

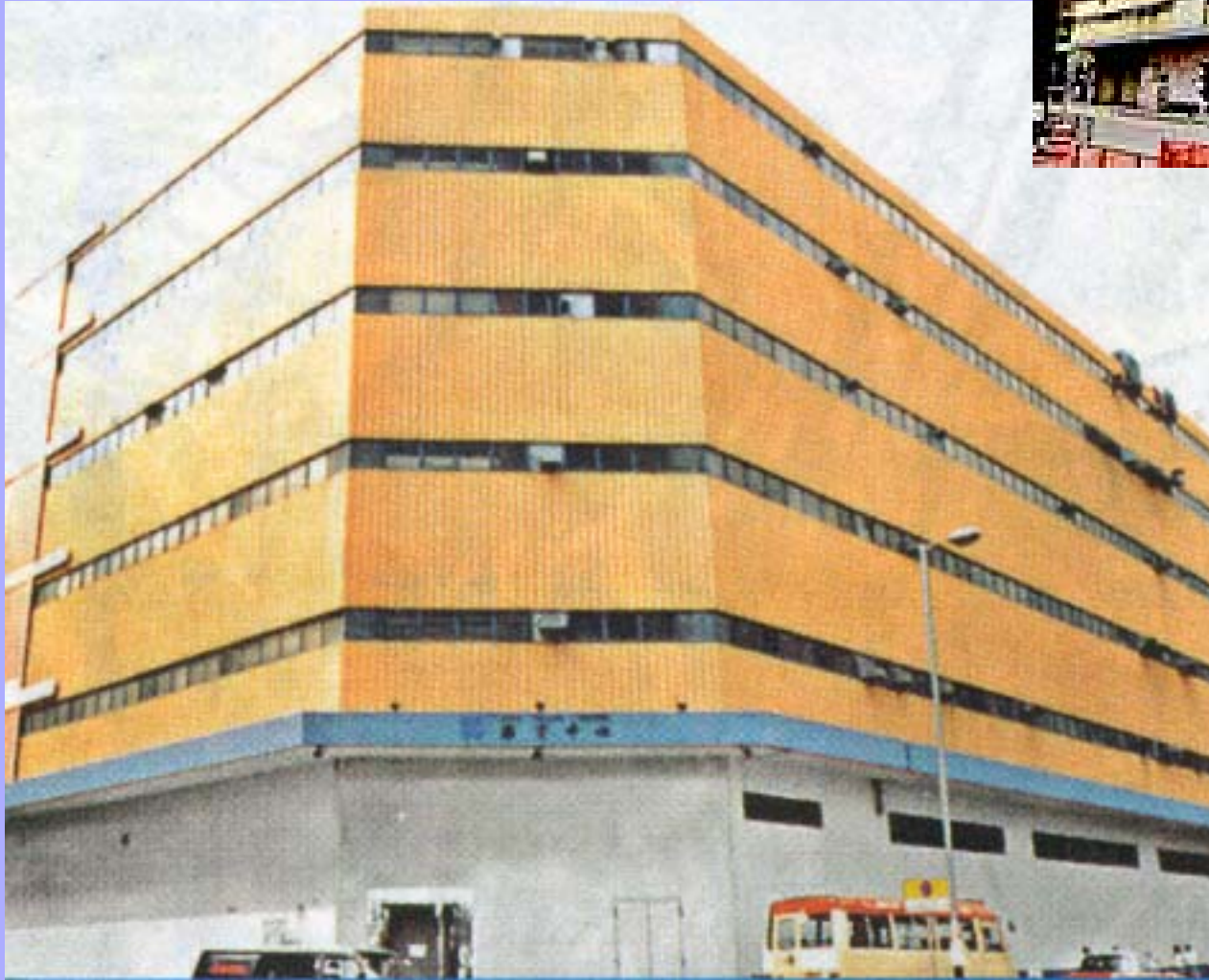
Demolition in Urban Environment

The Asian Trade Centre Case – an accident occurred in a demolishing building in Yau Tong on 29 Nov 2001

Presented by
Raymond Wong

Division of Building Science & Technology

The Asian Trade Centre before the collapse



Existing structure of the Asian Trade Centre

1. Building size:

about 45m by 50m on plan and 25m high

2. Structural form:

- flat slab structure with limited amount of beams on the building edges and corners
- non-load bearing reinforced concrete external wall
- arranged in approx. 8m span in 5 x 6 bay grid
- strength of concrete 30 N/mm² (judge according to speaker 's experience)



The site as seen after the collapse on 30.11.01 (viewing north)



