

METHODOLOGICAL NOTE ON THE REVISION

**OF PRICE INDICES OF WORK CATEGORIES AND CONSTRUCTION
COSTS INDICES OF NEW RESIDENTIAL BUILDINGS**

Base year 2015 = 100.0

Piraeus, April 2019

Revised Price Indices of Work Categories and Construction Costs indices of New Residential Buildings (2015=100.0)

1. Price Indices in Construction of New Residential Buildings are quarterly indices and are included in Council Regulation 1165/98 in variables, as follows:

Price Indices of Work Categories in Construction of New Residential Buildings (part of variable 310 of Regulation 1165/98, output index). This index reflects the changes in prices paid to the constructors - contractors of the different individual construction stages of new residential buildings (e.g. concrete, wall-building, plastering, etc.).

Overall Costs Index for the Construction of New Residential Buildings (variable 320 of Regulation 1165/98, input index). This index reflects the changes of costs, the constructors are incurred, for the construction of a standardised building (apartment building) and is calculated on the basis of the materials prices and the labour remuneration paid by them. This index is thus compiled from two individual input price indices: i) the monthly Material Costs Index for the Construction of New Residential Buildings (variable 321 of Regulation 1165/98); which is reflecting changes in building materials prices and ii) the quarterly Price Index of Labour Remuneration or Labour Costs Index of New Residential Buildings (variable 322 of Regulation 1165/98); monitor the evolution of labour remuneration for the individual works performed for the raising of a new residential building construction.

2. For the calculation of the weighting coefficients of the indices in base year 2015, a survey to the construction companies in 2017 was carried out, concerning the structure of construction expenditure (input and output) for the years 2014-2015. However, the very limited response of the surveyed companies, which is associated with the contraction of building activity during this period, did not provide sufficient results that could be used for the representative structure of construction expenditure (input and output). Therefore, the weights for the base year 2015 were calculated on the basis of the respective indices of the previous revision (with base year 2010), in line with the rates of change in the individual indices for the period 2010-2015 and the adjustment of expenditure (input and output) at the 2015 prices.
3. The prices of the other individual works of the price index of work categories for new residential buildings are those which actually paid by the building contractors to the sub-contractors-constructors, when ordering each project. These prices cover the expenditure on materials and labour, fixed assets depreciation and additionally the profits. Since the contracts for the construction of parts of buildings are based on payment per unit of work, the prices refer to construction work units, such as m^2 , m^3 , piecework jobs, depending on the nature of the work. Prices are collected on a quarterly basis and they include all the prices for which contracts were concluded during the reference quarter.
4. Labour remuneration prices of the overall costs index in construction of new residential buildings, are the rates actually paid by construction enterprises to the technicians' crews which they employ. As the labour remuneration between the construction enterprise and the technicians' crew of a specific speciality is usually

agreed to get paid at piecework rates, these are the rates that are quarterly collected and refer to the contracts signed during the reference quarter.

5. About 323 technical construction enterprises and contractors are used as reporting units for the price indices of work categories and the labour remuneration.
6. The geographical coverage refers to the whole of the country, noting that prices are collected only from the biggest cities of Greece according to the census 2011 results: (Greater Athens, Thessaloniki, Patras, Herakleion, Larisa and Volos).
7. The price index of work categories records the price changes of 30 work categories, aggregated in 17 groups, and to achieve that, the total number of collected observations (work categories prices) amounted to approximately 511.
8. The labour remuneration index records price changes of 24 job categories, aggregated in 11 groups, and to achieve that, the total number of collected observations (labour remuneration prices) amounted to approximately 420.
9. The year 2015 was used as the base year for comparing index prices. The indices calculation started from the first quarter of 2019 onwards. Base prices were calculated by division of the current prices of the fourth quarter of 2018, with the corresponding adjusted price indices of the fourth quarter of 2018 in the base year 2015.
10. To record the prices and to process and calculate the indices, we used the Integrated Information System (IIS).
11. For the calculation of all the general indices - work categories, labour remuneration and overall cost - the variation of the Laspeyres formula was used, as follows:

$$I^{(t)} = \sum_{i=1}^n R_i^{(t)} \cdot w_i$$

where:

$I^{(t)}$: is the general price index of the current period (quarter, year t),

$R_i^{(t)}$: is the individual price index of the work category, the labour remuneration or the overall cost i in the current period t and

w_i : is the weight of the work category, the labour remuneration or the overall cost i ,

$w_i = \frac{x_i}{\sum_{i=1}^n x_i}$, x_i : the value of the work category, the labour remuneration or the overall cost i in 2015,

$i = 1,2,3...n$, where n number of work category, labour remuneration or overall cost.

