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STRUCTURAL SAFETY OF BUILDINGS-TODAY AND TOMORROW

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



A few failures do occur



Pre-cast concrete System Construction

Degradation of components following corrosion of steel



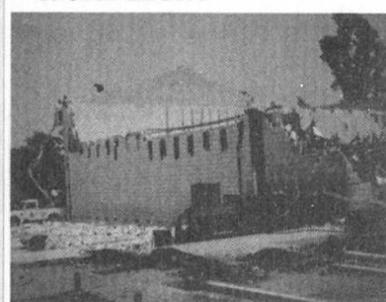
Pre-cast concrete Panel Structure

Partial collapse following a gas explosion

Large population of similar buildings required inspection and remedial action

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

- 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.