Zeitschrift: IABSE reports = Rapports AIPC = IVBH Berichte
Band: 70 (1993)

Artikel: Restoration of the Altemps Palace in Rome
Autor: Scoppola, Francesco
DOI: https://doi.org/10.5169/seals-53372

Restoration of the Altemps Palace in Rome

Restauration du Palais Altemps à Rome

Restaurierung des Altemps-Palastes in Rom

Francesco SCOPPOLA
Archit.
Ministry of Culture
Rome, Italy

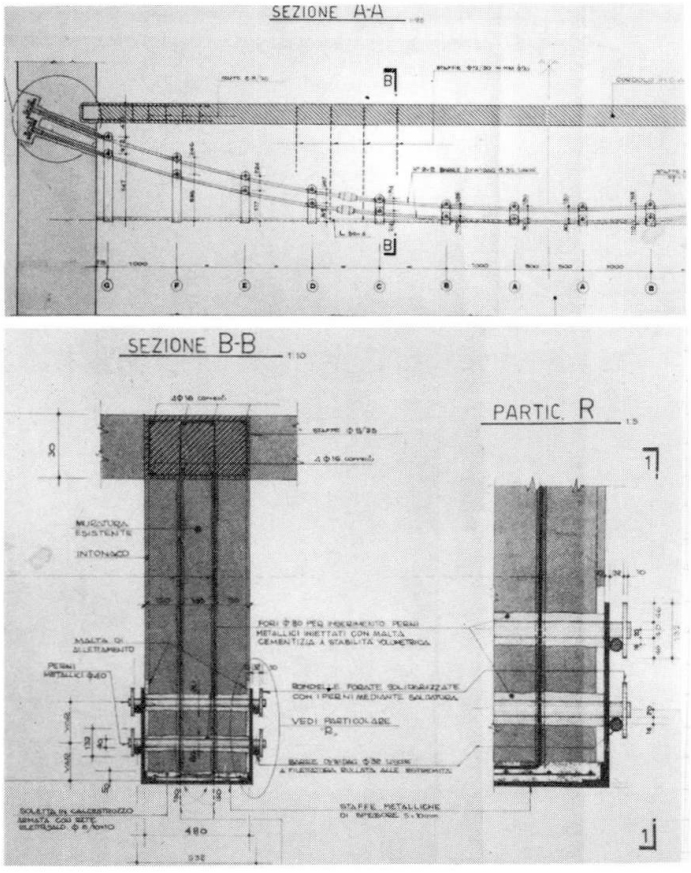
1. INTRODUCTION

The restoration of this historic, medieval-renaissance, block in centre of Rome involved the work of different disciplines: from Engineering to Architecture, from the History of Art to Archaeology. The project of structural consolidation was carried out by Prof. G. Croci, of the University of Rome with the collaboration of Engineer M. Biritognolo.
The problems of restoration and consolidation were tackled with an inter-disciplinary approach.
In particular, the structural intervention concerning the general restoration of the building, was preceded by an analysis using a mathematical model. Besides this there were a series of local analyses and interventions carried out on single structural elements.
It is important to specify the artisan nature of the restoration works, which is present in the individual details as well as in the global approach.
Some local structural interventions rise to a particular importance from a structural point of view. These interventions are related with the strengthening of structural elements (to assure the bearing capacity requested for the future function of the Palace) whilst preserving of the original structural and architectural typologies.
A monitoring system to watch the behaviour of a strengthened masonry element was also installed.

2. LOCAL INTERVENTIONS

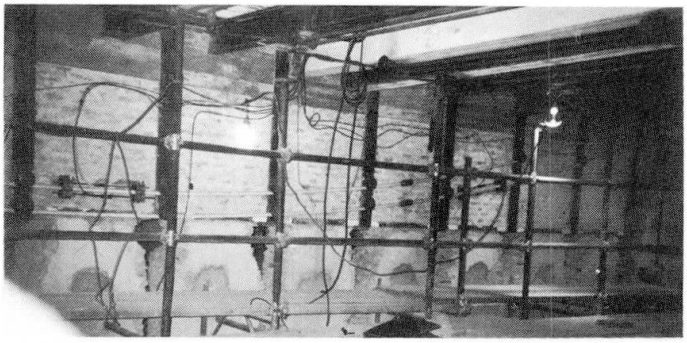
2.1 Strengthening of the masonry walls and of the floor structure in the hall

Three adjacent rooms separated by two internal walls, bearing the upper floor structures, had to be enclosed to obtain a hall of great dimension, originally named "Sala delle feste".
The intervention carried out in each one of the two walls was the demolition of the lower portion and the creation of a masonry beam supporting the upper floor.
This beam is composed by a wall panel having height of about 2,00 meters and span length of about 13.50 meters; over this beam, at the level of the upper floor, a concrete beam was cast (pic. 1, 2 and 3).
Four parabola shaped diwidag bars, (two at each surface of the wall), were placed as reinforcement to ensure the required bearing capacity.
A similar intervention was carried out on the principal structure of the upper floor of the hall. This structure is composed of wooden or steel beams. (see pic. 7)

