

Dynamic response of slender and light balcony deck under wind loading

ABSTRACT

Due to hilly characteristic of Malaysia ground, structures occasionally founded in sharp slopes and uneven ground level. Hence, the design of structures should comply with site location. In this study, an attempt has been made to investigate the dynamic response of slender and light balcony deck to comply with the deflection and human perception level against the wind loading effects. Dynamic responses of various models with different size and height of balcony's column are considered. Natural period, maximum deflection and acceleration are considered for both wind direction and checked with human perception levels. The results indicated that, the natural period's values of columns with same height are reduced wherever the area of column increased. In addition to, increasing in column's height raised the natural period, critical displacement and acceleration by approximately 10%. On the other hand, whenever column size exceeded about 45% and 10%, maximum displacement and acceleration are reduced by roughly 20% and 30% respectively.

Keyword: Natural frequency; Light weight balcony; Slender column; Wind design; Human perception level