

# Getty



## TECHNICIAN TRAINING FOR THE CONSERVATION OF MOSAICS

PART 1  
THE CONSERVATION OF IN SITU MOSAICS

### Stabilization



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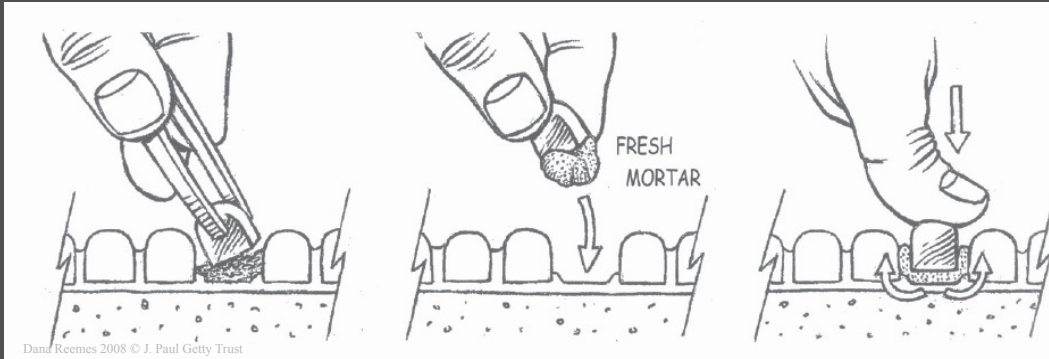
# Stabilization

The aim of stabilization interventions is to restore the structural stability of the mosaics and prevent any new deterioration from occurring.

## Main stabilization interventions:

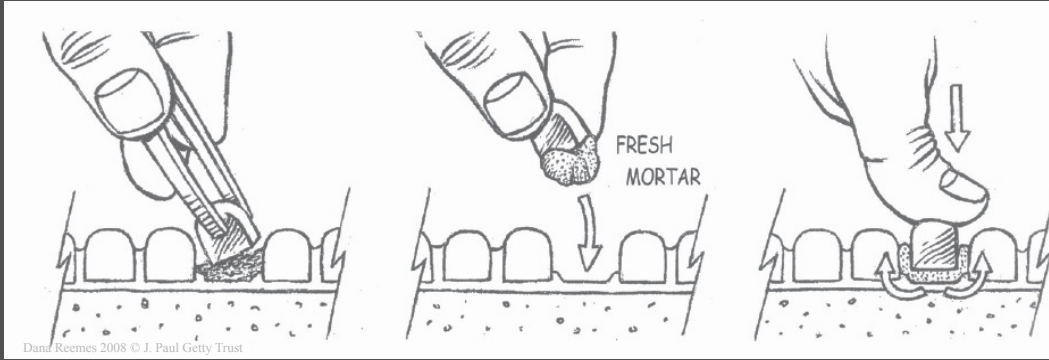
- Re-setting detached tesserae in their original position and orientation
- In-filling of interstices between tesserae
- In-filling of lacunae
- Edging repairs
- Grouting of voids between mosaic preparatory layers

# Re-setting tesserae



Temporarily removing detached tesserae to a bedding of sand

# Re-setting tesserae



Re-setting tesserae into their original location



Re-setting tesserae into their original location



Applying labels to mark the re-set tesserae

# Re-setting tesserae

## Type of mortar

Lime-rich with fine aggregates.

Good adhesion properties and malleable.

