3. Reducing Labor Requirements for Finished Shape Management of Seismic Reinforcement Work via Photogrammetry - Applications to Seismic Reinforcement and Post-Construction Shear Reinforcement -

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When installing a post-construction anchor to an RC structure in seismic reinforcement work, the construction required to avoid existing rebars typically makes it difficult to drill the rebar insertion hole as planned. Cases involving numerous separate construction tasks require significant effort to manage finished shapes and often generate recording errors. For the two seismic reinforcement works presented here, we developed a finished form management system based on photogrammetry technology. This system successfully reduced the work burdens associated with results management.

First, for one-faced seismic reinforcement work, we measured steel plate drilling positions using photogrammetry. The resulting errors were confirmed to be within a range suitable for real-world applications. Second, in construction tasks involving the insertion of numerous shear reinforcing bars, we developed an automated program to recognize the positions of the holes based on photographic data and create finished form management forms. This program produced the anticipated labor savings.

Key words: one-sided seismic reinforcement, post-construction shear reinforcement, best-grout-bar, photo survey, UAV, automatic extraction system