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## **CIRCULAR**

### **GUIDING FORMULATION AND MANAGEMENT OF COSTS OF INVESTMENT IN WORK CONSTRUCTION**

*Pursuant to the Decree No.17/2008/ND-CP dated 04/02/2008 of the Government stipulating the functions, tasks, powers and organizational structure of the Ministry of Construction;*

*Pursuant to the Decree No.112/2009/ND-CP dated 14/12/2009 of the Government on management of costs of investment in work construction,*

*Ministry of Construction guides some contents of Decree No.112/2009/ND-CP dated 14/12/2009 of the Government on management of costs of investment in work construction (hereinafter referred to as Decree No.112/2009/ND-CP) as follows:*

#### **Chapter I**

### **GENERAL PROVISIONS**

#### **Article 1. Scope of governing**

1. This Circular guides the formulation and management of investment costs for construction of work, including the total investment in construction of work (referred to as total investments), work construction cost estimates (work cost estimate), construction norms and the work construction cost of the projects using 30% of state funds or more, including state budget capital, official development assistance capital (ODA capital for short), capital of development investment credit of the state, the credit capital guaranteed by the state and other investment capital of the state.
2. For projects using ODA capital, if the international treaties of which Vietnam is a member providing for management of work construction investment costs other than the provisions hereof shall comply with the provisions in such treaties.

#### **Article 2. Subjects of application**

1. The organizations and individuals involved in the formulation and management of the work construction investment cost, inspection, examination, auditing and payment of work construction investment capital of the projects funded with 30% of state capital or more.
2. To encourage the organizations and individuals involved in the formulation and management of the work construction investment costs of the projects using less than 30% of state capital to apply this Circular.

#### **Article 3. Principles for formulation and management of work construction investment cost**

Principles of formulation and management of work construction investment costs are defined in Article 3 of Decree No.112/2009/ND-CP, in which the implementation of Clause 6 of this Article for inspection, examination and auditing of work construction investment costs must ensure the unity in principle, method and specific contents of the formulation and management of the total investment, work cost estimates, work construction norms, the price of work construction which have been decided on selection by the person who decides on investment, investor according to the provisions of Decree No.112/2009/ND-CP and the specific contents of this Circular.

## **Chapter II**

# **FORMULATION OF INVESTMENT COSTS OF WORK CONSTRUCTION**

## **Item 1. FORMULATION OF TOTAL INVESTMENT**

### **Article 4. The contents of total investment**

1. Total investment is the estimated costs to implement investment projects of work construction, is calculated and determined during the phase of formulation of investment project of work construction in accordance with the content of the project and basic design; the cases where only making economic - technical report, the total investment, at the same time is the work construction cost estimate shall be determined in accordance with the contents of the economic - technical report and design of construction drawing.

2. Total investment is one of the bases for evaluating economic efficiency and selection of investment method; as a basis for investor to plan and manage capital as the implementation of work construction investment.

3. The specific contents of the cost items in total investment prescribed in clause 3 of Article 4 of Decree No.112/2009/ND-CP as follows:

3.1. Construction costs include the cost of destruction and dismantling of work construction; construction premises leveling cost; construction cost of works, major works, temporary works, ancillary works for construction; costs for temporary housing at the site for staying and construction administration.

3.2. Equipment costs include the cost of purchasing technology equipment (including equipment and technology necessary to produce, process); training costs and transfer of technology, cost of installation, test, and calibration of equipment; costs of transportation, equipment insurance, taxes, fees and other related costs.

3.3. The cost of compensation, support and resettlement including compensation cost for homes, structures, crops and other compensation costs; the subsidies when the state recover land; costs for implementation of resettlement related to compensation for the clearance of the project; costs for organizing compensation, and resettlement assistance; and costs for land use during construction; the costs for technical infrastructure invested.

3.4. Costs of project management: are the necessary costs for the investors to organize management of the performance of project managements from project preparation, project implementation to completion, acceptance and handing over, putting the project into use, including:

- Cost for making investment reports, the cost for making investment projects or economic - technical reports;

- Cost for recruitment and selection of architectural design or selection of architectural design project;
- Cost for implementation of compensation, support, and resettlement of the responsibility of the investor;
- Cost for appraisal of investment projects or economic - technical reports;
- Cost for the formulation, evaluation or verification and approval of engineering design, drawings design of construction, work cost estimate;
- Cost for contractor selection in construction activity;
- Cost for management of quality, volume, schedule, and construction costs;
- Cost for assurance of safety and environmental hygiene of the work;
- Cost for setting up norms and unit prices of work construction;
- Cost for materials quality control, work quality inspection at the request of the investor;
- Cost for inspection and certification of eligible load-bearing safe assurance and certification of conformity on quality of the work;
- Cost for acceptance, payment, and settlement of agreement; payment and settlement of work construction investment capital;
- Cost for monitoring and evaluation of work construction investment projects;
- Cost for acceptance testing and handover of the work;
- Cost for commencement, inauguration, advertising propaganda;
- Cost for implementation of other managements.

### 3.5. Costs for construction investment consultancy include:

- Cost for making the task of construction survey;
- Cost for construction survey;
- Cost for making investment reports, project, or economic - technical reports;
- Cost for verifying the effectiveness and feasibility of the project;
- Costs for recruitment and selection of architectural design;
- Cost for work construction design;
- Cost for verification of engineering design, construction drawings design, the cost for verifying the total investment, work cost estimates;

- Cost for making request dossier, dossier for inviting preliminary selection and tender dossier and cost for analysis, assessment of proposal dossier, dossier of preliminary selection, bidding dossier for contractor selection in construction activity;

- Cost for construction survey supervision, construction supervision, equipment installation supervision;

- Cost for making report of environmental impact assessment;

- Cost for setting up to the construction norms, work construction unit prices;

- Cost for controlling work construction investment costs;

- Cost for management of work construction investment costs: the total investment, work cost estimates, construction norms, the unit price of work construction, contracts in construction activity, ...

- Cost for project management consultancy (in case of hiring consultants);

- Cost for specialized testing;

- Cost for materials quality control, work quality inspection at the request of the investor;

- Cost for inspection and certification of eligible load-bearing safe assurance and certification of conformity on quality of the work;

- Costs for monitoring and evaluation of investment projects for work construction (in case of hiring consultants);

- The cost of conversion of work construction investment costs to the time of handover, putting into use;

- The cost for implementing other consultancies.

3.6. Other costs: are the costs not belonging to the contents specified at points 3.1, 3.2, 3.3, 3.4, 3.5 above but necessary to carry out work construction investment projects, including:

- Cost for demining mines, bombs, explosives;

- cost for the work insurance;

- Cost for moving construction equipment and labor force to the construction site;

- Cost for international quality registration, work deformation observation;

- The cost of traffic safety assurance for work construction;

- Cost for reimbursement of infrastructure affected by construction;

- Cost of audit, verification, and approval of the settlement of investment capital;

- The cost of scientific and technological research related to project; the initial working capital for construction investment projects aimed at business, interest during construction; costs for the loading and idle trial run according to technology procedure before the handover other than the value of products recovered;

- The fees and charges as prescribed;

- Some other cost items.

3.7. Reserve costs include: reserve costs for the arising workload factors not yet anticipated as making the project and reserve costs for the drift of prices during the project implementation.

- Reserve costs for the arising workload factors are calculated by percentage (%) on the total construction costs, equipment cost, and costs of compensation, support, and resettlement, cost of project management, cost of construction investment consultancy, and other costs.

- Reserve costs for the drift of prices are calculated by the project implementation period (in year), schedule of annual capital allocation of the project and the construction price index.

4. For ODA-funded projects, in addition to the contents calculated in total investment as mentioned above, they are also added other necessary cost items to suit the nature and characteristics of the type of construction investment project funded by such capital source according to the concerned current legal documents.

## **Article 5. The method of making the total investment**

1. The methods of making the total investment specified in clause 1 of Article 5 of Decree No.112/2009/ND-CP are specifically instructed in Appendix 1 to this Circular. Investors, consultants making the work construction investment project are responsible for selecting the method of making total investment in accordance with the characteristics and requirements of the project.

2. If the investor has not got enough evidence to determine the cost of project management because of insufficient conditions to determine the total investment, but it needs to implement the preparatory works for the project, the investor makes cost estimate for this work to estimate the costs and implementation of work. The above cost would be included in the cost of the project management of the total investment.

3. Some cost items of cost for project management; cost of construction investment consultancy, and other costs of the project if it has not yet specified or not yet calculated immediately, is allowed to add and estimated to take into the total investment.

4. Construction price index used to calculate reserve cost for the drift of prices in the total investment is determined by calculating the average of construction price indexes of at least 3 latest years, consistent with the type of work, according to the construction area and the possibility of fluctuations of the cost factors, the regional and international price.

## **Item 2. FORMULATION OF WORK COST ESTIMATE**

### **Article 6. Contents of work cost estimate**

1. Work cost estimate is calculated and determined by the specific construction work, on the basis of the volume of work, engineering design, or construction drawings design, the work's tasks required to perform, work items and the system of work construction norms.
2. Work cost estimate is the basis for determining the bidding package price, work construction price, as a basis for negotiation, contracting, payments to the contractor in case of appointment.
3. Specific content of cost items in work cost estimates specified in clause 3 of Article 8 of Decree No.112/2009/ND-CP as follows:

3.1. Construction cost is determined for the work, work items, parts, part of the work, items for the main work, ancillary work, temporary work for construction, temporary housing for dwelling and construction administration.

Costs of temporary housing on the site for dwelling and construction administration are the costs for building temporary housing on the site or renting house or traveling for the dwelling and the construction administration of the contractor during the work construction.

Construction costs include direct costs, general costs; taxable income advance calculated and value added tax.

3.1.1. Direct costs include the cost of materials (including materials provided by the investor), labor costs, costs of construction machines and other direct costs. Other direct costs are the costs for the necessary works for constructing directly the work such as costs for moving the workforce within the construction site, occupational safety, environmental protection for laborers and surrounding environment, materials testing of the contractor and the irregular costs of pumping, dredging sludge and unable to be determined volume from the design.

3.1.2. General costs include the costs of enterprise's management, production administration on site, costs for workers, the cost for construction on site, and some other costs.

3.1.3. Taxable income advance calculated: is the profit of construction enterprise calculated advance in the work construction cost estimate.

3.1.4. Value Added Tax: is a tax payable under the provisions of the state and is calculated on the total value of the cost items in sections 3.1.1, 3.1.2 and 3.1.3 as mentioned above.

3.2. Equipment costs calculated for the work, work items include the cost of procurement of technological equipment (including technological equipment needed for production, processing); costs of training and technology transfer; cost of installation, testing and calibration of equipment and other concerned costs. Cost of procurement of equipment includes the purchasing price (including design costs and manufacturing supervision), transport costs from the port or place of purchase to the work, costs of storing, wharfing, storing containers at the ports of Vietnam (for imported equipment), costs for preservation and maintenance in storage at the site, tax and the premium for construction equipment.

3.3. Project management costs include the cost items as specified at point 3.4, clause 3, Article 4 of this Circular.

3.4. Cost of construction investment consultancy includes cost items as specified in point 3.5 clause 3 of Article 4 of this Circular.

For the projects with many works, the costs of construction investment consultancy of the work cost estimate include the cost of making investment reports, project, or economic - technical report; the cost of verifying effectiveness and feasibility of the project; cost of project management consultancy.

3.5. Other costs include cost items as specified in point 3.6 clause 3 of Article 4 of this Circular.

For the projects with many works, the other costs of work cost estimate do not include the cost of demining bombs, mines, explosives, cost of audit, verification and approval of the settlement of investment capital, costs for scientific and technological research related to the project; the initial working capital for construction investment projects aimed at business, interest during the construction; costs for the loading and idle trial run according to the technological process before handover (excluding the value of products recovered), the fees and charges.

3.6. Reserve costs include reserve costs for arising workload factors not yet anticipated and reserve costs for the drift of price during the work construction.

4. For the projects with many construction works, investor can determine the total cost estimate of the project to serve for the management of costs. The total cost estimate of project is determined by adding the cost estimates of the works and the related costs of the project.

5. For projects using ODA capital, work cost estimate can be determined by estimating the international bidding packages, estimating the domestic bidding packages and estimating the parts of work not organized bidding. Depending on the requirements and scope of the bidding, the cost estimates of the bidding package only include construction costs or including construction costs, equipment costs and other costs allocated to each bidding package as content in clause 1, clause 5, Article 7, clause 3, Article 16, clause 1, Article 17 and Appendix 6 of this Circular.

## **Article 7. Method of making work cost estimates**

### **1. Determination of the construction costs**

Construction costs can be determined according content of cost or synthesis of the contents of cost by one of the methods referred to in points 1.1, 1.2, 1.3, 1.4 below.

Consultant to make cost estimate of the project is responsible for selecting the method in accordance with the characteristics and requirements of the work and taking responsibility before the investor on the reasonableness and accuracy of the method of making the work cost estimate chosen by them. Investor based on the characteristics, nature, and specific conditions of the work to decide on the method of making estimate.

#### **1.1. By volume and work construction cost**

1.1.1. Costs of materials, laborers, construction machinery in direct costs are determined by volume and work construction unit price or general construction price of the work. The volume of construction work shall be determined from engineering design drawings or construction drawing design, the work's duties required to perform, work items in accordance with the list and the content of construction in the work construction unit price, general construction price of the work.

Work construction unit price and general construction price of the work is specified in Article 10 of this Circular.

Other direct costs are calculated in percentage (%) on the total material cost, labor costs, cost of construction machines depending on the characteristics and nature of each type of work as described in Table 3.7 Appendix 3 of this Circular.

For the works using ODA capital in international bidding, other direct costs shall be made in a separate item of construction costs and is determined by estimation or percentage, depending on the specific characteristics of each work and the requirements of the organization of international bidding.

1.1.2. General costs are calculated in percentage (%) on direct costs or by percentage (%) on labor costs in the estimates in accordance with provisions for each type of work as instructed in Table 3.8 Appendix 3 of this Circular.

