

Real Estate Development Deputyship

# **Construction Pilot Study** Q2 - 2020

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# Preface

This document aims at presenting the results of the "Construction Pilot Study" exercise performed by the Real Estate Development Deputyship. The exercise mainly aims at providing an overview of the costing data points of a 235 sqm residential villa consisting of 2.5 floors. The Construction Pilot Study to be published quarterly - starting Q2 2020 - and is owned by the Real Estate Development Deputyship - REDD.

The exercise was conducted in liaise with a number of local Saudi contractors and was validated by several engineering offices to ensure the accuracy and reliability of the provided datapoints. When choosing the material, the preference was given to locally produced material, and imported material was only assumed in cases where there exists no locally produced alternative. All results are sanitized and are detailed across the different construction layers (structural, architectural, mechanical, electrical), and all costs are split across material and labor costs. It also took into consideration that all requirements follows the Saudi Building Code and the Ministry of Housing requirements.

## The Objective

To conduct a cost analysis on building materials and labor in Saudi Arabia. The document provides an overview for the Study and focuses on:

- **O1** Providing an overview of the Study, the participating entities, its frequency, etc...
- **O2** Presenting the approach and methodology followed to develop the Pilot Study and analyze the results.
- **O3** Detailing results and deriving key findings about the current pricing of conventional construction in the Kingdom.



The Construction Pilot Study can be defined as a normalised average of prices for a given class of product or services in a specific location over a given period, and typically used to compare changes in cost over time and between geographical locations.

The Study will be published quarterly and is owned by the Real Estate Development Deputyship.

#### **Indicator Methodology**

#### We followed the building approach in Saudi Arabia

#### Project requirements have been identified

- Develop a detailed BoQ for a housing unit of 235 sqm built up area on a land of 200 sqm.
- BoQ includes structural, architectural, mechanical and electrical components.

#### 2 Gather costing data in liaise with local contractors

- Reach out to several Saudi contractors to get quotations from their cost engineers for the BoQ developed.
- Collaborate with Engineering office to review and sanitize received data.

#### 3 Analyze material used for construction

- Understand contractors' reliance on locally produced materials vs. imported materials for the construction of houses in KSA.

#### 4 The results were compiled, and the main conclusions drawn (updated regularly)

- Revalidate the prices of all the BoQ items to capture changes in materials & labor cost periodically.
- Track changes in price due to socio-economical factors such as increase in VAT, custom fees etc.

# **O1** Setting The Requirements For Projects Of The Ministry Of Housing

### Initially, project requirements were developed and bill of quantities defined

Project Specifications	
Number of Villas	50
Built up Area per Villa	235 sqm.
Land Size per Villa	200 sqm.
Number of Floors per Villa	2.5

BoQ Elements			
Mechanical	Electrical	Architectural	Structural
Water Supply Valves	Earthing System	Masonry	Earthwork
Drainage & Vent Syst.	Lighting Points	Metal Works	Blinding concrete
Water Tank	Panel Boards	Thermal & Protection	Foundations
Pumps	Door-bell System	Doors & Windows	Columns & Walls

The list above is not exclusive and is only for explaining purposes.

The BoQ was developed based on a housing project that consists of 50 villas with a built-up area of 235sqm on a land size of 200sqm per villa. Each villa has 3 floors. The BoQ contains a detailed breakdown of Structural, Architectural, Electrical and Mechanical works as follow:

Structural: Including but not limited to Earthwork, Blinding concrete, Foundation. Architectural: Including but not limited to Masonry, Metal works, Thermal & Protection. Electrical: Including but not limited to Earthing system, Lighting points, Panel boards. Mechanical: Including but not limited to Water supply valves, Pumps, Drainage & vent system.

