



Heritage Problems. Causes. Solutions



Erasmus+

Heritage Problems. Causes. Solutions

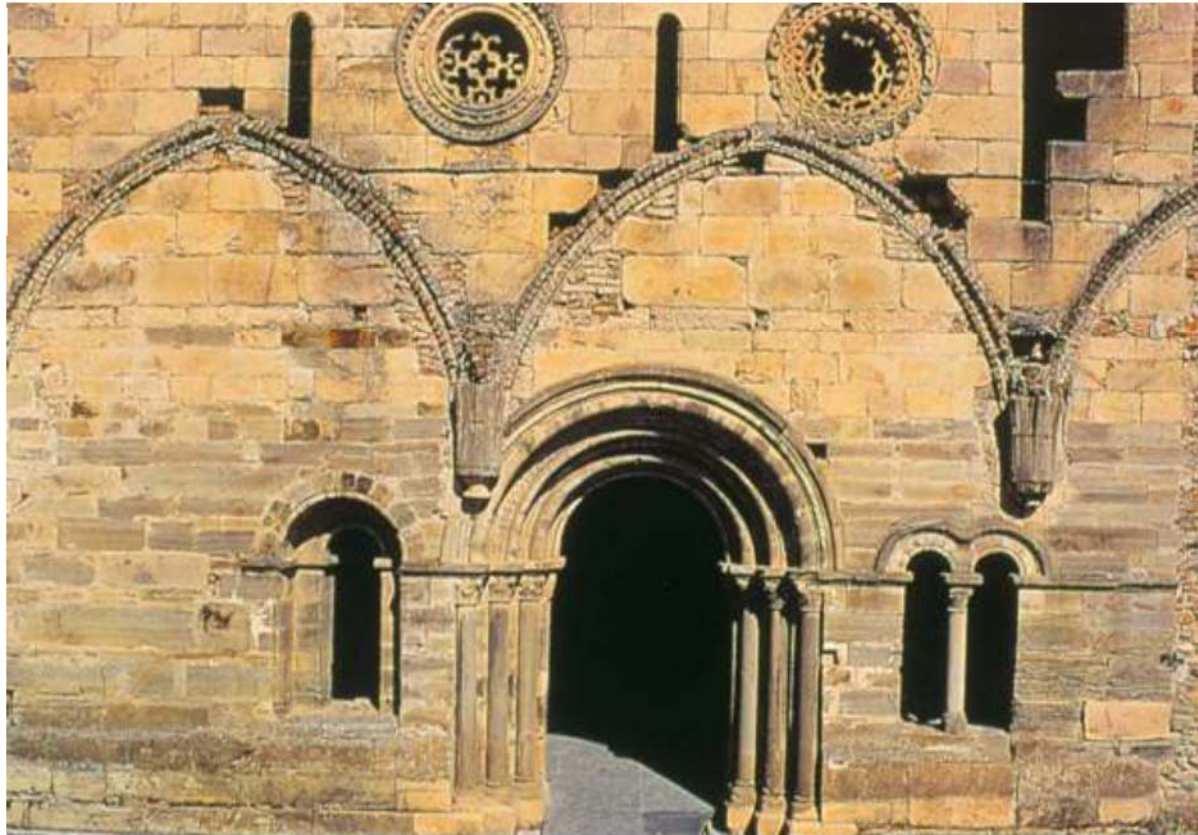
3 ECTS

SH

Sustainable Heritage

EC

Elective Courses



Heritage Problems. Causes. Solutions

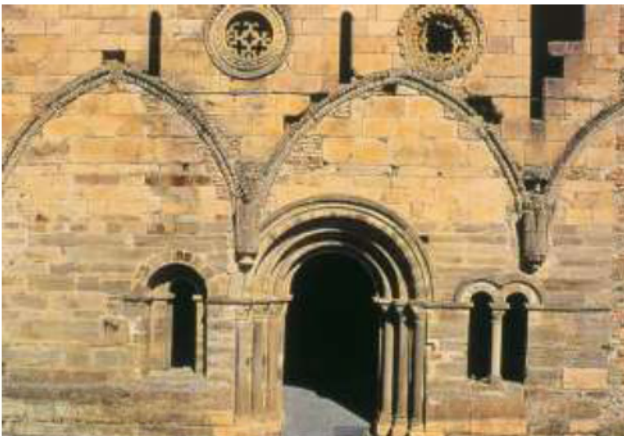
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The aim of this course is to familiarize the student with a set of criteria and architectural intervention techniques, to expand their theoretical knowledge of the construction systems, analysing the causes that produce the different damages and the possible compatible consolidation solutions.

