

Steel Design Report

Element:
 C:/DCC/steel6/Projects/ReportBeam.rtf
 Description:
 Date: 8/6/2020 5:40:45 PM

Company:
 User:
 Software: Digital Canal Steel Design 6.4

GENERAL INFORMATION

| Description | Value | Description | Value |
|-----------------------|--------------------------|---|-----------------------------|
| Design Criteria | Design | Section Shape | W |
| Design Code | AISC ASD 14th Edition | Maximum Section Depth | 36.00 In |
| Total Span Length | 82.00 Ft | Minimum Section Depth | 12.00 In |
| First Node Support | Fixed | Back-Back Distance (double angles only) | |
| Last Node Support | Free | Section Width (angles and tubes only) | |
| Total Load Deflection | L/240.00 | Number of Solutions | 10 |
| Live Load Deflection | L/360.00 | Live Load Patterning | Yes |
| Maximum Stress Ratio | 1.000 | Check Section List | |
| Bending Coefficient | 1.0 | Bottom Flange Bracing | 20.00, 30.00, 24.00, 5.00Ft |
| Steel Yield Stress | 50.00 K /In ² | Top Flange Bracing | 10.00, 25.00, 27.00Ft |

SPAN LENGTH DATA (Unit: Ft)

| | | | | | | | |
|--------|-------|--------|-------|--------|-------|--------|------|
| Span 1 | 20.00 | Span 2 | 30.00 | Span 3 | 24.00 | Span 4 | 8.00 |
|--------|-------|--------|-------|--------|-------|--------|------|

LOAD INFORMATION

LOADS

| Ref. No. | Load Case | Load Type | Dir | Begin Value | Begin Position | End Value | End Position |
|----------|-----------|-----------|-----|----------------|----------------|----------------|--------------|
| 1 | Dead | Linear | Y | -1.000 (K /Ft) | 0.000 (Ft) | -1.000 (K /Ft) | 82.000 (Ft) |
| 2 | Dead | Concen | Y | -8.000 (K) | 82.00 (Ft) | - | - |
| 3 | Live | Linear | Y | -0.750 (K /Ft) | 0.000 (Ft) | -0.750 (K /Ft) | 82.000 (Ft) |
| 4 | Live | Concen | Y | -10.000 (K) | 62.00 (Ft) | - | - |

LOAD COMBINATIONS

| Ref. No. | Strength | Ref. No. | Service(Deflections) |
|----------|------------------------|----------|----------------------|
| 1 | DL Only | 1 | |
| 2 | DL + LL on Odd Spans | 2 | |
| 3 | DL + LL on Even Spans | 3 | |
| 4 | DL + LL on Spans-1-2-4 | 4 | |
| 5 | DL + LL on Spans-1-2-3 | 5 | |
| 6 | DL + LL on Spans-1-3-4 | 6 | |

CRITICAL STRESS SUMMARY

| Ref. No. | Section Name | Status | Governing Criteria | Bending Ratio | LC | Shear Ratio | LC | Deflection Ratio-LL | LC | Deflection Ratio-TL | LC |
|----------|--------------|--------|--------------------|---------------|----|-------------|----|---------------------|----|---------------------|----|
| 1 | W12X72 | OK | DEFL-TL | 0.681 | 5 | 0.261 | 5 | 0.911 | 2 | 0.996 | 3 |
| 2 | W14X61 | OK | BENDING | 0.940 | 5 | 0.268 | 5 | 0.849 | 2 | 0.929 | 3 |
| 3 | W16X67 | OK | BENDING | 0.804 | 5 | 0.217 | 5 | 0.570 | 2 | 0.623 | 3 |
| 4 | W18X76 | OK | BENDING | 0.614 | 5 | 0.181 | 5 | 0.409 | 2 | 0.447 | 3 |
| 5 | W21X73 | OK | BENDING | 0.965 | 5 | 0.145 | 5 | 0.340 | 2 | 0.372 | 3 |
| 6 | W24X76 | OK | BENDING | 0.857 | 5 | 0.131 | 5 | 0.259 | 2 | 0.283 | 3 |
| 7 | W27X84 | OK | BENDING | 0.663 | 5 | 0.112 | 5 | 0.191 | 2 | 0.209 | 3 |
| 8 | W30X90 | OK | BENDING | 0.582 | 5 | 0.111 | 5 | 0.151 | 2 | 0.165 | 3 |
| 9 | W33X118 | OK | BENDING | 0.326 | 5 | 0.085 | 5 | 0.092 | 2 | 0.101 | 3 |
| 10 | W36X135 | OK | BENDING | 0.253 | 5 | 0.072 | 5 | 0.070 | 2 | 0.076 | 3 |

Recommended: W14X61