Issues of application of Roman cement mortars in restoration practice

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Natural cements in European cultural heritage
Les ciments naturels dans le patrimoine européen
PARIS – 26/27-04-2012

The present state of 19th cent. façade restoration



Paints and colour schemes

The current polychrome approach is frequently a result of arbitrary decisions on the colour, usually taken by the architect or by the owner of the building







Structure

- Very rough and therefore prone to soiling





Shape and details

- Loss of fine details









Original surface

- Unpainted and sharp-edged
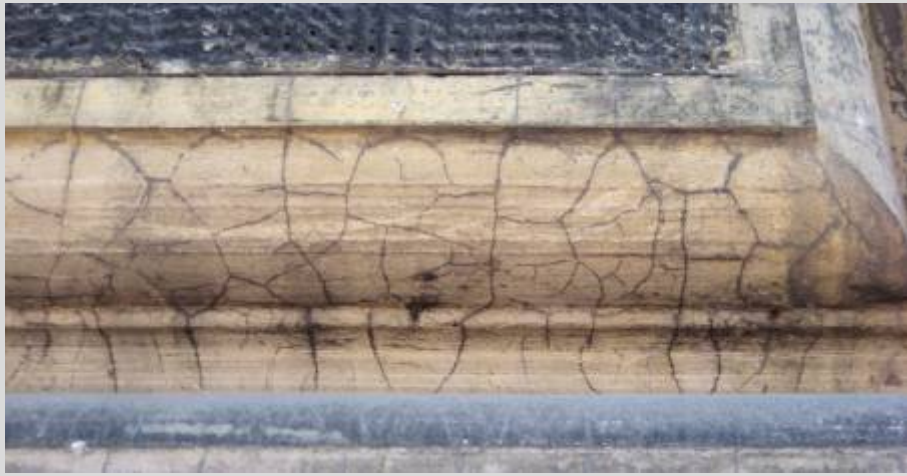








- Original paint or thin coat of cement slurry



- Fingerprints of the tools
- Typical cracks and craquelés







Is it technically possible to recover the original appearance of the building façades made of Roman cement mortars?

Our focal points:

- assess the characteristics of the materials
- study the appearance of the original surface
- uncovering and cleaning
- structure and details
- reconstruction (cast, render)



All the above tasks can be managed!

- We have now available different types of Roman cement for different tasks of application:
  soft to strong, quick to slow, pale to reddish
- We dispose of appropriate techniques for sensitive uncovering and cleaning
- We are well prepared to produce cast elements and to reconstruct plasterwork

The colour

- different raw materials (marl)
- wide range of colours
- different cements can be blended
- mixable with local aggregate
- in different proportions





The workability

- Workable life: very fast up to relatively slow setting
- unmodified retarded deactivated (DARC)

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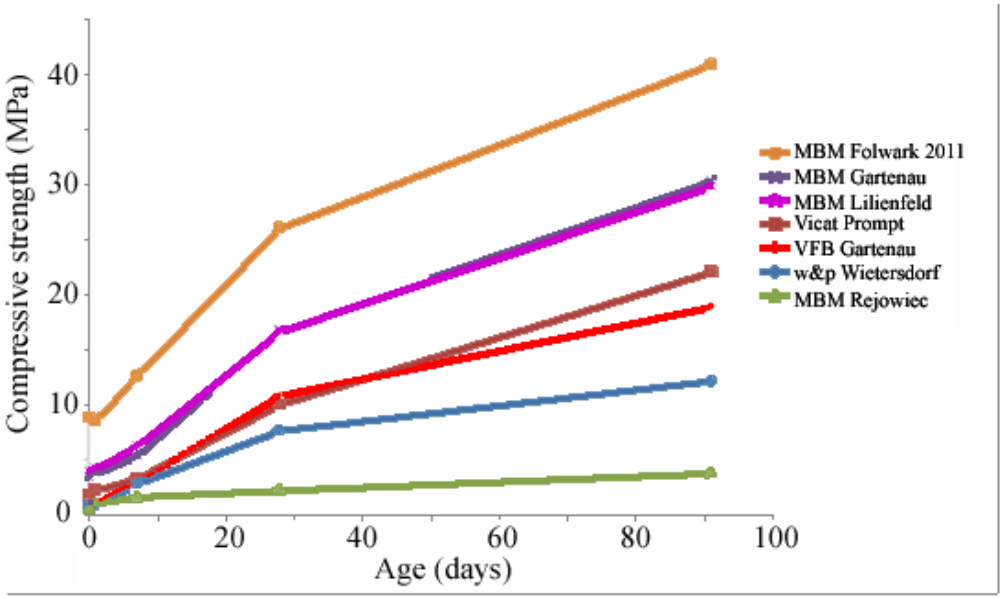
  seconds around 20 min. up to 2 hours
- Variable consistency: fluid to earth-moist





