

4. Traceability System for Repair and Reinforcement Materials to Assure the Quality and Efficiency of Maintenance Work

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Infrastructure maintenance work often requires large amounts of various materials shipped in small packages, which are then mixed in the field. Significant effort goes into gathering and recording related information required for quality control. We developed a system for tracing repairs and reinforcement materials. This system makes managing the information collection process more efficient, reducing work burdens and contributing to quality assurance for maintenance projects. The system achieves integrated management of maintenance quality control records in the cloud. Data is input using remote devices such as tablets, even in environments without access to real-time communications. Data on the smallest units of repair materials is collected and tracked using QR codes. Actual deployment of this system in the field demonstrated the system's reliability. The traceability system reduced the time required to collect and aggregate quality control information when managing every package of repair materials by 40%. It allows comprehensive inspections of repair materials and improves the efficiency of maintenance work, thereby promoting information-based quality control and extending the service life of various infrastructure.

Key words: repairs, reinforcement, repair materials, traceability, efficiency