## Binder : aggregate ratio

1 : 1

## Examples of formulas:

1 lime putty

½ sand      0 – 0.5 mm

½ gravel    0 – 0.5 mm

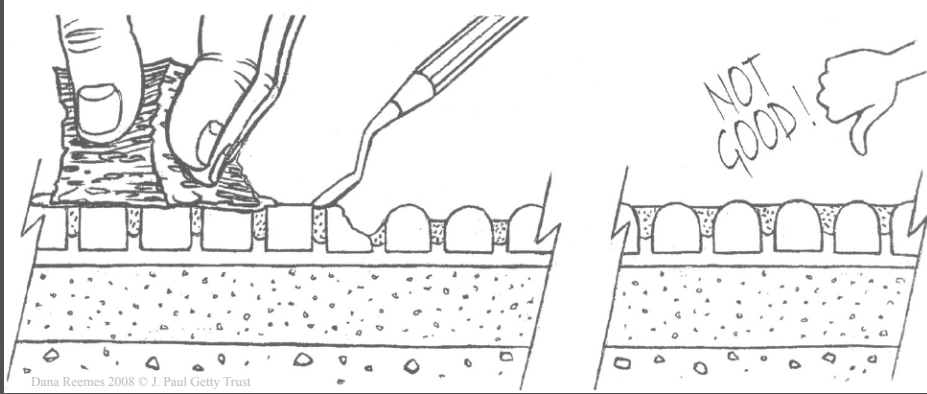
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1 lime putty

½ sand                      0 – 0.5 mm

½ brick powder 0 – 1 mm

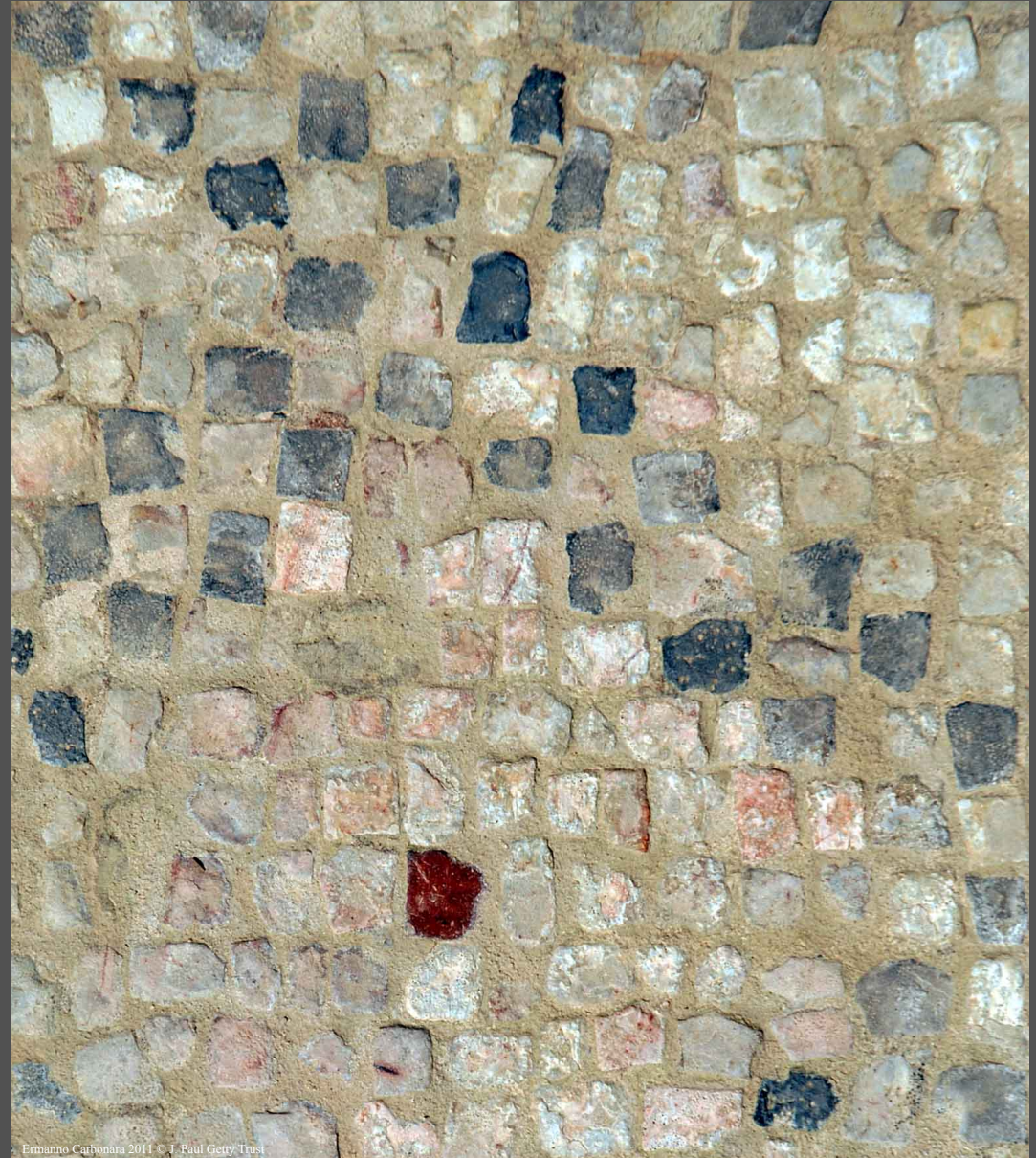
# In-filling of interstices between tesserae



