

Interesting Results from Second Round of Tests in Megacolumn Project

July 2015

BEIJING – CTBUH research division members attended the second round of tests in Beijing related to the Megacolumn Research project, sponsored by ArcelorMittal.

On the first day meeting, which took place in CABR headquarters, the research team (which includes CTBUH; ArcelorMittal, CABR and MKA) discussed the results of the first set of experiments. In February and March 2015, six megacolumn specimens reduced at the 1:4 scale, where tested with compression forces up to 20.000kN. The results of this first set of test has then been analyzed by CABR and discussed with the research team.

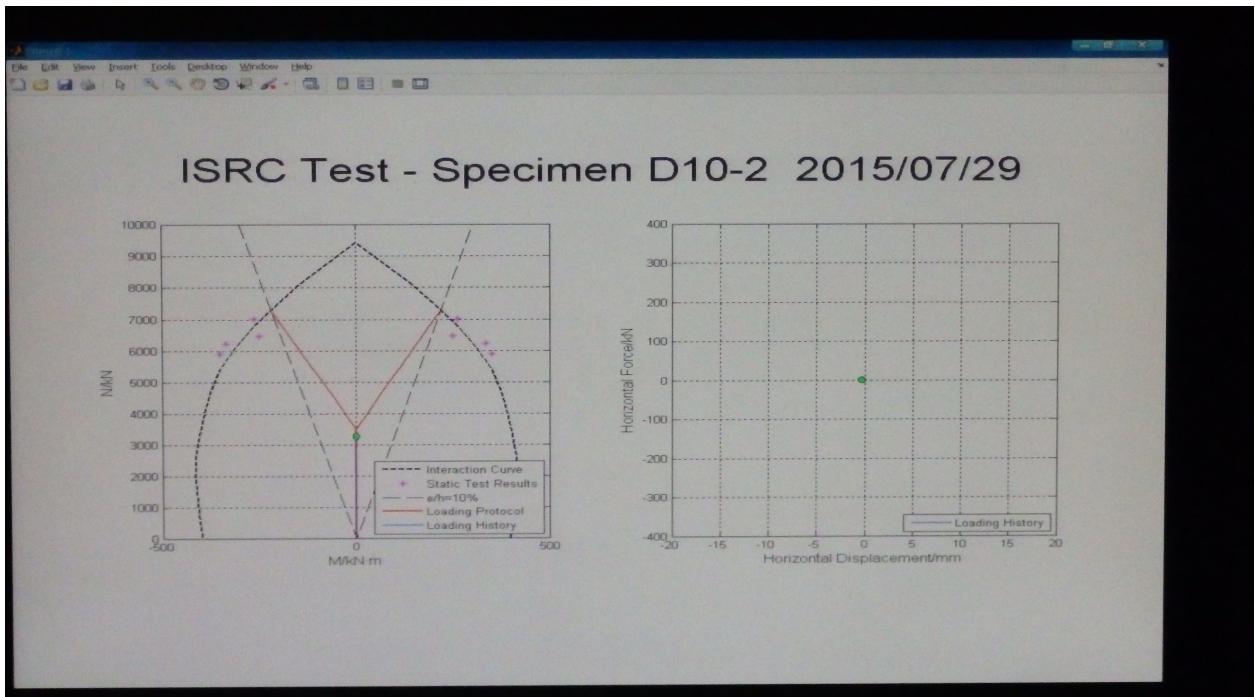
A comprehensive description of the of the lab experiment and a scission of the results is available upon request at dtrabucco@ctbu.org.

On the second day, The quasi-static tests of four 1:6 scaled specimens began. The tests consisted of simultaneous application of two different forces on the concrete specimens. The main force (up to 8000kN, equivalent to a load of 800 tons) was applied vertically on each specimen. The second force was represented by an horizontal force acting on the specimens for an equivalent force up to 500Kn (50 tons). To simulate the effect of an earthquake, this force was applied on the specimen by using two jacks, thus alternating the force on the north and south side of the specimen. The initial results are very interesting, as the built specimens acted in full plasticity (i.e.: without suffering any apparent damage) in all the ranges of forces realistically measurable even under a severe earthquake. The specimens were then brought to failure to study their behavior.

Tests on the remaining specimens will continue in August, and a report on this second phase of the research is expected by the end of the year.



Research team attending the Second phase of tests at CABR laboratories in front of the testing equipment



M/N diagram of one of the specimens: the specimen is still acting in plastic mode while a force of 5500 Kn applied vertically on it



One of the tested samples at the end of the test. Evident creeps are visible but the specimen did not "fail"