Zeitschrift:	IABSE reports = Rapports AIPC = IVBH Berichte
Band:	77 (1998)
Artikel:	Monitoring of apartment buildings
Autor:	Zieliski, Jerzy W. / Kowalewski, Jerzy
DOI:	https://doi.org/10.5169/seals-58175

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. <u>En savoir plus</u>

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. <u>Find out more</u>

Download PDF: 08.07.2025

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

Monitoring of Apartment Buildings

Jerzy W. ZIELIŃSKI Head of Department Building Research Institute (ITB) Warsaw, Poland

Jerzy W. Zieliński, born 1929, received his civil engineering degree (MSc) Warsaw Technical University in 1954 and his PhD in 1968. He is currently Head of Department of Modernisation and Repairs Objects in the Building Research Institute.

Jerzy KOWALEWSKI Civil Engineer Building Research Institute (ITB) Warsaw, Poland

Jerzy Kowalewski, born 1944, received his civil engineering degree (MSc) from Warsaw Technical University in 1968. He is currently a member of the Structural Buildings Group.

Summary

The subject of this paper is the preparation of the computer system for monitoring the of state of apartment building resources for cognitive purposes, for facilitating the technical exploitation of existing objects and for verifying accepted technical solutions affected by real conditions of use. The database was created on the basis of questioning performed by persons skilled in building know-how with the aid of a specially prepared questionnaire. Test analysis of the system was conducted for data obtained for 135 objects. It showed correct operation of the system. The computer system was based on the relation database according to the BDF standard. The software was prepared using the clipper language and the whole installation was set up on IBM PC type computer and DOS.

Structural concept

As a result of analysing the goals and tasks of the monitoring, the desired scope of monitoring was specified. The acquired data was divided into nine problem groups as follows:

- 1. Preliminary data: date of the investigation, name of person performing the investigation, access to object during the investigation, technical documentation.
- 2. General data: address of the object, owner of the object, year of construction of the object, essential modernisation, size of the object.
- 3. Use of the object: dwellings, other premises.
- 4. Construction data: type, damages, technical state.
- 5. Data about filling elements: non-bearing walls, openings, technical state.
- 6. Data about installations: range, technical state.
- 7. Data about protections: heat insulation, dampness insulation.
- 8. Data about environment: neighbouring objects, aggressive components of the environment.
- 9. Additional data in descriptive form.

Information about protection from heat and dampness refer to the insulating properties of construction partitions, but not in relation to energy consumed in the object.

The structure of the database is consistent on the basis of merit and formally with the dBase standard and user software was written using the clipper environment. In the questionnaire three type of answers occur:

- descriptive (e.g. address),
- questionnaire type (e.g. technical method of construction work: traditional, industrial, mixed),
- evaluated by linguistic variables (e.g. small cracks, substantial cracks and serious cracks)

This way of formulating answers causes that essential information on the technical state of the object is extracted - but it is still determined by a specifically qualified inquirer.

Methods of acquiring data

There are two main sources of acquiring data:

- questioning and
- the existing technical documentation

In general 135 questionnaires were filled out and stored in the computer using the appropriate program. The collected data concerned objects located in Warsaw and in its vicinity. The data contained information about differentiated buildings: old and new, small and big, being in different technical condition, and having different useful values.

For operation of programs general rules accepted for IBM PC type computers were followed. As a result of realisation of the system the tool for systematic data acquisition and analysis of existing apartment building resources were set up. In addition, principles of acquisition, classification, storing, processing and analysis were established. On the basis of the elaborated system the possibility of setting up unified procedures of data acquisition and creating the basis for establishing quality classification of buildings was formed.

Examples of the results of analysis are given in the Figures.

The percentages of the various types of floor slabs in the monitored sample (they are: p-type monolithic panels, monolithic slabs reinforced concrete slabs floor slabs made of small-scale elements, ribbed and wooden panels) are shown on Fig. 1.

Fig. 2 gives the percentages of cracks and other damages.

Performance, overload, ground settlement, thermal interaction, dampness, natural expansion joint and others.

and the second sec

⁷⁷ tieda ta telenisti el entrol. En de ensiste el entrol o Contenan

الا الالالة الإلارة المؤاتين المواصفة التي. الاقترار بلا مراوية الأفرار الإلام التي المرارية ال

ารระบบ (การระบบสายสายสาย การระบบสายสายสายสายสายสายสายสาย (การระบบสาย