Die Bautechnikgeschichte befindet sich auf dem Weg zu einer wissenschaftlichen Disziplin, die für den praktisch täglichen Bauingenieur und Architekt immer mehr zur Grundlage seines Planungshandelns im Bereich des expandierenden „Bauens im Bestand“ avanciert. Wie durch das vorliegende Heft von STAHILBAU dokumentiert wird, sind es im Stahlbau insbesondere Ermüdungsprobleme von eiserne-mer Anteilen, die die Ausformung der noch jungen Disziplin der Bautechnikgeschichte mit- zugestalten. Weitere Informationen sind erhältlich bei:

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ES-28040 Madrid
Fax.: 0034/91/3364251
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Die Prämien des genannten Kongresses ist in STAHILBAU deshalb vollständig abgedruckt, weil sie auch als Prolegomena der Bautechnikgeschichte gelesen werden kann. Möge das Forum des „1st International Congress on Construction History“, auch dazu dienen, endlich eine „International Society of Construction History“ zu gründen. Alle an der Geschichte des Bauens Interessierte sind dazu aufgerufen, die Ausformung der noch jungen Disziplin der Bautechnikgeschichte mitzugestalten. Weitere Informationen sind erhältlich bei:

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(11) Chase, S., Nukator, C., Small, E.: An In-Depth Analysis of the National Bridge Inventory Database Utilizing Data Mining, GIS and Advanced Statistical Methods. 8th International Bridge Management Conference, pp. C-6/1-C-6/16, TRC 498, TRB, ISSN 0097-8515.

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References

[3] Chase, S., Nukator, C., Small, E.: An In-Depth Analysis of the National Bridge Inventory Database Utilizing Data Mining, GIS and Advanced Statistical Methods. 8th International Bridge Management Conference, pp. C-6/1-C-6/16, TRC 498, TRB, ISSN 0097-8515.

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for short, intermediate and long range planning purposes. However, immediate attention was given to remediation of elements receiving a condition rating of 1. Work orders were generated from the database, and CTA maintenance staff dispatched to repair these defects. Based on the cost estimates and access to available funding sources, the CTA designated the complete replacement of two of its seven elevated train lines. The remaining lines were rehabilitated, with elements receiving a rating of 3 or worse included in the repair.

Load tests of three separate segments of the Loop Line indicate similar results. Under rush hour trains, the maximum tensile stress range in the end diagonal and midspan bottom flange were similar and did not exceed 30 MPa. Comparison of static and dynamic data under control loading indicates 15 percent would be a realistic value for impact calculations. The riveted stringer end connection is such that significant continuity is provided at the stringer end support. By calibrating an analytical model to the field data, the relative end fixity was determined to be approximately 75 percent of the fully fixed end moment.

Research indicates that riveted bridge members are not likely to develop fatigue cracks in primary members when the stress ranges are less than 48 MPa [4]. Based on this research, it is projected that the primary stringer members used in the Loop structure as originally designed or currently reflanged, and under current loadings, could be expected to have a remaining fatigue life of about 80 years. However, stringer connection angles and connection angle rivets may exhibit cracking or failure and require replacement before reaching this projected life.

The findings of this work resulted in the recommendation of guidelines for the analytical evaluation of the elevated rail structures that comprise the primary component of Chicago's mass transportation system. These recommendations include the more realistic impact and end fixity findings reported herein.

References


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