**54\_Design strips for reinforcement**

Now is the time to learn about design strips. Strips can be drawn when the model is unlocked from this shortcut button. By default there 2 layers of design strips called layer A and layer B. There is also a third layer called "Other". We will not be using it. A design strip represents the area of slab analyzed to design for reinforcement. In this lecture we will using unit width that is 1m for the width of design strips. That means we will be designing slabs by taking unit width area of slab with the help of design strips. Or in other words we will be averaging reinforcement or moments in 1m wide pieces of this slab.

Think of layer A as bars in X-direction and layer B as bars in Y-direction. We now need to draw design strips A in X and design strips B in Y directions. Select layer A from the list and then enter 0.5m in all these four boxes. 0.5 because it is half of the unit width. So design strip has 0.5m width to the left and 0.5m to the right from the center line of design strip, giving total width of 1.0 m.

By these boxes you can taper the width of design strips for irregular geometry. We can also visualize the widths of design strips from view options by clicking on "Show station" or label check boxes.

Next we need to draw this layer A design strip in X direction just outside the slab. Also draw the Y direction strip. Actually, we need to draw these A and B strips every meter to cover the whole slab. But we can do this by "Replicate" option by select one strip at a time and then replicating every 1m and put here some number. Now do it for Y direction. Now all the slab is covered by design strips.

Run the model and select show "Slab Design" form. You will notice strip based option is now enabled. From here select layer A and check both top and bottom options here and also the minimum check. These options are same as discussed before. From here you can show reinforcement in three different ways;

1. Reinforcement area per unit width

2. Total reinforcement for a strip

And 3 by showing number of bars.

Option 1 and option 2 will give us same reinforcement area because we already have drawn strips of unit width.

Check show values to see the values of reinforcement and uncheck fill diagram option. Also hide envelope diagram but keep the reinforcement extent check. This will show the extent of additional reinforcement bars.

Now you can combine the 3 methods we have discussed above with these options on right if you have a typical mesh. Let's say we don't have a typical mesh then click on "Show number of bars" option and select dia 12 bar from top and bottom drop down lists and click apply. You will see lot of information so it is better to show top and bottom bars separately. These number represent number of bars in 1m. For example 150mm spacing means 6.67 bars every 1 meter. If these bars are less than 6.67 then 150mm spacing is enough.

The easiest way to see reinforcement from strips is to specify a minimum mesh, let's say dia 12 every 150mm in this case and show additional reinforcement required of dia 12. No additional reinforcement is required which shows the provided typical mesh is SAFE for this slab.