

A successful Czech (hence, EU) test of fire resistance of a plastered strawbale wall

As Jan Růžička announced on the ESBG in Bouzov already, a specimen of a loadbearing strawbale wall, a 3 m square 0.58 m thick has been subjected to a standard fire test in June 2011. The inner (heated) side has been earth-plastered (5 cm), the outer side had a lime plaster (3 cm). Bales had 77 kg/m³ originally and 93 kg/m³ when fixed in the specimen. During the test, the load on the specimen had been 12 kN/m (so, like 360 kg on the whole specimen). **The wall had endured for 144 min**, test had been stopped due to the vertical deformation exceeding the allowed limit – this happened shortly after a large part of the earth plaster fell down.

Another pair of specimens has been tested as well, one of them using strawbales as insulation (41 cm thick) in a wooden construction, earth plastered. This test had to be finished after 69 min due to a failure of the other specimen; the strawbale-filled one remained almost intact – so it had been declared to comply with requirements for **at least 60 min**.

The outcome has been achieved with the financial support of the Program Efekt of the Ministry of Industry and Trade of the Czech Republic within the Project 1221420507: Selected Properties of Natural Based and Other Materials, Structural Components and Buildings. Project leader: *Jan Růžička, jan.ruzicka at fsv.cvut.cz, Faculty of Civil Engineering, CTU in Prague, Department of Building Structures*. Project partners for the preparation of the first specimen: ABatelier (abrotanek at pasivnidomy.cz) and Hliněné omítky Picas (navratil at rigi.cz).

Czech info on the project is <http://kps.fsv.cvut.cz/index.php?lmut=cz&part=vyzkum&sub=30> , the Czech-written official protocol from the first test can be downloaded there by http://kps.fsv.cvut.cz/file_download.php?fid=2346 as a file protokol_pr-11-2.097.pdf (the second test protocol has the final numbers larger by 1).

An excellent slideshow with images, captions and graphs, by Jan Ruzicka and Marek Pokorny, is available either in a 95 MB zip file of all Bouzov lectures <http://www.slamenestavitelstvi.cz/esbg/download/ESBC-Slides.zip> or separately as a 3 MB file http://amper.ped.muni.cz/jenik/straw/tests/FireTest_JanRuzicka.pdf.

The present short info with some uncommented images is available in the same directory <http://amper.ped.muni.cz/jenik/straw/tests/> as FireTestStrawCZ.pdf. Info prepared Nov 11 by Jenik Hollan using a Czech leaflet by Aleš Brotánek.



