

# Concrete Scanning Services



**Concrete is very strong in compression, yet very weak in tension. Steel is just the opposite – very strong in tension and very weak in compression. Because of these differences, concrete and steel form an incredible strong and durable building material when used together.**

Building regulations require the use of steel reinforcement in many structural applications. **Concrete scanning with ground penetrating radar (GPR)** can be used to locate and map the position of this steel reinforcement for a variety of purposes in both commercial buildings and homes.

## What is Concrete Scanning with GPR?

Concrete scanning with ground penetrating radar (GPR) is used to locate and map the positions of metallic and nonmetallic materials such as rebar, post-tensioning cables, conduit, metal and plastic pipes, electrical cables, and other near-surface anomalies and objects in concrete. The reliability of concrete scanning is greatly improved with the use of ground penetrating radar (GPR). GPR is a radar-based technology that uses antennas to transmit and receive pulses of electromagnetic energy through a medium such as the ground or concrete. These reflected waves are then detected by the radar equipment and allow very accurate determination of the locations of objects within the concrete.

## Benefits of Concrete Scanning

There are a variety of benefits of concrete scanning when you choose to have the scan done before you start a project involving concrete. Some of the benefits include the following:

- » Save time you might have spent test drilling to locate materials in the concrete.
- » Avoid potentially disastrous and costly hits on critical reinforcement within the concrete.
- » Avoid personal injury, work-time delays, and damages to concrete structures.
- » Increase the working life of your tool motors and drill/core bits.
- » Reduce drilling times important in repetitive drilling applications.
- » Maintain a safer environment at the job site for you and your employees.

# Concrete Scanning Applications

Concrete scanning is useful in a variety of applications. **These include, but are not limited to, the following:**

- » Structural considerations and damage avoidance in construction activities (drilling, cutting, grinding, remodeling, change orders, etc.) On site and in real-time view.
- » Detect metal objects (such as rebar, post-tension cables, metal/copper/aluminum pipes) and non-metal objects (such as wood, plastic pipes, electrical conduits, glass-fiber cables) embedded in concrete.
- » Locate air cavities and other anomalies in the concrete.
- » Detect objects in multiple layers, depending on the condition of the concrete.
- » Determine rebar size and location (as built studies and building acceptance).
- » Verify proper concrete cover.
- » Provide structural composition data for engineering solutions (concrete thickness, rebar size and location).
- » Verify slab thickness and determine the depth of material cover on reinforcement.
- » Quality assessment – steel reinforcement (rebar), post tension cables, void and cavity detection.
- » Project acceptance.
- » Changing occupancy (some occupancy types require specific structural reinforcement).
- » Repetitive drilling/fastening applications.
- » Verify position, quality, or existence according to plans.
- » Identify location of sub-surface heating systems.
- » General quality assessment of concrete floors, walls, decks, slabs, balconies, etc.

## Concrete Scanning Results

With our technology, we are able to scan large areas quickly and provide immediate, high-resolution 3D images of our findings for comprehensive and immediate analysis of concealed objects. These images will help you determine where to drill, cut, or core to avoid hitting objects in the concrete.

## Our Technology

C.R.I., Inc. performs all concrete scanning using the latest technology in ground penetrating radar and electromagnetic technology with equipment from Hilti. Our current equipment includes the Hilti PS200 Ferrosan and the Hilti PS1000 X-Scan. We are able to scan concrete up to 18 inches in depth.

**Learn more about our services at: [utahinspectionsservices.com](http://utahinspectionsservices.com)**

Currently servicing all areas within 150 miles of Salt Lake City, Utah.  
Kevin D. Wiederhold | C.R.I., Inc. | (385) 253-1776 |  
[utahcountyinspectionsservices@gmail.com](mailto:utahcountyinspectionsservices@gmail.com)