

ČESKÉ VYSOKÉ UČENÍ TECHNICKÉ V PRAZE

FAKULTA STAVEBNÍ

Katedra ekonomiky a řízení ve stavebnictví



DIPLOMOVÁ PRÁCE

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V Praze dne 14.1.2018

.....

Bc. Rostislav Zilcher

# **Comparison of construction supply delivery methods used in Czech Republic and Argentina**

Srovnání dodavatelských systémů používaných ve stavebnictví v ČR a Argentině

Anotace:

Tato diplomová práce se zabývá dodavatelskými systémy využívanými ve stavebnictví v ČR a v Argentině. Popisuje a analyzuje jednotlivé dodavatelské systémy, typy smluv využívaných pro provedení stavebních prací či zhotovení stavebního díla z hlediska tvorby ceny a zabývá se i legislativní úpravou závazkových vztahů ve stavebnictví a využitím všeobecných obchodních podmínek. První kapitola se zabývá vysvětlením základních pojmů, které jsou pro další kapitoly práce klíčové, druhá kapitola popisuje dodavatelské systémy používané v ČR, třetí kapitola popisuje systémy používané v Argentině a konečně čtvrtá kapitola oba státy porovnává pomocí analýzy. Ta je založena na důležitých vlastnostech daných dodavatelských systémů a typech smluv používaných ve stavebnictví.

Klíčová slova: dodavatelský systém, typy smluv, investor, dodavatel, všeobecné obchodní podmínky, stavební povolení

Annotation:

This diploma thesis deals with supply systems used in construction in the Czech Republic and Argentina. Describes and analyzes individual supply systems, types of contracts used to perform construction works or construction works in terms of pricing and deals with the legislative modification of the obligations of the construction industry and the use of general business conditions. The first chapter deals with the explanation of the basic concepts that are crucial for the next chapters of the thesis. The second chapter describes the supply systems used in the Czech Republic, the third chapter describes the systems used in Argentina and the last fourth chapter compares the two countries with the analysis. This is based on the important characteristics of the given supply system and the types of contracts used in the construction industry.

Keywords: supply delivery methods, types of contracts, investor, supplier, general business terms and conditions, building permission

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## Goals:

The aim of this diploma thesis is to describe and analyze supply delivery methods used in Czech and Argentinian construction industry, types of contract relations and their legislative arrangements, which are used for construction works or for production of the buildings. The main objective is to compare these two systems with critical comparison analysis.

Objective 1: Analyze supply systems used in the Czech construction industry:

- Project delivery methods
- Types of contracts
- FIDIC Contracts
- Legislative arrangements for commitments

Objective 2: Analyze supply systems used in Argentinian construction industry:

- Project delivery methods
- Types of contracts
- Legislative arrangements for commitments

Objective 3: Presented Czech and Argentinian Supply Systems Comparative Analysis evaluation

Thesis will include 4 chapters which are:

1. Definition of basic concepts (construction project, major construction contractors, supply system and types of contracts)
2. The second chapter deals with Czech construction industry
3. The third chapter deals with Argentinian construction industry
4. The fourth chapter provides a comparative and critical analysis of the supply systems and type of contracts used in the construction industry in the Czech Republic and in Argentina described in the previous chapters and given legislative adjustments to the commitments



# 1 Definition of basic concepts

For the reason of understanding the topic, it is necessary first to define the basic concepts that will be used throughout the work. These terms are the basics of other chapters and are oftenly used in the work

## 1.1 Construction project

The construction project is a complex, unique, final process of investment conversion plan in a workable building that reaches the final goal of the project. The lifecycle of the construction project is illustrated in Figure 1 and is generally divided into 3 main phases:

### 1) The pre-investing or preparatory phase

The purpose of the pre-investment phase is to define the objectives of the project. This phase includes in particular the collection of information, its analysis and evaluation. The aim of this phase is to gather information and knowledge from a marketing, technical, economic and financial point of view and evaluate this knowledge. The output of this phase is the decision whether the project will be implemented or not.

### 2) The investment phase including the preparation and realization phases

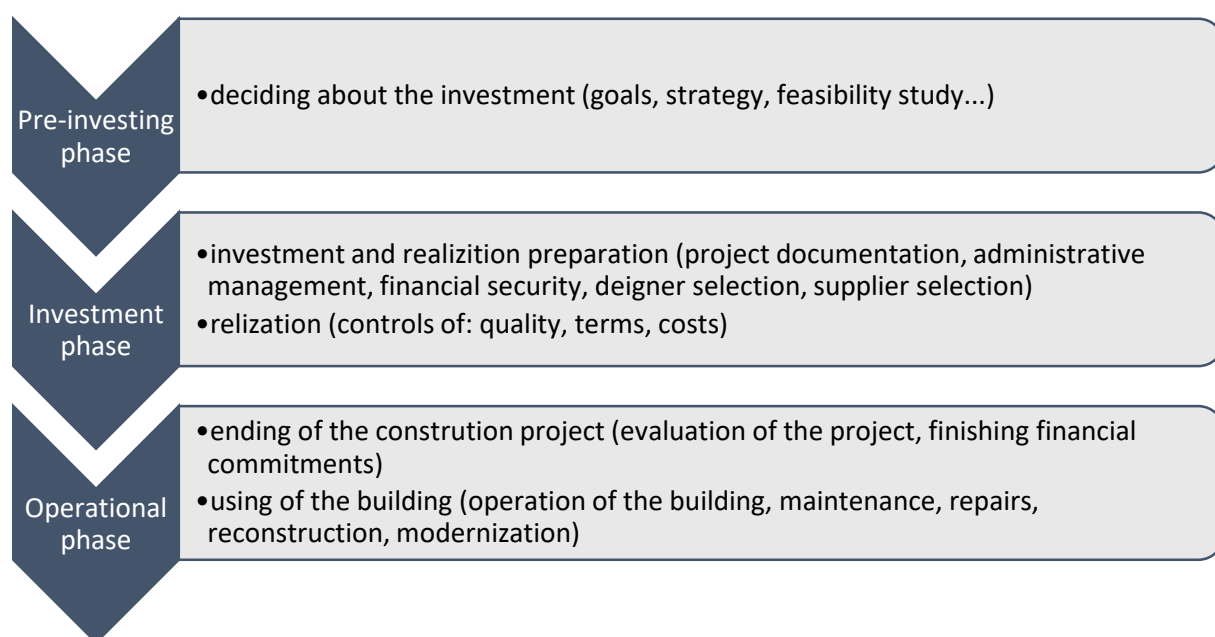
I have to divide this phase into 2 sub-phases:

- **Investment and preparation** - This stage follows the previous stage. It is about a more sophisticated version of the previous stage, when defining architectural and construction engineering solution, economic consequences of this solution, specify the way of financing, organization and project management. The aim of this stage is to create the relevant project documentation of the construction, get the building permission, select the most suitable contractor and let the construction to begin.
- **Realization** - This stage begins with the handover and takeover of the construction site between the investor and the supplier. The aim of this stage is to build a building as is settled in a contract for a fixed price, within a specified time, and of the required quality. The winner of the

tendering process carries out construction work either by own resources, or hires some of the subcontractor's work.

### 3) The operational phase or the use phase of the construction

This phase is characteristic by starting of using the building. At this stage, the project goal should be achieved. The construction project is completed and starts to run the warranty period that was agreed in the Contract for Work. The operational phase ends with the liquidation of the construction.



Obrázek 1 Phases of construction project

## 1.2 Participants in the construction project

The participants in the construction are all entities, both legal and natural, which are part of the construction, and are interested in the result of construction. Construction participants are divided into direct (main) and indirect (secondary). Building law No. 183/2006 Coll. regulates the scope, the duties and responsibilities of persons involved in the preparation, implementation and realization of buildings.

### 1.2.1 Investor

An investor is a person who spends money on construction for profit in both - public and the private sector. Investor is the main factor of investment construction, because

the future construction is carried out in order to fulfill his investment plan to which he is willing to invest. In case of construction, the investor may or may not be the builder as well as the future user.

### 1.2.2 Builder

A builder is a person who organizes an investment construction for the investor's funds. In practice, the most common case is that an investor is a builder, but it may not always be the case. For example, a foreign investor can provide funding for construction to a local builder, who builds the construction with the money from more investors. The builder does not need to be a future user of the building, as he can organize construction for another future user. The builder is a person who is publicly responsible for the construction and, after finishing the construction he becomes as a owner of the construction. This fact is legally ensured by the provisions of Section 79 of Act No. 50/1976 Coll., which says that the building approval procedure is initiated at the proposal of the builder. The proposal may also be submitted by the future user, but he must submit a written agreement with the building contractor to use the building . " The builder is the one whose application has been granted a building permit and in his favor the building will also be approved (with the exception of a written agreement between the builder and the user). On the basis of the approval decision, the new building is registered in the cadastral register, which is the property of the person in whose favor the building approval decision was issued.

### 1.2.3 User

A user is a person who uses or will use a work acquired in the process of investing in construction. The user may or may not be both an investor or a builder. The user of the building participates in the investment construction during the preparation and implementation and raises the requirements and participates in their solution in view of the future operation of the building construction.

### 1.2.4 Construction supervisor

Or technical supervision is also used – its the person who performs on the basis of a contractual relationship with the builder or the investor (depending on which of those participants is hired by the construction supervision), supervising the work carried out. Construction supervisors should be independent, therefore they should in no way be

linked to the persons that they control (supplier and designer). Construction supervisor checks whether the construction works according to the timetable, according to the project documentation, whether the designed materials are used in the prescribed quantity and quality, that the prescribed technological procedures are followed, that the quality of the work is respected, that all construction details are properly carried out, a construction diary is made right, whether the building safety standards are followed, if technical standards are followed, legal norms and conditions laid down by the building permit, contractual relations, etc. are being observed. Construction Supervisors also have their control and requirements towards the contractor to ensure that no unnecessary damage will be done during the construction. The Construction Supervisor organizes and controls the regular inspection days of the construction throughout the lifetime of the construction, in which all problems with construction are mentioned and solved.

### 1.2.5 Designer

The designer is the function of one of the three major construction participants who is in a contractual relationship with the investor and is responsible for the designing of the project documentation. The designer is responsible to investor for whole project, for its production on time, quality and completeness according to the contract, although the processing of the individual parts of the project can also be contracted by its possible subcontractors. The general designer carries out for the investor during the execution of the construction the author supervision, in which the designer verifies the correctness of the construction with the project documentation.

### 1.2.6 Construction contractor (supplier)

The contractor is a supplier of construction works and related supplies, who is in contract with the investor, and is also responsible for subcontractors (lower suppliers) in addition to its own supplies and coordinates the construction of all suppliers. The higher contractor of the construction is responsible to the investor for the entire delivery of the construction, including the supply of its subcontractors, for its completion on time, quality and completeness according to the contract. A contractor is in general name for a party that has committed or may commit to some performance. In

investment construction it is a supplier of construction work and related supplies. The supplier is in a contractual relationship with the investor, to which is responsible for the delivery on time, quality and completeness of the contract. A lower contractor is a supplier who does not have a direct contractual relationship with an investor but is a subcontractor of a higher contractor.

### 1.2.7 Indirect participants of the construction

The indirect participants in the construction are all other parts interested into construction, but which are not directly connected with the construction. In most cases, they do not close the contract directly with the investor. Mainly these are: subcontractors, material producer, building authorities, banks, insurance companies, owners of the nearby properties etc...

