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Podnikání a komerční inženýrství v průmyslu

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The assessment of several variants of a property development project

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Zásady pro vypracování práce

Cíl práce (stručné vymezení zkoumaného problému):

The thesis will compare and assess three variants of a development project on a specific property in Pilsen.

Teoretická východiska:

The first option of the above mentioned development projects focuses on the construction of an administration building which will be determined for rent or for sale. The second option focuses on the construction of an apartment building and the third on the construction of semi-detached houses. The second and the third variant are considered only for sale of the apartments or semi-detached houses. In all cases, the project aims to make a profit.

The issue of development projects, investing, construction, sale, lease, is generally not written in any publication. This type of information is gained from the real practice in business in civil engineering or development sector. The diploma thesis will be mainly based on the information from the subject Developer projects.

Metody práce:

The thesis is going to be divided into two main parts. Firstly I am going to process the theoretical part which will be focused on the progression of the development in the Czech Republic. In the second part, practical, I will deal with PEST analysis of the three development projects, where the political, economic, social and technological effects will be examined. Further the total costs and revenues will be analyzed. This will make it possible to built cash flow of these projects. The overall evaluation will be determined based on PEST analysis, costs, revenues, schedule, funding and risks of individual projects.

Rámcová osnova:

1. Introduction
2. Theoretical part – the development in the Czech Republic
3. Description of the land
4. Administration building
 - 4.1. Market analysis
 - 4.2. Project costs
 - 4.3. Project revenues
 - 4.4. Project cash flow
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5. Apartment building
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6. Semi-detached houses
 - 6.1. Market analysis
 - 6.2. Project costs
 - 6.3. Project revenues
 - 6.4. Project cash flow
 - 6.5. Risk management
7. Evaluation of the three variants of the development project
8. Conclusion

Základní odborná literatura:

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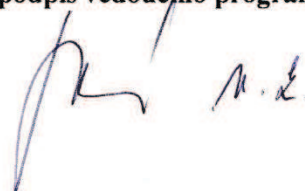
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Podpis ředitele MÚVS





Declaration:

I declare that I wrote up the Diploma thesis independently and I stated all the information sources which I used.

In Prague, 24.4.2015

.....
Ing. Lukáš Nový



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The abstract of the diploma thesis

This thesis deals with the evaluation and subsequent comparison of three kinds of property development projects, based on very similar conditions. The first one provides for the construction of semi-detached houses, which are intended for sale to end users. The second one provides for the construction of an block of flats, where flats are intended for sale to end users. The third of the property development projects provides for the construction of an office building, which will serve to rent to one or more tenants. In all cases the project aims to generate profit.

Abstrakt diplomové práce

Diplomová práce se zabývá zhodnocením a následným porovnáním tří druhů developerských projektů, vycházejících z velice podobných podmínek. První z nich se zabývá výstavbou rodinných řadových dvojdomů, které jsou určeny k prodeji koncovým zákazníkům. Druhý z nich se zabývá výstavbou bytového domu, který je určen k prodeji koncovým zákazníkům. Třetí z developerských projektů se zabývá výstavbou administrativní budovy, která je určena k pronájmu jednomu nebo více nájemníkům. Ve všech případech je cílem projektu vygenerovat zisk.

Key words

Property development, the market analysis, financial analysis, the source of financing, costs, expenses, cash flow

Klíčová slova

Development, analýza trhu, finanční analýza, zdroje financování, náklady, výdaje, cash flow



Used abbreviations

CF	Cash Flow
CR	The Czech Republic
VAT	value added tax
IRR	internal rate of return
UD	upper deck
NPV	net present value
PD	project documentation
WBS	work breakdown structure
GDP	Gross Domestic Product
CZK	Czech crown



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Foreword

The Diploma thesis compares the three variants of a property development project in Pilsen, specifically the construction of semi-detached houses, block of flats or administrative building. The aim of this thesis is firstly evaluate different investment opportunities and then at the end say which one is best for the investor.

It is important to say why I chose this topic for the Diploma thesis. I graduated from the Czech Technical University in Prague, Faculty of Civil Engineering, Department of Structural and Transportation Engineering. Already during the early stages of my studies I found a passion for structures (concrete, steel, wood, glass structures) and somehow also a pleasure in architecture.

During my studies I worked in Prague as a designer in the company Helika a.s. (which designed the O2 Arena and the National Library of Technology in Prague). At the end of my studies I did not feel enough enthusiasm for design activities and more and more I inclined to property development activities. The reason? It's quite simple. Property developers are connected with the construction from the very beginning to the moment such as the sale of the last flat. They do not care only about the technical side of the construction, but they care about a whole range of other things, such as locality, price level, the structure of potential buyers and tenants or economic aspects. In other words, they solve the construction comprehensively. It fascinated me.

Now I work in Pilsen in the property development company Stafin a.s and I must say that I am still fascinated by the property developer issues as I had been few years ago.

This thesis is based on a real intention of the property development company Stafin a.s. Several years ago the company bought the plot and is now considering the construction of one of three property development projects. The owner of the company made me responsible for analyzing three investment variants which are described in this thesis. Thanks to this thesis, I greatly deepened my knowledge of the topic and I was able to fulfill the task, which gave me the owner of the company, to say which of the three property development variants, is the most advantageous investment.



1 Introduction

The thesis will compare three different projects in terms of their feasibility and profitability. These three projects are: the construction of semi-detached houses or the block of flats or the office building.

2 Hypothesis

My personal presumption is that the most advantageous investment will be the construction of semi-detached houses which will not generate such a great profit as the construction of an block of flats or office building, but the risk of having unsold flats or offices without tenants is at a significantly lower level, so there is not likely to be any additional costs to the developer after the completion of construction, which is for example maintenance of unsold space and the company's overhead costs.

3 Objectives and methods

The goal of the thesis is to compare and contrast three development projects and say which is the most advantageous for the investor.

Firstly there will be processed theoretical part, proposing to the property development. In the practical part there will be processed and compared the analysis of all projects. Determining of the profitability will depend on a variety of factors involved in the project. For this reason, it is always necessary, before determining the return of investment, to perform the market analysis.

In all cases, after the project description the PEST analysis will be drawn up, where the will be examined the political, economic, social and technological effects. Then will be examined statistical indicators and after that will be determined the current sale price of houses and flats in the area and the rental rate of offices in the locality. Then will follow the identification of all project costs, yields according to the sales of flats or houses and income from the rent of office space. This will make it possible to build cash flow of the project. The possible way to obtain the necessary funding for the project will be



determined and an overall evaluation of the project will be determined, including the impact of funding. An essential part is also the identification of the risks to the project and the final evaluation.

At the conclusion of this thesis, all projects will be compared from all of the aspects.

4 Theoretical part

4.1 Property development

The property development activity is always related to a property, but it is not a traditional real estate business. The difference between the property developer and real estate activity lies in the fact that the developer becomes the owner of the property, which he treats according to the project plan, while real estate agency only provides sale or lease. The profit consists in the developer's activity, which evaluates originally acquired property and reselling it with a profit. This may be for example the networking of the plot and then selling it, the construction of an block of flats and sale of the individual residential units or rent them [1].

4.1.1 The property development in the Czech Republic

Here in the Czech Republic the property development has appeared after 1989. The first property development project in the strict sense of term was the complex of office buildings in Prague. The first property development phase were powerful foreign companies. Gradually the separate divisions of construction companies have allocated, specializing in property development projects, but in most cases were controlled by foreign capital and management.

The change has taken place gradually and came from the interest of the banks which have adjusted their approach to financing of such projects. Thanks to this here in the Czech Republic have been established several private companies, which have focused primarily on projects in residential construction. Office and commercial projects have usually been invested by foreign investors.

An important presumption for property development activities is to realize that it is an interdisciplinary discipline that involves a wide range of expert fields and these fields



are necessary to coordinate so as the overall result matched the developer`s expectations. For this reason, the property developer must have certain character qualities, such as good communication skills and motivation of other project participants [1].

4.1.2 The emergence of a property development project

Generally, the project begins with the identification of the most suitable plot for the project. The facts as the ownership, technical and ecological characteristics are analysed. If this plot suits to the developer`s vision about his intentions, he agrees with the plot seller about the future purchase, which the developer is trying to delay to the moment when the site permit will be issued. The property developer tries to reach an agreement of an exclusivity for negotiations. After this step is usually done the exploring of the local area, which affects the project, and looking for target market of the project. After the market targeting usually comes the volumetric study. This determines the size of the built-up areas and shapes of buildings. From this output is possible to determine approximately the volume of the building and thus also the first estimates of potential revenues, which are determined on the basis of communication with people working in real estate offices. Ideally, communication occurs with real estate companies throughout project implementation. Information collected from real estate agents in the initial phase of the project leads to the ideal interior layout and sizes of the rooms, standard equipment and at the later phase also the price for which is possible to sell or lease the property.

Within the meaning of maintaining oversight of the construction developer selects the project manager, who along with project inspectors (technical supervision of the investor) oversees the progress of the work at the construction site, monitors their compliance with the project documentation, conducts inspection days, monitors the extent of extra work and informs the investor. Especially he focuses on the circumstances affecting the final price, quality and completion date.

4.1.3 Quantity surveyor

There is often a collaboration with a specialized company called Quantity surveyor who has the task in the first phase to calculate the initial construction costs based on the gross outline and over time specify these costs according to more detailed project



documentation generated for the process of site permit and construction permit, project tendering, realization and then the actual building construction. Thanks to that, the developer is capable of monitoring and evaluating the economic feasibility of the project during construction. Another task for the Quantity Surveyor is to evaluate bids of general contractor. They are usually chosen by tender procedures. In the realization phase of construction Quantity Surveyor approve a timetable and confirms invoices and additional works.

For construction companies, which include their development division, the initial to final cost are calculated by business department on the basis of project documentation prepared by design department. Likewise, the business department is responsible for the selection of contractors. Quantity Surveyor is not an external partner in this case.

4.1.4 Marketing

It is one of the key disciplines, whose quality determines the success or failure of the project. It can not be just about selling and advertising. It is necessary to analyze the needs of people and on this basis determine what goods people would buy. It is about the type and quantity of product, time (when a customer purchases it), place (where a customer purchases it) and of course the price the customer is willing to pay. On these analysis is directly connected the comparing with other property development companies and determining the type of promotion.

Marketing can be subdivided into micro and macro marketing. Micro-marketing deals with customer needs and then mediates the flow of goods and services from the manufacturer to the customer and the flow of finances from the customer to the manufacturer. Macro marketing already operates a production-distribution system so that the entire system is in the balance, compares the demand and supply and tries to ensure an achievement of corporate goals.

In the civil engineering sector is also important to check the basic indicators of the construction market, such as the capacity market, its potential and saturation. The capacity is the amount of construction work carried out on the construction market for (usually) one year. The market potential is the amount of work given by investors in the same period. And the saturation of the market can be counted as a fraction of the two previous indicators. Marketing, as the addressing of customers, usually begins right after the



project gets the site permit. It's a time when there is already sufficiently well-known form of the project and the requirement of a significant customer can be included into the project documentation for construction permitting [2].

4.1.5 Costs of developer

The total costs of the project can be divided into costs for plot purchase, construction costs (hard costs), soft costs and financing costs.

4.1.5.1 Costs for plot purchase

These costs involve the purchase price of the plot. These costs can be directly included in hardcosts.

4.1.5.2 Hard costs

Hard Costs are related to project documentation (at all stages) + securing all permits, fees for network administrators and completing realization of the project.

4.1.5.3 Soft costs

These costs are primarily associated with construction management (the salary for employees in development companies who work on the project), cost for accounting, insurance, real estate transfer tax, as well as costs associated with the activities of health and safety coordinator, technical supervision of the investor, legal services, real estate and advertising activities. Finally, there are also costs associated with the construction after the completion of the building and of course developer's profit, which is determined by a percentage of the total cost (without plot). Here can also be included the cost of external financing.

4.1.5.4 Cost of external financing

In other words, the price of borrowed money (total interest).

4.1.6 Financial analysis of the project

When determining the feasibility of the project is one of the most important tools the financial analysis of the project. Its structure varies according to the type of the property development project and its objectives. Other structure will be for projects dealing with networking the plot and subsequent selling the parcels and other will be for the



constructing of an apartment building intended for sale or the constructing of an office building intended for rental. The beginning of the analysis can be found in the initial determination of project costs, but with the growing amount of information, these data are more accurate. For this reason, financial analysis is performed repeatedly during the different stages of the project.

4.1.6.1 Project to lease

The realization of the project designed for future lease to the end-users in terms of financial analysis is splitted into the stages of preparation, realization and phase of using the property. The first revenues from this type of project come after the property has some tenants, while the costs are spent since the beginning of the project. For this reason, in the analysis is calculated with the discounted cash flow. Revenues are then generated from payments by a tenant or tenants at intervals arising from the contract. The value of this project is the present by the value of future flows of the project which is based on the selling price of the finished and leased project. Theoretical selling price of the project (building) is equal to the proportion of theoretical rent and required revenue for the same period of time (year). Achievable rent is determined, for example, by comparing with competitors offering similar projects or questioning tenants. Required investor's return depends on the type of project, its location, total cost, complexity and risks to which he is forced to undergo. These risks also include, for example, loss of tenants and difficulties associated with finding new tenants. This financial analysis can be a good guide, but the developer would rather count on the discounted cash flow of the project, where to the income is added the yield from the sale of the project (building) after the end of the rental period specified by the developer.

4.1.6.2 Projects to sale

This is normally about the construction of the block of flats or semi-detached houses intended for private ownership for end users. Even in this kind of project, the investor has an interest to maximize the presale of apartments before starting the realization of the project in order to minimize the risk of project's failure. This risk arises mainly due to the large time period between the start of the project and its possible sales to end customers. This time period is usually several years long, when during this period there can be substantial changes in the construction market, which reflects the economic but also



political changes in the society. And if we take into account that the profit or loss for the developer can mean the sale of the last flat or house, this risk is significant and efforts to minimize it, are completely understandable. This risk is outweighed by above-average profits on individual projects.

4.1.6.3 Yield of the property development project

Given the long duration of the project is important at the beginning to consider the overall profitability. Usually the investor decides between multiple projects. Investor considers the payback period of the investment and the internal rate of return determined thanks to the net present value.

4.1.6.3.1 Net Present Value (NPV)

This is an indicator that is determined on the base of future cash flow. When determining the lifetime of the project, it is possible to gain, thanks to this indicator, an information about the financial benefits of the project or vice versa losses. Given that it counts with the future funds, is necessary to discount the values which the indicator works with. Determining the discount rate depends on many aspects and is done in different ways, but as a general rule, its value should be higher than the interest risk-free rate of return that we get from the investments in government bonds. This value is increased by a risk premium. Generally, the higher the risk of the project is, the higher the return should be. The basis for determining the correct NPV is also good to know the estimation of the future finance flows and lifetime of the project. The whole formula is:

$$NPV = -C_0 + \sum \frac{C_t}{(1+i)^t}$$

Where:

C_0 ... initial project investment

C_t ... cash flow at time t

i ... required rate of return

Interpretation of results:



$NPV = 0$... Discounted revenues are equal to expenditures and such an investment will not bring anything, I mean it in financial terms. However, there are also non-financial revenues which are not included in the indicator.

$NPV < 0$... Discounted revenues does not exceed the expenditures and the investment in terms of financial profitability is not recommended.

$NPV > 0$... Discounted revenues exceed expenditures, and on this basis of financial terms is this type of investment recommended.

4.1.6.3.2 Internal Rate of Return (IRR)

It is the value of the interest rate at which the present value of capital income equals the capital expenditure of the investment. Net present value is equal to zero. The whole formula is:

$$NPV = 0 = -C_0 + \sum \frac{C_t}{(1 + IRR)^t}$$

We search for IRR using the specified rate of return, so that $NPV > 0$, then $NPV < 0$, and then interpolates between these values until $NPV = 0$. The problem in the calculation, however, may arise when the selected intent has more or no IRR, i.e. when there is a change in the sign of cash flow multiple times or there is no change at all.

IRR value, which we get, can be then compared with alternative safe investment and gain an overview of whether the investor yield is sufficiently attractive or not [3].

4.1.7 Sources of finance for the property development project

Generally, there are two sources - own capital (equity) and external capital. Equity is often used to buy the plot. This is then the capital of the property developer. Correctly selected project allows most property developers to finance everything using equity until getting the construction approval. After that the developer uses the contracted external capital. The form of lender may vary. Most often these are commercial banks, savings banks, insurance companies, private investors, pension funds and real estate funds and foreign investors. The last named are looking for ways to valorize their capital and mostly come from some fast emerging economies.



Generally, equity is the most expensive resource. If the developer is a joint stock company, increasing its equity reaches by creating new shares. Investors then expect high profits, since undergoing a significant risk when investing their capital. Not only that, they have no guarantee on the return of finance, but in liquidation are their demands met in the last place. In contrast, the foreign investors, who provide the capital, undergo less risk by requiring large enough guarantees on a return on their capital. For this reason, foreign investor is satisfied with smaller yield. In addition, he uses the option in the effect of tax shield, using the interest as an expense and the result is a smaller tax base income. This enhances the return on equity.

Obtaining finances from banking institutions, is for the property developer one of the key indicators of the feasibility of the project. The developer negotiates with potential investor usually before purchasing plot. The bank always examines in detail the project and the developer. These conditions are two fundamental conditions for approval of the loan - whether provided finance returns and whether they return with a profit. The banks examines the locality, how the documentation is detailed, a method of controlling project costs and the level of security for the loan. The developer is examined in terms of economic indicators and in terms of previous experience of cooperation. If the bank is interested in financing, it sends an offer with possible financing methods. Finances are then usually released only when the developer meets the requirements of pre-lease or pre-sale and after investing prearranged portion of capital from developer's own resources.

The external finances have in most cases two possible forms. The first is the construction loan, the second long-term loan.

4.1.7.1 The construction loan

The construction loan has a shorter duration, equal in most cases the time of realization. The condition to get this type of loan is usually a certain presale or pre-lease and about 30% of the capital from its own resources (invested into the project). Additionally, the bank also examines the budget of the project and supervises the periodic invoices. Sometimes the bank may even require, before providing a construction loan, a commitment of another bank institution that, if necessary, it provides a long-term loan itself. This gives to the bank more control over the project.



4.1.7.2 The long-term loan

Long-term loan has a much longer maturity than construction loan (always longer than 4 years). It is often provided after the completion of the construction for the repayment of the construction loan in case of developer's failure in selling or renting the whole property. An example might be a few remaining unsold apartments in an block of flats. In this case, the developer becomes the owner of these apartments. In providing long-term loans the bank is interested in the project rather than in the developer, for whom is important to know the requirements of the bank institution on the property. The amount of the long-term loan is reflected by two criteria. The first is the ratio of the amount of the loan and the value of the project, which is designed using the NPV discounted cash flows from the project. The value of the ratio, which is the lending institution willing to accept, is determined by itself. Another criteria for determining the amount of the loan is the project's ability to bring high enough profits to cover installments.

4.1.7.2.1 The mortgage

A special kind of long-term loan is a mortgage. It is provided for financing real estate and is subjected by guaranteeing the property. Its value is measured by experts working for the bank as usual price. Maturity can be up to 30 years. Often mortgages are also used in project activities related to housing construction. When meeting with the required pre-sales, the booking fees are continuously sent to a special account in the contracted bank. The bank also controls the loan by controlling the activity of the developer. The bank also usually comes with a favorable mortgage on the completed project, as it may not re-determine the cost of purchased apartment units.

Financing the project from external capital is financially advantageous, but it should be borne in mind that rising debt brings increasing costs of its own capital (investor perceives the increased risk of indebtedness) and a rise in external capital, since the large debt, the external investors require increased interest equal to a higher risk. For this reason is necessary to find the optimal composition of capital, which will bring the smallest possible costs.

4.1.7.3 Getting a loan

An external investor providing capital requires additional warranties because if the project fails, the external investor is not able to get compensation for lost investment from



private property of the developer, unrelated to this project. A common practice is a lien on the property - plot and building. The building goes under the lien when the building enters the Plot Register. This can be done only when the building is spatially determined - has at least one floor. During this interim the financing is solved in two ways. Either the financing of this section is required from the developer himself or there is a contract about a future warranty contract. Another lien material is a business share or shares of a company, specially designed for this purpose, which may not practice any other business activity.

Another way to ensure the provided credit for the rental project is that the loan provider will ensure the right to get the rent from tenants in case the developer delays payments.

4.1.8 Calculation of the project

The main aim in most cases in the property development activities is a profit. The calculation is actually the most accurate estimate of the future progression. It shows the costs and revenues items in time and supplementing their time value. It is also necessary to monitor the internal rate of return and the cost of financing the project. The problem are the frequent changes of costs and revenues during the project, which are constantly being more and more detailed due to the progression. Therefore, from the beginning the property developer needs to have a necessary financial reserve. It usually corresponds to 3-5% of Hard Costs excluding the value of the plot.

The basic calculation is the pre-budget of the building, thanks to which the investor gets a first idea of costs of the entire project. Pre-budget consists of 10 Heads:

Head I: Design and survey activities

Head II: Operational packages

Head III: Basic budget costs

Head IV: Machinery, equipment and inventory of investment character

Head V: Artwork

Head VI: Costs of building placement

Head VII: Other costs

Head VIII: Reserve

Head IX: Other investments



Head X: Costs paid from operating funds

Creating a pre-budget can be very useful when deciding how to finance the project. The next stage of the calculation is a budget that gives a fairly accurate estimate of the total costs of construction [1].

5 Semi-detached houses

Figure 1: Overall visualization of the project [4]



5.1 The charter of the basic definition of the project

Name of the property development project:

Semi-detached houses, Nepomucka, Pilsen

Address:

NEPOMUCKA, PILSEN

Written by:



Ing. Lukáš Nový

Purpose of the project:

To generate the profit from the sale of individual objects to end users.

Description of objects:

The main aim is the construction and subsequent sale of 4 double-storey brick semi-detached house with a gable roof. The floor area of each building is 98 m². The arrangement of semi-detached houses is considered in two parallel lines with the access road between the houses. A part of the total plot assigned to ½ semi-detached house has an area of 200 m². Individual semi-detached houses are separated by fence with or without climbing plants. The whole plot is surrounded by a brick fence with wooden planks [4].

The presumption:

Planned costs from the project's budget are: 28,762,956 CZK.

Planned total revenues are: 32,808,696 CZK.

Planned profit is 4,045,740 CZK or 14.07% from planned costs.

Expected start of the project is the beginning of June 2015.

Expected finish of the project (investment phase) is March 2017.

Expected interest rate is equal to 4.5 % p.a.

Own financial sources and external financial sources are expected in the ratio of 30:70 %.

The construction will be delivered by a general contractor who will be responsible for the quality of the performed work.

The aim of the project:

Achieve maximum profits from the sale of semi-detached houses.

Major milestones: (day/month/year)

Start of the project: 1/6/2015

Acquirement of the site permit: 29/1/2016



Acquirement of the construction permit:	27/5/2016
Start of the realization of the construction:	1/6/2016
End of the realization + an acceptance of construction work:	31/3/2017
Sale of the last half of semi-detached house:	13/10/2017

Restrictions:

The amount, which shall not be exceeded is 29,300,000 CZK.

The deadline of the completion of works is very important. It is considered a sufficient reserve for getting a site and construction permit. General contractor will be motivated to meet the deadline with sanctions.

Compliance with the ČSN (Czech Technical Standards) is taken for granted. The general contractor is responsible for his activities at the construction site.

The important point is to obtain a sufficient amount of external finances. Failure in approving the loan will have a fatal impact on the realization of the project.

5.2 Description of the plot

The plot is located in Pilsen, at the intersection of streets and Nepomucká and U Českého Dvora in Cadastral Zoning Hradiště u Plzně. The size of the plot is 2,899 m². Currently the plot has partially a hard surface with the remains of the original petrol station respectively foundations of the petrol station were already demolished. The technology of the petrol station was demolished and the ground was rehabilitated.

There is still the same possibility how to get to the plot as it was when there was the operating petrol station. There are tarmac roads, the rest of the area is covered with grass.

In 2007 there was made a geological survey. In the area of interest were performed six drilled probes, in which was found, in the upper layers, clay and stone to a depth of 0.8 m, then aluminum gravel, sand, and in about 4.5 m clay which from about 7 m is stiff. The groundwater level was encountered in 3.2 m.

The area is located outside the floodplains. The plot is gently sloping towards the southwest [4].



Figure 2: Surrounding locality [5]

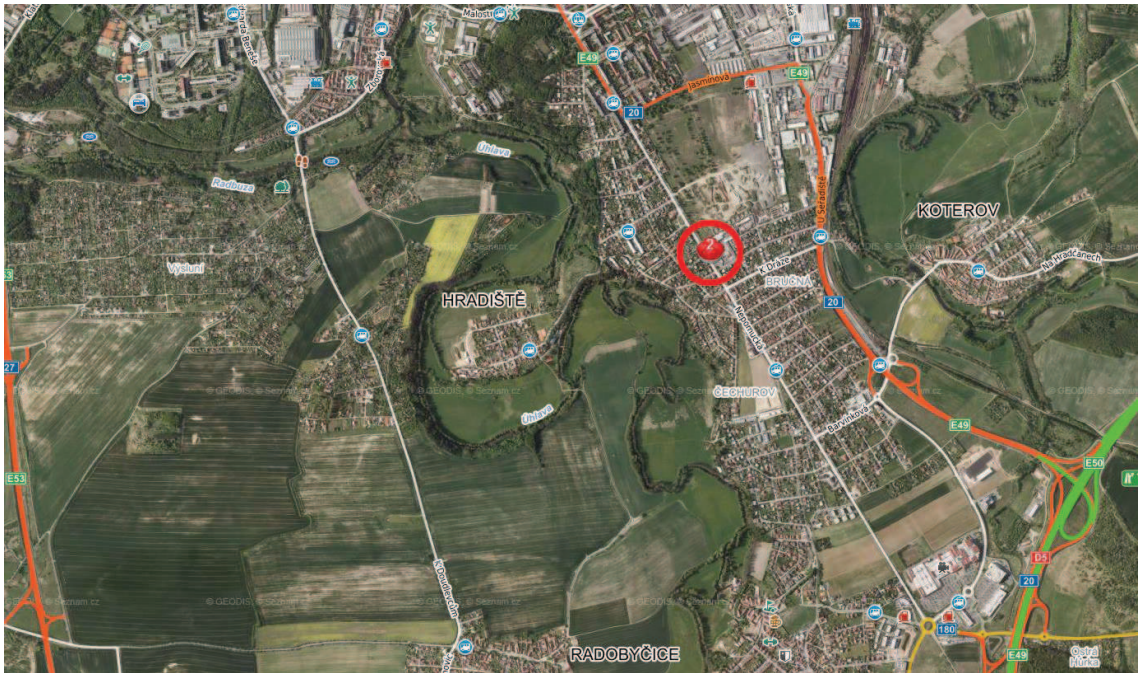


Figure 3: Basic situation of the project [5]

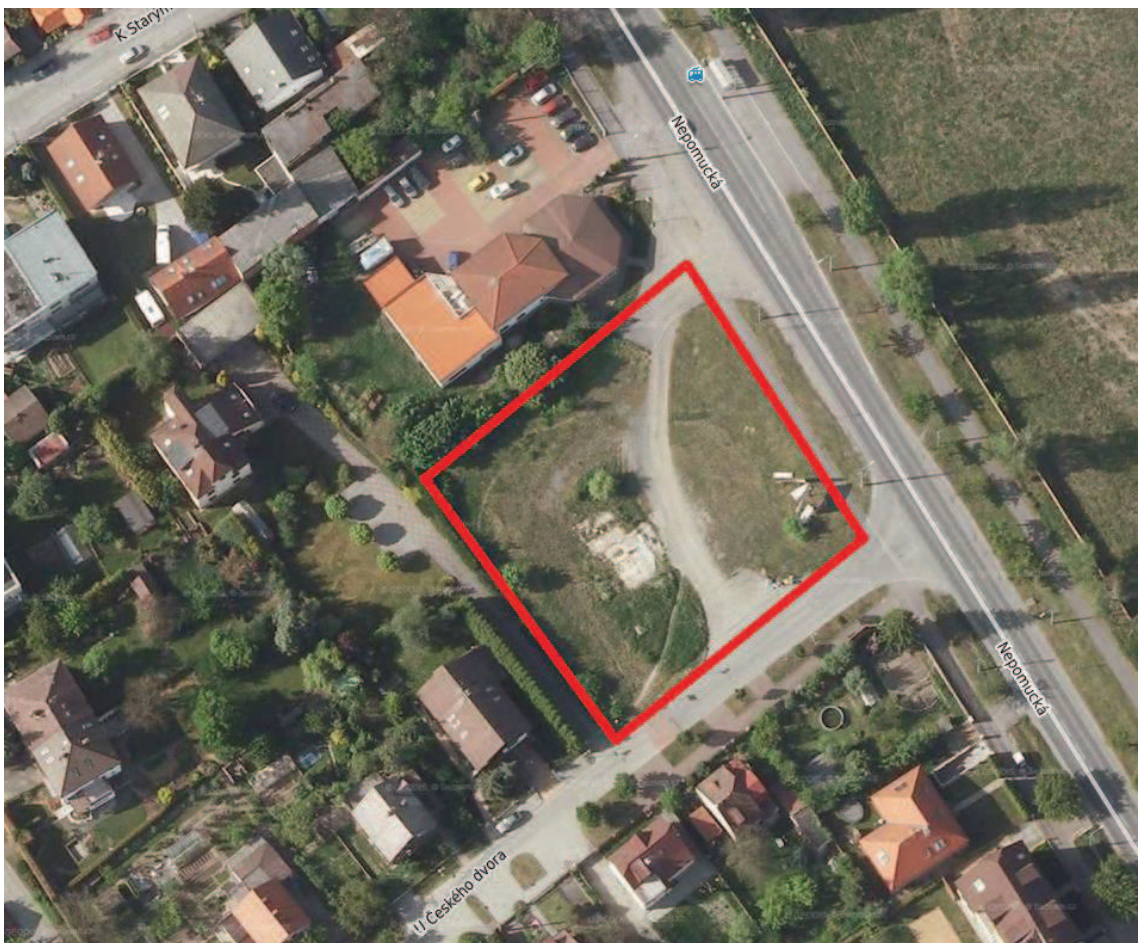




Figure 4: View on the plot [6]



5.3 Overall description of the project

The purpose of the project is to build a new residential zone, where will be located 4 semi-detached houses, i.e. 8 houses.

In the middle of a residential zone (parallel to the street Nepomucká) goes the spinal service road. The parking spaces are perpendicular to this road.

Each semi-detached house is made up of two mirror solved houses with private entrances. Floor area of each house is up to 100 m².

The houses have been designed without cellar, with one ground floor and the garret. Each house has its part of the adjacent plot, each plot (garden) is separated from each other by wire fence. The area between the spinal road and the entrance facade of each house remain vacant, without a fence, i.e. there is a possibility to park a car directly in front of each building. For every house has been designed a small terrace with dimensions of 3.5 x 3.5 m with wooden pergola and a small garden house with a size of 2 x 3 m.

Height settings of the houses is chosen with regard to the natural gradient of the plot.

The classical technology to build the houses will be used, i.e. a brick construction. The ground plan is rectangular 7.0 x 10.0 m, respectively semi-detached house 14.0 x 10.0 m (the total volume of 1 semi-detached house is 1015 m³). The houses have a gable roof, the ridge is parallel to the main road. There are designed shed dormers to the southwest. A filling of the holes is plastic in the color of light wood, beige color of the facade (light coffee), roofing tiles in dark gray or black. There are stripes of ceramic tiles



in natural color on the facade. Pergolas and garden houses are proposed timber. For visual separation of the plot is designed, along the wire fencing, hedges.

The entire area will be fenced with brick pillars with picket panels. At the exit of the plot in the fence will be situated an entrance gate and pedestrian gate. Next to the main entrance is a place for a waste container. Gates are designed from the street U Českého dvora.

On the ground floor there is an entrance hall, utility room (space for a gas boiler, water meter and washing machine), living room (with a space for a fireplace), kitchen with pantry, WC. Upstairs there is a hallway, three rooms, bathroom and WC.

The foundation of each building will be done on the foundation walls.

The spinal service road is 6.0 m wide and is designed as publicly inaccessible. Communication is drained. There are 16 parking spaces (computationally need to provide 12 parking spaces). The road and paved areas are designed out of tiles [4].

