0	21.7	0
	TOTAL		3581
UPPER SHEAR WALL LOAD			3581
MAIN SHEAR WALL LOAD			3581

ROOF DIAPHRAGM

DIAPHRAGM LOAD =	3581	LBS
SHEAR LENGTH =	15.0	FT
DIAPHRAGM SHEAR =	239	PLF

FLOOR DIAPHRAGM

DIAPHRAGM LOAD =	0	LBS
SHEAR LENGTH =	15.0	FT
DIAPHRAGM SHEAR =	0	PLF

SEISMIC FORCES

	AREA (SF)	WEIGHTS (PSF)	ZONE WEIGHT (LBS)
ROOF	1290.0	15	19350
└┐ WALL	240.0	16	3840
WALL	594.0	16	9504
FLOOR	910.0	12	10920
└┐ WALL	60.0	16	960
WALL	330.0	16	5280
	TOTAL		49854
UPPER SHEAR WALL LOAD			1544 LBS
MAIN SHEAR WALL LOAD			2355 LBS

ROOF DIAPHRAGM

DIAPHRAGM LOAD =	1095	LBS
SHEAR LENGTH =	15.0	FT
DIAPHRAGM SHEAR =	73	PLF

FLOOR DIAPHRAGM

DIAPHRAGM LOAD =	561	LBS
SHEAR LENGTH =	15.0	FT
DIAPHRAGM SHEAR =	37	PLF



UPPER SHEAR WALL LOADS

WIND SHEAR LOAD = TOTAL LOAD/1.4

2558 LBS

SEISMIC SHEAR LOAD

1544 LBS

WIND GOVERNS

S.W. HT: 15 FT
 SHEAR LOAD: 2558 LBS

WALL	TRIB.	UNIFORM	PT LOAD	NET OVERTURN	UPLIFT	HOLDOWN REQUIRED
LENGTH	SPAN	DL (PLF)	(LBS)	(FT-LB)	(LBS):	
6.0	8.0	360	900	-3026	-504	NOT REQ'D
7.0	8.0	360	900	-4790	-684	NOT REQ'D
4.0	1.0	255	638	1313	328	ST-1
4.0	1.0	255	638	1313	328	ST-1
5.0	8.0	360	900	-1621	-324	NOT REQ'D

SHEAR WALL FORCE = SHEAR LOAD/SHEAR LENGTH = 26.0 FT

SW-1SHEAR WALL FORCE = **98 PLF**MAIN SHEAR WALL LOADS

WIND SHEAR LOAD = TOTAL LOAD/1.4

2558 LBS

SEISMIC SHEAR LOAD

2355 LBS

WIND GOVERNS

S.W. HT: 10 FT
 SHEAR LOAD: 2558 LBS

WALL	TRIB.	FORCE	UNIFORM	PT LOAD EACH SIDE	NET OVERTURN	UPLIFT	HOLDOWN SCHEDULE
LENGTH	SPAN	ABOVE	DL (PF)	(LBS)	(FT-LB)	FORCE	
19.0	7.0		265	663	-49375	-2599	NOT REQ'D
4.5	7.0		265	663	-3048	-677	NOT REQ'D
3.5	7.0		265	663	-1907	-545	NOT REQ'D
3.5	7.0		265	663	-1907	-545	NOT REQ'D
4.5	7.0		265	663	-3048	-677	NOT REQ'D
9.0	7.0		265	663	-11463	-1274	NOT REQ'D

SHEAR WALL FORCE = SHEAR LOAD/SHEAR LENGTH = 44.0 FT

FW-1SHEAR WALL FORCE = **58 PLF**



MEC

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JOB #: 08-078
CLIENT: WCLH
LOCATION: BRACKETS
RIB, GEJ

DESIGN CRITERIA

GOVERNING CODE: VARIES

SEISMIC DESIGN

DESIGN CATEGORY: **D2**
SRC (R) = **6.5**
S_s = **1.196**
S₁ = **0.435**
F_a = **1.50**
F_v = **1.00**
SDS = 2/3*F_a*S_s = **1.196**
SD1 = 2/3*F_v*S₁ = **0.290**
V = 1.2*SDS/R = **0.221**

WIND DESIGN

BASIC SPEED (3 SEC GUST): **90** MPH
EXPOSURE: **C**

HEAVY SNOW

COUNTY: **COUNTY**
A = **7.0**
P_o =
S =
A_o =
 $P_g = [P_o^2 + S^2(A - A_o)^2]^{0.5} =$
 $P_f = .7 * C_e * C_t * I * P_g =$
 $W_s = (0.2 + 0.025 * (A - A_o)) * P_f =$

DESIGN LOADING

ROOF LIVE LOAD = **40** PSF
ROOF DEAD LOAD = **#REF!** PSF
TOTAL ROOF LOAD = **#REF!** PSF
FLOOR LIVE LOAD = **40** PSF
FLOOR DEAD LOAD = **#REF!** PSF
TOTAL FLOOR LOAD = **#REF!** PSF
WALL DEAD LOAD: **#REF!** PSF

SOILS

SITE CLASSIFICATION: **D**
SOIL BEARING PRESSURE: **1,500** PSF
FROST DEPTH: **30** INCHES

PSF EXPOSURE FACTOR (C_e) = **1.0**
PSF THERMAL FACTOR (C_t) = **1.1**
PSF IMPORTANCE FACTOR (I) = **1.0**

STRUCTURAL DESIGN INFORMATION

POST AND TIMBER DESIGN VALUES*

*NDS 2005, TABLE 4D

GLB - 24F-V4 DF/DF	SPF#1 & BTR	LVL
G = 0.50 GLB	G = 0.50 SPF #1	G = 0.50 LVL
Fb = 2,400 PSI	Fb = 850 PSI	Fb = 3,300 PSI
Ft = 1,100 PSI	Ft = 550 PSI	Ft = 2,300 PSI
Fv = 265 PSI	Fv = 180 PSI	Fv = 290 PSI
Fc _⊥ = 650 PSI	Fc _⊥ = 625 PSI	Fc _⊥ = 575 PSI
Fc = 1,650 PSI	Fc = 1,050 PSI	Fc = 725 PSI
E = 1.80E+06 PSI	E = 1.60E+06 PSI	E = 2.00E+06 PSI

LATERAL DESIGN VALUES, 2005 NDS

EQN I _m : $Z = D I_m F_{em} / R_d$, $R_d = 4K_0$	D = D, THRU-BOLTS; D_r, LAG SCREWS
EQN I _s : $Z = D I_s F_{es} / R_d$, $R_d = 4K_0$	$F_{yb} = 45,000$ psi ($D \geq 3/8"$)
EQN II: $Z = k_1 D I_s F_{es} / R_d$, $R_d = 3.6K_0$	$R_e = F_{em} / F_{es}$
EQN III _m : $Z = k_2 D I_m F_{em} / [(1 + 2R_e) R_d]$, $R_d = 3.2K_0$	$R_t = I_m / I_s$
EQN III _s : $Z = k_3 D I_s F_{em} / [(2 + R_e) R_d]$, $R_d = 3.2K_0$	$I_m =$ LAG PENETRATION W/O TAPER
EQN IV: $Z = (D^2 / R_d) * \{2F_{em} F_{yb} / [3(1 + R_e)]\}^{0.5}$, $R_d = 3.2K_0$	$I_s =$ THICKNESS OF BRACKET
	$F_{em\perp} = 6,100G / D^{0.5}$
	$F_{em\parallel} = 11,200G$
	$F_{es} = 87,000$ psi (A36 STEEL)
	$k_1 = [(R_e + R_e^2(1+R_t+R_t^2) + R_t^2R_e^3)]^{0.5} - R_e(1+R_t) / (1+R_e)$
	$k_2 = -1 + [2(1+R_e) + (2F_{yb}(1+2R_e)D^2) / (3F_{em}^2)]^{0.5}$
	$k_3 = -1 + [\{2(1+R_e) \setminus R_e\} + (2F_{yb}(2+R_e)D^2) / (3F_{em}^2)]^{0.5}$

WCLH BRACKET

BRKT NO: **C** GF **18252** LBS

BRKT SHEAR RESIST. USING FOR BRG:	SPF #1	NDS VARIABLES
BRACKET LOADED IN SHEAR (V / H):	V	$G_{Species} = \mathbf{0.50}$ $F_{em\perp} = \mathbf{2232.7}$
LOADING PARA OR PERP TO GRAIN:	PARA	$Lag D_r = \mathbf{0.371}$ $F_{em\parallel} = \mathbf{5600.0}$
POS. CONNECTION TO ALL MEMBERS?	Y	$Bolt D = \mathbf{1.000}$ $F_{es} = \mathbf{87000}$
BRACKET THICKNESS (IN.) =	0.375	$F_{yb} = \mathbf{45000}$ $k_{1\perp} = \mathbf{0.183}$
FASTENER TYPE (LAGS/BOLTS) =	BOLTS	$R_{e\perp} = \mathbf{0.0257}$ $k_{1\parallel} = \mathbf{0.426}$
		$R_{e\parallel} = \mathbf{0.0644}$ $k_{2\perp} = \mathbf{0.563}$
		$R_t = \mathbf{16.000}$ $k_{2\parallel} = \mathbf{0.451}$
		$I_m = \mathbf{6.000}$ $k_{3\perp} = \mathbf{15.537}$
		$I_s = \mathbf{0.375}$ $k_{3\parallel} = \mathbf{9.569}$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) = 1
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. = 0
NO. LAG SCREWS =	21	NO. BOLTS D.S. = 3
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) = 6
RESISTANCE FOR EACH LAG SCREW	SINGLE SHEAR RES. / BOLT	DOUBLE SHEAR RES. / BOLT
EQN I _m : 3116 LBS	EQN I _m : 8400 LBS	EQN I _m : 8400 LBS
EQN I _s : 3026 LBS	EQN I _s : 8156 LBS	EQN I _s : 16313 LBS
EQN II: 1432 LBS	EQN II: 3859 LBS	
EQN III _m : 1556 LBS	EQN III _m : 4195 LBS	
EQN III _s : 1129 LBS	EQN III _s : 3042 LBS	EQN III _s : 6084 LBS
EQN IV: 540 LBS	EQN IV: 3926 LBS	EQN IV: 7852 LBS
RESIST _{DES} = 540 LBS / LAG	RESIST _{DES} = 3042 LBS / BOLT	RESIST _{DES} = 6084 LBS / BOLT
RESIST _{GRP} = 0 LBS	RESIST _{GRP} = 0 LBS	RESIST _{GRP} = 18252 LBS

SUMMARY

BRKT # **C** GOOD FOR **18252** LBS

WCLH BRACKET**BRKT NO: D GF 18252 LBS**

BRKT SHEAR RESIST. USING FOR BRG: SPF #1		NDS VARIABLES	
BRACKET LOADED IN SHEAR (V / H):	V	$G_{Species} = 0.50$	$F_{em\perp} = 2232.7$
LOADING PARA OR PERP TO GRAIN:	PARA	$Lag D_r = 0.371$	$F_{em\parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$Bolt D = 1.000$	$F_{es} = 87000$
BRACKET THICKNESS (IN.) =	0.375	$F_{yb} = 45000$	$k_{1\perp} = 0.183$
FASTENER TYPE (LAGS/BOLTS) =	BOLTS	$R_{e\perp} = 0.0257$	$k_{1\parallel} = 0.426$
		$R_{e\parallel} = 0.0644$	$k_{2\perp} = 0.563$
		$R_t = 16.000$	$k_{2\parallel} = 0.451$
		$l_m = 6.000$	$k_{3\perp} = 15.537$
		$l_s = 0.375$	$k_{3\parallel} = 9.569$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	1
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	21	NO. BOLTS D.S. =	3
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	6
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	
EQN I _m :	3116 LBS	EQN I _m :	8400 LBS
EQN I _s :	3026 LBS	EQN I _s :	8156 LBS
EQN II:	1432 LBS	EQN II:	3859 LBS
EQN III _m :	1556 LBS	EQN III _m :	4195 LBS
EQN III _s :	1129 LBS	EQN III _s :	3042 LBS
EQN IV:	540 LBS	EQN IV:	3926 LBS
DOUBLE SHEAR RES. / BOLT			
EQN I _m :	8400 LBS	EQN I _m :	8400 LBS
EQN I _s :	16313 LBS	EQN I _s :	16313 LBS
EQN III _s :	6084 LBS	EQN III _s :	6084 LBS
EQN IV:	7852 LBS	EQN IV:	7852 LBS
RESIST _{DES} =	540 LBS / LAG	RESIST _{DES} =	3042 LBS / BOLT
RESIST _{GRP} =	0 LBS	RESIST _{GRP} =	0 LBS
		RESIST _{DES} =	6084 LBS / BOLT
		RESIST _{GRP} =	18252 LBS

SUMMARY**BRKT # D GOOD FOR 18252 LBS****WCLH BRACKET****BRKT NO: E GF 24337 LBS**

BRKT SHEAR RESIST. USING FOR BRG: SPF #1		NDS VARIABLES	
BRACKET LOADED IN SHEAR (V / H):	V	$G_{Species} = 0.50$	$F_{em\perp} = 2232.7$
LOADING PARA OR PERP TO GRAIN:	PARA	$Lag D_r = 0.371$	$F_{em\parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$Bolt D = 1.000$	$F_{es} = 87000$
BRACKET THICKNESS (IN.) =	0.375	$F_{yb} = 45000$	$k_{1\perp} = 0.183$
FASTENER TYPE (LAGS/BOLTS) =	BOLTS	$R_{e\perp} = 0.0257$	$k_{1\parallel} = 0.426$
		$R_{e\parallel} = 0.0644$	$k_{2\perp} = 0.563$
		$R_t = 16.000$	$k_{2\parallel} = 0.451$
		$l_m = 6.000$	$k_{3\perp} = 15.537$
		$l_s = 0.375$	$k_{3\parallel} = 9.569$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	1
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	21	NO. BOLTS D.S. =	4
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	6
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	
EQN I _m :	3116 LBS	EQN I _m :	8400 LBS
EQN I _s :	3026 LBS	EQN I _s :	8156 LBS
EQN II:	1432 LBS	EQN II:	3859 LBS
EQN III _m :	1556 LBS	EQN III _m :	4195 LBS
EQN III _s :	1129 LBS	EQN III _s :	3042 LBS
EQN IV:	540 LBS	EQN IV:	3926 LBS
DOUBLE SHEAR RES. / BOLT			
EQN I _m :	8400 LBS	EQN I _m :	8400 LBS
EQN I _s :	16313 LBS	EQN I _s :	16313 LBS
EQN III _s :	6084 LBS	EQN III _s :	6084 LBS
EQN IV:	7852 LBS	EQN IV:	7852 LBS
RESIST _{DES} =	540 LBS / LAG	RESIST _{DES} =	3042 LBS / BOLT
RESIST _{GRP} =	0 LBS	RESIST _{GRP} =	0 LBS
		RESIST _{DES} =	6084 LBS / BOLT
		RESIST _{GRP} =	24337 LBS

SUMMARY**BRKT # E GOOD FOR 24337 LBS**

WCLH BRACKET**BRKT NO: F GF 30421 LBS**

BRKT SHEAR RESIST. USING FOR BRG: SPF #1		NDS VARIABLES	
BRACKET LOADED IN SHEAR (V / H):	V	$G_{\text{Species}} = 0.50$	$F_{em \perp} = 2232.7$
LOADING PARA OR PERP TO GRAIN:	PARA	$\text{Lag } D_r = 0.371$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$\text{Bolt } D = 1.000$	$F_{es} = 87000$
BRACKET THICKNESS (IN.) =	0.375	$F_{yb} = 45000$	$k_{1 \perp} = 0.183$
FASTENER TYPE (LAGS/BOLTS) =	BOLTS	$R_{e \perp} = 0.0257$	$k_{1 \parallel} = 0.426$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.563$
		$R_t = 16.000$	$k_{2 \parallel} = 0.451$
		$I_m = 6.000$	$k_{3 \perp} = 15.537$
		$I_s = 0.375$	$k_{3 \parallel} = 9.569$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	1
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	21	NO. BOLTS D.S. =	5
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	6
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	
EQN I _m :	3116 LBS	EQN I _m :	8400 LBS
EQN I _s :	3026 LBS	EQN I _s :	8156 LBS
EQN II:	1432 LBS	EQN II:	3859 LBS
EQN III _m :	1556 LBS	EQN III _m :	4195 LBS
EQN III _s :	1129 LBS	EQN III _s :	3042 LBS
EQN IV:	540 LBS	EQN IV:	3926 LBS
RESISTANCE FOR EACH LAG SCREW		DOUBLE SHEAR RES. / BOLT	
EQN I _m :	3116 LBS	EQN I _m :	8400 LBS
EQN I _s :	3026 LBS	EQN I _s :	16313 LBS
EQN II:	1432 LBS		
EQN III _m :	1556 LBS		
EQN III _s :	1129 LBS	EQN III _s :	6084 LBS
EQN IV:	540 LBS	EQN IV:	7852 LBS
RESIST _{DES} =	540 LBS / LAG	RESIST _{DES} =	3042 LBS / BOLT
RESIST _{GRP} =	0 LBS	RESIST _{GRP} =	0 LBS
		RESIST _{DES} =	6084 LBS / BOLT
		RESIST _{GRP} =	30421 LBS

SUMMARY**BRKT # F GOOD FOR 30421 LBS****WCLH BRACKET****BRKT NO: G GF 24337 LBS**

BRKT SHEAR RESIST. USING FOR BRG: SPF #1		NDS VARIABLES	
BRACKET LOADED IN SHEAR (V / H):	V	$G_{\text{Species}} = 0.50$	$F_{em \perp} = 2232.7$
LOADING PARA OR PERP TO GRAIN:	PARA	$\text{Lag } D_r = 0.371$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$\text{Bolt } D = 1.000$	$F_{es} = 87000$
BRACKET THICKNESS (IN.) =	0.375	$F_{yb} = 45000$	$k_{1 \perp} = 0.183$
FASTENER TYPE (LAGS/BOLTS) =	BOLTS	$R_{e \perp} = 0.0257$	$k_{1 \parallel} = 0.426$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.563$
		$R_t = 16.000$	$k_{2 \parallel} = 0.451$
		$I_m = 6.000$	$k_{3 \perp} = 15.537$
		$I_s = 0.375$	$k_{3 \parallel} = 9.569$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	1
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	21	NO. BOLTS D.S. =	4
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	6
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	
EQN I _m :	3116 LBS	EQN I _m :	8400 LBS
EQN I _s :	3026 LBS	EQN I _s :	8156 LBS
EQN II:	1432 LBS	EQN II:	3859 LBS
EQN III _m :	1556 LBS	EQN III _m :	4195 LBS
EQN III _s :	1129 LBS	EQN III _s :	3042 LBS
EQN IV:	540 LBS	EQN IV:	3926 LBS
RESISTANCE FOR EACH LAG SCREW		DOUBLE SHEAR RES. / BOLT	
EQN I _m :	3116 LBS	EQN I _m :	8400 LBS
EQN I _s :	3026 LBS	EQN I _s :	16313 LBS
EQN II:	1432 LBS		
EQN III _m :	1556 LBS		
EQN III _s :	1129 LBS	EQN III _s :	6084 LBS
EQN IV:	540 LBS	EQN IV:	7852 LBS
RESIST _{DES} =	540 LBS / LAG	RESIST _{DES} =	3042 LBS / BOLT
RESIST _{GRP} =	0 LBS	RESIST _{GRP} =	0 LBS
		RESIST _{DES} =	6084 LBS / BOLT
		RESIST _{GRP} =	24337 LBS

