# Beamer, Civil Engineering Software, by GaryArgraves@gmail.com

## Beamer Input

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                BEAM CALCULATOR  By: Gary Argraves - 8712.03       Page 1

I N P U T   D A T A    NO DATE FUNC.
================================================

:: W16x36 Beam over garage for House on Great Quarter Road, Newtown CT
3             CASE  1=Fix-Fix 2=Pin-Fix 3=Pin-Pin 4=Pin-Pin-Pin 2-Cantilever
22            L  Beam Length Over All (feet)
000           D  Distance to Intermediate Support from Left End of Beam (feet)
30e6          E  Modulus of Elasticity   Steel=30.0E6 psi  Wood=1.76E6
448           I  Moment of Inertia   (in^4)   used in deflexsion computations
56.5          S  Section Modulus     (in^3)
1.00          t  Tabulation Interval (feet) Output is in tabulated form
0 22 1.100    A =Distance to Load from Left, C =Load Length, Q =Load Intensity
0 0 0.000     NEXT Loading (Q units are Kips/ft.) repeat for all loads;  END of
Loading (must be here)
Y    Make Plot Y or N; Using 96 dpi for Video monitor; Printers are 300 dpi,600 or
higher
10   Length scale factor
100  Moment/shear scale factor
10   Loading scale factor

       Case 1. Fixed-Fixed              Case 2. Pinned-Fixed

      ||<--A--><--C-->   ||              <--A--><--C-->   ||
      ||       #######-Q ||                     #######-Q ||
      ||=================||              ==================||
      ||                   ||             <--D-->^          ||
      ||<-------L------->||              <-------L------->||


       Case 3. Pinned-Pinned            Case 4. Pin-Pin-Pin

        <--A--><--C-->                   <--A--><--C-->
               #######-Q                        #######-Q
        =================                ==================
        <--D-->^        ^                ^<--D-->^        ^
        <-------L------->                <-------L------->


       Case 2. Cantilever (D=L)          Variable Explanation
                                       -----------------------------
        <--A--><--C-->   ||          L = Over All Length (feet)
               #######-Q ||          D = Distance to Support
        =================||          A = Distance to Start of Load
        <-------D------->||          C = Length of Load
        <-------L------->||          Q = Load Intensity (kips/ft.)

    For Concentrated Loads:
    Set C = 0.1' or 0.01' and Increase Q accordingly by a factor of 10 or 100


   W16x36
   Live Load=50 psf + Dead Load=20 psf = 70 psf x 16'= 1120 p/f say 1100
:: END OF INPUT
```

Re-Submit

## Beamer Output