They will represent graphically the proposed intervention, developing a final intervention project, and exposing and defending with arguments of the culture of restoration.

1. **INTRODUCTION**
2. FOUNDATIONS: DAMAGES
3. FOUNDATIONS: REPAIR SOLUTIONS
4. WALLS: CONSTRUCTIVE SYSTEM
5. WALLS II: PROBLEMS AND CAUSES
6. WALLS III: SOLUTIONS
7. VAULTS: CONSTRUCTIVE SYSTEM
8. VAULTS II: PROBLEMS AND CAUSES
9. VAULTS III: SOLUTIONS
10. FLOORS
11. WOOD
12. ROOFS: CONSTRUCTIVE SYSTEM, PROBLEMS
AND CAUSES
13. ROOFS II: SOLUTIONS
14. OTHER TRADITIONAL STRUCTURES
15. SURFACE FINISHES, INTERIOR WOODWORK

CURRICULAR CONTENTS

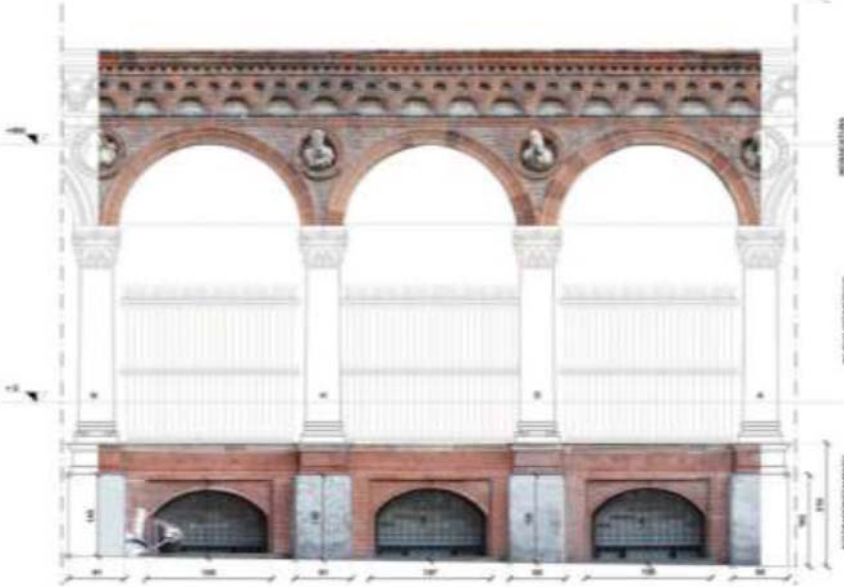
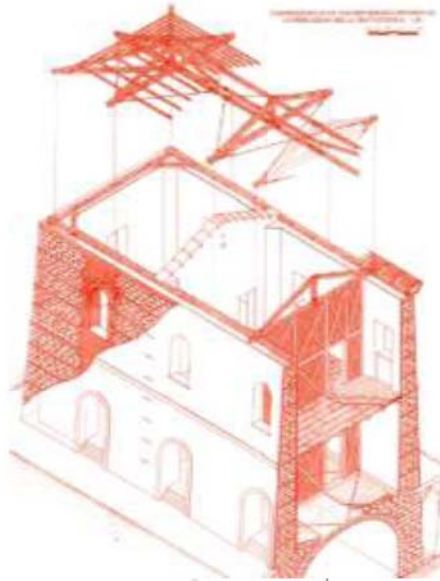
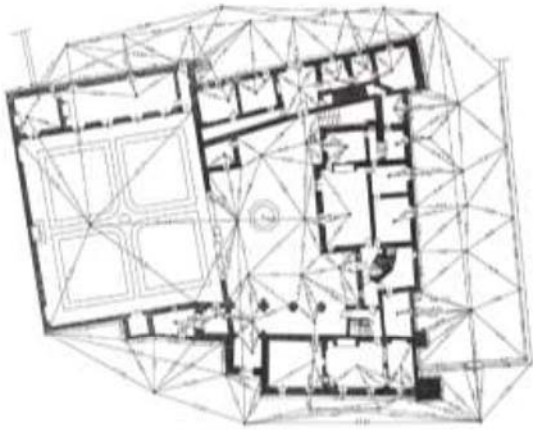
HERITAGE PROBLEMS. CAUSES. SOLUTIONS

