Overhead Costs in Estimates for Construction, Installation, and Electrical Works

Nikoloz Dadiani
GAC, NNLE; Georgia, Tbilisi, B. Akhospireli Street, 9/2
dadiani.post@gmail.com

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Abstract Overhead costs in construction projects can represent up to 35-40% of total costs. Various methodologies exist to calculate these costs, most commonly as a percentage of direct costs or labor expenses. However, some issues related to calculating intrinsic overhead costs remain unresolved, for example: 1) when using price data from comparable projects, and 2) when managing outsourcing work. These and other relevant issues are discussed in this article. Construction, installation, electrical, and commissioning work in Georgia are used as the primary basis for analysis and calculations. Sources of information include relevant literature, the author's own experience, and research in the field of hydrotechnical and energy structure construction. Recommendations for estimating overhead costs are proposed. Some proposals require constructive opposition but must be considered when planning and implementing construction projects. The findings contribute to improving cost management practices in the Georgian construction sector.

Key words: construction, direct costs, estimates, overhead costs, wages, work.

Introduction

Overhead costs represent indirect expenses essential for construction project management, organizing and maintaining, significantly influence overall profitability. Careful assessment and proactive monitoring of these costs not only ensure profitability but also lay the foundation for successful project delivery. In the construction industry, effectively managing indirect costs can be challenging, but technology offers numerous solutions to optimize this process. Integration of modern software tools and data analytics has revolutionized the management of these costs, leading to increased accuracy and efficiency in calculations [1]. While direct costs form the foundation of project budgets, overhead costs ensure operational continuity and effectiveness [2].

The classification of overhead costs typically includes two main categories:

Administrative and business expenses:

- Administrative personnel salaries;
- Employee insurance contributions;
- Postal services and communications;
- Use of computer programs;
- Maintenance of office buildings;
- Business travel;
- Occupational health, safety, ecology.

Production organization costs:

- Temporary (non-titled) facilities and structures;
- Fire safety and security;
- Implementation of new technologies and production methods;
- Innovations and intellectual property management;
- Surveying and supervision;
- Preparation for project delivery.

These costs are an integral part of any construction project. Correctly calculating overhead costs allows you to avoid unlike expenses and complete the project on time and within budget. It should be noted that the actual amount of overhead costs depends on the type of project, its specifics, and complexity. For the same type of work, overhead costs also depend on the quantity (volume) of work, the duration of the project, and the organizational structure of the company.

Direct costs (labor salaries, machine and equipment operation, materials, and products) are relatively easy to calculate in estimates. Overhead costs, however, often remain hidden and undeciphered. Approaches to calculating overhead costs vary slightly across countries. In the United States government contract overhead rates are regulated through agreements between contractors and federal agencies, primary under Department of Labor guidance.

In its "Guide to Determining Indirect Costs," the Department prescribes that, for government contracts, preliminary overhead rates should first

be agreed upon, and then, once the organization's actual costs for the fiscal year are known, adjustments should be made to the corresponding figures. This Guide provides an example for calculating overhead costs ranging from 28.2% to 39.8% of direct costs [3]. For procurement for public sector needs in the United States, overhead costs are also regulated by the Federal Acquisition Regulations [4].

Generally, in the U.S., overhead costs in construction typically range between 10-40% of direct costs. This system of calculation is not without flaws; for example, when an investor is working on several different types of projects, it is quite difficult to allocate overhead costs across projects. If in such a case one of the projects is financed from the state or equivalent budget, how can overhead costs be proven for this specific project? Will the arguments be relevant?

In European countries, the principles for calculating overhead costs are the same. The overhead percentage is calculated as the ratio of overhead costs to various bases: direct costs or the wage fund for production personnel. Sometimes direct material costs, man-hours, and machine-hours are used as calculation bases.