If necessary, construction contractors must organize by themselves to exploit and produce materials of sand and rocks to serve the construction of works, general costs included in the price of materials is equal to 2.5% on labor costs and construction machines.

For the projects using ODA capital in international bidding, the general cost is determined by the percentage or by estimation or under international rules.

1.1.3. Advance calculated taxable income is calculated in percentage (%) on direct costs and general costs under the provisions for each type of work as instructed in Table 3.8 of Appendix 3 of this Circular.

If it is necessary to self-organize to exploit and produce materials of sand and rocks to serve the construction of works, the taxable income advance calculated in the material price is equal to the rate of 3% on direct costs and general costs.

1.1.4. Value Added Tax for construction work shall comply with current regulations.

1.1.5. Cost of temporary housing on site for dwelling and construction administration is calculated by the rate of 2% on the total direct costs, general costs, advance calculated taxable income for the works by routes such as the electricity transmission lines, postal communication lines, traffic roads, canals, pipelines, other line forms construction works and equal to 1% for the remaining works.

For the special cases (such as large-scale and complex works, works outside the island, the ODA-funded works in international bidding) if the cost item of temporary housing on construction site for dwelling and construction administration calculated by the above is not consistent, the investor bases on the real conditions for elaborating and approving this cost.

In case of the bid, the cost item must be included in the bidding package price, the tender price.

1.2. By volume of waste of materials, labor, construction machines, and table of price respectively.

1.2.1. Cost of materials, labor, construction machine in direct costs can be determined by volume of waste of materials, labor, construction machines, and table of price respectively. The total volume of waste of materials, labor, and construction machines shall be determined on the basis of waste of materials, labor, construction machines for each volume of the construction of work, work items.

Guidelines to determine the respective price table on the price of materials, labor, construction machines is in Article 11 of this Circular.

1.2.2. The method to determine other direct costs, general costs, advance calculated taxable income, value added tax, the cost of temporary housing on site for dwelling and construction administration is as guided at point 1.1 of this Article.

1.3. By the basis of works with the similar economic – technical criteria which was and is implemented.

Construction costs of the ancillary works, temporary works for construction, common and simple works can be determined based on construction costs of the works with the similar economic – technical criteria which was and is implemented and converted the cost items under construction location and time of making estimation.

The works with the similar economic – technical criteria are the construction works of the same type and same level of work, the similar size and capacity of the equipment line and technology (for production work).

1.4. By the ration of construction costs in the ration of work construction investment capital.

Construction cost for the works mentioned in point 1.3 above can also be determined on the basis of the area or capacity of use and ration of construction costs in the ration of work construction investment capital.

The methods of determining the construction cost in points 1.1, 1.2, 1.3 and 1.4 mentioned above are guided specifically in Appendix 3 of this Circular. For auxiliary works, temporary works for construction, temporary housing on site for dwelling and construction administration, the other simple, common works, the costs of the construction of the above works may be determined by the ratio cost norm.

## 2. Determination of equipment costs

2.1. Costs for purchase of equipment are determined by one of the following methods:

- For the equipment which can be determined its price can be calculated by the number and kind of each type of equipment or the whole technological line and price per ton, or piece or the entire of respective equipment line.
- For the equipment which has not been determined its price can be estimated according to quotation of the suppliers, manufacturers, or prices of similar devices on the market at the time of calculation or of the work with similar devices which was and is made.

For technological equipment required to be manufactured, processed, then this cost is determined on the basis of the volume of equipment required to be manufactured, processed and the price of production, processing per one ton (or one calculation unit) in accordance with the nature and type of equipment under the production, processing contract which has been signed or based on the quotation of processing product of the manufacturer selected by the investor or the price of producing and processing similar equipment of the work which was and is made.

2.2. The cost of training and technology transfer is determined by making cost estimate or estimation beforehand, depending on the specific requirements of each work.

2.3. Cost of equipment installation, testing, and calibration is determined by making cost estimate as for the construction cost estimates.

Where the equipment has been selected through bidding, equipment costs, including bidding price and the costs according to the contents above shall be stated in the contract.

### 3. Determination of the project management costs

Project management costs are determined on the basis of reference of ratio cost norm published by the Construction Ministry or by making cost estimate.

### 4. Determination of the cost of construction investment consultancy

The cost of construction investment consultancy is determined on the basis of reference of ratio cost norm published by the Construction Ministry or by making cost estimate under the guidance of the Ministry of Construction.

In case of works of the project required to hire foreign consultants to perform some works, the consultancy costs are estimated according to current regulations in accordance with the requirements of using consultants for the work or the value of the consultancy contract has been signed to record into the estimate.

### 5. Determination of other costs

Other costs are determined by making cost estimate or by ratio cost norm under the guidance of the Ministry of Construction and other concerned ministries, branches.

For some specialized construction works having the specific cost factors, ODA-funded works, if having any other concerned costs, they shall be added these costs. Investor decides on and takes responsibility for their decisions.

For some other costs which are not calculated right away, they are estimated to include into the work cost estimate.

### 6. Determination of reserve costs

- Reserve costs for the arising workload factor is calculated by percentage (%) on the total construction costs, equipment cost, cost of project management, cost of construction investment consultancy, and other costs.

- Reserve costs for drift of price is calculated by the work construction time (in months, quarters, years) and the construction price index in accordance with type of work, by each construction region.

Construction price index used to calculate reserve costs for drift of price in the work cost estimate is determined as specified in clause 4 of Article 5 of this Circular.

The method of determining the cost of equipment, project management cost, cost of construction investment consultancy and other costs, reserve costs referred to in clauses 2, 3, 4, 5, 6 of this Article and synthesis of work construction cost estimates are guided specifically in Appendix 2 of this Circular.

### **Item 3. FORMULATION OF CONSTRUCTION NORMS AND WORK CONSTRUCTION PRICES**

#### **Article 8. System of construction norms**

1. Construction norms include the economic - technical norms and ratio cost norms.
2. The economic - technical norms are the necessary waste level on materials, labor and construction machines to complete a unit of construction volume.

The economic - technical norms include: the norm of work construction cost estimates of construction, installation, survey, repair, materials testing, structures and building structures and other construction norms.

3. The ratio cost norm used to determine the cost of some types of works in the construction activities include the norm of project management cost, cost of construction investment consultancy, general costs and advance calculated taxable income, the cost of temporary housing on site for dwelling and construction administration and some other ratio cost norms.

#### **Article 9. The method of making construction norms**

1. Economic – technical norms are established in the following order:
  - Making a list of construction or structure of the work, showing the technical requirements, conditions, and primary construction methods and determining the appropriate calculation unit.
  - Determining the work components from the commencement to the completion, in accordance with technical requirements, conditions, construction methods, and scope to implement the work.
  - Calculating the waste of materials, labor, and construction machines.
  - Making the norms on the basis of the sum of waste of materials, labor, and construction machines.

The method of making the economic - technical norms is guided specifically in Appendix 5 of this Circular.

2. The ratio cost norm is done under the guidance of the Ministry of Construction.

#### **Article 10. Work construction price system and the work construction price index**

1. Work construction price system includes work construction unit prices and general construction price is used to set up, adjust the cost of construction in total investment, and work estimate.
2. Work construction unit price is the general economic – technical norm, including all direct costs of materials, labor and construction machines to complete a unit of volume of construction work of the specific construction work.
3. General construction price is economic – technical norm including all necessary costs to complete a group of type of construction, a structural unit, part of the work.

4. Construction price index is a norm reflecting the volatility of construction price over time and is the basis for the determination and adjustment of the total investment, work cost estimate, construction contract price, and management of work construction investment costs.

Price index of construction includes price index of work construction, the construction price index by the cost structure (including the construction price index, price index of equipment, the price index of other costs), the construction price index by cost factors (including price index of work construction materials, price index of work construction labors, price index of work construction machines) and the price index of type of major construction materials.

#### **Article 11. The method of making work construction price**

##### **1. The method of making the unit price of work construction**

1.1. Work construction unit prices are made on the basis of selection from the price level of the types of common construction formed on the regional market where the work is constructed; from the reference of work construction unit price system which has been published; from the construction unit price of the works which were and are built; from the norm system of work construction estimate and involved cost factors.

1.2. The method of making work construction unit prices based on the system of the norm system of work construction estimate and involved cost factors by market price is guided in Appendix 6 of this Circular.

##### **2. The method of setting prices general work construction**

2.1. General work construction price shall be made in groups of type of construction, structural units, or parts of the work on the basis of work construction unit prices which were determined according to the guidance in clause 1 of this Article.

2.2. The method of setting up general work construction price is guided in Appendix 6 of this Circular.

3. Method of determining construction price index is done under the guidance of the Ministry of Construction.

#### **Chapter 3**

### **MANAGEMENT OF WORK CONSTRUCTION INVESTMENT COSTS**

#### **Item 1. MANAGEMENT OF TOTAL INVESTMENT**

##### **Article 12. Appraisal and approval of total investment of work construction**

1. When setting up work construction investment project or economic - technical report for the cases not required setting up the project, the investor must determine the total investment to calculate the effectiveness of construction investment. Total investment recorded in the investment decision approved by the person who decides on investment is the maximum cost that the investor is allowed to use for work construction investment and is a basis for planning and capital management when performing work construction investment.

2. Contents and competence to appraise the total investment is specified in Article 6 of Decree No.112/2009/ND-CP.

The person who decides on the investment assigns the contact-point unit to organize the appraisal of total investment before the approval.

3. In case of hiring consulting organizations and individuals who are sufficient capacity, professional experience to appraise the total investment, the content of verification is as the content of appraisal; verification cost is determined on the basis the ratio cost norm or by making cost estimate under the guidance of the Ministry of Construction.

4. Results of the appraisal or verification of total investment is under the guidance in Appendix 7 of this Circular.

### **Article 13. Adjustment of the total investment**

1. Total investment is adjusted for one of the following cases:

- The effects of earthquakes, hurricanes, floods, tsunamis, fires, enemy-inflicts destruction or other force majeure events;
- Appearance of factors which may bring greater efficiency to the project;
- As the construction plan changes directly affecting the location, size and objectives of the project;

2. Content and competence of appraisal, approval of the total investment of adjustment are specified in clauses 2 and 3 of Article 7 of Decree No.112/2009/ND-CP.

In case of changing the structure of the cost item in total investment, including the use of reserve costs to adjust without exceeding the total approved investment, the investor is the right to decide on the adjustment; in case of exceeding the total approved investment, the investor reports to the person who decides the investment for review and decision.

3. The total adjusted investment is determined by total approved investment plus (or minus) total additional investment. The value of the total additional investment is defined as a separate cost and must held for appraisal or verification before deciding on approval.

## **Item 2. WORK COST ESTIMATE MANAGEMENT**

### **Article 14. Appraisal and approval of work estimates**

1. Content of appraisal and competence to decide and approve the work cost estimate are provided for in Article 10 of Decree No.112/2009/ND-CP.

2. Investor shall hold the appraisal of work cost estimate. In case of hiring organizations and individuals that are eligible consulting capacity, professional experience to verify work cost estimate, the content of verification is like content of appraisal of the investor; verification cost is determined on the basis of the ratio cost norms or by making cost estimate under the guidance of the Ministry of Construction.

3. Results of the appraisal or verification of the work cost estimate is under the guidance in Appendix 7 of this Circular.

#### **Article 15. Adjustment of work cost estimate**

1. Work cost estimate is adjusted for one of the following cases:

- The cases prescribed in Clause 1 of Article 13 of this Circular;
- The cases which are allowed to change and supplement design not contrary to the basic design or change structure in cost estimates, but not exceeding the total approved investment, including reserve costs.

2. Adjusted work cost estimate is determined by work cost estimates which is approved plus (or minus) the additional work cost estimate.

3. The investor is responsible for organizing the appraisal or verification and approval of adjusted work cost estimate.

4. Adjusted work cost estimate is the basis for adjusting contract price, bidding package price, and adjusting the total investment.

Method of determining the additional work cost estimate is guided in Appendix 4 of this Circular.

#### **Item 3. CONSTRUCTION NORM MANAGEMENT AND WORK CONSTRUCTION PRICE**

##### **Article 16. Management of construction norms**

1. The Ministry of Construction

Ministry of Construction makes the unified state management of work construction investment cost, publicizes work construction norms for concerned agencies, organizations, and individuals to consult and use in making and managing cost of work construction investment.

2. The ministries and provincial-level People's Committees

The ministries and provincial-level People's Committees based on the method of setting norms under the guidance in Appendix 5 of this Circular to organize the formulation and publication of norm for the particular construction of the Ministry, localities where have not got the system of construction norm published by the Construction Ministry and annually send to the Ministry of Construction for monitoring and management.

3. Investors, contractors and consulting organization

3.1. Investors, contractors and consulting organizations based on the method of setting norms under the guidance in Appendix 5 of this Circular to organize the adjustment for the norms which have been announced but not appropriate with measures, construction conditions, technical requirements of the work, set the norms which are not yet had in the system of norms published in clause 1 of this Article or apply similar norms which were and are used in other works to apply for the work.

3.2. The investor can hire consulting organization that is eligible capacity, professional experience to make, adjust, and verify the above-mentioned construction norms and the consulting organization is responsible for the reasonableness and accuracy of the norms which have made.

3.3. The investor decides the application of construction norms publicized or to adjust, set up newly for formulation and management of the work construction investment cost.

3.4. In case of using the above norms to be adjusted or newly set as above mentioned to make the construction unit prices in the bidding package using the state budget applying the form bidding appointment, the investor informs the person who decides on the investment for review and decision. In particularly, the construction works of the investment project decided by the Prime Minister shall be decided by the Minister of branch management, Chairmen of Provincial-level People's Committees. Dossier to submit for approval of norms which were adjusted or newly set is under the guidance in Appendix 8 of this Circular.

