ABSTRACT

The massive collapse of buildings during the Turkey earthquake in 1999, the collapses of buildings in Singapore, such as Hwa Chong Junior College in 1987 and Cheng Hong Mansion in 1998, partial collapses of the structures of Sun Plaza in Sembawang as well as the collapse of the roof of Compassvale Primary School in Singapore, all proved that structural failure is indeed a problem in the construction industry. Through investigative studies, there has been evidences of human factors involved in structural failures.

This dissertation will highlight the various human factors that are responsible for structural failures. A survey was conducted to determine the important factors that are responsible for structural failures in Singapore. Using a sample of 66 respondents, a statistical analysis of the current situation in the local construction industry was done. Principal Component Analysis (PCA) was used to sieve out the most important human factors that are responsible for structural failures.

Eleven variables were found to be statistically significant – training, calculation, experience, misinterpretation of documents, time, price, inspection, culture, material, labour and new construction/design method. Through the use of PCA, five underlying important factors were identified, namely, carelessness, external factors, managerial, selection and application.
ABSTRACT

The introduction of a “structural failure” module in tertiary institutions, better quality assurance systems, an Accredited Checker’s grading system, were some recommendations made to minimize structural failures caused by human errors.