The individual indicators $R_i^{(t)}$ of work categories i are the geometric means of the relevant labour remuneration prices from all reporting units, i.e.:

$$R_i^{(t)} = \left(\prod_{j=1}^{N_i} \frac{P_{ij}^{(t)}}{P_{ij}^{(0)}} \right)^{1/N_i}$$

whereas, the individual indicators $R_i^{(t)}$ of labour remuneration categories i are the simple arithmetic means of the relevant labour remuneration prices from all reporting units:

$$R_i^{(t)} = \frac{1}{N_i} \sum_{j=1}^{N_i} \frac{P_{ij}^{(t)}}{P_{ij}^{(0)}}$$

Where:

N_i : is the count of work category or labour remuneration prices i from all reporting units ,

$P_{ij}^{(t)}$: is price j of the reporting unit of the work category or the labour remuneration i for the current period t

$P_{ij}^{(0)}$: is the average annual price j of the reporting unit of the work category or the labour remuneration i in base year 0, the 2015.

12. Backdated calculations of the quarterly and annual individual indices for the period, 1st quarter of 2000 - 4th quarter of 2018, were adjusted calculated using the annual index of every individual work, labour category or overall cost index in the year 2015, according to the following type:

$$R_{i(2015)}^{(t)} = R_{i(2010)}^{(t)} * \frac{100}{\bar{R}_{i(2010)}^{(2015)}}$$

Where:

$R_{i(2015)}^{(t)}$: is the individual work, labour category or overall cost index i in the current period (quarter, year) t with 2015 as base year,

$R_{i(2010)}^{(t)}$: is the individual work, labour category or overall cost index i in the current period (quarter, year) t with 2010 as base year and

$\bar{R}_{i(2010)}^{(2015)}$: is the individual mean annual index of the work, labour category or overall cost index i in 2015, with 2010 as base year.

13. The tables below present the weighting coefficients after the revisions 2010=100 and 2015=100, as well as the individual annual indices per work, labour category or overall cost index i for the years 2010-2018, with base year 2015=100.0.

14. The methodological manual of Short-term Business Statistics, Interpretation and guidelines, including a comprehensive set of guidelines for the compilation of short-term statistics, is available into:

[Methodology of short-term business statistics - Interpretation and Guidelines](#)

a)Tables 1,2,3:Weighting Coefficients with base year 2010=100.0 and 2015=100.0

Table 1

COST INDEX IN CONSTRUCTION OF NEW RESIDENTIAL BUILDINGS

Code	Description	Weighting Coefficients	
		(2010=100.0)	(2015=100.0)
320	OVERALL COST INDEX		
321	Material costs index	60,76	62,38
322	Labour costs index	39,24	37,62

Table 2

PRICE INDEX OF WORK CATEGORIES

Code	Description	Weighting Coefficients	
		(2010=100.0)	(2015=100.0)
310	Overall Index of work categories		
1.1	Earth-moving	1.95	1.92
1	Earth-moving	1.95	1.92
2.1	Concrete reinforced or not	29.14	29.27
2	Concrete reinforced or not	29.14	29.27
3.1	Wall-building	6.34	6.20
3	Wall-building	6.34	6.20
4.1	Interior plastering	5.75	5.60
4.2	Exterior plastering	2.04	2.02
4	Plastering	7.79	7.62
5.1	Electrical installations	3.59	3.57
5	Electrical installations	3.59	3.57
6.1	Hydraulic installations	5.39	5.29
6	Hydraulic installations	5.39	5.29
7.1	Central heating installations	5.35	5.40
7	Central heating installations	5.35	5.40
8.1	Terrazzo flooring	0.13	0.13
8.2	Floor tiles	4.04	3.91
8.3	Marble facing of steps	1.43	1.45
8.4	Marble flooring	0.58	0.57
8.5	Wooden flooring	3.43	3.28
8.6	Cement mortars	0.82	0.83
8.7	Special facing materials	0.58	0.60
8.8	Coverings for flat concrete roofs	0.26	0.26
8.9	Cement flags	0.60	0.60
8	Coverings-Coatings	11.87	11.63
9.1	Carpentry	7.22	7.14
9	Carpentry	7.22	7.14
10.1	Iron and steel structures	2.98	3.06
10	Iron and steel structures	2.98	3.06
11.1	Aluminium structures	6.33	6.54
11	Aluminium structures	6.33	6.54
12.1	Distemper paints	0.03	0.03
12.2	Emulsion paints, plain	2.40	2.45
12.3	Emulsion paints, trowel-applied	2.87	2.87
12.4	Enamel paints	0.15	0.15
12	Painting	5.45	5.5
13.1	Insulation	1.39	1.45
13.2	Roof coverings	0.53	0.54
13	Insulation	1.92	1.99

