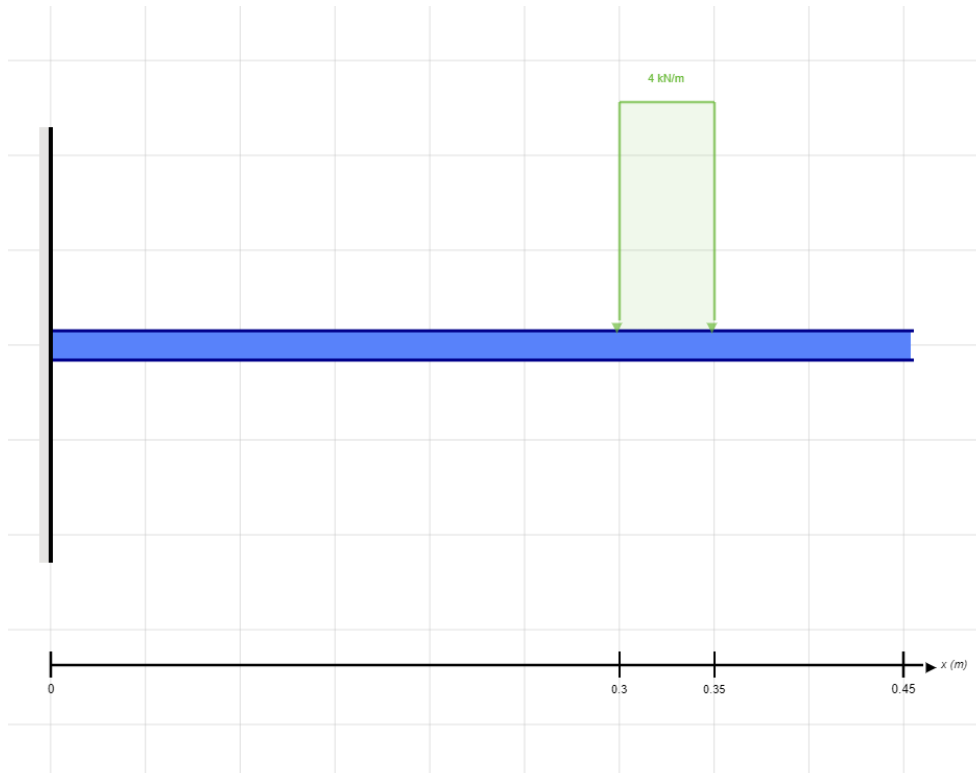


SKYCIV BEAM ANALYSIS REPORT

Load Combination: DL



Software: SkyCiv Beam v3.2.3
Thu Mar 07 2024 16:35:03 GMT+0000 (Greenwich Mean Time)

Project Info

File Name: Boontest2

Engineer: Andre Shoman (nevadaescape@gmail.com)

Included in this Report:

- Input Summary
- Beam Section
- Load Combinations Table
- Free Body Diagram (FBD)
- Analysis Summary
- Analysis Results
- Points of Interest
- Bending Moment Diagram (BMD)
- Shear Force Diagram (SFD)
- Deflection Results
- Stress Results

INPUT SUMMARY

General Info

Beam Length:	0.45 m
Section Name:	76 x 50
Self Weight:	False

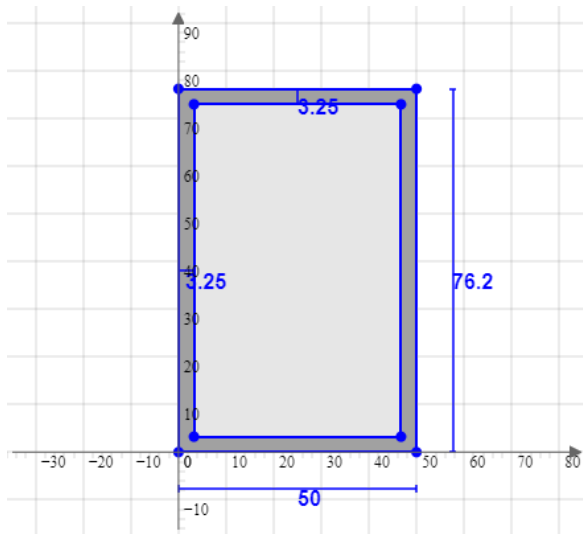
Supports

Support Type	Location
Fixed	0 m

Loads

Load Type	Location	Magnitude	Load Case
Distributed Load	0.3 m to 0.35 m	-4 kN to -4 kN	DL

