

## Investigation of Building Loads Effect on the Stability of Slope

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**Abstract :** In big cities, construction on sloping land (landslide) is becoming increasingly prevalent due to the unavailability of flat lands. This has created a major challenge for structural engineers with regard to structure design, due to the difficulties encountered during the implementation of projects, both for the structure and the soil. This paper analyses the effect of the number of floors of a building, founded on isolated footing on the stability of the slope using the computer code finite element PLAXIS 2D v. 8.2. The isolated footings of a building in this case were anchored in soil so that the levels of successive isolated footing realize a maximum slope of base of three for two heights, which connects the edges of the nearest footings, according to the Algerian building code DTR-BC 2.331: Shallow foundations. The results show that the embedment of the foundation into the soil reduces the value of the safety factor due to the change of the stress state of the soil by these foundations. The number of floors a building has also influences the safety factor. It has been noticed from this case of study that there is no risk of collapse of slopes for an inclination between 5° and 8°. In the case of slope inclination greater than 10° it has been noticed that the urbanization is prohibited.

**Keywords :** isolated footings, multi-storeys building, PLAXIS 2D, slope

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