

TECHNOLOGICAL DESIGN OF CONSTRUCTION

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The Construction Organization Project (COP) is the main part of the construction project or maintenance project. Two-stage design successively completes the stages of “project” and “working documentation”; for the constructed objects, the design can be carried out in one stage when a “technical project” is developed. PIC determines the duration of construction of the facility, its cost, the need for materials and necessary equipment.

PIC is developed by a master design organization or, at its request, by a project developer. For large and particularly complex facilities with especially responsible or new supporting and fencing designs, separate sections of PIC may be developed by specialized organizations. The PIC should include the entire facility and is being developed for the duration of the construction of the complex. If a major facility is to be built in parts or queues, separate, more detailed construction management projects for the individual campus maintenance lines may be considered along with the development of PIC for the entire facility.

The Works Project (WP) is designed for the construction of individual building cycles and complex construction works. The WP is developed in the immediate pre-production phase.

Construction of any facility is permitted only on the basis of prior decisions taken in the PIC or RPA. The main design and technological documents on the organization of builders’ work are technological maps, work process maps and process diagrams, in which, on the basis of a compilation of best practices, rational composition of teams and units is established, organization of the construction process and workplaces, working methods, technological sequencing and duration of operations.

Process designs are elaborated for workers to explain the optimal execution of individual operations. Technological schemes clearly delineate responsibilities among the construction gang members and provide explanations, sometimes supported by graphic images, for the performance of individual production operations with recommendations for rational work movements and practices.

The workflow map is designed to indicate rational workflow in the execution of certain types of technological operations. It specifies the most rational composition of the working unit for efficient operation of the technological process, the distribution between the working operations; specifies the working and rest modes. WFMs are compiled on the basis of the study and

compilation of best practices corresponding to the modern level of construction production, providing necessary technical and economic performance and high quality of work in compliance with SR regulations. It describes the field of application, the organization of work processes, the working hours and the distribution of work among workers (teams), and working conditions.

The mapping of work processes can be developed directly on the ground, but the use of generic TPCs tailored to local conditions is considered more rational.

WPMs are developed according to a common methodology. Each card has a name that defines the work process of the construction production for which it is designed and a cipher. For example, the cipher of the KKT-4.1-1 set of maps means that this first set includes the works specified in the first issue of the fourth EURR set.

The model WPM is developed for the majority of work processes, consisting of four sections: 1 – “Scope and efficiency of the map application”; 2 – “Conditions and preparation of the execution of the process”; 3 – “Performers, objects and tools of labor”; 4 – “Process technology and organization of labor”. At the sites, they need only to be agreed with the local conditions and the end date of the work. Technological maps are developed for complex processes and simple construction works.

The technological map is the basic document of the technology of the construction industry, regulating the sequence and modes of execution of the construction process on the basis of progressive methods and complex mechanization. The process map reflects four groups of standards (limit technological parameters allowed by the current regulations – GOST, GS&A, TU).

The assignment should specify the time frame for the preparation of the required documentation and be accompanied by a schedule of work and estimates, a set of work drawings for the design of the method statement for optimum design, drawings of mounting units and specification, data on agreed delivery dates of mountable constructions. The period of development of the method statement directly depends on the structure, the volume of the installation works, and their complexity.

References:

1. Goncharov A.S., Kopylov V.D. Metrologiya, standartizatsiya i sertifikatsiya. – M. Izd. Akademia. 2003 g.
2. Goryachkin P.V. Sostavleniye smet v stroitel'stve na osnove smetno-normativnoy bazy 2001 (Prakticheskoye posobiye). – M., S-P., 2003 g. – 560 s.
3. Ardzinov V, D. Yak skladaty i pereviryaty budivel'ni koshtorysu. – SPb.: Piter, 2008 h. – 208 s.