

Atir Software Development LTD

STRAP - Tapered beam

Verification

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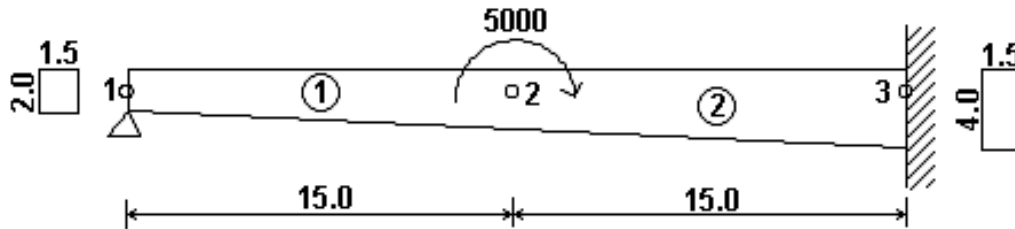
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1. Description

A linearly tapered beam, simply supported at one end and fixed at the other end, is subjected to a concentrated moment at mid-span.



2. Geometry

Span: 30.0

Beam width: 1.5

Beam depth (right): 2.0

Beam depth (left): 4.0

Elements: 2 tapered beams.

Supports: Pinned at left, Fixed at right.

3. Loads

Concentrated moment: -5000 at midpoint.

4. Reference

Raymond J Roark, *Roark's Formulas for Stress and Strain, Fourth Edition*. (Table III - Case 30, page 111), 1965 4th edition, McGraw – Hill book company.

5. Calculation

The tables in the reference are accurate only to three significant figures; the STRAP results have been rounded off accordingly.

6. Comparison of Results

Node/beam	Result type	Result		Deviation
		Theoretical	STRAP	
Node 1,3	Reaction	169.9	169.8	-
Node 2	Moment to left	-2549	-2548	-
Node 2	Moment to right	2451	2452	-