For Strength Design Only

Calculate Centroid - Grid Only - Positive Bending

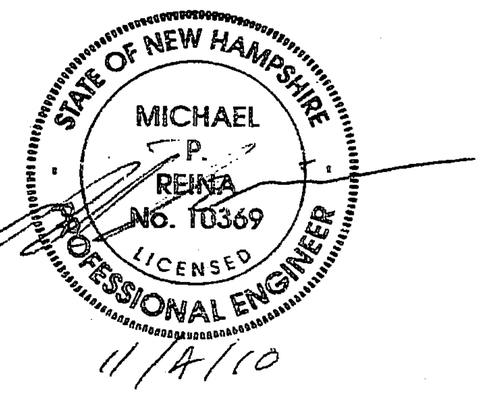
Element	Actual Height of Element	Effective Height of Element *,**	Width of Element	Spacing of Elements IN C/C	Number of Elements per Foot	Actual Area	Transformed Area	Distance from Bottom of Grid to Centroid of Element	
						A	A_t	d	A_t x d
Main Bar	5.187	5.187	N/A	12	1	1.63925700	1.63925700	2.18002363	3.57361899
Supplemental Bar 1	0.500	0.500	rebar	6	2	0.39269908	0.39269908	4.93700000	1.93875537
Supplemental Bar 2	0.000	0.000	0.000	3	4	0.00000000	0.00000000	5.18700000	0.00000000
						0.00000000	0.00000000	8.18700000	0.00000000
Top Punchout*	1.063	0.000	-0.187	12	1	0.00000000	0.00000000	3.18700000	0.00000000
Bottom Punchout*	0.000	0.000	-0.187	12	1	0.00000000	0.00000000	1.54740000	0.00000000
Σ							2.03196		5.51237436

Centroid of Section = y (measured from bottom of grid) = $\Sigma (A_t * d) / \Sigma (A_t)$ = 2.712841289 Taken as 2.71

Calculate Moment of Inertia - Positive 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	-0.53281766	0.46537631	5.12489527	5.12489527	1	5.12489527
Supplemental Bar 1	2.22415871	1.94263601	0.00306796	0.00306796	2	0.00613592
Supplemental Bar 2	2.47415871	0.00000000	0	0.00000000	4	0.00000000
		0.00000000	0.00000000	0.00000000	0	0.00000000
Top Punchout*	0.47415871	0.00000000	0.00000000	0.00000000	1	0.00000000
Bottom Punchout*	-1:16544129	0.00000000	0.00000000	0.00000000	1	0.00000000
Σ		2.408012319				5.13103119

I_g = Moment of Inertia for Composite Section = $\Sigma (A_T * (d')^2) + \Sigma (I_t)$ = 7.53904351



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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	-2.71284129	-2.77902122
Top of Grid	5.187	2.47415871	3.04711394
Form Pan	2.687	-0.02584129	-291.74409384
CB Weld	3.1875	0.47465871	15.88308260

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

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

170 PRE FAB DECK PANELS