SUMMARY**BRKT # G GOOD FOR 24337 LBS**

WCLH BRACKET**BRKT NO: H GF 30421 LBS****BRKT SHEAR RESIST. USING FOR BRG: SPF #1****NDS VARIABLES**

BRACKET LOADED IN SHEAR (V / H):	V	$G_{Species} = 0.50$	$F_{em \perp} = 2232.7$
LOADING PARA OR PERP TO GRAIN:	PARA	$Lag D_r = 0.371$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$Bolt D = 1.000$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =	0.375	$F_{yb} = 45000$	$k_{1 \perp} = 0.183$
FASTENER TYPE (LAGS/BOLTS) =	BOLTS	$R_{e \perp} = 0.0257$	$k_{1 \parallel} = 0.426$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.563$
		$R_t = 16.000$	$k_{2 \parallel} = 0.451$
		$l_m = 6.000$	$k_{3 \perp} = 15.537$
		$l_s = 0.375$	$k_{3 \parallel} = 9.569$

BRACKET SECURED WITH LAG SCREWS**BRACKET SECURED WITH THRU-BOLTS**

LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	1
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	21	NO. BOLTS D.S. =	5
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	6

RESISTANCE FOR EACH LAG SCREW**SINGLE SHEAR RES. / BOLT****DOUBLE SHEAR RES. / BOLT**

EQN I_m:	3116 LBS	EQN I_m:	8400 LBS	EQN I_m:	8400 LBS
EQN I_s:	3026 LBS	EQN I_s:	8156 LBS	EQN I_s:	16313 LBS
EQN II:	1432 LBS	EQN II:	3859 LBS		
EQN III_m:	1556 LBS	EQN III_m:	4195 LBS		
EQN III_s:	1129 LBS	EQN III:	3042 LBS	EQN III_s:	6084 LBS
EQN IV:	540 LBS	EQN IV:	3926 LBS	EQN IV:	7852 LBS
RESIST_{DES} =	540 LBS / LAG	RESIST_{DES} =	3042 LBS / BOLT	RESIST_{DES} =	6084 LBS / BOLT
RESIST_{GRP} =	0 LBS	RESIST_{GRP} =	0 LBS	RESIST_{GRP} =	30421 LBS

SUMMARY**BRKT # H GOOD FOR 30421 LBS**

WCLH BRACKET			
BRKT NO:	BK69Z	GF	4655 LBS
BRKT SHEAR RESIST. USING FOR BRG:	SPF #1	NDS VARIABLES	
BRACKET LOADED IN SHEAR (V / H):	V	$G_{\text{Species}} = 0.50$	$F_{em \perp} = 3665.6$
LOADING PARA OR PERP TO GRAIN:	PARA	$Lag D_r = 0.371$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$Bolt D = 0.500$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =	0.250	$F_{yb} = 45000$	$k_{1 \perp} = 0.247$
FASTENER TYPE (LAGS/BOLTS) =	LAGS	$R_{e \perp} = 0.0421$	$k_{1 \parallel} = 0.364$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.480$
		$R_t = 13.500$	$k_{2 \parallel} = 0.480$
		$l_m = 3.375$	$k_{3 \perp} = 8.288$
		$l_s = 0.250$	$k_{3 \parallel} = 6.578$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	1/2
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	9	NO. BOLTS D.S. =	0
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	5 1/8
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	DOUBLE SHEAR RES. / BOLT
EQN I _m :	1753 LBS	EQN I _m :	3588 LBS
EQN I _s :	2017 LBS	EQN I _s :	5438 LBS
EQN II:	815 LBS	EQN II:	
EQN III _m :	933 LBS	EQN III _m :	
EQN III _s :	517 LBS	EQN III _s :	1394 LBS
EQN IV:	540 LBS	EQN IV:	1963 LBS
RESIST _{DES} =	517 LBS / LAG	RESIST _{DES} =	697 LBS / BOLT
RESIST _{GRP} =	4655 LBS	RESIST _{GRP} =	0 LBS
SUMMARY			
BRKT # BK69Z GOOD FOR 4655 LBS			

WCLH BRACKET			
BRKT NO:	BK67Z	GF	1552 LBS
BRKT SHEAR RESIST. USING FOR BRG:	SPF #1	NDS VARIABLES	
BRACKET LOADED IN SHEAR (V / H):	V	$G_{\text{Species}} = 0.50$	$F_{\text{em}_\perp} = 3665.6$
LOADING PARA OR PERP TO GRAIN:	PARA	$\text{Lag } D_r = 0.371$	$F_{\text{em}_\parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$\text{Bolt } D = 0.500$	$F_{\text{cs}} = 87000$
BRACKET THICKNESS (IN.) =	0.250	$F_{\text{yb}} = 45000$	$k_{1_\perp} = 0.247$
FASTENER TYPE (LAGS/BOLTS) =	LAGS	$R_{e_\perp} = 0.0421$	$k_{1_\parallel} = 0.364$
		$R_{e_\parallel} = 0.0644$	$k_{2_\perp} = 0.480$
		$R_t = 13.500$	$k_{2_\parallel} = 0.480$
		$l_m = 3.375$	$k_{3_\perp} = 8.288$
		$l_s = 0.250$	$k_{3_\parallel} = 6.578$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	1/2
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	3	NO. BOLTS D.S. =	0
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	5 1/8
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	DOUBLE SHEAR RES. / BOLT
EQN I_m:	1753 LBS	EQN I_m:	3588 LBS
EQN I_s:	2017 LBS	EQN I_s:	5438 LBS
EQN II:	815 LBS	EQN II:	
EQN III_m:	933 LBS	EQN III_m:	
EQN III_s:	517 LBS	EQN III_s:	1394 LBS
EQN IV:	540 LBS	EQN IV:	1963 LBS
RESIST_{DES} =	517 LBS / LAG	RESIST_{DES} =	697 LBS / BOLT
RESIST_{GRP} =	1552 LBS	RESIST_{GRP} =	0 LBS
SUMMARY			
BRKT # BK67Z GOOD FOR 1552 LBS			

WCLH BRACKET**BRKT NO: BK65RSQ GF 6206 LBS**

BRKT SHEAR RESIST. USING FOR BRG:		SPF #1	NDS VARIABLES		
BRACKET LOADED IN SHEAR (V / H):	V		$G_{\text{Species}} = 0.50$	$F_{em \perp} = 3665.6$	
LOADING PARA OR PERP TO GRAIN:	PARA		$\text{Lag } D_r = 0.371$	$F_{em \parallel} = 5600.0$	
POS. CONNECTION TO ALL MEMBERS?	Y		$\text{Bolt } D = 0.500$	$F_{cs} = 87000$	
BRACKET THICKNESS (IN.) =	0.250		$F_{yb} = 45000$	$k_{1 \perp} = 0.247$	
FASTENER TYPE (LAGS/BOLTS) =	LAGS		$R_{e \perp} = 0.0421$	$k_{1 \parallel} = 0.364$	
			$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.480$	
			$R_t = 13.500$	$k_{2 \parallel} = 0.480$	
			$l_m = 3.375$	$k_{3 \perp} = 8.288$	
			$l_s = 0.250$	$k_{3 \parallel} = 6.578$	
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS			
LAG SCREW DIA. (IN.) =	1/2		BOLT DIA. (IN.) =	1/2	
LAG LENGTH (IN.) =	4.0		NO. BOLTS S.S. =	0	
NO. LAG SCREWS =	12		NO. BOLTS D.S. =	0	
MIN. PEN. REQ'D (IN.) =	2.5		MAIN MEMBER THICKNESS (IN.) =	5 1/8	
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT		DOUBLE SHEAR RES. / BOLT	
EQN I _m :	1753 LBS	EQN I _m :	3588 LBS	EQN I _m :	3588 LBS
EQN I _s :	2017 LBS	EQN I _s :	2719 LBS	EQN I _s :	5438 LBS
EQN II:	815 LBS	EQN II:	1098 LBS		
EQN III _m :	933 LBS	EQN III _m :	1908 LBS		
EQN III _s :	517 LBS	EQN III _s :	697 LBS	EQN III _s :	1394 LBS
EQN IV:	540 LBS	EQN IV:	982 LBS	EQN IV:	1963 LBS
RESIST _{DES} =	517 LBS / LAG	RESIST _{DES} =	697 LBS / BOLT	RESIST _{DES} =	1394 LBS / BOLT
RESIST _{GRP} =	6206 LBS	RESIST _{GRP} =	0 LBS	RESIST _{GRP} =	0 LBS

SUMMARY**BRKT # BK65RSQ GOOD FOR 6206 LBS**

WCLH BRACKET			
BRKT NO:	BK65R	GF	6206 LBS
BRKT SHEAR RESIST. USING FOR BRG:	SPF #1	NDS VARIABLES	
BRACKET LOADED IN SHEAR (V / H):	V	$G_{\text{Species}} = 0.50$	$F_{em \perp} = 3665.6$
LOADING PARA OR PERP TO GRAIN:	PARA	$Lag D_r = 0.371$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$Bolt D = 0.500$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =	0.250	$F_{yb} = 45000$	$k_{1 \perp} = 0.247$
FASTENER TYPE (LAGS/BOLTS) =	LAGS	$R_{e \perp} = 0.0421$	$k_{1 \parallel} = 0.364$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.480$
		$R_t = 13.500$	$k_{2 \parallel} = 0.480$
		$l_m = 3.375$	$k_{3 \perp} = 8.288$
		$l_s = 0.250$	$k_{3 \parallel} = 6.578$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	1/2
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	12	NO. BOLTS D.S. =	0
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	5 1/8
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	DOUBLE SHEAR RES. / BOLT
EQN I _m :	1753 LBS	EQN I _m :	3588 LBS
EQN I _s :	2017 LBS	EQN I _s :	2719 LBS
EQN II:	815 LBS	EQN II:	1098 LBS
EQN III _m :	933 LBS	EQN III _m :	1908 LBS
EQN III _s :	517 LBS	EQN III _s :	697 LBS
EQN IV:	540 LBS	EQN IV:	982 LBS
RESIST _{DES} =	517 LBS / LAG	RESIST _{DES} =	697 LBS / BOLT
RESIST _{GRP} =	6206 LBS	RESIST _{GRP} =	0 LBS
		RESIST _{DES} =	1394 LBS / BOLT
		RESIST _{GRP} =	0 LBS
SUMMARY			
BRKT # BK65R GOOD FOR 6206 LBS			

WCLH BRACKET**BRKT NO: BK65LSQ GF 6206 LBS**

BRKT SHEAR RESIST. USING FOR BRG:		SPF #1	NDS VARIABLES		
BRACKET LOADED IN SHEAR (V / H):	V		$G_{Species} = 0.50$	$F_{em \perp} = 3665.6$	
LOADING PARA OR PERP TO GRAIN:	PARA		$Lag D_r = 0.371$	$F_{em \parallel} = 5600.0$	
POS. CONNECTION TO ALL MEMBERS?	Y		$Bolt D = 0.500$	$F_{cs} = 87000$	
BRACKET THICKNESS (IN.) =	0.250		$F_{yb} = 45000$	$k_{1 \perp} = 0.247$	
FASTENER TYPE (LAGS/BOLTS) =	LAGS		$R_{e \perp} = 0.0421$	$k_{1 \parallel} = 0.364$	
			$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.480$	
			$R_t = 13.500$	$k_{2 \parallel} = 0.480$	
			$l_m = 3.375$	$k_{3 \perp} = 8.288$	
			$l_s = 0.250$	$k_{3 \parallel} = 6.578$	
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS			
LAG SCREW DIA. (IN.) =	1/2		BOLT DIA. (IN.) =	1/2	
LAG LENGTH (IN.) =	4.0		NO. BOLTS S.S. =	0	
NO. LAG SCREWS =	12		NO. BOLTS D.S. =	0	
MIN. PEN. REQ'D (IN.) =	2.5		MAIN MEMBER THICKNESS (IN.) =	5 1/8	
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT		DOUBLE SHEAR RES. / BOLT	
EQN I _m :	1753 LBS	EQN I _m :	3588 LBS	EQN I _m :	3588 LBS
EQN I _s :	2017 LBS	EQN I _s :	2719 LBS	EQN I _s :	5438 LBS
EQN II:	815 LBS	EQN II:	1098 LBS		
EQN III _m :	933 LBS	EQN III _m :	1908 LBS		
EQN III _s :	517 LBS	EQN III _s :	697 LBS	EQN III _s :	1394 LBS
EQN IV:	540 LBS	EQN IV:	982 LBS	EQN IV:	1963 LBS
RESIST _{DES} =	517 LBS / LAG	RESIST _{DES} =	697 LBS / BOLT	RESIST _{DES} =	1394 LBS / BOLT
RESIST _{GRP} =	6206 LBS	RESIST _{GRP} =	0 LBS	RESIST _{GRP} =	0 LBS

SUMMARY**BRKT # BK65LSQ GOOD FOR 6206 LBS**

WCLH BRACKET			
BRKT NO: BK65L		GF	6206 LBS
BRKT SHEAR RESIST. USING FOR BRG:		SPF #1	NDS VARIABLES
BRACKET LOADED IN SHEAR (V / H):		V	G _{Species} = 0.50
LOADING PARA OR PERP TO GRAIN:		PARA	Lag D _r = 0.371
POS. CONNECTION TO ALL MEMBERS?		Y	Bolt D = 0.500
BRACKET THICKNESS (IN.) =		0.250	F _{yb} = 45000
FASTENER TYPE (LAGS/BOLTS) =		LAGS	R _{c⊥} = 0.0421
			R _{c∥} = 0.0644
			R _t = 13.500
			l _m = 3.375
			l _s = 0.250
			F _{em⊥} = 3665.6
			F _{em∥} = 5600.0
			F _{cs} = 87000
			k _{1⊥} = 0.247
			k _{1∥} = 0.364
			k _{2⊥} = 0.480
			k _{2∥} = 0.480
			k _{3⊥} = 8.288
			k _{3∥} = 6.578
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =		1/2	BOLT DIA. (IN.) =
LAG LENGTH (IN.) =		4.0	NO. BOLTS S.S. =
NO. LAG SCREWS =		12	NO. BOLTS D.S. =
MIN. PEN. REQ'D (IN.) =		2.5	MAIN MEMBER THICKNESS (IN.) =
			5 1/8
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	
EQN I _m : 1753 LBS		EQN I _m : 3588 LBS	
EQN I _s : 2017 LBS		EQN I _s : 2719 LBS	
EQN II: 815 LBS		EQN II: 1098 LBS	
EQN III _m : 933 LBS		EQN III _m : 1908 LBS	
EQN III _s : 517 LBS		EQN III _s : 697 LBS	
EQN IV: 540 LBS		EQN IV: 982 LBS	
RESIST _{DES} = 517 LBS / LAG		RESIST _{DES} = 697 LBS / BOLT	
RESIST _{GRP} = 6206 LBS		RESIST _{GRP} = 0 LBS	
DOUBLE SHEAR RES. / BOLT			
EQN I _m : 3588 LBS		EQN I _s : 5438 LBS	
EQN III _s : 1394 LBS		EQN IV: 1963 LBS	
RESIST _{DES} = 1394 LBS / BOLT		RESIST _{GRP} = 0 LBS	
<div> SUMMARY BRKT # BK65L GOOD FOR 6206 LBS </div>			

WCLH BRACKET			
BRKT NO:	BK60	GF	621 LBS
BRKT SHEAR RESIST. USING FOR BRG:	LVL	NDS VARIABLES	
BRACKET LOADED IN SHEAR (V / H):	V	G_{Species} = 0.50	F_{em,⊥} = 3665.6
LOADING PARA OR PERP TO GRAIN:	PERP	Lag D_r = 0.371	F_{em} = 5600.0
POS. CONNECTION TO ALL MEMBERS?	Y	Bolt D = 0.500	F_{cs} = 87000
BRACKET THICKNESS (IN.) =	0.250	F_{yb} = 45000	k_{1,⊥} = 0.138
FASTENER TYPE (LAGS/BOLTS) =	LAGS	R_{e,⊥} = 0.0421	k_{1,} = 0.184
		R_{e,} = 0.0644	k_{2,⊥} = 0.652
		R_t = 5.500	k_{2,} = 0.652
		l_m = 1.375	k_{3,⊥} = 8.288
		l_s = 0.250	k_{3,} = 6.578
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	1/2
LAG LENGTH (IN.) =	2.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	2	NO. BOLTS D.S. =	0
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	5 1/8
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	DOUBLE SHEAR RES. / BOLT
EQN I_m:	467 LBS	EQN I_m:	2348 LBS
EQN I_s:	2017 LBS	EQN I_s:	5438 LBS
EQN II:	310 LBS	EQN II:	418 LBS
EQN III_m:	352 LBS	EQN III_m:	1766 LBS
EQN III_s:	431 LBS	EQN III:	581 LBS
EQN IV:	442 LBS	EQN IV:	803 LBS
RESIST_{DES} =	310 LBS / LAG	RESIST_{DES} =	418 LBS / BOLT
RESIST_{GRP} =	621 LBS	RESIST_{GRP} =	0 LBS
SUMMARY			
BRKT # BK60 GOOD FOR 621 LBS			