#### Direct participants

- Investor
- Builder
- User
- Construction supervisor
- Designer
- Construction contractor (supplier)

#### Indirect participants

- Subcontractors
- Material producers
- Building authorities
- Banks
- Insurance companies
- Owners of the nearby properties

## 1.3 Project delivery systems

Project Delivery system is a comprehensive process including planning, design and construction required to execute and complete a building facility or other type of project. Choosing a project delivery method is one of the fundamental decisions owners make while developing their acquisition strategy.

Project delivery systems refer to the overall processes by which a project is designed, constructed, and/or maintained. In the public sector, this has traditionally entailed the almost exclusive use of the design-bid-build system, involving the separation of design and construction services and sequential performance of design and construction. In recent years, however, the public sector has begun experimenting with alternative methods to improve the speed and efficiency of the project delivery process.

The main objective of the investor when choosing a delivery system is to ensure that the target is met project - the construction of functional buildings of the required quality, at the agreed date and with the agreed costs.

Many factors which affect the selection such as:

- Owner's experience, qualifications and capability
- The magnitude, form, function and complexity of the project
- Time is of the essence:
  - Sequencing of the project
  - Establishing the project timeline
  - Fast-tracking utilizing multiple contractors or contracts to shorten the project timeline
- Cost/Budget/ Other Financial Challenges

## 1.4 Contracts

The Agreement is a binding document for the relations of the Contracting Parties. The contract must state the conditions for the conclusion and the duration and termination of the contractual relationship. Contracts are concluded according to the Civil or Commercial Code. The contract should include: identifying the parties, determining the subject of the performance of the contract, the amount of the price or the method of determining it, setting the date of performance of the contract, the payment terms. These are the most common types of contracts in construction in the Czech republic:

### 1.4.1 Contract for work

The contractor undertakes to perform a certain work, which at the moment of signing the contract does not yet exist. The customer then undertakes to take over the work and to pay for its execution in an agreed price. In construction, this type of contract is

used to create project documentation and for the construction of the part or all of the building work.

#### 1.4.2 Purchase contract

The seller undertakes to transfer the subject of the contract to the buyer (a thing that already exists) and at the same time provides ownership of the subject to the buyer. The buyer undertakes to pay the price for the item. In construction, this type of contract is used to deliver piece items, such as windows, doors and more.

#### 1.4.3 Mandate contract

In this contract, the mandate undertakes to carry out a task for the mandant on his behalf. The mandant pledges to pay for these activities. This type of contract under construction is used to provide project management or engineering activities, such as investor technical supervising.

#### 1.4.4 Contract commission

The commissioner undertakes to perform the activity for the principal in his own name. The Client commits to the payment of the agreed payment for these activities. This type of contract is mainly used in the construction industry to provide engineering services.

#### 1.4.5 Contract for the conclusion of a future contract

By this contract one or both contracting parties undertake to contract together with a particular subject of performance, which must be determined or at least suggested at the contract.

### 1.5 Partial conclusion

This chapter explains the basic concepts that are needed to understand the following chapters. Now we know that the project is divided into three phases: the pre-investment phase, the investment phase and the operational phase. The construction delivery system is a system of contractual relations between major parts of construction. Among them is the investor who has financial means and decides on the construction project, as well as the designer who creates the project documentation and the contractor of the construction site that makes the construction work, or construction contractors. The

different parties have different interests and objectives, therefore, the terms of the contract should be balanced. Contractual relationships between the major participants in the CR are usually concluded on the basis of a work contract. The choice of delivery system depends on many factors. The decision belongs to the investor. The choice depends mainly on the risks that the investor is willing to bear and which he wants to transfer to other people, his knowledge of the preparation and management of buildings. The magnitude, form, function and complexity of the project. Time is of the essence: sequencing of the project, establishing the project timeline, fast-tracking utilizing multiple contractors or contracts to shorten the project timeline and finally Cost/Budget/ Other Financial Challenges.



## 2 Project delivery systems, types of contracts and legislation used in Czech construction industry

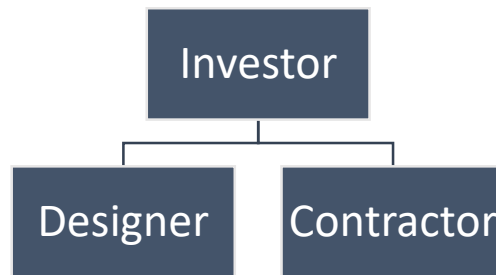
In this chapter we will focus on description of supply systems in the Czech Construction Industry. To this we will characterize the typical contracts concluded in the Czech construction sector and finally we will approach legislation that closely relates to construction projects including general business terms & conditions.

### 2.1 Project delivery systems used in the Czech republic

This chapter describes and analyzes the supply systems used in the Czech construction industry. These systems are often taken from British or American construction industry, mainly due to non-standardization of the supply systems in the Czech Republic. Among the basic supply systems used in the construction industry the CR belongs a traditional supply system, a single supplier system, a system on key and multi-supply system. The supply systems are also classified as contractual relationships with companies offering only coordination and management of the construction project, such as Construction Management or Project Management.

#### 2.1.1 Design-bid-build

Or sometimes called as „Traditional delivery system“ is a project delivery method in which the investor or owner contracts with separate entities for the design and construction of a project. The investor concludes only two works contracts: one to create a project documentation and the second one for the construction work. The designer is responsible for the quality of the project documentation. The construction contractor is then responsible for the quality of the construction he has built according to the project documentation received from the investor. The investor's designer does not enter into any contract with the building contractor and does not usually co-operate. The construction contractor does not have the authority to enter the design work and can not check the completeness of the project documentation in terms of the realization of the construction.



Obrázek 2 Design bid build diagram

We can separate the process into 3 phases:

- Design

In this phase the owner retains an architect to design and produce bid documents, including construction drawings and technical specifications, on which various general contractors will in turn bid to construct the project. For building projects, the architect will work with the owner to identify the owner's needs, develop a written program documenting those needs and then produce a conceptual and/or schematic design. This early design is then developed, and the architect will usually bring in other design professionals including mechanical, electrical, and plumbing engineers, a fire protection engineer, structural engineer, sometimes a civil engineer and often a landscape architect to help complete the construction drawings and technical specifications. The finished bid documents are coordinated by the architect and owner for issuance to general contractors during the bid phase. Design fees are typically between 5-10% of the total project cost.

- Bid

The various general contractors bidding on the project obtain copies of the bid (or tender) documents, and then put them out to multiple subcontractors for bids on sub-components of the project. Sub-components include items such as the concrete work, structural steel frame, electrical systems, air conditioning systems, and landscaping. From these elements, the contractor creates a complete bid (or "tender price") for submission by the established closing date and time. Bids can be based on the quantities of materials in the completed construction, the operations needed to build it, or simply as a lump sum cost, however, these bid requirements are clarified in the bid documents. Once bids are received, the architect typically

reviews the bids, seeks any clarifications required of the bidders, investigates contractor qualifications, ensures all documentation is in order, and advises the owner as to the ranking of the bids. If the bids fall in a range acceptable to the owner, the owner and architect discuss the suitability of various bidders and their proposals. The owner is not obligated to accept the lowest bid, and it is customary for other factors including past performance and quality of other work to influence the selection process. However, the project is typically awarded to the general contractor with the lowest bid.

- Build

Once the construction of the project has been awarded to the contractor, the bid documents (approved construction drawings and technical specifications) may not be altered. The necessary permits (for example, a building permit) must be achieved from all jurisdictional authorities in order for the construction process to begin. Should design changes be necessary during construction, whether initiated by the contractor, owner, or as discovered by the architect, the architect may issue sketches or written clarifications.



This type of supply system is often supplemented by an author's supervision and technical supervision of the investor. Author's supervision is carried out by the designer, who controls the realization of the construction according to the project documentation he has created. The technical supervision of the investor checks the quality and accuracy of the work performed. For constructions financed from the public budget, which is executed by the construction investor as a contractor, it is the obligation of the investor according to the Building Law to secure the author's supervision and technical supervision of the investor.

Advantages:

- ⊕ Applicable to wide range of projects
- ⊕ Well established and easily understood
- ⊕ Clearly defined roles for all parties
- ⊕ Provides the lowest initial price that bidders can offer

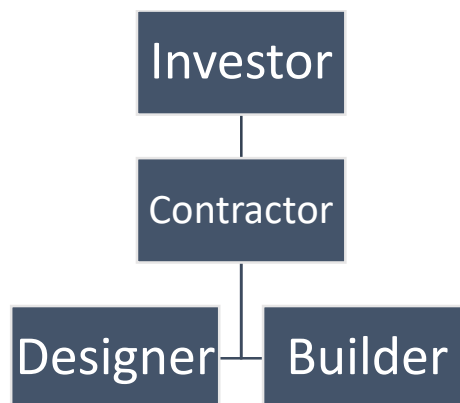
- ⊕ All the risks associated with the construction are on the contractor side

Disadvantages:

- ⊖ No time saving - because of the linear process (design - bid - build)
- ⊖ There is no cooperation between designer and contractor
- ⊖ Changes in the project are quite frequent
- ⊖ Changes in the project leads to raise the overall price

### 2.1.2 Design – build

It is a method to deliver a project in which the design and construction services are contracted by a single entity. Design-Build is a construction delivery method that provides owners with a single point of contact for both the design and construction phases of a project. One entity holds single-source responsibility and contractual risk for every aspect of a build — from estimation, assessments and pre-construction to architecture, schematics, engineering, subcontracting, construction and post-construction. This entity, the Design-Builder, manages all contracts with companies, such as subcontractors, equipment vendors and materials providers. This type of delivery system is often supplemented by a contract of technical supervisor of the investor.



Obrázek 3 Design build diagram

This delivery system is mainly used for more complicated constructions where the communication between the investor (his goals and intent) and the contractor is very important as well as between the designer and the „builder“ team for the feasibility of the construction. The investor transfers all risks associated with the delivery of a complete functional building work, including the creation of project documentation to the contractor. The success of the project then depends mainly on the appropriate

choice of the contractor and on the ability of the investor to determine their intentions and objectives. This supply delivery system is usually closed at a fixed price or a contract with a guaranteed maximum price.



Advantages:

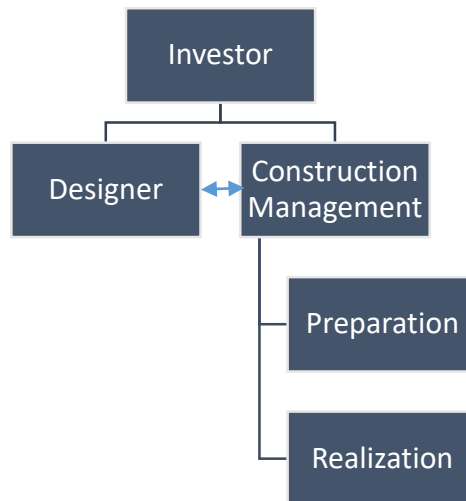
- ⊕ Transfer of responsibility of the project and construction from investor to contractor
- ⊕ Contractual relationship with only one person - contractor
- ⊕ Accelerate the whole project
- ⊕ Communication between both parties from the beginning

Disadvantages:

- ⊖ Less opportunities for investor to make impact on project and construction work
- ⊖ The overall price may be higher than at DBB system - thanks to bigger responsibility and bigger risks for the contractor
- ⊖ The investor does not have a lot of control over the supply - he has no influence on the selection of the designer and builder

### 2.1.3 Construction management (at-risk)

CM is a delivery method that involves the commitment of the construction manager to deliver the project within a Guaranteed Maximum Price. The construction manager acts as a consultant to the owner in the development and design phase and as a general contractor during construction. When a construction manager is bound to guaranteed max price, the fundamental character of the relationship is changed. In addition to the owner's interest, the construction manager must control the construction costs to stay within the guaranteed max price.



