

Relationship of travel distances on total evacuation time among secondary students in Malaysia

ABSTRACT

This study determines the relationship between two types of travel distances on total evacuation times among secondary students at school building. Direct measurement was done on both flat and stair travel distances together with the actual evacuation time for every student. Multiple Linear Regression (MLR) was used to statistically analyse the relationship between those determinants and total evacuation time. A weak correlation exists between prediction and actual as R value equal to 0.258 while variation in both distances could explain 6.7% variation in total evacuation time. ANOVA test proved dissimilarity between flat and stair distances, and MLR results showed significant correlation for both distances. An increase of 1 m of flat and stair travel distance will increase the total evacuation time by 0.262 and 0.217 seconds respectively when other factors remain constant. There was a significant relationship between travel distances with total evacuation time taken among secondary students.

Keyword: Total evacuation time; Flat distance; Stair distance; Multiple linear regression