GLOBAL:

PROPERTIES:
Neutral Axis:
ybar = 0.59 in

A = 0.9 in^2
H = 1 in
I = 0.627 in^4

Stop = 1.529 in^3 (Compression)
Sbott = 1.063 in^3 (Tension)

Plank Detail

Fbc = 25 ksi  Fbt = 25 ksi  Table 3.3-1

ALLOWABLE:
Mnc = 38.23 k-in
Mnt = 26.57 k-in

APPLIED:
WL = 25 psf  x  6.125/12 = 12.76 plf
M = 0.689 k-in

UNITY:
M/Mnc = 0.018  OKAY
M/Mnt = 0.026  OKAY
LOCAL: By Weld? NO

TENSION: (TABLE 2-21)

SECTION D.2b  

Fa = 15.4 ksi  
Mn = 16.4 k-in

COMPRESSION:

SECTION B.5.4.2  
b = 3.7 in  
t = 0.08 in  
(Top Horizontal Element)

\[ \lambda_1 = 22.8 \quad \lambda_2 = 39 \]

\( \lambda_1 > \lambda > \lambda_2 \), Thus:
\[ Fa = 19.0 - 0.170\lambda \]
\[ \lambda = \frac{b}{t} = 46.25 \]
\[ Fa = 11.1 ksi \quad Mn = 17.0 k-in \]

SECTION B.5.5.3  
h = 0.86 in  
t = 0.07 in  
(Middle Vert Web Element)

\[ \lambda_1 = 77.8 \quad \lambda_2 = 208 \]

\( \lambda < \lambda_1 \), Thus:
\[ F/\Omega = 22.7 \]
\[ \lambda = \frac{h}{t} = 12.29 \]
\[ Fa = 22.7 ksi \quad Mn = 34.7 k-in \]

UNITY:

\[ \frac{(M_1+M_2)}{MIN(Mn)} = 0.042 \quad \text{OKAY} \]