5. CONCLUSIONS & RECOMMENDATIONS

The study shows several significant patterns in reinforced concrete structural elements sizes which can be used for future office or residential buildings in Sri Lanka. According to the results, the following conclusions and recommendations can be made.

- Slab thicknesses appropriate for most commonly used spans and ratios of spans, staircase waist thicknesses corresponding to various spans and 225mm wide beam depths suitable for different spans and tributary areas can be identified from past design data.

- Variation of column cross sectional area x compressive strength of concrete with tributary area x number of reinforced concrete floors can be graphically represented and therefore can be used as a guide in selecting column dimensions within mentioned limitations.

- Neural network models that were created using the available data justify the selected slab, staircase, beam and column dimensions.

- Variation of footing dimensions with number of RC floors, tributary area and soil bearing capacity is not very clear. This might be improved by taking in to account other factors such as design loads on tributary areas and having more past examples under different design conditions. It is probably better to use the neural network models if estimates for footing element sizes are desired, rather than the attempted graphical relationships.

- The initial sizes of slab and staircase elements derived according to the guidelines given in the literature, the Manual for the design of reinforced concrete building structures (1985) – published by the Institute of Structural Engineers, is somewhat conservative for Sri Lankan practice. But in the case of beam depths, Sri Lankan practice is to use more conservative sizes than the values suggested by the Manual. Column cross sectional areas derived according to the Manual are also appropriate for Sri Lankan practice.