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**DEVELOPING A PRICE INDEX FOR SCHOOL PROJECTS
IN SAUDI ARABIA**

BY

KHALED RAIYES MUHSEN AL-HELALI

A Thesis Presented to the
FACULTY OF THE COLLEGE OF GRADUATE STUDIES
KING FAHD UNIVERSITY OF PETROLEUM & MINERALS
DHAHRAN, SAUDI ARABIA

In Partial Fulfillment of the
Requirements for the Degree of

MASTER OF SCIENCE
In

CONSTRUCTION ENGINEERING AND MANAGEMENT

JUNE, 1996

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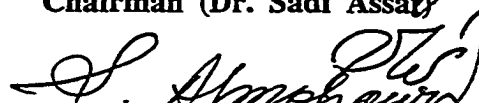
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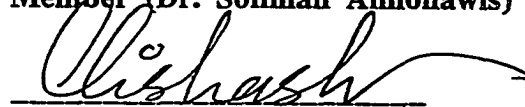
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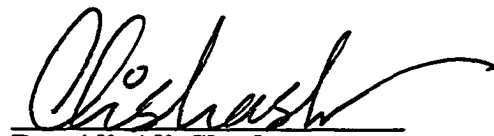
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DEDICATION

I dedicate this work to my family members for their continued moral support and encouragement .

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THESIS ABSTRACT

FULL NAME OF STUDENT : **Khalid Raiyes Muhsen Al-Helali**

TITLE OF STUDY : **Developing a Price Index for School Projects in Saudi Arabia**

MAJOR FIELD : **Construction Engineering and Management**

DATE OF DEGREE : **June, 1996**

The objective of this research is to develop a specialized construction price index that reflects the change in the price of school buildings in Saudi Arabia.

This study was limited to school projects which are built for the MOE in Saudi Arabia. Elementary, intermediate and secondary school projects were considered in this study. The geographic coverage was limited to the main educational areas in Saudi Arabia, namely: Riyadh, Jeddah, and Eastern Province. Data was collected from the MOE in Riyadh for 114 school projects selected randomly.

In this research, there are 36 items that have been selected from the common models as being representative in cost and regularly used. The item weights have been considered as the average of the base year quantities in the three areas. The year 1990 has been taken as the base year for the RSPPI and SPPI. The Laspeyres method has been used to calculate the RSPPI and the SPPI. The quantities and prices of 36 items of RSPPI and the SPPI were extracted from the BOQ's of the 114 projects. This data has then been used to develop the RSPPI and the SPPI.

Four indexes are developed in this research namely: the RSPPI for Riyadh, the RSPPI for Jeddah, the RSPPI for Eastern Province and the SPPI for Saudi Arabia.

MASTER OF SCIENCE DEGREE
KING FAHD UNIVERSITY OF PETROLEUM AND MINERALS
DHAHRAN, SAUDI ARABIA
JUNE, 1996

خلاصة الرسالة

- اسم الطالب :** خالد بن ريس بن محسن الهلالي .
عنوان الرسالة : إيجاد مؤشر للسعر لمشاريع المدارس في المملكة العربية السعودية .
التخصص : هندسة وإدارة التشييد .
تاريخ الشهادة : محرم ١٤١٧ هـ .

إن الهدف من هذه الرسالة هو إيجاد مؤشر للسعر يعكس مدى التغير في أسعار بناء المدارس في المملكة العربية السعودية .
هذه الدراسة خاصة بمشاريع المدارس التي تقوم ببنائها وزارة المعارف بالمملكة العربية السعودية . تضمنت هذه الدراسة مشاريع المدارس الإبتدائية والمتوسطة والثانوية في كل من منطقة الرياض التعليمية ومنطقة جدة التعليمية و المنطقة الشرقية التعليمية . وقد جمعت المعلومات من وزارة المعارف لمائة وأربعة عشر مشروعاً مدرسياً بالطريقة العشوائية ومن ثم اختير ستة و ثلاثين عنصراً من عناصر نماذج المشاريع الشائعة لتكون عناصر مؤشر السعر ، حيث أن هذه العناصر اختيرت بعناية لتكون ممثلة للسعر و تستخدم في المشاريع بانتظام . استخدم متوسط كميات العناصر في سنة الأساس (١٩٩٠م) كوزن ثابت لعناصر مؤشر السعر .
أختير عام ١٩٩٠م كسنة أساس لمؤشر السعر . كذلك أستخدمت طريقة لاسبيرس في حساب مؤشر السعر . وقد استخرجت الكميات والأسعار للمئة والثلاثين عنصراً من جداول الكميات للمائة والأربعة عشر مشروعاً ومن ثم تم استخدامها في إيجاد مؤشر السعر .
في هذه الدراسة تم إيجاد أربعة مؤشرات سعر لمشاريع المدارس لكل من منطقة الرياض التعليمية ومنطقة جدة التعليمية والمنطقة الشرقية التعليمية والمملكة العربية السعودية .

درجة الماجستير في العلوم

جامعة الملك فهد للبترول والمعادن

الظهران ، المملكة العربية السعودية

محرم ١٤١٧ هـ

CHAPTER 1

INTRODUCTION

1.1 OBJECTIVE OF THE RESEARCH:

The objective of this research is to develop a specialized construction price index that reflects the change in the price of school buildings in Saudi Arabia. This research is part of a larger project sponsored by King Abdul-Aziz City for Science and Technology (KACST) to serve government and private agencies that are interested in the development of construction cost indexes in Saudi Arabia (Assaf, Almohawis, Shash and Salameh, 1992).

1.2 NEED FOR RESEARCH:

The Ministry of Education (MOE) in Saudi Arabia is the governmental agency responsible for building public schools for boys. Every year, millions of Saudi Riyals (SR) are spent on the construction of public schools to meet the increasing number of students in different regions of the country, for example in 1993 the budget for building schools was SR. 502,000,000. More than 3500 educational buildings were built by the MOE up to 1993 at a cost of 21 billions of Saudi Riyals (MOE,1993). A price index for these buildings is needed to show the movement of their price over time. The School Projects Price Index (SPPI) can be part of generalized cost indexes for construction in Saudi Arabia. Also, it can be

utilized to meet MOE needs such as project budgeting, adjusting contract prices, general forecasting, etc.(Assaf, Almohawis, Shash and Salameh, 1992).

1.3 SCOPE OF THE RESEARCH:

This study will only be concerned with public boys schools which are built for the MOE in Saudi Arabia. Elementary, intermediate and secondary school projects will be considered in this study. The geographic coverage will be limited to three main educational areas in Saudi Arabia, namely: Riyadh, Jeddah, and Eastern Province¹. These restrictions are due to the time required to collect the needed data. Furthermore, the MOE is selected because it spends more than half of the public funds allocated to the construction of the primary education schools. However, this study can be generalized to the other educational areas because constructed school projects are generally similar throughout the country (MOE, 1993).

¹ According to the MOE definitions for the educational areas "Eastern Province means Dammam area only which includes the major cities such as Dammam, Dhahran, Al-Khobar, etc."

CHAPTER 2

REVIEW OF RELATED LITERATURE

2.1 DEFINING AN INDEX NUMBER:

An index number measures how much a variable changes over time. An index number can be calculated by dividing the ratio of the current value to a base value. Then, the resulting number is multiplied by 100 to express the index as a percentage. This final value is the percentage relative. The index number for the base year is always 100 (Levin, 1987).

Fisher stated that "An index number measures the magnitude of a variable relative to a value of that variable in a selected base year" (Fisher, 1967). Also, an index number is a relative which expresses the relationship between two figures, where one of the figures is used as a base year (Fisher, 1967). Both of the two definitions above have been expressed in terms of time, but an index number can be used to make comparisons between places (Fisher, 1967).

2.2 GENERAL ISSUES OF INDEX NUMBER CONSTRUCTION :

When constructing an index number, several issues should be considered such as:

- 1) The purpose of the index .
- 2) The selection of items to be included .

- 3) The selection of number of items to be included .
- 4) The choice of a base period .
- 5) The choice of weights .
- 6) Mathematical formulas of indexation .

2.2.1 The Purpose of the Index :

The purpose of the index must be carefully considered because it will affect decisions relating to the selection of the items, the choice of the base year and the choice of weights. Furthermore, the interpretation of the index will also depend on its purpose. For example, an index constructed to measure change in building cost must not be used for re-valuing the commercial value of a building, since such an index would not take into account changes such as the value of land on which such buildings are situated (Fleming and Tysoe,1991; Tysoe, 1981). In this research the main purpose of the index is to measure the movement of construction prices of schools in Saudi Arabia.

2.2.2 The Selection of Items to be Included:

The most difficult problem of all in constructing an index is the selection of items to be included. In order to have an index with high accuracy of measuring the general movement of costs, it is required theoretically to include all the items. In reality, it is very difficult to include all items. Therefore, the selection of representative and most

important items should be satisfactory (Fushi,1978). The selection of items can be achieved correctly if the purpose of the index has been defined carefully (Tysoe, 1981).

2.2.3 The Selection of Number of Items to be Included:

In order to have an index with high accuracy of measuring the general movement of prices, it is required to include all the commodities but this is not practical (Fushi, 1978). An index number should consist of 20 to 50 items. After 50, the improvement obtained from increasing the number of items decreases and is questionable (Fisher, 1967).

2.2.4 The Choice of the Base Period:

The base period is a period of time against which all other periods are compared. The level of costs or prices in the base period is considered as 100. For periods other than the base period, the level of cost or prices is stated as a percentage of the base period level. Any time interval such as a month, year or years can be chosen as a period (Hamburg, 1987). There are three points that should be considered when choosing the base period. First, periods at which there were troughs or peaks of price fluctuation should not be selected as a base period. Another point is that the base period should not be too far from the present. Thirdly, it is advisable to use the same base period as other indexes if there are such indexes, because this will help later in comparing of the results of such indexes (Hamburg, 1987 ,Tysoe, 1981).

2.2.5 The Choice of Weights:

Since items are not equal in importance, weights should be used to give each item its proper weight in the index number calculation. There are three choices of weights to be used such as base period weights, current period weights and fixed period weights.

a) Base Period Weights:

Base period weights are the quantities of base period items and will be fixed for all periods. Therefore in this method, the choice of weights will be done for each item once and this for the base period only. This will reduce the calculation and facilitate the construction of the index (Hamburg, 1987). Also, it allows the possibility of showing year to year comparisons relative to the base year (Blackwell, 1979). After some time, this method becomes unrealistic because consumption changes from one period to the other. This method is known as the Laspeyres method (Hamburg, 1987).

b) Current Period Weights:

Another method of choosing weights is the use of weights for the current year instead of the base year. This method will give a good realistic set of weights from the economic view point. However, it will not allow for unequivocal interpretation of year-to-year price change i.e. the change could be done to price, quantities, or both. Another disadvantage of this method is that it is necessary to reselect the weights for each period and

this is difficult in practice. Because of these disadvantages, this method is rarely used. This method is known as the Paasche method (Hamburg,1987).

c) Fixed Period Weights:

This method is a partial combination of the base period weights and the current period weights. However, instead of using base period or current period weights, weights from a representative period are used. If the representative period is the base period itself, then this method becomes the same as the base period weights method. The main advantage of this method is its flexibility in selecting the base price and the fixed weight.

2.2.6 Mathematical Formulas of Indexation:

Indexes can be divided into two categories, namely : the aggregative method and the average of relatives (Levin, 1987).

2.2.6.1 Aggregative Methods:

Aggregative methods can be divided into two types which are the unweighted aggregates index and the weighted aggregates index. Aggregate means that all values or quantities are added or summed.

a) Unweighted Aggregate Index :

Unweighted means all items will have equal importance during the calculation of the index. The index in this method is calculated by adding all prices in the given period and then dividing the result by the sum of the

prices of the same items for the base period. The mathematical formula for calculating the unweighted aggregates price index is :

$$\text{Unweighted Aggregate Price Index} = \frac{\sum P_1}{\sum P_0} \times 100 \text{ (Eq.1) (Levin, 1987)}$$

where :

P_1 = price of each item in the composite for current year

P_0 = price of each item in the composite for base year

The main advantage of this method is its simplicity in calculation. This method has the principal disadvantage of not giving greater importance or weight to the price change of a high-use item than it does to a low-use item (Levin, 1987).

b) Weighted Aggregates Index :

Weighted means items will have different levels of importance during the calculation of the index. There are three methods of weighting of an index. The first uses the quantities consumed during the base period in calculating each index. This method is known as the Laspeyres method. The second involves using quantities consumed during the period in question for each index number. This method is known as the Paasche method. The third is known as the fixed weight aggregates method. In this method, quantities consumed during one period are chosen and then used to calculate each index (Levin, 1987).

1) **Laspeyres Method:**

The mathematical formula for calculating the Laspeyres index is :

$$\text{Laspeyres Index} = \frac{\sum P_1 Q_0}{\sum P_0 Q_0} \times 100 \text{ (Eq.2) (Levin, 1987)}$$

where:

P_0 = prices in the base year

P_1 = prices in the current year

Q_0 = quantities in the base year

2) **Paasche Method:**

The mathematical formula for calculating the Paasche index is:

$$\text{Paasche Index} = \frac{\sum P_1 Q_1}{\sum P_0 Q_1} \times 100 \text{ (Eq.3) (Levin, 1987)}$$

where :

P_0 = base period prices

P_1 = current period prices

Q_1 = current period quantities

3) Fixed Weight Aggregates Method:

The mathematical formula for calculating the fixed weight aggregates price index is:

$$\text{Fixed Weight Aggregate Price Index} = \frac{\sum P_1 Q_2}{\sum P_0 Q_2} \times 100 \text{ (Eq.4) (Levin, 1987)}$$

where :

P_0 = base period prices

P_1 = current period prices

Q_0 = fixed quantities

2.2.6.2 Average of Relatives Methods :

Average of relatives methods can be divided into two types which are the unweighted average of relatives index and the weighted average of relatives index.

a) Unweighted Average of Relatives Method:

Unweighted means all items will have equal importance during the calculation of the index. The index in this method is calculated by adding the price relatives and dividing the total by the number of items. The mathematical formula for calculating the unweighted average of relatives index is:

$$\text{Unweighted Average of relatives Index} = \frac{(\sum P_1/P_0) \times 100}{n} \text{ (Eq. 5) (Levin, 1987)}$$

where :

P_0 = base period prices

P_1 = current period prices

n = number of items in the composite

b) Weighted Average of Relatives Methods:

Weighted means items will have different relative importance during the calculation of the index. Methods of weighting are the same as those discussed in section 2.2.6.1(b) . The mathematical formula for calculating the weighted average of relatives index is:

$$\text{Weighted Average of Relatives Price Index (general form)} = \frac{\sum [((P_1/P_0) \times 100) (W)]}{\sum W} \text{ (Eq. 6) (Levin, 1987)}$$

where :

P_0 = prices in the base period

P_1 = prices in the current period

W = the weight of an index item

Finally, figure 2.1 depicts the basic choices of mathematical formulas to be used in constructing an index.

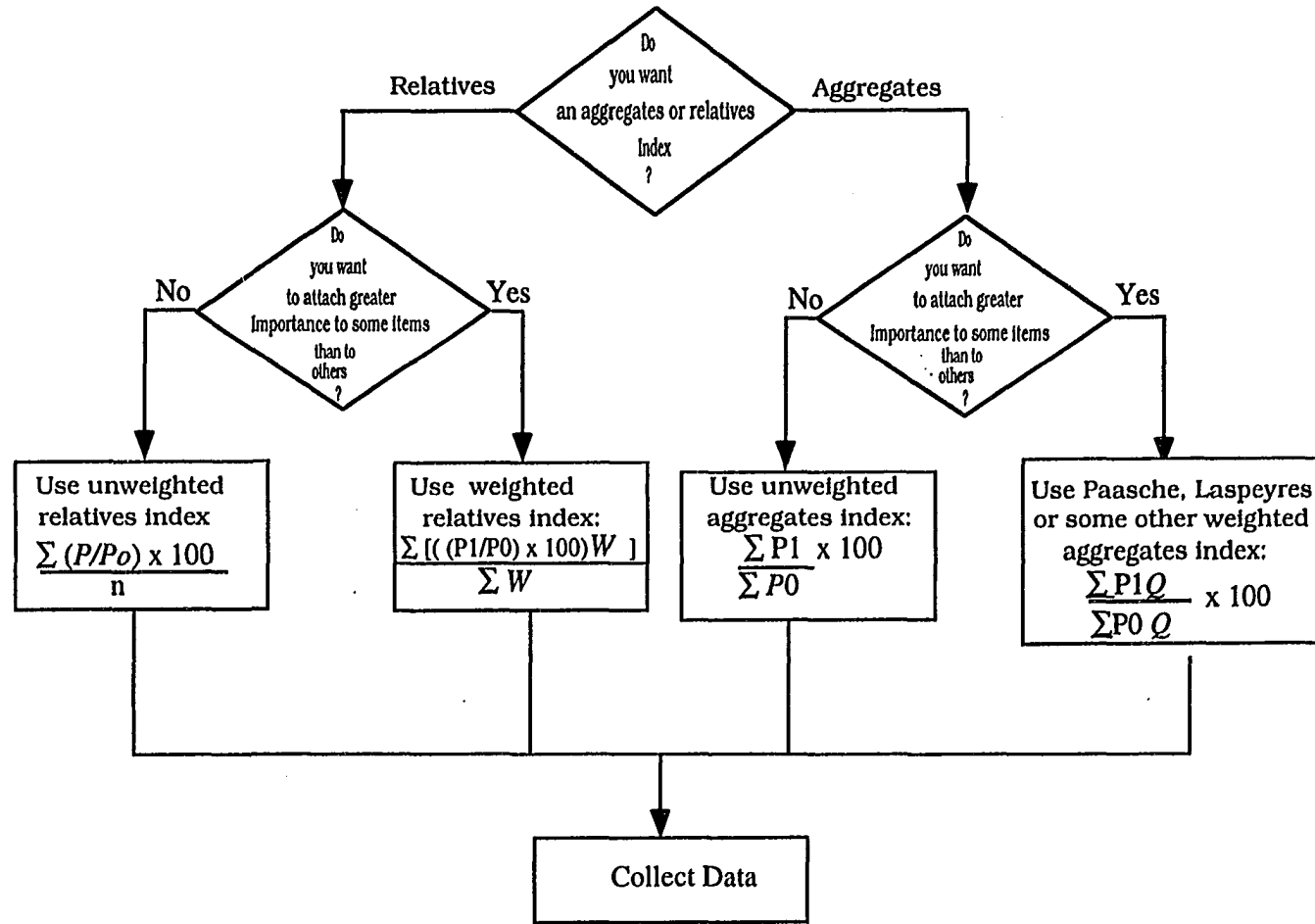


Figure 2.1: The Selection of Basic Mathematical Formula for Constructing an Index.(Levin,1987)

2.3 CONSTRUCTION INDEXES IN GENERAL :

In this research, the indexes of the American and British construction industries are listed as follows :

2.3.1 *Construction Cost Indexes in the USA:*

The literature shows that there are more than 14 different construction indexes used in the USA (Shing, 1985) :

1. The Construction Cost Index .
2. The Building Cost Index .
3. The Federal Highway Administration Bid Price Index .
4. The Boeckh Building Cost Number .
5. The Relative Cost of Pipeline Construction for the United States.
6. The Chemical Engineering Plant Cost Index .
7. Nelson Refinery Construction Cost Index (Nelson Index).
8. The Lee Saylor Index.
9. The Bureau of Reclamation Cost Index .
10. The Factory Mutual Building Cost Index.
11. The Austin Building Cost Index .

12. The Turner Building Cost Index .
13. The Marshal Valuation Service (MVS) Index .
14. The Means Construction Cost Index .
15. The Civil Works Construction Cost Index .

A full description of these indexes can be found in Shing (1985). However, since the construction indexes of buildings are related to school buildings, they are reviewed in the next section.

2.3.1.1 *Construction Indexes Related to School Buildings in the USA:*

a) Building Cost Index (BCI):

The building cost index was introduced by the Engineering News-Record in 1938 to measure the effects of skilled labor costs on the material cost. The BCI is an improved index of the Construction Cost Index (CCI). Both the CCI and BCI are weighted aggregate indexes for constant quantities of structural steel, Portland cement, lumber and labor. The CCI accounts common labor wages for its labor component, but the BCI accounts an average of carpenter, bricklayer and structural ironworker wages for its labor component. The BCI is composed of two major parts, namely: the Material Cost Components Index (MCC) and the Skilled Labor Index (SLI). The MCC is constructed using the prices of structural steel, Portland cement and labor. The SLI is constructed using the average of carpenter, bricklayer and structural ironworker wages. The MCC and SLI

are combined to produce the BCI. The base year of the BCI is 1967 for each city and 1913 for national average. The BCI does not make adjustments for productivity, managerial efficiency, competitive conditions, contractor overhead and profit, design changes and other intangibles (Shing 1985).

b) Boeckh Building Cost Index Numbers:

The Boeckh Building Cost Index is calculated from the base year of the United States Average Prices 1926-1929 = 100. The E.H. Boeckh Co. calculates residential building cost percentage using a continuous three-phase process:

1. Labor rates and material prices are monitored throughout the USA and Canadian cities.
2. Weighting schedules, which are formulas specifying the percentage of each labor and material cost in relation to the total building cost, are established and modified as trends dictate.
3. The results of phase 1 and phase 2 are combined by computer, producing building cost percentage change reports.

In phase one, the data collection involves three categories: local labor rate, local material costs and national material costs. Labor rates are the prevailing wages paid in a particular city, and include fringe benefits, applicable state and local taxes, workmen's compensation, unemployment compensation, contractor's liability insurance and social security. This data

is collected from building trade councils, associated general contractors, local unions and contractors and state and local government agencies. Local material costs are checked in the same manner as the local labor rates. These costs are collected for material such as brick, concrete block, ready-mix concrete, lumber and steel. This data is collected from local suppliers in the specific locations. National material costs are priced in the same manner for plumbing fixtures, piping and wiring which are distributed nationwide by supply centers.

c) Lee Saylor Index:

The Lee Saylor Index (LSI) is an unweighted index and its base year is 1967. The price indexes are compiled from a large number of projects, interviews with material suppliers and subcontractors and from sources worked out with general contractors for labor items. The data of the LSI is not only from actual project costs, but also from opinions rendered to Lee Saylor's incorporation. The LSI indexes are based on the sixteen division format of the Construction Specification Institute (CSI). However, there is some deviation from the CSI standard format as follows:

1. Where the standard format causes a split between disciplines involved in a single trade.
2. Where more separations are needed than allowed for in the CSI standard format.

3. Where divisions under the CSI standard format do not fit a logical trade pattern or flow of materials.
4. Where the trades are so broken down that the sections become too small to conveniently handle in LSI, items are sometimes combined into the same section. The LSI consists of two major

parts, namely: the material/labor cost index and the subcontractor index. The components of the material/labor cost index are 23 selected materials and 9 selected trades. The components of the subcontractor cost index are 21 in-place cost items.

d) Means Construction Cost Index:

The Means Construction Cost Index represents relative costs for material, labor and equipment, as well in-place cost. The base year used for this index is 1975. This index is based on the Construction Specification Institute's 16 major divisions. Each division has certain weight in the index. These weights are the following:

Division 1	Contractor's equipment	6.2 %
Division 2	Site work	5.4 %
Division 3	Concrete	19.4 %
Division 4	Masonry	10.1 %
Division 5	Metals	6.2 %
Division 6	Wood and Plastic	1.9 %
Division 7	Moisture Protection	4.3 %

Division 8	Doors, Windows and Glass	5.5 %
Division 9	Finishes	10.1 %
Division 10	Specialties etc.	7.9 %
to Division 14		
Division 15	Mechanical	19.5 %
Division 16	Electrical	9.7 %

2.3.2 Construction Cost Indexes in The UK:

There are three main kinds of indexes in construction in the United Kingdom. These kinds of indexes are as follows:

- a. Building Cost Indexes
- b. Tender Price Indexes
- c. Output Price Indexes

A description of the various indexes in the above three categories can be found in Fleming and Tysoe (1991) and in Tysoe (1981). However, these indexes will be reviewed briefly in this research.

2.3.2.1 Construction Indexes Related to School Buildings in the UK:

a) Building Cost Indexes:

Cost indexes in the U.K. represent the change in building costs that are actually incurred by the contractor or the builder in the course of his business such as wages, materials prices, plant cost, rates, rents, overheads

and taxes etc., but excludes profits and market considerations. The discussion of the cost indices will not be expanded because only the price indexes are being considered in this research.

b) Tender Price Indexes

Tender price indexes represent the movement of costs that a client must pay for a building. The data for these indexes are collected from Bills of Quantities. These indexes are related to the price index which will be developed in this research. Therefore, the tender price indexes that are related to school buildings or similar buildings will be reviewed.

1. DOE DQSS Public Sector Building Tender Prices Index:

This index is developed by the Department of the Environment (DOE) and the Directorate of Quantity Surveying Services (DQSS). It measures the level of prices in accepted tenders for new building works in the public sector when compared with standard base prices. The data for this index are based on bills of quantities for projects such as schools, hospitals, social service buildings and police buildings. The index is prepared from price levels established for each accepted tender by comparing prices of items to a total of 25% for each trade or section of the bill of quantities with standard base prices; the information is combined by applying weights representing the proportion of the total of the bill of quantities represented by each trade or section. Preliminaries and other general charges are spread proportionately over each item of the bill of quantities.

2. *BCIS Tender Price Index:*

This index measures the trend of tender prices for new building work in the United Kingdom. The index is compiled by comparing rates from accepted tenders over the country as a whole with a base schedule. A random sample of priced bills of quantities for new work in both the public and private sectors is collected and analyzed. Eighty projects per quarter are required for a statistically reliable index. If the number in the sample falls below 80 the reliability of the index is reduced.

3. *DOE Price Index of Public Sector Housing:*

The price index of public sector house building is prepared by the DOE. This index provides a measure of the change of tender prices for the construction of public sector housing in England and Wales. The price data used are extracted from the bills of quantities of successful tenders for dwellings in blocks of up to four stories built by traditional methods.

The price changes are measured from the prices of 23 items which occur in most such bills of quantities. Each item is selected to represent all the work in a particular trade section, so that price movements of the other work in a trade section are assumed to be broadly similar to those of the representative item. The index is compiled as a Laspeyres price index, in which a weighted arithmetic average of relatives for each item in the current quarter, relative to the base year, is produced for each region. Items together with their weights are listed in Table 2.1.

Table 2.1 Items Used in DOE Price Index of Public Sector Housing Buildings and Their Weights (Fleming and Tysoe, 1991; Tysoe 1981)

#	Items	Weights Used	#	Items	Weights Used
1	Excavation and hard-core	2.5	13	Copper plumbing	2.5
2	Concrete work	7.5	14	Hot and cold water tanks	1
3	Brickwork-general	12.5	15	Sanitary fittings	3.5
4	Brickwork -facing	7	16	Central heating	7.5
5	Partitions	2.5	17	Electrical installation	4
6	Roof tiling	4.5	18	Plastering walls	7
7	Carpentry	7.5	19	Ground floor covering	2.5
8	First floor boarding	2	20	Plastering ceilings	2.5
9	Manufacture joinery doors	6.5	21	Glazing	1
10	Windows	4	22	Wall and ceiling paint	2
11	General joinery	5	23	Oil painting	3.5
12	Soil and vent piping	1.5			

4. *Scottish Office Housing Tender Price Index:*

This index is compiled by the Scottish Office Building Directorate. It measures the movement of prices in competitive tenders for one-to four-storey public sector housing throughout Scotland. Its main use is in updating tenders or producing an estimate of current tender prices on the basis of historic cost information for housing in Scotland.

c) *Output Price Indexes:*

Output price indexes are derived from tender price indexes and are used as deflators to convert contractors' output of new construction work from current prices to constant prices. The output price indexes are developed by the Department of Environment (DOE). These indexes consist of six building indexes, namely: Public Housing, Private Housing, Public Works, Private Industrial, Private Commercial and New Construction.

2.3.3 *Indexes in Saudi Arabia:*

The literature does not show that there is any construction index in Saudi Arabia. However, there are some indexes published by the Ministry of Finance and National Economy (MFNE). There are two indexes namely: Cost of Living Index (CLI) and Wholesale Price Index (WPI). The CLI consists of three main indexes namely: the Retail Import Price Index (RIPI), the Middle-Income Index (MII) and All Cities Index (ACI). The CLI is published monthly. The WPI is published on a quarterly basis. The

CLI and WPI are calculated with the use of fixed weights and Laspeyres formula. The base year of both the CLI and WPI is 1988. The historical cost of living index for the all cities is shown in Table 2.2.

Table 2.2: Historical Cost of Living Index for all Cities Index
(MFNE, June 1995)

Year	General Index	Year	General Index
1979	100.4	1987	99.1
1980	104.8	1988	100.0
1981	107.7	1989	101.0
1982	108.8	1990	103.1
1983	109.0	1991	107.8
1984	107.3	1992	107.4
1985	104.0	1993	108.3
1986	100.7	1994	109.0

2.4 ISSUES TO BE CONSIDERED IN DEVELOPING A CONSTRUCTION PRICE INDEX:

Many construction cost/price indexes have been developed in the UK and the USA. This large number of indexes is due to several factors, such as:

- The diversity of construction work, which means that different types of work need different indexes.

- The different purposes of indexes, such as updating tender forecasting, or others which also may need different indexes.
- The measurement difficulties in construction: because of the non-standard product, identical projects are rare.
- Different indexes for different periods of time.
- The difference in prices and methods due to geographical differences (Fleming and Tysoe, 1991).

Therefore, these factors need to be studied when developing a new construction index for a specific purpose.

2.4.1 Types of Construction Indexes:

There are two main types of construction indexes, namely: the input indexes and the output indexes. The input indexes are known as cost indexes. These indexes measure the price change of construction items, such as material, labor and equipment, which represent the cost incurred by the contractor. This does not include profits and market considerations. The output indexes are known as price indexes. These indexes measure the price change of construction items, such as material, labor and equipment, which represent the price a client must pay for a building. These indexes include the profits and market considerations. (Fleming and Tysoe, 1991, Gallo, 1979).

2.4.2 Problems of Measurement:

There are many factors which affect measurement of indexes in the construction industry. The main factor is the diversity of construction work. This includes the construction of a wide variety of building types, sizes, design, specifications, complexity and method of construction etc. Even similar jobs vary due to differences in site conditions, with a consequential influence upon costs of construction. Therefore, each construction job tends to be unique. Thus, from the point of view of measuring changes in costs over time there is no single standard of comparison, Another factor is that construction projects often take a considerable period of time from start to finish. The costs may be measured at different stages of the process, such as work to be carried out, work being executed, or work that has been completed. The measurements which relate to these three stages are expected to be different and likewise the rate of change over time may not be the same (Fleming and Tysoe, 1991).

2.4.3 Methods of Measurement:

There are two approaches to the problem of devising an index of construction costs or prices. The first one is to use price data for actual contracts. The other approach is to use information about changes in factor costs.

a) *Use of Actual Price Data:*

The use of actual price data is divided into two types, namely: total prices, and unit rates and repricing of tenders.

1) Total Prices:

This method will be discussed briefly because it is not in current use. The main problem in this method is that there is no standard product so that it is difficult to make comparisons between building prices. This problem can be solved by inviting tenders periodically for a building of standard design and specification, but without intending to erect the building. This method should take into consideration the changes in standards that take place over time. There is also the more serious problem that, since the builders tendering would have no prospect of gaining a contract, there could be no assurance that the prices were reasonable reflections of current cost levels and the tendering climate (Fleming and Tysoe, 1991).

2) Unit Rates and the Repricing of Tenders:

This method involves collecting data about the unit rates for particular categories of work used in building up the total contract price. These are available from the priced bills of quantities of accepted tenders. However, this method needs access to a representative selection of bills, and what is more, a reasonably large number of them. This is because the rates given by different contractors vary considerably not only due to the efficiency

differences in the labors, materials and plant cost used by the estimator but because of the differences in practice adopted by each contractor to arrive at the total price of a contract. There are two ways to apply this method in practice. The first is to measure the percentage change in the rates quoted in current tenders compared with base-period tenders and to take an appropriately weighted average of these. The other way is to use the rates to re-price tenders. There are two approaches for applying the second method. One is to use standard rates from a base period to re-price current bills. The other one is to use current rates to re-price a standard bill (Fleming and Tysoe, 1991).

b) Use of Factor Cost Data:

The use of factor cost data is divided into three types, namely: the weighted average of factor cost indexes, the repricing aggregate factor costs and the use of published unit (Measured) rates.

1) Weighted Averages of Factor Cost Indices:

This method consists of taking a weighted average of indexes measuring changes in the costs of labor, material and equipment. Labor costs may be measured by reference to wage rates, possibly with the addition of allowances for labor, such as payments for insurance, training levies, traveling time, payroll taxes, etc. The use of wage rates to measure labor costs will not reflect the payment of rates in excess of the basic negotiated rates, nor payments for overtime, bonuses...etc. (Fleming and Tysoe, 1991).

2) Repricing Aggregate Factor Costs:

In brief, this method consists of taking aggregate information about the cost of factor inputs and deflating it to base year price levels through the use of appropriate factor cost indexes. The sum of factor costs at current rates is compared with base-period prices to yield an index of the change in output prices (Fleming and Tysoe, 1991).

3) Use of Published Unit Rates:

In this method, the rates used are those published in builders' price books or trade journals. These rates represent the going rates for carrying out specific items of building work. They facilitate the maintenance of a comparable standard over time reflecting both changes in costs and productivity and incorporating a built-in weighting of labor and materials, but they do not take technical changes into consideration. Changes in productivity may be allowed for when the rates, or more particularly the constants, are revised but in practice this is likely to be infrequent. Overheads and profits are commonly allowed for in these rates through the addition of a fixed percentage. These rates are not sensitive to changes in market conditions and are more likely to reflect changes in constructors' basic factor costs rather than tender prices (Fleming and Tysoe, 1991).

2.4.4 Index Simplification:

In the development of construction cost indexes, simplification of the index should be considered. Items of construction that have the greatest

influence on the index number should be selected. For example, the Engineering News Record (ENR) construction cost index basically consists of four major components (structural steel, Portland cement, lumber and labor). The ENR index covers 20 major U.S. cities and it still serves its purpose successfully (Fushi, 1978).

2.4.5 Source of Price Data:

Government organizations have most of the statistical data about prices. In the U.S.A. the largest source of commodity price statistics is the Bureau of Labor Statistics (BLS) in the U.S. Department of Labor. Data from this source has been used for many years and Bureau of Labor Statistics (BLS) has been found to do a competent job in updating their data. This provides consistency in updating data. The frequency of data collection is another consideration to coordinate with the time intervals (such as monthly, quarterly, or yearly) of the index developed. Another consideration is the accuracy of the data because it affects the final output of any index. The data source plays the major role in its accuracy. The source for statistical data for a specific item should be an organization which deals with purchasing or producing of that item in a direct way. Therefore, it is very important to select the most accurate, frequent and consistent source of data suitable for the type of index developed (Fushi, 1978, Fleming and Tysoe, 1991.)

2.4.6 Corrections for Improvements:

As time passes, the accuracy of an index decreases. To overcome this problem, certain steps should be done to improve the index's accuracy such as base year shifting, weight updating, market conditions percentage provision and correction for productivity. Construction techniques have been improved as time passes and consequently this causes a rate of change in productivity. Therefore, there should be a correction factor for construction labor. In the U.S.A. 2.5% per year is considered as the average rate of change productivity correction factor (Fushi, 1978). Statistical data is required in order to find the productivity correction factor, but once the productivity factor is built into the index, it will be a simple matter to update the index when better data becomes available (Fushi, 1978).

CHAPTER 3

RESEARCH DESIGN

3.1 METHODOLOGY:

The research design section is divided into three sections, namely : methodology, data collection and validation. The methodology section consists of five sub-sections, namely surveying school models, identification and selection of price index items, weights to be used, selection of the base year and selection of a price index method. The data collection section consists of data source and sampling and sample size needed. The last section is an overview of how the price index for schools can be validated.

3.1.1 Surveying the School Models:

A survey was conducted to identify the common models of school projects. MOE has forty-six models for school buildings. These models are listed in Table 3.1. These models depend on three variables which are the serial number of model (i.e. 1,2,3,...11), the number of class rooms and the type of the school (i.e. Elementary, Intermediate and Secondary). Among the forty-six model, there are only twelve models are common. These common models are listed in Table 3.2. Design models 2/18/E, 2/18/I, 2/26/S, 2/28/E and 2/28/I have the same characteristics in the following:

- Director Office
- Secretary Room
- Library
- Multipurpose Room
- Toilets
- Mosque
- Social Advisor Room
- Two Teacher Conference Rooms
- Gymnasium
- Stores
- Snack Bar

Design models 11/20/E, 11/25/E, 11/25/I, 11/25/S, 11/30.E, 11/30/I and 11/30/S have the same characteristics in the following:

- Director Office
- Two Assistance Rooms
- Secretary Room
- Two Teacher Conference Room
- Drafting Room
- English Laboratory
- Library
- Stores
- Snack Bar
- Mosque
- Secret Room
- One Conference Room
- Two Monitoring Rooms
- Physical Education Advisor Room
- Computer Room
- Computer Laboratory
- Gymnasium
- Toilets
- Dressing Room

The differences between the common models of school projects are shown in Table 3.3. The total number of projects that have been constructed since 1982 upto 1995 from all types of models is shown in Table 3.4. Also the total number of projects that have been constructed since 1982

upto 1995 from the common models is shown in Table 3.4. From Table 3.4, it is very clear that the common models form 58.29% of the constructed projects in the three educational areas between 1982 & 1995. Also, the total number of projects that are under construction until 1995 are listed in Table 3.5. The common models form 91.31% of the projects that are under construction in the three areas until 1995. These statistics show that, there is no unique common model and among the forty-six models, there are only twelve models are common and consequently a typical model is developed for the purpose of this study. This typical model contains the common features and characteristics of these twelve models. Bill of Quantities for the typical model is developed to contain the common items from the BOQ's of the common models. Five BOQ's for five projects have been taken and the items of these BOQ's have been listed in appendix A. This BOQ of the typical model contains 165 items.

Table 3.1: List of School Projects Models in Saudi Arabia

#	Type of Model	#	Type of Model	#	Type of Model
1	1/12/I ¹	17	4/9/E	33	8/6/E
2	1/12/S	18	4/9/I	34	10/21/I
3	1/18/I	19	4/9/S	35	11/15/E
4	1/18/S	20	5/14/I	36	11/15/I
5	1/27/S	21	5/19/E	37	11/15/S
6	2/18/E	22	5/21/I	38	11/20/E
7	2/18/I	23	5/28/E	39	11/20/I
8	2/28/E	24	6/18/E	40	11/20/S
9	2/28/I	25	6/18/I	41	11/25/E
10	2/26/S	26	6/18/S	42	11/25/I
11	3/12/E	27	6/24/E	43	11/25/S
12	3/12/I	28	6/24/I	44	11/30/E
13	3/12/S	29	6/24/S	45	11/30/I
14	3/20/S	30	6/30/E	46	11/30/S
15	3/22/E	31	6/30/I		
16	3/22/I	32	6/30/S		

Table 3.2: The common models of school projects in Saudi Arabia

#	Type of Model	#	Type of Model	#	Type of Model
1	2/18/E	5	2/28/I	9	11/25/S
2	2/18/I	6	11/20/E	10	11/30/E
3	2/26/S	7	11/25/E	11	11/30/I
4	2/28/E	8	11/25/I	12	11/30/S

¹ The first number refers to the model, the second number refers to the number of classrooms in the school and the third number refers to the type of the school (i.e. E = Elementary, I = Intermediate and S = Secondary school)

Table 3.3: List of the Differences Between the Common Models of School Projects in Saudi Arabia

#	Type of Model	No. of Class Rooms	Studying Level	No. of Floors	No. of Laboratories
1	2/18/E	18	Elementary	2	0
2	2/18/I	18	Intermediate	2	2
3	2/26/S	26	Secondary	3	4
4	2/28/E	28	Elementary	3	0
5	2/28/I	28	Intermediate	3	2
6	11/20/E	20	Elementary	2	0
7	11/25/E	25	Elementary	2	0
8	11/25/I	25	Intermediate	2	2
9	11/25/S	25	Secondary	2	4
10	11/30/E	30	Elementary	2	0
11	11/30/I	30	Intermediate	2	2
12	11/30/S	30	Secondary	2	4

**Table 3.4: The Number of Constructed Projects
Between 1982-1995 in the Three Educational Areas**

Educational Area	No. of Projects	No. of Projects Using Common Models	Percentage of Projects Using Common Models to the Total
Riyadh	211	123	58.29
Jeddah	112	66	58.93
Eastern Province	111	64	57.66
<i>The total in the three Educational Areas</i>	<i>434</i>	<i>253</i>	<i>58.29</i>

**Table 3.5: The Number of Projects Under Construction
in the Three Areas**

Educational Area	No. of Projects	No. of Projects Using Common Models	Percentage of Projects Using Common Models to the Total
Riyadh	55	48	87.27
Jeddah	30	26	86.67
Eastern Province	8	8	100
<i>The total in the three Educational Areas</i>	<i>93</i>	<i>82</i>	<i>91.31</i>

3.1.2 Identification and selection of Price Index Items

The identification of the price index items can be done by review of the BOQ's of the typical model.

The BOQ's of the typical model contains all the price items, but for developing the price index, some representative items are needed. The selection of the price index items is based on the following:

1. The item should have a major effect on the total cost of the project (i.e. 0.50% or above).
2. The item must have been used in all common models, it should have been used in the past, and it should be used in the present and future.

Five projects have been taken and the percentage price of any item to the total price of the project have been calculated and listed in appendix A. The average percentage of the five values have been found and listed in appendix A. After applying the previous two conditions to each price item in the BOQ's of the typical model, a list of price index items is obtained. The list of price items is shown in appendix (B). This list contains 36 price items, which are the most common because they are found in every project of the common models. They also form more than 75% of the total project price (see appendix B). Therefore, these items are used as the price items because they are available in every project and have a large effect on the total project price.

3.1.3 Weights to be Used:

There are basically two ways of selecting weight, namely: fixed quantity and variable quantity. The fixed quantity approach using base year quantities is the most appropriate for this research because this method has the advantage of comparison between indexes. Another advantage is that the tabulation of quantities will be done only once. The base year quantities for all selected items in the price index are used as weights in this research.

3.1.4 Selection of the Base Year:

There are three considerations that need to be taken into account when choosing the base period. First, periods at which there were troughs or peaks of price fluctuation should not be selected as a base period. Another consideration is that the base period should not be too far from the present. The third consideration in choosing a base period is the use of the same base period as other indexes if there are such indexes, because this will help later in comparison of the results. (Hamburg, 1987, Tysoe,1981). After visits by the researcher to the MOE, the year 1990 was chosen as the base year in this research because it fulfills the first and the second requirements in choosing the base period. However, the year 1990 does not fulfill the third requirement, because the base year of the Cost of Living Index (CLI) of the Ministry of Finance (MOF) is 1988. The MOE has informed the researcher that reliable and organized data is unavailable prior to 1990.

