**55\_Design of foundations in SAFE**

After importing reactions from ETABS, turn on visibility of points and draw the foundations. Also draw the design strips as we did in last lecture. Apply foundation slab loads for existing or new load cases.

You also need to apply supports to your foundations. To do this, define modulus of sub-grade reaction as per soil report in define menu. Then select the foundations and assign soil supports.

The best way is to select by slab properties, select all slab properties except stiff elements and assign soil supports.

For rafts, we can draw strips as we did in previous lecture for slabs. But if your model contains isolated foundations or combined foundations, then you need to draw design strips A and B with actual dimensions.

For example let's draw the design strips for these foundations. In strip width boxes enter half of the footing dimension. This footing has this dimension in Y direction, so in X direction put half of Y dimension of footing. Do the same steps for the other direction.

Then run the model. You can now check the soil pressure under the worst load combination by clicking on this shortcut. Select the worst load combination. To determine the worst load combination, either check soil pressure on each combination one by one or make envelope of all combinations. Let's assume this is the worst combination for this model.

Click on "Soil Pressures" and enter the contour range. It should be noted here that minus sign represents compression in SAFE 12. It was opposite in SAFE version 8. Let's say the allowable service pressure for this building is 150 kPa so put -150 in minimum box. Soil pressure contours are under 150kPa in compression and there is no tension so the footing is adequate for bearing pressures.

Reinforcement and punching design for the foundations is the same as we have discussed in the previous lectures on slab design.