For the bidding packages using ODA capital in international bidding, if it is used applied norms of foreign countries for a number of specific construction to make unit price and work construction cost estimate, the these norms must conform to technical requirements, methods of construction, the construction conditions of the work and accepted in advance by the investor.

## **Article 17. Management of work construction price**

### **1. Ministry of Construction**

Ministry of Construction guides the construction methods and announces the construction price index, capital of work construction investment for the concerned agencies, organizations, and individuals to consult and use in the formulation and management of work construction investment costs.

### **2. Provincial-level People's Committees**

Provincial-level People's Committees direct and assigns to the Department of Construction to preside over and coordinate with the relevant departments based on the guidance of this Circular and the change of price of localities to organize the determination and timely publication of system of work construction price, material price, labor price, machine-shift price and common construction equipment as the basis for consulting in the formulation and management of work construction investment costs.

### **3. The investor and consulting organization**

Investor and consulting organization based on technical requirements, construction conditions and measures for specific construction of the work and the method of making unit price of work construction, general construction price under the guidance of Appendix 6 of this Circular to organize the formulation of work construction unit price, general construction price for use as a basis for determining the total investment, work cost estimate.

The investor may hire consulting organizations and individuals that are eligible capabilities and professional experience to perform the works or part of the work involved in setting up or verifying work construction unit prices and general construction price, work construction price index under the method of setting up price index published by the Construction Ministry. The consulting organizations and individuals are responsible before the investor and the law in ensuring the reasonableness and accuracy of the work construction unit prices, general construction price and construction price index made by them.

For the construction unit prices in the estimate of international bidding package, the investor is responsible for examining or hiring a consultant that is eligible capability and professional experience to verify the reasonableness and accuracy of the construction unit price before use.

#### 4. Construction contractors

Construction contractors manage work construction price as defined in Article 27 of Decree No.112/2009/ND-CP.

### Chapter 4

## IMPLEMENTATION PROVISIONS

### Article 18. Transitional handling

The implementation of the formulation and management of construction investment costs in the transitional period is provided for in Article 34 of Decree No.112/2009/ND-CP.

### Article 19. Effect

1. This Circular takes effect from 15/07/2010 and replaces Circular No.05/2007/TT-BXD on 25/7/2007 the Ministry of Construction guiding the formulation and management of work construction investment costs, Circular No.18/2008/TT-BXD dated 06/10/2008 of Ministry of Construction guiding some additional methods of determining the construction cost in work construction estimate into the Circular guiding formulation and management of the work construction investment costs No.05/2007/TT-BXD dated 25/07/2007 the Ministry of Construction.
2. During the implementation process if any problems arise, organizations and individuals send their opinions to the Ministry of Construction for review and settlement.

**FOR MINISTER  
DEPUTY MINISTER**

**Tran Van Son**

## APPENDIX 1

### METHOD OF SETTING TOTAL INVESTMENT

*(Attached to Circular No.04/2010/TT-BXD dated 26/5/2010 of the Ministry of Construction)*

Total investment calculated and determined in the phase of making the project pf work construction investment (feasibility report) or the technical and economic report is by one of the following methods:

#### 1. Method of determination by the basic design of the project

Total investment in the work construction project is calculated as follows:

$$V = G_{XD} + G_{TB} + G_{BT, TDC} + G_{QLDA} + G_{TV} + G_K + G_{DP} \quad (1.1)$$

In particular:

- V: total investment of the project of work construction investment;
- $G_{XD}$ : construction costs;
- $G_{TB}$ : equipment costs;
- $G_{BT, TDC}$ : costs for compensation and resettlement assistance;
- $G_{QLDA}$ : project management costs;
- $G_{TV}$ : the cost of construction investment consultancy;
- $G_K$ : other costs;
- $G_{DP}$ : the reserve cost.

### **1.1. Determination of the construction costs**

Construction costs of the project ( $G_{XD}$ ) equal to the total construction cost of the works, work items under the project are determined by the following formula:

$$G_{XD} = G_{XDCT1} + G_{XDCT2} + \dots + G_{XDCTn} \quad (1.2)$$

In particular:

- n: number of works, work items under the project.

Construction cost of the work, work items defined by the following formula:

$$(1.3)$$

In particular:

- $Q_{XDj}$ : workload of major construction or  $j^{\text{th}}$  major structural parts of the work, work items under the project ( $j = 1 \div m$ ) ;
- $Z_j$ : unit prices of major construction or unit prices by the  $j^{\text{th}}$  major structural parts of the work. Unit price may be the complete unit price of work construction or complete general construction price (including direct costs and general costs, advance calculated taxable income). Where  $Z_j$  is the incomplete unit price of work, the construction costs of work, work items are synthesized in Table 3.1 of Appendix 3 to this Circular;

-  $G_{QXDK}$ : construction costs of other jobs or the other remaining structural parts of work, work items are estimated in percentage (%) on the total construction cost of the major construction or total construction cost of the major structural parts of the work, work items.

Depending on each type of construction work, it is estimated the percentage (%) of the construction costs of other jobs or the other remaining structural parts of work, work items.

-  $T^{GTGT\_XD}$ : tax rate of value added tax provided for construction.

## **1.2. Determination of equipment costs**

Based on the specific conditions of the project and sources of information and obtained data, it may be able to use one of the following methods to determine the equipment costs of the project:

1.2.1. Where the projects have sources of information, detailed data on the technological line, number, type, and value of each device or the value of entire line of technology and price per ton, per piece or entire respective equipment line, the equipment costs of the project ( $G_{TB}$ ) is equal to the total cost of equipment of the works under the project.

Work equipment costs shall be determined by the method of estimation described in Item 2 of Appendix 2 of this Circular.

1.2.2. Where the projects have information on synchronous offering prices of equipment, technological line (including the costs referred to in point 3.2, clause 3, Article 4 of this Circular) of the manufacturers or equipment suppliers, equipment costs ( $G_{TB}$ ) of the project can be obtained directly from the quotation or the offering price of synchronous equipment.

1.2.3. Where a project has only information, general data on capacity, technical characteristics of the line of technology and equipment, the equipment costs can be determined by capacity factor of cost, equipment calculated for a capacity unit or the service capacity of the works, and is determined by the formula (1.8) in Item 2 of this Appendix or estimated according to quotation of the suppliers, manufacturers or price of the similar equipment on the market at the time of calculation or of the works with similar devices which were and are made.

## **1.3. Determination of the cost of compensation, resettlement support**

The cost of compensation, support of resettlement ( $G_{BT, TDC}$ ) is determined by volume required to pay compensation and of resettlement of the project and the current regulations of the state on price of compensation and resettlement in the locality where the construction site locates, which has been approved or issued by the competent authority.

## **1.4. Determination of project management cost, construction investment consultancy cost and other costs**

Project management cost ( $G_{QLDA}$ ), the cost of construction investment consultancy ( $G_{TV}$ ) and other costs ( $G_K$ ) is determined by estimation or by the ratio cost norm like items 3, 4, 5 of Appendix 2 of this Circular. Total these costs (excluding interest during project implementation and initial working capital) can also be estimated from 10÷ 15% of total construction costs and equipment cost of the project.

Depending on specific conditions, progress of implementation and plan of capital allocation of each project to determine initial working capital ( $V_{LD}$ ) (for the projects of production and business) and interest in the project implementation period ( $L_{Vay}$ ) (for the projects using loans).

### 1.5. Determination of reserve costs

Reserve costs ( $G_{DP}$ ) are determined by the sum of reserve costs for arising workload factors ( $G_{DP1}$ ) and reserve costs due to the drift of price ( $G_{DP2}$ ) by the formula:

$$G_{DP} = G_{DP1} + G_{DP2} \quad (4.1)$$

Reserve costs for arising workload factors  $G_{DP1}$  are determined by the following formula:

$$G_{DP1} = (G_{XD} + G_{TB} + G_{BT, TDC} + G_{QLDA} + G_{TV} + G_K) \times K_{ps} \quad (1.5)$$

In particular:

-  $K_{ps}$ : reserve coefficient for the arising workload is 10%.

Particularly in case of only making economic - technical report, the reserve coefficient for the arising workload  $K_{ps} = 5\%$ .

When calculating the reserve costs due to drift of price ( $G_{DP2}$ ), it should be based on the duration of project implementation and progress of capital allocation, the change of price on the market during the project implementation and construction price index for each type of work and construction area. Reserve costs due to drift of price ( $G_{DP2}$ ) is determined by the following formula:

$$(1.6)$$

In particular:

-  $T$ : the duration of work construction project implementation (year);

-  $t$ : year of capital allocation for project implementation ( $t = 1 \div T$ );

-  $V_t$ : investment capital expected to make in the  $t^{\text{th}}$  year;

-  $L_{V_{ayt}}$ : interest cost of investment capital expected to make in the  $t^{\text{th}}$  year.

-  $I_{XDCTbq}$ : the average level of drift of price based on the average price index of work construction by type of work of at least 3 latest years compared to the time of calculation (not counting the time of irregular fluctuation on price of raw materials, fuel and building materials);

: Volatility forecast level of the cost factors, the regional and international price compared with the annual average drift of price calculated.

### 2. The method of calculation by the area or production capacity, service capacity of the work and general construction cost, work construction investment capital ratio.

In case of determining the total investment by the area or production capacity, service capacity of the work, it may use the ratio norm of construction cost ( $S_{XD}$ ) and the ratio of equipment cost ( $S_{TB}$ )

or price of general construction to calculate the construction investment cost for each work under the project and the total investment is determined by the formula (1.1) in Item 1 of this Appendix.

### **2.1. Determination of the construction costs**

Construction costs of the project ( $G_{XD}$ ) by the total construction cost of the works, work items under the project are determined by the formula (1.2) in Item 1 of this Appendix. Construction cost of the work, work items ( $G_{XDCT}$ ) is determined by the following formula:

$$G_{XDCT} = S_{XD} \times N + C_{CT-SXD} \quad (1.7)$$

In particular:

- $S_{XD}$ : the ration of construction cost calculated for a unit of production capacity, service capacity or general construction unit price calculated for a unit of area of the work, work items under the project;
- $C_{CT-SXD}$ : the cost items not included in the ration of construction cost or not included in the general construction unit price calculated for a unit of area or a unit of capacity, service capacity of the work, work items under the project;
- $N$ : area or production capacity, service capacity of the work, work items under the project.

### **2.2. Determination of equipment costs**

Equipment cost of the project ( $G_{TB}$ ) is equal to the total costs of equipment of the works under the project. Equipment costs of the work ( $G_{TBCT}$ ) are determined by the following formula:

$$G_{TB} = S_{TB} \times N + C_{CT-STB} \quad (1.8)$$

In particular:

- $S_{TB}$ : Equipment cost ratio calculated for a unit of area or a unit of capacity, service capacity of the work under the project;
- $C_{CT-STB}$ : the cost items not included in the Equipment cost ratio of the work under the project.

### **2.3. Determination of other costs**

Other costs include the cost of compensation and resettlement assistance, project management cost, construction investment consultancy costs, other costs and reserve cost are determined as guided at point 1.3, 1.4 and 1.5 of Item 1 of this Appendix.

## **3. Method of determination by data of the project with the construction work which has similar economic – technical norms which have been made.**

The construction works which have similar economic – technical norms are the construction works of the same type and level of work, size, and the similar capacity of the line of technology (for the work of production).

Depending on the nature and characteristics of the construction works having similar economic – technical norms which have been made and the level of information source and data of the work can use one of the following methods to determine the total investment:

3.1. In case of having sufficient information and data on work construction investment costs, construction work items having similar economic – technical norms which have been made, the total investment is determined by the following formula:

$$(1.9)$$

In particular:

- n: number of similar works which have been made;
- i: number of similar works which have been made;
- $G_{CTTTi}$ : construction investment costs of work and  $I^{th}$  made similar work items of the investment project ( $i = 1 \div n$ );
- $H_i$ : the coefficient of conversion to the time to set up work construction investment project;
- $H_{kv}$ : coefficient of conversion to the construction site of project;
- $C_{CT-CTTTi}$ : the costs are not included or have been included in construction investment costs of work and  $I^{th}$  made similar work items.

Where adding ( $+G_{CT-CTTTi}$ ) the necessary costs of the project which are calculated but not included in the construction investment costs of work, work items of the similar project. In case of reduction ( $-G_{CT-CTTTi}$ ) the costs calculated in the construction investment costs of work, work items of the similar project but inappropriate or unnecessary for the project which is calculated.

3.2. Where the source of data on construction investment costs of work, work items having similar economic – technical norms which have been made can only be determined the cost of construction and equipment cost of the works, it should converse these costs to the time of the project formulation. On the basis of such construction cost and equipment cost which were conversed, the costs of compensation and resettlement assistance, project management cost, cost of construction investment consultancy and other costs and reserve costs are determined similar to the guidance at point 1.3, 1.4 and 1.5 of Item 1 of this Appendix.

#### **4. Combining method to determine the total investment**

For the project with many works, depending on conditions, the specific requirements of the project and the obtained data sources can apply in combination with the above methods to determine the total investment of project of work construction investment.

## **APPENDIX 2**

THE METHOD OF WORK COST ESTIMATE FORMULATION  
(Attached to Circular No.04/2010/TT-BXD dated 26/5/2010 of the Ministry of Construction)

Work cost estimate is determined on the basis of engineering design or construction drawing design. Work cost estimate includes construction cost ( $G_{XD}$ ); equipment cost ( $G_{TB}$ ), project management cost ( $G_{QLDA}$ ); cost of construction investment consultancy ( $G_{TV}$ ); other costs ( $G_K$ ) and reserve cost ( $G_{DP}$ ).

Work cost estimate is determined by the following formula:

$$G_{XDCT} = G_{XD} + G_{TB} + G_{QLDA} + G_{TV} + G_K + G_{DP} \quad (2.1)$$

Work cost estimate is synthesized in Table 2.1 of this Appendix.

