

EARTHQUAKE AND ARCHITECTURE IN TAIWAN

(REPORT ON THE 1964 EARTHQUAKE IN TAIWAN)

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ABSTRACT

The paper is a study of building damage and relates the damage to Geological formations and Seismic zones. The pattern of earthquake occurrence has been

- (a) Very shallow hypocentres under the Westside Zone causing great damage and crustal deformation.
- (b) Frequent earthquakes with hypocentral depths of 10 to 30 km under the Eastside Zone, exhibiting small magnitude.
- (c) Deeper earthquakes, 40 to 100 km under sea further east with larger magnitudes but less felt effect on land.

The earthquake reported in the paper had its origin under the Westside Zone at a hypocentral depth of 20 k, magnitude 7.0, radius of felt effects, 300 km. Several towns within 20 km experienced grade 6 intensity. It caused 582 deaths and the destruction of 18,540 houses.

On alluvial strata wooden houses were seriously damaged, up to 30% being totally destroyed, whereas brick houses with reinforced concrete beams and columns suffered less damage. On the other hand, in the mountainous district the damage to dwellings and buildings was almost wholly confined to brick houses, even those with reinforced concrete elements.

The Taiwan building regulations require design to resist a seismic force of 0.1 g. It is intended to consider local differences of seismic intensity in future designing.

The paper emphasises the need for adequate bracing in wooden buildings, the value of slab roofs on brick buildings and the need for shear walls in larger structures.

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