3.1.5 Selection of a Price Index Method:

The selection of a price index method can be accomplished as shown in figure 2.1. In that figure, the first step is either to select the aggregative method or the average of relatives method. The aggregative method will be used in this research because it is more convenient since quantity weights are easier to obtain than value weights; and the basic price data are easier to obtain in absolute values than in the form of relatives. Also, the lack of relevant price indexes in the Kingdom prevents the use of price relatives in developing the construction index. The second step is to decide whether the weighted or the unweighted method is to be used. The weighted method is selected here because items are not equal in importance. The difference in the importance of items is due to their effects on the total price of the project. Because of the selection of the base year weights in section 3.1.3, the index is aggregative, based on Laspeyres equation as mathematically described in equation 2 in p.9. The third step is the collection of the appropriate data and this is done in section 3.2.

3.2 DATA COLLECTION:

3.2.1 Data Source:

Data was collected from one source which is the MOE in Riyadh and specifically from the Deputy Ministry of Education for Projects and Maintenance. Only data about projects that have been built was collected. This data is for actual and successful biddings. The data are in the form of

BOQ's of school projects. The BOQ's include items and their prices, quantities and the total price for each project selected in the sample.

3.2.2 Sampling and Sample Size Needed:

There are 3235 school buildings which were built for the MOE between 1970 and 1993 in Saudi Arabia. These buildings include 2512 elementary schools, 543 intermediate schools, and 180 secondary schools. Therefore, the population of school buildings is 3235 schools (MOE, 1993). It is necessary to select a sample size of schools that produces features and characteristics of the entire schools population. A sample of 114 school projects was selected based on a confidence level of 95% and a limit of error of ± 0.10 .

$$n = x / [(1 + (x / N))] \quad (\text{Eq. 7})(\text{Kish, 1965})$$

Where :

$$x = pq (t/d)^2$$

n = sample size

$$p = \% \text{ of feature existence} = 0.5$$

$$q = \% \text{ of feature non existence} = 0.5$$

$$t = Z \text{ for } 95\% \text{ confidence} = 1.96$$

$$d = \text{limit or error} = 0.10$$

$$N = \text{the finite population of schools} = 3235$$

$$x = 0.5 * 0.5 * (1.96/0.10)^2 = 96.04$$

$$n = 96.04/[1+(96.04/3235)] = 93.27$$

Therefore $n = 93$

The minimum sample size is 93 projects. However, the researcher selected a sample of 114 projects. The projects were selected by random sampling. A selected project was accepted if it satisfied these two conditions :

- 1) The project must be built in Riyadh, Jeddah or Eastern Province.
- 2) The award date of the project must be between 1990 and 1995.

The archive shelves were reviewed before starting the collection of data to develop a system of random sampling which was done in order to give each constructed project an equal chance to be in the sample. The elements of this sample (school projects) were selected using a Table of random numbers to assure randomness, independence, and representativeness. All the school projects were listed in a long list in the MOE. From the Table of random numbers, a number was selected and then the equivalent number in school projects list is taken. When any selected project did not satisfy the above two conditions, another project was selected using the same Table to substitute for it. All the school projects in the sample are listed in Table 3.6.

Table 3.6: List of School Projects in the Sample of this Research

#	Type of Model	Educational Area	Year of Award
1	2/28/E	Riyadh	1990
2	2/28/E	Riyadh	1990
3	2/28/E	Riyadh	1990
4	2/28/E	Riyadh	1990
5	2/28/E	Riyadh	1990
6	2/28/E	Riyadh	1990
7	2/28/E	Riyadh	1990
8	2/28/E	Riyadh	1990
9	2/28/E	Riyadh	1990
10	2/18/E	Riyadh	1990
11	2/28/I	Riyadh	1991
12	2/28/I	Riyadh	1991
13	2/28/I	Riyadh	1991
14	2/28/I	Riyadh	1991
15	2/28/I	Riyadh	1991
16	2/28/I	Riyadh	1991
17	2/28/I	Riyadh	1992
18	2/28/I	Riyadh	1992
19	2/28/I	Riyadh	1992
20	2/18/E	Riyadh	1992
21	2/28/I	Riyadh	1992
22	2/28/E	Riyadh	1993
23	2/28/E	Riyadh	1993
24	2/28/E	Riyadh	1993
25	2/28/E	Riyadh	1993
26	2/28/E	Riyadh	1993

Continued...

Table 3.6 Continued

#	Type of Model	Educational Area	Year of Award
27	2/28/E	Riyadh	1993
28	2/28/E	Riyadh	1993
29	2/28/E	Riyadh	1993
30	2/28/E	Riyadh	1993
31	2/28/E	Riyadh	1993
32	2/28/I	Riyadh	1993
33	2/28/I	Riyadh	1993
34	2/28/E	Riyadh	1994
35	2/28/E	Riyadh	1994
36	2/28/E	Riyadh	1994
37	2/28/E	Riyadh	1994
38	2/28/I	Riyadh	1994
39	11/30/I	Riyadh	1994
40	11/30/E	Riyadh	1995
41	11/30/I	Riyadh	1995
42	11/30/S	Riyadh	1995
43	2/28/E	Jeddah	1990
44	2/28/E	Jeddah	1990
45	2/28/E	Jeddah	1990
46	2/28/E	Jeddah	1990
47	2/28/E	Jeddah	1990
48	2/28/E	Jeddah	1990
49	2/28/E	Jeddah	1990
50	2/28/E	Jeddah	1990
51	2/28/E	Jeddah	1990
52	2/28/I	Jeddah	1990
53	2/28/I	Jeddah	1991
54	2/28/I	Jeddah	1991

Continued...

Table 3.6 Continued

#	Type of Model	Educational Area	Year of Award
55	2/28/I	Jeddah	1991
56	2/28/I	Jeddah	1991
57	2/28/I	Jeddah	1991
58	2/28/E	Jeddah	1991
59	2/28/E	Jeddah	1992
60	2/28/E	Jeddah	1992
61	2/28/E	Jeddah	1992
62	2/28/E	Jeddah	1992
63	2/28/E	Jeddah	1992
64	2/28/E	Jeddah	1992
65	2/28/E	Jeddah	1993
66	2/28/E	Jeddah	1993
67	2/28/E	Jeddah	1993
68	2/28/E	Jeddah	1993
69	2/28/E	Jeddah	1993
70	2/28/E	Jeddah	1993
71	2/28/I	Jeddah	1993
72	2/28/I	Jeddah	1993
73	2/28/I	Jeddah	1993
74	2/18/I	Jeddah	1993
75	2/28/I	Jeddah	1993
76	2/26/S	Jeddah	1993
77	2/28/I	Jeddah	1994
78	2/28/E	Jeddah	1994
79	11/30/E	Jeddah	1995

Continued..

Table 3.6 Continued

#	Type of Model	Educational Area	Year of Award
80	11/30/I	Jeddah	1995
81	11/30/S	Jeddah	1995
82	2/28/E	Eastern Province	1990
83	2/28/E	Eastern Province	1990
84	2/28/E	Eastern Province	1990
85	2/28/E	Eastern Province	1990
86	2/28/E	Eastern Province	1990
87	2/28/E	Eastern Province	1990
88	2/28/E	Eastern Province	1990
89	2/28/E	Eastern Province	1990
90	2/28/E	Eastern Province	1990
91	2/28/E	Eastern Province	1990
92	2/28/I	Eastern Province	1991
93	2/28/I	Eastern Province	1991
94	2/28/I	Eastern Province	1991
95	2/28/I	Eastern Province	1991
96	2/28/I	Eastern Province	1991
97	2/28/E	Eastern Province	1991
98	2/28/E	Eastern Province	1992
99	2/28/E	Eastern Province	1992
100	2/28/E	Eastern Province	1992
101	2/28/E	Eastern Province	1992
102	2/26/S	Eastern Province	1992
103	2/28/I	Eastern Province	1992
104	2/28/E	Eastern Province	1993

Continued..

Table 3.6 Continued

#	Type of Model	Educational Area	Year of Award
105	2/28/E	Eastern Province	1993
106	11/3/S	Eastern Province	1993
107	11/25/E	Eastern Province	1993
108	11/20/E	Eastern Province	1993
109	2/28/E	Eastern Province	1994
110	11/30/S	Eastern Province	1994
111	11/30/S	Eastern Province	1994
112	11/25/S	Eastern Province	1994
113	11/30/S	Eastern Province	1995
114	11/30/I	Eastern Province	1995

3.3 VALIDATION:

After developing the price index, it is tested for its validity. Several prices of constructed school projects, not in the sample, were collected from the MOE for a certain year. This was repeated for another year. The percentage difference of the school prices can be compared with the difference of the price index for the same set of years. A full description of the index validation is presented in section 4.3.

The methodology of this research is presented graphically in Figure 3.1.

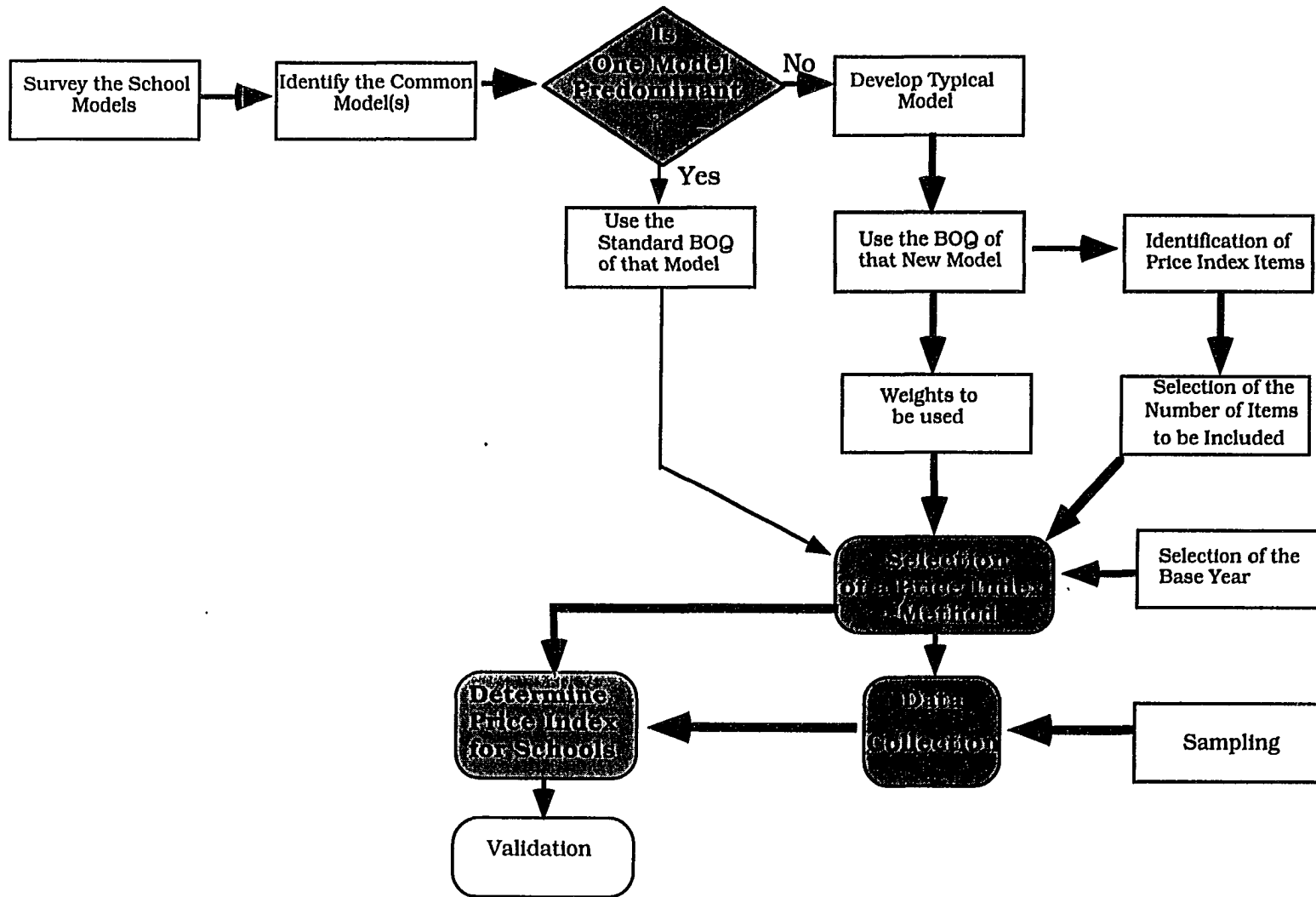




Figure 3.1: The Methodology for Developing Price Index for School Projects in Saudi Arabia.

 Proposed and the Research Path
 Proposed Path

CHAPTER 4

DATA CALCULATION AND ANALYSIS

This chapter is divided into three parts, namely, the development of regional school projects price index (RSPPI), the development of the school projects price index (SPPI) and the validation. In the first part, RSPPI will be developed in three stages. The first stage is the quantities and prices calculation for each item in the RSPPI. The second stage is the total price calculation for each item and the sum of the total prices. The last stage is the RSPPI calculation using the prices of the sum of index items by the Laspeyres method. In the second part, the SPPI will be developed in four stages. The first stage is the quantities and prices calculation for each item in the SPPI. The second stage is the average quantities and prices calculation for each item in the SPPI. The third stage is the total prices. The last stage is the SPPI calculation using the prices of the sum of index items by Laspeyres method. In the third part, the validation of the RSPPI and the SPPI will be tested.

4.1 THE DEVELOPMENT OF THE RSPPI:

This section is divided into three sub-sections, namely, the calculation of the quantities and prices, the calculation of the total price for each item and the sum of the total prices, and the calculation of RSPPI.

4.1.1 Calculation of Quantities and Prices:

This section consists of the calculation of the base year quantities and the calculation of the prices for the six years.

4.1.1.1 Calculation of the Base Year Quantities:

The RSPPI items are listed in Table 4.1. The quantities for each item have been inserted in the Table for each item for the year 1990 from the Riyadh area. The average quantities has been calculated for each item. This calculation procedure has been done for Jeddah and Eastern Province areas in Tables 4.2 and 4.3 respectively.

Table 4.1
Calculation For the Base Year Quantities of Price Index Items
Educational Area - Riyadh
Year 1990

#	Work Items	Unit	Project Code Number ¹						Avg. Qty.
			90/1/1 ²	90/1/2	90/1/3	90/1/4	90/1/5	90/1/6	
			Item Quantities						
1	Excavation work	m ³	50	0	4700	5800	2700	300	2258.33
2	Backfilling work	m ³	3100	3000	1500	1400	1450	3200	2275.00
3	Excavation work for the foundation	m ³	1250	1300	1500	1800	2150	1400	1566.67
4	Plain concrete work under the foundation	m ³	240	230	260	260	250	260	250.00
5	Reinforced concrete work for the foundation	m ³	510	540	595	640	640	590	585.83
6	Natural crushed stone sub-base coarse	m ²	475	330	490	480	480	475	455.00
7	Building made from Calcium Silicate Bricks	m ²	680	500	800	700	550	740	661.67
8	Concrete pavers (40x40x5cm)	m ²	3740	2200	4100	4100	2100	4100	3390.00
9	Plain concrete with 10 cm thickness	m ²	1640	1640	1640	1640	1640	1640	1640.00
10	Reinforced concrete for the whole superstrucutre	m ³	1040	1040	1040	1040	1040	1040	1040.00
11	CMU walls with 15 cm thickness	m ²	1695	1695	1695	1695	1695	1695	1695.00
12	CMU walls with 20 cm thickness	m ²	2460	2460	2460	2460	2460	2460	2460.00
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	2580	2580	2580	2580	2580	2580	2580.00
14	Floor tiling	m ²	1500	1500	1500	1500	1500	1500	1500.00
15	Natural marble of stairs	m	196	196	196	196	196	196	196.00

1 Project code number is the project number in the sample.

2 The first two digits refers to the year (i.e. 90 refers to year 1990 & 91 refers to year 1991..etc)

The second number refers to the number of area (i.e. 1 refers to Riyadh, 2 refers to Jeddah & 3 refers to Eastern Province), the third number refers to the project number in the specific year and area.

Table 4.1 continued

#	Work Items	Unit	Project Code Number						Avg. Qty.
			90/1/1	90/1/2	90/1/3	90/1/4	90/1/5	90/1/6	
			Item Quantities						
16	Plastic weather-resistant paints	m ²	6550	6550	6550	6550	6550	6550	6550.00
17	White glazed ceramic tiles	m ²	910	910	910	910	910	910	910.00
18	Insulator layer for moisture	m ²	1850	1850	1850	1850	1850	1850	1850.00
19	Thermal insulation, horizontal	m ²	1480	1480	1480	1480	1480	1480	1480.00
20	Thermal insulation, vertical	m ²	1550	1550	1550	1550	1550	1550	1550.00
21	Plastic paints for interior walls (smooth American Texture)	m ²	2280	2280	2280	2280	2280	2280	2280.00
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	1670	1670	1670	1670	1670	1670	1670.00
23	Aluminum windows	m ²	349	349	349	349	349	349	349.00
24	Hollow metallic doors	m ²	170	170	170	170	170	170	170.00
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	103	103	103	103	103	103	103.00
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	291	291	291	291	291	291	291.00
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	22	17	35	39	20	32	27.50
28	Switch, A/C. window type (2x30 Amps)	No.	82	82	82	82	82	82	82.00
29	Lighting switch (15 Amps/127 volt)	No.	141	141	141	141	141	141	141.00
30	Main switchboard, school building	No.	1	1	1	1	1	1	1.00
31	Main distribution panelboard	No.	1	1	1	1	1	1	1.00
32	Thermoplastic cable (size 3x185x95 mm ²)	m	330	260	260	260	260	260	271.67
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	330	250	250	340	160	200	255.00
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	82	82	82	82	82	82	82.00
35	Ceiling air fan (dia 142cm (56in))	No.	80	80	80	80	80	80	80.00
36	Drinking water cooler (tank type)	No.	10	10	10	10	10	10	10

Table 4.2
Calculation For the Base Year Quantities of Price Index Items
Educational Area - Jeddah
Year 1990

#	Work Items	Unit	Project Code Number						Avg. Qty
			90/2/1	90/2/2	90/2/3	90/2/4	90/2/5	90/2/6	
			Item Quantities						
1	Excavation work	m ³	300	0	130	2300	2500	3500	1455.00
2	Backfilling work	m ³	1650	5000	1050	500	650	2400	1875.00
3	Excavation work for the foundation	m ³	2300	1550	1850	1400	1700	2800	1933.33
4	Plain concrete work under the foundation	m ³	220	320	325	300	260	370	299.17
5	Reinforced concrete work for the foundation	m ³	490	620	560	575	525	680	575.00
6	Natural crushed stone sub-base coarse	m ²	475	485	310	480	475	475	450.00
7	Building made from Calcium Silicate Bricks	m ²	620	600	450	780	780	570	633.33
8	Concrete pavers (40x40x5cm)	m ²	2550	3500	1300	4100	4100	3100	3108.33
9	Plain concrete with 10 cm thickness	m ²	1640	1640	1550	1640	1640	1640	1625.00
10	Reinforced concrete for the whole superstrucutre	m ³	1040	1040	1020	1040	1040	1040	1036.67
11	CMU walls with 15 cm thickness	m ²	1695	1695	1620	1695	1695	1695	1682.50
12	CMU walls with 20 cm thickness	m ²	2460	2460	2460	2460	2460	2460	2460.00
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	2580	2580	2580	2580	2580	2580	2580.00
14	Floor tiling	m ²	1500	1500	1415	1500	1500	1500	1485.83
15	Natural marble of stairs	m	196	196	188	196	196	196	194.67

Continued....

Table 4.2 continued

#	Work Items	Unit	Project Code Number						Avg. Qty
			90/2/1	90/2/2	90/2/3	90/2/4	90/2/5	90/2/6	
			Item Quantities						
16	Plastic weather-resistant paints	m ²	6550	6550	6420	6550	6550	6550	6528.33
17	White glazed ceramic tiles	m ²	910	910	840	910	910	910	898.33
18	Insulator layer for moisture	m ²	1850	1850	1765	1850	1850	1850	1835.83
19	Thermal insulation, horizontal	m ²	1480	1480	1400	1480	1480	1480	1466.67
20	Thermal insulation, vertical	m ²	1550	1550	1550	1550	1550	1550	1550.00
21	Plastic paints for interior walls (smooth American Texture)	m ²	2280	2280	2280	2280	2280	2280	2280.00
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	1670	1670	1670	1670	1670	1670	1670.00
23	Aluminum windows	m ²	349	349	344	349	349	349	348.17
24	Hollow metallic doors	m ²	170	170	170	170	170	170	170.00
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	103	103	93	103	103	103	101.33
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	291	291	291	291	291	291	291.00
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	21	30	16	35	26	29	26.17
28	Switch, A/C. window type (2x30 Amps)	No.	82	82	78	82	82	82	81.33
29	Lighting switch (15 Amps/127 volt)	No.	141	141	122	141	141	141	137.83
30	Main switchboard, school building	No.	1	1	1	1	1	1	1.00
31	Main distribution panelboard	No.	1	1	1	1	1	1	1.00
32	Thermoplastic cable (size 3x185x95 mm ²)	m	260	260	260	260	260	260	260.00
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	460	480	400	350	200	280	361.67
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	82	82	87	82	82	82	82.83
35	Ceiling air fan {dia142cm (56in)}	No.	80	80	76	80	80	80	79.33
36	Drinking water cooler (tank type)	No.	10	10	10	10	10	10	10

Table 4.3
Calculation For the Base Year Quantities of Price Index Items
Educational Area - Eastern Province
Year 1990

#	Work Items	Unit	Project Code Number						Avg.Qty.
			90/3/1	90/3/2	90/3/3	90/3/4	90/3/5	90/3/6	
			Item Quantities						
1	Excavation work	m ³	2500	0	800	5000	0	1900	1700.00
2	Backfilling work	m ³	3400	5700	1450	220	4500	700	2661.67
3	Excavation work for the foundation	m ³	1850	1000	1950	2150	4200	1700	2141.67
4	Plain concrete work under the foundation	m ³	315	270	265	355	370	250	304.17
5	Reinforced concrete work for the foundation	m ³	720	480	515	720	700	520	609.17
6	Natural crushed stone sub-base coarse	m ²	485	490	385	475	480	475	465.00
7	Building made from Calcium Silicate Bricks	m ²	1050	620	640	920	840	820	815.00
8	Concrete pavers (40x40x5cm)	m ²	4100	4100	3600	4100	4100	4100	4016.67
9	Plain concrete with 10 cm thickness	m ²	1640	1640	1640	1640	1640	1640	1640.00
10	Reinforced concrete for the whole superstrucutre	m ³	1040	1040	1040	1040	1040	1040	1040.00
11	CMU walls with 15 cm thickness	m ²	1695	1695	1695	1695	1695	1695	1695.00
12	CMU walls with 20 cm thickness	m ²	2460	2460	2460	2460	2460	2460	2460.00
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	2580	2580	2580	2580	2580	2580	2580.00
14	Floor tiling	m ²	1500	1500	1500	1500	1500	1500	1500.00
15	Natural marble of stairs	m	196	196	196	196	196	196	196.00

Continued....

Table 4.3 continued

#	Work Items	Unit	Project Code Number						Avg.Qty.
			90/3/1	90/3/2	90/3/3	90/3/4	90/3/5	90/3/6	
			Item Quantities						
16	Plastic weather-resistant paints	m ²	6550	6550	6550	6550	6550	6550	6550.00
17	White glazed ceramic tiles	m ²	910	910	910	910	910	910	910.00
18	Insulator layer for moisture	m ²	1850	1850	1850	1850	1850	1850	1850.00
19	Thermal insulation, horizontal	m ²	1480	1480	1480	1480	1480	1480	1480.00
20	Thermal insulation, vertical	m ²	1550	1550	1550	1550	1550	1550	1550.00
21	Plastic paints for interior walls (smooth American Texture)	m ²	2280	2280	2280	2280	2280	2280	2280.00
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	1670	1670	1670	1670	1670	1670	1670.00
23	Aluminum windows	m ²	349	349	349	349	349	349	349.00
24	Hollow metallic doors	m ²	170	170	170	170	170	170	170.00
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	103	103	103	103	103	103	103.00
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	291	291	291	291	291	291	291.00
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	45	39	29	48	37	36	39.00
28	Switch, A/C. window type (2x30 Amps)	No.	82	82	82	82	82	82	82.00
29	Lighting switch (15 Amps/127 volt)	No.	141	141	141	141	141	141	141.00
30	Main switchboard, school building	No.	1	1	1	1	1	1	1.00
31	Main distribution panelboard	No.	1	1	1	1	1	1	1.00
32	Thermoplastic cable (size 3x185x95 mm ²)	m	260	260	260	260	260	260	260.00
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	550	360	350	480	380	340	410.00
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	82	82	82	82	82	82	82.00
35	Ceiling air fan dia {142cm (56in)}	No.	80	80	80	80	80	80	80.00
36	Drinking water cooler (tank type)	No.	10	10	10	10	10	10	10.00

4.1.1.2 Calculation of Items Prices for the Six Periods:

The prices for each item are shown in Table 4.4 for the year 1990 from the Riyadh area. The average of prices has been calculated for each item. This calculation procedure has been done for Jeddah and Eastern Province areas in Tables 4.5 and 4.6 respectively. This procedure has been repeated for each area in the other periods (i.e. 1991, 1992, 1993, 1994 and 1995) in Tables 4.7 to 4.21.

Table 4.4
Calculation For the Base Year Prices of Price Index Items
Educational Area - Riyadh
Year 1990

#	Work Items	Unit	Project Code Number						Avg. Price (SR)
			90/1/1	90/1/2	90/1/3	90/1/4	90/1/5	90/1/6	
			Items Prices in SR						
1	Excavation work	m ³	30	*	19	15	30	30	24.80
2	Backfilling work	m ³	20	15	22	10	20	20	17.83
3	Excavation work for the foundation	m ³	35	20	39	30	32	30	31.00
4	Plain concrete work under the foundation	m ³	250	250	259	250	180	200	231.50
5	Reinforced concrete work for the foundation	m ³	700	700	529	800	650	650	671.50
6	Natural crushed stone sub-base coarse	m ²	130	130	51	41	22	22	66.00
7	Building made from Calcium Silicate Bricks	m ²	70	70	129	90	120	120	99.83
8	Concrete pavers (40x40x5cm)	m ²	50	50	49	50	70	70	56.50
9	Plain concrete with 10 cm thickness	m ²	20	20	18	20	22	22	20.33
10	Reinforced concrete for the whole superstrucutre	m ³	700	700	661	800	720	720	716.83
11	CMU walls with 15 cm thickness	m ²	30	30	29	32	40	40	33.50
12	CMU walls with 20 cm thickness	m ²	35	35	38	36	45	45	39.00
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	60	60	51	45	60	60	56.00
14	Floor tiling	m ²	35	35	38	30	36	36	35.00
15	Natural marble of stairs	m	200	200	115	150	150	150	160.83

1) * Means no price in the BOQ

Continued....

Table 4.4 continued

#	Work Items	Unit	Project Code Number						Avg. Price (SR)
			90/1/1	90/1/2	90/1/3	90/1/4	90/1/5	90/1/6	
			Items Prices in SR						
16	Plastic weather-resistant paints	m ²	50	50	33	40	42	*	43.00
17	White glazed ceramic tiles	m ²	60	60	74	60	75	75	67.33
18	Insulator layer for moisture	m ²	30	30	29	22	32	42	30.83
19	Thermal insulation, horizontal	m ²	25	25	31	30	35	32	29.67
20	Thermal insulation, vertical	m ²	25	25	17	16	26	35	24.00
21	Plastic paints for interior walls (smooth American Texture)	m ²	60	40	29	28	30	30	36.17
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	60	35	29	28	30	30	35.33
23	Aluminum windows	m ²	450	450	479	380	300	300	393.17
24	Hollow metallic doors	m ²	600	600	420	400	300	300	436.67
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	200	200	180	240	200	200	203.33
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	250	250	250	250	300	300	266.67
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	950	1000	1260	1200	1200	1200	1135.00
28	Switch, A/C. window type (2x30 Amps)	No.	250	250	200	200	200	200	216.67
29	Lighting switch (15 Amps/127 volt)	No.	150	150	110	120	120	120	128.33
30	Main switchboard, school building	No.	17000	17000	22000	20000	18000	18000	18666.67
31	Main distribution panelboard	No.	14000	14000	22000	20000	20000	20000	18333.33
32	Thermoplastic cable (size 3x185x95 mm ²)	m	120	120	119	150	120	120	124.83
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	190	190	175	240	250	250	215.83
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	1350	1350	1800	1600	2100	2100	1716.67
35	Ceiling air fan (dia 142cm (56in))	No.	300	300	250	300	350	350	308.33
36	Drinking water cooler (tank type)	No.	2000	2000	2900	2000	3000	3000	2483.33

Table 4.5
Calculation For the Base Year Prices of Price Index Items
Educational Area - Jeddah
Year 1990

#	Work Items	Unit	Project Code Number						Avg. Price (SR)
			90/2/1	90/2/2	90/2/3	90/2/4	90/2/5	90/2/6	
			Items Prices in SR						
1	Excavation work	m ³	5	*	20	12	17	20	14.80
2	Backfilling work	m ³	8	12	15	10	17	15	12.83
3	Excavation work for the foundation	m ³	5	20	50	12	17	50	25.67
4	Plain concrete work under the foundation	m ³	190	220	250	190	239	250	223.17
5	Reinforced concrete work for the foundation	m ³	600	750	800	650	500	800	683.33
6	Natural crushed stone sub-base coarse	m ²	25	30	35	90	67	35	47.00
7	Building made from Calcium Silicate Bricks	m ²	65	80	45	120	57	45	68.67
8	Concrete pavers (40x40x5cm)	m ²	28	55	55	67	76	55	56.00
9	Plain concrete with 10 cm thickness	m ²	20	30	21	20	23	21	22.50
10	Reinforced concrete for the whole superstrucutre	m ³	620	800	800	650	756	800	737.67
11	CMU walls with 15 cm thickness	m ²	40	30	40	37	41	41	38.17
12	CMU walls with 20 cm thickness	m ²	45	40	45	39	48	45	43.67
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	45	55	60	56	57	60	55.50
14	Floor tiling	m ²	28	25	40	31	37	40	33.50
15	Natural marble of stairs	m	200	140	180	140	156	180	166.00

Continued...

Table 4.5 continued

#	Work Items	Unit	Project Code Number						Avg. Price (SR)
			90/2/1	90/2/2	90/2/3	90/2/4	90/2/5	90/2/6	
			Items Prices in SR						
16	Plastic weather-resistant paints	m ²	46	20	55	34	24	55	39.00
17	White glazed ceramic tiles	m ²	54	65	50	53	49	50	53.50
18	Insulator layer for moisture	m ²	42	30	20	47	28	20	31.17
19	Thermal insulation, horizontal	m ²	28	25	35	30	27	35	30.00
20	Thermal insulation, vertical	m ²	22	20	30	27	28	30	26.17
21	Plastic paints for interior walls (smooth American Texture)	m ²	44	20	30	34	24	30	30.33
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	42	22	40	35	24	40	33.83
23	Aluminum windows	m ²	650	450	520	390	550	520	513.33
24	Hollow metallic doors	m ²	600	700	520	570	611	520	586.83
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	120	260	300	300	267	300	257.83
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	200	280	350	340	284	350	300.67
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	1100	2000	2500	1600	1267	2500	1827.83
28	Switch, A/C. window type (2x30 Amps)	No.	100	500	300	280	239	300	286.50
29	Lighting switch (15 Amps/127 volt)	No.	60	140	200	210	156	200	161.00
30	Main switchboard, school building	No.	32000	20000	22000	23000	34667	22000	25611.17
31	Main distribution panelboard	No.	35000	25000	22000	36000	38667	22000	29777.83
32	Thermoplastic cable (size 3x185x95 mm ²)	m	120	100	225	140	193	225	167.17
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	160	160	260	200	253	260	215.50
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	2000	1000	1800	1700	1778	1800	1679.67
35	Ceiling air fan (dia142cm (56in))	No.	220	350	400	330	433	400	355.50
36	Drinking water cooler (tank type)	No.	2400	2500	3000	3300	2333	3000	2755.5

Table 4.6
Calculation For the Base Year Prices of Price Index Items
Educational Area - Eastern Province
Year 1990

#	Work Items	Unit	Project Code Number						Avg. Price (SR)
			90/3/1	90/3/2	90/3/3	90/3/4	90/3/5	90/3/6	
			Items Prices in SR						
1	Excavation work	m ³	10	*	12	11	*	6	9.75
2	Backfilling work	m ³	14	14	14	6	6	8	10.33
3	Excavation work for the foundation	m ³	22	25	16	12	8	7	15.00
4	Plain concrete work under the foundation	m ³	173	173	173	173	180	180	175.33
5	Reinforced concrete work for the foundation	m ³	570	560	560	570	540	540	556.67
6	Natural crushed stone sub-base coarse	m ²	125	125	125	125	30	30	93.33
7	Building made from Calcium Silicate Bricks	m ²	58	58	58	58	40	40	52.00
8	Concrete pavers (40x40x5cm)	m ²	56	56	30	56	45	45	48.00
9	Plain concrete with 10 cm thickness	m ²	18	18	18	18	25	25	20.33
10	Reinforced concrete for the whole superstructure	m ³	620	620	620	620	575	575	605.00
11	CMU walls with 15 cm thickness	m ²	28	28	28	28	40	40	32.00
12	CMU walls with 20 cm thickness	m ²	31	31	31	31	45	45	35.67
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	48	48	48	48	50	50	48.67
14	Floor tiling	m ²	32	32	32	32	35	35	33.00
15	Natural marble of stairs	m	132	132	132	132	150	150	138.00

Continued....

Table 4.6 continued

#	Work Items	Unit	Project Code Number						Avg. Price (SR)
			90/3/1	90/3/2	90/3/3	90/3/4	90/3/5	90/3/6	
			Items Prices in SR						
16	Plastic weather-resistant paints	m ²	28	28	28	28	28	25	27.50
17	White glazed ceramic tiles	m ²	58	58	58	58	80	80	65.33
18	Insulator layer for moisture	m ²	45	45	45	45	8	8	32.67
19	Thermal insulation, horizontal	m ²	27	27	27	27	25	25	26.33
20	Thermal insulation, vertical	m ²	19	19	19	19	22	22	20.00
21	Plastic paints for interior walls (smooth American Texture)	m ²	26	26	26	26	25	25	25.67
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	26	26	26	26	25	25	25.67
23	Aluminum windows	m ²	421	421	300	421	450	450	410.50
24	Hollow metallic doors	m ²	450	450	450	450	350	350	416.67
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	316	316	316	316	220	220	284.00
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	360	360	360	360	220	220	313.33
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	1040	1090	1110	1015	1000	1000	1042.50
28	Switch, A/C. window type (2x30 Amps)	No.	240	240	240	240	120	120	200.00
29	Lighting switch (15 Amps/127 volt)	No.	190	190	190	190	70	70	150.00
30	Main switchboard, school building	No.	20000	20000	20000	20000	18000	11000	18166.67
31	Main distribution panelboard	No.	21250	21250	21250	21250	18000	18000	20166.67
32	Thermoplastic cable (size 3x185x95 mm ²)	m	138	146	138	138	130	130	136.67
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	192	200	192	192	180	180	189.33
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	1725	1725	1725	1725	1800	1800	1750.00
35	Ceiling air fan dia {142cm (56in)}	No.	381	381	381	381	240	240	334.00
36	Drinking water cooler (tank type)	No.	2818	2818	2818	2818	1500	1500	2378.67

Table 4.7
Calculation of the Prices of Price Index Items
Educational Area - Riyadh
Year 1991

#	Work Items	Unit	Project Code Number						Avg. Price (SR)
			91/1/1	91/1/2	91/1/3	91/1/4	91/1/5	91/1/6	
			Items Prices in SR						
1	Excavation work	m ³	5	12	15	10	5	45	15.33
2	Backfilling work	m ³	15	25	10	10	10	15	14.17
3	Excavation work for the foundation	m ³	40	45	40	40	40	35	40.00
4	Plain concrete work under the foundation	m ³	180	180	180	180	180	200	183.33
5	Reinforced concrete work for the foundation	m ³	630	620	680	620	620	400	595.00
6	Natural crushed stone sub-base coarse	m ²	30	35	30	30	30	25	30.00
7	Building made from Calcium Silicate Bricks	m ²	90	90	90	90	90	100	91.67
8	Concrete pavers (40x40x5cm)	m ²	52	52	52	52	52	45	50.83
9	Plain concrete with 10 cm thickness	m ²	16	16	16	16	16	20	16.67
10	Reinforced concrete for the whole superstructure	m ³	650	650	650	650	650	500	625.00
11	CMU walls with 15 cm thickness	m ²	30	30	30	30	30	40	31.67
12	CMU walls with 20 cm thickness	m ²	33	33	33	33	33	45	35.00
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	52	52	52	52	52	45	50.83
14	Floor tiling	m ²	35	35	35	35	35	30	34.17
15	Natural marble of stairs	m	160	160	160	160	160	150	158.33

Continued....

Table 4.7 continued

#	Work Items	Unit	Project Code Number						Avg. Price (SR)
			91/1/1	91/1/2	91/1/3	91/1/4	91/1/5	91/1/6	
			Items Prices in SR						
16	Plastic weather-resistant paints	m ²	34	34	34	34	34	15	30.83
17	White glazed ceramic tiles	m ²	65	65	65	65	65	50	62.50
18	Insulator layer for moisture	m ²	35	35	35	35	35	40	35.83
19	Thermal insulation, horizontal	m ²	26	26	26	26	26	40	28.33
20	Thermal insulation, vertical	m ²	20	20	20	20	20	30	21.67
21	Plastic paints for interior walls (smooth American Texture)	m ²	30	30	30	30	30	15	27.50
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	30	30	30	30	30	15	27.50
23	Aluminum windows	m ²	500	500	500	500	500	250	458.33
24	Hollow metallic doors	m ²	600	600	600	600	600	300	550.00
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	250	250	250	250	250	250	250.00
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	280	280	280	280	280	300	283.33
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	900	900	900	900	900	900	900.00
28	Switch, A/C. window type (2x30 Amps)	No.	210	210	210	210	210	150	200.00
29	Lighting switch (15 Amps/127 volt)	No.	140	140	140	140	140	100	133.33
30	Main switchboard, school building	No.	28000	28000	28000	28000	28000	20000	26666.67
31	Main distribution panelboard	No.	30000	30000	30000	30000	30000	25000	29166.67
32	Thermoplastic cable (size 3x185x95 mm ²)	m	120	120	120	120	120	200	133.33
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	175	175	175	175	175	211.5	181.08
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	1600	1600	1600	1600	1600	2000	1666.67
35	Ceiling air fan (dia 142cm (56in))	No.	320	320	320	320	320	250	308.33
36	Drinking water cooler (tank type)	No.	1800	1800	1800	1800	1800	2000	1833.33

Table 4.8
Calculation of the Prices of Price Index Items
Educational Area - Jeddah
Year 1991

#	Work Items	Unit	Project Code Number						Avg. Price (SR)
			91/2/1	91/2/2	91/2/3	91/2/4	91/2/5	91/2/6	
			Items Prices in SR						
1	Excavation work	m ³	15	15	10	15	15	3	12.17
2	Backfilling work	m ³	25	*	15	*	*	15	18.33
3	Excavation work for the foundation	m ³	25	20	15	20	20	60	26.67
4	Plain concrete work under the foundation	m ³	300	300	300	300	325	220	290.83
5	Reinforced concrete work for the foundation	m ³	650	650	650	650	700	750	675.00
6	Natural crushed stone sub-base coarse	m ²	66	66	66	66	66	35	60.83
7	Building made from Calcium Silicate Bricks	m ²	140	140	140	140	140	60	126.67
8	Concrete pavers (40x40x5cm)	m ²	50	75	75	75	75	70	70.00
9	Plain concrete with 10 cm thickness	m ²	18	18	18	18	18	25	19.17
10	Reinforced concrete for the whole superstrucutre	m ³	700	700	700	700	750	750	716.67
11	CMU walls with 15 cm thickness	m ²	42	42	42	42	42	35	40.83
12	CMU walls with 20 cm thickness	m ²	46	46	46	46	46	40	45.00
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	60	60	60	60	60	40	56.67
14	Floor tiling	m ²	35	35	35	35	35	30	34.17
15	Natural marble of stairs	m	190	190	190	190	190	150	183.33

Continued...

Table 4.8 continued

#	Work Items	Unit	Project Code Number						Avg. Price (SR)
			91/2/1	91/2/2	91/2/3	91/2/4	91/2/5	91/2/6	
			Items Prices in SR						
16	Plastic weather-resistant paints	m ²	40	40	40	40	40	45	40.83
17	White glazed ceramic tiles	m ²	66	66	66	66	66	53	63.83
18	Insulator layer for moisture	m ²	25	25	25	25	25	15	23.33
19	Thermal insulation, horizontal	m ²	14	18	18	18	18	20	17.67
20	Thermal insulation, vertical	m ²	14	14	14	14	14	20	15.00
21	Plastic paints for interior walls (smooth American Texture)	m ²	34	34	34	34	34	35	34.17
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	30	30	30	30	30	45	32.50
23	Aluminum windows	m ²	350	350	350	350	350	320	345.00
24	Hollow metallic doors	m ²	400	400	400	400	400	200	366.67
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	285	285	285	285	285	180	267.50
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	385	385	385	385	385	230	359.17
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	1100	1100	1100	1100	1100	1500	1166.67
28	Switch, A/C. window type (2x30 Amps)	No.	155	155	155	155	155	100	145.83
29	Lighting switch (15 Amps/127 volt)	No.	140	140	140	140	140	150	141.67
30	Main switchboard, school building	No.	35000	35000	35000	35000	35000	25000	33333.33
31	Main distribution panelboard	No.	39000	39000	39000	39000	39000	30000	37500.00
32	Thermoplastic cable (size 3x185x95 mm ²)	m	170	175	175	175	175	200	178.33
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	205	205	205	205	205	250	212.50
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	1650	1650	1650	1650	1650	2000	1708.33
35	Ceiling air fan {dia142cm (56in)}	No.	350	350	350	350	350	220	328.33
36	Drinking water cooler (tank type)	No.	2000	2000	2000	2000	2000	2000	2000

Table 4.9
Calculation of the Prices of Price Index Items
Educational Area - Eastern Province
Year 1991

#	Work Items	Unit	Project Code Number						Avg. Price (SR)
			91/3/1	91/3/2	91/3/3	91/3/4	91/3/5	91/3/6	
			Items Prices in SR						
1	Excavation work	m ³	15	20	5	20	*	12	14.40
2	Backfilling work	m ³	15	20	13.5	20	20	14	17.08
3	Excavation work for the foundation	m ³	60	80	20	50	80	23	52.17
4	Plain concrete work under the foundation	m ³	250	250	200	250	250	173	228.83
5	Reinforced concrete work for the foundation	m ³	650	650	630	650	650	570	633.33
6	Natural crushed stone sub-base coarse	m ²	50	50	80	50	50	125	67.50
7	Building made from Calcium Silicate Bricks	m ²	60	*	*	60	60	58	59.50
8	Concrete pavers (40x40x5cm)	m ²	30	30	40	30	30	56	36.00
9	Plain concrete with 10 cm thickness	m ²	20	20	20	20	20	18	19.67
10	Reinforced concrete for the whole superstrucutre	m ³	750	750	700	750	750	620	720.00
11	CMU walls with 15 cm thickness	m ²	40	40	30	40	40	28	36.33
12	CMU walls with 20 cm thickness	m ²	45	45	33	45	45	30	40.50
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	35	35	33	35	35	48	36.83
14	Floor tiling	m ²	26	26	26	26	26	32	27.00
15	Natural marble of stairs	m	200	200	110	200	200	132	173.67

Continued....

