



## International Course on Stone Conservation SC13

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**SESSION:** Evaluating performance of consolidants: lab methods and protocols

**INSTRUCTOR:** George Wheeler

**TIME:** Wednesday, 12<sup>th</sup> June/ 14:30 – 16:00 (1.5 hours)

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### SESSION OUTLINE

#### ABSTRACT

Many laboratory methods have been applied to evaluating the properties of stone and stone that has been consolidated. Destructive mechanical methods include 3- and 4-point bend, Brazil nut, general compressive and tensile testing, biaxial flexure and drill resistance. Non-destructive methods have primarily been based on ultrasonic velocity measurements. The performance of consolidants against granular disintegration has usually been measured using abrasive methods. Other areas of concern for consolidants are their influence on properties such as capillary uptake, water vapor transmission and hygric dilatation. Finally, artificial weathering tests are performed to evaluate the service life of consolidants.





#### OBJECTIVES

Students should learn the fundamental scientific principles supporting each test method and the limitations of each method.

#### READINGS

 = Essential reading material

 = Available online

-  Siedel, Heiner, and Siegfried Siegesmund. 2011. Characterisation of stone deterioration on buildings. In *Stone in Architecture: Properties, Durability*. 4th ed. ed. Siegfried Siegesmund and Rolf Snethlage. New York: Springer. 369-92.
-  Siegesmund, Siegfried, and Helmut Durrast. 2011. Physical and mechanical properties of rocks. In *Stone in Architecture: Properties, Durability*. 4th ed. ed. Siegfried Siegesmund and Rolf Snethlage. New York: Springer. 167-89, 201-15.
-   Torraca, Giorgio. 2009. *Lectures on Materials Science for Architectural Conservation*. Los Angeles: Getty Conservation Institute.  
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