



Compressive Strength of Concrete Cores and Schmidt Hammer Testing.

Compressive strength of concrete cores either formed in cylinders at time of concrete placement or extracted from hardened concrete is a very common diagnostic measure of strength and concrete durability.

Concrete Diagnostics mostly deal with hardened concrete and can assist with extraction and testing of cores for compressive strength by;

- **Location of Reinforcement** and other embedded objects within the concrete using methods associated with Ground Penetrating Radar (GPR) and electromagnetic field detection (for live conduits).
- **Collection of concrete cores.** Securing of cores is important especially for compressive strength. Where appropriate we use AS1012.14-(6.2) for securing cores with water cooled, diamond coring machine secured to the concrete surface. Sometimes, however, it is not always possible to extract a core of the correct size this might be due to reinforcement distribution, concrete depth, cracked/voided concrete or aggregate size.
- **Schmidt Hammer Testing.** Also referred to as a rebound hammer, the Schmidt Hammer contains a spring loaded mass that impacts on the surface and the rebound of the mass is measured. Using conversion charts an estimated cylinder compressive strength can be obtained. Testing should always be validated with compressive strength testing. As this is a surface method the surface properties of the concrete will influence the results, this includes carbonation of older concrete, which can have a large influence (up to 40%) on the results.

Some examples of core extraction



Compressive strength can be affected by embedded object in the core that has been extracted. It is ideal to perform GPR prior to core extraction to avoid reinforcement and other embedded objects that may affect the results.



View of a core removed for compressive strength testing. In this case an 80mm diameter core was removed with no reinforcement.

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