WCLH BRACKET			
BRKT NO:	BK56	GF	276 LBS
BRKT SHEAR RESIST. USING FOR BRG:	SPF #1	NDS VARIABLES	
BRACKET LOADED IN SHEAR (V / H):	V	$G_{Species} = 0.50$	$F_{em \perp} = 4337.2$
LOADING PARA OR PERP TO GRAIN:	PARA	$Lag D_r = 0.265$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$Bolt D = 0.500$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =	0.250	$F_{yb} = 45000$	$k_{1 \perp} = 0.183$
FASTENER TYPE (LAGS/BOLTS) =	LAGS	$R_{e \perp} = 0.0499$	$k_{1 \parallel} = 0.223$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.501$
		$R_t = 7.500$	$k_{2 \parallel} = 0.501$
		$l_m = 1.875$	$k_{3 \perp} = 6.619$
		$l_s = 0.250$	$k_{3 \parallel} = 5.745$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	3/8	BOLT DIA. (IN.) =	1/2
LAG LENGTH (IN.) =	2.5	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	1	NO. BOLTS D.S. =	0
MIN. PEN. REQ'D (IN.) =	2.0	MAIN MEMBER THICKNESS (IN.) =	5 1/8
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	DOUBLE SHEAR RES. / BOLT
EQN I _m :	696 LBS	EQN I _m :	3588 LBS
EQN I _s :	1441 LBS	EQN I _s :	2719 LBS
EQN II:	358 LBS	EQN II:	675 LBS
EQN III _m :	386 LBS	EQN III _m :	1989 LBS
EQN III _s :	323 LBS	EQN III _s :	609 LBS
EQN IV:	276 LBS	EQN IV:	982 LBS
RESIST _{DES} =	276 LBS / LAG	RESIST _{DES} =	609 LBS / BOLT
RESIST _{GRP} =	276 LBS	RESIST _{GRP} =	0 LBS
RESIST _{DES} =		RESIST _{DES} =	1218 LBS / BOLT
RESIST _{GRP} =		RESIST _{GRP} =	0 LBS
SUMMARY			
BRKT #	BK56	GOOD FOR	276 LBS

WCLH BRACKET			
BRKT NO:	BK55	GF	276 LBS
BRKT SHEAR RESIST. USING FOR BRG:		SPF #1	NDS VARIABLES
BRACKET LOADED IN SHEAR (V / H):	V	$G_{\text{Species}} = 0.50$	$F_{em \perp} = 4337.2$
LOADING PARA OR PERP TO GRAIN:	PARA	$\text{Lag } D_r = 0.265$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$\text{Bolt } D = 0.500$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =	0.250	$F_{yb} = 45000$	$k_{1 \perp} = 0.183$
FASTENER TYPE (LAGS/BOLTS) =	LAGS	$R_{e \perp} = 0.0499$	$k_{1 \parallel} = 0.223$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.501$
		$R_t = 7.500$	$k_{2 \parallel} = 0.501$
		$l_m = 1.875$	$k_{3 \perp} = 6.619$
		$l_s = 0.250$	$k_{3 \parallel} = 5.745$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	3/8	BOLT DIA. (IN.) =	1/2
LAG LENGTH (IN.) =	2.5	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	1	NO. BOLTS D.S. =	0
MIN. PEN. REQ'D (IN.) =	2.0	MAIN MEMBER THICKNESS (IN.) =	5 1/8
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	DOUBLE SHEAR RES. / BOLT
EQN I _m :	696 LBS	EQN I _m :	3588 LBS
EQN I _s :	1441 LBS	EQN I _s :	2719 LBS
EQN II:	358 LBS	EQN II:	675 LBS
EQN III _m :	386 LBS	EQN III _m :	1989 LBS
EQN III _s :	323 LBS	EQN III _s :	609 LBS
EQN IV:	276 LBS	EQN IV:	982 LBS
EQN IV:	276 LBS	EQN IV:	982 LBS
EQN IV:	276 LBS	EQN IV:	982 LBS
EQN IV:	276 LBS	EQN IV:	982 LBS
RESIST _{DES} =	276 LBS / LAG	RESIST _{DES} =	609 LBS / BOLT
RESIST _{GRP} =	276 LBS	RESIST _{GRP} =	0 LBS
RESIST _{DES} =	276 LBS / LAG	RESIST _{DES} =	609 LBS / BOLT
RESIST _{GRP} =	276 LBS	RESIST _{GRP} =	0 LBS
RESIST _{DES} =	276 LBS / LAG	RESIST _{DES} =	609 LBS / BOLT
RESIST _{GRP} =	276 LBS	RESIST _{GRP} =	0 LBS
SUMMARY			
BRKT # BK55 GOOD FOR 276 LBS			

WCLH BRACKET			
BRKT NO:	BK51	GF	7106 LBS
BRKT SHEAR RESIST. USING FOR BRG:	LVL	NDS VARIABLES	
BRACKET LOADED IN SHEAR (V / H):	V	$G_{\text{Species}} =$	0.50
LOADING PARA OR PERP TO GRAIN:	PERP	$F_{\text{em}_\perp} =$	2824.2
POS. CONNECTION TO ALL MEMBERS?	Y	$F_{\text{em}_\parallel} =$	5600.0
BRACKET THICKNESS (IN.) =	0.250	$F_{\text{cs}} =$	87000
FASTENER TYPE (LAGS/BOLTS) =	BOLTS	$F_{\text{yb}} =$	45000
		$k_{1_\perp} =$	0.282
		$k_{1_\parallel} =$	0.540
		$R_{e_\perp} =$	0.0325
		$k_{2_\perp} =$	0.494
		$R_{e_\parallel} =$	0.0644
		$k_{2_\parallel} =$	0.457
		$R_t =$	20.500
		$k_{3_\perp} =$	13.091
		$l_m =$	5.125
		$k_{3_\parallel} =$	9.109
		$l_s =$	0.250
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	5/8
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	4	NO. BOLTS D.S. =	4
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	5 1/8
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	DOUBLE SHEAR RES. / BOLT
EQN I_m:	1342 LBS	EQN I_m:	2262 LBS
EQN I_s:	2017 LBS	EQN I_s:	3398 LBS
EQN II:	632 LBS	EQN II:	1064 LBS
EQN III_m:	779 LBS	EQN III_m:	1312 LBS
EQN III_s:	527 LBS	EQN III_s:	888 LBS
EQN IV:	390 LBS	EQN IV:	1106 LBS
EQN III_s:	527 LBS	EQN III_s:	888 LBS
EQN IV:	390 LBS	EQN IV:	1106 LBS
RESIST_{DES} =	390 LBS / LAG	RESIST_{DES} =	888 LBS / BOLT
RESIST_{GRP} =	0 LBS	RESIST_{GRP} =	0 LBS
RESIST_{DES} =	390 LBS / LAG	RESIST_{DES} =	1776 LBS / BOLT
RESIST_{GRP} =	0 LBS	RESIST_{GRP} =	7106 LBS
SUMMARY			
BRKT #	BK51	GOOD FOR	7106 LBS

WCLH BRACKET			
BRKT NO:	BK47Z	GF	6206 LBS
BRKT SHEAR RESIST. USING FOR BRG:	SPF #1	NDS VARIABLES	
BRACKET LOADED IN SHEAR (V / H):	V	$G_{\text{Species}} = 0.50$	$F_{em \perp} = 3665.6$
LOADING PARA OR PERP TO GRAIN:	PARA	$Lag D_r = 0.371$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$Bolt D = 0.500$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =	0.250	$F_{yb} = 45000$	$k_{1 \perp} = 0.247$
FASTENER TYPE (LAGS/BOLTS) =	LAGS	$R_{e \perp} = 0.0421$	$k_{1 \parallel} = 0.364$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.480$
		$R_t = 13.500$	$k_{2 \parallel} = 0.480$
		$l_m = 3.375$	$k_{3 \perp} = 8.288$
		$l_s = 0.250$	$k_{3 \parallel} = 6.578$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	1/2
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	12	NO. BOLTS D.S. =	0
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	5 1/8
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	DOUBLE SHEAR RES. / BOLT
EQN I _m :	1753 LBS	EQN I _m :	3588 LBS
EQN I _s :	2017 LBS	EQN I _s :	2719 LBS
EQN II:	815 LBS	EQN II:	1098 LBS
EQN III _m :	933 LBS	EQN III _m :	1908 LBS
EQN III _s :	517 LBS	EQN III _s :	697 LBS
EQN IV:	540 LBS	EQN IV:	982 LBS
RESIST _{DES} =	517 LBS / LAG	RESIST _{DES} =	697 LBS / BOLT
RESIST _{GRP} =	6206 LBS	RESIST _{GRP} =	0 LBS
		RESIST _{DES} =	1394 LBS / BOLT
		RESIST _{GRP} =	0 LBS
SUMMARY			
BRKT # BK47Z GOOD FOR 6206 LBS			

WCLH BRACKET			
BRKT NO: BK46SQ		GF	6206 LBS
BRKT SHEAR RESIST. USING FOR BRG:		SPF #1	NDS VARIABLES
BRACKET LOADED IN SHEAR (V / H):	V	$G_{\text{Species}} = 0.50$	$F_{em \perp} = 3665.6$
LOADING PARA OR PERP TO GRAIN:	PARA	$\text{Lag } D_r = 0.371$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$\text{Bolt } D = 0.500$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =	0.250	$F_{yb} = 45000$	$k_{1 \perp} = 0.247$
FASTENER TYPE (LAGS/BOLTS) =	LAGS	$R_{e \perp} = 0.0421$	$k_{1 \parallel} = 0.364$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.480$
		$R_t = 13.500$	$k_{2 \parallel} = 0.480$
		$I_m = 3.375$	$k_{3 \perp} = 8.288$
		$I_s = 0.250$	$k_{3 \parallel} = 6.578$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	1/2
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	12	NO. BOLTS D.S. =	0
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	5 1/8
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	DOUBLE SHEAR RES. / BOLT
EQN I _m :	1753 LBS	EQN I _m :	3588 LBS
EQN I _s :	2017 LBS	EQN I _s :	2719 LBS
EQN II:	815 LBS	EQN II:	1098 LBS
EQN III _m :	933 LBS	EQN III _m :	1908 LBS
EQN III _s :	517 LBS	EQN III _s :	697 LBS
EQN IV:	540 LBS	EQN IV:	982 LBS
RESIST _{DES} =	517 LBS / LAG	RESIST _{DES} =	697 LBS / BOLT
RESIST _{GRP} =	6206 LBS	RESIST _{GRP} =	0 LBS
		RESIST _{DES} =	1394 LBS / BOLT
		RESIST _{GRP} =	0 LBS
SUMMARY			
BRKT # BK46SQ GOOD FOR 6206 LBS			

WCLH BRACKET			
BRKT NO:	BK46	GF	6206 LBS
BRKT SHEAR RESIST. USING FOR BRG:	SPF #1	NDS VARIABLES	
BRACKET LOADED IN SHEAR (V / H):	V	$G_{\text{Species}} = 0.50$	$F_{em \perp} = 3665.6$
LOADING PARA OR PERP TO GRAIN:	PARA	$\text{Lag } D_r = 0.371$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$\text{Bolt } D = 0.500$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =	0.250	$F_{yb} = 45000$	$k_{1 \perp} = 0.247$
FASTENER TYPE (LAGS/BOLTS) =	LAGS	$R_{e \perp} = 0.0421$	$k_{1 \parallel} = 0.364$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.480$
		$R_t = 13.500$	$k_{2 \parallel} = 0.480$
		$l_m = 3.375$	$k_{3 \perp} = 8.288$
		$l_s = 0.250$	$k_{3 \parallel} = 6.578$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	1/2
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	12	NO. BOLTS D.S. =	0
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	5 1/8
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	DOUBLE SHEAR RES. / BOLT
EQN I_m:	1753 LBS	EQN I_m:	3588 LBS
EQN I_s:	2017 LBS	EQN I_s:	5438 LBS
EQN II:	815 LBS	EQN II:	
EQN III_m:	933 LBS	EQN III_m:	
EQN III_s:	517 LBS	EQN III_s:	1394 LBS
EQN IV:	540 LBS	EQN IV:	1963 LBS
RESIST_{DES} =	517 LBS / LAG	RESIST_{DES} =	697 LBS / BOLT
RESIST_{GRP} =	6206 LBS	RESIST_{GRP} =	0 LBS
SUMMARY			
BRKT #	BK46	GOOD FOR	6206 LBS

WCLH BRACKET			
BRKT NO:	BK45R	GF	3103 LBS
BRKT SHEAR RESIST. USING FOR BRG:	SPF #1	NDS VARIABLES	
BRACKET LOADED IN SHEAR (V / H):	V	$G_{\text{Species}} = 0.50$	$F_{em \perp} = 3665.6$
LOADING PARA OR PERP TO GRAIN:	PARA	$\text{Lag } D_r = 0.371$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$\text{Bolt } D = 0.500$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =	0.250	$F_{yb} = 45000$	$k_{1 \perp} = 0.247$
FASTENER TYPE (LAGS/BOLTS) =	LAGS	$R_{e \perp} = 0.0421$	$k_{1 \parallel} = 0.364$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.480$
		$R_t = 13.500$	$k_{2 \parallel} = 0.480$
		$l_m = 3.375$	$k_{3 \perp} = 8.288$
		$l_s = 0.250$	$k_{3 \parallel} = 6.578$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	1/2
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	6	NO. BOLTS D.S. =	0
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	5 1/8
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	DOUBLE SHEAR RES. / BOLT
EQN I_m:	1753 LBS	EQN I_m:	3588 LBS
EQN I_s:	2017 LBS	EQN I_s:	2719 LBS
EQN II:	815 LBS	EQN II:	1098 LBS
EQN III_m:	933 LBS	EQN III_m:	1908 LBS
EQN III_s:	517 LBS	EQN III:	697 LBS
EQN IV:	540 LBS	EQN IV:	982 LBS
EQN IV:	540 LBS	EQN IV:	982 LBS
EQN IV:	540 LBS	EQN IV:	982 LBS
RESIST_{DES} =	517 LBS / LAG	RESIST_{DES} =	697 LBS / BOLT
RESIST_{GRP} =	3103 LBS	RESIST_{GRP} =	0 LBS
RESIST_{DES} =	517 LBS / LAG	RESIST_{DES} =	697 LBS / BOLT
RESIST_{GRP} =	3103 LBS	RESIST_{GRP} =	0 LBS
SUMMARY			
BRKT # BK45R GOOD FOR 3103 LBS			

WCLH BRACKET			
BRKT NO:	BK45L	GF	3103 LBS
BRKT SHEAR RESIST. USING FOR BRG:	SPF #1	NDS VARIABLES	
BRACKET LOADED IN SHEAR (V / H):	V	$G_{\text{Species}} = 0.50$	$F_{em \perp} = 3665.6$
LOADING PARA OR PERP TO GRAIN:	PARA	$\text{Lag } D_r = 0.371$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$\text{Bolt } D = 0.500$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =	0.250	$F_{yb} = 45000$	$k_{1 \perp} = 0.247$
FASTENER TYPE (LAGS/BOLTS) =	LAGS	$R_{e \perp} = 0.0421$	$k_{1 \parallel} = 0.364$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.480$
		$R_t = 13.500$	$k_{2 \parallel} = 0.480$
		$l_m = 3.375$	$k_{3 \perp} = 8.288$
		$l_s = 0.250$	$k_{3 \parallel} = 6.578$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	1/2
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	6	NO. BOLTS D.S. =	0
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	5 1/8
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	DOUBLE SHEAR RES. / BOLT
EQN I _m :	1753 LBS	EQN I _m :	3588 LBS
EQN I _s :	2017 LBS	EQN I _s :	2719 LBS
EQN II:	815 LBS	EQN II:	1098 LBS
EQN III _m :	933 LBS	EQN III _m :	1908 LBS
EQN III _s :	517 LBS	EQN III _s :	697 LBS
EQN IV:	540 LBS	EQN IV:	982 LBS
RESIST _{DES} =	517 LBS / LAG	RESIST _{DES} =	697 LBS / BOLT
RESIST _{GRP} =	3103 LBS	RESIST _{GRP} =	0 LBS
		RESIST _{DES} =	1394 LBS / BOLT
		RESIST _{GRP} =	0 LBS
SUMMARY			
BRKT # BK45L GOOD FOR 3103 LBS			

WCLH BRACKET**BRKT NO: BK44 GF 5172 LBS****BRKT SHEAR RESIST. USING FOR BRG: SPF #1****NDS VARIABLES**

BRACKET LOADED IN SHEAR (V / H):	V	$G_{Species} = 0.50$	$F_{em \perp} = 3665.6$
LOADING PARA OR PERP TO GRAIN:	PARA	$Lag D_r = 0.371$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$Bolt D = 0.500$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =	0.250	$F_{yb} = 45000$	$k_{1 \perp} = 0.247$
FASTENER TYPE (LAGS/BOLTS) =	LAGS	$R_{e \perp} = 0.0421$	$k_{1 \parallel} = 0.364$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.480$
		$R_t = 13.500$	$k_{2 \parallel} = 0.480$
		$l_m = 3.375$	$k_{3 \perp} = 8.288$
		$l_s = 0.250$	$k_{3 \parallel} = 6.578$

BRACKET SECURED WITH LAG SCREWS**BRACKET SECURED WITH THRU-BOLTS**

LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	1/2
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	10	NO. BOLTS D.S. =	0
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	5 1/8

RESISTANCE FOR EACH LAG SCREW**SINGLE SHEAR RES. / BOLT****DOUBLE SHEAR RES. / BOLT**

EQN I_m:	1753 LBS	EQN I_m:	3588 LBS	EQN I_m:	3588 LBS
EQN I_s:	2017 LBS	EQN I_s:	2719 LBS	EQN I_s:	5438 LBS
EQN II:	815 LBS	EQN II:	1098 LBS		
EQN III_m:	933 LBS	EQN III_m:	1908 LBS		
EQN III_s:	517 LBS	EQN III:	697 LBS	EQN III_s:	1394 LBS
EQN IV:	540 LBS	EQN IV:	982 LBS	EQN IV:	1963 LBS
RESIST_{DES} =	517 LBS / LAG	RESIST_{DES} =	697 LBS / BOLT	RESIST_{DES} =	1394 LBS / BOLT
RESIST_{GRP} =	5172 LBS	RESIST_{GRP} =	0 LBS	RESIST_{GRP} =	0 LBS