Table 4.9 continued

#	Work Items	Unit	Project Code Number						Avg. Price (SR)
			91/3/1	91/3/2	91/3/3	91/3/4	91/3/5	91/3/6	
			Items Prices in SR						
16	Plastic weather-resistant paints	m ²	35	35	14	35	35	30	30.67
17	White glazed ceramic tiles	m ²	70	70	50	70	70	58	64.67
18	Insulator layer for moisture	m ²	20	20	36	20	20	45	26.83
19	Thermal insulation, horizontal	m ²	22	22	31	22	22	27	24.33
20	Thermal insulation, vertical	m ²	18	18	18	18	18	19	18.17
21	Plastic paints for interior walls (smooth American Texture)	m ²	35	35	14	35	35	28	30.33
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	35	35	15	35	35	28	30.50
23	Aluminum windows	m ²	320	320	340	320	320	439	343.17
24	Hollow metallic doors	m ²	300	300	620	300	300	450	378.33
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	320	320	320	320	320	316	319.33
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	360	360	350	360	360	360	358.33
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	1000	1000	560	1000	1000	1185	957.50
28	Switch, A/C, window type (2x30 Amps)	No.	500	500	245	500	500	240	414.17
29	Lighting switch (15 Amps/127 volt)	No.	250	250	200	250	250	190	231.67
30	Main switchboard, school building	No.	40000	40000	25000	40000	40000	20000	34166.67
31	Main distribution panelboard	No.	45000	45000	32000	45000	45000	21250	38875.00
32	Thermoplastic cable (size 3x185x95 mm ²)	m	140	140	235	140	140	138	155.50
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	150	180	320	180	180	192	200.33
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	1400	1400	1710	1400	1400	1725	1505.83
35	Ceiling air fan dia {142cm (56in)}	No.	400	400	370	400	400	381	391.83
36	Drinking water cooler (tank type)	No.	3000	3000	3500	3000	3000	2818	3053.00

Table 4.10
Calculation of the Prices of Price Index Items
Educational Area - Riyadh
Year 1992

#	Work Items	Unit	Project Code Number						Avg. Price (SR)
			92/1/1	92/1/2	92/1/3	92/1/4	92/1/5	-1	
			Items Prices in SR						
1	Excavation work	m ³	15	90	15	10	15		29.00
2	Backfilling work	m ³	10	29	12	25	10		17.20
3	Excavation work for the foundation	m ³	15	35	30	50	15		29.00
4	Plain concrete work under the foundation	m ³	250	157	250	180	200		207.40
5	Reinforced concrete work for the foundation	m ³	700	450	700	650	700		640.00
6	Natural crushed stone sub-base coarse	m ²	30	28	40	25	30		30.60
7	Building made from Calcium Silicate Bricks	m ²	60	58	90	110	60		75.60
8	Concrete pavers (40x40x5cm)	m ²	40	48	45	60	35		45.60
9	Plain concrete with 10 cm thickness	m ²	30	16	25	18	25		22.80
10	Reinforced concrete for the whole superstructure	m ³	700	475	800	700	700		675.00
11	CMU walls with 15 cm thickness	m ²	60	28	35	34	45		40.40
12	CMU walls with 20 cm thickness	m ²	70	29	40	35	60		46.80
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	40	35	45	48	40		41.60
14	Floor tiling	m ²	25	25	25	38	25		27.60
15	Natural marble of stairs	m	200	120	150	140	200		162.00

Continued...

- 1) If there is complete column without data that means there were not enough projects in the sample for the specified area and year.

Table 4.10 continued

#	Work Items	Unit	Project Code Number						Avg. Price (SR)
			92/1/1	92/1/2	92/1/3	92/1/4	92/1/5		
			Items Prices in SR						
16	Plastic weather-resistant paints	m ²	40	13	7	25	20		21.00
17	White glazed ceramic tiles	m ²	70	52	60	50	70		60.40
18	Insulator layer for moisture	m ²	25	50	30	50	27		36.40
19	Thermal insulation, horizontal	m ²	30	44	25	35	30		32.80
20	Thermal insulation, vertical	m ²	20	26	20	27	30		24.60
21	Plastic paints for interior walls (smooth American Texture)	m ²	25	13	8	20	25		18.20
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	25	14	8	20	25		18.40
23	Aluminum windows	m ²	400	330	400	350	400		376.00
24	Hollow metallic doors	m ²	600	300	500	600	600		520.00
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	350	80	250	200	350		246.00
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	400	93	300	250	400		288.60
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	1600	250	2000	800	1600		1250.00
28	Switch, A/C. window type (2x30 Amps)	No.	200	70	500	300	200		254.00
29	Lighting switch (15 Amps/127 volt)	No.	120	54	160	150	120		120.80
30	Main switchboard, school building	No.	8500	26000	30000	15000	8500		17600.00
31	Main distribution panelboard	No.	10000	34000	35000	18000	10000		21400.00
32	Thermoplastic cable (size 3x185x95 mm ²)	m	90	133	180	100	90		118.60
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	160	135	220	180	160		171.00
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	2000	1480	1300	1500	2000		1656.00
35	Ceiling air fan (dia 142cm (56in))	No.	350	157	400	250	400		311.40
36	Drinking water cooler (tank type)	No.	3500	2700	2500	1800	3500		2800.00

Table 4.11
Calculation of the Prices of Price Index Items
Educational Area - Jeddah
Year 1992

#	Work Items	Unit	Project Code Number						Avg. Price (SR)
			92/2/1	92/2/2	92/2/3	92/2/4	92/2/5	92/2/6	
			Items Prices in SR						
1	Excavation work	m ³	10	10	*	10	10	40	16.00
2	Backfilling work	m ³	15	15	15	15	15	15	15.00
3	Excavation work for the foundation	m ³	20	25	20	20	20	20	20.83
4	Plain concrete work under the foundation	m ³	338	308	308	308	308	250	303.33
5	Reinforced concrete work for the foundation	m ³	750	745	745	750	745	750	747.50
6	Natural crushed stone sub-base coarse	m ²	33	33	33	33	33	40	34.17
7	Building made from Calcium Silicate Bricks	m ²	124	124	124	124	124	90	118.33
8	Concrete pavers (40x40x5cm)	m ²	47	47	47	47	47	50	47.50
9	Plain concrete with 10 cm thickness	m ²	25	25	25	25	25	25	25.00
10	Reinforced concrete for the whole superstrucutre	m ³	828	808	800	808	800	850	815.67
11	CMU walls with 15 cm thickness	m ²	61	61	61	61	61	38	57.17
12	CMU walls with 20 cm thickness	m ²	64	64	64	64	64	40	60.00
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	63	63	63	63	63	50	60.83
14	Floor tiling	m ²	30	30	30	30	30	30	30.00
15	Natural marble of stairs	m	163	163	163	163	163	160	162.50

Continued....

Table 4.11 continued

#	Work Items	Unit	Project Code Number						Avg. Price (SR)
			92/2/1	92/2/2	92/2/3	92/2/4	92/2/5	92/2/6	
			Items Prices in SR						
16	Plastic weather-resistant paints	m ²	15	15	15	15	15	8	13.83
17	White glazed ceramic tiles	m ²	53	53	53	53	53	60	54.17
18	Insulator layer for moisture	m ²	60	60	60	60	60	30	55.00
19	Thermal insulation, horizontal	m ²	18	18	18	18	18	25	19.17
20	Thermal insulation, vertical	m ²	30	30	30	30	30	20	28.33
21	Plastic paints for interior walls (smooth American Texture)	m ²	15	15	15	15	15	8	13.83
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	15	15	15	15	15	8	13.83
23	Aluminum windows	m ²	400	400	400	400	400	400	400.00
24	Hollow metallic doors	m ²	1100	1100	1100	1100	1100	500	1000.00
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	170	170	170	170	170	250	183.33
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	259	259	259	259	259	300	265.83
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	2100	2100	2100	2100	2100	2000	2083.33
28	Switch, A/C. window type (2x30 Amps)	No.	195	195	195	195	195	500	245.83
29	Lighting switch (15 Amps/127 volt)	No.	110	110	110	110	110	150	116.67
30	Main switchboard, school building	No.	17400	17400	17400	17400	17400	25000	18666.67
31	Main distribution panelboard	No.	17400	17400	17400	17400	17400	30000	19500.00
32	Thermoplastic cable (size 3x185x95 mm ²)	m	99	99	99	99	99	150	107.50
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	165	165	165	165	165	220	174.17
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	1400	1400	1400	1400	1400	1300	1383.33
35	Ceiling air fan (dia142cm (56in))	No.	665	665	665	665	665	400	620.83
36	Drinking water cooler (tank type)	No.	2000	2000	2000	2000	2000	2500	2083.3333

Table 4.12
Calculation of the Prices of Price Index Items
Educational Area - Eastern Province
Year 1992

#	Work Items	Unit	Project Code Number						Avg. Price (SR)
			92/3/1	92/3/2	92/3/3	92/3/4	92/3/5	92/3/6	
			Items Prices in SR						
1	Excavation work	m ³	*	11	12	11	40	40	22.80
2	Backfilling work	m ³	6	6	7	6	15	15	9.17
3	Excavation work for the foundation	m ³	20	12	12	15	40	40	23.17
4	Plain concrete work under the foundation	m ³	173	173	200	180	250	250	204.33
5	Reinforced concrete work for the foundation	m ³	580	580	575	580	700	700	619.17
6	Natural crushed stone sub-base coarse	m ²	82	60	120	60	60	60	73.67
7	Building made from Calcium Silicate Bricks	m ²	75.5	75.5	58	80	45	*	66.80
8	Concrete pavers (40x40x5cm)	m ²	56	56	50	57	50	50	53.17
9	Plain concrete with 10 cm thickness	m ²	18	18	18	18	25	25	20.33
10	Reinforced concrete for the whole superstructure	m ³	650	650	620	650	550	600	620.00
11	CMU walls with 15 cm thickness	m ²	33	28	32	31	45	45	35.67
12	CMU walls with 20 cm thickness	m ²	34	31	35	32	50	47	38.17
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	49	48	50	48	50	50	49.17
14	Floor tiling	m ²	36	35	38	35	32	32	34.67
15	Natural marble of stairs	m	143	150	132	143	200	180	158.00

Continued....

Table 4.12 continued

#	Work Items	Unit	Project Code Number						Avg. Price (SR)
			92/3/1	92/3/2	92/3/3	92/3/4	92/3/5	92/3/6	
			Items Prices in SR						
16	Plastic weather-resistant paints	m ²	16	16	16	16	16	20	16.67
17	White glazed ceramic tiles	m ²	60	58	75	58	90	90	71.83
18	Insulator layer for moisture	m ²	45	45	45	45	30	30	40.00
19	Thermal insulation, horizontal	m ²	27	27	27	27	25	27	26.67
20	Thermal insulation, vertical	m ²	20	20	29	20	25	25	23.17
21	Plastic paints for interior walls (smooth American Texture)	m ²	16	16	16	16	15	17	16.00
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	16	16	16	16	15	17	16.00
23	Aluminum windows	m ²	400	400	350	400	500	500	425.00
24	Hollow metallic doors	m ²	650	650	450	650	550	600	591.67
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	313	313	310	313	250	300	299.83
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	278	278	350	287	320	350	310.50
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	1150	1150	1000	1150	2000	2000	1408.33
28	Switch, A/C. window type (2x30 Amps)	No.	200	240	225	200	50	180	182.50
29	Lighting switch (15 Amps/127 volt)	No.	130	150	160	150	150	160	150.00
30	Main switchboard, school building	No.	20000	20000	22500	20000	10000	8000	16750.00
31	Main distribution panelboard	No.	21250	21250	23500	21250	12000	10000	18208.33
32	Thermoplastic cable (size 3x185x95 mm ²)	m	138	138	138	138	160	140	142.00
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	190	190	184	190	190	220	194.00
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	1725	1725	1700	1725	1000	1000	1479.17
35	Ceiling air fan dia {142cm (56in)}	No.	380	381	365	380	400	400	384.33
36	Drinking water cooler (tank type)	No.	2750	2725	2750	2750	2500	2500	2662.50

Table 4.13
Calculation of the Prices of Price Index Items
Educational Area - Riyadh
Year 1993

#	Work Items	Unit	Project Code Number						Avg. Price (SR)
			93/1/1	93/1/2	93/1/3	93/1/4	93/1/5	93/1/6	
			Items Prices in SR						
1	Excavation work	m ³	20	20	20	50	*	15	25.00
2	Backfilling work	m ³	15	15	15	50	18	20	22.17
3	Excavation work for the foundation	m ³	50	50	30	36	56	60	47.00
4	Plain concrete work under the foundation	m ³	260	250	260	210	230	255	244.17
5	Reinforced concrete work for the foundation	m ³	850	800	850	740	825	650	785.83
6	Natural crushed stone sub-base coarse	m ²	46	40	46	110	46	60	58.00
7	Building made from Calcium Silicate Bricks	m ²	180	170	180	100	165	120	152.50
8	Concrete pavers (40x40x5cm)	m ²	50	45	50	40	36	58	46.50
9	Plain concrete with 10 cm thickness	m ²	22	20	22	22	23	22	21.83
10	Reinforced concrete for the whole superstructure	m ³	900	830	900	800	993	750	862.17
11	CMU walls with 15 cm thickness	m ²	36	34	36	32	38	40	36.00
12	CMU walls with 20 cm thickness	m ²	40	38	40	36	41	45	40.00
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	50	50	50	45	52	42	48.17
14	Floor tiling	m ²	32	32	32	30	34	33	32.17
15	Natural marble of stairs	m	200	150	200	180	180	140	175.00

Continued....

Table 4.13 continued

#	Work Items	Unit	Project Code Number						Avg. Price (SR)
			93/1/1	93/1/2	93/1/3	93/1/4	93/1/5	93/1/6	
			Items Prices in SR						
16	Plastic weather-resistant paints	m ²	20	18	20	15	18	20	18.50
17	White glazed ceramic tiles	m ²	65	65	65	70	77	55	66.17
18	Insulator layer for moisture	m ²	30	30	30	42	49	40	36.83
19	Thermal insulation, horizontal	m ²	30	30	30	40	23	35	31.33
20	Thermal insulation, vertical	m ²	24	22	24	40	19	22	25.17
21	Plastic paints for interior walls (smooth American Texture)	m ²	16	16	16	15	17	20	16.67
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	16	16	16	15	17	20	16.67
23	Aluminum windows	m ²	400	400	400	425	370	400	399.17
24	Hollow metallic doors	m ²	600	500	600	600	850	800	658.33
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	240	220	240	320	250	195	244.17
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	300	300	300	380	330	400	335.00
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	1000	800	1000	1800	2520	1700	1470.00
28	Switch, A/C. window type (2x30 Amps)	No.	200	180	200	350	170	170	211.67
29	Lighting switch (15 Amps/127 volt)	No.	130	130	130	320	175	120	167.50
30	Main switchboard, school building	No.	30000	30000	30000	35000	15000	18000	26333.33
31	Main distribution panelboard	No.	40000	40000	40000	21000	22000	20000	30500.00
32	Thermoplastic cable (size 3x185x95 mm ²)	m	140	130	140	200	118	105	138.83
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	200	200	200	230	182	180	198.67
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	1500	1200	1500	1800	2270	1800	1678.33
35	Ceiling air fan (dia 142cm (56in))	No.	300	500	300	400	350	300	358.33
36	Drinking water cooler (tank type)	No.	3000	4000	3000	3700	2800	2000	3083.33

Table 4.14
Calculation of the Prices of Price Index Items
Educational Area - Jeddah
Year 1993

#	Work Items	Unit	Project Code Number						Avg. Price (SR)
			93/2/1	93/2/2	93/2/3	93/2/4	93/2/5	93/2/6	
			Items Prices in SR						
1	Excavation work	m ³	8	8	8	10	8	8	8.33
2	Backfilling work	m ³	14	13	13	15	13	13	13.50
3	Excavation work for the foundation	m ³	12	11	11	20	11	11	12.67
4	Plain concrete work under the foundation	m ³	276	269	269	350	269	269	283.67
5	Reinforced concrete work for the foundation	m ³	656	638	638	750	638	638	659.67
6	Natural crushed stone sub-base coarse	m ²	40	39	39	45	39	39	40.17
7	Building made from Calcium Silicate Bricks	m ²	98	95	95	90	95	95	94.67
8	Concrete pavers (40x40x5cm)	m ²	46	34	46	40	45	45	42.67
9	Plain concrete with 10 cm thickness	m ²	24	24	24	26	24	24	24.33
10	Reinforced concrete for the whole superstructure	m ³	897	874	874	800	874	874	865.50
11	CMU walls with 15 cm thickness	m ²	40	39	39	45	39	39	40.17
12	CMU walls with 20 cm thickness	m ²	47	46	46	48	46	46	46.50
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	43	41	41	45	41	41	42.00
14	Floor tiling	m ²	30	29	29	30	29	29	29.33
15	Natural marble of stairs	m	144	140	140	165	140	140	144.83

Continued....

Table 4.14 continued

#	Work Items	Unit	Project Code Number						Avg. Price (SR)
			93/2/1	93/2/2	93/2/3	93/2/4	93/2/5	93/2/6	
			Items Prices in SR						
16	Plastic weather-resistant paints	m ²	18	18	18	16	18	18	17.67
17	White glazed ceramic tiles	m ²	55	54	54	50	54	54	53.50
18	Insulator layer for moisture	m ²	35	34	34	45	34	34	36.00
19	Thermal insulation, horizontal	m ²	36	35	35	50	35	35	37.67
20	Thermal insulation, vertical	m ²	17	17	17	35	17	17	20.00
21	Plastic paints for interior walls (smooth American Texture)	m ²	16	16	16	15	20	16	16.50
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	21	20	20	15	16	20	18.67
23	Aluminum windows	m ²	437	426	426	320	426	426	410.17
24	Hollow metallic doors	m ²	747	728	728	850	728	728	751.50
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	235	228	228	170	228	228	219.50
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	268	261	261	250	261	261	260.33
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	1265	2408	1232	2000	1232	1232	1561.50
28	Switch, A/C. window type (2x30 Amps)	No.	209	204	204	250	204	204	212.50
29	Lighting switch (15 Amps/127 volt)	No.	123	120	120	120	120	120	120.50
30	Main switchboard, school building	No.	43758	42616	42616	50000	42616	42616	44037.00
31	Main distribution panelboard	No.	47150	45920	45920	40000	45920	45920	45138.33
32	Thermoplastic cable (size 3x185x95 mm ²)	m	161	157	157	110	157	157	149.83
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	197	192	192	180	192	192	190.83
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	1955	1904	1904	1450	1904	1904	1836.83
35	Ceiling air fan {dia142cm (56in)}	No.	402	392	392	250	392	392	370.00
36	Drinking water cooler (tank type)	No.	2300	2240	2240	2000	2240	2240	2210.00

Table 4.15
Calculation of the Prices of Price Index Items
Educational Area - Eastern Province
Year 1993

#	Work Items	Unit	Project Code Number					Avg. Price (SR)
			93/3/1	93/3/2	93/3/3	93/3/4	93/3/5	
			Items Prices in SR					
1	Excavation work	m ³	40	*	18	100	*	52.67
2	Backfilling work	m ³	20	40	17	40	40	31.40
3	Excavation work for the foundation	m ³	40	50	13	50	60	42.60
4	Plain concrete work under the foundation	m ³	230	300	180	300	300	262.00
5	Reinforced concrete work for the foundation	m ³	750	850	740	850	850	808.00
6	Natural crushed stone sub-base coarse	m ²	120	120	40	150	120	110.00
7	Building made from Calcium Silicate Bricks	m ²	250	120	60	130	120	136.00
8	Concrete pavers (40x40x5cm)	m ²	85	70	31	80	70	67.20
9	Plain concrete with 10 cm thickness	m ²	23	25	17	25	25	23.00
10	Reinforced concrete for the whole superstructure	m ³	800	900	790	950	900	868.00
11	CMU walls with 15 cm thickness	m ²	42	40	33	45	40	40.00
12	CMU walls with 20 cm thickness	m ²	44	45	34	50	45	43.60
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	62	55	45	60	55	55.40
14	Floor tiling	m ²	40	45	28	45	45	40.60
15	Natural marble of stairs	m	190	120	145	140	120	143.00

Continued....

Table 4.15 continued

#	Work Items	Unit	Project Code Number					Avg. Price (SR)
			93/3/1	93/3/2	93/3/3	93/3/4	93/3/5	
			Items Prices in SR					
16	Plastic weather-resistant paints	m ²	20	25	17	25	25	22.40
17	White glazed ceramic tiles	m ²	60	70	70	75	70	69.00
18	Insulator layer for moisture	m ²	43	50	51	55	50	49.80
19	Thermal insulation, horizontal	m ²	27	45	30	50	45	39.40
20	Thermal insulation, vertical	m ²	25	40	20	40	40	33.00
21	Plastic paints for interior walls (smooth American Texture)	m ²	20	23	16	25	23	21.40
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	20	23	16	25	23	21.40
23	Aluminum windows	m ²	600	450	500	550	450	510.00
24	Hollow metallic doors	m ²	950	700	1150	700	700	840.00
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	380	420	287	420	420	385.40
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	500	430	320	430	430	422.00
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	1550	1500	1000	1500	1500	1410.00
28	Switch, A/C. window type (2x30 Amps)	No.	300	300	200	300	300	280.00
29	Lighting switch (15 Amps/127 volt)	No.	250	260	150	260	260	236.00
30	Main switchboard, school building	No.	38000	45000	34500	55000	55000	45500.00
31	Main distribution panelboard	No.	48000	50000	48300	65000	60000	54260.00
32	Thermoplastic cable (size 3x185x95 mm ²)	m	180	150	190	150	150	164.00
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	250	220	220	220	220	226.00
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	1900	1900	1600	2000	1900	1860.00
35	Ceiling air fan dia {142cm (56in)}	No.	400	450	400	450	450	430.00
36	Drinking water cooler (tank type)	No.	2500	2000	2200	2000	2500	2240.00

Table 4.16
Calculation of the Prices of Price Index Items
Educational Area - Riyadh
Year 1994

#	Work Items	Unit	Project Code Number						Avg. Price (SR)
			94/1/1	94/1/2	94/1/3	94/1/4	94/1/5	94/1/6	
			Items Prices in SR						
1	Excavation work	m ³	50	25	25	30	3	20	25.50
2	Backfilling work	m ³	25	22	25	30	12	10	20.67
3	Excavation work for the foundation	m ³	60	50	40	30	18	60	43.00
4	Plain concrete work under the foundation	m ³	250	250	200	250	230	225	234.17
5	Reinforced concrete work for the foundation	m ³	735	730	750	850	300	665	671.67
6	Natural crushed stone sub-base coarse	m ²	80	80	30	100	200	45	89.17
7	Building made from Calcium Silicate Bricks	m ²	120	120	80	100	50	180	108.33
8	Concrete pavers (40x40x5cm)	m ²	50	50	40	40	25	25	38.33
9	Plain concrete with 10 cm thickness	m ²	24	25	20	40	95	25	38.17
10	Reinforced concrete for the whole superstructure	m ³	750	750	750	800	1200	700	825.00
11	CMU walls with 15 cm thickness	m ²	40	40	50	40	50	40	43.33
12	CMU walls with 20 cm thickness	m ²	45	45	50	60	50	45	49.17
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	44	44	40	50	65	50	48.83
14	Floor tiling	m ²	35	36	30	40	25	35	33.50
15	Natural marble of stairs	m	200	200	180	100	225	190	182.50

Continued...

Table 4.16 continued

#	Work Items	Unit	Project Code Number						Avg. Price (SR)
			94/1/1	94/1/2	94/1/3	94/1/4	94/1/5	94/1/6	
			Items Prices in SR						
16	Plastic weather-resistant paints	m ²	20	20	18	10	10	40	19.67
17	White glazed ceramic tiles	m ²	65	65	70	75	65	85	70.83
18	Insulator layer for moisture	m ²	35	35	60	50	80	30	48.33
19	Thermal insulation, horizontal	m ²	30	30	40	40	80	35	42.50
20	Thermal insulation, vertical	m ²	22	22	18	40	20	35	26.17
21	Plastic paints for interior walls (smooth American Texture)	m ²	22	22	18	20	10	25	19.50
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	20	20	18	20	25	30	22.17
23	Aluminum windows	m ²	480	480	450	400	400	675	480.83
24	Hollow metallic doors	m ²	1000	1000	900	700	650	700	825.00
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	260	250	300	270	300	255	272.50
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	400	320	300	300	400	332	342.00
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	1700	1650	1000	1500	1900	1650	1566.67
28	Switch, A/C. window type (2x30 Amps)	No.	250	240	300	300	500	195	297.50
29	Lighting switch (15 Amps/127 volt)	No.	250	250	300	275	250	170	249.17
30	Main switchboard, school building	No.	38000	38000	40000	25000	40000	45600	37766.67
31	Main distribution panelboard	No.	45000	45000	45000	35000	60000	47400	46233.33
32	Thermoplastic cable (size 3x185x95 mm ²)	m	125	120	140	70	100	168	120.50
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	225	220	190	125	150	203	185.50
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	1600	1600	2000	2000	1900	2400	1916.67
35	Ceiling air fan (dia 142cm (56in))	No.	360	360	400	500	600	650	478.33
36	Drinking water cooler (tank type)	No.	2300	2300	2200	2000	3500	2600	2483.33

Table 4.17
Calculation of the Prices of Price Index Items
Educational Area - Jeddah
Year 1994

#	Work Items	Unit	Project Code Number					Avg. Price (SR)
			94/2/1	94/2/2				
			Items Prices in SR					
1	Excavation work	m ³	40	10				25.00
2	Backfilling work	m ³	13	38				25.50
3	Excavation work for the foundation	m ³	16	70				43.00
4	Plain concrete work under the foundation	m ³	300	320				310.00
5	Reinforced concrete work for the foundation	m ³	670	700				685.00
6	Natural crushed stone sub-base coarse	m ²	59	100				79.50
7	Building made from Calcium Silicate Bricks	m ²	90	220				155.00
8	Concrete pavers (40x40x5cm)	m ²	51	68				59.50
9	Plain concrete with 10 cm thickness	m ²	30	32				31.00
10	Reinforced concrete for the whole superstructure	m ³	874	830				852.00
11	CMU walls with 15 cm thickness	m ²	39	46				42.50
12	CMU walls with 20 cm thickness	m ²	46	50				48.00
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	41	60				50.50
14	Floor tiling	m ²	29	44				36.50
15	Natural marble of stairs	m	150	230				190.00

Continued...

Table 4.17 continued

#	Work Items	Unit	Project Code Number					Avg. Price (SR)
			94/2/1	94/2/2				
			Items Prices in SR					
16	Plastic weather-resistant paints	m ²	19	20				19.50
17	White glazed ceramic tiles	m ²	54	75				64.50
18	Insulator layer for moisture	m ²	34	52				43.00
19	Thermal insulation, horizontal	m ²	35	29				32.00
20	Thermal insulation, vertical	m ²	35	25				30.00
21	Plastic paints for interior walls (smooth American Texture)	m ²	20	16				18.00
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	22	16				19.00
23	Aluminum windows	m ²	426	380				403.00
24	Hollow metallic doors	m ²	728	1560				1144.00
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	228	250				239.00
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	261	310				285.50
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	1532	1820				1676.00
28	Switch, A/C. window type (2x30 Amps)	No.	204	250				227.00
29	Lighting switch (15 Amps/127 volt)	No.	120	200				160.00
30	Main switchboard, school building	No.	42896	32000				37448.00
31	Main distribution panelboard	No.	46480	32000				39240.00
32	Thermoplastic cable (size 3x185x95 mm ²)	m	179	160				169.50
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	192	250				221.00
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	1904	1900				1902.00
35	Ceiling air fan {dia142cm (56in)}	No.	392	330				361.00
36	Drinking water cooler (tank type)	No.	1792	2600				2196.00

Table 4.18
Calculation of the Prices of Price Index Items
Educational Area - Eastern Province
Year 1994

#	Work Items	Unit	Project Code Number						Avg. Price (SR)
			94/3/1	94/3/2	94/3/3	94/3/4			
			Items Prices in SR						
1	Excavation work	m ³	50	*	32	32			38.00
2	Backfilling work	m ³	25	20	26	26			24.25
3	Excavation work for the foundation	m ³	70	39	32	32			43.25
4	Plain concrete work under the foundation	m ³	270	390	390	390			360.00
5	Reinforced concrete work for the foundation	m ³	900	1072	1072	1072			1029.00
6	Natural crushed stone sub-base coarse	m ²	70	58	65	52			61.25
7	Building made from Calcium Silicate Bricks	m ²	85	61	78	55			69.75
8	Concrete pavers (40x40x5cm)	m ²	60	91	78	78			76.75
9	Plain concrete with 10 cm thickness	m ²	25	39	39	39			35.50
10	Reinforced concrete for the whole superstructure	m ³	850	1072	1040	1072			1008.50
11	CMU walls with 15 cm thickness	m ²	56	85	78	78			74.25
12	CMU walls with 20 cm thickness	m ²	55	65	84	84			72.00
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	48	58	65	52			55.75
14	Floor tiling	m ²	35	39	52	93			54.75
15	Natural marble of stairs	m	180	156	156	130			155.50

Continued....

Table 4.18 continued

#	Work Items	Unit	Project Code Number					Avg. Price (SR)
			94/3/1	94/3/2	94/3/3	94/3/4		
			Items Prices in SR					
16	Plastic weather-resistant paints	m ²	25	32	32	32		30.25
17	White glazed ceramic tiles	m ²	50	78	78	78		71.00
18	Insulator layer for moisture	m ²	50	26	39	39		38.50
19	Thermal insulation, horizontal	m ²	30	26	26	26		27.00
20	Thermal insulation, vertical	m ²	25	26	19	19		22.25
21	Plastic paints for interior walls (smooth American Texture)	m ²	25	33	32	32		30.50
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	27	33	32	32		31.00
23	Aluminum windows	m ²	450	585	520	520		518.75
24	Hollow metallic doors	m ²	800	845	780	780		801.25
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	220	400	403	403		356.50
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	260	429	390	390		367.25
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	1500	3250	1700	3250		2425.00
28	Switch, A/C. window type (2x30 Amps)	No.	250	247	240	195		233.00
29	Lighting switch (15 Amps/127 volt)	No.	170	182	175	156		170.75
30	Main switchboard, school building	No.	25000	38000	39000	39000		35250.00
31	Main distribution panelboard	No.	27000	39000	45500	45500		39250.00
32	Thermoplastic cable (size 3x185x95 mm ²)	m	150	152	143	169		153.50
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	220	220	182	208		207.50
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	3500	2340	2340	2340		2630.00
35	Ceiling air fan dia {142cm (56in)}	No.	500	325	520	325		417.50
36	Drinking water cooler (tank type)	No.	2400	2470	2405	2470		2436.25

Table 4.19
Calculation of the Prices of Price Index Items
Educational Area - Riyadh
Year 1995

#	Work Items	Unit	Project Code Number					Avg. Price (SR)
			95/1/1	95/1/2	95/1/3			
			Items Prices in SR					
1	Excavation work	m ³	43	43	43			43.00
2	Backfilling work	m ³	19	19	19			19.00
3	Excavation work for the foundation	m ³	25	25	25			25.00
4	Plain concrete work under the foundation	m ³	165	165	165			165.00
5	Reinforced concrete work for the foundation	m ³	610	610	610			610.00
6	Natural crushed stone sub-base coarse	m ²	200	200	200			200.00
7	Building made from Calcium Silicate Bricks	m ²	300	300	300			300.00
8	Concrete pavers (40x40x5cm)	m ²	10	10	10			10.00
9	Plain concrete with 10 cm thickness	m ²	100	100	100			100.00
10	Reinforced concrete for the whole superstructure	m ³	720	720	720			720.00
11	CMU walls with 15 cm thickness	m ²	65	65	65			65.00
12	CMU walls with 20 cm thickness	m ²	65	65	65			65.00
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	45	45	45			45.00
14	Floor tiling	m ²	30	30	30			30.00
15	Natural marble of stairs	m	175	175	175			175.00

Continued....

Table 4.19 continued

#	Work Items	Unit	Project Code Number					Avg. Price (SR)
			95/1/1	95/1/2	95/1/3			
			Items Prices in SR					
16	Plastic weather-resistant paints	m ²	17	17	17			17.00
17	White glazed ceramic tiles	m ²	35	35	35			35.00
18	Insulator layer for moisture	m ²	75	75	75			75.00
19	Thermal insulation, horizontal	m ²	50	50	50			50.00
20	Thermal insulation, vertical	m ²	40	40	40			40.00
21	Plastic paints for interior walls (smooth American Texture)	m ²	12	12	12			12.00
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	13	13	13			13.00
23	Aluminum windows	m ²	700	700	700			700.00
24	Hollow metallic doors	m ²	700	700	700			700.00
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	200	200	200			200.00
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	270	270	270			270.00
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	910	910	910			910.00
28	Switch, A/C. window type (2x30 Amps)	No.	300	300	300			300.00
29	Lighting switch (15 Amps/127 volt)	No.	150	150	150			150.00
30	Main switchboard, school building	No.	50000	50000	50000			50000.00
31	Main distribution panelboard	No.	45000	45000	45000			45000.00
32	Thermoplastic cable (size 3x185x95 mm ²)	m	80	80	80			80.00
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	110	110	110			110.00
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	1300	1300	1300			1300.00
35	Ceiling air fan (dia 142cm (56in))	No.	400	400	400			400.00
36	Drinking water cooler (tank type)	No.	1400	1400	1400			1400.00

Table 4.20
Calculation of the Prices of Price Index Items
Educational Area - Jeddah
Year 1995

#	Work Items	Unit	Project Code Number					Avg. Price (SR)
			95/2/1	95/2/2	95/2/3			
			Items Prices in SR					
1	Excavation work	m ³	20	20	20			20.00
2	Backfilling work	m ³	19	19	19			19.00
3	Excavation work for the foundation	m ³	25	25	25			25.00
4	Plain concrete work under the foundation	m ³	325	325	325			325.00
5	Reinforced concrete work for the foundation	m ³	675	675	675			675.00
6	Natural crushed stone sub-base coarse	m ²	37	37	37			37.00
7	Building made from Calcium Silicate Bricks	m ²	385	385	385			385.00
8	Concrete pavers (40x40x5cm)	m ²	30	30	30			30.00
9	Plain concrete with 10 cm thickness	m ²	30	30	30			30.00
10	Reinforced concrete for the whole superstrucutre	m ³	930	930	930			930.00
11	CMU walls with 15 cm thickness	m ²	35	35	35			35.00
12	CMU walls with 20 cm thickness	m ²	39	39	39			39.00
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	38	38	38			38.00
14	Floor tiling	m ²	30	30	30			30.00
15	Natural marble of stairs	m	200	200	200			200.00

Continued....

4.20 continued

#	Work Items	Unit	Project Code Number					Avg. Price (SR)
			95/2/1	95/2/2	95/2/3			
			Items Prices in SR					
16	Plastic weather-resistant paints	m ²	18	18	18			18.00
17	White glazed ceramic tiles	m ²	60	60	60			60.00
18	Insulator layer for moisture	m ²	75	75	75			75.00
19	Thermal insulation, horizontal	m ²	50	50	50			50.00
20	Thermal insulation, vertical	m ²	40	40	40			40.00
21	Plastic paints for interior walls (smooth American Texture)	m ²	14	14	14			14.00
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	14	14	14			14.00
23	Aluminum windows	m ²	560	560	560			560.00
24	Hollow metallic doors	m ²	780	780	780			780.00
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	184	184	184			184.00
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	200	200	200			200.00
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	1400	1400	1400			1400.00
28	Switch, A/C. window type (2x30 Amps)	No.	234	234	234			234.00
29	Lighting switch (15 Amps/127 volt)	No.	138	138	138			138.00
30	Main switchboard, school building	No.	66395	66395	66395			66395.00
31	Main distribution panelboard	No.	60864	60864	60864			60864.00
32	Thermoplastic cable (size 3x185x95 mm ²)	m	131	131	131			131.00
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	225	225	225			225.00
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	2820	2820	2820			2820.00
35	Ceiling air fan (dia142cm (56in))	No.	560	560	560			560.00
36	Drinking water cooler (tank type)	No.	2960	2960	2960			2960.00

Table 4.21
Calculation of the Prices of Price Index Items
Educational Area - Eastern Province
Year 1995

#	Work Items	Unit	Project Code Number					Avg. Price (SR)
			95/3/1	95/3/2				
			Items Prices in SR					
1	Excavation work	m ³	25	25				25.00
2	Backfilling work	m ³	20	20				20.00
3	Excavation work for the foundation	m ³	28	28				28.00
4	Plain concrete work under the foundation	m ³	325	325				325.00
5	Reinforced concrete work for the foundation	m ³	675	675				675.00
6	Natural crushed stone sub-base coarse	m ²	36	36				36.00
7	Building made from Calcium Silicate Bricks	m ²	385	385				385.00
8	Concrete pavers (40x40x5cm)	m ²	35	35				35.00
9	Plain concrete with 10 cm thickness	m ²	28	28				28.00
10	Reinforced concrete for the whole superstrucutre	m ³	980	980				980.00
11	CMU walls with 15 cm thickness	m ²	30	30				30.00
12	CMU walls with 20 cm thickness	m ²	35	35				35.00
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	38	38				38.00
14	Floor tiling	m ²	30	30				30.00
15	Natural marble of stairs	m	200	200				200.00

Continued....

Table 4.21 continued

#	Work Items	Unit	Project Code Number					Avg. Price (SR)
			95/3/1	95/3/2				
			Items Prices in SR					
16	Plastic weather-resistant paints	m ²	18	18				18.00
17	White glazed ceramic tiles	m ²	60	60				60.00
18	Insulator layer for moisture	m ²	40	40				40.00
19	Thermal insulation, horizontal	m ²	24	24				24.00
20	Thermal insulation, vertical	m ²	20	20				20.00
21	Plastic paints for interior walls (smooth American Texture)	m ²	15	15				15.00
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	15	15				15.00
23	Aluminum windows	m ²	575	575				575.00
24	Hollow metallic doors	m ²	780	780				780.00
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	189	189				189.00
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	200	200				200.00
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	1420	1420				1420.00
28	Switch, A/C. window type (2x30 Amps)	No.	240	240				240.00
29	Lighting switch (15 Amps/127 volt)	No.	145	145				145.00
30	Main switchboard, school building	No.	66500	66500				66500.00
31	Main distribution panelboard	No.	60870	60870				60870.00
32	Thermoplastic cable (size 3x185x95 mm ²)	m	133	133				133.00
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	227	227				227.00
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	2200	2200				2200.00
35	Ceiling air fan dia {142cm (56in)}	No.	550	550				550.00
36	Drinking water cooler (tank type)	No.	2950	2950				2950.00

4.1.2 Calculation of Total Price of Each Item and the Sum of Total Prices of the Price Index Items:

The average of quantities for each item has been taken from Table 4.1 and listed in Tables 4.22 - 4.27 for Riyadh area. Also, the average of prices for the year 1990 in Riyadh area for each item has been taken from Table 4.4 and listed in Table 4.22. This has been repeated for the average of prices for the year 1991-1995 in Riyadh area in Tables 4.23 - 4.27 respectively.

The average of quantities for each item has been taken from Table 4.2 and listed in Tables 4.28 - 4.33 for Jeddah area. Also, the average of prices for the year 1990 in Jeddah area for each item has been taken from Table 4.5 and listed in Table 4.28. This has then been repeated for the average of prices for the years 1991-1995 in Jeddah area in Tables 4.29 - 4.33 respectively.

The average of quantities for each item has been taken from Table 4.3 and listed in Tables 4.34 - 4.39 for Eastern Province area. Also, the average of prices for the year 1990 in Eastern Province area for each item has been taken from Table 4.6 and listed in Table 4.34. This has been repeated for the average of prices for the year 1991-1995 in Eastern Province in Tables 4.35 - 4.39 respectively.

Table 4.22
Calculation of the Total Price for Each Item
And Sum of the Total Price of Index Items
Educational Area - Riyadh
Year 1990

#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
1	Excavation work	m ³	2258.33	24.80	56006.58
2	Backfilling work	m ³	2275.00	17.83	40563.25
3	Excavation work for the foundation	m ³	1566.67	31.00	48566.77
4	Plain concrete work under the foundation	m ³	250.00	231.50	57875.00
5	Reinforced concrete work for the foundation	m ³	585.83	671.50	393384.85
6	Natural crushed stone sub-base coarse	m ²	455.00	66.00	30030.00
7	Building made from Calcium Silicate Bricks	m ²	661.67	99.83	66054.52
8	Concrete pavers (40x40x5cm)	m ²	3390.00	56.50	191535.00
9	Plain concrete with 10 cm thickness	m ²	1640.00	20.33	33341.20
10	Reinforced concrete for the whole superstructure	m ³	1040.00	716.83	745503.20
11	CMU walls with 15 cm thickness	m ²	1695.00	33.50	56782.50
12	CMU walls with 20 cm thickness	m ²	2460.00	39.00	95940.00
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	2580.00	56.00	144480.00
14	Floor tiling	m ²	1500.00	35.00	52500.00
15	Natural marble of stairs	m	196.00	160.83	31522.68

Continued...

