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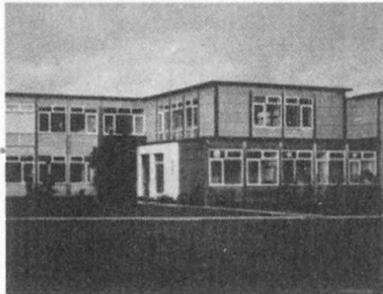
# STRUCTURAL SAFETY OF BUILDINGS-TODAY AND TOMORROW

**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*

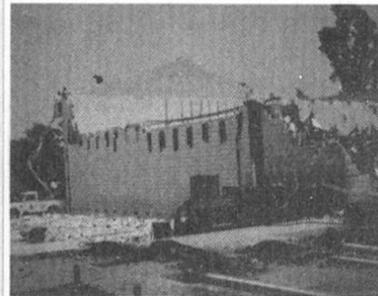
Large population of similar buildings required inspection and remedial action



### **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.*