Obrázek 4 CM at risk diagram

Construction Management (at-risk) is a global term referring to the business relationship of a contractor, owner and designer. Typically, a CM (at-risk) arrangement eliminates a "low-bid" construction project. And the guaranteed max price agreement is a typical part of the construction manager and owner agreement (comparable to a "low-bid" contract), but with adjustments in responsibility for CM. The advantage of a CM (at-risk) arrangement is budget management. Before the project's design is completed, CM is involved in the estimation of the cost of constructing a project based on the designer's and owner's design goals and project scope. In balancing the costs, timing, quality and goal of the project, the design may be changed instead of redesigned - if the owner decides to expand the project, adjustments can be made before pricing. To manage the budget before design is complete and construction begins, CM manages site management and purchases major items to efficiently manage time and cost.

Advantages:

- ⊕ Cooperation between Designer and CM team from the beginning
- ⊕ Acceleration of the construction process
- ⊕ CM is responsible for the costs
- ⊕ Reduction of claims and changes
- ⊕ Greater involvement of the investor

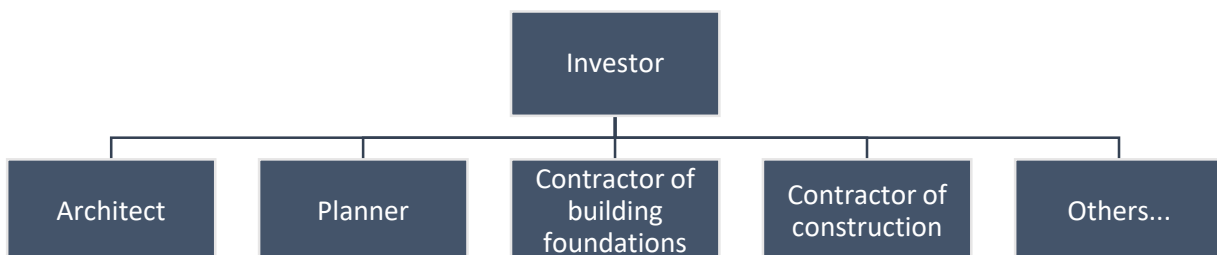
Disadvantages:

- ⊖ This system may be more expensive

- ⊖ The too harsh maximum price can cause problems as yet not all technical and other details are not clarified
- ⊖ Benefits depends on the good communication between the project teams

#### 2.1.4 Multiple contractor system

The multi-contract system also known as investor's way of building. This system is almost unknown in the Anglo-American environment. At this supply system, the investor submits individual projection, construction and related supplies to individual contractors. At first concludes contracts with individual designers (such as building site designer, designer of technical equipment of buildings, statics, etc.), who will create the project documentation. Based on this project documentation, investor concludes individual contracts of construction and assembly works and deliveries with individual contractors focused on given activity. Thus, the investor concludes many works contracts whose number depends on number of suppliers. The investor manages the construction and coordination of individual suppliers by himself. This can be only carried out by an investor who has an experience of managing the project with construction. Otherwise, he should hand over the management of the construction to the project manager, or he can hire an engineering organization that makes coordinating and managing the construction as a project manager. This company acts in the name of investor and secures individual suppliers and coordinates their work on the site, also supervises the quality of the work done. Individual contractors have signed contracts with the investor. This service is called "Engineering" in Czech republic terms and in the Anglo-American environment its called Agency Construction Management. This supply system is generally used only for small businesses, simple buildings or sub-deliveries. At most, it is used in most cases with contract based on unit prices, the price for the overall work is known only after completion of all construction work.



Obrázek 5 Multiple contractor diagram

Advantages:

- ⊕ Overview of all activities
- ⊕ Choice of decision throughout the construction project
- ⊕ Greater flexibility in making changes to the project until completion of the construction

Disadvantages:

- ⊖ Many contractual relationships
- ⊖ Coordination and control of all the work in its own right or over the commission person
- ⊖ The price for the overall work is known only after the completion of all construction works, mainly because of the number of contractors

### 2.1.5 Public Private Partnership (PPP)

The Public Private Partnership (PPP) is the cooperation between the public and private sectors, aimed at the implementation of projects or provision of services traditionally provided by the public sector. This cooperation is based on the assumption that each party is able to implement its own tasks that have been entrusted to it, more efficiently than the other party. In this way, the parties complement each other, dealing with PPP, right with that part of the common task they perform best. With the division of tasks, responsibilities and risks, under PPP, the most cost-effective way to create infrastructure and delivery of public service are achieved. Under PPP, each party draws its own benefit, proportional to its interest. Since a long time, PPP has been a form of public task implementation widely used in the countries of Western Europe. There is no uniform classification of public-private cooperation. Currently, PPPs include almost all contractual co-operation between private and public institutions. In general, we can distinguish two models of cooperation:

- Construction and operation of new capacities
- Repair of existing capacities

International Finance Corporation (IFC), the World Bank's Door Company distinguishes 11 models of public-private cooperation. Each model is based on contracts between state institutions and private companies. In practice, the models get



a whole number of changes. Contracts are modified according to the objectives of individual projects. The resulting project is unique and is based on the principle of a certain strategy, not the whole manual.

Models of a public-private partnership:

- **BOOT (build-operate-own-transfer)** the most widespread model and is most commonly used in „greenfield“ construction. The construction and operation of the capacity is carried out by the selected company. The built-up capacity becomes the property of a selected company that manages it and, after expiration of the contractual period, transfers it to state ownership. For the operation of infrastructure capacity, the contracting firm charge users which covers the costs and profits of the private entity. The government or other donors do not contribute to the construction and operation.
- **BOO (build-operate-own)** is similar to BOOT, its implementation mechanism is basically the same as BOOT, but the capacity does not go into state ownership after the expiration of the contractual term but remains in the possession of a private entity.
- **BTO (build-transfer-operate)** a private company will build new infrastructure capacity on its own. The investor uses private equity to finance the project. Upon completion, the private company transfers capacity to state ownership. Consequently, an additional separate contract is concluded with the provider for the capacity operation.
- **BLT (build-lease-transfer)** a method commonly used by developers. The company builds capacity with the use of private capital and, upon completion, transfers it to the state on the basis of a leasing contract. After the expiry of the leasing period and the repayment of the amount, the ownership rights are fully transferred to the government, as well as the obligation to secure the capacity.
- **BLT (build-lease-operate)** represents a similar solution as BLT. The difference is that capacity remains in the ownership of the provider after the set time has elapsed. There is no transfer to the government.
- **DBO (design-build-operate)** similar to BOT. Unlike BOT, there is a private entity's responsibility for designing a new capacity.

- **DOT (develop-operate-transfer)** similar to BOT. In addition, a private company has acquired rights to realize the development of adjacent plots. (for example the right to build a business complex near the highway)
- **ROT (rehabilitate-operate-transfer)** it is used for existing capacities that need repairs. The private company carries out a repair at its own expense, then operates and collects the fees/taxes and, after the specified time, transfers capacity back to state ownership.
- **ROO (rehabilitate-operate-own)** here the private company will repair the capacity at its own expenses and on the basis of it will take ownership of it.
- **ROL (rehabilitate-operate-lease)** the private company receives the right to operate the lease-based capacity by performing a repair.
- **CAO (contract-add-operate)** it is recommended to use it for the beginning of cooperation. The private company undertakes to extend the already existing capacity, and also manages it under the lease agreement.

## 2.2 Types of contracts used in Czech construction industry

The most used types of contracts have already been shown in Chapter 1.4. In this chapter we will focus on types of contracts according to the price structure of the project. An appropriate choice of price structure and fairness of the project's valuation is a factor that can influence project implementation. Pricing between fixed and variable amounts and setting payment rules can reasonably reduce or offset the risks of unforeseeable circumstances that the contractor takes over by accepting the contract. When negotiating a contract, both sides try to shift the risks in their negotiations to the "other party" in order to keep the price, the goal of the project and the quality.

Project cost usually includes:

- the cost of implementing the project according to the objectives and quality
- risk reserves
- profit of the project supplier
- price adjustments (both positive and negative)

### 2.2.1 Unit price contract

This type of contract is used where the amount of a work at the beginning of the work is not known and is difficult to define. For example, in the case of transport buildings, the extent of the work depends on the type of soil, and geological exploration will not reveal

any obstacles that may occur. Therefore, when signing the contract, they agree on unit prices for all expected works. The price is determined on the basis of the works and contractual unit prices. For this type of contract, the supplier has no price risk or risk associated with a poor estimate of work. On the other hand, due to the many items that need to be measured, the investor's team must have a good control over the seller's payments. Making a good contract is not easy. A detailed statement with a description of the works and the project documentation (preferably in the form of implementation documentation) is submitted to the investor for the conclusion of this contract. On this basis, the supplier can value individual items (labor) at unit prices. There are two approaches to building a contract for the delivery of a building. The first option is to create a unique contract for each construction. First is a modification of the contract model to specific conditions. The advantage is the simplicity of the contract, each unit or work is described clearly in the contract in one place only. The second approach is to define the general conditions that apply generally to each construction. Differences of construction are described in the "Special Conditions" section. The contract is very short and only states which parts are composed and what their priority is. For example, the general FIDIC conditions are an example of frequently used conditions. The advantage of this approach is the uniform general conditions for all construction works. The disadvantage is the lack of clarity of the contract (for example, the same thing can be described differently in general and special conditions, with special conditions having priority). Its necessary to pay attention of priority priorities for this type of contract: contract → special conditions → general conditions → technical attachments

Advantages:

- ⊕ valuation of individual items
- ⊕ lower contractor risk
- ⊕ simpler billing proofing and additional payment for changes
- ⊕ exact job description

Disadvantages:

- ⊖ more difficult billing
- ⊖ overall price is unknown at the beginning

### 2.2.2 Lump Sum contract

Under a lump sum contract, a single „lump sum“ price for all the works is agreed before the works begin. It is defined in the as a „fixed price“ contract where contractors undertake to be responsible for executing the complete contract work for a given total amount of money. This is generally appropriate where the project is well defined when tenders are clear and significant changes to requirements are unlikely. This means that the contractor is able to accurately price the works they are being asked to carry out. Lump sum contracts might be less appropriate where speed is important, or where the nature of the works is not well defined. Lump sum contracts apportion more risk to the contractor than some other forms of contract, as there are fewer mechanisms to allow them to vary their price, and they give the investor some certainty about the likely cost of the works. The tender process will tend to be slower than for other forms of contract and preparing a tender may be more expensive for the contractor. However, a lump sum contract does not give all the project risk to the contractor, and it is not a fixed price, or even a guaranteed maximum price. The price of a lump sum contract can change.

