# **Gravity Beam Design**

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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 (User Selected) = W16X26Fy = 50.0 ksi

Total Beam Length (ft) = 30.00Distance to Adjacent Beam on Left (ft) = 8.0 Distance to Adjacent Beam on Right (ft) = 8.0

# **COMPOSITE PROPERTIES (Not Shored):**

			Leit		Right	
Deck Label						
Concrete thickness (in)			3.50		3.50	
Unit weight concrete (pcf)			150.00		150.00	
fc (ksi)			4.00		4.00	
Decking Orientation			perpendicular	perpe	perpendicular	
Decking type			ASC 3W	A	ASC 3W	
beff (in)	=	90.00	Y bar(in)	=	18.49	
Mnf (kip-ft)	=	439.12	Mn (kip-ft)	=	288.67	
C (kips)	=	103.38	PNA (in)	=	11.99	
Ieff (in4)	=	642.90	Itr (in4)	=	1372.96	
Stud length (in)	=	5.00	Stud diam (in)	=	0.75	
Stud Capacity (kips)	Qn =	17.2  Rg = 1	$1.00  ext{ Rp} = 0.60$			
		D 11 10				

# of studs: Full = 52Partial = 12Actual = 12

Number of Stud Rows = 1Percent of Full Composite Action = 26.92

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	0.026	0.026	0.000	0.000	0.000
	30.000	0.026	0.026	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) = 30.18 kips 0.90Vn = 105.97 kips

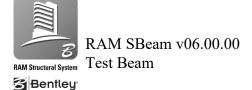
#### **MOMENTS** (Ultimate):

Span	Cond	LoadCombo	Mu	@	Lb	Cb	Phi	Phi*Mn
			kip-ft	ft	ft			kip-ft
Center	PreCmp+	1.2DL+1.6LL	107.6	15.0	0.0	1.00	0.90	165.75
	Init DL	1.4DL	83.5	15.0				
	Max +	1.2DL+1.6LL	226.4	15.0			0.90	259.80
Controlling		1.2DL+1.6LL	226.4	15.0			0.90	259.80

#### **REACTIONS** (kips):

	Left	Right
Initial reaction	10.95	10.95
DL reaction	9.15	9.15
Max +LL reaction	12.00	12.00
Max +total reaction (factored)	30.18	30.18

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Net Total load (in)

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<b>DEFLECTIONS:</b> (Camber =	= 3/4)				
Initial load (in)	at	15.00  ft =	-1.107	L/D =	325
Live load (in)	at	15.00  ft =	-0.782	L/D =	460
Post Comp load (in)	at	15.00  ft =	-0.860	L/D =	418

at

15.00 ft =

-1.217

L/D =

296