14.1	Glazing	1.43	1.55
14	Glazing	1.43	1.55
15.1	Elevators	1.95	1.99
15	Elevators	1.95	1.99
16.1	Plaster structures	0.48	0.49
16	Plaster structures	0.48	0.49
17.1	Special installations without appliances and accessories	0.82	0.84
17	Special installations without appliances and accessories	0.82	0.84

Table 3

PRICE INDEX OF LABOUR REMUNERATION

Code	Description	Weighting Coefficients	
		(2010=100.0)	(2015=100.0)
322	Overall Index of labour remuneration		
1.1	Earth-moving	3.69	3.67
1	Earth-moving	3.69	3.67
2.1	Concrete reinforced or not	30.68	30.75
2	Concrete reinforced or not	30.68	30.75
3.1	Wall-building	11.90	11.70
3	Wall-building	11.90	11.70
4.1	Interior plastering	9.49	9.27
4.2	Exterior plastering	3.83	3.76
4	plastering	13.32	13.03
5.1	Electrical installations	4.81	4.85
5	Electrical installations	4.81	4.85
6.1	Hydraulic installations	4.85	4.70
6	Hydraulic installations	4.85	4.70
7.1	Central heating installations	4.56	4.83
7	Central heating installations	4.56	4.83
8.1	Terrazzo flooring	0.17	0.17
8.2	Floor tiles	4.68	4.60
8.3	Marble facing of steps	1.80	1.84
8.4	Marble flooring	0.64	0.64
8.5	Wooden flooring	4.39	4.25
8.6	Cement mortars	1.12	1.14
8.7	Special facing materials	0.32	0.34
8.8	Coverings for flat concrete roofs	0.47	0.48
8.9	Cement flags	0.67	0.68
8	Coverings-Coatings	14.25	14.14
9.1	Distemper paints	0.02	0.02
9.2	Emulsion paints, plain	4.15	4.28
9.3	Emulsion paints, trowel-applied	5.06	5.22
9.4	Enamel paints	0.26	0.27
9	Painting	9.49	9.79
10.1	Insulation	0.83	0.88
10.2	Roof coverings	0.31	0.31
10	Insulation	1.14	1.19
11.1	Plaster structures	1.31	1.35
11	Plaster structures	1.31	1.35

b) Tables 4,5,6: Annual indices for the years 2010-2018, with base year 2015=100.0

Table 4

COSTS INDEX IN CONSTRUCTION OF NEW RESIDENTIAL BUILDINGS

Code	Description	2010	2011	2012	2013	2014	2015	2016	2017	2018
320	Overall cost index	106.1	107.2	107.1	105.6	102.3	100.0	98.3	98.5	99.0
321	Material costs index	103.3	105.9	106.5	104.9	102.0	100.0	98.3	98.6	99.5
322	Labour costs index	110.6	109.4	108.2	106.8	102.9	100.0	98.5	98.3	98.2

