



Reinforced Concrete Design 1

ENCE335

Project : Phase 1

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Section 1

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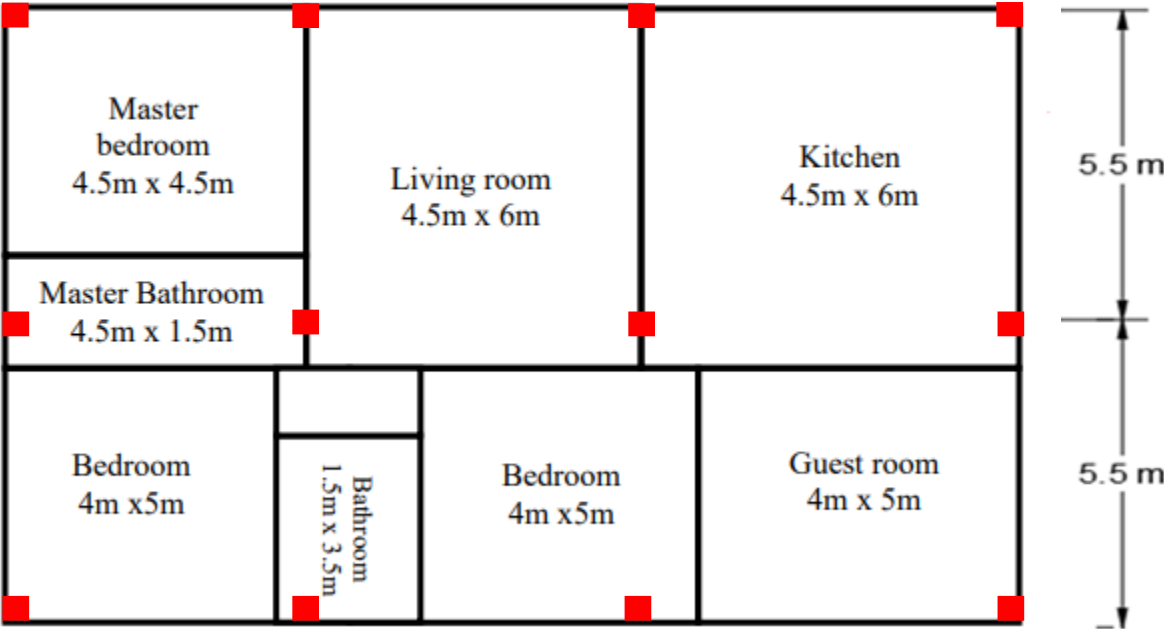
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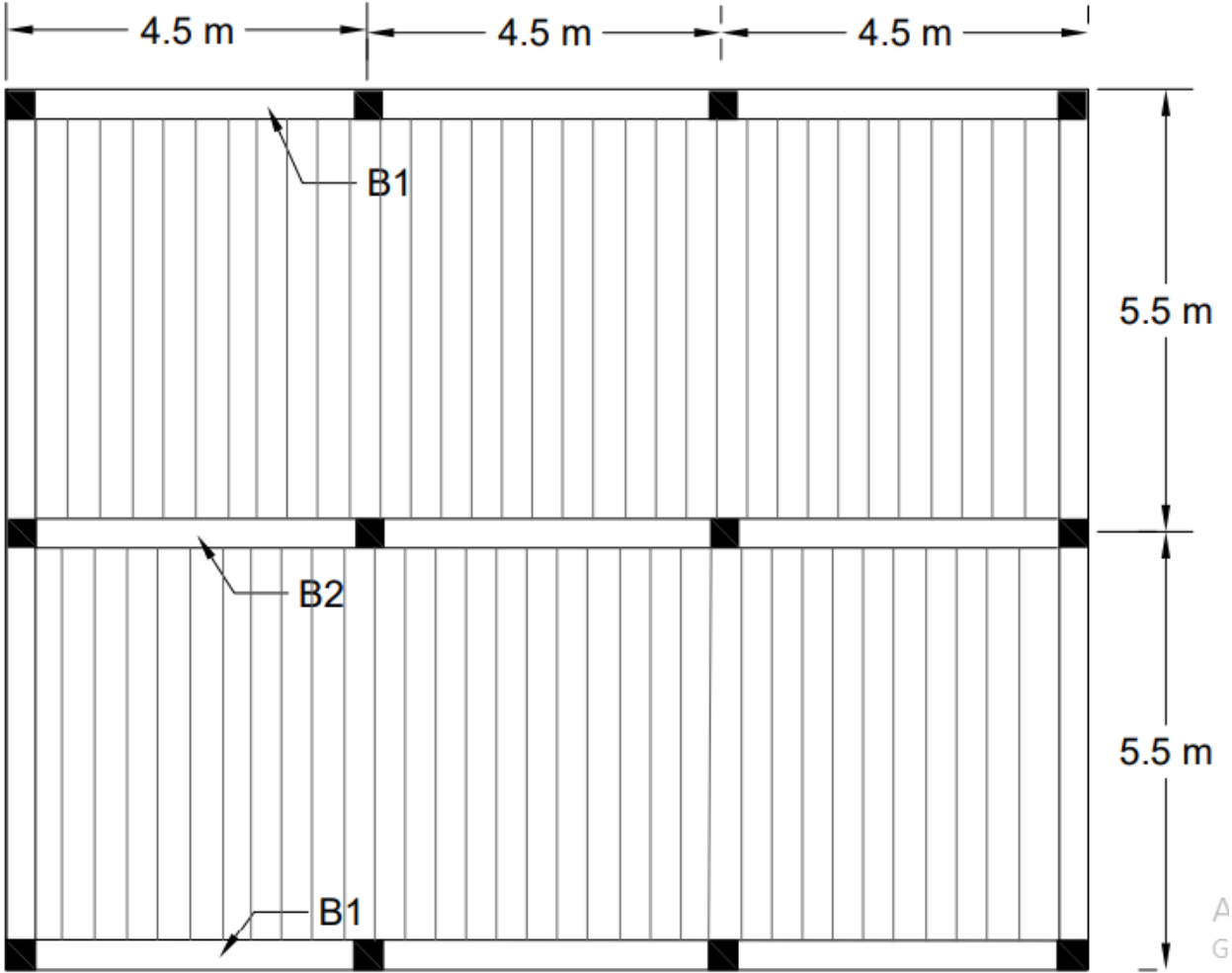
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Wednesday 23/12/2020