Table 1

No	Work description	% of Direct costs	% of Workers' basic Salary
1	Equipment and Installations	-	68
2	Radio, TV, Video Surveillance, and Electronic Devices	-	72
3	Low-Current Lines	-	65
4	Electrical Installation	-	75
5	Internal Plumbing	12	-
6	Metal Structure Installation	8	-
7	Drilling and Blasting	14.5	-

Analyzing the logic of accruing overhead costs in estimates for construction, special, and electrical work shown in Table 1, we can identify several weaknesses of this division, in particular:

Construction budget planning is one of the most important and complex components of a project. Even a professionally prepared plan can lose its relevance under the influence of various factors. The same applies to overhead costs. At the project estimate stage, it is quite difficult to account for possible changes and risks, such as changes in Average market prices for materials and labor resources. Consequently, overhead costs may change. Therefore, calculating estimated overhead costs is an important step in any large project.

Main Part. Georgian Context and Current Practice

In Georgia, estimates of overhead costs typically rely on two main approaches depending on the type of work, for example:

a) For construction and installation work, overhead costs as a percentage of direct costs;
b) Electrical work and equipment installation: overhead costs calculated as a percentage of the salaries of primary production workers.

In accordance with Resolution of the Government of Georgia provides for various maximum overhead cost percentages for public procurement, as shown in Table 1 [5].

1) Accruing overhead costs on direct costs cannot be considered an objective approach to solving the problem under consideration.

2) The accrual rate of overhead costs for construction, installation, and electrical work should be revised (explained below).

3) When work is performed by a outsourcing (counterparty/contractor), the estimate must include the amount of in-house overhead costs. The counterparty typically provides the Client with only its final prices, without breaking down individual cost items or highlighting its profit margins—this is the counterparty's right. The issue of in-house overhead costs for contractors has been virtually ignored in specialized literature (no data available) and requires study and appropriate accounting in estimates.

Let's consider each point separately.

First. Adding overhead costs to direct costs is a rather biased method of calculating indirect costs. For example, all other things being equal, the use of unreasonably expensive materials or prohibitively expensive equipment leads to an inflated cost of direct costs and, consequently, an

unjustified increase in overhead costs. In other words, overhead costs should not depend on the use of expensive materials, products, and construction equipment. This is especially important for companies that are natural monopolies in their field of activity, particularly those involved in the transmission and distribution of electricity, gas supply to large (or numerous) consumers, municipal water supply, etc. For large enterprises, whose costs are ultimately passed on to tariffs for providing services to consumers (subscribers), the use of expensive raw material resources is not always the highest priority for monopolistic companies. For this reason, these enterprises may not pay due attention to reducing the permissible prices of material resources.

Based on the above, the calculation of overhead costs as a percentage of direct costs requires revision. From this perspective, when performing construction work, it is more reasonable to calculate overhead costs as a percentage of the cost of workers' wages, as shown for some other types of work listed in points 1...4 of Table 1.

For overhead costs in construction estimates, we propose using the same principles and calculation scheme, i.e., also performing calculations as a percentage of the workers' wage fund.

For electrical installation work (which includes commissioning), the overhead costs in Table 1 are calculated based on the workers' salaries. It's worth noting that commissioning work in electrical engineering is sometimes performed without the participation of workers, solely by engineers and technicians, whose salaries are considered overhead costs. To avoid confusion and double counting, during commissioning work, overhead costs should be calculated on the salaries of contractors, regardless of the category of workers performing the work (this should be recorded in the relevant standards and regulations).

Second. If we take the requirements of the previous paragraph as a basis, the question arises: when calculating estimated overhead costs for construction work, what percentage of workers' salaries should be calculated?

As already noted, most Western countries use two stages of overhead cost calculation: a preliminary calculation based on actual costs from previous years, or similar to other projects, and an adjusted calculation based on the actual results of the financial year. In Georgia, however, fixed standard indicators for these costs are currently in effect. Therefore, to answer this question, let's first consider similar overhead cost indicators adopted, for example, in the Russian Federation, as recommended by [6]. In Methodology [6], overhead costs for all types of work are calculated as a percentage of the workers' wage fund. As an example, several positions for different types of work can be given (Table 2).