Figure 5: Situation of the project [4]





Figure 6: Overall visualization of the project [4]



Figure 7: Visualization of one semi-detached house (rear view) [4]





Figure 8: Visualization of one semi-detached house (front view) [4]





Figure 9: Ground plan [4]

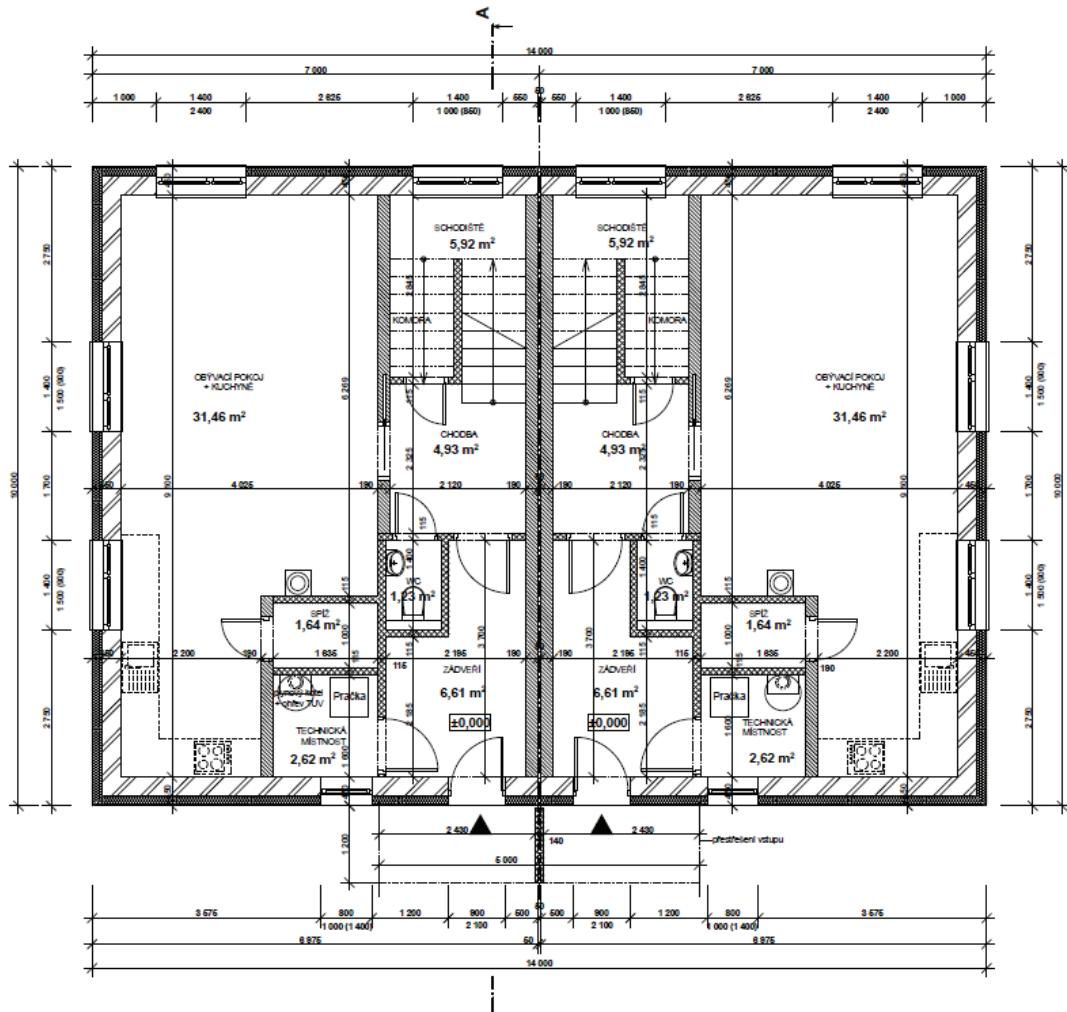




Figure 10: Second floor plan [4]

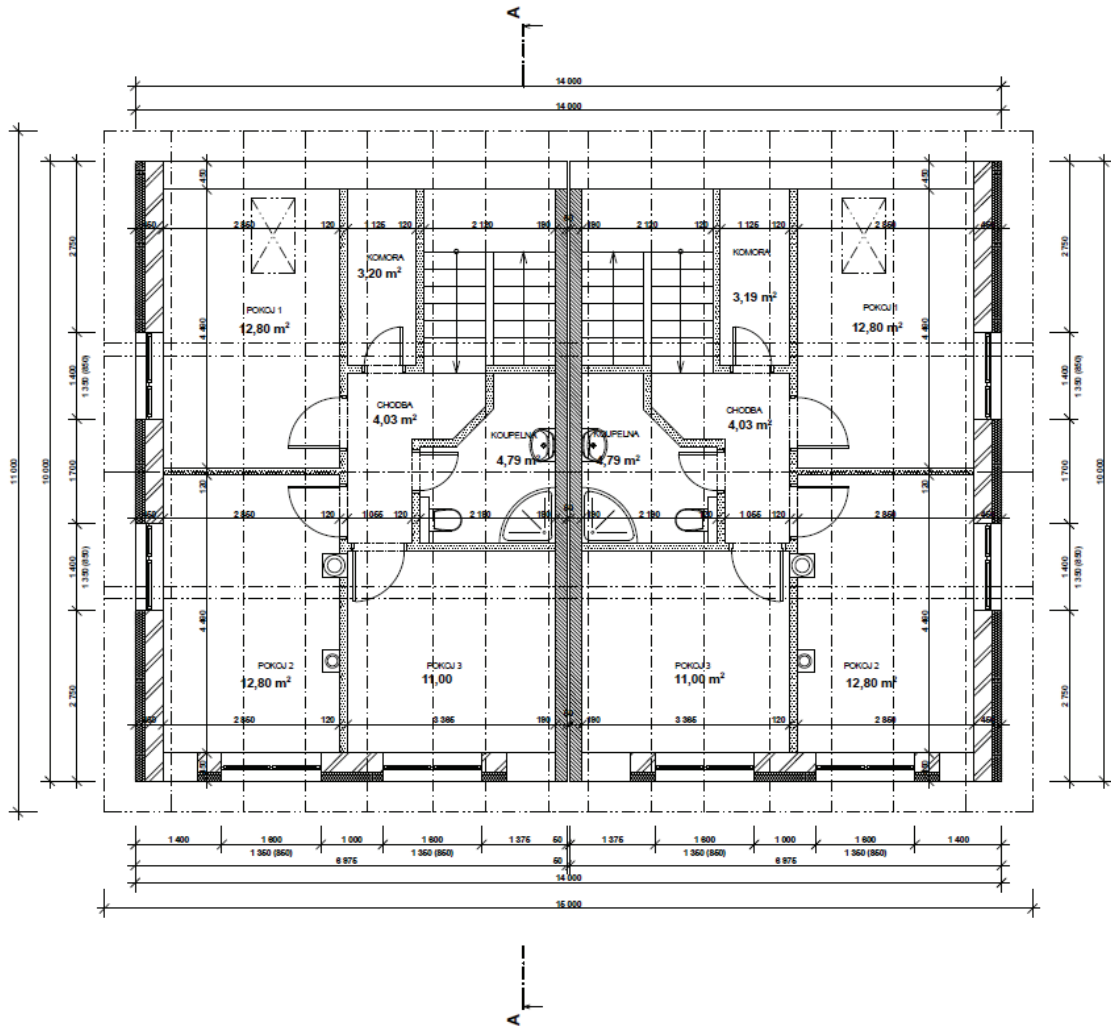
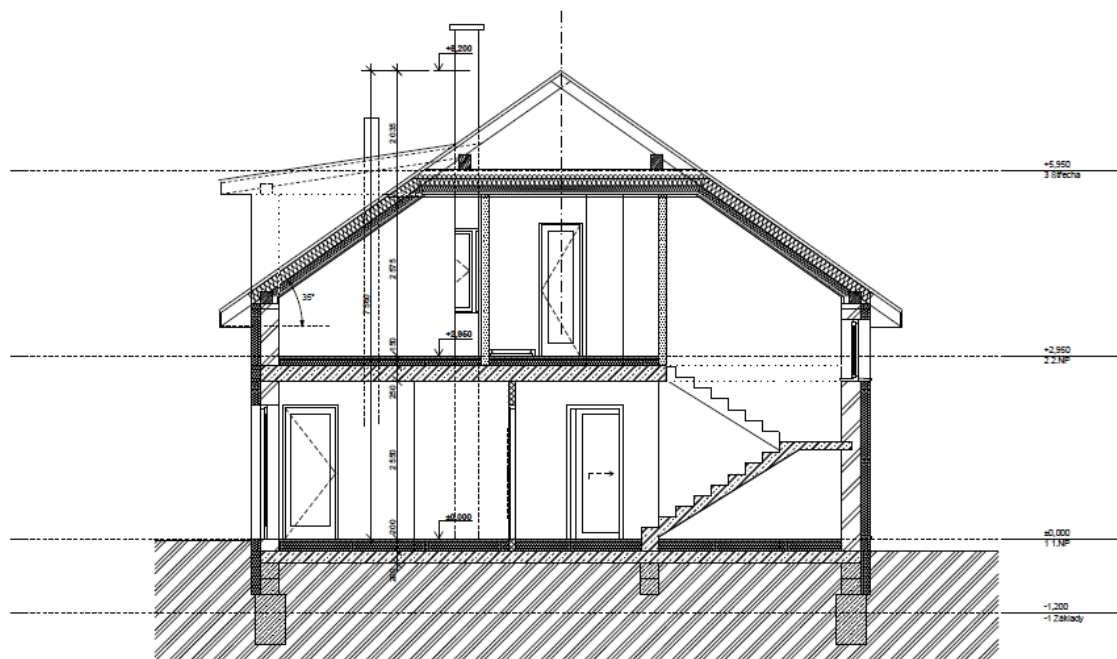


Figure 11: Section [4]



5.4 Market analysis and marketing concept

5.4.1 Market progression

The current state of the inplot real estate market is effected by the gradual progression. This chapter will not only focus on semi-detached houses, but in general will focus on residential and office market. The market analysis is valid for the project of semi-detached houses, the block of flats and the office building. The market progression is divided into several time periods:

2000-2007

This period can be described as a symbol of strong growth in property prices almost worldwide. Annual growth in prices corresponded to several tens of percent and in some periods even demand exceeded supply. Banks also helped this condition with very accessible mortgage loans and strong demand from investors. Another reason for this expansion was also demographically strong people who were born between 1975 and 1980 and at this time were looking for a living.



The year 2007 brought the lowest vacancy rates for office space since 1998. This year was a record year for another reason. In this year there was leased about 870,000 m² of the office space, which was an increase of 43% compared to 2006 [7], [8], [9].

2008

This year can be described as the beginning of the economic crisis as well as the real estate crisis in the USA. The Czech market was almost not affected, only there was a tightening of conditions for getting mortgage loans because the banking sector reacts very sensitively on international affairs. Banks thus increased caution in providing financial resources. Getting a loan without major problems was provided only for stronger and established investors. In 2008 there was a slight increase in interest rates [10].

2009-2010

In this period the recession started at the property market in the Czech Republic. The main reason of this recession wasn't the world economic crisis but the fact that the real estate market in the Czech Republic was saturated. The market had to cope with a reserved approach from banks and other funders because both of them were highly cautious where to invest and whom to lend money. The real estate environment experienced less money. It was fatal in some segments. The consequence was the tightening of financing conditions for property developers in the relationship to their own finances, also to pre-sale or pre-lease conditions. In the residential market due to the saturation there was a significant decline in demand for real estates and also a supply reduction and a suspension in preparation and realization of new projects. In 2009 the market price of flats fell by type 1 + 1 by 5.25% compared to 2008, in 2010 there was a further decline of 18.48%. For the flats type 2 + 1 occurred drop compared to 2008, first by 10.2%, in 2010 by 15.99%. Thanks to this development in the market, the activities of some of the smaller property development companies, real estate companies and construction companies were brought to an end. It is interesting that demand for living in detached or semi-detached houses grew in the years 2009-2010, unlike the demand for flats, where interest rates declined, and thus prices also.

Office market felt cooling. The amount of rent has decreased, the overall vacancy of offices grew and there was a reduction in the realization of new office buildings [11].



2011-2012

In the year 2011 there were some prognosis by economic experts for the stabilization in the property market. The truth is, that the forecast was proved only partly, but to a certain calming actually happened. There was still a lack of interest for new flats and to its evidence, there were discount and other incentives by property developers. For example buying a flat, the client receives a car as a bonus. Along with this, there were showed increasing pressures from the financing banks toward the property developers, which concerned the quality requirements of upcoming projects and their level of pre-sale.

Compared to 2010 the market price of flats 1 + 1 decreased by 1.68%, 2 + 1 by 1.67%. In 2012 the decline was much lower for flats 1 + 1 by 1% compared to the year 2011.

Office market registered in annual comparison of the years 2011 and 2012 the downward trend in the vacancy rate. Slight annual increase was registered in the amount of newly constructed office buildings [12].

2013-2014

The real estate market recorded a small but positive shift. There was a revival of the residential market and a significant increase in investment in commercial real estate. The average interest rate declined significantly to a level of 2.37% in December 2014.

The residential market has felt a gust of better times, prices of flats grew, especially in the capital city of Prague by up to 250,000 CZK in 2014 to an average of 1 flat compared to 2013. In other regions the prices of flats stagnated or declined slightly. A similar situation occurred in Prague by the construction of detached or semi-detached houses. In other regions prices remained at the same level as in 2012.

Office market also registered positive times. Compared to 2012 there was a 15% increase in the value of transactions (in overall 275,732 m²). The market was supported with 78,858 m² of new offices. The vacancy rate slightly increased to 13.2% and average rental also fell. As the economy has been growing, new employees were recruited and there was a need of a new space [13].

The outlook for 2015



According to the analysis of the Civil Association for Real Estate Market the real estate crisis will gradually be overcome. There will be low interest rates and favorable economic growth. New players as private investors or companies outside the real estate market will enter the real estate market but also foreign institutional investors. The positive development of the Czech economy will be also be affected by a growing interest for office spaces.

Prices of flats will grow slightly but the amount of rent for office space will continue to fall slightly.

Residential construction will continue at the current pace. The market is still not saturated, and in Prague will be created about 5,000 new flats. The market for detached or semi-detached houses is also not saturated and the demand for them increases [13].

5.4.2 PEST analysis

PEST analysis is an acronym for Political, Economics, Social and Technological analysis. This is an important strategic management tool which evaluates external conditions of the company. This analysis is used if the company tries to decide upon its long-term strategic plan and / or when plans to carry out a major project, does not matter if in their home country or abroad [14].

5.4.2.1 Political influences

Political influences are divided into a nation-wide and related to the City of Pilsen.

5.4.2.1.1 Nation-wide influence

The Czech Republic is in the long-term perspective politically stable. The truth is that in the last few years there have been frequent changes in government in terms of the ruling political parties, which slightly damages the stability, but there is no indication that there should be a significant change in our political system. The government's approach to supporting business and entrepreneurs can not be predicted. Generally this principle depends on the political beliefs of the ruling party.

From a political perspective an important intervention into the feasibility of the project may be a gradual increase in the rate of value added tax. The tax rate for the year 2014 had two levels, the basic rate of 21% and decreased 15%. The tax rate for 2015 has 3 levels, the basic 21%, the first reduction of 15% and the second reduction of 10%.



Reduced tax rate (the first one) is now 3 times higher than in 2008. Originally planned unification of basic and reduced tax rate to 17.5% was presumed to ratify from 1/1/2013, but in 2013, even in 2014 this step was not done and in 2015 this step will not be done. Law no. 235/2004 The Value Added Tax is valid, but still ineffective. Effectiveness comes first in 1/1/2016 [15].

Another type of taxes that affect the feasibility of the project are the property taxes. The structure of property taxes from 2014 has changed. As a positive political impact on the construction process may be classified the exemption from inheritance and gift tax. These taxes were transferred to the subject of income tax. In 2014 the property tax changed its name. A similar change occurred in the real estate transfer tax, which also changed the name [15].

Property tax consists of two parts - the tax on plot and building tax. The tax base of the buildings is actually built-up area of buildings in m². The tax base of plot is plot area in m². Since 2010 most of the property tax rates increased twice. The process of increasing rates of these taxes might continue [15].

Tax on the acquisition of immovable property was put in force since January 2014 due to Law no. 340/2013 The tax on the acquisition of immovable property. This tax is calculated by multiplying the tax base and tax rates. The tax base of the acquisition of immovable property is the acquisition value reduced of deductible expenses. The tax rate is 4% [15].

The principle and the goal of housing policy announced by the Ministry for Regional Development is in particular the creation of an appropriate legal, institutional and fiscal environment for the activities of all actors in the housing market [16].

5.4.2.1.2 Policy of the City of Pilsen

Pilsen has prepared a document called Pilsen Development Program, which was updated in 2013. In this document there is stated, that long-term goal is to improve the attractiveness of housing supply in order to keep graduates in the city and attract educated and skillful people, for whose Pilsen will change its false status as the black industrial city. Pilsen is a city that bears the European Capital of Culture 2015. The city expects a change in the perception of Pilsen as the black industrial city to a city full of colors, suitable for living and leisure. This is related to the arrival of new residents and entrepreneurs who, for example, show interest in office space [17].



5.4.2.2 Economic influences

The current economic situation has probably the most significant influence on the project. It seems that the economic and therefore the real estate crisis is gradually averted, the companies recruit new employees. This causes optimism among buyers, mortgages are moreover cheap. Prospectively mortgage rates remain low and the favorable economic growth continues. These views were almost immediately reflected in property prices which somewhere rises sharply and overtook the inflation.

Pilsen is experiencing a great progress. In 2014 a new theater was opened, The Square of Republic (Pilsen's main square) has been reconstructed, there is another part of the city center under reconstruction and The University of West Bohemia is significantly developing.

People perceive Pilsen as the city which provides and students perceive that not only Prague is a place where they can find jobs and place to live.

I met with an interesting tendency of some businessmen whose company is based in Prague. They recruit new employees and want for them decent working environment, thus seek for new modern office buildings. It is interesting that they not insist on offices in Prague. They find Pilsen as a lucrative place, especially thanks to the highway between Prague and Germany.

5.4.2.3 Social influences

When assessing these effects is appropriate to focus on the living standards of the population of the Czech Republic and the labour market, particularly unemployment and wages.

In this chapter there will be drawn from the reports of the Ministry of Labour and Social Affairs. At the time of this thesis there was available Report on major tendencies of income and expense situation of Households in the 1st - 3rd quarter of 2014, then the Forecast of selected macroeconomic indicators. The results of the Czech economy in the first to third quarter improved. Gross domestic product (GDP) in the third quarter increased at constant prices by 2.4% and reached a slightly lower growth than in the second (+ 2.5%) and first quarter (+ 2.9%) [18].

The economic situation of households is influenced by various factors. As a major can be identified:



- Aggregate disposable income of households increased nominally by 2.4% to 1,641.0 billion CZK, i.e. in real terms by 2.1%
 - A crucial part of household money income consists of wages. The total volume of wages and salaries accounted for all employees to be paid for the entire national economy reached in 1st - 3rd quarter of the last year 848.1 billion CZK and was nominally by 3.0% higher than in the same period of 2013 (in real terms by 2.2%). In the Pilsen Region in 2013 increased the average gross monthly wage by 0.5% compared to 2012, data from 2014 are not yet available.
 - The average retirement pension was higher by 0.9% (up to 11 058 CZK), its real value increased by 1.0%
 - Decrease in the number of registered unemployed. Till December 2014 unemployment rate was 7.5% in the Czech Republic compared to the end of 2013, when the unemployment rate was 8.2%. In the Pilsen Region was in 2013 unemployment rate of 5.2%, data from 2014 are not yet available
 - Increase of the amount of funds paid on benefits in material distress (10.0%)
 - The main cause of only a slight annual increase in consumer prices (price inflation) compared to 1st-3rd quarter 2014 and 2013 of 0.3% was a very positive development in housing prices (especially electricity price decline by more than 10%), food, health care, transport, telecommunications and home furnishings
 - Increase of bank loans increased compared to last year (+ 54.3 billion CZK) and their condition for September 30, 2014 amounted to 1 214.9 billion CZK. A crucial part of growth, however, continue to be the home loans, which grew by 49.6 billion CZK (primarily due to growth in mortgages at lower interest rates)
- [18]

It follows that the purchasing power of households in the 1st - 3rd quarter of 2014 predominantly increased. Forecast of macroeconomic indicators looks quite optimistic.

- We might expect growth in gross domestic product (GDP) of 2.1 to 3.1% in 2015
- We might expect an increase of the annual consumer price inflation of 0.7 to 1.7% in 2015
- We might expect growth in average nominal wages by 2.7 to 4.7%



- We might expect a decline in the portion of unemployed people in 7.0 to 7.4% [18]

Important aspects are the condition, movement and age structure of the population of the Pilsen Region. Recent publications published by the regional administration of the ČSÚ in Pilsen contains statistical data for the year 2013. In 2013 the Pilsen Region experienced a population growth of 0.1%, exactly was registered 573,469 inhabitants while in 2012 the number was 572,687 inhabitants. The population movement, which means increase of population during the reported period by the birth and immigration and population decrease during the reported period due to death or moving out we find simply by subtracting the number of inhabitants at the end of 2013 and the number of inhabitants at the end of 2012. The increase comes out with 782 inhabitants. This number can also be determined otherwise. In 2013 5510 children were born, died 6,061 inhabitants, immigrated from the Czech Republic 3,528 residents, from abroad immigrated 1,632, 2,815 emigrated to the other parts of the Czech Republic, emigrated abroad 1012. As a result, we get back gain 782 inhabitants. Hypothetically there were created 782 new people who needed living. Most of the population were 35-39 years old, namely 50,646, in the very district Pilsen-City was also the most population 35-39 years old, namely 16 719. This group ranks among the target age group of the residential building project and houses. For residential house is the target age group 25-40 years old, followed by 60-70 years old. For houses, the target age group 35-55 years old [19].

It is presumed that a gradual increase in the standard of living, purchasing power and population increases the total number of people who can afford new flat or house.

5.4.2.4 Technological influences

During the construction of semi-detached houses, block of flats or office building will be used the most recent but affordable technology. Materials used in construction may be considered as a higher standard. The infrastructure of the city is at such a level that, when correctly chosen construction organization, it will be possible to fully exploit it. All the necessary networks are in close distance of the plot (electricity, gas, sewer, water) [4].



From this is evident that the project is affected positively by economic and social influences. Political and technological factors are negligible.

5.4.3 Analysis of the project locality

The plot, which has been already bought, is located in Pilsen, in the intersection of streets Nepomucká and U Českého dvora. Street Nepomucká connects southeastern suburbs with the city center.

The plot is located in the district called Bručná which has been taken for many generations as a suitable place to live. The location offers a very interesting mix of amenities and nature. To the south is within walking distance (10 minutes walk) a shopping center Olympia with many shops, restaurants and cinemas. To the north stretches the district called Slovany with kindergartens, primary and secondary schools, pharmacies, hospital, shops and banks. Located east there is the district Koterov with a scenic view of the city of Pilsen and its plotmark church St. Bartholomew. Towards the west there is the district Hradiště which is located in a close grip of Úhlava (river) where is a great small brewery and beautiful nature.

The availability of public transport is provided - directly in front of the plot in the street Nepomucká stops trolley bus no.13. Nepomucká additionally connects the locality to the D5 / E50 (highway; direction Prague or Rozvadov). Accessibility to the city center is about 12 minutes by car, on the edge of Prague (Zličín) you can be in around 48 minutes by car and to the border (Rozvadov, Germany) in 45 minutes by car.

The property development company can not choose the proper plot only by the place itself. Important are also the buildings of competing property development companies. There are 2 property development companies which deal with projects of detached houses, semi-detached houses and block of flats near this plot. Office buildings are missing, in general, in Pilsen there is a big shortage of modern office buildings and generally in the Pilsen region.

When creating the final sale prices or rental price, there must be taken into account competition and adapt to competitive prices. I see an advantage of the competitive environment in the factor called "cash cow" because competitors have already realized their buildings and almost sold their houses. People have got used to the locality and the locality now attracts more clients. I see a drawback in the so- information buzz which



means that current clients of competitive property development projects bring their friends to the projects where they have been already living. There is a possibility that these new clients choose already proven project and not a novelty that does not yet have the appropriate client reference.

It follows that the plot is suitable for the residential as well as the office building.

5.4.4 Current average sale prices in the locality

5.4.4.1 Price of flats

Sale prices per 1 m² of the flats in the new building were determined using information gathered from the websites from competing property developers or real estate companies. All of these flats in the table are in the new brick construction and are located in Pilsen near the plot.

Table 1: Sale prices of competitive project IKO Černice 2 [20]

IKO - Černice - Multifunctional building 2						
Floor	Type of flat	Size of flat	Balcony	Cellar	Sale price incl. VAT	Price per m2
4.NP	2+kk	67,5	9,2	2,2	2 668 000 CZK	33 815 CZK
	3+kk	90,7	8,2	3,2	3 311 000 CZK	32 429 CZK
	3+kk	100,3	17,6	2,4	3 806 000 CZK	31 638 CZK
	2+kk	66,6	9,2	2,5	2 630 000 CZK	33 589 CZK
3.NP	3+kk	80,1	6,4	2,1	2 996 000 CZK	33 815 CZK
	3+kk	97,8	3,4	2,1	3 454 000 CZK	33 437 CZK
	2+kk	54,7	3,3	2,2	2 063 000 CZK	34 269 CZK
	2+kk	54,7	3,3	2,2	2 052 000 CZK	34 086 CZK
2.NP	3+kk	80,1	6,4	2,9	2 956 000 CZK	33 065 CZK
	3+kk	97,8	3,4	1,9	3 408 000 CZK	33 055 CZK
	2+kk	54,7	3,3	2	2 037 000 CZK	33 950 CZK
	2+kk	54,7	3,3	2	2 099 000 CZK	34 983 CZK
	2+kk	54,7	3,3	1,9	2 025 000 CZK	33 806 CZK
	3+kk	78,8	6,4	3,1	2 919 000 CZK	33 058 CZK
					Average price per m2:	33 523 CZK



Table 2: Sale prices of competitive project IKO Černice 3 [21]

IKO - Černice - Multifunctional building 3						
Floor	Type of flat	Size of flat	Balcony	Cellar	Sale price incl. VAT	Price per m2
4.NP	3+kk	90,7	8,2	3,2	3 311 000 CZK	32 429 CZK
3.NP	3+kk	80,1	6,4	2,1	2 996 000 CZK	33 815 CZK
	3+kk	97,8	3,4	2,2	3 454 000 CZK	33 404 CZK
	2+kk	54,7	3,3	2,2	2 095 000 CZK	34 801 CZK
	3+kk	79,1	6,4	1,7	2 948 000 CZK	33 807 CZK
2.NP	3+kk	80,1	6,4	2,9	2 956 000 CZK	33 065 CZK
	3+kk	97,8	3,4	1,9	3 408 000 CZK	33 055 CZK
	2+kk	54,7	3,3	2	2 068 000 CZK	34 467 CZK
	2+kk	54,7	3,3	2	2 025 000 CZK	33 750 CZK
	2+kk	54,7	3,3	3,1	2 056 000 CZK	33 650 CZK
	3+kk	79,1	6,4	2,1	2 908 000 CZK	33 196 CZK
					Average price per m2:	33 585 CZK

Table 3: Sale prices of competitive project Flats Jablonského [22]

Flats Jablonského						
Floor	Type of flat	Size of flat	Balcony	Cellar	Sale price incl. VAT	Price per m2
6.NP	3+kk	67,5	6,85	2,15	2 959 000 CZK	38 680 CZK
5.NP	3+kk	67,5	6,85	2,15	2 899 000 CZK	37 895 CZK
	2+kk	50,32	7,08	2,6	2 149 000 CZK	35 817 CZK
4.NP	3+kk	67,5	6,85	2,15	2 859 000 CZK	37 373 CZK
3.NP	3+kk	67,5	6,85	2,15	2 799 000 CZK	36 588 CZK
	2+kk	48,84	7,08	2,57	1 999 000 CZK	34 177 CZK
	2+kk	48,84	7,08	2,59	1 999 000 CZK	34 165 CZK
	2+kk	50,32	7,08	2,6	2 049 000 CZK	34 150 CZK
					Average price per m2:	36 106 CZK

Of the identified supply of flats located in new buildings in Pilsen, near the locality, it is clear that the average price of the flat is about 34,405 CZK / m². In Pilsen, there are other new residential buildings almost in the city center where prices are around 45,000 CZK / m². These projects in the centre are not the direct competitors of this project.

5.4.4.2 Price of detached / semi-detached houses

Sale prices per 1 m² of the detached / semi-detached houses were determined using information gathered from the websites from competing property developers or real estate



companies. All of these houses in the table are new brick buildings and are located in Pilsen near the plot.

Table 4: Sale prices of competitive detached/semi-detached houses [23]

Semi-detached houses - IKO - Černice k Plzenci 4					
Size of house	Garage	Land	Sale price incl. VAT	Price per m2	Average price per m2
100,02	19,04	315	4 923 000 CZK	49 220 CZK	51 710 Kč
100,02	19,04	473	5 421 000 CZK	54 199 CZK	
Detached houses - IKO - Radobyčice 8 RD					
Size of house	Garage	Land	Sale price incl. VAT	Price per m2	Average price per m2
145,23	included	529	5 456 000 CZK	37 568 CZK	34 683 Kč
162,28	included	435	5 327 000 CZK	32 826 CZK	
150,85	included	423	5 144 000 CZK	34 100 CZK	
150,85	included	411	5 117 000 CZK	33 921 CZK	
150,85	included	466	5 280 000 CZK	35 002 CZK	
Semi-detached houses - IKO - Radobyčice - JIH					
Size of house	Garage	Land	Sale price incl. VAT	Price per m2	Average price per m2
131,5	included	375	4 225 000 CZK	32 129 CZK	31 764 Kč
131,5	included	276	4 129 000 CZK	31 399 CZK	

Of the identified supply of new brick detached or semi-detached houses located near the locality is clear that the average price of the flat is about 39,386 CZK / m². It is necessary to say that the village called Radobyčice is a village 5 km from the locality for my property development project.

5.4.4.3 Rental in office building

The supply of modern offices (e.g. the whole floor for rent) in new or renovated office buildings in Pilsen is limited. In Pilsen there are two relatively new office building (approved for use about 5 years ago) and 2 renovated buildings (renovated about 5 years ago). The table shows the remaining free space and the price per m².



Table 5: Rent prices in Pilsen [24]

Locality	Overall space to lease m2	Number of parking spaces	Rental per m2 incl. VAT	+ Service	+ Energy
Skvrňany, Macháčkova	304/304/298	22	150 CZK	70 CZK	unknown
BC Bohemia	255/274/511	-	290 CZK	100 CZK	unknown
AB Stafin	382	30	200 CZK	80 CZK	unknown
Avalon BC	264/152/385	10	250 CZK	100 CZK	unknown
Average price per m2:			223 CZK	+ service + energy	

All these modern buildings are not located directly in the center, have a limited number of parking spaces and are relatively distant from the D5.

Vice versa the supply offer of offices in the old buildings in Pilsen is high.

5.5 Project costs

The total cost of the project can be divided into costs for plot purchase, construction technology costs (Hard Costs), Soft Costs and costs for financing (a bank loan).

All of the costs which will be listed in the following chapter do not include VAT.

To illustrate the needs of individual costs it is appropriate to prepare WBS and schedule for the property development project.

The individual cost items are based on the pre-budget that was given to me by the company Stafin a.s.

5.5.1 WBS – Work breakdown structure

It is a hierarchical breakdown of the project objectives to individual products and sub-products to the level of individual work packages (activities, tasks) that must be created during the project (implemented). Such decay is called a hierarchical structure of works [25].

5.5.1.1 The principle of the creation of WBS:

The main objective is gradually decayed into various activities. The extent depends on the scope of the project. It is important that the final elements are in such detail as to be clearly defined and in terms of their understanding there was not necessary to further



decay. There are usually processed 3-4 stages. When completing the WBS, the entire original goal must be covered but his framework must not be exceeded. Furthermore, there must be no overlap of individual elements. There are shown only the results and not the actions leading to them. Thanks to this principle of showing individual tasks, there can be avoided any omission of some important activities and to avoid activities unimportant for the project.

5.5.1.1.1 WBS for the project of semi-detached houses

Table 6: WBS for the project

Sale of the semi-detached houses with profit	1 Pre-investment phase	1.1 Defining the project goals	1.1.1 Market research
			1.1.2 Create a feasibility study
			1.1.3 Create a business plan
		1.2 Obtaining the project documentation	1.2.1 Tendering the contractor of the project documentation
		1.2.2 Contracting the contractor of the project documentation	
	1.3 Obtaining external finances	1.3.1 Getting a bank loan	
	1.4 Obtaining the site permit	1.4.1 Statements of concerned government authorities and other concerned parties	
		1.4.2 Application for the site permit	
	2 Investment phase	2.1 Time-schedule of the construction	2.1.1 Construction organization plan
		2.2 General contractor	2.2.1 Tendering the general contractor of the construction
			2.2.2 Contracting the general contractor of the construction
		2.3 Obtaining the construction approval	2.3.1 Statements of concerned government authorities and other concerned parties
			2.3.2 Application for the construction approval
		2.4 Handover of the construction site	2.4.1 Handover protocol
	2.4.2 List of defects and unfinished tasks		
2.5 Construction approval	2.5.1 Application for the construction approval		
	2.5.2 Documentation of the actual construction		
3 Phase of sales of the houses	3.1 Sale of semi-detached houses	3.1.1 Contracting the real-estate company	
		3.1.2 Marketing campaign	

5.5.2 Project schedule

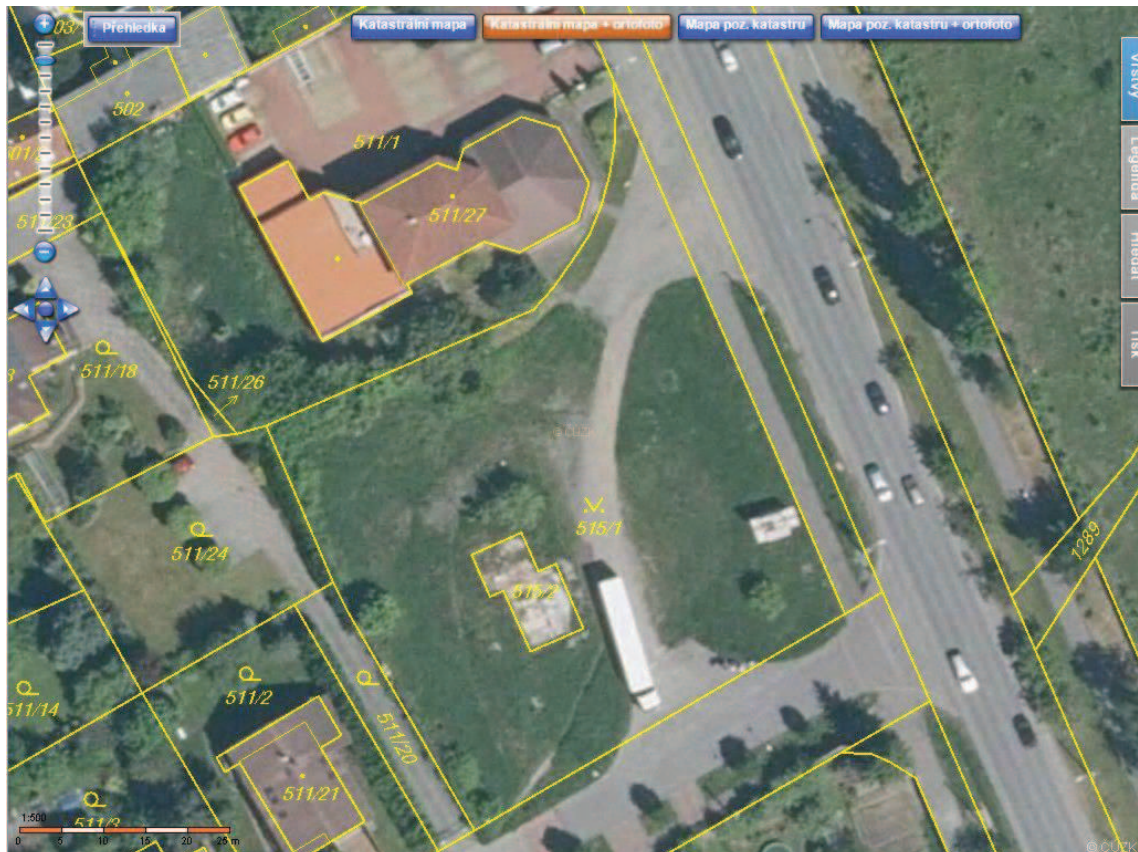
The schedule was compiled using software Microsoft Office Excel 2013 and is **the Appendix No. 1** of this thesis.

It is clear from the schedule is that the pre-investment phase lasts 11.5 months and ends by obtaining a loan from a bank which is required for realization of the project. At the same time pre-investment phase overlaps the investment phase. Investment phase lasts 14 months. Phase of sales of the houses overlaps the two previous phases. Overall, the project takes 29 months (2 years and 5 months). Here is beautifully visible the most important fact for investors: a property development project is long-term issue.

5.5.3 Price of the plot

The price of the plot is clearly stated because the company Stafin a.s. bought it in 2010 at the price of **5.263 million CZK** [4].

Figure 12: Cadastral map [26]



5.5.4 Hard Costs

5.5.4.1 The cost of the project documentation, exploration work and obtaining all of the permits

Estimated cost of project documentation for site permit and then one step project documentation (which includes documentation for building permits and documentation for realization). All the other permits are included in this costs (site permit, construction permit, construction approval). The whole package was set at **1,050,000 CZK** [4].

5.5.4.2 Charges for network providers

Charges for network providers, which is e.g. the electricity provider ČEZ, were estimated at **120,000 CZK** [4].



5.5.4.3 Site preparation and demolition work

The tentative cost of the site preparation, where will be necessary to remove the current hard surfaces (asphalt, concrete), then remove the topsoil and flatten the terrain, was calculated in pre-budget, which was created in 2014. The realization of semi-detached houses or the block of flats or the office building is planned in 2016. I was wondering what the trend in prices of construction standards is. On the internet portal Czech construction standards there are these tentative technical - economic indicators available. Price indicators are an essential element for construction budgets. Based on long-term statistics of budgets of structures (Basic Budget Costs) and do not contain Secondary Budget Costs (territory influences, site equipment or other influences pertaining to the cost of construction). The final prices do not include VAT and the deviation of the actual future prices can be up to 25%. The basic unit of measurement for the field of civil engineering is m^3 of total volume of the building [27].

The semi-detached houses have been classified as Buildings for housing, then the Buildings with the vertical supporting structure from brick, block and then as the Detached or Semi-detached (price index is the same in both cases). In 2014 there was an increase in the price indicators in m^3 of the volume of the building by 1.4%, namely from 5,000 CZK / m^3 to 5,070 CZK / m^3 . In 2015 the price index increased by 1%, namely from 5,070 CZK / m^3 to 5,121 CZK / m^3 [27].

My personal estimate is that the price indicator will increase by 1% in 2016 compared to 2015.

The total cost of site preparation and demolition work were set in the pre-budget from 2014 (the intended launch of the project was planned to be in 2015) at 348,000 CZK. There will be respected the 1% increase in construction costs and total costs of preparation and demolition work are **351,480 CZK**.

5.5.4.4 The cost of realization of the buildings

According to the Czech construction standards for 2015 is the price for 1 m^3 5,121 CZK. The total volume of one semi-detached house is 1,015 m^3 . 4 semi-detached houses are $4 \times 1,015 = 4,060 \text{ m}^3$. Total costs are $4,060 \times 5,121 = 20,791,260$ CZK without VAT.



According to the pre-budget, even considering a 1% increase in the cost of construction work, the costs of the realization of complete constructions are **17,107,380 CZK**.

The deviation from the estimation of Czech construction standards is 21.5%.

5.5.4.4.1 Material inputs and energy

The material used for the construction of semi-detached houses is commonly available and its availability is not a issue. This risk will be minimized by instructing the general contractor for the timely tender of subcontractors. In case of any issues during the delivery of the technology or construction materials is possible a substitutions for other manufacturers. The crucial factor for choosing will be the quality and price of the material. If the general contractor proves that another product of the same quality is available to buy at a reduced price, the change could happen after agreeing of Technical supervision of the investor.

5.5.4.5 Infrastructure and paved areas

This section includes cost items such as sidewalks, roads, parking areas, traffic signs, gas pipe, water supply pipe, sewerage, electrical connections and subsequently plotscaping (grass, hedge). These costs were calculated, after a price increase of 1%, at **2,678,520 CZK** [4].

5.5.5 Soft Costs

Among the Soft Costs are included overhead costs, external staff, advertising and legal services, the maintenance costs of unsold houses.

5.5.5.1 Overhead costs

This work will use significantly inaccurate designation of overhead costs. Overhead costs are considered as the salary of employees who are employed in the company Stafin a.s. and participate on the project.

For the run and organization of the project will be used one employee on the position called property development manager. He/she will be paid with a regular salary from the profits from previous property development projects. The work of this employee is awarded 36,000 CZK / month (including taxes).



