A Study of the Construction Safety in Hong Kong - Accidents Related to Fall of Person from Height


Research project funded by Institutional Research Grant, The Hong Kong Polytechnic University

Background
The accident rate of the construction industry in Hong Kong has been declining in recent years. However, the fatality rate in construction is the highest amongst other industries. Taking 2002 as an example, there were 22,453 industrial accidents in Hong Kong, of which 6,239 accidents were construction related cases (OSHB, 2003).

This research began with a review of the available literature related to construction safety and fall of person in construction sites. Based on Architectural Services Department’s (ArchSD) accident data in the Public Works Programme Construction Accident Statistics (PCAS) system of the Environment, Transport and Works Bureau (ETWB), the second stage investigated the characteristics of fall of person accidents. The use and the effectiveness of personal fall arrest systems were examined with reference to detailed accident reports. Following the statistical analysis, a safety workshop was then jointly organized by the research team and ArchSD. The aim of this workshop was to collect feedbacks on the statistical results from safety-related practitioners. To facilitate a systematic data collection, a set of questionnaires were developed and used in the workshop.

Significance of the Project
This study provides a detailed analysis of fall injuries occurred in ArchSD’s projects from 1994 to 2003. It unveils the major problems associated with fall of person from height and recommends measures for improvement.

Aims and Objectives
This research aims to improve construction safety performance related to fall of person from height. The three specific objectives are:

i. To identify the characteristics of fall of person accidents in Hong Kong.
ii. To examine the use and the effectiveness of personal fall arrest systems.
iii. To recommend measures on safety of work at height.

Outcome and Deliverables
The result of the investigation was mainly based on an analysis of the accident data from the ArchSD’s Public Works PCAS system and a safety workshop. The key findings are as follows:

(a) Although the total number of fall injuries was decreasing, there was an increasing trend in the average number of serious injuries.
(b) Fall injuries were frequently associated with the use of ladders;
(c) Most of the injured workers were unskilled labours working on a temporary basis;
(d) Most injured workers fell from workplace of height lower than 2 meters;
(e) Plastering and painting were the most common type of work related to fall injuries;
(f) Fatigue or exhaustion of workers was one of the main factors causing fall injuries;
(g) The unsafe conditions related to fall injuries were unsafe process or job methods, and improper procedure;
(h) Fall injuries occurred more often in summer and on Monday;
(i) Work experience (especially for those who have less than one month’s experience at a particular site) has a direct relationship to fall incidents;
(j) Improper equipment, inadequate housekeeping, lack of resources and lack of safety design were major factors contributing to fall injuries;
(k) Safety training is considered as one of the most important factors in improving construction safety related to falls; and
(l) Poor safety attitude and behaviour is the biggest obstacle in implementation of safety procedures.

Recommendations

Based on the limited statistics of fall accidents discussed above and the analysis of the results from the safety workshop, the following recommendations are proposed:

(a) A better safety climate should be cultivated in order to "correct" the safety attitude of the workers such that safety performance of working at height can be improved. This can be accomplished by providing enhanced safety training for workers with updated information and communications of safety information related to fall injuries through proper channels such as frequent toolbox talks and site safety meetings.

(b) Refreshing safety talks should be conducted on regularly basis and preferably before commencement of works on Monday morning.

(c) Frontline management should pay special attention to the physical condition of workers working at height during summer time. More frequent rest for workers is recommended during this period of the year.

(d) Safety officers/supervisors should provide close supervision for trades which require frequent use of ladders such as plastering and painting.

(e) A permit-to-use system for ladders should be introduced such that the ladders are always in working condition.

(f) Workers should be provided with adequate and appropriate safety equipment such as safety harness with fall arrestor and an independent lifeline.

(g) Clearly written and updated working procedures and guidelines should be provided.

(h) Proper communication channels should be established between frontline workers and the engineering teams in order to develop proper, practical and feasible construction process and methods for construction works.

(i) New employees for construction works (and especially for their first month on the site) are required to attend mandatory training for construction safety related to working at height. The training should include the proper use of ladders.

(j) Contractors should prepare a comprehensive incident report in case of accident. The report should at least cover the scenario, the possible cause(s) and the recommendation(s). Wherever appropriate, lesson should also be prepared to enhance safety training and promotion on-site in order to prevent from recurrence of similar accidents related to fall of person from height.

(k) A penalty and award scheme should be enforced for construction safety.

References