



مركز الإحصاء
STATISTICS CENTRE

Construction Cost Index

Tower buildings projects

2015

Fourth Quarter

(Base Year 2013)

Detailed by:

Main building materials and
services groups

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Introduction

The Construction Cost Index (CCI) is an important statistical indicator for the purposes of planning and research in various disciplines. Statistics centres and agencies in different countries consistently compile these indices, based on the prices of a group of building materials and construction services commonly used during the construction process. The figures thus calculated constitute a time series that provides a measure of changes in the cost of construction over time.

Therefore, Statistics Centre - Abu Dhabi has always taken interest in collecting the prices of those materials and services on a regular basis and publishes the indicators derived from this data, following the methodologies adopted internationally in this field. The Price Indices Section at the Statistics Centre - Abu Dhabi compile the CCI to be calculated according to the ten main groups of the construction cost index basket with a base year of 2013.

The selected sample of items included in the Construction Cost Index basket uses actual data collected from the Contractors' Association in Abu Dhabi. The sample of sources (building materials and construction service providers) were selected in such a way to represent the market condition across the Emirate of Abu Dhabi.

It is worth mentioning that this publication covers only the relative importance of each one of the main construction groups for towers. Further development of the index will add the rest of the construction sectors, according to the construction classification used in the Emirate of Abu Dhabi.

Key Points

This publication provides an analysis of the results of the CCI for the fourth quarter of 2015 compared with the fourth quarter of 2014, where 2013 is the base year. In addition, the publication provides a comparison between the third quarter of 2015 and the fourth quarter of 2015. The main findings of this analysis are outlined below:

- The CCI decreased by 1.1% to 99.0% in the fourth quarter of 2015, compared with 100.1% in the fourth quarter of 2014.
- The CCI increased by 0.4%, from 98.7% in the third quarter of 2015 to 99.0% in the third quarter of 2015.

Table 1: Construction Cost Index

Year	CCI			
	Q1	Q2	Q3	Q4
2014	99.7	100.7	98.8	100.1
2015	97.1	97.2	98.7	99.0
			— % —	
Relative change	-2.6	-3.4	-0.1	-1.1

Source: Statistics Centre - Abu Dhabi

Figure 1: Construction Cost Index, quarterly for 2014 and 2015



Source: Statistics Centre - Abu Dhabi

A. Construction Cost Index (CCI) for the fourth quarter of 2015 compared with the fourth quarter of 2014

Table (2) shows the 10 main groups for the building materials and construction services, categorized according to the construction uses. In addition, the table shows the weights for the main construction groups. Weight represents the proportion of spending on the group in the project to the overall spending on all groups. Moreover, the table shows the relative change for the fourth quarter of 2015 compared with the fourth quarter of 2014, while contribution reflects the proportion of each group's contribution to the overall change (-1.1)% in the prices of all groups for the fourth quarter of 2015 compared with the fourth quarter of 2014.

Table 2: Major construction groups by weights, relative change and contribution for the fourth quarter of 2015 compared with the fourth quarter of 2014

Main construction groups	Weight	Relative change (%)	Contribution (%)
Construction materials	13.0	-13.6	-157.7
Finishing materials	26.0	-0.4	-9.2
Electrical works materials	8.0	-7.1	-52.7
Mechanical works - plumbing and drainage materials	4.0	0.5	1.9
Mechanical works - fire fighting	3.0	14.5	39.6
Mechanical works - A/C	7.0	-1.9	-12.2
Equipment	2.0	6.4	12.5
Manpower	29.5	4.4	119.3
Services	4.5	-10.3	-41.6
Finances and Bonds	3.0	0.0	0.0
Total	100	-1.1	-

Source: Statistics Centre - Abu Dhabi

The above table shows the 'Construction materials' group accounted for the largest fall in the index during the fourth quarter of 2015 compared with the fourth quarter of 2014, contributing -157.7% to the change. This contribution resulted from a decrease of 13.6% in the prices of this group. This main group consists of three sub-groups, with the prices of the 'Steel reinforcement' group decreasing by 27.7%, and the prices of the 'Concrete' group decreasing by 2.2%. While the 'Formwork materials' group prices increased by 4.6%.