Table 2

No	Work description	Overhead costs, as a % of workers' wages
1	Mechanized earthworks	92
2	Manual earthworks	89
3	Monolithic concrete and reinforced concrete structures	102
4	Brick and block structures	110
5	Floors	112
6	Roofs	109
7	Finishing work	100
8	Water supply, sewerage, and gas pipeline networks	117
9	Highways	147
10	Bridges and pipes	140
11	Power lines	103
12	Electrical installations	97
13	Commissioning	74
14	Transportation of workers by road	100

Note. In all cases, when calculating overhead costs, the wages of machine and mechanism operators are also included in workers' salaries.t should be noted that the overhead indicator for almost all items (except one) significantly exceeds the standard value of 75% adopted in Georgia.

The current lack of appropriate computer programs for generating automated electronic estimates in Georgia makes it difficult to account for such a wide range of overhead cost indicators for their application in construction practice. Furthermore, the composition of overhead costs in construction and tax payments differ slightly in the Russian Federation and Georgia. For this reason, we propose, instead of the differentiated indicators for detailed types of work from the Russian Methodology, adopting for Georgia the overhead cost indicators as a percentage of workers' salaries for the sections listed in Table 2, with a correction factor (except for commissioning work) that takes into account the specifics of overhead costs and taxation in the Russian Federation. This means applying K = 0.95 to the data from the Russian Methodology. In this case, the results of comparing certain values will look as follows (Table 3).

Table 3

No	Types of work	Russian Standard (%)	Proposed for Georgia (%)
1	Construction work	105	100
2	Equipment installation	92	87
3	Commissioning	74	75
4	Repair construction	91	86
5	Electrical installation	91	86

Third. Particular attention should be paid to the amount of in-house overhead costs when a third-party contractor performs part or all of the work, when their price is not broken down by cost item. The contractor typically offers prices that include (but do not break down by cost item) all of their costs. In such cases, when working with the contractor (this is always the case in practice), the client can use the contractor's final price as the base price for calculating their overhead costs. This approach is new, systematic, and subject to constructive discussion.

Our task is to understand the following question: what amount of in-house overhead costs should be accrued when the work is performed by the intended contractor?

For the analysis, we adopt the following preliminary conditions with indicative indicators:

1. Labor salaries, machine operation, and material costs in both parties' calculations are market-based and approximately the same. For ease of calculation, direct costs in both cases are assumed to be equal to 100 GEL.

2. When work is performed entirely or partially by the Contractor, overhead costs must be added to the Client's own expenses. In this case, the Client's own expenses primarily include the salaries of its employees and its own overhead costs. The Client's overhead costs must be calculated based on these salaries.

3. We are considering three types of work: construction and installation, electrical work (including commissioning), and commissioning alone. A significant difference between these options is that in commissioning work, the share of contractors' salaries is 3-4 times higher than in construction and installation or electrical work.

4. For all options at this stage, the Client accrues the standard overhead costs specified in

Annexes 1, 2, and 3.

5. Profit in the estimates for an individual Client is calculated at 11.5% of the cost of work, while for the Contractor, it is approximately 35% (based on conservative estimates), although the estimates show approximately 10%.

For the situation considered for the hypothetical Client, the following expertly assessed ratio between the salaries of the Client/General Contractor and the Contractor's workers has been found to be justified in Appendices 1, 2, and 3:

- for construction and installation work - approximately 33%;
- for electrical installation work (including commissioning) - approximately 35%;
- for purely commissioning work - approximately 40% (including on-site training).

This cost distribution is not a stable calculation matrix and requires a differentiated approach for different companies and for different types of work. For this reason, to avoid a distorted understanding of overhead cost standards, this issue should be periodically clarified based on actual data across construction industries.

Therefore, taking into account the current scale of overhead cost standards in Georgia, we propose the following:

When preparing project resource estimates, overhead costs for Client are calculated depending on the type and method of work, namely:

1. When performing work using in-house resources, overhead costs are accrued at the following rates:

1.1. For construction and installation work, including repair work – at a rate of 14% of direct costs (i.e., the total wages of workers, plus the cost of operating machinery and mechanisms, plus the cost of materials and products).

