

## **PREVENTIVE CONSERVATION AND FLOOD RISK MANAGEMENT: THE MICROCLIMATIC MONITORING OF THE NEW OUTFITTING IN SANTA CROCE MUSEUM IN FLORENCE - ITALY**

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The Santa Croce Museum houses extraordinary works of art, many of them victims of the 1966 flood of the Arno river. The masterpieces "Crucifix" by Cimabue, which lost 60% of the paint on the surface and became the symbol of the disaster, the "Deposition of Christ" by Francesco Salviati and the "Christ's Descent into Limbo" by Agnolo Bronzino were brought back to the museum after many years of difficult restoration work.

The microclimatic monitoring carried out in 2009-2011 by the Padova Unit of the Institute of Atmospheric Sciences and Climate had pointed out that the general microclimatic conditions inside of the museum (composed of 6 rooms) were not properly suitable for conservation purposes and a better management of the museum had been strongly recommended. In fact, important thermo-hygrometric variations had been measured during the opening time in all the rooms mainly due to the incorrect management of the heating system and of the openings. In addition, in room VI the paintings by Salviati and Bronzino were subjected to thermal gradients caused by the artificial (lights pointed directly on paintings) and natural (sun penetrating from the windows) lighting. Moreover, the presence of many people on the occasion of special events in room VI, such as conferences and concerts, led to short variations of the main thermo-hygrometric parameters, with consequent risk of damage for the works of art preserved.

The results of this first microclimatic monitoring together with the increasingly necessity of flood preventive measures, led the Opera di Santa Croce to inaugurate a new museum outfitting. Between late 2013 and early 2014 almost all the most valuable movable works of art previously located in room VI were moved in safer locations within the Santa Croce complex: the sacristy, the entrance hall of the Novitiate, the ex bookshop and the Medici Chapel. In particular, the Crucifix was located in the former and the two paintings in the latter.

Hence, a new microclimatic monitoring has started in spring 2014 in order to evaluate if the environmental conditions of the new rooms are suitable for the conservation purposes and it will last one year. In particular, short thermo-hygrometric variations are extremely dangerous for these frail works of art, resulting in dimensional variations that lead to irreversible damages, such as cracks and detachment of the paint layer. As in the 2009-2011 campaign, the on-going microclimatic monitoring is studying the main perturbing factors related to the management of the museum: the opening/closing of the doors, the cleaning, the heating and lighting systems and the presence of visitors. The results obtained will be compared with the past ones in order to evaluate if the new environmental conditions are more suitable for the conservation purposes. Moreover, the microclimatic study could help in the identification of future mitigation actions to be included in the conservation strategy of the Santa Croce complex.