REF A07 TALLEST COMMERCIAL BUILDING IN INDIA - PRESTIGE TOWER C

PROJECT	PRESTIGE LIBERTY TOWERS – 290m TALL
LOCATION	Mumbai, India
CLIENT	The Prestige Group
ENGINEER	Buro Happold
IMPLEMENTATION	2024

Applications End anchorage connections, Fire Design

Design Hilti method

Hardware HIT-RE 500 V4, Hilti Rebar Scanner PS-85

Software PROFIS Engineering (Concrete-to-concrete)

Services Design, trainings, workshops, On-site tests

CHALLENGES

- Dense existing reinforcement for drilling
- Lot of misplaced/missed dowels
- Seismic and fire design requirements for rebars
- Code-compliant design

HILTI TOTAL SOLUTION

- ✓ Hilti rebar scanner PS-85
- ✓ Post-installed rebars for quick construction at the jobsite
- ✓ Hilti's digital engineering competence center support
- ✓ Design using Hilti method based on ETA values for fire

LOAD / CONDITIONS: Static, Seismic and Fire

PROJECT HIGHLIGHT Digital design, Engineering-driven support and stake-holders management by Hilti

PROBLEM STATEMENT AND OBJECTIVES

The project is unique in terms of the eccentric core design for as well as the placement of columns which are very thick (2.4 m x 2.4 m in cross-section) which potentially results in high base shear. This resulted in very **dense reinforcement detailing that challenges the drilling depth** for all post-installed connections. Also, there were multiple instances of misplaced dowels.

The work objectives were that the misplaced and missed dowels were to be corrected and reinstalled with post-installed rebar connections at **applications such as raft foundations, beam to columns, staircase landings to supporting structural elements**, etc.

Post-installed rebars must also adhere to a **minimum R60 fire rating.**

DESIGN APPROACH

The design consultant made site visits in parallel with Hilti's regular site visits and acknowledged that the solution for misplaced dowel rebars was to be designed and post-installed in consultation with Hilti.

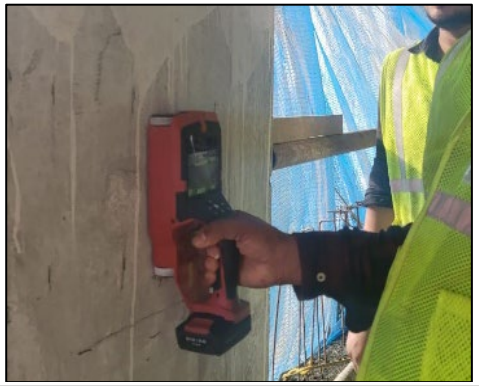
Hilti's Engineering Competence Center was also leveraged to conclude and design critical instances.

A **thorough detailed design report from Hilti** for all such structural post-installed applications along with **code-compliant fire design of embedment depth** and documentation.

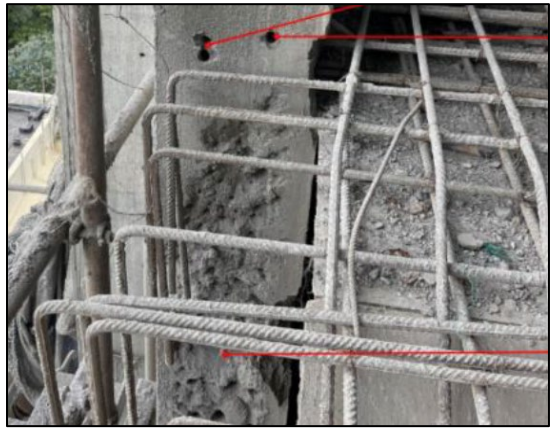
Rebar scanning of existing member with HIT PS85

SOLUTION AND FINAL OUTCOME

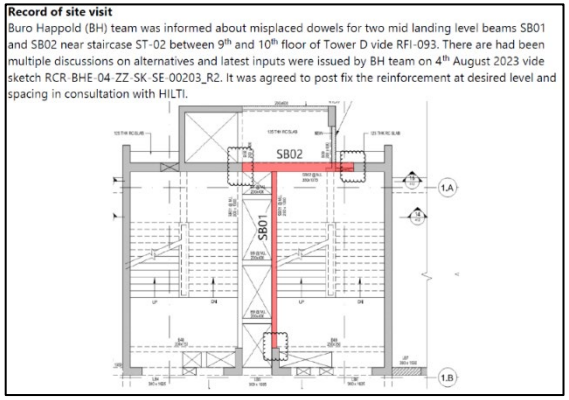
Hilti method was used to take advantage of increased bond strength for HIT RE500 V4 for post-installed dowels. **Fire design (R120) of HIT RE-500** mortar was carried out as per data from the ETA-16/0142 using the corresponding bond reduction factor for arrival of the design embedment length.



Fire design of rebar end-anchorages (dowels)



Digital Design & Engineering



Installation