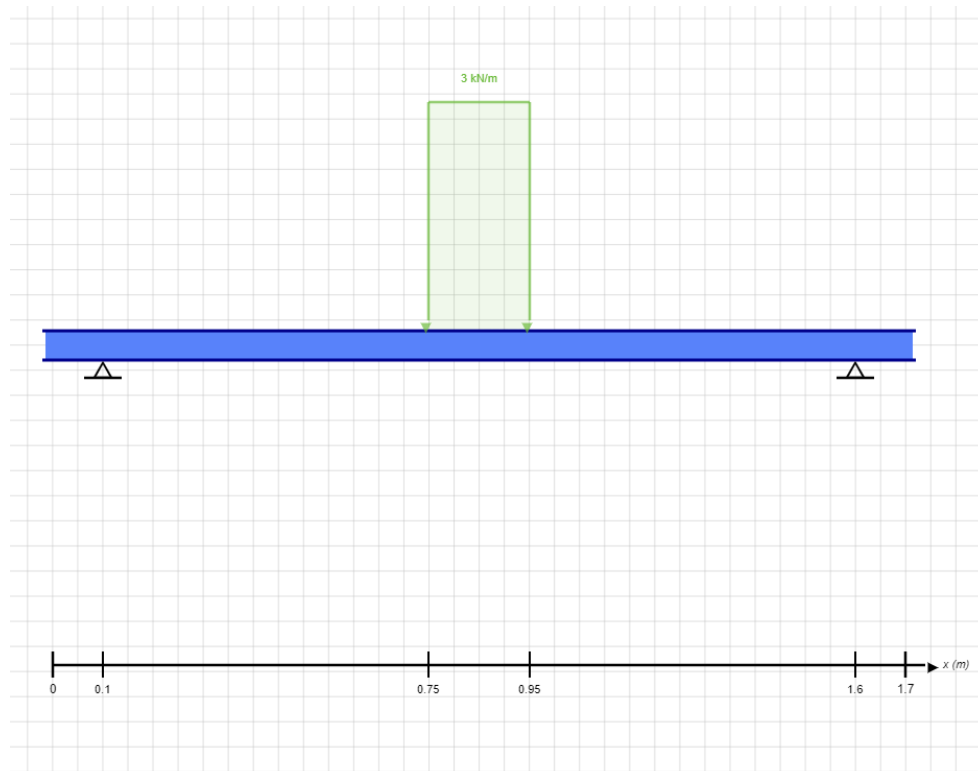


SKYCIV BEAM ANALYSIS REPORT

Load Combination: DL



Software: SkyCiv Beam v3.2.3
Wed Mar 06 2024 21:15:17 GMT+0000 (Greenwich Mean Time)

Project Info

File Name: Boontest1

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:	1.7 m
Section Name:	76 x 50
Self Weight:	False

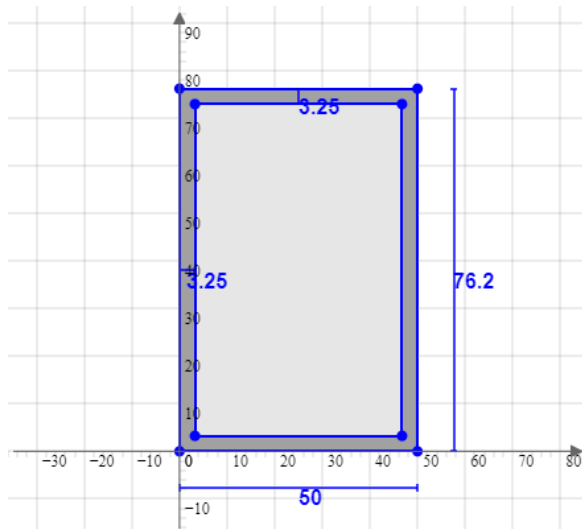
Supports

Support Type	Location
Pinned	0.1 m
Pinned	1.6 m

Loads

Load Type	Location	Magnitude	Load Case
Distributed Load	0.75 m to 0.95 m	-3 kN to -3 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

