**THE SEISMIC RESPONSE ANALYSIS OF KEEL ARCH ACCORDING TO VERTICAL GROUND MOTION**

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Kim Yu-seong**[[1]](#footnote-1)**, Kim Gee-cheol**[[2]](#footnote-2)**

**ABSTRACT**

Since the earthquake motion is three-dimensional, vertical ground motion can occur along with horizontal earthquakes. Especially, in the case of large spatial structure, the effect of vertical ground motion is much affected by vertical ground motion due to dynamic characteristics such as vibration mode. In this study, the seismic response of the keel arch according to horizontal and vertical ground motion is analyzed through the linear elastic time history analysis. As a result, the vertical displacement response at 1/4 point of the span occurred largely when horizontal ground motion occurred however the vertical displacement response at center point of the span occurred largely when vertical ground motion occurred. Therefore, the seismic load combination considering horizontal and vertical ground motion is analyzed.

1. Department of Architecture, Yeungnam University [↑](#footnote-ref-1)
2. School of Architecture, Seoil University [↑](#footnote-ref-2)