Revisions and Errata List
AISC Steel Design Guide 37, 1st Printing (Printed and Digital Editions)
February 16, 2023

The following list represents corrections to the first printing of AISC Design Guide 37, *Hybrid Steel Frames with Wood Floors.*

Page(s)	Item
80	The calculation of the effective width should be revised to:

b_{eff} = min (distance to adjacent beam/2, span/8, distance to edge of slab)

$$= \min\left[\frac{(20\text{ ft}+40\text{ ft})(12\text{ in./ft})}{2}, \frac{2(30\text{ ft})(12\text{ in./ft})}{8}, \text{not applicable}\right]$$
$$= 90.0\text{ in.}$$

The calculation of the area of the concrete topping should be revised to:

$$A_{conc\ topping} = (90.0\text{ in.})(3\text{ in.}) = 270\text{ in.}^2$$

The calculation of the area of the concrete should be revised to:

$$A_{conc} = A_{conc\ topping} + A_{conc\ beam} = 270\text{ in.}^2 + 20.9\text{ in.}^2 = 291\text{ in.}^2$$

82 — The calculation of the limiting width to thickness ratio should be revised to:

$$2.24\sqrt{\frac{E}{F_y}} = 2.24\sqrt{\frac{29{,}000\text{ ksi}}{50\text{ ksi}}} = 53.9$$

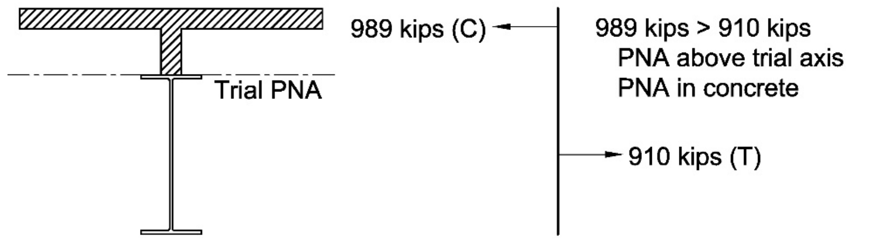
84 — The calculation of the maximum compression force in the concrete should be revised to:

$$C = 0.85 f'_c A_{conc} = 0.85(4\text{ ksi})(291\text{ in.}^2) = 989\text{ kips}$$

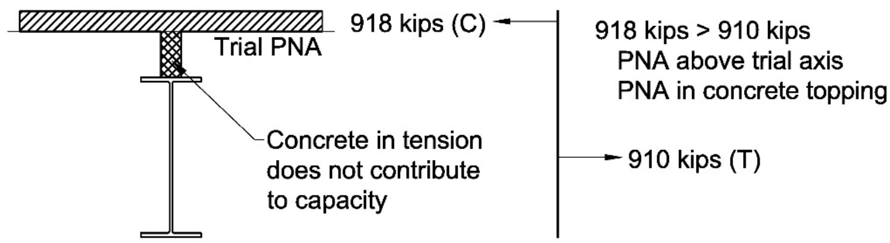
The location of the PNA should be in the concrete

Figure 6-16 should be revised to include the updated dimensions, forces and PNA locations:

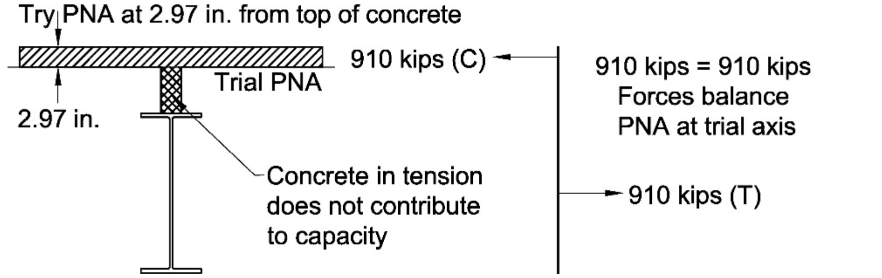
Try PNA at top of steel



Try PNA at bottom of concrete topping



Try PNA at 2.97 in. from top of concrete



85 The calculations on page 85 should be revised to:

Determine the location of the PNA in the concrete:

$$\begin{aligned} C_{conc,topping} &= 0.85 f_c' A_{conc,topping} \\ &= 0.85(4\text{ ksi})\left(270\text{ in.}^2\right) \\ &= 918\text{ kips} \end{aligned}$$

Because $C_{conc,topping} > P_y$, the PNA is in the concrete topping

The concrete is assumed to have zero tensile capacity, so the balanced forces will equal the steel tensile capacity, P_y:

$$T = C = 910\text{ kips}$$

Determine the depth of the PNA from the top of the concrete, a:

$$\begin{aligned} a &= \frac{C}{0.85 f_c' b_{eff}} \\ &= \frac{910\text{ kips}}{0.85(4\text{ ksi})(90\text{ in.})} \\ &= 2.97\text{ in.} \end{aligned}$$

86 The calculation of the composite flexural strength should be revised to:

$$M = (910\text{ kips})\left(2.97\text{ in.} - \frac{3\text{ in.}}{2}\right) + (910\text{ kips})\left(3\text{ in.} + 6\tfrac{7}{8}\text{ in.} + \frac{23.7\text{ in.}}{2} - 2.97\text{ in.}\right)$$
$$= 18,400\text{ kip-in.}$$

