

Zeitschrift: IABSE congress report = Rapport du congrès AIPC = IVBH
Kongressbericht

Band: 12 (1984)

Artikel: Structural safety of buildings: today and tomorrow

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DOI: <https://doi.org/10.5169/seals-12246>

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STRUCTURAL SAFETY OF BUILDINGS-TODAY AND TOMORROW

TODAY - Most building structures are **SAFE** and **SERVICEABLE** for their required life

TOMORROW - Failures - only a few today - can be fewer tomorrow



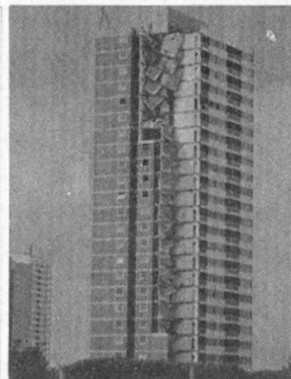
A few failures do occur



Pre-cast concrete System Construction

Degradation of components following corrosion of steel

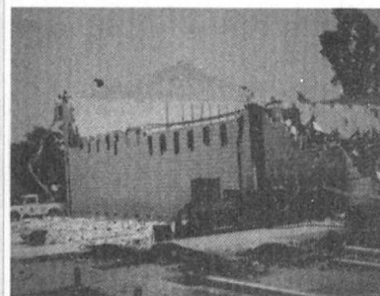
Large population of similar buildings required inspection and remedial action



Pre-cast concrete Panel Structure

Partial collapse following a gas explosion

- much can be learnt from them



Timber Trussed-rafter Longer-span roof

Collapse due to lack of bracing

Defence strategies to control stability

- *Explicit design choice of one or more of:*
 - *Multiple independent load paths.*
 - *Devices to allow structure to avoid carrying load.*
 - *Local strength increases to enhance overall strength.*
 - *Environmental and performance monitoring and control systems.*

Populations of similar structures

- *Design so that failure is first manifest on a local scale and will inhibit use.*
- *Structures should be robust, and should provide feedback signals to the user of damage, overloading or local degradation.*

Buildings with Long-span roofs

- *Use more stringent structural design criteria than for normal buildings.*
- *Exercise tighter control and checks of design and construction, to reduce the risk of design faults or of construction outside specification.*