In-filling of interstices with mortar



Removing excess mortar from the surface



After in-filling of interstices

# In-filling of interstices between tesserae

## Type of mortar

Non-hydraulic or slightly hydraulic with fine aggregates.

Malleable, not very hard and of a color similar to the mosaic.

## Binder : aggregate ratio

1 : 2

### Examples of formulas:

1 lime putty

1 yellow sand.....0 – 0.5 mm

1 beige gravel.....0 – 1 mm

-----

½ lime putty

½ hydraulic lime

1 white sand.....0 – 1 mm

1 yellow gravel....0 – 2 mm



# In-filling of lacunae

PREPARATORY LAYER

Dana Reemes 2008 © J. Paul Getty Trust



Ermanno Carbonara 2008 © J. Paul Getty Trust

Applying the first layer of mortar



Ermanno Carbonara 2008 © J. Paul Getty Trust

Treatment of the surface for good attachment to the second layer

# In-filling of lacunae

## Type of mortar

PREPARATORY LAYER

Non-hydraulic or hydraulic mortar with large aggregates to improve resistance and lessen shrinkage and cracking.

## Binder : aggregate ratio

1 : 2.5

## Example of formula:

1 lime putty

1 hydraulic lime

1½ sand ..... 0 – 1 mm

1½ gravel ..... 1 – 4 mm

1 brick powder..... 0 – 0.5 mm

1 crushed brick..... 5 – 10 mm

# In-filling of lacunae

SURFACE LAYER

Dana Reemes 2008 © J. Paul Getty Trust



Ermano Carbonara 2009 © J. Paul Getty Trust

Application of surface layer of mortar



Scott Warren 2011 © J. Paul Getty Trust

# In-filling of lacunae

SURFACE LAYER

Dana Reemes 2008 © J. Paul Getty Trust



Livia Alberti 2006 © J. Paul Getty Trust



Ermanno Carbonara 2009 © J. Paul Getty Trust

Removal of surface lime with sponge and clean water before the mortar has set

# In-filling of lacunae

## SURFACE LAYER

Dana Reemes 2008 © J. Paul Getty Trust



Ermanno Carbonara 2011 © J. Paul Getty Trust



Ermanno Carbonara 2011 © J. Paul Getty Trust



Ermanno Carbonara 2011 © J. Paul Getty Trust

Ensuring slow drying of the mortar with application of damp cloths and plastic sheeting

# Edging repairs

Dana Reemes 2008 © J. Paul Getty Trust



Livia Alberti 2006 © J. Paul Getty Trust

Mosaic edges protected with mortar



Livia Alberti 2008 © J. Paul Getty Trust

# In-filling of lacunae and edging repairs

## Type of mortar

In-filling of lacunae SURFACE LAYER and edging repairs

Non-hydraulic or hydraulic with medium-sized aggregates, well graded and of appropriate colors.