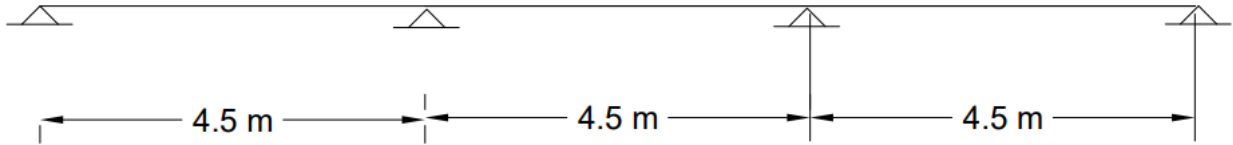
Floor layout and distribution of columns :



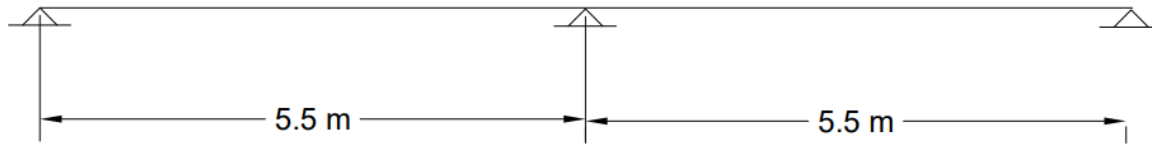
Distribution of beams, ribs and slabs :



B1 :



## Slab:



The minimum required thickness of the beams/slabs depend on the support condition .

( hidden beams mean the thickness of slab equal thickness of the beam )

From **ACI** Code (for beams & ribbed slap ) :

### CODE

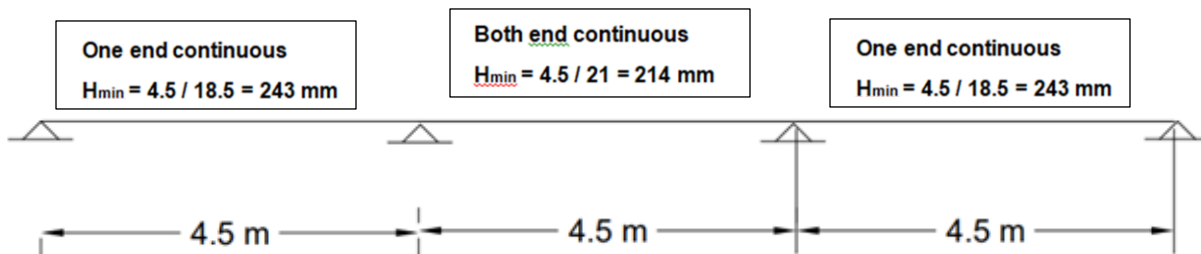
**Table 9.3.1.1—Minimum depth of nonprestressed beams**

Support condition	Minimum $h^{(1)}$
Simply supported	$\ell/16$
One end continuous	$\ell/18.5$
Both ends continuous	$\ell/21$
Cantilever	$\ell/8$

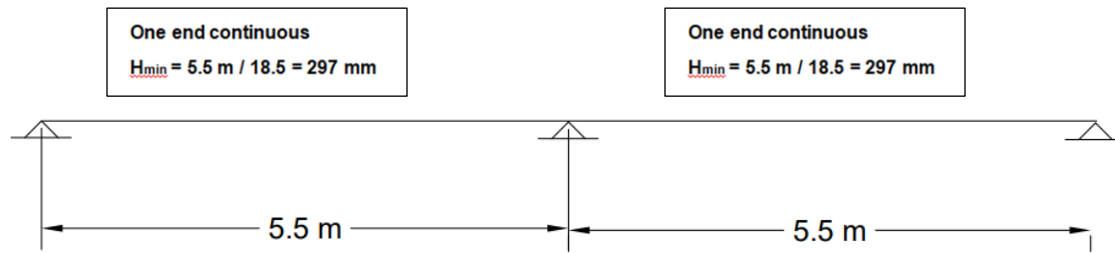
<sup>(1)</sup>Expressions applicable for normalweight concrete and  $f_y = 420$  MPa. For other cases, minimum  $h$  shall be modified in accordance with 9.3.1.1.1 through 9.3.1.1.3, as appropriate.

**9.3.1.1.1** For  $f_y$  other than 420 MPa, the expressions in Table 9.3.1.1 shall be multiplied by  $(0.4 + f_y/700)$ .

### Minimum thickness for beams :



**Minimum thickness for slabs :**



$H_{min} = \text{MAX} \{297 \text{ mm} , 243 \text{ mm} , 214 \text{ mm}\} = 297 \text{ mm}$

**$H_{min} = 300 \text{ mm} .$**