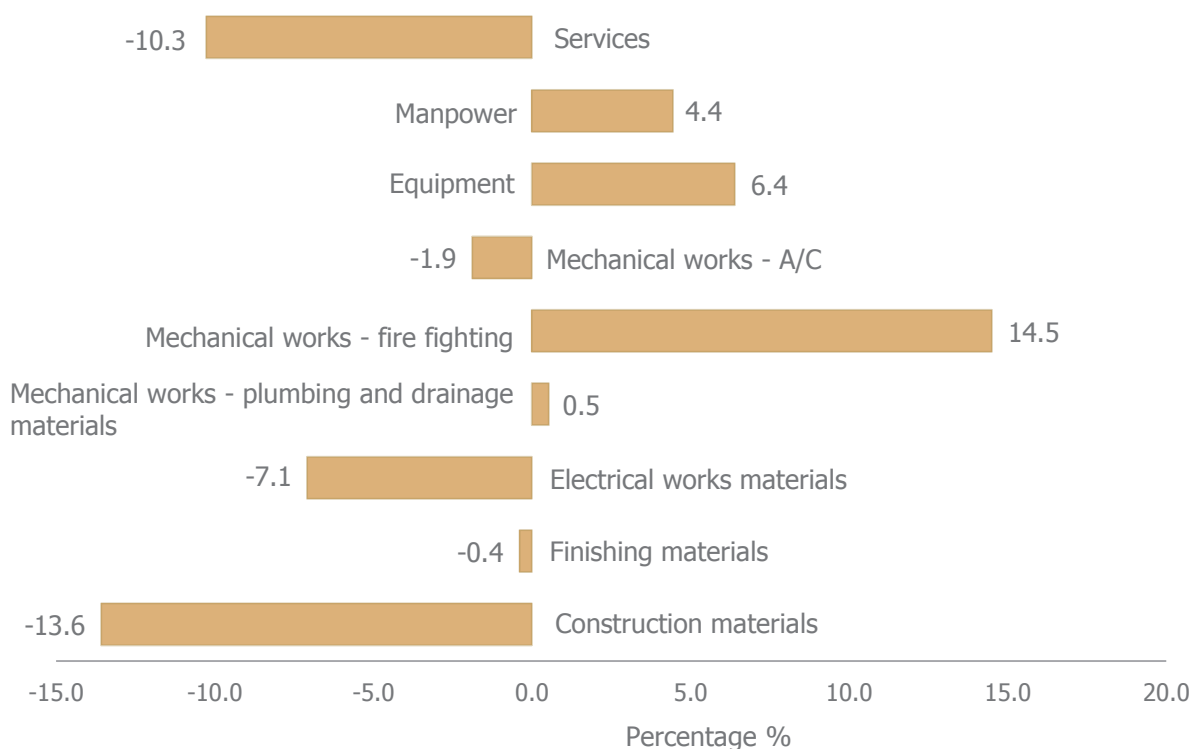
The second highest contributor to the overall decrease in the CCI during the fourth quarter of 2015 compared with the fourth quarter of 2014 was the 'Electrical works materials' group, which accounted for 52.7% of the overall decrease. This contribution resulted from a decrease of 7.1% in the prices of this group. Prices of the 'Services' group decreased by 10.3% during the fourth quarter of 2015 compared with the fourth quarter of 2014, contributing -41.6% to the change. This main group consists

of two sub-groups, which are 'Plant & machinery' and 'Fuel/ energy', which their prices decreased by 0.4% and 33.9% respectively. In addition, prices of 'Mechanical works - A/C' and 'Finishing materials' groups decreased by 1.9% and 0.4% respectively, contributing -12.2% for 'Mechanical works - A/C' group and -9.2% for 'Finishing materials' to the change.