Table 4.22 continued

#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
16	Plastic weather-resistant paints	m ²	6550.00	43.00	281650.00
17	White glazed ceramic tiles	m ²	910.00	67.33	61270.30
18	Insulator layer for moisture	m ²	1850.00	30.83	57035.50
19	Thermal insulation, horizontal	m ²	1480.00	29.67	43911.60
20	Thermal insulation, vertical	m ²	1550.00	24.00	37200.00
21	Plastic paints for interior walls (smooth American Texture)	m ²	2280.00	36.17	82467.60
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	1670.00	35.33	59001.10
23	Aluminum windows	m ²	349.00	393.17	137216.33
24	Hollow metallic doors	m ²	170.00	436.67	74233.90
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	103.00	203.33	20942.99
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	291.00	266.67	77600.97
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	27.50	1135.00	31212.50
28	Switch, A/C. window type (2x30 Amps)	No.	82.00	216.67	17766.94
29	Lighting switch (15 Amps/127 volt)	No.	141.00	128.33	18094.53
30	Main switchboard, school building	No.	1.00	18666.67	18666.67
31	Main distribution panelboard	No.	1.00	18333.33	18333.33
32	Thermoplastic cable (size 3x185x95 mm ²)	m	271.67	124.83	33912.57
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	255.00	215.83	55036.65
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	82.00	1716.67	140766.94
35	Ceiling air fan {dia 142cm (56in)}	No.	80.00	308.33	24666.40
36	Drinking water cooler (tank type)	No.	10.00	2483.33	24833.30
The Sum of The Total Prices of The Index Items (SR)					3,359,905.66

Table 4.23
Calculation of the Total Price for Each Item
And Sum of the Total Price of Index Items
Educational Area - Riyadh
Year 1991

#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
1	Excavation work	m ³	2258.33	15.33	34620.20
2	Backfilling work	m ³	2275.00	14.17	32236.75
3	Excavation work for the foundation	m ³	1566.67	40.00	62666.80
4	Plain concrete work under the foundation	m ³	250.00	183.33	45832.50
5	Reinforced concrete work for the foundation	m ³	585.83	595.00	348568.85
6	Natural crushed stone sub-base coarse	m ²	455.00	30.00	13650.00
7	Building made from Calcium Silicate Bricks	m ²	661.67	91.67	60655.29
8	Concrete pavers (40x40x5cm)	m ²	3390.00	50.83	172313.70
9	Plain concrete with 10 cm thickness	m ²	1640.00	16.67	27338.80
10	Reinforced concrete for the whole superstrucutre	m ³	1040.00	625.00	650000.00
11	CMU walls with 15 cm thickness	m ²	1695.00	31.67	53680.65
12	CMU walls with 20 cm thickness	m ²	2460.00	35.00	86100.00
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	2580.00	50.83	131141.40
14	Floor tiling	m ²	1500.00	34.17	51255.00
15	Natural marble of stairs	m	196.00	158.33	31032.68

Continued...

Table 4.23 continued

#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
16	Plastic weather-resistant paints	m ²	6550.00	30.83	201936.50
17	White glazed ceramic tiles	m ²	910.00	62.50	56875.00
18	Insulator layer for moisture	m ²	1850.00	35.83	66285.50
19	Thermal insulation, horizontal	m ²	1480.00	28.33	41928.40
20	Thermal insulation, vertical	m ²	1550.00	21.67	33588.50
21	Plastic paints for interior walls (smooth American Texture)	m ²	2280.00	27.50	62700.00
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	1670.00	27.50	45925.00
23	Aluminum windows	m ²	349.00	458.33	159957.17
24	Hollow metallic doors	m ²	170.00	550.00	93500.00
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	103.00	250.00	25750.00
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	291.00	283.33	82449.03
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	27.50	900.00	24750.00
28	Switch, A/C. window type (2x30 Amps)	No.	82.00	200.00	16400.00
29	Lighting switch (15 Amps/127 volt)	No.	141.00	133.33	18799.53
30	Main switchboard, school building	No.	1.00	26666.67	26666.67
31	Main distribution panelboard	No.	1.00	29166.67	29166.67
32	Thermoplastic cable (size 3x185x95 mm ²)	m	271.67	133.33	36221.76
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	255.00	181.08	46175.40
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	82.00	1666.67	136666.94
35	Ceiling air fan {dia 142cm (56in)}	No.	80.00	308.33	24666.40
36	Drinking water cooler (tank type)	No.	10.00	1833.33	18333.30
The Sum of The Total Prices of The Index Items (SR)					3,049,834.39

Table 4.24
Calculation of the Total Price for Each Item
And Sum of the Total Price of Index Items
Educational Area - Riyadh
Year 1992

#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
1	Excavation work	m ³	2258.33	29.00	65491.57
2	Backfilling work	m ³	2275.00	17.20	39130.00
3	Excavation work for the foundation	m ³	1566.67	29.00	45433.43
4	Plain concrete work under the foundation	m ³	250.00	207.40	51850.00
5	Reinforced concrete work for the foundation	m ³	585.83	640.00	374931.20
6	Natural crushed stone sub-base coarse	m ²	455.00	30.60	13923.00
7	Building made from Calcium Silicate Bricks	m ²	661.67	75.60	50022.25
8	Concrete pavers (40x40x5cm)	m ²	3390.00	45.60	154584.00
9	Plain concrete with 10 cm thickness	m ²	1640.00	22.80	37392.00
10	Reinforced concrete for the whole superstrucutre	m ³	1040.00	675.00	702000.00
11	CMU walls with 15 cm thickness	m ²	1695.00	40.40	68478.00
12	CMU walls with 20 cm thickness	m ²	2460.00	46.80	115128.00
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	2580.00	41.60	107328.00
14	Floor tiling	m ²	1500.00	27.60	41400.00
15	Natural marble of stairs	m	196.00	162.00	31752.00

Continued...

Table 4.24 continued

#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
16	Plastic weather-resistant paints	m ²	6550.00	21.00	137550.00
17	White glazed ceramic tiles	m ²	910.00	60.40	54964.00
18	Insulator layer for moisture	m ²	1850.00	36.40	67340.00
19	Thermal insulation, horizontal	m ²	1480.00	32.80	48544.00
20	Thermal insulation, vertical	m ²	1550.00	24.60	38130.00
21	Plastic paints for interior walls (smooth American Texture)	m ²	2280.00	18.20	41496.00
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	1670.00	18.40	30728.00
23	Aluminum windows	m ²	349.00	376.00	131224.00
24	Hollow metallic doors	m ²	170.00	520.00	88400.00
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	103.00	246.00	25338.00
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	291.00	288.60	83982.60
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	27.50	1250.00	34375.00
28	Switch, A/C. window type (2x30 Amps)	No.	82.00	254.00	20828.00
29	Lighting switch (15 Amps/127 volt)	No.	141.00	120.80	17032.80
30	Main switchboard, school building	No.	1.00	17600.00	17600.00
31	Main distribution panelboard	No.	1.00	21400.00	21400.00
32	Thermoplastic cable (size 3x185x95 mm ²)	m	271.67	118.60	32220.06
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	255.00	171.00	43605.00
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	82.00	1656.00	135792.00
35	Ceiling air fan {dia 142cm (56in)}	No.	80.00	311.40	24912.00
36	Drinking water cooler (tank type)	No.	10.00	2800.00	28000.00
The Sum of The Total Prices of The Index Items (SR)					3,022,304.91

Table 4.25
Calculation of the Total Price for Each Item
And Sum of the Total Price of Index Items
Educational Area - Riyadh
Year 1993

#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
1	Excavation work	m ³	2258.33	25.00	56458.25
2	Backfilling work	m ³	2275.00	22.17	50436.75
3	Excavation work for the foundation	m ³	1566.67	47.00	73633.49
4	Plain concrete work under the foundation	m ³	250.00	244.17	61042.50
5	Reinforced concrete work for the foundation	m ³	585.83	785.83	460362.79
6	Natural crushed stone sub-base coarse	m ²	455.00	58.00	26390.00
7	Building made from Calcium Silicate Bricks	m ²	661.67	152.50	100904.68
8	Concrete pavers (40x40x5cm)	m ²	3390.00	46.50	157635.00
9	Plain concrete with 10 cm thickness	m ²	1640.00	21.83	35801.20
10	Reinforced concrete for the whole superstructure	m ³	1040.00	862.17	896656.80
11	CMU walls with 15 cm thickness	m ²	1695.00	36.00	61020.00
12	CMU walls with 20 cm thickness	m ²	2460.00	40.00	98400.00
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	2580.00	48.17	124278.60
14	Floor tiling	m ²	1500.00	32.17	48255.00
15	Natural marble of stairs	m	196.00	175.00	34300.00

Continued...

Table 4.25 continued

#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
16	Plastic weather-resistant paints	m ²	6550.00	18.50	121175.00
17	White glazed ceramic tiles	m ²	910.00	66.17	60214.70
18	Insulator layer for moisture	m ²	1850.00	36.83	68135.50
19	Thermal insulation, horizontal	m ²	1480.00	31.33	46368.40
20	Thermal insulation, vertical	m ²	1550.00	25.17	39013.50
21	Plastic paints for interior walls (smooth American Texture)	m ²	2280.00	16.67	38007.60
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	1670.00	16.67	27838.90
23	Aluminum windows	m ²	349.00	399.17	139310.33
24	Hollow metallic doors	m ²	170.00	658.33	111916.10
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	103.00	244.17	25149.51
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	291.00	335.00	97485.00
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	27.50	1470.00	40425.00
28	Switch, A/C. window type (2x30 Amps)	No.	82.00	211.67	17356.94
29	Lighting switch (15 Amps/127 volt)	No.	141.00	167.50	23617.50
30	Main switchboard, school building	No.	1.00	26333.33	26333.33
31	Main distribution panelboard	No.	1.00	30500.00	30500.00
32	Thermoplastic cable (size 3x185x95 mm ²)	m	271.67	138.83	37715.95
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	255.00	198.67	50660.85
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	82.00	1678.33	137623.06
35	Ceiling air fan {dia 142cm (56in)}	No.	80.00	358.33	28666.40
36	Drinking water cooler (tank type)	No.	10.00	3083.33	30833.30
The Sum of The Total Prices of The Index Items (SR)					3,483,921.92

Table 4.26
Calculation of the Total Price for Each Item
And Sum of the Total Price of Index Items
Educational Area - Riyadh
Year 1994

#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
1	Excavation work	m ³	2258.33	25.50	57587.42
2	Backfilling work	m ³	2275.00	20.67	47024.25
3	Excavation work for the foundation	m ³	1566.67	43.00	67366.81
4	Plain concrete work under the foundation	m ³	250.00	234.17	58542.50
5	Reinforced concrete work for the foundation	m ³	585.83	671.67	393484.44
6	Natural crushed stone sub-base coarse	m ²	455.00	89.17	40572.35
7	Building made from Calcium Silicate Bricks	m ²	661.67	108.33	71678.71
8	Concrete pavers (40x40x5cm)	m ²	3390.00	38.33	129938.70
9	Plain concrete with 10 cm thickness	m ²	1640.00	38.17	62598.80
10	Reinforced concrete for the whole superstrucutre	m ³	1040.00	825.00	858000.00
11	CMU walls with 15 cm thickness	m ²	1695.00	43.33	73444.35
12	CMU walls with 20 cm thickness	m ²	2460.00	49.17	120958.20
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	2580.00	48.83	125981.40
14	Floor tiling	m ²	1500.00	33.50	50250.00
15	Natural marble of stairs	m	196.00	182.50	35770.00

Continued...

Table 4.26 continued

#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
16	Plastic weather-resistant paints	m ²	6550.00	19.67	128838.50
17	White glazed ceramic tiles	m ²	910.00	70.83	64455.30
18	Insulator layer for moisture	m ²	1850.00	48.33	89410.50
19	Thermal insulation, horizontal	m ²	1480.00	42.50	62900.00
20	Thermal insulation, vertical	m ²	1550.00	26.17	40563.50
21	Plastic paints for interior walls (smooth American Texture)	m ²	2280.00	19.50	44460.00
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	1670.00	22.17	37023.90
23	Aluminum windows	m ²	349.00	480.83	167809.67
24	Hollow metallic doors	m ²	170.00	825.00	140250.00
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	103.00	272.50	28067.50
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	291.00	342.00	99522.00
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	27.50	1566.67	43083.43
28	Switch, A/C. window type (2x30 Amps)	No.	82.00	297.50	24395.00
29	Lighting switch (15 Amps/127 volt)	No.	141.00	249.17	35132.97
30	Main switchboard, school building	No.	1.00	37766.67	37766.67
31	Main distribution panelboard	No.	1.00	46233.33	46233.33
32	Thermoplastic cable (size 3x185x95 mm ²)	m	271.67	120.50	32736.24
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	255.00	185.50	47302.50
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	82.00	1916.67	157166.94
35	Ceiling air fan {dia 142cm (56in)}	No.	80.00	478.33	38266.40
36	Drinking water cooler (tank type)	No.	10.00	2483.33	24833.30
The Sum of The Total Prices of The Index Items (SR)					3,583,415.56

Table 4.27
Calculation of the Total Price for Each Item
And Sum of the Total Price of Index Items
Educational Area - Riyadh
Year 1995

#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
1	Excavation work	m ³	2258.33	43.00	97108.19
2	Backfilling work	m ³	2275.00	19.00	43225.00
3	Excavation work for the foundation	m ³	1566.67	25.00	39166.75
4	Plain concrete work under the foundation	m ³	250.00	165.00	41250.00
5	Reinforced concrete work for the foundation	m ³	585.83	610.00	357356.30
6	Natural crushed stone sub-base coarse	m ²	455.00	200.00	91000.00
7	Building made from Calcium Silicate Bricks	m ²	661.67	300.00	198501.00
8	Concrete pavers (40x40x5cm)	m ²	3390.00	10.00	33900.00
9	Plain concrete with 10 cm thickness	m ²	1640.00	100.00	164000.00
10	Reinforced concrete for the whole superstrucutre	m ³	1040.00	720.00	748800.00
11	CMU walls with 15 cm thickness	m ²	1695.00	65.00	110175.00
12	CMU walls with 20 cm thickness	m ²	2460.00	65.00	159900.00
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	2580.00	45.00	116100.00
14	Floor tiling	m ²	1500.00	30.00	45000.00
15	Natural marble of stairs	m	196.00	175.00	34300.00

Continued...

Table 4.27 continued

#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
16	Plastic weather-resistant paints	m ²	6550.00	17.00	111350.00
17	White glazed ceramic tiles	m ²	910.00	35.00	31850.00
18	Insulator layer for moisture	m ²	1850.00	75.00	138750.00
19	Thermal insulation, horizontal	m ²	1480.00	50.00	74000.00
20	Thermal insulation, vertical	m ²	1550.00	40.00	62000.00
21	Plastic paints for interior walls (smooth American Texture)	m ²	2280.00	12.00	27360.00
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	1670.00	13.00	21710.00
23	Aluminum windows	m ²	349.00	700.00	244300.00
24	Hollow metallic doors	m ²	170.00	700.00	119000.00
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	103.00	200.00	20600.00
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	291.00	270.00	78570.00
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	27.50	910.00	25025.00
28	Switch, A/C. window type (2x30 Amps)	No.	82.00	300.00	24600.00
29	Lighting switch (15 Amps/127 volt)	No.	141.00	150.00	21150.00
30	Main switchboard, school building	No.	1.00	50000.00	50000.00
31	Main distribution panelboard	No.	1.00	45000.00	45000.00
32	Thermoplastic cable (size 3x185x95 mm ²)	m	271.67	80.00	21733.60
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	255.00	110.00	28050.00
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	82.00	1300.00	106600.00
35	Ceiling air fan (dia 142cm (56in))	No.	80.00	400.00	32000.00
36	Drinking water cooler (tank type)	No.	10.00	1400.00	14000.00
The Sum of The Total Prices of The Index Items (SR)					3,577,430.84

Table 4.28
Calculation of the Total Price for Each Item
And Sum of the Total Price of Index Items
Educational Area - Jeddah
Year 1990

#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
1	Excavation work	m ³	1455.00	14.80	21534.00
2	Backfilling work	m ³	1875.00	12.83	24056.25
3	Excavation work for the foundation	m ³	1933.33	25.67	49628.58
4	Plain concrete work under the foundation	m ³	299.17	223.17	66765.77
5	Reinforced concrete work for the foundation	m ³	575.00	683.33	392914.75
6	Natural crushed stone sub-base course	m ²	450.00	47.00	21150.00
7	Building made from Calcium Silicate Bricks	m ²	633.33	68.67	43490.77
8	Concrete pavers (40x40x5cm)	m ²	3108.33	56.00	174066.48
9	Plain concrete with 10 cm thickness	m ²	1625.00	22.50	36562.50
10	Reinforced concrete for the whole superstrucutre	m ³	1036.67	737.67	764720.36
11	CMU walls with 15 cm thickness	m ²	1682.50	38.17	64221.03
12	CMU walls with 20 cm thickness	m ²	2460.00	43.67	107428.20
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	2580.00	55.50	143190.00
14	Floor tiling	m ²	1485.83	33.50	49775.31
15	Natural marble of stairs	m	194.67	166.00	32315.22

Continued...

Table 4.28 continued

#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
16	Plastic weather-resistant paints	m ²	6528.33	39.00	254604.87
17	White glazed ceramic tiles	m ²	898.33	53.50	48060.66
18	Insulator layer for moisture	m ²	1835.83	31.17	57222.82
19	Thermal insulation, horizontal	m ²	1466.67	30.00	44000.10
20	Thermal insulation, vertical	m ²	1550.00	26.17	40563.50
21	Plastic paints for interior walls (smooth American Texture)	m ²	2280.00	30.33	69152.40
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	1670.00	33.83	56496.10
23	Aluminum windows	m ²	348.17	513.33	178726.11
24	Hollow metallic doors	m ²	170.00	586.83	99761.10
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	101.33	257.83	26125.91
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	291.00	300.67	87494.97
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	26.17	1827.83	47834.31
28	Switch, A/C. window type (2x30 Amps)	No.	81.33	286.50	23301.05
29	Lighting switch (15 Amps/127 volt)	No.	137.83	161.00	22190.63
30	Main switchboard, school building	No.	1.00	25611.17	25611.17
31	Main distribution panelboard	No.	1.00	29777.83	29777.83
32	Thermoplastic cable (size 3x185x95 mm ²)	m	260.00	167.17	43464.20
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	361.67	215.50	77939.89
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	82.83	1679.67	139127.07
35	Ceiling air fan {dia 142cm (56in)}	No.	79.33	355.50	28201.82
36	Drinking water cooler (tank type)	No.	10.00	2755.50	27555.00
The Sum of The Total Prices of The Index Items (SR)					3,419,030.70

Table 4.29
Calculation of the Total Price for Each Item
And Sum of the Total Price of Index Items
Educational Area - Jeddah
Year 1991

#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
1	Excavation work	m ³	1455.00	12.17	17707.35
2	Backfilling work	m ³	1875.00	18.33	34368.75
3	Excavation work for the foundation	m ³	1933.33	26.67	51561.91
4	Plain concrete work under the foundation	m ³	299.17	290.83	87007.61
5	Reinforced concrete work for the foundation	m ³	575.00	675.00	388125.00
6	Natural crushed stone sub-base course	m ²	450.00	60.83	27373.50
7	Building made from Calcium Silicate Bricks	m ²	633.33	126.67	80223.91
8	Concrete pavers (40x40x5cm)	m ²	3108.33	70.00	217583.10
9	Plain concrete with 10 cm thickness	m ²	1625.00	19.17	31151.25
10	Reinforced concrete for the whole superstrucutre	m ³	1036.67	716.67	742950.29
11	CMU walls with 15 cm thickness	m ²	1682.50	40.83	68696.48
12	CMU walls with 20 cm thickness	m ²	2460.00	45.00	110700.00
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	2580.00	56.67	146208.60
14	Floor tiling	m ²	1485.83	34.17	50770.81
15	Natural marble of stairs	m	194.67	183.33	35688.85

Continued...

Table 4.29 continued

#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
16	Plastic weather-resistant paints	m ²	6528.33	40.83	266551.71
17	White glazed ceramic tiles	m ²	898.33	63.83	57340.40
18	Insulator layer for moisture	m ²	1835.83	23.33	42829.91
19	Thermal insulation, horizontal	m ²	1466.67	17.67	25916.06
20	Thermal insulation, vertical	m ²	1550.00	15.00	23250.00
21	Plastic paints for interior walls (smooth American Texture)	m ²	2280.00	34.17	77907.60
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	1670.00	32.50	54275.00
23	Aluminum windows	m ²	348.17	345.00	120118.65
24	Hollow metallic doors	m ²	170.00	366.67	62333.90
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	101.33	267.50	27105.78
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	291.00	359.17	104518.47
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	26.17	1166.67	30531.75
28	Switch, A/C. window type (2x30 Amps)	No.	81.33	145.83	11860.35
29	Lighting switch (15 Amps/127 volt)	No.	137.83	141.67	19526.38
30	Main switchboard, school building	No.	1.00	33333.33	33333.33
31	Main distribution panelboard	No.	1.00	37500.00	37500.00
32	Thermoplastic cable (size 3x185x95 mm ²)	m	260.00	178.33	46365.80
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	361.67	212.50	76854.88
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	82.83	1708.33	141500.97
35	Ceiling air fan (dia 142cm (56in))	No.	79.33	328.33	26046.42
36	Drinking water cooler (tank type)	No.	10.00	2000.00	20000.00
The Sum of The Total Prices of The Index Items (SR)					3,395,784.78

Table 4.30
Calculation of the Total Price for Each Item
And Sum of the Total Price of Index Items
Educational Area - Jeddah
Year 1992

#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
1	Excavation work	m ³	1455.00	16.00	23280.00
2	Backfilling work	m ³	1875.00	15.00	28125.00
3	Excavation work for the foundation	m ³	1933.33	20.83	40271.26
4	Plain concrete work under the foundation	m ³	299.17	303.33	90747.24
5	Reinforced concrete work for the foundation	m ³	575.00	747.50	429812.50
6	Natural crushed stone sub-base coarse	m ²	450.00	34.17	15376.50
7	Building made from Calcium Silicate Bricks	m ²	633.33	118.33	74941.94
8	Concrete pavers (40x40x5cm)	m ²	3108.33	47.50	147645.68
9	Plain concrete with 10 cm thickness	m ²	1625.00	25.00	40625.00
10	Reinforced concrete for the whole superstrucutre	m ³	1036.67	815.67	845580.62
11	CMU walls with 15 cm thickness	m ²	1682.50	57.17	96188.53
12	CMU walls with 20 cm thickness	m ²	2460.00	60.00	147600.00
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	2580.00	60.83	156941.40
14	Floor tiling	m ²	1485.83	30.00	44574.90
15	Natural marble of stairs	m	194.67	162.50	31633.88

Continued...

Table 4.30 continued

#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
16	Plastic weather-resistant paints	m ²	6528.33	13.83	90286.80
17	White glazed ceramic tiles	m ²	898.33	54.17	48662.54
18	Insulator layer for moisture	m ²	1835.83	55.00	100970.65
19	Thermal insulation, horizontal	m ²	1466.67	19.17	28116.06
20	Thermal insulation, vertical	m ²	1550.00	28.33	43911.50
21	Plastic paints for interior walls (smooth American Texture)	m ²	2280.00	13.83	31532.40
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	1670.00	13.83	23096.10
23	Aluminum windows	m ²	348.17	400.00	139268.00
24	Hollow metallic doors	m ²	170.00	1000.00	170000.00
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	101.33	183.33	18576.83
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	291.00	265.83	77356.53
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	26.17	2083.33	54520.75
28	Switch, A/C. window type (2x30 Amps)	No.	81.33	245.83	19993.35
29	Lighting switch (15 Amps/127 volt)	No.	137.83	116.67	16080.63
30	Main switchboard, school building	No.	1.00	18666.67	18666.67
31	Main distribution panelboard	No.	1.00	19500.00	19500.00
32	Thermoplastic cable (size 3x185x95 mm ²)	m	260.00	107.50	27950.00
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	361.67	174.17	62992.06
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	82.83	1383.33	114581.22
35	Ceiling air fan {dia 142cm (56in)}	No.	79.33	620.83	49250.44
36	Drinking water cooler (tank type)	No.	10.00	2083.33	20833.30
The Sum of The Total Prices of The Index Items (SR)					3,389,490.27

Table 4.31
Calculation of the Total Price for Each Item
And Sum of the Total Price of Index Items
Educational Area - Jeddah
Year 1993

#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
1	Excavation work	m ³	1455.00	8.33	12120.15
2	Backfilling work	m ³	1875.00	13.50	25312.50
3	Excavation work for the foundation	m ³	1933.33	12.67	24495.29
4	Plain concrete work under the foundation	m ³	299.17	283.67	84865.55
5	Reinforced concrete work for the foundation	m ³	575.00	659.67	379310.25
6	Natural crushed stone sub-base coarse	m ²	450.00	40.17	18076.50
7	Building made from Calcium Silicate Bricks	m ²	633.33	94.67	59957.35
8	Concrete pavers (40x40x5cm)	m ²	3108.33	42.67	132632.44
9	Plain concrete with 10 cm thickness	m ²	1625.00	24.33	39536.25
10	Reinforced concrete for the whole superstrucutre	m ³	1036.67	865.50	897237.89
11	CMU walls with 15 cm thickness	m ²	1682.50	40.17	67586.03
12	CMU walls with 20 cm thickness	m ²	2460.00	46.50	114390.00
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	2580.00	42.00	108360.00
14	Floor tiling	m ²	1485.83	29.33	43579.39
15	Natural marble of stairs	m	194.67	144.83	28194.06

Continued...

Table 4.31 continued

#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
16	Plastic weather-resistant paints	m ²	6528.33	17.67	115355.59
17	White glazed ceramic tiles	m ²	898.33	53.50	48060.66
18	Insulator layer for moisture	m ²	1835.83	36.00	66089.88
19	Thermal insulation, horizontal	m ²	1466.67	37.67	55249.46
20	Thermal insulation, vertical	m ²	1550.00	20.00	31000.00
21	Plastic paints for interior walls (smooth American Texture)	m ²	2280.00	16.50	37620.00
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	1670.00	18.67	31178.90
23	Aluminum windows	m ²	348.17	410.17	142808.89
24	Hollow metallic doors	m ²	170.00	751.50	127755.00
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	101.33	219.50	22241.94
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	291.00	260.33	75756.03
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	26.17	1561.50	40864.46
28	Switch, A/C. window type (2x30 Amps)	No.	81.33	212.50	17282.63
29	Lighting switch (15 Amps/127 volt)	No.	137.83	120.50	16608.52
30	Main switchboard, school building	No.	1.00	44037.00	44037.00
31	Main distribution panelboard	No.	1.00	45138.33	45138.33
32	Thermoplastic cable (size 3x185x95 mm ²)	m	260.00	149.83	38955.80
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	361.67	190.83	69017.49
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	82.83	1836.83	152144.63
35	Ceiling air fan {dia 142cm (56in)}	No.	79.33	370.00	29352.10
36	Drinking water cooler (tank type)	No.	10.00	2210.00	22100.00
The Sum of The Total Prices of The Index Items (SR)					3,264,270.93

Table 4.32
Calculation of the Total Price for Each Item
And Sum of the Total Price of Index Items
Educational Area - Jeddah
Year 1994

#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
1	Excavation work	m ³	1455.00	25.00	36375.00
2	Backfilling work	m ³	1875.00	25.50	47812.50
3	Excavation work for the foundation	m ³	1933.33	43.00	83133.19
4	Plain concrete work under the foundation	m ³	299.17	310.00	92742.70
5	Reinforced concrete work for the foundation	m ³	575.00	685.00	393875.00
6	Natural crushed stone sub-base coarse	m ²	450.00	79.50	35775.00
7	Building made from Calcium Silicate Bricks	m ²	633.33	155.00	98166.15
8	Concrete pavers (40x40x5cm)	m ²	3108.33	59.50	184945.64
9	Plain concrete with 10 cm thickness	m ²	1625.00	31.00	50375.00
10	Reinforced concrete for the whole superstructure	m ³	1036.67	852.00	883242.84
11	CMU walls with 15 cm thickness	m ²	1682.50	42.50	71506.25
12	CMU walls with 20 cm thickness	m ²	2460.00	48.00	118080.00
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	2580.00	50.50	130290.00
14	Floor tiling	m ²	1485.83	36.50	54232.80
15	Natural marble of stairs	m	194.67	190.00	36987.30

Continued...

Table 4.32 continued

#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
16	Plastic weather-resistant paints	m ²	6528.33	19.50	127302.44
17	White glazed ceramic tiles	m ²	898.33	64.50	57942.29
18	Insulator layer for moisture	m ²	1835.83	43.00	78940.69
19	Thermal insulation, horizontal	m ²	1466.67	32.00	46933.44
20	Thermal insulation, vertical	m ²	1550.00	30.00	46500.00
21	Plastic paints for interior walls (smooth American Texture)	m ²	2280.00	18.00	41040.00
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	1670.00	19.00	31730.00
23	Aluminum windows	m ²	348.17	403.00	140312.51
24	Hollow metallic doors	m ²	170.00	1144.00	194480.00
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	101.33	239.00	24217.87
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	291.00	285.00	82935.00
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	26.17	1676.00	43860.92
28	Switch, A/C. window type (2x30 Amps)	No.	81.33	227.00	18461.91
29	Lighting switch (15 Amps/127 volt)	No.	137.83	160.00	22052.80
30	Main switchboard, school building	No.	1.00	37448.00	37448.00
31	Main distribution panelboard	No.	1.00	39240.00	39240.00
32	Thermoplastic cable (size 3x185x95 mm ²)	m	260.00	169.50	44070.00
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	361.67	221.00	79929.07
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	82.83	1902.00	157542.66
35	Ceiling air fan (dia 142cm (56in))	No.	79.33	361.00	28638.13
36	Drinking water cooler (tank type)	No.	10.00	2196.00	21960.00
The Sum of The Total Prices of The Index Items (SR)					3,683,077.08

Table 4.33
Calculation of the Total Price for Each Item
And Sum of the Total Price of Index Items
Educational Area - Jeddah
Year 1995

#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
1	Excavation work	m ³	1455.00	20.00	29100.00
2	Backfilling work	m ³	1875.00	19.00	35625.00
3	Excavation work for the foundation	m ³	1933.33	25.00	48333.25
4	Plain concrete work under the foundation	m ³	299.17	325.00	97230.25
5	Reinforced concrete work for the foundation	m ³	575.00	675.00	388125.00
6	Natural crushed stone sub-base coarse	m ²	450.00	37.00	16650.00
7	Building made from Calcium Silicate Bricks	m ²	633.33	385.00	243832.05
8	Concrete pavers (40x40x5cm)	m ²	3108.33	30.00	93249.90
9	Plain concrete with 10 cm thickness	m ²	1625.00	30.00	48750.00
10	Reinforced concrete for the whole superstrucutre	m ³	1036.67	930.00	964103.10
11	CMU walls with 15 cm thickness	m ²	1682.50	35.00	58887.50
12	CMU walls with 20 cm thickness	m ²	2460.00	39.00	95940.00
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	2580.00	38.00	98040.00
14	Floor tiling	m ²	1485.83	30.00	44574.90
15	Natural marble of stairs	m	194.67	200.00	38934.00

Continued...

Table 4.33 continued

#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
16	Plastic weather-resistant paints	m ²	6528.33	18.00	117509.94
17	White glazed ceramic tiles	m ²	898.33	60.00	53899.80
18	Insulator layer for moisture	m ²	1835.83	75.00	137687.25
19	Thermal insulation, horizontal	m ²	1466.67	50.00	73333.50
20	Thermal insulation, vertical	m ²	1550.00	40.00	62000.00
21	Plastic paints for interior walls (smooth American Texture)	m ²	2280.00	14.00	31920.00
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	1670.00	14.00	23380.00
23	Aluminum windows	m ²	348.17	560.00	194975.20
24	Hollow metallic doors	m ²	170.00	780.00	132600.00
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	101.33	184.00	18644.72
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	291.00	200.00	58200.00
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	26.17	1400.00	36638.00
28	Switch, A/C. window type (2x30 Amps)	No.	81.33	234.00	19031.22
29	Lighting switch (15 Amps/127 volt)	No.	137.83	138.00	19020.54
30	Main switchboard, school building	No.	1.00	66395.00	66395.00
31	Main distribution panelboard	No.	1.00	60864.00	60864.00
32	Thermoplastic cable (size 3x185x95 mm ²)	m	260.00	131.00	34060.00
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	361.67	225.00	81375.75
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	82.83	2820.00	233580.60
35	Ceiling air fan (dia 142cm (56in))	No.	79.33	560.00	44424.80
36	Drinking water cooler (tank type)	No.	10.00	2960.00	29600.00
The Sum of The Total Prices of The Index Items (SR)					3,830,515.27

Table 4.34
Calculation of the Total Price for Each Item
And Sum of the Total Price of Index Items
Educational Area - Eastern Province
Year 1990

#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
1	Excavation work	m ³	1700.00	9.75	16575.00
2	Backfilling work	m ³	2661.67	10.33	27495.05
3	Excavation work for the foundation	m ³	2141.67	15.00	32125.05
4	Plain concrete work under the foundation	m ³	304.17	175.33	53330.13
5	Reinforced concrete work for the foundation	m ³	609.17	556.67	339106.66
6	Natural crushed stone sub-base coarse	m ²	465.00	93.33	43398.45
7	Building made from Calcium Silicate Bricks	m ²	815.00	52.00	42380.00
8	Concrete pavers (40x40x5cm)	m ²	4016.67	48.00	192800.16
9	Plain concrete with 10 cm thickness	m ²	1640.00	20.33	33341.20
10	Reinforced concrete for the whole superstrucutre	m ³	1040.00	605.00	629200.00
11	CMU walls with 15 cm thickness	m ²	1695.00	32.00	54240.00
12	CMU walls with 20 cm thickness	m ²	2460.00	35.67	87748.20
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	2580.00	48.67	125568.60
14	Floor tiling	m ²	1500.00	33.00	49500.00
15	Natural marble of stairs	m	196.00	138.00	27048.00

Continued...

Table 4.34 continued

#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
16	Plastic weather-resistant paints	m ²	6550.00	27.50	180125.00
17	White glazed ceramic tiles	m ²	910.00	65.33	59450.30
18	Insulator layer for moisture	m ²	1850.00	32.67	60439.50
19	Thermal insulation, horizontal	m ²	1480.00	26.33	38968.40
20	Thermal insulation, vertical	m ²	1550.00	20.00	31000.00
21	Plastic paints for interior walls (smooth American Texture)	m ²	2280.00	25.67	58527.60
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	1670.00	25.67	42868.90
23	Aluminum windows	m ²	349.00	410.50	143264.50
24	Hollow metallic doors	m ²	170.00	416.67	70833.90
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	103.00	284.00	29252.00
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	291.00	313.33	91179.03
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	39.00	1042.50	40657.50
28	Switch, A/C. window type (2x30 Amps)	No.	82.00	200.00	16400.00
29	Lighting switch (15 Amps/127 volt)	No.	141.00	150.00	21150.00
30	Main switchboard, school building	No.	1.00	18166.67	18166.67
31	Main distribution panelboard	No.	1.00	20166.67	20166.67
32	Thermoplastic cable (size 3x185x95 mm ²)	m	260.00	136.67	35534.20
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	410.00	189.33	77625.30
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	82.00	1750.00	143500.00
35	Ceiling air fan (dia 142cm (56in))	No.	80.00	334.00	26720.00
36	Drinking water cooler (tank type)	No.	10.00	2378.67	23786.70
The Sum of The Total Prices of The Index Items (SR)					2,983,472.67

Table 4.35
Calculation of the Total Price for Each Item
And Sum of the Total Price of Index Items
Educational Area - Eastern Province
Year 1991

#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
1	Excavation work	m ³	1700.00	14.40	24480.00
2	Backfilling work	m ³	2661.67	17.08	45461.32
3	Excavation work for the foundation	m ³	2141.67	52.17	111730.92
4	Plain concrete work under the foundation	m ³	304.17	237.17	72140.00
5	Reinforced concrete work for the foundation	m ³	609.17	633.33	385805.64
6	Natural crushed stone sub-base coarse	m ²	465.00	67.50	31387.50
7	Building made from Calcium Silicate Bricks	m ²	815.00	59.50	48492.50
8	Concrete pavers (40x40x5cm)	m ²	4016.67	36.00	144600.12
9	Plain concrete with 10 cm thickness	m ²	1640.00	19.67	32258.80
10	Reinforced concrete for the whole superstrucutre	m ³	1040.00	720.00	748800.00
11	CMU walls with 15 cm thickness	m ²	1695.00	38.00	64410.00
12	CMU walls with 20 cm thickness	m ²	2460.00	40.50	99630.00
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	2580.00	36.83	95021.40
14	Floor tiling	m ²	1500.00	27.00	40500.00
15	Natural marble of stairs	m	196.00	173.67	34039.32

Continued...

Table 4.35 continued

#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
16	Plastic weather-resistant paints	m ²	6550.00	30.67	200888.50
17	White glazed ceramic tiles	m ²	910.00	64.67	58849.70
18	Insulator layer for moisture	m ²	1850.00	26.83	49635.50
19	Thermal insulation, horizontal	m ²	1480.00	24.33	36008.40
20	Thermal insulation, vertical	m ²	1550.00	18.17	28163.50
21	Plastic paints for interior walls (smooth American Texture)	m ²	2280.00	30.33	69152.40
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	1670.00	30.50	50935.00
23	Aluminum windows	m ²	349.00	343.17	119766.33
24	Hollow metallic doors	m ²	170.00	378.33	64316.10
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	103.00	319.33	32890.99
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	291.00	358.33	104274.03
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	39.00	957.50	37342.50
28	Switch, A/C. window type (2x30 Amps)	No.	82.00	414.17	33961.94
29	Lighting switch (15 Amps/127 volt)	No.	141.00	231.67	32665.47
30	Main switchboard, school building	No.	1.00	34166.67	34166.67
31	Main distribution panelboard	No.	1.00	38875.00	38875.00
32	Thermoplastic cable (size 3x185x95 mm ²)	m	260.00	155.50	40430.00
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	410.00	200.33	82135.30
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	82.00	1505.83	123478.06
35	Ceiling air fan (dia 142cm (56in))	No.	80.00	391.83	31346.40
36	Drinking water cooler (tank type)	No.	10.00	3053.00	30530.00
The Sum of The Total Prices of The Index Items (SR)					3,278,569.31

Table 4.36
Calculation of the Total Price for Each Item
And Sum of the Total Price of Index Items
Educational Area - Eastern Province
Year 1992

#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
1	Excavation work	m ³	1700.00	22.80	38760.00
2	Backfilling work	m ³	2661.67	9.17	24407.51
3	Excavation work for the foundation	m ³	2141.67	23.17	49622.49
4	Plain concrete work under the foundation	m ³	304.17	204.33	62151.06
5	Reinforced concrete work for the foundation	m ³	609.17	619.17	377179.79
6	Natural crushed stone sub-base coarse	m ²	465.00	73.67	34256.55
7	Building made from Calcium Silicate Bricks	m ²	815.00	66.80	54442.00
8	Concrete pavers (40x40x5cm)	m ²	4016.67	53.17	213566.34
9	Plain concrete with 10 cm thickness	m ²	1640.00	20.33	33341.20
10	Reinforced concrete for the whole superstructure	m ³	1040.00	620.00	644800.00
11	CMU walls with 15 cm thickness	m ²	1695.00	35.67	60460.65
12	CMU walls with 20 cm thickness	m ²	2460.00	38.17	93898.20
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	2580.00	49.17	126858.60
14	Floor tiling	m ²	1500.00	34.67	52005.00
15	Natural marble of stairs	m	196.00	158.00	30968.00

Continued

Table 4.36 continued

#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
16	Plastic weather-resistant paints	m ²	6550.00	16.67	109188.50
17	White glazed ceramic tiles	m ²	910.00	71.83	65365.30
18	Insulator layer for moisture	m ²	1850.00	40.00	74000.00
19	Thermal insulation, horizontal	m ²	1480.00	26.67	39471.60
20	Thermal insulation, vertical	m ²	1550.00	23.17	35913.50
21	Plastic paints for interior walls (smooth American Texture)	m ²	2280.00	16.00	36480.00
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	1670.00	16.00	26720.00
23	Aluminum windows	m ²	349.00	425.00	148325.00
24	Hollow metallic doors	m ²	170.00	591.67	100583.90
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	103.00	299.83	30882.49
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	291.00	310.50	90355.50
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	39.00	1408.33	54924.87
28	Switch, A/C. window type (2x30 Amps)	No.	82.00	182.50	14965.00
29	Lighting switch (15 Amps/127 volt)	No.	141.00	150.00	21150.00
30	Main switchboard, school building	No.	1.00	16750.00	16750.00
31	Main distribution panelboard	No.	1.00	18208.33	18208.33
32	Thermoplastic cable (size 3x185x95 mm ²)	m	260.00	142.00	36920.00
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	410.00	194.00	79540.00
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	82.00	1479.17	121291.94
35	Ceiling air fan (dia 142cm (56in))	No.	80.00	384.33	30746.40
36	Drinking water cooler (tank type)	No.	10.00	2662.50	26625.00
				The Sum of The Total Prices of The Index Items (SR)	
				3,075,124.73	

Table 4.37
Calculation of the Total Price for Each Item
And Sum of the Total Price of Index Items
Educational Area - Eastern Province
Year 1993

#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
1	Excavation work	m ³	1700.00	52.67	89539.00
2	Backfilling work	m ³	2661.67	31.40	83576.44
3	Excavation work for the foundation	m ³	2141.67	42.60	91235.14
4	Plain concrete work under the foundation	m ³	304.17	262.00	79692.54
5	Reinforced concrete work for the foundation	m ³	609.17	808.00	492209.36
6	Natural crushed stone sub-base coarse	m ²	465.00	110.00	51150.00
7	Building made from Calcium Silicate Bricks	m ²	815.00	136.00	110840.00
8	Concrete pavers (40x40x5cm)	m ²	4016.67	67.20	269920.22
9	Plain concrete with 10 cm thickness	m ²	1640.00	23.00	37720.00
10	Reinforced concrete for the whole superstrucutre	m ³	1040.00	868.00	902720.00
11	CMU walls with 15 cm thickness	m ²	1695.00	40.00	67800.00
12	CMU walls with 20 cm thickness	m ²	2460.00	43.60	107256.00
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	2580.00	55.40	142932.00
14	Floor tiling	m ²	1500.00	40.60	60900.00
15	Natural marble of stairs	m	196.00	143.00	28028.00

Continued...

