For Strength Design Only Calculate Centroid - Grid Only - Negative Bending

Element	Actual Height of Element	Effective Height of Element *,**	Width of Element	Spacing of Elements IN C/C	Number of Elements per Foot	Actual Area	Transformed Area	Distance from Bottom of Grid to Centroid of Element	
						A	A_t	d	$A_t \times d$
Main Bar	2.000	2.000	N/A	10	1.2	1.39631720	1.39651720	0.44111029	0.58537369
Supplemental Bar 1	0.000	0.000	0.000	4	3	0.00000000	0.00000000	2.00000000	0.00000000
Supplemental Bar 2	0.000	0.000	0.000	3.75	3.2	0.00000000	0.00000000	2.00000000	0.00000000
						0.00000000	0.00000000	0.00000000	0.00000000
Top Punchout*	0.000	0.000	-0.193	10	1.2	0.00000000	0.00000000	1.00000000	0.00000000
Bottom Punchout*	0.000	0.000	-0.193	10	1.2	0.00000000	0.00000000	0.00000000	0.00000000
Σ							1.39652		0.58537369

Centroid of Section = y (measured from bottom of grid) = $\Sigma(A_t * d) / \Sigma(A_t)$ = 0.441110286 Taken As 0.44

Calculate Moment of Inertia - Negative Bending

Element	Distance from Centroid of Element to Composite Centroid (y)		Moment of Inertia of Element taken by Itself	Transformed Moment of Inertia	Times Number of Elements (per ft.)	Transformed Moment of Inertia (per ft.)
	d	$A_t * (d^*)^2$	I	I/n		I_t
Main Bars	0.00000000	0.00000000	0.31752077	0.31752077	1.2	0.38102492
Supplemental Bar 1	1.55888971	0.00000000	0.00000000	0.00000000	3	0.00000000
Supplemental Bar 2	1.55888971	0.00000000	6	0.00000000	3.2	0.00000000
Top Punchout*	0.55888971	0.00000000	0.00000000	0.00000000	1.2	0.00000000
Bottom Punchout*	-0.44111029	0.00000000	0.00000000	0.00000000	1.2	0.00000000
Σ		0				0.38102492

I_g = Moment of Inertia for Composite Section = $\Sigma(A_t * (d^*)^2) + \Sigma(I_t)$ = 0.381024924

Computation of Section Properties

Point of Interest	Location Relative to Bottom of Grid	Distance from Centroid to Point of Interest	Effective Section Modulus
Bottom of Grid	0	-0.44111029	0.86378008
Top of Grid	2.000	1.55888971	-0.24442071
Form Pan	0.000	-0.44111029	0.86378008
CB Weld	2	1.55888971	-0.24442071

*Punchout is Ignored in Compression Areas and Subtracted When in Tension

**Concrete is Transformed to Steel in Compression Areas and Ignored When in Tension