Beam Section



Geometric Properties		
A	778.05	mm ²
C _z	25	mm
C _y	38.1	mm

Bending Properties		
I _z	616087.535	mm ⁴
I _y	315649.384	mm ⁴

Shear Properties		
A _z	232.963	mm ²
A _y	433.765	mm ²

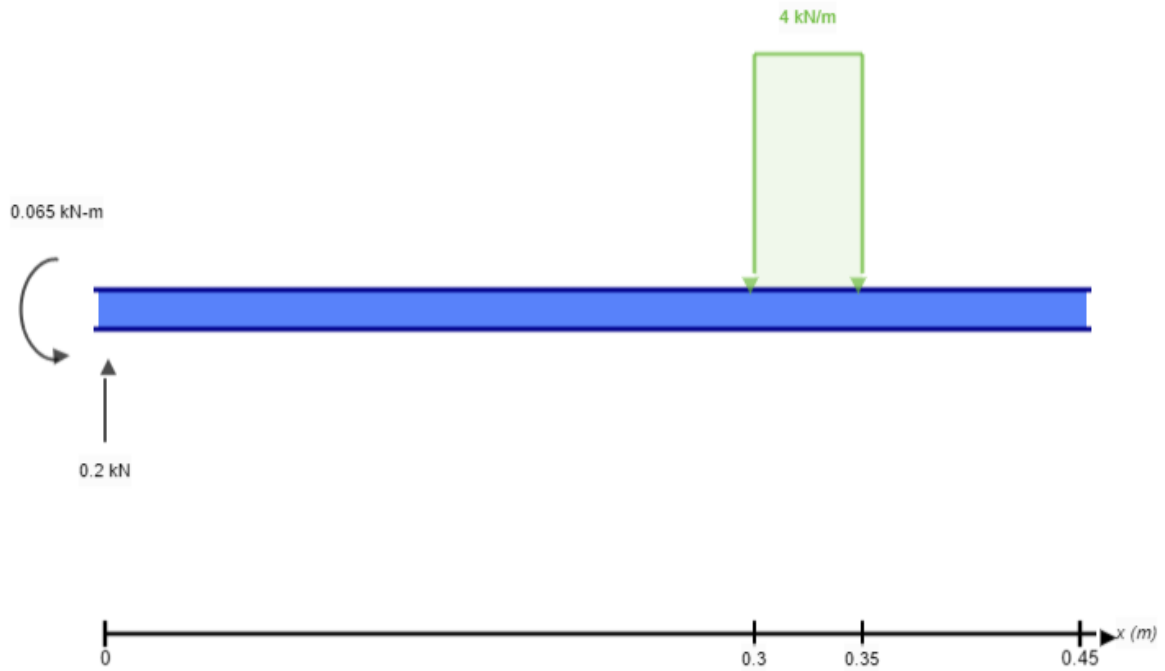
Torsion Properties		
J	650074.953	mm ⁴
r	33.57	mm

Shape	Material	E (MPa)	ν	ρ (kg/m ³)
Hollow Rectangular	Aluminium	69000	0.32	2700

LOAD COMBINATIONS

Name	Dead Load	Live Load	Wind Load	Roof Load	Rain Load	Snow Load	Earthquake Load	Criteria
No load combinations present in model								