- In the first 17 months of the projects he/she will theoretically spend 1/3 of working hours on this project. So the costs will be $17 \times 36,000 / 3 = 204,000$ CZK.
- Remaining 12 months of the project he/she will theoretically spend 1/4 of working hours on this project. So the costs will be $12 \times 36,000 / 4 = 108,000$ CZK
- Total overhead cost are $204,000 + 108,000 = \mathbf{312,000}$ CZK

5.5.5.2 Cost for external workers

The external partners of the company will be used. The cost of their services are listed here [4]:

- **Costs of Occupational Health and Safety coordinator (OHS)** will be 4750 CZK / month. He/she will be needed throughout realization of the project (10 months). The total cost of the OSH Coordinator is $10 \times 4,750 = \mathbf{47,500}$ CZK without VAT.
- **Costs of Technical supervision** (for the investor) consist of 2% of the total realization costs of the construction (Site preparation and demolition work, complete realization of the construction, infrastructure and paved area). Total cost for Technical supervision are $0.02 \times (351,480 + 17,107,380 + 2,678,520 \text{ CZK}) = \mathbf{402,748}$ CZK
- **Costs for legal services** include fee for Owner statement (10,000 CZK) and for each purchase contract (8x) the fee of 2,500 CZK. The total cost of legal services is $\mathbf{30,000}$ CZK.

5.5.5.3 The cost of real estate and advertising activities

The costs of real estate and advertising activities comprise are the largest part of Soft Costs. They are essential costs which will decide the success or failure of the project. So it must be effectively spent and it is certainly not a simple discipline. It is necessary to create a marketing plan. I encountered a variant that the property development company signs a contract with a real estate agency. The real estate company creates the media plan and the total cost of the advertising is paid by a real estate agency and not by the property developer. Real-estate Company has a percentage profit from each sold house.



It is essential to choose the right real estate company. It depends on the approach of real estate brokers, their effort and references. The real estate company will consult the advertising campaign and its appearance with the property developer.

The media plan is divided into 3 phases. The first phase is to gain 30% percent of the total number of clients or fulfill the conditions for obtaining a bank loan. This phase is assumed to be 3 months long.

1. Phase – possible places of advertisement (estimated costs 150,000 CZK)

- The opening ceremony of the project
- Internet advertising - real estate company server, Sreality.cz
- Real estate magazine in Pilsen
- 4 billboards placed at appropriate locations in Pilsen
- Radio advertisement on one of the local radio stations

The presumption of the second phase is 11 months (the period of realization).

2. Phase – possible places of advertisement (estimated costs 200,000 CZK)

- Internet advertising - real estate company server, Sreality.cz
- Real estate magazine in Pilsen
- 2 billboards placed at appropriate locations in Pilsen

The presumption of the third phase is 6 months (sale of the last houses)

3. Phase – possible places of advertisement (estimated costs 100,000 CZK)

- Internet advertising - real estate company server, Sreality.cz

The total costs are of 450,000 CZK. These costs will be fully paid by the real estate agency, but from the sale of each house (8 houses) the real estate company obtains 2.8% of the price of the house. Thus, the total cost of real estate and advertising activities is $0.028 \times 32,808,696$ (total revenues from the sale of houses) = **918,643 CZK**.



5.5.5.4 Maintenance costs of unsold (remaining) houses

Due to the expected time from the completion of the construction to the moment when the last house will be sold, there occurs maintenance costs of unsold houses. They consist of costs for heating, water heating, electricity, water and sewer, fund of repairs.

If the assumption of merchantability of houses is as it was planned, after 3 months will be sold one house from two unsold houses. The last house will be subsequently sold after 3 - 4 months.

The estimated cost of the house is 1,843 CZK / month. The total cost is $1,843 \times 2 \times 3$ (number 3 represent months) + $1,843 \times 1 \times 4$ (number 4 represents months) = **18,429 CZK** [28].

5.5.6 Costs of external financing

It is also necessary to take into account the effect of the method of external financing. According to the information of a bank employee approving loans for banking institute (his name will not be mentioned), this kind of project could get a loan with an interest rate of approximately 4.5% p.a. It is necessary to calculate that the bank loan could not be more than 70% of the total costs of the project (30% must be invested from own resources). Interests are calculated daily and are payable on the last day of the month. The bank loan is provided to the entire business plan for the project, which includes all costs associated with the project (Hard Costs and Soft Costs).

There are two important conditions of the banking institution. The first condition for granting a loan is pre-sale of the houses where the bank requires that 30% of the houses of the project was booked by clients by Reservation contracts. The second condition is the investment of own resources (equity; 30% of total costs) first before using/getting a loan. If these two conditions are fulfilled, the bank provides the loan.

The total cost of the project without considering the cost of financing is 28,299,700 CZK. The maximum amount of the loan is 19,809,790 CZK (70% of total costs). The rest (30%) must be invested from own financial resources (8,489,910 CZK). If the planned sale of the houses occurs, there will be a lower demand for the loan. Only **15,798,179 CZK** would be enough. This will be explained in the chapter: **5.9 Cash Flow**



5.5.6.1 Payment schedule of the loan

The loan will be granted after the investment of own financial resources, at least for the remaining time of the realization period. If the planned sale of the houses occurs, there will be a possibility to repay the loan including interest, at once with the completion of realization of the project. We can assume that the sale of homes will be the same as it is planned, partly because of the small number of houses and secondly because of the attractiveness of the locality. Other expenses are then covered by income from the sale of remaining houses.

5.5.7 Total costs of the project shown in time

The total costs shown in time are **the Appendix No. 2** of this thesis.

5.6 Total expenditures of the project

5.6.1 Financial plan of construction production

The plan for the gradual release of finances for the construction of the building was created on the basis of information provided by the property developer Stafin a.s.. Invoicing system will be arranged with the general contractor on a thirty-day maturity, with **the retention guarantee of 10%**. The first half of the retention guarantee will be released in the final invoice and the other half after the removal of defects and backlogs.

Table 7: Financial plan of construction production [4]

Semi-detached houses							
Period of work	Basic price	Payment period	Amount in the protocol for the bank		Retention guarantee	For payment	
2016	June	1 550 578 CZK	2016				
	July	1 671 403 CZK		July	1 550 578 CZK	155 058 CZK	1 395 520 CZK
	August	1 913 051 CZK		August	1 671 403 CZK	167 140 CZK	1 504 262 CZK
	September	2 658 134 CZK		September	1 913 051 CZK	191 305 CZK	1 721 746 CZK
	October	2 879 645 CZK		October	2 658 134 CZK	265 813 CZK	2 392 321 CZK
	November	3 000 470 CZK		November	2 879 645 CZK	287 965 CZK	2 591 681 CZK
	December	2 537 310 CZK		December	3 000 470 CZK	300 047 CZK	2 700 423 CZK
2017	January	2 174 837 CZK	2017	January	2 537 310 CZK	253 731 CZK	2 283 579 CZK
	February	1 268 655 CZK		February	2 174 837 CZK	217 484 CZK	1 957 353 CZK
	March	483 297 CZK		March	1 268 655 CZK	126 865 CZK	1 141 789 CZK
				April	483 297 CZK	48 330 CZK	434 967 CZK
Total monthly invoices: 20 137 380 CZK		Total payments:		20 137 380 CZK	Total retention guarantee:	2 013 738 CZK	18 123 642 CZK
Release of first half of retention g.:			April 2017			1 006 869 CZK	
Release of second half of retention g.:			May 2017			1 006 869 CZK	
					Total:	20 137 380 CZK	



5.6.2 Expenditures shown in time

Other expenditures are expected with a thirty-day-payment of invoices and release of finances in the final maturity date.

The total expenditures shown in time are **the Appendix No. 3** of this thesis.

5.7 Project revenues

Revenues will consist only of own project activities, i.e. from the sale of semi-detached houses to end customers. The length of the sale period is my estimation, but based on my past experience. The plan is still the same: pre-sale of 3 houses before starting the project realization, sale of other 3 houses during the realization of the project and after completion of the project the sale of 2 remaining houses within 6 months.

The prices of the houses are made up as follows:

Table 8: Creation of house prices

House number	Floor area m ²	Uniform price of usable area per m ² incl. VAT	Terrace area m ²	Uniform price of terraces per m ² incl. VAT	The area of parcel m ²	Uniform price of parcel per m ² incl. VAT	Preliminary house price incl. VAT	Preliminary house price excl. VAT (15%)	Final price of houses excl. VAT (adjustment by the position of the house)
1	98,84	35 000 CZK	12,25	18 000 CZK	290,125	3 500 CZK	4 695 250 CZK	4 082 826 CZK	3 951 087 CZK
2	98,84	35 000 CZK	12,25	18 000 CZK	290,125	3 500 CZK	4 695 250 CZK	4 082 826 CZK	4 001 087 CZK
3	98,84	35 000 CZK	12,25	18 000 CZK	290,125	3 500 CZK	4 695 250 CZK	4 082 826 CZK	4 001 087 CZK
4	98,84	35 000 CZK	12,25	18 000 CZK	306,125	3 500 CZK	4 751 250 CZK	4 131 522 CZK	3 951 087 CZK
5	98,84	35 000 CZK	12,25	18 000 CZK	306,125	3 500 CZK	4 751 250 CZK	4 131 522 CZK	4 251 087 CZK
6	98,84	35 000 CZK	12,25	18 000 CZK	306,125	3 500 CZK	4 751 250 CZK	4 131 522 CZK	4 251 087 CZK
7	98,84	35 000 CZK	12,25	18 000 CZK	290,125	3 500 CZK	4 695 250 CZK	4 082 826 CZK	4 201 087 CZK
8	98,84	35 000 CZK	12,25	18 000 CZK	290,125	3 500 CZK	4 695 250 CZK	4 082 826 CZK	4 201 087 CZK
Σ	791		98		2 369			32 808 696 CZK	32 808 696 CZK

Table 9: Final house prices incl. VAT and average prices per m² incl. VAT

Final price of houses incl. VAT (adjustment by the position of the house)	Total price per m ² (price / floor area)
4 543 750 CZK	45 972 CZK
4 601 250 CZK	46 554 CZK
4 601 250 CZK	46 554 CZK
4 543 750 CZK	45 972 CZK
4 888 750 CZK	49 463 CZK
4 888 750 CZK	49 463 CZK
4 831 250 CZK	48 881 CZK
4 831 250 CZK	48 881 CZK



House numbers 1-8 are shown here:

Figure 13: House numbers [4]





Table 10: Time assumption in the sale of houses

		Number of houses	Notes
2015	June	0	
	July	0	
	August	0	
	September	0	
	October	0	
	November	0	
	December	0	
2016	January	0	Pre-sale
	February	0	
	March	House No.8	
	April	House No.7	Realization of the project
	May	House No.6	
	June	0	
	July	0	
	August	0	
	September	0	
	October	0	
	November	0	
	December	House No.5	
2017	January	0	Sale of the the last houses
	February	House No.1	
	March	House No.2	
	April	0	
	May	0	
	June	House No.3	
	July	0	
	August	0	
	September	0	
	October	House No.4	
Σ		8 Houses	

5.7.1 Payment schedule of the buyer

There can occur 3 variants of the process of selling individual houses:

1. If a client expresses interest in buying the house before the realization of the project, he/she signs a reservation contract and subsequently pays a reservation fee of 50,000 CZK. Within 14 days from the start of realization of the construction client signs a contract for the future purchase contract and pay a



deposit of 20% of the purchase price of the house. The remaining 80% the client pays on the day of handovering a finished house and subsequently signs the purchase the contract. This final payment is reduced by a booking fee.

2. If a client expresses interest in buying the house during the realization of the project, he/she signs a reservation contract and subsequently pays a reservation fee of 50,000 CZK. Within 14 days the client signs a contract for a future purchase contract and pay a deposit of 20% of the purchase price of the house. The remaining 80% of the client pays on the day of handovering a finished house, before signing the contract. This final payment is reduced by a booking fee.
3. If a client expresses interest in buying the house during the realization of the project, he/she signs a reservation contract and subsequently pays a reservation fee of 50,000 CZK. Within 14 days the client signs a contract for a future purchase contract and pay the full amount of the purchase price of the house, reduced by a booking fee. Subsequently, the client signs a purchase contract. There is a possibility of the payment of the full purchase price without the antecedent reservation fee.

If there occurs the option 1 and 2, 20% of the purchase price will be deposited in an account of the lending bank. Although the account is held in the name of the investor, however, the investor will not be able to deal with money until proves the realization of the project. The release of the finances will happen subsequently. Then these financial resources will be used primarily to repay the loan to the bank. Thanks to daily interest is advantageous for the investor to repay the debt in the shortest possible time.



5.8 Business plan

Table 11: Business plan [4]

BUSINESS PLAN - Semi-detached houses			The date of preparation:		9.3.2015
Item	Cost item	Quantity	Unit	Price for unit	Price excl. VAT
HARD COSTS					
1	Defining the objectives of the project	1,00	gross	0 CZK	0 CZK
2	Project documentation and getting all approvals	1,00	gross	1 050 000 CZK	1 050 000 CZK
3	Price of the land	1,00	gross	5 263 000 CZK	5 263 000 CZK
4	Charges for network providers (ČEZ,..)	1,00	gross	120 000 CZK	120 000 CZK
5	Site preparation, demolition work	1,00	gross	348 000 CZK	351 480 CZK
6	Realization of the buildings (VAT 15%)	1,00	gross	16 938 000 CZK	17 107 380 CZK
7	Infrastructure and paved areas (VAT 21%)	1,00	gross	2 652 000 CZK	2 678 520 CZK
8					26 570 380 CZK
SOFT COSTS					
9	External financing	1,00	gross	463 255 CZK	463 255 CZK
10	Real estate and advertising activities	2,80	% from unit 24	328 087 CZK	918 643 CZK
11	Overhead costs	1,00	gross	312 000 CZK	312 000 CZK
12	Cost of Occupational Health and Safety coordinator	1,00	gross	47 500 CZK	47 500 CZK
13	Technical supervision (for the investor)	2,00	% from units 5+6+7	201 374 CZK	402 748 CZK
14	Legal services	8,00	gross	2 500 CZK	30 000 CZK
15	Maintenance costs of unsold houses	1,00	gross	18 429 CZK	18 429 CZK
16					2 192 576 CZK
17	Σ COSTS				28 762 956 CZK
REVENUES					
	Revenues item	Quantity	Unit	Price for unit incl. VAT	Revenues excl. VAT 15%
18	Sale of all the houses - floor space	791	m2	35 000 CZK	24 064 783 CZK
19	Sale of commercial space	0	m2	35 000 CZK	0 CZK
20	Sale of terraces, balconies	98	m2	18 000 CZK	1 533 913 CZK
21	Land	2 369	m2	3 500 CZK	7 210 000 CZK
22	Sale of the garages	0	piece	0 CZK	0 CZK
23	Sale of the parking spaces	0	piece	0 CZK	0 CZK
24	Σ REVENUES				32 808 696 CZK
25	PLANNED PROFIT				4 045 740 CZK

5.9 Cash Flow

With knowledge of the revenues and expenditures of the various phases it is possible to build Cash Flow which consists of the subtraction between these values. Based on CF it is possible to create a Discounted Cash Flow (i.e. CF taking into account the time value of money), Cumulative Cash Flow (summing up revenues and expenditures throughout the project) and the Cumulative Discounted Cash Flow.



5.9.1.1 Effectiveness of the project – discounted CF

Project evaluation is performed using the Net Present Value (NPV) which is computed as the Cumulative Discounted Cash Flow. **Effect of external financing is not included.** If $NPV > 0$, the investment can be recommended. Furthermore, if the $IRR > \text{Discount Rate}$, the investment may be recommended.

The discount rate represents the value of the risk-free rate of return (based on the average rate of return offered by the Czech government bonds, which are called risk-free) and the value of risk rate.

The total amount of the current discount rate corresponds to 6.8% per annum [29], [30].

Table 12: Effectiveness of the project

Year	Expenditures	Revenues	CF	Discounted CF	Cumulative CF	Discounted Cumulative CF
2015	6 155 000 CZK	0 CZK	-6 155 000 CZK	-6 155 000 CZK	-6 155 000 CZK	-6 155 000 CZK
2016	13 081 393 CZK	2 680 652 CZK	-10 400 741 CZK	-9 738 521 CZK	-16 555 741 CZK	-15 893 521 CZK
2017	9 063 307 CZK	30 128 044 CZK	21 064 736 CZK	18 467 730 CZK	4 508 996 CZK	2 574 209 CZK
Σ	28 299 700 CZK	32 808 696 CZK	4 508 996 CZK	2 574 209 CZK		
IRR	11,3%				Investment is acceptable:	YES
Discount rate	6,8%					

Figure 14: Cash Flow

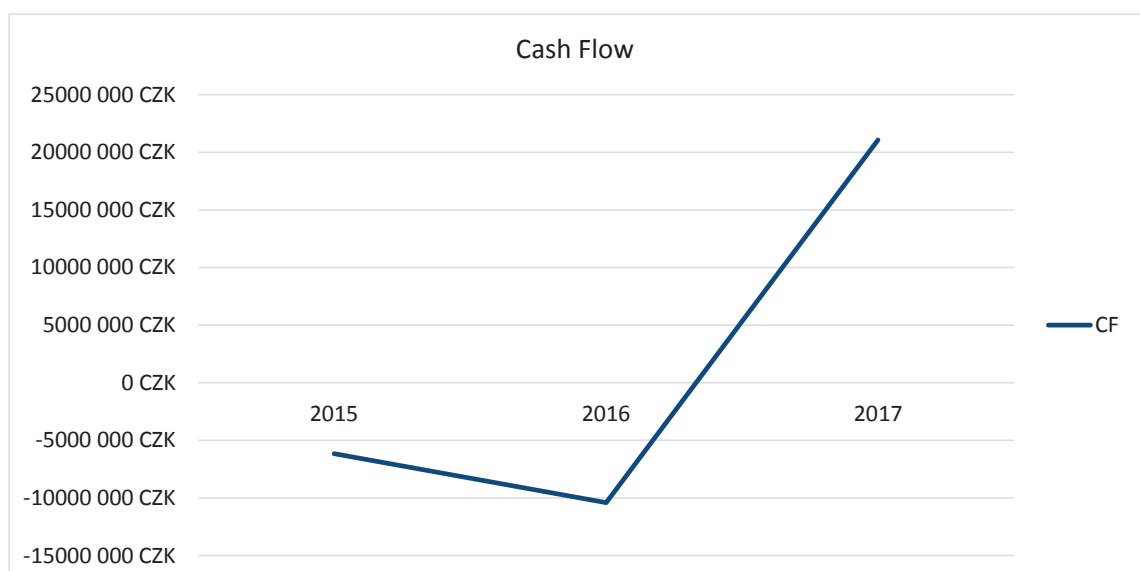




Figure 15: Discounted Cash Flow

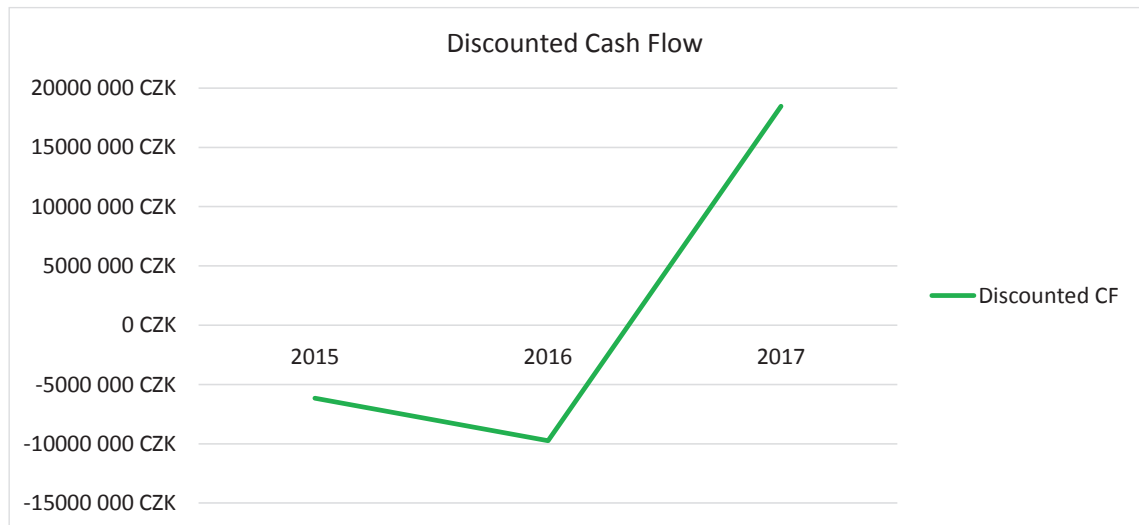


Figure 16: Cumulative Cash Flow

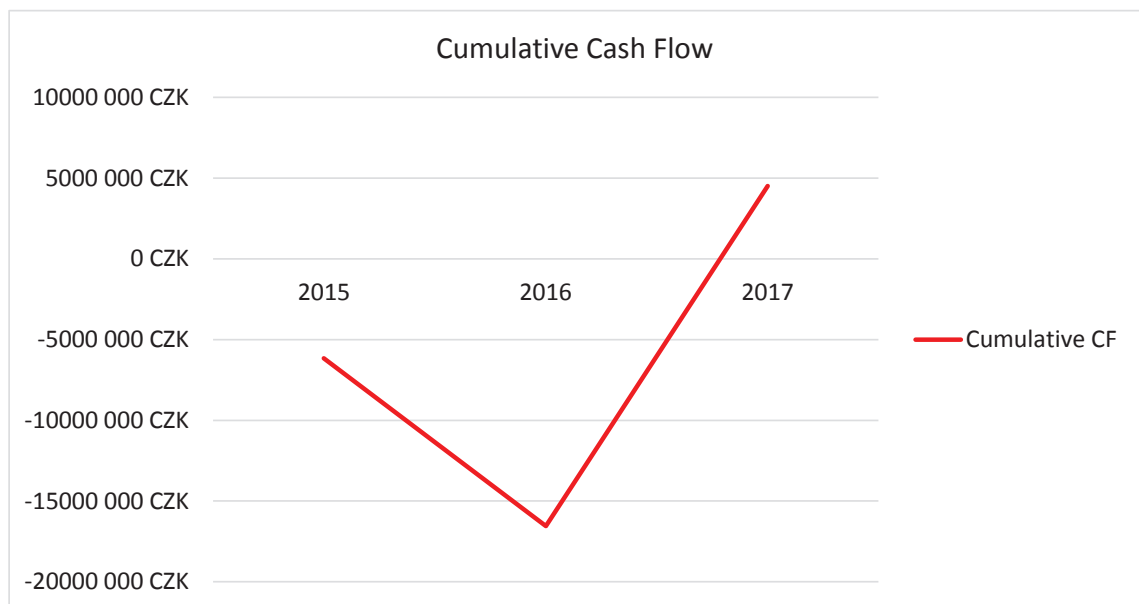
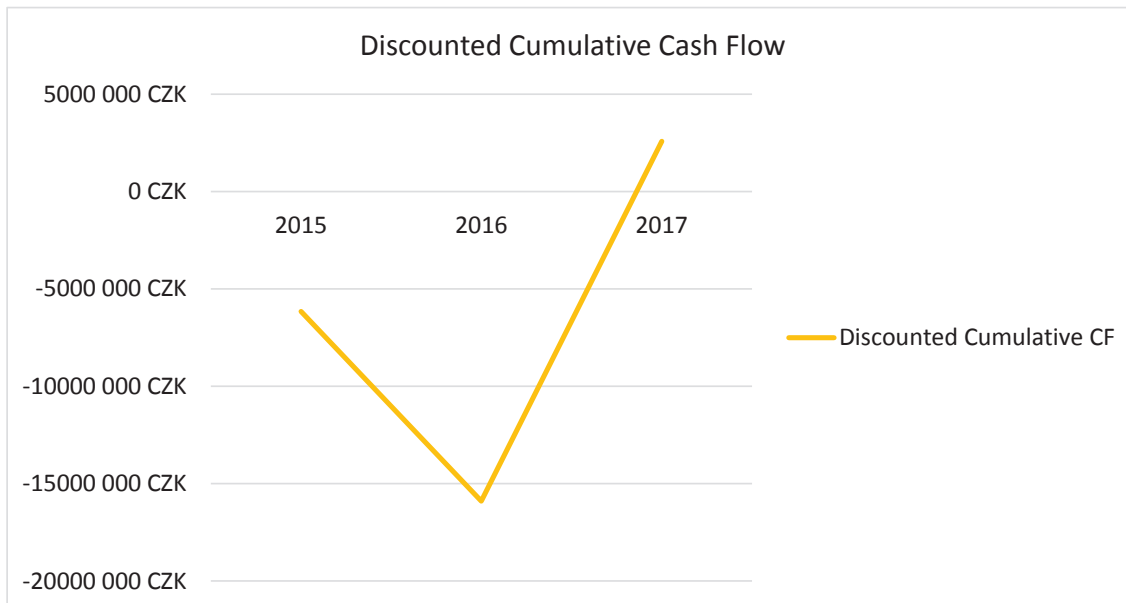




Figure 17: Discounted Cumulative Cash Flow

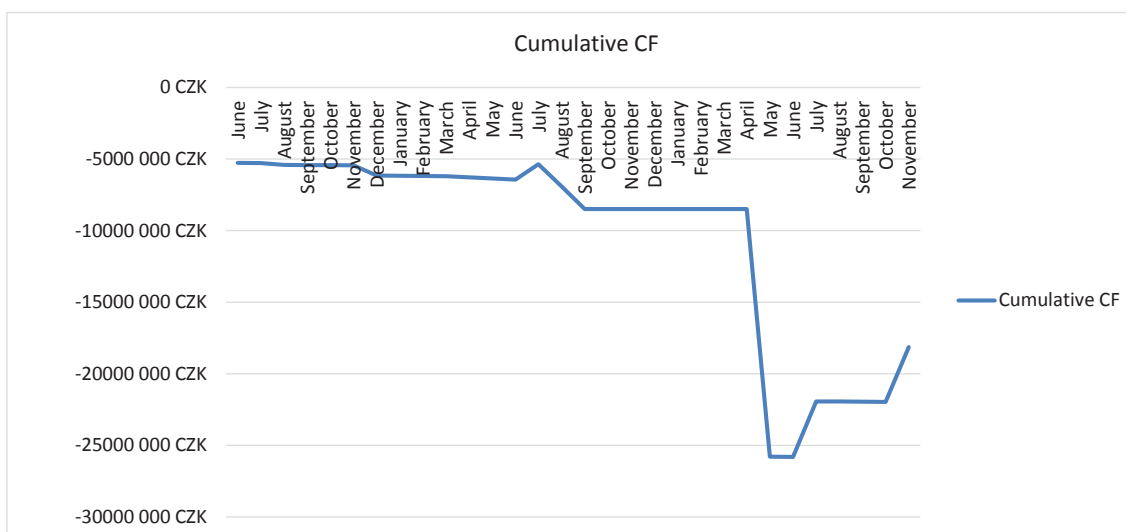


It follows that $NPV = 2,574,209$ CZK. This means that without considering the influence of external financing the project can be recommended. The calculated Internal Rate of Return corresponds to $11.3\% > \text{Discount Rate } 6.8\%$.

5.9.1.2 Cash Flow involving external sources of financing - monthly

Cash Flow involving external sources of financing is the Appendix No. 4 of this thesis.

Figure 18: Cumulative CF





5.10 Risk Management

Risks are processed within the risk management. Each risk is assigned with a number, ratings and severity. Then the risks are displayed in the risk matrix and thus classified according to their severity. Then there is an evaluation of collected information and proposed step to mitigate, either the probability of occurrence or their impact on the project [31].

5.10.1 Risks

All the risks of the project can not be checked. Therefore, as part of this investigation, there were selected only the most significant risks that could arise during realization.

1. Poor communication with authorities
2. Not obtaining the site permit
3. Not obtaining the construction approval
4. Major exceedance of construction costs
5. Failure in planned saleability
6. Sharp decline in prices per m² of the house floor
7. Other legislative issues
8. Change of social policy
9. Failure in obtaining sufficient external finances
10. High interest rate of external financing



5.10.2 Risk assessment

Table 13: Severity and probability of risks

Severity	
5	Negative consequence is fatal.
4	Negative consequence is big.
3	Negative consequence is intermediate.
2	Negative consequence is small.
1	Negative consequence is minimal.
Probability of occurrence	
1	Occurrence is certain.
0,8	Occurrence is predicatable.
0,6	Occurrence is likely.
0,4	Occurrence is unlikely.
0,2	Occurrence is more than unlikely.
0	Can not occur.

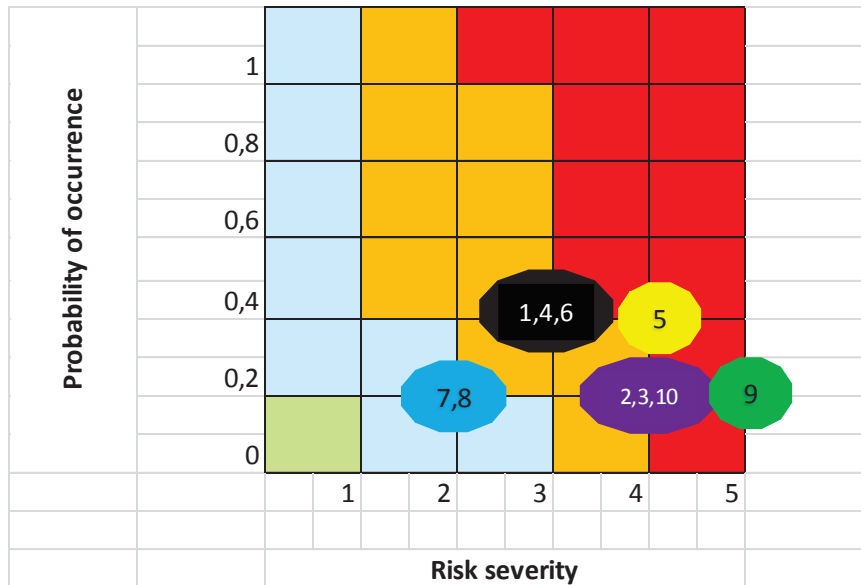
Table 14: Risk assessment

Selected Risks		Severity	Probability of occurrence
1	Poor communication with authorities	3	0,4
2	Not obtaining the site permit	4	0,2
3	Not obtaining the construction approval	4	0,2
4	Major exceedance of construction costs	3	0,4
5	Failure in planned saleability	4	0,4
6	Sharp decline in prices per m2 of the house floor	3	0,4
7	Other legislative issues	2	0,2
8	Change of social policy	2	0,2
9	Failure in obtaining sufficient external finances	5	0,2
10	High interest rate of external finances	4	0,2
	Average:	3,4	0,28



5.10.3 Risk matrix

Figure 19: Risk matrix



	Risks of the highest level of threat to the project
	Risks of the medium level of threat to the project
	Risks of the low level of threat to the project
	Risks completely negligible

5.10.4 Risk assessment

It should be noted that most of the risks borders on the highest level of threat to the project. The greatest risk (but its occurrence is unlikely) is the failure of saleability of planned houses. Saleability can be divided into two parts. Firstly saleability which is closely related to the pre-investment stage of the project. If the marketing campaign and associated efforts of real estate agents and the property developer does not provide pre-sales (signed reservation contract) at least of three houses, the bank refuses to provide loan and it is not possible to run the project. Secondly, if there is not a compliance with planned house saleability in the range of 3 houses in the pre-investment phase, 3 houses during realization and 2 houses within six months after the final building approval, there will be a delay of repaying the loan including interests. This has a result in a slower reduction in the interest base and due to that growing interests. With unsold houses are also associated maintenance costs and corporate overhead. All together will result in reduced profitability of the project.



Another main risk is the failure to obtain a sufficient amount of external finance. The impact of this risk can not be mitigated (will always be fatal) but can be mitigated the probability of occurrence by the timely negotiation with banking institutions. An important factor is also a consultation with more competitive institutions. The result is not only the reduction of the likelihood of the risk but also to find the most favorable conditions.

5.11 Conclusion and evaluation of the project of semi-detached houses

The project of semi-detached houses presents a risk for the investor but this risk is not too serious. The main problem may be the saleability of houses but due to the low number of houses and attractiveness of location, this problem is considerably eliminated.

Estimated profit in compliance with the plan of saleability of houses is 3,891,148 CZK. IRR of the project is 11.3% which is higher than the total amount of the discount rate of 6.8%. Investment may be recommended.



6 Block of flats

Figure 20: Visualization of the project of the block of flats [32]



6.1 The charter of the basic definition of the project

Name of the property development project:

Apartment house, Nepomucka, Pilsen

Address:

NEPOMUCKA, PILSEN

Written by:

Ing. Lukáš Nový

Purpose of the project:

To generate the profit from the sale of individual flats to end users.



Description of objects:

The main aim is the construction and subsequent sale of a 4 storey brick block of flats with a flat roof. The building will contain 22 flats, 2 studios, 7 garages, 20 parking spaces, 17 cellars (+1 other extra room designed for cellars). Individual apartments correspond with the type 1 + kk (a one bedroom flat with kitchen inside), 2 + kk (a two bedroom flat with kitchen inside) and 3 + kk (a three bedroom flat with kitchen inside). Floor area of about 37-90 m². The whole plot is surrounded by a brick fence with wooden or metal planks and two gates for entry [32].

The presumption:

Planned costs from the project's budget are: 40,002,892 CZK.

Planned total revenues are: 48,778,065 CZK.

Planned profit is 8,775,173 CZK or 21.94 % from planned costs.

Expected start of the project is the beginning of June 2015.

Expected finish of the project (investment phase) is May 2017.

Expected interest rate is equal to 4.5 % p.a.

Own financial sources and external financial sources are expected in the ratio of 30:70 %.

The construction will be delivered by a general contractor who will be responsible for the quality of the performed work.

The aim of the project:

Achieve maximum profits from the sale of flats (with garages and parking spaces).

Major milestones: (day/month/year)

Start of the project:	1/6/2015
Acquirement of the site permit:	29/1/2016
Acquirement of the construction permit:	27/5/2016
Start of the realization of the construction:	1/6/2016



End of the realization + final building approval:	31/5/2017
Sale of the last flat:	15/6/2018

Restrictions:

The amount, which shall not be exceeded is 40,500,000 CZK.

The deadline of the completion of works is very important. It is considered a sufficient reserve for getting a site and construction permit. General contractor will be motivated to meet the deadline with sanctions.

Compliance with the ČSN (Czech Technical Standards) is taken for granted. The general contractor is responsible for his work at the construction site.

The important point is to obtain a sufficient amount of external finances. Failure in approving the loan will have a fatal impact on the realization of the project.

6.2 Description of the plot

See Chapter: **5.2 Description of the plot**

6.3 Overall description of the project

The purpose of the project is to build a new residential complex, where will be located a 4 storey brick block of flats with a flat roof. The building will contain 22 flats, 2 studios, 7 garages (2 of them with a workshop), 20 parking spaces, 17 cellars (+1 other extra room designed for cellars).

The ground floor of the building cuts into the gently sloping plot. There is the main entrance to the building, garages, cellars, 2 studios, utility room and a room for cleaning. The 2nd floor consists of 7 flats, the second entrance into the building and room for bikes or baby-carriages. The third floor consists of 8 flats and the 4th floor consists of 7 flats. There is a common staircase and elevator. The floor area of flats is between 35 to 90 m² (including balconies).



The building has a rectangular shape. The dimensions are 19.8 x 26.4 m (total volume 6,170 m³). The house has a dissected facade in beige with brown tiles. The roof is flat with attic. Filling of the holes are considered as white.

The main entrance is from the street U Českého dvora which includes the entrance gate for cars and pedestrian gate, which follows on a public sidewalk in the street U Českého dvora. The second entrance is from the street Nepomucká and contains a pedestrian gate, which follows on a public sidewalk in the street Nepomucká. The whole object is surrounded by a brick fence with wooden or metal planks.

Parking spaces and other hard surfaces (driveways and sidewalk) will be built of concrete tiles. The remaining areas will be covered with grass, trees will be included.

The building will be constructed from common available materials. The building is not considered as passive. Heating is considered in two ways. The first way is by gas boilers installed in each apartment. The second way is to heat the entire building using remote hot-water piping. The building will be connected to the public water supply and sewerage network [32].