Mechanisms for varying the contract sum on a lump sum contract can be:

- Variations: These are changes in the nature of the works. Most contracts will contain provision for the designer or contract administrator to issue instructions to vary the design, quantities, quality, sequence or working conditions
- Relevant events: A relevant event may be caused by the investor (for example failure to supply goods or instructions), or may be a neutral event (such as exceptionally bad weather) and may result in a claim for loss and expense by the contractor
- Provisional sums: An allowance for a specific element of the works that is not defined in enough detail for tenderers to price (at the beginning)
- Fluctuations: A mechanism for dealing with inflation on projects that may last for several years where the contractor tenders based on current prices and then the contract makes provisions for the contractor to be reimbursed for price changes over the duration of the project

Advantages:

- ⊕ It is widely accepted and understood as a method of contracting

- ⊕ There is lower risk apportioned to the owner/investor since a fixed rate is agreed upon
- ⊕ Contractors will often try to complete the project faster by maximising their production and efficiency
- ⊕ Higher profit for contractor

Disadvantages:

- ⊖ Changes can be difficult to quantify
- ⊖ There may be a slower tender process than for other contract forms
- ⊖ The investor is able to reject any change order requests from the contractor
- ⊖ Higher risks on contractors side

### 2.2.3 Cost plus fee contract

In this contract, the contractor undertakes to perform certain works and the investor will undertake to pay to the supplier all the actual costs associated with the delivery and a reasonable profit (fixed or percentage), in the fulfillment of the given conditions. Percentage is between 5-10%. This contract is concluded in cases where, when at the moment of signing the contract, the exact scope of supply and work is unknown before and the construction documentation is not fully completed, or when the investor wants to take part in choosing a subcontractor and wants to get better control over the costs. In this agreement, a certain part of the work in which the range is known is negotiated at a fixed price. These are mostly project documentation work, planning permission and construction management. Contractor and investor together select subcontractors for construction and material supply. Subcontractors conclude a fixed price contract with contractor. The investor pays to the contractor the price of the subcontracting plus the percentage charge. The disadvantage of this type of contract is that the overall price is not known at the time of signing the contract. That's why, the so-called maximum price that the contractor determines when signing the contract is often used. In order to motivate the contractor to the lowest total price of subcontracts, the so-called limit price is set after the completion of the project documentation. If the final price at the end of the construction is lower than the limit, the contractor is awarded by the bonus, and vice versa, when the limit is crossed then he is charged by the malus. In general, cost plus fee contracts lead to a lower total price, as the contractor does

not need to include price risk in its price. It carries only the risk associated with construction management and the risk associated with determining the scope of supply for subcontractors.

Advantages:

- ⊕ Flexible, allowing for changes in specification
- ⊕ Allows more oversight and control for investor over the quality of the contractor's work
- ⊕ A cost-plus contract is often used when performance, quality or delivery time is a much higher concern than cost

Disadvantages:

- ⊖ There is limited certainty as to what the final cost will be
- ⊖ Requires additional oversight and administration to ensure that only permissible costs are paid and that the contractor is exercising adequate overall cost controls

#### 2.2.4 Guaranteed maximum price contract (GMP)

A guaranteed maximum price (GMP) is a form of agreement with a contractor in which it is agreed that the contract sum will not exceed a specified maximum. Typically this is a mechanism used on design and build contracts where the contractor has responsibility for completing the investors design and for carrying out the construction works, so they are in a good position to control costs. If the actual cost of the works is higher than the guaranteed maximum price, then the contractor must bear the additional cost. If the cost is lower than the guaranteed maximum price, then the contract should set out if the savings which were made go to the investor, to the contractor or are shared. This can create a target cost agreement, where the contractor is motivated to make savings, but the client has the security of a costs. Effectively, this type of contract transfers the risks to delivering the project from the investor to the contractor. So for example, if events such as exceptionally bad weather or strikes occur, or if items that might otherwise have been subject to provisional sums, which on other forms of contract may have resulted in a claim by the contractor for loss and expense, on a guaranteed maximum price contract, the contractor has to bear any additional costs. As a consequence, the contractor is likely to tender a higher price. They effectively take the risks they are taking on. This may be acceptable to the client

if their priority is certainty rather than the lowest possible cost. However, a guaranteed maximum price is not a „god between the contracts“, and the price is not necessarily fixed. If the client requests extras, for example, if the scope of the works increases, then the contract must be increased. Similarly, if work is eliminated, then the price should be reduced. There is obviously place here for disagreement about what constitutes a change that should result in a price adjustment, and there is the potential for the contractor to use the tool of changes to recover the costs they incurred elsewhere. This can cause tension in a form of contract that has been selected to provide certainty. In order to assess these risks, it is important to ensure that proper investigations are undertaken and a fair research of risks incurred. It is also important to ensure that the investors requirements have been clearly defined to avoid potential dispute over the nature of the works.

### 2.2.5 FIDIC contracts

Fédération Internationale Des Ingénieurs-Conseils in translation International Federation of Consulting Engineers. This federation was founded in 1913 in France to promote the general interest of its member associations and to gather the information in the interest of its members. Now it is based in Lausanne, Switzerland. It is a non-governmental organization recognized by the United Nations, major world banks, the European Commission and other international institutions. Today, FIDIC has 104 member countries. In the Czech Republic, the Czech Association of Consulting Engineers (CACE) is a rightful member of FIDIC, which was set up in 1991. Its objectives include, in particular, the promotion, protection and development of consulting engineering, promotion of high level and quality of the services provided and the formulation of professional, ethical, organizational and business rules and principles in accordance with the international rules of FIDIC and EFCA (European Federation of Engineering Consultancy Associations). FIDIC publishes International Standard Terms and Business Terms documents (recommendations, procedures, etc.) since 1957. In 1999 this organization has released four new basic patterns of contract terms, how to specify project. These conditions are described below. They are divided into a general section (General Terms and Conditions) and a special part (Conditions of Particular Applications). The general part should not interfere. The special part is intended to adapt to the specifics of the project or the legal order governing the contract. Conditions are interdependent. The risks are balanced and are clearly divided

between the client and the contractor. In 2006, FIDIC released the fourth edition of the Model Contract Agreement between the Client and the Consultant for consulting or design services (the White Book). This book is used, for example, to develop project documentation or to provide other services such as technical assistance, supervision, and more. Among the four basic templates of the Contract Terms created in 1999 are:

#### [2.2.5.1 Conditions of Contract for construction: For building and Engineering Works designed by the Employer – Red Book](#)

This red book contains conditions that have a balanced allocation of risks. They are used with a traditional supply system (Design & Bid & Build) where the designer will first create the project documentation and on this base the contractor makes a construction work. Risk associated with project documentation is beared mostly by investor. When this agreement is concluded, the work actually done is measured, and valued at unit prices.

#### [2.2.5.2 Conditions of Contract for Plant & Design-Build: For Electrical & Mechanical Plant & For Building & Engineering Works Designed by the Contractor - Yellow book](#)

Even this yellow book has a balanced allocation of risks. These conditions are based of a single supplier (Design & Build), whereby the building contractor creates the project documentation, so he is responsible for it. These conditions work "with the so-called requirements of the client, which define, above all, the purpose, scope, standard and other design and technical criteria of the work according to the customer's idea". Under these conditions, a fixed price is very often used.

#### [2.2.5.3 Conditions of Contract for EPC / Turnkey Projects – Silver Book](#)

This book is called a silver book. The EPC means Engineering, Procurement and Construction. These terms are created for Design & Build projects, but with all responsibility for designing and building work on the contractor side. They are recommended mainly for the complete supply of investment units (such as power plants, factories, infrastructure projects, etc.), where greater reliability is required to ensure the overall price and construction deadlines, or when the contractor assumes full responsibility for the project and execution of the construction, with less interest in the client. Here, too, a fixed price is usually used.



#### 2.2.5.4 The Short Form of Contract – Green Book

These conditions are intended for construction works and project deliveries with low expected value, such as small and simple orders.

#### 2.2.5.5 Fidic in Czech republic construction industry

In the Czech Republic, FIDIC conditions have expanded due to the entry of the CR to the European Union. The use of subsidies from the EU fund is conditional on the implementation of the FIDIC book in the contract for work, which will be part of the tender documentation of the relevant public contracts. At the same time, the procurement and award procedures of the European Union support programs are conditional on the use of FIDIC conditions. At the present time, other investors such as World Banks (World Bank and European Bank) or investment funds undermine their financing of construction projects by using FIDIC books.

### 2.3 Legislation in Czech republic

This chapter deals with the legal development of the construction project regulations and business relationships related to construction in the Czech Republic.

#### 2.3.1 Building law

In the Czech Republic, the construction is regulated by Act No. 183/2006 Coll. About spatial planning and construction order (Building Act), as amended regulations. This law is divided into seven parts. The first part defines the basic terms. The second and third parts define public performance and acts of spatial planning. The Building Regulations (Part Four) then defines buildings that do not require permission or announcement, building for announcement, defining building management, use and removal of buildings, building supervision, authorized inspector, and duties and responsibilities of persons in the preparation and execution of buildings. Part Five describes the selected activities in construction and the cooperation of the owners of the technical infrastructure, records of spatial planning activities, general requirements for construction, protection of public interests and administrative cooperation and administrative delicts. Further, implementing decrees were issued on the building law. In particular, it is Decree No. 499/2006 Coll., On Construction Documents, which regulates the scope and content of various types of project documentation, and Decree No. 268/2009 Coll., On Technical Requirements for Construction. This Decree regulates technical requirements for buildings, requirements for safety and building

characteristics, for building construction, for technical equipment of buildings and for special requirements for selected types of constructions.

### 2.3.2 Business engagement relationships

Business relationships in the Czech Republic are governed by the Civil or Commercial Code. The Civil Code (Act No. 89/2012 Coll.) is the basic norm governing all basic private social relations. Relationships between persons where at least one party is represented by a natural person. The Civil Code (Act No. 89/2014 Coll.) is the special rule governing the relations between entrepreneurs that concern their business activities or between the state and entrepreneurs in their business activities. These private-law relationships are equally in position. The Civil Code regulates the obligations in the fourth part. This part contains both mandatory provisions, which are binding and must always be respected. To a greater extent, it contains provisions that are freely editable and are applicable unless the parties agree otherwise. The relations between the main participants of the construction are mostly covered by the Civil Code. Several contractual types are defined in Civil Code with the rules of their use. The most important contract for the construction of a building or, as the case may be, for the creation of the project documentation, as already mentioned in Chapter 1, is a contract of work. The Civil Code regulates the contract for the work in paragraphs from 2586 - 2635. The Contractor undertakes to execute a certain work according to the Civil Code and the Client undertakes to pay prices for its execution. The client may then be an investor who concludes a contract with a contractor for the construction of a building or with individual contractors for the construction of a part of a building or construction work or with a designer to create the project documentation in the role of the contractor. In addition, the contractor of the building as a client may also enter into a contract with its subcontractors as contractors. The work under the Civil Code (89/2014, § 536 (2)) is understood to be the construction, assembly, maintenance, repair or modification of the structure or part of it. The terms of the contract according to the Commercial Code are, among others:

- Obligations of the contractor - execution of the work at his own expense and at his own risk at the agreed time, notice of the client without undue delay on the inappropriate nature of the things taken over by the client or instructions given by the client for the execution of the work, if the contractor could find this inappropriateness when exercising professional care and other

- Obligations of the client - acceptance of the work done, payment of the price agreed in the contract or as specified in the contract and other
- The ability of the contractor to delegate the work to another person, under the responsibility of the contractor
- The price must be agreed in the contract or at least the method of determining it must be specified
- Terms of withdrawal
- Responsibility for defects in works - for construction work it is 5 years

The Civil Code (89/2012) regulates the warranty period for the construction of a building for three years, while the implementing regulation may stipulate that for some parts of the building, the warranty period may be shorter but not less than eighteen months. Further, this Code stipulates that when the construction is made on order, the contractor is responsible for damaging or destroying the construction until the construction is taken over.

