

Zeitschrift: IABSE proceedings = Mémoires AIPC = IVBH Abhandlungen
Band: 8 (1984)
Heft: P-80: Using computers in the design of structures

Artikel: Application of computers in an engineering firm in Switzerland
Autor: Schalcher, H.R.
DOI: <https://doi.org/10.5169/seals-38343>

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: 28.01.2026

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

Application of Computers in an Engineering Firm in Switzerland

H.R. Schalcher

1. Introduction

Our engineering firm was founded in 1928 and has its main office located in Zurich. The total staff includes approx. 50 professionals, draftsman and construction supervisors. Our services cover structural and civil engineering, sanitary and mechanical engineering as well as construction supervision for all kinds of building and civil engineering works.

2. In-house computer facilities

Since 12 years we are collaborating with Olivetti Ltd. Switzerland. Therefore we are using today in our head office the third generation of Olivetti hardware and software. It's the mini computer system Olivetti P 6060 with an internal storage capacity of 48 K bytes, floppy discs and a printer. Most of the software was developed by Olivetti except some programs for special applications in structural analysis, which were created by our engineers.

3. External computer services

To solve the more complex problems we have direct on-line access to very large CDC computers of a private service center.

4. Fields of application

The most important application of the computer in our office is in structural analysis, e.g.

- geometrical values of cross sections,
- beams and floor slabs,
- linear and space frames,
- finite elements,
- foundations,
- retaining walls.

In addition, the computer is used for

- detail design of reinforced and prestressed structures,
- hydraulic calculations,
- survey and alignment of roads and railroads,
- building physics.

It is obvious that such an application is not very design oriented. The design process is only supported by computers through evaluation of different alternatives of structures or other important elements of the project.

Furthermore we are widely using our computer for administrative purposes, such as project budgeting and control, accounting, etc.

5. How is the computer used in practice?

The computer in our head office is operated and maintained by one of our engineers who is specialised in this field. He offers to his colleagues a walk-in service. They only have to prepare the input, whereas our specialist is responsible for producing the output and for advising the engineer for the interpretation of the results. This method has proved to be feasible and efficient for our office, because our engineers do not use the computer very often. Therefore



they are not trained enough and they are loosing their skill of operating the hardware quickly.

6. Special problems and future trends

Why are computers not more frequently used in our office? The main reasons for this unsatisfactory situation are:

- Most of our engineers have left the university 10 to 25 years ago. These professionals are not trained in computer application, they are not informed and to a certain extent they are even afraid about the actual and future development.
- Due to these facts most of these engineers oppose to learn about computers and how to use them in a design office. They are also against buying hardware and software, because they consider such equipment only as a very expensive toy for scientists and theorists.
- Under these circumstances it is also very hard for the junior engineers, who are familiar with computers, to apply their knowledge in practice.

On the other hand it is evident that the young generation grows up in a computerized environment. A comprehensive survey carried out in Switzerland in 1982 on the high-school level has shown the following results:

- 90% of the high-schools offer to their students a training in computers and their application (43% are compulsory courses).
- More than 600 computers and terminals for the students are already installed on that educational level.
- 80% of the students are using BASIC as programming language.

With regard to the technical universities the break-through of the computers has already happend: Every student in any technical discipline has to follow courses and practical exercices in this field.

Taking into consideration the sharp decrease in size and price of computers during the past five years and the development of software that facilitates more and more the application of the hardware, it is foreseeable that in the near future, computers will take design offices by storm and change the daily work of the professional engineer considerably. What can then be done to close the gap of information and understanding between the younger and the elderly engineers?