## Binder : aggregate ratio

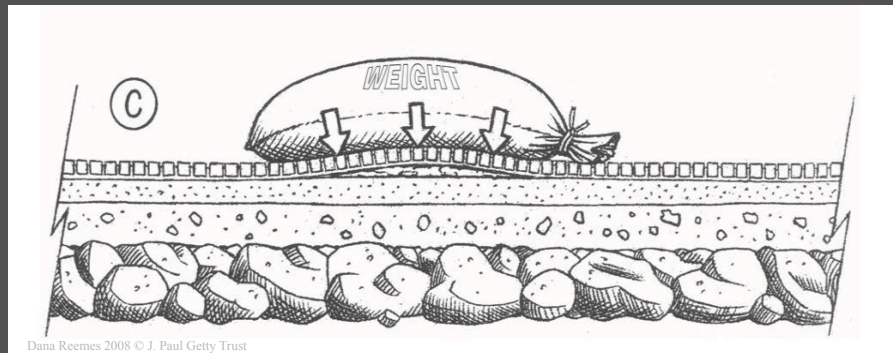
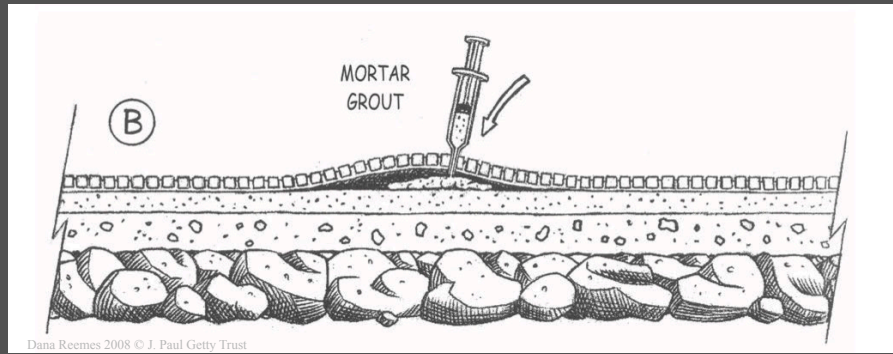
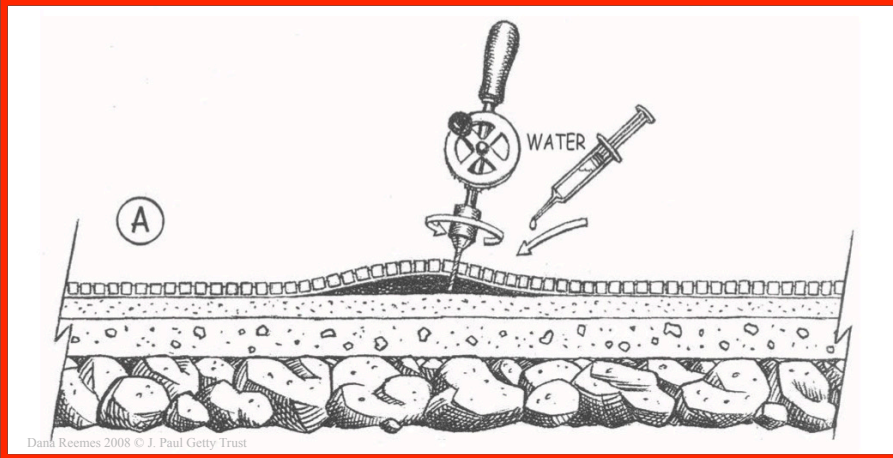
1 : 2.5