Heritage Problems. Causes. Solutions

3 ECTS



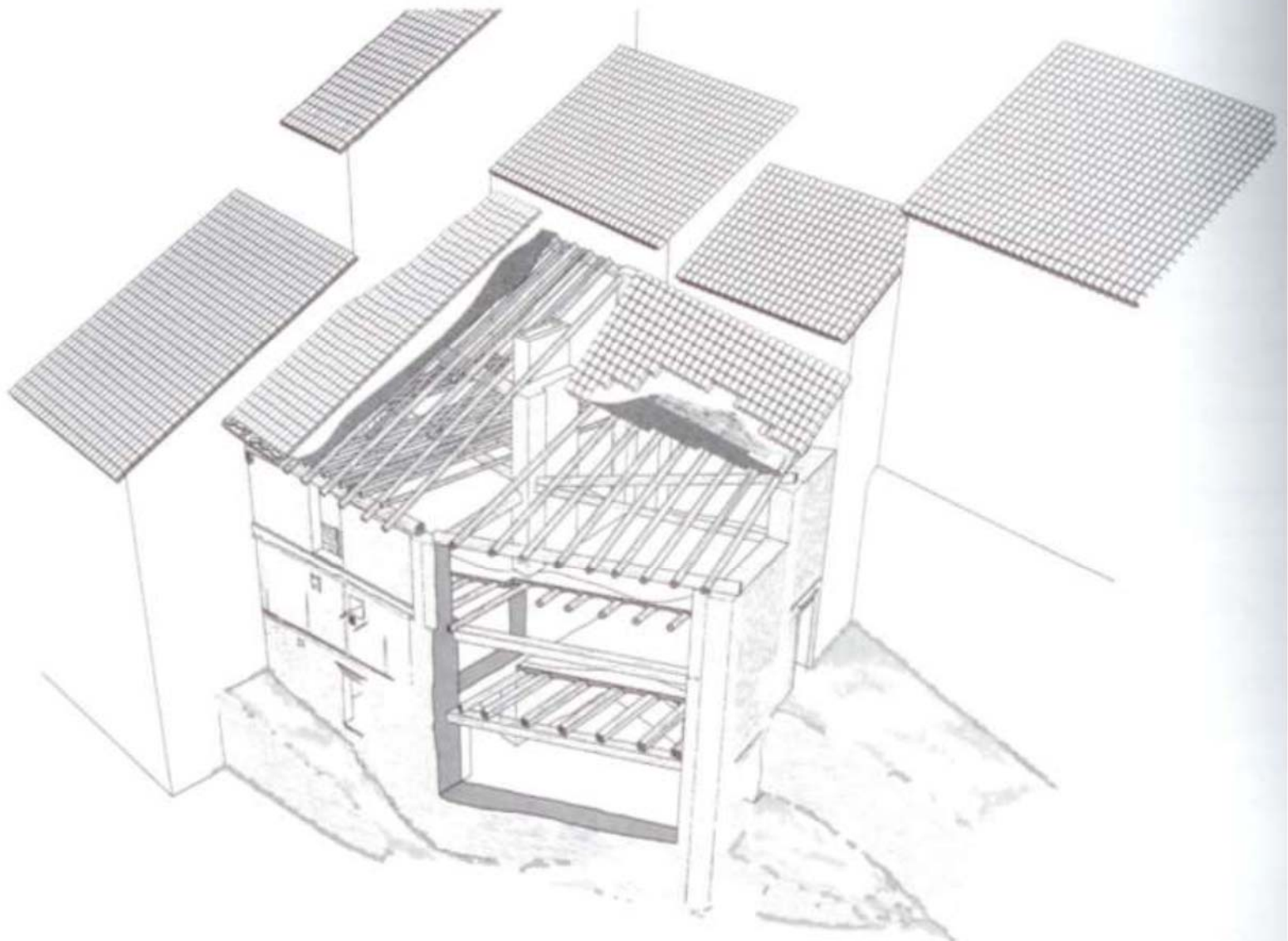
01 INTRODUCTION



- GEOMETRICAL SURVEY
- CONSTRUCTIVE SYSTEMS SURVEY
- STATIGRAPHY. PHASES.
- MECHANICAL AND CONSTRUCTIVE
- MAP OF DAMAGES.
- DAMAGES MONITORING.

