


ACI Beam Table Demo

Quick Guide

The app allows you to run section capacities (moment and shear) in batches. The input properties are shared by all the beam sections (sizes) accordingly.

1. Input Properties

f'c, fy, links (stirrups) and clear cover


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Properties:

f'c, MPa 27

fy, MPa 414

Links, mm 10

Clear Cover, mm 40

Run

Notes:

- 'b' and 'h' are overall beam dimensions.
- Bending moment values are based on ACI 318M-14.
- Moment Capacity for beams with main reinforcement horizontal spacing of less than 40mm is no longer calculated.
- Maximum spacing of main reinforcement and other detailing requirements are not considered.


Beam Size		Rebar and Bending Moment Capacity, $\phi = 0.90$									Shear Capacity, $\phi = 0.75$			
b mm	h mm	2 - 16mm	3 - 16mm	4 - 16mm	2 - 20mm	3 - 20mm	4 - 20mm	2 - 25mm	3 - 25mm	4 - 25mm	100 mm	150 mm	200 mm	fy _s (MPa)
Select	Select	0	0	0	0	0	0	0	0	0	0	0	0	275

Add Row
Delete Row

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2. Section Size - beam width (b) and beam height (h)

You can set the beam dimensions by clicking on the respective 'Select' fields


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b mm	h mm	2 - 16mm	3 - 16mm	4 - 16mm	2 - 20mm	3 - 20mm	4 - 20mm	2 - 25mm	3 - 25mm	4 - 25mm	100 mm	150 mm	200 mm	fy _s (MPa)
Select	Select	0	0	0	0	0	0	0	0	0	0	0	0	275

Add Row
Delete Row

3. Add or Delete Row(s)

Once you input the required beam size, you may opt to add or delete rows by clicking the respective buttons. The 'Delete Row' button removes the last row from the table.


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b mm	h mm	2 - 16mm	3 - 16mm	4 - 16mm	2 - 20mm	3 - 20mm	4 - 20mm	2 - 25mm	3 - 25mm	4 - 25mm	100 mm	150 mm	200 mm	f _y (MPa)
400	500	0	0	0	0	0	0	0	0	0	0	0	0	275
300	600	0	0	0	0	0	0	0	0	0	0	0	0	275

4. Run - Batched section analyses

Finally, once all input parameters are set, click the 'Run' button to get the results.

New rows will be generated to contain the spacing (*clearance*) corresponding to bar arrangements (*table column headers*). More importantly, the moment and shear capacities are displayed in each column. For example, the 400x500 beam has the following results

- Moment Capacity: 191.7 kNm (4 - 20mm bars) with clear horizontal spacing of 72mm
- Shear Capacity: 250.9 kN (12mm stirrups at 150mm centres)


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b mm	h mm	2 - 16mm	3 - 16mm	4 - 16mm	2 - 20mm	3 - 20mm	4 - 20mm	2 - 25mm	3 - 25mm	4 - 25mm	100 mm	150 mm	200 mm	f _y (MPa)
Spacing		264 mm	124 mm	77 mm	256 mm	118 mm	72 mm	246 mm	111 mm	65 mm				
400	500	64.5 kNm	95.8 kNm	126.4 kNm	99.2 kNm	146.3 kNm	191.7 kNm	151.0 kNm	220.4 kNm	285.8 kNm	318.6 kN	250.9 kN	217.0 kN	275
Spacing		164 mm	74 mm	44 mm	156 mm	68 mm	39 mm	146 mm	61 mm	32 mm				
300	600	79.1 kNm	117.3 kNm	154.5 kNm	121.5 kNm	178.9 kNm	234.1 kNm	184.8 kNm	269.1 kNm	348.0 kNm	356.3 kN	273.0 kN	231.3 kN	275