Table 5

PRICE INDEX OF WORK CATEGORIES

Code	Description	2010	2011	2012	2013	2014	2015	2016	2017	2018
310	Overall Index of work categories	108.4	108.3	107.7	106.5	102.9	100.0	98.4	98.1	98.5
1.1	Earth-moving	110.3	110.0	109.7	108.2	103.5	100.0	98.1	97.9	98.5
1	Earth-moving	110.3	110.0	109.7	108.2	103.5	100.0	98.1	97.9	98.5
2.1	Concrete reinforced or not	107.9	107.6	107.1	105.9	102.8	100.0	98.3	98.7	99.6
2	Concrete reinforced or not	107.9	107.6	107.1	105.9	102.8	100.0	98.3	98.7	99.6
3.1	Wall-building	110.7	110.8	109.4	107.4	103.9	100.0	98.8	98.6	98.5
3	Wall-building	110.7	110.8	109.4	107.4	103.9	100.0	98.8	98.6	98.5
4.1	Interior plastering	111.3	110.2	108.7	107.3	103.8	100.0	98.6	97.2	96.7
4.2	Exterior plastering	109.6	108.4	108.1	106.9	103.8	100.0	98.8	98.4	98.5
4	Plastering	110.8	109.7	108.6	107.2	103.8	100.0	98.7	97.5	97.2
5.1	Electrical installations	109.0	109.5	108.9	108.1	103.7	100.0	97.3	96.9	97.2
5	Electrical installations	109.0	109.5	108.9	108.1	103.7	100.0	97.3	96.9	97.2
6.1	Hydraulic installations	110.4	110.7	110.0	108.7	104.1	100.0	97.7	96.8	96.6
6	Hydraulic installations	110.4	110.7	110.0	108.7	104.1	100.0	97.7	96.8	96.6
7.1	Central heating installations	107.3	107.4	107.2	106.4	103.3	100.0	98.7	99.2	99.3
7	Central heating installations	107.3	107.4	107.2	106.4	103.3	100.0	98.7	99.2	99.3
8.1	Terrazzo flooring	108.4	106.9	106.5	105.5	102.7	100.0	97.5	96.5	96.4
8.2	Floor tiles	112.0	111.0	107.8	106.4	103.1	100.0	97.7	96.7	97.3
8.3	Marble facing of steps	106.9	106.5	105.1	104.4	102.2	100.0	98.0	97.9	98.8
8.4	Marble flooring	110.2	109.5	107.9	106.5	102.5	100.0	98.4	98.4	99.2
8.5	Wooden flooring	113.3	112.3	111.0	108.5	103.2	100.0	97.5	97.9	99.0
8.6	Cement mortars	106.7	107.5	107.5	106.0	101.4	100.0	98.7	98.4	98.3
8.7	Special facing materials	105.2	105.1	104.7	104.1	101.5	100.0	98.8	98.1	98.0
8.8	Coverings for flat concrete roofs	107.5	107.4	105.9	104.8	102.1	100.0	98.1	97.4	97.0
8.9	Cement flags	109.1	108.4	107.2	105.5	101.9	100.0	98.1	97.5	97.3
8	Coverings-Coatings	110.6	109.9	108.1	106.5	102.7	100.0	97.9	97.5	98.2
9.1	Carpentry	109.6	110.0	109.2	107.4	103.4	100.0	98.2	97.2	97.2
9	Carpentry	109.6	110.0	109.2	107.4	103.4	100.0	98.2	97.2	97.2
10.1	Iron and steel structures	105.4	107.4	107.5	106.5	102.5	100.0	97.9	97.4	97.4
10	Iron and steel structures	105.4	107.4	107.5	106.5	102.5	100.0	97.9	97.4	97.4
11.1	Aluminium structures	104.8	107.0	107.6	106.1	101.7	100.0	98.4	98.1	98.7
11	Aluminium structures	104.8	107.0	107.6	106.1	101.7	100.0	98.4	98.1	98.7
12.1	Distemper paints	104.4	104.3	106.8	105.8	101.8	100.0	98.7	98.4	99.4
12.2	Emulsion paints, plain	106.3	105.0	106.9	105.8	102.6	100.0	98.8	97.8	98.5
12.3	Emulsion paints, trowel-applied	108.1	107.4	107.1	106.5	102.7	100.0	99.2	98.4	98.4
12.4	Enamel paints	108.3	107.4	107.8	106.8	102.2	100.0	98.7	97.6	97.5
12	Painting	107.3	106.3	107.1	106.2	102.6	100.0	99.0	98.1	98.4
13.1	Insulation	103.7	104.1	105.4	104.5	101.7	100.0	98.7	98.3	98.2
13.2	Roof coverings	107.0	107.0	106.7	105.3	102.0	100.0	98.0	97.6	97.1

13	Insulation	104.6	104.9	105.8	104.7	101.8	100.0	98.5	98.1	97.9
14.1	Glazing	100.1	100.9	101.4	101.5	100.4	100.0	99.5	99.2	100.6
14	Glazing	100.1	100.9	101.4	101.5	100.4	100.0	99.5	99.2	100.6
15.1	Elevators	106.2	106.3	106.1	104.7	100.9	100.0	99.5	99.3	99.2
15	Elevators	106.2	106.3	106.1	104.7	100.9	100.0	99.5	99.3	99.2
16.1	Plaster structures	107.0	105.6	104.5	103.6	101.4	100.0	99.9	99.5	99.5
16	Plaster structures	107.0	105.6	104.5	103.6	101.4	100.0	99.9	99.5	99.5
17.1	Special installations without appliances and accessories	105.7	105.1	103.9	103.1	100.7	100.0	98.4	98.1	97.8
17	Special installations without appliances and accessories	105.7	105.1	103.9	103.1	100.7	100.0	98.4	98.1	97.8

