**Statistics Netherlands**

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# Method description New dwellings; input price indices building costs, 2010 = 100

*Summary: This document gives a description of the calculation method of the Input price index of new dwellings. The description contains the weighting scheme, the formula and the method how the price index is calculated. The observation and production process are not the scope of this document.*

*Keywords: Construction, dwelling, price index, method, input price index*

## Introduction

An input price index is calculated on the basis of the price developments of the various cost components of the final product – in this case a new dwelling. The main cost components in the construction of a new dwelling are wage costs and materials costs. Both components are weighted to a total input price index of new dwellings. Other cost components such as energy, materials, and transport are not taken into account because their influence on the final cost price is relatively modest. Land costs are also not included in the index. This means that the input index has a wage and a materials component.

The method description follows below. The first and second sections contain a description of respectively the wage and the material component. How both components are weighted to one input price index is described in the third section. At last a few words about the publication of the figures.

## 1. Wage component

The wage component represents the cost development of wages in the building industry, specifically of the "Burgerlijke & Utiliteitsbouw". The wage index is based on the development of the statistics 'Contractuele LoonKosten' (CLK, contractual wage costs) in building construction. This is a monthly statistic representing the wage costs as established in the CAO's. The CLK use a wage cost concept that fits well with the concept of an input price index. This because the employers share of the wage costs is included and because quality changes such as changes in the composition of the personnel structure do not play a role.

There is only one CLK series used so that the wage index for all projects $p$ is the same:

$$I_{l_p}^t = I_l^t \qquad (1)$$

It is the series SBI 45 'Bouwnijverheid' and is available at StatLine. Every month this figure is obtained from StatLine and rescaled to 2005 = 100.

## 2. Material component

The materials component represents the price development of certain product groups used to build a dwelling. The calculating is based on cost reviews of a total of 8 construction projects of representative dwellings containing the costs and amount of the materials required. Each project represents one of four dwelling types (apartments owner-occupied or rented, and houses owner-occupied or rented), divided across three regions in the Netherlands (West, Central-South, and North-East). For the Central-South region we only observed newly finished houses for purchase and for the North-East region only the newly finished houses for rent. This

is because it is assumed that rented houses in North-East are representative for those in Central-South and the houses for sale in Central-South for those in North-East. The division per type of dwelling and region is shown in table 1.

**Table 1 Division type of dwelling per region**

| | Region North-East | | Region Central-South | | Region West | |
|---|---|---|---|---|---|---|
| | Apartment | Single-family | Apartment | Single-family | Apartment | Single-family |
| Rented | x | x | | | x | x |
| Owner-occupied | | | x | x | x | x |

To measure the price development both information about the building materials required and information about the cost ratios (prices and quantities) of the materials are needed. This leads to a weighting scheme with material weights per product group $w_{k_p}$. With the weighting scheme and producer price indices (PPI) $I_k^t$ belonging to the product groups $k$ we calculate a weighted index for the materials component $I_{m_p}^t$ per reference project $p$:

$$I_{m_p}^t = \sum_{k=1}^{K} w_{k_p} * I_k^t \qquad (2)$$

Next, the material price indices per project $I_{m_p}^t$ are weighted with individual weights $w_p$ to one material index $I_m^t$. The weights are based on the number of dwellings finished reported to the CBS (statistics Gereedgekomen woningen).

$$I_m^t = \sum_{p=1}^{8} w_p * I_{m_p}^t \qquad (3)$$

## 3. Input price index new dwellings

The materials and wage components are averaged with the weights of wage $w_{l_p}$ and materials $w_{m_p}$ into a single input index per project $I_p^t$:

$$I_p^t = (w_{l_p} * I_l^t + w_{m_p} * I_{m_P}^t) \qquad (4)$$

Finally, the 8 partial total indices per project $I_p^t$ are weighted with weights based on the number of dwellings finished $w_p$. This gives the total input price index of new dwellings $I^t$:

$$I^t = \sum_{p=1}^{8} w_p * I_p^t \qquad (5)$$

**Publication**

The input price index new dwellings is calculated monthly and published on StatLine and in the Statistisch Bulletin. In the publication we provide not only the Input index total but also the indices of the materials and wage components separately.