If the contract is awarded in the context of public contracts (such as contracts financed from public funds), it is governed by a special Public Procurement Act (Act No. 134/2016 Coll.). Here, a person is in an unequal position towards the state. The Public Procurement Act (134/2016) defines a contracting authority, a public contract and others. It also specifies what the tender dossier should contain. In addition to basic business and technical conditions, requirements for measures to protect classified information and supply security requirements, bid variance requirements, bid processing, terms and requirements for bid processing and bid evaluation, it also includes special requirements for construction work. The tender dossier for public works contracts must contain, in addition to the items mentioned in the previous paragraph, the design documentation and the inventory of construction works, supplies and services with a statement of designation. If the contract also includes project activity, these documents may be replaced by technical conditions expressed in terms of performance or function requirements.

### 2.3.3 General bussiness Terms and Conditions for Building Construction

The General Business Terms and Conditions for Building Construction were issued in 2007 by the SIA CR - the Construction Council and the Chamber of Commerce of the Czech Republic under the auspices of the Ministry of Industry and Trade of the Czech Republic and the Ministry of Regional Development of the Czech Republic, in accordance with Section 273 of the Commercial Code, paragraphs 1 and 2. The use of these GBTCs is particularly recommended for contracting authorities, but the authors are also recommended for other contracts. Not only for the investor's relationship with the construction contractor, but also for the relationship between the contractor and his subcontractors in terms of conditions. As part of the contract, these GBTCs become a mere reference to them and do not have to be attached to the contract. GBTCs also determines the priority of documents. The works contract has a higher priority than the GBTCs. The purpose of the GBTCs is to facilitate the negotiations between the main participants in the construction project as part of their commitment relationship and to unify the terms and conditions for the different types of competitions.

GBTCs are divided into 25 parts. The basic provisions include:

- Basic definitions of terms, document priorities, language and applicable law
- Basic obligations of the client and the contractor
- The Client is obliged to hand over the project documentation to the contractor, on the basis of which the work is to be built and at the same time is obliged to take over the work duly and in time and to pay for it the agreed amount
- The Contractor is obliged to carry out the work at his own expense and risk at the agreed time in accordance with the contract of work, the project documentation and the opinions of the relevant state administration and self-government bodies
- The contractor's ability to commission a part of the work of the subcontractor
- Define the subject and the extent of the work
- What all the price of the work contains and how it is set, along with the price changes
- What are the payment terms, the retention and maturity requirements, along with the description of the invoice

- Determines the liability of the contractor for damage and the obligation to replace the damage
- Establishes the obligation of the contractor to insure and close bank guarantees
- Establishes the organization of handover and take-over of the site and its use
- It determines the execution of the work, in particular the obligation of the contractor to check the completeness of the project documentation, the obligation of the contractor to hand over the schedule of work to the client, to allow him to control the work carried out; leadership and formalities of the building diary
- Defines the technological equipment and its testing
- Determines work safety
- Determines the handing over and taking over of the work, the necessary documents, the logging
- Defines responsibility for defects and defects and how to claim - Warranty period for new constructions is 5 years, for other constructions then 3 years
- Defines a contract change, contractual fines, withdrawal, dispute resolution and more

### 2.3.4 Building permissions

In the Czech Republic, we have two types of building permits: building permit and notice of construction.

There is also possibility when u dont need any of these two. In most cases, it is common maintenance work and smaller construction works. Maintenance work should not change the character of the building. You will definitely need no announcement about replacing home furnishings such as bathroom reconstruction (if you do not interfere with load-bearing walls), replacing radiators or repairing windows.

Notice of construction - its a simplified version of a building permit that is obtained faster than a conventional building permit. Notices of construction are usually sufficient, for example, for new family houses or cottage construction. The building, however, should meet the condition of a built-up area of up to 150 m<sup>2</sup> and the house should have a maximum of one underground and two above-ground floors.

Required documentation:

- Proof of ownership of land or construction

- Power of attorney in the case of a representative of the developer
- List of owners of neighboring land and buildings + proof that you have informed all "neighbors"
- For self-help buildings, a written statement by the building manager (expert) that he will manage the building or that he will perform the construction supervision, as well as proof of qualification
- Project documentation
- Territorial planning information for reported buildings
- Territorial approval or decision
- Standpoints of the authorities concerned
- Standpoints of owners of the public transport and technical infrastructure to which the construction will be connected (electricity, gas, water, heat distribution, sewerage)

Building permit - require buildings with a built-up area of more than 150 m<sup>2</sup> or when they interfere with the load-bearing structures of a house or other building. About which construction needs the building permit is covered in the Building Law No. 183/2006 Coll.

Required documentation:

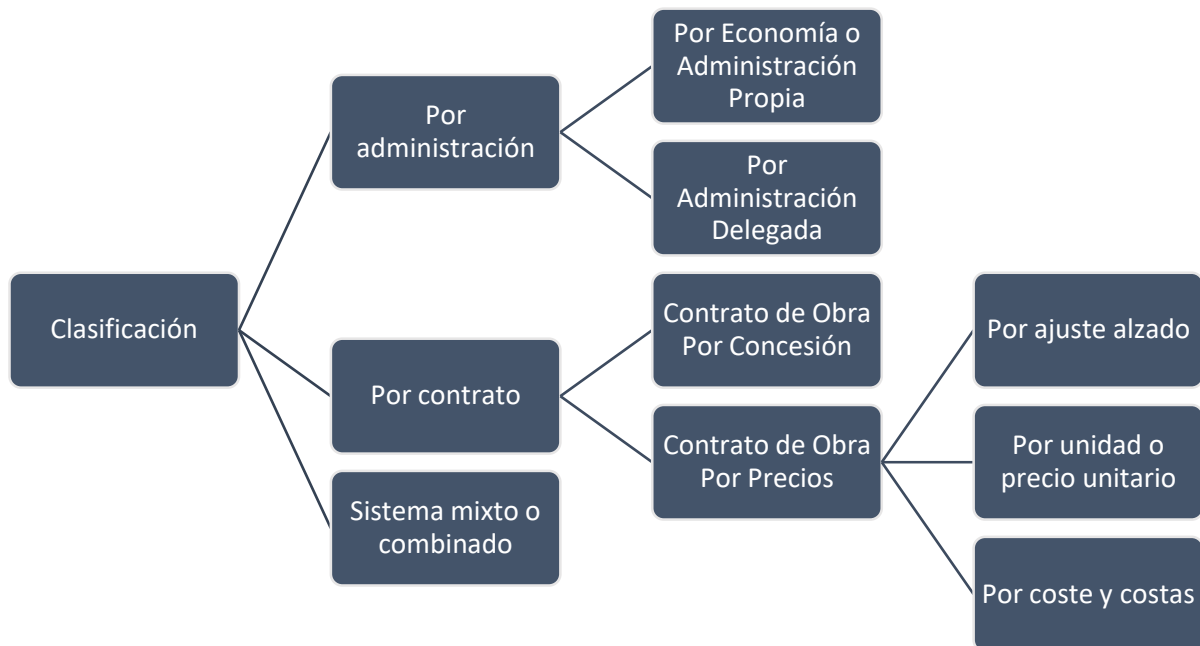
- Proof of ownership of the land on which you will build.
- Extract from Land Registry (up to 90 days old).
- Consent of all owners of neighboring land and buildings
- Standpoints of the authorities concerned
- Standpoints of the owners of the technical infrastructure - water connection, sewer connection, water intake, electricity, gas connection, communication cables + in the case of ground boreholes at the heat pump, the Mining Authority's statement is required.
- Geodetic measurement of the land.
- Radon measurement on land.
- Hydrogeological survey.
- Complete project documentation according to Decree No. 499/2006 on building documentation

### 3 Project delivery systems, types of contracts and legislation used in Argentinian construction industry

A brief introduction to the situation in the construction industry in Argentina. Today, Argentina is one of the most attractive places when it comes to investing in the construction industry. The current political mood in the country is in favour of the retail buildings construction industry with the government of Argentina bringing more reforms to boost this sector. International economic observers are amazed at the fast growth and recovery shown by Argentina's economy. The country has been able to reduce its financial account deficits, generate robust trade surplus and stabilize its economy by following effective economic reforms. The government of Argentina has launched initiatives and policy changes to remove the obstacles to the growth of the retail buildings construction industry. Besides, recovering economy, presence of entrepreneurs and investors, rising consumer demand, government's support along with improvements in technology will also drive Argentina's retail buildings construction to a bright future of good growth. Another factor catalysing the growth of the retail buildings construction is rise in the public and private partnerships, which have been missing in the past. The foreign direct investment is also expected to play a pivotal role in country's retail sector as Argentina attracts entrepreneurs and investors from all over the world due to the flexible international trade policies of its government.

#### 3.1 Project delivery methods and types of contracts used in Argentina

This chapter describes "Sistemas de ejecución de obras" which means "execution systems of work" used in the construction industry in Argentina. In Latin America, there is no uniform designation for delivery methods but all systems are described through different types of contracts concluded between the construction parties. All contractual systems will be described in the next chapter and their advantages and disadvantages will be highlighted. Classification of individual systems is explained by the following illustrated hierarchy which says from which types the investor can choose or execute construction work:



Obrázek 6 Execution systems of work diagram

As u can see we have two main different possibilities of how the work can be executed, these are „por administración“ (by administration) and „por contrato“ (by contract).

### A. Por administración (by administration)

The works for administration are carried out by the owner without the intervention of any third party and without the signing of any contract.

#### 3.1.1 Por administración propia o economía (by own administration or economy)

The same owner is in charge of building the construction, acting as builder and director of work, without the intervention of any other builder, engineer or architect, except in the creation and development of the project.

Advantages:

- ⊕ economic savings, since the owner is aware of the price of the materials, so there is no risk of being deceived in terms of quality and price of materials, as well as the cost that would require the hiring of a builder



Disadvantages:

- ⊖ if it is not ideal it can cause plenty of problems (constructive, labor, etc.)

### 3.1.2 Por administración delegada (by delegated administration)

Is when the owner - for lack of suitability - gives a mandate to another person (administrator) to be in charge of the administration of the work, which implies its direction, purchase of materials, hiring of workers, etc. In this case there is also no work site (builder entrepreneur) but service (administrators, workers, etc.). The mandate is the contract that binds the owner with the administrator authorizing him to perform legal acts (purchases, hiring, etc.) in the name of the owner, but all responsibility will always fall on the owner and not on the administrator.

Advantages:

- ⊕ better control of the owner and flexibility, because you can solve some problem of the project, and improve the quality of the work

Disadvantages:

- ⊖ the owner runs the risk of being deceived in the prices of materials
- ⊖ the responsibility is always on the owner backs and not the administrator (needs to choose this person very carefully)

### B. Por contrato (by contract)

In this case the owner delegates the execution of the work to a third party, with whom he establishes a contract. Within this system of execution, several subsystems arise depending on the way of agreeing the prices of execution of the work, between the owner and the constructor.

