



The Hashemite University
Faculty of Engineering
Civil Engineering Department

TRAINING REPORT

Supervised By:-

Dr. Omar Hatamleh.

Name:-

Mohammad Osama Yassin

ID No.:-

1531665

بسم الله الرحمن الرحيم

Index:

Summary	2
Project Information	3
Construction Sequence	4
Stages of Construction During Training	7
Problem observed during the construction process	14
Conclusion	16

❖ Summary:

Through eight continuous weeks from 10/6/2019 to 1/8/2019, I trained under the supervision of Eng. Ahmad Abu-Khormeh from Ahmad Abu-Khormeh Contracting Co.

The construction manager: Eng. Hasan Abu-Ghazal

The training was at the site of Al-Arrabi Housing at Zarqa city.

The training was very important to me to obtain much knowledge in the field, connect concepts I took in classes with field, many concepts which were taught in the classes have been implemented and being training beside persons with high experience give me lot of information and confident in the field.

❖ Project Information:

- **Project Name:** Al-Arrabi Housing.
- **Work Site:** Batrawi - Zarqa City.
- **Area:** 1495m²
- **Completion Date:** Under construction
- **Details:** The project is Residential Building with total area 1495m², consist of five floors, each floor have two apartments.



❖ Construction Sequence:

The construction sequence in this site is:

i. Paper Work

Construction of residential building required paper work before the start actual construction. The paper work includes shop drawing, estimation of material cost and approval of drawing from City Development Authority.

ii. Marking of layout

The layout is marked on the ground with accurate dimensions and orientation.

iii. Excavation

Generally excavation is carried out for the construction of wall foundation. Suitable machines are used to excavate the earth for the making of foundation.

iv. Foundation Work

Foundation work consists of many sub works which are as follows;

- 1. Compaction the ground**
- 2. PCC**
- 3. Footing Reinforcement**
- 4. Shuttering**
- 5. Foundation Concrete**

v. Column Casting

Casting of columns is made by fixing the shuttering framework and concrete is poured in the formwork.

vi. Construction of Walls

Walls are constructed using many materials such as brick, precast concrete and many other. Before starting the wall construction, the base constructed using concrete. The height of walls depends upon the floor height. Leave some opening to given floor doors and windows.

vii. Roofing.

Roof slab of building is poured after completion of masonry works. Roofing is of reinforced cement concrete slab, in this site the one way ribbed slab used for all area except bathrooms and kitchens the solid slab used for piping purposes.

viii. Flooring and Finishing.

Finishing work consist plastering work, fixing of doors and windows, fixing of electrical and plumbing works, tiles laying and painting.

❖ Stages of Construction During Training:

During training period I saw some stages as this sequence:
First, they installed jacks and lumber to the roof of the second floor.

Then began work on the distribution of bricks (Hollow Blocks), and as I mentioned earlier the ceiling was one way ribbed slab for all area except bathrooms and kitchens the ceiling was solid slab.



And then began reinforcing the beams with $\phi 16$ & $\phi 18$ bars according to what is in shop drawings, then cross rib, then ribs, with 2.5cm cover in all horizontal and vertical concrete sections.



After finishing the roof works, they were reinforcing the elevator room, and then lifting the staircase with the reinforced walls.



After the completion of the reinforcement, a date is set for casting the concrete.

Before starting casting, they checked the temperature of the concrete that's not above 32 °C , because if it higher the concrete mixture will be rejected.

During the casting, the vibrator was used to ensure that the concrete entered all areas.

Two days after the casting process, the column axes were taken to the third floor.



Then casting the columns by fixing the shuttering framework and concrete is poured in the formwork. The shuttering removed after 24 hours of casting and curing is done.



After that, the installation of the stone was carried out, taking into consideration the places of doors and windows in each room.



Then after 14 days, the jacks were dismantled bellow the slabs.

At the end, after the completion of the stone work, the workers began to install the jacks and lumber shuttering to start the next floor.



❖ Problem observed during the construction

process:

Everybody that's cast concrete on site has at some time experienced some problems. This site has encountered one of the problems.

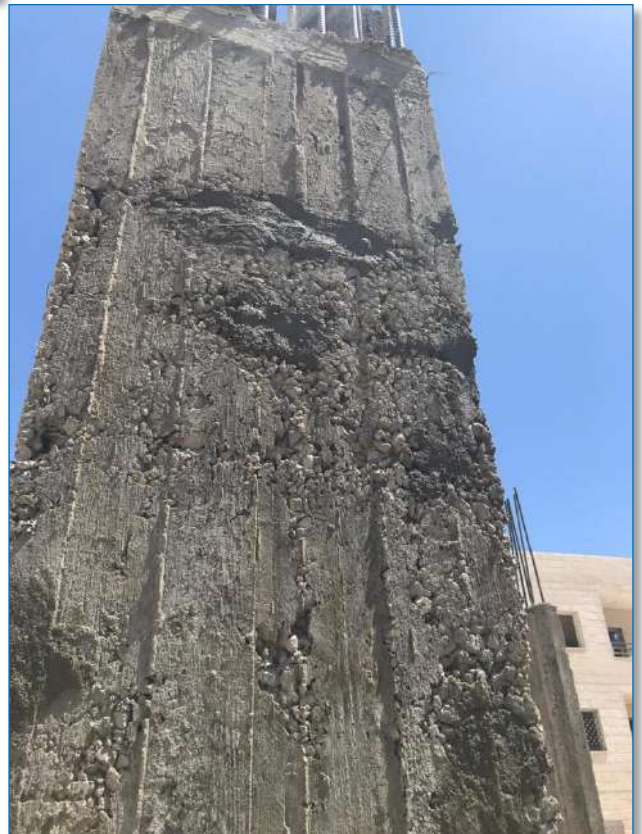
The problem is **(Concrete Honeycombing)**.

There are many common reasons of concrete honeycombing, including:

- Casting form high place.
- Don't use the vibrator properly.
- Don't put the cover.
- The concrete doesn't enter all areas due to high density of reinforcement in the structural section.

The solution for this problem:

Remove the damage place, and then clean the area and the exposed reinforcement bars, after that put a bond material and cast it.



❖ Conclusion:

A general idea of working has been took during these period, it was the main benefit obtained, so the university studies are now clearer than before.

In my training I have trained as site engineer, during my training I noted that there a lot of problems facing engineer in the site, this problems need solutions so the structural engineer needs a lot of experience or consulting another structural engineer to make a decision for any problem facing him.

After finishing the engineering training period, I had some skills such as:

1. The ability to control and guide group of workers to do their best.
2. Work under pressure.
3. Obtaining significant experience in field work.

Finally the training added to me huge information about how to construct projects.