CHAPTER 3

AIM AND SCOPE OF INVESTIGATION

3.1 GENERAL

This chapter presents the sequences of laboratory experimental work procedure to evaluate the load-carrying capacity of short and slender columns manufactured using low calcium fly ash based Geopolymer concrete and columns strengthened using GFRP sheets. In addition, various parameters affecting strength of Geopolymer concrete are also focused. The aim of this investigation is to experimentally examine the strengthening of geopolymer concrete columns with fly ash and materials of Indian origin. It examines various strength aspects such as compressive strength, tensile strength, bond strength and thermal strength of dry heat cured Geopolymer concrete.

3.2 AIM

The main aim of this research work is to investigate the GFRP strengthened geopolymer concrete column with single layer wrap and double layer wrap. To achieve this, an extensive study had been carried out to investigate the following.

1. To find the optimum proportion of Geopolymer mix of G30 and G50 grade concrete.
2. To investigate the workability of fresh geopolymer concrete.
3. To evaluate compressive and tensile strength of Geopolymer concrete.
4. To investigate the durability characteristics of Geopolymer concrete.
5. To investigate compressive strength of RCC Geopolymer short columns strengthened using Single layer and double layer of GFRP wrapping.
6. To investigate compressive strength of RCC Geopolymer slender columns strengthened using Single layer and double layer of GFRP wrapping.

3.3 SCOPE

In this study the feasibility and adaptability of this concrete as a commercial product to make it more viable in the construction industry are studied and also GFRP sheets as strengthening agent was also studied. Therefore in this investigation, effect of layers of GFRP wrapping on Geopolymer short column and long columns were studied.