

Effect of Height-to-Thickness Ratio on Compressive Strength of Masonry

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Abstract:

A prism is a representative combination of masonry materials which is tested in compression to determine the specified compressive strength of masonry, f_m . This strength is then used in designing a masonry structure or testing compliance of f_m . Canadian standard CSA S304.1-04 suggests using prisms with a height-to-thickness ratio of five for determining the specified compressive strength, without the need for correction. For convenience, prisms with smaller height-to-thickness ratios are often used. Hence, Table D.1 of the Canadian standard provides correction factors to accurately estimate the specified compressive strength when prisms with smaller height-to-thickness ratio are used. According to this table, the correction factor for hollow concrete masonry construction does not change even if the height-to-thickness ratio changes in the range of three to five. Further, for grouted masonry, conflicting values for the correction factors are reported by various researchers. Hence, this study was completed to revisit the corrections factors recommended for concrete masonry in Table D.1 of Canadian standard CSA S304.1.

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DOI: 10.70803/001c.138228

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