

# Getty



## TECHNICIAN TRAINING FOR THE CONSERVATION OF MOSAICS

PART 3

THE CONSERVATION OF ARCHITECTURAL REMAINS AND THEIR DECORATIVE SURFACES



## Structures and decorative surfaces: conditions and their documentation



Livia Alberti, Ermanno Carbonara, Thomas Roby



The deterioration of materials exposed on an archaeological site is generally due to two main categories of factors:

Environment

and

Human activities

The **properties of the materials** exposed on an archaeological site will also influence their conservation.

Factors	Causes & Examples		Examples of Mechanisms
Environment	Climatic and environmental agents	Atmospheric precipitation: rain, snow Water condensation / capillary rise Temperature and humidity variations Temperature below 0°C Marine salt / wind Water pooling / soil accumulation	Salt crystallization due to wet-dry cycles
			Contraction–dilatation cycles of materials
			Freeze-thaw cycles
	Bio-deterioration agents	Micro-organisms (algae, lichens, moss, etc.)	Chemical transformation of materials Mechanical pressure caused by root growth
		Vegetation (grass, plants, bushes, trees, etc.)	Mechanical pressure caused by root growth
		Animals (insects, rats, moles, sheep, cows, etc.)	Loss of material due to the digging of tunnels & building of nests Mechanical pressure caused by walking on mosaics
Natural disasters	Earthquakes Flooding / Fire Landslides	Movement of mosaic material Chemical transformation of mosaic materials	
Pollution (chemical substances present in air, water and soil)	Agricultural fertilizers Car exhaust emissions Industrial discharges into water and air Acid rain	Chemical transformation of materials Salt crystallization	
Human activities	Poor management of archaeological sites	Water pooling / soil accumulation Uncontrolled tourist access Growth of plants and micro-organisms	Salt crystallization Mechanical pressure caused by walking on the walls and by root growth
	Inappropriate conservation interventions	Poorly executed work Use of inappropriate materials Untrained staff	Salt crystallization Chemical transformation of materials
	Gratuitous, deliberate or accidental destruction	Vandalism, wars, etc. Theft of materials Illegal excavations	Loss of materials
	Poor land use planning	New constructions (buildings, roads, etc.) without proper excavation	Loss of materials

The main **deterioration phenomena** of  
structures and decorative surfaces



Efflorescences



Incrustations



Livia Alberti 2006 © J. Paul Getty Trust

## Stains



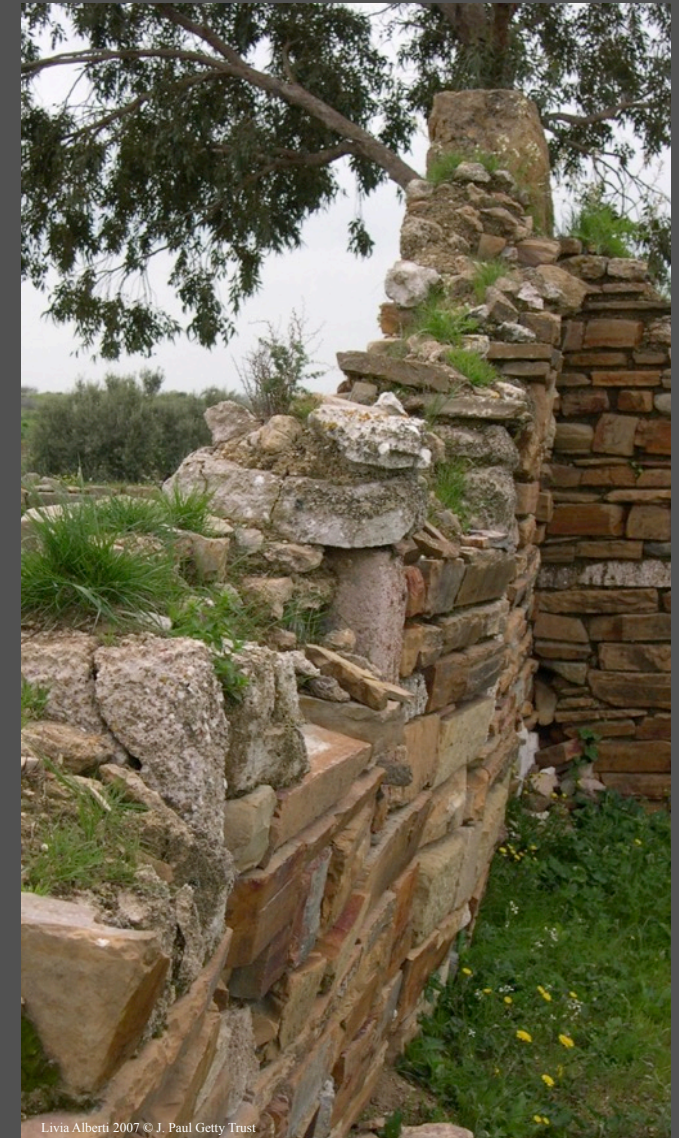
Ervia Alberti 2006 © J. Paul Getty Trust