### 1. Determination of the construction costs ( $G_{XD}$ )

Construction cost of work, work items, parts, part of work, construction can be determined by each cost content or general cost contents according to one of the methods guided in Appendix No. 3 of this Circular.

### 2. Determination of equipment costs ( $G_{TB}$ )

Equipment costs include the cost of purchasing technological equipment (including technological equipment necessary to produce, process); training costs and technology transfer; costs for equipment installation and testing and calibration are determined by the following formula:

$$G_{TB} = G_{MS} + G_{DT} + G_{LD} \quad (2.2)$$

in particular:

- $G_{MS}$ : the cost of purchasing technological equipment;
- $G_{DT}$ : the cost of training and technology transfer;
- $G_{LD}$ : the cost of equipment installation, testing, and calibration.

**2.1. Cost of purchasing technological equipment** is determined by the following formula:

$$(2.3)$$

in particular:

- $Q_i$ : the volume or the number of  $i^{th}$  equipment (equipment group) ( $i = 1 \div n$ );
- $M_i$ : price per a unit of volume or a unit of the number of  $i^{th}$  equipment (equipment group) ( $i = 1 \div n$ ), is determined by the formula:

$$M_i = G_g + C_{vc} + C_{lk} + C_{bq} + T$$

in particular:

- $G_g$ : equipment price at the purchase place (place of manufacture, fabrication or supply of equipment in Vietnam) or the price calculated to Vietnam port (for imported equipment) has included the costs of design and fabrication supervision;
- $C_{vc}$ : transportation cost per a unit of volume or a unit of the number of equipment (equipment group) from the place of purchase or from the port of Vietnam to the work;
- $C_{lk}$ : costs of storing warehouse, wharf, containers per a unit volume or a unit of the number of equipment (equipment group) in Vietnam's ports for imported equipment;
- $C_{bq}$ : the cost of preservation and maintenance per a unit volume or a unit of the number of equipment (equipment group) in site;
- $T$ : taxes and fees of insurance, inspection of equipment (equipment group);
- $T_i^{GTGT-TB}$ : tax rate of value added tax provided for the type of  $I^{th}$  equipment (equipment group) ( $i = 1 \div n$ ).

For equipment not determined its price, it may be estimated by the quotation of supplier, manufacturer or price of similar equipment on the market at the time of the calculation or of the work having similar equipment which was and is made.

For types of technological equipment required to be manufactured, processed, then this cost is determined on the basis of volume of equipment required to be manufactured, processed and its price per one ton (or one calculation unit) consistent with the nature and type of equipment under contract of manufacturing, processing has been signed or based on quotation of processing the products of the manufacturer selected by investor or the price of production, processing of the similar equipment of the work which was and is done.

**2.2. The costs of training and technology transfer** are calculated by making cost estimate or advance calculation, depending on the specific characteristics of each project.

**2.3. Costs of equipment installation, testing, and calibration** are estimated as to the construction cost.

Equipment cost is synthesized in Table 2.2 of this Appendix.

### **3. Determination of the project management cost ( $G_{QLDA}$ )**

Project management cost is determined by the following formula:

$$G_{QLDA} = T \times (G_{XDtt} + G_{TBtt}) \quad (2.5)$$

In particular:

- $T$ : the ration norm (%) for project management cost;
- $G_{XDtt}$ : pre-tax construction cost;
- $G_{TBtt}$ : pre-tax the equipment cost.

#### 4. Determination of the cost of construction investment consultancy ( $G_{TV}$ )

Cost of construction investment consultancy is determined by the following formula:

$$(2.6)$$

In particular:

- $C_i$ : the  $i^{th}$  cost of construction investment consultancy based on the ratio norm ( $i=1 \div n$ );
- $D_j$ : the  $j^{th}$  cost of construction investment consultancy calculated by making cost estimation ( $j=1 \div m$ );
- $T_i^{GTGT-TV}$ : tax rate of value added tax in accordance with current provisions for  $i^{th}$  cost items of construction investment consultancy based on the ratio norm;
- $T_j^{GTGT-TV}$ : tax rate of value added tax in accordance with current provisions for  $j^{th}$  cost items of construction investment consultancy calculated by making cost estimation.

#### 5. Determination of other costs ( $G_K$ )

Other costs are determined by the following formula:

$$(2.7)$$

In particular:

- $C_i$ :  $i^{th}$  other costs calculated by the ratio norm ( $i=1 \div n$ );
- $D_j$ :  $j^{th}$  other costs calculated by making cost estimate ( $j=1 \div m$ );
- $E_k$ :  $k^{th}$  concerned other costs ( $k=1 \div l$ );
- $T_i^{GTGT-K}$ : tax rate of value added tax in accordance with current provisions for  $i^{th}$  other cost items calculated by the ratio norm;
- $T_j^{GTGT-K}$ : tax rate of value added tax in accordance with current provisions for  $j^{th}$  other cost items calculated by making cost estimation.

#### 6. Determination of reserve costs ( $G_{DP}$ )

Reserve costs are determined by two factors: reserve cost for arising workload element and reserve cost for the drift of price.

Reserve costs are determined by the following formula:

$$G_{DP} = G_{DP1} + G_{DP2} \quad (2.8)$$

In particular:

-  $G_{DP1}$ : reserve cost for arising workload element is determined by the formula:

$$G_{DP1} = (G_{XD} + G_{TB} + G_{QLDA} + G_{TV} + G_K) \times K_{ps} \quad (2.9)$$

$K_{ps}$  is a reserve coefficient for the volume of arising workload as 5%.

-  $G_{DP2}$ : reserve cost for the drift of price is determined as for reserve cost for the drift of price in the total investment in the formula (1.6) of Appendix 1, in which  $V_t$  is the work cost estimate level before reserve cost.

Time to calculate reserve cost for the drift of price in the work cost estimate is the time to construct work and is calculated by month, quarter, year.

Table 2.1. SYNTHESIS OF COST ESTIMATES OF WORK

Date ..... month..... year .....

Work:

Calculation unit: dong

No.	CONTENTS OF COSTS	BEFORE TAX VALUE	VAT	AFTER TAX VALUE
[1]	[2]	[3]	[4]	[5]
1	Construction cost			$G_{XD}$
2	Equipment cost			$G_{TB}$
3	Project management cost			$G_{QLDA}$
4	Construction investment cost			$G_{TV}$
4.1	Costs for recruitment examination, selection of architecture design			
4.2	Cost for work construction design			
.....	.....			
5	Other costs			$G_K$
5.1	Cost for demining mine, bomb, explosives			
5.2	Cost for work insurance			
.....	.....			
6	Reserve costs ( $G_{DP1} + G_{DP2}$ )			$G_{DP}$

6.1	Reserve costs for arising volume factors			<b>G<sub>DP1</sub></b>
6.2	Reserve costs for factors of drift of prices			<b>G<sub>DP2</sub></b>
	<b>TOTAL ( 1+ 2 + 3 + 4 + 5+ 6)</b>			<b>G<sub>XDCT</sub></b>

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Table 2.2. SYNTHESIS OF EQUIPMENT COSTS

*Date ..... month..... year .....*

Work:

*Calculation unit: dong*

No.	CONTENTS OF COSTS	BEFORE TAX VALUE	VAT	AFTER TAX VALUE
[1]	[2]	[3]	[4]	[5]
<b>1</b>	<b>Costs for equipment procurement</b>			
1.1	.....			
1.2	.....			
<b>2</b>	<b>Costs for training and technology transfer</b>			
<b>3</b>	<b>Costs for installing equipment and testing, calibration</b>			
	<b>TOTAL</b>			<b>G<sub>TB</sub></b>

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**PRESIDER**

(Sign, full name)

(Sign, full name)

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rank ....., No. ....

## **APPENDIX 3**

### **METHOD TO DETERMINE CONSTRUCTION COSTS**

*(Together with Circular No.04/2010/TT-BXD dated 26/5/2010 of Ministry of Construction)*

Construction cost is determined to work, work items, parts, part of work, working parts of the work, work items for the main works, ancillary works, temporary works for construction, temporary housing for dwelling and construction administration by one of the following methods:

#### **1. The method of calculation by the volume and price of work construction**

##### ***1.1. Determination by the volume and unit price of work construction***

1.1.1. The volume of constructions shall be determined from engineering design drawings or construction drawings design, from requirements and tasks required to perform of the work, work items in accordance with the list and contents of constructions in the work construction unit price.

1.1.2. The work construction unit price may be the incomplete one (including material costs, labor costs, costs of construction machines) or the complete unit one (including material costs, labor costs; cost of construction machines, other direct costs, general expenses and advance calculated taxable income).

The method of forming the work construction unit price is guided in Appendix 6 of this Circular.

##### ***1.2. Determination by the volume and general construction price***

1.2.1. The volume of constructions used to determine the construction costs as the work construction prices is determined from engineering design drawing or construction drawing design and tasks required to be performed of the work, work items and synthesized from a group of constructions to form a structural unit or parts of the work.

1.2.2. General construction price is set corresponding to the list and contents of volume, group, type of constructions, structural units or parts of the work.

General construction price may be the incomplete one (including material costs, labor costs, costs of construction machines) or the complete one (including material costs, labor costs; cost of construction machines, other direct costs, general expenses and advance calculated taxable income) established on the basis of unit prices of work construction and synthesized according to Table 3.3 of this Appendix.

The method of making general construction price is guided in Appendix 6 of this Circular.

\* Construction cost calculated by volume and incomplete work construction unit price and incomplete general construction price is determined and synthesized according to Table 3.1 below.

Table 3.1. SYNTHESIS OF ESTIMATE OF CONSTRUCTION COSTS CALCULATED BY INCOMPLETE WORK CONSTRUCTION UNIT PRICE AND INCOMPLETE GENERAL CONSTRUCTION PRICE

Date ..... month..... year .....

The work:

Unit: VND

No.	CONTENT OF COSTS	CALCULATION METHOD	VALUE	SIGNS
I	DIRECT COSTS			
1	Cost of materials			VL
2	Labor cost			NC
3	Cost of construction machines			M
4	Other direct costs	$(VL+NC+M) \times \text{rate}$		TT
	<b>Direct costs</b>	$VL+NC+M+TT$		T
II	GENERAL COSTS	$T \times \text{rate}$		C
III	ADVANCE CALCULATED TAXABLE INCOME	$(T+C) \times \text{rate}$		TL
	<b>Before-tax construction cost</b>	$(T+C+TL)$		G
IV	VAT	$G \times T^{\text{GTGT-XD}}$		GTGT
	<b>After-tax construction cost</b>	$G + \text{GTGT}$		$G_{XD}$
V	Cost of temporary housing for dwelling and construction administration	$G \times \text{rate} \times (1+\text{GTGT})$		$G_{XDNT}$
	<b>Total</b>	$G_{XD} + G_{XDNT}$		

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In particular:

+ Where the cost of materials, labor, construction machines is determined by volume and incomplete general construction price:

-  $Q_j$  is the volume of a group of works list or a structure unit,  $j^{\text{th}}$  part of the work;

-  $D_j^{\text{vl}}$ ,  $D_j^{\text{nc}}$ ,  $D_j^{\text{m}}$  is the cost of materials, labor, construction machines in general construction price of a group of works list or a structure unit,  $j^{\text{th}}$  part of the work;

+ Where the cost of materials, labor, construction machines is determined on the basis of volume and unit price of incomplete work construction:

-  $Q_j$  is the volume of the  $j^{\text{th}}$  construction;

-  $D_j^{\text{vl}}$ ,  $D_j^{\text{nc}}$ ,  $D_j^{\text{m}}$  is the cost of materials, labor, construction machines in the work construction unit price of the  $j^{\text{th}}$  construction;

Cost of materials ( $D_j^{\text{vl}}$ ), labor cost ( $D_j^{\text{nc}}$ ), the cost of construction machines ( $D_j^{\text{m}}$ ) in the incomplete work construction unit price and incomplete general construction price is calculated and synthesized in Table 3.3 of this Appendix and is part of the work cost estimates documents.

- CLVL: material differences are calculated by method of direct material offset or by adjustment coefficients;

-  $K_{\text{nc}}$ ,  $K_{\text{mtc}}$ : adjustment coefficient of labor, construction machines (if any);

- The general cost ratio norm and advance calculated taxable income are specified in Table 3.8 of this Appendix;

-  $G$ : costs of work construction, construction items, parts, part of work, pre-tax works;

-  $T^{\text{GTGT-XD}}$ : the VAT rate prescribed for the construction;

-  $G_{\text{XDNT}}$ : Cost of temporary housing for dwelling and construction administration.

Where temporary housing at sites for dwelling and construction administration is made separate cost estimates by design, the construction cost estimates in Table 3.1 above does not include the cost mentioned above ( $G_{\text{XDNT}} = 0$ ) and the general cost norm, advance calculated taxable income is calculated according to civil work.

\* Construction cost calculated by volume and complete work construction unit price of and complete general construction price are determined and synthesized according to Table 3.2 below.

Table 3.2. SYNTHESIS OF ESTIMATE OF CONSTRUCTION COSTS CALCULATED BY COMPLETE WORK CONSTRUCTION UNIT PRICE AND COMPLETE GENERAL CONSTRUCTION PRICE

Calculation unit: .....

No.	COST ITEMS	CALCULATION METHOD	VALUE	SIGNS
1	<b>Before-tax construction cost</b>			G
2	VAT	$G \times T^{GTGT-XD}$		GTGT
3	<b>After-tax construction cost</b>	$G + GTGT$		$G_{XD}$
4	Cost for temporary housing at site for dwelling and construction administration	$G \times \text{rate} \times (1 + T^{GTGT-XD})$		$G_{XDNT}$
5	<b>Total</b>	$G_{XD} + G_{XDNT}$		

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In particular:

+ Where construction cost is determined on the basis of volume and complete general construction price:

-  $Q_i$  is the volume of a works group or a structural unit,  $i^{\text{th}}$  part of the work ( $i = 1 \div n$ );

-  $D_i$  is the complete general construction price (including direct costs, general costs, and advance calculated taxable income) to implement a works group or a structural unit,  $i^{\text{th}}$  part of the work.

