

Constructing a multi storey commercial building construction essay



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Involved clearing, grubbing (removal and disposal of surface vegetation, roots, stumps and underground part of structures to a depth of at least 0.50m below ground level) and stripping (removal of topsoil to an average depth of at least 100mm below ground level), JKR 1988-1.

All the combustible material removed from the designated area is being disposed by burning however if burning is not permitted, it must be disposed in a safe and tidy manner at solid waste dump outside the site, JKR, 1998-1.

1. 2 Earthwork

Involved excavation of loosening and removing earth and rock from its original position from a cut and transporting it to a fill or a waste deposit (Clarkson ad Hicks, 1981). It must be carried out immediately after the top soil has been removed. Earthwork is important for the construction of drainage, roadway and building foundation. Mass haul diagram is used to ensure the volume of cut and fill are efficient (reduce wastage and import from other place).

1. 3 Staking

Staking is being carried out by surveying. Markers are being driven into the ground as markers for the building and perimeter fencing. Precise staking is important plot the view perimeter of a building.

1. 4 Perimeter Fencing

To prevent intruders, public and animals to create disruptions to the project.

1. 5 Dewatering

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Applications of vertical drain, piezometer or surcharge are useful for the dewatering process. This is to ensure the pore water pressure in the soil is in a safety range hence it does not affect the building.

1. 6 Temporary Buildings

Include site office (meeting and discussion), toilet, store (store building materials), canteen, worker s quarters, etc.

1. 7 Temporary Access Road

It must be strong, wide and not too steep for heavy vehicles and it should allow to take-over space. Warning signboard and guard house should be equipped to ensure the safety of the site (prevent unauthorised intruder).

2. 0 SUB-STRUCTURES

Sub-structures are the elements of a building that are located beneath the ground level such as:

- 1) Piling and foundation
- 2) Basement/Underground floor
- 3) Column stumps
- 4) Ground beam
- 5) Hardcore and damp-proof materials

2. 1 Piling and Foundation

To support the structure above it. A system of piles, pile caps, and straps (if required) that transfers the structural load to the bearing stratum into which the piles are driven.

Uploaded with ImageShack. us Piling

2. 2 Basement/Underground Floor

Sometimes, parking lots, merchandise outlets, food-court, etc are located at basement or underground. Proper supervising and soil investigation needed to ensure safety.

2. 3 Column Stumps

Columns stumps needed for the column to be build especially for high-rise building.

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Workers are constructing column stumps

2. 4 Ground Beam

Ground beams are designed to support brick/blockwork or to form permanent shutter to the edge of in-situ concrete floor-slab. Loading requirements can be achieved by varying the reinforcement. Ground beams are rectangular or square in shape. However, notches / half end plates / sloped faces can be supplied to order.

Uploaded with ImageShack. us Ground beams being constructed

2. 5 Hardcore and Damp-Proof Materials

A protective measure applied to building foundation walls to prevent moisture from passing through the walls into interior spaces. Moisture if in contact with the reinforced concrete, the reinforcement will rust and the strength of the reinforced concrete will be greatly reduced.

3. 0 SUPER-STRUCTURES

Super-structures are the elements located above the damp-proof material (ground level) such as:

- 1) Structural frame served as a frame for the construction of the upper floors
- 2) Upper floors for high-rise building.
- 3) Wall as a partition.
- 4) Roof
- 5) Doors and windows
- 6) Finishing
- 7) Utilities providing basic conveniences such as water, power supply, septic tank, telephone, fire detector, sprinkler, elevator, security alarm, etc.

4. 0 EXTERNAL WORKS

It consists of all the works outside the building such as:

- 1) Roads

2) Vehicle parking

3) Gutter

4) Sewer

5) Fence

6) Landscaping

5. 0 UNIFORM BUILDING BY-LAW

There are many elements in the Uniform Building By-Law in Malaysia such as:

1) Preliminary

2) Submission of plans for approval includes supervision of work, scale of plans, plans of alterations, materials not to be deposited in a street without permission, etc.

3) Space, light and ventilation includes open spaces to be provided, access from a street, splayed corner, width of footwear, mechanical ventilation and air-conditioning, height of rooms in residential buildings, shophouses and school, etc.

4) Temporary works in connection with building operations includes commencement of building operation, responsibility of person granted temporary permits, vehicular access to site, etc.

5) Structural requirements includes building materials, general requirements of loading, weight of partitions, mechanical stacking, roof coverings, foundations, brick footings, etc.

6) Constructional requirements includes drainage of subsoil, protection against soil erosion, lift, swimming pools, depth of water, etc.

7) Fire requirements includes rules of measurement, protected shafts, ventilation to lift shafts, smoke detectors for lift lobbies, etc.

8) Fire alarms, fire detection, fire extinguishment and fire fighting access.

9) Miscellaneous building exempted, failure to buildings, etc.

6. 0 SITE INVESTIGATION

Site investigation is very important to a project to:

1) decide whether the site is generally suitable (whether it is situated at suitable location)

2) get specific information for complete design, safety and economy (determine soil properties)

3) prepare for construction alternatives (special equipments for dewatering and etc.)

7. 0 PHASES OF INVESTIGATION

The followings are the phases of investigation:

- 1) Desktop study initial study of available data
- 2) Site investigation get useful data from the site
- 3) Soil investigation determine soil properties
- 4) Analysis of data

Sketch of Bad Site Layout

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BAD SITE LAYOUT

Based on the attached bad site layout, it is considered as bad due to the following reasons:

- 1) Material storage situated opposite of the road which is inconvenient for the construction work to be carried out. It will cause traffic issue while transporting the materials to the construction site.
- 2) Site office is far away from the construction site.
- 3) Worker s quarters are near to the construction site but the canteen is far away from the worker s quarters. This cause inconveniences for the workers during lunch time hour.
- 4) Toilet is far from the worker s quarters.
- 5) Parking lots are not located near to the construction site.

6) No pedestrian bridge between the construction site and the parking lots.

This will cause a big problem to the traffic especially during peak hours.

7) The material storage, site office, canteen, toilet as well as parking lots should be situated at the empty space indicate in the site layout to minimise the problems discussed above.