

9. A Support System for Wall Finish Tile Inspections - Technology for Automated Assessments Based on Impact Acoustics -

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The Building Standards Act in Japan requires acoustic testing inspections of wall finish tiles on the specified buildings every 10 years. Foreseeing declining numbers of expert tile inspectors, we developed an automated assessment technology based on the characteristic sounds of tile impact and incorporated this function into our previously developed support system for wall finish tile inspections.

The inspector begins by recording impact sound data for normal tiles to obtain reference frequency characteristics. Thereafter, the impact sound of each tested tile is analyzed and compared to the reference data in various frequency domains to determine whether the tile is secure or loose. The results are displayed in real time on a head-mounted display and recorded to a portable device, together with location information. We confirmed that the accuracy of this system in an actual building exceeded 90%.

Key words: wall finish tile, inspecting by tile impact sound, automated assessment technology