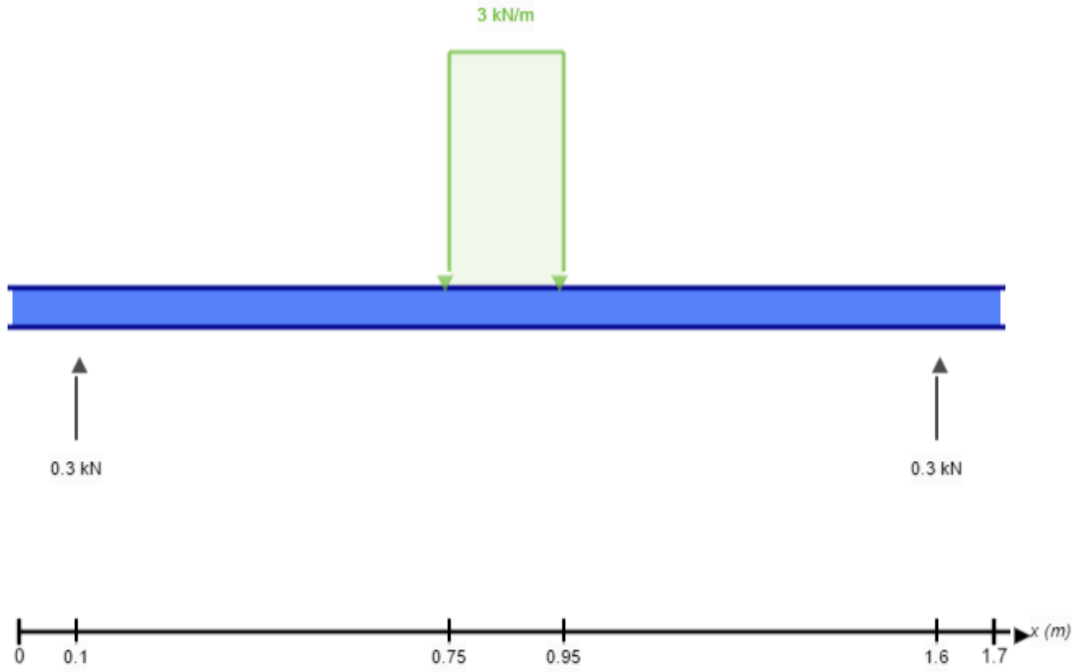
Torsion Properties		
J	650074.953	mm ⁴
r	33.57	mm

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	0.174	L/1439
Custom Stress Limit	PASS	250 MPa	0.052	12.986 MPa
Material Yield	PASS	100 MPa	0.13	12.986 MPa
Material Strength	PASS	150 MPa	0.087	12.986 MPa

ANALYSIS RESULTS

Reactions

Support at	X	Y	Mx
0.1	0 kN	0.3 kN	0 kN-m
1.6	0 kN	0.3 kN	0 kN-m

Force Extremes

Result	Max	Min
Bending Moment	0.21 kN-m	0 kN-m
Shear	0.3 kN	-0.3 kN
Displacement	0.197 mm	-0.984 mm

Stress Extremes

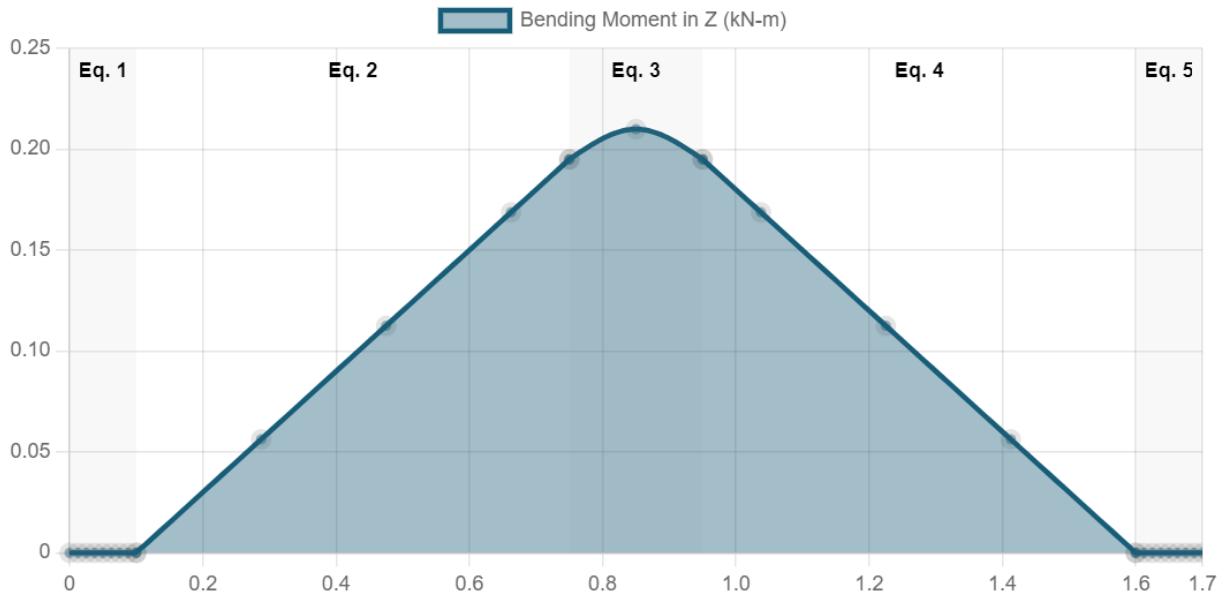
Result	Max	Min
Bending Stress	12.986 MPa	-12.986 MPa
Shear Stress Total	0.74 MPa	0 MPa
Max Combined Normal Stress	12.986 MPa	0 MPa
Min Combined Normal Stress	0 MPa	-12.986 MPa