<sup>\*</sup> Project specification comply with the Saudi Building Code and the Ministry of Housing requirements

Perspective of the housing unit model on which the cost was measured A15

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**A15** 





- 1 Living room
- 1 Dining room
- 1 Majlis
- 1 Kitchen
- 7 Toilets
- 1 Master Bedroom
- 2 Regular Bedrooms
- 1 Laundry & Maid Room
- 1 Driver Room
- **1** Terrace



# **02** Collect Cost Data In Coordination With Some Local Contractors

In order to ensure the accuracy of the collected data, a partnership was established with an engineering firm - D.E.P - and more than 10 Saudi contractors have been contacted to obtain an accurate material and labor cost breakdown for the housing project in line with the defined BoQ.



Partnered with an **engineering office** and contacted several Saudi contractors

### to obtain accurate material and labor cost breakdown



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#### **Material Costs**

Costs of materials and products used for the construction of the villa

#### Labor Costs

Labor costs resulting from on-site manpower activities and operations

Cooperate with an engineering office to **ensure the accuracy of the data collected** 

## **03** Analyze Materials For Construction



#### **Locally Produced Materials**

Imported

Local

When building houses in KSA, contractors use a mix of local and imported materials. the Pilot Study on locally produced materials where available, while only relied depending on imported materials in cases of absence of locally produced materials.

Materials that are available	e in the local market

#### not available in the local market

Valves

Hose bib

Mechanical **Mechanical** Electrical Architectural Structural **Pipes Earthing System** Masonry Cast in place Foundations Waterproofing Floor drains **Lighting Point** Columns & Walls Windows Package booster pump Vent caps **Disconnect Switch** Terrazzo Tiles Stairs Water tank & meter box Power Outlets **Beams & Parapets** Stone Risers Manhole & catch-basin Panelboard Paints Slabs Damp proofing Paving Trench drain Cables & wires Vapor barrier SMATV & Doorbell

\*The list above is for explainatory purposes and is not exhaustive

Most of the essential Structural, Architectural, Electrical and Mechanical materials are available locally. However, some Mechanical elements such as Valves, Hose bib and Package booster pump aren't available in the KSA market and as such, imported alternatives were considered for the pricing.

# **04** Update BoQ Prices & Generate Results



# Material costs total SAR **285,287** and constitute **73%** of the total construction cost. The material cost breakdown is as follow:

Structural costs	27%
Architectural costs	51%
Electrical costs	7%
Mechanical costs	15%

### Labor costs total SAR **103,152** and constitute **27%** of the total construction cost. The labor cost breakdown is as follow:

Structural costs	34%
Architectural costs	47%
Electrical costs	8%
Mechanical costs	11%

# The cumulative construction cost is thus SAR **388,439** and its breakdown is as follow:

Structural costs	29%
Architectural costs	50%
Electrical costs	7%
Mechanical costs	14%

## **Structural Components Analysis**

Structural components account for ~29% of the cumulative construction cost, with SAR 77,620 in material cost and SAR 34,516 in labor cost, for a total of SAR 112,136.



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orks		Materials [SAR]	Labor [SAR]
hwc ihwc	Excavation	-	SAR 7,100
Eart	Backfilling	SAR 1,125	SAR 375
	Blinding Concrete	SAR 1,800	SAR 450
	Foundations	SAR 10,800	SAR 3,780
rete	Columns and Walls	SAR 16,000	SAR 5,600
onci	Stairs	SAR 2,700	SAR 1,350
Ŭ	Beams and Parapets	SAR 14,400	SAR 5,040
	Slabs	SAR 28,070	SAR 9,825
oofing	Damp Proofing	SAR 2,150	SAR 853
Water-pr	Vapor Barrier	SAR 575	SAR 144
	Total	SAR 77,620	SAR 34, 516

<sup>\*</sup> Prices provided in this report are directional and subject to variations depending on the project's specific requirements & standards.

## **Architectural Components Analysis**

Architectural components account for **~50%** of the cumulative construction cost, with SAR **146,871** in material cost and SAR **48,451** in labor cost, for a total of SAR **195,322**.



