

Proposal of Pre-verified Specification for Mountain Tunnel Lining and Invert

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Construction results analysis, laboratory tests and numerical analysis were carried out to propose pre-verified specifications for the standard design of linings and inverts for mountain tunnels. An analysis of recently constructed Shinkansen tunnels focusing on defects in the linings, showed that the number of cracks requiring repairs was small and the usability was sufficiently satisfied. The applicable conditions of pre-verified specifications were shown from the case analysis of tunnels where floor swelling was observed after the start of operation and laboratory tests of rock samples. In addition, in the case of a tunnel in soft ground, an analytical design of linings and inverts was conducted using beam-spring analysis, and it was confirmed that the safety is satisfied. From the above, the validity of the standard design as pre-verified specifications was confirmed.