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Empirical testings on the operating potentialities through the coordinated and combined use of C.n.D. technics of the innovative technology for the natural redevelopment of ancient, decorated and painted masonry structures subject to capillar rising damp.

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The hygrometric state of the object: "cultural heritage" and the surrounding environment cause the preliminary conditions for the activation of the major decaying phenomena concerning a masonry structure. The knowledge of its dynamics, causes and mechanisms is of fundamental importance to proceed in defining and planning the redevelopment's project of such structure. The presence of humidity is spot through movements of fluids and changes of physical conditions that happen either in the capillaries or on the surface in between the system: masonry structure - environment. Particularly for the movements of fluids, due to capillar effect and the effect of gravity, important parameters will be the porosity of the building material and its roughness, the internal humidity concentration, the geometric forms of capillaries. Different technologies and products have been introduced in the market by specialized companies for the redevelopment of ancient masonry structures: the mechanic cut of the wall, the chemicals barriers, the anti-humidity plasters, the electrosmosis, the electromagnetic methods, and the magnetic-physical methods. This last one, using in particular the effects of gravo-magnetic earth fields, has been demonstrating for a long time its potentialities in the drying out process of masonry structures. Such innovative technology has proved to be the optimal one in the intervention on the particular masonry object "cultural heritage" for meeting the following requirements of: not being destructive, not being invasive, being a reversible process, having a chemical-physical mechanical compatibility. Empirical testings have been accomplished using the C.n.D technics in a coordinated and combined way, on the real potentialities of this method for the natural redevelopment of ancient, decorated wall structures affected by rising damp. Here follows the experiences and reports on these testings, started in december 2008, that have been implemented in Rome in the churches of S. Maria in Trastevere e di S. Margherita.