1.2. For electrical work, including electrical work. commissioning works - in the amount of 75% of the payroll for workers and operators of machines and mechanisms (drivers, excavator operators, bulldozer operators, crane operators, etc.). In the case of commissioning work, the initial payroll also includes the salaries of engineers and technicians involved in this work.

2. When performing work in-house, using prices for similar objects, i.e., at costs from third-party sources without breakdown by cost items, overhead costs are not accrued to the Client's costs.

3. When performing work by the Contractor (outsourcing), the following overhead costs are accrued to the Client's costs, depending on the type of work:

3.1. For construction and construction and installation work, including repair work - in the amount of 4.5% of the cost of the Contractor's work (Annex 1).

3.2. For electrical work, including commissioning works - 6.4% of the Contractor's cost of work (Annex 2).

1.3. For commissioning work - 12.3% of the Contractor's cost of work (Annex 3).

4. When preparing a combined project estimate for work performed by the Client and the Contractor, overhead costs are calculated for each job and contractor separately.

Another question: how to reduce overhead costs in construction?

The standards for calculating overhead costs for different participants in the construction business may be acceptable to varying degrees, but always require a commitment to optimization. To achieve consensus between the parties, the estimated overhead costs should be minimal for the investor, and as high as possible for the contractor, but within the limits of reputational safety. The following general guidelines can be considered for a systematic approach to optimizing overhead costs:

- Optimization of administrative and accounting processes, for example, by implementing appropriate computer programs.
- Comparison with industry overhead cost indicators, analysis to identify bottlenecks.

- Reduction of unnecessary utility costs for own needs (electricity, heating, water).
- Optimizing the organization and technology of work production, etc.

Since construction projects often vary in scale, duration, and complexity, companies need to employ strategic methods to fairly allocate overhead costs across projects. The following methods provide a thoughtful and consistent approach to allocating indirect costs [7]:

• Competitive bidding: Helps establish realistic contract prices;

• Financial transparency: Ensures proper reporting and profit assessment;

• Effective resource management: Guided by cost-saving decisions;

• Regulatory compliance and tax aspects: Proper allocation facilitates financial audits.

Conclusion

1. In construction, project estimates should include commissioning work depending on the type and type of work, as well as the planned execution: in-house, with partial involvement of a third party, or through outsourcing of the project.

2. For the construction and electrical work discussed in this article, a new approach to calculating indirect overhead costs is proposed, taking into account the various performers specified in the previous paragraph. The calculations are presented as a systematic approach and should be refined in each organization to improve their validity.

3. For the main types of construction in Georgia, when calculating overhead costs, the need for a gradual transition to a calculation basis based on a percentage of the payroll of workers, drivers, and equipment operators should be taken into account. This new proposal also requires discussion among specialists.

References

1. J. Primsky and T. Riso, Indirect Costs in Construction: An Essential Guide, Procore, 2025, USA. Available: https://www.procore.com/library/indirect-costs-in-construction.

2. FasterCapital, Project Cost Estimator Tool^ How to Estimate the Cost of any Project, Dubai, 2025. Available: https://fastercapital.com/content/Project-Cost-Estimator-Tool--How-to-Estimate-the-Cost-of-Any-Project.html.

3. A Guide for Indirect Cost Rate Determination. U.S. Department of Labor, 2025, p. 39.

4. Federal Acquisition Regulation; Subpart 42/7 – Indirect Cost Rates. Available: https://www.acquisition.gov/far/subpart-42.7.

5. Resolution of the Government of Georgia No. 55, January 14, 2014, Tbilisi.

6. "Methodology for the development and application of overhead cost standards in determining the estimated cost of construction, reconstruction, major repairs, and demolition of capital construction projects" as amended by the Ministry of Construction of Russia dated July 26, 2022.

7. Dannible and McKee, LLP, Certified Public Accountants and Consultants, 2025. Available: https://www.dmcpas.com/article/managing-indirect-costs-in-the-construction-industry/