

Zeitschrift: IABSE reports = Rapports AIPC = IVBH Berichte
Band: 83 (1999)

Artikel: Quality control of structural projects
Autor: Meyer, Carlos
DOI: <https://doi.org/10.5169/seals-62886>

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: 05.02.2026

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



Quality Control of Structural Projects

Carlos MEYER
Civil Engineer
Universidad Católica
Asunción, Paraguay

Carlos Meyer, born 1966,
received his civil engineering
degree from the Universidad
Nacional de Asunción, and
his Master of Science in civil
engineering degree from the
University of Maryland at
College Park.

Abstract

The collapse of a structure may bring about economic losses. Besides that, it represents a tragedy if a person suffers any physical or psychological injury, either permanent or not; and the tragedy would be even greater if there is lost a single human life. This tragedy will surely affect the professional body responsible of the referred structure (structural engineers, constructors, etc.), and every person or company that was involved with any phase of the construction process (architect, manufacturer, contractors, etc.). Nevertheless, this failure might have been easily avoided. Errors perpetrated in the phase of structural design constitute a big percentage of structural failure causes; but it is important to mention that they can be avoided by means of an adequate quality control of the structural design.

In the paper, the basic concepts related to quality control are presented, and they are mainly focused on the construction industry. After briefly stating that the success of the project is the satisfaction of the user's requirements and necessities, it is then continuously remarked along the whole paper. The quality control program is to be analysed as consisting of two mechanisms, the production control and the reception control. Both mechanisms are presented, explaining their responsible professionals, characteristics and objectives. Afterwards, both control mechanisms are compared, and after noting that the objective of them both is common, their differences are identified and explained, with a few examples.

A general overview of quality control is included, specifically related to the phase of structural design, where information related to the most important factors causing lack of quality is listed. A list of responsibilities of the structural project manager is also included, where another important issue regarding quality control is introduced: the importance of documents. The quality of structural designs, as well as the architectural one, is to be perfect, for the structure will be built based on them; any error or unclear information will lead to errors when working on site.

Three are the main areas where the quality control should be implemented are the following: revision of structural projects, control of modifications and structural design software. The purpose of the revision of structural projects is to thoroughly analyse all potential errors that could happen on site, and their effect on the resulting structure. Controlling all modifications introduced to the design, either at the office or on site, is vital; the designer must be informed of any change introduced to its design, in order to authorise them. Verifying all software to be used for analysis and design purposes is necessary in order to avoid incorrect results at the calculation stage.

The paper ends with a practical guide to control the quality of structural projects. It consists of three main areas: the production control, the reception control, and the modification control. At the production control analysis, eighth aspects are reviewed:

- a) Computer software: highlighting that all software must be verified for validity and precision, and listing the necessary documentation regarding the software;
- b) Structural systems: where it is stated the need to check the system chosen for the structure, for the high impact it has on the overall performance and cost;
- c) Structural elements: focused to statistical control of the process, i.e., analysis of the reinforcement ratio for different structural members, etc.;
- d) Reinforcement details: explaining the importance of having plotted details of every situation where there might arise problems on site, such as detailing of connections among beams and columns;
- e) Infrastructure foresight: since the introduction of ducts might affect structural behaviour;
- f) Consumption of materials: because a high or low steel consumption per concrete volume might indicate the occurrence of an error at the structural design phase;
- g) Specifications: stating their importance, as well as listing some aspects to be covered; and,
- h) Plans and documents: indicating that the designer should keep a complete file of the initial design, as well as of the as-built structure.

The advantages of the reception control are stated, as well as an explanation of the difficulties of its implementation. The last item is related to modification control, where it is explained why they should be informed to the designer.

The paper closes with some final comments of the author regarding the importance of the implementation of quality control programs by engineering firms.