SURVEY

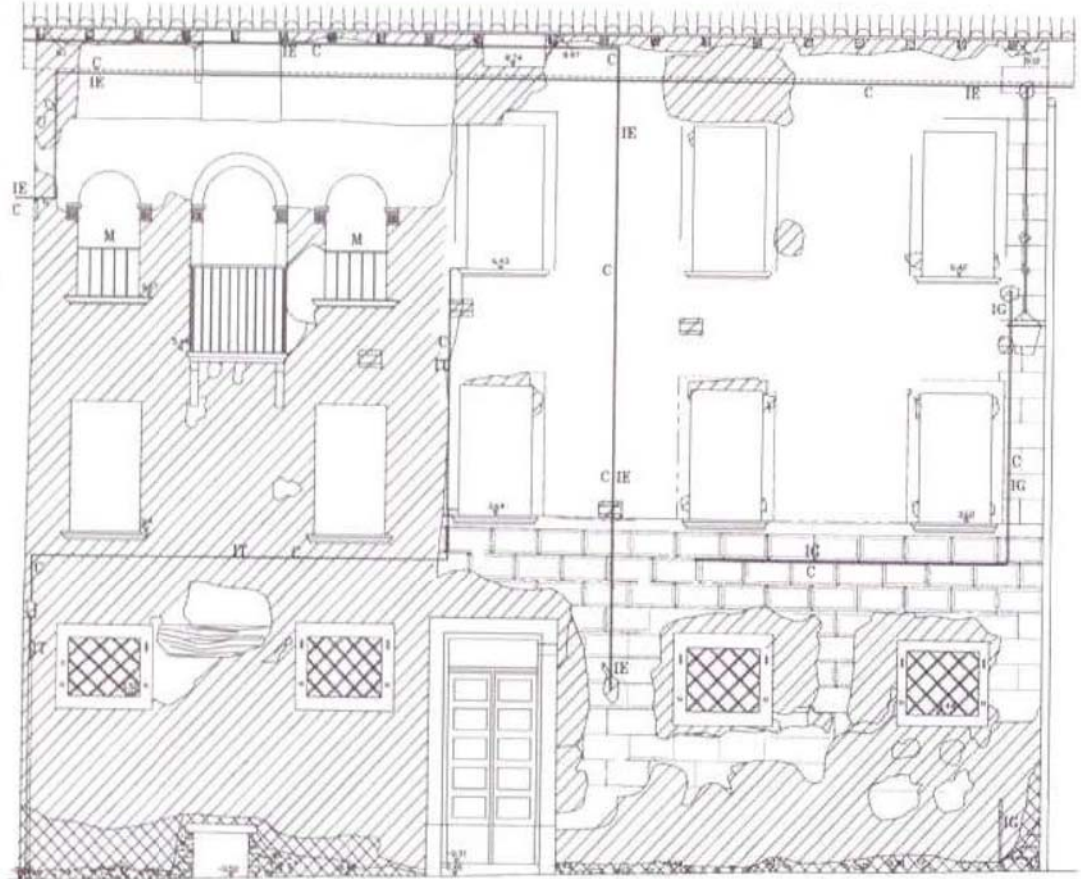
**METHODOLOGICAL APPROACH TO CONSERVATION:
PHYSICAL APPROACH**



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CONSTRUCTIVE SYSTEMS
**METHODOLOGICAL APPROACH TO CONSERVATION:
PHYSICAL APPROACH**