Figure 22: Visualization of the project - front view [32]



Figure 23: Visualization of the project - rear view [32]





Figure 24: Ground plan [32]

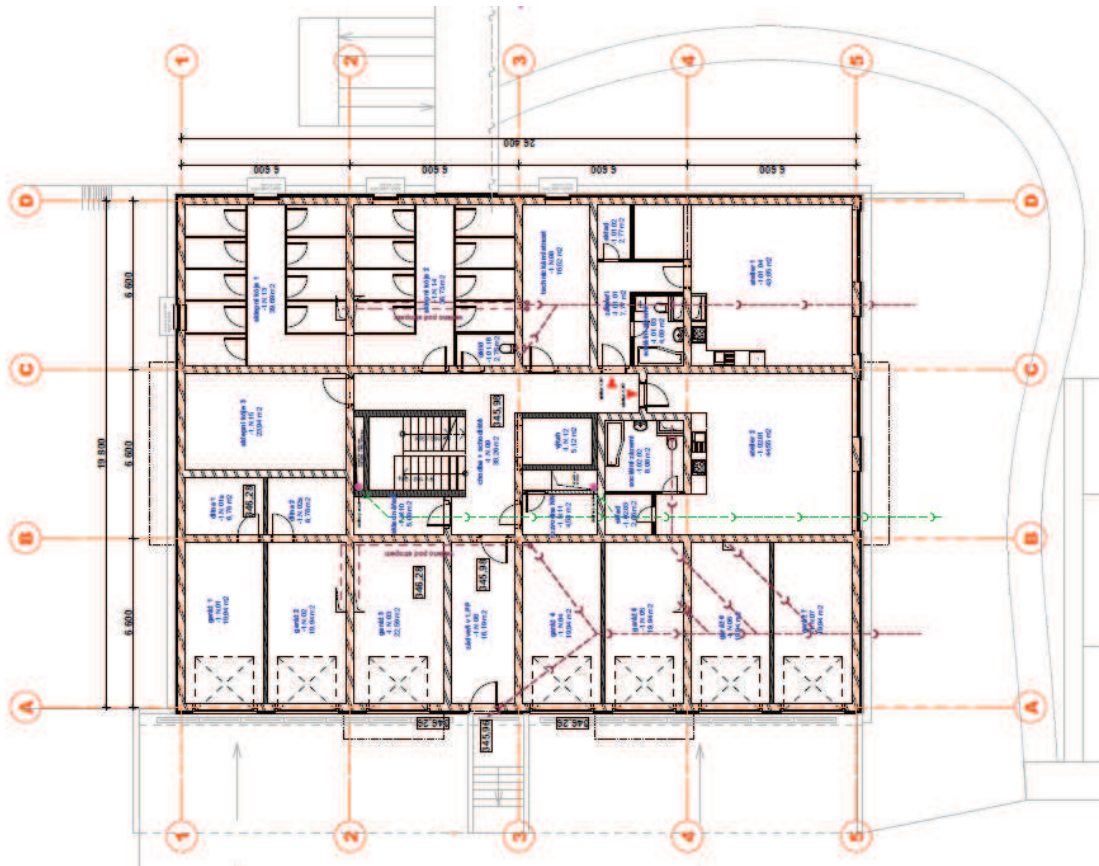




Figure 25: Second floor plan [32]

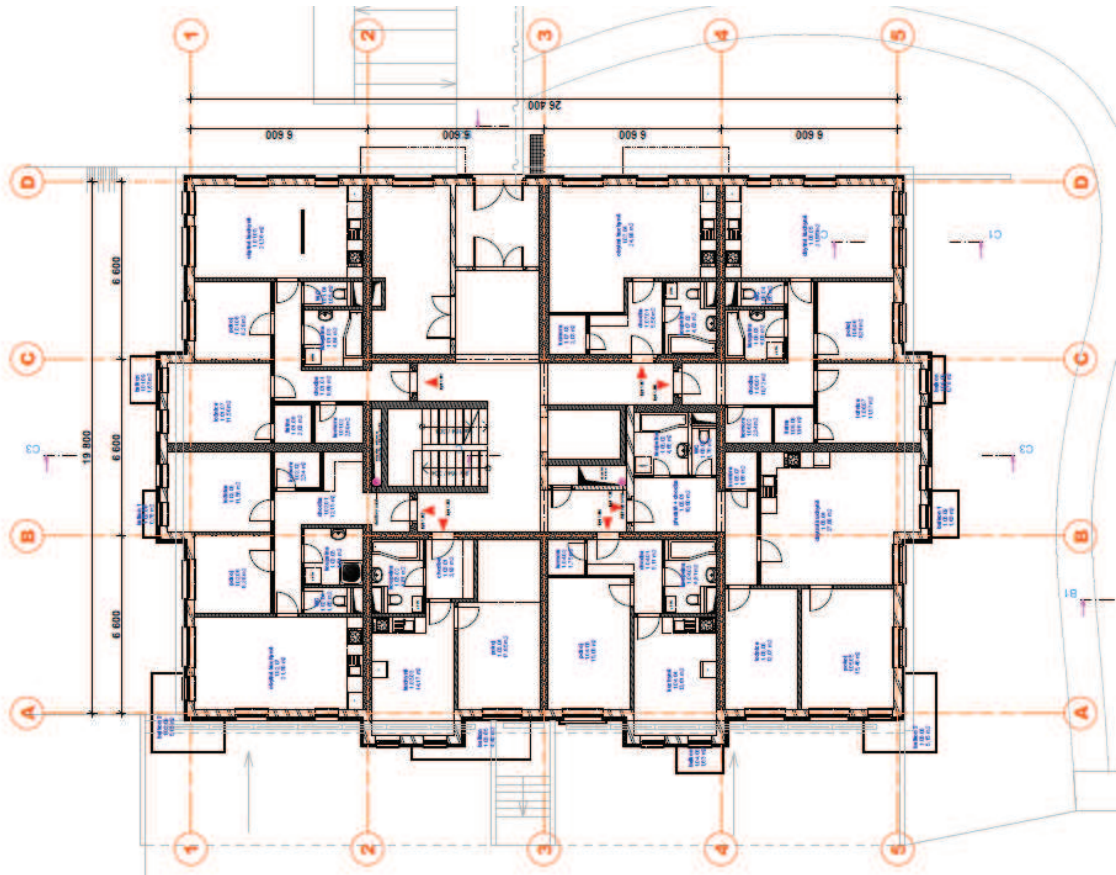




Figure 27: Fourth floor plan [32]

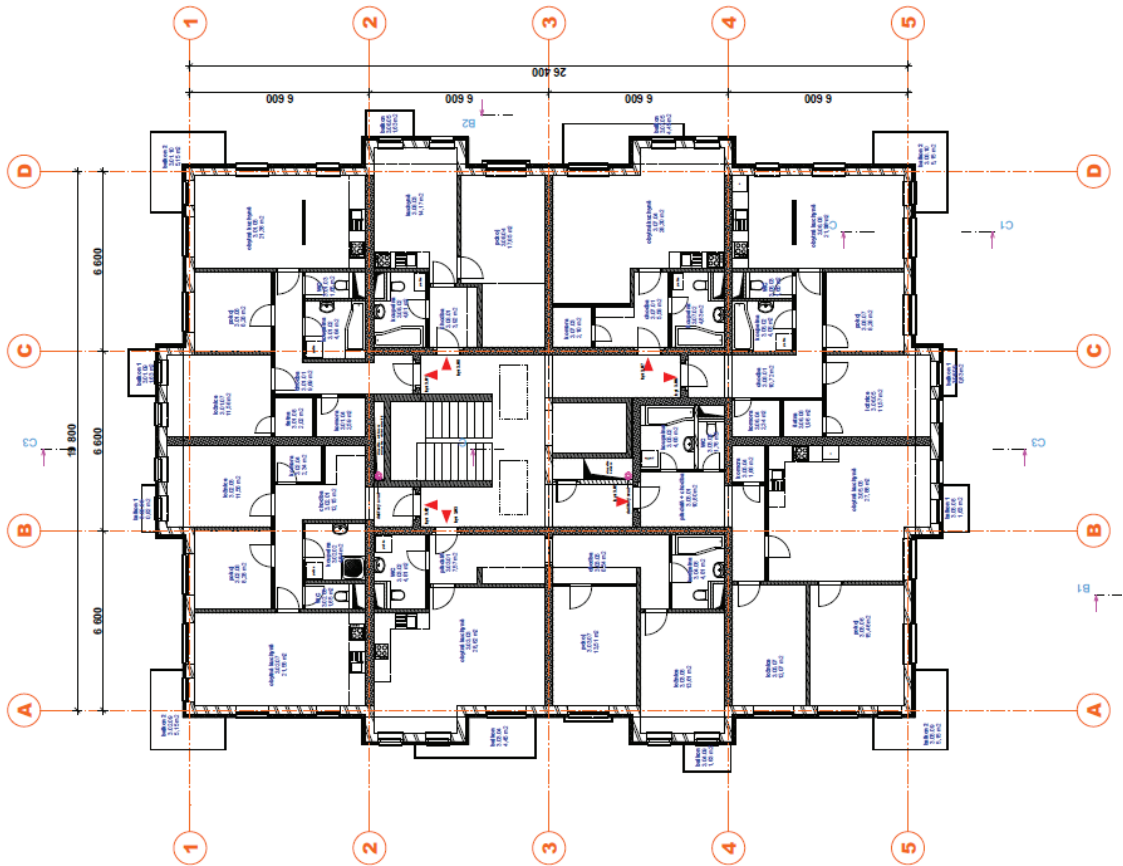
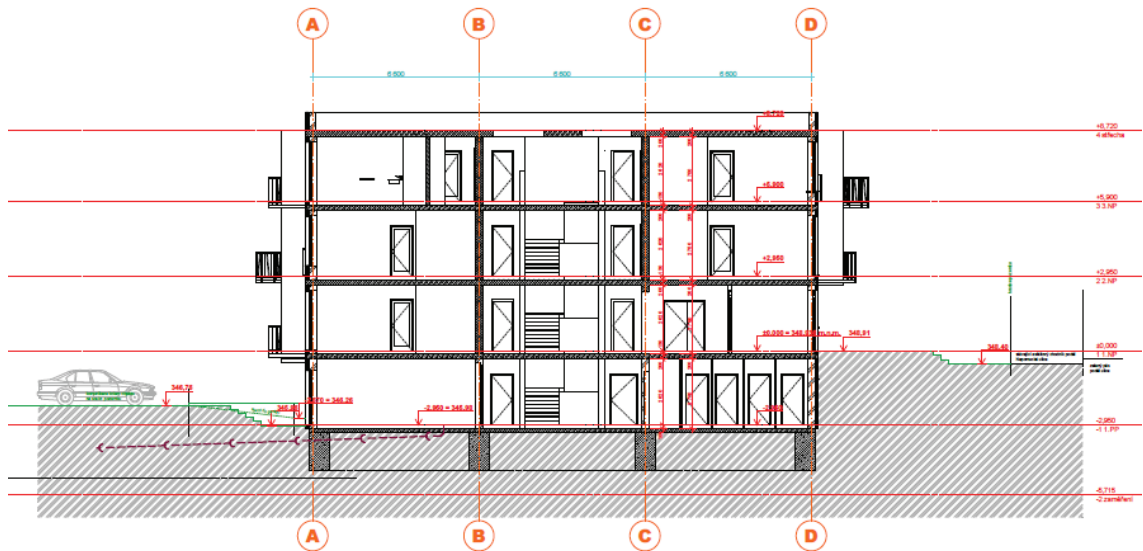


Figure 28: Section [32]





6.4 Market analysis

See Chapter: **5.4 Market analysis and marketing concept**

6.5 Project costs

All of the costs which will be listed in the following chapter do not include VAT.

The individual cost items are based on the pre-budget that was given to me by the company Stafin a.s.

6.5.1 WBS – Work breakdown structure

6.5.1.1 The principle of the creation of WBS:

6.5.1.1.1 WBS for the project of block of flats

Figure 29: WBS for the block of flats

Sale of the flats in the apartment building with profit	1 Pre-investment phase	1.1 Defining the project goals	1.1.1 Market research
			1.1.2 Create a feasibility study
			1.1.3 Create a business plan
		1.2 Obtaining the project documentation	1.2.1 Tendering the contractor of the project documentation
		1.2.2 Contracting the contractor of the project documentation	
	1.3 Obtaining external finances	1.3.1 Getting a bank loan	
	1.4 Obtaining the site permit	1.4.1 Statements of concerned government authorities and other concerned parties	
		1.4.2 Application for the site permit	
	2 Investment phase	2.1 Time-schedule of the construction	2.1.1 Construction organization plan
		2.2 General contractor	2.2.1 Tendering the general contractor of the construction
			2.2.2 Contracting the general contractor of the construction
		2.3 Obtaining the construction approval	2.3.1 Statements of concerned government authorities and other concerned parties
			2.3.2 Application for the construction approval
		2.4 Handover of the construction site	2.4.1 Handover protocol
	2.4.2 List of defects and unfinished tasks		
2.5 Construction approval	2.5.1 Application for the construction approval		
	2.5.2 Documentation of the actual construction		
3 Phase of sales of the flats	3.1 Sale of flats	3.1.1 Contracting the real-estate company	
		3.1.2 Marketing campaign	

6.5.2 Project schedule

The schedule was compiled using software Microsoft Office Excel 2013 and is **the Appendix 5** of this thesis.

It is clear from the schedule is that the pre-investment phase lasts 11.5 months and ends by obtaining a loan from a bank which is required for realization of the project. At the same time pre-investment phase overlaps the investment phase. Investment phase lasts

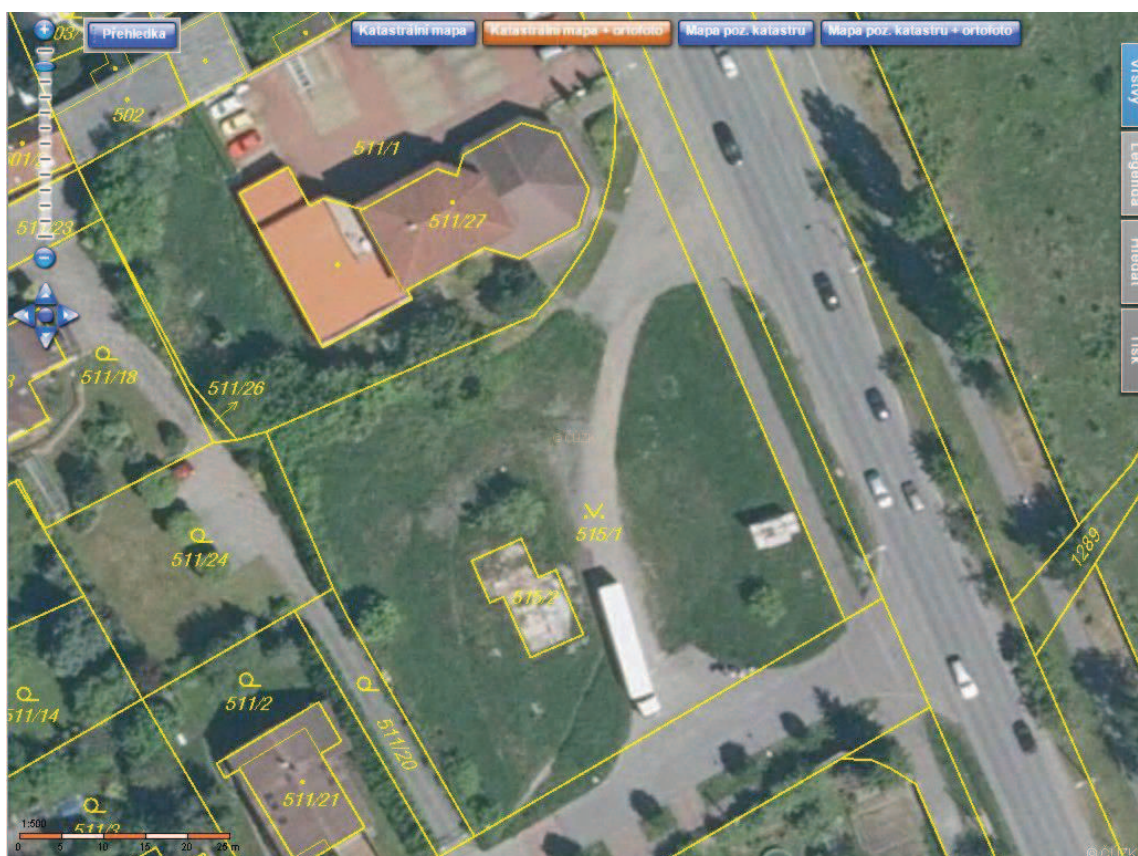


16 months. Phase of sales of the houses overlaps the two previous phases. Overall, the project takes 37 months (3 years and 1 month). Here is beautifully visible the most important fact for investors: a property development project is long-term issue.

6.5.3 Price of the plot

The price of the plot is clearly stated because the company Stafin a.s. bought it in 2010 at the price of **5.263 million CZK** [32].

Figure 30: Cadastral map [26]



6.5.4 Hard Costs

6.5.4.1 The cost of the project documentation, exploration work and obtaining all of the permits

Estimated cost of project documentation for site permit and then one step project documentation (which includes documentation for building permits and documentation for realization). All the other permits are included in this costs (site permit, construction permit, construction approval). The whole package was set at **1,050,000 CZK** [32].



6.5.4.2 Charges for network providers

Charges for network providers, which is e.g. the electricity provider ČEZ, were estimated at **350,000 CZK** [32].

6.5.4.3 Site preparation and demolition work

The tentative cost of the site preparation, where will be necessary to remove the current hard surfaces (asphalt, concrete), then remove the topsoil and flatten the terrain, was calculated in pre-budget, which was created in 2014. The realization of semi-detached houses or the block of flats or the office building is planned in 2016. I was wondering what the trend in prices of construction standards is. On the internet portal Czech construction standards there are these tentative technical - economic indicators available. Price indicators are an essential element for construction budgets. Based on long-term statistics of budgets of structures (Basic Budget Costs) and do not contain Secondary Budget Costs (territory influences, site equipment or other influences pertaining to the cost of construction). The final prices do not include VAT and the deviation of the actual future prices can be up to 25%. The basic unit of measurement for the field of civil engineering is m^3 of total volume of the building [27].

I classified the block of flats as Buildings for housing, then the Buildings with the vertical supporting structure from brick, block and then as the Untyped block of flats. In 2014 there was an increase in the price indicators in m^3 of the volume of the building by 1.35%, namely from 4,563 CZK / m^3 to 4,625 CZK / m^3 . In 2015 the price index increased by 1%, namely from 4,625 CZK / m^3 to 4,673 CZK / m^3 [27].

My personal estimate is that the price indicator will increase by 1% in 2016 compared to 2015.

The total cost of site preparation and demolition work were set in the pre-budget from 2014 (the intended launch of the project was planned to be in 2015) at 550,000 CZK. I will respect the 1% increase in construction costs and total cost of preparation and demolition work is **555,500 CZK**.

6.5.4.4 The cost of realization of the buildings

According to the Czech construction standards for 2015 is the price for 1 m^3 4,673 CZK. The total volume of the block of flats is 6,170 m^3 . Total costs are $6,170 \times 4,673 = 28,832,410$ CZK without VAT.



According to the pre-budget, even considering a 1% increase in the cost of construction work, the costs of the realization of complete constructions are **27,689,150 CZK** [32].

The deviation from the estimation of Czech construction standards is 4.1% which is surprisingly accurate.

6.5.4.4.1 Material inputs and energy

The material used for the construction of block of flats is commonly available and its availability is not a problem. This risk will be minimized by instructing the general contractor for the timely tender of subcontractors. In case of any problems during the delivery of the technology or construction materials is possible a substitutions for other manufacturers. The crucial factor for choosing will be the quality and price of the material. If the general contractor proves that another product of the same quality is available to buy at a reduced price, the change could happen after agreeing of Technical supervision of the investor.

6.5.4.5 Infrastructure and paved areas

This section includes cost items such as sidewalks, roads, parking areas, traffic signs, gas pipe, water supply pipe, sewerage, electrical connections and subsequently plotscaping (grass, trees). These costs were calculated, after a price increase of 1%, at **1,924,050 CZK** [32].

6.5.5 Soft Costs

Among the Soft Costs are included overhead costs, external staff, advertising and legal services, the maintenance costs of unsold houses.

6.5.5.1 Overhead costs

This work will use significantly inaccurate designation of overhead costs. Overhead costs are considered as the salary of employees who are employed in the company Stafin a.s. and participate on the project.

For the run and organization of the project will be used one employee on the position called property development manager. He/she will be paid with a regular salary from the profits from previous property development projects. The work of this employee is awarded 36,000 CZK / month (including taxes).



- In the first 25 months of the projects he/she will theoretically spend 1/3 of working hours on this project. So the costs will be $25 \times 36,000 / 3 = 300,000$ CZK.
- Remaining 12 months of the project he/she will theoretically spend 1/4 of working hours on this project. So the costs will be $12 \times 36,000 / 4 = 108,000$ CZK
- Total overhead cost are $300,000 + 108,000 = 408,000$ CZK

6.5.5.2 Cost for external workers

The external partners of the company will be used. The cost of their services are listed here [32]:

- **Costs of Occupational Health and Safety coordinator (OHS)** will be 4,750 CZK / month. He/she will be needed throughout realization of the project (12 months). The total costs of the OSH Coordinator is $12 \times 4,750 = 57,000$ CZK without VAT.
- **The costs of Technical supervision** (for the investor) consist of 2% of the total realization costs of the construction (Site preparation and demolition work, complete realization of the construction, infrastructure and paved area). Total costs for Technical supervision are $0.02 \times (555,500 + 27,689,150 + 1,924,050$ CZK) = **603,374 CZK**
- **Costs for legal services** include fee for Owner statement (10,000 CZK) and for each purchase contract (23 flats, 2 studios, garages or parking spaces will be sold together with the flat or studio) the fee of 2,500 CZK. The total cost of legal services is $10,000 + 25 \times 2,500 = 72,500$ CZK.

6.5.5.3 The cost of real estate and advertising activities

The costs of real estate and advertising activities comprise the largest part of Soft Costs. They are essential costs which will decide the success or failure of the project. So it must be effectively spent and it is certainly not a simple discipline. It is necessary to create a marketing plan. I encountered a variant that the property development company signs a contract with a real estate agency. The real estate company creates the media plan and the total cost of the advertising is paid by a real estate agency and not by the property developer. There is one exception in the media plan which is the web page of the project.



This is paid by the property developer, not by the real estate company. Real estate agency has a percentage profit from each sold flat (or garage or parking space).

It is essential to choose the right real estate company. It depends on the approach of real estate brokers, their effort and references. The real estate company will consult the advertising campaign and its appearance with the property developer.

The media plan is divided into 3 phases. The first phase is to gain 30% percent of the total number of clients or fulfill the conditions for obtaining a bank loan. This phase is assumed to be 3 months long.

1. Phase – possible places of advertisement (estimated costs 150,000 CZK)
 - The opening ceremony of the project
 - Internet advertising – web page of the project, real estate company server, Sreality.cz
 - Real estate magazine in Pilsen
 - 4 billboards placed at appropriate locations in Pilsen
 - Radio advertisement on one of the local radio stations

The presumption of the second phase is 11 months (the period of realization).

2. Phase – possible places of advertisement (estimated costs 200,000 CZK)
 - Internet advertising – web page of the project, real estate company server, Sreality.cz
 - Real estate magazine in Pilsen
 - 2 billboards placed at appropriate locations in Pilsen

The presumption of the third phase is 6 months (sale of the last houses)

3. Phase – possible places of advertisement (estimated costs 100,000 CZK)
 - Internet advertising – web pages of the project, real estate company server, Sreality.cz



The total cost consists of 450,000 CZK. These costs are paid by the real estate company, only the web page is paid by the property developer. The prize of the web page is about 60,000 CZK. The real estate company obtains 2.5% of the price of each flat (garage or parking space). Thus, the total cost of real estate and advertising activities is $0.025 \times 48,778,065$ (total revenues from the sale of houses) + 60,000 (web page) = **1,279,452 CZK**.

6.5.5.4 Maintenance costs of unsold (remaining) flats

Due to the expected time from the completion of the construction to the moment when the last flat is sold, there occurs maintenance costs of unsold flats. They consist of costs for heating, water heating, electricity, water and sewer, fund of repairs.

The estimated cost of the house is 2,100 CZK / month [33].

If the assumption of saleability of flats is as it was planned, 19 flats will be sold after realization of the project, so 5 flats will be remaining.

First 2 month the 5 flats will be unsold, the cost are $5 \times 2,100 \times 2 = 21,000$ CZK. Next month will be 1 flat sold, the cost are $4 \times 2,100 = 8,400$ CZK.

Next month will be 1 flat sold, the cost are $3 \times 2,100 = 6,300$ CZK.

Next month will be 1 flat sold, the cost are $2 \times 2,100 = 4,200$ CZK. 2 flats are still unsold and this situation is planned to remain for next 5 months, the cost are $2 \times 2,100 \times 5 = 21,000$ CZK.

Next month will be 1 flat sold, the cost are $1 \times 2,100 = 2,100$ CZK. 1 flat is still unsold and this situation is planned to remain for next 2 months, the cost are $2 \times 2,100 = 4,200$ CZK.

Ater these 2 month the last flat will be sold and the maintenance costs end. The total costs are $21,000 + 8,400 + 6,300 + 4,200 + 21,000 + 2,100 + 4,200 = \mathbf{67,200}$ CZK.

6.5.6 Costs of external financing

It is also necessary to take into account the effect of the method of external financing. According to the information of a bank employee approving loans for banking institute (his name will not be mentioned), this kind of project could get a loan with an interest rate of approximately 4.5% p.a. It is necessary to calculate that the bank loan could not be more than 70% of the total costs of the project (30% must be invested from own financial resources). Interests are calculated daily and are payable on the last day of the



month. The bank loan is provided to the entire business plan for the project, which includes all costs associated with the project (Hard Costs and Soft Costs).

There are two important conditions of the banking institution. The first condition for granting a loan is pre-sale of the flats where the bank requires that 30% of the flats of the project are booked by clients by Reservation contracts. The second condition is the investment of own resources (equity; 30% of total costs) first before using/getting a loan. If these two conditions are fulfilled, the bank provides the loan.

The total costs of the project without considering the cost of financing are 39,319,226 CZK. The maximum amount of the loan is 27,523,458 CZK (70% of total costs). The rest (30%) must be invested from own financial resources (11,795,768 CZK). If the planned sale of the houses occurs, there will be a lower demand for the loan. Only **21,970,883 CZK** would be enough. This will be explained in the chapter: **6.9.1.2 Cash Flow involving external sources of financing - monthly**

6.5.6.1 Payment schedule of the loan

The loan will be granted after the investment of own financial resources, at least for the remaining time of the realization period. If the planned sale of the flats occurs, there will be a possibility to repay the loan including interest, at once with the completion of realization of the project. We can assume that the sale of flats will be the same as it is planned, due to the attractiveness of the locality. Following expenses are then covered by income from the sale of remaining flats.

6.5.7 Total costs of the project shown in time

The total costs shown in time are **the Appendix No. 6** of this thesis.

6.6 Total expenditures of the project

6.6.1 Financial plan of construction production

The plan for the gradual release of finances for the construction of the building was created on the basis of information provided by the property developer Stafin a.s.. Invoicing system will be arranged with the general contractor on a thirty-day maturity,



with **the retention guarantee of 10%**. The first half of the retention guarantee will be released in the final invoice and the other half after the removal of defects and backlogs.

Table 15: Financial plan of construction production [32]

Apartment building							
Period of work	Basic price	Payment period	Amount in the protocol for the bank	Retention guarantee	For payment		
2016	June	2 322 990 CZK	2016				
	July	2 504 002 CZK		July	2 322 990 CZK	232 299 CZK	2 090 691 CZK
	August	2 564 340 CZK		August	2 504 002 CZK	250 400 CZK	2 253 602 CZK
	September	2 745 352 CZK		September	2 564 340 CZK	256 434 CZK	2 307 906 CZK
	October	3 197 882 CZK		October	2 745 352 CZK	274 535 CZK	2 470 817 CZK
	November	3 348 726 CZK		November	3 197 882 CZK	319 788 CZK	2 878 094 CZK
	December	3 258 220 CZK		December	3 348 726 CZK	334 873 CZK	3 013 853 CZK
	2017	January		2 956 533 CZK	2017	January	3 258 220 CZK
February		2 624 677 CZK	February	2 956 533 CZK		295 653 CZK	2 660 879 CZK
March		2 322 990 CZK	March	2 624 677 CZK		262 468 CZK	2 362 209 CZK
April		1 779 953 CZK	April	2 322 990 CZK		232 299 CZK	2 090 691 CZK
May		543 037 CZK	May	1 779 953 CZK		177 995 CZK	1 601 958 CZK
			June	543 037 CZK		54 304 CZK	488 733 CZK
Total monthly invoices:	30 168 700 CZK	Total payments:	30 168 700 CZK	Total retention guarantee:	3 016 870 CZK	27 151 830 CZK	
Release of first half of retention g.:				June 2017		1 508 435 CZK	
Release of second half of retention g.:				July 2017		1 508 435 CZK	
					Total:	30 168 700 CZK	

6.6.2 Expenditures shown in time

Other expenditures are expected with a thirty-day-payment of invoices and release of finances in the final maturity date.

The total expenditures shown in time are **the Appendix No. 7** of this thesis.

6.7 Project revenues

Revenues will consist only of own project activities, i.e. from the sale of flats (garages or parking spaces will be sold together with a flat) to end customers. The length of the sale period is my estimation, but based on my past experience. The plan is still the same: pre-sale of 8 flats before starting the project realization, sale of other 11 flats during the realization of the project and after completion of the project the sale of 5 remaining flats within 12 months.



Table 16: Presumed sale of the flats

		Number of flats	Notes
2015	June	0	
	July	0	
	August	0	
	September	0	
	October	0	
	November	0	
	December	0	
2016	January	0	Pre-sale
	February	0	
	March	3	
	April	3	
	May	2	
	June	1	Realization of the project
	July	1	
	August	1	
	September	2	
	October	0	
	November	1	
	December	0	
	2017	January	
February		0	
March		2	
April		2	
May		1	
June		0	
July		1	Sale of the the last flats
August		1	
September		1	
October		0	
November		0	
December		0	
2018	January	0	Sale of the the last flats
	February	0	
	March	1	
	April	0	
	May	0	
	June	1	
Σ		24	



The prices of the flats are made up as follows:

Table 17: Creation of flat prices

Storey	Flat number	Total area of the flat m ²	Floor area m ²	Uniform price of usable area per m ² incl. VAT	Balcony area m ²	Uniform price of terraces per m ² incl. VAT	The area of cellars m ²	Uniform price of cellar per m ² incl. VAT	Price of the land divided between the flats	Final flat price incl. VAT	Final flat price excl. VAT (15%)
GF	Studio 1	62,78	59,28	31 000 CZK	0	18 000 CZK	3,5	15 000 CZK	210 520 CZK	2 100 700 CZK	1 826 696 CZK
	Studio 2	58,99	55,49	31 000 CZK	0	18 000 CZK	3,5	15 000 CZK	210 520 CZK	1 983 210 CZK	1 724 530 CZK
1st Floor	1.01	66,81	61,68	33 000 CZK	1,63	18 000 CZK	3,5	15 000 CZK	210 520 CZK	2 327 800 CZK	2 024 174 CZK
	1.02	71,59	62,16	33 000 CZK	5,93	18 000 CZK	3,5	15 000 CZK	210 520 CZK	2 421 040 CZK	2 105 252 CZK
	1.03	48,50	40,55	33 000 CZK	4,45	18 000 CZK	3,5	15 000 CZK	210 520 CZK	1 681 270 CZK	1 461 974 CZK
	1.04	45,36	40,23	33 000 CZK	1,63	18 000 CZK	3,5	15 000 CZK	210 520 CZK	1 619 950 CZK	1 408 652 CZK
	1.05	84,54	74,26	33 000 CZK	6,78	18 000 CZK	3,5	15 000 CZK	210 520 CZK	2 835 640 CZK	2 465 774 CZK
	1.06	66,21	61,93	33 000 CZK	0,78	18 000 CZK	3,5	15 000 CZK	210 520 CZK	2 320 750 CZK	2 018 043 CZK
	1.07	40,92	37,42	32 000 CZK	0	18 000 CZK	3,5	15 000 CZK	210 520 CZK	1 460 460 CZK	1 269 965 CZK
2nd Floor	2.01	71,22	61,79	33 500 CZK	5,93	18 000 CZK	3,5	15 000 CZK	210 520 CZK	2 439 725 CZK	2 121 500 CZK
	2.02	72,44	62,16	33 500 CZK	6,78	18 000 CZK	3,5	15 000 CZK	210 520 CZK	2 467 420 CZK	2 145 583 CZK
	2.03	48,50	40,55	33 000 CZK	4,45	18 000 CZK	3,5	15 000 CZK	210 520 CZK	1 681 270 CZK	1 461 974 CZK
	2.04	48,18	40,23	33 500 CZK	4,45	18 000 CZK	3,5	15 000 CZK	210 520 CZK	1 690 825 CZK	1 470 283 CZK
	2.05	83,69	74,26	33 500 CZK	5,93	18 000 CZK	3,5	15 000 CZK	210 520 CZK	2 857 470 CZK	2 484 757 CZK
	2.06	72,25	61,94	33 500 CZK	6,81	18 000 CZK	3,5	15 000 CZK	210 520 CZK	2 460 590 CZK	2 139 643 CZK
	2.07	45,94	40,81	33 000 CZK	1,63	18 000 CZK	3,5	15 000 CZK	210 520 CZK	1 639 090 CZK	1 425 296 CZK
	2.08	45,68	40,55	33 500 CZK	1,63	18 000 CZK	3,5	15 000 CZK	210 520 CZK	1 650 785 CZK	1 435 465 CZK
3rd Floor	3.01	72,06	61,78	34 000 CZK	6,78	18 000 CZK	3,5	15 000 CZK	210 520 CZK	2 485 580 CZK	2 161 374 CZK
	3.02	71,64	62,17	34 000 CZK	5,97	18 000 CZK	3,5	15 000 CZK	210 520 CZK	2 484 260 CZK	2 160 226 CZK
	3.03	90,95	81,37	34 000 CZK	6,08	18 000 CZK	3,5	15 000 CZK	210 520 CZK	3 139 040 CZK	2 729 600 CZK
	3.05	84,55	74,27	34 000 CZK	6,78	18 000 CZK	3,5	15 000 CZK	210 520 CZK	2 910 240 CZK	2 530 643 CZK
	3.06	71,42	61,94	34 000 CZK	5,98	18 000 CZK	3,5	15 000 CZK	210 520 CZK	2 476 620 CZK	2 153 583 CZK
	3.07	48,76	40,81	33 500 CZK	4,45	18 000 CZK	3,5	15 000 CZK	210 520 CZK	1 710 255 CZK	1 487 178 CZK
	3.08	45,68	40,55	33 500 CZK	1,63	18 000 CZK	3,5	15 000 CZK	210 520 CZK	1 650 785 CZK	1 435 465 CZK
	Σ	1518,66	1 338		96		84			52 494 775 CZK	45 647 630 CZK
										(incl. VAT)	(excl. VAT)

6.7.1 Payment schedule of the buyer

There can occur 3 variants of the process of selling flats with garages or parking spaces:

- If a client expresses interest in buying the flat before the realization of the project, he/she signs a reservation contract and subsequently pays a reservation fee of 50,000 CZK. Within 14 days from the start of realization of the construction client signs a contract for the future purchase contract and pay a deposit of 20% of the purchase price of the flat. The remaining 80% the client pays on the day of handovering a finished flat and subsequently signs the purchase the contract. This final payment is reduced by a booking fee.
- If a client expresses interest in buying the flat during the realization of the project, he/she signs a reservation contract and subsequently pays a reservation fee of 50,000 CZK. Within 14 days the client signs a contract for a future purchase contract and pay a deposit of 20% of the purchase price of the flat. The remaining 80% of the client pays on the day of handovering a finished flat, before signing the contract. This final payment is reduced by a booking fee.



6. If a client expresses interest in buying the flat during the realization of the project, he/she signs a reservation contract and subsequently pays a reservation fee of 50,000 CZK. Within 14 days the client signs a contract for a future purchase contract and pay the full amount of the purchase price of the flat, reduced by a booking fee. Subsequently, the client signs a purchase contract. There is a possibility of the payment of the full purchase price without the antecedent reservation fee.

If there occurs the option 1 and 2, 20% of the purchase price will be deposited in an account of the lending bank. Although the account is held in the name of the investor, however, the investor will not be able to deal with money until proves the realization of the project. The release of the finances will happen subsequently. Then these financial resources will be used primarily to repay the loan to the bank. Thanks to daily interest is advantageous for the investor to repay the debt in the shortest possible time.