The strength

- Widely spread range of compressive strengths
- Choice depends on the application
- Blends of different RCs
- Blends with lime (hybrid-mortars)
- Varying ratios of RC : aggregate





Uncovering and cleaning

For synthetic paint layers:

- super critical steam
- chemical paint stripper







For inorganic paint layers and soil crusts:

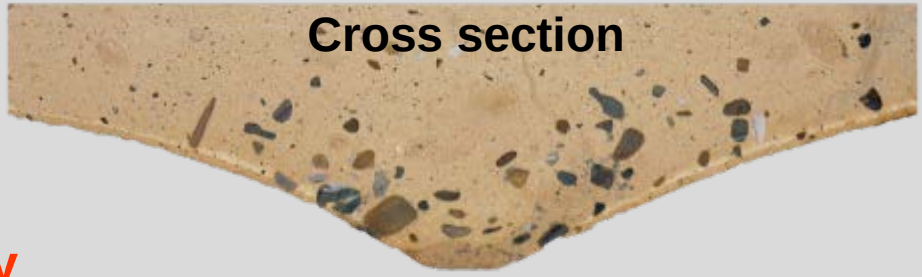
- JOS® - rotation blasting







Cast elements



- Setting time: **10** to **20** min.
- Relatively **liquid consistency**
- Roman Cement : aggregate (0 – 20mm) = around **1 : 0.5 by volume**
- Condition of storage: curing at high humidity for **several weeks**





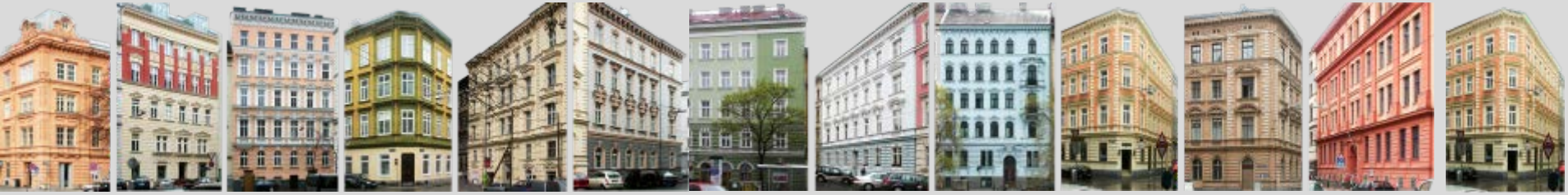
Plasterwork

- Setting time: **1** up to **2** hours
- Consistency like lime mortar or drier
- Roman Cement : aggregate

  1 : 1 up to **1 : 3 by volume**
- Pure RC-mortars or hybrid-mortars
- Grain size of aggregate: rough for ground layer, fine for finish layer







Our scope should be to achieve an authentic appearance like this one



Palais Epstein, Vienna











THANK YOU FOR YOUR ATTENTION!

For additional information see

www.rocare.eu