At the same time, the prices of 'Manpower' rose by 4.4%, contributing 119.3% to the change. This main group consists of three sub-groups, which are the 'Project manpower', 'Overhead expenses' and 'Construction supervision' groups. The 'Project manpower' group had the greatest impact in increasing the prices of this main group by 16.1%. The prices of 'Mechanical works - fire fighting', 'Equipment', 'Mechanical works - plumbing and drainage materials' increased by 14.5%, 6.4% and 0.5% respectively.

The prices of 'Finances and bonds' remained constant during the fourth quarter of 2015 compared with the fourth quarter of 2014.

Figure 2: Relative change in CCI for the main groups during the fourth quarter of 2015 compared with the fourth quarter of 2014



Source: Statistics Centre - Abu Dhabi

B. Construction Cost Index (CCI) for the fourth quarter of 2015 compared with the third quarter of 2015

The construction cost index increased by 0.4% in the fourth quarter of 2015 compared with the third quarter of 2015. This overall increase in prices between the two quarters reflects the net movement (increases and decreases) of building materials and construction services during the two quarters. The prices of the 'Manpower' group increased by 3.5%. It consists of three sub-groups, which are the 'Project manpower', 'Overhead expenses' and 'Construction supervision' groups. Prices of Mechanical works - fire fighting' increased by 14.5%. This main group consists of seven sub-groups including fire pump set, firefighting cabinet, hose reel, valves, sprinkler heads ... etc.

The following table shows price changes of the building materials and construction services list during the fourth quarter of 2015 compared with the third quarter of 2015. It also shows the weights of the construction cost indices for the two quarters according to the main construction groups.

Table 3: Major construction groups by weights, relative change for the fourth quarter of 2015 compared with the third quarter of 2015

Main construction groups	Weight	CCI for Q3 2015	CCI for Q4 2015	Relative changes of Q4 2015 compared with Q3 2015 (%)
Construction materials	13.0	87.1	84.8	-2.7
Finishing materials	26.0	101.4	99.5	-1.8
Electrical works materials	8.0	96.4	94.8	-1.6
Mechanical works - plumbing and drainage materials	4.0	101.2	101.2	0.0
Mechanical works - fire fighting	3.0	100.0	114.5	14.5
Mechanical works - A/C	7.0	101.1	100.0	-1.1
Equipment	2.0	114.9	114.4	-0.4
Manpower	29.5	100.8	104.3	3.5
Services	4.5	90.9	88.6	-2.5
Finances and bonds	3.0	100.0	100.0	0.0
Total	100	98.7	99.0	0.4

Source: Statistics Centre - Abu Dhabi

C. Construction Cost Index for 2015 compared with 2014

The Construction Cost Index decreased in 2015 by 1.8% compared with 2014. The main group contributing to this drop was 'Construction materials', which decreased by 8.9% while contributing 62.6% of the total drop in the Construction Cost Index. In addition, the prices of the 'Manpower' group decreased by 3.1%, contributing 49.3%. The 'Electrical works materials' group decreased by 4.0%, contributing 17.9%. The prices of the 'Services' group decreased by 4.7%, during 2015 compared with 2014 contributing 11.6% of the total drop.

The group that recorded an increase in its price, during the 2015 compared with 2014 was the 'Finishing materials' for which prices increased by 2.0%, contributing 27.9% to the overall change. The 'Mechanical works – fire fighting' group increased by 3.6%, contributing 6.0% of the total rise. In addition, the prices of the 'Equipment' group increased by 4.8%, contributing 5.8%. Moreover, prices of the 'Mechanical works – A/C' group increased by 0.3% during 2015 compared with 2014.