6.8 Business plan

Table 18: Business plan [32]

BUSINESS PLAN - Apartment building				The date of preparation: 30.3.2015	
Item	Cost item	Quantity	Unit	Price for unit	Price excl. VAT
HARD COSTS					
1	Defining the objectives of the project	1,00	gross	0 CZK	0 CZK
2	Project documentation and getting all approvals	1,00	gross	1 050 000 CZK	1 050 000 CZK
3	Price of the land	1,00	gross	5 263 000 CZK	5 263 000 CZK
4	Charges for network providers (ČEZ,..)	1,00	gross	350 000 CZK	350 000 CZK
5	Site preparation, demolition work	1,00	gross	550 000 CZK	555 500 CZK
6	Realization of the buildings (VAT 15%)	1,00	gross	27 415 000 CZK	27 689 150 CZK
7	Infrastructure and paved areas (VAT 21%)	1,00	gross	1 905 000 CZK	1 924 050 CZK
8					36 831 700 CZK
SOFT COSTS					
9	External financing	1,00	gross	683 666 CZK	683 666 CZK
10	Real estate and advertising activities	2,50	% from unit 24 + 60000	487 781 CZK	1 279 452 CZK
11	Overhead costs	1,00	gross	408 000 CZK	408 000 CZK
12	Cost of Occupational Health and Safety coordinator	1,00	gross	57 000 CZK	57 000 CZK
13	Technical supervision (for the investor)	2,00	% from units 5+6+7	301 687 CZK	603 374 CZK
14	Legal services	25,00	gross	2 500 CZK	72 500 CZK
15	Maintenance costs of unsold houses	1,00	gross	67 200 CZK	67 200 CZK
16					3 171 192 CZK
17	Σ COSTS				40 002 892 CZK
REVENUES					
	Revenues item	Quantity	Unit	Price for unit incl. VAT	Revenues excl. VAT 15%
18	Sale of all the flats - floor space	1 338	m2	31000-34000 CZK	
19	Sale of commercial space	0	m2	0 CZK	
20	Sale of terraces, balconies	96	m2	18 000 CZK	
21	Sale of cellars	84	m2	18 000 CZK	
					45 647 630 CZK
22	Sale of the garages	7	piece	200 000 CZK	1 217 391 CZK
23	Sale of the parking spaces	20	piece	110 000 CZK	1 913 043 CZK
24	Σ REVENUES				48 778 065 CZK
25	PLANNED PROFIT				8 775 173 CZK

6.9 Cash Flow

With knowledge of the revenues and expenditures of the various phases is possible to build Cash Flow which consists of the subtraction between these values. Based on CF is possible to create a Discounted Cash Flow (i.e. CF taking into account the time value of money), Cumulative Cash Flow (summing up revenues and expenditures throughout the project) and the Cumulative Discounted Cash Flow.



6.9.1.1 Effectiveness of the project – discounted CF

Project evaluation is performed using the Net Present Value (NPV) which is computed as the Cumulative Discounted Cash Flow. **Effect of external financing is not included.** If $NPV > 0$, the investment can be recommended. Furthermore, if the $IRR > \text{Discount Rate}$, the investment may be recommended.

The discount rate represents the value of the Risk-free Rate of return (based on the average rate of return offered by the Czech government bonds, which are called risk-free and the value of risk rate).

The total amount of the current discount rate corresponds to 6.8% per annum [29], [30].

Table 19: Effectiveness of the project

Year	Expenditures	Revenues	CF	Discounted CF	Cumulative CF	Discounted Cumulative CF
2015	6 385 000 CZK	0 CZK	-6 385 000 CZK	-6 385 000 CZK	-6 385 000 CZK	-6 385 000 CZK
2016	16 260 496 CZK	5 984 290 CZK	-10 276 205 CZK	-9 621 915 CZK	-16 661 205 CZK	-16 006 915 CZK
2017	16 481 009 CZK	38 728 936 CZK	22 247 927 CZK	19 505 049 CZK	5 586 722 CZK	3 498 134 CZK
2018	192 721 CZK	4 064 839 CZK	3 872 118 CZK	3 178 592 CZK	9 458 840 CZK	6 676 726 CZK
Σ	39 319 226 CZK	48 778 065 CZK	9 458 840 CZK	6 676 726 CZK		
IRR	25,2%				Investment is acceptable:	YES
Discount rate	6,8%					

Figure 31: Cash Flow

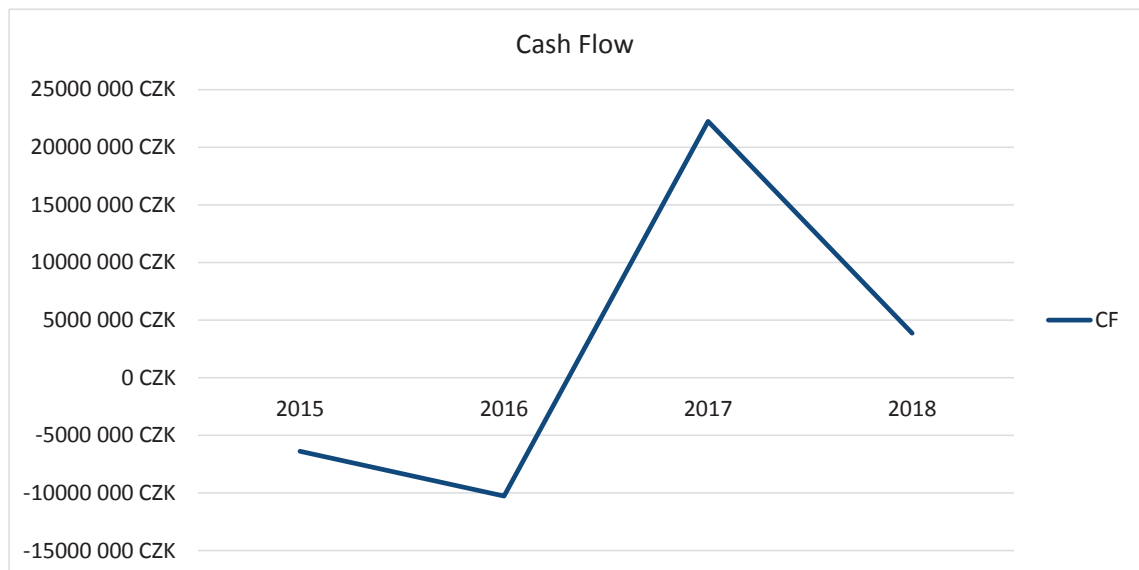




Figure 32: Discounted Cash Flow

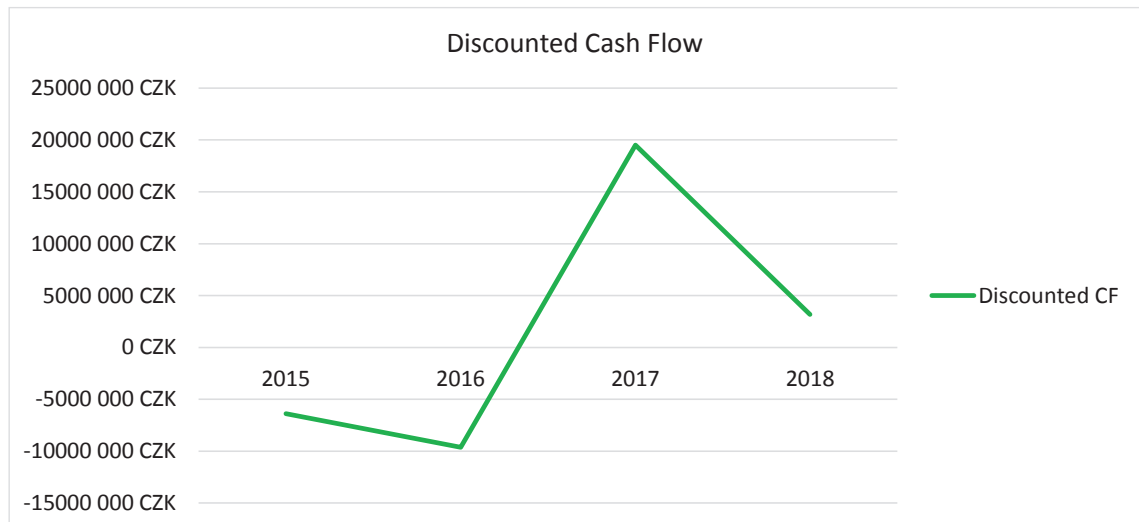


Figure 33: Cumulative Cash Flow

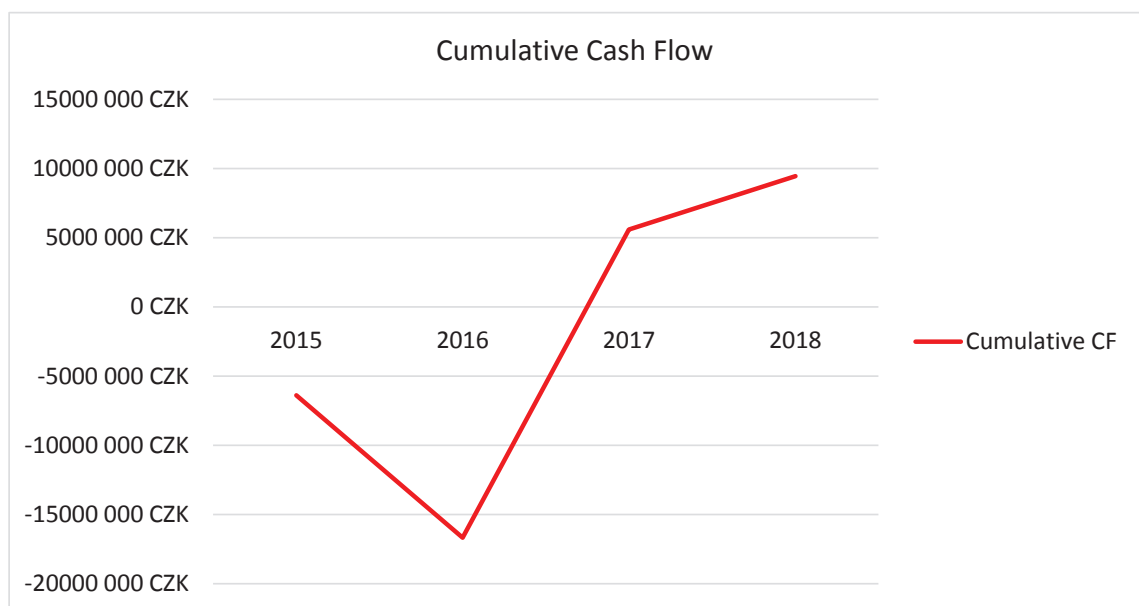
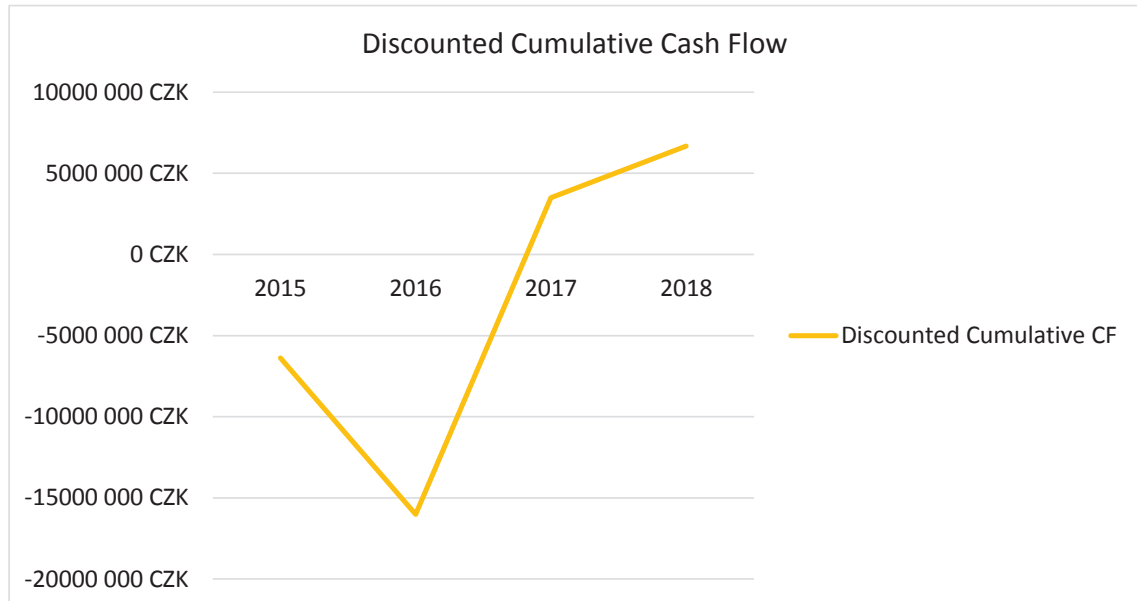




Figure 34: Discounted Cumulative Cash Flow

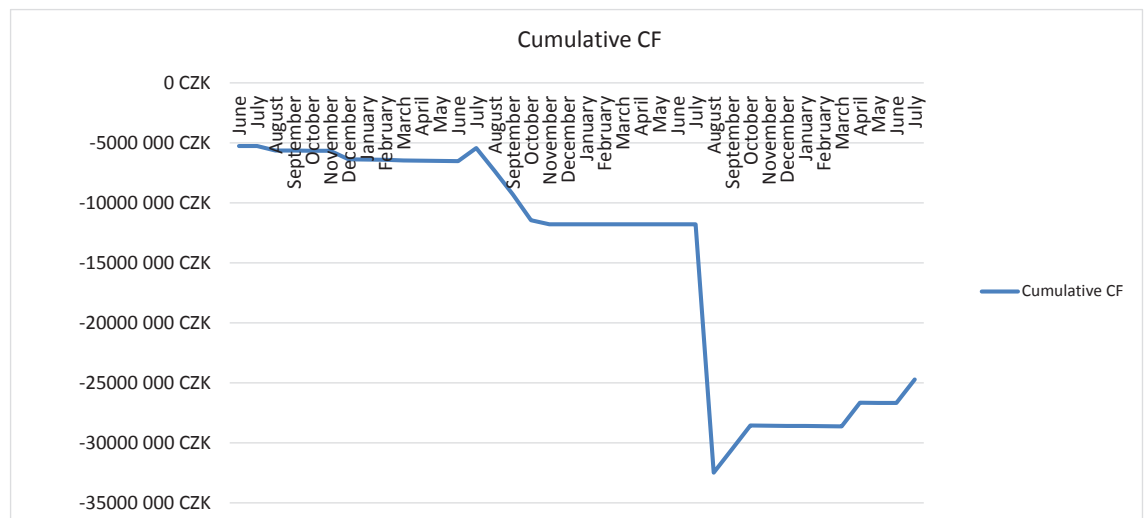


It follows that $NPV = 6,676,726$ CZK. This means that without considering the influence of external financing the project can be recommended. The calculated Internal Rate of Return corresponds to $25.2\% > \text{Discount Rate } 6.8\%$.

6.9.1.2 Cash Flow involving external sources of financing - monthly

Cash Flow involving external sources of financing is the **Appendix No. 8** of this thesis.

Figure 35: Cumulative Cash Flow





6.10 Risk Management

Risks are processed within the risk management. Each risk is assigned with a number, ratings and severity. Then the risks are displayed in the risk matrix and thus classified according to their severity. Then there is an evaluation of collected information and proposed step to mitigate, either the probability of occurrence or their impact on the project [31].

6.10.1 Risks

All the risks of the project can not be checked. Therefore, as part of this investigation, there were selected only the most significant risks that could arise during realization.

1. Poor communication with authorities
2. Not obtaining the site permit
3. Not obtaining the construction approval
4. Major exceedance of construction costs
5. Failure in planned saleability
6. Sharp decline in prices per m² of the house floor
7. Other legislative issues
8. Change of social policy
9. Failure in obtaining sufficient external finances
10. High interest rate of external financing



6.10.2 Risk assessment

Table 20: Severity and probability of risks

Severity	
5	Negative consequence is fatal.
4	Negative consequence is big.
3	Negative consequence is intermediate.
2	Negative consequence is small.
1	Negative consequence is minimal.

Probability of occurrence	
1	Occurrence is certain.
0,8	Occurrence is predicatable.
0,6	Occurrence is likely.
0,4	Occurrence is unlikely.
0,2	Occurrence is more than unlikely.
0	Can not occur.

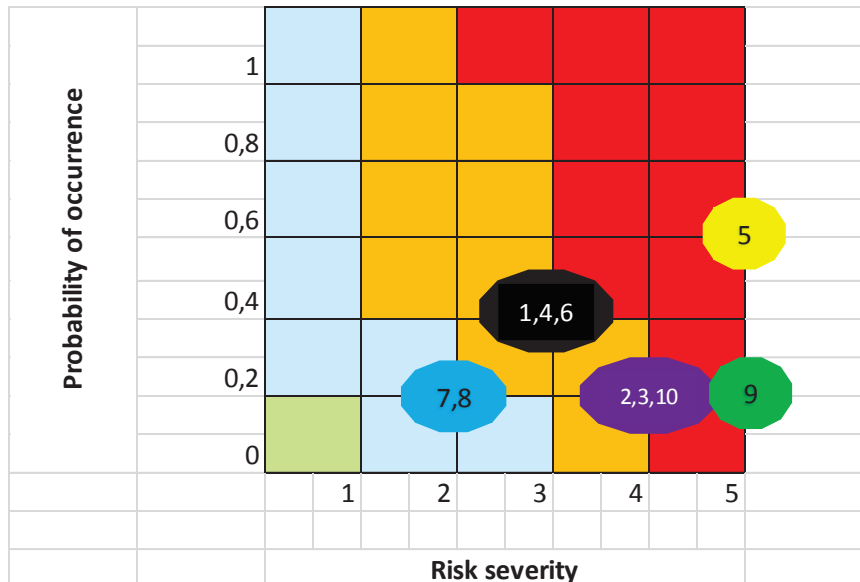
Table 21: Risk assessment

Selected Risks		Severity	Probability of occurrence
1	Poor communication with authorities	3	0,4
2	Not obtaining the site permit	4	0,2
3	Not obtaining the construction approval	4	0,2
4	Major exceedance of construction costs	3	0,4
5	Failure in planned saleability	5	0,6
6	Sharp decline in prices per m2 of the usable floor	3	0,4
7	Other legislative issues	2	0,2
8	Change of social policy	2	0,2
9	Failure in obtaining sufficient external finances	5	0,2
10	High interest rate of external finances	4	0,2
Average:		3,5	0,3



6.10.3 Risk matrix

Table 22: Risk matrix



	Risks of the highest level of threat to the project
	Risks of the medium level of threat to the project
	Risks of the low level of threat to the project
	Risks completely negligible

6.10.4 Risk assessment

It should be noted that most of the risks borders on the highest level of threat to the project. The greatest risk (and its occurrence is likely) is the failure of saleability of flats with garages or parking spaces. Saleability can be divided into two parts. Firstly saleability which is closely related to the pre-investment stage of the project. If the marketing campaign and associated efforts of real estate agents and the property developer does not provide pre-sales (signed reservation contract) at least of eight flats, the bank refuses to provide loan and it is not possible to run the project. Secondly, if there is not a compliance with planned flat saleability in the range of 8 flats in the pre-investment phase, 11 flats during realization and 5 flats within twelve months after the final building approval, there will be a delay of repaying the loan including interests. This has a result in a slower reduction in the interest base and due to that growing interests. With unsold flats are also associated maintenance costs and corporate overhead. All together will result in reduced profitability of the project.



Another main risk is the failure to obtain a sufficient amount of external finance. The impact of this risk can not be mitigated (will always be fatal) but can be mitigated the probability of occurrence by the timely negotiation with banking institutions. An important factor is also a consultation with more competitive institutions. The result is not only the reduction of the likelihood of the risk but also to find the most favorable conditions.

6.11 Conclusion and evaluation of the project of block of flats

The project of block of flats presents a risk for the investor but this risk is not too serious but on the other hand not minimal. The main problem may be the saleability of flats but due to the attractiveness of location, this problem is noticeably eliminated.

Estimated profit in compliance with the plan of saleability of houses is 8,775,173 CZK. IRR of the project is 25.2% which is higher than the total amount of the discount rate of 6.8%. Investment may be recommended.



7 Administrative building

Figure 36: Visualization of the project of the administrative building [34]



7.1 The charter of the basic definition of the project

Name of the property development project:

Administrative building, Nepomucka, Pilsen

Address:

NEPOMUCKA, PILSEN

Written by:

Ing. Lukáš Nový

Purpose of the project:

To generate the profit from the lease of offices and parking spaces.



Description of objects:

The main aim is the construction and subsequent lease of 4 storey office building (1 floor below ground, 3 floors above ground). In the basement there are 30 parking spaces and in front of the building there are 9 parking spaces. 3 floors above ground offers 2050 m² of floor space for rent [34].

The presumption:

Planned costs from the project's budget are: 91,004,481 CZK.

Planned total revenues are: 98,573,603 CZK (after 10 years of using the building).

Planned profit is 7,569,122 CZK or 8.32% from planned costs (after 10 years of using the building).

Expected start of the project is the beginning of June 2015.

Expected finish of the project (investment phase) is January 2018.

Expected interest rate is equal to 5.0% p.a.

Own financial sources and external financial sources are expected in the ratio of 30:70%.

The construction will be delivered by a general contractor who will be responsible for the quality of the performed work.

The aim of the project:

Achieve maximum profits from the lease of offices and parking spaces

Major milestones: (day/month/year)

Start of the project:	1/6/2015
Acquirement of the site permit:	29/1/2016
Acquirement of the construction permit:	27/5/2016
Start of the realization of the construction:	1/8/2016
End of the realization + final building approval:	31/1/2018

Restrictions:

The amount which shall not be exceeded is 92,000,000 CZK.



The deadline of the completion of works is very important. It is considered a sufficient reserve for getting a site and construction permit. General contractor will be motivated to meet the deadline with sanctions.

Compliance with the ČSN (Czech Technical Standards) is taken for granted. The general contractor is responsible for his actions at the construction site.

The important point is to obtain a sufficient amount of external finances. Failure in approving the loan will have a fatal impact on the realization of the project.

7.2 Description of the plot

See Chapter: **5.2 Description of the plot**

7.3 Overall description of the project

The aim of the project is the construction of 4 storey office building (1 floor below ground and 3 floors above ground) with a flat roof. The building will have a living architecture that will be provided by movable aluminum blinds. Another significant architectural element will be a green atrium with live greenery and running water. This element will be supplied by outer greenery. Along with the use of solar energy, the building will have a relationship to nature. The atrium with a spring has a great importance for a suitable working environment and work effort of staff. In addition, the orientation of meeting rooms to the representative atrium has a great commercial importance.

The main entrance to the building is from Nepomucká street. The driveway to the building is from the street U Českého dvora and leads to the basement, where are 30 parking spaces. From the basement stairs and elevator lead up to the third storey. In the basement there is also an archive and a utility room. The first floor consists of the main entrance, reception, office space and toilets. The 2nd and 3rd floor consists of office space, meeting rooms and toilets. The 3rd floor, moreover, includes a terrace. Offices are considered in the style of open-space. In the case of interest it is possible to divide the space with glass or plasterboard partition walls. In the middle of the building is situated



atrium with greenery and running water, which is not covered. The entire building is air-conditioned.

The basic dimensions of the building are 36.4 x 36.4 x 11.1 m. The total volume of the building is 19,834 m³. The whole office space for rent is 2,050 m².

The building is a reinforced concrete structure based on piles.

The outer surfaces are covered with grass, part of the plot will be planted with trees. New sidewalks around the building will consist of interlocking tiles, entrance to the garage will have a tarmac surface, outer parking areas will be created by grass pavers. The plot is not fenced.

The building is not considered as passive. Heating is provided by gas boiler. Water heating is supported by solar panels located on the roof of the building.

The building is decorated in red and gray colors. The facade is formed by glass walls with adjustable aluminium blinds [34].



Figure 37: Situation of the project [34]





Figure 38: Visualization of the project - view from above [34]

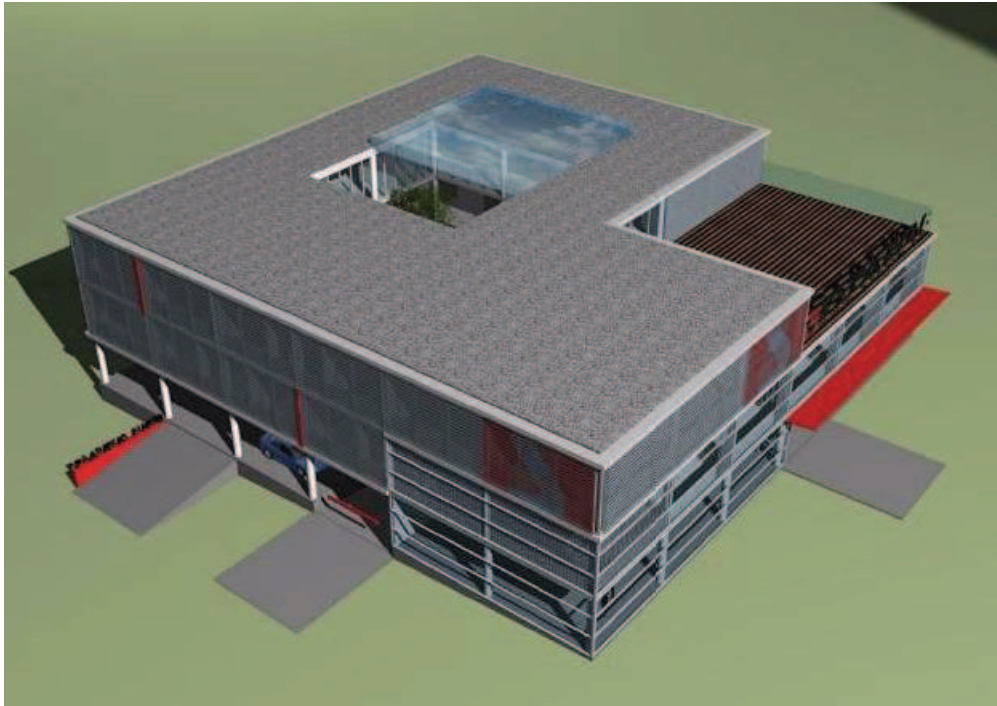


Figure 39: Visualization of the project - front view [34]





Figure 40: Basement plan [34]

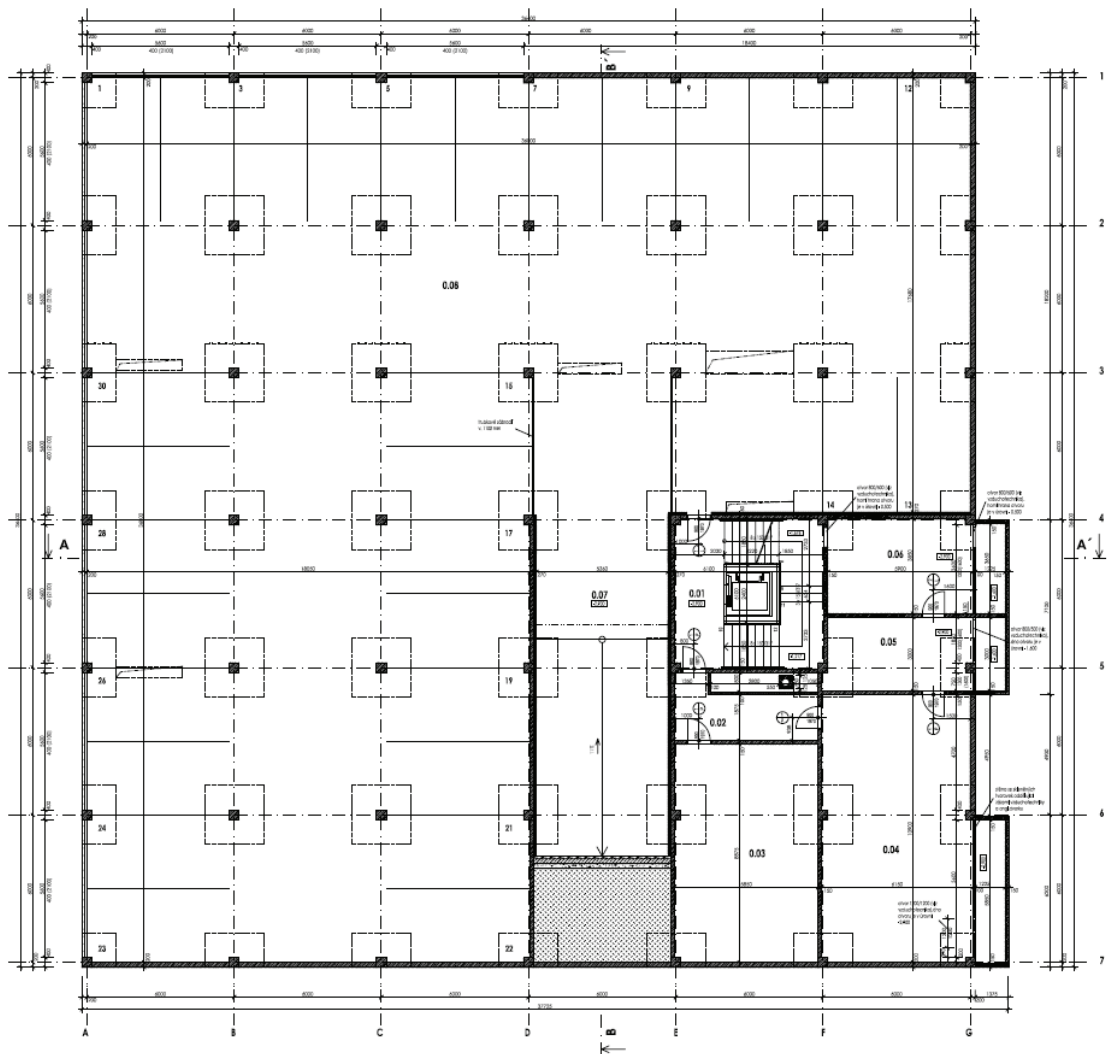




Figure 41: Ground plan [34]

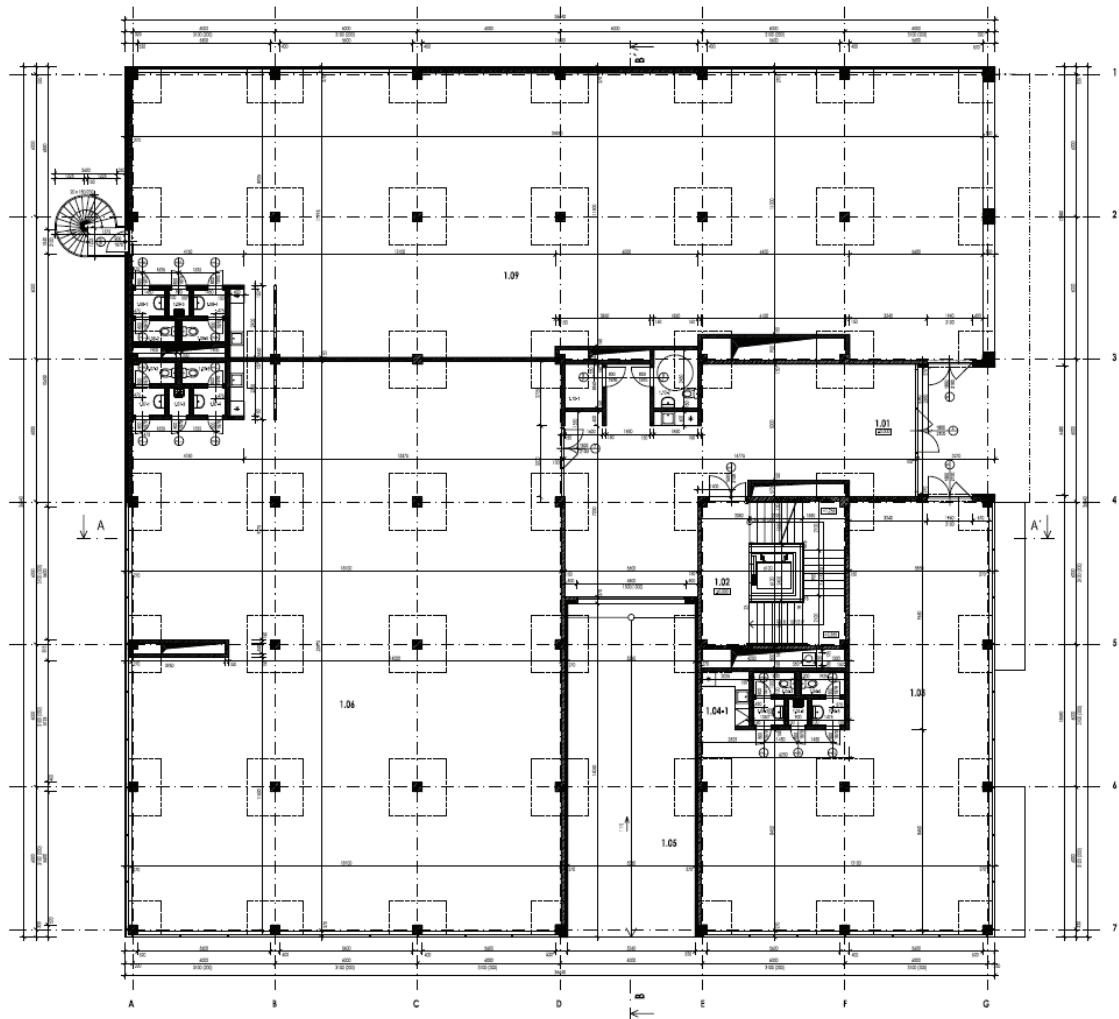




Figure 42: Second floor plan [34]

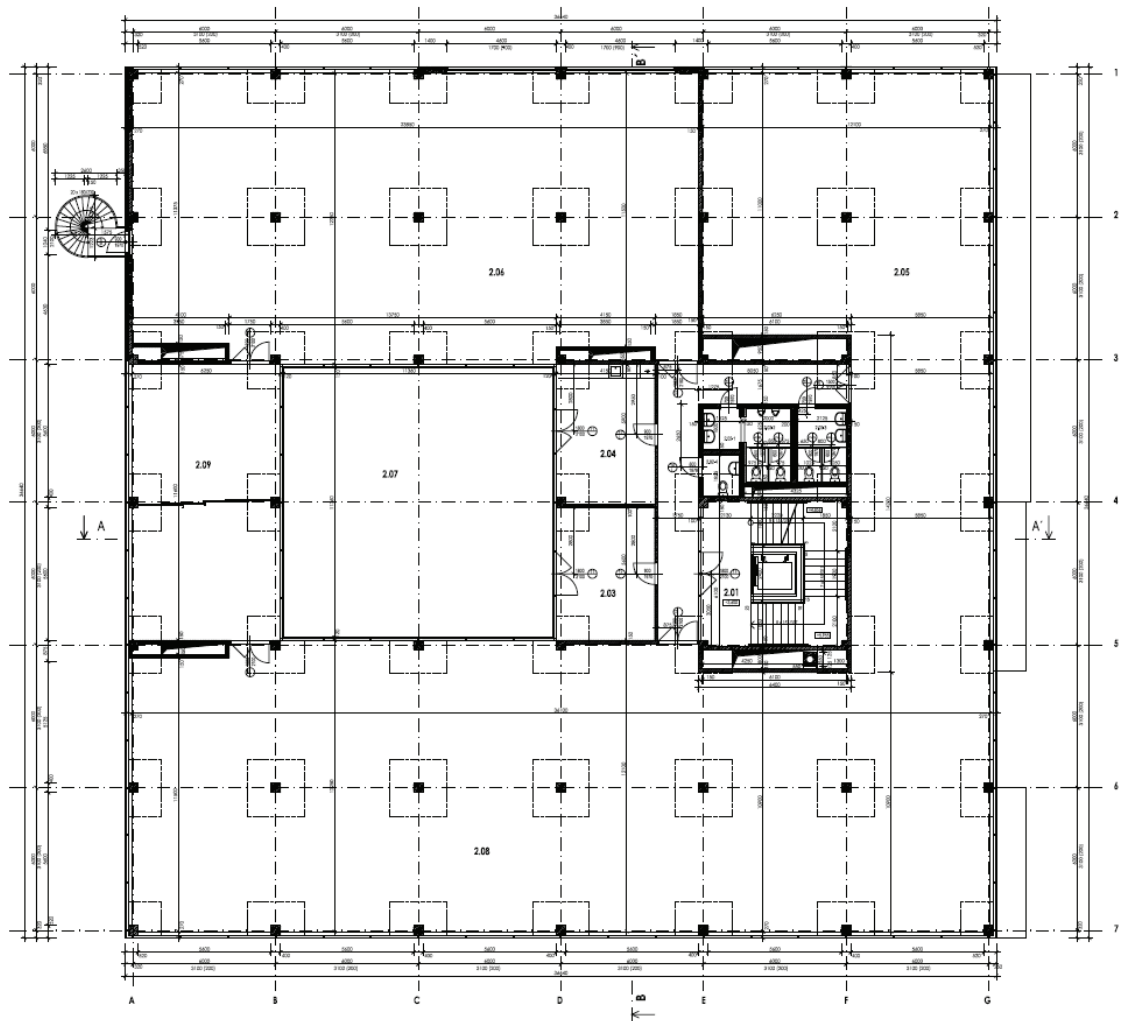




Figure 43: Third floor plan [34]