+ Where construction cost is determined on the basis of volume and complete work construction unit price:

-  $Q_i$  is the volume of  $i^{\text{th}}$  construction missions of the work ( $i = 1 \div n$ );

-  $D_i$  is the complete work construction unit price (including direct costs, general costs, and advance calculated taxable income) to perform  $i^{\text{th}}$  constructions of the work.

-  $G$ : before-tax work construction cost;

-  $T^{\text{GTGT-XD}}$ : tax rate of VAT specified for the construction;

-  $G_{\text{XD}}$ : after-tax work construction cost;

-  $G_{\text{XDNT}}$ : Cost of temporary housing for dwelling and construction administration;

\* If the construction costs set up to the parts, part of work, works, the after-tax work construction cost in cost estimates of work, work items is determined by the following formula:

(3.1)

In particular:

-  $g_i$ : after-tax construction cost of the  $i^{\text{th}}$  parts, part of work, works of the works, work items ( $i = 1 \div n$ ).

\* Based on the synthesis level or detail of construction volumes determined under item 1.1 and item 1.2 of this Appendix, it can combine the use of unit price of work construction and general construction price to determine the construction cost in project estimate.

Table 3.3 SYNTHESIS OF WORK CONSTRUCTION PRICE

Work's name: ...

## I. UNIT PRICE OF WORK CONSTRUCTION

No.. (Name of construction Work)

Calculation unit : .....

UNIT PRICE CODE	CODE of Materials. Labor, machines	WASTE COMPONENTS	UNIT PRICE	VOLUME	UNIT PRICE	TOTAL
[1]	[2]	[3]	[4]	[5]	[6]	[7]
DG.1		Materials cost				
	Material.1					

	Material.2					
	...					
	<b>Total</b>					<b>Materials</b>
	<b>Labor cost (by average ranks of workmen)</b>	work				<b>Labor</b>
	<b>Cost of construction machines</b>					
	Machine.1	shift				
	Machine.2	shift				
	...					
	<b>Total</b>					<b>Machines</b>

## II. PRICE OF GENERAL CONSTRUCTION

No. (Name of group of types of construction, structure unit, parts of the work)

Calculation unit: ...

UNIT PRICE CODE	WORK COMPONENT	CALCULATION UNIT	VOLUME	COST COMPONENT			TOTAL
				MATERIALS	LABOR	MACHINE	
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
UP.1							
UP.2							
...							
	<b>Total</b>			<b>VL</b>	<b>NC</b>	<b>M</b>	<b>Σ</b>

Notes:

- Unit price code rates and codes of materials, labor, and construction machines can be in words or in figures.

- In case of determination of the complete general construction price, it is included other direct costs, general costs, advance calculated taxable income.

### 2. The method of calculation by the waste volume of materials, labor, construction machines and the corresponding price table

Cost of materials, labor, construction machines in construction costs can be determined on the basis of the total waste volume of materials, labor, construction machines and material prices table, labor price, the respective price of construction machine.

#### 2.1. Determination of the total waste volume of materials, labor, construction machines

Total waste volume of materials, labor, and construction machines shall be determined on the basis of waste of materials, labor, construction machines for each volume of the construction of the work, work items as follows:

- Determine each volume of the construction of the work, work items as Item 1.1.1 of this Appendix.

- Determine the volume of materials, labor, construction machines corresponding to each volume of construction under the engineering design or construction drawings design of the work, work items through the waste level of materials, labor and construction machines to complete a unit of construction volume on the basis of the regulations, construction standards, technical regulations.

- Calculate total waste volume of each type of material, labor, and construction machine for the work, work items by synthesizing waste of all kinds of materials, labor, and the same construction machine of different constructions.

It is necessary to specify the number, units, types, and specifications for materials; number of working days for each rank of worker; number of machine shift for each type of machine and construction equipment according to the major technical parameters and codes in the price table of construction machine shift of the work as calculating.

## **2.2. Determination of price table of materials, labor, construction machines**

Prices of materials, labor, construction machines are determined in accordance with construction work and associated with construction sites under the guidance in Appendix 6 of this Circular.

- Determine costs of materials, labor, construction machines in direct costs on the basis of the total waste volume of each type of material, labor, construction machine, and prices of corresponding materials, labor, construction machines according to Table 3.4 and Table 3.5 of this Appendix.

Construction costs by the total waste volume of materials, labor, and construction machines are determined and synthesized according to Table 3.6 of this Appendix.

Table 3.4. WASTE OF MATERIALS, LABOR, CONSTRUCTION MACHINE FOR CONSTRUCTION

No.	Code	Work's name	Unit	Volume	Waste level			Waste volume		
					Materials	Labor	Machine	materials	labor	machine
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
001	DM.001	<b>work No. 1</b>	<b>m3</b>							
	VL.001	Fine sand	m3							
	VL.002	brick	brick							
		.....								

	NC.001	labor 3/7	labor							
	NC.002	labor 3,5/7	labor							
		.....								
	M.001	Mortar mixer 80 litre	shift							
	M.002	lift 0,8T	shift							
		.....								
002	DM.002	<b>Work No. 2</b>								
		.....								

Table 3.5. SYNTHESIS OF COSTS OF MATERIALS, LABOR, CONSTRUCTION MACHINES IN DIRECT COSTS

Calculation unit: ...

No.	Code	Content	Unit	Volume	Price	Total
[1]	[2]	[3]	[4]	[5]	[6]	[7]=[5]x[6]
<b>I</b>		<b>Materials</b>				
I.1	VL.001	Fine sand	m3			
I.2	VL.002	brick	brick			
...	...	...				
		<b>Total</b>				<b>VL</b>
<b>II</b>		<b>Labor</b>				
II.1	NC.001	Labor 3/7	labor			
II.2	NC.002	Labor 3,5/7	labor			
...	...	...				
		<b>Total</b>				<b>NC</b>
<b>III</b>		<b>Machine</b>				
III.1	M.001	Mortar mixer 80 litre	shift			
III.2	M.002	lift 0,8T	shift			
...	...	...				
		<b>Total</b>				<b>M</b>

Notes:

The demand for materials, labor, construction machines (column 5) is synthesized from waste of

the same materials, labor, construction machines of all constructions of the work, work items (column 9, column 10, column 11 in Table 3.4 of this Appendix).

TABLE 3.6. SYNTHESIS OF CONSTRUCTION COSTS BY WASTE VOLUME OF MATERIALS, LABOR AND CONSTRUCTION MACHINES AND RESPECTIVE PRICE TABLE

No.	COST CONTENTS	METHOD	VALUE	SIGNS
I	DIRECT COSTS			
1	Cost of materials	Taken from Table 3.5		VL
2	Cost of labor	Taken from Table 3.5		NC
3	Cost of construction machines	Taken from Table 3.5		M
4	Other direct costs	$(VL+NC+M) \times \text{rate}$		TT
	<b>Direct costs</b>	$VL+NC+M+TT$		T
II	GENERAL COSTS	$T \times \text{rate}$		C
III	ADVANCE CALCULATED TAXABLE INCOME	$(T+C) \times \text{rate}$		TL
	<b>Before-tax construction cost</b>	$(T+C+TL)$		G
IV	VAT	$G \times T^{GTGT-XD}$		GTGT
	<b>After-tax construction cost</b>	$G + GTGT$		$G_{XD}$
V	COST FOR TEMPORARY HOUSING AT SITE FOR DWELLING AND CONSTRUCTION ADMINISTRATION	$G \times \text{rate} \times (1 + T^{GTGT-XD})$		$G_{XDNT}$
	<b>TOTAL</b>	$G_{XD} + G_{XDNT}$		

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In particular:

- The general cost ratio norm and the advance calculated taxable income according to Table 3.8 of this Annex;

- G: construction costs of work, work items before tax;
- $T^{GTGT-XD}$ : tax rate of VAT specified for the construction;
- $G^{XD}$ : construction costs of work, work items after tax;
- $G_{XDNT}$ : costs for temporary housing at site for dwelling and construction administration;

### **3. Method of determining the construction cost by construction cost ratio in the investment capital rate**

For auxiliary works, temporary works for construction, or common, simple works, construction costs can be determined by area or production capacity, service capacity and construction cost ratio in the investment capital rate of work construction.

Construction costs of the work, work items ( $G_{XD}$ ) by this method are determined by the following formula:

$$G_{XD} = S_{XD} \times N + C_{CT-SXD} \quad (3.2)$$

In particular:

- $S_{XD}$ : is the ratio of construction costs in the investment capital rate of the work construction charged to a unit of production capacity, service capacity or charged to a area unit of the work, work items;
- N: is the area or production capacity, service capacity of the work, work items;
- $C_{CT-SXD}$ : is total cost which is not included in the ratio of construction costs in the investment capital rate of the work construction charged to a unit of production capacity, service capacity or charged to an area unit of the work, work items.

### **4. Method of determining the construction cost on the basis of works with the same economic - technical criteria which were and are implemented**

Construction cost of the works mentioned above can be determined based on construction cost estimate of the works with the same economic - technical criteria which were and are implemented and the conversion of costs to the construction sites, time to make cost estimate.

Construction costs of the work, work items ( $G_{XD}$ ) by this method are determined by the following formula:

$$(3.3)$$

In particular:

- $G_{XD}^{TT}$ : construction costs of the same work, work items carried out;
- $H_T$ : the conversion coefficient to the time to make estimation;

-  $H_{KV}$ : the conversion coefficient according to construction sites;

-  $C_{CT-XDi}^{TT}$ :  $i^{th}$  expenses not included or included ( $i = 1 \div n$ ) in construction costs of the same work, work items which were and are performed.

Table 3.7. NORM OF OTHER DIRECT COSTS

Calculation unit: %

NO.	TYPES OF WORKS	OTHER DIRECT COSTS
1	<b>Civil works</b>	
	In urban area	2,5
	Surrounding area	2
2	<b>Industrial works</b>	2
	Particularly, construction in the pits, hydroelectricity pit	6,5
3	<b>Transport works</b>	2
	Particularly, construction in the traffic tunnels	6,5
4	<b>Irrigation works</b>	2
5	<b>Infrastructure works</b>	
	In urban area	2
	Surrounding area	1,5

+ Other direct costs are calculated in percentage (%) of the total materials cost, labor cost, cost of construction machine and equipment.

For construction work with multiple work items, the work items which functions are separate shall be applied to the percentage of other direct costs by type of work accordingly.

+ For the works with specific requirements on occupational safety such as a building with its height from six floors or more, silo, chimney of industrial work or similar must set up, design occupational safety measures, cost estimates and investor shall approve to supplement the work construction cost estimate.

+ Other direct costs of the construction in traffic tunnels, hydroelectricity tunnels, pits included operating costs, regular repair costs of water supply, drainage, air supply, power supply for construction in the tunnels without including the initial investment cost for ventilation, lighting, electrical systems, water supply, traffic for construction in the tunnel.

+ For the construction work of hydroelectricity, irrigation, other direct costs do not include the costs:

- The initial investment cost of technical water system for construction;
- The initial investment cost for the water pumping, mud dredging, excavation pit pumping right after the river block, flood control, power system 0.4 kv for construction;
- Cost for excavation pit pumping right right after the river block, flood control;
- Costs of moving the construction forces to the work; costs of dismantling, transporting and installing tower crane within the construction site; maintenance of the transportation system for construction in the construction site; expenses of operating power system from its point of connection to the last step-down station of the work (the point to place meter to buy electricity);
- Cost of waste water, waste treatment for temporary housing at construction sites;
- Increased testing costs of construction testing of roller compacted concrete (RCC).

Table 3.8. NORM OF GENERAL COSTS, ADVANCE CALCULATED TAXABLE INCOME

Calculation unit: %

NO.	TYPE OF WORKS	GENERAL COSTS		ADVANCE CALCULATED TAXABLE INCOME
		PER DIRECT COST	PER LABOR COST	
1	<b>Civil works</b>	6,5		5,5
	Particularly, renovations, restoration of cultural, historic relics	10,0		
2	<b>Industrial works</b>	5,5		6,0
	Particularly, construction works of tunnels, pits	7,0		
3	<b>Transport works</b>	5,5		6,0
	Particularly for the maintenance and regular repair of roads Particularly, the regular maintenance, repair of roads, railways, internal waterways, navigation warning signal system and internal waterways		66,0	
	Particularly, underground traffic works	7,0		
4	<b>Irrigation works</b>	5,5		5,5
	Particularly, digging, filling land of irrigation works by hand		51,0	
5	<b>Technical infrastructure works</b>	5,0		5,5
6	The installation contact of technological equipment in the construction works and construction, installation of line, the experiment, calibration of power lines and substation, the testing of		65,0	6,0

	materials, structures and building structures			
--	-----------------------------------------------	--	--	--

- Advance calculated taxable income is calculated by percentage (%) on direct costs and general costs in estimate of construction costs.

- For construction works with multiple work items, the work items which functions are separate shall be applied to the ratio of general costs and advance calculated taxable income by type of work accordingly.

- For construction works in mountainous areas, border and island areas, the ratio of general costs will be adjusted with coefficient from 1.05 to 1.1 decided by the investor depending on specific conditions of the works.

#### APPENDIX 4

##### METHOD OF DETERMINING ADDITIONAL WORK COST ESTIMATE

*(Together with Circular No.04/2010/TT-BXD dated 26/5/2010 of Ministry of Construction)*

Adjusted work estimates ( ) is determined by the work cost estimate approved ( ) plus

(or minus) with the additional work cost estimate ( ) by the following formula:

$$= + \quad (4.1)$$

The additional work estimates are determined for two factors of the volume arising and price variation. The additional work estimates for the factor of the volume arising are formulated as guided in Appendix 3 to this Circular. The additional work estimates for the factor of price variation are determined by the following formula:

$$= \quad (4.2)$$

In particular:

- : Additional construction costs;
- : Costs for additional equipment;
- : Costs for additional project management.
- : Costs for additional construction investment consultancy.
- : Other additional costs.