### 3.1.3 Contrato por concesión (contract by concession)

Contract by Concession also called by toll, is used in public works. These are the works whose payment is made through the financial „exploitation“ of the works, by the company that executed it (with its own capital). Said „exploitation“ lasts a determined term - fixed by law - in which the builder must (should) recover his investment and obtain the benefit. Once the concession period has expired, the work with all its facilities passes into the hands of the state. This system is only applied in public works that are potentially profitable such as: roads, bridges, bus terminals, etc.

When it is "Work Concession" the contract can only be terminated through the payment of compensation, when it is a "Service Concession" the contract can be ended at any time, due to lack of good service.

The contracts for public works concession in turn can be of the following type:

- Free: is when the income produced by the work only tends to meet the collection of the capital invested plus profit
- Difficult: when such income produces benefits greater than the whole recovery of the capital invested plus profit, in this case the company must pay the state a certain percentage
- Subsidized: when the income does not cover the capital invested plus profit, in this case the state pays the difference

#### 3.1.4 Contrato por precios (contract for prices)

The execution of the work is contracted for an amount of money in advance, whose form of payment can be given in several ways, these are the variants of this type of contract. It should be noted that these systems in all cases constitute a "Work Placement Contract" (the work contract by concession does not).

##### 3.1.4.1 Ajuste alzado (Lump sum)

In this type of Contract, the Contractor undertakes to deliver a completed construction and in a state of operation, in exchange for a fixed amount of money, divided over previously agreed terms, according to the progress of the work. The contractor's offer is based on a study of the project provided by the investor, ie the contractor is the one in charge of carrying out the project, and conducts a tender to find the construction company or contractor that suits him best. The risks of errors in the Project are understood by the Contractor who must therefore carry out a complete and exhaustive study of the project that the Investor gives him and add in it everything he considers to be lacking since the figure of his offer is considered "closed" once the Contract has been signed. The Contractor agrees to receive exclusively the quantity offered, including in it all those things that in his opinion are necessary for the correct completion and operation of the facility even if they were not included in the Project received for the study of the offer. There are two types of this contract:

➤ Ajuste alzado Absoluto

It is unchangeable, that is to say that once it is signed, it does not give rise to modifications of the work, or the price (except agreement between the parties). This type of contracting is not very frequent, because the perfect project does not exist (in every project there are always problems that needs an upgrade)

➤ Ajuste alzado Relativo

It allows modifications both in the works of construction and in the price of them. It is ideal for unpredictable cases, for example, in inflations that do not allow the fixed price to be maintained. This aspect is involved in the contract through a so-called monetary stability clause.

Advantages:

- ⊕ in times of stability, it allows knowing the total price of the work and its change
- ⊕ all offers have the same base, that is, they offer the same for each of the bidders, it means that they are very easily comparable
- ⊕ the investor ensures a more or less certain cost or at least with a very small percentage of variation, since the risks of possible variations are assumed by the Contractor and they are included in the price which is offered
- ⊕ it avoids a large part of the work of measuring and evaluating of the work done, because the final figure of each unit is known and therefore can be certified, that is to pay each monthly relation of work done, based on calculating the percentage of each unit

Disadvantages:

- ⊖ if there is an error in the calculation of the price, the constructor cares about the changes of the price → so the quality goes down, in order to adapt to the budget
- ⊖ it requires a well defined and exact project with almost no possibilities of error, because any variation leads to difficulties between the contractor and the investor

### 3.1.4.2 Por unidad o precio unitario (Unit price)

The Contract is based on the price of a series of work units, so that the volume of each unit is not known at the beginning, not even the execution of all the units of the Contract. The Contractor must perform the cost calculations of each unit independently

and evaluate approximately the total value of the works, to distribute expenses connected to the volume of the work. The Contractor is not committed in any way to ensure a certain amount of work, which is why it leaves a great margin of insecurity in the execution, and is often used for research or prospecting contracts in which there is a certain fixed amount of money to spend, which is consumed according to a table of contracted prices, in which the percentages are necessary to cover the costs of taxes, industrial profit of the builder etc. This type of Contract must be signed with a constructor that offers necessary guarantees - when it is not possible to predict or even approximately count the volumes of work which needs to be carried out, and therefore the total amount of the works that are going to be executed can not be guaranteed either. There are two types of this contract:

➤ Por unidad simple

In this case the quantity of units to be made is unknown – we know only the price, in which case either of the two parties (constructor or investor) can consider the contract fulfilled (since the exact quantity of units to be built on the construction site has not been specified yet, only its price).

➤ Por unidad de medida

In this case, the number of units (items) to be made is agreed as well as the price. The sum of each of the determined quantities (units of measure multiplied by the unit prices) results in the total price of the project. The main difference between Suma alzada and por unidad is, that the person in charge of the calculation here is the investor, being him who indicates the number of units to be made.

Advantages:

- ⊕ it allows to know the amount of work to be done, as well as to value (determine the value) a specific aspect of the work

Disadvantages:

- ⊖ the simple unit is contractually impracticable, since by not specifying the amount of construction to be made, you can not know the general expenses and therefore you can not establish a certain price

### 3.1.4.3 Por coste y costas (for cost and costs)

The contractor constructs the work with his own resources, and the investor is obliged to reimburse the constructor for the cost (cost of materials, labor and general expenses) plus cost (% or profits). The payment is made through "payment certificates" that are prepared weekly or monthly with the progress of the work. Originally it was used in works of extreme urgency, where it lacked a definite project. At present, in certain cases, the maintenance of the construction or installation constructed during a considerable number of years is included among the works included in the contract. For example, road sections are contracted including in the contract the complete package: Project, Construction and Maintenance for ten or fifteen years. The investor pacts with the contractor the payment delayed in the time of the whole operation, including, as is logical, in the amount of the interest generated by the deferred payment.

Advantages:

- ⊕ Coordination of specialists in design and construction of a certain type of works, which has a favorable effect on the final quality of the construction
- ⊕ Project conceived at all times to be constructed in a rational and economic way. In many occasions the design has been conditioned by the execution of the works
- ⊕ Possibility of obtaining economically advantageous offers by adapting the contractor the project to their availabilities
- ⊕ Allows the contractor to work freely and recover his investment as he works

Disadvantages:

- ⊖ Each Contractor offers different solutions, appropriate to their own convenience, which may not coincide with the convenience of the project or idea of the investor
- ⊖ The contractor tends to inflate both the cost and the amount of materials used, as well as their benefits, which increases the expenses of the investor
- ⊖ Difficult guarantee that, in case of difficulties, the cost offered does not vary substantially and tends to increase

### C. Sistema mixto o combinado (mixed or combined system)

It consists of contracting the different parts of the work through different contracting systems and/or contracting different constructors (separate contracts) for the execution of each of them. For example:

In housing district:

Houses can be made by – suma alzada

The pavements by – por unidad de medida

The cleaning of land – by administration...etc...

In case of implementing the system of "separate contracts", that is, hiring different constructors for the different parts of the work, each one of them will take care exclusively of his part and when he finishes it, he will comply-he will also terminate-with his contract.

Advantages:

- ⊕ Owner can adjust the payment of the different parts of the work, in the most convenient way

Disadvantages:

- ⊖ There are more risks for the owner, in the sense that it is legally complicated the distribution of responsibilities for which owner must use experiences

#### 3.1.5 Contrato de presupuestos parciales y presupuesto general

I leave this type of contract separate because it is very specific and unknown in the European construction industry. This type of contract is using the project price tables and the measurement of the plans of the project, a valuation reflected in partial budgets and a general budget is obtained, as a sum of the different partial budgets included in the project received and that will form part of the Contract. This general budget, affected by a coefficient greater than unity, to cover taxes, general expenses, industrial profit and any other cost proportional to the volume of work performed, is the final budget of the project on which the Builder commits to make a low or a boost. To obtain the figure of its offer, the Constructor obtains its own cost prices from the different work units that appear in the project. Applies these prices to the measurements that appear

in the received project and obtains partial budgets and a general budget called budget for administration. Then you obtain the factor by which you must multiply all your direct costs to cover general expenses, taxes, permits, unforeseen and industrial benefit. This factor currently can vary between 1.35 and 1.70. When applied to the general budget by administration, you get the figure that should actually be offered by the Constructor. This figure almost never coincides with the figure of the Project studied and when compared to that it gives us the low or rise that the Builder needs to do to take over the Contract with a fair profit for his activity. This low or rise applies to all the Contract prices to monthly invoice the Contractor, the work units made by the Constructor. In this type of contract it is agreed that only those work units actually executed by the Constructor will be paid. Once the work is constructed, the actual measurements multiplied by the unit prices affected by the decrease or agreed increase, give the final total amount to be charged by the Builder. In the Project Terms and Conditions, which is one of the documents of the Project that is incorporated into the Contract, the percentage of variation accepted in the total volume of each unit of work is usually specified, in order to respect the price of the unit contracted.

## 3.2 Legislation in Argentina construction industry

This chapter describes the main legislation points connected with construction projects in Argentina.

### 3.2.1 Código civil y comercial de la Nación

Código civil y comercial de la nación is the legal body that brings together, since 2015, the bases of the legal system in civil and commercial matters in Argentina. It is replacing the old Código civil since the 1. August 2015. The statements on building projects can be found in the third book of the law in the sixth chapter entitled "Work and Services", in particular in the second section entitled "Special Provisions for Buildings". In this part of the Act, there is a detailed description of contractual systems, changes in the agreed project, payment, destruction of work by accident, warranty periods, compliance with standards etc...

### 3.2.2 Business engagements relationships

In Argentina, there is a need to distinguish in the area of contractual relations whether it is a contractual relationship to public contracts or contracts between two private entities. In the case of a public contract, the relationship is governed by the Public

Works Act (Ley de obras publicas, Ley 13.064). National public works (contracts) are all buildings or works or services of industry that are carried out with state treasury funds, except for those that are executed with subsidies which are covered by special-law for subsidies and military structures governed by another law. In the case that the state decides to carry out public works through private or unofficial entities, it will proceed in accordance with the provisions of this Act. The public works law includes the definition of public works in general, the course and evaluation of the selection procedure, the formulation of contracts, how the work should be done, how the changes to the terms of the contract can be made, the payment of the contract, the circumstances in which the contract can be terminated, how to deal with disputes and claims. Tendering and / or public procurement is carried out on the basis of one of the following systems (described in 3.1.):

- Por unidad de medida
- Por ajuste alzado
- Por coste y costas
- For other exception systems that are established

It also deals with how, when and how long the tender will be announced (including all the points that must be included in the tender).