POINTS OF INTEREST

Name	Result	Position	Limit	Value	Utility
POI1	Mz	1		0.18	

DIAGRAMS

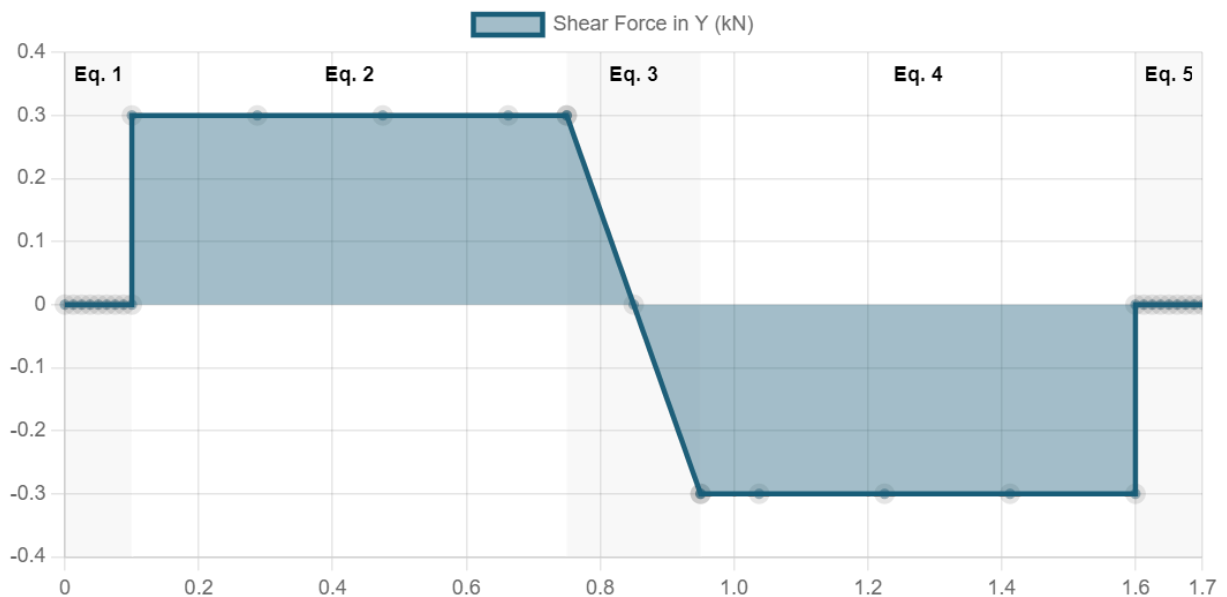
Bending Moment Diagram



Bending Moment Equations

- Eq. 1** $M_1(x) = 0$ for $0 \leq x \leq 0.1$
- Eq. 2** $M_2(x) = 0.3x - 0.03$ for $0.1 \leq x \leq 0.75$
- Eq. 3** $M_3(x) = -1.5x^2 + 2.55x - 0.874$ for $0.75 \leq x \leq 0.95$
- Eq. 4** $M_4(x) = -0.3x + 0.48$ for $0.95 \leq x \leq 1.6$
- Eq. 5** $M_5(x) = 0$ for $1.6 \leq x \leq 1.7$