, , is determined as guided in Item 3 of this Appendix.

## **1. Determination of additional construction costs ( )**

### **1.1. Direct offset method**

#### **1.1.1. Determination of materials cost (VL)**

Cost of additional materials (VL) is determined by the total additional cost of each  $j^{\text{th}}$  material ( $VL_j$ ) by the following formula:

$$VL = \sum_{j=1}^m VL_j \quad (4.3)$$

Additional cost of type  $j^{\text{th}}$  material is determined by the following formula:

$$VL_j = \sum_{i=1}^n Q_{ji}^{VL} \cdot CL_j^{VL} \quad (4.4)$$

In particular:

-  $Q_{ji}^{VL}$ :  $j^{\text{th}}$  material waste volume of the  $i^{\text{th}}$  construction in the construction volume required to adjust ( $i = 1 \div n$ );

-  $CL_j^{VL}$ : value of the difference in price of the  $j^{\text{th}}$  material at the time of adjustment compared to price of construction materials in the approved estimates or in the successful bid price but has not been signed the contract;

Prices of construction materials at the time of adjustment is determined by price of construction materials publicized by the competent state agency or by valid invoice, documents in accordance with provisions of the Ministry of Finance, under the supply contract or the list or documents written by hand with full names, addresses and signatures of the materials provider in accordance with the price of the market where the work is built.

#### **1.1.2. Determination of the labor cost (NC)**

Additional labor costs are determined by the following formula:

$$NC = \sum_{i=1}^n Q_i^{NC} \cdot CL_i^{NC} \quad (4.5)$$

In particular:

-  $Q_i^{NC}$ : labor waste volume of the  $i^{\text{th}}$  construction in construction volume required to adjust ( $i = 1 \div n$ );

-  $CL_i^{NC}$ : value of the difference of the labor cost of  $j^{th}$  work at the time of adjustment compared to labor cost in the approved estimates or in the successful bid price but has not been signed the contract ( $i = 1 \div n$ ).

Labor costs at the time of adjustment are determined by current regulations.

### 1.1.3. Determination of the cost of construction machines (MTC)

Additional cost of construction machines (MTC) is determined by the total additional cost of each type of  $j^{th}$  construction machine ( $MTC_j$ ) by the following formula:

$$MTC = \sum_{j=1}^m (4.6)$$

Additional cost of  $j^{th}$  construction machines (MTC) is determined by the following formula:

$$MTC_j = \sum_{i=1}^n (4.7)$$

In particular:

-  $Q_{ji}^{MTC}$ :  $j^{th}$  construction machine waste volume of the  $j^{th}$  construction in construction volume required to adjust ( $i = 1 \div n$ );

-  $CL_j^{MTC}$ : different value of the  $j^{th}$  construction machine cost at time of adjustment for compared to cost of construction machines in the approved estimates or the successful bid price which has not been signed the contract ( $i = 1 \div n$ ).

Cost of construction machines at the time of adjustment is determined by current regulations.

Additional construction costs are synthesized as Table 4.1 of this Appendix.

## 1.2. Adjustment coefficient method

### 1.2.1. Determination of the materials cost (VL)

Additional cost of materials is determined by the following formula:

$$VL = G_{VL} \times (K_{VL} - 1) \quad (4.8)$$

In particular:

-  $G_{VL}$ : material costs in the approved estimates or in the successful bid price which has not been signed the contract of construction volume required to adjust;

-  $K_{VL}$ : adjustment coefficient of material cost at the time of adjustment.

$K_{VL}$  coefficient obtained by publication or local guidelines where the work is constructed or calculation of the investor.

### 1.2.2. Determination of labor cost (NC)

Additional labor cost is determined by the following formula:

$$NC = G_{NC} \times (K_{NC} - 1) \quad (4.9)$$

In particular:

- $G_{NC}$ : labor cost in the approved estimate or in the successful bid price which has not been signed the contract of construction volume required to adjust;
- $K_{NC}$ : adjustment coefficient of labor cost at the time of adjustment.

$K_{NC}$  coefficient obtained by publication or local guidelines where the work is constructed or calculation of the investor.

### 1.2.3. Determination of the cost of construction machines (MTC)

Additional cost of construction machines is determined by the following formula:

$$MTC = G_{MTC} \times (K_{MTC} - 1) \quad (4.10)$$

In particular:

- $G_{MTC}$ : the cost of construction machines in the approved estimate or in the successful bid price which has not been signed the contract of construction volume required to adjust;
- $K_{MTC}$ : adjustment coefficient of the cost of construction machines at the time of adjustment.

$K_{MTC}$  coefficients obtained by publication or local guidelines where the work is constructed or calculation of the investor.

Additional construction costs are synthesized as Table 4.1 of this Appendix.

## **1.3. The method by construction price index**

### 1.3.1. In case of using the price index for construction part

Additional construction costs ( ) is determined by the following formula:

$$= \quad \times (I^{XD} - 1) \quad (4.11)$$

In particular:

- : Construction costs in the approved estimate or in the successful bid price which has not been signed the contract of construction volume required to adjust;
- $I^{XD}$ : the construction price index calculated at the time of adjustment.

Price index of work construction is calculated at the time of adjustment under the guidance of the Ministry of Construction or publication of the localities where the work is constructed or calculation of the investor.

1.3.2. In case of using the construction price index by the cost factors (price index of work construction materials, price index of work construction workers, and price index of work construction machines) and index price of major construction materials.

1.3.2.1. Determination of the materials cost (VL)

*1.3.2.1.1. In case of using the price index of construction materials*

Additional cost of materials is determined by the following formula:

$$VL = G_{VL} \times P_{VL} \times K_{VL} \quad (4.12)$$

In particular:

- $G_{VL}$ : material costs in the approved estimate or in the successful bid price which has not been signed the contract of construction volume required to adjust;
- $P_{VL}$ : ratio of the cost of work construction materials required to adjust on the cost of materials in approved estimate or the successful bid price which has not been signed the contract;
- $K_{VL}$ : adjustment coefficient of the cost of work construction material at the time of adjustment and is determined by the following formula:

$$K_{VL} = \quad (4.13)$$

In particular:

- $I_1^{VL}$ : price index of construction materials at the time of adjustment;
- $I_0^{VL}$ : price index of construction materials at the time of the approved estimate or time of making the successful bid.

Price index of work construction materials is under the guidance of the Ministry of Construction or by publication of the localities where the work is constructed or calculation of the investor.

*1.3.2.1.2. In case of using the price index of major construction materials*

Additional cost of materials is determined by the following formula:

$$VL = \quad (4.14)$$

In particular:

- $G_{VL}$ : material costs in the approved estimate or in the successful bid price which has not been signed the contract of construction volume required to adjust;
- : the ratio of cost of  $i^{th}$  major construction materials required to adjust on the cost of materials in approved estimate or the successful bid price which has not been signed the contract ( $i = 1 \div n$ )
- : adjustment coefficient of the cost of  $i^{th}$  major construction materials at the time of adjustment ( $i = 1 \div n$ ) and is determined by the following formula:

$$= \quad (4.15)$$

- : Price index of  $i^{th}$  major construction materials at the time of adjustment;
- : Price index of  $i^{th}$  major construction materials at the time of the approved estimate or the time of making the successful bid.

Price index of major construction materials is under the guidance of the Ministry of Construction or by publication of the localities where the work is constructed or calculation of the investor.

#### 1.3.2.2. Determination of the labor cost (NC)

Additional labor cost is determined by the following formula:

$$NC = G_{NC} \times K_{NC} \quad (4.16)$$

In particular:

- $G_{NC}$ : labor costs in the approved estimate or in the successful bid price which has not been signed the contract of construction volume required to adjust;
- $K_{NC}$ : adjustment coefficient of work construction labor cost at the time of adjustment and is determined by the following formula:

$$K_{NC} = \quad (4.17)$$

- $I_1^{NC}$ : price index of work construction labor at the time of adjustment;
- $I_0^{NC}$ : price index of work construction labor at the time of the approved estimate or time of making the successful bid.

Price index of work construction labor is under the guidance of the Ministry of Construction or by publication of the localities where the work is constructed or calculation of the investor.

#### 1.3.2.3. Determination of the cost of construction machines (MTC)

Additional cost of construction machines is determined by the following formula:

$$MTC = G_{MTC} \times K_{MTC} \quad (4.18)$$

In particular:

-  $G_{MTC}$ : the cost of construction machines in the approved estimate or in the successful bid price which has not been signed the contract of construction volume required to adjust;

-  $K_{MTC}$ : adjustment coefficient of cost of work construction machines at the time of adjustment and is determined by the following formula:

$$K_{MTC} = \quad (4.19)$$

-  $I_1^{MTC}$ : price index of work construction machines at the time of adjustment;

-  $I_0^{MTC}$ : price index of work construction machines at the time of the approved estimate or time of making the successful bid.

Price index of construction machines is under the guidance of the Ministry of Construction or by publication of the localities where the work is constructed or calculation of the investor.

Additional construction cost is synthesized as Table 4.1 of this Appendix.

#### **1.4. Methods of combination**

Depending on the specific conditions of each work can use a combination of the above methods to determine the additional construction costs accordingly.

### **2. Determination of additional equipment costs ( )**

Additional equipment cost is determined by the sum of the cost of purchasing additional equipment ( ), the cost of installing additional equipment, the cost of testing additional equipment calibration and other additional costs.

#### **2.1. Cost of purchasing additional equipment ( )**

Cost of purchasing additional equipment is determined by the following formula:

$$= - \quad (4.20)$$

In particular:

- : equipment cost in the approved estimate or in the successful bid price which has not been signed the contract;

- : equipment cost at the time required to adjust.

**2.2. The cost of installing additional equipment and costs of testing additional equipment calibration is determined as the cost of additional construction.**

**3. Determination of the additional project management costs, additional construction investment consulting costs, and other additional costs**

For the estimate of work which has not been yet held for bidding or has not been signed contract shall not be governed by regulations.

Where the contract has been signed, the adjustment of these costs is under contracts signed.

Table 4.1 TOTAL ESTIMATE OF ADDITIONAL CONSTRUCTION COST  
Work's name:

Calculation unit: .....

NO.	COST ITEMS	METHOD OF CALCULATION	SIGNS
I	DIRECT COSTS		
1	Cost of materials	VL	
2	Cost of labor	NC	
3	Cost of construction machines	MTC	
4	Other direct costs	$(VL+NC+MTC) \times \text{rate}$	TT
	<b>Direct costs</b>	$VL+NC+MTC+TT$	T
II	GENERAL COSTS	$T \times \text{rate}$	C
III	ADVANCE CALCULATED TAXABLE INCOME	$(T+C) \times \text{rate}$	TL
	<b>Before-tax construction cost</b>	$(T+C+TL)$	$G_{BS}$
IV	VAT	$G_{BS} \times T^{GTGT-XD}$	GTGT
	<b>After-tax construction cost</b>	$G_{BS} + GTGT$	

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## **APPENDIX 5**

### **METHOD OF FORMULATING WORK CONSTRUCTION NORMS** *(Together with Circular No.04/2010/TT-BXD dated 26/5/2010 of Ministry of Construction)*

#### **1. Method of formulating new construction norm of the works**

The new construction norm of the works is formulated in the following order:

##### **Step 1. Making a list of construction missions or new structures of the work that are not in the list of published construction norms**

Each list of the construction missions or new structures must clearly reflect the calculation unit of volume and technical requirements, conditions and major methods of construction of the mission or structure.

##### **Step 2. Determination of work component**

For work component, it must be showed clearly the steps of the implementation of each stage according to organizational design of construction technological line from the start till the completion, in accordance with the conditions, construction methods, and scope to conduct the works of mission or structure.

##### **Step 3. Calculation to determine the waste of materials, labor, construction machines**

###### **\* *The calculation methods:***

Calculation of waste norm of the new constructions is done by one of the following methods:

+ *Method 1. Calculation by the specifications of the technological line*

- Waste of materials: determined by design and the conditions and methods of work construction or the use norm of material to be announced.

- Waste of labor: determined by labor organizations in the technological line in accordance with the conditions and methods of construction of the works or calculated by the labor norm to be announced.

- Waste of construction machine: determined by the specifications of each machine in the line or construction machine productivity norms publicized and taking into account of productivity due to the coordination of the construction machine in the chain.

+ *Method 2. Calculation by statistics – analysis data*

Analysis and calculation to determine the waste levels of materials, labor, construction machines from the data of synthesis and statistics is as follows:

- From the amount of waste on materials, labor, construction machines, to perform a workload by one cycle or multiple cycles of the work which was and is done.

- From waste of materials, labor use, construction machine capacity calculated from the similar works.

- From the data published by the experience of the experts or professional organizations.

+ *Method 3. Calculation by the actual survey*

Calculations to determine the waste levels from design documents, actual survey data of work (by time, location, volume performed in one or multi cycles ...) and reference of norms to use materials, labor, and machine productivity published.

- Waste of materials: calculated by the actual survey data and compare it with the design, technical standards, and regulations.

- Waste of labor: calculated by number of labors of each stage in production line and total number of labors in the whole line, refer to the regulations of using labor.

- Waste of construction machines: calculated by survey data on the productivity of each type of machine and coordination performance between the construction machines in the same line, refer to the regulations on the technical capacity of the machine.

**\* The contents of calculation of the waste components**

+ *Calculation of the waste norms of materials*

Waste norms of materials required to complete a workload unit or construction structures including permissible losses of materials in the construction process, include:

- Principal (main) materials: like sand, stone, cement, bricks, steel ,.... in concrete mission, construction, reinforcing steel, structural production, ... are the materials of high value and obtaining a large proportion in a unit of volume or structure, the level in kind shall be specified and common units of measurement shall be calculated.

- Other materials (optional): as soap, lubricant, clout,... are the materials of small value, difficult to quantify, obtaining low proportion in a unit volume or structure, a percentage rate compared to the cost of the materials shall be specified.