SUMMARY**BRKT # BK44 GOOD FOR 5172 LBS**

WCLH BRACKET**BRKT NO: BK43SQ GF 3103 LBS**

BRKT SHEAR RESIST. USING FOR BRG:		SPF #1	NDS VARIABLES		
BRACKET LOADED IN SHEAR (V / H):	V		$G_{Species} = 0.50$	$F_{em \perp} = 3665.6$	
LOADING PARA OR PERP TO GRAIN:	PARA		$Lag D_r = 0.371$	$F_{em \parallel} = 5600.0$	
POS. CONNECTION TO ALL MEMBERS?	Y		$Bolt D = 0.500$	$F_{cs} = 87000$	
BRACKET THICKNESS (IN.) =	0.250		$F_{yb} = 45000$	$k_{1 \perp} = 0.247$	
FASTENER TYPE (LAGS/BOLTS) =	LAGS		$R_{e \perp} = 0.0421$	$k_{1 \parallel} = 0.364$	
			$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.480$	
			$R_t = 13.500$	$k_{2 \parallel} = 0.480$	
			$l_m = 3.375$	$k_{3 \perp} = 8.288$	
			$l_s = 0.250$	$k_{3 \parallel} = 6.578$	
BRACKET SECURED WITH LAG SCREWS			BRACKET SECURED WITH THRU-BOLTS		
LAG SCREW DIA. (IN.) =	1/2		BOLT DIA. (IN.) =	1/2	
LAG LENGTH (IN.) =	4.0		NO. BOLTS S.S. =	0	
NO. LAG SCREWS =	6		NO. BOLTS D.S. =	0	
MIN. PEN. REQ'D (IN.) =	2.5		MAIN MEMBER THICKNESS (IN.) =	5 1/8	
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT		DOUBLE SHEAR RES. / BOLT	
EQN I _m :	1753 LBS	EQN I _m :	3588 LBS	EQN I _m :	3588 LBS
EQN I _s :	2017 LBS	EQN I _s :	2719 LBS	EQN I _s :	5438 LBS
EQN II:	815 LBS	EQN II:	1098 LBS		
EQN III _m :	933 LBS	EQN III _m :	1908 LBS		
EQN III _s :	517 LBS	EQN III _s :	697 LBS	EQN III _s :	1394 LBS
EQN IV:	540 LBS	EQN IV:	982 LBS	EQN IV:	1963 LBS
RESIST _{DES} =	517 LBS / LAG	RESIST _{DES} =	697 LBS / BOLT	RESIST _{DES} =	1394 LBS / BOLT
RESIST _{GRP} =	3103 LBS	RESIST _{GRP} =	0 LBS	RESIST _{GRP} =	0 LBS

SUMMARY**BRKT # BK43SQ GOOD FOR 3103 LBS**

WCLH BRACKET			
BRKT NO:	BK43R	GF	3103 LBS
BRKT SHEAR RESIST. USING FOR BRG:	SPF #1	NDS VARIABLES	
BRACKET LOADED IN SHEAR (V / H):	V	$G_{Species} = 0.50$	$F_{em \perp} = 3665.6$
LOADING PARA OR PERP TO GRAIN:	PARA	$Lag D_r = 0.371$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$Bolt D = 0.500$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =	0.250	$F_{yb} = 45000$	$k_{1 \perp} = 0.247$
FASTENER TYPE (LAGS/BOLTS) =	LAGS	$R_{e \perp} = 0.0421$	$k_{1 \parallel} = 0.364$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.480$
		$R_t = 13.500$	$k_{2 \parallel} = 0.480$
		$I_m = 3.375$	$k_{3 \perp} = 8.288$
		$I_s = 0.250$	$k_{3 \parallel} = 6.578$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	1/2
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	6	NO. BOLTS D.S. =	0
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	5 1/8
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	DOUBLE SHEAR RES. / BOLT
EQN I _m :	1753 LBS	EQN I _m :	3588 LBS
EQN I _s :	2017 LBS	EQN I _s :	2719 LBS
EQN II:	815 LBS	EQN II:	1098 LBS
EQN III _m :	933 LBS	EQN III _m :	1908 LBS
EQN III _s :	517 LBS	EQN III:	697 LBS
EQN IV:	540 LBS	EQN IV:	982 LBS
RESIST _{DES} =	517 LBS / LAG	RESIST _{DES} =	697 LBS / BOLT
RESIST _{GRP} =	3103 LBS	RESIST _{GRP} =	0 LBS
		RESIST _{DES} =	1394 LBS / BOLT
		RESIST _{GRP} =	0 LBS
SUMMARY			
BRKT # BK43R GOOD FOR 3103 LBS			

WCLH BRACKET			
BRKT NO:	BK43L	GF	3103 LBS
BRKT SHEAR RESIST. USING FOR BRG:	SPF #1	NDS VARIABLES	
BRACKET LOADED IN SHEAR (V / H):	V	$G_{\text{Species}} = 0.50$	$F_{em \perp} = 3665.6$
LOADING PARA OR PERP TO GRAIN:	PARA	$\text{Lag } D_r = 0.371$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$\text{Bolt } D = 0.500$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =	0.250	$F_{yb} = 45000$	$k_{1 \perp} = 0.247$
FASTENER TYPE (LAGS/BOLTS) =	LAGS	$R_{e \perp} = 0.0421$	$k_{1 \parallel} = 0.364$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.480$
		$R_t = 13.500$	$k_{2 \parallel} = 0.480$
		$l_m = 3.375$	$k_{3 \perp} = 8.288$
		$l_s = 0.250$	$k_{3 \parallel} = 6.578$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	1/2
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	6	NO. BOLTS D.S. =	0
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	5 1/8
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	DOUBLE SHEAR RES. / BOLT
EQN I _m :	1753 LBS	EQN I _m :	3588 LBS
EQN I _s :	2017 LBS	EQN I _s :	2719 LBS
EQN II:	815 LBS	EQN II:	1098 LBS
EQN III _m :	933 LBS	EQN III _m :	1908 LBS
EQN III _s :	517 LBS	EQN III _s :	697 LBS
EQN IV:	540 LBS	EQN IV:	982 LBS
RESIST _{DES} =	517 LBS / LAG	RESIST _{DES} =	697 LBS / BOLT
RESIST _{GRP} =	3103 LBS	RESIST _{GRP} =	0 LBS
		RESIST _{DES} =	1394 LBS / BOLT
		RESIST _{GRP} =	0 LBS
SUMMARY			
BRKT # BK43L GOOD FOR 3103 LBS			

WCLH BRACKET			
BRKT NO:	BK42	GF	4655 LBS
BRKT SHEAR RESIST. USING FOR BRG:	SPF #1	NDS VARIABLES	
BRACKET LOADED IN SHEAR (V / H):	V	$G_{Species} = 0.50$	$F_{em \perp} = 3665.6$
LOADING PARA OR PERP TO GRAIN:	PARA	$Lag D_r = 0.371$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$Bolt D = 0.500$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =	0.250	$F_{yb} = 45000$	$k_{1 \perp} = 0.247$
FASTENER TYPE (LAGS/BOLTS) =	LAGS	$R_{e \perp} = 0.0421$	$k_{1 \parallel} = 0.364$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.480$
		$R_t = 13.500$	$k_{2 \parallel} = 0.480$
		$l_m = 3.375$	$k_{3 \perp} = 8.288$
		$l_s = 0.250$	$k_{3 \parallel} = 6.578$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	1/2
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	9	NO. BOLTS D.S. =	0
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	5 1/8
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	DOUBLE SHEAR RES. / BOLT
EQN I _m :	1753 LBS	EQN I _m :	3588 LBS
EQN I _s :	2017 LBS	EQN I _s :	2719 LBS
EQN II:	815 LBS	EQN II:	1098 LBS
EQN III _m :	933 LBS	EQN III _m :	1908 LBS
EQN III _s :	517 LBS	EQN III _s :	697 LBS
EQN IV:	540 LBS	EQN IV:	982 LBS
RESIST _{DES} =	517 LBS / LAG	RESIST _{DES} =	697 LBS / BOLT
RESIST _{GRP} =	4655 LBS	RESIST _{GRP} =	0 LBS
RESIST _{DES} =		RESIST _{DES} =	1394 LBS / BOLT
RESIST _{GRP} =		RESIST _{GRP} =	0 LBS
SUMMARY			
BRKT # BK42 GOOD FOR 4655 LBS			

WCLH BRACKET			
BRKT NO:	BK40	GF	10861 LBS
BRKT SHEAR RESIST. USING FOR BRG:	SPF #1	NDS VARIABLES	
BRACKET LOADED IN SHEAR (V / H):	V	$G_{\text{Species}} = 0.50$	$F_{em \perp} = 3665.6$
LOADING PARA OR PERP TO GRAIN:	PARA	$\text{Lag } D_r = 0.371$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$\text{Bolt } D = 0.500$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =	0.250	$F_{yb} = 45000$	$k_{1 \perp} = 0.247$
FASTENER TYPE (LAGS/BOLTS) =	LAGS	$R_{e \perp} = 0.0421$	$k_{1 \parallel} = 0.364$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.480$
		$R_t = 13.500$	$k_{2 \parallel} = 0.480$
		$l_m = 3.375$	$k_{3 \perp} = 8.288$
		$l_s = 0.250$	$k_{3 \parallel} = 6.578$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	1/2
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	21	NO. BOLTS D.S. =	0
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	5 1/8
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	DOUBLE SHEAR RES. / BOLT
EQN I _m :	1753 LBS	EQN I _m :	3588 LBS
EQN I _s :	2017 LBS	EQN I _s :	2719 LBS
EQN II:	815 LBS	EQN II:	1098 LBS
EQN III _m :	933 LBS	EQN III _m :	1908 LBS
EQN III _s :	517 LBS	EQN III _s :	697 LBS
EQN IV:	540 LBS	EQN IV:	982 LBS
RESIST _{DES} =	517 LBS / LAG	RESIST _{DES} =	697 LBS / BOLT
RESIST _{GRP} =	10861 LBS	RESIST _{GRP} =	0 LBS
		RESIST _{DES} =	1394 LBS / BOLT
		RESIST _{GRP} =	0 LBS
SUMMARY			
BRKT # BK40 GOOD FOR 10861 LBS			

WCLH BRACKET			
BRKT NO:	BK38	GF	3103 LBS
BRKT SHEAR RESIST. USING FOR BRG:	SPF #1	NDS VARIABLES	
BRACKET LOADED IN SHEAR (V / H):	V	$G_{\text{Species}} = 0.50$	$F_{em \perp} = 3665.6$
LOADING PARA OR PERP TO GRAIN:	PARA	$\text{Lag } D_r = 0.371$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$\text{Bolt } D = 0.500$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =	0.250	$F_{yb} = 45000$	$k_{1 \perp} = 0.247$
FASTENER TYPE (LAGS/BOLTS) =	LAGS	$R_{e \perp} = 0.0421$	$k_{1 \parallel} = 0.364$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.480$
		$R_t = 13.500$	$k_{2 \parallel} = 0.480$
		$l_m = 3.375$	$k_{3 \perp} = 8.288$
		$l_s = 0.250$	$k_{3 \parallel} = 6.578$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	1/2
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	6	NO. BOLTS D.S. =	0
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	5 1/8
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	DOUBLE SHEAR RES. / BOLT
EQN I_m:	1753 LBS	EQN I_m:	3588 LBS
EQN I_s:	2017 LBS	EQN I_s:	2719 LBS
EQN II:	815 LBS	EQN II:	1098 LBS
EQN III_m:	933 LBS	EQN III_m:	1908 LBS
EQN III_s:	517 LBS	EQN III:	697 LBS
EQN IV:	540 LBS	EQN IV:	982 LBS
EQN IV:	540 LBS	EQN IV:	982 LBS
EQN IV:	540 LBS	EQN IV:	982 LBS
RESIST_{DES} =	517 LBS / LAG	RESIST_{DES} =	697 LBS / BOLT
RESIST_{GRP} =	3103 LBS	RESIST_{GRP} =	0 LBS
RESIST_{DES} =	517 LBS / LAG	RESIST_{DES} =	697 LBS / BOLT
RESIST_{GRP} =	3103 LBS	RESIST_{GRP} =	0 LBS
RESIST_{DES} =	517 LBS / LAG	RESIST_{DES} =	697 LBS / BOLT
RESIST_{GRP} =	3103 LBS	RESIST_{GRP} =	0 LBS
SUMMARY			
BRKT #	BK38	GOOD FOR	3103 LBS

WCLH BRACKET			
BRKT NO:	BK37G	GF	2587 LBS
BRKT SHEAR RESIST. USING FOR BRG:	SPF #1	NDS VARIABLES	
BRACKET LOADED IN SHEAR (V / H):	V	$G_{Species} = 0.50$	$F_{em \perp} = 3665.6$
LOADING PARA OR PERP TO GRAIN:	PERP	$Lag D_r = 0.371$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$Bolt D = 0.500$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =	0.250	$F_{yb} = 45000$	$k_{1 \perp} = 0.247$
FASTENER TYPE (LAGS/BOLTS) =	LAGS	$R_{e \perp} = 0.0421$	$k_{1 \parallel} = 0.364$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.480$
		$R_t = 13.500$	$k_{2 \parallel} = 0.480$
		$l_m = 3.375$	$k_{3 \perp} = 8.288$
		$l_s = 0.250$	$k_{3 \parallel} = 6.578$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	1/2
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	6	NO. BOLTS D.S. =	0
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	5 1/8
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	DOUBLE SHEAR RES. / BOLT
EQN I _m :	1147 LBS	EQN I _m :	2348 LBS
EQN I _s :	2017 LBS	EQN I _s :	2719 LBS
EQN II:	554 LBS	EQN II:	747 LBS
EQN III _m :	635 LBS	EQN III _m :	1300 LBS
EQN III _s :	431 LBS	EQN III _s :	581 LBS
EQN IV:	442 LBS	EQN IV:	803 LBS
RESIST _{DES} =	431 LBS / LAG	RESIST _{DES} =	581 LBS / BOLT
RESIST _{GRP} =	2587 LBS	RESIST _{GRP} =	0 LBS
		RESIST _{DES} =	1162 LBS / BOLT
		RESIST _{GRP} =	0 LBS
SUMMARY			
BRKT # BK37G GOOD FOR 2587 LBS			

WCLH BRACKET			
BRKT NO:	BK37	GF	2587 LBS
BRKT SHEAR RESIST. USING FOR BRG:	SPF #1	NDS VARIABLES	
BRACKET LOADED IN SHEAR (V / H):	V	$G_{\text{Species}} = 0.50$	$F_{em \perp} = 3665.6$
LOADING PARA OR PERP TO GRAIN:	PERP	$\text{Lag } D_r = 0.371$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$\text{Bolt } D = 0.500$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =	0.250	$F_{yb} = 45000$	$k_{1 \perp} = 0.247$
FASTENER TYPE (LAGS/BOLTS) =	LAGS	$R_{e \perp} = 0.0421$	$k_{1 \parallel} = 0.364$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.480$
		$R_t = 13.500$	$k_{2 \parallel} = 0.480$
		$l_m = 3.375$	$k_{3 \perp} = 8.288$
		$l_s = 0.250$	$k_{3 \parallel} = 6.578$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	1/2
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	6	NO. BOLTS D.S. =	0
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	5 1/8
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	DOUBLE SHEAR RES. / BOLT
EQN I _m :	1147 LBS	EQN I _m :	2348 LBS
EQN I _s :	2017 LBS	EQN I _s :	5438 LBS
EQN II:	554 LBS	EQN II:	
EQN III _m :	635 LBS	EQN III _m :	
EQN III _s :	431 LBS	EQN III _s :	1162 LBS
EQN IV:	442 LBS	EQN IV:	1605 LBS
RESIST _{DES} =	431 LBS / LAG	RESIST _{DES} =	581 LBS / BOLT
RESIST _{GRP} =	2587 LBS	RESIST _{GRP} =	0 LBS
SUMMARY			
BRKT # BK37 GOOD FOR 2587 LBS			

WCLH BRACKET			
BRKT NO: BK35C-RIDG		GF	3553 LBS
BRKT SHEAR RESIST. USING FOR BRG:		GLB	NDS VARIABLES
BRACKET LOADED IN SHEAR (V / H):	V	$G_{\text{Species}} = 0.50$	$F_{em \perp} = 2824.2$
LOADING PARA OR PERP TO GRAIN:	PERP	$\text{Lag } D_r = 0.371$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$\text{Bolt } D = 0.625$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =	0.250	$F_{yb} = 45000$	$k_{1 \perp} = 0.365$
FASTENER TYPE (LAGS/BOLTS) =	BOLTS	$R_{e \perp} = 0.0325$	$k_{1 \parallel} = 0.708$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.470$
		$R_t = 27.000$	$k_{2 \parallel} = 0.449$
		$l_m = 6.750$	$k_{3 \perp} = 13.091$
		$l_s = 0.250$	$k_{3 \parallel} = 9.109$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	5/8
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	0	NO. BOLTS D.S. =	2
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	6 3/4
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	DOUBLE SHEAR RES. / BOLT
EQN I _m :	1768 LBS	EQN I _m :	2979 LBS
EQN I _s :	2017 LBS	EQN I _s :	3398 LBS
EQN II:	818 LBS	EQN II:	1378 LBS
EQN III _m :	976 LBS	EQN III _m :	1644 LBS
EQN III _s :	527 LBS	EQN III _s :	888 LBS
EQN IV:	390 LBS	EQN IV:	1106 LBS
RESIST _{DES} =	390 LBS / LAG	RESIST _{DES} =	888 LBS / BOLT
RESIST _{GRP} =	0 LBS	RESIST _{GRP} =	0 LBS
		RESIST _{DES} =	1776 LBS / BOLT
		RESIST _{GRP} =	3553 LBS
SUMMARY			
BRKT # BK35C-RIDG GOOD FOR 3553 LBS			

WCLH BRACKET			
BRKT NO: BK35C-VALY		GF	3553 LBS
BRKT SHEAR RESIST. USING FOR BRG:		LVL	NDS VARIABLES
BRACKET LOADED IN SHEAR (V / H):	V	$G_{\text{Species}} = 0.50$	$F_{em \perp} = 2824.2$
LOADING PARA OR PERP TO GRAIN:	PERP	$\text{Lag } D_r = 0.371$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$\text{Bolt } D = 0.625$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =	0.250	$F_{yb} = 45000$	$k_{1 \perp} = 0.288$
FASTENER TYPE (LAGS/BOLTS) =	BOLTS	$R_{e \perp} = 0.0325$	$k_{1 \parallel} = 0.553$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.492$
		$R_t = 21.000$	$k_{2 \parallel} = 0.457$
		$I_m = 5.250$	$k_{3 \perp} = 13.091$
		$I_s = 0.250$	$k_{3 \parallel} = 9.109$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	5/8
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	0	NO. BOLTS D.S. =	2
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	5 1/4
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	DOUBLE SHEAR RES. / BOLT
EQN I _m :	1375 LBS	EQN I _m :	2317 LBS
EQN I _s :	2017 LBS	EQN I _s :	3398 LBS
EQN II:	646 LBS	EQN II:	1088 LBS
EQN III _m :	794 LBS	EQN III _m :	1337 LBS
EQN III _s :	527 LBS	EQN III _s :	888 LBS
EQN IV:	390 LBS	EQN IV:	1106 LBS
RESIST _{DES} =	390 LBS / LAG	RESIST _{DES} =	888 LBS / BOLT
RESIST _{GRP} =	0 LBS	RESIST _{GRP} =	0 LBS
		RESIST _{DES} =	1776 LBS / BOLT
		RESIST _{GRP} =	3553 LBS
SUMMARY			
BRKT # BK35C-VALY GOOD FOR 3553 LBS			