```
        BEAM CALCULATOR  By: Gary Argraves - 8712.03

Civil Engineering Systems - BEAMER V2.00 - BEAM ANALYSIS
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:: W16x36 Beam over garage for House on Great Quarter Road, Newtown CT
=====================================================
...Reading
O U T P U T   D A T A   22-11-23 09:08:06
=================================================
BEAM CASE: PINED-PINED L= 22.00 ft.  D=  0.00 ft.
E= 3.0E+007 psi   I=  448.0 in^4    Sx=  56.5 in^3
...Checking ...Computing
=================================================
```

LOAD: A= 0.00 ft. C= 22.00 ft. Q= 1.100 Kips/ft

V1= 12.100 Kips V2= 12.100

| TAB (FEET) | MOMENT (KIP-FEET) | DEFLECTION (FEET) | STRESS (KSI) |
|---|---|---|---|
| 0.00 | 0.0000 | 0.000000 | 0.0000 |
| 1.00 | 11.5500 | 0.005208 | 2.4531 |
| 2.00 | 22.0000 | 0.010293 | 4.6726 |
| 3.00 | 31.3500 | 0.015143 | 6.6584 |
| 4.00 | 39.6000 | 0.019659 | 8.4106 |
| 5.00 | 46.7500 | 0.023751 | 9.9292 |
| 6.00 | 52.8000 | 0.027343 | 11.2142 |
| 7.00 | 57.7500 | 0.030370 | 12.2655 |
| 8.00 | 61.6000 | 0.032780 | 13.0832 |
| 9.00 | 64.3500 | 0.034531 | 13.6673 |
| 10.00 | 66.0000 | 0.035593 | 14.0177 |
| 11.00 | 66.5500 | 0.035949 | 14.1345 |
| 12.00 | 66.0000 | 0.035593 | 14.0177 |
| 13.00 | 64.3500 | 0.034531 | 13.6673 |
| 14.00 | 61.6000 | 0.032780 | 13.0832 |
| 15.00 | 57.7500 | 0.030370 | 12.2655 |
| 16.00 | 52.8000 | 0.027343 | 11.2142 |
| 17.00 | 46.7500 | 0.023751 | 9.9292 |
| 18.00 | 39.6000 | 0.019659 | 8.4106 |
| 19.00 | 31.3500 | 0.015143 | 6.6584 |
| 20.00 | 22.0000 | 0.010293 | 4.6726 |
| 21.00 | 11.5500 | 0.005208 | 2.4531 |
| 22.00 | 0.0000 | 0.000000 | 0.0000 |

==========

COMBINED EFFECT OF ALL LOADS

V1= 12.100 Kips V2= 12.100

| TAB (FEET) | MOMENT (KIP-FEET) | DEFLECTION (FEET) | SHEAR (KIPS) | STRESS (KSI) |
|---|---|---|---|---|
| 0.00 | 0.0000 | 0.000000 | 12.1000 | 0.0000 |
| 1.00 | 11.5500 | 0.005208 | 11.0000 | 2.4531 |
| 2.00 | 22.0000 | 0.010293 | 9.9000 | 4.6726 |
| 3.00 | 31.3500 | 0.015143 | 8.8000 | 6.6584 |
| 4.00 | 39.6000 | 0.019659 | 7.7000 | 8.4106 |
| 5.00 | 46.7500 | 0.023751 | 6.6000 | 9.9292 |
| 6.00 | 52.8000 | 0.027343 | 5.5000 | 11.2142 |
| 7.00 | 57.7500 | 0.030370 | 4.4000 | 12.2655 |
| 8.00 | 61.6000 | 0.032780 | 3.3000 | 13.0832 |
| 9.00 | 64.3500 | 0.034531 | 2.2000 | 13.6673 |
| 10.00 | 66.0000 | 0.035593 | 1.1000 | 14.0177 |
| 11.00 | 66.5500 | 0.035949 | 0.0000 | 14.1345 |
| 12.00 | 66.0000 | 0.035593 | -1.1000 | 14.0177 |
| 13.00 | 64.3500 | 0.034531 | -2.2000 | 13.6673 |
| 14.00 | 61.6000 | 0.032780 | -3.3000 | 13.0832 |
| 15.00 | 57.7500 | 0.030370 | -4.4000 | 12.2655 |
| 16.00 | 52.8000 | 0.027343 | -5.5000 | 11.2142 |
| 17.00 | 46.7500 | 0.023751 | -6.6000 | 9.9292 |
| 18.00 | 39.6000 | 0.019659 | -7.7000 | 8.4106 |
| 19.00 | 31.3500 | 0.015143 | -8.8000 | 6.6584 |
| 20.00 | 22.0000 | 0.010293 | -9.9000 | 4.6726 |
| 21.00 | 11.5500 | 0.005208 | -11.0000 | 2.4531 |
| 22.00 | 0.0000 | 0.000000 | -12.1000 | 0.0000 |

Make Plotted Output: Y
Plot Scale: Length = 8
Plot Scale: Moment = 8
Plot Scale: Length = 10
Plot Scale: Moment =100
Plot Scale: Loading = 2
Plot Scale: Loading = 10

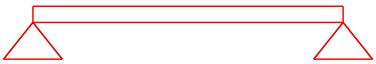
BEAMER V2.0 By: GaryArgraves - 8801.01

BEAM CASE: PINED-PINED L= 22.00 ft. D= 0.00 ft.

E=30000000.00 psi I= 448.0 in^4 Sx= 56.5 in^3

Horz.Scale: 10 Ft/In ; dots per inch = 96 ; when: 22-11-23 09:08:06

JOB :: W16x36 Beam over garage for House on Great Quarter Road, Newtown CT

LOADING 

Scale: 1 in= 10 Kips/Ft & Kips

SUPPORT REACTIONS

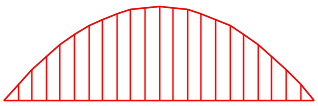
V1= 12.100 Kips (Left Side)

V2= 12.100

SHEAR 

Scale: 1 in=100 Kips

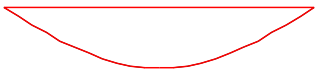
Max.= 12.100 Kips at 0.00 ft.

MOMENT 

Scale: 1 in=100 Ft-Kips

Max.= 66.550 Ft-Kips at 11.00 ft.

STRESS = 14.135 KSI

DEFLECT 

Scale: 1 in= 1 Inches

Max.= -0.431 Inches at 11.00 ft.

*** BEAMER IS DONE ***