

Periodic Inspection of Buildings



by Ir. Lim Boon Chye

OUR government had enacted an Act in 1994 for the mandatory inspection of all buildings exceeding five storeys to be carried out at intervals of 10 years by a Professional Engineer. The purpose of this periodic inspection is to ascertain the condition and structural integrity of the buildings and to avoid major incidences such as:

- Severe cracks in integral structural elements, *e.g.* main beams and columns which may lead to failure and collapse
- Severe corrosion of reinforcing bars in structures
- Cracks and/or tilt in retaining walls, *etc.*

This is stipulated in the government enacted Street, Drainage and Building Act, 1974 (Act 133), Amended 1994, Act A903, Section 85A – Periodical Inspection of Buildings. However, to date, the engineering community has not heard of any enforcement of this Act by the authorities concerned.

Building inspections has been carried out as needed, and usually at the request of private owners or prospective owners of existing buildings. Such inspections has also been carried out on government buildings sporadically. In many cases, it is carried out after an incident such as a fire outbreak, an earthquake tremor, the collapse of a nearby slope or the appearance of large cracks in the structural element of the building.

PERIODICAL INSPECTION OF BUILDINGS (ACT A903, SECTION 85A)

In most cases, the owner of deteriorating buildings may be reluctant to carry out a proper inspection of their property. However, with this Act, the local authority has the power to issue an official notice to owners of such buildings to get their premises inspected by professional engineers. This notice must be complied within the stipulated time as stated in the notice (usually 60 days).

If the owner fails to comply, the authority may inspect the building or appoint an engineer to carry out such an inspection and recover the cost from the owner.

The engineer will carry out a preliminary inspection (by visual survey) before preparing and submitting a report together with the Visual Inspection Certification Form (to be endorsed by a professional engineer) to the authorities. If he has reason to suspect that the structural integrity of the building is being compromised, he may also recommend for an immediate full structural investigation to be carried out.

The full structural investigation may involve structural analysis, load test, non-destructive test (NDT), *e.g.* rebound hammer test,

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ultrasonic pulse velocity (UPV) to check the strength of the structure, half cell potential test to check corrosion and the use of monitoring devices.

Here, the engineer will analyse and evaluate the test results and, if required, recommend the repairs or action to be carried out. Again, this report must be submitted to the authorities together with the Structural Inspection Certification Form (to be endorsed by a professional engineer).

If urgent repairs are required and are then carried out accordingly, the engineer will issue the Completion of Remedial Work Certification Form (to be endorsed by a professional engineer) to the authorities.

The costs of such work, including inspections and repairs, are to be borne by the owner of the affected building.

As stated in the Act, failure to take the necessary measures to rectify the defects recommended by the engineer may lead to the conviction of a fine not exceeding RM100,000 or imprisonment not exceeding five years or both.

BENEFITS

Buildings are usually exposed to the weather and will deteriorate with time. Also, if maintenance is lacking, the structure will be under distress or strain.

New construction projects adjacent to a building, as well as renovation works or realignment of drains and poor maintenance of slopes may affect its foundation. A visual inspection by an experienced professional engineer will

be able to detect and highlight such danger signs so that remedial action may be taken immediately.

Therefore, this Act, if fully implemented, may help to alleviate, mitigate or even pre-empt the occurrence of a building collapsing or similar mishaps.

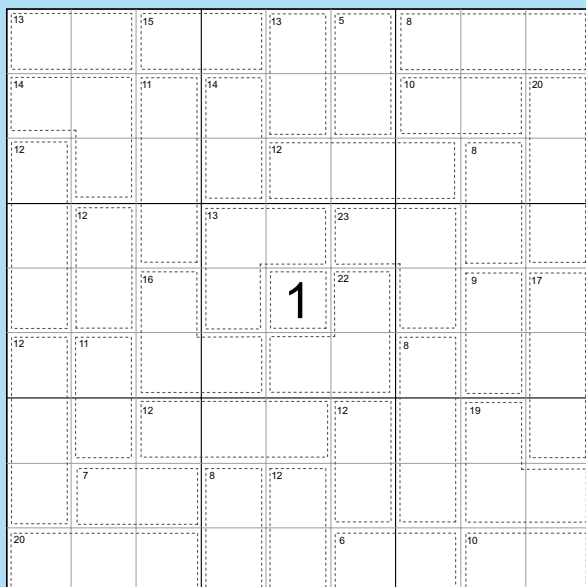
The safety of the users and members of the public is of utmost importance. The collapse of any building, whether low rise or high rise, may lead to the tragic loss of lives and severe loss of the property. It is also bad publicity for the government locally and internationally.

By managing their assets prudently, the government and country will save on major costly repair works. Minor defects will be highlighted during such inspections and can be rectified with minimum cost.

Additionally, the enforcement of this Act will require the services of professional civil engineers. Besides providing work opportunities, the interaction between the authorities, engineers and owners may lead to creating awareness among the rakyat on the importance of the work of civil and structural engineers and even promote the caring image of engineers.

CONCLUSION

Malaysians have a habit of reacting only after the occurrence of a tragedy. In such an event, the rakyat may even accuse the engineering community of inaction and incompetence. Let us be proactive and help prevent a tragedy. ■



1SUDOKU

Centerpiece "1"

by Mr. Lim Teck Guan

About the puzzle:

In this Sudoku variant, only 1 number is given as clue, thus the name 1Sudoku. The rest of the clues are given in the numbered cages (the dotted frame encompassing 2 or more squares). You are to search for the right combinations to fit the total for the cages and end up with a Sudoku Grid, the 9 by 9 composite of squares where there is no repeat of the number 1 to 9 in every Row, Column or Block.

Fill in the remaining 80 squares with single digits 1-9 such that there is no repeat of the digit in every Row, Column and Block. The number at the top left hand corner of the dotted cage indicates the total for the digits that the cage encompasses.

For tips on solving, visit www.1sudoku.com.my

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Answer is in the following pages of this edition.