Zeitschrift: IABSE reports of the working commissions = Rapports des commissions de travail AIPC = IVBH Berichte der Arbeitskommissionen

Band: 4 (1969)

Rubrik: Free discussion

Nutzungsbedingungen

Die ETH-Bibliothek ist die Anbieterin der digitalisierten Zeitschriften auf E-Periodica. Sie besitzt keine Urheberrechte an den Zeitschriften und ist nicht verantwortlich für deren Inhalte. Die Rechte liegen in der Regel bei den Herausgebern beziehungsweise den externen Rechteinhabern. Das Veröffentlichen von Bildern in Print- und Online-Publikationen sowie auf Social Media-Kanälen oder Webseiten ist nur mit vorheriger Genehmigung der Rechteinhaber erlaubt. Mehr erfahren

Conditions d'utilisation

L'ETH Library est le fournisseur des revues numérisées. Elle ne détient aucun droit d'auteur sur les revues et n'est pas responsable de leur contenu. En règle générale, les droits sont détenus par les éditeurs ou les détenteurs de droits externes. La reproduction d'images dans des publications imprimées ou en ligne ainsi que sur des canaux de médias sociaux ou des sites web n'est autorisée qu'avec l'accord préalable des détenteurs des droits. En savoir plus

Terms of use

The ETH Library is the provider of the digitised journals. It does not own any copyrights to the journals and is not responsible for their content. The rights usually lie with the publishers or the external rights holders. Publishing images in print and online publications, as well as on social media channels or websites, is only permitted with the prior consent of the rights holders. Find out more

Download PDF: 21.01.2026

ETH-Bibliothek Zürich, E-Periodica, https://www.e-periodica.ch

IV

DISCUSSION LIBRE / FREIE DISKUSSION / FREE DISCUSSION

HERMANN BEER
Prof. Dr.
Graz

Mr. M.J. Baker mentioned in his contribution that, when considering the bending of I-sections, sufficient statistical data are not available at present to allow realistic calculations to be made on a truly probabilistic basis. This statement is valid to an even greater extent for all the other factors that exert an influence on the safety of structures.

Acting as an expert, I have had to deal, on many occasions, with failures and collapses of steel structures. The causes have always been: negligence on the part of the designer or constructor and more or less serious errors in the application of the principles of technology and of structural design and of the rules of calculation.

Summing up the causes of failures we can distinguish five main reasons for this occurrence:

1. Welding cracks due to inappropriate design and to the use of non-weldable steel and electrodes (brittle fracture), as well as incorrect welding processes.
2. Stability problems, with particular reference to lateral stability and restraint conditions.
3. Fatigue-cracks, which occur more especially in welded joints where there are unfavourable notch-conditions, under heavy traffic loads (i.e., gantry girders).
4. Errors in the assumptions made in regard to the structural system or in carrying out the static calculation and negligence during the making of the drawings.
5. Mistakes made during fabrication and assembling.

These errors and negligences cannot be avoided by statistical methods, but only by:

correct selection of the material
good design work
appropriate fabrication and assembling procedures.

Conscientious supervision during design and construction makes a very effective contribution to the safety problem. I agree that we should also put forward the probabilistic methods as a means of obtaining a more realistic image of the safety problem and of ensuring, finally, the consistent safety of different components and different types of structures, but we should not pretend that we are able, at present, to predict the probability of the collapse of buildings and bridges.

Leere Seite
Blank page
Page vide