Using as a basis cartographic architectural survey on which is portrayed the perimeter of the areas subject some typical aspects of degradation, such as surface deposit , cracking, cracking, fracturing, scaling, alveolization, black crusts, pitting, corrosion, spotting, efflorescence, detachment, etc.



DAMAGES

**METHODOLOGICAL APPROACH TO CONSERVATION:
PHYSICAL APPROACH**



- FOUNDATIONS
- WALLS
- VAULTS
- FLOORS
- WOOD
- ROOFS
- OTHER TRADITIONAL STRUCTURES

CONSTRUCTIVE SYSTEM

HERITAGE PROBLEMS. CAUSES. SOLUTIONS



- CONSERVATION OR RESTORATION?
- MINIMAL INTERVENTION
- REVERSIBILITY
- TRADITIONAL OR MODERN TECHNIQUES?
- TRADITIONAL OR MODERN MATERIALS?

The interventions in the structures must be decided after having identified the cause of the degradation and damage, verifying that the proposed intervention is compatible with the original element, the current conditions and the type of material and constructive system that constitutes the construction



CRITERIA

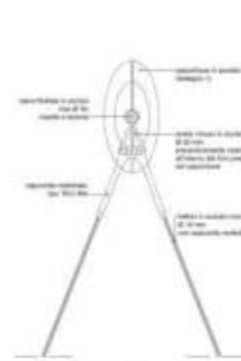
HERITAGE PROBLEMS. CAUSES. SOLUTIONS



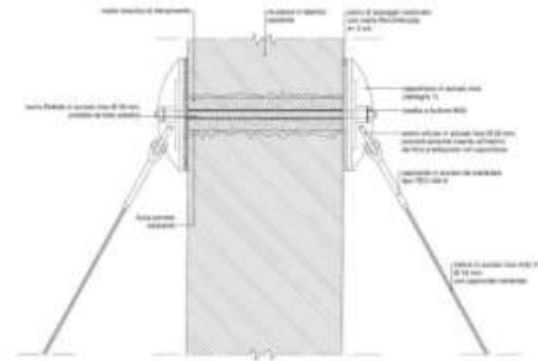
FOTO 1 - Schema di posizionamento trattori di consolidamento del muro del Castello, all'interno delle buche portali esistenti



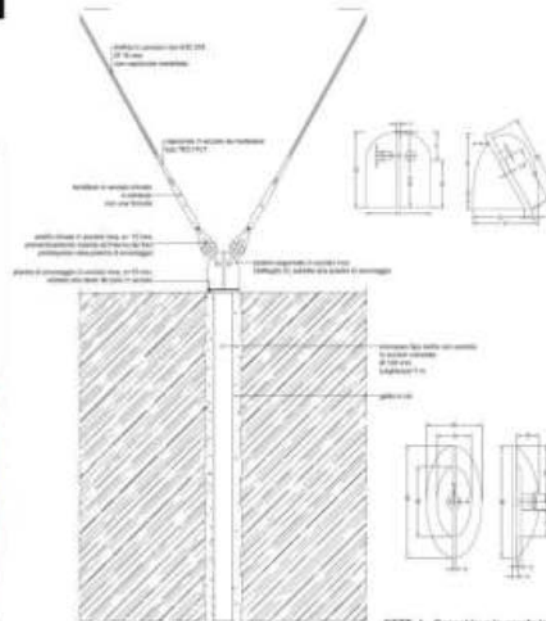
FOTO 2 - Schema di posizionamento trattori di consolidamento del muro del Castello, all'interno delle buche portali esistenti