Table 4: Relative change in the CCI for 2015 compared with 2014

Main construction groups	Weight	CCI 2014	CCI 2015	Relative changes of 2015 compared 2014 (%)
Construction materials	13.0	97.9	89.2	-8.9
Finishing materials	26.0	99.4	101.4	2.0
Electrical works materials	8.0	102.6	98.5	-4.0
Mechanical works - plumbing and drainage materials	4.0	100.8	100.8	0.0
Mechanical works - fire fighting	3.0	100.0	103.6	3.6
Mechanical works - A/C	7.0	100.8	101.1	0.3
Equipment	2.0	110.3	115.5	4.8
Manpower	29.5	99.2	96.2	-3.1
Services	4.5	98.8	94.1	-4.7
Finances and bonds	3.0	100.0	100.0	0.0
Total	100	99.8	98.0	-1.8

Source: Statistics Centre - Abu Dhabi

CCI Methodology

Methodology Introduction

Statistics Centre - Abu Dhabi is the sole official body responsible for calculating and publishing the Construction Cost Index (CCI) within the Emirate of Abu Dhabi on a quarterly basis. This project started in 2013 in cooperation with authorities specialized in this field, such as the Contractors' Association in Abu Dhabi, Abu Dhabi Municipality and Department of Economic Development to prepare the weights, list of building materials and services. The classifications are adopted in the Department of Economic Development for contractors. This index is calculated starting from the first quarter of 2014. The first quarter of 2015 was the first release of this publication. Further development will be done on the construction cost index in future years to include other categories. This publication includes weights related to tower projects with medium quality, later it will include weights for residential villas, bridges and road projects as a next stage in the development of the construction cost index.

The methodology used in the calculation of the construction cost index is consistent with the international best practices and recommendations in this area.

What is the Construction Cost Index?

The CCI is an index that measures the rate of change in construction costs during two time periods, a base period (2013 in SCAD) and a comparison period for a fixed basket of certain building materials and construction services selected from the construction projects breakdown. The period against which prices are compared is known as the base period and the period under review is known as the comparison period.

Importance of the Construction Cost Index

The CPI provides quarterly estimates on the rate of change in the prices of building materials and construction services basket in the Emirate of Abu Dhabi. Some of the significant uses of the CCI are:

- Assist in the calculation of other data within the Centre such as the national accounts statistics.
- Helps contractors and interested parties in identifying trends in construction costs within the Emirate of Abu Dhabi.
- Helps other government departments such as gaining knowledge about developments in the municipal construction sector.
- Provide general data on construction costs that serve different users of official statistics.

Updating the Construction Cost Index

The Construction Cost Index is updated on a regular basis once the necessary data becomes available. Usually the update takes place through communication with the Contractors' Association in Abu Dhabi to update weights or the sample. The importance of updating the weights of building materials and services involved in construction projects of the Construction Cost Index basket is that these weights should represent the common construction style in the Emirate of Abu Dhabi.

The following points describe the methodology of the Construction Cost Index in the Emirate of Abu Dhabi:

CCI Compilation

The CCI is calculated using the Laspeyres method
$$CCI_L = \sum \frac{P_{1i}}{P_{0i}} \times W_{0i}$$

Prices of building materials and services of the CCI basket are collected periodically, except for some sub groups like copper materials and transformers, which are collected on a quarterly or semi-annually basis.

The current CCI uses 2013 as the base year in the Emirate of Abu Dhabi. The current CCI basket consists of 592 building materials and services.

The average item price is calculated at the main group level using the geometric mean of elementary aggregates. The price ratio is calculated by dividing the comparison price by the base price, while the new price is calculated by multiplying the result by the base price.

To calculate the CCI on the sub- group level, the new weight of all goods and services of the sub-group should be added and then divided by the base price of the same group. The CCI of the main groups and the general CCI are calculated using the same method.

Weights

The Construction Cost Index is a weighted average of the change in the price of building materials and services of the CCI basket. The weight of the building material or service reflects its relative importance related to the project. Through cooperation with the Contractors' Association of Abu Dhabi relative values of building materials and services were extracted that are involved in projects of medium quality towers in the Emirate of Abu Dhabi for 2013.

