

$$= 1600 + (3 \times 2 \times 8) + (2 \times 9 \times 8)$$

$$= 1792 \text{ mm}$$

#### Step 5- Weight of Stirrups

Total number of stirrups = 21

Total length of stirrups =  $21 \times 1.792 = 37.632 \text{ m}$

$$\text{Weight of stirrups} = \frac{d^2 L}{162} = \frac{8 \times 8 \times 37.632}{162} = 14.86 \text{ kg}$$

Diameter of Bars (mm)	Numbers	Cutting Length (mm)	Total Length (mm)	
Top bars	12	2	4150	8300
Bottom bars	16	2	4550	9100
Stirrups	8	21	1792	37632

## Bar Bending Schedule for Detailed Beams

The Bar Bending Schedule for Detailed Beams can also be understood in detail with the help of an example. This diagram is given below, as we can see, has a more detailed and technical implementation of design aspects.

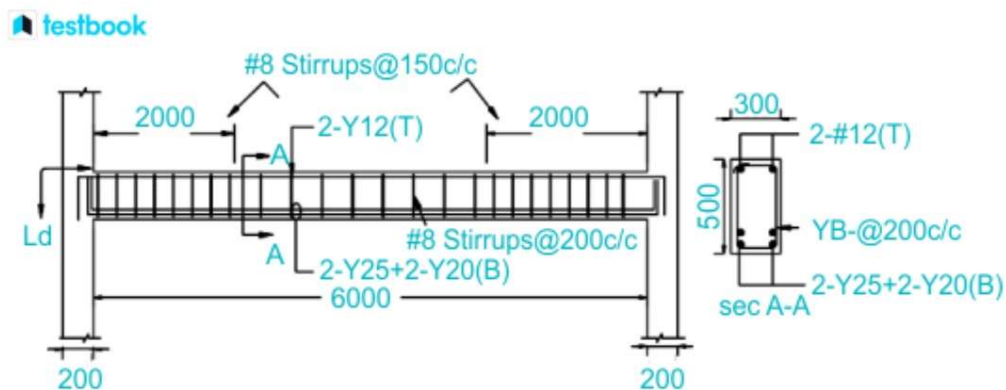


Fig.4: Example of Bar Bending Schedule for Detailed Beam

The above beam has a clear span of 6 metres and is made up of two layers of the bottom (2 numbers of 20 mm diameter) and one layer of the top (2 numbers of 12mm diameter). It is divided into three zones, with stirrups of 150 mm spacing in Zone 1 and Zone 3 and 200 mm spacing in Zone 2.

The observations that can be drawn from the above figure are:-

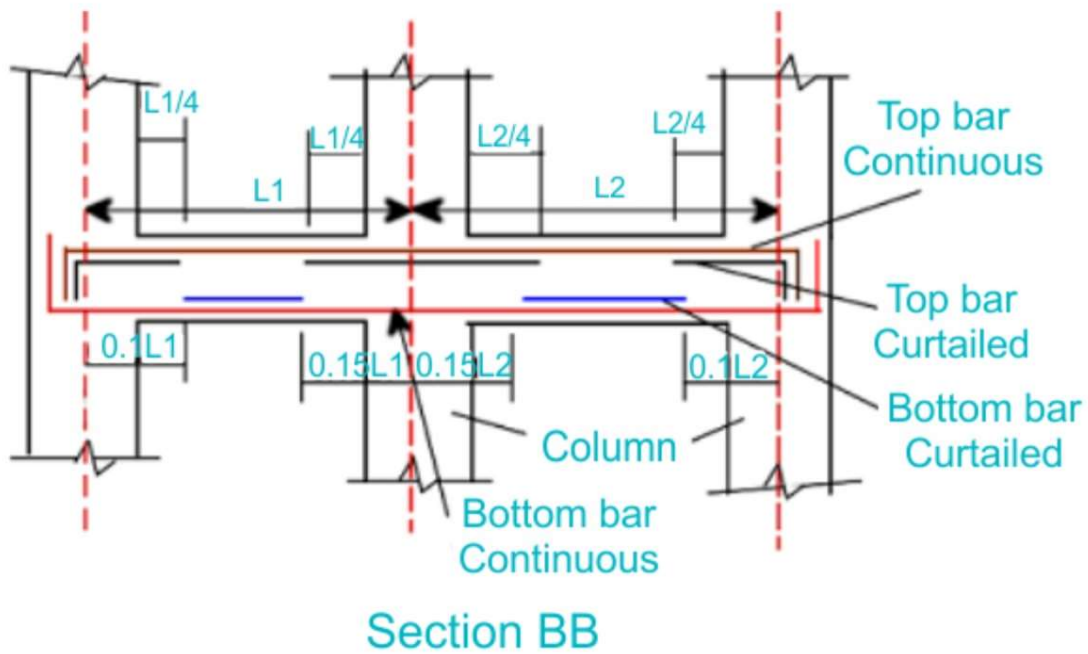


Fig.7: Example of Bar Bending Schedule for Continuous Beam

The schedule of the beam is as follows:-

Bottom Bar			Top Bar			Stirrups		
Left	Mid	Right	Left	Mid	Right	Left L/3	Mid L/3	Right L/3
2 – 25 $\phi$	2 – 25 $\phi$	2 – 25 $\phi$	2 – 20 $\phi$	2 – 20 $\phi$	2 – 20 $\phi$	8mm	8mm	8mm
-	2 – 20 $\phi$	-	2 – 20 $\phi$	-	2 – 20 $\phi$	100 c/c	125 c/c	100 c/c

Observations:-

Width of the beam= 300mm

Depth of the beam= 550mm

Width of column= 400mm

Length of column= 480mm

Effective Length  $L_1 = 5\text{m} = 5000\text{mm}$

Effective Length  $L_2 = 4.5\text{m} = 4500\text{mm}$

Top continuous reinforcement = 20mm  $\phi$  - 2 numbers

Bottom continuous reinforcement = 25mm  $\phi$  - 2 numbers

Bottom curtail reinforcement = 20mm  $\phi$  - 2 numbers

Stirrup zone 1= 8mm  $\phi$  @ 100 c/c

1	Bottom continuous Bar	25	2	11.50	23	3.854	88.642
2	Bottom curtail bar-1	20	2	3.75	7.5	2.466	18.495
3	Bottom curtail bar-2	20	2	3.375	6.75	2.466	16.646
4	Top continuous bar	20	2	11.02	22.04	2.466	54.35
5	Top left curtail bar	20	2	2.21	4.42	2.466	10.899
6	Top mid curtail bar	20	2	2.775	5.55	2.466	13.686
7	Top right curtail bar	20	2	2.085	4.17	2.466	10.283
8	Stirrup bar	8	85	1.492	126.82	0.395	50.094

Total weight of the bars= 263.09 kg

3 % wastage= 7.89 kg

Grand total weight of the rebars= 270.98 kg

Hopefully, this article on Bar Bending Schedule for Beams will give you important information regarding the topic. This topic is an important part of Estimation and Costing and is also useful for the site engineers. This article will be effective for the [AE/JE Civil Exam](#) and [GATE CE Exam](#). You can check out the [Testbook app](#) for accessing comprehensive study material, affordable online courses, [SSC JE Civil previous years papers](#) and free [AE/JE Civil Mock Tests](#) to boost your preparation.

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