World Academy of Science, Engineering and Technology
International Journal of Geotechnical and Geological Engineering
Vol:9, No:06, 2015

Lateral Torsional Buckling of Steel Thin-Walled Beams with Lateral Restraints

Authors : Ivan Balázs, Jindřich Melcher

Abstract : Metal thin-walled members have been widely used in building industry. Usually they are utilized as purlins, girts or ceiling beams. Due to slenderness of thin-walled cross-sections these structural members are prone to stability problems (e.g. flexural buckling, lateral torsional buckling). If buckling is not constructionally prevented their resistance is limited by buckling strength. In practice planar members of roof or wall cladding can be attached to thin-walled members. These elements reduce displacement of thin-walled members and therefore increase their buckling strength. If this effect is taken into static assessment more economical sections of thin-walled members might be utilized and certain savings of material might be achieved. This paper focuses on problem of determination of critical load of steel thin-walled beams with lateral continuous restraint which is crucial for lateral torsional buckling assessment.

Keywords : beam, buckling, numerical analysis, stability, steel
Conference Title : ICCGE 2015 : International Conference on Civil and Geological Engineering
Conference Location : Vienna, Austria
Conference Dates : June 21-22, 2015