Table 4: Relative importance for ten main groups included in the construction cost index:

Number	Group Name	Weights
1	Construction materials	13.0%
2	Finishing materials	26.0%
3	Electrical works materials	8.0%
4	Mechanical works – plumbing and drainage materials	4.0%
5	Mechanical works – fire fighting	3.0%
6	Mechanical works – A/C	7.0%
7	Equipment	2.0%
8	Manpower	29.5%
9	Services	4.5%
10	Finances and bonds (insurance and bonds, finance costs)	3.0%
Total		100.0%

CCI basket

After calculating weights and identifying building materials and construction services representing the CCI, 10 main groups, 70 sub-groups and 592 materials and services in the construction cost index basket were identified. The 10 main groups and 70 sub-groups are shown in the following table:

Table 5: Main and sub groups included in the construction cost index basket - Towers:

Serial	Group Name	Weight (%)
1	Construction Materials	13.00
1.1	Concrete	4.50
1.2	Steel Reinforcement	6.60
1.3	Formwork Materials	1.90
2	Finishing Materials	26.00
2.1	Blocks	2.30
2.2	Cement	0.41
2.3	Sand & Aggregates	0.27
2.4	Ceramic Tiles	2.98
2.5	Marble Tiles	2.44
2.6	Wooden Doors, wardrobes and Kitchens (Fire Rated or Non)	6.77
2.7	Paints & Coatings	0.54
2.8	Suspended Ceilings	0.81
2.9	Water Proofing	0.54
2.10	Metal Works and Glazing	8.94
3	Electrical Works Materials	8.00
3.1	Distribution Panels Main, SubMain, Final	1.22
3.2	1600A & 2000A Busbar runs for a typical 20 storey building	1.63
3.3	Wires & Cables	1.14
3.4	PVC Conduits, Boxes & accessories	0.41
3.5	Switching Accessories & Isolators	0.33
3.6	Light Fixtures	0.57
3.7	Transformers/HV gear	0.41
3.8	Metal Trays & Trunking	0.16
3.9	Low Current systems, Tel, FA, SMATV, CCTV	1.63
3.10	Generator system	0.33
3.11	Earthing System / Lightning Protection	0.16
4	Mechanical Works - Plumbing and Drainage Materials	4.00
4.1	3 inch UPVC Pipes & Fittings Cold Water Riser	0.17
4.2	2 inch PPR Pipes & Fittings for Internal Water supply	0.63
4.3	16mm - 2.5mm thk Pex Pipe System for water supply in walls	0.21
4.4	3 Inch Gate Valves,(Strainers & Vents)	0.13
4.5	Water Pumps	0.51
4.6	Water Tanks insulated sectional GRP Tanks 6X4X2 MT	0.42
4.7	Water Heaters	0.21
4.8	Water Filtration system	0.13
4.9	3/4 Inch Water Meters (3/4 Inch Water Meters Mechanical Made in Italy)	0.08
4.1	4 Inch HDPE Drainage Pipes & Fittings - Int	0.76
4.11	4 Inch UPVC Drainage Pipes class 6 & Fittings - Ext.	0.08
4.12	3 Inch Floor & Gully Traps and Roof drains	0.51
4.13	Manhole Covers & Gratings	0.17
5	Mechanical Works - Fire Fighting	3.00
5.1	Fire Pump Set – Supply Only	0.42
5.2	Stainless steel FF Cabinet & Hose Reel	0.35
5.3	Seamless steel FF Pipes & Fittings	1.41
5.4	Valves,Air vents & Accessories	0.35

