International Course on Stone Conservation SC13

SESSION: Moisture sources and effects; Diagnosis of moisture sources

INSTRUCTOR: Ippolito Massari

TIME: Wednesday, 15th May /All day

SESSION OUTLINE

ABSTRACT

Moisture is often the main causes of deterioration in stone buildings and monuments. In order to control moisture, its source must first be identified. In this lecture typical sources of moisture are discussed as well as the resulting conditions and practical techniques for identifying moisture sources.

OBJECTIVES

By the end of this session participants will:

- Understand the behavior and effects of moisture in historic stone buildings and monuments.
- Be able to identify moisture problems and typical sources of moisture.
- Become familiar with techniques and instrumentation used in the diagnosis of moisture problems.

CONTENT OUTLINE

- Basics of capillarity in porous building materials and structures
- Common moisture sources, including:
  - Below ground: ground water, high water tables, irrigation, sewers or other conduits
  - Above ground: roof failures or design flaws, drainage problems, failed plumbing, etc.
  - Environmental: ventilation systems, humidity, condensation.
- Effects of moisture
  - Rising damp, its symptoms and effects
  - Mobilization of soluble salts, efflorescence
  - Freeze/thaw damage
  - Biological growth
  - Health effects and building regulations related to humidity levels and human health
- Strategies and tools for moisture diagnosis, including:
  - Visual inspection
  - Laboratory tests on construction materials including sampling, water content and soluble salt testing
  - Infrared thermography
  - Moisture meters, various types and uses
  - Monitoring of interior RH

READINGS

🕮 = Essential reading material

💻 = Available online

🕮 Massari, Giovanni, and Ippolito Massari. 1993. *Damp Buildings, Old and New*. ICCROM Technical Notes Series. Rome: ICCROM