FREE BODY DIAGRAM



RESULT SUMMARY

Check	Status	Limit	Ratio	Max
Deflection	PASS	L/250	0.047	L/5296
Custom Stress Limit	PASS	250 MPa	0.016	4.02 MPa
Material Yield	PASS	100 MPa	0.04	4.02 MPa
Material Strength	PASS	150 MPa	0.027	4.02 MPa

ANALYSIS RESULTS

Reactions

Support at	X	Y	Mx
0	0 kN	0.2 kN	0.065 kN-m

Force Extremes

Result	Max	Min
Bending Moment	0 kN-m	-0.065 kN-m
Shear	0.2 kN	0 kN
Displacement	0 mm	-0.085 mm

Stress Extremes

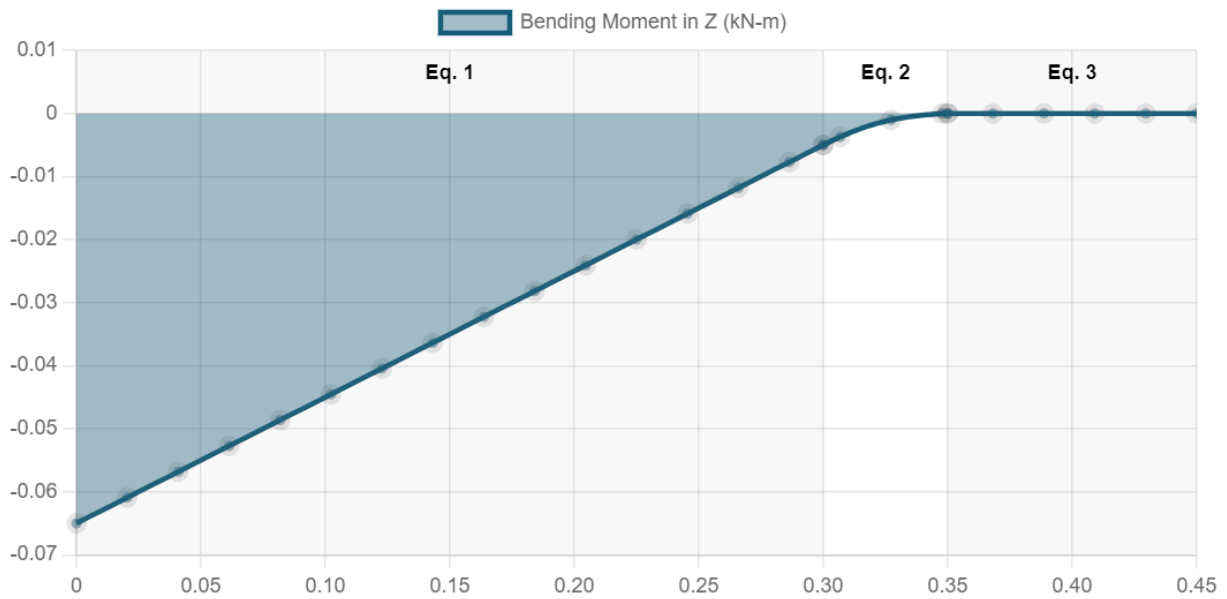
Result	Max	Min
Bending Stress	4.02 MPa	-4.02 MPa
Shear Stress Total	0.494 MPa	0 MPa
Max Combined Normal Stress	4.02 MPa	0 MPa
Min Combined Normal Stress	0 MPa	-4.02 MPa

