

Tension and Compression Controlled Sections in the 2022 TMS 402 Code

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Abstract:

Prior to the 2022 edition of TMS 402 there was a single strength-reduction factor of 0.9 for reinforced masonry members subjected to flexure, axial load, or combinations thereof. The justification for this was that there were stringent maximum reinforcement limits to ensure that a level of ductility consistent with that strength reduction factor was achieved. However, this limited the ability of strength design to be used in certain situations. The 2022 edition of TMS 402 adopted tension-controlled and compression-controlled sections, modified the maximum reinforcement requirements for beams, and eliminated the maximum reinforcement requirements for ordinary reinforced shear walls, walls under out-of-plane loads, and columns and pilasters. The motivation for this change, the provisions adopted by TMS 402-22, the derivation of equations in the TMS 402-22 commentary for limiting axial loads for tension control, and design aids are presented in this paper.

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