## Example of formula:

2 lime putty

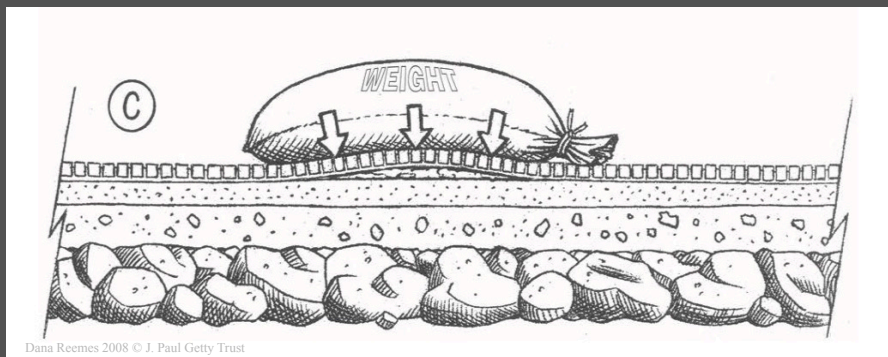
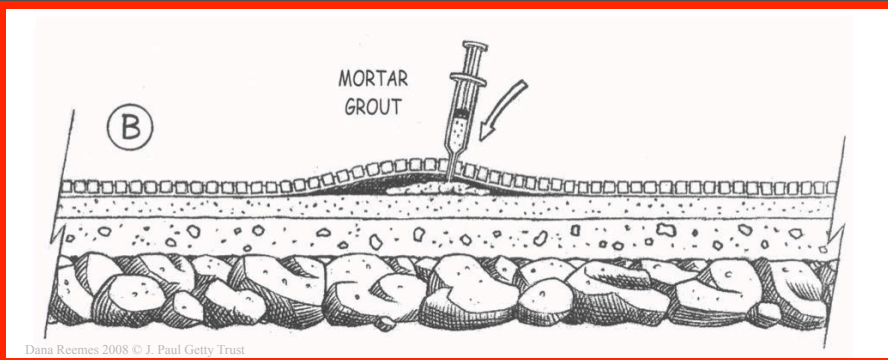
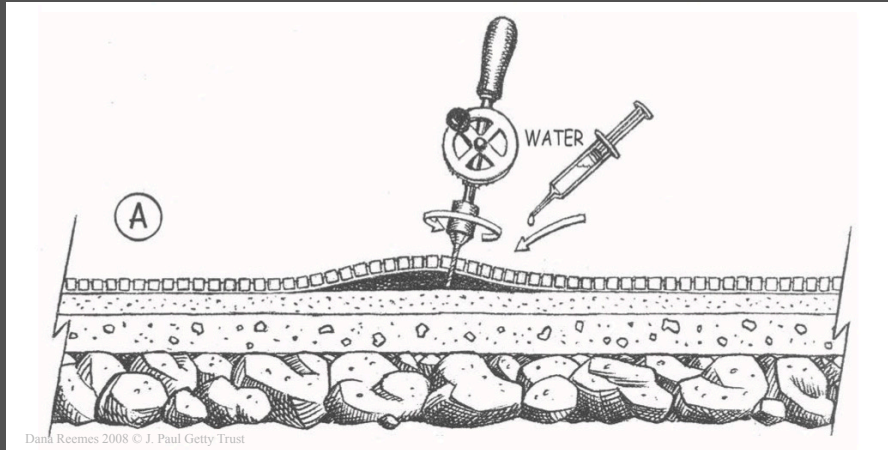
1 white sand.....	0 – 1 mm
1 beige gravel .....	0 – 1 mm
1 beige gravel.....	1 – 4 mm
1 washed black gravel .....	1 – 3 mm
1 crushed brick.....	2 – 3 mm