PART. 1 - Visione frontale nodo di aggancio trattori metallici-capotreno scala 1:10

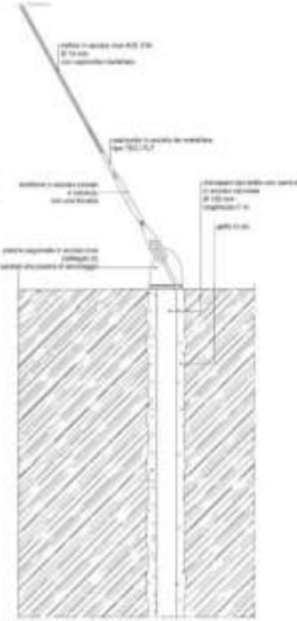


PART. 2 - Sezione verticale della muratura in corrispondenza nodo di aggancio trattori metallici-capotreno scala 1:10



PART. 3 - Visione frontale nodo di ancoraggio trattori metallici-micropali scala 1:10

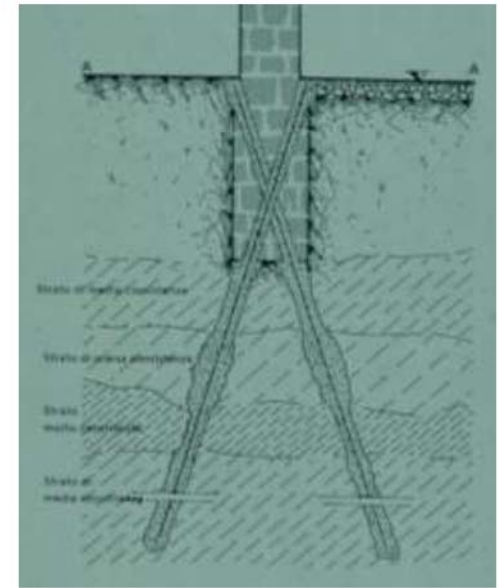
DETT. 1 - Capotreno in acciaio inox scala 1:10



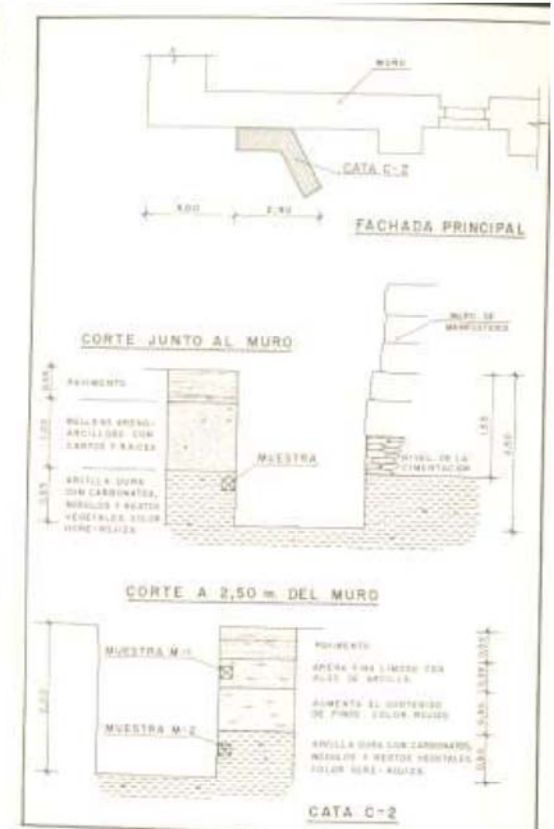
PART. 4 - Sezione verticale in corrispondenza nodo di ancoraggio trattori metallici-micropali scala 1:10

