

Study and comparison of estimated cost of a house in wassit governorate during 2002-2009

Abdulkhalik Kamal Mahmood - Kut technical institute

دراسة ومقارنة تخمين كلفة دار في مركز مدينة الكوت (محافظة واسط) للفترة ٢٠٠٢-٢٠٠٩

عبدالخالق كمال محمود - المعهد التقني كوت / مدرس مساعد

المستخلص

هذه الدراسة اعدت على اساس تصميم دار سكن في مدينة الكوت مركز محافظة واسط مناسب لعائلة مكونة من ثمانية اشخاص (معدل الاشخاص في الدار الواحدة في مدينة الكوت ٨.١٣) وبمعدل مساحة بناء ١٣٠ م^٢ مبنية على قطعة ارض بابعاد ١٠*٢٠ م (٢٠٠ م^٢) .الدار بموجب التصميم يتكون من طابق واحد ويحتوي على غرفة المعيشة والمطبخ وغرفتي النوم وحمام ومجموعتين صحية ودرج وكذلك بيتونة. ان هيكل الاساسي للبناء مبنى من الطابوق ومونة السمنت والرمل والسقف من الكونكريت المسلح وبسمك ١٥ سم ، مواصفات المواد المستخدمة في البناء من النوعية المتوسطة.تم احتساب كميات جميع جميع المواد الداخلة في البناء فعلياً. والدراسة اعطت نسبة مئوية لجميع الفقرات مواد وعمل من الكلفة الكلية لسنة ٢٠٠٩ ومقارنة مع اسعار عام ٢٠٠٢ حيث ان كلفة العمل (مواد وعمل) للمتر المربع الواحد بلغت ٣٧٥٦٦٣ دينار عراقي. وكلفة متر مربع (مواد فقط) ٢٣٣٠٤٨ دينار عراقي. وكلفة متر مربع (عمل فقط) ١٤٢٦١٥ دينار عراقي. وكلفة البناء الكامل مع ارباح المقاول ٥٣٧١٩٩١٠ دينار وبدون كلفة الارض.

واوضحت الدراسة ان كلفة الهيكل للدار يمثل ٥٧% من الكلفة الكلية واعمال الانهاء ٣٧% . في حين الاعمال الصحية والكهربائية تشكل ٦% وعند مقارنة كلف البناء بين عامي ٢٠٠٢ و ٢٠٠٩ وجد الباحث ان الزيادة في كلفة نفس الدار ونفس المواصفات هي ٣٧٩% وذلك لارتفاع اسعار المواد الانشائية وارتفاع اسعار العمالة وكذلك لارتفاع المستوى المعاشي للمواطنين خلال هذه الفترة وشكلت ارتفاع سعر الطابوق اعلى نسبة تقدر ب ٨٥٠% والسمنت ٥٤٤% والعمالة ٤١٠% والرمل ٥٨٦% والحصى ٤٩٧%.

Abstract

The main objective of present study is estimation of cost of a typical house located in Kut center (Wassit governorate), suitable for a family of eight persons (the average no. of persons per house hold in the govern orate is 8.13), with an average built up area 130 m² On a plot of 10m *20m(200 m²).The design of the dwelling unit consists of a ground floor only with a family room, kitchen, two toilets, two bedrooms, living room, one bathroom and staircase with penthouse. The structure of this dwelling unit consists of 25 cm thick load bearing. This study gives all the percentage of each item of materials and labor from the total cost and the cost of sq.m for year 2009 and the comparison with year 2002.The cost of the house (material and labor) per sq. m was estimated to be 375663 I.D, while the

cost of (material) per sq.m was 233048 I.D, and the cost of (labor) per sq.m was 142615 I.D. and the total cost with the benefit of the contractor was estimated to be 53719910 I.D. This study declares that the cost of the house frame represents 57% of total cost and the finishing work represents 37% while the sanitary and electrical work represents 6% of the total cost. In comparison build cost between 2002 and 2009 it was found that the cost of same house increased about 379% due to increasing of construction materials and labor cost during this period. The prices of construction materials and labor in 2009 are more than 2002 as follow (brick 850%, cement 544%, labor 410%, sand 586%, and gravel 497 %.)