The Código civil y comercial de la nación (Civil and Comercial Code of the Nation) is used to conclude agreements between private entities. The Civil Code describes contract obligations in the Third Book and Chapter 4 of the Act. It contains provisions that must always apply and also contains the recommended provisions. The code defines the contractual systems that can be used to conclude the contract, the circumstances in which changes to the project can be made, the definition of the manner of remuneration, the reasons for the termination of the contract, the warranty period, the observance of building standards and others. These provisions imply obligations for both parties – the contractor is obliged to:

- to execute the contract in accordance with the provisions
- to inform on the essential aspects of compliance with the undertaking
- Provide the relevant materials necessary for the execution of the work



- Carefully use the materials provided by the client and immediately inform if the materials are incorrect or will lead to changes that the supplier or the provider should know
- to perform a work or service at an agreed time

the client is obliged:

- to pay compensation
- provide the supplier or provider with the necessary information according to the characteristics of the work or service
- take over the work if it has been carried out in accordance with the provisions

### 3.2.3 Building permits

Building permits (Permiso de obra) are issued by municipal authorities. Building permits are a prerequisite to starting the works. The different permits include:

- cadastral certificate (certificación de nomenclatura parcelaria)
- certificate of use or zoning permit (certificado de uso conforme)
- construction permits or work notices (permiso de edificación or aviso de obras)

The cadastral certificate is issued by the Cadastral Office for the area where the works will be carried out. This certificate is valid for six months after its issuance and indicates zoning restrictions, including public rights of way.

Required documentation for building permit:

- Application for the project and supporting documentation, in accordance with the regulations in force. This application must be filed in the form of a sworn statement
- Certificate of use or zoning permit
- Cadastral certificate
- Relevant architectural drawings and calculations
- Site plan of the surface area divided by class and category according to the classification of the tariff ordinance in force at the time of the presentation and the calculation of the respective amounts

A certificate of use or zoning permit permits a parcel of land, a building, facilities or part of them to be used for a prescribed purpose as permitted by the zoning

legislation in force. A construction permit should be requested from Private Works Office in the municipality where the construction works will be carried out. This permit is required for new building constructions, additions, renovations or alterations to pre-existing structures, closure, opening or alteration of window or door openings in facades; main facade surfacing; new walls, roofing changing or alteration, demolition and excavation; performance of mechanical, electrical, insulation, flammable and plumbing installations, or renovation or transformation of the existing ones, new rights of way, land surveys and cadastral modifications, and construction, additions and renovations of parking spaces.

A works notice (Aviso de obra) is required if the works involve curb alterations, clearing or painting main facades, opening, closing or altering window and door openings in other than the main façades, applying coatings to front fences, applying or changing coverings or surfacing on outer walls, changing roofing materials, building ceilings, flattening and filing in lands, making minor alterations to mechanical, electrical, insulation, flammable and plumbing installations, putting up front display windows and awnings on facades facing public rights of way, and any other work for which no authorization is required if a provisional structure for equipment and materials should be put on the pavement.

Required documentation for a works notice:

- Application forms, in duplicates, reporting the works to be carried out, including all details and costs. This application must be filed in the form of a sworn statement
- Cadastral certificate
- Proof of payment of the relevant fees on an official form

## 4 Comparative analysis of delivery methods used in Czech republic and Argentina

In this chapter, a comparative and critical analysis of supply systems (delivery methods) and used types of contracts for construction works and construction works in the Czech Republic and Argentina is carried out. Just as the legislative arrangement of these contracts and its differences are compared.

## 4.1 Analysis of the main features of the project delivery methods

First and the most important difference is in defining the project delivery method in Czech republic and in Argentina. In Czech republic is used the same method as in europe-american construction industry enviroment that means that the investor selects specifications for project in this order:



Obrázek 7 Order of project phase

The main objective of the investor when choosing a delivery system is to ensure that the target is met project - the construction of functional buildings of the required quality, at the agreed date and with the agreed costs.

Many factors which affect the selection such as:

- Owner's experience, qualifications and capability
- The magnitude, form, function and complexity of the project
- Time is of the essence:
  - Sequencing of the project
  - Establishing the project timeline
  - Fast-tracking utilizing multiple contractors or contracts to shorter the project timeline
- Cost/Budget/ Other Financial Challenges

When choosing a type of contract, the investor looks at the different types of pricing in particular on the method of pricing and the associated risks.

The investor can bear all risks associated with the construction project himself, or some of them can pass on to other participants in the construction. Major risks include: financial, time, design, and quality. Some of these risks may be passed on to the other major developers (designers and contractors) who may continue to transfer them to their subcontractors, but under a contractual relationship with the investor they are responsible for some of the risks. The financial risk can be transferred either in the form of insurance, guarantees and guarantees or within a fixed price where the supplier

is responsible for the actual costs of one fixed price for the complete supply of the work or construction work. Time risk and quality risk can be transferred to the contractor. The design risk can be transferred either to the designer or to the contractor.

On the other hand in Argentina there is no uniform designation for delivery methods but all systems are described through different types of contracts concluded between the construction parties (its called „Sistemas de ejecución de obras“). So we can say that in Argentina the investor is going straight to Contract format phase. We can say that afterwards the project hierarchy is very similar to project delivery methods as it is in Europe. That's why, the following chapter will deal mainly with the comparison of the types of contracts themselves.

## 4.2 Analysis of the main features of contracts used in construction industry

The contractual relationships used in both countries are compared according to the most important properties and are assigned to each other within the given property.

### 4.2.1 Documents for the conclusion of the contract

Many types of contracts are subject to the submission of various documents from the investor. On the basis of this, the supplier can evaluate the construction or partial work activities financially and temporarily or can determine the necessary work activities for the proper implementation of a functional, operable construction work. Alternatively, the contractor can create project documentation according to the documents from investor.

#### ➤ Czech republic

A detailed statement with a description of all necessary work together with the project documentation is attached to the contract based on unit prices. Here is the need for these documents to assign unit prices to the individual items of the bill of lading so that individual work can be executed and valued at unit prices for the actual quantity actually worked. The price for the work is well known after the completion of all the work on the site.

Lump sum contracts usually include project documentation and a description of works and supplies so that the contractor can create a statement of budget and an item budget and determine the total price for the work. This eventually becomes a

part of the contract when selecting a given contractor. In this case, however, the contractor conducts a check on the description of the works and the design documentation because it is responsible for making the overall functional work or carrying out the work at a fixed price stipulated in the contract. Therefore, if he oversaw the specific activity needed for the construction of the overall functional building work or activity, he would have to carry it out at his own expense.

When entering into a cost plus fee contract or a contract with a guaranteed maximum price, the contract shall at least include the intention and objectives of the building, or a description of the building, technical requirements for building materials and equipment. From these documents, the building contractor may also create project documentation. These two types of contracts are usually concluded for the construction of the building before the complete completion of the project documentation and in some cases the project documentation is created by the contractor of the construction.

#### ➤ Argentina

When using a unit price (Por unidad) agreement, it is necessary to distinguish between two types of this contract: Por unidad simple - here is not a complete project documentation, so the only thing we know is the price per unit (for example, a kilometer of highway). Por unidad de medida - there is a need for a complete project documentation so that the project price can be calculated. Of course, the resulting price will vary, as the work done will be paid off.

At Suma Alzada (Lump sum), the contractor undertakes to provide a completed construction at a fixed price. The contractor's offer is based on a thorough study of the project from the investor and the subsequent pricing of the project. The Contractor should include all aspects in the price because once the contract is concluded, it is usually a problem with the price to move. For this type of contract, it is necessary to distinguish between two types: Ajuste alzado Absoluto - here it is super important to consider all aspects in the final price. Because once this agreement is signed, it can never be changed. Ajuste alzado Relativo - this type allows for changes in price and volume of work. All of course, with the mutual consent of the investor and the contractor.

Por coste y costas is characterized by the undefined value of the contract, as the contractor is required to perform construction work against payment of costs (costs) and plus (profits) for general costs and benefits, which are generally formed as a percentage of the first. It is recommended to award contracts whose price is a priori problematic for repairs and in all cases where it is not possible to conclude full and modified project documentation at the time of conclusion of the contract or in the period of inflation.

### Partial conclusion

The following types of contracts are similar to those provided by the investor to the contract:

- Detailed statement with a description of the works and the project documentation with the possible number of individual works: Unit price contract and Por unidad o precio.
- At least design intent and purpose: Lump sum contract and Ajuste alzado, Cost plus fee contract and Coste y costas, Guaranteed max price

### 4.2.2 Risks associated with certain performance of the contract

The investor faces many risks as part of the construction project. Some risks may be contractually transferred to the contractor of the construction or contractor of the individual construction activities. These are mainly the risks associated with the correct determination of the number of individual works and with the determination of all construction and assembly activities and the work required to complete a functional, complete and operational building work. The determination of the responsible person depends on the documentation provided by the investor and the method of determining the price (agreed valuation).

- Czech republic

Under the contract based on **unit prices**, these risks remain with the investor. As the investor adds to the contract also the project documentation and the statement of the tender with a description of all the works that the supplier intends to carry out, the risks associated with determining all the necessary activities to carry out the entire construction work remain with him. Suppliers are therefore only responsible for carrying out the activities described in the statement of performance and performance of the contract. At the same time, the risks associated with the

correct assignment of the amount of individual work remain with the investor. Since the work is valued on a unit price basis that is multiplied by the actually realized quantity, the initial estimate is made by the investor to determine the provisional budget. But it can change during work. The total cost of the construction is therefore known only after the completion of all the works. As part of the FIDIC Red Book (DBB), most work is also valued over unit prices, so the same is true for them.

With a **Lump sum** contract, these risks are passed on to the side of contractor. In most cases this contract is concluded for the construction of the entire building, which is carried out according to the submitted documents from the investor, mainly the project documentation and the technical conditions. On this basis, the construction contractor creates a statement and adds the necessary quantity to the items, which then generates a budget. Therefore, it offers a fixed price for a complete supply of the whole building work or, if necessary, of the particular construction work. The risks associated with the determination of all the necessary work to make a functional building work lies with the contractor as part of the preparation of the statement of merit. Together with the right amount, because it is responsible for the total price.

When making a **Cost plus fee** contract, these risks are shared by both the contractor and the investor. The building contractor often produces parts of the project documentation together with the statement of merit and the preliminary budget. It therefore determines both all necessary activities and their quantity. However, the investor pays all the actual costs of the contractor, both for his work and for the subcontractors and the materials used. He should therefore check all the documents, whether the building is built according to its purpose and whether the declared quantity and work corresponds to reality. So the investor does not know the total price for the work until all the work is done.

Under a **guaranteed maximum price** contract agreement, everything works in the same way as for a cost plus fee contract. Only the construction contractor proposes the maximum high of the total price that the investor accepts. All costs above this high remain with the contractor. On the other hand, the savings saved remain to the investor unless the two sides decide to divide these finances (must be secured in the contract).

➤ Argentina

When closing **Por unidad**, these risks remain with the investor. The investor provides the project documentation and the complete statement merit with a description of the works as well as the number of individual works to be performed by the contractor. The supplier therefore only assumes responsibility for performing the work in question. The investor is responsible for both for identifying all necessary works for the construction of a functional building work and for determining the right amount of the work in question. Although this quantity is only provisional, but on this base the contractor creates its unit prices to the works in question.

When entering into a contract of the type **Ajuste alzado**, it is the responsibility of the contractor to determine the quantity of the individual works correctly. This is mainly due to the fact that the contractor proposes a fixed price for the work or construction work for which he then makes the work. Therefore, if the investor does not change the project documentation or other documents, the fixed price applies.

In the **Coste y costas** contract, these risks lie on both participants. The building contractor usually creates project documentation, which then determines the required building activities and the amount of work involved. The investor subsequently approves the documents and pays all the actual costs of the contractor. The total cost per work does not know until the completion of the construction. Therefore, the risk lies both with the contractor of the construction, which determines the necessary activities and the given amount, as well as with the investor who pays for all the work.