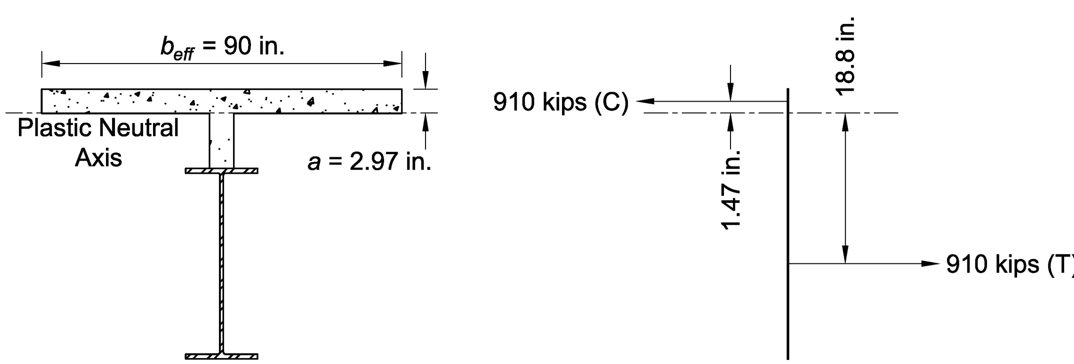
The design flexural strength checks should be revised to:

LRFD	ASD
$\phi_b M_n = 0.90(18,400\text{ kip-in.})$ $= 16,600\text{ kip-in.} > 9,400\text{ kip-in.}$ **o.k.**	$\dfrac{M_n}{\Omega_b} = \dfrac{18,400\text{ kip-in.}}{1.67}$ $= 11,000\text{ kip-in.} > 6,720\text{ kip-in.}$ **o.k.**

The calculation of the neutral axis location should be revised to:

$$\bar{y} = \frac{\sum Ay}{\sum A}$$
$$= \frac{463\text{ in.}^3}{55.1\text{ in.}^2}$$
$$= 8.40\text{ in. from top of combined section in the concrete}$$

Figure 6-17 has been revised to include the updated dimensions and forces:



87 Table 6-1 should be revised to:

Table 6-1. Calculation of $A\bar{y}$				
Component	**A, in.^{2}**	**Transformed A, in.^{2}**	**$\bar{y}$, in.**	**$A\bar{y}$, in.^{3}**
Concrete flange (topping)	270	34.2	1.50	51.3
Concrete web (beam)	20.9	2.65	6.44	17.1
W24·62	18.2	18.2	21.7	395
Total		55.1		463

Table 6-2 should be revised to:

Table 6-2. Determination of $I_{equivalent}$

Component	A, in.^{2}	d, in.	$\bar{I}$, in.^{4}	$\bar{I} + Ad^2$, in.^{4}
Concrete flange	34.2	6.90	25.7	1,650
Concrete web	2.65	1.96	10.4	20.6
W24·62	18.2	13.3	1,550	4,770
Total				6,440

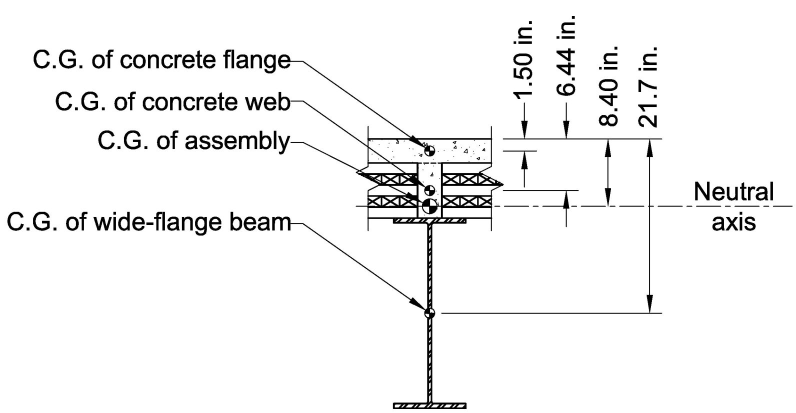
The equivalent moment of inertia should be revised to:

$$I_{equivalent} = 6,440 \text{ in.}^4$$

The calculation of the live load deflection should be revised to:

$$\begin{aligned}\Delta_{LL} &= \frac{P_L l^3}{48EI}\\ &= \frac{(36.0 \text{ kips})(360 \text{ in.})^3}{48(29,000 \text{ ksi})(6,440 \text{ in.}^4)}\\ &= 0.187 < 1.00 \text{ in.} \quad \textbf{o.k.}\end{aligned}$$

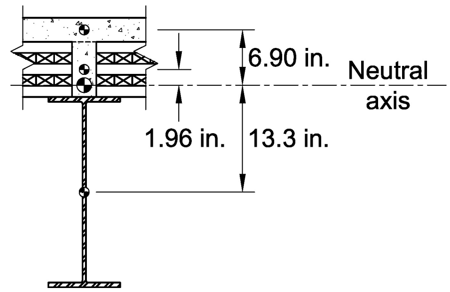
Figure 6-18 should be revised to include the updated dimensions:



88 The calculation of the total deflection should be revised to:

$$\begin{aligned}\Delta_{TL} &= \Delta_{PC} + \Delta_{LL}\\ &= 0.843 \text{ in.} + 0.187 \text{ in.}\\ &= 1.03 < 1.50 \text{ in.} \quad \textbf{o.k.}\end{aligned}$$

Figure 6-19 should be revised to include the updated dimensions:



6.90 in.
Neutral
axis
1.96 in.
13.3 in.