• Connection number 38
• The connection is a joist on top of a column.
• Bolt size is dictated by Vulcraft bolt size recommendations. It is specified that the K-series joists are to be attached to the column with a minimum of two $\frac{1}{2}$ inch bolts.
• Tensile forces exerted on the bolts will be caused primarily by uplifting forces.
• A minimal amount of shear will be caused by minor deflection but this was considered insignificant for this connection because of very large allowable bolt shear capacity.

Tension Rupture Bolt:

Assumptions – Span = 50 ft
Truss spacing = 10 ft

Member and bolt specifications - Truss depth = 28 inches
Approx. Wt. = 17.1 lbs/ft
Member strength = 350 lbs/lf
d_b = $\frac{1}{2}$ inch (bolt diameter)
F_{nt} = 90 ksi (620 Mpa) A325N bolts (bolt tensile strength)

\[
\phi R_n = \phi F_n A_b
\]

\[
\phi R_n = 0.90(90 ksi)(\pi \left(1/2\text{in}\right)^2 \left(2\text{bolts}\right) = 35.3\text{kips}
\]

Member Strength:
• Member chosen using the supplied manufacturer (Vulcraft) specification book.

Allowable Member Strength = 0.35 k/ft * (25ft) = 8.75k

\[
P_m \leq \phi R_n \quad 8.75k << 35.3k \quad \text{bolt will not fail}
\]