WCLH BRACKET			
BRKT NO: BK35-RIDG		GF	3553 LBS
BRKT SHEAR RESIST. USING FOR BRG:		GLB	NDS VARIABLES
BRACKET LOADED IN SHEAR (V / H):	V	$G_{Species} = 0.50$	$F_{em \perp} = 2824.2$
LOADING PARA OR PERP TO GRAIN:	PERP	$Lag D_r = 0.371$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$Bolt D = 0.625$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =	0.250	$F_{yb} = 45000$	$k_{1 \perp} = 0.282$
FASTENER TYPE (LAGS/BOLTS) =	BOLTS	$R_{e \perp} = 0.0325$	$k_{1 \parallel} = 0.540$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.494$
		$R_t = 20.500$	$k_{2 \parallel} = 0.457$
		$I_m = 5.125$	$k_{3 \perp} = 13.091$
		$I_s = 0.250$	$k_{3 \parallel} = 9.109$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	5/8
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	0	NO. BOLTS D.S. =	2
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	5 1/8
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	DOUBLE SHEAR RES. / BOLT
EQN I _m :	1342 LBS	EQN I _m :	2262 LBS
EQN I _s :	2017 LBS	EQN I _s :	3398 LBS
EQN II:	632 LBS	EQN II:	1064 LBS
EQN III _m :	779 LBS	EQN III _m :	1312 LBS
EQN III _s :	527 LBS	EQN III _s :	888 LBS
EQN IV:	390 LBS	EQN IV:	1106 LBS
RESIST _{DES} =	390 LBS / LAG	RESIST _{DES} =	888 LBS / BOLT
RESIST _{GRP} =	0 LBS	RESIST _{GRP} =	0 LBS
		RESIST _{DES} =	1776 LBS / BOLT
		RESIST _{GRP} =	3553 LBS
SUMMARY			
BRKT # BK35-RIDG GOOD FOR 3553 LBS			

WCLH BRACKET			
BRKT NO: BK35-VALY		GF	3553 LBS
BRKT SHEAR RESIST. USING FOR BRG:		LVL	NDS VARIABLES
BRACKET LOADED IN SHEAR (V / H):	V	$G_{\text{Species}} = 0.50$	$F_{em \perp} = 2824.2$
LOADING PARA OR PERP TO GRAIN:	PERP	$\text{Lag } D_r = 0.371$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$\text{Bolt } D = 0.625$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =	0.250	$F_{yb} = 45000$	$k_{1 \perp} = 0.288$
FASTENER TYPE (LAGS/BOLTS) =	BOLTS	$R_{e \perp} = 0.0325$	$k_{1 \parallel} = 0.553$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.492$
		$R_t = 21.000$	$k_{2 \parallel} = 0.457$
		$l_m = 5.250$	$k_{3 \perp} = 13.091$
		$l_s = 0.250$	$k_{3 \parallel} = 9.109$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	5/8
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	0	NO. BOLTS D.S. =	2
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	5 1/4
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	DOUBLE SHEAR RES. / BOLT
EQN I _m :	1375 LBS	EQN I _m :	2317 LBS
EQN I _s :	2017 LBS	EQN I _s :	3398 LBS
EQN II:	646 LBS	EQN II:	1088 LBS
EQN III _m :	794 LBS	EQN III _m :	1337 LBS
EQN III _s :	527 LBS	EQN III _s :	888 LBS
EQN IV:	390 LBS	EQN IV:	1106 LBS
RESIST _{DES} =	390 LBS / LAG	RESIST _{DES} =	888 LBS / BOLT
RESIST _{GRP} =	0 LBS	RESIST _{GRP} =	0 LBS
		RESIST _{DES} =	1776 LBS / BOLT
		RESIST _{GRP} =	3553 LBS
SUMMARY			
BRKT # BK35-VALY GOOD FOR 3553 LBS			

WCLH BRACKET			
BRKT NO: BK34SQ		GF	4655 LBS
BRKT SHEAR RESIST. USING FOR BRG:		SPF #1	NDS VARIABLES
BRACKET LOADED IN SHEAR (V / H):	V	$G_{Species} = 0.50$	$F_{em \perp} = 3665.6$
LOADING PARA OR PERP TO GRAIN:	PARA	$Lag D_r = 0.371$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$Bolt D = 0.500$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =	0.250	$F_{yb} = 45000$	$k_{1 \perp} = 0.247$
FASTENER TYPE (LAGS/BOLTS) =	LAGS	$R_{e \perp} = 0.0421$	$k_{1 \parallel} = 0.364$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.480$
		$R_t = 13.500$	$k_{2 \parallel} = 0.480$
		$l_m = 3.375$	$k_{3 \perp} = 8.288$
		$l_s = 0.250$	$k_{3 \parallel} = 6.578$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	1/2
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	9	NO. BOLTS D.S. =	0
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	5 1/8
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	DOUBLE SHEAR RES. / BOLT
EQN I _m :	1753 LBS	EQN I _m :	3588 LBS
EQN I _s :	2017 LBS	EQN I _s :	5438 LBS
EQN II:	815 LBS	EQN II:	
EQN III _m :	933 LBS	EQN III _m :	
EQN III _s :	517 LBS	EQN III _s :	1394 LBS
EQN IV:	540 LBS	EQN IV:	1963 LBS
RESIST _{DES} =	517 LBS / LAG	RESIST _{DES} =	697 LBS / BOLT
RESIST _{GRP} =	4655 LBS	RESIST _{GRP} =	0 LBS
SUMMARY			
BRKT # BK34SQ GOOD FOR 4655 LBS			

WCLH BRACKET			
BRKT NO:	BK34	GF	4655 LBS
BRKT SHEAR RESIST. USING FOR BRG:	SPF #1	NDS VARIABLES	
BRACKET LOADED IN SHEAR (V / H):	V	$G_{Species} = 0.50$	$F_{em \perp} = 3665.6$
LOADING PARA OR PERP TO GRAIN:	PARA	$Lag D_r = 0.371$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$Bolt D = 0.500$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =	0.250	$F_{yb} = 45000$	$k_{1 \perp} = 0.247$
FASTENER TYPE (LAGS/BOLTS) =	LAGS	$R_{e \perp} = 0.0421$	$k_{1 \parallel} = 0.364$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.480$
		$R_t = 13.500$	$k_{2 \parallel} = 0.480$
		$l_m = 3.375$	$k_{3 \perp} = 8.288$
		$l_s = 0.250$	$k_{3 \parallel} = 6.578$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	1/2
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	9	NO. BOLTS D.S. =	0
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	5 1/8
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	DOUBLE SHEAR RES. / BOLT
EQN I _m :	1753 LBS	EQN I _m :	3588 LBS
EQN I _s :	2017 LBS	EQN I _s :	2719 LBS
EQN II:	815 LBS	EQN II:	1098 LBS
EQN III _m :	933 LBS	EQN III _m :	1908 LBS
EQN III _s :	517 LBS	EQN III _s :	697 LBS
EQN IV:	540 LBS	EQN IV:	982 LBS
RESIST _{DES} =	517 LBS / LAG	RESIST _{DES} =	697 LBS / BOLT
RESIST _{GRP} =	4655 LBS	RESIST _{GRP} =	0 LBS
		RESIST _{DES} =	1394 LBS / BOLT
		RESIST _{GRP} =	0 LBS
SUMMARY			
BRKT # BK34 GOOD FOR 4655 LBS			

WCLH BRACKET**BRKT NO: BK30-VALY GF 3089 LBS**

BRKT SHEAR RESIST. USING FOR BRG:		LVL	NDS VARIABLES	
BRACKET LOADED IN SHEAR (V / H):		V	$G_{\text{Species}} = 0.50$	$F_{\text{em}_\perp} = 2824.2$
LOADING PARA OR PERP TO GRAIN:		PERP	$\text{Lag } D_r = 0.371$	$F_{\text{em}_\parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?		Y	$\text{Bolt } D = 0.625$	$F_{\text{cs}} = 87000$
BRACKET THICKNESS (IN.) =		0.250	$F_{\text{yb}} = 45000$	$k_{1_\perp} = 0.202$
FASTENER TYPE (LAGS/BOLTS) =		BOLTS	$R_{e_\perp} = 0.0325$	$k_{1_\parallel} = 0.376$
			$R_{e_\parallel} = 0.0644$	$k_{2_\perp} = 0.557$
			$R_t = 14.000$	$k_{2_\parallel} = 0.481$
			$l_m = 3.500$	$k_{3_\perp} = 13.091$
			$l_s = 0.250$	$k_{3_\parallel} = 9.109$
BRACKET SECURED WITH LAG SCREWS			BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =		1/2	BOLT DIA. (IN.) =	5/8
LAG LENGTH (IN.) =		4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =		0	NO. BOLTS D.S. =	2
MIN. PEN. REQ'D (IN.) =		2.5	MAIN MEMBER THICKNESS (IN.) =	3 1/2
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT		DOUBLE SHEAR RES. / BOLT
EQN I_m:	917 LBS	EQN I_m:	1544 LBS	EQN I_m: 1544 LBS
EQN I_s:	2017 LBS	EQN I_s:	3398 LBS	EQN I_s: 6797 LBS
EQN II:	453 LBS	EQN II:	763 LBS	
EQN III_m:	600 LBS	EQN III_m:	1011 LBS	
EQN III_s:	527 LBS	EQN III_s:	888 LBS	EQN III_s: 1776 LBS
EQN IV:	390 LBS	EQN IV:	1106 LBS	EQN IV: 2212 LBS
RESIST_{DES} =	390 LBS / LAG	RESIST_{DES} =	763 LBS / BOLT	RESIST_{DES} = 1544 LBS / BOLT
RESIST_{GRP} =	0 LBS	RESIST_{GRP} =	0 LBS	RESIST_{GRP} = 3089 LBS

SUMMARY**BRKT # BK30-VALY GOOD FOR 3089 LBS**

WCLH BRACKET**BRKT NO: BK30-RIDG GF 3553 LBS**

BRKT SHEAR RESIST. USING FOR BRG:		GLB	NDS VARIABLES		
BRACKET LOADED IN SHEAR (V / H):	V		$G_{Species} = 0.50$	$F_{em \perp} = 2824.2$	
LOADING PARA OR PERP TO GRAIN:	PERP		$Lag D_r = 0.371$	$F_{em \parallel} = 5600.0$	
POS. CONNECTION TO ALL MEMBERS?	Y		$Bolt D = 0.625$	$F_{cs} = 87000$	
BRACKET THICKNESS (IN.) =	0.250		$F_{yb} = 45000$	$k_{1 \perp} = 0.282$	
FASTENER TYPE (LAGS/BOLTS) =	BOLTS		$R_{e \perp} = 0.0325$	$k_{1 \parallel} = 0.540$	
			$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.494$	
			$R_t = 20.500$	$k_{2 \parallel} = 0.457$	
			$I_m = 5.125$	$k_{3 \perp} = 13.091$	
			$I_s = 0.250$	$k_{3 \parallel} = 9.109$	
BRACKET SECURED WITH LAG SCREWS			BRACKET SECURED WITH THRU-BOLTS		
LAG SCREW DIA. (IN.) =	1/2		BOLT DIA. (IN.) =	5/8	
LAG LENGTH (IN.) =	4.0		NO. BOLTS S.S. =	0	
NO. LAG SCREWS =	0		NO. BOLTS D.S. =	2	
MIN. PEN. REQ'D (IN.) =	2.5		MAIN MEMBER THICKNESS (IN.) =	5 1/8	
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT		DOUBLE SHEAR RES. / BOLT	
EQN I _m :	1342 LBS	EQN I _m :	2262 LBS	EQN I _m :	2262 LBS
EQN I _s :	2017 LBS	EQN I _s :	3398 LBS	EQN I _s :	6797 LBS
EQN II:	632 LBS	EQN II:	1064 LBS		
EQN III _m :	779 LBS	EQN III _m :	1312 LBS		
EQN III _s :	527 LBS	EQN III _s :	888 LBS	EQN III _s :	1776 LBS
EQN IV:	390 LBS	EQN IV:	1106 LBS	EQN IV:	2212 LBS
RESIST _{DES} =	390 LBS / LAG	RESIST _{DES} =	888 LBS / BOLT	RESIST _{DES} =	1776 LBS / BOLT
RESIST _{GRP} =	0 LBS	RESIST _{GRP} =	0 LBS	RESIST _{GRP} =	3553 LBS

SUMMARY**BRKT # BK30-RIDG GOOD FOR 3553 LBS**

WCLH BRACKET			
BRKT NO: BK30C-VALY		GF	3089 LBS
BRKT SHEAR RESIST. USING FOR BRG:		LVL	NDS VARIABLES
BRACKET LOADED IN SHEAR (V / H):	V	$G_{\text{Species}} = 0.50$	$F_{em \perp} = 2824.2$
LOADING PARA OR PERP TO GRAIN:	PERP	$\text{Lag } D_r = 0.371$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$\text{Bolt } D = 0.625$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =	0.250	$F_{yb} = 45000$	$k_{1 \perp} = 0.202$
FASTENER TYPE (LAGS/BOLTS) =	BOLTS	$R_{e \perp} = 0.0325$	$k_{1 \parallel} = 0.376$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.557$
		$R_t = 14.000$	$k_{2 \parallel} = 0.481$
		$l_m = 3.500$	$k_{3 \perp} = 13.091$
		$l_s = 0.250$	$k_{3 \parallel} = 9.109$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	5/8
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	0	NO. BOLTS D.S. =	2
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	3 1/2
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	DOUBLE SHEAR RES. / BOLT
EQN I _m :	917 LBS	EQN I _m :	1544 LBS
EQN I _s :	2017 LBS	EQN I _s :	3398 LBS
EQN II:	453 LBS	EQN II:	763 LBS
EQN III _m :	600 LBS	EQN III _m :	1011 LBS
EQN III _s :	527 LBS	EQN III _s :	888 LBS
EQN IV:	390 LBS	EQN IV:	1106 LBS
RESIST _{DES} =	390 LBS / LAG	RESIST _{DES} =	763 LBS / BOLT
RESIST _{GRP} =	0 LBS	RESIST _{GRP} =	0 LBS
		RESIST _{DES} =	1544 LBS / BOLT
		RESIST _{GRP} =	3089 LBS
SUMMARY			
BRKT # BK30C-VALY GOOD FOR 3089 LBS			

WCLH BRACKET			
BRKT NO:	BK30C-RIDG	GF	3553 LBS
BRKT SHEAR RESIST. USING FOR BRG:	GLB	NDS VARIABLES	
BRACKET LOADED IN SHEAR (V / H):	V	G_{Species} = 0.50	F_{em,⊥} = 2824.2
LOADING PARA OR PERP TO GRAIN:	PERP	Lag D_r = 0.371	F_{em} = 5600.0
POS. CONNECTION TO ALL MEMBERS?	Y	Bolt D = 0.625	F_{cs} = 87000
BRACKET THICKNESS (IN.) =	0.250	F_{yb} = 45000	k_{1,⊥} = 0.365
FASTENER TYPE (LAGS/BOLTS) =	BOLTS	R_{e,⊥} = 0.0325	k_{1,} = 0.708
		R_{e,} = 0.0644	k_{2,⊥} = 0.470
		R_t = 27.000	k_{2,} = 0.449
		I_m = 6.750	k_{3,⊥} = 13.091
		I_s = 0.250	k_{3,} = 9.109
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	5/8
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	0	NO. BOLTS D.S. =	2
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	6 3/4
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	DOUBLE SHEAR RES. / BOLT
EQN I_m:	1768 LBS	EQN I_m:	2979 LBS
EQN I_s:	2017 LBS	EQN I_s:	3398 LBS
EQN II:	818 LBS	EQN II:	1378 LBS
EQN III_m:	976 LBS	EQN III_m:	1644 LBS
EQN III_s:	527 LBS	EQN III_s:	888 LBS
EQN IV:	390 LBS	EQN IV:	1106 LBS
RESIST_{DES} =	390 LBS / LAG	RESIST_{DES} =	888 LBS / BOLT
RESIST_{GRP} =	0 LBS	RESIST_{GRP} =	0 LBS
		RESIST_{DES} =	1776 LBS / BOLT
		RESIST_{GRP} =	3553 LBS
SUMMARY			
BRKT # BK30C-RIDG GOOD FOR 3553 LBS			

WCLH BRACKET			
BRKT NO:	BK29	GF	4655 LBS
BRKT SHEAR RESIST. USING FOR BRG:	SPF #1	NDS VARIABLES	
BRACKET LOADED IN SHEAR (V / H):	V	$G_{Species} = 0.50$	$F_{em \perp} = 3665.6$
LOADING PARA OR PERP TO GRAIN:	PARA	$Lag D_r = 0.371$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$Bolt D = 0.500$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =	0.250	$F_{yb} = 45000$	$k_{1 \perp} = 0.247$
FASTENER TYPE (LAGS/BOLTS) =	LAGS	$R_{e \perp} = 0.0421$	$k_{1 \parallel} = 0.364$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.480$
		$R_t = 13.500$	$k_{2 \parallel} = 0.480$
		$l_m = 3.375$	$k_{3 \perp} = 8.288$
		$l_s = 0.250$	$k_{3 \parallel} = 6.578$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	1/2
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	9	NO. BOLTS D.S. =	0
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	5 1/8
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	DOUBLE SHEAR RES. / BOLT
EQN I _m :	1753 LBS	EQN I _m :	3588 LBS
EQN I _s :	2017 LBS	EQN I _s :	2719 LBS
EQN II:	815 LBS	EQN II:	1098 LBS
EQN III _m :	933 LBS	EQN III _m :	1908 LBS
EQN III _s :	517 LBS	EQN III _s :	697 LBS
EQN IV:	540 LBS	EQN IV:	982 LBS
RESIST _{DES} =	517 LBS / LAG	RESIST _{DES} =	697 LBS / BOLT
RESIST _{GRP} =	4655 LBS	RESIST _{GRP} =	0 LBS
		RESIST _{DES} =	1394 LBS / BOLT
		RESIST _{GRP} =	0 LBS
SUMMARY			
BRKT # BK29 GOOD FOR 4655 LBS			

WCLH BRACKET**BRKT NO: BK28R GF 5172 LBS****BRKT SHEAR RESIST. USING FOR BRG: SPF #1****NDS VARIABLES**

BRACKET LOADED IN SHEAR (V / H):	V	$G_{Species} = 0.50$	$F_{em \perp} = 3665.6$
LOADING PARA OR PERP TO GRAIN:	PARA	$Lag D_r = 0.371$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$Bolt D = 0.500$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =	0.250	$F_{yb} = 45000$	$k_{1 \perp} = 0.247$
FASTENER TYPE (LAGS/BOLTS) =	LAGS	$R_{e \perp} = 0.0421$	$k_{1 \parallel} = 0.364$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.480$
		$R_t = 13.500$	$k_{2 \parallel} = 0.480$
		$l_m = 3.375$	$k_{3 \perp} = 8.288$
		$l_s = 0.250$	$k_{3 \parallel} = 6.578$

