

Design, construction and conditions of the application of unreinforced concrete final lining in conventionally driven tunnels

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Abstract. The way to an economic design in the final lining in conventionally driven tunnels lies in structural analysing based on the actually encountered geotechnical conditions. Regarding reinforced concrete structures, many standards and regulations applicable to designing and building structures and taking them over by the client before their commissioning and before the end of the warranty period respectively exist in the Czech Republic. If the local conditions allow it, it is possible to design the final lining as an unreinforced concrete structure. In such a case it is necessary to take the differences into consideration in the structural design and in the possibilities of the lining behaviour and to set criteria for taking over the lining allowing for its use. Setting too stringent criteria for cracking can lead to an increase in the contract price, either because of the necessity for reinforcing the lining or because of the fact that the contractor reduces the risk by incorporating the assumed cost of repairs into the total cost. The paper describes basic differences in the approach to reinforced concrete and unreinforced concrete linings, the possibilities of limiting formation of cracks by means of the concrete mix design, by selection of the technological procedure of the work and the method of curing after stripping. The text contains a comparison of criteria for assessing the surface of an unreinforced concrete lining with criteria in foreign regulations.