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STRUCTURAL ENGINEERING / EARTHQUAKE ENGINEERING

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[\[PDF \(1091K\)\]](#) [\[References\]](#)**DEVELOPMENT OF WEB SLENDERNESS LIMITS FOR COMPOSITE I-GIRDERS ACCOUNTING FOR INITIAL BENDING MOMENT**Vivek Kumar GUPTA¹⁾, Yoshiaki OKUI¹⁾ and Masatsugu NAGAI²⁾

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The positive bending moment capacity of composite steel girders is examined through parametric study employing elasto-plastic finite displacement analyses. The effects of initial bending moment on the bending moment capacity and on the web slenderness limit for section classification are investigated. Observations made during the numerical study indicate that the noncompact web slenderness limits in conventional design standards, which are based on tests of steel I-sections, are conservative for composite sections. Many sections, which are classified as slender by current specifications, demonstrate sufficient flexural capacity as noncompact. The conventional web slenderness limits for noncompact sections, independent of initial bending moment seems inappropriate for composite I-girders. The initial bending moment has considerable effect on the noncompact web slenderness limits. The web slenderness limits for compact and noncompact sections are proposed on the basis of the parametric study.

Key Words: elasto-plastic finite displacement analysis, composite I-girder, web slenderness

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