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## RESTORATION OF MONUMENTAL FACADES. DESIGN PROCEDURES

If we look at the restoration of the facades of Procuratie Nove in Venice (St. Mark's Square) or at the restoration of St. Peter's Basilica in Vatican we see that the level of cleaning of the monumental stone surfaces ranges from being very respectful of the patinas and black crusts to a deeper cleaning approach depending on the approval of the local authorities and the region where the restoration is held.

So even in Italy the restoration approach is not univocal, but in any situation and any place one thing is unambiguous: the respect of old surfaces and of different phases and modifications submitted by the monument during its life.

The methodology in the restoration of monumental Facades is well defined and can be resumed into the next steps that are necessary to obtain a good and reliable detailed project:

### REPORTS OF THE PROJECT AND TENDER

The project report describes in a comprehensive and very analytical way all the processes required for the restoration, but also the approach adopted in the project.

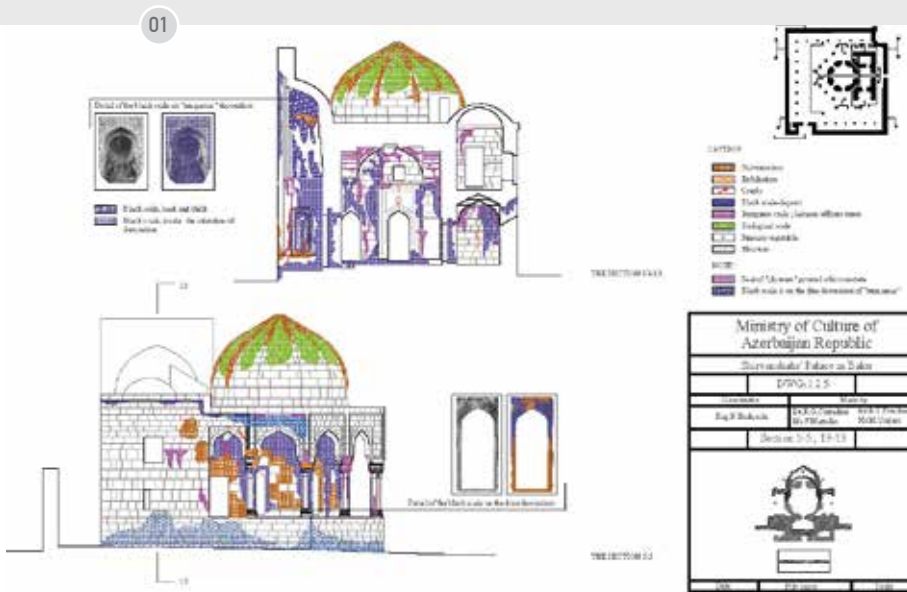
It is a critical step to make the reader aware of the theoretical framework of the project (eg purely conservative, with integrative restoration, in-style recovery or respectful of all periods); the approach can be therefore very different, and consequently also the final result can vary considerably even within a same design philosophy. The report will be primarily written with a general introduction and a following descriptive detail which is the performance specifications.

### DESIGN DRAWINGS

Graphic documentation of the project can be highly variable from case to case, but you can find, schematically speaking, three different design approaches:

Fig 1. Detailed project for restoration of Divanhan palace in Baku (Azerbaijan): mapping of interventions on the basis of existing decay.

Fig 2. Detailed project for restoration of Siena's Cathedral façade: mapping of single materials, different degradation states of conservation and different percentage of incidence of degradation for surface unit.



a\_Through mapping of interventions on the base of the different alterations (figure 1). By this term I mean a project that relies heavily on previous mapping of surface alterations, identifying interventions based replacing almost automatically, whenever possible, the list of decays with a new list of interventions. For example you can think of replacing with "extraction of soluble salts" the voice of alteration "efflorescence" to visualize the area and the quantities of surfaces to be treated with this work. Experience has shown that such an approach tends to underestimate the real work to be performed, resulting in substantial changes during construction phase.

b\_Through mapping of interventions on the base of materials and their conservation status (figure 2). A second approach may be to define the restoration works upon the mapping of all materials and their state of conservation; this method has the advantage of covering all surfaces of the monument and not to be tied to the preliminary assessment of the degradation, however, requires a careful description of all operational phases of restoration provided on each single material (phases which may differ depending on the materials and on the forms of degradation) and requires a considerable experience in the assessment of the unit costs of interventions for each material. In the reported example of Siena's Cathedral façade restoration design to each color corresponds a different marble or, within the same marble, a different degree of protrusion or complexity of decoration or incidence of degradation.

c\_Using drawings with abbreviations or codes (figure 3). A third method of representation of the restoration project can be considered to draw up design tables based on the geometric survey inserting symbols or codes that refer to the single decay or work specifications.

d\_Using detailed descriptions that cover all eventualities in case of relatively small size artifacts (figure 4) (statues, marble elements, furnishings) At last there is the possibility of basing the design on the single survey of materials and alterations, referring for the intervention only to detailed complete descriptions of the work, considering such a contract inclusive flat rate for a fixed amount, independent of the measurements of the

**Fig 3. Detailed project for restoration of Teatro La Fenice façade: use of abbreviations and codes.**

**Fig 4. Detailed drawing with single marble slabs related to a fixed price contract with detailed descriptions of complete restoration works**



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Water colors painting to visualize the final result for restoration and coloring of a 18th century façade of S Benedetto Po Monastery

work performed during construction. However, even in this case, as a designer you must perform good and reliable evaluations of the costs and bill of quantities. It is therefore more a kind of contract than of a real way of documentation.

### **BILL OF QUANTITIES (LIST OF MEASURES OR FLAT RATE)**

Based on the considerations above, the bill of quantities must be attended with great attention to graphic documentation but still remains as susceptible to uncertainty and various interpretations on the consistency of the degradation. The computation of restoration works must be drawn up by technicians with proven experience in the field to avoid excessively underestimation of the work and at the same time to evaluate a reasonable and realistic total amount.

### **RENDERS**

In case of plaster façades it is recommended to visualize the final result of the restoration and of the final coloring with some computer renders (figure 5) or, even better because more realistic, with water color paintings. This phase will allow to make decision about different coloring of architectural elements and possible lighting results depending of the chosen light systems.

### **TERMS OF REFERENCE**

Last important document, part of the restoration project, is the Terms of Reference report (TOR) where the designer deeply describes the restoration procedures, the technical requirements and the technical sheets of all restoration products that are prescribed during the works, their required performance and expected results.