Ermano Carbonara 2018 © J. Paul Getty Trust

## Cracks





Instability and change of the form of the construction



Deteriorated elements of the construction (stones and bricks)



Deteriorated mortar of the construction and decorative surface



Detachment of elements of the construction



Detachment of the decorative surface

# Documentation of Condition Assessment

# DATA FORM – CONSERVATION OF STRUCTURES AND DECORATIVE SURFACES

STRUCTURE/DECORATIVE SURFACE ID: \_\_\_\_\_  
Abbreviations / building / room / elevation / section  
 space top

*This form should be accompanied by an overall photograph of the structure or surface decoration before and after conservation treatment, and by a plan of the building, indicating the location of the room. Mark also the location of the wall elevation if the object is a vertical surface.*

## PART OF THE STRUCTURE

<input type="checkbox"/> Wall	<input type="checkbox"/> Vault	<input type="checkbox"/> Steps	<input type="checkbox"/> Cistern/Basin	<input type="checkbox"/> Pavement
<input type="checkbox"/> Other:				

## CONSTRUCTION MATERIALS

<input type="checkbox"/> Dry Stone	<input type="checkbox"/> Stone and lime mortar	<input type="checkbox"/> Stone and earthen mortar	<input type="checkbox"/> Brick
<input type="checkbox"/> Earth	<input type="checkbox"/> Other:		

## TYPE OF SURFACE DECORATION

<input type="checkbox"/> Wall Plaster	<input type="checkbox"/> Painted Wall Plaster	<input type="checkbox"/> Crushed Ceramic Mor.	<input type="checkbox"/> Marble Plaque
<input type="checkbox"/> Stone Slabs	<input type="checkbox"/> Tile/Zellij	<input type="checkbox"/> Stucco/gyps. plaster	<input type="checkbox"/> Other:

## PREVIOUS INTERVENTIONS

<input type="checkbox"/> Repairs of the structure		<input type="checkbox"/> Repairs of the surface decoration of wall or pavement	<input type="checkbox"/> <i>Graphic documentation map attached</i>
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## CONDITION ASSESSMENT

<input type="checkbox"/> <i>Graphic documentation map attached</i>	
<input type="checkbox"/> Loss of stones or mortar of the structure	<input type="checkbox"/> Cracks
<input type="checkbox"/> Detached stones of the structure	<input type="checkbox"/> Deformations (bulge or depression)
<input type="checkbox"/> Vegetation	<input type="checkbox"/> Loss of surface decoration of wall or pavement
<input type="checkbox"/> Micro-organisms	<input type="checkbox"/> Detachment of surface decoration of wall or pavement
<input type="checkbox"/> Incrustations	<input type="checkbox"/> Deteriorated surface decoration
<input type="checkbox"/> Efflorescences	<input type="checkbox"/> Deteriorated previous interventions

## CURRENT INTERVENTIONS

<input type="checkbox"/> <i>Graphic documentation map attached</i>		
<input type="checkbox"/> Vegetation removal	<input type="checkbox"/> Cleaning	<input type="checkbox"/> Removal of modern repair mortars
<input type="checkbox"/> Repair of the structure with mortar and/or stones	Mortar compositions:	
<input type="checkbox"/> Resetting in place of detached stones		
<input type="checkbox"/> Other interventions on the structure:		
<input type="checkbox"/> Repair of the surface decoration with mortar (in-filling/edging repair)	Mortar compositions:	
<input type="checkbox"/> Grouting voids below the surface decoration		
<input type="checkbox"/> Removal and resetting in place of parts of the surface decoration		
<input type="checkbox"/> Reintegration of area of loss with:		
<input type="checkbox"/> Other treatment of the surface decoration :		

PREPARED BY

DATE

# Data Form for the documentation of Condition Assessment

## CONDITION ASSESSMENT

 *Graphic documentation map attached*

<input checked="" type="checkbox"/> Loss of stones or mortar of the structure	<input type="checkbox"/> Cracks
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Loss of stones of the construction



Loss of mortar of the construction



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Ermanno Carbonara 2019 © J. Paul Getty Trust

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## CONDITION ASSESSMENT

 *Graphic documentation map attached*













<input type="checkbox"/> Loss of stones or mortar of the structure	<input type="checkbox"/> Cracks
<input type="checkbox"/> Detached stones of the structure	<input type="checkbox"/> Deformations (bulge or depression)
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








**Previous Interventions Map**

-  Not original parts of the structure
-  Repairs/reintegrations of surface decoration
-  Edge of each repair mortar
-  Overlapping between mortars (new → old)