Shear Force Diagram



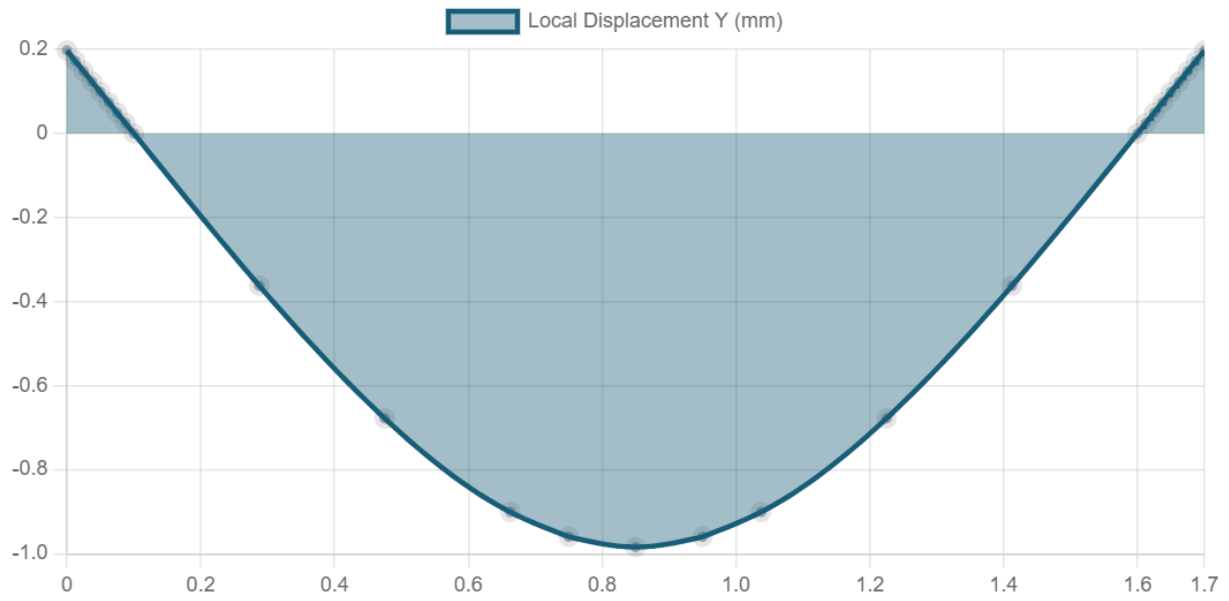
Shear Force Equations

- Eq. 1** $V_1(x) = 0$ for $0 \leq x \leq 0.1$
- Eq. 2** $V_2(x) = 0.3$ for $0.1 \leq x \leq 0.75$
- Eq. 3** $V_3(x) = -3x + 2.55$ for $0.75 \leq x \leq 0.95$

Eq. 4 $V_4(x) = -0.3$ for $0.95 \leq x \leq 1.6$

Eq. 5 $V_5(x) = 0$ for $1.6 \leq x \leq 1.7$

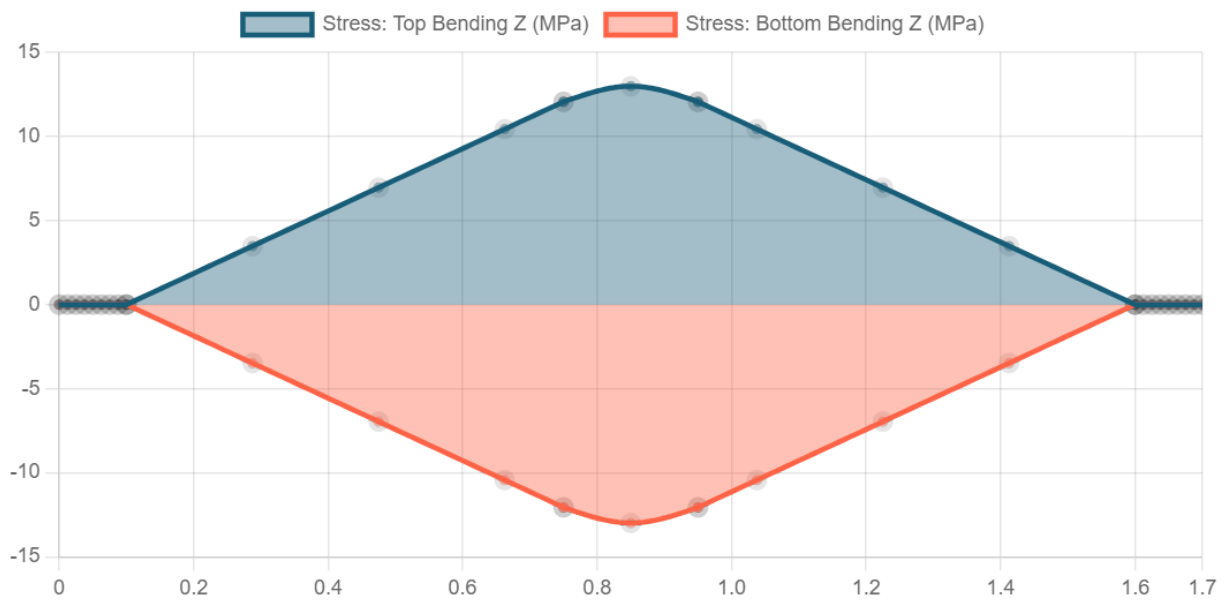
Displacement



Location (m)	Total Deflection (mm)	Span ⓘ
0	0.197 mm	L/506
0.1	0 mm	-
0.85	0.984 mm	L/1524
1.6	0 mm	-

ⓘ 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