BRACKET SECURED WITH LAG SCREWS**BRACKET SECURED WITH THRU-BOLTS**

LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	1/2
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	10	NO. BOLTS D.S. =	0
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	5 1/8

RESISTANCE FOR EACH LAG SCREW**SINGLE SHEAR RES. / BOLT****DOUBLE SHEAR RES. / BOLT**

EQN I_m:	1753 LBS	EQN I_m:	3588 LBS	EQN I_m:	3588 LBS
EQN I_s:	2017 LBS	EQN I_s:	2719 LBS	EQN I_s:	5438 LBS
EQN II:	815 LBS	EQN II:	1098 LBS		
EQN III_m:	933 LBS	EQN III_m:	1908 LBS		
EQN III_s:	517 LBS	EQN III:	697 LBS	EQN III_s:	1394 LBS
EQN IV:	540 LBS	EQN IV:	982 LBS	EQN IV:	1963 LBS
RESIST_{DES} =	517 LBS / LAG	RESIST_{DES} =	697 LBS / BOLT	RESIST_{DES} =	1394 LBS / BOLT
RESIST_{GRP} =	5172 LBS	RESIST_{GRP} =	0 LBS	RESIST_{GRP} =	0 LBS

SUMMARY**BRKT # BK28R GOOD FOR 5172 LBS**

WCLH BRACKET			
BRKT NO:	BK28L	GF	5172 LBS
BRKT SHEAR RESIST. USING FOR BRG:	SPF #1	NDS VARIABLES	
BRACKET LOADED IN SHEAR (V / H):	V	$G_{\text{Species}} = 0.50$	$F_{em \perp} = 3665.6$
LOADING PARA OR PERP TO GRAIN:	PARA	$\text{Lag } D_r = 0.371$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$\text{Bolt } D = 0.500$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =	0.250	$F_{yb} = 45000$	$k_{1 \perp} = 0.247$
FASTENER TYPE (LAGS/BOLTS) =	LAGS	$R_{e \perp} = 0.0421$	$k_{1 \parallel} = 0.364$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.480$
		$R_t = 13.500$	$k_{2 \parallel} = 0.480$
		$l_m = 3.375$	$k_{3 \perp} = 8.288$
		$l_s = 0.250$	$k_{3 \parallel} = 6.578$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	1/2
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	10	NO. BOLTS D.S. =	0
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	5 1/8
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	DOUBLE SHEAR RES. / BOLT
EQN I _m :	1753 LBS	EQN I _m :	3588 LBS
EQN I _s :	2017 LBS	EQN I _s :	2719 LBS
EQN II:	815 LBS	EQN II:	1098 LBS
EQN III _m :	933 LBS	EQN III _m :	1908 LBS
EQN III _s :	517 LBS	EQN III _s :	697 LBS
EQN IV:	540 LBS	EQN IV:	982 LBS
RESIST _{DES} =	517 LBS / LAG	RESIST _{DES} =	697 LBS / BOLT
RESIST _{GRP} =	5172 LBS	RESIST _{GRP} =	0 LBS
		RESIST _{DES} =	1394 LBS / BOLT
		RESIST _{GRP} =	0 LBS
SUMMARY			
BRKT # BK28L GOOD FOR 5172 LBS			

WCLH BRACKET			
BRKT NO:	BK24	GF	2069 LBS
BRKT SHEAR RESIST. USING FOR BRG:	SPF #1	NDS VARIABLES	
BRACKET LOADED IN SHEAR (V / H):	V	$G_{\text{Species}} = 0.50$	$F_{em \perp} = 3665.6$
LOADING PARA OR PERP TO GRAIN:	PARA	$\text{Lag } D_r = 0.371$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$\text{Bolt } D = 0.500$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =	0.250	$F_{yb} = 45000$	$k_{1 \perp} = 0.247$
FASTENER TYPE (LAGS/BOLTS) =	LAGS	$R_{e \perp} = 0.0421$	$k_{1 \parallel} = 0.364$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.480$
		$R_t = 13.500$	$k_{2 \parallel} = 0.480$
		$l_m = 3.375$	$k_{3 \perp} = 8.288$
		$l_s = 0.250$	$k_{3 \parallel} = 6.578$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	1/2
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	4	NO. BOLTS D.S. =	0
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	5 1/8
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	DOUBLE SHEAR RES. / BOLT
EQN I _m :	1753 LBS	EQN I _m :	3588 LBS
EQN I _s :	2017 LBS	EQN I _s :	5438 LBS
EQN II:	815 LBS	EQN II:	
EQN III _m :	933 LBS	EQN III _m :	
EQN III _s :	517 LBS	EQN III _s :	1394 LBS
EQN IV:	540 LBS	EQN IV:	1963 LBS
RESIST _{DES} =	517 LBS / LAG	RESIST _{DES} =	697 LBS / BOLT
RESIST _{GRP} =	2069 LBS	RESIST _{GRP} =	0 LBS
SUMMARY			
BRKT # BK24 GOOD FOR 2069 LBS			

WCLH BRACKET**BRKT NO: BK21SQ GF 50625 LBS**

BRKT SHEAR RESIST. USING FOR BRG:		GLB		NDS VARIABLES	
BRACKET LOADED IN SHEAR (V / H):		V		$G_{Species} = 0.50$	$F_{em \perp} = 3665.6$
LOADING PARA OR PERP TO GRAIN:		PARA		$Lag D_r = 0.371$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?		Y		$Bolt D = 0.500$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =		0.250		$F_{yb} = 45000$	$k_{1 \perp} = 0.161$
FASTENER TYPE (LAGS/BOLTS) =		LAGS		$R_{e \perp} = 0.0421$	$k_{1 \parallel} = 0.223$
				$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.559$
				$R_t = 7.500$	$k_{2 \parallel} = 0.559$
				$l_m = 1.875$	$k_{3 \perp} = 8.288$
				$l_s = 0.250$	$k_{3 \parallel} = 6.578$
BRACKET SECURED WITH LAG SCREWS			BRACKET SECURED WITH THRU-BOLTS		
LAG SCREW DIA. (IN.) =		1/2	BOLT DIA. (IN.) =		1/2
LAG LENGTH (IN.) =		2.5	NO. BOLTS S.S. =		0
NO. LAG SCREWS =		12	NO. BOLTS D.S. =		0
MIN. PEN. REQ'D (IN.) =		2.5	MAIN MEMBER THICKNESS (IN.) =		5 1/8
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT		DOUBLE SHEAR RES. / BOLT	
EQN I _m :	974 LBS	EQN I _m :	3588 LBS	EQN I _m :	3588 LBS
EQN I _s :	2017 LBS	EQN I _s :	2719 LBS	EQN I _s :	5438 LBS
EQN II:	501 LBS	EQN II:	675 LBS		
EQN III _m :	603 LBS	EQN III _m :	2222 LBS		
EQN III _s :	517 LBS	EQN III:	697 LBS	EQN III _s :	1394 LBS
EQN IV:	540 LBS	EQN IV:	982 LBS	EQN IV:	1963 LBS
RESIST _{DES} =	501 LBS / LAG	RESIST _{DES} =	675 LBS / BOLT	RESIST _{DES} =	1394 LBS / BOLT
RESIST _{GRP} =	6006 LBS	RESIST _{GRP} =	0 LBS	RESIST _{GRP} =	0 LBS

SUMMARY**BRKT # BK21SQ GOOD FOR 50625 LBS IN PLATE BEARING**

WCLH BRACKET			
BRKT NO:	BK21	GF	50625 LBS
BRKT SHEAR RESIST. USING FOR BRG:	SPF #1	NDS VARIABLES	
BRACKET LOADED IN SHEAR (V / H):	V	$G_{\text{Species}} = 0.50$	$F_{em \perp} = 3665.6$
LOADING PARA OR PERP TO GRAIN:	PERP	$\text{Lag } D_r = 0.371$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$\text{Bolt } D = 0.500$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =	0.250	$F_{yb} = 45000$	$k_{1 \perp} = 0.161$
FASTENER TYPE (LAGS/BOLTS) =	LAGS	$R_{e \perp} = 0.0421$	$k_{1 \parallel} = 0.223$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.559$
		$R_t = 7.500$	$k_{2 \parallel} = 0.559$
		$l_m = 1.875$	$k_{3 \perp} = 8.288$
		$l_s = 0.250$	$k_{3 \parallel} = 6.578$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	1/2
LAG LENGTH (IN.) =	2.5	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	12	NO. BOLTS D.S. =	0
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	5 1/8
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	DOUBLE SHEAR RES. / BOLT
EQN I _m :	637 LBS	EQN I _m :	2348 LBS
EQN I _s :	2017 LBS	EQN I _s :	2719 LBS
EQN II:	360 LBS	EQN II:	485 LBS
EQN III _m :	411 LBS	EQN III _m :	1514 LBS
EQN III _s :	431 LBS	EQN III _s :	581 LBS
EQN IV:	442 LBS	EQN IV:	803 LBS
RESIST _{DES} =	360 LBS / LAG	RESIST _{DES} =	485 LBS / BOLT
RESIST _{GRP} =	4322 LBS	RESIST _{GRP} =	0 LBS
		RESIST _{DES} =	1162 LBS / BOLT
		RESIST _{GRP} =	0 LBS
SUMMARY			
BRKT # BK21 GOOD FOR 50625 LBS IN PLATE BEARING			

WCLH BRACKET**BRKT NO: BK19Z GF 4655 LBS**

BRKT SHEAR RESIST. USING FOR BRG:		SPF #1	NDS VARIABLES		
BRACKET LOADED IN SHEAR (V / H):	V		$G_{Species} = 0.50$	$F_{em \perp} = 3665.6$	
LOADING PARA OR PERP TO GRAIN:	PARA		$Lag D_r = 0.371$	$F_{em \parallel} = 5600.0$	
POS. CONNECTION TO ALL MEMBERS?	Y		$Bolt D = 0.500$	$F_{cs} = 87000$	
BRACKET THICKNESS (IN.) =	0.250		$F_{yb} = 45000$	$k_{1 \perp} = 0.247$	
FASTENER TYPE (LAGS/BOLTS) =	LAGS		$R_{e \perp} = 0.0421$	$k_{1 \parallel} = 0.364$	
			$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.480$	
			$R_t = 13.500$	$k_{2 \parallel} = 0.480$	
			$l_m = 3.375$	$k_{3 \perp} = 8.288$	
			$l_s = 0.250$	$k_{3 \parallel} = 6.578$	
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS			
LAG SCREW DIA. (IN.) =	1/2		BOLT DIA. (IN.) =	1/2	
LAG LENGTH (IN.) =	4.0		NO. BOLTS S.S. =	0	
NO. LAG SCREWS =	9		NO. BOLTS D.S. =	0	
MIN. PEN. REQ'D (IN.) =	2.5		MAIN MEMBER THICKNESS (IN.) =	5 1/8	
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT		DOUBLE SHEAR RES. / BOLT	
EQN I _m :	1753 LBS	EQN I _m :	3588 LBS	EQN I _m :	3588 LBS
EQN I _s :	2017 LBS	EQN I _s :	2719 LBS	EQN I _s :	5438 LBS
EQN II:	815 LBS	EQN II:	1098 LBS		
EQN III _m :	933 LBS	EQN III _m :	1908 LBS		
EQN III _s :	517 LBS	EQN III _s :	697 LBS	EQN III _s :	1394 LBS
EQN IV:	540 LBS	EQN IV:	982 LBS	EQN IV:	1963 LBS
RESIST _{DES} =	517 LBS / LAG	RESIST _{DES} =	697 LBS / BOLT	RESIST _{DES} =	1394 LBS / BOLT
RESIST _{GRP} =	4655 LBS	RESIST _{GRP} =	0 LBS	RESIST _{GRP} =	0 LBS

SUMMARY**BRKT # BK19Z GOOD FOR 4655 LBS**

WCLH BRACKET**BRKT NO: BK18 GF 10861 LBS****BRKT SHEAR RESIST. USING FOR BRG: SPF #1****NDS VARIABLES**

BRACKET LOADED IN SHEAR (V / H):	V	$G_{Species} = 0.50$	$F_{em \perp} = 3665.6$
LOADING PARA OR PERP TO GRAIN:	PARA	$Lag D_r = 0.371$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$Bolt D = 0.500$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =	0.250	$F_{yb} = 45000$	$k_{1 \perp} = 0.247$
FASTENER TYPE (LAGS/BOLTS) =	LAGS	$R_{e \perp} = 0.0421$	$k_{1 \parallel} = 0.364$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.480$
		$R_t = 13.500$	$k_{2 \parallel} = 0.480$
		$l_m = 3.375$	$k_{3 \perp} = 8.288$
		$l_s = 0.250$	$k_{3 \parallel} = 6.578$

BRACKET SECURED WITH LAG SCREWS**BRACKET SECURED WITH THRU-BOLTS**

LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	1/2
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	21	NO. BOLTS D.S. =	0
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	5 1/8

RESISTANCE FOR EACH LAG SCREW**SINGLE SHEAR RES. / BOLT****DOUBLE SHEAR RES. / BOLT**

EQN I_m:	1753 LBS	EQN I_m:	3588 LBS	EQN I_m:	3588 LBS
EQN I_s:	2017 LBS	EQN I_s:	2719 LBS	EQN I_s:	5438 LBS
EQN II:	815 LBS	EQN II:	1098 LBS		
EQN III_m:	933 LBS	EQN III_m:	1908 LBS		
EQN III_s:	517 LBS	EQN III:	697 LBS	EQN III_s:	1394 LBS
EQN IV:	540 LBS	EQN IV:	982 LBS	EQN IV:	1963 LBS
RESIST_{DES} =	517 LBS / LAG	RESIST_{DES} =	697 LBS / BOLT	RESIST_{DES} =	1394 LBS / BOLT
RESIST_{GRP} =	10861 LBS	RESIST_{GRP} =	0 LBS	RESIST_{GRP} =	0 LBS

SUMMARY**BRKT # BK18 GOOD FOR 10861 LBS**

WCLH BRACKET			
BRKT NO:	BK12	GF	2587 LBS
BRKT SHEAR RESIST. USING FOR BRG:	GLB	NDS VARIABLES	
BRACKET LOADED IN SHEAR (V / H):	V	$G_{\text{Species}} = 0.50$	$F_{em \perp} = 3665.6$
LOADING PARA OR PERP TO GRAIN:	PERP	$\text{Lag } D_r = 0.371$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$\text{Bolt } D = 0.500$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =	0.250	$F_{yb} = 45000$	$k_{1 \perp} = 0.247$
FASTENER TYPE (LAGS/BOLTS) =	LAGS	$R_{e \perp} = 0.0421$	$k_{1 \parallel} = 0.364$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.480$
		$R_t = 13.500$	$k_{2 \parallel} = 0.480$
		$l_m = 3.375$	$k_{3 \perp} = 8.288$
		$l_s = 0.250$	$k_{3 \parallel} = 6.578$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	1/2
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	6	NO. BOLTS D.S. =	0
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	5 1/8
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	DOUBLE SHEAR RES. / BOLT
EQN I _m :	1147 LBS	EQN I _m :	2348 LBS
EQN I _s :	2017 LBS	EQN I _s :	5438 LBS
EQN II:	554 LBS	EQN II:	
EQN III _m :	635 LBS	EQN III _m :	
EQN III _s :	431 LBS	EQN III _s :	1162 LBS
EQN IV:	442 LBS	EQN IV:	1605 LBS
RESIST _{DES} =	431 LBS / LAG	RESIST _{DES} =	581 LBS / BOLT
RESIST _{GRP} =	2587 LBS	RESIST _{GRP} =	0 LBS
SUMMARY			
BRKT # BK12 GOOD FOR 2587 LBS			

WCLH BRACKET			
BRKT NO:	BK11	GF	2069 LBS
BRKT SHEAR RESIST. USING FOR BRG:	SPF #1	NDS VARIABLES	
BRACKET LOADED IN SHEAR (V / H):	V	$G_{Species} = 0.50$	$F_{em \perp} = 3665.6$
LOADING PARA OR PERP TO GRAIN:	PARA	$Lag D_r = 0.371$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$Bolt D = 0.500$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =	0.250	$F_{yb} = 45000$	$k_{1 \perp} = 0.247$
FASTENER TYPE (LAGS/BOLTS) =	LAGS	$R_{e \perp} = 0.0421$	$k_{1 \parallel} = 0.364$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.480$
		$R_t = 13.500$	$k_{2 \parallel} = 0.480$
		$I_m = 3.375$	$k_{3 \perp} = 8.288$
		$I_s = 0.250$	$k_{3 \parallel} = 6.578$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	1/2
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	4	NO. BOLTS D.S. =	0
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	5 1/8
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	DOUBLE SHEAR RES. / BOLT
EQN I _m :	1753 LBS	EQN I _m :	3588 LBS
EQN I _s :	2017 LBS	EQN I _s :	2719 LBS
EQN II:	815 LBS	EQN II:	1098 LBS
EQN III _m :	933 LBS	EQN III _m :	1908 LBS
EQN III _s :	517 LBS	EQN III _s :	697 LBS
EQN IV:	540 LBS	EQN IV:	982 LBS
RESIST _{DES} =	517 LBS / LAG	RESIST _{DES} =	697 LBS / BOLT
RESIST _{GRP} =	2069 LBS	RESIST _{GRP} =	0 LBS
		RESIST _{DES} =	1394 LBS / BOLT
		RESIST _{GRP} =	0 LBS
SUMMARY			
BRKT # BK11 GOOD FOR 2069 LBS			

WCLH BRACKET**BRKT NO: BK10SQ GF 4655 LBS**

BRKT SHEAR RESIST. USING FOR BRG:		SPF #1	NDS VARIABLES		
BRACKET LOADED IN SHEAR (V / H):	V		$G_{Species} = 0.50$	$F_{em \perp} = 3665.6$	
LOADING PARA OR PERP TO GRAIN:	PARA		$Lag D_r = 0.371$	$F_{em \parallel} = 5600.0$	
POS. CONNECTION TO ALL MEMBERS?	Y		$Bolt D = 0.500$	$F_{cs} = 87000$	
BRACKET THICKNESS (IN.) =	0.250		$F_{yb} = 45000$	$k_{1 \perp} = 0.247$	
FASTENER TYPE (LAGS/BOLTS) =	LAGS		$R_{e \perp} = 0.0421$	$k_{1 \parallel} = 0.364$	
			$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.480$	
			$R_t = 13.500$	$k_{2 \parallel} = 0.480$	
			$l_m = 3.375$	$k_{3 \perp} = 8.288$	
			$l_s = 0.250$	$k_{3 \parallel} = 6.578$	
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS			
LAG SCREW DIA. (IN.) =	1/2		BOLT DIA. (IN.) =	1/2	
LAG LENGTH (IN.) =	4.0		NO. BOLTS S.S. =	0	
NO. LAG SCREWS =	9		NO. BOLTS D.S. =	0	
MIN. PEN. REQ'D (IN.) =	2.5		MAIN MEMBER THICKNESS (IN.) =	5 1/8	
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT		DOUBLE SHEAR RES. / BOLT	
EQN I _m :	1753 LBS	EQN I _m :	3588 LBS	EQN I _m :	3588 LBS
EQN I _s :	2017 LBS	EQN I _s :	2719 LBS	EQN I _s :	5438 LBS
EQN II:	815 LBS	EQN II:	1098 LBS		
EQN III _m :	933 LBS	EQN III _m :	1908 LBS		
EQN III _s :	517 LBS	EQN III _s :	697 LBS	EQN III _s :	1394 LBS
EQN IV:	540 LBS	EQN IV:	982 LBS	EQN IV:	1963 LBS
RESIST _{DES} =	517 LBS / LAG	RESIST _{DES} =	697 LBS / BOLT	RESIST _{DES} =	1394 LBS / BOLT
RESIST _{GRP} =	4655 LBS	RESIST _{GRP} =	0 LBS	RESIST _{GRP} =	0 LBS

