

Comparison of Equivalent Linear and Non_linear Analysis of Site Response (A Case Study: Tabas, Yazd)

Hamed Rajabzade^{1*}, Hamid Mehrnahad²

1. Geotechnical Engineering, Yazd University

2. Assistant Professor, Yazd University

Received: 6 Nov 2016 Accepted: 17 July 2017

Extended Abstract

(Paper pages 41-62)

Introduction

The effect of surface geology on seismic movement is known and acceptable and these effects can consider important factor in movement resulting from earthquake. Studying the intensity and dispersal of recent decade earthquake destruction indicated the importance of construction effects and surface geology conditions more than ever. From view point of engineering, earthquake importance is in light of effects that these earthquakes is created in construct such as dams, powerhouses, bridges, residential areas and industrial installations that in most cases, this constructs are building not only on rack mass surface but on earth surface, e.g . alluvial layers placed on bed stone. The effect of soil layers on earthquake waves is result of complex processes that this effect can exist as dynamic support under stability soil conditions that is called as intensification from it.

Material and methods

There are multiple methods in order to determine the effect of construction and affecting in on earth potent movement features, that among them are covered less-cost numeral methods and more site output and beacuse of reason are using from these methods in order to analyzing respond to earthquake vibrations. In this paper try to using data resulting from drining 5 boreholes on Tabas city construction are studying the effect

of and also comparing numeral methods of analyzing building such as equivalent linear and non-linear analysis for earthquake return periods of 75, 475, 2475 using NERA and EERA softwares.

Results

Taken together reinforcement rate and also maximum velocity in earth surface can explain that Dehshak region and Tabas center areas include more intensification conditions. On the other hand, south zone of Sarasyab sector and then Imamzade area include higher solidity and least intensification. Based on done studies are suggested to guided urban development programm more toward Hossein – ebne - Mousakazem Emamzadeh in order to exert from more suitable buildings. Also, regarding to EERA high-level evaluation and non-linear soil behavior for earthquake with 2475 high return period is used from NERA software for analyzing construction effect to obtain maxium more realistic surface velocity .

keywords: Construction effect, Equivalent linear analysis, Non-linear analysis, EERA, NERA.

*Corresponding Author: Hamedr.1370@yahoo.com