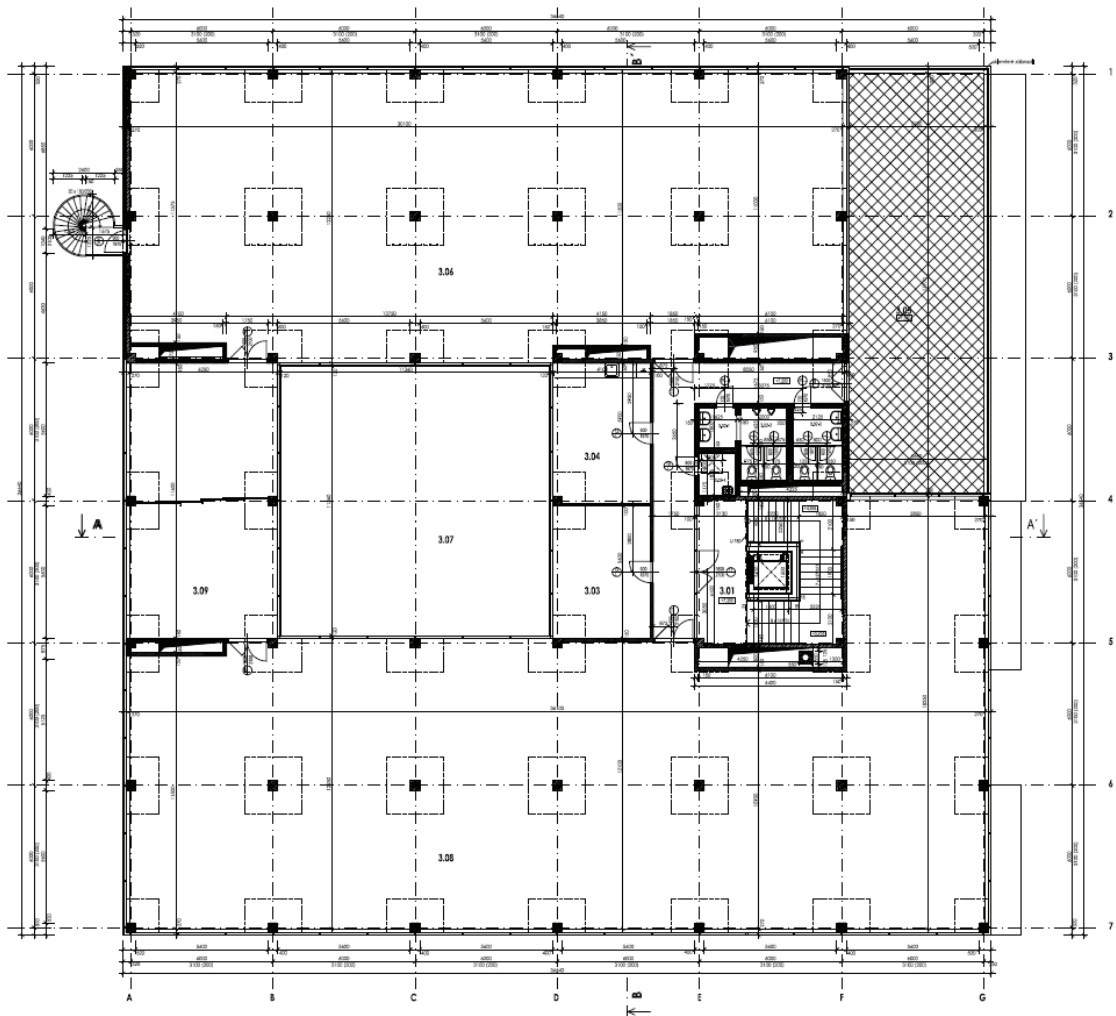


Figure 44: Section A-A [34]

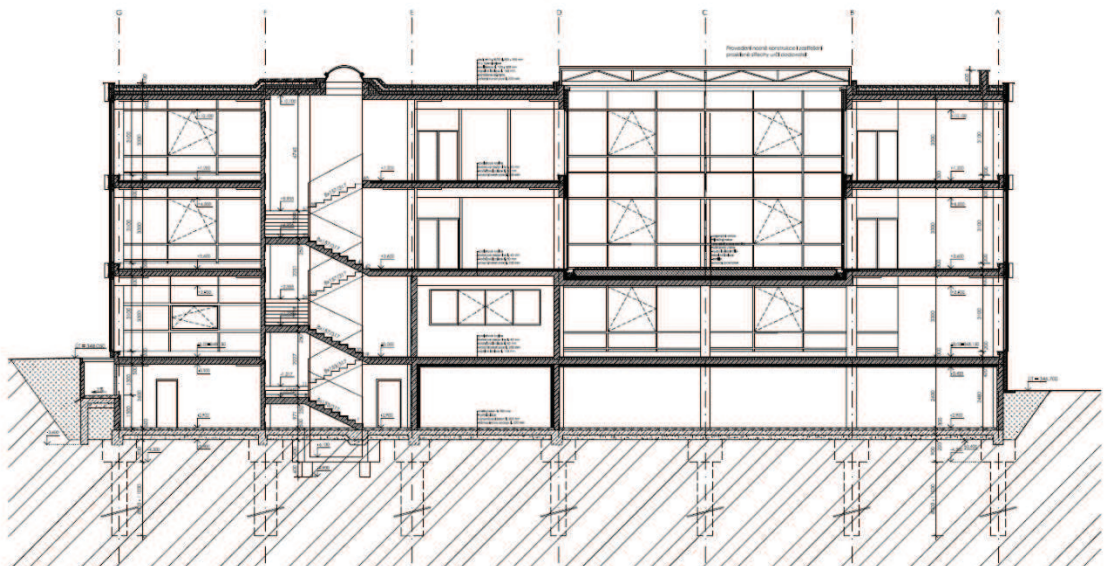
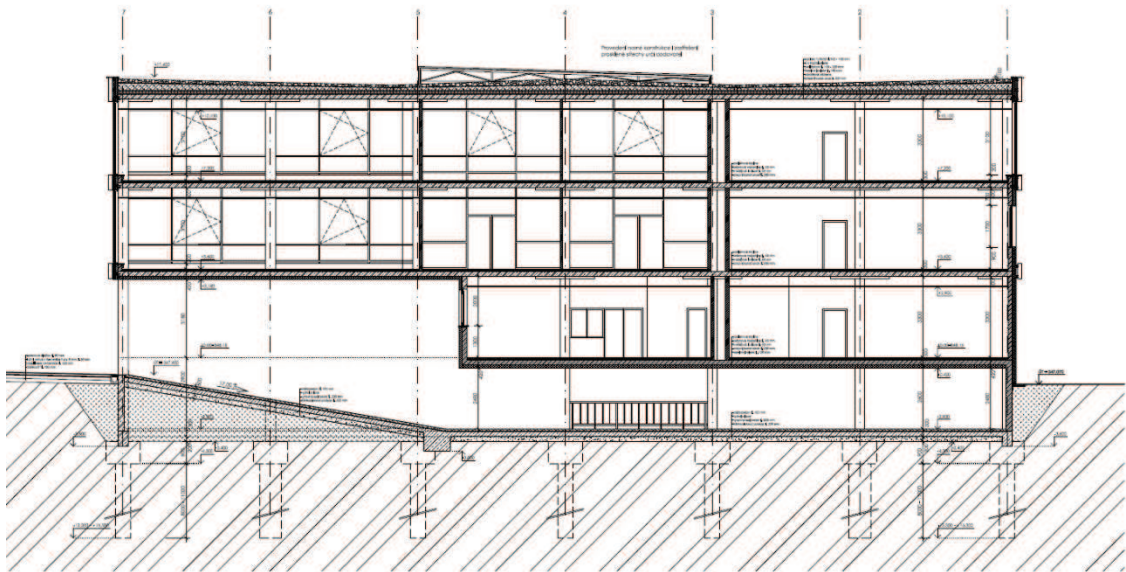




Figure 45: Section B-B [34]



7.4 Market analysis

See Chapter: **5.4 Market analysis and marketing concept**

7.5 Project costs

All of the costs which will be listed in the following chapter do not include VAT.

The individual cost items are based on the pre-budget that was given to me by the company Stafin a.s.



7.5.1 WBS – Work breakdown structure

7.5.1.1 The principle of the creation of WBS

7.5.1.1.1 WBS for the project of block of flats

Table 23: WBS for the administrative building

Lease of offices in the administrative building with profit	1 Pre-investment phase	1.1 Defining the project goals	1.1.1 Market research
			1.1.2 Create a feasibility study
			1.1.3 Create a business plan
		1.2 Obtaining the project documentation	1.2.1 Tendering the contractor of the project documentation
	1.2.2 Contracting the contractor of the project documentation		
	1.3 Obtaining external finances	1.3.1 Getting a bank loan	
	1.4 Obtaining the site permit	1.4.1 Statements of concerned government authorities and other concerned parties	
		1.4.2 Application for the site permit	
	2 Investment phase	2.1 Time-schedule of the construction	2.1.1 Construction organization plan
		2.2 General contractor	2.2.1 Tendering the general contractor of the construction
			2.2.2 Contracting the general contractor of the construction
		2.3 Obtaining the construction approval	2.3.1 Statements of concerned government authorities and other concerned parties
			2.3.2 Application for the construction approval
		2.4 Handover of the construction site	2.4.1 Handover protocol
	2.4.2 List of defects and unfinished tasks		
	2.5 Construction approval	2.5.1 Application for the construction approval	
		2.5.2 Documentation of the actual construction	
3 Phase of lease of offices	3.1 Lease of offices	3.1.1 Contracting the real-estate company	
		3.1.2 Marketing campaign	

7.5.2 Project schedule

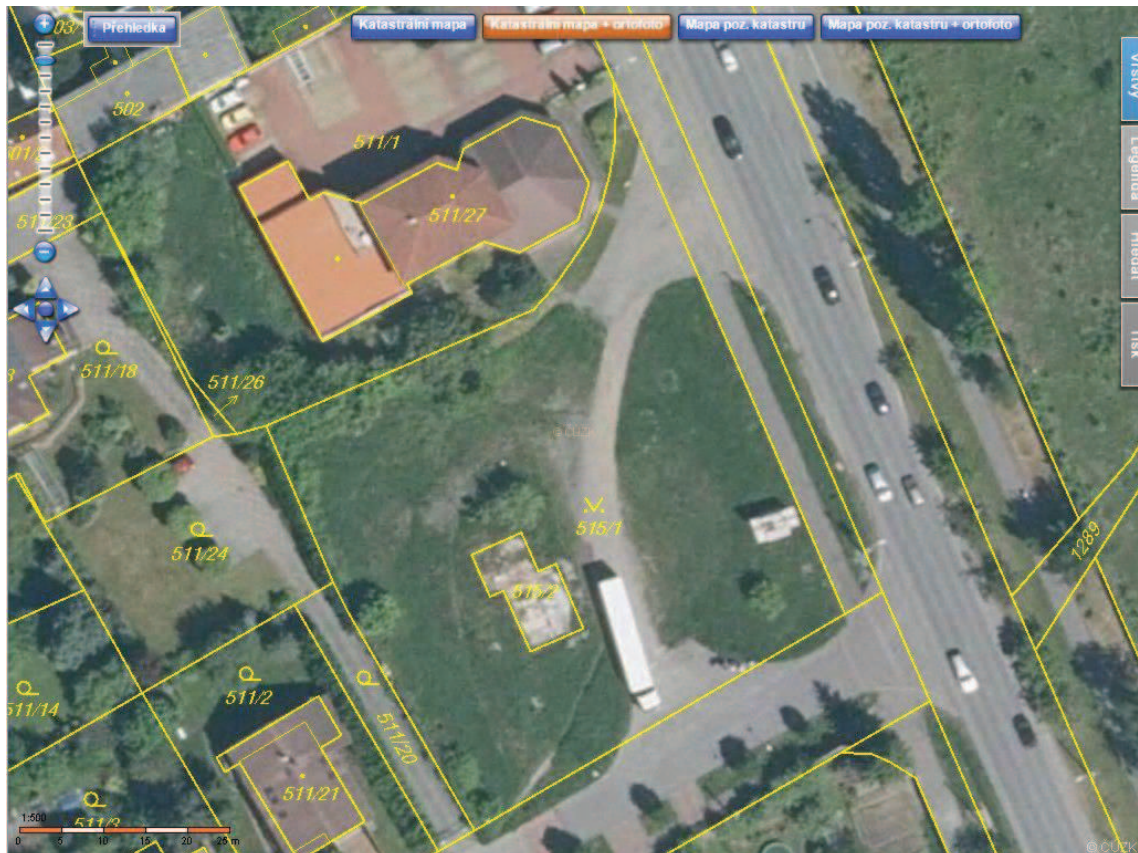
The schedule was compiled using software Microsoft Office Excel 2013 and is **the Appendix 9** of this thesis.

It is clear from the schedule that the pre-investment phase lasts 14.5 months and ends by obtaining a loan from a bank which is required for realization of the project. At the same time pre-investment phase overlaps the investment phase. Investment phase lasts 23.5 months (presale and realization). The realization of the building lasts 18 months. Overall, to carry out the project, it takes 32 months (2 years and 18 month). Then starts the phase of using the building. Here is beautifully visible the most important fact for investors: a property development project is long-term issue.

7.5.3 Price of the plot

The price of the plot is clearly stated because the company Stafin a.s. bought it in 2010 at the price of **5.263 million CZK** [34].

Figure 46: Cadastral map [26]



7.5.4 Hard Costs

7.5.4.1 The cost of the project documentation, exploration work and obtaining all of the permits

Estimated cost of project documentation for site permit and then one step project documentation (which includes documentation for building permits and documentation for realization). All the other permits are included in this costs (site permit, construction permit, construction approval). The whole package was set at **1,050,000 CZK** [34].

7.5.4.2 Charges for network providers

Charges for network providers, which is e.g. the electricity provider ČEZ, were estimated at **480,000 CZK** [34].



7.5.4.3 Site preparation and demolition work

The tentative cost of the site preparation, where will be necessary to remove the current hard surfaces (asphalt, concrete), then remove the topsoil and flatten the terrain, was calculated in pre-budget, which was created in 2014. The realization of semi-detached houses or the block of flats or the office building is planned in 2016. I was wondering what the trend in prices of construction standards is. On the internet portal Czech construction standards there are these tentative technical - economic indicators available. Price indicators are an essential element for construction budgets. Based on long-term statistics of budgets of structures (Basic Budget Costs) and do not contain Secondary Budget Costs (territory influences, site equipment or other influences pertaining to the cost of construction). The final prices do not include VAT and the deviation of the actual future prices can be up to 25%. The basic unit of measurement for the field of civil engineering is m^3 of total volume of the building [27].

I classified the administrative building as Buildings for living, then the Buildings with the vertical supporting structure from prefabricated panels and then as the Buildings for governance, management and administration. In 2014 there was an increase in the price indicators in m^3 of the volume of the building by 1.38%, namely from 6,076 CZK / m^3 to 6,160 CZK / m^3 . In 2015 the price index increased by 1.02%, namely from 6,160 CZK / m^3 to 6,223 CZK / m^3 [27].

My personal estimate is that the price indicator will increase by 1% in 2016 compared to 2015.

The total cost of site preparation and demolition work were set in the pre-budget from 2014 (the intended launch of the project was planned to be in 2015) at 650,000 CZK. I will respect the 1% increase in construction costs and total cost of preparation and demolition work is **656,500 CZK**.

7.5.4.4 The costs of realization of the buildings

According to the Czech construction standards for 2015 is the price for 1 m^3 6,223 CZK. The total volume of the block of flats is 19,834 m^3 . Total costs are 19,834 x 6,223 = 123,426,982 CZK without VAT.



According to the pre-budget, even considering a 1% increase in the cost of construction work, the costs of the realization of complete constructions are **69,271,006 CZK** [34].

The deviation from the estimation of Czech construction standards is 78% which is surprisingly high.

7.5.4.4.1 Material inputs and energy

The material used for the construction of administrative building is commonly available and its availability is not a problem. This risk will be minimized by instructing the general contractor for the timely tender of subcontractors. In case of any problems during the delivery of the technology or construction materials is possible a substitutions for other manufacturers. The crucial factor for choosing will be the quality and price of the material. If the general contractor proves that another product of the same quality is available to buy at a reduced price, the change could happen after agreeing of Technical supervision of the investor.

7.5.4.5 Infrastructure and paved areas

This section includes cost items such as sidewalks, roads, parking areas, traffic signs, gas pipe, water supply pipe, sewerage, electrical connections and subsequently landscaping (grass, trees). These costs were calculated, after a price increase of 1%, at **2,981,050 CZK** [34].

7.5.5 Soft Costs

Among the Soft Costs are included overhead costs, external staff, advertising and legal services, the maintenance costs of the building and costs for running the reception.

7.5.5.1 Overhead costs

This work will use significantly inaccurate designation of overhead costs. Overhead costs are considered as the salary of employees who are employed in the company Stafin a.s. and participate on the project.

For the run and organization of the project will be used one employee on the position called property development manager. He/she will be paid with a regular salary from the profits from previous property development projects. The work of this employee is awarded 36,000 CZK / month (including taxes).



- In the first 32 months of the projects he/she will theoretically spend 1/4 of working hours on this project. So the costs will be $32 \times 36,000 / 4 = \mathbf{288,000 \text{ CZK}}$.
- **Remaining months** of the project he/she will theoretically spend 1/6 of working hours on this project.

It is highly important to say that overhead costs depend on Cash Flow of the project. Cash Flow will show the right length of repayment of the bank loan. The total sum of overhead costs directly relates to this length.

7.5.5.2 Cost for external workers

The external partners of the company will be used. The cost of their services are listed here:

- **Costs of Occupational Health and Safety coordinator (OHS)** will be 4750 CZK / month. He/she will be needed throughout realization of the project (12 months). The total cost of the OSH Coordinator is $12 \times 4,750 = \mathbf{85,500 \text{ CZK}}$ without VAT.
- **Costs of Technical supervision** (for the investor) consist of 2% of the total realization costs of the construction (Site preparation and demolition work, complete realization of the construction, infrastructure and paved area). Total costs for Technical supervision are $0.02 \times (656,500 + 69,271,006 + 2,981,050 \text{ CZK}) = \mathbf{1,458,171 \text{ CZK}}$
- **Costs for legal services** include fee for Owner statement (10,000 CZK) and for each lease contract the fee of 2,500 CZK. The total cost of legal services will be known after creating Cash Flow of the project. There will be clearly visible how many times contracts will be concluded depending on occupancy of the building.

7.5.5.3 The costs of real estate and advertising activities

The costs of real estate and advertising activities comprise the largest part of Soft Costs. It is so essential that it will decide the success or failure of the project. So it must be effectively spent and it is certainly not a simple discipline. It is necessary to create a media marketing plan. I encountered a variant that the property development company signs a contract with a real estate agency. The real estate company creates the media plan and the total cost of the advertising is paid by a real estate agency and not by the property



developer. There is one exception in the media plan which is the web page of the project. This is paid by the property developer, not by the real estate company.

It is essential to choose the right real estate company. It depends on the approach of real estate brokers, their effort and references. The real estate company will consult the advertising campaign and its appearance with the property developer. It is better to choose the real estate agency which is focused mainly on office buildings and which has a contact on demand of other cities and even adjacent border regions. The real estate agency has to seek for companies from every corner of the Czech Republic. From my own experience, the companies even from Prague or Brno are seeking for new branch offices in such cities as Pilsen is. Mainly due to the highway connection with Germany. I wrote about this in PEST analysis in the chapter: **5.4.2.2 Economic influences.**

The media plan is divided into 3 phases. The first phase is to gain 50% percent of the total number of clients to fulfill the conditions for obtaining a bank loan. This phase is assumed to be 6 months long.

1. Phase – possible places of advertisement (estimated costs 300,000 CZK)
 - Internet advertising – real estate company server, Sreality.cz
 - Real estate magazine in Pilsen, Prague, Brno, Ostrava
 - 2 billboards placed at appropriate locations in Pilsen
 - Radio advertisement on one of the local radio stations

The presumption of the second phase is 18 months (the period of realization).

2. Phase – possible places of advertisement (estimated costs 200,000 CZK)
 - Internet advertising – web page of the project, real estate company server, Sreality.cz
 - Real estate magazine in Pilsen, Prague, Brno, Ostrava
 - 2 billboards placed at appropriate locations in Pilsen

The presumption of the third phase is 10 months

3. Phase – possible places of advertisement (estimated costs 100,000 CZK)



- Internet advertising –real estate company server, Sreality.cz

The total cost consists of 600,000 CZK. These costs are paid by the real estate company. **The real estate company obtains a sum equal to a one month lease for each signed lease contract.** The amount of this sum depends on how many square metres are contracted. This will be clearly visible in Cash Flow.

7.5.5.4 Maintenance of the building

These costs consist of cleaning, a fee for garbage disposal, maintenance of windows, door, air-condition, elevator etc. There are not included the fees for energy (heating – gas, electricity) and for water (these fees are included in **the Appendix No. 10 Total cost of the project of the administrative building shown in time.**

The amount of these costs is my own presumption, I have no materials to prove or disprove my theory.

The monthly maintenance costs will start at the price of 7,000 CZK. This price level will last for 2 years after realization.

Following 2 years the monthly costs will be 8,000 CZK, then 9,000 CZK and so on.

The amount of these costs will be clearly visible in **the Appendix No. 10 Total cost of the project of the administrative building shown in time.** This Appendix will be created based on **the Appendix No. 12 Cash Flow of the project of the administrative building.**

7.5.5.5 Running of the reception

The administrative building will have its own reception with one employee. The reception will be opened from 6 a.m. to 6.p.m. The monthly costs are presumed to be **18,000 CZK.**

7.5.6 Costs of external financing

It is also necessary to take into account the effect of the method of external financing. According to the information of a bank employee approving loans for banking institute (his name will not be mentioned), this kind of project could get a loan with an interest rate of approximately 5.0% p.a. It is necessary to calculate that the bank loan could not be more than 70% of the total costs of the project (30% must be invested from own



financial resources). Interests are calculated daily and are payable on the last day of the month. The bank loan is provided to the business plan for the project, which includes all costs associated with the project from the pre-investment phase to the end of the realization of the construction (Hard Costs and Soft Costs). The subsequent costs have to be paid from own financial sources of the investor.

There are two important conditions of the banking institution. The first condition for granting a loan is pre-lease of the offices where the bank requires that 50% of the all the offices of the project are booked by clients by Reservation contracts. The second condition is the investment of own resources (equity; 30% of total costs) first before using/getting a loan. If these two conditions are fulfilled, the bank provides the loan.

The total costs of the project (from pre-investment phase to the end of realization) without considering the cost of financing are 82,367,586 CZK. The maximum amount of the loan is 57,657,310 CZK (70% of total costs).

The loan will be provided to the end of realization of the building (precisely to date of releasing of the last retention guarantee to the general contractor – the realization of the project ends in January 2018, the release of the retention guarantee will be in March 2018) then begins the repayment phase.

I created 3 variants of repayment of the bank loan (the whole amount of 57,657,310 CZK). It is an optimistic, realistic and pessimistic variant. I will publish only realistic variant that most closely matches with the possible occupancy (in the following chapter of this thesis). It takes into account obviously the termination of a lease contract by tenants and finding new tenants. The experience gave me the company Stafin a.s that rents a similar administrative complex mentioned in Chapter: **5.4.4.3 Rental in office building**. The shortest possible term of total repayment of the bank loan is 10 years because of the following reason. The amount of regular installments, which will be 120 (10 years, every month), will not jeopardize own financial resources of a property developer even in case of termination of a lease contract in the early stages of using the building. The amount of each installment is calculated as the amount of the loan /10 /12 + amount of interest / 10 / 12. The amount of each installment is **498,256 CZK**.

The repayment method is clearly visible in **the Appendix No. 12 Cash Flow of the project of the administrative building**.



7.5.7 Total costs of the project shown in time

The total costs shown in time are **the Appendix No. 10** of this thesis.

7.6 Total expenditures of the project

7.6.1 Financial plan of construction production

The plan for the gradual release of finances for the construction of the building was created on the basis of information provided by the property developer Stafin a.s. Invoicing system will be arranged with the general contractor on a thirty-day maturity, with the **retention guarantee of 10%**. The first half of the retention guarantee will be released in the final invoice and the other half after the removal of defects and backlogs.

Table 24: Financial plan of construction production (25)

Administrative building							
Period of work	Basic price	Payment period	Amount in the protocol for the bank	Retention guarantee	For payment		
2016	August	3 499 611 CZK	2016				
	September	4 666 148 CZK		September	3 499 611 CZK	349 961 CZK	3 149 650 CZK
	October	5 541 050 CZK		October	4 666 148 CZK	466 615 CZK	4 199 533 CZK
	November	6 270 136 CZK		November	5 541 050 CZK	554 105 CZK	4 986 945 CZK
	December	5 832 684 CZK	December	6 270 136 CZK	627 014 CZK	5 643 122 CZK	
2017	January	5 759 776 CZK	2017	January	5 832 684 CZK	583 268 CZK	5 249 416 CZK
	February	5 468 142 CZK		February	5 759 776 CZK	575 978 CZK	5 183 798 CZK
	March	5 176 507 CZK		March	5 468 142 CZK	546 814 CZK	4 921 328 CZK
	April	4 957 782 CZK		April	5 176 507 CZK	517 651 CZK	4 658 857 CZK
	May	4 884 873 CZK		May	4 957 782 CZK	495 778 CZK	4 462 004 CZK
	June	4 301 605 CZK		June	4 884 873 CZK	488 487 CZK	4 396 386 CZK
	July	3 062 159 CZK		July	4 301 605 CZK	430 160 CZK	3 871 444 CZK
	August	2 916 342 CZK		August	3 062 159 CZK	306 216 CZK	2 755 943 CZK
	September	2 624 708 CZK		September	2 916 342 CZK	291 634 CZK	2 624 708 CZK
	October	2 260 165 CZK		October	2 624 708 CZK	262 471 CZK	2 362 237 CZK
	November	2 187 257 CZK		November	2 260 165 CZK	226 017 CZK	2 034 149 CZK
	December	2 041 440 CZK		December	2 187 257 CZK	218 726 CZK	1 968 531 CZK
2018	January	1 458 171 CZK	2018	January	2 041 440 CZK	204 144 CZK	1 837 296 CZK
		February		1 458 171 CZK	145 817 CZK	1 312 354 CZK	
Total monthly invoices:		72 908 556 CZK	Total payments:		72 908 556 CZK	Total retention guarantee:	
						7 290 856 CZK	65 617 700 CZK
Release of first half of retention g.:			February 2018				3 645 428 CZK
Release of second half of retention g.:			March 2018				3 645 428 CZK
						Total:	72 908 556 CZK

7.6.2 Expenditures shown in time

Other expenditures are expected with a thirty-day-payment of invoices and release of finances in the final maturity date.

The total expenditures show in time are **the Appendix No. 11** of this thesis.



7.7 Project revenues

Revenues will consist only of own project activities, i.e. from the lease of office spaces or parking spaces to tenants.

Occupancy of the building during its use is listed in the following table.



Table 25: Occupancy of the building

		Offices	Parking spaces	Notes
2015	June	0%	0	
	July	0%	0	
	August	0%	0	
	September	0%	0	
	October	0%	0	
	November	0%	0	
	December	0%	0	
2016	January	0%	0	Prelease
	February	0%	0	
	March	0%	0	
	April	0%	0	
	May	0%	0	
	June	0%	0	
	July	50%	1/3	Realization of the project
	August	50%	1/3	
	September	50%	1/3	
	October	50%	1/3	
	November	50%	1/3	
	December	50%	1/3	
2017	January	50%	1/3	Realization of the project
	February	50%	1/3	
	March	50%	1/3	
	April	50%	1/3	
	May	50%	1/3	
	June	50%	1/3	
	July	50%	1/3	
	August	50%	1/3	
	September	50%	1/3	
	October	50%	1/3	
	November	50%	1/3	
	December	50%	1/3	
2018	January	50%	1/3	Lease
	February	75%	1/3	
	March	75%	1/3	
	April	75%	1/3	
	May	75%	1/3	
	June	75%	1/3	
	July	75%	1/3	
	August	75%	1/3	
	September	75%	1/3	
	October	75%	1/3	
	November	75%	1/3	
	December	75%	1/3	



2019	January	75%	1/3	Lease
	February	75%	1/3	Lease
	March	75%	1/3	Lease
	April	75%	1/3	Lease
	May	75%	1/3	Lease
	June	75%	1/3	Lease
	July	75%	1/3	Lease
	August	75%	1/3	Lease
	September	75%	1/3	Lease
	October	75%	1/3	Lease
	November	75%	1/3	Lease
	December	75%	1/3	Lease
2020	January	75%	1/3	Lease
	February	100%	2/3	Lease
	March	100%	2/3	Lease
	April	100%	2/3	Lease
	May	100%	2/3	Lease
	June	100%	2/3	Lease
	July	100%	2/3	Lease
	August	100%	2/3	Lease
	September	100%	2/3	Lease
	October	100%	2/3	Lease
	November	100%	2/3	Lease
	December	100%	2/3	Lease
2021	January	100%	2/3	Lease
	February	50%	2/3	Lease
	March	50%	2/3	Lease
	April	50%	2/3	Lease
	May	50%	2/3	Lease
	June	50%	2/3	Lease
	July	50%	2/3	Lease
	August	50%	2/3	Lease
	September	50%	2/3	Lease
	October	50%	2/3	Lease
	November	50%	2/3	Lease
	December	50%	2/3	Lease
2022	January	50%	2/3	Lease
	February	100%	2/3	Lease
	March	100%	2/3	Lease
	April	100%	2/3	Lease
	May	100%	2/3	Lease
	June	100%	2/3	Lease
	July	100%	2/3	Lease
	August	100%	2/3	Lease
	September	100%	2/3	Lease
	October	100%	2/3	Lease
	November	100%	2/3	Lease
	December	100%	2/3	Lease



2023	January	100%	2/3	Lease
	February	100%	2/3	Lease
	March	100%	2/3	Lease
	April	100%	2/3	Lease
	May	100%	2/3	Lease
	June	100%	2/3	Lease
	July	100%	2/3	Lease
	August	100%	2/3	Lease
	September	100%	2/3	Lease
	October	100%	2/3	Lease
	November	100%	2/3	Lease
	December	100%	2/3	Lease
2024	January	100%	2/3	Lease
	February	50%	3/3	Lease
	March	50%	3/3	Lease
	April	50%	3/3	Lease
	May	50%	3/3	Lease
	June	50%	3/3	Lease
	July	50%	3/3	Lease
	August	50%	3/3	Lease
	September	50%	3/3	Lease
	October	50%	3/3	Lease
	November	50%	3/3	Lease
	December	50%	3/3	Lease
2025	January	50%	3/3	Lease
	February	75%	3/3	Lease
	March	75%	3/3	Lease
	April	75%	3/3	Lease
	May	75%	3/3	Lease
	June	75%	3/3	Lease
	July	75%	3/3	Lease
	August	75%	3/3	Lease
	September	75%	3/3	Lease
	October	75%	3/3	Lease
	November	75%	3/3	Lease
	December	75%	3/3	Lease
2026	January	75%	3/3	Lease
	February	75%	3/3	Lease
	March	75%	3/3	Lease
	April	75%	3/3	Lease
	May	75%	3/3	Lease
	June	75%	3/3	Lease
	July	75%	3/3	Lease
	August	75%	3/3	Lease
	September	75%	3/3	Lease
	October	75%	3/3	Lease
	November	75%	3/3	Lease
	December	75%	3/3	Lease



2027	January	75%	3/3	Lease
	February	100%	3/3	Lease
	March	100%	3/3	Lease
	April	100%	3/3	Lease
	May	100%	3/3	Lease
	June	100%	3/3	Lease
	July	100%	3/3	Lease
	August	100%	3/3	Lease
	September	100%	3/3	Lease
	October	100%	3/3	Lease
	November	100%	3/3	Lease
	December	100%	3/3	Lease
2028	January	100%	3/3	Lease
	February	100%	3/3	Lease
	March	100%	3/3	Lease
	April	100%	3/3	Lease
	May	100%	3/3	Lease
	June	100%	3/3	Lease
	July	100%	3/3	Lease
	August	100%	3/3	Lease
	September	100%	3/3	Lease
	October	100%	3/3	Lease
	November	100%	3/3	Lease
	December	100%	3/3	Lease



7.7.1 Payment schedule of the buyer

There can occur 3 variants of the process of renting the office spaces or parking spaces:

1. If the client is interested in the office space and parking space before realization of the project, the property developer signs with him/her a reservation contract and reservation contract is submitted to the Bank (the bank condition for granting a loan - 50% prelease of the object). 14 days after the realization begins, future tenant pays 3 months rent and signed a future lease agreement. After the realization of the building tenants pay 3 months rent and a lease agreement is signed. These 6 months' rent is a security deposit and will be refunded immediately termination of the lease agreement. Subsequently, the tenant pays the rent for each month of use of a building or parking spaces.
2. If the client is interested in the office space and parking space during the realization of the project, the property developer signs with him/her a reservation contract, the client pays 3 months rent and signed a future lease agreement. After the realization of the building tenants pay 3 months rent and a lease agreement is signed. These 6 months' rent is a security deposit and will be refunded immediately termination of the lease agreement. Subsequently, the tenant pays the rent for each month of use of a building or parking spaces.
3. If the client is interested in the office space and parking space after the realization of the project, the property developer signs with him/her a reservation contract, the client pays 6 months rent and a lease agreement is signed. These 6 months' rent is a security deposit and will be refunded immediately termination of the lease agreement. Subsequently, the tenant pays the rent for each month of use of a building or parking spaces.

If there occurs the option 1 and 2, the 3-month-rent deposit will be deposited in an account of the lending bank. Although the account is held in the name of the investor, however, the investor will not be able to deal with money until proves the realization of the project. The release of the finances will happen subsequently. Then these financial resources will be used primarily to repay the loan to the bank. Thanks to daily interest is advantageous for the investor to repay the debt in the shortest possible time.



7.8 Business plan

Table 27: Business plan [34]

BUSINESS PLAN - Administrative building			The date of preparation: 4.4.2015		
Item	Cost item	Quantity	Unit	Price for unit	Price excl. VAT
HARD COSTS					
1	Defining the objectives of the project	1,00	gross	0 CZK	0 CZK
2	Project documentation and getting all approvals	1,00	gross	1 050 000 CZK	1 050 000 CZK
3	Price of the land	1,00	gross	5 263 000 CZK	5 263 000 CZK
4	Charges for network providers (ČEZ,..)	1,00	gross	480 000 CZK	480 000 CZK
5	Site preparation, demolition work	1,00	gross	650 000 CZK	656 500 CZK
6	Realization of the building (VAT 15%)	1,00	gross	68 585 154 CZK	69 271 006 CZK
7	Infrastructure and paved areas (VAT 21%)	1,00	gross	2 951 535 CZK	2 981 050 CZK
8					79 701 556 CZK
SOFT COSTS					
9	External financing	1,00	gross	3 503 741 CZK	3 503 741 CZK
10	Real estate and advertising activities	1,00		1 821 514 CZK	1 821 514 CZK
11	Overhead costs	1,00	gross	1 110 000 CZK	1 110 000 CZK
12	Cost of Occupational Health and Safety coordinator	1,00	gross	85 500 CZK	85 500 CZK
13	Technical supervision (for the investor)	2,00	% from units 5+6+7	729 086 CZK	1 458 171 CZK
14	Legal services	1,00	gross	55 000 CZK	55 000 CZK
15	Maintenance costs of the building	1,00	gross	1 091 000 CZK	1 091 000 CZK
16	Running of the reception	1,00	gross	2 178 000 CZK	2 178 000 CZK
17					11 302 925 CZK
18	Σ COSTS				91 004 481 CZK
Revenues item					
		Quantity	Unit	Price for unit excl. VAT, excl. Energy	Revenues excl. VAT
19	Rent of the offices	2 959	m2	240 CZK	
20	Rent of the parking spaces	34	piece	500 CZK	
21	Σ REVENUES after 10 years of using the building				98 573 603 CZK
22	PLANNED PROFIT after repayment of the loan (10 years)				7 569 122 CZK

7.9 Cash Flow

With knowledge of the revenues and expenditures of the various phases is possible to build Cash Flow which consists of the subtraction between these values. Based on CF is possible to create a Discounted Cash Flow (i.e. CF taking into account the time value of money), Cumulative Cash Flow (summing up revenues and expenditures throughout the project) and the Cumulative Discounted Cash Flow.

7.9.1.1 Effectiveness of the project – discounted CF

Project evaluation is performed using the Net Present Value (NPV) which is computed as the Cumulative Discounted Cash Flow. **Effect of external financing is not**



included. If $NPV > 0$, the investment can be recommended. Furthermore, if the $IRR >$ Discount Rate, the investment may be recommended.

The discount rate represents the value of the Risk-free Rate of return (based on the average rate of return offered by the Czech government bonds, which are called risk-free and the value of risk rate.

The total amount of the current discount rate corresponds to 6.8% per annum [29], [30].

