Challenges in the Material and Action-Resistance Factor Design for Embedded Retaining Wall Limit State Analysis

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Abstract : The paper deals with the proposed 'Material' and 'Action-resistance factor' design methods in designing the embedded retaining walls. The parametric analysis of evaluating the differences of the output values mutually and compared with classic approach computation was performed. There is a challenge with the criteria for choosing the proposed calculation design methods in Eurocode 7 with respect to current technical regulations and regular engineering practice. The basic criterion for applying a particular design method is to ensure minimum an equal degree of reliability in relation to the current practice. The procedure of combining the relevant partial coefficients according to design methods was carried out. The use of mentioned partial coefficients should result in the same level of safety, regardless of load combinations, material characteristics and problem geometry. This proposed approach of the partial coefficients related to the material and/or action-resistance should aimed at building a bridge between calculations used so far and pure probability analysis. The measure to compare the results was to determine an equivalent safety factor for each analysis. The results show a visible wide span of equivalent values of the classic safety factors.

Keywords : action-resistance factor design, classic approach, embedded retaining wall, Eurocode 7, limit states, material factor design
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