Table 4.37 continued

#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
16	Plastic weather-resistant paints	m ²	6550.00	22.40	146720.00
17	White glazed ceramic tiles	m ²	910.00	69.00	62790.00
18	Insulator layer for moisture	m ²	1850.00	49.80	92130.00
19	Thermal insulation, horizontal	m ²	1480.00	39.40	58312.00
20	Thermal insulation, vertical	m ²	1550.00	33.00	51150.00
21	Plastic paints for interior walls (smooth American Texture)	m ²	2280.00	21.40	48792.00
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	1670.00	21.40	35738.00
23	Aluminum windows	m ²	349.00	510.00	177990.00
24	Hollow metallic doors	m ²	170.00	840.00	142800.00
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	103.00	385.40	39696.20
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	291.00	422.00	122802.00
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	39.00	1410.00	54990.00
28	Switch, A/C. window type (2x30 Amps)	No.	82.00	280.00	22960.00
29	Lighting switch (15 Amps/127 volt)	No.	141.00	236.00	33276.00
30	Main switchboard, school building	No.	1.00	45500.00	45500.00
31	Main distribution panelboard	No.	1.00	54260.00	54260.00
32	Thermoplastic cable (size 3x185x95 mm ²)	m	260.00	164.00	42640.00
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	410.00	226.00	92660.00
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	82.00	1860.00	152520.00
35	Ceiling air fan (dia 142cm (56in))	No.	80.00	430.00	34400.00
36	Drinking water cooler (tank type)	No.	10.00	2240.00	22400.00
The Sum of The Total Prices of The Index Items (SR)					4,150,044.90

Table 4.38
Calculation of the Total Price for Each Item
And Sum of the Total Price of Index Items
Educational Area - Eastern Province
Year 1994

#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
1	Excavation work	m ³	1700.00	38.00	64600.00
2	Backfilling work	m ³	2661.67	24.25	64545.50
3	Excavation work for the foundation	m ³	2141.67	43.25	92627.23
4	Plain concrete work under the foundation	m ³	304.17	360.00	109501.20
5	Reinforced concrete work for the foundation	m ³	609.17	1029.00	626835.93
6	Natural crushed stone sub-base coarse	m ²	465.00	61.25	28481.25
7	Building made from Calcium Silicate Bricks	m ²	815.00	69.75	56846.25
8	Concrete pavers (40x40x5cm)	m ²	4016.67	76.75	308279.42
9	Plain concrete with 10 cm thickness	m ²	1640.00	35.50	58220.00
10	Reinforced concrete for the whole superstructure	m ³	1040.00	1008.50	1048840.00
11	CMU walls with 15 cm thickness	m ²	1695.00	74.25	125853.75
12	CMU walls with 20 cm thickness	m ²	2460.00	72.00	177120.00
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	2580.00	55.75	143835.00
14	Floor tiling	m ²	1500.00	54.75	82125.00
15	Natural marble of stairs	m	196.00	155.50	30478.00

Continued..

Table 4.38 continued

#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
16	Plastic weather-resistant paints	m ²	6550.00	30.25	198137.50
17	White glazed ceramic tiles	m ²	910.00	71.00	64610.00
18	Insulator layer for moisture	m ²	1850.00	38.50	71225.00
19	Thermal insulation, horizontal	m ²	1480.00	27.00	39960.00
20	Thermal insulation, vertical	m ²	1550.00	22.25	34487.50
21	Plastic paints for interior walls (smooth American Texture)	m ²	2280.00	30.50	69540.00
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	1670.00	31.00	51770.00
23	Aluminum windows	m ²	349.00	518.75	181043.75
24	Hollow metallic doors	m ²	170.00	801.25	136212.50
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	103.00	356.50	36719.50
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	291.00	367.25	106869.75
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	39.00	2425.00	94575.00
28	Switch, A/C. window type (2x30 Amps)	No.	82.00	233.00	19106.00
29	Lighting switch (15 Amps/127 volt)	No.	141.00	170.75	24075.75
30	Main switchboard, school building	No.	1.00	35250.00	35250.00
31	Main distribution panelboard	No.	1.00	39250.00	39250.00
32	Thermoplastic cable (size 3x185x95 mm ²)	m	260.00	153.50	39910.00
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	410.00	207.50	85075.00
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	82.00	2630.00	215660.00
35	Ceiling air fan (dia 142cm (56in))	No.	80.00	417.50	33400.00
36	Drinking water cooler (tank type)	No.	10.00	2436.25	24362.50
The Sum of The Total Prices of The Index Items (SR)					4,619,428.28

Table 4.39
Calculation of the Total Price for Each Item
And Sum of the Total Price of Index Items
Educational Area - Eastern Province
Year 1995

#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
1	Excavation work	m ³	1700.00	25.00	42500.00
2	Backfilling work	m ³	2661.67	20.00	53233.40
3	Excavation work for the foundation	m ³	2141.67	28.00	59966.76
4	Plain concrete work under the foundation	m ³	304.17	325.00	98855.25
5	Reinforced concrete work for the foundation	m ³	609.17	675.00	411189.75
6	Natural crushed stone sub-base coarse	m ²	465.00	36.00	16740.00
7	Building made from Calcium Silicate Bricks	m ²	815.00	385.00	313775.00
8	Concrete pavers (40x40x5cm)	m ²	4016.67	35.00	140583.45
9	Plain concrete with 10 cm thickness	m ²	1640.00	28.00	45920.00
10	Reinforced concrete for the whole superstrucutre	m ³	1040.00	980.00	1019200.00
11	CMU walls with 15 cm thickness	m ²	1695.00	30.00	50850.00
12	CMU walls with 20 cm thickness	m ²	2460.00	35.00	86100.00
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	2580.00	38.00	98040.00
14	Floor tiling	m ²	1500.00	30.00	45000.00
15	Natural marble of stairs	m	196.00	200.00	39200.00

Continued...

Table 4.39 continued

#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
16	Plastic weather-resistant paints	m ²	6550.00	18.00	117900.00
17	White glazed ceramic tiles	m ²	910.00	60.00	54600.00
18	Insulator layer for moisture	m ²	1850.00	40.00	74000.00
19	Thermal insulation, horizontal	m ²	1480.00	24.00	35520.00
20	Thermal insulation, vertical	m ²	1550.00	20.00	31000.00
21	Plastic paints for interior walls (smooth American Texture)	m ²	2280.00	15.00	34200.00
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	1670.00	15.00	25050.00
23	Aluminum windows	m ²	349.00	575.00	200675.00
24	Hollow metallic doors	m ²	170.00	780.00	132600.00
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	103.00	189.00	19467.00
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	291.00	200.00	58200.00
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	39.00	1420.00	55380.00
28	Switch, A/C. window type (2x30 Amps)	No.	82.00	240.00	19680.00
29	Lighting switch (15 Amps/127 volt)	No.	141.00	145.00	20445.00
30	Main switchboard, school building	No.	1.00	66500.00	66500.00
31	Main distribution panelboard	No.	1.00	60870.00	60870.00
32	Thermoplastic cable (size 3x185x95 mm ²)	m	260.00	133.00	34580.00
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	410.00	227.00	93070.00
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	82.00	2200.00	180400.00
35	Ceiling air fan {dia 142cm (56in)}	No.	80.00	550.00	44000.00
36	Drinking water cooler (tank type)	No.	10.00	2950.00	29500.00
The Sum of The Total Prices of The Index Items (SR)					3,908,790.61

4.1.3 Calculation of RSPPI:

The total price for each item in the index has been calculated by multiplying the average of quantities by the average of prices for each item in Tables 4.22-4.39. Then, the sum of the total prices of the index items has been calculated and listed at the end of Tables 4.22 -4.39. The sum of total prices has been taken from Tables 4.22 - 4.27 for the years 1990-1995 respectively and listed in Table 4.40 for Riyadh area. The sum of total prices has been taken from Tables 4.28 - 4.33 for the years 1990-1995 and listed in Table 4.41 for Jeddah area. The sum of total prices has been taken from Tables 4.34-4.39 for the years 1990-1995 respectively and listed in Table 4.42 for Eastern Province. The RSPPI for Riyadh area has been calculated using the Laspeyres method and its values have been listed in Table 4.40 for the years 1990-1995. Also, the RSPPI for Riyadh area has been represented in figure 4.1 The RSPPI for Jeddah area has been calculated using the Laspeyres method and its values have been listed in Table 4.41 for the year 1990-1995. Also, the RSPPI for Jeddah area has been represented in figure 4.2. The RSPPI for Eastern Province area has been calculated using the Laspeyres method and its values have been listed in Table 4.42 for the year 1990-1995. Also, the RSPPI for Eastern Province area has been represented in figure 4.3.

Table 4.40
Calculation of the Price Index for Each Year
Educational Area - Riyadh

#	Year	Sum of the Total Prices of Index Items (SR)	Price Index (%)
1	1990	3,359,905.66	100.00
2	1991	3,049,834.39	90.77
3	1992	3,022,304.91	89.95
4	1993	3,483,921.92	103.69
5	1994	3,583,415.56	106.65
6	1995	3,577,430.84	106.47

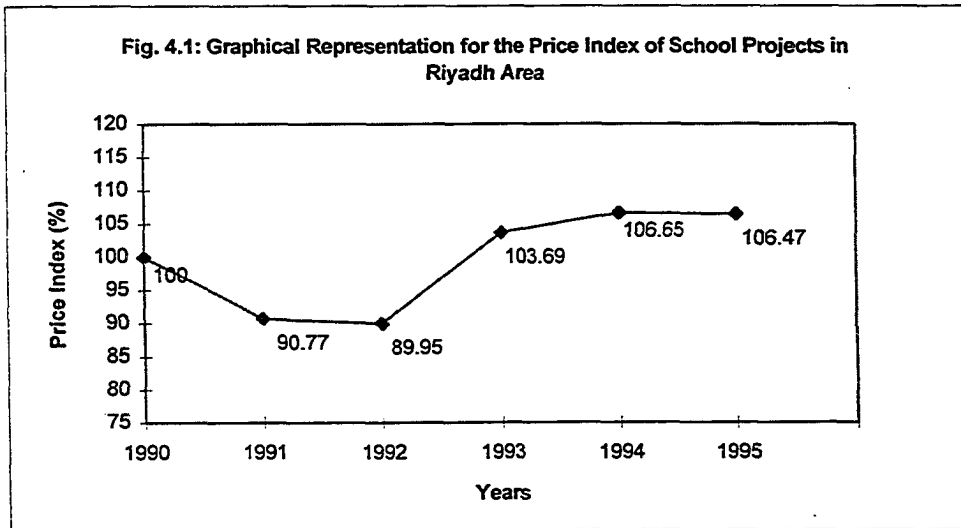


Table 4.41
Calculation of the Price Index for Each Year
Educational Area - Jeddah

#	Year	Sum of the Total Prices of Index Items (SR)	Price Index (%)
1	1990	3,419,030.70	100.00
2	1991	3,395,784.78	99.32
3	1992	3,389,490.27	99.14
4	1993	3,264,270.93	95.47
5	1994	3,683,077.08	107.72
6	1995	3,830,515.27	112.04

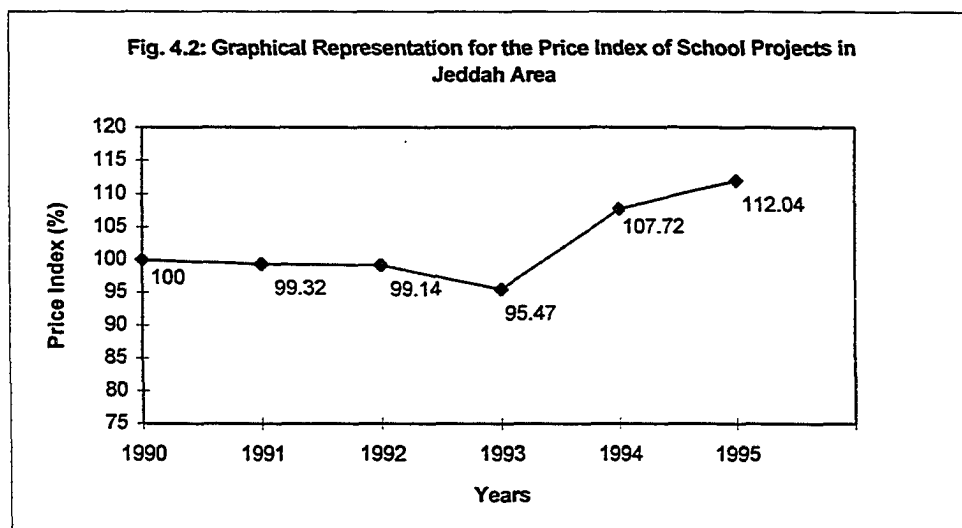
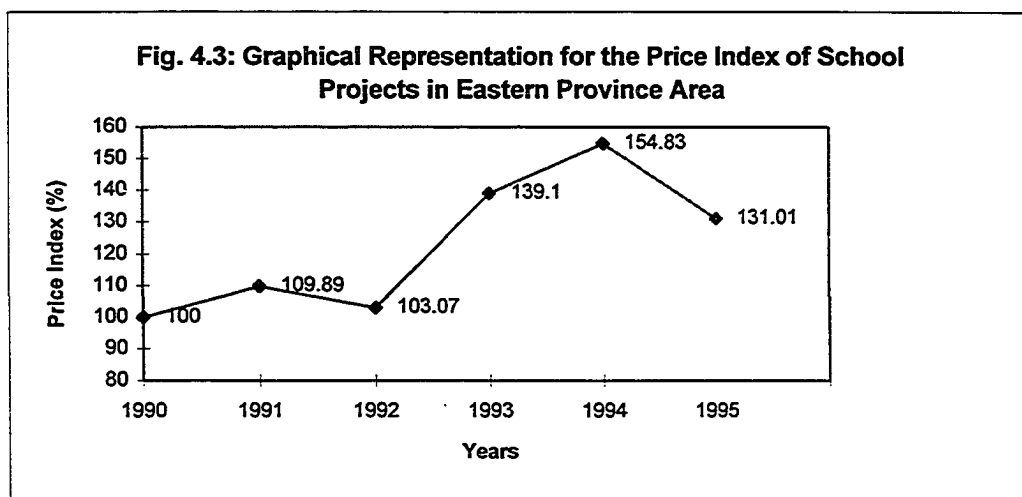


Table 4.42
Calculation of the Price Index for Each Year
Educational Area - Eastern Province

#	Year	Sum of the Total Prices of Index Items (SR)	Price Index (%)
1	1990	2,983,472.67	100.00
2	1991	3,278,569.31	109.89
3	1992	3,075,124.73	103.07
4	1993	4,150,044.90	139.10
5	1994	4,619,428.28	154.83
6	1995	3,908,790.61	131.01



4.2 THE DEVELOPMENT OF THE SPPI:

This section is divided into four sub-sections, namely, the calculation of quantities and prices, the calculation of average quantities and average prices, the calculation of total prices, and the calculation of the SPPI.

4.2.1 Calculation of Quantities and Prices:

This section consists of the calculation of the base year quantities and the calculation of items prices for the six years.

4.2.1.1 Calculation of the Base Year Quantities:

The SPPI items are listed in Table 4.43. the quantities for each item has been inserted in the Table for each item for the year 1990 from the Riyadh area. The sum of quantities and the number of samples has been calculated for each item. This procedures has been done for Jeddah and Eastern Province areas in Tables 4.44 and 4.45 respectively.

Table 4.43
Calculation For the Base Year Quantities of Price Index Items
Educational Area - Riyadh
Year 1990

#	Work Items	Unit	Project Code Number ¹						The Sum Of Qty.	The No. Of Samples
			90/1/1 ²	90/1/2	90/1/3	90/1/4	90/1/5	90/1/6		
			Item Quantities							
1	Excavation work	m ³	50	0	4700	5800	2700	300	13550	6
2	Backfilling work	m ³	3100	3000	1500	1400	1450	3200	13650	6
3	Excavation work for the foundation	m ³	1250	1300	1500	1800	2150	1400	9400	6
4	Plain concrete work under the foundation	m ³	240	230	260	260	250	260	1500	6
5	Reinforced concrete work for the foundation	m ³	510	540	595	640	640	590	3515	6
6	Natural crushed stone sub-base coarse	m ²	475	330	490	480	480	475	2730	6
7	Building made from Calcium Silicate Bricks	m ²	680	500	800	700	550	740	3970	6
8	Concrete pavers (40x40x5cm)	m ²	3740	2200	4100	4100	2100	4100	20340	6
9	Plain concrete with 10 cm thickness	m ²	1640	1640	1640	1640	1640	1640	9840	6
10	Reinforced concrete for the whole superstructure	m ³	1040	1040	1040	1040	1040	1040	6240	6
11	CMU walls with 15 cm thickness	m ²	1695	1695	1695	1695	1695	1695	10170	6
12	CMU walls with 20 cm thickness	m ²	2460	2460	2460	2460	2460	2460	14760	6
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	2580	2580	2580	2580	2580	2580	15480	6
14	Floor tiling	m ²	1500	1500	1500	1500	1500	1500	9000	6
15	Natural marble of stairs	m	196	196	196	196	196	196	1176	6

1 Project code number is the project number in the sample.

2 The first two digits refers to the year (i.e. 90 refers to year 1990 & 91 refers to year 1991..etc)

The second number refers to the number of area (i.e. 1 refers to Riyadh, 2 refers to Jeddah & 3 refers to Eastern Province), the third number refers to the project number in the specific year and area.

Table 4.43 continued

#	Work Items	Unit	Project Code Number						The Sum Of Qty.	The No. Of Samples
			90/1/1	90/1/2	90/1/3	90/1/4	90/1/5	90/1/6		
			Item Quantities							
16	Plastic weather-resistant paints	m ²	6550	6550	6550	6550	6550	6550	39300	6
17	White glazed ceramic tiles	m ²	910	910	910	910	910	910	5460	6
18	Insulator layer for moisture	m ²	1850	1850	1850	1850	1850	1850	11100	6
19	Thermal insulation, horizontal	m ²	1480	1480	1480	1480	1480	1480	8880	6
20	Thermal insulation, vertical	m ²	1550	1550	1550	1550	1550	1550	9300	6
21	Plastic paints for interior walls (smooth American Texture)	m ²	2280	2280	2280	2280	2280	2280	13680	6
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	1670	1670	1670	1670	1670	1670	10020	6
23	Aluminum windows	m ²	349	349	349	349	349	349	2094	6
24	Hollow metallic doors	m ²	170	170	170	170	170	170	1020	6
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	103	103	103	103	103	103	618	6
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	291	291	291	291	291	291	1746	6
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	22	17	35	39	20	32	165	6
28	Switch, A/C. window type (2x30 Amps)	No.	82	82	82	82	82	82	492	6
29	Lighting switch (15 Amps/127 volt)	No.	141	141	141	141	141	141	846	6
30	Main switchboard, school building	No.	1	1	1	1	1	1	6	6
31	Main distribution panelboard	No.	1	1	1	1	1	1	6	6
32	Thermoplastic cable (size 3x185x95 mm ²)	m	330	260	260	260	260	260	1630	6
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	330	250	250	340	160	200	1530	6
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	82	82	82	82	82	82	492	6
35	Ceiling air fan {dia 142cm (56in)}	No.	80	80	80	80	80	80	480	6
36	Drinking water cooler (tank type)	No.	10	10	10	10	10	10	60	6

Table 4.44
Calculation For the Base Year Quantities of Price Index Items
Educational Area - Jeddah
Year 1990

#	Work Items	Unit	Project Code Number						The Sum Of Qty.	The No. Of Samples
			90/2/1	90/2/2	90/2/3	90/2/4	90/2/5	90/2/6		
			Item Quantities							
1	Excavation work	m ³	300	0	130	2300	2500	3500	8730	6
2	Backfilling work	m ³	1650	5000	1050	500	650	2400	11250	6
3	Excavation work for the foundation	m ³	2300	1550	1850	1400	1700	2800	11600	6
4	Plain concrete work under the foundation	m ³	220	320	325	300	260	370	1795	6
5	Reinforced concrete work for the foundation	m ³	490	620	560	575	525	680	3450	6
6	Natural crushed stone sub-base coarse	m ²	475	485	310	480	475	475	2700	6
7	Building made from Calcium Silicate Bricks	m ²	620	600	450	780	780	570	3800	6
8	Concrete pavers (40x40x5cm)	m ²	2550	3500	1300	4100	4100	3100	18650	6
9	Plain concrete with 10 cm thickness	m ²	1640	1640	1550	1640	1640	1640	9750	6
10	Reinforced concrete for the whole superstrucutre	m ³	1040	1040	1020	1040	1040	1040	6220	6
11	CMU walls with 15 cm thickness	m ²	1695	1695	1620	1695	1695	1695	10095	6
12	CMU walls with 20 cm thickness	m ²	2460	2460	2460	2460	2460	2460	14760	6
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	2580	2580	2580	2580	2580	2580	15480	6
14	Floor tiling	m ²	1500	1500	1415	1500	1500	1500	8915	6
15	Natural marble of stairs	m	196	196	188	196	196	196	1168	6

Continued...

Table 4.44 continued

#	Work Items	Unit	Project Code Number						The Sum Of Qty.	The No. Of Samples
			90/2/1	90/2/2	90/2/3	90/2/4	90/2/5	90/2/6		
			Items Quantities							
16	Plastic weather-resistant paints	m ²	6550	6550	6420	6550	6550	6550	39170	6
17	White glazed ceramic tiles	m ²	910	910	840	910	910	910	5390	6
18	Insulator layer for moisture	m ²	1850	1850	1765	1850	1850	1850	11015	6
19	Thermal insulation, horizontal	m ²	1480	1480	1400	1480	1480	1480	8800	6
20	Thermal insulation, vertical	m ²	1550	1550	1550	1550	1550	1550	9300	6
21	Plastic paints for interior walls (smooth American Texture)	m ²	2280	2280	2280	2280	2280	2280	13680	6
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	1670	1670	1670	1670	1670	1670	10020	6
23	Aluminum windows	m ²	349	349	344	349	349	349	2089	6
24	Hollow metallic doors	m ²	170	170	170	170	170	170	1020	6
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	103	103	93	103	103	103	608	6
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	291	291	291	291	291	291	1746	6
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	21	30	16	35	26	29	157	6
28	Switch, A/C. window type (2x30 Amps)	No.	82	82	78	82	82	82	488	6
29	Lighting switch (15 Amps/127 volt)	No.	141	141	122	141	141	141	827	6
30	Main switchboard, school building	No.	1	1	1	1	1	1	6	6
31	Main distribution panelboard	No.	1	1	1	1	1	1	6	6
32	Thermoplastic cable (size 3x185x95 mm ²)	m	260	260	260	260	260	260	1560	6
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	460	480	400	350	200	280	2170	6
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	82	82	87	82	82	82	497	6
35	Ceiling air fan {dia142cm (56in)}	No.	80	80	76	80	80	80	476	6
36	Drinking water cooler (tank type)	No.	10	10	10	10	10	10	60	6

Table 4.45
Calculation For the Base Year Quantities of Price Index Items
Educational Area - Eastern Province
Year 1990

#	Work Items	Unit	Project Code Number						The Sum Of Qty.	The No. Of Samples
			90/3/1	90/3/2	90/3/3	90/3/4	90/3/5	90/3/6		
			Item Quantities							
1	Excavation work	m ³	2500	0	800	5000	0	1900	10200	6
2	Backfilling work	m ³	3400	5700	1450	220	4500	700	15970	6
3	Excavation work for the foundation	m ³	1850	1000	1950	2150	4200	1700	12850	6
4	Plain concrete work under the foundation	m ³	315	270	265	355	370	250	1825	6
5	Reinforced concrete work for the foundation	m ³	720	480	515	720	700	520	3655	6
6	Natural crushed stone sub-base coarse	m ²	485	490	385	475	480	475	2790	6
7	Building made from Calcium Silicate Bricks	m ²	1050	620	640	920	840	820	4890	6
8	Concrete pavers (40x40x5cm)	m ²	4100	4100	3600	4100	4100	4100	24100	6
9	Plain concrete with 10 cm thickness	m ²	1640	1640	1640	1640	1640	1640	9840	6
10	Reinforced concrete for the whole superstrucutre	m ³	1040	1040	1040	1040	1040	1040	6240	6
11	CMU walls with 15 cm thickness	m ²	1695	1695	1695	1695	1695	1695	10170	6
12	CMU walls with 20 cm thickness	m ²	2460	2460	2460	2460	2460	2460	14760	6
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	2580	2580	2580	2580	2580	2580	15480	6
14	Floor tiling	m ²	1500	1500	1500	1500	1500	1500	9000	6
15	Natural marble of stairs	m	196	196	196	196	196	196	1176	6

Continued....

Table 4.45 continued

#	Work Items	Unit	Project Code Number						The Sum Of Qty.	The No. Of Samples
			90/3/1	90/3/2	90/3/3	90/3/4	90/3/5	90/3/6		
			Item Quantities							
16	Plastic weather-resistant paints	m ²	6550	6550	6550	6550	6550	6550	39300	6
17	White glazed ceramic tiles	m ²	910	910	910	910	910	910	5460	6
18	Insulator layer for moisture	m ²	1850	1850	1850	1850	1850	1850	11100	6
19	Thermal insulation, horizontal	m ²	1480	1480	1480	1480	1480	1480	8880	6
20	Thermal insulation, vertical	m ²	1550	1550	1550	1550	1550	1550	9300	6
21	Plastic paints for interior walls (smooth American Texture) .	m ²	2280	2280	2280	2280	2280	2280	13680	6
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	1670	1670	1670	1670	1670	1670	10020	6
23	Aluminum windows	m ²	349	349	349	349	349	349	2094	6
24	Hollow metallic doors	m ²	170	170	170	170	170	170	1020	6
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	103	103	103	103	103	103	618	6
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	291	291	291	291	291	291	1746	6
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	45	39	29	48	37	36	234	6
28	Switch, A/C. window type (2x30 Amps)	No.	82	82	82	82	82	82	492	6
29	Lighting switch (15 Amps/127 volt)	No.	141	141	141	141	141	141	846	6
30	Main switchboard, school building	No.	1	1	1	1	1	1	6	6
31	Main distribution panelboard	No.	1	1	1	1	1	1	6	6
32	Thermoplastic cable (size 3x185x95 mm ²)	m	260	260	260	260	260	260	1560	6
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	550	360	350	480	380	340	2460	6
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	82	82	82	82	82	82	492	6
35	Ceiling air fan dia {142cm (56in)}	No.	80	80	80	80	80	80	480	6
36	Drinking water cooler (tank type)	No.	10	10	10	10	10	10	60	6

4.2.1.2 *Calculation of Items Prices for the Six Periods:*

The prices for each item are shown in Table 4.46 for the year 1990 from the Riyadh area. The sum of prices has been calculated for each item. Also, the sum of the number of samples has been calculated for each item. This calculation procedure has been done for Jeddah and Eastern Province areas in Tables 4.47 and 4.48 respectively. this procedures has been repeated for each area in the other periods (i.e. 1991, 1992, 1993, 1994 & 1995) in Tables 4.49 to 4.63.

Table 4.46
Calculation For the Base Year Prices of Price Index Items
Educational Area - Riyadh
Year 1990

#	Work Items	Unit	Project Code Number						The Total Prices	The No. Of Samples
			90/1/1	90/1/2	90/1/3	90/1/4	90/1/5	90/1/6		
			Items Prices in SR							
1	Excavation work	m ³	30	*	19	15	30	30	124	6
2	Backfilling work	m ³	20	15	22	10	20	20	107	6
3	Excavation work for the foundation	m ³	35	20	39	30	32	30	186	6
4	Plain concrete work under the foundation	m ³	250	250	259	250	180	200	1389	6
5	Reinforced concrete work for the foundation	m ³	700	700	529	800	650	650	4029	6
6	Natural crushed stone sub-base coarse	m ²	130	130	51	41	22	22	396	6
7	Building made from Calcium Silicate Bricks	m ²	70	70	129	90	120	120	599	6
8	Concrete pavers (40x40x5cm)	m ²	50	50	49	50	70	70	339	6
9	Plain concrete with 10 cm thickness	m ²	20	20	18	20	22	22	122	6
10	Reinforced concrete for the whole superstrucutre	m ³	700	700	661	800	720	720	4301	6
11	CMU walls with 15 cm thickness	m ²	30	30	29	32	40	40	201	6
12	CMU walls with 20 cm thickness	m ²	35	35	38	36	45	45	234	6
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	60	60	51	45	60	60	336	6
14	Floor tiling	m ²	35	35	38	30	36	36	210	6
15	Natural marble of stairs	m	200	200	115	150	150	150	965	6

Continued....

Table 4.46 continued

#	Work Items	Unit	Project Code Number						The Total Prices	The No. Of Samples
			90/1/1	90/1/2	90/1/3	90/1/4	90/1/5	90/1/6		
			Items Prices in SR							
16	Plastic weather-resistant paints	m ²	50	50	33	40	42	*	215	6
17	White glazed ceramic tiles	m ²	60	60	74	60	75	75	404	6
18	Insulator layer for moisture	m ²	30	30	29	22	32	42	185	6
19	Thermal insulation, horizontal	m ²	25	25	31	30	35	32	178	6
20	Thermal insulation, vertical	m ²	25	25	17	16	26	35	144	6
21	Plastic paints for interior walls (smooth American Texture)	m ²	60	40	29	28	30	30	217	6
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	60	35	29	28	30	30	212	6
23	Aluminum windows	m ²	450	450	479	380	300	300	2359	6
24	Hollow metallic doors	m ²	600	600	420	400	300	300	2620	6
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	200	200	180	240	200	200	1220	6
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	250	250	250	250	300	300	1600	6
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	950	1000	1260	1200	1200	1200	6810	6
28	Switch, A/C. window type (2x30 Amps)	No.	250	250	200	200	200	200	1300	6
29	Lighting switch (15 Amps/127 volt)	No.	150	150	110	120	120	120	770	6
30	Main switchboard, school building	No.	17000	17000	22000	20000	18000	18000	112000	6
31	Main distribution panelboard	No.	14000	14000	22000	20000	20000	20000	110000	6
32	Thermoplastic cable (size 3x185x95 mm ²)	m	120	120	119	150	120	120	749	6
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	190	190	175	240	250	250	1295	6
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	1350	1350	1800	1600	2100	2100	10300	6
35	Ceiling air fan (dia 142cm (56in))	No.	300	300	250	300	350	350	1850	6
36	Drinking water cooler (tank type)	No.	2000	2000	2900	2000	3000	3000	14900	6

Table 4.47
Calculation For the Base Year Prices of Price Index Items
Educational Area - Jeddah
Year 1990

#	Work Items	Unit	Project Code Number						The Total Prices	The No. Of Samples
			90/2/1	90/2/2	90/2/3	90/2/4	90/2/5	90/2/6		
			Items Prices in SR							
1	Excavation work	m ³	5	*	20	12	17	20	74	6
2	Backfilling work	m ³	8	12	15	10	17	15	77	6
3	Excavation work for the foundation	m ³	5	20	50	12	17	50	154	6
4	Plain concrete work under the foundation	m ³	190	220	250	190	239	250	1339	6
5	Reinforced concrete work for the foundation	m ³	600	750	800	650	500	800	4100	6
6	Natural crushed stone sub-base coarse	m ²	25	30	35	90	67	35	282	6
7	Building made from Calcium Silicate Bricks	m ²	65	80	45	120	57	45	412	6
8	Concrete pavers (40x40x5cm)	m ²	28	55	55	67	76	55	336	6
9	Plain concrete with 10 cm thickness	m ²	20	30	21	20	23	21	135	6
10	Reinforced concrete for the whole superstrucutre	m ³	620	800	800	650	756	800	4426	6
11	CMU walls with 15 cm thickness	m ²	40	30	40	37	41	41	229	6
12	CMU walls with 20 cm thickness	m ²	45	40	45	39	48	45	262	6
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	45	55	60	56	57	60	333	6
14	Floor tiling	m ²	28	25	40	31	37	40	201	6
15	Natural marble of stairs	m	200	140	180	140	156	180	996	6

Continued...

Table 4.47 continued

#	Work Items	Unit	Project Code Number						The Total Prices	The No. Of Samples
			90/2/1	90/2/2	90/2/3	90/2/4	90/2/5	90/2/6		
			Items Prices in SR							
16	Plastic weather-resistant paints	m ²	46	20	55	34	24	55	234	6
17	White glazed ceramic tiles	m ²	54	65	50	53	49	50	321	6
18	Insulator layer for moisture	m ²	42	30	20	47	28	20	187	6
19	Thermal insulation, horizontal	m ²	28	25	35	30	27	35	180	6
20	Thermal insulation, vertical	m ²	22	20	30	27	28	30	157	6
21	Plastic paints for interior walls (smooth American Texture)	m ²	44	20	30	34	24	30	182	6
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	42	22	40	35	24	40	203	6
23	Aluminum windows	m ²	650	450	520	390	550	520	3080	6
24	Hollow metallic doors	m ²	600	700	520	570	611	520	3521	6
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	120	260	300	300	267	300	1547	6
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	200	280	350	340	284	350	1804	6
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	1100	2000	2500	1600	1267	2500	10967	6
28	Switch, A/C. window type (2x30 Amps)	No.	100	500	300	280	239	300	1719	6
29	Lighting switch (15 Amps/127 volt)	No.	60	140	200	210	156	200	966	6
30	Main switchboard, school building	No.	32000	20000	22000	23000	34667	22000	153667	6
31	Main distribution panelboard	No.	35000	25000	22000	36000	38667	22000	178667	6
32	Thermoplastic cable (size 3x185x95 mm ²)	m	120	100	225	140	193	225	1003	6
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	160	160	260	200	253	260	1293	6
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	2000	1000	1800	1700	1778	1800	10078	6
35	Ceiling air fan {dia 142cm (56in)}	No.	220	350	400	330	433	400	2133	6
36	Drinking water cooler (tank type)	No.	2400	2500	3000	3300	2333	3000	16533	6

Table 4.48
Calculation For the Base Year Prices of Price Index Items
Educational Area - Eastern Province
Year 1990

#	Work Items	Unit	Project Code Number						The Total Prices	The No. Of Samples
			90/3/1	90/3/2	90/3/3	90/3/4	90/3/5	90/3/6		
			Items Prices in SR							
1	Excavation work	m ³	10	*	12	11	*	6	39	6
2	Backfilling work	m ³	14	14	14	6	6	8	62	6
3	Excavation work for the foundation	m ³	22	25	16	12	8	7	90	6
4	Plain concrete work under the foundation	m ³	173	173	173	173	180	180	1052	6
5	Reinforced concrete work for the foundation	m ³	570	560	560	570	540	540	3340	6
6	Natural crushed stone sub-base coarse	m ²	125	125	125	125	30	30	560	6
7	Building made from Calcium Silicate Bricks	m ²	58	58	58	58	40	40	312	6
8	Concrete pavers (40x40x5cm)	m ²	56	56	30	56	45	45	288	6
9	Plain concrete with 10 cm thickness	m ²	18	18	18	18	25	25	122	6
10	Reinforced concrete for the whole superstructure	m ³	620	620	620	620	575	575	3630	6
11	CMU walls with 15 cm thickness	m ²	28	28	28	28	40	40	192	6
12	CMU walls with 20 cm thickness	m ²	31	31	31	31	45	45	214	6
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	48	48	48	48	50	50	292	6
14	Floor tiling	m ²	32	32	32	32	35	35	198	6
15	Natural marble of stairs	m	132	132	132	132	150	150	828	6

Continued....

Table 4.48 continued

#	Work Items	Unit	Project Code Number						The Total Prices	The No. Of Samples
			90/3/1	90/3/2	90/3/3	90/3/4	90/3/5	90/3/6		
			Items Prices in SR							
16	Plastic weather-resistant paints	m ²	28	28	28	28	28	25	165	6
17	White glazed ceramic tiles	m ²	58	58	58	58	80	80	392	6
18	Insulator layer for moisture	m ²	45	45	45	45	8	8	196	6
19	Thermal insulation, horizontal	m ²	27	27	27	27	25	25	158	6
20	Thermal insulation, vertical	m ²	19	19	19	19	22	22	120	6
21	Plastic paints for interior walls (smooth American Texture)	m ²	26	26	26	26	25	25	154	6
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	26	26	26	26	25	25	154	6
23	Aluminum windows	m ²	421	421	300	421	450	450	2463	6
24	Hollow metallic doors	m ²	450	450	450	450	350	350	2500	6
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	316	316	316	316	220	220	1704	6
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	360	360	360	360	220	220	1880	6
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	1040	1090	1110	1015	1000	1000	6255	6
28	Switch, A/C. window type (2x30 Amps)	No.	240	240	240	240	120	120	1200	6
29	Lighting switch (15 Amps/127 volt)	No.	190	190	190	190	70	70	900	6
30	Main switchboard, school building	No.	20000	20000	20000	20000	18000	11000	109000	6
31	Main distribution panelboard	No.	21250	21250	21250	21250	18000	18000	121000	6
32	Thermoplastic cable (size 3x185x95 mm ²)	m	138	146	138	138	130	130	820	6
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	192	200	192	192	180	180	1136	6
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	1725	1725	1725	1725	1800	1800	10500	6
35	Ceiling air fan dia {142cm (56in)}	No.	381	381	381	381	240	240	2004	6
36	Drinking water cooler (tank type)	No.	2818	2818	2818	2818	1500	1500	14272	6

Table 4.49
Calculation of the Prices of Price Index Items
Educational Area - Riyadh
Year 1991

#	Work Items	Unit	Project Code Number						The Total Prices	The No. Of Samples
			91/1/1	91/1/2	91/1/3	91/1/4	91/1/5	91/1/6		
			Items Prices in SR							
1	Excavation work	m ³	5	12	15	10	5	45	92	6
2	Backfilling work	m ³	15	25	10	10	10	15	85	6
3	Excavation work for the foundation	m ³	40	45	40	40	40	35	240	6
4	Plain concrete work under the foundation	m ³	180	180	180	180	180	200	1100	6
5	Reinforced concrete work for the foundation	m ³	630	620	680	620	620	400	3570	6
6	Natural crushed stone sub-base coarse	m ²	30	35	30	30	30	25	180	6
7	Building made from Calcium Silicate Bricks	m ²	90	90	90	90	90	100	550	6
8	Concrete pavers (40x40x5cm)	m ²	52	52	52	52	52	45	305	6
9	Plain concrete with 10 cm thickness	m ²	16	16	16	16	16	20	100	6
10	Reinforced concrete for the whole superstrucutre	m ³	650	650	650	650	650	500	3750	6
11	CMU walls with 15 cm thickness	m ²	30	30	30	30	30	40	190	6
12	CMU walls with 20 cm thickness	m ²	33	33	33	33	33	45	210	6
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	52	52	52	52	52	45	305	6
14	Floor tiling	m ²	35	35	35	35	35	30	205	6
15	Natural marble of stairs	m	160	160	160	160	160	150	950	6

Continued....

Table 4.49 continued

#	Work Items	Unit	Project Code Number						The Total Prices	The No. Of Samples
			91/1/1	91/1/2	91/1/3	91/1/4	91/1/5	91/1/6		
			Items Prices in SR							
16	Plastic weather-resistant paints	m ²	34	34	34	34	34	15	185	6
17	White glazed ceramic tiles	m ²	65	65	65	65	65	50	375	6
18	Insulator layer for moisture	m ²	35	35	35	35	35	40	215	6
19	Thermal insulation, horizontal	m ²	26	26	26	26	26	40	170	6
20	Thermal insulation, vertical	m ²	20	20	20	20	20	30	130	6
21	Plastic paints for interior walls (smooth American Texture)	m ²	30	30	30	30	30	15	165	6
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	30	30	30	30	30	15	165	6
23	Aluminum windows	m ²	500	500	500	500	500	250	2750	6
24	Hollow metallic doors	m ²	600	600	600	600	600	300	3300	6
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	250	250	250	250	250	250	1500	6
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	280	280	280	280	280	300	1700	6
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	900	900	900	900	900	900	5400	6
28	Switch, A/C. window type (2x30 Amps)	No.	210	210	210	210	210	150	1200	6
29	Lighting switch (15 Amps/127 volt)	No.	140	140	140	140	140	100	800	6
30	Main switchboard, school building	No.	28000	28000	28000	28000	28000	20000	160000	6
31	Main distribution panelboard	No.	30000	30000	30000	30000	30000	25000	175000	6
32	Thermoplastic cable (size 3x185x95 mm ²)	m	120	120	120	120	120	200	800	6
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	175	175	175	175	175	211.5	1087	6
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	1600	1600	1600	1600	1600	2000	10000	6
35	Ceiling air fan {dia 142cm (56in)}	No.	320	320	320	320	320	250	1850	6
36	Drinking water cooler (tank type)	No.	1800	1800	1800	1800	1800	2000	11000	6

Table 4.50
Calculation of the Prices of Price Index Items
Educational Area - Jeddah
Year 1991

#	Work Items	Unit	Project Code Number						The Total Prices	The No. Of Samples
			91/2/1	91/2/2	91/2/3	91/2/4	91/2/5	91/2/6		
			Items Prices in SR							
1	Excavation work	m ³	15	15	10	15	15	3	73	6
2	Backfilling work	m ³	25	*	15	*	*	15	55	6
3	Excavation work for the foundation	m ³	25	20	15	20	20	60	160	6
4	Plain concrete work under the foundation	m ³	300	300	300	300	325	220	1745	6
5	Reinforced concrete work for the foundation	m ³	650	650	650	650	700	750	4050	6
6	Natural crushed stone sub-base coarse	m ²	66	66	66	66	66	35	365	6
7	Building made from Calcium Silicate Bricks	m ²	140	140	140	140	140	60	760	6
8	Concrete pavers (40x40x5cm)	m ²	50	75	75	75	75	70	420	6
9	Plain concrete with 10 cm thickness	m ²	18	18	18	18	18	25	115	6
10	Reinforced concrete for the whole superstrucutre	m ³	700	700	700	700	750	750	4300	6
11	CMU walls with 15 cm thickness	m ²	42	42	42	42	42	35	245	6
12	CMU walls with 20 cm thickness	m ²	46	46	46	46	46	40	270	6
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	60	60	60	60	60	40	340	6
14	Floor tiling	m ²	35	35	35	35	35	30	205	6
15	Natural marble of stairs	m	190	190	190	190	190	150	1100	6

Continued....