Table 28: Effectiveness of the project (sale of the building not included)

Year	Expenditures	Revenues	CF	Discounted CF	Cumulative CF	Discounted Cumulative CF
2015	6 515 000 CZK	0 CZK	-6 515 000 CZK	-6 515 000 CZK	-6 515 000 CZK	-6 515 000 CZK
2016	18 933 083 CZK	1 370 385 CZK	-17 562 698 CZK	-16 444 474 CZK	-24 077 698 CZK	-22 959 474 CZK
2017	632 578 CZK	0 CZK	-632 578 CZK	-554 589 CZK	-24 710 276 CZK	-23 514 063 CZK
2018	4 763 300 CZK	9 547 363 CZK	4 784 063 CZK	3 927 201 CZK	-19 926 213 CZK	-19 586 862 CZK
2019	6 351 067 CZK	8 188 311 CZK	1 837 244 CZK	1 412 154 CZK	-18 088 969 CZK	-18 174 709 CZK
2020	6 597 297 CZK	10 500 620 CZK	3 903 322 CZK	2 809 171 CZK	-14 185 647 CZK	-15 365 538 CZK
2021	6 363 067 CZK	6 451 797 CZK	88 731 CZK	59 793 CZK	-14 096 916 CZK	-15 305 746 CZK
2022	6 834 195 CZK	12 767 595 CZK	5 933 400 CZK	3 743 733 CZK	-8 163 516 CZK	-11 562 013 CZK
2023	6 375 067 CZK	10 963 081 CZK	4 588 015 CZK	2 710 533 CZK	-3 575 501 CZK	-8 851 479 CZK
2024	6 395 733 CZK	6 542 464 CZK	146 731 CZK	81 167 CZK	-3 428 771 CZK	-8 770 312 CZK
2025	6 617 631 CZK	9 226 568 CZK	2 608 937 CZK	1 351 298 CZK	-819 834 CZK	-7 419 014 CZK
2026	6 397 067 CZK	8 324 311 CZK	1 927 244 CZK	934 659 CZK	1 107 411 CZK	-6 484 356 CZK
2027	6 629 631 CZK	11 933 338 CZK	5 303 707 CZK	2 408 377 CZK	6 411 118 CZK	-4 075 979 CZK
2028	1 599 767 CZK	2 757 770 CZK	1 158 004 CZK	492 361 CZK	7 569 122 CZK	-3 583 618 CZK
Σ	91 004 481 CZK	98 573 603 CZK	7 569 122 CZK	-3 583 618 CZK		
IRR	-2,6%				Investment is acceptable:	NO
Discount rate	6,8%					

Figure 47: Cash Flow

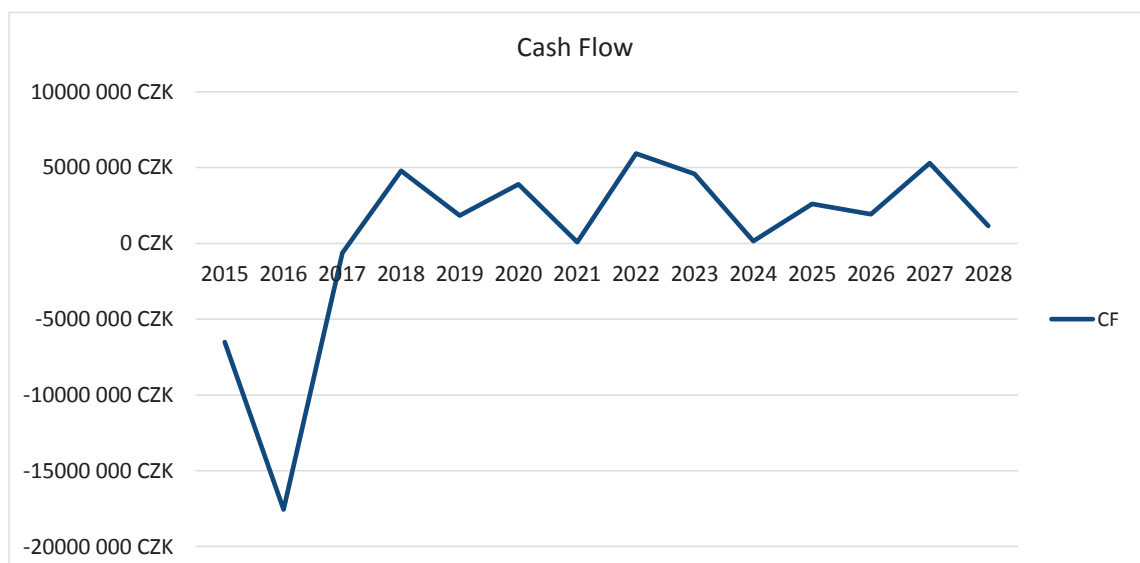




Figure 48: Discounted Cash Flow

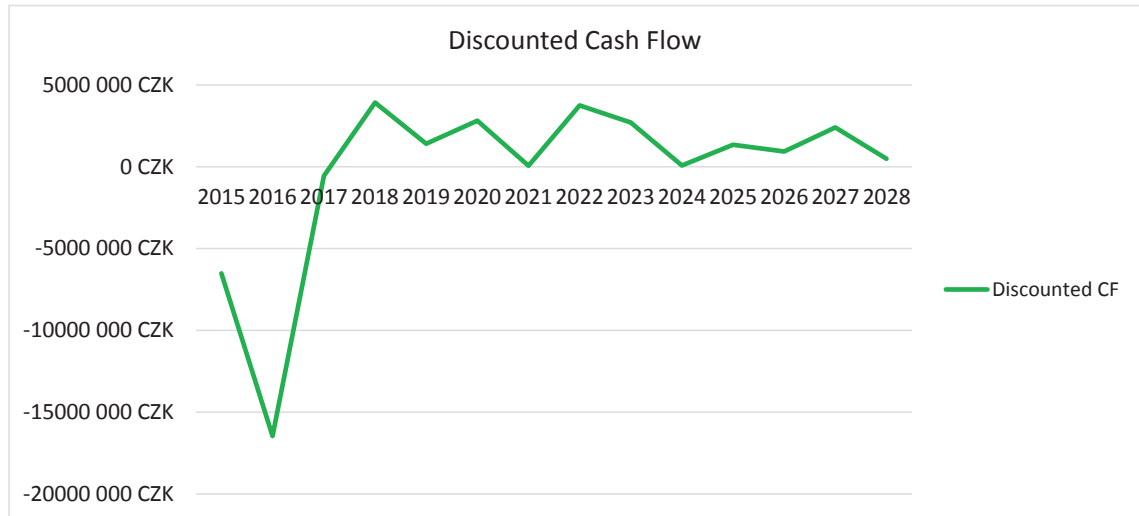


Figure 49: Cumulative Cash Flow

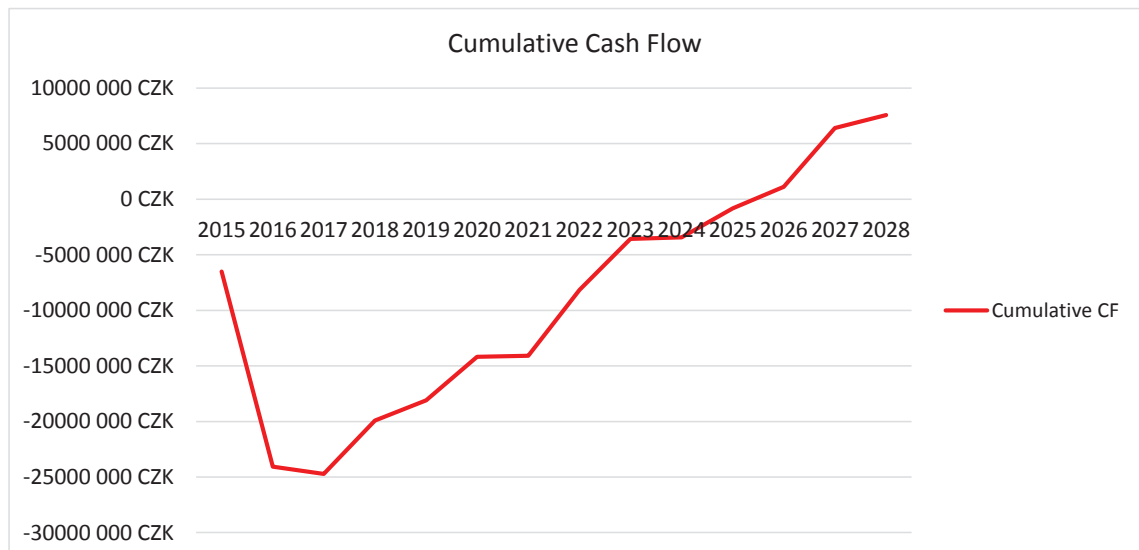
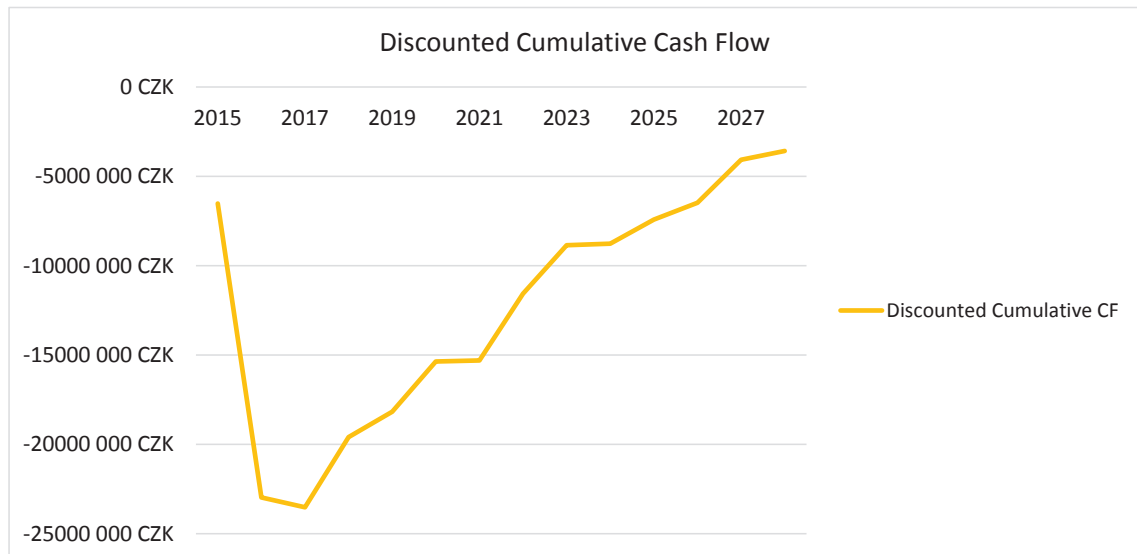




Figure 50: Discounted Cumulative Cash Flow



It follows that $NPV = -3,583,618$ CZK. This means that without considering the influence of external financing the project can not be recommended. The calculated Internal Rate of Return corresponds to $-2.6\% < \text{Discount Rate } 6.8\%$.

The result seems unacceptable, but it is important to note two important facts. I did not consider that the developer will intend on selling the building after the repayment of the loan. If a developer decides to sell the building after the repayment of the loan and find a buyer, of course, everything changes radically.

In the following table, I consider the sale of the building in 2028 (after repayment of the loan) for an amount equivalent Hard Costs 79,701,556 CZK. NPV is then 30,303,959 CZK and IRR is 9.2% which is an interesting investment. Without an experience from my job, I would say, that the property developer is not able to find any buyer. The opposite is true.



Figure 51: Effectiveness of the project (sale of the building included)

Year	Expenditures	Revenues	CF	Discounted CF	Cumulative CF	Discounted Cumulative CF
2015	6 515 000 CZK	0 CZK	-6 515 000 CZK	-6 515 000 CZK	-6 515 000 CZK	-6 515 000 CZK
2016	18 933 083 CZK	1 370 385 CZK	-17 562 698 CZK	-16 444 474 CZK	-24 077 698 CZK	-22 959 474 CZK
2017	632 578 CZK	0 CZK	-632 578 CZK	-554 589 CZK	-24 710 276 CZK	-23 514 063 CZK
2018	4 763 300 CZK	9 547 363 CZK	4 784 063 CZK	3 927 201 CZK	-19 926 213 CZK	-19 586 862 CZK
2019	6 351 067 CZK	8 188 311 CZK	1 837 244 CZK	1 412 154 CZK	-18 088 969 CZK	-18 174 709 CZK
2020	6 597 297 CZK	10 500 620 CZK	3 903 322 CZK	2 809 171 CZK	-14 185 647 CZK	-15 365 538 CZK
2021	6 363 067 CZK	6 451 797 CZK	88 731 CZK	59 793 CZK	-14 096 916 CZK	-15 305 746 CZK
2022	6 834 195 CZK	12 767 595 CZK	5 933 400 CZK	3 743 733 CZK	-8 163 516 CZK	-11 562 013 CZK
2023	6 375 067 CZK	10 963 081 CZK	4 588 015 CZK	2 710 533 CZK	-3 575 501 CZK	-8 851 479 CZK
2024	6 395 733 CZK	6 542 464 CZK	146 731 CZK	81 167 CZK	-3 428 771 CZK	-8 770 312 CZK
2025	6 617 631 CZK	9 226 568 CZK	2 608 937 CZK	1 351 298 CZK	-819 834 CZK	-7 419 014 CZK
2026	6 397 067 CZK	8 324 311 CZK	1 927 244 CZK	934 659 CZK	1 107 411 CZK	-6 484 356 CZK
2027	6 629 631 CZK	11 933 338 CZK	5 303 707 CZK	2 408 377 CZK	6 411 118 CZK	-4 075 979 CZK
2028	1 599 768 CZK	82 459 326 CZK	80 859 560 CZK	34 379 938 CZK	87 270 678 CZK	30 303 959 CZK
Σ	91 004 483 CZK	178 275 159 CZK	87 270 678 CZK	30 303 959 CZK		
IRR	9,2%				Investment is acceptable:	YES
Discount rate	6,8%					

The second important fact is the NPV is detected only after 10 years of using the building. NPV after 20 years of using of the building is distinctly different. I did not consider the sale of the building after 20 years. The project is then acceptable because $NPV = 3,379,837 \text{ CZK} > 0$.

Figure 52: Effectiveness of the project (sale of the building not included)

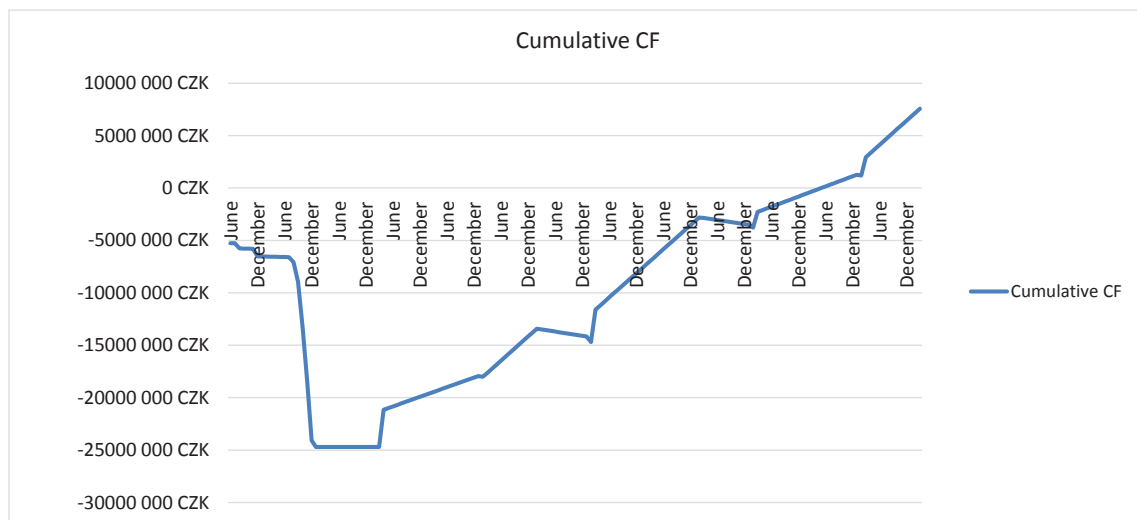
Year	Expenditures	Revenues	CF	Discounted CF	Cumulative CF	Discounted Cumulative CF
2015	6 515 000 CZK	0 CZK	-6 515 000 CZK	-6 515 000 CZK	-6 515 000 CZK	-6 515 000 CZK
2016	18 933 083 CZK	1 370 385 CZK	-17 562 698 CZK	-16 444 474 CZK	-24 077 698 CZK	-22 959 474 CZK
2017	632 578 CZK	0 CZK	-632 578 CZK	-554 589 CZK	-24 710 276 CZK	-23 514 063 CZK
2018	4 763 300 CZK	9 547 363 CZK	4 784 063 CZK	3 927 201 CZK	-19 926 213 CZK	-19 586 862 CZK
2019	6 351 067 CZK	8 188 311 CZK	1 837 244 CZK	1 412 154 CZK	-18 088 969 CZK	-18 174 709 CZK
2020	6 597 297 CZK	10 500 620 CZK	3 903 322 CZK	2 809 171 CZK	-14 185 647 CZK	-15 365 538 CZK
2021	6 363 067 CZK	6 451 797 CZK	88 731 CZK	59 793 CZK	-14 096 916 CZK	-15 305 746 CZK
2022	6 834 195 CZK	12 767 595 CZK	5 933 400 CZK	3 743 733 CZK	-8 163 516 CZK	-11 562 013 CZK
2023	6 375 067 CZK	10 963 081 CZK	4 588 015 CZK	2 710 533 CZK	-3 575 501 CZK	-8 851 479 CZK
2024	6 395 733 CZK	6 542 464 CZK	146 731 CZK	81 167 CZK	-3 428 771 CZK	-8 770 312 CZK
2025	6 617 631 CZK	9 226 568 CZK	2 608 937 CZK	1 351 298 CZK	-819 834 CZK	-7 419 014 CZK
2026	6 397 067 CZK	8 324 311 CZK	1 927 244 CZK	934 659 CZK	1 107 411 CZK	-6 484 356 CZK
2027	6 629 631 CZK	11 933 338 CZK	5 303 707 CZK	2 408 377 CZK	6 411 118 CZK	-4 075 979 CZK
2028	1 599 767 CZK	2 757 770 CZK	1 158 004 CZK	492 361 CZK	7 569 122 CZK	-3 583 618 CZK
2029	1 500 000 CZK	5 000 000 CZK	3 500 000 CZK	1 393 383 CZK	11 069 122 CZK	-2 190 235 CZK
2030	1 500 000 CZK	5 000 000 CZK	3 500 000 CZK	1 304 666 CZK	14 569 122 CZK	-885 569 CZK
2031	1 500 000 CZK	2 000 000 CZK	500 000 CZK	174 514 CZK	15 069 122 CZK	-711 055 CZK
2032	1 500 000 CZK	2 000 000 CZK	500 000 CZK	163 403 CZK	15 569 122 CZK	-547 652 CZK
2033	1 500 000 CZK	5 000 000 CZK	3 500 000 CZK	1 070 990 CZK	19 069 122 CZK	523 338 CZK
2034	1 500 000 CZK	5 000 000 CZK	3 500 000 CZK	1 002 800 CZK	22 569 122 CZK	1 526 138 CZK
2035	1 500 000 CZK	2 000 000 CZK	500 000 CZK	134 136 CZK	23 069 122 CZK	1 660 273 CZK
2036	1 500 000 CZK	2 000 000 CZK	500 000 CZK	125 595 CZK	23 569 122 CZK	1 785 869 CZK
2037	1 500 000 CZK	5 000 000 CZK	3 500 000 CZK	823 191 CZK	27 069 122 CZK	2 609 060 CZK
2038	1 500 000 CZK	5 000 000 CZK	3 500 000 CZK	770 778 CZK	30 569 122 CZK	3 379 837 CZK
Σ	106 004 481 CZK	136 573 603 CZK	30 569 122 CZK	3 379 837 CZK		
IRR	1,5%				Investment is acceptable:	NO
Discount rate	6,8%					



7.9.1.2 Cash Flow involving external sources of financing - monthly

Cash Flow involving external sources of financing is **the Appendix No. 12** of this thesis.

Figure 53: Cumulative Cash Flow



7.10 Risk Management

Risks are processed within the risk management. Each risk is assigned with a number, ratings and severity. Then the risks are displayed in the risk matrix and thus classified according to their severity. Then there is an evaluation of collected information and proposed step to mitigate, either the probability of occurrence or their impact on the project [31].

7.10.1 Risks

All the risks of the project can not be checked. Therefore, as part of this investigation, there were selected only the most significant risks that could arise during realization.

1. Poor communication with authorities
2. Not obtaining the site permit
3. Not obtaining the construction approval
4. Major exceedance of construction costs
5. Failure in planned leaseability
6. Sharp decline in prices per m² of the office space



7. Other legislative issues
8. Change of social policy
9. Failure in obtaining sufficient external finances
10. High interest rate of external financing

7.10.2 Risk assessment

Table 29: Severity and probability of risks

Severity	
5	Negative consequence is fatal.
4	Negative consequence is big.
3	Negative consequence is intermediate.
2	Negative consequence is small.
1	Negative consequence is minimal.
Probability of occurrence	
1	Occurrence is certain.
0,8	Occurrence is predicatable.
0,6	Occurrence is likely.
0,4	Occurrence is unlikely.
0,2	Occurrence is more than unlikely.
0	Can not occur.

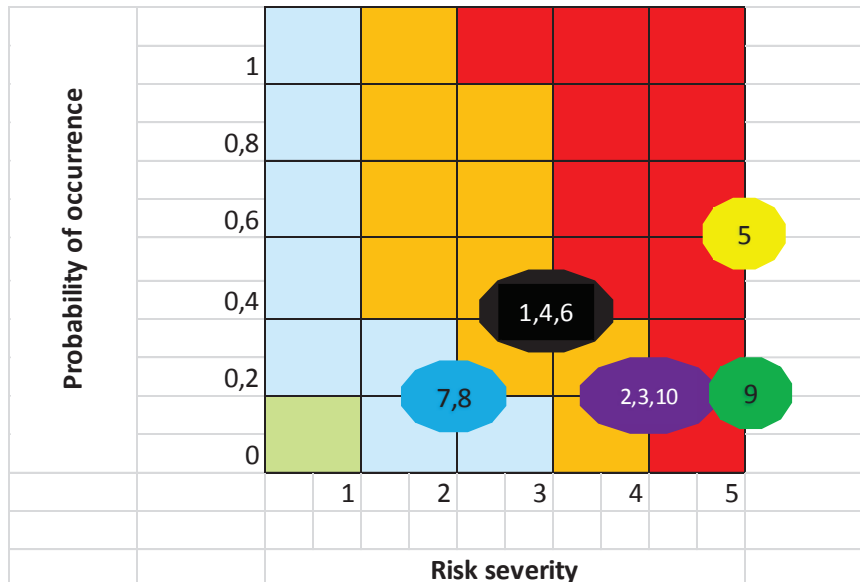
Table 30: Risk assessment

Selected Risks		Severity	Probability of occurrence
1	Poor communication with authorities	3	0,4
2	Not obtaining the site permit	4	0,2
3	Not obtaining the construction approval	4	0,2
4	Major exceedance of construction costs	3	0,4
5	Failure in planned leaseability	5	0,6
6	Sharp decline in prices per m2 of the usable floor	3	0,4
7	Other legislative issues	2	0,2
8	Change of social policy	2	0,2
9	Failure in obtaining sufficient external finances	5	0,2
10	High interest rate of external finances	4	0,2
Average:		3,5	0,3



7.10.3 Risk matrix

Table 31: Risk matrix



Red	Risks of the highest level of threat to the project
Orange	Risks of the medium level of threat to the project
Light Blue	Risks of the low level of threat to the project
Green	Risks completely negligible

7.10.4 Risk assessment

It should be noted that most of the risks borders on the highest level of threat to the project. The greatest risk (and its occurrence is likely) is the failure of leaseability of office spaces or parking spaces. Leaseability can be divided into two parts. Firstly leaseability which is closely related to the pre-investment phase of the project. If the marketing campaign and associated efforts of real estate agents and the property developer does not provide pre-lease (signed reservation contract) at least of 50% of office area, the bank refuses to provide loan and it is not possible to run the project. Secondly, if there is not a compliance with planned leaseability during the usage of the building, there may be a problem in repaying the loan. There will have to be a second (or new) bank loan which includes rising costs and interest. It does not mean a disaster but represents a big problem.

Another main risk is the failure to obtain a sufficient amount of external finance. The impact of this risk can not be mitigated (will always be fatal) but can be mitigated the



probability of occurrence by the timely negotiation with banking institutions. An important factor is also a consultation with more competitive institutions. The result is not only the reduction of the likelihood of the risk but also to find the most favorable conditions.

7.11 Conclusion and evaluation of the project of administrative building

This project represents a risk for the investor. First, it is a significant problem to get reservations at 50% of the floor area of the building to fulfill the conditions of the bank to provide a loan. From my own experience I know that this is possible, but it requires a lot of effort across the Czech Republic and border regions. If we manage to defuse this problem, the risk is significantly reduced. Getting more tenants then is not such a problem, because it is obvious that the real estate agency is very capable.

It is obvious that if a property developer retains ownership of the building for 10 years and rents it, then the investment is not acceptable. NPV is -3,583,618 CZK. If a property developer sells the building after 10 years of renting it, NPV is 30,303,959 CZK, investment is acceptable. If the developer will lease the building for 20 years, NPV is 3,379,837 CZK, investment is acceptable.

8 Evaluation of hypothesis

I have to say that property developers are experiencing better times than 2 years ago. The economic crisis and thus the real estate crisis seems to be over. People see better future, want to invest in living or ensure their pension with investment flats. At the same time employers recruit new employees again, also looking for new workplaces - new offices. But people interested in living or new office spaces are very careful about their investments.

The block of flats and office building represents a greater risk for the investor than semi-detached houses. There are several reasons. Both projects require significantly higher presale / prelease of floor areas for obtaining a bank loan. ROI (Return of investment) is realistically for the block of flats 1 year from the end of the realization of



building and for the office building is 20 years from the end of the realization of building. Office building can also be strongly influenced by other economic crisis, which may come, but also may not.

The project of the semi-detached houses represents the lowest risk for the investor, because the demand for detached or semi-detached houses in Pilsen is great, houses are not expensive, is virtually no competition. Profit is less than that for residential building and office buildings, but relatively safe. This hypothesis was confirmed: project houses is best for investors.

The project of semi-detached houses represents the lowest risk for the investor, because the interest for this type of living in Pilsen is great, houses are not expensive, there is sensibly no competition. Profit is less than that for the block of flats building and the office building, but relatively safe. **The hypothesis was confirmed: the project of semi-detached houses is the most advantageous project for the investor.**

9 Conclusion

The aim of this thesis was to compare three projects in terms of their feasibility and profitability. The first project was aimed at the construction of semi-detached houses with the aim of selling individual houses to end customers with profit. The second project focused on the construction of block of flats to the sale of individual flats and parking spaces to end customers with profit. The third project was focused on the construction of an administrative building to rent an office or parking spaces to customers with profit. The divergence of projects is in their size, complexity and difficulty of the construction and in financing.

Firstly there was prepared a theoretical part dealing with the development and subsequently was prepared the practical part of the project of the semi-detached houses, block of flats and administrative building.

In examining the first project, firstly the semi-detached houses were described, then was processed the market analysis using PEST analysis and statistical data. PEST analysis and statistical data do not focus only on semi-detached houses, but also on block of flats and administrative building. Subsequently the current prices of competing projects in the area were compared, again also for block of flats and administrative building. This was



followed by determining the costs, expenditures and revenues of the project, method of financing and Cash Flow of the project was formulated. On the basis of this information risks of the project were determined and the final evaluation was made, namely that the project of semi-detached houses has a relatively low profit, but the low risk compensates it sufficiently.

In examining the second project, firstly the block of flats was described. This was followed by determining the costs, expenditures and revenues of the project, method of financing and Cash Flow of the project was formulated. On the basis of this information risks of the project were determined and the final evaluation was made, namely that the project of block of flats has a relatively high profit, but also a higher risk in the return of invested finances.

In examining the third project, firstly the administrative building was described. This was followed by determining the costs, expenditures and revenues of the project, method of financing and Cash Flow of the project was formulated. On the basis of this information risks of the project were determined and the final evaluation was made, namely that the project of administrative building has the highest risk in the return of invested finances.

Part of this work was also the hypothesis that at the end of this thesis confirmed, on the basis of the results obtained, that the project of semi-detached houses became profitable with $IRR = 11.3\%$ and $NPV = 2,574,209$ CZK which is the best investment for the investor. Although the project for the construction of the block of flats has a higher $IRR = 25.2\%$ and higher $NPV = 6,676,726$ CZK, the feasibility of this project in terms of risks is considerably worse. Project for the construction of the administrative building has $IRR = -2.6\%$ and $NPV = -3,583,618$ CZK, investment is therefore unacceptable.

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14 Evidence of borrowings

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Appendix No. 2 Total cost of the project of semi-detached houses shown in time

COSTS		Cost for project documentation	Price of the land	Charges for network providers	Costs of realization of the project	Overhead costs	Cost of Occupational Health and Safety coordinator	Costs of Technical Supervision	Costs for legal services	Cost of real estate and advertising activities	Maintenance cost of unsold houses	Total costs
2015	June	0 CZK	5 263 000 CZK	0 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	0 CZK	5 275 000 CZK
	July	0 CZK	0 CZK	120 000 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	0 CZK	132 000 CZK
	August	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK
	September	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK
	October	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK
	November	700 000 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	0 CZK	712 000 CZK
December	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	
2016	January	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK
	February	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK
	March	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	0 CZK	117 630 CZK	0 CZK	129 630 CZK
	April	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	0 CZK	117 630 CZK	0 CZK	129 630 CZK
	May	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	0 CZK	119 030 CZK	0 CZK	131 030 CZK
	June	0 CZK	0 CZK	0 CZK	1 550 578 CZK	12 000 CZK	4 750 CZK	40 275 CZK	0 CZK	0 CZK	0 CZK	1 607 603 CZK
	July	0 CZK	0 CZK	0 CZK	1 671 403 CZK	12 000 CZK	4 750 CZK	40 275 CZK	0 CZK	0 CZK	0 CZK	1 728 427 CZK
	August	0 CZK	0 CZK	0 CZK	1 913 051 CZK	12 000 CZK	4 750 CZK	40 275 CZK	0 CZK	0 CZK	0 CZK	1 970 076 CZK
	September	0 CZK	0 CZK	0 CZK	2 658 134 CZK	12 000 CZK	4 750 CZK	40 275 CZK	0 CZK	0 CZK	0 CZK	2 715 159 CZK
	October	0 CZK	0 CZK	0 CZK	2 879 645 CZK	12 000 CZK	4 750 CZK	40 275 CZK	0 CZK	0 CZK	0 CZK	2 936 670 CZK
	November	0 CZK	0 CZK	0 CZK	3 000 470 CZK	9 000 CZK	4 750 CZK	40 275 CZK	10 000 CZK	0 CZK	0 CZK	3 064 494 CZK
	December	0 CZK	0 CZK	0 CZK	2 537 310 CZK	9 000 CZK	4 750 CZK	40 275 CZK	0 CZK	119 030 CZK	0 CZK	2 710 365 CZK
2017	January	0 CZK	0 CZK	0 CZK	2 174 837 CZK	9 000 CZK	4 750 CZK	40 275 CZK	0 CZK	0 CZK	0 CZK	2 228 862 CZK
	February	0 CZK	0 CZK	0 CZK	1 268 655 CZK	9 000 CZK	4 750 CZK	40 275 CZK	0 CZK	110 630 CZK	0 CZK	1 433 310 CZK
	March	350 000 CZK	0 CZK	0 CZK	483 297 CZK	9 000 CZK	4 750 CZK	40 275 CZK	0 CZK	112 030 CZK	0 CZK	999 352 CZK
	April	0 CZK	0 CZK	0 CZK	0 CZK	9 000 CZK	0 CZK	0 CZK	15 000 CZK	0 CZK	3 686 CZK	27 686 CZK
	May	0 CZK	0 CZK	0 CZK	0 CZK	9 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	3 686 CZK	12 686 CZK
	June	0 CZK	0 CZK	0 CZK	0 CZK	9 000 CZK	0 CZK	0 CZK	2 500 CZK	112 030 CZK	3 686 CZK	127 216 CZK
	July	0 CZK	0 CZK	0 CZK	0 CZK	9 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	1 843 CZK	10 843 CZK
	August	0 CZK	0 CZK	0 CZK	0 CZK	9 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	1 843 CZK	10 843 CZK
	September	0 CZK	0 CZK	0 CZK	0 CZK	9 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	1 843 CZK	10 843 CZK
	October	0 CZK	0 CZK	0 CZK	0 CZK	9 000 CZK	0 CZK	0 CZK	2 500 CZK	110 630 CZK	1 843 CZK	123 973 CZK
Σ		1 050 000 CZK	5 263 000 CZK	120 000 CZK	20 137 380 CZK	312 000 CZK	47 500 CZK	402 748 CZK	30 000 CZK	918 643 CZK	18 429 CZK	28 299 700 CZK

Appendix No. 3 Total expenditures of the project of semi-detached houses shown in time

EXPENDITURES		Expenditures for project documentation	Price of the land	Charges for network providers	Expenditures of realization of the project	Overhead expenditures	Expenditures of Occupational Health and Safety	Expenditures of Technical Supervision	Expenditures for legal services	Expenditures of real estate and advertising	Maintenance expenditures of unsold houses	Total expenditures
2015	June	0 CZK	5 263 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	0 CZK	0 CZK	0 CZK	0 CZK	5 263 000 CZK
	July	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK
	August	0 CZK	0 CZK	120 000 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	0 CZK	132 000 CZK
	September	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK
	October	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK
	November	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK
	December	700 000 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	0 CZK	712 000 CZK
2016	January	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK
	February	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK
	March	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK
	April	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	0 CZK	117 630 CZK	0 CZK	129 630 CZK
	May	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	0 CZK	117 630 CZK	0 CZK	129 630 CZK
	June	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	0 CZK	119 030 CZK	0 CZK	131 030 CZK
	July	0 CZK	0 CZK	0 CZK	1 395 520 CZK	12 000 CZK	4 750 CZK	40 275 CZK	0 CZK	0 CZK	0 CZK	1 452 545 CZK
	August	0 CZK	0 CZK	0 CZK	1 504 262 CZK	12 000 CZK	4 750 CZK	40 275 CZK	0 CZK	0 CZK	0 CZK	1 561 287 CZK
	September	0 CZK	0 CZK	0 CZK	1 721 746 CZK	12 000 CZK	4 750 CZK	40 275 CZK	0 CZK	0 CZK	0 CZK	1 778 771 CZK
	October	0 CZK	0 CZK	0 CZK	2 392 321 CZK	12 000 CZK	4 750 CZK	40 275 CZK	0 CZK	0 CZK	0 CZK	2 449 346 CZK
	November	0 CZK	0 CZK	0 CZK	2 591 681 CZK	12 000 CZK	4 750 CZK	40 275 CZK	0 CZK	0 CZK	0 CZK	2 648 706 CZK
	December	0 CZK	0 CZK	0 CZK	2 700 423 CZK	9 000 CZK	4 750 CZK	40 275 CZK	10 000 CZK	0 CZK	0 CZK	2 764 447 CZK
2017	January	0 CZK	0 CZK	0 CZK	2 283 579 CZK	9 000 CZK	4 750 CZK	40 275 CZK	0 CZK	119 030 CZK	0 CZK	2 456 634 CZK
	February	0 CZK	0 CZK	0 CZK	1 957 353 CZK	9 000 CZK	4 750 CZK	40 275 CZK	0 CZK	0 CZK	0 CZK	2 011 378 CZK
	March	0 CZK	0 CZK	0 CZK	1 141 789 CZK	9 000 CZK	4 750 CZK	40 275 CZK	0 CZK	110 630 CZK	0 CZK	1 306 445 CZK
	April	350 000 CZK	0 CZK	0 CZK	1 441 836 CZK	9 000 CZK	4 750 CZK	40 275 CZK	0 CZK	112 030 CZK	0 CZK	1 957 892 CZK
	May	0 CZK	0 CZK	0 CZK	1 006 869 CZK	9 000 CZK	0 CZK	0 CZK	15 000 CZK	0 CZK	3 686 CZK	1 034 555 CZK
	June	0 CZK	0 CZK	0 CZK	0 CZK	9 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	3 686 CZK	12 686 CZK
	July	0 CZK	0 CZK	0 CZK	0 CZK	9 000 CZK	0 CZK	0 CZK	2 500 CZK	112 030 CZK	3 686 CZK	127 216 CZK
	August	0 CZK	0 CZK	0 CZK	0 CZK	9 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	1 843 CZK	10 843 CZK
	September	0 CZK	0 CZK	0 CZK	0 CZK	9 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	1 843 CZK	10 843 CZK
	October	0 CZK	0 CZK	0 CZK	0 CZK	9 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	1 843 CZK	10 843 CZK
	November	0 CZK	0 CZK	0 CZK	0 CZK	9 000 CZK	0 CZK	0 CZK	2 500 CZK	110 630 CZK	1 843 CZK	123 973 CZK
Σ		1 050 000 CZK	5 263 000 CZK	120 000 CZK	20 137 380 CZK	312 000 CZK	47 500 CZK	402 748 CZK	30 000 CZK	918 643 CZK	18 429 CZK	28 299 700 CZK