The material waste norm is determined on the basis of the material norm published or calculated by one of three methods mentioned above.

### **Calculation of major materials waste**

General formula for determining the waste norm of materials (VL) in the construction norms is:

$$VL = Q^V \times K_{hh} + Q^V_{LC} \times K_{LC} \times K_{td} \quad (5.1)$$

In particular:

-  $Q^V$ : Number of materials used for each component of work within the norms (except for circulated materials), are calculated by one of three above methods;

For materials that make up product by design, the amount of materials are determined from the design standard, ... for example concrete based on mortar which macadam, sand, cement and water calculated from the construction standards of Vietnam (TCXDVN), or standard of the work, ...

For materials for construction by the design on methods to organize the construction, it is determined by the construction techniques and the number of circulated times according to the material norm published or calculated for the cases not yet had in material norm.

-  $Q^V_{LC}$ : Number of circulated materials (formwork, scaffolding, service bridge ...) used for each component of work in the norm are calculated according to one of three above methods;

-  $K_{hh}$ : The norm of permissible material loss in construction:

$$K_{hh} = 1 + H_{t/c} \quad (5.2)$$

$H_{t/c}$ : The norm of material loss in construction in accordance with the provisions in norm of published materials, survey, the fact of similar works, or the experience of the experts or the professional organizations for materials having not had in the norm.

Loss norms are prescribed for the bulk materials, semi-finished materials (construction mortar, concrete mortar) and structures (piles, precast beams).

-  $K_{LC}$ : circulated coefficient of the material required to be circulated prescribed in the norms of the materials use. For materials not circulated,  $K_{LC} = 1$  and for the materials circulated,  $K_{LC} < 1$ .

Circulation coefficient of the circulated materials is determined by the following formula:

$$(5.3)$$

In particular:

-  $h$ : Rate to be offset loss from the 2nd time onwards;

-  $n$ : Number of circulated materials uses ( $n > 1$ );

-  $K_{td}$ : coefficient using the time due to schedule of work construction is a coefficient reflecting the irregular or maximum mobilization of amount of materials to complete construction in accordance

with schedule. This coefficient affects only the circulated materials, such as mobilization of scaffolding, formwork, propping thing...When the construction methods used once or several times, adding this coefficient to suit work construction conditions. This coefficient is calculated according to schedule, construction method or the experience of professional organizations.

### ***Calculation of other waste materials***

For other materials (sub-materials) be determined by the percentage of the total cost of the quantitative main materials in the construction norms and are determined by the type of work, according to experience data of expert or norms in similar works.

#### ***+ Calculation of waste norm on labor***

Norms of labor waste in the construction norms are determined on the basis labor norms (construction) published or calculated by one of three above methods.

- Calculation unit of basic labor norms is work hour.

- Calculation unit of labor norms in the construction norm is workday. The level of labor waste is determined by the general formula:

$$NC = \sum (t_{dm}^g \times K_{cdd}) \times 1/8 \quad (5.4)$$

In particular:

-  $t_{dm}^g$ : Basis labor norm: is labor waste level directly building for a volume unit of mission or specific construction structures;

-  $K_{cdd}$ : Conversion coefficient of the construction norms.

This coefficient is calculated from the basis labor norms (construction) moved to the construction norm or taken by the experience of experts.

This number depends on the working group, type of single or mixed combination that it is given the different coefficients depending on the type of work, technical requirements and the specific construction conditions and usually in the range from 1, 05 ÷ 1.3.

- 1/8: Conversion coefficient from work hour norm to workday norm.

#### ***+ Calculation of the waste norm of construction machines***

The waste norm of construction machines in the construction norms are determined on the basis of the norm of construction machine productivity published or calculated by one of three above methods.

Calculation unit of productivity norms for construction machines is machine hours, machine shifts...

### ***Calculation of the main construction machines waste***

General formula for determining the waste norm of machine shift, construction equipment:

$$\times K_{cdd} \times K_{cs} \quad (5.5)$$

In particular:

-  $Q_{CM}$ : Norm of construction capacity of a machine shift determined by one of three above methods.

-  $K_{cdd}$ : Conversion coefficient of the construction norm.

This coefficient is calculated from the norm of the construction machine capacity transferred to construction norms or taken by the experience of the experts or professional organizations.

This number depends on the working group, type of single or mixed combination that it is given the different coefficients depending on the type of work, technical requirements and the specific construction conditions and usually in the range from 1, 05 ÷ 1.3.

-  $K_{cs}$ : coefficient using capacity is a coefficient reflecting the effective use of the capacity of machine combination in the conjugated chain; this coefficient is calculated according to the construction machine capacity of the work steps and appropriate adjustments as in the line having the use of a machine with the smallest capacity.

#### ***Calculation of machine waste and other construction equipment***

For types of auxiliary construction machines and equipment are determined by percentage compared with the total costs of the quantitative main machines in the construction norms and is determined by the type of work, by the experience of experts or norms in similar works.

#### ***+ Method 4. Combination of the above methods***

When using this method, it can be used the method of calculation of one of three above methods to determine the waste norm of materials, labor and construction machines for the work not included in the system of published estimate norm.

#### **Step 4. Formulation of norm sections on the basis of the sum of waste of materials, labor, and construction machines**

A gathering of norm sections on the basis of synthesis of waste items of materials, labor, and construction machines.

Every norm section includes 2 parts:

- Composition of work: clearly specify, fully contents of the working steps by the order from initial preparation to the completion of working or construction structure, including the conditions and specific method of construction.

- The norm table of waste items: describe clearly the names, types and standard of major materials in the construction or construction structures, and other auxiliary materials; type of workers; average grades of construction workers; name, type, capacity of major machines, equipment and some other machines, equipment in the chain of construction technology to complete the construction or construction structures.

In the norm table, waste of major materials are calculated in kind, the auxiliary materials are calculated by percentage compared to the cost of major materials; labor waste is calculated by workday without particular hierarchical division but by the average grades of construction workers; waste of major machine and equipment is calculated by number of machine shifts, other machines (auxiliary) is calculated by percentage compared to the cost of the major machines, equipment.

The sections of construction norms are gathered in groups or types of the construction or construction structure and implemented the unified encryption.

## **2. Adjustment of components of waste of materials, labor, construction machines as applying construction norms publicized**

When applying the construction norms announced, but due to construction conditions or construction methods or technical requirements of the work or all three of these factors having one or more parameters inconsistent with the provisions in construction norms published, the waste components of concerned materials, labor, and construction machines shall be adjusted so as suitable to the work.

### **2.1. Bases of adjustment**

- Conditions and methods of construction of the work.
- Requirements on technique and construction progress of the works ...

### **2.2. Method of adjustment**

#### **2.2.1. Adjustment of the materials waste**

- For waste of materials making up the product by design, based on regulations and design standards of the work to calculate the adjustment.
- For material methods of construction, it shall adjust the component elements in norms publicized by waste calculation from the design of construction method or according to the experience of experts or professional organizations.

#### **2.2.2. Adjustment of labor waste**

Increase or decrease of labor components in the publicized norms and calculation of waste under the conditions on the construction organization or the experience of experts or professional organizations

#### **2.2.3. Adjustment of construction machine waste**

- In case of changes due to construction conditions (topographical conditions, difficulty, ease, fast, slow progress of the work,...) it shall be calculated the increase or decrease of norm number according to the conditions to organize construction or experience of experts or professional organizations.
- In case of change due to increase or decrease of construction machine capacity, it shall be adjusted according to the principle: the capacity increases, number shall be decreased and vice versa.

## APPENDIX 6

### METHOD OF FORMULATING PRICE OF WORK CONSTRUCTION

*(Together with Circular No.04/2010/TT-BXD dated 26/5/2010 of Ministry of Construction)*

Work construction price includes the unit price of work construction and general construction price. Unit price of work construction is economic - technical criteria, including all necessary direct costs of materials, labor and construction machines to complete a unit of construction workload. General construction price is economic - technical criteria including all necessary costs to complete a group of type of constructions, structural units, or parts of the work.

#### **1. The method of formulating the unit price of work construction based on estimate norm system of the work construction and other related cost factors at market prices.**

##### ***1.1. Bases for formulating unit price of work construction***

*Bases for formulating unit price of work construction:*

- List of work constructions required to establish the unit price;
- The construction estimate norm by the list required to establish unit price;
- The prices of materials (not including value added tax) to the construction site;
- The price of labor of the work;
- Prices of machine shifts and construction equipment of the work (or rental of machine and construction equipment).

##### ***1.2. Establishment of unit price of work construction***

###### ***1.2.1. Determination of the cost of materials (VL)***

Cost of materials is determined by the formula:

$$(6.1)$$

In particular:

- $D_i$ : the  $i^{\text{th}}$  amount of material ( $i=1÷n$ ) calculated for a unit of construction volume in the norm of work construction estimate;
- $G_i^{VL}$ : price of a  $i^{\text{th}}$  unit of material ( $i=1÷n$ ) is determined in accordance with the standard, type and quality of materials used for construction work on the market provided by a function organization, quotation of the manufacturer, the price information of the supplier or the price of a material with similar standard, quality which was and is used in other works and is calculated to the field of the work;

Where prices of materials not yet calculated to the field of the work, the prices of materials to the field of the work are determined in accordance with guidance in Item 1.2.4 of this Appendix.

-  $K^{VL}$ : coefficient to calculate cost of other materials compared to total major materials costs determined in the norm of work construction estimates.

For the work using ODA capital required to use the materials which have no in domestic market, the prices of materials, imported construction products are determined at market prices in accordance with quality standards and of origin.

### 1.2.2. Determination of the labor cost (NC)

Labor cost is determined by the formula:

$$NC = B \times g^{NC} \quad (6.2)$$

In particular:

- B: amount of labor waste calculated by direct workday according to the average grade for a unit of construction volume in the work construction cost estimates norm;

-  $g^{NC}$ : the workday unit price of workers directly constructing determined according to unit price of the common labor market in each region, province or city.

Particularly for the work using state budget capital made by the method of appointment, it can use the method of determining the workday unit price of workers directly constructing ( $g^{NC}$ ) based on region-based minimum wage, grade salary, and allowances; subsidiary wages calculated by 12% of basic wage; and some expenses can be directly assigned to the employees equal to 4% of basic wage; other allowances, if any.

For the work using ODA capital which there are things required to use foreign labor (jobs that require special techniques or other works required to have supervision, inspection), the workday unit price is determined by labor wage with equivalent title in other countries in the region or similar works which were and are done in Vietnam.

### 1.2.3. Determination of the cost of construction machines (MTC)

Cost of construction machines is determined by the following formula:

$$(6.3)$$

In particular:

-  $M_i$ : waste amount of machine shift of  $i^{th}$  main machines, construction equipment ( $i=1 \div n$ ) calculated for a unit of volume of construction in the work construction cost estimate norm;

-  $g_i^{MTC}$ : the price of machine shift of  $i^{th}$  main construction machines, equipment ( $i=1 \div n$ ) under the price table of machine shift and construction equipment of the work or machines rental determined under the guidance of the Ministry of Construction;

-  $K^{MTC}$ : coefficient to calculate the cost of other machines (if any) compared to total cost of major construction machine, equipment determined in the work construction cost estimate norm.

For the works using ODA capital required to use special machines that have no in Vietnam, they should be temporarily imported for work construction, the price of machine shift is determined by the machine rental on regional market or the price of machine shift which was and is done with similar nature in Vietnam.

Above unit price of work construction includes only the costs of materials, labor, and construction machines called as incomplete unit price of work construction.

Complete unit price of work construction includes the costs of materials, labor, and construction machines, other direct costs, general expenses and advance calculated taxable income.

#### 1.2.4. Method of determining the prices of materials to the field ( $G_{vl}$ )

Material price to the field shall be determined by the formula:

$$G_{vl} = G_{cct} + C_{ht} \quad (6.4)$$

-  $G_{cct}$ : prices of materials to the work;

-  $C_{ht}$ : expenses in the field include: loading and unloading, transporting within the work, losses in maintaining in storage in warehouse.

Material price to the work is determined by the formula:

$$G_{cct} = G_g + C_{vc} \quad (6.5)$$

In particular:

-  $G_g$ : original material prices;

-  $C_{vc}$ : transportation costs to the work (including transition costs, if any).

##### 1.2.4.1 Cost of transportation to work

The cost of transportation to the work can be determined under the plan, distance, and type of vehicle and vehicle rental or calculated on the basis of norms for transport and other means in accordance with actual conditions.

##### *1.2.4.1.1 Cost of transport calculated by freight*

The cost of transportation to the work according to the freight is calculated by the formula:

$$(6.6)$$

In particular:

-  $L_i$ : distance of the  $i^{th}$  track;

-  $f_i$ : freight on the  $i^{th}$  track;

-  $C_{ctc}$ : transition costs (if any);

-  $C_{ltk}$ : other traffic costs.

+ Freight can be based on the announcement of the locality, market prices, quotation of transport units ensuring the volume, the progress of the work;

+ Transition cost of materials is calculated as having the changes in methods or means of transport, including loading and unloading costs and transition losses. Cost of transition losses is calculated based on percentage of the price of the original materials on the basis of the materials norm published by the Ministry of Construction;

+ Other costs of circulation: are the costs of the tie, chock, covering, tolls, ...

The cost of transportation to the work calculated by freight using Table 6.1

#### *1.2.4.1.2 Transport cost calculated on the basis of the norms of transport*

Transport costs can be calculated based on the use of appropriate transport norms in the work construction estimates norm, prices of labor and machine shifts of the work, as follows:

$$C_{vc} = (M_i \cdot x \cdot g_i^{MTC}) + C_{ttc} + C_{ltk} \quad (6.7)$$

In particular:

-  $M_i$ : amount of machine shift waste of the machine used for transporting;

-  $g_i^{MTC}$ : the price of machine shift of the machine used for transporting;

-  $C_{ttc}$  and  $C_{ltk}$ : as in item 1.2.4.1.1.