The site as seen on 30.11.01 (viewing south)



The site as seen on 30.11.01 (viewing west)



The site as seen on 30.11.01
(viewing at J/O Sze Shan Street and Shung Shun Street)



The damage – the wreck of two out of the five breaking/excavating machines used for demolition



The damage – the 6-storey building collapsed inward forming a heap of debris about 6m high from ground



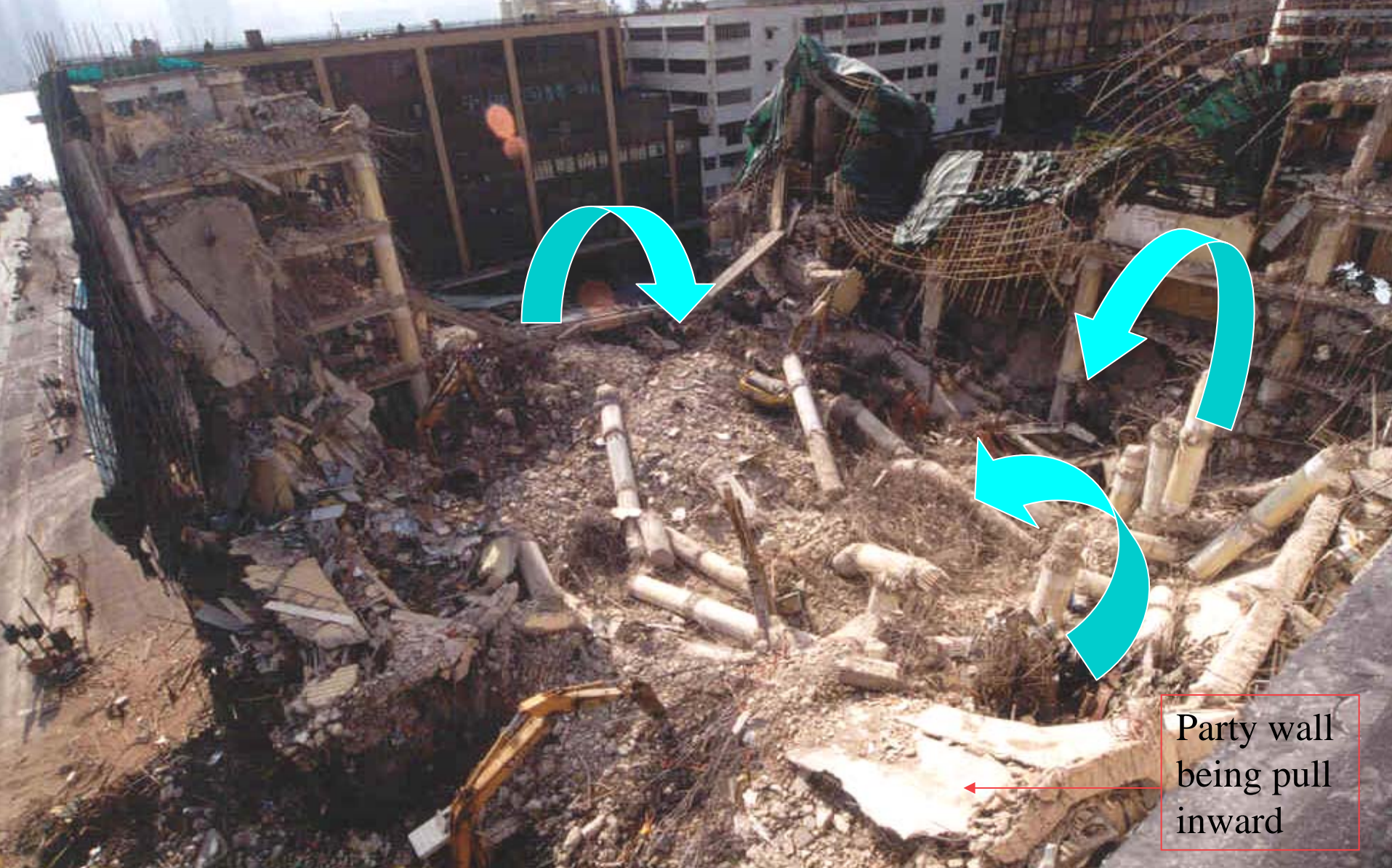
The damage – fortunately, the collapse does not damage the adjoining building which separated from the collapsed building by a separating joint only a few millimeter apart



The remain – a section of the external wall on the west side of the building



The remain – a
portion of building
structure at the
corner at J/O Sze
Shan Street &
Shung Shun Street



