BEAM

Padstone Calculator

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BEAM 1 - 29 Hartfield Road Leatherhead Surrey 10/11/2023

COMPLIES WITH LATEST EUROPEAN DESIGN CODES

Structural calculations for padstones

Beam End Reaction = **123.80** kN (factored) Variable Load Safety Factor = 1.5
Factored Load at End of Beam Permanent Load Safety Factor = 1.35

Characteristic strength of masonry = **4.5** N/mm² (Brickwork usually = 4.5 N/mm²)
(3.6N Blockwork usually = 2.6 N/mm²)
Width of beam end bearing = **254** mm (A Engineering Brick = 13.2 N/mm²)
Length of beam end bearing = **150** mm (B Engineering Brick = 10.5 N/mm²)
(Weak Brickwork = approx 2.8 N/mm²)
(7.3N Blockwork usually = 4.2 N/mm²)
(10.4N Blockwork usually = 5.4 N/mm²)

γm = 3.0

Bearing Factor = **1.25**

Results

Maximum Bearing Stress =	1.88	N/mm²
Actual Bearing Stress =	3.25	N/mm²

Padstone Required

Padstone Results

Characteristic strength of Padstone = **15.0** N/mm² (A Engineering Brick = 13.2 N/mm²)
(B Engineering Brick = 10.5 N/mm²)
Width of Padstone = **300** mm (Concrete C15 = 15 N/mm²)
Length of Padstone = **300** mm (Concrete C30 = 30 N/mm²)
(Concrete C40 = 40 N/mm²)
(Steel Plate = 275 N/mm²)

Allowable padstone stress =	6.25	N/mm²	
Stress under beam end bearing =	3.25	N/mm²	Therefore Padstone Stress OK
Allowable masonry stress =	1.88	N/mm²	
Stress under padstone =	1.38	N/mm²	Therefore Masonry Stress OK