



## International Course on Stone Conservation SC13

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**SESSION:** Coral stone and gypsum-based mortars

**INSTRUCTOR:** Benjamin Marcus

**TIME:** Monday, 17<sup>th</sup> June/ 16:30 – 17:30 (1 hour)

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### SESSION OUTLINE

#### ABSTRACT

Stone buildings along the Persian Gulf coast, an area with few natural building materials, were traditionally built with coral or weak sedimentary siltstone, and a variety of gypsum, earth and lime-based mortars. This lecture will look at several conservation projects in the United Arab Emirates which included emergency stabilization, mortar analysis and petrography, the reproduction of traditional gypsum and lime-based mortars, and conservation interventions including large scale grouting and shelter coating.

#### OBJECTIVES

- To have a better understanding of coral and stone masonry building types and to gain exposure to the variety of building materials and typologies in arid regions
- To learn about the conservation strategies at several case study buildings including al Hayla Tower
- To learn about the analysis, production and use of traditional regional mortars


#### CONTENT OUTLINE

- Overview of regional heritage organizations, the historic context and building stock
- Stone types – coral stone and siltstone materials
- Mortar types – *Juss* (traditional gypsum-lime mix), *Sarooj* (earth-based, water resistant), Lime
- Mortar analysis – case studies, techniques and resulting conservation decisions
- Conservation challenges – salts, structural problems, termites, lack of suitable materials
- Interventions – emergency conservation, treatment trials, grouting, repointing and shelter coat

#### READINGS


 = Essential reading material

 = Available online

 Marcus, Benjamin. 2012. Characterization of historic mortars and earthen building materials in Abu Dhabi Emirate, UAE. In *IOP Conference Series: Materials Science and Engineering*, Vol. 37, [http://iopscience.iop.org/1757-899X/37/1/012004/pdf/1757-899X\\_37\\_1\\_012004.pdf](http://iopscience.iop.org/1757-899X/37/1/012004/pdf/1757-899X_37_1_012004.pdf)

Orbasli, Aylin. 2009. The Conservation of Coral Buildings on Saudi Arabia's Northern Red Sea Coast. *Journal of Architectural Conservation*, 15(1), 49-64.

Procesi, Donatella. 1993. *Coral stone and lime in the East African Coast*. York, United Kingdom : Institute of Advanced Architectural Studies.

 Saleh, Mohsen M. 2013. *An Evaluation of the Conservation State of Qasr El-Emara, Al-Wajh, Saudi Arabia*. Alexandru Ioan Cuza University of Iasi. <http://ijcs.uaic.ro/public/IJCS-13-25-Saleh.pdf>



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