Observation – all the fallen columns centered inward indicates that the collapse orientated somewhat from the building center



Observation – with the columns basically remain intact while no trace of floor slab can be observed in the remain indicates that the floor structure in general is a weak source that may cause the collapse



Observation – the exposed steel bars on the cut-edges indicates the collapsing structure fell rapidly and produced tremendous pulling force that fail to keep the floor in position. There is no trace of floor concrete adhered to the bar, again indicates that strength of concrete may be sub-standard



Observation – further evidence of possible floor failure.
More than 3 storeys of floor slab crushed to rubble and detached completely from the columns



Steel
prop

Observation – the steel props used as temporary support for the positioning of the heavy breaker machines seem insufficient for the purpose



Props should rest on bearing plate rather than directly on floor to avoid concentration of loading



Observation – the accommodation of large amount of debris above the floor impose great loads to the structure



Some other very complicated
demolition cases

The redevelopment of the Lee Gardens Hotel



The demolition of the basement structure working at the same time with the construction of the future building

The redevelopment of the Lee Gardens Hotel

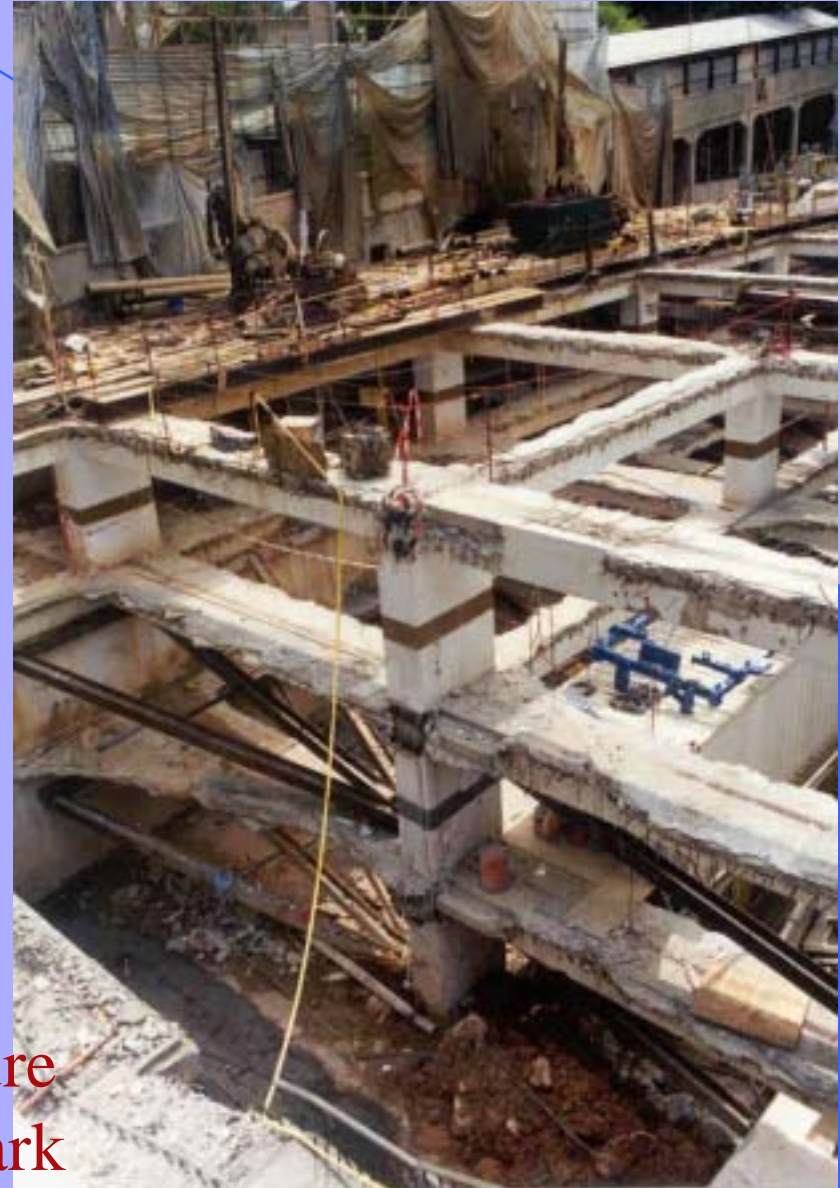


The redevelopment of the Hilton Hotel



Demolition of the basement structure of the previous Hilton Hotel

The redevelopment of the Hilton Hotel



Demolition of the basement structure
of the previous Garden Road Carpark

The Millennium City in Kwun Tong

