

Photographs of early 'organised' fire tests

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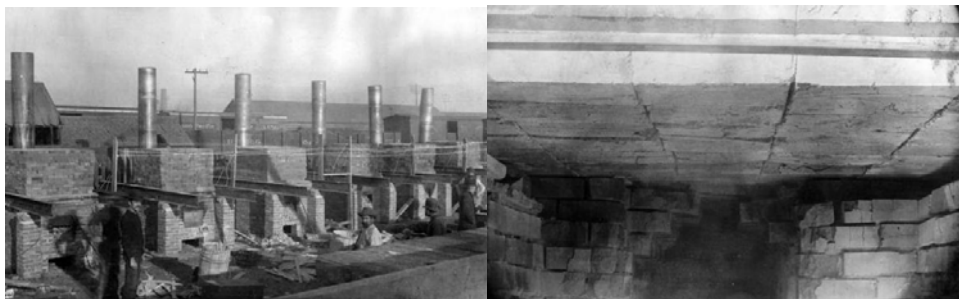
Recently, while helping to prepare a paper on structural fire testing (origins, where we are, where we're going) for the upcoming ICEM15 conference in Portugal (keep an eye on the Edinburgh Research Archive for an open access version in the coming months), I came across this photograph below;



The photograph shows an early structural fire test from 1902. The test involved a floor assembly being installed above the furnace. Heating was from the enclosure below; and measurements would have been made using pyrometers and transit deflection readings from adjacent structures. *The image was found in Stewart, P. Making Buildings safe: Fire Proof Materials and methods of construction. New York Tribune. Part 2 October 1902.*

This photographed furnace structure was a precursor to the first structural fire testing furnaces used by Ira Woolson that would later be used to help define the standard fire test (ASTM E119). From a historic perspective, the photograph of this test represents an early perspective of the design practice we still rely on today.

The picture is heavily degraded. In some spare time, I have been looking for a better quality image of this furnace. During this search, I have come across 17 very interesting photographs held at the Denver Public Library in the USA. In their collection were digitally preserved photographs of a series of structural fire tests performed in 1890. With kind permission from the Denver Public Library staff, I would like to share a few of those photographs that they host for this fire blog entry;



From; Report of tests of fireproof arches made in Denver Colorado, for Denver Equitable company, December 1890, held at Denver Public Library under ref X20791 (ZZR710020789) , X20789 (ZZR710020791) respectively.

The Denver tests are frequently considered the first structural fire floor experiments in the United States (I would debate that they were the first attempt at 'organised' floor tests in North America, and are certainly not the first efforts globally, but that's for another discussion). They are however, to my knowledge, the oldest and best preserved experimental structural fire test photographs available. For background, a

description of these tests is excerpted from Francis Brannigan's 'Building construction for the fire service (1992)';

"In 1890, the first fire test of a fireproof floor assembly in the United States was conducted for the Denver Equitable Building Company. Hollow tile floors were tested. The test determined that porous hollow tiles set in end construction (tile cells at right angles to beams) were superior to dense tiles set in side construction (tile cells parallel to beams). The floors were subjected to load, shock, fire and water, and continuous fire tests (24 hours at 1300°F)"

The tests had an influence on later endeavours for structural fire testing, and while crude by today's standards are perhaps just as significant to the origins of the standard fire test as the 1902 tests mentioned above.

Prints of these 17 photographs (and others) from the Denver Public Library can be obtained on their online website order form. Giving the photographs excellent condition for their age, the staff at the Denver Public Library should be commended for their efforts of preservation of this history, as well as their kindness for sharing them with the fire research community for use in this blog entry. All 17 photographs can be found on their website at;

<http://cdm15330.contentdm.oclc.org/cdm/>

and

<http://cdm15330.contentdm.oclc.org/cdm/search/searchterm/%20Building%20materials--Testing--Colorado--Denver--1890-1900./mode/exact>