

Project Name: Riser  
 Project No.:  
 Client Name: NRS  
 Date: 2/15/2019

**GLOBAL:**

**PROPERTIES:**

Neutral Axis:

$y_{bar} = 0.59 \text{ in}$

$A = 0.9 \text{ in}^2$

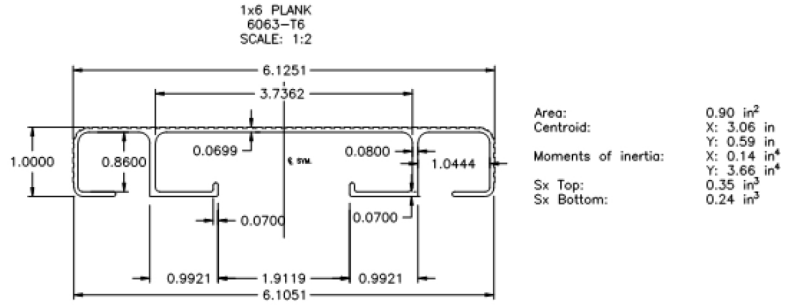
$H = 1 \text{ in}$

$I = 0.627 \text{ in}^4$

Stop =  $1.529 \text{ in}^3$  (Compression)

Sbott =  $1.063 \text{ in}^3$  (Tension)

Code: Aluminum Design Manual 2005



Plank Detail

$F_{bc} = 25 \text{ ksi}$        $F_{bt} = 25 \text{ ksi}$       Table 3.3-1

**ALLOWABLE:**

$M_{nc} = 38.23 \text{ k-in}$

$M_{nt} = 26.57 \text{ k-in}$

**APPLIED:**

$WL = 25 \text{ psf} \times 6.125/12 = 12.76 \text{ plf}$

$M = 0.689 \text{ k-in}$

**UNITY:**

$M/M_{nc} = 0.018$       OKAY

$M/M_{nt} = 0.026$       OKAY

Project Name:	Tranquility
Project No.:	17338.01
Client Name:	NRS
Date:	2/15/2019

LOCAL: By Weld? NO

TENSION: (TABLE 2-21)

**SECTION D.2b** (Tension Area)

$$F_a = 15.4 \text{ ksi}$$

$$M_n = 16.4 \text{ k-in}$$

COMPRESSION:

**SECTION B.5.4.2**  $b = 3.7 \text{ in}$   $t = 0.08 \text{ in}$  (Top Horizontal Element)

$$\lambda_1 = 22.8$$

$$\lambda_2 = 39$$

$\lambda_1 > \lambda > \lambda_2$ , Thus:

$$F_a = 19.0 - 0.170\lambda$$

$$\lambda = b/t = 46.25$$

$$F_a = 11.1 \text{ ksi}$$

$$M_n = 17.0 \text{ k-in}$$

**SECTION B.5.5.3**  $h = 0.86 \text{ in}$   $t = 0.07 \text{ in}$  (Middle Vert Web Element)

$$\lambda_1 = 77.8$$

$$\lambda_2 = 208$$

$\lambda < \lambda_1$ , Thus:

$$F/\Omega = 22.7$$

$$\lambda = h/t = 12.29$$

$$F_a = 22.7 \text{ ksi}$$

$$M_n = 34.7 \text{ k-in}$$

UNITY:

$$(M_1 + M_2) / \text{MIN}(M_n) = 0.042$$

OKAY