Table 4.50 continued

#	Work Items	Unit	Project Code Number						The Total Prices	The No. Of Samples
			91/2/1	91/2/2	91/2/3	91/2/4	91/2/5	91/2/6		
			Items Prices in SR							
16	Plastic weather-resistant paints	m ²	40	40	40	40	40	45	245	6
17	White glazed ceramic tiles	m ²	66	66	66	66	66	53	383	6
18	Insulator layer for moisture	m ²	25	25	25	25	25	15	140	6
19	Thermal insulation, horizontal	m ²	14	18	18	18	18	20	106	6
20	Thermal insulation, vertical	m ²	14	14	14	14	14	20	90	6
21	Plastic paints for interior walls (smooth American Texture)	m ²	34	34	34	34	34	35	205	6
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	30	30	30	30	30	45	195	6
23	Aluminum windows	m ²	350	350	350	350	350	320	2070	6
24	Hollow metallic doors	m ²	400	400	400	400	400	200	2200	6
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	285	285	285	285	285	180	1605	6
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	385	385	385	385	385	230	2155	6
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	1100	1100	1100	1100	1100	1500	7000	6
28	Switch, A/C. window type (2x30 Amps)	No.	155	155	155	155	155	100	875	6
29	Lighting switch (15 Amps/127 volt)	No.	140	140	140	140	140	150	850	6
30	Main switchboard, school building	No.	35000	35000	35000	35000	35000	25000	200000	6
31	Main distribution panelboard	No.	39000	39000	39000	39000	39000	30000	225000	6
32	Thermoplastic cable (size 3x185x95 mm ²)	m	170	175	175	175	175	200	1070	6
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	205	205	205	205	205	250	1275	6
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	1650	1650	1650	1650	1650	2000	10250	6
35	Ceiling air fan {dia142cm (56in)}	No.	350	350	350	350	350	220	1970	6
36	Drinking water cooler (tank type)	No.	2000	2000	2000	2000	2000	2000	12000	6

Table 4.51
Calculation of the Prices of Price Index Items
Educational Area - Eastern Province
Year 1991

#	Work Items	Unit	Project Code Number						The Total Prices	The No. Of Samples
			91/3/1	91/3/2	91/3/3	91/3/4	91/3/5	91/3/6		
			Items Prices in SR							
1	Excavation work	m ³	15	20	5	20	*	12	72	6
2	Backfilling work	m ³	15	20	13.5	20	20	14	103	6
3	Excavation work for the foundation	m ³	60	80	20	50	80	23	313	6
4	Plain concrete work under the foundation	m ³	250	250	200	250	250	173	1373	6
5	Reinforced concrete work for the foundation	m ³	650	650	630	650	650	570	3800	6
6	Natural crushed stone sub-base course	m ²	50	50	80	50	50	125	405	6
7	Building made from Calcium Silicate Bricks	m ²	60	*	*	60	60	58	238	6
8	Concrete pavers (40x40x5cm)	m ²	30	30	40	30	30	56	216	6
9	Plain concrete with 10 cm thickness	m ²	20	20	20	20	20	18	118	6
10	Reinforced concrete for the whole superstrucutre	m ³	750	750	700	750	750	620	4320	6
11	CMU walls with 15 cm thickness	m ²	40	40	30	40	40	28	218	6
12	CMU walls with 20 cm thickness	m ²	45	45	33	45	45	30	243	6
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	35	35	33	35	35	48	221	6
14	Floor tiling	m ²	26	26	26	26	26	32	162	6
15	Natural marble of stairs	m	200	200	110	200	200	132	1042	6

Continued....

Table 4.51 continued

#	Work Items	Unit	Project Code Number						The Total Prices	The No. Of Samples
			91/3/1	91/3/2	91/3/3	91/3/4	91/3/5	91/3/6		
			Items Prices in SR							
16	Plastic weather-resistant paints	m ²	35	35	14	35	35	30	184	6
17	White glazed ceramic tiles	m ²	70	70	50	70	70	58	388	6
18	Insulator layer for moisture	m ²	20	20	36	20	20	45	161	6
19	Thermal insulation, horizontal	m ²	22	22	31	22	22	27	146	6
20	Thermal insulation, vertical	m ²	18	18	18	18	18	19	109	6
21	Plastic paints for interior walls (smooth American Texture)	m ²	35	35	14	35	35	28	182	6
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	35	35	15	35	35	28	183	6
23	Aluminum windows	m ²	320	320	340	320	320	439	2059	6
24	Hollow metallic doors	m ²	300	300	620	300	300	450	2270	6
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	320	320	320	320	320	316	1916	6
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	360	360	350	360	360	360	2150	6
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	1000	1000	560	1000	1000	1185	5745	6
28	Switch, A/C. window type (2x30 Amps)	No.	500	500	245	500	500	240	2485	6
29	Lighting switch (15 Amps/127 volt)	No.	250	250	200	250	250	190	1390	6
30	Main switchboard, school building	No.	40000	40000	25000	40000	40000	20000	205000	6
31	Main distribution panelboard	No.	45000	45000	32000	45000	45000	21250	233250	6
32	Thermoplastic cable (size 3x185x95 mm ²)	m	140	140	235	140	140	138	933	6
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	150	180	320	180	180	192	1202	6
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	1400	1400	1710	1400	1400	1725	9035	6
35	Ceiling air fan dia {142cm (56in)}	No.	400	400	370	400	400	381	2351	6
36	Drinking water cooler (tank type)	No.	3000	3000	3500	3000	3000	2818	18318	6

Table 4.52
Calculation of the Prices of Price Index Items
Educational Area - Riyadh
Year 1992

#	Work Items	Unit	Project Code Number						The Total Prices	The No. Of Samples
			92/1/1	92/1/2	92/1/3	92/1/4	92/1/5			
			Items Prices in SR							
1	Excavation work	m ³	15	90	15	10	15		145	5
2	Backfilling work	m ³	10	29	12	25	10		86	5
3	Excavation work for the foundation	m ³	15	35	30	50	15		145	5
4	Plain concrete work under the foundation	m ³	250	157	250	180	200		1037	5
5	Reinforced concrete work for the foundation	m ³	700	450	700	650	700		3200	5
6	Natural crushed stone sub-base coarse	m ²	30	28	40	25	30		153	5
7	Building made from Calcium Silicate Bricks	m ²	60	58	90	110	60		378	5
8	Concrete pavers (40x40x5cm)	m ²	40	48	45	60	35		228	5
9	Plain concrete with 10 cm thickness	m ²	30	16	25	18	25		114	5
10	Reinforced concrete for the whole superstrucutre	m ³	700	475	800	700	700		3375	5
11	CMU walls with 15 cm thickness	m ²	60	28	35	34	45		202	5
12	CMU walls with 20 cm thickness	m ²	70	29	40	35	60		234	5
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	40	35	45	48	40		208	5
14	Floor tiling	m ²	25	25	25	38	25		138	5
15	Natural marble of stairs	m	200	120	150	140	200		810	5

Continued....

Table 4.52 continued

#	Work Items	Unit	Project Code Number					The Total Prices	The No. Of Samples
			92/1/1	92/1/2	92/1/3	92/1/4	92/1/5		
			Items Prices in SR						
16	Plastic weather-resistant paints	m ²	40	13	7	25	20	105	5
17	White glazed ceramic tiles	m ²	70	52	60	50	70	302	5
18	Insulator layer for moisture	m ²	25	50	30	50	27	182	5
19	Thermal insulation, horizontal	m ²	30	44	25	35	30	164	5
20	Thermal insulation, vertical	m ²	20	26	20	27	30	123	5
21	Plastic paints for interior walls (smooth American Texture)	m ²	25	13	8	20	25	91	5
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	25	14	8	20	25	92	5
23	Aluminum windows	m ²	400	330	400	350	400	1880	5
24	Hollow metallic doors	m ²	600	300	500	600	600	2600	5
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	350	80	250	200	350	1230	5
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	400	93	300	250	400	1443	5
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	1600	250	2000	800	1600	6250	5
28	Switch, A/C. window type (2x30 Amps)	No.	200	70	500	300	200	1270	5
29	Lighting switch (15 Amps/127 volt)	No.	120	54	160	150	120	604	5
30	Main switchboard, school building	No.	8500	26000	30000	15000	8500	88000	5
31	Main distribution panelboard	No.	10000	34000	35000	18000	10000	107000	5
32	Thermoplastic cable (size 3x185x95 mm ²)	m	90	133	180	100	90	593	5
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	160	135	220	180	160	855	5
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	2000	1480	1300	1500	2000	8280	5
35	Ceiling air fan {dia 142cm (56in)}	No.	350	157	400	250	400	1557	5
36	Drinking water cooler (tank type)	No.	3500	2700	2500	1800	3500	14000	5

Table 4.53
Calculation of the Prices of Price Index Items
Educational Area - Jeddah
Year 1992

#	Work Items	Unit	Project Code Number						The Total Prices	The No. Of Samples
			92/2/1	92/2/2	92/2/3	92/2/4	92/2/5	92/2/6		
			Items Prices in SR							
1	Excavation work	m ³	10	10	*	10	10	40	80	6
2	Backfilling work	m ³	15	15	15	15	15	15	90	6
3	Excavation work for the foundation	m ³	20	25	20	20	20	20	125	6
4	Plain concrete work under the foundation	m ³	338	308	308	308	308	250	1820	6
5	Reinforced concrete work for the foundation	m ³	750	745	745	750	745	750	4485	6
6	Natural crushed stone sub-base coarse	m ²	33	33	33	33	33	40	205	6
7	Building made from Calcium Silicate Bricks	m ²	124	124	124	124	124	90	710	6
8	Concrete pavers (40x40x5cm)	m ²	47	47	47	47	47	50	285	6
9	Plain concrete with 10 cm thickness	m ²	25	25	25	25	25	25	150	6
10	Reinforced concrete for the whole superstrucutre	m ³	828	808	800	808	800	850	4894	6
11	CMU walls with 15 cm thickness	m ²	61	61	61	61	61	38	343	6
12	CMU walls with 20 cm thickness	m ²	64	64	64	64	64	40	360	6
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	63	63	63	63	63	50	365	6
14	Floor tiling	m ²	30	30	30	30	30	30	180	6
15	Natural marble of stairs	m	163	163	163	163	163	160	975	6

Continued....

Table 4.53 continued

#	Work Items	Unit	Project Code Number						The Total Prices	The No. Of Samples
			92/2/1	92/2/2	92/2/3	92/2/4	92/2/5	92/2/6		
			Items Prices in SR							
16	Plastic weather-resistant paints	m ²	15	15	15	15	15	8	83	6
17	White glazed ceramic tiles	m ²	53	53	53	53	53	60	325	6
18	Insulator layer for moisture	m ²	60	60	60	60	60	30	330	6
19	Thermal insulation, horizontal	m ²	18	18	18	18	18	25	115	6
20	Thermal insulation, vertical	m ²	30	30	30	30	30	20	170	6
21	Plastic paints for interior walls (smooth American Texture)	m ²	15	15	15	15	15	8	83	6
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	15	15	15	15	15	8	83	6
23	Aluminum windows	m ²	400	400	400	400	400	400	2400	6
24	Hollow metallic doors	m ²	1100	1100	1100	1100	1100	500	6000	6
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	170	170	170	170	170	250	1100	6
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	259	259	259	259	259	300	1595	6
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	2100	2100	2100	2100	2100	2000	12500	6
28	Switch, A/C. window type (2x30 Amps)	No.	195	195	195	195	195	500	1475	6
29	Lighting switch (15 Amps/127 volt)	No.	110	110	110	110	110	150	700	6
30	Main switchboard, school building	No.	17400	17400	17400	17400	17400	25000	112000	6
31	Main distribution panelboard	No.	17400	17400	17400	17400	17400	30000	117000	6
32	Thermoplastic cable (size 3x185x95 mm ²)	m	99	99	99	99	99	150	645	6
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	165	165	165	165	165	220	1045	6
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	1400	1400	1400	1400	1400	1300	8300	6
35	Ceiling air fan {dia142cm (56in)}	No.	665	665	665	665	665	400	3725	6
36	Drinking water cooler (tank type)	No.	2000	2000	2000	2000	2000	2500	12500	6

Table 4.54
Calculation of the Prices of Price Index Items
Educational Area - Eastern Province
Year 1992

#	Work Items	Unit	Project Code Number						The Total Prices	The No. Of Samples
			92/3/1	92/3/2	92/3/3	92/3/4	92/3/5	92/3/6		
			Items Prices in SR							
1	Excavation work	m ³	*	11	12	11	40	40	114	6
2	Backfilling work	m ³	6	6	7	6	15	15	55	6
3	Excavation work for the foundation	m ³	20	12	12	15	40	40	139	6
4	Plain concrete work under the foundation	m ³	173	173	200	180	250	250	1226	6
5	Reinforced concrete work for the foundation	m ³	580	580	575	580	700	700	3715	6
6	Natural crushed stone sub-base coarse	m ²	82	60	120	60	60	60	442	6
7	Building made from Calcium Silicate Bricks	m ²	75.5	75.5	58	80	45	*	334	5
8	Concrete pavers (40x40x5cm)	m ²	56	56	50	57	50	50	319	6
9	Plain concrete with 10 cm thickness	m ²	18	18	18	18	25	25	122	6
10	Reinforced concrete for the whole superstructure	m ³	650	650	620	650	550	600	3720	6
11	CMU walls with 15 cm thickness	m ²	33	28	32	31	45	45	214	6
12	CMU walls with 20 cm thickness	m ²	34	31	35	32	50	47	229	6
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	49	48	50	48	50	50	295	6
14	Floor tiling	m ²	36	35	38	35	32	32	208	6
15	Natural marble of stairs	m	143	150	132	143	200	180	948	6

Continued....

Table 4.54 continued

#	Work Items	Unit	Project Code Number						The Total Prices	The No. Of Samples
			92/3/1	92/3/2	92/3/3	92/3/4	92/3/5	92/3/6		
			Items Prices in SR							
16	Plastic weather-resistant paints	m ²	16	16	16	16	16	20	100	6
17	White glazed ceramic tiles	m ²	60	58	75	58	90	90	431	6
18	Insulator layer for moisture	m ²	45	45	45	45	30	30	240	6
19	Thermal insulation, horizontal	m ²	27	27	27	27	25	27	160	6
20	Thermal insulation, vertical	m ²	20	20	29	20	25	25	139	6
21	Plastic paints for interior walls (smooth American Texture)	m ²	16	16	16	16	15	17	96	6
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	16	16	16	16	15	17	96	6
23	Aluminum windows	m ²	400	400	350	400	500	500	2550	6
24	Hollow metallic doors	m ²	650	650	450	650	550	600	3550	6
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	313	313	310	313	250	300	1799	6
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	278	278	350	287	320	350	1863	6
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	1150	1150	1000	1150	2000	2000	8450	6
28	Switch, A/C. window type (2x30 Amps)	No.	200	240	225	200	50	180	1095	6
29	Lighting switch (15 Amps/127 volt)	No.	130	150	160	150	150	160	900	6
30	Main switchboard, school building	No.	20000	20000	22500	20000	10000	8000	100500	6
31	Main distribution panelboard	No.	21250	21250	23500	21250	12000	10000	109250	6
32	Thermoplastic cable (size 3x185x95 mm ²)	m	138	138	138	138	160	140	852	6
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	190	190	184	190	190	220	1164	6
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	1725	1725	1700	1725	1000	1000	8875	6
35	Ceiling air fan dia {142cm (56in)}	No.	380	381	365	380	400	400	2306	6
36	Drinking water cooler (tank type)	No.	2750	2725	2750	2750	2500	2500	15975	6

Table 4.55
Calculation of the Prices of Price Index Items
Educational Area - Riyadh
Year 1993

#	Work Items	Unit	Project Code Number						The Total Prices	The No. Of Samples
			93/1/1	93/1/2	93/1/3	93/1/4	93/1/5	93/1/6		
			Items Prices in SR							
1	Excavation work	m ³	20	20	20	50	*	15	125	6
2	Backfilling work	m ³	15	15	15	50	18	20	133	6
3	Excavation work for the foundation	m ³	50	50	30	36	56	60	282	6
4	Plain concrete work under the foundation	m ³	260	250	260	210	230	255	1465	6
5	Reinforced concrete work for the foundation	m ³	850	800	850	740	825	650	4715	6
6	Natural crushed stone sub-base coarse	m ²	46	40	46	110	46	60	348	6
7	Building made from Calcium Silicate Bricks	m ²	180	170	180	100	165	120	915	6
8	Concrete pavers (40x40x5cm)	m ²	50	45	50	40	36	58	279	6
9	Plain concrete with 10 cm thickness	m ²	22	20	22	22	23	22	131	6
10	Reinforced concrete for the whole superstrucutre	m ³	900	830	900	800	993	750	5173	6
11	CMU walls with 15 cm thickness	m ²	36	34	36	32	38	40	216	6
12	CMU walls with 20 cm thickness	m ²	40	38	40	36	41	45	240	6
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	50	50	50	45	52	42	289	6
14	Floor tiling	m ²	32	32	32	30	34	33	193	6
15	Natural marble of stairs	m	200	150	200	180	180	140	1050	6

Continued....

Table 4.55 continued

#	Work Items	Unit	Project Code Number						The Total Prices	The No. Of Samples
			93/1/1	93/1/2	93/1/3	93/1/4	93/1/5	93/1/6		
			Items Prices in SR							
16	Plastic weather-resistant paints	m ²	20	18	20	15	18	20	111	6
17	White glazed ceramic tiles	m ²	65	65	65	70	77	55	397	6
18	Insulator layer for moisture	m ²	30	30	30	42	49	40	221	6
19	Thermal insulation, horizontal	m ²	30	30	30	40	23	35	188	6
20	Thermal insulation, vertical	m ²	24	22	24	40	19	22	151	6
21	Plastic paints for interior walls (smooth American Texture)	m ²	16	16	16	15	17	20	100	6
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	16	16	16	15	17	20	100	6
23	Aluminum windows	m ²	400	400	400	425	370	400	2395	6
24	Hollow metallic doors	m ²	600	500	600	600	850	800	3950	6
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	240	220	240	320	250	195	1465	6
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	300	300	300	380	330	400	2010	6
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	1000	800	1000	1800	2520	1700	8820	6
28	Switch, A/C. window type (2x30 Amps)	No.	200	180	200	350	170	170	1270	6
29	Lighting switch (15 Amps/127 volt)	No.	130	130	130	320	175	120	1005	6
30	Main switchboard, school building	No.	30000	30000	30000	35000	15000	18000	158000	6
31	Main distribution panelboard	No.	40000	40000	40000	21000	22000	20000	183000	6
32	Thermoplastic cable (size 3x185x95 mm ²)	m	140	130	140	200	118	105	833	6
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	200	200	200	230	182	180	1192	6
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	1500	1200	1500	1800	2270	1800	10070	6
35	Ceiling air fan (dia 142cm (56in))	No.	300	500	300	400	350	300	2150	6
36	Drinking water cooler (tank type)	No.	3000	4000	3000	3700	2800	2000	18500	6

Table 4.56
Calculation of the Prices of Price Index Items
Educational Area - Jeddah
Year 1993

#	Work Items	Unit	Project Code Number						The Total Prices	The No. Of Samples
			93/2/1	93/2/2	93/2/3	93/2/4	93/2/5	93/2/6		
			Items Prices in SR							
1	Excavation work	m ³	8	8	8	10	8	8	50	6
2	Backfilling work	m ³	14	13	13	15	13	13	81	6
3	Excavation work for the foundation	m ³	12	11	11	20	11	11	76	6
4	Plain concrete work under the foundation	m ³	276	269	269	350	269	269	1702	6
5	Reinforced concrete work for the foundation	m ³	656	638	638	750	638	638	3958	6
6	Natural crushed stone sub-base coarse	m ²	40	39	39	45	39	39	241	6
7	Building made from Calcium Silicate Bricks	m ²	98	95	95	90	95	95	568	6
8	Concrete pavers (40x40x5cm)	m ²	46	34	46	40	45	45	256	6
9	Plain concrete with 10 cm thickness	m ²	24	24	24	26	24	24	146	6
10	Reinforced concrete for the whole superstrucutre	m ³	897	874	874	800	874	874	5193	6
11	CMU walls with 15 cm thickness	m ²	40	39	39	45	39	39	241	6
12	CMU walls with 20 cm thickness	m ²	47	46	46	48	46	46	279	6
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	43	41	41	45	41	41	252	6
14	Floor tiling	m ²	30	29	29	30	29	29	176	6
15	Natural marble of stairs	m	144	140	140	165	140	140	869	6

Continued....

Table 4.56 continued

#	Work Items	Unit	Project Code Number						The Total Prices	The No. Of Samples
			93/2/1	93/2/2	93/2/3	93/2/4	93/2/5	93/2/6		
			Items Prices in SR							
16	Plastic weather-resistant paints	m ²	18	18	18	16	18	18	106	6
17	White glazed ceramic tiles	m ²	55	54	54	50	54	54	321	6
18	Insulator layer for moisture	m ²	35	34	34	45	34	34	216	6
19	Thermal insulation, horizontal	m ²	36	35	35	50	35	35	226	6
20	Thermal insulation, vertical	m ²	17	17	17	35	17	17	120	6
21	Plastic paints for interior walls (smooth American Texture)	m ²	16	16	16	15	20	16	99	6
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	21	20	20	15	16	20	112	6
23	Aluminum windows	m ²	437	426	426	320	426	426	2461	6
24	Hollow metallic doors	m ²	747	728	728	850	728	728	4509	6
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	235	228	228	170	228	228	1317	6
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	268	261	261	250	261	261	1562	6
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	1265	2408	1232	2000	1232	1232	9369	6
28	Switch, A/C. window type (2x30 Amps)	No.	209	204	204	250	204	204	1275	6
29	Lighting switch (15 Amps/127 volt)	No.	123	120	120	120	120	120	723	6
30	Main switchboard, school building	No.	43758	42616	42616	50000	42616	42616	264222	6
31	Main distribution panelboard	No.	47150	45920	45920	40000	45920	45920	270830	6
32	Thermoplastic cable (size 3x185x95 mm ²)	m	161	157	157	110	157	157	899	6
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	197	192	192	180	192	192	1145	6
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	1955	1904	1904	1450	1904	1904	11021	6
35	Ceiling air fan {dia142cm (56in)}	No.	402	392	392	250	392	392	2220	6
36	Drinking water cooler (tank type)	No.	2300	2240	2240	2000	2240	2240	13260	6

Table 4.57
Calculation of the Prices of Price Index Items
Educational Area - Eastern Province
Year 1993

#	Work Items	Unit	Project Code Number						The Total Prices	The No. Of Samples
			93/3/1	93/3/2	93/3/3	93/3/4	93/3/5			
			Items Prices in SR							
1	Excavation work	m ³	40	*	18	100	*		158	5
2	Backfilling work	m ³	20	40	17	40	40		157	5
3	Excavation work for the foundation	m ³	40	50	13	50	60		213	5
4	Plain concrete work under the foundation	m ³	230	300	180	300	300		1310	5
5	Reinforced concrete work for the foundation	m ³	750	850	740	850	850		4040	5
6	Natural crushed stone sub-base coarse	m ²	120	120	40	150	120		550	5
7	Building made from Calcium Silicate Bricks	m ²	250	120	60	130	120		680	5
8	Concrete pavers (40x40x5cm)	m ²	85	70	31	80	70		336	5
9	Plain concrete with 10 cm thickness	m ²	23	25	17	25	25		115	5
10	Reinforced concrete for the whole superstrucutre	m ³	800	900	790	950	900		4340	5
11	CMU walls with 15 cm thickness	m ²	42	40	33	45	40		200	5
12	CMU walls with 20 cm thickness	m ²	44	45	34	50	45		218	5
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	62	55	45	60	55		277	5
14	Floor tiling	m ²	40	45	28	45	45		203	5
15	Natural marble of stairs	m	190	120	145	140	120		715	5

Continued...

Table 4.57 continued

#	Work Items	Unit	Project Code Number						The Total Prices	The No. Of Samples
			93/3/1	93/3/2	93/3/3	93/3/4	93/3/5			
			Items Prices in SR							
16	Plastic weather-resistant paints	m ²	20	25	17	25	25		112	5
17	White glazed ceramic tiles	m ²	60	70	70	75	70		345	5
18	Insulator layer for moisture	m ²	43	50	51	55	50		249	5
19	Thermal insulation, horizontal	m ²	27	45	30	50	45		197	5
20	Thermal insulation, vertical	m ²	25	40	20	40	40		165	5
21	Plastic paints for interior walls (smooth American Texture)	m ²	20	23	16	25	23		107	5
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	20	23	16	25	23		107	5
23	Aluminum windows	m ²	600	450	500	550	450		2550	5
24	Hollow metallic doors	m ²	950	700	1150	700	700		4200	5
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	380	420	287	420	420		1927	5
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	500	430	320	430	430		2110	5
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	1550	1500	1000	1500	1500		7050	5
28	Switch, A/C. window type (2x30 Amps)	No.	300	300	200	300	300		1400	5
29	Lighting switch (15 Amps/127 volt)	No.	250	260	150	260	260		1180	5
30	Main switchboard, school building	No.	38000	45000	34500	55000	55000		227500	5
31	Main distribution panelboard	No.	48000	50000	48300	65000	60000		271300	5
32	Thermoplastic cable (size 3x185x95 mm ²)	m	180	150	190	150	150		820	5
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	250	220	220	220	220		1130	5
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	1900	1900	1600	2000	1900		9300	5
35	Ceiling air fan dia {142cm (56in)}	No.	400	450	400	450	450		2150	5
36	Drinking water cooler (tank type)	No.	2500	2000	2200	2000	2500		11200	5

Table 4.58
Calculation of the Prices of Price Index Items
Educational Area - Riyadh
Year 1994

#	Work Items	Unit	Project Code Number						The Total Prices	The No. Of Samples
			94/1/1	94/1/2	94/1/3	94/1/4	94/1/5	94/1/6		
			Items Prices in SR							
1	Excavation work	m ³	50	25	25	30	3	20	153	6
2	Backfilling work	m ³	25	22	25	30	12	10	124	6
3	Excavation work for the foundation	m ³	60	50	40	30	18	60	258	6
4	Plain concrete work under the foundation	m ³	250	250	200	250	230	225	1405	6
5	Reinforced concrete work for the foundation	m ³	735	730	750	850	300	665	4030	6
6	Natural crushed stone sub-base coarse	m ²	80	80	30	100	200	45	535	6
7	Building made from Calcium Silicate Bricks	m ²	120	120	80	100	50	180	650	6
8	Concrete pavers (40x40x5cm)	m ²	50	50	40	40	25	25	230	6
9	Plain concrete with 10 cm thickness	m ²	24	25	20	40	95	25	229	6
10	Reinforced concrete for the whole superstrucutre	m ³	750	750	750	800	1200	700	4950	6
11	CMU walls with 15 cm thickness	m ²	40	40	50	40	50	40	260	6
12	CMU walls with 20 cm thickness	m ²	45	45	50	60	50	45	295	6
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	44	44	40	50	65	50	293	6
14	Floor tiling	m ²	35	36	30	40	25	35	201	6
15	Natural marble of stairs	m	200	200	180	100	225	190	1095	6

Continued....

Table 4.58 continued

#	Work Items	Unit	Project Code Number						The Total Prices	The No. Of Samples
			94/1/1	94/1/2	94/1/3	94/1/4	94/1/5	94/1/6		
			Items Prices in SR							
16	Plastic weather-resistant paints	m ²	20	20	18	10	10	40	118	6
17	White glazed ceramic tiles	m ²	65	65	70	75	65	85	425	6
18	Insulator layer for moisture	m ²	35	35	60	50	80	30	290	6
19	Thermal insulation, horizontal	m ²	30	30	40	40	80	35	255	6
20	Thermal insulation, vertical	m ²	22	22	18	40	20	35	157	6
21	Plastic paints for interior walls (smooth American Texture)	m ²	22	22	18	20	10	25	117	6
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	20	20	18	20	25	30	133	6
23	Aluminum windows	m ²	480	480	450	400	400	675	2885	6
24	Hollow metallic doors	m ²	1000	1000	900	700	650	700	4950	6
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	260	250	300	270	300	255	1635	6
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	400	320	300	300	400	332	2052	6
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	1700	1650	1000	1500	1900	1650	9400	6
28	Switch, A/C. window type (2x30 Amps)	No.	250	240	300	300	500	195	1785	6
29	Lighting switch (15 Amps/127 volt)	No.	250	250	300	275	250	170	1495	6
30	Main switchboard, school building	No.	38000	38000	40000	25000	40000	45600	226600	6
31	Main distribution panelboard	No.	45000	45000	45000	35000	60000	47400	277400	6
32	Thermoplastic cable (size 3x185x95 mm ²)	m	125	120	140	70	100	168	723	6
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	225	220	190	125	150	203	1113	6
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	1600	1600	2000	2000	1900	2400	11500	6
35	Ceiling air fan {dia 142cm (56in)}	No.	360	360	400	500	600	650	2870	6
36	Drinking water cooler (tank type)	No.	2300	2300	2200	2000	3500	2600	14900	6

Table 4.59
Calculation of the Prices of Price Index Items
Educational Area - Jeddah
Year 1994

#	Work Items	Unit	Project Code Number					The Total Prices	The No. Of Samples
			94/2/1	94/2/2					
			Items Prices in SR						
1	Excavation work	m ³	40	10				50	2
2	Backfilling work	m ³	13	38				51	2
3	Excavation work for the foundation	m ³	16	70				86	2
4	Plain concrete work under the foundation	m ³	300	320				620	2
5	Reinforced concrete work for the foundation	m ³	670	700				1370	2
6	Natural crushed stone sub-base coarse	m ²	59	100				159	2
7	Building made from Calcium Silicate Bricks	m ²	90	220				310	2
8	Concrete pavers (40x40x5cm)	m ²	51	68				119	2
9	Plain concrete with 10 cm thickness	m ²	30	32				62	2
10	Reinforced concrete for the whole superstrucutre	m ³	874	830				1704	2
11	CMU walls with 15 cm thickness	m ²	39	46				85	2
12	CMU walls with 20 cm thickness	m ²	46	50				96	2
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	41	60				101	2
14	Floor tiling	m ²	29	44				73	2
15	Natural marble of stairs	m	150	230				380	2

Continued....

Table 4.59continued

#	Work Items	Unit	Project Code Number						The Total Prices	The No. Of Samples
			94/2/1	94/2/2						
			Items Prices in SR							
16	Plastic weather-resistant paints	m ²	19	20				39	2	
17	White glazed ceramic tiles	m ²	54	75				129	2	
18	Insulator layer for moisture	m ²	34	52				86	2	
19	Thermal insulation, horizontal	m ²	35	29				64	2	
20	Thermal insulation, vertical	m ²	35	25				60	2	
21	Plastic paints for interior walls (smooth American Texture)	m ²	20	16				36	2	
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	22	16				38	2	
23	Aluminum windows	m ²	426	380				806	2	
24	Hollow metallic doors	m ²	728	1560				2288	2	
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	228	250				478	2	
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	261	310				571	2	
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	1532	1820				3352	2	
28	Switch, A/C. window type (2x30 Amps)	No.	204	250				454	2	
29	Lighting switch (15 Amps/127 volt)	No.	120	200				320	2	
30	Main switchboard, school building	No.	42896	32000				74896	2	
31	Main distribution panelboard	No.	46480	32000				78480	2	
32	Thermoplastic cable (size 3x185x95 mm ²)	m	179	160				339	2	
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	192	250				442	2	
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	1904	1900				3804	2	
35	Ceiling air fan {dia142cm (56in)}	No.	392	330				722	2	
36	Drinking water cooler (tank type)	No.	1792	2600				4392	2	

Table 4.60
Calculation of the Prices of Price Index Items
Educational Area - Eastern Province
Year 1994

#	Work Items	Unit	Project Code Number						The Total Prices	The No. Of Samples
			94/3/1	94/3/2	94/3/3	94/3/4				
			Items Prices in SR							
1	Excavation work	m ³	50	*	32	32			114	4
2	Backfilling work	m ³	25	20	26	26			97	4
3	Excavation work for the foundation	m ³	70	39	32	32			173	4
4	Plain concrete work under the foundation	m ³	270	390	390	390			1440	4
5	Reinforced concrete work for the foundation	m ³	900	1072	1072	1072			4116	4
6	Natural crushed stone sub-base coarse	m ²	70	58	65	52			245	4
7	Building made from Calcium Silicate Bricks	m ²	85	61	78	55			279	4
8	Concrete pavers (40x40x5cm)	m ²	60	91	78	78			307	4
9	Plain concrete with 10 cm thickness	m ²	25	39	39	39			142	4
10	Reinforced concrete for the whole superstrucutre	m ³	850	1072	1040	1072			4034	4
11	CMU walls with 15 cm thickness	m ²	56	85	78	78			297	4
12	CMU walls with 20 cm thickness	m ²	55	65	84	84			288	4
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	48	58	65	52			223	4
14	Floor tiling	m ²	35	39	52	93			219	4
15	Natural marble of stairs	m	180	156	156	130			622	4

Table 4.60 continued

#	Work Items	Unit	Project Code Number					The Total Prices	The No. Of Samples
			94/3/1	94/3/2	94/3/3	94/3/4			
			Items Prices in SR						
16	Plastic weather-resistant paints	m ²	25	32	32	32		121	4
17	White glazed ceramic tiles	m ²	50	78	78	78		284	4
18	Insulator layer for moisture	m ²	50	26	39	39		154	4
19	Thermal insulation, horizontal	m ²	30	26	26	26		108	4
20	Thermal insulation, vertical	m ²	25	26	19	19		89	4
21	Plastic paints for interior walls (smooth American Texture)	m ²	25	33	32	32		122	4
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	27	33	32	32		124	4
23	Aluminum windows	m ²	450	585	520	520		2075	4
24	Hollow metallic doors	m ²	800	845	780	780		3205	4
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	220	400	403	403		1426	4
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	260	429	390	390		1469	4
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	1500	3250	1700	3250		9700	4
28	Switch, A/C. window type (2x30 Amps)	No.	250	247	240	195		932	4
29	Lighting switch (15 Amps/127 volt)	No.	170	182	175	156		683	4
30	Main switchboard, school building	No.	25000	38000	39000	39000		141000	4
31	Main distribution panelboard	No.	27000	39000	45500	45500		157000	4
32	Thermoplastic cable (size 3x185x95 mm ²)	m	150	152	143	169		614	4
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	220	220	182	208		830	4
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	3500	2340	2340	2340		10520	4
35	Ceiling air fan dia {142cm (56in)}	No.	500	325	520	325		1670	4
36	Drinking water cooler (tank type)	No.	2400	2470	2405	2470		9745	4

Table 4.61
Calculation of the Prices of Price Index Items
Educational Area - Riyadh
Year 1995

#	Work Items	Unit	Project Code Number					The Total Prices	The No. Of Samples
			95/1/1	95/1/2	95/1/3				
			Items Prices in SR						
1	Excavation work	m ³	43	43	43			129	3
2	Backfilling work	m ³	19	19	19			57	3
3	Excavation work for the foundation	m ³	25	25	25			75	3
4	Plain concrete work under the foundation	m ³	165	165	165			495	3
5	Reinforced concrete work for the foundation	m ³	610	610	610			1830	3
6	Natural crushed stone sub-base coarse	m ²	200	200	200			600	3
7	Building made from Calcium Silicate Bricks	m ²	300	300	300			900	3
8	Concrete pavers (40x40x5cm)	m ²	10	10	10			30	3
9	Plain concrete with 10 cm thickness	m ²	100	100	100			300	3
10	Reinforced concrete for the whole superstrucutre	m ³	720	720	720			2160	3
11	CMU walls with 15 cm thickness	m ²	65	65	65			195	3
12	CMU walls with 20 cm thickness	m ²	65	65	65			195	3
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	45	45	45			135	3
14	Floor tiling	m ²	30	30	30			90	3
15	Natural marble of stairs	m	175	175	175			525	3

Continued...

Table 4.61 continued

#	Work Items	Unit	Project Code Number						The Total Prices	The No. Of Samples
			95/1/1	95/1/2	95/1/3					
			Items Prices in SR							
16	Plastic weather-resistant paints	m ²	17	17	17				51	3
17	White glazed ceramic tiles	m ²	35	35	35				105	3
18	Insulator layer for moisture	m ²	75	75	75				225	3
19	Thermal insulation, horizontal	m ²	50	50	50				150	3
20	Thermal insulation, vertical	m ²	40	40	40				120	3
21	Plastic paints for interior walls (smooth American Texture)	m ²	12	12	12				36	3
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	13	13	13				39	3
23	Aluminum windows	m ²	700	700	700				2100	3
24	Hollow metallic doors	m ²	700	700	700				2100	3
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	200	200	200				600	3
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	270	270	270				810	3
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	910	910	910				2730	3
28	Switch, A/C. window type (2x30 Amps)	No.	300	300	300				900	3
29	Lighting switch (15 Amps/127 volt)	No.	150	150	150				450	3
30	Main switchboard, school building	No.	50000	50000	50000				150000	3
31	Main distribution panelboard	No.	45000	45000	45000				135000	3
32	Thermoplastic cable (size 3x185x95 mm ²)	m	80	80	80				240	3
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	110	110	110				330	3
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	1300	1300	1300				3900	3
35	Ceiling air fan {dia 142cm (56in)}	No.	400	400	400				1200	3
36	Drinking water cooler (tank type)	No.	1400	1400	1400				4200	3

Table 4.62
Calculation of the Prices of Price Index Items
Educational Area - Jeddah
Year 1995

#	Work Items	Unit	Project Code Number						The Total Prices	The No. Of Samples
			95/2/1	95/2/2	95/2/3					
			Items Prices in SR							
1	Excavation work	m ³	20	20	20				60	3
2	Backfilling work	m ³	19	19	19				57	3
3	Excavation work for the foundation	m ³	25	25	25				75	3
4	Plain concrete work under the foundation	m ³	325	325	325				975	3
5	Reinforced concrete work for the foundation	m ³	675	675	675				2025	3
6	Natural crushed stone sub-base coarse	m ²	37	37	37				111	3
7	Building made from Calcium Silicate Bricks	m ²	385	385	385				1155	3
8	Concrete pavers (40x40x5cm)	m ²	30	30	30				90	3
9	Plain concrete with 10 cm thickness	m ²	30	30	30				90	3
10	Reinforced concrete for the whole superstructure	m ³	930	930	930				2790	3
11	CMU walls with 15 cm thickness	m ²	35	35	35				105	3
12	CMU walls with 20 cm thickness	m ²	39	39	39				117	3
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	38	38	38				114	3
14	Floor tiling	m ²	30	30	30				90	3
15	Natural marble of stairs	m	200	200	200				600	3

Continued....

4.62 continued

#	Work Items	Unit	Project Code Number					The Total Prices	The No. Of Samples
			95/2/1	95/2/2	95/2/3				
			Items Prices in SR						
16	Plastic weather-resistant paints	m ²	18	18	18			54	3
17	White glazed ceramic tiles	m ²	60	60	60			180	3
18	Insulator layer for moisture	m ²	75	75	75			225	3
19	Thermal insulation, horizontal	m ²	50	50	50			150	3
20	Thermal insulation, vertical	m ²	40	40	40			120	3
21	Plastic paints for interior walls (smooth American Texture)	m ²	14	14	14			42	3
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	14	14	14			42	3
23	Aluminum windows	m ²	560	560	560			1680	3
24	Hollow metallic doors	m ²	780	780	780			2340	3
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	184	184	184			552	3
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	200	200	200			600	3
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	1400	1400	1400			4200	3
28	Switch, A/C. window type (2x30 Amps)	No.	234	234	234			702	3
29	Lighting switch (15 Amps/127 volt)	No.	138	138	138			414	3
30	Main switchboard, school building	No.	66395	66395	66395			199185	3
31	Main distribution panelboard	No.	60864	60864	60864			182592	3
32	Thermoplastic cable (size 3x185x95 mm ²)	m	131	131	131			393	3
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	225	225	225			675	3
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	2820	2820	2820			8460	3
35	Ceiling air fan (dia142cm (56in))	No.	560	560	560			1680	3
36	Drinking water cooler (tank type)	No.	2960	2960	2960			8880	3

Table 4.63
Calculation of the Prices of Price Index Items
Educational Area - Eastern Province
Year 1995

#	Work Items	Unit	Project Code Number					The Total Prices	The No. Of Samples
			95/3/1	95/3/2					
			Items Prices in SR						
1	Excavation work	m ³	25	25				50	2
2	Backfilling work	m ³	20	20				40	2
3	Excavation work for the foundation	m ³	28	28				56	2
4	Plain concrete work under the foundation	m ³	325	325				650	2
5	Reinforced concrete work for the foundation	m ³	675	675				1350	2
6	Natural crushed stone sub-base coarse	m ²	36	36				72	2
7	Building made from Calcium Silicate Bricks	m ²	385	385				770	2
8	Concrete pavers (40x40x5cm)	m ²	35	35				70	2
9	Plain concrete with 10 cm thickness	m ²	28	28				56	2
10	Reinforced concrete for the whole superstrucutre	m ³	980	980				1960	2
11	CMU walls with 15 cm thickness	m ²	30	30				60	2
12	CMU walls with 20 cm thickness	m ²	35	35				70	2
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	38	38				76	2
14	Floor tiling	m ²	30	30				60	2
15	Natural marble of stairs	m	200	200				400	2

Continued....

Table 4.63 continued

#	Work Items	Unit	Project Code Number						The Total Prices	The No. Of Samples
			95/3/1	95/3/2						
			Items Prices in SR							
16	Plastic weather-resistant paints	m ²	18	18					36	2
17	White glazed ceramic tiles	m ²	60	60					120	2
18	Insulator layer for moisture	m ²	40	40					80	2
19	Thermal insulation, horizontal	m ²	24	24					48	2
20	Thermal insulation, vertical	m ²	20	20					40	2
21	Plastic paints for interior walls (smooth American Texture)	m ²	15	15					30	2
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	15	15					30	2
23	Aluminum windows	m ²	575	575					1150	2
24	Hollow metallic doors	m ²	780	780					1560	2
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	189	189					378	2
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	200	200					400	2
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	1420	1420					2840	2
28	Switch, A/C. window type (2x30 Amps)	No.	240	240					480	2
29	Lighting switch (15 Amps/127 volt)	No.	145	145					290	2
30	Main switchboard, school building	No.	66500	66500					133000	2
31	Main distribution panelboard	No.	60870	60870					121740	2
32	Thermoplastic cable (size 3x185x95 mm ²)	m	133	133					266	2
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	227	227					454	2
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	2200	2200					4400	2
35	Ceiling air fan dia {142cm (56in)}	No.	550	550					1100	2
36	Drinking water cooler (tank type)	No.	2950	2950					5900	2

4.2.2 CALCULATION OF AVERAGE QUANTITIES AND PRICES:

This section consists of the calculation of the base year quantities and the calculation of the average prices for the six periods.

4.2.2.1 *Calculation of the Average Base Year Quantities:*

The sum of quantities and the sum of the number of samples has been taken from Tables 4.43 - 4.45 and listed in Table 4.64. the average of quantities for each item has been calculated and listed in Table 4.64 also.

