ACKNOWLEDGEMENT

The author expresses his deep sense of gratitude to his Thesis Supervisor, Dr. G.M. Samuel Knight, Professor of Civil Engineering, Structural Engineering Division, Anna University, for his valuable guidance, constant support and meticulous care in all phases of this research work.

The author is grateful to his Research Co-ordinator, Dr. D.S. Ramachandramurthy, Deputy Director, Structural Engineering Research Centre, for his valuable guidance and suggestions, which significantly improved the contents. Dr. A. Rajaraman, Visiting Professor, Indian Institute of Technology, Chennai, is the main source of inspiration and motivated the author to take up this research. The author is thankful to him for his advice, moral support and guidance. The author expresses his sincere thanks to Dr. Bh. Nagabhushana Rao, Chairman, Faculty of Civil Engineering, for his expert comments and suggestions, which improved the overall presentation of the thesis.

The author wishes to thank Dr. S. Elangovan, Head of the Department of Civil Engineering and all the faculty members of Structural
Engineering Division, Anna University. Sincere thanks are due to all the fellow researchers for their cooperation and help extended during the course of the research work.

The author wishes to express his sincere thanks to Dr. N. Lakshmanan, Director, Structural Engineering Research Centre, for his moral support and encouragement. The opportunity provided by Structural Engineering Research Centre, CSIR to pursue this research work is gratefully acknowledged. The author also wishes to thank Dr. T.V.S.R. Appa Rao, Dr. R. Narayanan, Former Directors, Shri. S. Gopalakrishnan, Advisor (Management), and Dr. K.Natarajan, Scientist, Structural Engineering Research Centre, for their constant support and encouragement. The author’s sincere thanks are due to Ms. Beulah Daisy Williams for proofreading the manuscript. The help rendered by his colleagues and staff of Structural Engineering Research Centre and Library in particular, is gratefully acknowledged.

The author could not have completed this work without the patience and forbearance of his wife, Geetha and his daughters, Suganya and Anushya. The author expresses his gratitude to them and his parents who had motivated and encouraged him to do higher studies.