Gravity Beam Design

RAM SBeam v06.00.00
Test Beam

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STEEL CODE: AISC 360-10 LRFD

SPAN INFORMATION (ft): I-End (0.00,0.00) J-End (30.00,0.00)

Beam Size (Optimum) = W16X31 Fy = 50.0 ksi
Total Beam Length (ft) = 30.00
Distance to Adjacent Beam on Left (ft) = 8.0
Distance to Adjacent Beam on Right (ft) = 8.0

COMPOSITE PROPERTIES (Not Shored):

	Left	Right
Deck Label		
Concrete thickness (in)	3.50	3.50
Unit weight concrete (pcf)	150.00	150.00
f'c (ksi)	4.00	4.00
Decking Orientation	perpendicular	perpendicular
Decking type	ASC 3W	ASC 3W

beff (in)	=	90.00	Y bar(in)	=	18.37
Mnf (kip-ft)	=	521.33	Mn (kip-ft)	=	412.96
C (kips)	=	223.99	PNA (in)	=	15.48
Ieff (in4)	=	938.11	Itr (in4)	=	1625.32
Stud length (in)	=	5.00	Stud diam (in)	=	0.75

Stud Capacity (kips) Qn = 17.2 Rg = 1.00 Rp = 0.60
# of studs: Max = 60 Partial = 26 Actual = 26
Number of Stud Rows = 1 Percent of Full Composite Action = 49.06
Top flange braced by decking for Composite condition.
Top flange braced by decking for Pre-composite condition.

LINE LOADS (k/ft):

Load	Dist (ft)	DL	CDL	LL	PartL	CLL
1	0.000	0.031	0.031	0.000	0.000	0.000
	30.000	0.031	0.031	0.000	0.000	0.000
2	0.000	0.584	0.504	0.800	0.000	0.200
	30.000	0.584	0.504	0.800	0.000	0.200

SHEAR (Ultimate): Max Vu (1.2DL+1.6LL) = 30.27 kips 1.00Vn = 131.18 kips

MOMENTS (Ultimate):

Span	Cond	LoadCombo	Mu kip-ft	@ ft	Lb ft	Cb	Phi	Phi*Mn kip-ft
Center	PreCmp+	1.2DL+1.6LL	108.2	15.0	0.0	1.00	0.90	202.50
	Init DL	1.4DL	84.3	15.0	---	---		
	Max +	1.2DL+1.6LL	227.0	15.0	---	---	0.90	371.66
Controlling		1.2DL+1.6LL	227.0	15.0	---	---	0.90	371.66

REACTIONS (kips):

	Left	Right
Initial reaction	11.03	11.03
DL reaction	9.23	9.23
Max +LL reaction	12.00	12.00
Max +total reaction (factored)	30.27	30.27

DEFLECTIONS:

Initial load (in)	at	15.00 ft	=	-0.897	L/D	= 401
Live load (in)	at	15.00 ft	=	-0.536	L/D	= 672
Post Comp load (in)	at	15.00 ft	=	-0.590	L/D	= 611
Net Total load (in)	at	15.00 ft	=	-1.486	L/D	= 242