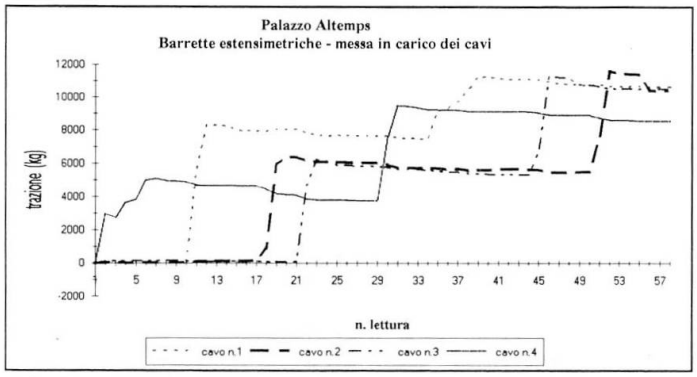


Pic. 1 and 2

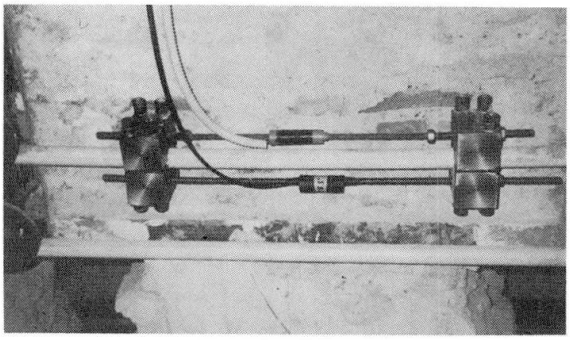
A monitoring system was installed to observe the values of the tensile forces in the dywidag bars in the principal masonry beams during and after the works.
Four pairs of strain guages (pic. 4) were attached to the bars, as well as a thermal sensor to measure the temperature variations, which permitted the control of the structural behaviour, comparing it with the theorical analysis (pic. 5).



Pic. 3



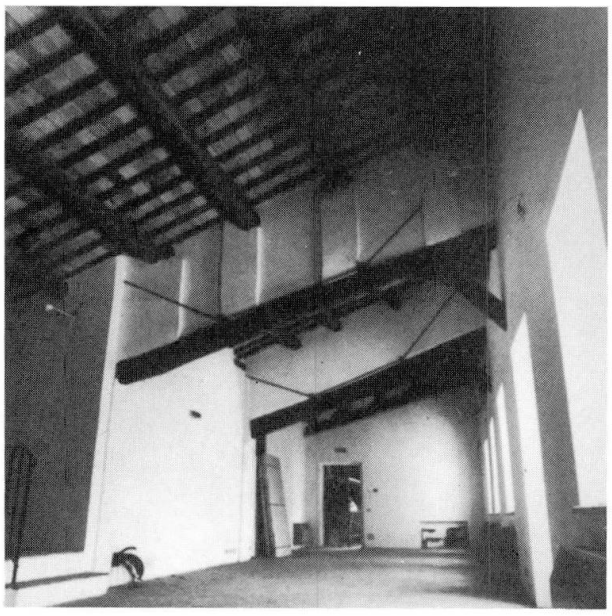
Pic. 5



Pic. 4

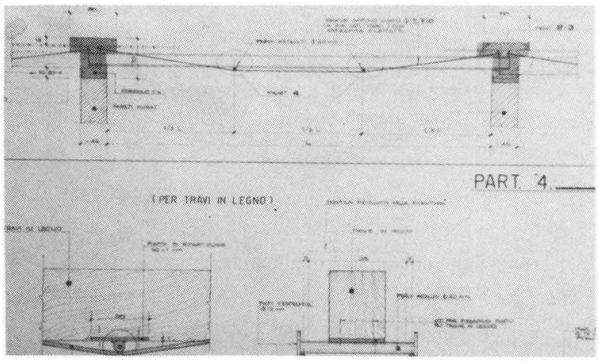
2.2 Strengthening of the timber beams supporting the floor of the "Perspective Hall"

The floor of the "perspective hall" is supported by two timber beams, over these there is a secondary wooden structure bearing floorboards and an upper paving.
The bearing capacity of timber beams had to increased according to the foreseen utilization of the hall.



Pic. 6

In order to maintain the original timber elements, a load text and an extensive examination of their state of conservation were performed.
The increase in bearing capacity was obtained by a steel section placed over the principal beam within the height of, and connected to, the secondary structure.



Pic. 7

2.3 Reinforcement of some masonry panels with external steel bars

These interventions shown in the photo 6, allow the avoidance of any interference and damage the reinforced structure.