			End of Q2 2020	
			Materials [SAR]	Labor [SAR]
		Masonry	SAR 12,300	SAR 3,400
Ι	Metal V	Vorks (Roof Ladder)	SAR 800	SAR 200
The	rmal ar	nd Moisture Protection	AR 1,164	SAR 1,230
Vindows		Doors	SAR 29,200	SAR 1,300
Doors & V		Windows	SAR 17,400	SAR 500
	shes	Floor Finishes	SAR 12,890	SAR 7,840
shes	al fini	Wall Finishes	SAR 48,222	SAR 26,146
Finis	Interr	<b>Ceiling Finishes</b>	SAR 6,280	SAR 2,355
		External Finishes	SAR 18,615	SAR 5,480

Total

SAR 146,871

SAR 48,451

<sup>\*</sup> Prices provided in this report are directional and subject to variations depending on the project's specific requirements & standards.

## **Electrical Components Analysis**

Electrical components account for **7%** of the cumulative construction cost, with SAR **18,826** in material cost and SAR **8,680** in labor cost, for a total of SAR **27,506**.



		End of Q2 2020	
		Materials [SAR]	Labor [SAR]
C	irounding and Bonding	SAR 1,000	SAR 500
	Raceway and Boxes	SAR 1,540	SAR 2,695
ces	Switches	SAR 1,005	SAR 1,435
Devi	Sockets	SAR 1,390	-
ingl	Weatherproof Disconnect Switch	SAR 1,300	-
Wir	Electrical Outlets	SAR 840	SAR 2,800
	Panel Boards	SAR 1,000	SAR 200
	Interior Lighting	SAR 2,285	-
Low	Voltage Cables and Wires	SAR 7,350	-
	Doorbell System	SAR 116	-
Str	uctured Cabling Systems	SAR 300	SAR 600
	SMATV System	SAR 700	SAR 450
	Total	SAR 18,826	SAR 8,680

<sup>\*</sup> Prices provided in this report are directional and subject to variations depending on the project's specific requirements & standards.

## **Mechanical Components Analysis**

Mechanical components account for ~14% of the cumulative construction cost, with SAR 41,970 in material cost and SAR 11,505 in labor cost, for a total of SAR 53,475.



		End of Q2 2020	
		Materials [SAR]	Labor [SAR]
bing	Water Supply Valves	SAR 640	SAR 230
Plum	Water Distribution Piping	SAR 4,170	SAR 1,765
items	Overground	SAR 15,440	SAR 4,470
ent Sys	Underground	SAR 8,380	SAR 1,805
ige & V	Plumbing Specialties	SAR 1,480	SAR 500
Draina	Plumbing Fixtures	SAR 4,720	SAR 1,250
	Tank	SAR 2,000	SAR 200
ank	Water Meter Box	SAR 300	SAR 50
er T	Hot Water Storage Tanks	SAR 3,300	SAR 360
Wat	Concrete Water Tanks, Manhole, Catch Basin	SAR 1,180	SAR 600
	Trench Drain	SAR 60	SAR 75
	Packaged Booster Pumps	SAR 300	SAR 200
	Total	SAR 41,970	SAR 11,505

<sup>\*</sup> Prices provided in this report are directional and subject to variations depending on the project's specific requirements & standards.

## **Costs Summary**

In summary, the total construction cost of 50 villas with a built-up area of 235sqm on a land size of 200sqm per villa is SAR **388,439**. The cost can be broken down as follow:

#### End of Q2 2020

Material Costs	SAR 285,287
Structural Costs	SAR 77,620
Architectural Costs	SAR 146,871
Electrical Costs	SAR 18,826
Mechanical Costs	SAR 41,970
Labor Costs	SAR 103,152
Total Construction Cost	SAR 388.439



Prices provided in this report are directional and subject to variations depending on the project's specific requirements & standards