

# INTERNAL SAFETY QA'S (SHEET) **Handwritten**

According to Departmental Orders

Issue: 10/11/2021

## QUESTION: 1. How to determine the safety of a structure?

### (a) **Factoriality:**

Number of safety factors =  $\frac{\text{Strength of}}{\text{Load}}$

### (b) **Minimum thickness of the column or beam with an ultimate load**

**For rectangular:**  
Minimum thickness of column:  
 $\text{Min. thickness} = \frac{1}{16} \sqrt{\frac{P_u}{f_{ck}}}$   
Min. width:  
Minimum width of a column should be determined as per the following equation or as per the minimum width of a column should be determined as per the following equation.

**For circular column the minimum thickness:**

#### **Minimum width:**

$d_{min}$

$\frac{1}{16} \sqrt{\frac{P_u}{f_{ck}}}$

**Minimum width:**

$\frac{1}{16} \sqrt{\frac{P_u}{f_{ck}}}$

$d_{min}$

$\frac{1}{16} \sqrt{\frac{P_u}{f_{ck}}}$

$d_{min}$

$\frac{1}{16} \sqrt{\frac{P_u}{f_{ck}}}$

**Minimum width:**

$\frac{1}{16} \sqrt{\frac{P_u}{f_{ck}}}$

$d_{min}$

$\frac{1}{16} \sqrt{\frac{P_u}{f_{ck}}}$

$d_{min}$

$\frac{1}{16} \sqrt{\frac{P_u}{f_{ck}}}$

### (c) **Design load**

$1.5 \times \text{Characteristic load} + 1.5 \times \text{Characteristic load}$

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## QUESTION: 2

### (a) **Minimum width of the column or beam**

Minimum width of a column or beam should be determined as per the following equation or as per the minimum width of a column or beam should be determined as per the following equation.

Minimum width of a column or beam should be determined as per the following equation.

### (b) **Minimum width**

Minimum width of a column or beam should be determined as per the following equation or as per the minimum width of a column or beam should be determined as per the following equation.

Minimum width of a column or beam should be determined as per the following equation.

#### **Minimum width:**

$d_{min}$

$\frac{1}{16} \sqrt{\frac{P_u}{f_{ck}}}$

$d_{min}$

$\frac{1}{16} \sqrt{\frac{P_u}{f_{ck}}}$

$d_{min}$

$\frac{1}{16} \sqrt{\frac{P_u}{f_{ck}}}$

#### **Minimum width:**