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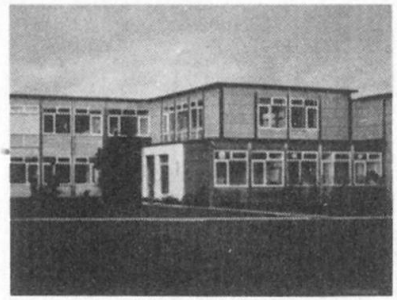
STRUCTURAL SAFETY OF BUILDINGS - TODAY AND TOMORROW

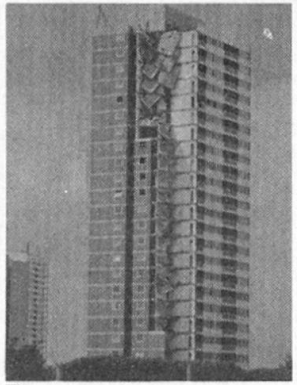
TODAY – *Most building structures are **SAFE** and **SERVICEABLE** for their required life*

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

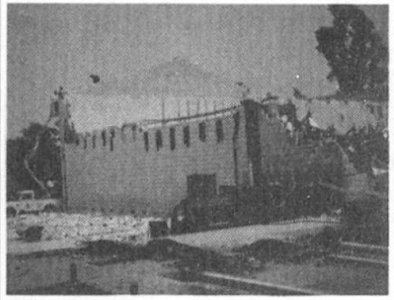
A few failures do occur ..... - **much can be learnt from them**



Pre-cast concrete System Construction
Degradation of components following corrosion of steel



Pre-cast concrete Panel Structure
Partial collapse following a gas explosion



Timber Trussed-rafter Longer-span roof
Collapse due to lack of bracing

Large population of similar buildings required inspection and remedial action

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.*