The assessment of the total service life of steel constructions shall gain importance in the near future due to the increasing number of the Total Service Life Time of Steel Bridges including Fracture Mechanic Concepts. For economic reasons, this behaviour can be considered by including the crack propagation phase into the assessment. In this contribution newly developed software tools and the results of some executed simulations of the total lifetime on existing structures will be presented.
Torsten Höglund:

**Cold-formed members – comparison between tests and a unified design method for beam-columns**

In the last issue of this journal the author presented a unified method for the design of steel beam-columns. The method has been checked for rolled steel beam-columns and extruded aluminium beam-columns. It is included in Eurocode 9 [19] for aluminium members and it is proposed to be included also in Eurocode 3 Part 1-3 [16] as well, but then it needs to be checked for typical cold-formed sections.

Cold-formed sections are usually un-symmetric and thin-walled, for instance channel sections or C-shaped sections (lipped channels). When used as compression members, local buckling causes a redistribution of the longitudinal stress which leads to a shift of the effective centroid. The shift causes overall bending and reduces the column strength when the member is compressed between pinned ends. In fixed-ended columns, however, the shift of the effective centroid is balanced by a shift of the applied force and bending is not introduced [6]. As a result, the strength of fixed-ended channel column exceeds that of a pin-ended column of the same effective length [7].

Using effective width for the flanges of channels e.g. according to EN 1993-1-5 [17] gives conservative result as the centroid of the effective section is too close to the web. The mixed effective width/effective thickness method for outstand elements given in Annex D of EN 1993-1-3 [16] is the basis in the following interpretations.

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**Reports**

Oswald Nützel, Reiner Saul, Eric Kuhn:

**Long-term corrosion protection for bridge cables with butyl rubber tapes using the ATIS Cableskin ® system**

ATIS Cableskin® is a corrosion protection system for bridge cables, which uses proven materials to strike out in a new direction. These innovative ideas meant that for the first time, corrosion protection work on scaffolds and housings will be a thing of the past and the costs and traffic restrictions are massively reduced. It's worth highlighting the extremely long lifetime of this corrosion protection.

Thomas Winterstetter, Mustafa Alkan, Radu Berger, Maiko Watanabe, Agatha Toth, Werner Sobek:

**Engineering Complex Geometries. The Heydar Aliyev Centre in Baku**

The Heydar Aliyev Centre is the new national cultural centre of Azerbaijan, housing a museum, auditorium / opera house and related cultural facilities. It is located at a central spot in the city, overlooking a large park. Its unique and iconic design by Zaha Hadid Architects is intended to be a memorial to the founder of modern Azerbaijan.
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