Click "back" button on web tool bar to return to slides

- 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 ½ 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 = ½ inch (bolt diameter)
F_{nt} = 90 ksi (620 Mpa) A325N bolts (bolt tensile strength)

$$\phi R_n = \phi F_n A_b$$

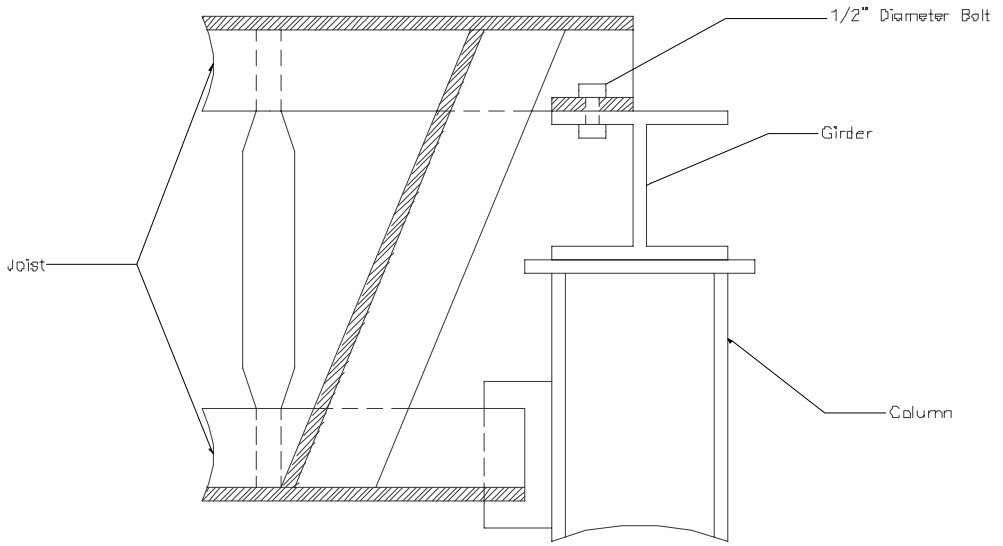
$$\phi R_n = 0.90(90ksi)(\pi)\left(\frac{1/2in}{2}\right)^2 (2bolts) = 35.3kips$$

Member Strength:

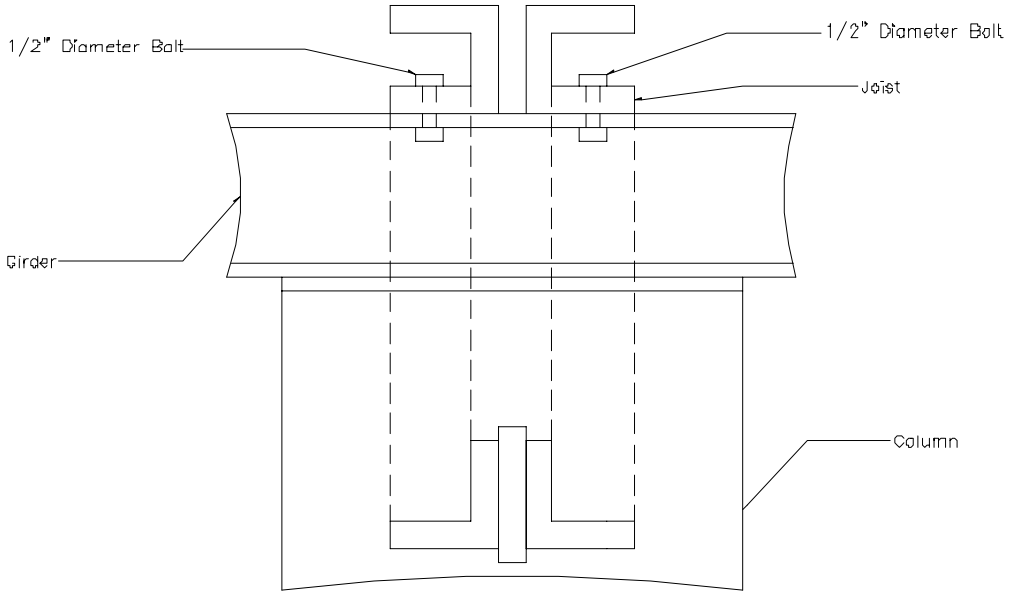
- Member chosen using the supplied manufacturer (*Vulcraft*) specification book.

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

$P_m \leq \phi\ R_n$ 8.75k << 35.3k <u>bolt will not fail</u>



SIDE VIEW | BMS ENGINEERS | 4/24/2008 | CIVE 448 CONNECTION PROJECT BOLTED TRUSS CONNECTION | SHEET 2 OF 2



Frontal View | BMS ENGINEERS | 4/24/2008 | CIVE 448 CONNECTION PROJECT BOLTED TRUSS CONNECTION | SHEET 1 OF 2