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This workshop is held in partnership with

Stanford | University Architect / Campus Planning & Design
Land, Buildings & Real Estate

The Preservationist's Primer for Nondestructive Testing and Evaluation

Moderator:

Shari Kamimori, President, 3D Virtual Design Technology, Inc

Speakers:

Sapna Marfatia, Architect, Stanford University - Campus Planning; **Shari Kamimori**, President, 3D Virtual Design Technology, Inc; **Christopher S. Wasney**, AIA, Principal, CAW Architects, Inc; **Mark Olson**, Principal Geophysicist and Geologist, Advanced Geoscience, Inc.; **Armen Tajirian**, P.E., PhD, Applied Materials & Engineering, Inc.

Location:

Thursday, July 20, 2017
Einstein Room, 506 Oak Rd, Stanford University, CA

*Workshop
Summary:*

Nondestructive testing and evaluation (NDE or NDT) are frequently used in historic preservation and little understood outside of the engineering profession. When there are unanswered questions pertaining to the structural, architectural, or materials of a structure, testing is a critical first step in evaluating conditions and planning for intervention. This workshop will examine and demonstrate a wide range of the latest tools for NDE, from ground penetrating radar, to ultrasonic testing, to infrared thermography, impulse radar, electromagnetic detection, and fiber optics.

*Learning
Objectives:*

1. Examine and use the latest technology for nondestructive evaluation and testing of historic structures
2. Identify the appropriate tools for various materials, settings, and conditions
3. Through a study of case examples, understand costs, time commitment, and feasibility of the various evaluation methods and tools
4. With hands-on demonstrations, properly use and understand the basic functions of NDE / NDT tools

Schedule:

8:30- 9:00

Registration

9:00 – 9:15

Welcome & Introductions

9:15 – 9:45

Stanford and Application of NDE/NDT Tools

Sapna Marfatia

- Problems that are encountered.
- Drone / UAV
- Technologies
 - Visual / Sound Tech

9:45 – 10:00

BREAK

10:00 – 10:45

Case Study of NDE / NDT Methodologies in Architectural Projects

Chris Wasney

- Case Study – 2-3 Methodologies
- Greek Theater at UC Berkeley
- How invasive some non-invasive NDT / NDE could be

10:45 – 11:00

BREAK & Q&A

11:00 – 11:45

Thermal Imaging

Shari Kamimori

12:00 – 1:15

LUNCH

1:15 – 2:15

Ground Penetrating Radar

Mark Olson

- GPR Case Examples
 - GPR as a tool for Archaeology
 - GPR as tool for building foundation evaluation
 - Case examples

2:15 – 2:30

BREAK / Q&A

2:30 – 3:45

Tools Demonstrations and Case Examples, Field Exercises

*Armen Tajirian and/or
Mark Olson*

- Engineering Perspective and Material Strength
- Demonstrate how the tools work

*15 min tools / 15 min
basic science / 15
minutes for case
studies or projects*

- Time permitting, demonstrate field tools:
 - GPR
 - Ultrasonic Testing Equipment
 - Moisture Content Testing
 - Borescopes
 - Hardness of concrete testing using Schmidt Hammer

3:45 – 4:00

Final Q&A Discussion