Table 4.64
Calculation of The Average Quantities
Year 1990

#	Work Items	Unit	The Sum of Quantities in The Three Regions			The # of Samples From Each Region In the Three Areas			The Total # of Samples	The Avg. Qty.
			Ryd ¹	Jed ²	E.Prov ³	Ryd ¹	Jed ²	E.Prov ³		
1	Excavation work	m ³	13550	8730	10200	6	6	6	18	1804
2	Backfilling work	m ³	13650	11250	15970	6	6	6	18	2271
3	Excavation work for the foundation	m ³	9400	11600	12850	6	6	6	18	1881
4	Plain concrete work under the foundation	m ³	1500	1795	1825	6	6	6	18	284
5	Reinforced concrete work for the foundation	m ³	3515	3450	3655	6	6	6	18	590
6	Natural crushed stone sub-base coarse	m ²	2730	2700	2790	6	6	6	18	457
7	Building made from Calcium Silicate Bricks	m ²	3970	3800	4890	6	6	6	18	703
8	Concrete pavers (40x40x5cm)	m ²	20340	18650	24100	6	6	6	18	3505
9	Plain concrete with 10 cm thickness	m ²	9840	9750	9840	6	6	6	18	1635
10	Reinforced concrete for the whole superstrucutre	m ³	6240	6220	6240	6	6	6	18	1039
11	CMU walls with 15 cm thickness	m ²	10170	10095	10170	6	6	6	18	1691
12	CMU walls with 20 cm thickness	m ²	14760	14760	14760	6	6	6	18	2460
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	15480	15480	15480	6	6	6	18	2580
14	Floor tiling	m ²	9000	8915	9000	6	6	6	18	1495
15	Natural marble of stairs	m	1176	1168	1176	6	6	6	18	196

- 1) Ryd refers to Riyadh
- 2) Jed refers to Jeddah
- 3) E. Prov refers to Eastern Province

Table 4.64 continued

#	Work Items	Unit	The Sum of Quantities in The Three Regions			The # of Samples From Each Region In the Three Areas			The Total # of Samples	The Avg. Qty.
			Ryd	Jed	E.Prov	Ryd	Jed	E.Prov		
16	Plastic weather-resistant paints	m ²	39300	39170	39300	6	6	6	18	6543
17	White glazed ceramic tiles	m ²	5460	5390	5460	6	6	6	18	906
18	Insulator layer for moisture	m ²	11100	11015	11100	6	6	6	18	1845
19	Thermal insulation, horizontal	m ²	8880	8800	8880	6	6	6	18	1476
20	Thermal insulation, vertical	m ²	9300	9300	9300	6	6	6	18	1550
21	Plastic paints for interior walls (smooth American Texture)	m ²	13680	13680	13680	6	6	6	18	2280
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	10020	10020	10020	6	6	6	18	1670
23	Aluminum windows	m ²	2094	2089	2094	6	6	6	18	349
24	Hollow metallic doors	m ²	1020	1020	1020	6	6	6	18	170
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	618	608	618	6	6	6	18	102
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	1746	1746	1746	6	6	6	18	291
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	165	157	234	6	6	6	18	31
28	Switch, A/C. window type (2x30 Amps)	No.	492	488	492	6	6	6	18	82
29	Lighting switch (15 Amps/127 volt)	No.	846	827	846	6	6	6	18	140
30	Main switchboard, school building	No.	6	6	6	6	6	6	18	1
31	Main distribution panelboard	No.	6	6	6	6	6	6	18	1
32	Thermoplastic cable (size 3x185x95 mm ²)	m	1630	1560	1560	6	6	6	18	264
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	1530	2170	2460	6	6	6	18	342
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	492	497	492	6	6	6	18	82
35	Ceiling air fan {dia 142cm (56in)}	No.	480	476	480	6	6	6	18	80
36	Drinking water cooler (tank type)	No.	60	60	60	6	6	6	18	10

**4.2.2.2 *Calculation of the Average of Item Prices for the Six
Periods:***

The sum of prices and the sum of the number of samples for each item from the three areas for the year 1990 has been taken from Tables 4.46-4.48 and listed in Table 4.65. The average of prices for each item has been calculated and listed in Table 4.65. This procedure has been repeated for the other periods: 1991-1995 in Tables 4.66 - 4.70 respectively.

Table 4.65
Calculation of The Average of Item Prices
Year 1990

#	Work Items	Unit	The Sum of Prices In The Three Regions (SR)			The # of Samples From Each Region In the Three Regions			The Total # of Samples	The Avg. Prices (SR)
			Ryd	Jed	E.Prov	Ryd	Jed	E.Prov		
1	Excavation work	m ³	124	74	39	5	5	4	14	16.93
2	Backfilling work	m ³	107	77	62	6	6	6	18	13.67
3	Excavation work for the foundation	m ³	186	154	90	6	6	6	18	23.89
4	Plain concrete work under the foundation	m ³	1389	1339	1052	6	6	6	18	210.00
5	Reinforced concrete work for the foundation	m ³	4029	4100	3340	6	6	6	18	637.17
6	Natural crushed stone sub-base coarse	m ²	396	282	560	6	6	6	18	68.78
7	Building made from Calcium Silicate Bricks	m ²	599	412	312	6	6	6	18	73.50
8	Concrete pavers (40x40x5cm)	m ²	339	336	288	6	6	6	18	53.50
9	Plain concrete with 10 cm thickness	m ²	122	135	122	6	6	6	18	21.06
10	Reinforced concrete for the whole superstrucutre	m ³	4301	4426	3630	6	6	6	18	686.50
11	CMU walls with 15 cm thickness	m ²	201	229	192	6	6	6	18	34.56
12	CMU walls with 20 cm thickness	m ²	234	262	214	6	6	6	18	39.44
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	336	333	292	6	6	6	18	53.39
14	Floor tiling	m ²	210	201	198	6	6	6	18	33.83
15	Natural marble of stairs	m	965	996	828	6	6	6	18	154.94

Table 4.65 continued

#	Work Items	Unit	The Sum of Prices in The Three Regions (SR)			The # of Samples From Each Region In the Three Regions			The Total # of Samples	The Avg. Prices (SR)
			Ryd	Jed	E.Prov	Ryd	Jed	E.Prov		
16	Plastic weather-resistant paints	m ²	215	234	165	5	6	4	15	40.93
17	White glazed ceramic tiles	m ²	404	321	392	6	6	6	18	62.06
18	Insulator layer for moisture	m ²	185	187	196	6	6	6	18	31.56
19	Thermal insulation, horizontal	m ²	178	180	158	6	6	6	18	28.67
20	Thermal insulation, vertical	m ²	144	157	120	6	6	6	18	23.39
21	Plastic paints for interior walls (smooth American Texture)	m ²	217	182	154	6	6	6	18	30.72
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	212	203	154	6	6	6	18	31.61
23	Aluminum windows	m ²	2359	3080	2463	6	6	6	18	439.00
24	Hollow metallic doors	m ²	2620	3521	2500	6	6	6	18	480.06
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	1220	1547	1704	6	6	6	18	248.39
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	1600	1804	1880	6	6	6	18	293.56
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	6810	10967	6255	6	6	6	18	1335.11
28	Switch, A/C. window type (2x30 Amps)	No.	1300	1719	1200	6	6	6	18	234.39
29	Lighting switch (15 Amps/127 volt)	No.	770	966	900	6	6	6	18	146.44
30	Main switchboard, school building	No.	112000	153667	109000	6	6	6	18	20814.83
31	Main distribution panelboard	No.	110000	178667	121000	6	6	6	18	22759.28
32	Thermoplastic cable (size 3x185x95 mm ²)	m	749	1003	820	6	6	6	18	142.89
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	1295	1293	1136	6	6	6	18	206.89
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	10300	10078	10500	6	6	6	18	1715.44
35	Ceiling air fan {dia 142cm (56in)}	No.	1850	2133	2004	6	6	6	18	332.61
36	Drinking water cooler (tank type)	No.	14900	16533	14272	6	6	6	18	2539.17

Table 4.66
Calculation of The Average of Item Prices
Year 1991

#	Work Items	Unit	The Sum of Prices In The Three Regions (SR)			The # of Samples From Each Region In the Three Regions			The Total # of Samples	The Avg. Prices (SR)
			Ryd	Jed	E.Prov	Ryd	Jed	E.Prov		
1	Excavation work	m ³	92	73	72	6	5	5	16	14.81
2	Backfilling work	m ³	85	55	103	6	3	6	15	16.20
3	Excavation work for the foundation	m ³	240	160	313	6	6	6	18	39.61
4	Plain concrete work under the foundation	m ³	1100	1745	1373	6	6	6	18	234.33
5	Reinforced concrete work for the foundation	m ³	3570	4050	3800	6	6	6	18	634.44
6	Natural crushed stone sub-base coarse	m ²	180	365	405	6	6	6	18	52.78
7	Building made from Calcium Silicate Bricks	m ²	550	760	238	6	6	6	18	86.00
8	Concrete pavers (40x40x5cm)	m ²	305	420	216	6	6	6	18	52.28
9	Plain concrete with 10 cm thickness	m ²	100	115	118	6	6	6	18	18.50
10	Reinforced concrete for the whole superstructure	m ³	3750	4300	4320	6	6	6	18	687.22
11	CMU walls with 15 cm thickness	m ²	190	245	218	6	6	6	18	36.28
12	CMU walls with 20 cm thickness	m ²	210	270	243	6	6	6	18	40.17
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	305	340	221	6	6	6	18	48.11
14	Floor tiling	m ²	205	205	162	6	6	6	18	31.78
15	Natural marble of stairs	m	950	1100	1042	6	6	6	18	171.78

Table 4.66 continued

#	Work Items	Unit	The Sum of Prices in The Three Regions (SR)			The # of Samples From Each Region In the Three Regions			The Total # of Samples	The Avg. Prices (SR)
			Ryd	Jed	E.Prov	Ryd	Jed	E.Prov		
16	Plastic weather-resistant paints	m ²	185	245	184	6	6	4	16	38.38
17	White glazed ceramic tiles	m ²	375	383	388	6	6	6	18	63.67
18	Insulator layer for moisture	m ²	215	140	161	6	6	6	18	28.67
19	Thermal insulation, horizontal	m ²	170	106	146	6	6	6	18	23.44
20	Thermal insulation, vertical	m ²	130	90	109	6	6	6	18	18.28
21	Plastic paints for interior walls (smooth American Texture)	m ²	165	205	182	6	6	6	18	30.67
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	165	195	183	6	6	6	18	30.17
23	Aluminum windows	m ²	2750	2070	2059	6	6	6	18	382.17
24	Hollow metallic doors	m ²	3300	2200	2270	6	6	6	18	431.67
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	1500	1605	1916	6	6	6	18	278.94
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	1700	2155	2150	6	6	6	18	333.61
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	5400	7000	5745	6	6	6	18	1008.06
28	Switch, A/C. window type (2x30 Amps)	No.	1200	875	2485	6	6	6	18	253.33
29	Lighting switch (15 Amps/127 volt)	No.	800	850	1390	6	6	6	18	168.89
30	Main switchboard, school building	No.	160000	200000	205000	6	6	6	18	31388.89
31	Main distribution panelboard	No.	175000	225000	233250	6	6	6	18	35180.56
32	Thermoplastic cable (size 3x185x95 mm ²)	m	800	1070	933	6	6	6	18	155.72
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	1087	1275	1202	6	6	6	18	198.00
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	10000	10250	9035	6	6	6	18	1626.94
35	Ceiling air fan {dia 142cm (56in)}	No.	1850	1970	2351	6	6	6	18	342.83
36	Drinking water cooler (tank type)	No.	11000	12000	18318	6	6	6	18	2295.44

Table 4.67
Calculation of The Average of Item Prices
Year 1992

#	Work Items	Unit	The Sum of Prices In The Three Regions (SR)			The # of Samples From Each Region In the Three Regions			The Total # of Samples	The Avg. Prices (SR)
			Ryd	Jed	E.Prov	Ryd	Jed	E.Prov		
1	Excavation work	m ³	145	80	114	5	5	5	15	22.60
2	Backfilling work	m ³	86	90	55	5	6	6	17	13.59
3	Excavation work for the foundation	m ³	145	125	139	5	6	6	17	24.06
4	Plain concrete work under the foundation	m ³	1037	1820	1226	5	6	6	17	240.18
5	Reinforced concrete work for the foundation	m ³	3200	4485	3715	5	6	6	17	670.59
6	Natural crushed stone sub-base coarse	m ²	153	205	442	5	6	6	17	47.06
7	Building made from Calcium Silicate Bricks	m ²	378	710	334	5	5	5	15	94.80
8	Concrete pavers (40x40x5cm)	m ²	228	285	319	5	6	6	17	48.94
9	Plain concrete with 10 cm thickness	m ²	114	150	122	5	6	6	17	22.71
10	Reinforced concrete for the whole superstructure	m ³	3375	4894	3720	5	6	6	17	705.24
11	CMU walls with 15 cm thickness	m ²	202	343	214	5	6	6	17	44.65
12	CMU walls with 20 cm thickness	m ²	234	360	229	5	6	6	17	48.41
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	208	365	295	5	6	6	17	51.06
14	Floor tiling	m ²	138	180	208	5	6	6	17	30.94
15	Natural marble of stairs	m	810	975	948	5	6	6	17	160.76

Table 4.67 continued

#	Work Items	Unit	The Sum of Prices in The Three Regions (SR)			The # of Samples From Each Region In the Three Regions			The Total # of Samples	The Avg. Prices (SR)
			Ryd	Jed	E.Prov	Ryd	Jed	E.Prov		
16	Plastic weather-resistant paints	m ²	105	83	100	5	6	6	16	18.00
17	White glazed ceramic tiles	m ²	302	325	431	5	6	6	18	58.78
18	Insulator layer for moisture	m ²	182	330	240	5	6	6	18	41.78
19	Thermal insulation, horizontal	m ²	164	115	160	5	6	6	18	24.39
20	Thermal insulation, vertical	m ²	123	170	139	5	6	6	18	24.00
21	Plastic paints for interior walls (smooth American Texture)	m ²	91	83	96	5	6	6	18	15.00
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	92	83	96	5	6	6	18	15.06
23	Aluminum windows	m ²	1880	2400	2550	5	6	6	18	379.44
24	Hollow metallic doors	m ²	2600	6000	3550	5	6	6	18	675.00
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	1230	1100	1799	5	6	6	18	229.39
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	1443	1595	1863	5	6	6	18	272.28
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	6250	12500	8450	5	6	6	18	1511.11
28	Switch, A/C. window type (2x30 Amps)	No.	1270	1475	1095	5	6	6	18	213.33
29	Lighting switch (15 Amps/127 volt)	No.	604	700	900	5	6	6	18	122.44
30	Main switchboard, school building	No.	88000	112000	100500	5	6	6	18	16694.44
31	Main distribution panelboard	No.	107000	117000	109250	5	6	6	18	18513.89
32	Thermoplastic cable (size 3x185x95 mm ²)	m	593	645	852	5	6	6	18	116.11
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	855	1045	1164	5	6	6	18	170.22
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	8280	8300	8875	5	6	6	18	1414.17
35	Ceiling air fan {dia 142cm (56in)}	No.	1557	3725	2306	5	6	6	18	421.56
36	Drinking water cooler (tank type)	No.	14000	12500	15975	5	6	6	18	2359.72

Table 4.68
Calculation of The Average Item Prices
Year 1993

#	Work Items	Unit	The Sum of Prices In The Three Regions (SR)			The # of Samples From Each Region In the Three Regions			The Total # of Samples	The Avg. Prices (SR)
			Ryd	Jed	E.Prov	Ryd	Jed	E.Prov		
1	Excavation work	m ³	125	50	158	5	6	3	14	23.79
2	Backfilling work	m ³	133	81	157	6	6	5	17	21.82
3	Excavation work for the foundation	m ³	282	76	213	6	6	5	17	33.59
4	Plain concrete work under the foundation	m ³	1465	1702	1310	6	6	5	17	263.35
5	Reinforced concrete work for the foundation	m ³	4715	3958	4040	6	6	5	17	747.82
6	Natural crushed stone sub-base course	m ²	348	241	550	6	6	5	17	67.00
7	Building made from Calcium Silicate Bricks	m ²	915	568	680	6	6	5	17	127.24
8	Concrete pavers (40x40x5cm)	m ²	279	256	336	6	6	5	17	51.24
9	Plain concrete with 10 cm thickness	m ²	131	146	115	6	6	5	17	23.06
10	Reinforced concrete for the whole superstrucutre	m ³	5173	5193	4340	6	6	5	17	865.06
11	CMU walls with 15 cm thickness	m ²	216	241	200	6	6	5	17	38.65
12	CMU walls with 20 cm thickness	m ²	240	279	218	6	6	5	17	43.35
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	289	252	277	6	6	5	17	48.12
14	Floor tiling	m ²	193	176	203	6	6	5	17	33.65
15	Natural marble of stairs	m	1050	869	715	6	6	5	17	154.94

Table 4.68 continued

#	Work Items	Unit	The Sum of Prices in The Three Regions (SR)			The # of Samples From Each Region In the Three Regions			The Total # of Samples	The Avg. Prices (SR)
			Ryd	Jed	E.Prov	Ryd	Jed	E.Prov		
16	Plastic weather-resistant paints	m ²	111	106	112	6	6	5	17	19.35
17	White glazed ceramic tiles	m ²	397	321	345	6	6	5	17	62.53
18	Insulator layer for moisture	m ²	221	216	249	6	6	5	17	40.35
19	Thermal insulation, horizontal	m ²	188	226	197	6	6	5	17	35.94
20	Thermal insulation, vertical	m ²	151	120	165	6	6	5	17	25.65
21	Plastic paints for interior walls (smooth American Texture)	m ²	100	99	107	6	6	5	17	18.00
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	100	112	107	6	6	5	17	18.76
23	Aluminum windows	m ²	2395	2461	2550	6	6	5	17	435.65
24	Hollow metallic doors	m ²	3950	4509	4200	6	6	5	17	744.65
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	1465	1317	1927	6	6	5	17	277.00
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	2010	1562	2110	6	6	5	17	334.24
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	8820	9369	7050	6	6	5	17	1484.65
28	Switch, A/C. window type (2x30 Amps)	No.	1270	1275	1400	6	6	5	17	232.06
29	Lighting switch (15 Amps/127 volt)	No.	1005	723	1180	6	6	5	17	171.06
30	Main switchboard, school building	No.	158000	264222	227500	6	6	5	17	38218.94
31	Main distribution panelboard	No.	183000	270830	271300	6	6	5	17	42654.71
32	Thermoplastic cable (size 3x185x95 mm ²)	m	833	899	820	6	6	5	17	150.12
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	1192	1145	1130	6	6	5	17	203.94
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	10070	11021	9300	6	6	5	17	1787.71
35	Ceiling air fan (dia 142cm (56in))	No.	2150	2220	2150	6	6	5	17	383.53
36	Drinking water cooler (tank type)	No.	18500	13260	11200	6	6	5	17	2527.06

Table 4.69
Calculation of The Average Item Prices
Year 1994

#	Work Items	Unit	The Sum of Prices in The Three Regions (SR)			The # of Samples From Each Region In the Three Regions			The Total # of Samples	The Avg. Prices (SR)
			Ryd	Jed	E.Prov	Ryd	Jed	E.Prov		
1	Excavation work	m ³	153	50	114	6	2	3	11	28.82
2	Backfilling work	m ³	124	51	97	6	2	4	12	22.67
3	Excavation work for the foundation	m ³	258	86	173	6	2	4	12	43.08
4	Plain concrete work under the foundation	m ³	1405	620	1440	6	2	4	12	288.75
5	Reinforced concrete work for the foundation	m ³	4030	1370	4116	6	2	4	12	793.00
6	Natural crushed stone sub-base coarse	m ²	535	159	245	6	2	4	12	78.25
7	Building made from Calcium Silicate Bricks	m ²	650	310	279	6	2	4	12	103.25
8	Concrete pavers (40x40x5cm)	m ²	230	119	307	6	2	4	12	54.67
9	Plain concrete with 10 cm thickness	m ²	229	62	142	6	2	4	12	36.08
10	Reinforced concrete for the whole superstrucutre	m ³	4950	1704	4034	6	2	4	12	890.67
11	CMU walls with 15 cm thickness	m ²	260	85	297	6	2	4	12	53.50
12	CMU walls with 20 cm thickness	m ²	295	96	288	6	2	4	12	56.58
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	293	101	223	6	2	4	12	51.42
14	Floor tiling	m ²	201	73	219	6	2	4	12	41.08
15	Natural marble of stairs	m	1095	380	622	6	2	4	12	174.75

Table 4.69 continued

#	Work Items	Unit	The Sum of Prices in The Three Regions (SR)			The # of Samples From Each Region In the Three Regions			The Total # of Samples	The Avg. Prices (SR)
			Ryd	Jed	E.Prov	Ryd	Jed	E.Prov		
16	Plastic weather-resistant paints	m ²	118	39	121	6	2	4	16	17.38
17	White glazed ceramic tiles	m ²	425	129	284	6	2	4	18	46.56
18	Insulator layer for moisture	m ²	290	86	154	6	2	4	18	29.44
19	Thermal insulation, horizontal	m ²	255	64	108	6	2	4	18	23.72
20	Thermal insulation, vertical	m ²	157	60	89	6	2	4	18	17.00
21	Plastic paints for interior walls (smooth American Texture)	m ²	117	36	122	6	2	4	18	15.28
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	133	38	124	6	2	4	18	16.39
23	Aluminum windows	m ²	2885	806	2075	6	2	4	18	320.33
24	Hollow metallic doors	m ²	4950	2288	3205	6	2	4	18	580.17
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	1635	478	1426	6	2	4	18	196.61
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	2052	571	1469	6	2	4	18	227.33
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	9400	3352	9700	6	2	4	18	1247.33
28	Switch, A/C. window type (2x30 Amps)	No.	1785	454	932	6	2	4	18	176.17
29	Lighting switch (15 Amps/127 volt)	No.	1495	320	683	6	2	4	18	138.78
30	Main switchboard, school building	No.	226600	74896	141000	6	2	4	18	24583.11
31	Main distribution panelboard	No.	277400	78480	157000	6	2	4	18	28493.33
32	Thermoplastic cable (size 3x185x95 mm ²)	m	723	339	614	6	2	4	18	93.11
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	1113	442	830	6	2	4	18	132.50
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	11500	3804	10520	6	2	4	18	1434.67
35	Ceiling air fan {dia 142cm (56in)}	No.	2870	722	1670	6	2	4	18	292.33
36	Drinking water cooler (tank type)	No.	14900	4392	9745	6	2	4	18	1613.17

Table 4.70
Calculation of The Average of Item Prices
Year 1995

#	Work Items	Unit	The Sum of Prices In The Three Regions (SR)			The # of Samples From Each Region In the Three Regions			The Total # of Samples	The Avg. Prices (SR)
			Ryd	Jed	E.Prov	Ryd	Jed	E.Prov		
1	Excavation work	m ³	129	60	50	3	3	2	8	29.88
2	Backfilling work	m ³	57	57	40	3	3	2	8	19.25
3	Excavation work for the foundation	m ³	75	75	56	3	3	2	8	25.75
4	Plain concrete work under the foundation	m ³	495	975	650	3	3	2	8	265.00
5	Reinforced concrete work for the foundation	m ³	1830	2025	1350	3	3	2	8	650.63
6	Natural crushed stone sub-base coarse	m ²	600	111	72	3	3	2	8	97.88
7	Building made from Calcium Silicate Bricks	m ²	900	1155	770	3	3	2	8	353.13
8	Concrete pavers (40x40x5cm)	m ²	30	90	70	3	3	2	8	23.75
9	Plain concrete with 10 cm thickness	m ²	300	90	56	3	3	2	8	55.75
10	Reinforced concrete for the whole superstrucutre	m ³	2160	2790	1960	3	3	2	8	863.75
11	CMU walls with 15 cm thickness	m ²	195	105	60	3	3	2	8	45.00
12	CMU walls with 20 cm thickness	m ²	195	117	70	3	3	2	8	47.75
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	135	114	76	3	3	2	8	40.63
14	Floor tiling	m ²	90	90	60	3	3	2	8	30.00
15	Natural marble of stairs	m	525	600	400	3	3	2	8	190.63

Table 4.70 continued

#	Work Items	Unit	The Sum of Prices in The Three Regions (SR)			The # of Samples From Each Region In the Three Regions			The Total # of Samples	The Avg. Prices (SR)
			Ryd	Jed	E.Prov	Ryd	Jed	E.Prov		
16	Plastic weather-resistant paints	m ²	51	54	36	3	3	2	8	17.63
17	White glazed ceramic tiles	m ²	105	180	120	3	3	2	8	50.63
18	Insulator layer for moisture	m ²	225	225	80	3	3	2	8	66.25
19	Thermal insulation, horizontal	m ²	150	150	48	3	3	2	8	43.50
20	Thermal insulation, vertical	m ²	120	120	40	3	3	2	8	35.00
21	Plastic paints for interior walls (smooth American Texture)	m ²	36	42	30	3	3	2	8	13.50
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	39	42	30	3	3	2	8	13.88
23	Aluminum windows	m ²	2100	1680	1150	3	3	2	8	616.25
24	Hollow metallic doors	m ²	2100	2340	1560	3	3	2	8	750.00
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	600	552	378	3	3	2	8	191.25
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	810	600	400	3	3	2	8	226.25
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	2730	4200	2840	3	3	2	8	1221.25
28	Switch, A/C. window type (2x30 Amps)	No.	900	702	480	3	3	2	8	260.25
29	Lighting switch (15 Amps/127 volt)	No.	450	414	290	3	3	2	8	144.25
30	Main switchboard, school building	No.	150000	199185	133000	3	3	2	8	60273.13
31	Main distribution panelboard	No.	135000	182592	121740	3	3	2	8	54916.50
32	Thermoplastic cable (size 3x185x95 mm ²)	m	240	393	266	3	3	2	8	112.38
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	330	675	454	3	3	2	8	182.38
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	3900	8460	4400	3	3	2	8	2095.00
35	Ceiling air fan (dia 142cm (56in))	No.	1200	1680	1100	3	3	2	8	497.50
36	Drinking water cooler (tank type)	No.	4200	8880	5900	3	3	2	8	2372.50

**4.2.3 *Calculation of Total Price of Each Item and the
Sum of Total Prices of the Price Index:***

The average of quantities for each item has been taken from the Table 4.64 and listed in Tables 4.71 - 4.76. Also, the average of prices for the year 1990 for each item has been taken from Tables 4.65 and listed in Table 4.71. This has then been repeated for the average of prices for the years 1991-1995. The average of prices for the years 1991-1995 has been taken from Tables 4.66 - 4.70 and listed in Tables 4.72 - 4.76 respectively.

Table 4.71
Calculation of the Total Price for Each Item
And Sum of the Total Price of Index Items
Year 1990

#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
1	Excavation work	m ³	1804.44	16.93	30549.17
2	Backfilling work	m ³	2271.00	13.67	31044.57
3	Excavation work for the foundation	m ³	1881.00	23.89	44937.09
4	Plain concrete work under the foundation	m ³	284.00	210.00	59640.00
5	Reinforced concrete work for the foundation	m ³	590.00	637.17	375930.30
6	Natural crushed stone sub-base coarse	m ²	457.00	68.78	31432.46
7	Building made from Calcium Silicate Bricks	m ²	703.00	73.50	51670.50
8	Concrete pavers (40x40x5cm)	m ²	3505.00	53.50	187517.50
9	Plain concrete with 10 cm thickness	m ²	1635.00	21.06	34433.10
10	Reinforced concrete for the whole superstrucutre	m ³	1039.00	686.50	713273.50
11	CMU walls with 15 cm thickness	m ²	1691.00	34.56	58440.96
12	CMU walls with 20 cm thickness	m ²	2460.00	39.44	97022.40
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	2580.00	53.39	137746.20
14	Floor tiling	m ²	1495.00	33.83	50575.85
15	Natural marble of stairs	m	196.00	154.94	30368.24

Continued...

Table 4.71 continued

#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
16	Plastic weather-resistant paints	m ²	6543.00	40.93	267804.99
17	White glazed ceramic tiles	m ²	906.00	62.06	56226.36
18	Insulator layer for moisture	m ²	1845.00	31.56	58228.20
19	Thermal insulation, horizontal	m ²	1476.00	28.67	42316.92
20	Thermal insulation, vertical	m ²	1550.00	23.39	36254.50
21	Plastic paints for interior walls (smooth American Texture)	m ²	2280.00	30.72	70041.60
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	1670.00	31.61	52788.70
23	Aluminum windows	m ²	349.00	439.00	153211.00
24	Hollow metallic doors	m ²	170.00	480.06	81610.20
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	102.00	248.39	25335.78
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	291.00	293.56	85425.96
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	31.00	1335.11	41388.41
28	Switch, A/C. window type (2x30 Amps)	No.	82.00	234.39	19219.98
29	Lighting switch (15 Amps/127 volt)	No.	140.00	146.44	20501.60
30	Main switchboard, school building	No.	1.00	20814.83	20814.83
31	Main distribution panelboard	No.	1.00	17259.28	17259.28
32	Thermoplastic cable (size 3x185x95 mm ²)	m	264.00	142.89	37722.96
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	342.00	206.89	70756.38
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	82.00	1715.44	140666.08
35	Ceiling air fan (dia 142cm (56in))	No.	80.00	332.61	26608.80
36	Drinking water cooler (tank type)	No.	10.00	2539.17	25391.70
The Sum of The Total Prices of The Index Items (SR)					3,284,156.07

Table 4.72
Calculation of the Total Price for Each Item
And Sum of the Total Price of Index Items
Year 1991

#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
1	Excavation work	m ³	1804.44	14.81	26723.76
2	Backfilling work	m ³	2271.00	16.20	36790.20
3	Excavation work for the foundation	m ³	1881.00	39.61	74506.41
4	Plain concrete work under the foundation	m ³	284.00	234.33	66549.72
5	Reinforced concrete work for the foundation	m ³	590.00	634.44	374319.60
6	Natural crushed stone sub-base coarse	m ²	457.00	52.78	24120.46
7	Building made from Calcium Silicate Bricks	m ²	703.00	86.00	60458.00
8	Concrete pavers (40x40x5cm)	m ²	3505.00	52.28	183241.40
9	Plain concrete with 10 cm thickness	m ²	1635.00	18.50	30247.50
10	Reinforced concrete for the whole superstructure	m ³	1039.00	687.22	714021.58
11	CMU walls with 15 cm thickness	m ²	1691.00	36.28	61349.48
12	CMU walls with 20 cm thickness	m ²	2460.00	40.17	98818.20
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	2580.00	48.11	124123.80
14	Floor tiling	m ²	1495.00	31.78	47511.10
15	Natural marble of stairs	m	196.00	171.78	33668.88

Continued...

Table 4.72 continued

#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
16	Plastic weather-resistant paints	m ²	6543.00	38.38	251120.34
17	White glazed ceramic tiles	m ²	906.00	63.67	57685.02
18	Insulator layer for moisture	m ²	1845.00	28.67	52896.15
19	Thermal insulation, horizontal	m ²	1476.00	23.44	34597.44
20	Thermal insulation, vertical	m ²	1550.00	18.28	28334.00
21	Plastic paints for interior walls (smooth American Texture)	m ²	2280.00	30.67	69927.60
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	1670.00	30.17	50383.90
23	Aluminum windows	m ²	349.00	382.17	133377.33
24	Hollow metallic doors	m ²	170.00	431.67	73383.90
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	102.00	278.94	28451.88
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	291.00	333.61	97080.51
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	31.00	1008.06	31249.86
28	Switch, A/C. window type (2x30 Amps)	No.	82.00	253.33	20773.06
29	Lighting switch (15 Amps/127 volt)	No.	140.00	168.89	23644.60
30	Main switchboard, school building	No.	1.00	31388.89	31388.89
31	Main distribution panelboard	No.	1.00	35180.56	35180.56
32	Thermoplastic cable (size 3x185x95 mm ²)	m	264.00	155.72	41110.08
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	342.00	198.00	67716.00
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	82.00	1626.94	133409.08
35	Ceiling air fan {dia 142cm (56in)}	No.	80.00	342.83	27426.40
36	Drinking water cooler (tank type)	No.	10.00	2295.44	22954.40
The Sum of The Total Prices of The Index Items (SR)					3,268,541.09

Table 4.73
Calculation of the Total Price for Each Item
And Sum of the Total Price of Index Items
Year 1992

#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
1	Excavation work	m ³	1804.44	22.60	40780.34
2	Backfilling work	m ³	2271.00	13.59	30862.89
3	Excavation work for the foundation	m ³	1881.00	24.06	45256.86
4	Plain concrete work under the foundation	m ³	284.00	240.18	68211.12
5	Reinforced concrete work for the foundation	m ³	590.00	670.59	395648.10
6	Natural crushed stone sub-base coarse	m ²	457.00	47.06	21506.42
7	Building made from Calcium Silicate Bricks	m ²	703.00	94.80	66644.40
8	Concrete pavers (40x40x5cm)	m ²	3505.00	48.94	171534.70
9	Plain concrete with 10 cm thickness	m ²	1635.00	22.71	37130.85
10	Reinforced concrete for the whole superstrucutre	m ³	1039.00	705.24	732744.36
11	CMU walls with 15 cm thickness	m ²	1691.00	44.65	75503.15
12	CMU walls with 20 cm thickness	m ²	2460.00	48.41	119088.60
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	2580.00	51.06	131734.80
14	Floor tiling	m ²	1495.00	30.94	46255.30
15	Natural marble of stairs	m	195.00	160.76	31508.96

Continued...

Table 4.73 continued

#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
16	Plastic weather-resistant paints	m ²	6543.00	18.00	117774.00
17	White glazed ceramic tiles	m ²	906.00	58.78	53254.68
18	Insulator layer for moisture	m ²	1845.00	41.78	77084.10
19	Thermal insulation, horizontal	m ²	1476.00	24.39	35999.64
20	Thermal insulation, vertical	m ²	1550.00	24.00	37200.00
21	Plastic paints for interior walls (smooth American Texture)	m ²	2280.00	15.00	34200.00
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	1670.00	15.06	25150.20
23	Aluminum windows	m ²	349.00	379.44	132424.56
24	Hollow metallic doors	m ²	170.00	675.00	114750.00
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	102.00	229.39	23397.78
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	291.00	272.28	79233.48
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	31.00	1511.11	46844.41
28	Switch, A/C. window type (2x30 Amps)	No.	82.00	213.33	17493.06
29	Lighting switch (15 Amps/127 volt)	No.	140.00	122.44	17141.60
30	Main switchboard, school building	No.	1.00	16694.44	16694.44
31	Main distribution panelboard	No.	1.00	18513.89	18513.89
32	Thermoplastic cable (size 3x185x95 mm ²)	m	264.00	116.11	30653.04
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	342.00	170.22	58215.24
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	82.00	1414.17	115961.94
35	Ceiling air fan {dia 142cm (56in)}	No.	80.00	421.56	33724.80
36	Drinking water cooler (tank type)	No.	10.00	2359.72	23597.20
The Sum of The Total Prices of The Index Items (SR)					3,123,718.91

Table 4.74
Calculation of the Total Price for Each Item
And Sum of the Total Price of Index Items
Year 1993

#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
1	Excavation work	m ³	1804.44	23.79	42927.63
2	Backfilling work	m ³	2271.00	21.82	49553.22
3	Excavation work for the foundation	m ³	1881.00	33.59	63182.79
4	Plain concrete work under the foundation	m ³	284.00	263.35	74791.40
5	Reinforced concrete work for the foundation	m ³	590.00	747.82	441213.80
6	Natural crushed stone sub-base coarse	m ²	457.00	67.00	30619.00
7	Building made from Calcium Silicate Bricks	m ²	703.00	127.24	89449.72
8	Concrete pavers (40x40x5cm)	m ²	3505.00	51.24	179596.20
9	Plain concrete with 10 cm thickness	m ²	1635.00	23.06	37703.10
10	Reinforced concrete for the whole superstrucutre	m ³	1039.00	865.06	898797.34
11	CMU walls with 15 cm thickness	m ²	1691.00	38.65	65357.15
12	CMU walls with 20 cm thickness	m ²	2460.00	43.35	106641.00
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	2580.00	48.12	124149.60
14	Floor tiling	m ²	1495.00	33.65	50306.75
15	Natural marble of stairs	m	196.00	154.94	30368.24

Continued...

Table 4.74 continued

#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
16	Plastic weather-resistant paints	m ²	6543.00	19.35	126607.05
17	White glazed ceramic tiles	m ²	906.00	62.53	56652.18
18	Insulator layer for moisture	m ²	1845.00	40.35	74445.75
19	Thermal insulation, horizontal	m ²	1476.00	35.94	53047.44
20	Thermal insulation, vertical	m ²	1550.00	25.65	39757.50
21	Plastic paints for interior walls (smooth American Texture)	m ²	2280.00	18.00	41040.00
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	1670.00	18.76	31329.20
23	Aluminum windows	m ²	349.00	435.65	152041.85
24	Hollow metallic doors	m ²	170.00	744.65	126590.50
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	102.00	277.00	28254.00
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	291.00	334.24	97263.84
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	31.00	1484.65	46024.15
28	Switch, A/C. window type (2x30 Amps)	No.	82.00	232.06	19028.92
29	Lighting switch (15 Amps/127 volt)	No.	140.00	171.06	23948.40
30	Main switchboard, school building	No.	1.00	38218.94	38218.94
31	Main distribution panelboard	No.	1.00	42654.71	42654.71
32	Thermoplastic cable (size 3x185x95 mm ²)	m	264.00	150.12	39631.68
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	342.00	203.94	69747.48
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	82.00	1787.71	146592.22
35	Ceiling air fan {dia 142cm (56in)}	No.	80.00	383.53	30682.40
36	Drinking water cooler (tank type)	No.	10.00	2527.06	25270.60
The Sum of The Total Prices of The Index Items (SR)					3,593,485.75

Table 4.75
Calculation of the Total Price for Each Item
And Sum of the Total Price of Index Items
Year 1994

#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
1	Excavation work	m ³	1804.44	28.82	52003.96
2	Backfilling work	m ³	2271.00	22.67	51483.57
3	Excavation work for the foundation	m ³	1881.00	43.08	81033.48
4	Plain concrete work under the foundation	m ³	284.00	288.75	82005.00
5	Reinforced concrete work for the foundation	m ³	590.00	793.00	467870.00
6	Natural crushed stone sub-base coarse	m ²	457.00	78.25	35760.25
7	Building made from Calcium Silicate Bricks	m ²	703.00	103.25	72584.75
8	Concrete pavers (40x40x5cm)	m ²	3505.00	54.67	191618.35
9	Plain concrete with 10 cm thickness	m ²	1635.00	36.08	58990.80
10	Reinforced concrete for the whole superstrucutre	m ³	1039.00	890.67	925406.13
11	CMU walls with 15 cm thickness	m ²	1691.00	53.50	90468.50
12	CMU walls with 20 cm thickness	m ²	2460.00	56.58	139186.80
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	2580.00	51.42	132663.60
14	Floor tiling	m ²	1495.00	41.08	61414.60
15	Natural marble of stairs	m	196.00	174.75	34251.00

Continued...

Table 4.75 continued

#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
16	Plastic weather-resistant paints	m ²	6543.00	17.38	113717.34
17	White glazed ceramic tiles	m ²	906.00	46.56	42183.36
18	Insulator layer for moisture	m ²	1845.00	29.44	54316.80
19	Thermal insulation, horizontal	m ²	1476.00	23.72	35010.72
20	Thermal insulation, vertical	m ²	1550.00	17.00	26350.00
21	Plastic paints for interior walls (smooth American Texture)	m ²	2280.00	15.28	34838.40
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	1670.00	16.39	27371.30
23	Aluminum windows	m ²	349.00	320.33	111795.17
24	Hollow metallic doors	m ²	170.00	580.17	98628.90
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	102.00	196.61	20054.22
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	291.00	227.33	66153.03
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	31.00	1247.33	38667.23
28	Switch, A/C. window type (2x30 Amps)	No.	82.00	176.17	14445.94
29	Lighting switch (15 Amps/127 volt)	No.	140.00	138.78	19429.20
30	Main switchboard, school building	No.	1.00	24583.11	24583.11
31	Main distribution panelboard	No.	1.00	28493.33	28493.33
32	Thermoplastic cable (size 3x185x95 mm ²)	m	264.00	93.11	24581.04
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	342.00	132.50	45315.00
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	82.00	1434.67	117642.94
35	Ceiling air fan {dia 142cm (56in)}	No.	80.00	292.33	23386.40
36	Drinking water cooler (tank type)	No.	10.00	1613.17	16131.70
The Sum of The Total Prices of The Index Items (SR)					3,459,835.92

Table 4.76
Calculation of the Total Price for Each Item
And Sum of the Total Price of Index Items
Year 1995

#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
1	Excavation work	m ³	1804.44	29.88	53916.67
2	Backfilling work	m ³	2271.00	19.25	43716.75
3	Excavation work for the foundation	m ³	1881.00	25.75	48435.75
4	Plain concrete work under the foundation	m ³	284.00	265.00	75260.00
5	Reinforced concrete work for the foundation	m ³	590.00	650.63	383871.70
6	Natural crushed stone sub-base coarse	m ²	457.00	97.88	44731.16
7	Building made from Calcium Silicate Bricks	m ²	703.00	353.13	248250.39
8	Concrete pavers (40x40x5cm)	m ²	3505.00	23.75	83243.75
9	Plain concrete with 10 cm thickness	m ²	1635.00	55.75	91151.25
10	Reinforced concrete for the whole superstrucutre	m ³	1039.00	863.75	897436.25
11	CMU walls with 15 cm thickness	m ²	1691.00	45.00	76095.00
12	CMU walls with 20 cm thickness	m ²	2460.00	47.75	117465.00
13	Glazed mosaic tiles (size 30x30x3cm)	m ²	2580.00	40.63	104825.40
14	Floor tiling	m ²	1495.00	30.00	44850.00
15	Natural marble of stairs	m	196.00	190.63	37363.48

Continued...

