METALLIC BRIDGES (1)
STR 403

FLOOR BEAMS ANALYSIS OF ROADWAY BRIDGES

2020-2021

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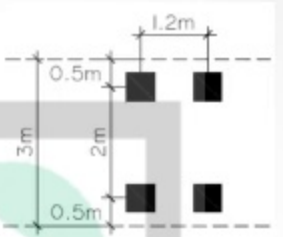
Roadway Bridge Loads

Main Loads:

2- Live Loads:

Traffic way direction



Truck Dimensions

Lane width is 3 m.

Loading main Lane with (60 t Truck+ 0.9 t/m2).

Loading second Lane with (40 t Truck+ 0.25 t/m2).

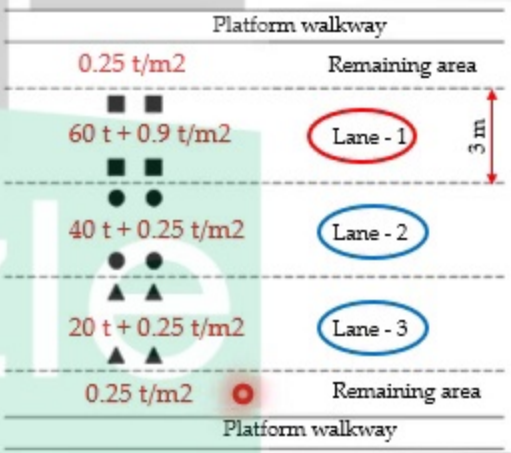
Loading third Lane with (20 t Truck+ 0.25 t/m2)

For any another lanes loading with (0.25 t/m2).

For walkway if width ≥ 1.5 m (0.5 t/m2)

< 1.5 m (0.25 t/m2)

Traffic way direction



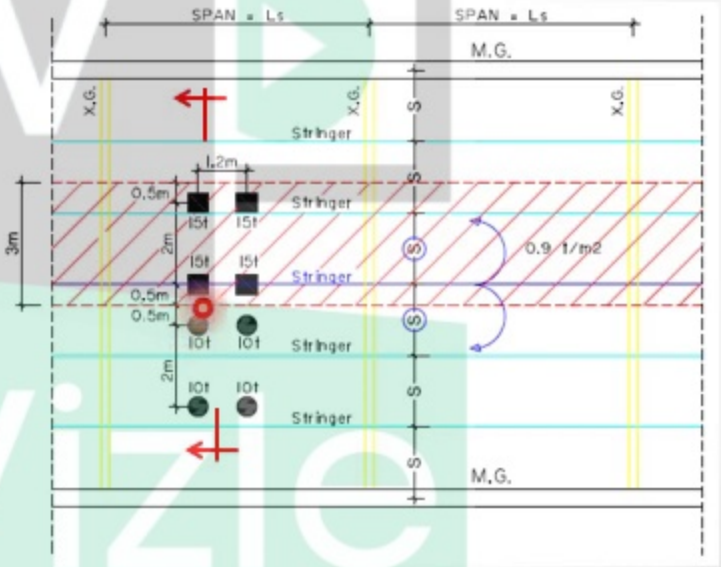
Straining Actions On Floor Beams

1- Stringer

b) Live Loads & Impact

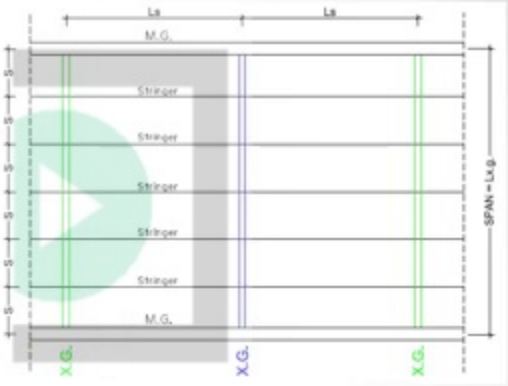
Step 2:

Applying second truck loads.



Straining Actions On Floor Beams

2- Cross Girder (X.G.)



a) Dead Loads

(Span = Lx.g & Spacing = Ls)

O.W. ⟶ Assume ⟶ 0.2 to 0.3 t/m'

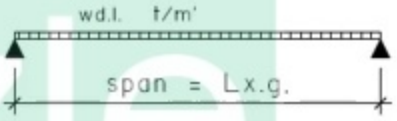
R.C. ⟶ $W_{R.C.} = \gamma_{R.C} * t_s * Ls$ t/m'

Wearing Surface ⟶ $W_{w.s.} = \gamma_{w.s.} * t_{w.s.} * Ls$ t/m'

get $W_{d.l.} = \Sigma$ D.L.

calculate

Mx d.l. & Qy d.l.

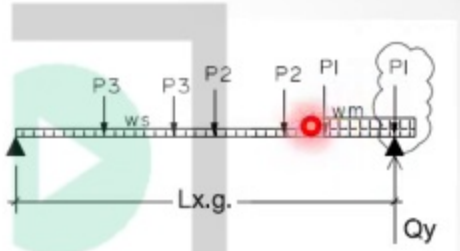


Straining Actions On Floor Beams

2- Cross Girder (X.G.)

b) Live Loads &Impact

Get Max. Shear due to live loads & Impact

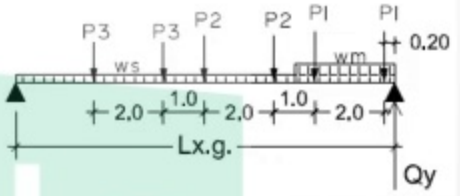


Design Moment & Shear

$Mx = Mx_{d.l.} + Mx_{l.l+I}$

$Qy = Qy_{d.l.} + Qy_{l.l+I}$

Case of Qmax.



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