#### Partial conclusion

According to the assigned risks for the correct determination of the quantity of individual works and the identification of the necessary works for the construction work, the contracts are similar to the following:

- Unit price contract and Por unidad
- Lump sum and Ajuste alzado
- Cost plus fee and Coste y costas



A contract with a guaranteed maximum price has not equivalent in the Argentine construction environment.

## 4.3 Similarity of types of contracts used in the construction industry

### 4.3.1 Unit price contract and Contrato por unidad

The contract based on unit prices is very much like the Contrato por unidad - de medida. Both contracts include a detailed statement of the bid with the description of the works and the project documentation, commissioned by the investor, and its valuation by the supplier's unit prices. Before the start of the work, therefore, only the preliminary budget is estimated from the estimate of the number of individual works. The overall price is known only after completion of the construction, because it pays unit prices multiplied by the actual amount of work done. At Contrato por unidad – Simple: at the beginning there is no exact number of the volume of work, but only the price per unit. Under both contracts, the investor who submits the individual construction work on the basis of the statement merit is responsible for the correct identification of all the necessary activities for the construction of a functional building work, with a description of the works and the project documentation. This provider performs only assigned tasks. All the co-ordination of work and supply management on the construction site is the responsibility of the investor. On his side there is also the risk of determining the right amount of individual work. The provisional budget is made up of the unit prices of the suppliers and the determined amount of the investor. However, the actual price of the work depends on the amount of work actually done, so that any other amount of work during the construction changes the pre-price for the work. Both types of contracts are used for simple buildings, when subcontractor works are handed over to contractors. At the same time, they are also used for more complex transport projects, such as tunnels or motorways, where it is not possible to determine the exact amount of individual works before they start.

#### Critical analysis

This type of contract is not particularly advantageous for the investor. Not only does he have to identify all the necessary work for the construction work but also has to determine the preliminary amount of work in order to determine at least the preliminary budget. However, this may change during construction. Therefore, the investor does

not know the total cost of the construction until the completion of the construction. The advantage, however, for him is that he has an overview of all construction activities and is very flexible during construction. For contractors, this type of contract is the least risk because it determines unit prices for the exact and described work to be done. Units include, in addition to material and labor costs, production and administrative overheads and profit. Therefore, the supplier should not be trained on this type of contract. Invoicing is, however, more complex because it has to document all the work actually done and the amount that the investor should intensely control. In the Czech Republic, this type of contract is not primarily used, and the same applies to Argentina. It is used for simple buildings or for traffic buildings where it is not possible to determine the quantity of some works in advance, therefore unit prices are determined. The possibility of price change is no longer defined if it is not included in the contract separately.

#### 4.3.2 Lump sum and Ajuste alzado

Lump sum and Ajuste alzado are very similar in all respects. The fixed price contract is characterized by the responsibility of the contractor for the correct identification of all necessary works leading to the construction of a functional and complete building work, as well as for the correct determination of the amount of the work in question. Necessary work is determined by the building contractor mostly on the basis of the supplied project documentation and a description of the works delivered by the investor. Generates a statement of budget and budget. The price for a work is a fixed price under the terms of the contract. The construction contractor is therefore responsible for the complete construction of the building or construction work on the basis of the fixed price, which is enshrined in the works contract. This type of contract is mainly used in the traditional supply system (DBB), therefore the price is closed to the entire construction work. But it can also be concluded within the relationship between the contractor and his subcontractors. This contract is widely used in Czech conditions. This is evidenced by the General Terms and Conditions for Construction, where the price for the whole work is determined, not the individual works. In Argentina, it is the most popular form of contract for construction work - because this contract system has been in place for many years in Argentina, and most contractors are used to it and know what is involved with it.

## Critical analysis

In the Czech Republic, the fixed price contract is widely used, mainly within the traditional supply system. Its use is also enshrined in the General Business Construction Terms and conditions (GBTCs), where the price for the overall construction work is determined on the basis of the project documentation and an inventory of works, supplies and services and technical conditions.

In Argentina, fixed price contract is used at public-private relationships - the relationship is governed by the Public Works Act (Ley de obras publicas, Ley 13.064). But as well its very often used at private contract relationships, because this executive system is very well known at Argentina for all companies.

There are no major differences in basic properties in the given types of contracts. These can then be complemented by other differences in the wording of contracts, such as warranty periods, bank guarantees, payment terms and more. Budgeting techniques are different in each country, and caution should be exercised when creating a fixed price.

### 4.3.3 Cost plus fee and por coste y costas

The cost plus fee contract is characterized by the reimbursement of all the direct costs of the contractor together with the overcharge for overhead and profit. This is exactly what Por Coste y costas also features. It is the basic cognitive feature of this type of contract.

Within both, only the intention and purpose of the construction is usually given, and it is up to the contractor to design the project documentation and build it accordingly. All proposals for both the necessary work and the number of individual works are carried out by the contractor, but the investor should check them all. Responsibility for these two activities is shared between the building contractor and the investor. In Argentina, this type of contract is also used only in rare cases. And that's mainly because the price of the building is not known in advance. And since all actual costs are reimbursed, the contractor does not have to minimize these costs.

## 4.4 Comparative Analysis of Legislative Adjustment of Contractual Relationships

### ➤ Czech republic

In the Czech Republic, the contract for construction or construction works is concluded through a contract of work, most often based on the Civil Code (§2586 - 2635). However, these terms and conditions are not directly intended for a construction project, but are general for making any work. The SIA CR - The Construction Council therefore created the General Terms and Conditions for the construction of the building, which can be used only by reference in the contract, pursuant to Section 273 of the Commercial Code. These conditions are mainly intended for contracting authorities, but are not required to use them. Most private contractors only use some of these terms, but they still design their own contractual terms based on the business code and company experience.

### ➤ Argentina

In Argentina as well as in CR we have distinguish between public contract (between private entity and government) or private contract (between two private entities). Public contracts or public works have to follow Public Works Act (Ley de obras publicas, Ley 13.064). The public works law includes the definition of public works in general, the course and evaluation of the selection procedure, the formulation of contracts, how the work should be done, how the changes to the terms of the contract can be made, the payment of the contract, the circumstances in which the contract can be terminated, how to deal with disputes and claims. For contracts between private entities is used Código civil y comercial de la nación (Civil and Comercial Code of the Nation). What does the code says is described in chapter 3.2.2.

It is possible to say that the situation is quite similar in both countries. For Public works (procurements), the Public Procurement Act is used in the Czech Republic, and in Argentina it is the Public Works Act (Ley de obras publicas, Ley 13.064). The Civil and Commercial Code is used in the Czech Republic for the conclusion of private contracts, just as in Argentina it is the Civil and Commercial Code of the Nation (Código civil y comercial de la nacion). The

General Business Terms and conditions in Czech construction industry are governed by the General Construction Terms and Conditions (for public contracts) and for the private contracts the private suppliers only use some of the provisions of these conditions, but they are still drafting their own contractual terms based on the Commercial Code and experiences of the company. In Argentina there are no general terms and conditions but every company/ every new contract has its new terms and conditions often based on experiences of the contracting company (its important to say that many of the provisions are drafted from Ley de obras públicas).

## 5 Conclusion

The supply system is a system of contractual relations between the major participants in the construction. These include an investor who has the funds and decisions about a construction project, a designer who produces the project documentation and the contractor of the building that carries out the construction work or works contractors. The different parties have different interests and objectives, so the terms of the contract should be balanced.

Choice of supply system depends on many factors. The decision belongs to the investor. Selection depends mainly on the risks the investor is willing to carry and which he wants to transfer to others, his knowledge of the preparation and management of buildings, the type of construction, its complexity, complexity and other characteristics.

Under Czech conditions, supply systems are defined similarly to the Anglo-American environment, as they have often been taken over from this environment. The basic supply systems used in the Czech Republic include: the traditional supply system (DBB), the single supplier system (D/B), the multi-supplier system and the related engineering (Agency CM), Construction management (CM at risk), Project Management and PPP projects. Contractual relations between the main participants of the construction in the Czech Republic are mostly concluded on the basis of a contract of work. The types of contracts that are entered into are, according to the method of pricing and risk allocation, the following: Contract based on unit price, Lump sum contract, Cost plus fee contract, and Contract with guaranteed maximum price (GMP).

In the Czech Republic, FIDIC's contractual terms are increasingly being used, mainly due to the entering of the Czech Republic to the European Union and the use of FIDIC books for projects funded by the World Bank. FIDIC issues more than one kind of contract terms, mainly depending on the supply system.

The engagement relationships in the Czech Republic are regulated in the Civil and Commercial Code, where a contract for work is defined. Public contracts are governed by the Public Procurement Act, PPP projects in the Concession Act. However, the relations governing the construction activities are insufficiently described in these codes. Therefore, various general business conditions have been developed that deal directly with construction activities. Only the reference in the contract is sufficient to use them, thanks to paragraph 273 of the Commercial Code. In order to facilitate the conclusion of construction contracts according to the traditional supply system, the General Business Terms and Conditions for the construction of a building from the SIA Czech rep. - Construction Council (2007) were created.

In Argentina, the supply systems are not used, but so called contract systems for construction work "Sistemas de ejecución de obras" are used instead. Argentine practice is different from the world one, mainly due to history and their own approach. The main contract types used in Argentina are: Por Administración, Contrato de obra por concesión, Contrato de obra por partes - Ajuste alzado, Por unidad, por coste y costas; and sistema mixto o combinado.

We can divide the types of business engagement in Argentina into two groups. Firstly, in the case of a public contract, relations are governed by the Public Works Act (Ley de obras públicas, Ley 13.064). The public works law includes the definition of public works in general, the course and evaluation of the selection procedure, the formulation of contracts, how the work should be done, how the changes to the terms of the contract can be made, the payment of the contract, the circumstances in which the contract can be terminated, how to deal with disputes and claims. 56

Secondly, these are relations between private entities. In this case, the Código civil y comercial de la nación (Civil and Commercial Code of the Nation) is used. It contains provisions that must always apply and also contains the recommended provisions. The code defines the contractual systems that can be used to conclude the contract, the circumstances in which changes to the project can be made, the definition of the

manner of remuneration, the reasons for the termination of the contract, the warranty period, the observance of building standards and others. Each of the entities is obligated with provisions which are described in chapter 3.2.2.

Similar contract types according to the given characteristics, such as the materials provided for the conclusion of the contracts and the assignment of the risks associated with the correct determination of the required amount of work and the identification of all the building and assembly activities and the works necessary to complete a functional, complete and operational building work: Unit price contract and Por unidad, Lump sum and Ajuste alzado and Cost plus fee contract and Por coste y costas. Differences are not great in the traditional use of contracts. In Czech republic, a fixed price contract is used very often, in Argentina it is similar. Both are embedded in the local general construction terms and conditions. Although contract types are similar in nature, the wording of contracts may be different, mainly by using other legal regulations, customs and traditions. Basic legal provisions include differences such as different payment terms, warranty periods, bank guarantees, necessary insurance, etc., which should be prepared by thoroughly studying the contractual terms. Basic legal provisions include differences such as different payment terms, warranty periods, bank guarantees, necessary insurance, etc., which should be prepared by thoroughly studying the contractual terms.

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