SUMMARY**BRKT # BK10SQ GOOD FOR 4655 LBS**

WCLH BRACKET			
BRKT NO:	BK10	GF	4655 LBS
BRKT SHEAR RESIST. USING FOR BRG:	SPF #1	NDS VARIABLES	
BRACKET LOADED IN SHEAR (V / H):	V	$G_{Species} = 0.50$	$F_{em \perp} = 3665.6$
LOADING PARA OR PERP TO GRAIN:	PARA	$Lag D_r = 0.371$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$Bolt D = 0.500$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =	0.250	$F_{yb} = 45000$	$k_{1 \perp} = 0.247$
FASTENER TYPE (LAGS/BOLTS) =	LAGS	$R_{e \perp} = 0.0421$	$k_{1 \parallel} = 0.364$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.480$
		$R_t = 13.500$	$k_{2 \parallel} = 0.480$
		$l_m = 3.375$	$k_{3 \perp} = 8.288$
		$l_s = 0.250$	$k_{3 \parallel} = 6.578$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	1/2
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	9	NO. BOLTS D.S. =	0
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	5 1/8
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	DOUBLE SHEAR RES. / BOLT
EQN I _m :	1753 LBS	EQN I _m :	3588 LBS
EQN I _s :	2017 LBS	EQN I _s :	2719 LBS
EQN II:	815 LBS	EQN II:	1098 LBS
EQN III _m :	933 LBS	EQN III _m :	1908 LBS
EQN III _s :	517 LBS	EQN III _s :	697 LBS
EQN IV:	540 LBS	EQN IV:	982 LBS
RESIST _{DES} =	517 LBS / LAG	RESIST _{DES} =	697 LBS / BOLT
RESIST _{GRP} =	4655 LBS	RESIST _{GRP} =	0 LBS
		RESIST _{DES} =	1394 LBS / BOLT
		RESIST _{GRP} =	0 LBS
SUMMARY			
BRKT # BK10 GOOD FOR 4655 LBS			

WCLH BRACKET			
BRKT NO:	BK9SQ	GF	8792 LBS
BRKT SHEAR RESIST. USING FOR BRG:	SPF #1	NDS VARIABLES	
BRACKET LOADED IN SHEAR (V / H):	V	$G_{\text{Species}} = 0.50$	$F_{em \perp} = 3665.6$
LOADING PARA OR PERP TO GRAIN:	PARA	$\text{Lag } D_r = 0.371$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$\text{Bolt } D = 0.500$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =	0.250	$F_{yb} = 45000$	$k_{1 \perp} = 0.247$
FASTENER TYPE (LAGS/BOLTS) =	LAGS	$R_{e \perp} = 0.0421$	$k_{1 \parallel} = 0.364$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.480$
		$R_t = 13.500$	$k_{2 \parallel} = 0.480$
		$l_m = 3.375$	$k_{3 \perp} = 8.288$
		$l_s = 0.250$	$k_{3 \parallel} = 6.578$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	1/2
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	17	NO. BOLTS D.S. =	0
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	5 1/8
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	DOUBLE SHEAR RES. / BOLT
EQN I_m:	1753 LBS	EQN I_m:	3588 LBS
EQN I_s:	2017 LBS	EQN I_s:	2719 LBS
EQN II:	815 LBS	EQN II:	1098 LBS
EQN III_m:	933 LBS	EQN III_m:	1908 LBS
EQN III_s:	517 LBS	EQN III:	697 LBS
EQN IV:	540 LBS	EQN IV:	982 LBS
EQN IV:	540 LBS	EQN IV:	982 LBS
EQN IV:	540 LBS	EQN IV:	982 LBS
RESIST_{DES} =	517 LBS / LAG	RESIST_{DES} =	697 LBS / BOLT
RESIST_{GRP} =	8792 LBS	RESIST_{GRP} =	0 LBS
RESIST_{DES} =	517 LBS / LAG	RESIST_{DES} =	697 LBS / BOLT
RESIST_{GRP} =	8792 LBS	RESIST_{GRP} =	0 LBS
SUMMARY			
BRKT # BK9SQ GOOD FOR 8792 LBS			

WCLH BRACKET**BRKT NO: BK9 GF 10861 LBS****BRKT SHEAR RESIST. USING FOR BRG: SPF #1****NDS VARIABLES**

BRACKET LOADED IN SHEAR (V / H):	V	$G_{Species} = 0.50$	$F_{em \perp} = 3665.6$
LOADING PARA OR PERP TO GRAIN:	PARA	$Lag D_r = 0.371$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$Bolt D = 0.500$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =	0.250	$F_{yb} = 45000$	$k_{1 \perp} = 0.247$
FASTENER TYPE (LAGS/BOLTS) =	LAGS	$R_{e \perp} = 0.0421$	$k_{1 \parallel} = 0.364$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.480$
		$R_t = 13.500$	$k_{2 \parallel} = 0.480$
		$l_m = 3.375$	$k_{3 \perp} = 8.288$
		$l_s = 0.250$	$k_{3 \parallel} = 6.578$

BRACKET SECURED WITH LAG SCREWS**BRACKET SECURED WITH THRU-BOLTS**

LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	1/2
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	21	NO. BOLTS D.S. =	0
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	5 1/8

RESISTANCE FOR EACH LAG SCREW**SINGLE SHEAR RES. / BOLT****DOUBLE SHEAR RES. / BOLT**

EQN I_m:	1753 LBS	EQN I_m:	3588 LBS	EQN I_m:	3588 LBS
EQN I_s:	2017 LBS	EQN I_s:	2719 LBS	EQN I_s:	5438 LBS
EQN II:	815 LBS	EQN II:	1098 LBS		
EQN III_m:	933 LBS	EQN III_m:	1908 LBS		
EQN III_s:	517 LBS	EQN III:	697 LBS	EQN III_s:	1394 LBS
EQN IV:	540 LBS	EQN IV:	982 LBS	EQN IV:	1963 LBS
RESIST_{DES} =	517 LBS / LAG	RESIST_{DES} =	697 LBS / BOLT	RESIST_{DES} =	1394 LBS / BOLT
RESIST_{GRP} =	10861 LBS	RESIST_{GRP} =	0 LBS	RESIST_{GRP} =	0 LBS

SUMMARY**BRKT # BK9 GOOD FOR 10861 LBS**

WCLH BRACKET			
BRKT NO:	BK8SQ	GF	8792 LBS
BRKT SHEAR RESIST. USING FOR BRG:	SPF #1	NDS VARIABLES	
BRACKET LOADED IN SHEAR (V / H):	V	$G_{\text{Species}} = 0.50$	$F_{em \perp} = 3665.6$
LOADING PARA OR PERP TO GRAIN:	PARA	$\text{Lag } D_r = 0.371$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$\text{Bolt } D = 0.500$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =	0.250	$F_{yb} = 45000$	$k_{1 \perp} = 0.247$
FASTENER TYPE (LAGS/BOLTS) =	LAGS	$R_{e \perp} = 0.0421$	$k_{1 \parallel} = 0.364$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.480$
		$R_t = 13.500$	$k_{2 \parallel} = 0.480$
		$l_m = 3.375$	$k_{3 \perp} = 8.288$
		$l_s = 0.250$	$k_{3 \parallel} = 6.578$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	1/2
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	17	NO. BOLTS D.S. =	0
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	5 1/8
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	DOUBLE SHEAR RES. / BOLT
EQN I _m :	1753 LBS	EQN I _m :	3588 LBS
EQN I _s :	2017 LBS	EQN I _s :	5438 LBS
EQN II:	815 LBS	EQN II:	
EQN III _m :	933 LBS	EQN III _m :	
EQN III _s :	517 LBS	EQN III _s :	1394 LBS
EQN IV:	540 LBS	EQN IV:	1963 LBS
RESIST _{DES} =	517 LBS / LAG	RESIST _{DES} =	697 LBS / BOLT
RESIST _{GRP} =	8792 LBS	RESIST _{GRP} =	0 LBS
SUMMARY			
BRKT # BK8SQ GOOD FOR 8792 LBS			

WCLH BRACKET**BRKT NO: BK8 GF 10861 LBS****BRKT SHEAR RESIST. USING FOR BRG: SPF #1****NDS VARIABLES**

BRACKET LOADED IN SHEAR (V / H):	V	$G_{Species} = 0.50$	$F_{em \perp} = 3665.6$
LOADING PARA OR PERP TO GRAIN:	PARA	$Lag D_r = 0.371$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$Bolt D = 0.500$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =	0.250	$F_{yb} = 45000$	$k_{1 \perp} = 0.247$
FASTENER TYPE (LAGS/BOLTS) =	LAGS	$R_{e \perp} = 0.0421$	$k_{1 \parallel} = 0.364$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.480$
		$R_t = 13.500$	$k_{2 \parallel} = 0.480$
		$l_m = 3.375$	$k_{3 \perp} = 8.288$
		$l_s = 0.250$	$k_{3 \parallel} = 6.578$

BRACKET SECURED WITH LAG SCREWS**BRACKET SECURED WITH THRU-BOLTS**

LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	1/2
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	21	NO. BOLTS D.S. =	0
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	5 1/8

RESISTANCE FOR EACH LAG SCREW**SINGLE SHEAR RES. / BOLT****DOUBLE SHEAR RES. / BOLT**

EQN I_m:	1753 LBS	EQN I_m:	3588 LBS	EQN I_m:	3588 LBS
EQN I_s:	2017 LBS	EQN I_s:	2719 LBS	EQN I_s:	5438 LBS
EQN II:	815 LBS	EQN II:	1098 LBS		
EQN III_m:	933 LBS	EQN III_m:	1908 LBS		
EQN III_s:	517 LBS	EQN III:	697 LBS	EQN III_s:	1394 LBS
EQN IV:	540 LBS	EQN IV:	982 LBS	EQN IV:	1963 LBS
RESIST_{DES} =	517 LBS / LAG	RESIST_{DES} =	697 LBS / BOLT	RESIST_{DES} =	1394 LBS / BOLT
RESIST_{GRP} =	10861 LBS	RESIST_{GRP} =	0 LBS	RESIST_{GRP} =	0 LBS

SUMMARY**BRKT # BK8 GOOD FOR 10861 LBS**

WCLH BRACKET			
BRKT NO:	BK7Z	GF	4655 LBS
BRKT SHEAR RESIST. USING FOR BRG:	SPF #1	NDS VARIABLES	
BRACKET LOADED IN SHEAR (V / H):	V	$G_{Species} = 0.50$	$F_{em \perp} = 3665.6$
LOADING PARA OR PERP TO GRAIN:	PARA	$Lag D_r = 0.371$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$Bolt D = 0.500$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =	0.250	$F_{yb} = 45000$	$k_{1 \perp} = 0.247$
FASTENER TYPE (LAGS/BOLTS) =	LAGS	$R_{e \perp} = 0.0421$	$k_{1 \parallel} = 0.364$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.480$
		$R_t = 13.500$	$k_{2 \parallel} = 0.480$
		$l_m = 3.375$	$k_{3 \perp} = 8.288$
		$l_s = 0.250$	$k_{3 \parallel} = 6.578$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	1/2
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	9	NO. BOLTS D.S. =	0
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	5 1/8
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	DOUBLE SHEAR RES. / BOLT
EQN I _m :	1753 LBS	EQN I _m :	3588 LBS
EQN I _s :	2017 LBS	EQN I _s :	2719 LBS
EQN II:	815 LBS	EQN II:	1098 LBS
EQN III _m :	933 LBS	EQN III _m :	1908 LBS
EQN III _s :	517 LBS	EQN III _s :	697 LBS
EQN IV:	540 LBS	EQN IV:	982 LBS
RESIST _{DES} =	517 LBS / LAG	RESIST _{DES} =	697 LBS / BOLT
RESIST _{GRP} =	4655 LBS	RESIST _{GRP} =	0 LBS
		RESIST _{DES} =	1394 LBS / BOLT
		RESIST _{GRP} =	0 LBS
SUMMARY			
BRKT # BK7Z GOOD FOR 4655 LBS			

WCLH BRACKET			
BRKT NO:	BK7	GF	4655 LBS
BRKT SHEAR RESIST. USING FOR BRG:	SPF #1	NDS VARIABLES	
BRACKET LOADED IN SHEAR (V / H):	V	$G_{Species} = 0.50$	$F_{em \perp} = 3665.6$
LOADING PARA OR PERP TO GRAIN:	PARA	$Lag D_r = 0.371$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$Bolt D = 0.500$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =	0.250	$F_{yb} = 45000$	$k_{1 \perp} = 0.247$
FASTENER TYPE (LAGS/BOLTS) =	LAGS	$R_{e \perp} = 0.0421$	$k_{1 \parallel} = 0.364$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.480$
		$R_t = 13.500$	$k_{2 \parallel} = 0.480$
		$l_m = 3.375$	$k_{3 \perp} = 8.288$
		$l_s = 0.250$	$k_{3 \parallel} = 6.578$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	1/2
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	9	NO. BOLTS D.S. =	0
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	5 1/8
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	DOUBLE SHEAR RES. / BOLT
EQN I_m:	1753 LBS	EQN I_m:	3588 LBS
EQN I_s:	2017 LBS	EQN I_s:	2719 LBS
EQN II:	815 LBS	EQN II:	1098 LBS
EQN III_m:	933 LBS	EQN III_m:	1908 LBS
EQN III_s:	517 LBS	EQN III:	697 LBS
EQN IV:	540 LBS	EQN IV:	982 LBS
EQN IV:	540 LBS	EQN IV:	982 LBS
EQN IV:	540 LBS	EQN IV:	982 LBS
RESIST_{DES} =	517 LBS / LAG	RESIST_{DES} =	697 LBS / BOLT
RESIST_{GRP} =	4655 LBS	RESIST_{GRP} =	0 LBS
RESIST_{DES} =	517 LBS / LAG	RESIST_{DES} =	697 LBS / BOLT
RESIST_{GRP} =	4655 LBS	RESIST_{GRP} =	0 LBS
SUMMARY			
BRKT #	BK7	GOOD FOR	4655 LBS

WCLH BRACKET			
BRKT NO:	BK6	GF	2069 LBS
BRKT SHEAR RESIST. USING FOR BRG:	SPF #1	NDS VARIABLES	
BRACKET LOADED IN SHEAR (V / H):	V	$G_{\text{Species}} = 0.50$	$F_{em \perp} = 3665.6$
LOADING PARA OR PERP TO GRAIN:	PARA	$\text{Lag } D_r = 0.371$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$\text{Bolt } D = 0.500$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =	0.250	$F_{yb} = 45000$	$k_{1 \perp} = 0.247$
FASTENER TYPE (LAGS/BOLTS) =	LAGS	$R_{e \perp} = 0.0421$	$k_{1 \parallel} = 0.364$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.480$
		$R_t = 13.500$	$k_{2 \parallel} = 0.480$
		$l_m = 3.375$	$k_{3 \perp} = 8.288$
		$l_s = 0.250$	$k_{3 \parallel} = 6.578$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	1/2
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	4	NO. BOLTS D.S. =	0
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	5 1/8
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	DOUBLE SHEAR RES. / BOLT
EQN I _m :	1753 LBS	EQN I _m :	3588 LBS
EQN I _s :	2017 LBS	EQN I _s :	5438 LBS
EQN II:	815 LBS	EQN II:	
EQN III _m :	933 LBS	EQN III _m :	
EQN III _s :	517 LBS	EQN III _s :	1394 LBS
EQN IV:	540 LBS	EQN IV:	1963 LBS
RESIST _{DES} =	517 LBS / LAG	RESIST _{DES} =	697 LBS / BOLT
RESIST _{GRP} =	2069 LBS	RESIST _{GRP} =	0 LBS
SUMMARY			
BRKT #	BK6	GOOD FOR	2069 LBS

WCLH BRACKET			
BRKT NO:	BK5G	GF	2587 LBS
BRKT SHEAR RESIST. USING FOR BRG:	SPF #1	NDS VARIABLES	
BRACKET LOADED IN SHEAR (V / H):	H	$G_{\text{Species}} = 0.50$	$F_{em \perp} = 3665.6$
LOADING PARA OR PERP TO GRAIN:	PERP	$\text{Lag } D_r = 0.371$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$\text{Bolt } D = 0.500$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =	0.250	$F_{yb} = 45000$	$k_{1 \perp} = 0.247$
FASTENER TYPE (LAGS/BOLTS) =	LAGS	$R_{e \perp} = 0.0421$	$k_{1 \parallel} = 0.364$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.480$
		$R_t = 13.500$	$k_{2 \parallel} = 0.480$
		$I_m = 3.375$	$k_{3 \perp} = 8.288$
		$I_s = 0.250$	$k_{3 \parallel} = 6.578$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	1/2
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	6	NO. BOLTS D.S. =	0
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	5 1/8
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	DOUBLE SHEAR RES. / BOLT
EQN I_m:	1147 LBS	EQN I_m:	2348 LBS
EQN I_s:	2017 LBS	EQN I_s:	2719 LBS
EQN II:	554 LBS	EQN II:	747 LBS
EQN III_m:	635 LBS	EQN III_m:	1300 LBS
EQN III_s:	431 LBS	EQN III:	581 LBS
EQN IV:	442 LBS	EQN IV:	803 LBS
EQN IV:	442 LBS	EQN IV:	803 LBS
EQN IV:	442 LBS	EQN IV:	803 LBS
RESIST_{DES} =	431 LBS / LAG	RESIST_{DES} =	581 LBS / BOLT
RESIST_{GRP} =	2587 LBS	RESIST_{GRP} =	0 LBS
RESIST_{DES} =	431 LBS / LAG	RESIST_{DES} =	581 LBS / BOLT
RESIST_{GRP} =	2587 LBS	RESIST_{GRP} =	0 LBS
SUMMARY			
BRKT # BK5G GOOD FOR 2587 LBS			

