

Non-Destructive Testing & Evaluation Methods

SUPERSTRUCTURES provides, in conformance with applicable listed standards, in-situ non-destructive testing and evaluation (NDT&E) of existing building components and materials, including:

Leak Investigation

Water Testing of exterior surfaces to determine primary and secondary sources of leaks:

- Spray Bar: Water Penetration Resistance of masonry using an exterior pressure-regulated spray rack and interior moisture detection (modified ASTM E1105).
- Flood Test: Waterproofing Failure Detection of roofing using a containment assembly and interior moisture detection (following ASTM D5957).
- Leakage Mapping: Water Penetration Resistance of fenestration using an exterior pressure-regulated hose and interior moisture detection (AAMA 511-08).



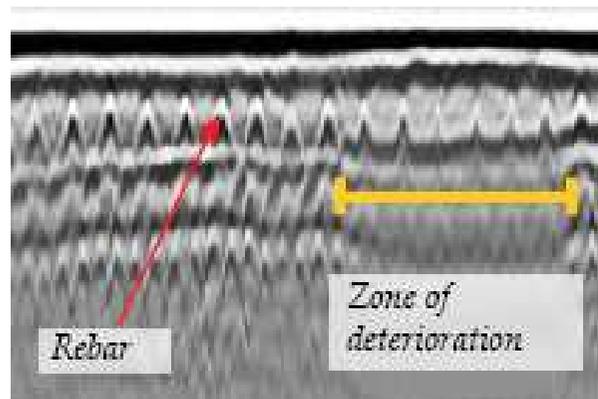
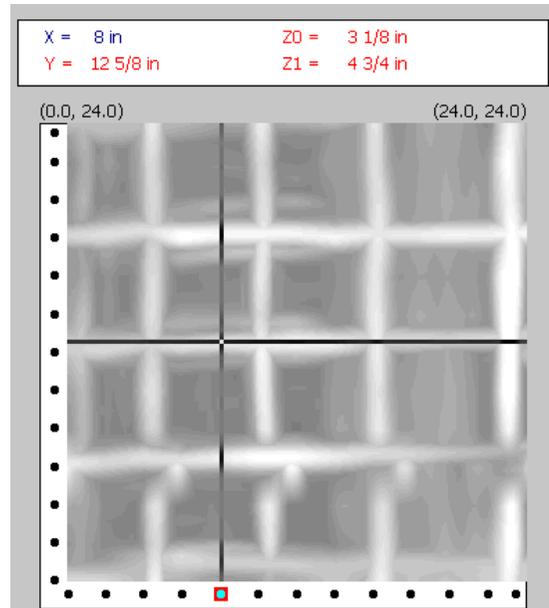
Reinforced Concrete Construction

Load-Carrying Capacity Parameters of concrete slab with reinforcing bar:

- Depth/Thickness of slab using impact-echo (ASTM C1383).
- Compressive Strength of concrete using rebound hammer (ASTM C805).
- Reinforcing Bar Size/Spacing/Location & Depth of Cover using covermeter (BS 1881-204).
- Reinforcing Bar Spacing/Location using ground penetrating radar (ASTM D6432).
- Delamination/Void Detection in concrete using rotary percussion (ASTM D4580) for near-surface voids or impact-echo (ASTM C1383) for deep voids.

Core Clearance prior to drilling/coring/boring in concrete:

- Rebar/Conduit Detection using ground penetrating radar (ASTM D6432).



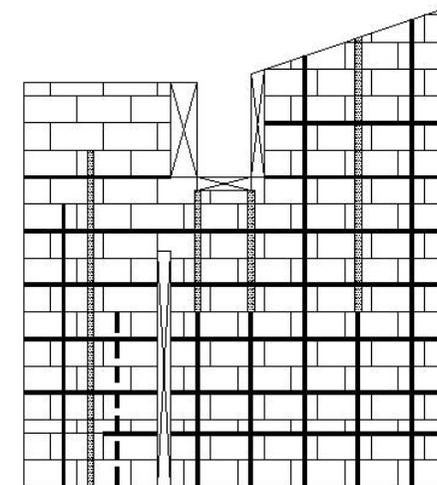
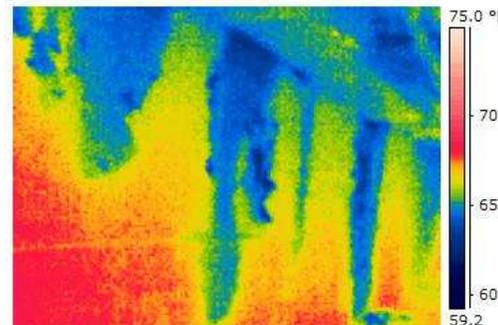
Masonry, Stone, and/or Terra Cotta Construction

Deficiency Detection in building facades:

- Infrared Thermography to detect patterns of differential heating, indicating potential voids or water retention (ASTM C1060).
- Detection of Corroded Ferrous Anchors/Wall Ties using the mass magnetic probe technique (non-destructive).
- Missing Grout Detection in CMU using ground penetrating radar (ASTM D6432).
- Delamination/Void Detection in masonry and/or stone using impact-echo (ASTM C1383).
- Visual Inspection of Internal Concealed Conditions using a fiber optic borescope and high intensity light source.

Characterization of building facades:

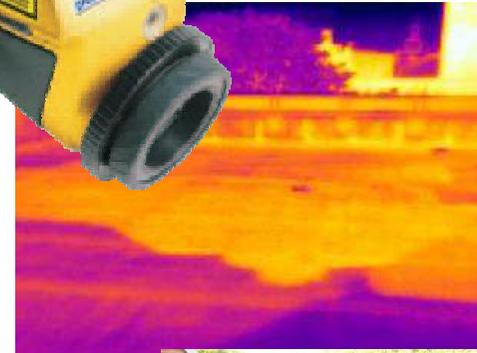
- Detection of Concealed Ferrous Anchors/Wall Ties using a pachometer (following ASTM D7046).
- Depth/Thickness of masonry and/or stone using impact-echo (ASTM C1383).
- Hardness Characterization of mortar using rebound hammer (RILEM MS-D.7).
- Surface Water Absorption using a "RILEM Tube" (RILEM II.4).



Roofs, Waterproofing Membranes and Assemblies

- Roof Moisture Survey using Infrared Thermography and Electrical Impedance scanning (incorporating elements of ASTM C1153 and ASTM D7954).
- Roof Membrane Integrity Mapping and Leak Detection using a DC pinhole detector (ASTM D7877).
- Deck Contour Mapping to determine "pitch to drain" using a laser level system.
- Withdrawal Resistance Verification of roof fasteners (ANSI/SPRI FX-1).

(Roof cuts and gravimetric testing required for full ASTM C1153 and ASTM D7954 compliance. Contour mapping requires roof cuts to reach deck. Roof repair may be required after withdrawal resistance verification testing.)



Coatings

Construction Administration testing:

- Pull-Off Strength Measurement using a portable adhesion tester (ASTM D4541).
- Coating Thickness Measurement of coatings on ferrous and non-ferrous metals using a non-destructive gage (ASTM E376).



Stucco and/or Plaster

Deficiency Detection and Characterization of construction:

- Infrared Thermography to detect patterns of differential heating, indicating potential voids or water retention (ASTM C1060).
- Visual Inspection of Internal Concealed Conditions using a fiber optic borescope and high intensity light source.
- Patch Detection using an ultraviolet lamp to create fluorescent patterns.
- Detection of Concealed Ferrous Anchors/Wall Ties using a pachometer (following ASTM D7046).