POINTS OF INTEREST

Name	Result	Position	Limit	Value	Utility
POI1	Mz	0.1		-0.045	

DIAGRAMS

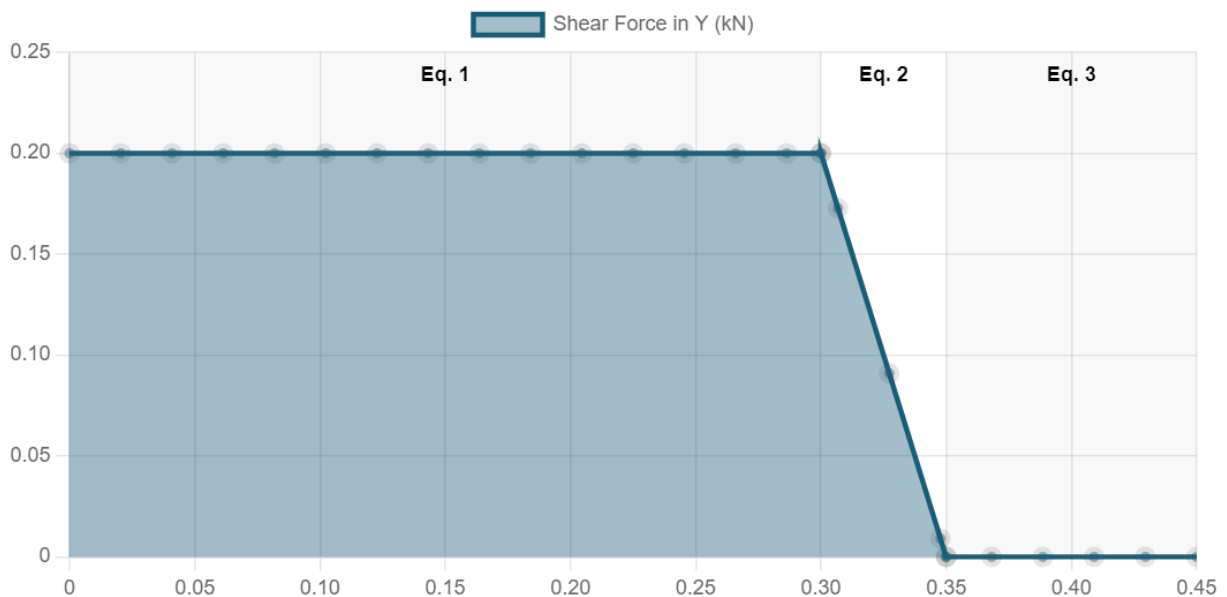
Bending Moment Diagram



Bending Moment Equations

- Eq. 1** $M_1(x) = 0.2x - 0.065$ for $0 \leq x \leq 0.3$
- Eq. 2** $M_2(x) = -2x^2 + 1.4x - 0.245$ for $0.3 \leq x \leq 0.35$
- Eq. 3** $M_3(x) = 0$ for $0.35 \leq x \leq 0.45$