1-1 Introduction

This study is based on a typical Iraqi house design located in Kut Center sub-district in Wassit Governorate, suitable for a family of eight persons (the average no. of persons per household in the governorate is 8.13), with an average built up area 130 m² on a plot of 20m x 10m (200 m²).

1. The design of the dwelling unit consists of a ground floor only with a family room, kitchen, two toilets, two bedrooms, living room, one bathroom and staircase with penthouse.
2. The structure of this dwelling unit consists of 24 cm thick load bearing brick walls with strip foundations (plain concrete with staggered brick walls under D.P.C. course). The slabs are 15 cm thick reinforced concrete.
3. The specifications and the quality of materials in this dwelling unit are following the medium standards level.
4. The quantities of all materials listed in the study are the actual ones.
5. This study gives all the percentages of each item of materials and labor from the total cost, and the cost of the sq.m.
6. The total cost does not include land cost and finance cost.
7. All the items are included in this study as follows:
 - a. Cement
 - b. Brick, Sand and Gravel.
 - c. Juss and Gypsum.
 - d. MOU building materials (from the Ministry of Trade).
 - e. Complementary Local Materials.
 - f. Imported Materials by private sector (from the Local Market).
 - g. Labor Items.
 - h. Transportation for all the items above.

1-2 Objectives

The main objectives of this study are

- 1- Estimation of quantity of main building materials required for building such as (brick, sand, gravel, cement, juss, gupsum, steel).
- 2- Estimation of percentage of all items (materials and labor) from the total cost.
- 3- Estimation of material and labor cost per sq.m
- 4- Estimation of labor cost per sq.m
- 5- Estimation of percentage cost of structure, finishing, sanitary, and electrical of total cost.
- 6- Total cost of a house 130 sq.m build with contractor overhead.
- 7- Comparison between all materials and labor cost during 2002-2009

2- Results and calculation

All results and calculation of total cost of the dwelling are tabulated in the following tables and graphs. By using excel program all material items and labor cost and its percentage of total cost are correlated by using equations that any change of any item or labor cost the total cost are changed due to that. This program can be used by any engineer any where to estimate the total cost and other details required for other plot area and with other quality.

Conclusion and recommendation

3- Conclusion

Following are the main conclusions to the present study

1- the quantity of building material required as follow

- a- Brick 60000 unit 24*12*8 cm
- b- Ordinary Portland cement 23 ton
- c- Sulphate resistance cement 16 ton
- d- Sand 72 m³
- e- Gravel 54 m³
- f- Juss 18 m³
- g- Gypsum 0.91 ton
- h- Steel 3 ton

2- The percentage of construction items (material and labor) as follow

- a- Structure work 57.3%
- b- Finishing work 36.9%
- c- Sanitary work 3.6%
- d- Electrical work 2.1%

3- Cost of sq.m (material and labor) 375663 I.D

4- Cost of sq.m (material only) 233048 I.D

5- Cost of sq.m (labor only) 142615 I.D

Abdulkhalik Kamal Mahmood

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- 6- Total cost of a house 130 sq.m with contractor overhead 53719910 I.D
 - 7-labor cost represents 38% of total cost of building
 - 8-Total cost for all items (materials and labor) in 2009 is greater than 2002 by 379% due to increasing of material and labor cost
 - 9-The cost of brick increased about 850% during seven year although it is locally produced material there for the locally governorate must increase the number of factory and develop it to reduce the cost
 - 10- All materials cost are increased dramatically as follow (cement 544%, sand 586%, gravel 497%, juss 718%)
 - 11- Labor cost is increased about 410% due to increasing of income of Iraqi people between 2009-2002.

4-Recommendation

- 1-Most of locally produced material used by privets sector such as (brick, sand, gravel, and cement) are of low quality and out side the civil engineering qualification.
- 2-The municipal authorities must put regulation to prevent using these building materials which causes loss of money and time in addition bad quality building.

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