5.5	Pendant Ceiling Type Sprinkler Heads	0.28
5.6	6 kg bcf Portable Extinguishers	0.11
5.7	3 inch Breeching Inlet	0.07
6	Mechanical Works - A/C	7.00
6.1	300 Ton Chiller unit - SCREW type (AIR COOLD SCREW CHILLER)	1.94
6.2	2 ton FCU (FAN COIL UNIT - DUCTED)	0.74
6.3	18 ton AHUs (AIR HANDLING UNIT)	0.52
6.4	300 GPM 100 FT Head Chilled Water Pumps	0.15
6.5	Sch 40 black steel seamless 4 inch Chilled Water Pipes & Fittings	0.60
6.6	AFICO HD Fiberglass Insulation	0.22
6.7	A/C Duct sheet GI guage 24 (Gi Sheet 4 x 8 x 24g)	0.74
6.8	25 mm thk Fiber Glass A/C Duct Insulation	0.22
6.9	Canvas/woven Cloth (FLEXIBLE DUCT CONNECTOR)	0.07
6.1	Adhesive & Coating (TAPES)	0.37
6.11	Dampers & Accessories	0.22
6.12	Pipe & Duct supports	0.15
6.13	Grilles & Diffusers	0.22
6.14	Exhaust Fans (Wall & Window)	0.30
6.15	Roof Fans	0.07
6.16	Thermostats / Controls	0.22
6.17	Aluminium Cladding (Aluminium Sheet 4 x 8 24g)	0.15
6.18	Sound Attenuators	0.07
7	Equipment	2.00
7.1	Lifts	1.50
7.2	Façade Cleaning	0.30
7.3	Garbage Chute	0.20
8	Manpower	29.50
8.1	Over Head Expenses	5.31
8.2	Construction Supervision	5.31
8.3	Project Manpower	18.88
9	Services	4.50
9.1	Plant & Machinery	3.19
9.2	Fuel/Energy	1.31
10	Finances & Bonds (Insurances & Bonds, Finance costs)	3.00

Sources of Building Materials and Services

Price data were collected through field visits conducted by a team from SCAD's Prices & Income Section in cooperation with the Contractors' Association and from other approved sources. The team updates these sources on a regular basis if any source closes down or relocates premises. The number of sources is 61.

Collection of Price Data

Price data collection is a crucial stage that requires a significant amount of time and effort. The collection of price data is conducted by different communication means like e-mails and through field visits by employees who are well trained. To ensure the accuracy of the collected prices, the price of a sample of building materials and services are reviewed through field visits and by ensuring the

availability of the company's seal or signature on the price documents or by email from the person responsible for providing prices.

In order to develop the collection of prices and keep up with advances in information technology mechanism, the center plans to automate the compilation process of the construction cost index as a future step.

Publishing

SCAD publishes the CCI on a quarterly basis. SCAD also publish annual CCI results and inflation rates. The Construction Cost Index is available to all interested users after it is released. The CCI can also be provided on CDs upon request.

How to read the CCI

The CCI reflects the rate of the change in the prices of a range of specified building materials and construction services between two time periods, the base period and the comparison period. For example, if the CCI of the building materials and services basket during a specified base period is AED 100, and the CCI of the comparison period was 105.0, this means that prices of building materials and services increased by 5%.

Terms related to the CCI

Term	Description
Price	Price is defined as the value of one unit of a material or service; this means the market value of the material or service. This value is established through the exchange of materials and services in the markets and is equivalent to the benefit achieved by the user.
Construction Cost Index (CCI)	The CCI is an index that measures the rate of change in construction costs during two time periods, a base period and a comparison period for a fixed basket of certain building materials and construction services selected from the construction projects breakdown.
Towers: medium quality	Building construction of 15-20 stories commonly used in the Emirate of Abu Dhabi composed of medium-quality materials.
Weight	Weight is the relative importance of a material or service within the CCI basket compared with all other materials or services.
Outlet	Outlets where building materials or services are sold such as building materials companies, factories, ... etc.
Periods of collection	Periods of collection are the adopted periods to repeat the survey of all groups in each basket. The period might be weekly, semi-monthly, monthly or quarterly.

Disclaimer

While all care and diligence has been taken with the compilation of official statistics, the Statistics Centre – Abu Dhabi gives no warranty that the information, data or statistics, supplied are free of errors. SCAD shall not be liable for any loss or damage suffered by the user following the direct or indirect use of the statistics supplied in good faith by SCAD. Users of Official Statistics are responsible for determining when and how to use the statistics for specific purposes.

Next release

The CCI for Q1 2016 will be released on 15 June 2016. For more information on prices and other official statistics, please visit the SCAD website at: www.scad.ae

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