Table 4.76 continued

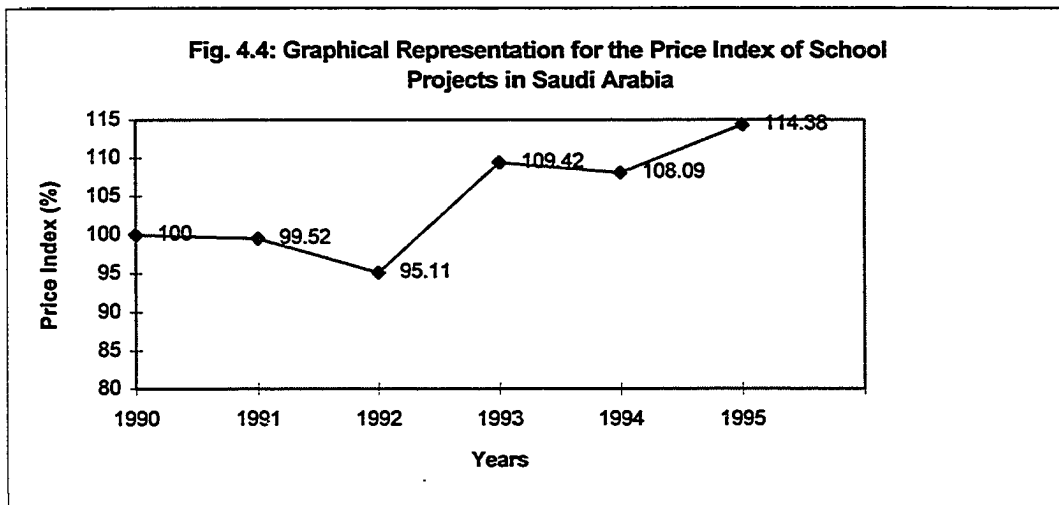
#	Work Items	Unit	The Average of Quantities	The Average of the Unit Price (SR)	The Total Price (SR)
16	Plastic weather-resistant paints	m ²	6543.00	17.63	115353.09
17	White glazed ceramic tiles	m ²	906.00	50.63	45870.78
18	Insulator layer for moisture	m ²	1845.00	66.25	122231.25
19	Thermal insulation, horizontal	m ²	1476.00	43.50	64206.00
20	Thermal insulation, vertical	m ²	1550.00	35.00	54250.00
21	Plastic paints for interior walls (smooth American Texture)	m ²	2280.00	13.50	30780.00
22	Plastic paints for interior ceilings (smooth American Texture)	m ²	1670.00	13.88	23179.60
23	Aluminum windows	m ²	349.00	616.25	215071.25
24	Hollow metallic doors	m ²	170.00	750.00	127500.00
25	Fluorescent lighting fixture, (1x4 watt), with plastic cover ceiling mounted	No.	102.00	191.25	19507.50
26	Fluorescent lighting fixture, (2x40 watt) with reflector	No.	291.00	226.25	65838.75
27	Lamp-post for the site (4m high with 125 watt/220 volt lamp)	No.	31.00	1221.25	37858.75
28	Switch, A/C. window type (2x30 Amps)	No.	82.00	260.25	21340.50
29	Lighting switch (15 Amps/127 volt)	No.	140.00	144.25	20195.00
30	Main switchboard, school building	No.	1.00	60273.13	60273.13
31	Main distribution panelboard	No.	1.00	54916.50	54916.50
32	Thermoplastic cable (size 3x185x95 mm ²)	m	264.00	112.38	29668.32
33	Reinforced thermoplastic cable (size 30x240x120mm ²)	m	342.00	182.38	62373.96
34	A/C unit windows type (cool/heat 1800 BUT/h,KW)	No.	82.00	2095.00	171790.00
35	Ceiling air fan {dia 142cm (56in)}	No.	80.00	497.50	39800.00
36	Drinking water cooler (tank type)	No.	10.00	2372.50	23725.00
The Sum of The Total Prices of The Index Items (SR)					3,756,341.93

4.2.4 *Calculation of SPPI:*

The total price for each item in the index has been calculated by multiplying the average of quantities by the average of prices for each item in Tables 4.71 - 4.76. Then, the sum of the total prices of the index has been calculated and listed at the end of Tables 4.71-4 76. The sum of total prices has been taken from Tables 4.71 - 4.76 for the years 1990-1995 respectively and listed in Table 4.77. The SPPI has been calculated using the Laspeyres method and its values have been listed in Table 4.77 for the years 1990-1995. Also, the SPPI has been represented in figure 4.4.

Table 4.77
Calculation of the Price Index for Each Year

#	Year	Sum of the Total Prices of Index Items (SR)	Price Index (%)
1	1990	3,284,156.07	100.00
2	1991	3,268,541.09	99.52
3	1992	3,123,718.91	95.11
4	1993	3,593,483.75	109.42
5	1994	3,549,835.92	108.09
6	1995	3,756,341.93	114.38



4.3 VALIDATION

This section is divided into two sub-sections namely: the calculation of the average of total project prices and comparison between the indexes values and the total project prices.

4.3.1 Calculation of the Average of Total Project Prices:

Several prices of constructed school projects were collected randomly from the MOE for the years of 1990 and 1993 from the three educational areas. These two years have been chosen because they are only the two years which there were more projects in them other than projects used for the index development. The total project prices are shown in Table 4.78 for the year 1990 from the Riyadh area. The sum of total prices has been calculated. Also, the average of total prices has been calculated. This calculation procedure has been done for Jeddah and Eastern Province areas in Tables 4.79 and 4.80 respectively. Moreover, this calculation procedure has been repeated for the year 1993 from the Riyadh, Jeddah and Eastern Province areas in Tables 4.81, 4.82 and 4.83 respectively. Due to the shortage of data for the Eastern Province in 1993, total project prices are the same prices for some projects that have been used for the index development.

The sum of total prices and the number of projects in the sample have been taken from Tables 4.78, 4.79 and 4.80 for the year 1990 and inserted

in Table 4.84. Then, the average of the total project prices has been found. Also, this procedure has been repeated for the year 1993 in Table 4.85.

Table 4.78
Calculation of the Average of Total Project Prices
Educational Area: Riyadh
Year 1990

Project Code Number	Total Project Price (SR)
90/1/7	4,547,316.84
90/1/8	4,287,277.01
90/1/9	4,018,297.50
The Sum of Total Project Prices (SR)	12,852,891.35
The Average of Total Project Prices (SR)	4,284,297.12

Table 4.79
Calculation of the Average of Total Project Prices
Educational Area: Jeddah
Year 1990

Project Code Number	Total Project Price (SR)
90/2/7	4,625,700.00
90/2/8	4,236,804.00
90/2/9	4,031,535.00
The Sum of Total Project Prices (SR)	12,894,039.00
The Average of Total Project Prices (SR)	4,298,013.00

Table 4.80
Calculation of the Average of Total Project Prices
Educational Area: Eastern Province
Year 1990

Project Code Number	Total Project Price (SR)
90/3/7	5,445,973.44
90/3/8	4,544,461.28
90/3/9	4,288,067.00
The Sum of Total Project Prices (SR)	14,278,501.72
The Average of Total Project Prices (SR)	4,759,500.57

Table 4.81
Calculation of the Average of Total Project Prices
Educational Area: Riyadh
Year 1993

Project Code Number	Total Project Price (SR)
93/1/8	4,795,262.01
93/1/9	3,999,844.53
93/1/12	4,244,184.00
The Sum of Total Project Prices (SR)	13,039,290.54
The Average of Total Project Prices (SR)	4,346,430.18

Table 4.82
Calculation of the Average of Total Project Prices
Educational Area: Jeddah
Year 1993

Project Code Number	Total Project Price (SR)
93/2/10	4,036,257.00
The Sum of Total Project Prices (SR)	4,036,257.00
The Average of Total Project Prices (SR)	4,036,257.00

Table 4.83
Calculation of the Average of Total Project Prices
Educational Area: Eastern Province
Year 1993

Project Code Number	Total Project Price (SR)
93/3/1	7,337,905.00
93/3/2	7,377,704.60
The Sum of Total Project Prices (SR)	14,715,609.60
The Average of Total Project Prices (SR)	7,357,804.80

Table 4.84
Calculation of the Average of Total Project Prices
Year 1990

Educational Area	The Sum of Total Project Prices (SR)	Number of Projects in the Sample
Riyadh	12,852,891.35	3
Jeddah	12,894,039.00	3
Eastern Province	14,278,501.72	3
Total:	40,025,432.07	9
The Average of Total Project Prices (SR)	4,447,270.23	

Table 4.85
Calculation of the Average of Total Project Prices
Year 1993

Educational Area	The Sum of Total Project Prices (SR)	Number of Projects in the Sample
Riyadh	13,039,290.54	3
Jeddah	4,036,257.00	1
Eastern Province	14,715,609.60	2
Total:	31,791,157.14	6
The Average of Total Project Prices (SR)	5,298,526.19	

4.3.2 Comparison Between Indexes Values and the Total Project Prices:

For the purpose of comparison, the average price of school building (say 1993 in Riyadh area) has been compared to the average of school building (say 1990) multiplied by the index number of the year 1993.

* For Riyadh Area:

Let X_{90} = the average price building in 1990

X_{93} = the average price building in 1993

I_{93} = index value for 1993

Therefore, X_{90} = 4,284,297.12 SR

X_{93} = 4,346,430.18 SR

I_{93} = 103.68

Compare X_{93} = 4,346,430.18 SR to $X_{90} * I =$

= 4,284,297.12 * 1.0369

= 4,442,387.68 SR

The same procedure has been repeated for the other areas and the whole country and the values are listed in Table 4.86

Table 4.86: Comparison Between the Indexes Values and the Validation Prices

Educational Area	Actual Prices in 1990 (SR)	Price Index in 1993 (%)	Predicted Prices for 1993 (SR)	Actual Prices for Year 1993 (SR)	Difference Between Predicted and Actual Prices (%)
Riyadh	4,284,297.12	103.69	4,442,387.68	4,346,430.18	2.21
Jeddah	4,298,013.00	95.47	4,103,313.01	4,036,257.00	1.66
Eastern Province	4,759,500.57	139.10	6,620,465.29	7,357,204.80	10.02
Saudi Arabia	4,447,270.23	109.42	4,866,203.09	5,298,526.19	8.16

The percentage differences between the actual prices for the year 1993 and the predicted prices for the year 1993 are 2.20% in Riyadh, 1.61% in Jeddah, 7.69% in Eastern Province and 9.56% in Saudi Arabia. These small differences provide evidence that the indexes are valid.

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

5.1 CONCLUSION:

The MOE builds many school buildings every year to meet the increasing number of students in different regions of the country. A price index for these buildings is needed to show the movement of their price over time. The SPPI can be part of a generalized cost index for construction in Saudi Arabia. Also, it can be utilized to meet MOE needs such as project budgeting, adjusting contract prices, general forecasting etc.

This study was limited to school projects which are built for the MOE in Saudi Arabia. Elementary, intermediate and secondary school projects were considered in this study. The geographic coverage was limited to the main educational areas in Saudi Arabia, namely: Riyadh, Jeddah, and Eastern Province. Data was collected from the MOE in Riyadh for 114 school projects selected randomly.

In this research, there are 36 items that have been selected from the common models as being representative in cost and regularly used. The item weights have been considered as the average of the base year quantities in the three areas. The year 1990 has been taken as the base year for the the RSPPI and SPPI. The Laspeyres method has been used to

calculate the RSPPI and the SPPI. The quantities and prices of 36 items of RSPPI and the SPPI were extracted from the BOQ's of the 114 projects. This data has then been used to develop the RSPPI and the SPPI. The values of the RSPPI and SPPI are listed in Tables 4.40, 4.41, 4.42 and 4.77, they are represented by graphs in figures 4.1, 4.2, 4.3 and 4.4. Table 4.86 shows the differences between the actual prices for the year 1993 and predicted prices for the year 1993 in the three areas and the whole country.

5.2 RECOMMENDATIONS FOR FUTURE STUDIES:

1. Similar studies to this research can be done to develop indexes for other types of construction projects such as highways and roads, residential buildings, offices buildings, hospitals, mosques, industrial buildings etc.
2. Also, this study can be used to develop general indexes for the construction industry in the Kingdom.

APPENDICES

APPENDIX - A

Appendix A :

• قائمة بجميع عناصر النماذج الشائعة لمشاريع المدارس في المملكة العربية السعودية .

* A list of all items found in the common models of the school projects in Saudi Arabia .

الرقم	رقم البند بمواصفات الأعمال	بيان الأعمال	الوحدة	رقم المشروع					متوسط النسبة المتوية
				90/2/2	90/2/5	90/3/4	91/1/3	90/1/2	
				نسبة العنصر المتوية من السعر الاجمالي للمشروع %					
1	2/1	اعمال حفر أو قطع تربة	م ³	---	0.97	1.26	2.71	---	1.67
2	3/1	اعمال ردم	م ³	1.37	0.25	0.03	0.55	1.07	0.65
3	1/2	اعمال حفر للأساسات	م ³	0.71	0.66	0.59	1.56	0.62	0.83
4	2/2	اعمال عرسانة عادية	م ³	1.61	1.42	1.41	1.01	1.36	1.36
5	3/2	اعمال عرسانة مسلحة للأساسات	م ³	10.65	6.01	9.40	12.68	8.96	9.54
6	4/2	دكة بلوكاج من كسر حجر طبيعي	م ³	0.33	1.42	1.36	0.28	1.09	0.90
7	5/2	طبقة عازلة للرطوبة أفقية	م ²	0.42	0.47	0.39	0.29	0.44	0.40
8	2/3	مباني من الطوب الاسمنتي المصمت	م ³	0.26	0.40	0.53	0.15	0.33	0.33
9	5/3	اعمال دهانات بلاستيكية	م ²	0.34	0.62	0.36	0.51	0.22	0.41
10	1/3	مباني من الطوب الرملي الجيري	م ²	1.11	1.02	1.22	1.40	0.83	1.11
11	6/3	اعمال بياض اسمنتي	م ²	0.34	0.48	0.42	0.58	0.44	0.45
12	3/4	كسوة رخام طبيعي	م.ط	0.03	---	---	0.01	0.01	0.02
13	5/4	بلاطات عرسانة عادية مقاس 2.0x2.0 م	م ²	0.54	0.85	0.46	0.34	---	0.55

Appendix A (continued)

4.70	4.41	7.14	5.26	4.06	2.61	م ²	(أ) ترابيح اسمنتية مقاس 5x40x40 سم	6/4	14
0.49	0.27	1.17	0.42	0.38	0.20	م.ط	طرقيات خرسانة سابقة الصب	9/4	15
0.01	0.02	0.01	0.01	0.02	0.012	م ²	دكة خرسانة عادية باليبل اللازم	1/5	16
0.07	0.015	0.04	0.07	0.04	0.04	م ²	طبقة عازلة للطبقة لئلا تلتصق	2/5	17
0.42	0.35	0.28	0.63	0.47	0.37	م ²	طبقة عازلة رأسية دهان	3/5	18
0.04	0.04	0.05	0.03	0.03	0.056	م ²	بياض اسمنتي مانع لمرور المياه	4/5	19
0.06	0.07	0.04	0.05	0.06	0.06	م ²	قبض مباني - طوب اسمنتي مصمت سمك 10 سم	5/5	20
0.38	0.38	0.54	0.33	0.32	0.34	م.ط	(2) مواسير (بي.بي.سي) قطر خارجي 160 سم وسمك 4.7 سم	4/3/2	21
0.14	0.12	0.16	0.05	0.15	0.20	م.ط	(3) مواسير (بي.بي.سي) قطر خارجي 140 سم وسمك 3.2 سم	4/3/2	22
0.06	0.06	0.06	0.03	0.10	0.07	م.ط	(4) مواسير (بي.بي.سي) قطر خارجي 110 سم وسمك 3.2 سم	4/3/2	23
0.11	0.11	0.12	0.15	0.05	0.10	عدد	(1) غرفة تفتيش 0.6x0.6 م بعمق لغاية 1.0 متر	1/4/2	24
0.05	0.08	0.02	0.05	0.03	0.08	عدد	(2) غرفة تفتيش 0.9x0.6 م بعمق لغاية 1.0 متر	1/4/2	25
0.09	0.16	0.07	---	0.04	0.08	عدد	(2) غرفة تفتيش 0.9x0.6 م بعمق لغاية 1.5 متر	1/4/2	26
0.26	0.22	0.33	---	0.20	0.28	م.ط	خزان تحليل 2.0x4.0 م	9/4/2	27
0.55	0.69	0.47	---	0.57	0.47	م.ط	خندق صرف بالدهش	10/4/2	28
0.79	1.13	0.86	0.68	0.51	0.78	م ²	خرسانة عادية سمك 10 سم	1/17	29
0.48	0.75	0.45	0.34	0.26	0.58	م ²	خرسانة عادية سمك 15 سم	2/17	30
0.14	0.20	0.25	0.02	0.12	0.12	م ³	خرسانة عادية متفتحة لزوم مل فراغ السقوط	4/17	31
0.08	0.11	0.11	0.04	0.07	0.07	م ²	خرسانة عادية لدكة الجول بالاسطح	5/17	32
0.01	0.01	0.01	0.01	0.01	0.01	م ²	خرسانة عادية باليبل المطلوب	6/17	33
16.46	19.05	18.00	14.76	13.24	17.26	م ³	خرسانة مسلحة للهيكل العام	1/18	34
0.35	0.39	0.37	0.33	0.30	0.36	م ³	خرسانة مسلحة لخزان المياه العلوي	2/18	35

Appendix A (continued)

0.20	0.18	0.21	0.15	0.25	0.22	2 م	مباني سمك 10 سم	1/19	36
1.25	1.36	1.59	1.09	1.00	1.21	2 م	مباني سمك 15 سم	2/19	37
2.06	2.25	2.59	1.75	1.69	2.04	2 م	مباني سمك 20 سم	3/19	38
0.20	0.27	0.16	0.16	0.21	0.20	2 م	مباني على السطح من الطوب الرمل الجري	5/63	39
3.11	3.25	3.37	2.84	2.41	3.67	2 م	بلاط موزايكو مقاس 3x30x30 سم	1/20	40
1.10	0.86	1.27	1.10	1.03	1.24	2 م	بلاط امنيتي سنجابي	2/20	41
0.35	----	0.29	0.33	0.33	0.44	2 م	بلاط فغار سواييك 15x15 سم	ج/3/20	42
0.37	0.45	----	----	0.28	----	2 م	بلاط فغار سواييك 15x30 سم (مقارم للاحماض)	د/3/20	43
0.69	0.63	0.70	0.59	0.60	0.93	ط.م	كسوة رخام طبيعي برلاتو للسلام	4/20	44
0.17	0.21	0.21	0.17	0.16	0.12	2 م	ترابيع رخام طبيعي برلاتو مقاس 3x30x30 سم	5/20	45
0.13	0.11	0.19	0.15	0.11	0.09	ط.م	قوسية من الرخام الطبيعي بجلسة البيضاء	7/20	46
0.05	0.03	0.06	0.05	0.03	0.06	ط.م	جلسة (قوسية) منارة للمصنف	8/20	47
0.35	0.40	0.31	0.35	0.35	0.33	2 م	ترابيع فينيل بسماكة لا تقل عن 2 سم	9/20	48
0.19	0.27	0.22	0.16	0.15	0.14	2 م	أرضية أمنيته ممسوسة	20/20	49
0.22	0.18	0.28	0.17	0.26	0.23	2 م	بياض تحشين للاسقف	1/20	50
0.29	0.24	0.35	0.25	0.26	0.33	2 م	بياض تحشين للحوائط الداخلية	1/2/21	51
0.03	0.03	0.04	0.02	0.02	0.04	2 م	بياض امنيتي مانع لمرور المياه	3/21	52
4.53	3.00	3.40	4.20	4.28	7.77	2 م	اعمال دهانات بلاستيكية مقارمة للعوامل الجوية (رشة أمريكية)	5/21	53
1.28	1.35	1.02	1.21	1.51	1.29	2 م	بلاط ترابيع فينلاني بلون ابيض	6/21	54
1.39	1.27	1.19	1.91	1.27	1.32	2 م	طبقة عازلة للطوبية	1/22	55
0.87	0.85	0.92	0.92	0.76	0.88	2 م	طبقة عازلة للحرارة أفقية	2/22	56
0.78	0.71	0.99	0.67	0.61	0.92	2 م	طبقة عازلة للحرارة رأسية	6/22	57

Appendix A (continued)

0.24	0.20	0.28	0.22	0.29	0.21	م ²	دهانات بيوية البلاستيك 7/100	1/23	58
1.41	1.04	1.25	1.36	1.26	2.16	م ²	دهان بلاستيك (رشة أمريكية ناعمة) أ) للحوائط الداخلية	4/23	59
1.01	0.89	0.92	0.99	0.93	1.39	م ²	ب) للاسقف الداخلية	4/23	60
0.18	0.17	0.22	0.15	0.13	0.22	م ²	باب خشب تجليد ابلاكوج زان	1/24	61
0.10	0.07	0.18	0.10	0.01	0.14	م ²	لوحة من الخشب الزان	12/25	62
3.68	3.60	4.39	3.36	3.32	3.72	م ²	شباك المونوم	1/26	63
1.45	0.84	1.47	0.96	3.12	0.87	م ²	كاسرات للشمس من الالومنيوم	4/26	64
2.26	2.72	2.38	1.75	2.01	2.42	م ²	ابواب معدنية جوفاً	6/27	65
0.03	0.02	0.06	0.03	0.02	0.01	ط.م	سلم حديد مجاري لخزان المياه العلوي	2/27	66
0.02	0.03	0.02	0.03	0.02	0.02	ط.م	درابزين حديد وكوبسة المونوم	3/27	67
0.15	0.15	0.13	0.13	0.11	0.21	م ²	باب حديد وتجليد صاج	4/27	68
0.04	0.05	0.04	0.04	0.03	0.05	م ²	باب حديد حسب تفاصيل شركة الكهرباء	8/27	69
0.06	0.07	0.06	0.06	0.07	0.02	م ²	شباك حديد حسب تفاصيل شركة الكهرباء	9/27	70
0.05	0.05	0.04	0.05	0.02	0.08	ط.م	زارية حديد	1/11/27	71
0.07	0.08	0.09	0.05	0.01	0.10	م ²	صاج بقلارة لغطاء مجاري الكابلات	12/27	72
0.07	0.11	0.06	0.06	0.06	0.06	عدد	مقاعد من المراسر الحديد المجالين	26/27	73
0.01	0.02	0.01	0.01	0.01	0.01	عدد	توريد وتركيب صاري العلم : أ) لزوم السطح الأخضر بارتفاع 3 م	1/28	74
0.01	0.03	0.01	0.01	0.01	0.01	عدد	ب) لزوم ساحة لجميع الطلاب بارتفاع 4 م	1/28	75
0.38	0.37	0.49	0.42	0.34	0.28	م ²	لوحة إعلانات من الفلين الطبيعي مقاس 1.2x3.0 م	6/28	76
0.16	0.14	0.36	0.13	0.11	0.06	ط.م	نقطة فواصل التمدد	10/28	78
0.06	0.11	0.05	0.04	0.03	0.05	ط.م	نقطة فواصل التمدد للاسطح والمزار	11/28	79

Appendix A (continued)

0.08	0.06	0.19	0.07	0.04	0.03	عدد	لوحات ارشادية مقاس 30x15 سم	12/28	80
0.39	0.72	0.32	0.26	0.32	0.32	عدد	مراحل شرقي كامل	2/1/2	81
0.15	0.29	0.14	0.10	0.12	0.12	عدد	مراحل الغربي (كمبينشن)	3/1/2	82
0.04	0.05	0.03	0.04	0.04	0.05	عدد	حوض غسيل أيدي بخلاط كروم	6/1/2	83
0.04	0.04	0.02	0.06	0.04	0.05	عدد	مرآة بلور بلجيكي ثمرة (1)	9/1/2	84
0.02	0.006	0.05	0.01	0.005	0.005	عدد	رف من الصيني الابيض	10/1/2	85
0.01	0.03	0.01	0.01	0.005	0.01	عدد	جمالة ملائس مزودة من النحاس	11/1/2	86
0.001	0.002	0.003	0.0004	0.001	0.001	عدد	جمالة مناشف من الكروم بدرجة مائة الدرزين والمدير وسكن الجارس	12/1/2	87
0.23	0.26	0.39	0.20	0.12	0.020	ط.م	(1) مواسير (بي.بي.سي) قطر خارجي 90 سم بسبك 6.7 سم	1/2/2	88
0.22	0.26	0.33	0.18	0.11	0.21	ط.م	(2) مواسير (بي.بي.سي) قطر خارجي 75 سم بسبك 5.6 سم	1/2/2	89
0.11	0.16	0.14	0.10	0.06	0.11	ط.م	(3) مواسير (بي.بي.سي) قطر خارجي 63 سم بسبك 4.7 سم	1/2/2	90
0.02	0.03	0.02	0.02	0.01	0.02	ط.م	(4) مواسير (بي.بي.سي) قطر خارجي 50 سم بسبك 3.7 سم	1/2/2	91
0.06	0.09	0.05	0.07	0.04	0.06	ط.م	(5) مواسير (بي.بي.سي) قطر خارجي 32 سم بسبك 2.4 سم	1/2/2	92
0.30	0.29	0.50	0.28	0.15	0.26	ط.م	مواسير (بي.بي.سي) قطر خارجي 110 سم بسبك 8.20 سم	2/2/2	93
0.03	0.04	0.01	0.02	0.03	0.03	عدد	(1) عيسى برونز سكبينة قطر 3 بوصة	5/2/2	94
0.02	0.03	0.002	0.02	0.02	0.03	عدد	(2) عيسى برونز سكبينة قطر 2 بوصة	5/2/2	95
0.015	0.02	0.0005	0.01	0.03	0.01	عدد	(3) عيسى برونز سكبينة قطر 1.5 بوصة	5/2/2	96
0.03	0.02	0.01	0.007	0.008	0.09	عدد	دش كامل بخلاط كروم	7/2/2	97
0.02	0.05	0.006	0.002	0.01	0.02	عدد	حفية رش الحدائق قطر 1 بوصة	8/2/2	98
0.08	0.11	0.12	0.05	0.09	0.05	ط.م	(1) مواسير (بي.بي.سي) قطر خارجي 160 سم بسبك 4.7 سم	4/3/2	99
0.08	0.11	0.12	0.05	0.08	0.05	ط.م	(2) مواسير (بي.بي.سي) قطر خارجي 110 سم بسبك 3.2 سم	4/3/2	100
0.02	0.03	0.02	0.01	0.01	0.01	ط.م	(3) مواسير (بي.بي.سي) قطر خارجي 75 سم بسبك 2.2 سم	4/3/2	101

Appendix A (continued)

0.03	0.06	0.04	0.03	0.02	0.02	0.02	0.02	0.02	م.ط	(4) مواسير (بي.بي.سي) قطر خارجي 50 سم سمك 1.8 سم	4/3/2	102
0.04	0.07	0.05	0.03	0.02	0.03	0.03	0.03	عدد	عدد	سيفون أرضية بلاستيك قطر مخرجة 75 سم مزود بطبقة بلاستيك	6/3/2	103
0.05	0.10	0.05	0.04	0.03	0.05	0.03	0.05	عدد	عدد	(2) سيفون أرضية بلاستيك قطر مخرجة 50 سم مزود بطبقة بلاستيك	6/3/2	104
0.01	0.007	0.006	0.001	0.01	0.002	0.01	0.002	عدد	عدد	(1) ميزراب من ماسورة حديد مجلفن قطر 2 بوصة	8/3/2	105
0.01	----	----	----	0.01	----	0.01	----	عدد	عدد	(2) ميزراب من ماسورة حديد مجلفن قطر 3 بوصة	8/3/2	106
0.01	0.017	0.015	0.002	0.01	0.01	0.01	0.01	عدد	عدد	حرجوري أو قمع زهر قطر 3 بوصة	9/3/2	107
0.007	0.01	0.013	0.003	0.004	0.004	0.004	0.004	عدد	عدد	(1) هوية لاسورة قطر 160 سم	10/3/2	108
0.008	0.012	0.015	0.003	0.005	0.006	0.005	0.006	عدد	عدد	(2) هوية لاسورة قطر 110 سم	10/3/2	109
0.002	0.003	0.004	0.0009	0.001	0.002	0.001	0.002	عدد	عدد	(4) هوية لاسورة قطر 50 سم	10/3/2	110
0.04	0.04	0.06	0.03	0.04	0.05	0.04	0.05	عدد	عدد	جاليتراب من القنار المزجج قطر 10x15 سم	12/3/2	111
0.13	0.15	0.09	0.12	0.09	0.18	0.09	0.18	عدد	عدد	حفية حريق خارجية 2.5 بوصة	2/8/2	112
0.24	0.27	0.09	0.23	0.19	0.43	0.19	0.43	عدد	عدد	حفية حريق خارجية 1.0 بوصة	3/8/2	113
0.03	0.05	0.02	0.03	0.02	0.03	0.02	0.03	عدد	عدد	(1) سخان كهربائي للبية سعة 50 لتر	4/8/2	114
0.04	0.07	0.03	0.02	0.03	0.03	0.03	0.03	عدد	عدد	مخاط كروم ممتاز للبيضة	14/8/2	115
0.24	0.11	0.24	0.27	0.29	0.28	0.29	0.28	عدد	عدد	مجموعة مضخات مكونة من عدد 2 مضخة تصرف كل منهما 15 م ³ /ساعة للسقياء عند ضغط 2.5 بار	1/5/2	116
0.04	0.09	0.03	0.04	0.03	0.03	0.03	0.03	عدد	عدد	جميع توصيلات المياه وملحقاتها	7/5/2	117
0.04	0.09	0.03	0.04	0.01	0.03	0.01	0.03	عدد	عدد	جميع قطع الاتصال ذات اللانشات	8/5/2	118
0.04	0.09	0.03	0.04	0.01	0.03	0.01	0.03	عدد	عدد	تمديدات 3 بوصة للماء الخزان بعربات نقل المياه	10/5/2	119
0.04	0.09	0.04	0.04	0.01	0.03	0.01	0.03	عدد	عدد	تمديدات 2 بوصة بعداد للماء الخزان بحماية البلدية	11/5/2	120
0.02	0.03	0.02	0.03	0.02	0.01	0.02	0.01	عدد	عدد	وحدة اضاءة فلورسنت قدرة (20x1 واط) بغطاء بلاستيك مبنية بالسقف	1/1/1/3/3	121
0.59	0.61	0.63	0.74	0.49	0.49	0.49	0.49	عدد	عدد	وحدة اضاءة فلورسنت قدرة (40x1 واط) بغطاء بلاستيك مبنية بالسقف	1/4/1/3/3	122

Appendix A (continued)

0.24	0.24	0.24	0.29	0.21	0.22	عدد	وحدة اضاءة فلورسنت قدرة (40x2 واط) بنظاء بلاستيك مثبتة بالسقف	1/5/1/3/3	123
1.90	1.87	1.93	2.40	1.57	1.72	عدد	وحدة اضاءة فلورسنت قدرة (40x2 واط) بناشتر للضوء	2/5/1/3/3	124
0.04	0.04	0.05	0.05	0.01	0.04	عدد	وحدة اضاءة فلورسنت قدرة (40x3 واط) بناشتر للضوء مثبتة بالسقف	2/6/1/3/3	125
0.10	0.09	0.22	0.04	0.08	0.09	عدد	كشاف نصف كروي واللمبة زئبقية قدرة 125 واط/220 فولت	2/4/3/3	126
0.21	0.24	0.26	0.11	0.17	0.26	عدد	وحدة انارة للطوارئ	1/6/3/3	127
0.30	0.37	0.30	0.35	0.19	---	عدد	مجموعة كشافات هالوجين للمب كرة السلة	1/10/3/3	128
0.82	1.37	0.75	1.12	0.45	0.40	عدد	عمود انارة الموقع العام (مخروطي بارتفاع 4 م يعمل فانوس قدرة 125 واط/220 فولت)	1/2/11/3/3	129
0.53	0.94	0.45	0.45	0.33	0.49	عدد	مفتاح تشغيل للمكيف طراز شبك سعة (30x2 أمبير)	1/14/3/3	130
0.50	0.45	0.50	0.61	0.44	0.50	عدد	بوتزة عادية سعة 15 أمبير/127 فولت	11/14/3/3	131
0.29	0.25	0.32	0.34	0.22	0.32	عدد	بوتزة قوى للاغراض العادية سعة 13 أمبير/220 فولت	10/14/3/3	132
0.03	0.05	0.03	0.03	0.02	0.02	عدد	ضابط حرس للاستعداد	1/16/3/3	133
0.01	0.01	0.02	0.02	0.01	0.01	عدد	لوحة ميينات أرقام	2/16/3/3	134
0.006	0.01	0.01	0.002	0.003	0.007	عدد	حرس كهربائي للاستعداد	3/16/3/3	135
0.08	0.06	0.12	0.08	0.05	0.10	عدد	حرس كهربائي للطلبة	17/3/3	136
0.02	0.02	0.03	0.01	0.01	0.01	عدد	لوحة توزيع فرعية بقاطع رئيسي سعة (40x2 أمبير) لفئة الكهرباء	2/2/18/3/3	137
0.02	0.03	0.05	0.01	0.01	0.01	عدد	لوحة توزيع فرعية سعة (50 أمبير)	4/18/3/3	138
0.04	0.05	0.03	0.03	0.06	0.02	عدد	لوحة توزيع فرعية سعة (100 أمبير)	6/18/3/3	139
0.04	0.06	0.04	0.03	0.03	---	عدد	لوحة توزيع فرعية للمهي كرة السلة واليد سعة (100 أمبير)	1/6/18/3/3	140
0.05	0.06	0.05	0.07	0.03	0.02	عدد	لوحة توزيع فرعية سعة (100 أمبير) للموقع العام بحلبة كهربوضربية	2/6/18/3/3	141
0.34	0.48	0.31	0.32	0.21	0.36	عدد	لوحة توزيع فرعية سعة (250 أمبير)	11/18/3/3	142
0.11	---	---	---	0.11	---	عدد	لوحة توزيع فرعية سعة (300 أمبير)	12/18/3/3	143

Appendix A (continued)

0.53	0.46	0.79	0.46	0.053	0.40	عدد	لوحة توزيع عمومية لبنى المدرسة سعة (1800 أمبير)	11/1/19/3/3	144
0.57	0.57	0.89	0.49	0.57	0.33	عدد	لوحة توزيع رئيسية سعة (2500 أمبير)	11/2/19/3/3	145
0.01	---	---	---	0.01	---	م.ط	كابل ثرموبلاستيك مقاس (3x25x16 م ²)	5/1/23/3/3	146
0.004	---	---	---	0.004	---	م.ط	كابل ثرموبلاستيك مقاس (3x35x16 م ²)	6/1/23/3/3	147
0.73	0.60	1.15	0.82	0.36	0.74	م.ط	كابل ثرموبلاستيك مقاس (3x185x95 م ²)	12/1/23/3/3	148
0.16	---	---	---	0.16	---	م.ط	كابل ثرموبلاستيك مقاس (3x300x150 م ²)	14/1/23/3/3	149
0.34	0.56	0.49	0.35	0.19	0.09	م.ط	كابل ثرموبلاستيك مسطح مقاس (3x50x25 م ²)	7/2/23/3/3	150
1.57	1.76	1.16	2.11	1.67	1.13	م.ط	كابل ثرموبلاستيك مقاس (3x240x120 م ²)	13/2/23/3/3	151
0.23	0.19	0.24	0.23	0.28	0.20	م.ط	كابل ثرموبلاستيك مفرد مقاس (3x630 م ²)	1/3/23/3/3	152
0.09	0.09	0.10	0.06	0.07	0.12	عدد	طلاءية حريق بوجرة كيميائية سعة 6 كجم	1/26/3/3	153
0.10	0.09	0.12	0.10	0.09	0.09	عدد	طلاءية حريق ثاني اكسيد الكربون سعة 6 كجم	2/26/3/3	154
0.09	0.09	0.12	0.06	0.03	0.17	عدد	جهاز التكبير الصوتي	1/3/1/2/4	155
0.04	0.03	0.06	0.06	0.03	0.04	عدد	عمود صوتي	2/3/1/2/4	156
0.03	0.03	0.05	0.02	0.02	0.02	عدد	ميكروفون	3/3/1/2/4	157
0.016	0.01	0.01	0.02	0.02	0.02	عدد	مخرج ميكروفون	4/3/1/2/4	158
2.70	1.88	3.34	3.24	2.41	2.62	عدد	مكيف هواء طراز الشبكاك تبريد/ تدفئة (ذو قدرة قياسية للتبريد قدرها : 18000 و.ح.ب / ساعة ، و قدرة سخان كهربائي للتدفئة : 3 كيلوات)	1/3/2/5	159
0.11	---	---	---	0.11	---	عدد	مكيف هواء طراز الشبكاك تبريد/ تدفئة (ذو قدرة قياسية للتبريد قدرها : 24000 و.ح.ب / ساعة ، و قدرة سخان كهربائي للتدفئة : 3 كيلوات)	1/3/2/5	160
0.64	0.64	0.79	0.698	0.48	0.57	عدد	مرحلة تهوية سقفية بقطر 142 سم (56 بوصة)	1/4/4/5	161
0.03	0.02	0.04	0.03	0.04	0.04	عدد	مرحلة طرد من النوع الدفراع تركيب بالمحاطط أو الشبكاك بقطر 25 سم (10 بوصة)	1/1/3/4/5	162

Appendix A (continued)

0.11	0.09	0.12	0.11	0.09	0.15	عدد	مروحة طرد من النوع الدفاع تركب بالمخاط أو الشباك بقطر 30 سم (12 بوصة)	1/1/3/4/5	163
0.51	0.57	0.53	0.65	0.34	0.47	عدد	مورد مياة شرب من النوع ذي الخزان	1/1/5/5	164
0.14	0.14	0.18	0.16	0.06	0.14	عدد	مورد مياة شرب من النوع ذي القارورة	2/5/5	165

APPENDIX - B

Appendix B :

• ترجمة لقائمة عناصر مؤشر السعر لباني المدارس في المملكة العربية السعودية .:

* A translation list of the price index items for school projects in Saudi Arabia .

No.	No. of the item in the MOE Specification Book	Work Items	Unit	نسبة العنصر المتوية	بيان الأعمال	الرقم
1	1/2	Excavation work .	m ³	1.67	أعمال حفر أو قطع تربة.	1
2	1/3	Backfilling work .	m ³	0.65	أعمال ردم .	2
3	2/1	Excavation work for the foundation .	m ³	0.83	أعمال حفر للأساسات .	3
4	2/2	Plain concrete work under the foundation .	m ³	1.36	أعمال خرسانة عادية أسفل الأساسات .	4
5	2/3	Reinforced concrete work for the foundation .	m ³	9.54	أعمال خرسانة مسلحة للأساسات .	5
6	2/4	Natural crushed stone sub-base course .	m ³	0.90	دكة بلوكاج من كسر حجر طبيعي .	6
7	3/1	Buildings made from Calcium Silicate bricks .	m ²	1.11	مباني من الطوب الرملي الجيري .	7
8	4/6	Concrete pavers (40x 40x5 cm)	m ²	4.70	ترايبس أممنتية مقاس (5x40x40 سم) .	8
9	17-1	Plain concrete with 10 cm thickness.	m ²	0.79	خرسانة عادية سمك 10 سم .	9
10	18-1	Reinforced concrete for the whole superstructure .	m ³	16.46	خرسانة مسلحة للهيكل العام .	10
11	19-2	CMU walls with 15 cm thickness.	m ²	1.25	مباني سمك 15 سم .	11
12	19-3	CMU walls with 20 cm thickness.	m ²	2.06	مباني سمك 20 سم .	12
13	20-1	Glazed mosaic tiles (size 30x30x3 cm).	m ²	3.11	بلاط موزايكو مقاس (30x30x3 سم).	13
14	20-2	Floor tiling .	m ²	1.10	بلاط أممنتية سنجابي .	14

Appendix B (continued)

No.	No. of the item in the MOE Specification Book	Work Items	Unit	نسبة العنصر المتبوية	بيان الأعمال	الرقم
15	20-4	Natural marble for stairs .	m	0.69	كسوة رخام طبيعي برلاتو للسلام .	15
16	21-5	Plastic weather-resistant paints.	m ²	4.53	أعمال دهانات بلاستيكية مقاومة للعوامل الجوية (رشة أمريكية) .	16
17	21-6	White glazed ceramic tiles .	m ²	1.28	بلاط ترابيع قيشاني بلون أبيض .	17
18	22-1	Insulator layer for moisture.	m ²	1.39	طبقة عازلة للرطوبة .	18
19	22-2	Thermal insulation, horizontal.	m ²	0.87	طبقة عازلة للحرارة أفقية .	19
20	22-6	Thermal insulation, vertical.	m ²	0.78	طبقة عازلة للحرارة رأسية .	20
21	23-4-A	Plastic paint for interior walls (smooth American texture) .	m ²	1.41	دهان بلاستيك (رشة أمريكية ناعمة) للحوائط الداخلية .	21
22	23-4-B	Plastic paint for interior ceilings (smooth American texture) .	m ²	1.01	دهان بلاستيك (رشة أمريكية ناعمة) للاسقف الداخلية .	22
23	26-1	Aluminum windows .	m ²	3.68	شباك الألمنيوم .	23
24	27-6	Hollow metallic doors .	m ²	2.26	أبواب معدنية جوفاء .	24
25	3/3/1/4/1	Fluorescent lighting fixture, (1x40 watt), with plastic cover, ceiling mounted.	No.	0.59	وحدة اضاءة فلورسنت قدرة (40x1 واط) بغطاء بلاستيك مثبتة بالسقف .	25
26	3/3/1/5/2	Fluorescent lighting fixture, (2x40 watt) with reflector .	No.	1.90	وحدة اضاءة فلورسنت قدرة (40x2 واط) بناشر للضوء .	26
27	3/3/11/2/1	Lamp-post for the site (4m high with 125 watt / 220 volt lamp) .	No.	0.82	عمود اضاءة للموقع العام (مخروطي بارتفاع 4م يحمل فانوس قدرة 125 واط / 220 فولت) .	27
28	3/3/14/1	(Switch, A/C , window type 2x30 Amps).	No.	0.53	مفتاح تشغيل للمكيف طراز شبك سعة (2 x 30 أمبير) .	28

Appendix B (continued)

No.	No. of the item in the MOE Specification Book	Work Items	Unit	نسبة العنصر المتوية	بيان الأعمال	الرقم
29	3/3/14/11	Lighting switch (15 Amps / 127 volt).	No.	0.50	بريزة عادية سعة 15 أمبير / 127 فولت.	29
30	3/3/19/1/11	Main switchboard , school building .	No.	0.53	لوحة توزيع عمومية لمبنى المدرسة .	30
31	3/3/19/2/11	Main distribution panelboard .	No.	0.57	لوحة توزيع رئيسية .	31
32	3/3/23/1/12	Thermoplastic cable (size 3x185x95mm ²)	m.	0.73	كابيل ثرموبلاستيك مقاس (3x185x95م2)	32
33	3/3/23/2/13	Reinforced thermoplastic cable (size 3x240x120mm ²).	m.	1.57	كابيل ثرموبلاستيك مسلح مقاس (3x240x120م2)	33
34	5/2/3/1	A/C unit windows type (cool / heat 18000 BTU / h , 3 KW).	No.	2.70	مكيف هواء طراز شباك تبريد / تدفئة (18000 و.ح.ب / الساعة . 3 كيلوات) .	34
35	5/4/4/1	Ceiling air fan (dia. 142cm (56 in)).	No.	0.64	مروحة تهوية سقفية بقطر 142 سم / (56 بوصة) .	35
36	5/5/1/1	Drinking water cooler (tank type) .	No.	0.51	مبرد مياه شرب من النوع دي الخزان .	36
				75.02	المجموع الكلي لتوسط النسب المتوية =	

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