REPRESENT GRAPHICALLY
HERITAGE PROBLEMS. CAUSES. SOLUTIONS

- TRADITIONAL TECHNIQUES
- MODERN TECHNIQUES



CONSOLIDATION AND RESTORATION TECHNIQUES
HERITAGE PROBLEMS. CAUSES. SOLUTIONS

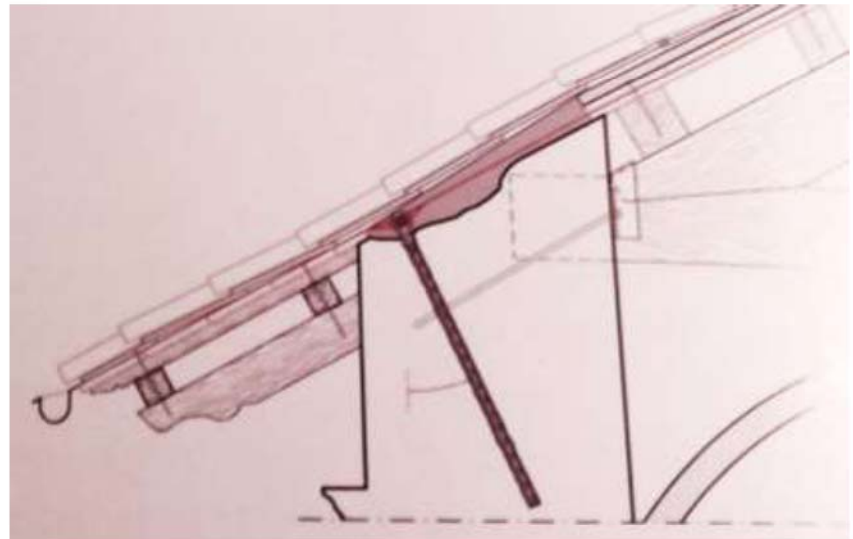


GENERAL CAUSES: GROUND HERITAGE PROBLEMS. CAUSES. SOLUTIONS



The penetration of moisture into the walls is one of the main causes of deterioration in the structures. This humidity can come from:

- condensation of water vapor
- rainwater that penetrates through the roof or external surface
- soil moisture that rises through the foundation and the walls by capillarity



GENERAL CAUSES: WATER

HERITAGE PROBLEMS. CAUSES. SOLUTIONS

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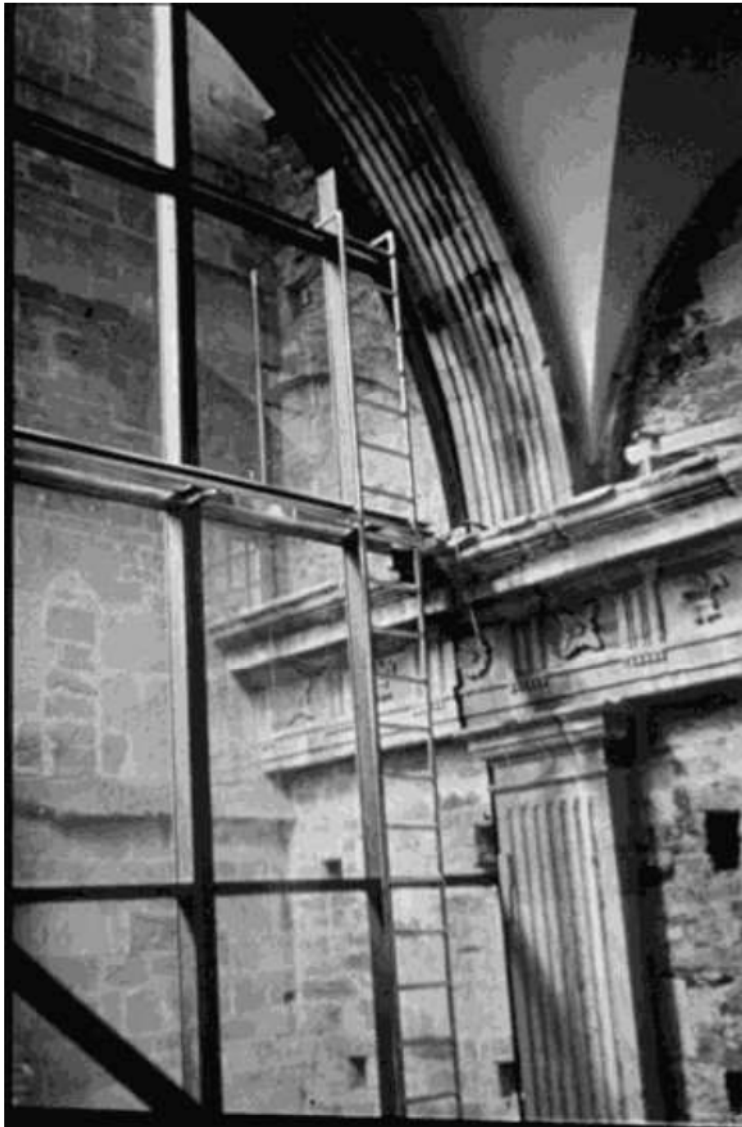
BASIC LITERATURE