Table 6

PRICE INDEX OF LABOUR REMUNERATION

Code	Description	2010	2011	2012	2013	2014	2015	2016	2017	2018
322	Overall Index of labour numeration	110.6	109.4	108.2	106.8	102.9	100.0	98.5	98.3	98.2
1.1	Earth-moving	111.1	110.8	110.4	108.6	103.5	100.0	98.1	97.9	97.8
1	Earth-moving	111.1	110.8	110.4	108.6	103.5	100.0	98.1	97.9	97.8
2.1	Concrete reinforced or not	110.4	109.3	108.1	106.8	103.5	100.0	98.5	98.4	98.2
2	Concrete reinforced or not	110.4	109.3	108.1	106.8	103.5	100.0	98.5	98.4	98.2
3.1	Wall-building	112.6	111.0	109.6	107.0	103.4	100.0	98.4	98.7	99.1
3	Wall-building	112.6	111.0	109.6	107.0	103.4	100.0	98.4	98.7	99.1
4.1	Interior plastering	113.2	111.2	110.3	107.9	102.8	100.0	98.5	98.1	97.7
4.2	Exterior plastering	112.7	110.8	109.8	107.9	103.1	100.0	98.5	98.4	98.3
4	plastering	113.1	111.1	110.1	107.9	102.9	100.0	98.5	98.2	97.9
5.1	Electrical installations	109.6	109.9	108.8	107.9	102.9	100.0	97.8	97.5	97.3
5	Electrical installations	109.6	109.9	108.8	107.9	102.9	100.0	97.8	97.5	97.3
6.1	Hydraulic installations	114.1	112.9	110.8	109.2	104.2	100.0	98.2	97.8	97.6
6	Hydraulic installations	114.1	112.9	110.8	109.2	104.2	100.0	98.2	97.8	97.6
7.1	Central heating installations	104.4	104.4	103.7	103.7	101.6	100.0	99.1	100.2	100.2
7	Central heating installations	104.4	104.4	103.7	103.7	101.6	100.0	99.1	100.2	100.2
8.1	Terrazzo flooring	111.7	109.2	107.9	107.3	103.5	100.0	97.3	96.6	96.6
8.2	Floor tiles	112.5	110.1	107.9	106.5	102.3	100.0	97.8	95.9	95.5
8.3	Marble facing of steps	108.4	106.9	105.5	105.2	102.4	100.0	97.7	97.7	97.6
8.4	Marble flooring	111.4	110.3	108.7	107.9	102.6	100.0	98.8	98.2	98.3
8.5	Wooden flooring	114.0	112.5	110.2	108.0	102.8	100.0	98.5	98.5	98.9
8.6	Cement mortars	108.8	109.1	108.4	106.6	101.3	100.0	98.7	98.7	98.7
8.7	Special facing materials	104.1	104.1	103.4	102.9	100.8	100.0	98.8	98.4	98.4
8.8	Coverings for flat concrete roofs	109.4	109.7	106.6	105.0	101.5	100.0	98.8	98.1	97.4
8.9	Cement flags	109.7	108.6	105.3	104.3	102.0	100.0	98.4	97.9	97.4
8	Coverings-Coatings	111.6	110.0	108.0	106.6	102.3	100.0	98.2	97.5	97.4
9.1	Distemper paints	106.9	105.8	105.6	104.8	101.3	100.0	99.0	99.3	100.3
9.2	Emulsion paints, plain	107.2	105.6	105.4	104.8	101.2	100.0	99.1	98.1	98.6
9.3	Emulsion paints, trowel-applied	107.3	106.5	106.1	105.2	101.4	100.0	98.9	98.6	99.3
9.4	Enamel paints	108.1	107.3	107.0	105.9	101.3	100.0	99.0	98.9	99.5
9	Painting	107.3	106.2	105.8	105.1	101.3	100.0	99.0	98.4	99.0
10.1	Insulation	103.9	104.1	103.6	103.0	101.3	100.0	98.5	98.2	98.2
10.2	Roof coverings	109.5	109.3	106.8	104.9	101.7	100.0	98.4	98.3	97.9
10	Insulation	105.4	105.5	104.5	103.5	101.4	100.0	98.4	98.2	98.1
11.1	Plaster structures	107.0	105.2	104.5	103.5	100.8	100.0	99.9	99.4	99.4
11	Plaster structures	107.0	105.2	104.5	103.5	100.8	100.0	99.9	99.4	99.4