

Draft

Cover Blocks

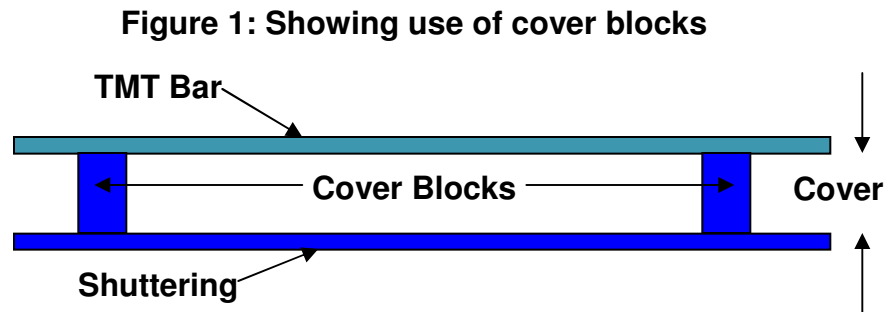
Overview

19 July 2011

Key Questions

- I. What are cover blocks?
- II. Why we must use cover blocks?
- III. What is the right amount of cover?
- IV. How to provide the cover effectively?
- V. How many cover blocks should I use?

What are cover blocks?



- ▶ Cover blocks are used to maintain a specified distance between the TMT rebar and the shuttering

Why we must use cover blocks?

- ▶ When doing RCC work it is important to embed the steel in the concrete (also known as cover) so that the rebar **doesn't corrode** and to provide **fire protection** to the rebar
- ▶ If we don't provide the recommended cover the rebar will corrode with time and will ultimately result in premature failure of the structure (see figure 2)
- ▶ Thus using cover blocks enhances the life of the structure significantly without adding much to the cost

Figure 2: Showing what happens if cover is not adequate



What is the right amount of cover?

- ▶ The right amount of cover is determined by the application and the environment (e.g., is the RCC under water, etc.)
- ▶ In normal environments, following are typical covers recommended in the Indian context

Application	Cover (in mm)
▶ Slab	▶ 20 mm
▶ Beam	▶ 25 mm
▶ Column	▶ 40 mm
▶ Foundation	▶ 50 mm

How to provide the cover effectively?

▶ Method used to provide cover effectively varies by application

Application	Type of Spacer
▶ Slab	▶ KK Fiber concrete spacer
▶ Beam - horizontal	▶ KK Fiber concrete spacer
▶ Beam – Vertical	▶ KK Plastic Circular Spacer
▶ Columns	▶ KK Plastic Circular Spacer



KK Fiber Concrete Spacer

- ▶ Better bonding with surrounding concrete as it is made from the same material
- ▶ Allows concrete to flow as the contact with shuttering is limited

KK Plastic Circular Spacer

- ▶ Even if the rebar is rotated the spacing is maintained
- ▶ Allows the concrete to flow through the spacer thus better bonding
- ▶ Clips on the rebar quickly and effortlessly

How many cover blocks should I use?

Spacer positioning is based primarily on acceptable deflection at maximum loading. Therefore, thinner rebars require more spacers than larger diameter rebars. Below are guidelines for recommended quantities for spacers based on rebar size and application

SLABS

<u>Rebar Diameter</u>	<u>Maximum Distance</u>	<u>Spacers required (per sq-meter)</u>
All	70 cm	2

BEAMS & COLUMNS

Spacer Distance In The Longitudinal Direction

<u>Rebar Diameter</u>	<u>COLUMNS</u>	<u>BEAMS</u>
up to 10 mm	50 cm	25 cm
12 to 20 mm	100 cm	50 cm
Over 20 mm	125 cm	75 cm

Spacer Nos Required In The Transverse Direction

<u>Width/Height of Beam/Column</u>	<u>COLUMNS</u>	<u>BEAMS</u>
up to 100 cm	2	2
Over 100 cm	3 or more	3 or more