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7 Shake Table Experiments for the Determination of the Seismic Performance of GRC Panels

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DUBLEX SAMPLE BUILDING WAS ESTABLISHED FOR THE FIRST TIME IN KANDILLI OBSERVATORY IN TURKEY

As Betofiber Yapı elemanları San.ve Tic. A.Ş. (Construction elements Ind. and Trade Inc.), in order to observe the behavior in the connection points that have been made by BETOFIBER licensed anchoring system as fully bubbled to the main building along the panels during the earthquake regarding the BETOFIBER Insulated Cladding Panel Systems have been used as the external wall architectural elements and manufactured by the concrete made of glass fiber, the earthquake test had carried out in Kandilli Observatory Laboratory of Boğaziçi University as of 12 October 2010 at 15.45.

In order to perform the earthquake test, on the biggest vibratory table of Turkey at the dimension of 3.00 m x 3.00 m and in the capacity of 10 tons that is available in the Laboratory of Boğaziçi University Observatory and again a three dimensional model building was established that was designed as concrete and whose carrier system is steel (column and girders) and its external dimensions are 3.06 x 2.86 m and heights are 5.73 m. The four frontals of this duplex three dimensional model were covered by the BETOFIBER GRC Insulated Cladding Panel Systems. In the external wall covering of the model, the field applications were performed and the door and window ways have taken into the consideration as well as it was considered how the window and door profile could behave during the earthquake.

During the earthquake test, 4 main earthquake loads was given in accordance with the records of the Boğaziçi University Kandilli Observatory.

First of all, for the architectural external wall elements, the earthquake test that is defined by the international standards was applied. This test was passed successfully.

Following the first test, the second test was carried out by providing the El-Centro earthquake records having similar and typical characteristic specifications with the Northern Anatolia fault line that occurred in American continent. This test was also passed successfully.

Following these tests, the third and fourth tests were applied by using the data in the earthquake records in 1999 Kocaeli earthquake and 1999 Düzce Earthquake. The tests were passed by means of BETOFIBER GRC Insulated Cladding Panel Systems and it was tested successfully in accordance with the all major earthquake data available in Boğaziçi University Kandilli Observatory by providing relevant criteria as well.

During four earthquake tests that were applied, it was observed that BETOFIBER GRC Insulated Cladding Panel System and fully bubbled and licensed anchoring system have been acted independently from each other and building as is designed and these have not provided additional load for main building. On the other hand, it was observed that the elements of BETOFIBER's anchoring system fully bubbled was performed without any trouble and mastic material that has

used in the joints between BETOFIBER GRC Insulated Cladding Panel System enabled the actions of BETOFIBER GRC Insulated Cladding Panel System and consequently prevented the separation from each other in this regard. It was also observed that mastic material that is used between the BETOFIBER GRC Insulated Cladding Panel System was not decomposed by showing the sufficient flexibility.

As a result of all tests that have not contented with it and consequently, it was foreseen to force the limits by applying last 5^{th} test by increasing two and half times (250 %) of Kocaeli earthquake record. Upon the last decision, the fifth test was performed by increasing the record of 1999 Kocaeli earthquake record more than 2.5 times (250 %).

BETOFIBER GRC Insulated Cladding Panel Systems has completed the tests very successfully without any fault in the surface of the panels and in the joint gaps as well as in the connection points of the panels in a daze of the professors and authorized persons of the Boğaziçi University Kandilli Observatory Laboratory.

In the Boğaziçi Kandilli Observatory that is the heart of the Turkey in terms of earthquakes and in the biggest earthquake tables of the Turkey, with regard to the application where the two folded earthquake test has made by three dimensional model building firstly in Turkey, it was reached great success by GRC Insulated Cladding Panel System. In addition, since today, BETOFIBER that has signed and encouraged the Research and Development investments in the sector and has carried out the leader projects has performed major service in the earthquake issue that is more than important for our country.