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Project No	Example	Sht. No.	9of 16
Site Address	Example		
Subject	Extension and alteration works – Supporting Calculations		
Engineer	Peter V	Date:	

Bearing details

Beam spanning out of plane of wall

Width of bearing; B = **200** mm; Length of bearing; l_b = **100** mm

Edge distance; x_{edge} = **150** mm

Loading details

Concentrated dead load; G_k = **15** kN; Concentrated imposed load; Q_k = **2** kN

Design concentrated load; F = **24.2** kN

Distributed dead load; g_k = **0.0** kN/m; Distributed imposed load; q_k = **0.0** kN/m

Design distributed load; f = **0.0** kN/m

Masonry bearing type

Bearing type; **Type 2** ; Bearing safety factor; γ_{bear} = **1.50**

Check design bearing without a spreader

Design bearing stress; f_{ca} = **1.210** N/mm^2; Allowable bearing stress; f_{cp} = **1.071** N/mm^2

FAIL - Design bearing stress exceeds allowable bearing stress, use a spreader

Spreader details

Length of spreader; l_s = **440** mm Depth of spreader; h_s = **215** mm

Edge distance; x_{edge} = **30** mm

Spreader bearing type

Bearing type; **Not applicable** ; Bearing safety factor; γ_{bear} = **1.00**

Check design bearing with a spreader

Loading acts at midpoint of spreader

Design bearing stress; f_{ca} = **0.550** N/mm^2; Allowable bearing stress; f_{cp} = **0.714** N/mm^2

PASS - Allowable bearing stress exceeds design bearing stress

Check design bearing at 0.4 × h below the bearing level

Design bearing stress; f_{ca} = **0.185** N/mm^2; Allowable bearing stress; f_{cp} = **0.432** N/mm^2

PASS - Allowable bearing stress at 0.4 × h below bearing level exceeds design bearing stress

Beam A padstone: Provide 440x100x215mm deep dense concrete padstone or Eng. Bwk as padstone