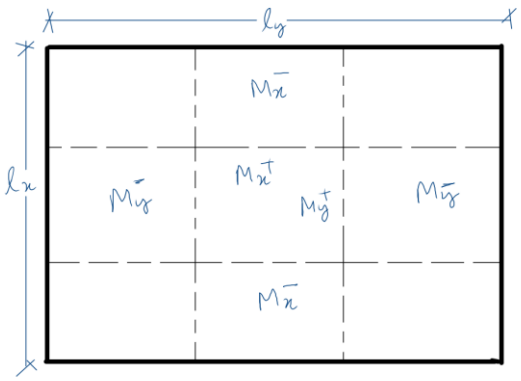
Design Steps of Two Way Slab

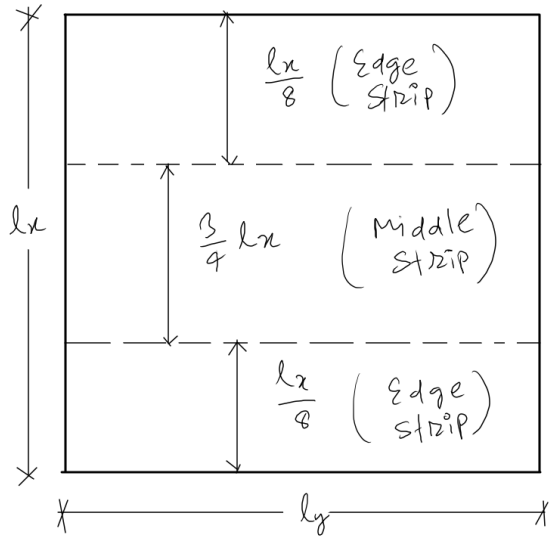
(www.ervivekshah.com.np)

Step 1 : *For Each of the nine cases obtained moment coefficient for mid span and for edge from IS456:2000.*



Out of all design (Mx^+,Mx^-,My^+,My^-), Mx^- is always maximum.

Step 2 : *Slab is divided into middle strip and edge strip along both the edges. Reinforcement calculated corresponding to design moment (Mx^+,Mx^-,My^+,My^-) is provided in middle strip only. Edge strip is provided with r/f only.*



Step 3 : *if slab is restrained from lifting at corners then torsion reinforcement is also provided to prevent the development cracks.*

a) *At two discontinuous edge 75% maximum positive reinforcement ($0.75Ast_x^+$) is provided in two layers for a distance of $0.2l_x$ in both directions.*
b) *At one discontinuous edge 50% of above value (i.e. $0.375\ Ast_x^+$) is provided in two layer for distance of $0.2l_x$ in both directions.*
c) *At continuous edge, no torsion reinforcement is required.*

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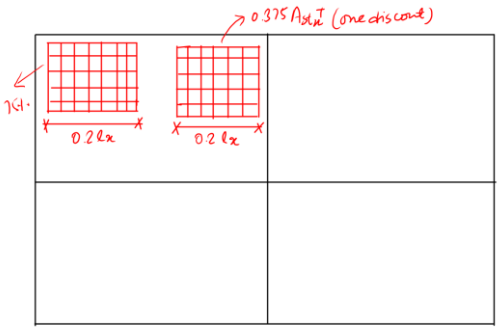
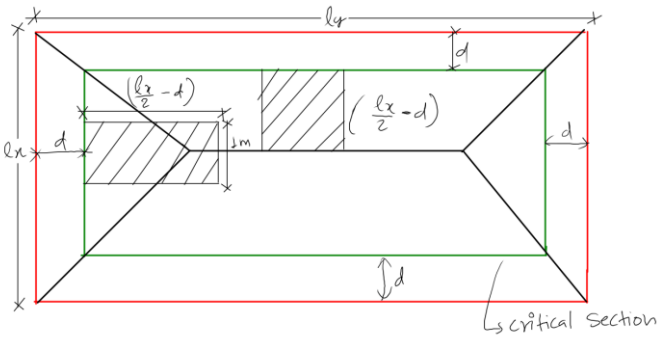


Step 4: *Check for shear and development length.*



$$Vu = W_u\left(\frac{l_x}{2} - d\right)$$

$$\tau_v = \frac{V_u}{bd} = \frac{W_u\left(\frac{l_x}{2} - d\right)}{10^3.d}$$

For Safety in shear

$$\tau_v < K\tau_c$$

Here d is average value of effective depth.

$$\frac{d_x + d_y}{2}$$

Note: *This designing in based on "yield line theory"*