HERITAGE PROBLEMS. CAUSES. SOLUTIONS

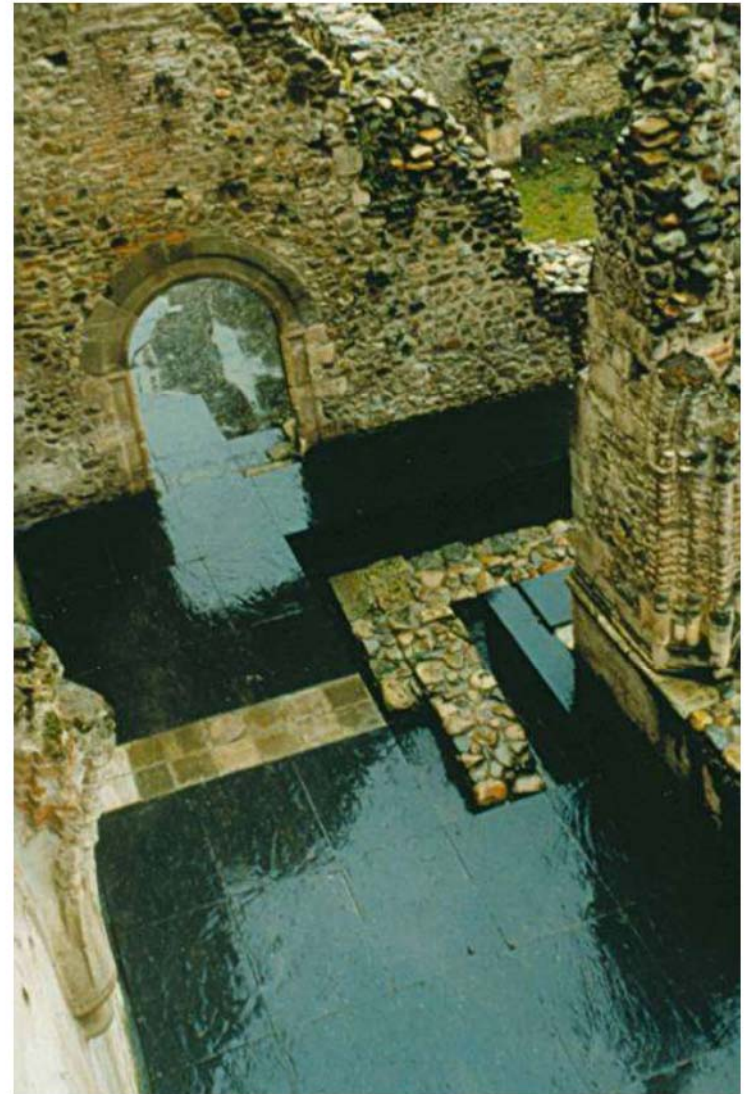
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BASIC LITERATURE

HERITAGE PROBLEMS. CAUSES. SOLUTIONS



INTERVENTION EXAMPLES
HERITAGE PROBLEMS. CAUSES. SOLUTIONS



INTERVENTION EXAMPLES

HERITAGE PROBLEMS. CAUSES. SOLUTIONS



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