

EGOLF RECOMMENDATION 009-2016

Subject of Agreement	How to calculate load levels
Related test standard	EN 13381-4 & -8
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Problem

During the last EGOLF harmonization course on EN 13381-4 & -8 we have had a discussion about the value of load required to be applied in loaded beam tests.

EN 13381-4 and -8 mention "design moment resistance" yet, they do not specify if it should be "design moment resistance of cross-section $M_{c,Rd}$ " or "design moment resistance of member (buckling design resistance) $M_{b,Rd}$ ". The differences between these two values in typical test of IPE 400, 5 m span are significant:

- design moment resistance of cross-section: about 300 kNm.
- design moment resistance of the element: about 160 kNm.

In our opinion, the "design moment resistance" refers to the resistance of the element, not the cross-section. The lateral-torsional buckling is often observed in the tests, also - the construction of the test specimen does not provide any protection against the lateral-torsional buckling. In regular design process, the L-T effects would have been assumed.

Do you agree?

It is also possible to prepare a tabulated data for typical load beam profiles in function of the element span. This would surely unify the load used in the tests in every laboratory. I volunteer to prepare such data if EGOLF would like to prepare such recommendation. Of course the tabulated would circulate through all interested laboratories for verification.

Recommendation

When testing according to EN 13381-4 and -8 the "**design moment resistance**" of the loaded beams referred to in section **5.3 Loading** of these standards, shall be treated/assumed as "design moment resistance of **cross-section $M_{c,Rd}$** " and calculated according to **EN 1993-1-1 section 6.2.5**