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WoodWorks® Connections

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One Wooden Side Member Bolted at Angle to Two Main Members

Connection Data:

Main (x2):

Glulam-Balanced Southern Pine 20F-1.5E SP wet seasoned 3.13 x 13.75" (3-1/8 x 13-3/4' Member extends indefinitely, and end assumed to be free.

Side:

Timber-soft D.Fir-L SS wet seasoned 5.50 x 13.50" (6 x 14")

Protrudes 2.00" past the edge of main member, end assumed to be free Side member is sloped 150.0 degrees with respect to the main member.

Temperature (T) : $T \le 100 \text{ deg } F$

Loads:

Along side member: 5500 lbs ten years duration in tension.

Connector Design:

Fasteners:

Bolt diameter: 3/4"

2 rows of 2 Bolts = 4 Bolts Row Spacing: 1.445" Bolt spacing in row: 4.5"

Design Results using NDS 2018:

Main:

Load: P = -4763 lbs

Row tear out capacity Rt = 8117 lbs Ratio: 0.59

Side:

Load: P = 5500 lbs

Tension capacity net area Tr = 62046 lbs Ratio: 0.09 Row tear out capacity Rt = 12636 lbs Ratio: 0.44 Group tear out capacity Rt = 15503 lbs Ratio: 0.35

Yielding resistance:

Combined lateral load: N = 5500 lbs at 30.0 degrees Lateral capacity: Z' = 6937 lbs Ratio: 0.79

WARNING - Designer is responsible for checking the shear capacity of the member

Suggested Design Only, Designer Must Ensure that the Design is Appropriate for Intended Use

Additional Data:

Adjustment factors:

CD CM Ct Cg Cdelta Cd Cst Cft Cvr 1.00 0.70 1.00 0.99 0.964 - - 1.00 0.72

Yield Limit Values (lbs):

Im Is II IIIm IIIs IV 3253 6058 - - 2777 2589