

Testing the Compressive Strength of Concrete with Rebound Technology

Overview

- Construction company, [Oriental Structural Engineers](#) needed to check compressive strength of concrete for the Badshahpur-Sohna Road Project
- The [Schmidt OS8200 Concrete Rebound Hammer](#) was used as the non-destructive method of testing
- The team achieved accurate and reliable compressive strength measurements in less than one hour

This case study was created with thanks to [Stanlay](#), a supplier of innovative engineering products & solutions for inspection and other segments across India. Oriental Structural Engineers is one of the leading construction companies with worldwide expertise in construction of rigid and flexible pavements for roads, highways and airfield.

Challenge

For this project, Oriental Structural Engineers (OSE) needed to check the compressive strength of the concrete structures being used in the Badshahpur- Sohna Road Project and ensure the concrete meets all parameters defined in the laid design.

The first part of the Sohna Road Project, spanning 21.66 kilometres, comprises of an underpass and an elevated road. The second part involves the expansion of a 12.72-kilometre road, which will involve the construction of flyovers and underpasses at major crossings.

Solution

To check the compressive strength of the concrete being used in the in Badshahpur- Sohna Road Project, Oriental Structural Engineers used Schmidt OS8200 Rebound Hammer.

The Schmidt OS8200 is a concrete rebound hammer which has been used for decades as the global benchmark for compressive strength testing of concrete and precast concrete structures, in line with all major standards.

Rebound Hammer testing is a non-destructive method of assessing concrete which provides a convenient and rapid indication of the compressive strength.



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Results

When the rebound hammer is pressed against the surface of concrete, a spring controlled mass with a constant energy hits the concrete surface to rebound back. The extent of rebound, which measures surface hardness, is measured on a graduated scale. This measured value is designated as Rebound Number.

In OS8200, the output Q value brings greater accuracy at higher strengths as it is proven that Q-value delivers more accurate correlations for custom material curves. As in this case, when standardized curves aren't available, a lower 10th percentile curve is used (recommended by EN 13791 and ASTM C805/ACI 228.1). This curve is a safer option with a smaller chance of overestimating the strength. For detailed guidance, see tutorial 12, "Custom materials" in the Original Schmidt Live app.

The output value (Q value) were logged by the equipment itself for highly accurate analysis. All test data were logged in the [Schmidt Live OS mobile app](#) along with a GPS tag.

The [OS8200](#) proved to be a highly accurate, reliable, and versatile concrete hammer enabling the OSE to test the whole structure from different points fast and efficiently.

The Schmidt Live mobile app let the team annotate measurements with voice, photos and comments and generate reports instantly. OSE could easily share the report with other project members and clients in seconds. The digital hammer could also be wirelessly connected to a Bluetooth printer for on the spot print-out of test results if required.

Learn more about concrete testing methods in our [Tech Hub](#).



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