For example, transportation costs can be determined by the level of transportation:

Determination of transport costs for 100m<sup>3</sup> of building sand with transport distance as 50 km, it can use the land transport norm by dump truck 12 tons and calculated as follows:

- Waste of machine shift within the first 1 km: 0.610 shift

- Waste of machine shift for the next 6 km: 6 x 0.171 shift

- Waste of machine shift for 43 km (other than 7 km): 43 x 0.106 shift

Total waste of machine shift: 6.194 shift

Number of machine shift multiplied with unit price of work machine shift (or machine shift price announced by the localities) will be determined transport costs by tilting truck for a distance of 50 km to the work.

Costs of machine shift for transportation required to determine the right time to calculate, when the fluctuation of prices, it should be adjusted accordingly. For example, when machine shift price adjusted with coefficient 1.2, the cost could be adjusted on the basis of this coefficient.

Machine shift price of tilting car (after adjustment) is: 1,157,110 VND/shift  
Transportation cost by car for 100 m<sup>3</sup> of sand for a 50 km road section is:

$$6.194 \text{ shift} \times 1,157,110 \text{ VND/shift} = 7,167,139 \text{ VND}$$

Where the materials are calculated by other calculation unit, it can use specific gravity to convert the unit and apply the transportation norms appropriately.

If a material required to be purchased in a variety of sources, the average material price to the work ( $G_{cct}^{bq}$ ) is determined by the formula:

$$(6.8)$$

In particular:

- $G_{ccti}$ : price of materials to the work from i source;
- $T_i$ : volume of materials purchased from i source.

#### 1.2.4.1 Cost at field ( $C_{ht}$ )

Cost at field includes the cost of loading and unloading ( $C_{bx}$ ), transport cost within the work ( $C_{vcht}$ ), preservation loss costs ( $C_{hh}$ ) and is determined by the following formula:

$$C_{ht} = C_{bx} + C_{vcht} + C_{hh} \quad (6.9)$$

Cost of loading and unloading calculated on the basis of labor norms of loading and unloading and unit price of work labor; transport costs by rudimentary means within the work calculated averagely within 300-meter scope on the basis of labor norms of transport by rudimentary means and labor unit prices of work construction;

The cost of preservation loss of materials in storage, warehouse of construction site is calculated by percentage (%) compared to the price of materials to the field.

The content and order to calculate the price of materials to the work construction site are determined according to Table 6.1, 6.2 and 6.3 as follows:

Table 6.1. CALCULATION OF TRANSPORT COSTS

No.	Types of materials	Calculation unit	Source of purchase	Means of transportation	Distance of track with the corresponding road grade		Freight by road grade (VND/T.km)	Cost of transportation
					Distance (km)	road grade		

[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	$[9] = \sum ([6] \times [8])$
1								
2								
3								
...								

TABLE 6.2. CALCULATION OF PRICE OF MATERIALS TO FOOT OF THE WORK

No.	Types of materials	Calculation unit	Original price	Cost of transportation	Transition cost (if any)			price of materials to foot of the work	
					Loading and unloading	Transition loss			Sum of transition cost
						percentage (%)	total		
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8] = [4] x [7]	[9] = [6]+[8]	[10] = [4]+[5]+[9]
1									
2									
3									
...									

Note:

- Column [5]: taking by value of column [9] at Table 6.1;
- Column [6] = (norm of loading and unloading labor) x (unit price of work construction labor).

Table 6.3. CALCULATION OF PRICE OF CONSTRUCTION MATERIALS TO THE FIELD OF THE WORK

No.	Types of	Calculation	price of	Cost at the field	Price of
-----	----------	-------------	----------	-------------------	----------

	materials u	unit	materials to foot of the work	Cost of loading and unloading	Cost of preservation loss	Cost of transportwithin the work	Sum of costs at the field	materials to the field of the work
[1]	[2]	[3]	[4]	[5]	[6] = [4] x percentage	[7]	[8] = [5]+[6]+[7]	[9] = [4]+[8]
1								
2								
3								
...								

Note:

- Column [4]: taking by the results obtained by calculating from the column [10] in Table 6.2;
- Column [5] = (labor norms of loading and unloading) x (unit price of work construction labor);
- Column [7] = (labor norms of transport within 300-meter scope) x (unit price of work construction labor).

## 2. The method of formulating price of general construction of the work

### 2.1. Bases to formulate price of general construction

- List of construction group, types, structure units, and parts of the work;
- Unit price of work construction corresponding to the construction groups, types, structure unit, parts of the work.

### 2.2. Formulation of the general construction price

- Step 1. Determine the list of groups, types of construction, structure units, parts of the work required to build up general construction prices, some major technical criteria, calculation unit, and content of suitable job components.
- Step 2. Calculate the volume of construction (q) of each type of construction making up the general construction price.
- Step 3. Determine the cost of materials (VL), labor (NC), construction machines (M) corresponding to the volume of construction (q) of each type of construction making up the general construction price by the formula:

$$VL = q \times vl ; NC = q \times nc ; M = q \times m \quad (6.10)$$

- Step 4. Synthesis of results by each expense item in the general construction price according to the formula:

(6.11)

In particular:

-  $VL_i, NC_i, M_i$ : is the costs of materials, labor and construction machines of  $i^{th}$  construction ( $i=1 \div n$ ) constituted in the general construction price.

General construction price can be made in the full price including the cost of materials, labor, construction machines, and other direct costs, general expenses and advance calculated taxable income.

## APPENDIX 7

REPORT FORM ON RESULTS OF APPRAISAL/VERIFICATION OF TOTAL INVESTMENT,  
COST ESTIMATES OF THE WORK  
(Together with Circular No.04/2010/TT-BXD dated 26/5/2010 of Ministry of Construction)

### 1. Report of the results of appraisal/verification of total investment

Report of the results of appraisal/verification of total investment is synthesized as Form 7.1 below.

*Form 7.1. Report of the results of appraisal/verification of total investment*

APPRAISAL/VERIFICATION UNIT

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**THE SOCIALIST REPUBLIC OF VIETNAM**  
**Independence– Freedom – Happiness**

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(Document number)

....., date ..... month ..... year .....

For: appraisal/verification of total  
investment

.....

## REPORT OF THE RESULTS OF APPRAISAL/VERIFICATION OF TOTAL INVESTMENT

Project: .....

Location: .....

**To:** .....

To perform the tasks assigned (by the person deciding on the investment) (for contact-point unit to perform the appraisal task) or at the request of (the person deciding on the investment/investor) (for verification unit) on the appraisal/verification of total investment (project's name). After studying the dossier (name of the appraisal/verification unit) has the following opinions:

### **1. An overview of the project**

- Name of project or work; construction location, size,... work;
- The investor; survey consultants, unit of making project,...;
- Process of preparation of investment.

### **2. The legal bases and materials used in the appraisal/verification**

- Construction Law;
- Decree on the management of work construction investment projects;
- Decree on the establishment and management of work construction investment costs;
- Circular on the establishment and management of work construction investment costs;
- (The other relevant documents of the state, the ministries, branches and localities ...).

### **3. Remark on dossier quality of total investment**

- Remark of method of making total investment selected for calculations;
- Remark of the basis to identify cost items in the total investment;
- Conclusion on whether or not enough conditions for appraisal/verification.

### **4. Principles of appraisal/verification**

- On the suitability of the method of determining the total investment with the characteristics and technical nature and technological requirements of the investment project of work construction;
- On the completeness and reasonableness and suitability with actual market requirements of the expense items in total capital;
- Regarding value of the total investment.

### **5. Results of appraisal/verification**

Based on the bases and principles mentioned above, the total investment value (project's name) after appraisal/verification as follows:

No.	Content of costs	Request value	Verification value	Increase, decrease
1	Cost of construction			
2	Cost of equipment			
3	Cost of compensation, assistance and resettlement			
4	Cost of project management			
5	Cost of construction investment consultancy			
6	Other costs			
7	Reserve cost			
	<b>Total</b>			

*(With detailed Appendix attached)*

**Causes of increase, decrease:**

(Raise and analyze causes of increase, decrease for contents of major increase, decrease costs).

**7. Conclusion and proposal**

APPRAISER/VERIFIER

INSPECTOR

- *(Sign, full name)*

*(Sign, full name)*

- *(Sign, full name)*

Certificate of controlling, evaluating prices of construction rank ....., No. ....

- *(Sign, full name)*

- ...

**Recipients**

**HEAD OF APPRAISAL/VERIFICATION UNIT**

-

*(Sign, seal)*

-

-

- ...

## 2. Report of the results of appraisal/verification of work cost estimate

Report of the results of appraisal/verification of work cost estimate is synthesized as Form 7.2 as follows.

*Form 7.2. Report of the results of appraisal/verification of work cost estimate*

APPRAISAL/VERIFICATION UNIT  
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THE SOCIALIST REPUBLIC OF VIETNAM  
Independence– Freedom – Happiness  
-----

(Document number)

....., date ..... month ..... year .....

For: appraisal/verification of *work cost estimate* .....

### REPORT OF THE RESULTS OF APPRAISAL/VERIFICATION OF WORK COST ESTIMATE

The work: .....

Location: .....

**To:** .....

To perform the tasks assigned (by the investor) (in case of self-appraisal by investor) or at the request of (the investor) or the economic contract (contract number) (for verification consulting unit) on the appraisal/verification of work cost estimate (project's name). After studying the dossier (name of the appraisal/verification unit) has the following opinions:

#### 1. The bases for the appraisal/verification

- Decree on the management of work construction investment projects;
- Decree on the establishment and management of work construction investment costs;
- Circular on the establishment and management of work construction investment costs;
- (The other relevant documents of the state, the ministries, branches and localities,...).

#### 2. General introduction of the work

- Name of the work;
- Investor;
- Consultants, units of making design and work cost estimate;

#### 3. Remark on dossier quality of work cost estimates

- Remark of design, the estimate making method selected;

- Remark of the bases to identify cost items in the work cost estimates;
- Conclusion on whether or not enough conditions for appraisal/verification.

#### 4. Principles of appraisal/verification

- On the conformity between the principal volume of cost estimate with design volume;
- On the correctness and reasonableness of the application, the use of work construction unit prices, the ratio cost norm, cost estimates of consultancy and estimate of other cost items in the work estimate;
- In the value of work cost estimate.

#### 5. Results of appraisal/verification

Based on the bases and principles stated above, the value (work cost estimate) after appraisal/verification as follows:

No.	Content of costs	Request value	Verification value	Increase, decrease
1	Cost of construction			
2	Cost of equipment			
3	Cost of project management			
4	Cost of construction investment consultancy			
5	Other costs			
6	Reserve cost			
	<b>Total</b>			

*(With detailed Appendix attached)*

#### Causes of increase, decrease:

(Raise and analyze causes of increase, decrease for contents of major increase, decrease costs).

#### 7. Conclusion and proposal

APPRAISER/VERIFIER

INSPECTOR

- *(Sign, full name)*

*(Sign, full name)*

- (Sign, full name)

Certificate of controlling, evaluating prices of  
construction rank ....., No. ....

- (Sign, full name)

- ...

**Recipients**

**HEAD OF APPRAISAL/VERIFICATION UNIT**

-

(Sign, seal)

-

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- ...

## **APPENDIX 8**

THE FORM OF SUBMISSION FOR APPROVING ESTIMATE NORM OF SOME ADJUSTMENT  
CONSTRUCTIONS AND NEW CONSTRUCTION USED FOR SETTING UP THE  
CONSTRUCTION UNIT PRICE IN THE BIDDING PACKAGE USING BUDGET STATE CAPITAL  
APPLYING FORMS OF BIDDING APPOINTMENT UNDER THE PROVISIONS IN CLAUSE 6 OF  
ARTICLE 13 OF DECREE NO.112/2009/ND-CP

*(Together with Circular No.04/2010/TT-BXD dated 26/5/2010 of Ministry of Construction)*

(Investor)

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**THE SOCIALIST REPUBLIC OF VIETNAM**  
**Independence– Freedom – Happiness**

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Document number

....., date ..... month ..... year .....

For: adjustment, new construction  
of work construction cost estimate  
norm

## **STATEMENT**

ESTIMATE NORM OF SOME CONSTRUCTION MISSIONS TO BE ADJUSTED, NEWLY BUILT  
USED FOR MAKING UNIT PRICE OF WORK CONSTRUCTION... ..

**To:** (THE PERSON DECIDING ON THE INVESTMENT)

Based on the nature and characteristics of the construction works, based on the norm system of  
work construction cost estimates has been publicized by the competent agencies, to implement  
clause 6 of Article 13 of Decree No.112/2009/ND-CP dated 14/12/2009 of the Government,  
(investor) respectfully submits cost estimate norm for some constructions of the works ...  
including .... level, which adjusts the work construction cost estimate norm which has been

published as ... level and newly set the the construction work cost estimate norm is ... level as the Appendix attached to this Statement. Proposes (the person deciding on the investment) to consider and decide for use as a basis for the determination of work construction unit prices in accordance with provisions.

**To** (INVESTOR)

- As above; (Sign, seal)

- Archive.

## APPENDIX

(Together the Statement No. .... dated ..... of .....)

ESTIMATE NORM OF SOME CONSTRUCTIONS TO BE ADJUSTED, NEWLY BUILT USED FOR MAKING UNIT PRICE OF WORK CONSTRUCTION .....

### 1. Estimate norm of some constructions to be adjusted

**1.1. Mission's name:** .....

- Working component:

- Norm table:

Calculation unit: ...

Code	Constructions	Waste components	Unit	Norms	
				Publicized	adjusted
		Materials			
		Manpower			
		Grade ...			
		Construction machines			

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**1.2. Working's name:** .....

**2. Estimate norms of some newly added constructions**

**2.1. Working's name:** .....

- Working component:

- Norm table:

*unit: ...*

Code	Constructions	Waste components	Unit	norms
		Materials		
		Manpower		
		grade ...		
		Construction machines		

**2.2. Working name:** .....