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İZMİT'TE BİR MİKROTREMOR UYGULAMASI

A CASE STUDY of MICROTREMOR in IZMIT

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ABSTRACT In this microtremor study we aimed to define amlification factor and predominant period values of two different buildings which are located on soft and hard soils. Observations has been conducted in the buildings of Kocaeli Metropol Municipality(Belsa) and Yuvam Akarca Settelement II. Etap B1-2 Blok(Yuvam).

We installed 3-component short period velocity seismometer in these buildings and receirded microtremeor records in 3-4 days. Our recording system consists of a Mark Products L4-3D velocity seismometer, REFTEK digitizer, GPS and harddisk unit. Sensitivity of seismomter is 171 Volt/meter/sn, natural frequency is 1 Hz and damping is 0.707. We installed two different recording systems of each building in the basement and on the roof and recorded signals simultanously. Microtremor records have been evaluated by using Geopsy software based on single station spctral method(nakamura) and H/V spectracl ampltudes are calculated.

Calculated predominant frquency and amplification factors are 2.27 Hz. and 3.39 on the base floor of 10 stories the Belsa building, on the roof these values are 1.55 and 30.13, accordingly. The calculated predominant frequency and amplification factors are 3.23 Hz. and 1.47 on the base floor of 15 stories Yuvam Building. At the roof of this building we observed 2.05 Hz. for predominant frequency and 16.63 amplification factor.

As a results of observed values we can conclude that the Belsa Building located on the soft soil has higher period or lower frequency movement than the Yuvam Building located hard rocks. Also in similar way, the Belsa building has more amlification factor than the Yuvam Building.