WCLH BRACKET			
BRKT NO:	BK5	GF	2587 LBS
BRKT SHEAR RESIST. USING FOR BRG:		SPF #1	NDS VARIABLES
BRACKET LOADED IN SHEAR (V / H):	H	G_{Species} = 0.50	F_{em,⊥} = 3665.6
LOADING PARA OR PERP TO GRAIN:	PERP	Lag D_r = 0.371	F_{em} = 5600.0
POS. CONNECTION TO ALL MEMBERS?	Y	Bolt D = 0.500	F_{cs} = 87000
BRACKET THICKNESS (IN.) =	0.250	F_{yb} = 45000	k_{1,⊥} = 0.247
FASTENER TYPE (LAGS/BOLTS) =	LAGS	R_{e,⊥} = 0.0421	k_{1,} = 0.364
		R_{e,} = 0.0644	k_{2,⊥} = 0.480
		R_t = 13.500	k_{2,} = 0.480
		I_m = 3.375	k_{3,⊥} = 8.288
		I_s = 0.250	k_{3,} = 6.578
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	1/2
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	6	NO. BOLTS D.S. =	0
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	5 1/8
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	DOUBLE SHEAR RES. / BOLT
EQN I_m:	1147 LBS	EQN I_m:	2348 LBS
EQN I_s:	2017 LBS	EQN I_s:	5438 LBS
EQN II:	554 LBS	EQN II:	747 LBS
EQN III_m:	635 LBS	EQN III_m:	1300 LBS
EQN III_s:	431 LBS	EQN III:	581 LBS
EQN IV:	442 LBS	EQN IV:	803 LBS
RESIST_{DES} =	431 LBS / LAG	RESIST_{DES} =	581 LBS / BOLT
RESIST_{GRP} =	2587 LBS	RESIST_{GRP} =	0 LBS
SUMMARY			
BRKT # BK5 GOOD FOR 2587 LBS			

WCLH BRACKET		ADDED 11-25-08 RIB	
7	BRKT NO: BK5	GF	3303 LBS - TENSION ACROSS CONNECTION
BRKT SHEAR RESIST. USING FOR BRG:		GLB	NDS VARIABLES
BRACKET LOADED IN SHEAR (V / H):		H	$G_{\text{Species}} = 0.50$ $F_{em, \perp} = 3157.6$
LOADING PARA OR PERP TO GRAIN:		PARA	$Lag D_r = 0.371$ $F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?		Y	$Bolt D = 0.500$ $F_{es} = 87000$
BRACKET THICKNESS (IN.) =		0.250	$F_{yb} = 45000$ $k_{1, \perp} = 0.313$
FASTENER TYPE (LAGS/BOLTS) =		BOLTS	$R_{e, \perp} = 0.0363$ $k_{1, \parallel} = 0.540$
			$R_{e, \parallel} = 0.0644$ $k_{2, \perp} = 0.473$
			$R_t = 20.500$ $k_{2, \parallel} = 0.458$
			$I_m = 5.125$ $k_{3, \perp} = 10,597$
			$I_s = 0.250$ $k_{3, \parallel} = 7.792$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =		1/2	BOLT DIA. (IN.) = 1/2
LAG LENGTH (IN.) =		4.0	NO. BOLTS S.S. = 0
NO. LAG SCREWS =		0	NO. BOLTS D.S. = 2
MIN. PEN. REQ'D (IN.) =		2.5	MAIN MEMBER THICKNESS (IN.) = 5 1/8
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	DOUBLE SHEAR RES. / BOLT
EQN I _m :	2662 LBS	EQN I _m :	3588 LBS
EQN I _s :	2017 LBS	EQN I _s :	2719 LBS
EQN II:	1211 LBS	EQN II:	1632 LBS
EQN III _m :	1350 LBS	EQN III _m :	1820 LBS
EQN III _s :	613 LBS	EQN III _s :	826 LBS
EQN IV:	540 LBS	EQN IV:	982 LBS
RESIST _{DES} = 540 LBS / LAG		RESIST _{DES} = 826 LBS / BOLT	RESIST _{DES} = 1651 LBS / BOLT
RESIST _{GRP} = 0 LBS		RESIST _{GRP} = 0 LBS	RESIST _{GRP} = 3303 LBS
<div style="border: 1px solid black; padding: 5px; display: inline-block;"> SUMMARY BRKT # BK5 GOOD FOR 3303 LBS </div>			

WCLH BRACKET			
BRKT NO:	BK4SQ	GF	6206 LBS
BRKT SHEAR RESIST. USING FOR BRG:	SPF #1	NDS VARIABLES	
BRACKET LOADED IN SHEAR (V / H):	V	$G_{\text{Species}} = 0.50$	$F_{em \perp} = 3665.6$
LOADING PARA OR PERP TO GRAIN:	PARA	$\text{Lag } D_r = 0.371$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$\text{Bolt } D = 0.500$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =	0.250	$F_{yb} = 45000$	$k_{1 \perp} = 0.247$
FASTENER TYPE (LAGS/BOLTS) =	LAGS	$R_{e \perp} = 0.0421$	$k_{1 \parallel} = 0.364$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.480$
		$R_t = 13.500$	$k_{2 \parallel} = 0.480$
		$l_m = 3.375$	$k_{3 \perp} = 8.288$
		$l_s = 0.250$	$k_{3 \parallel} = 6.578$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	1/2
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	12	NO. BOLTS D.S. =	0
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	5 1/8
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	DOUBLE SHEAR RES. / BOLT
EQN I_m:	1753 LBS	EQN I_m:	3588 LBS
EQN I_s:	2017 LBS	EQN I_s:	5438 LBS
EQN II:	815 LBS	EQN II:	
EQN III_m:	933 LBS	EQN III_m:	
EQN III_s:	517 LBS	EQN III_s:	1394 LBS
EQN IV:	540 LBS	EQN IV:	1963 LBS
RESIST_{DES} =	517 LBS / LAG	RESIST_{DES} =	697 LBS / BOLT
RESIST_{GRP} =	6206 LBS	RESIST_{GRP} =	0 LBS
SUMMARY			
BRKT # BK4SQ GOOD FOR 6206 LBS			

WCLH BRACKET**BRKT NO: BK3ZSQ GF 3103 LBS**

BRKT SHEAR RESIST. USING FOR BRG:		SPF #1	NDS VARIABLES		
BRACKET LOADED IN SHEAR (V / H):	V		$G_{Species} = 0.50$	$F_{em \perp} = 3665.6$	
LOADING PARA OR PERP TO GRAIN:	PARA		$Lag D_r = 0.371$	$F_{em \parallel} = 5600.0$	
POS. CONNECTION TO ALL MEMBERS?	Y		$Bolt D = 0.500$	$F_{cs} = 87000$	
BRACKET THICKNESS (IN.) =	0.250		$F_{yb} = 45000$	$k_{1 \perp} = 0.247$	
FASTENER TYPE (LAGS/BOLTS) =	LAGS		$R_{e \perp} = 0.0421$	$k_{1 \parallel} = 0.364$	
			$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.480$	
			$R_t = 13.500$	$k_{2 \parallel} = 0.480$	
			$l_m = 3.375$	$k_{3 \perp} = 8.288$	
			$l_s = 0.250$	$k_{3 \parallel} = 6.578$	
BRACKET SECURED WITH LAG SCREWS			BRACKET SECURED WITH THRU-BOLTS		
LAG SCREW DIA. (IN.) =	1/2		BOLT DIA. (IN.) =	1/2	
LAG LENGTH (IN.) =	4.0		NO. BOLTS S.S. =	0	
NO. LAG SCREWS =	6		NO. BOLTS D.S. =	0	
MIN. PEN. REQ'D (IN.) =	2.5		MAIN MEMBER THICKNESS (IN.) =	5 1/8	
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT		DOUBLE SHEAR RES. / BOLT	
EQN I _m :	1753 LBS	EQN I _m :	3588 LBS	EQN I _m :	3588 LBS
EQN I _s :	2017 LBS	EQN I _s :	2719 LBS	EQN I _s :	5438 LBS
EQN II:	815 LBS	EQN II:	1098 LBS		
EQN III _m :	933 LBS	EQN III _m :	1908 LBS		
EQN III _s :	517 LBS	EQN III _s :	697 LBS	EQN III _s :	1394 LBS
EQN IV:	540 LBS	EQN IV:	982 LBS	EQN IV:	1963 LBS
RESIST _{DES} =	517 LBS / LAG	RESIST _{DES} =	697 LBS / BOLT	RESIST _{DES} =	1394 LBS / BOLT
RESIST _{GRP} =	3103 LBS	RESIST _{GRP} =	0 LBS	RESIST _{GRP} =	0 LBS

SUMMARY**BRKT # BK3ZSQ GOOD FOR 3103 LBS**

WCLH BRACKET			
BRKT NO: BK3SQ		GF	2586 LBS
BRKT SHEAR RESIST. USING FOR BRG:		SPF #1	NDS VARIABLES
BRACKET LOADED IN SHEAR (V / H):	V	G _{species} =	0.50
LOADING PARA OR PERP TO GRAIN:	PARA	Lag D _r =	0.371
POS. CONNECTION TO ALL MEMBERS:	Y	Bolt D =	0.500
BRACKET THICKNESS (IN.) =	0.250	F _y =	45000
FASTENER TYPE (LAGS/BOLTS) =	LAGS	R _{e⊥} =	0.0421
		R _{e∥} =	0.0644
		R _t =	13.500
		I _m =	3.375
		I _s =	0.250
		F _{em⊥} =	3665.6
		F _{em∥} =	5600.0
		F _{en} =	87000
		k _{1⊥} =	0.247
		k _{1∥} =	0.364
		k _{2⊥} =	0.480
		k _{2∥} =	0.480
		k _{3⊥} =	8.288
		k _{3∥} =	6.578
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	1/2
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	5	NO. BOLTS D.S. =	0
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	5 1/8
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	
EQN I _m :	1753 LBS	EQN I _m :	3588 LBS
EQN I _s :	2017 LBS	EQN I _s :	2719 LBS
EQN II:	815 LBS	EQN II:	1098 LBS
EQN III _m :	933 LBS	EQN III _m :	1908 LBS
EQN III _s :	517 LBS	EQN III _s :	697 LBS
EQN IV:	540 LBS	EQN IV:	982 LBS
RESIST _{DES} =		RESIST _{DES} =	
RESIST _{GRP} =		RESIST _{GRP} =	
517 LBS / LAG		697 LBS / BOLT	
2586 LBS		0 LBS	
		RESIST _{DES} =	
		RESIST _{GRP} =	
		1394 LBS / BOLT	
		0 LBS	
SUMMARY			
BRKT # BK3SQ GOOD FOR 2586 LBS			

WCLH BRACKET			
BRKT NO:	BK3	GF	3103 LBS
BRKT SHEAR RESIST. USING FOR BRG:	SPF #1	NDS VARIABLES	
BRACKET LOADED IN SHEAR (V / H):	V	$G_{\text{Species}} = 0.50$	$F_{em \perp} = 3665.6$
LOADING PARA OR PERP TO GRAIN:	PARA	$\text{Lag } D_r = 0.371$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$\text{Bolt } D = 0.500$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =	0.250	$F_{yb} = 45000$	$k_{1 \perp} = 0.247$
FASTENER TYPE (LAGS/BOLTS) =	LAGS	$R_{e \perp} = 0.0421$	$k_{1 \parallel} = 0.364$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.480$
		$R_t = 13.500$	$k_{2 \parallel} = 0.480$
		$l_m = 3.375$	$k_{3 \perp} = 8.288$
		$l_s = 0.250$	$k_{3 \parallel} = 6.578$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	1/2
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	6	NO. BOLTS D.S. =	0
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	5 1/8
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	DOUBLE SHEAR RES. / BOLT
EQN I _m :	1753 LBS	EQN I _m :	3588 LBS
EQN I _s :	2017 LBS	EQN I _s :	5438 LBS
EQN II:	815 LBS	EQN II:	
EQN III _m :	933 LBS	EQN III _m :	
EQN III _s :	517 LBS	EQN III _s :	1394 LBS
EQN IV:	540 LBS	EQN IV:	1963 LBS
RESIST _{DES} =	517 LBS / LAG	RESIST _{DES} =	697 LBS / BOLT
RESIST _{GRP} =	3103 LBS	RESIST _{GRP} =	0 LBS
SUMMARY			
BRKT #	BK3	GOOD FOR	3103 LBS

WCLH BRACKET			
BRKT NO:	BK2SQ	GF	2587 LBS
BRKT SHEAR RESIST. USING FOR BRG:	GLB	NDS VARIABLES	
BRACKET LOADED IN SHEAR (V / H):	V	$G_{\text{Species}} = 0.50$	$F_{em \perp} = 3665.6$
LOADING PARA OR PERP TO GRAIN:	PERP	$\text{Lag } D_r = 0.371$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$\text{Bolt } D = 0.500$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =	0.250	$F_{yb} = 45000$	$k_{1 \perp} = 0.247$
FASTENER TYPE (LAGS/BOLTS) =	LAGS	$R_{e \perp} = 0.0421$	$k_{1 \parallel} = 0.364$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.480$
		$R_t = 13.500$	$k_{2 \parallel} = 0.480$
		$l_m = 3.375$	$k_{3 \perp} = 8.288$
		$l_s = 0.250$	$k_{3 \parallel} = 6.578$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	1/2
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	6	NO. BOLTS D.S. =	0
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	5 1/8
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	DOUBLE SHEAR RES. / BOLT
EQN I _m :	1147 LBS	EQN I _m :	2348 LBS
EQN I _s :	2017 LBS	EQN I _s :	5438 LBS
EQN II:	554 LBS	EQN II:	
EQN III _m :	635 LBS	EQN III _m :	
EQN III _s :	431 LBS	EQN III _s :	1162 LBS
EQN IV:	442 LBS	EQN IV:	1605 LBS
RESIST _{DES} =	431 LBS / LAG	RESIST _{DES} =	581 LBS / BOLT
RESIST _{GRP} =	2587 LBS	RESIST _{GRP} =	0 LBS
SUMMARY			
BRKT # BK2SQ GOOD FOR 2587 LBS			

WCLH BRACKET			
BRKT NO:	BK2	GF	2587 LBS
BRKT SHEAR RESIST. USING FOR BRG:	GLB	NDS VARIABLES	
BRACKET LOADED IN SHEAR (V / H):	V	$G_{\text{Species}} = 0.50$	$F_{em \perp} = 3665.6$
LOADING PARA OR PERP TO GRAIN:	PERP	$Lag D_r = 0.371$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	Y	$Bolt D = 0.500$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =	0.250	$F_{yb} = 45000$	$k_{1 \perp} = 0.247$
FASTENER TYPE (LAGS/BOLTS) =	LAGS	$R_{e \perp} = 0.0421$	$k_{1 \parallel} = 0.364$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.480$
		$R_t = 13.500$	$k_{2 \parallel} = 0.480$
		$l_m = 3.375$	$k_{3 \perp} = 8.288$
		$l_s = 0.250$	$k_{3 \parallel} = 6.578$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	1/2	BOLT DIA. (IN.) =	1/2
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	6	NO. BOLTS D.S. =	0
MIN. PEN. REQ'D (IN.) =	2.5	MAIN MEMBER THICKNESS (IN.) =	5 1/8
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	DOUBLE SHEAR RES. / BOLT
EQN I _m :	1147 LBS	EQN I _m :	2348 LBS
EQN I _s :	2017 LBS	EQN I _s :	2719 LBS
EQN II:	554 LBS	EQN II:	747 LBS
EQN III _m :	635 LBS	EQN III _m :	1300 LBS
EQN III _s :	431 LBS	EQN III _s :	581 LBS
EQN IV:	442 LBS	EQN IV:	803 LBS
RESIST _{DES} =	431 LBS / LAG	RESIST _{DES} =	581 LBS / BOLT
RESIST _{GRP} =	2587 LBS	RESIST _{GRP} =	0 LBS
		RESIST _{DES} =	1162 LBS / BOLT
		RESIST _{GRP} =	0 LBS
SUMMARY			
BRKT #	BK2	GOOD FOR	2587 LBS

WCLH BRACKET			
BRKT NO:	BK1	GF	489 LBS
BRKT SHEAR RESIST. USING FOR BRG:		SPF #1	NDS VARIABLES
BRACKET LOADED IN SHEAR (V / H):	H	$G_{\text{Species}} = 0.50$	$F_{em \perp} = 4337.2$
LOADING PARA OR PERP TO GRAIN:	PERP	Lag $D_r = 0.265$	$F_{em \parallel} = 5600.0$
POS. CONNECTION TO ALL MEMBERS?	N	Bolt $D = 0.500$	$F_{cs} = 87000$
BRACKET THICKNESS (IN.) =	0.250	$F_{yb} = 45000$	$k_{1 \perp} = 0.288$
FASTENER TYPE (LAGS/BOLTS) =	LAGS	$R_{e \perp} = 0.0499$	$k_{1 \parallel} = 0.364$
		$R_{e \parallel} = 0.0644$	$k_{2 \perp} = 0.465$
		$R_t = 13.500$	$k_{2 \parallel} = 0.465$
		$l_m = 3.375$	$k_{3 \perp} = 6.619$
		$l_s = 0.250$	$k_{3 \parallel} = 5.745$
BRACKET SECURED WITH LAG SCREWS		BRACKET SECURED WITH THRU-BOLTS	
LAG SCREW DIA. (IN.) =	3/8	BOLT DIA. (IN.) =	1/2
LAG LENGTH (IN.) =	4.0	NO. BOLTS S.S. =	0
NO. LAG SCREWS =	2	NO. BOLTS D.S. =	0
MIN. PEN. REQ'D (IN.) =	2.0	MAIN MEMBER THICKNESS (IN.) =	5 1/8
RESISTANCE FOR EACH LAG SCREW		SINGLE SHEAR RES. / BOLT	
EQN I _m :	970 LBS	EQN I _m :	2779 LBS
EQN I _s :	1441 LBS	EQN I _s :	2719 LBS
EQN II:	461 LBS	EQN II:	869 LBS
EQN III _m :	513 LBS	EQN III _m :	1469 LBS
EQN III _s :	290 LBS	EQN III _s :	547 LBS
EQN IV:	244 LBS	EQN IV:	870 LBS
RESIST _{DES} = 244 LBS / LAG		RESIST _{DES} = 547 LBS / BOLT	
RESIST _{GRP} = 489 LBS		RESIST _{GRP} = 0 LBS	
RESIST _{DES} = 1094 LBS / BOLT		RESIST _{GRP} = 0 LBS	
SUMMARY			
BRKT #	BK1	GOOD FOR	489 LBS