# NDT&E Tech Brief

Some Conditions May Apply

After using a wide variety of equipment on hundreds of projects, we have discovered conditions that inhibit the use of some non-destructive technologies. When those conditions are encountered, use of an alternative non-destructive – or destructive – technology becomes necessary.

Cinder Fill

Detecting structural steel is a common NDT application. A layer of porous cinder fill will completely inhibit the use of ground penetrating radar (GPR) due to the many air gaps. A covermeter can still be used, although the depth of penetration will be limited to 8 inches from the surface. If the cinder fill has iron content, an electrical impedance (EI) "moisture" meter may indicate that a dry slab is wet. Infrared (IR) thermography is a viable alternative; gravimetric moisture analysis of a sample will provide further assurance.

Ceramics

Ceramic tiles are typically highly reflective of IR, but will not be a problem for other NDT technologies. Ceramic bricks, traditionally used in furnaces and fireplaces, are another matter. They create an impassable boundary for GPR, as in this radargram of a swimming pool.
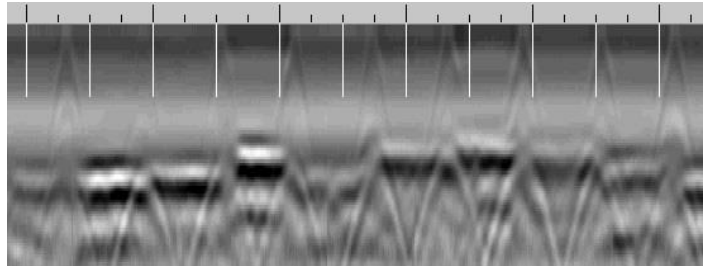
Energy-Efficient Roofs

Adding energy-efficiency can inhibit roof maintenance. A layer of metallized paint will render an EI survey useless; a layer of IR-reflective paint may do the same to an IR survey, especially if common long-wave cameras are used. Green roofs need to be designed with embedded layers or sensors to track their health.

Despite Murphy's Law, unusual conditions are the exception, not the rule. What's the right technology for your test program? For a list of all of the tests that SUPERSTRUCTURES provides, click here.

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