**Condition Assessment Map**













-  Edge of surface decoration of wall or pavement
-  Loss of stones or mortar of the structure
-  Detached stone of the structure
-  Vegetation
-  Micro-organisms
-  Incrustations
-  Efflorescences
-  Cracks
-  Deformations (bulge or depression)
-  Detachment of the surface decoration of wall or pavement
-  Deteriorated surface decoration
-  Deteriorated previous interventions

**Current Interventions Map**

-  Vegetation Removal
-  Repair of the structure with mortar and/or stones  
Mortar composition:
-  Resetting in place of detached stones  
Mortar composition:
-  Repair of surface decoration with mortar (in-filling/edging repair)  
Mortar composition:
-  Repair of surface decoration with mortar (in-filling/edging repair)  
Mortar composition:
-  Grouting voids under the surface decoration or within the structure  
Mortar composition:
-  Resetting in place of detached elements of the surface decoration  
Mortar composition:
-  Removal and resetting in place of parts of the surface decoration with facing  
Mortar composition:
-  Reintegration of areas of loss with:

# Legend for the graphic documentation of Condition Assessment













### Condition Assessment Map

	Edge of surface decoration of wall or pavement		Efflorescences
	Loss of stones or mortar of the structure		Cracks
	Detached stone of the structure		Deformations (bulge or depression)
	Vegetation		Detachment of the surface decoration of wall or pavement
	Micro-organisms		Deteriorated surface decoration
	Incrustations		Deteriorated previous interventions



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### Condition Assessment Map

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Vol-MOr-02-d-2

BASE MADE ON: 03/2018

TITLE:













DATE:

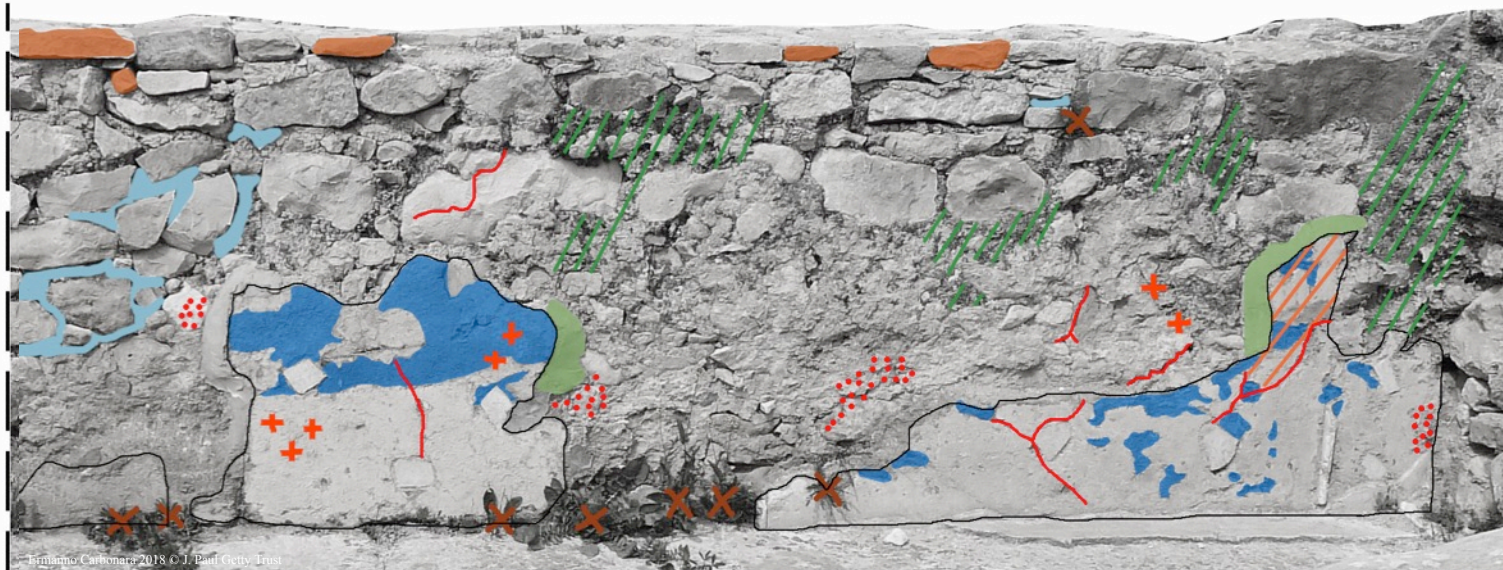
PREPARED BY:



Carminio Carbonara 2018, © J. Paul Getty Trust

### Condition Assessment Map

	Edge of surface decoration of wall or pavement		Efflorescences
	Loss of stones or mortar of the structure		Cracks
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Vol-MOr-02-d-2

TITLE: Condition Assessment Map

BASE MADE ON: 03/2018

DATE: 08/April/2018

PREPARED BY: Mohamed Zaki



# 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.