Appendix No. 4 Cash Flow of the project of semi-detached houses

Time period		Total expenditures	Using own financial resources	Balance of own financial resources	Using external financial resources	Amount of interest	Installment of the loan	Total revenues	CF	Cumulative CF
2015	June	5 263 000 CZK	5 263 000 CZK	3 226 910 CZK	0 CZK	0 CZK	0 CZK	0 CZK	-5 263 000 CZK	-5 263 000 CZK
	July	12 000 CZK	12 000 CZK	3 214 910 CZK	0 CZK	0 CZK	0 CZK	0 CZK	-12 000 CZK	-5 275 000 CZK
	August	132 000 CZK	132 000 CZK	3 082 910 CZK	0 CZK	0 CZK	0 CZK	0 CZK	-132 000 CZK	-5 407 000 CZK
	September	12 000 CZK	12 000 CZK	3 070 910 CZK	0 CZK	0 CZK	0 CZK	0 CZK	-12 000 CZK	-5 419 000 CZK
	October	12 000 CZK	12 000 CZK	3 058 910 CZK	0 CZK	0 CZK	0 CZK	0 CZK	-12 000 CZK	-5 431 000 CZK
	November	12 000 CZK	12 000 CZK	3 046 910 CZK	0 CZK	0 CZK	0 CZK	0 CZK	-12 000 CZK	-5 443 000 CZK
December	712 000 CZK	712 000 CZK	2 334 910 CZK	0 CZK	0 CZK	0 CZK	0 CZK	-712 000 CZK	-6 155 000 CZK	
2016	January	12 000 CZK	12 000 CZK	2 322 910 CZK	0 CZK	0 CZK	0 CZK	0 CZK	-12 000 CZK	-6 167 000 CZK
	February	12 000 CZK	12 000 CZK	2 310 910 CZK	0 CZK	0 CZK	0 CZK	0 CZK	-12 000 CZK	-6 179 000 CZK
	March	12 000 CZK	12 000 CZK	2 298 910 CZK	0 CZK	0 CZK	0 CZK	0 CZK	-12 000 CZK	-6 191 000 CZK
	April	129 630 CZK	129 630 CZK	2 219 280 CZK	0 CZK	0 CZK	0 CZK	50 000 CZK	-79 630 CZK	-6 270 630 CZK
	May	129 630 CZK	129 630 CZK	2 139 649 CZK	0 CZK	0 CZK	0 CZK	50 000 CZK	-79 630 CZK	-6 350 261 CZK
	June	131 030 CZK	131 030 CZK	2 058 619 CZK	0 CZK	0 CZK	0 CZK	50 000 CZK	-81 030 CZK	-6 431 291 CZK
	July	1 452 545 CZK	1 452 545 CZK	3 136 726 CZK	0 CZK	0 CZK	0 CZK	2 530 652 CZK	1 078 107 CZK	-5 353 184 CZK
	August	1 561 287 CZK	1 561 287 CZK	1 575 439 CZK	0 CZK	0 CZK	0 CZK	0 CZK	-1 561 287 CZK	-6 914 471 CZK
	September	1 778 771 CZK	1 575 439 CZK	0 CZK	203 332 CZK	59 243 CZK	0 CZK	0 CZK	-1 575 439 CZK	-8 489 910 CZK
	October	2 449 346 CZK	0 CZK	0 CZK	2 449 346 CZK	59 243 CZK	0 CZK	0 CZK	0 CZK	-8 489 910 CZK
	November	2 648 706 CZK	0 CZK	0 CZK	2 648 706 CZK	59 243 CZK	0 CZK	0 CZK	0 CZK	-8 489 910 CZK
	December	2 764 447 CZK	0 CZK	0 CZK	2 764 447 CZK	59 243 CZK	0 CZK	0 CZK	0 CZK	-8 489 910 CZK
2017	January	2 456 634 CZK	0 CZK	0 CZK	2 456 634 CZK	59 056 CZK	0 CZK	50 000 CZK	0 CZK	-8 489 910 CZK
	February	2 011 378 CZK	0 CZK	0 CZK	2 011 378 CZK	55 867 CZK	0 CZK	850 217 CZK	0 CZK	-8 489 910 CZK
	March	1 306 445 CZK	0 CZK	0 CZK	1 306 445 CZK	55 680 CZK	0 CZK	50 000 CZK	0 CZK	-8 489 910 CZK
	April	1 957 892 CZK	0 CZK	0 CZK	1 957 892 CZK	55 680 CZK	0 CZK	21 225 652 CZK	0 CZK	-8 489 910 CZK
	May	1 034 555 CZK	1 034 555 CZK	3 929 663 CZK	0 CZK	0 CZK	16 261 434 CZK	0 CZK	-17 295 989 CZK	-25 785 899 CZK
	June	12 686 CZK	12 686 CZK	3 916 977 CZK	0 CZK	0 CZK	0 CZK	0 CZK	-12 686 CZK	-25 798 585 CZK
	July	127 216 CZK	127 216 CZK	7 790 848 CZK	0 CZK	0 CZK	0 CZK	4 001 087 CZK	3 873 871 CZK	-21 924 714 CZK
	August	10 843 CZK	10 843 CZK	7 780 005 CZK	0 CZK	0 CZK	0 CZK	0 CZK	-10 843 CZK	-21 935 557 CZK
	September	10 843 CZK	10 843 CZK	7 769 162 CZK	0 CZK	0 CZK	0 CZK	0 CZK	-10 843 CZK	-21 946 400 CZK
	October	10 843 CZK	10 843 CZK	7 758 319 CZK	0 CZK	0 CZK	0 CZK	0 CZK	-10 843 CZK	-21 957 243 CZK
	November	123 973 CZK	123 973 CZK	11 585 433 CZK	0 CZK	0 CZK	0 CZK	3 951 087 CZK	3 827 114 CZK	-18 130 129 CZK
Σ		28 299 700 CZK	12 501 521 CZK		15 798 179 CZK	463 255 CZK	16 261 434 CZK	32 808 696 CZK		

Explanatory notes:

1. Balance of own financial resources - The first number 3 226 910 CZK = 8 489 910 CZK (Own financial resources, Chapter 5.5.6 Cost of external finances) - 5 263 000 CZK (prize of the land)
2. Amount of interest is calculated as the whole bank loan which is needed 15 798 179 CZK x 4,5% / 12. This amount of interest gradually declines as payments for houses come.

Appendix No. 6 Total costs of the project of the block of flats shown in time

COSTS		Cost for project documentation	Price of the land	Charges for network providers	Costs of realization of the project	Overhead costs	Cost of Occupational Health and Safety coordinator	Costs of Technical Supervision	Costs for legal services	Cost of real estate and advertising activities	Maintenance cost of unsold houses	Total costs
2015	June	0 CZK	5 263 000 CZK	0 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	0 CZK	5 275 000 CZK
	July	0 CZK	0 CZK	350 000 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	0 CZK	362 000 CZK
	August	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK
	September	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK
	October	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK
	November	700 000 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	0 CZK	712 000 CZK
2016	December	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK
	January	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK
	February	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	0 CZK	60 000 CZK	0 CZK	72 000 CZK
	March	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	0 CZK	152 431 CZK	0 CZK	164 431 CZK
	April	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	0 CZK	152 431 CZK	0 CZK	164 431 CZK
	May	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	0 CZK	101 621 CZK	0 CZK	113 621 CZK
	June	0 CZK	0 CZK	0 CZK	2 322 990 CZK	12 000 CZK	4 750 CZK	50 281 CZK	0 CZK	50 810 CZK	0 CZK	2 440 832 CZK
	July	0 CZK	0 CZK	0 CZK	2 504 002 CZK	12 000 CZK	4 750 CZK	50 281 CZK	0 CZK	50 810 CZK	0 CZK	2 621 844 CZK
	August	0 CZK	0 CZK	0 CZK	2 564 340 CZK	12 000 CZK	4 750 CZK	50 281 CZK	0 CZK	50 810 CZK	0 CZK	2 682 181 CZK
	September	0 CZK	0 CZK	0 CZK	2 745 352 CZK	12 000 CZK	4 750 CZK	50 281 CZK	0 CZK	101 621 CZK	0 CZK	2 914 004 CZK
	October	0 CZK	0 CZK	0 CZK	3 197 882 CZK	12 000 CZK	4 750 CZK	50 281 CZK	0 CZK	0 CZK	0 CZK	3 264 913 CZK
	November	0 CZK	0 CZK	0 CZK	3 348 726 CZK	12 000 CZK	4 750 CZK	50 281 CZK	0 CZK	50 810 CZK	0 CZK	3 466 567 CZK
2017	December	0 CZK	0 CZK	0 CZK	3 258 220 CZK	12 000 CZK	4 750 CZK	50 281 CZK	10 000 CZK	0 CZK	0 CZK	3 335 251 CZK
	January	0 CZK	0 CZK	0 CZK	2 956 533 CZK	12 000 CZK	4 750 CZK	50 281 CZK	0 CZK	0 CZK	0 CZK	3 023 564 CZK
	February	0 CZK	0 CZK	0 CZK	2 624 677 CZK	12 000 CZK	4 750 CZK	50 281 CZK	0 CZK	0 CZK	0 CZK	2 691 708 CZK
	March	350 000 CZK	0 CZK	0 CZK	2 322 990 CZK	12 000 CZK	4 750 CZK	50 281 CZK	0 CZK	101 621 CZK	0 CZK	2 841 642 CZK
	April	0 CZK	0 CZK	0 CZK	1 779 953 CZK	12 000 CZK	4 750 CZK	50 281 CZK	0 CZK	101 621 CZK	0 CZK	1 948 605 CZK
	May	0 CZK	0 CZK	0 CZK	543 037 CZK	12 000 CZK	4 750 CZK	50 281 CZK	0 CZK	50 810 CZK	0 CZK	660 878 CZK
	June	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	50 000 CZK	0 CZK	10 500 CZK	72 500 CZK
	July	0 CZK	0 CZK	0 CZK	0 CZK	9 000 CZK	0 CZK	0 CZK	2 500 CZK	50 810 CZK	10 500 CZK	72 810 CZK
	August	0 CZK	0 CZK	0 CZK	0 CZK	9 000 CZK	0 CZK	0 CZK	5 000 CZK	50 810 CZK	8 400 CZK	73 210 CZK
	September	0 CZK	0 CZK	0 CZK	0 CZK	9 000 CZK	0 CZK	0 CZK	0 CZK	50 810 CZK	6 300 CZK	66 110 CZK
	October	0 CZK	0 CZK	0 CZK	0 CZK	9 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	4 200 CZK	13 200 CZK
	November	0 CZK	0 CZK	0 CZK	0 CZK	9 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	4 200 CZK	13 200 CZK
2018	December	0 CZK	0 CZK	0 CZK	0 CZK	9 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	4 200 CZK	13 200 CZK
	January	0 CZK	0 CZK	0 CZK	0 CZK	9 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	4 200 CZK	13 200 CZK
	February	0 CZK	0 CZK	0 CZK	0 CZK	9 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	4 200 CZK	13 200 CZK
	March	0 CZK	0 CZK	0 CZK	0 CZK	9 000 CZK	0 CZK	0 CZK	2 500 CZK	50 810 CZK	4 200 CZK	66 510 CZK
	April	0 CZK	0 CZK	0 CZK	0 CZK	9 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	2 100 CZK	11 100 CZK
	May	0 CZK	0 CZK	0 CZK	0 CZK	9 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	2 100 CZK	11 100 CZK
	June	0 CZK	0 CZK	0 CZK	0 CZK	9 000 CZK	0 CZK	0 CZK	2 500 CZK	50 810 CZK	2 100 CZK	64 410 CZK
Σ		1 050 000 CZK	5 263 000 CZK	350 000 CZK	30 168 700 CZK	408 000 CZK	57 000 CZK	603 374 CZK	72 500 CZK	1 279 452 CZK	67 200 CZK	39 319 226 CZK

Explanatory notes:

1. Cost of real estate and advertising activities, there are not the precise prices for the flats but in general the profit / 24 (number of flats) x 2,5%

Appendix No. 7 Total expenditures of the project of the block of flats shown in time

EXPENDITURES	Expenditures for project documentation	Price of the land	Charges for network providers	Expenditures of realization of the project	Overhead expenditures	Expenditures of Occupational Health an Safety	Expenditures of Technical Supervision	Expenditures for legal services	Expenditures of real estate and advertising	Maintanance expenditures of unsold houses	Total expenditures	
2015	June	0 CZK	5 263 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	0 CZK	0 CZK	0 CZK	5 263 000 CZK	
	July	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	
	August	0 CZK	0 CZK	350 000 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	362 000 CZK	
	September	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	
	October	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	
	November	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	
December	700 000 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	0 CZK	712 000 CZK	
2016	January	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	
	February	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	
	March	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	60 000 CZK	0 CZK	72 000 CZK	
	April	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	152 431 CZK	0 CZK	164 431 CZK	
	May	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	152 431 CZK	0 CZK	164 431 CZK	
	June	0 CZK	0 CZK	0 CZK	0 CZK	12 000 CZK	0 CZK	0 CZK	101 621 CZK	0 CZK	113 621 CZK	
	July	0 CZK	0 CZK	0 CZK	2 090 691 CZK	12 000 CZK	4 750 CZK	50 281 CZK	0 CZK	50 810 CZK	0 CZK	2 208 533 CZK
	August	0 CZK	0 CZK	0 CZK	2 253 602 CZK	12 000 CZK	4 750 CZK	50 281 CZK	0 CZK	50 810 CZK	0 CZK	2 371 444 CZK
	September	0 CZK	0 CZK	0 CZK	2 307 906 CZK	12 000 CZK	4 750 CZK	50 281 CZK	0 CZK	50 810 CZK	0 CZK	2 425 747 CZK
	October	0 CZK	0 CZK	0 CZK	2 470 817 CZK	12 000 CZK	4 750 CZK	50 281 CZK	0 CZK	101 621 CZK	0 CZK	2 639 469 CZK
	November	0 CZK	0 CZK	0 CZK	2 878 094 CZK	12 000 CZK	4 750 CZK	50 281 CZK	0 CZK	0 CZK	0 CZK	2 945 125 CZK
	December	0 CZK	0 CZK	0 CZK	3 013 853 CZK	12 000 CZK	4 750 CZK	50 281 CZK	0 CZK	50 810 CZK	0 CZK	3 131 695 CZK
2017	January	0 CZK	0 CZK	0 CZK	2 932 398 CZK	12 000 CZK	4 750 CZK	50 281 CZK	10 000 CZK	0 CZK	0 CZK	3 009 429 CZK
	February	0 CZK	0 CZK	0 CZK	2 660 879 CZK	12 000 CZK	4 750 CZK	50 281 CZK	0 CZK	0 CZK	0 CZK	2 727 911 CZK
	March	0 CZK	0 CZK	0 CZK	2 362 209 CZK	12 000 CZK	4 750 CZK	50 281 CZK	0 CZK	0 CZK	0 CZK	2 429 240 CZK
	April	350 000 CZK	0 CZK	0 CZK	2 090 691 CZK	12 000 CZK	4 750 CZK	50 281 CZK	0 CZK	101 621 CZK	0 CZK	2 609 343 CZK
	May	0 CZK	0 CZK	0 CZK	1 601 958 CZK	12 000 CZK	4 750 CZK	50 281 CZK	0 CZK	101 621 CZK	0 CZK	1 770 610 CZK
	June	0 CZK	0 CZK	0 CZK	1 997 168 CZK	12 000 CZK	4 750 CZK	50 281 CZK	0 CZK	50 810 CZK	0 CZK	2 115 010 CZK
	July	0 CZK	0 CZK	0 CZK	1 508 435 CZK	12 000 CZK	0 CZK	0 CZK	50 000 CZK	0 CZK	10 500 CZK	1 580 935 CZK
	August	0 CZK	0 CZK	0 CZK	0 CZK	9 000 CZK	0 CZK	0 CZK	2 500 CZK	50 810 CZK	10 500 CZK	72 810 CZK
	September	0 CZK	0 CZK	0 CZK	0 CZK	9 000 CZK	0 CZK	0 CZK	5 000 CZK	50 810 CZK	8 400 CZK	73 210 CZK
	October	0 CZK	0 CZK	0 CZK	0 CZK	9 000 CZK	0 CZK	0 CZK	0 CZK	50 810 CZK	6 300 CZK	66 110 CZK
	November	0 CZK	0 CZK	0 CZK	0 CZK	9 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	4 200 CZK	13 200 CZK
	December	0 CZK	0 CZK	0 CZK	0 CZK	9 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	4 200 CZK	13 200 CZK
2018	January	0 CZK	0 CZK	0 CZK	0 CZK	9 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	4 200 CZK	13 200 CZK
	February	0 CZK	0 CZK	0 CZK	0 CZK	9 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	4 200 CZK	13 200 CZK
	March	0 CZK	0 CZK	0 CZK	0 CZK	9 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	4 200 CZK	13 200 CZK
	April	0 CZK	0 CZK	0 CZK	0 CZK	9 000 CZK	0 CZK	0 CZK	2 500 CZK	50 810 CZK	4 200 CZK	66 510 CZK
	May	0 CZK	0 CZK	0 CZK	0 CZK	9 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	2 100 CZK	11 100 CZK
	June	0 CZK	0 CZK	0 CZK	0 CZK	9 000 CZK	0 CZK	0 CZK	0 CZK	0 CZK	2 100 CZK	11 100 CZK
	July	0 CZK	0 CZK	0 CZK	0 CZK	9 000 CZK	0 CZK	0 CZK	2 500 CZK	50 810 CZK	2 100 CZK	64 410 CZK
Σ	1 050 000 CZK	5 263 000 CZK	350 000 CZK	30 168 700 CZK	408 000 CZK	57 000 CZK	603 374 CZK	72 500 CZK	1 279 452 CZK	67 200 CZK	39 319 226 CZK	

Appendix No. 8 Cash Flow of the project of the block of flats

Time period		Total expenditures	Using own financial resources	Balance of own financial resources	Using external financial resources	Amount of interest	Installment of the loan	Total revenues	CF	Cumulative CF
2015	June	5 263 000 CZK	5 263 000 CZK	6 532 768 CZK	0 CZK	0 CZK	0 CZK	0 CZK	-5 263 000 CZK	-5 263 000 CZK
	July	12 000 CZK	12 000 CZK	6 520 768 CZK	0 CZK	0 CZK	0 CZK	0 CZK	-12 000 CZK	-5 275 000 CZK
	August	362 000 CZK	362 000 CZK	6 158 768 CZK	0 CZK	0 CZK	0 CZK	0 CZK	-362 000 CZK	-5 637 000 CZK
	September	12 000 CZK	12 000 CZK	6 146 768 CZK	0 CZK	0 CZK	0 CZK	0 CZK	-12 000 CZK	-5 649 000 CZK
	October	12 000 CZK	12 000 CZK	6 134 768 CZK	0 CZK	0 CZK	0 CZK	0 CZK	-12 000 CZK	-5 661 000 CZK
	November	12 000 CZK	12 000 CZK	6 122 768 CZK	0 CZK	0 CZK	0 CZK	0 CZK	-12 000 CZK	-5 673 000 CZK
	December	712 000 CZK	712 000 CZK	5 410 768 CZK	0 CZK	0 CZK	0 CZK	0 CZK	-712 000 CZK	-6 385 000 CZK
2016	January	12 000 CZK	12 000 CZK	5 398 768 CZK	0 CZK	0 CZK	0 CZK	0 CZK	-12 000 CZK	-6 397 000 CZK
	February	12 000 CZK	12 000 CZK	5 386 768 CZK	0 CZK	0 CZK	0 CZK	0 CZK	-12 000 CZK	-6 409 000 CZK
	March	72 000 CZK	72 000 CZK	5 314 768 CZK	0 CZK	0 CZK	0 CZK	0 CZK	-72 000 CZK	-6 481 000 CZK
	April	164 431 CZK	164 431 CZK	5 300 336 CZK	0 CZK	0 CZK	0 CZK	150 000 CZK	-14 431 CZK	-6 495 431 CZK
	May	164 431 CZK	164 431 CZK	5 285 905 CZK	0 CZK	0 CZK	0 CZK	150 000 CZK	-14 431 CZK	-6 509 863 CZK
	June	113 621 CZK	113 621 CZK	5 272 284 CZK	0 CZK	0 CZK	0 CZK	100 000 CZK	-13 621 CZK	-6 523 484 CZK
	July	2 208 533 CZK	2 208 533 CZK	6 365 622 CZK	0 CZK	0 CZK	0 CZK	3 301 871 CZK	1 093 338 CZK	-5 430 145 CZK
	August	2 371 444 CZK	2 371 444 CZK	4 450 663 CZK	0 CZK	0 CZK	0 CZK	456 484 CZK	-1 914 960 CZK	-7 345 105 CZK
	September	2 425 747 CZK	2 425 747 CZK	2 481 399 CZK	0 CZK	0 CZK	0 CZK	456 484 CZK	-1 969 263 CZK	-9 314 368 CZK
	October	2 639 469 CZK	2 639 469 CZK	348 414 CZK	0 CZK	0 CZK	0 CZK	506 484 CZK	-2 132 985 CZK	-11 447 353 CZK
	November	2 945 125 CZK	348 414 CZK	0 CZK	2 596 711 CZK	79 342 CZK	0 CZK	812 968 CZK	-348 414 CZK	-11 795 768 CZK
	December	3 131 695 CZK	0 CZK	0 CZK	3 131 695 CZK	79 155 CZK	0 CZK	50 000 CZK	0 CZK	-11 795 768 CZK
2017	January	3 009 429 CZK	0 CZK	0 CZK	3 009 429 CZK	77 630 CZK	0 CZK	406 484 CZK	0 CZK	-11 795 768 CZK
	February	2 727 911 CZK	0 CZK	0 CZK	2 727 911 CZK	77 630 CZK	0 CZK	0 CZK	0 CZK	-11 795 768 CZK
	March	2 429 240 CZK	0 CZK	0 CZK	2 429 240 CZK	77 630 CZK	0 CZK	0 CZK	0 CZK	-11 795 768 CZK
	April	2 609 343 CZK	0 CZK	0 CZK	2 609 343 CZK	77 255 CZK	0 CZK	100 000 CZK	0 CZK	-11 795 768 CZK
	May	1 770 610 CZK	0 CZK	0 CZK	1 770 610 CZK	73 832 CZK	0 CZK	912 968 CZK	0 CZK	-11 795 768 CZK
	June	2 115 010 CZK	0 CZK	0 CZK	2 115 010 CZK	70 596 CZK	0 CZK	862 968 CZK	0 CZK	-11 795 768 CZK
	July	1 580 935 CZK	0 CZK	0 CZK	1 580 935 CZK	70 596 CZK	0 CZK	30 349 259 CZK	0 CZK	-11 795 768 CZK
	August	72 810 CZK	72 810 CZK	12 799 705 CZK	0 CZK	0 CZK	0 CZK	22 654 549 CZK	2 032 419 CZK	-20 694 940 CZK
	September	73 210 CZK	73 210 CZK	14 758 914 CZK	0 CZK	0 CZK	0 CZK	2 032 419 CZK	1 959 209 CZK	-30 531 499 CZK
	October	66 110 CZK	66 110 CZK	16 725 223 CZK	0 CZK	0 CZK	0 CZK	2 032 419 CZK	1 966 309 CZK	-28 565 190 CZK
	November	13 200 CZK	13 200 CZK	16 712 023 CZK	0 CZK	0 CZK	0 CZK	0 CZK	-13 200 CZK	-28 578 390 CZK
	December	13 200 CZK	13 200 CZK	16 698 823 CZK	0 CZK	0 CZK	0 CZK	0 CZK	-13 200 CZK	-28 591 590 CZK
2018	January	13 200 CZK	13 200 CZK	16 685 623 CZK	0 CZK	0 CZK	0 CZK	0 CZK	-13 200 CZK	-28 604 790 CZK
	February	13 200 CZK	13 200 CZK	16 672 423 CZK	0 CZK	0 CZK	0 CZK	0 CZK	-13 200 CZK	-28 617 990 CZK
	March	13 200 CZK	13 200 CZK	16 659 223 CZK	0 CZK	0 CZK	0 CZK	0 CZK	-13 200 CZK	-28 631 190 CZK
	April	66 510 CZK	66 510 CZK	18 625 132 CZK	0 CZK	0 CZK	0 CZK	2 032 419 CZK	1 965 909 CZK	-26 665 281 CZK
	May	11 100 CZK	11 100 CZK	18 614 032 CZK	0 CZK	0 CZK	0 CZK	0 CZK	-11 100 CZK	-26 676 381 CZK
	June	11 100 CZK	11 100 CZK	18 602 932 CZK	0 CZK	0 CZK	0 CZK	0 CZK	-11 100 CZK	-26 687 481 CZK
	July	64 410 CZK	64 410 CZK	20 570 941 CZK	0 CZK	0 CZK	0 CZK	2 032 419 CZK	1 968 009 CZK	-24 719 472 CZK
Σ		39 319 226 CZK	17 348 343 CZK		21 970 883 CZK	683 666 CZK	22 654 549 CZK	48 778 065 CZK		

Explanatory notes:

1. Balance of own financial resources - The first number 6 532 768 CZK = 11 795 768 CZK (Own financial resources, Chapter 6.5.6 Cost of external finances) - 5 263 000 CZK (prize of the land)
2. Amount of interest is calculated as the whole bank loan which is needed (21 970 768 CZK - 812 968 CZK) x 4,5% / 12. This amount of interest gradually declines as payments for houses come.
3. Total revenues, there are not the precise prices for the flats but in general the profit / 24 (number of flats)

Appendix No. 12 Cash Flow of the project of the administrative building

Time period	Total expenditures	Using own financial resources	Balance of own financial resources	Using external financial resources	Amount of interest	Installment of the loan	Total revenues	CF	Cumulative CF	
2015	June	5 263 000 CZK	5 263 000 CZK	19 447 276 CZK	0 CZK	0 CZK	0 CZK	-5 263 000 CZK	-5 263 000 CZK	
	July	12 000 CZK	12 000 CZK	19 435 276 CZK	0 CZK	0 CZK	0 CZK	-12 000 CZK	-5 275 000 CZK	
	August	492 000 CZK	492 000 CZK	18 943 276 CZK	0 CZK	0 CZK	0 CZK	-492 000 CZK	-5 767 000 CZK	
	September	12 000 CZK	12 000 CZK	18 931 276 CZK	0 CZK	0 CZK	0 CZK	-12 000 CZK	-5 779 000 CZK	
	October	12 000 CZK	12 000 CZK	18 919 276 CZK	0 CZK	0 CZK	0 CZK	-12 000 CZK	-5 791 000 CZK	
	November	12 000 CZK	12 000 CZK	18 907 276 CZK	0 CZK	0 CZK	0 CZK	-12 000 CZK	-5 803 000 CZK	
	December	712 000 CZK	712 000 CZK	18 195 276 CZK	0 CZK	0 CZK	0 CZK	-712 000 CZK	-6 515 000 CZK	
	January	12 000 CZK	12 000 CZK	18 183 276 CZK	0 CZK	0 CZK	0 CZK	-12 000 CZK	-6 527 000 CZK	
	February	12 000 CZK	12 000 CZK	18 171 276 CZK	0 CZK	0 CZK	0 CZK	-12 000 CZK	-6 539 000 CZK	
	March	12 000 CZK	12 000 CZK	18 159 276 CZK	0 CZK	0 CZK	0 CZK	-12 000 CZK	-6 551 000 CZK	
	April	12 000 CZK	12 000 CZK	18 147 276 CZK	0 CZK	0 CZK	0 CZK	-12 000 CZK	-6 563 000 CZK	
	May	12 000 CZK	12 000 CZK	18 135 276 CZK	0 CZK	0 CZK	0 CZK	-12 000 CZK	-6 575 000 CZK	
2016	June	12 000 CZK	12 000 CZK	18 123 276 CZK	0 CZK	0 CZK	0 CZK	-12 000 CZK	-6 587 000 CZK	
	July	12 000 CZK	12 000 CZK	18 111 276 CZK	0 CZK	0 CZK	0 CZK	-12 000 CZK	-6 599 000 CZK	
	August	468 795 CZK	468 795 CZK	17 642 481 CZK	0 CZK	0 CZK	0 CZK	-468 795 CZK	-7 067 795 CZK	
	September	3 257 400 CZK	3 257 400 CZK	15 385 081 CZK	0 CZK	0 CZK	1 370 385 CZK	-1 887 024 CZK	-8 954 819 CZK	
	October	4 297 292 CZK	4 297 292 CZK	11 087 789 CZK	0 CZK	0 CZK	0 CZK	-4 297 292 CZK	-13 252 111 CZK	
	November	5 084 705 CZK	5 084 705 CZK	6 003 084 CZK	0 CZK	0 CZK	0 CZK	-5 084 705 CZK	-18 336 816 CZK	
	December	5 740 882 CZK	5 740 882 CZK	2 262 202 CZK	0 CZK	0 CZK	0 CZK	-5 740 882 CZK	-24 077 698 CZK	
	January	5 347 176 CZK	632 578 CZK	0 CZK	4 714 597 CZK	234 529 CZK	0 CZK	0 CZK	-632 578 CZK	-24 710 276 CZK
	February	5 281 558 CZK	0 CZK	0 CZK	5 281 558 CZK	234 529 CZK	0 CZK	0 CZK	0 CZK	-24 710 276 CZK
	March	5 029 087 CZK	0 CZK	0 CZK	5 029 087 CZK	234 529 CZK	0 CZK	0 CZK	0 CZK	-24 710 276 CZK
	April	4 756 616 CZK	0 CZK	0 CZK	4 756 616 CZK	234 529 CZK	0 CZK	0 CZK	0 CZK	-24 710 276 CZK
	May	4 559 763 CZK	0 CZK	0 CZK	4 559 763 CZK	234 529 CZK	0 CZK	0 CZK	0 CZK	-24 710 276 CZK
2017	June	4 494 145 CZK	0 CZK	0 CZK	4 494 145 CZK	234 529 CZK	0 CZK	0 CZK	-24 710 276 CZK	
	July	3 969 204 CZK	0 CZK	0 CZK	3 969 204 CZK	234 529 CZK	0 CZK	0 CZK	-24 710 276 CZK	
	August	2 853 703 CZK	0 CZK	0 CZK	2 853 703 CZK	234 529 CZK	0 CZK	0 CZK	-24 710 276 CZK	
	September	2 722 468 CZK	0 CZK	0 CZK	2 722 468 CZK	234 529 CZK	0 CZK	0 CZK	-24 710 276 CZK	
	October	2 459 997 CZK	0 CZK	0 CZK	2 459 997 CZK	234 529 CZK	0 CZK	0 CZK	-24 710 276 CZK	
	November	2 113 008 CZK	0 CZK	0 CZK	2 113 008 CZK	234 529 CZK	0 CZK	0 CZK	-24 710 276 CZK	
	December	2 066 291 CZK	0 CZK	0 CZK	2 066 291 CZK	234 529 CZK	0 CZK	0 CZK	-24 710 276 CZK	
	January	1 935 055 CZK	0 CZK	0 CZK	1 935 055 CZK	234 529 CZK	0 CZK	0 CZK	-24 710 276 CZK	
	February	5 636 105 CZK	0 CZK	0 CZK	5 636 105 CZK	234 529 CZK	0 CZK	0 CZK	-24 710 276 CZK	
	March	3 676 428 CZK	0 CZK	0 CZK	3 676 428 CZK	220 337 CZK	0 CZK	0 CZK	-24 710 276 CZK	
	April	31 000 CZK	31 000 CZK	3 559 233 CZK	0 CZK	498 256 CZK	682 359 CZK	3 559 233 CZK	-21 151 043 CZK	
	May	31 000 CZK	31 000 CZK	3 712 337 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-20 997 939 CZK	
June	31 000 CZK	31 000 CZK	3 865 441 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-20 844 835 CZK		
July	31 000 CZK	31 000 CZK	4 018 544 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-20 691 732 CZK		
August	31 000 CZK	31 000 CZK	4 171 648 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-20 538 628 CZK		
September	31 000 CZK	31 000 CZK	4 324 752 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-20 385 524 CZK		
October	31 000 CZK	31 000 CZK	4 477 856 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-20 232 420 CZK		
November	31 000 CZK	31 000 CZK	4 630 959 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-20 079 317 CZK		
December	31 000 CZK	31 000 CZK	4 784 063 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-19 926 213 CZK		
January	31 000 CZK	31 000 CZK	4 937 167 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-19 773 109 CZK		
February	31 000 CZK	31 000 CZK	5 090 270 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-19 620 006 CZK		
March	31 000 CZK	31 000 CZK	5 243 374 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-19 466 902 CZK		
April	31 000 CZK	31 000 CZK	5 396 478 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-19 313 798 CZK		
May	31 000 CZK	31 000 CZK	5 549 582 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-19 160 694 CZK		
June	31 000 CZK	31 000 CZK	5 702 686 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-19 007 590 CZK		
July	31 000 CZK	31 000 CZK	5 855 789 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-18 854 487 CZK		
August	31 000 CZK	31 000 CZK	6 008 892 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-18 701 383 CZK		
September	31 000 CZK	31 000 CZK	6 162 000 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-18 548 280 CZK		
October	31 000 CZK	31 000 CZK	6 315 100 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-18 395 176 CZK		
November	31 000 CZK	31 000 CZK	6 468 203 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-18 242 072 CZK		
December	31 000 CZK	31 000 CZK	6 621 307 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-18 088 969 CZK		
January	31 000 CZK	31 000 CZK	6 774 411 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-17 935 865 CZK		
February	31 000 CZK	31 000 CZK	6 927 515 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-17 782 761 CZK		
March	31 000 CZK	31 000 CZK	7 080 619 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-17 629 657 CZK		
April	31 000 CZK	31 000 CZK	7 233 723 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-17 476 553 CZK		
May	31 000 CZK	31 000 CZK	7 386 827 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-17 323 449 CZK		
June	31 000 CZK	31 000 CZK	7 540 931 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-17 170 345 CZK		
July	31 000 CZK	31 000 CZK	7 694 035 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-17 017 241 CZK		
August	31 000 CZK	31 000 CZK	7 847 139 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-16 864 137 CZK		
September	31 000 CZK	31 000 CZK	8 000 243 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-16 711 033 CZK		
October	31 000 CZK	31 000 CZK	8 153 347 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-16 557 929 CZK		
November	31 000 CZK	31 000 CZK	8 306 451 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-16 404 825 CZK		
December	31 000 CZK	31 000 CZK	8 459 555 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-16 251 721 CZK		
January	31 000 CZK	31 000 CZK	8 612 659 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-16 098 617 CZK		
February	31 000 CZK	31 000 CZK	8 765 763 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-15 945 513 CZK		
March	31 000 CZK	31 000 CZK	8 918 867 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-15 792 409 CZK		
April	31 000 CZK	31 000 CZK	9 071 971 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-15 639 305 CZK		
May	31 000 CZK	31 000 CZK	9 225 075 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-15 486 201 CZK		
June	31 000 CZK	31 000 CZK	9 378 179 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-15 333 097 CZK		
July	31 000 CZK	31 000 CZK	9 531 283 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-15 179 993 CZK		
August	31 000 CZK	31 000 CZK	9 684 387 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-15 026 889 CZK		
September	31 000 CZK	31 000 CZK	9 837 491 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-14 873 785 CZK		
October	31 000 CZK	31 000 CZK	10 000 595 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-14 720 681 CZK		
November	31 000 CZK	31 000 CZK	10 163 699 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-14 567 577 CZK		
December	31 000 CZK	31 000 CZK	10 326 803 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-14 414 473 CZK		
January	31 000 CZK	31 000 CZK	10 490 907 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-14 261 369 CZK		
February	31 000 CZK	31 000 CZK	10 655 011 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-14 108 265 CZK		
March	31 000 CZK	31 000 CZK	10 819 115 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-13 955 161 CZK		
April	31 000 CZK	31 000 CZK	11 000 219 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-13 802 057 CZK		
May	31 000 CZK	31 000 CZK	11 181 323 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-13 648 953 CZK		
June	31 000 CZK	31 000 CZK	11 362 427 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-13 495 849 CZK		
July	31 000 CZK	31 000 CZK	11 543 531 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-13 342 745 CZK		
August	31 000 CZK	31 000 CZK	11 724 635 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-13 189 641 CZK		
September	31 000 CZK	31 000 CZK	11 905 739 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-13 036 537 CZK		
October	31 000 CZK	31 000 CZK	12 086 843 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-12 883 433 CZK		
November	31 000 CZK	31 000 CZK	12 267 947 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-12 730 329 CZK		
December	31 000 CZK	31 000 CZK	12 449 051 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-12 577 225 CZK		
January	31 000 CZK	31 000 CZK	12 630 155 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-12 424 121 CZK		
February	31 000 CZK	31 000 CZK	12 811 259 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-12 271 017 CZK		
March	31 000 CZK	31 000 CZK	12 992 363 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-12 117 913 CZK		
April	31 000 CZK	31 000 CZK	13 173 467 CZK	0 CZK	498 256 CZK	682 359 CZK	153 104 CZK	-11 964 809 CZK		
May	31 000 CZK									