FEM MODELLING OF ECCENTRICALY PATCH LOADED STEEL I-GIRDERS

Šćepanović, B.; Gil Martin, L.M.; Lučić, D.; Hernandez Montes, E. & Aleksić, S.

Abstract: Patch loading acts locally, over a small area or length of a structural element. It is a common situation in structural engineering that local compressive load affects the flange of steel I-profile so that the web is compressed in the region below the applied load. Although some eccentricity of load relative to the web plane is unavoidable in engineering practice, rather modest amount of worldwide research work has treated this issue. While over 33 experimental researches dealt with I-girders patch loaded in the web plane, influence of load eccentricity was analysed in only 6 experimental studies. Experimental research shows that the behaviour and failure mode of the most of eccentrically loaded girders differ from those of centrically loaded girders. Parallel with the experimental researches, FEM modelling of eccentrically patch loaded steel I-girders has been developed. Various software was used at the universities in Maine, Montenegro and Spain.

Key words: patch loading, load eccentricity, steel I-girder, FEM modelling.

Authors data: Šćepanović B., M. Sc., B. Sc. Struct.Eng, Faculty of Civil Engineering, University of Montenegro, Cetinjski put bb, Podgorica, Montenegro, biljazs@t-com.me; Prof. Gil Martin L. M., Ph. D., E. T. S. Ingenieros de Caminos, University of Granada, Granada, Spain; Prof. Lučić D., Ph. D., Faculty of Civil Engineering, University of Montenegro, Cetinjski put bb, Podgorica, Montenegro, dlucic@t-com.me; Prof. Hernandez Montes E., Ph. D., E. T. S. Ingenieros de Caminos, University of Granada, Granada, Spain; Aleksić S., M. Sc., B. Sc. Struct. Eng, Faculty of Civil Engineering, University of Montenegro, Cetinjski put bb, Podgorica, Montenegro, asrdja@t-com.me.