# Grouting of voids between mosaic preparatory layers

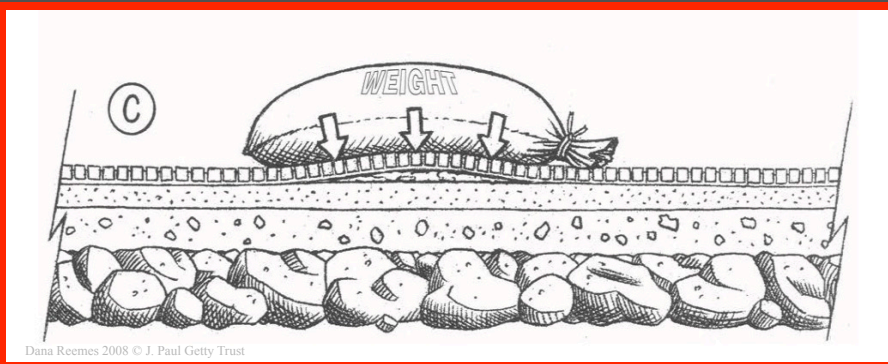
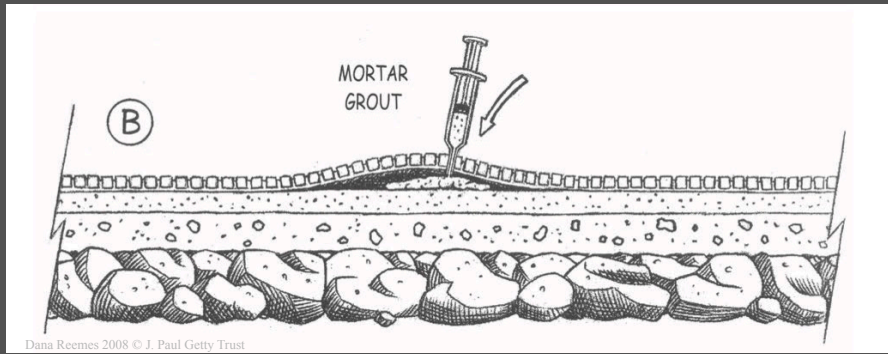
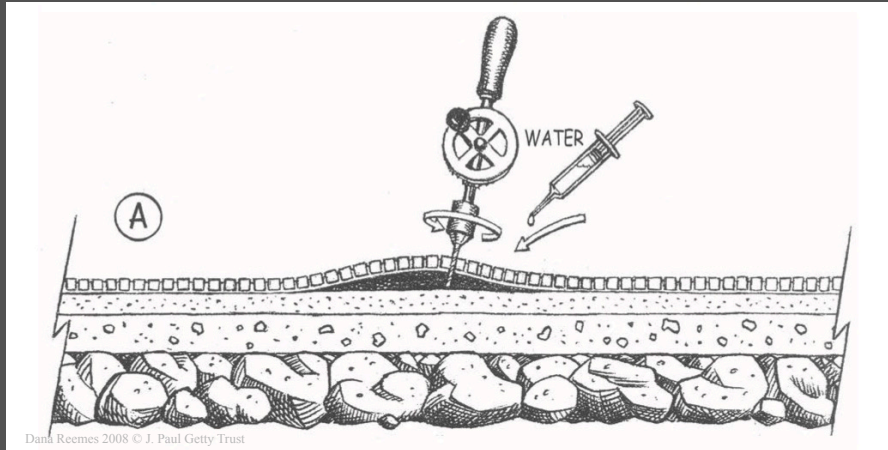




# Grouting of voids between mosaic preparatory layers



# Grouting of voids between mosaic preparatory layers



# Grouting of voids between mosaic preparatory layers

## Type of mortar

Liquid hydraulic mortar with very fine aggregate and a larger quantity of water.

**Binder : aggregate ratio**

1 : 1

**Example of formula:**

1 hydraulic lime

1 stone powder.....0 – 0.25 mm

# Getty



MOSAIKON is a partnership of four institutions: the Getty Conservation Institute, the Getty Foundation, ICCROM, and ICCM.

The aims of the project are to strengthen the network of professionals concerned with the conservation, restoration, maintenance, and management of mosaic heritage in the southern and eastern Mediterranean region; provide training to a variety of individuals involved in mosaics conservation and, more generally, with the management of archaeological sites and museums with mosaics; work with national and international bodies to provide a more favorable legislative, regulatory, and economic environment for the conservation of mosaics in the Mediterranean; and promote the dissemination and exchange of information.