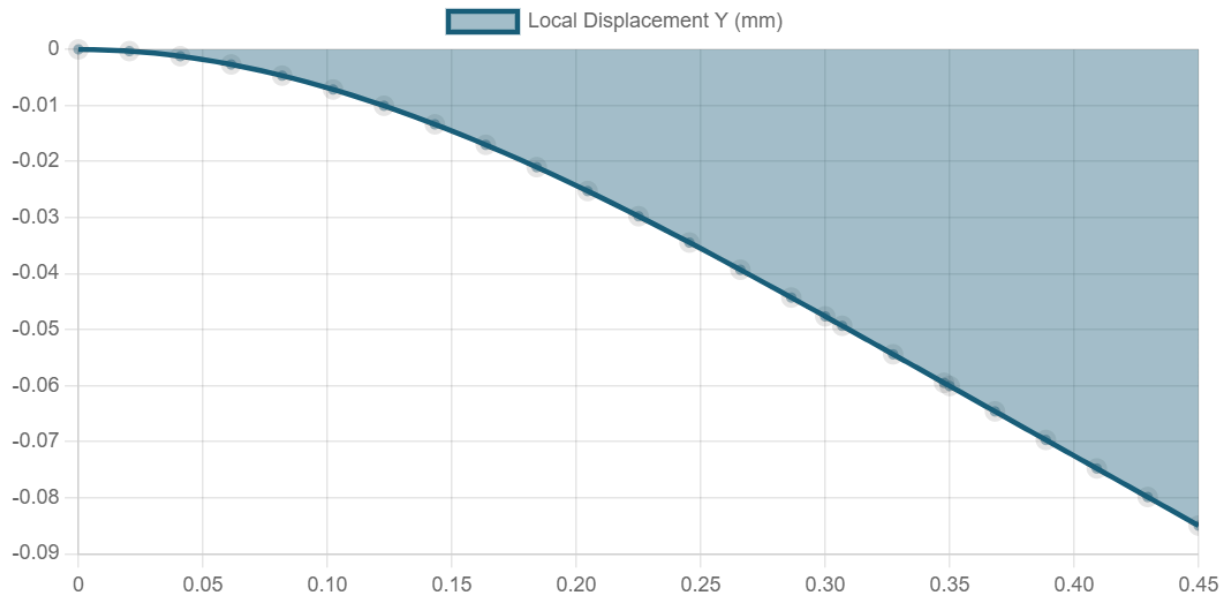
Shear Force Diagram



Shear Force Equations

- Eq. 1** $V_1(x) = 0.2$ for $0 \leq x \leq 0.3$
- Eq. 2** $V_2(x) = -4x + 1.4$ for $0.3 \leq x \leq 0.35$
- Eq. 3** $V_3(x) = 0$ for $0.35 \leq x \leq 0.45$

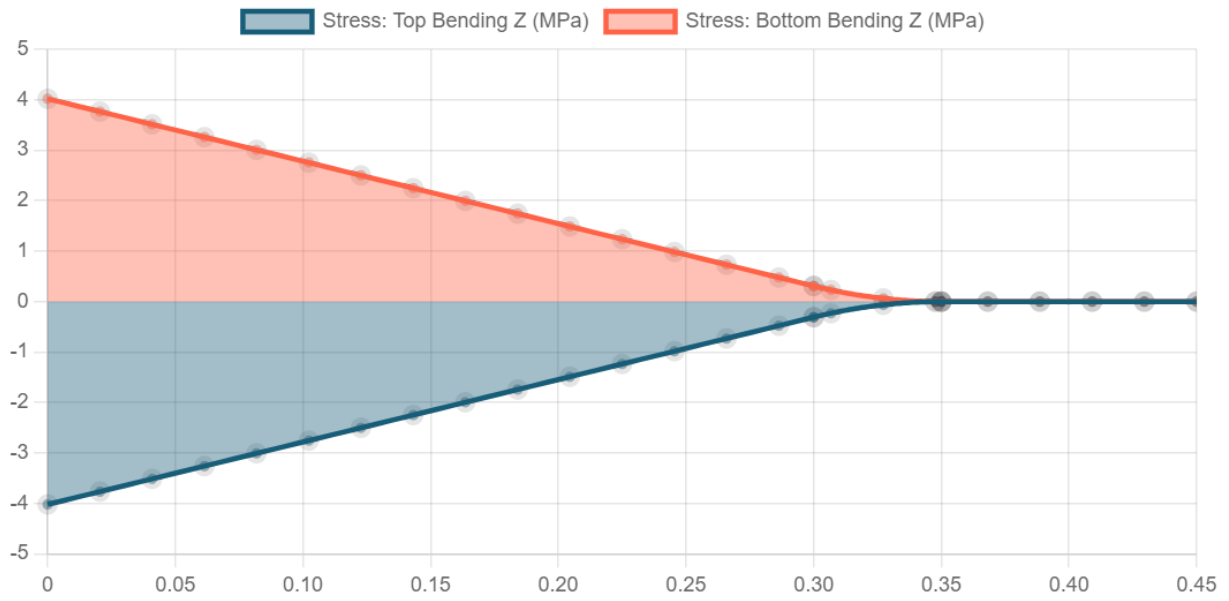
Displacement



Location (m)	Total Deflection (mm)	Span ⓘ
0	0 mm	-
0.45	0.085 mm	L/5296

ⓘ The Deflection/Span results are calculated using the analysis results and the Deflection Limit of L/250 set in the model settings.

Bending Stress



Shear Stress

