

**İSTANBUL KULTUR UNIVERSITY ★ INSTITUTE OF SCIENCE**

**MAIN PROBLEMS AND PROSPECTIVE SOLUTIONS FOR TURKISH SMALL  
AND MEDIUM SIZED (SME) CONSTRUCTION COMPANIES SPECIALIZED ON  
THE REAL ESTATE SECTOR**

**MSc Thesis by**

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**KONUT SEKTÖRÜNDE FAALİYET GÖSTEREN KÜÇÜK VE ORTA ÖLÇEKLİ  
İNŞAAT ŞİRKETLERİNİN KARŞILAŞTIĞI SORUNLAR VE BU SORUNLARA  
YÖNELİK ÇÖZÜMLER**

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## **ABBREVIATIONS:**

<b>CSO:</b>	: Civil Society Organizations
<b>SME</b>	: Small and Medium Sized Entreprises
<b>OECD</b>	: Organization for Economic Co-operation and Development
<b>TOBB</b>	: Turkish Chambers and Commerce Union
<b>ETO</b>	: Eskisehir Chamber of Commerce
<b>İNİŞEV</b>	: Turkish Construction and Installation Workers' Education Foundation
<b>ERP</b>	: Entreprise Resource Project

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**University** : **İstanbul Kültür University**  
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## **ABSTRACT**

### **MAIN PROBLEMS AND PROSPECTIVE SOLUTIONS FOR TURKISH SMALL AND MEDIUM SIZED (SME) CONSTRUCTION COMPANIES SPECIALIZED IN THE REAL ESTATE SECTOR**

**Gökmen GÖKSEL**

In this thesis, the problems of Turkish SME companies that operate in the construction sector are analyzed and a number of solutions are proposed. It is worth noting that the importance of the SME companies in terms of providing employment is crucial in the local construction sector. On the other hand, Turkey is now in the context of European Union accession talks, and it becomes more and more important every day to learn about the SME typed construction companies in the European Union , to see the best practices if any, and to comparatively analyze Turkey's situation from previously published work of EU. Besides, the problems that are faced by the SME construction companies in Turkey are being revealed by the research conducted in the context of the study. Net, this thesis is prepared with the aim of revealing the problems of Turkish SME construction companies that operate in the real estate sector and recommending several solutions to the cited issues.



**Üniversitesi** : **İstanbul Kültür Üniversitesi**  
**Enstitüsü** : **Fen Bilimleri**  
**Anabilim Dalı** : **İnşaat Mühendisliği**  
**Programı** : **Proje Yönetimi**  
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**Tez Türü ve Tarihi** : **Yüksek Lisans – Eylül 2007**

## **ÖZET**

### **KONUT SEKTÖRÜNDE FAALİYET GÖSTEREN KÜÇÜK VE ORTA ÖLÇEKLİ İNŞAAT ŞİRKETLERİNİN KARŞILAŞTIĞI SORUNLAR VE BU SORUNLARA YÖNELİK ÇÖZÜMLER- Gökmen GÖKSEL**

Bu çalışmada, Türkiye ekonomisinde oldukça önemli bir yere sahip olan inşaat sektörünün, Küçük ve Orta ölçekli firmalar bazında yaşadığı sıkıntılar ve bu sıkıntılara karşı alınabilecek çözüm önerileri incelenmiştir. İstihdam yaratma konusunda etkin bir sektör olan inşaat sektöründe, Küçük ve Orta ölçekli firmaların önemi yeterince anlaşılamamaktadır. Avrupa Birliği'ne adaylık sürecindeki Türkiye'nin diğer pek çok sektörde olduğu gibi, inşaat sektöründe de kat etmekte olduğu mesafe yadsınamaz. Üyelik sürecinde irdelenmesi gereken temel konulardan birisi de Birliğe üye ülkelerdeki eşdeğer firmalar hakkındaki araştırmaların irdelenmesidir. Bu konuda yürütülen çalışmaların Türkiye'deki pek çok firma için oldukça aydınlatıcı olduğu bir gerçektir. Bunun yanı sıra, sektör firmalarının yaşadığı sıkıntılar, sektörün içinden gelen firmalarla yapılan anketlerde gözlenmekte ve sorunların tespiti yönünde oldukça etkili bir bilgi kaynağı oluşmaktadır. Bu bilgiler ışığında hazırlanmış olan bu tez, Türkiye'de önemli bir konumda olan inşaat sektörünün konut fazında faaliyet gösteren firmaları için, sıkıntılarının derlenmesinde ve bu sıkıntılara çözüm önerileri sunmak gayesinde hazırlanmıştır.

## **CHAPTER 1**

### **Introduction:**

#### **1.1. SME Typed Construction Companies:**

Construction sector has been a leading sector for the Turkish economy for many years. This sector presents a large number of job opportunities, nearly 1.820.000. Out of this total 124.000 have a union membership and 1.696.000 does not have a union membership<sup>1</sup>. Therefore, considering the potential that this sector holds it is very important that sufficient focus is given to analyze and improve this sector.

On the other hand, some experienced non-educated workers can also start to work on more complex jobs in the sector and this causes improper and wrong material usage, inefficient use of time even injuries and death. However, complex job titles like, flooring ceramic, concrete casting, iron preparation and placing iron sections, wall knitting, painting, plastering, scaffolding jobs, every kind of moldings should be conducted by master workers who have sufficient knowledge on the job and every master must be work only his own job title.

Many Turkish big sized construction companies that are working on the different types of this sector like; housing estate, dam construction, transportation, etc. are in the leading positions all over the world. These companies work by using the modern technologic products and newest techniques.

However, this sector conflicts deeply inside. Small and medium sized construction companies, which have less than 250 employees and maximum 25 million Turkish liras balance sheet position, are not working so technically contrary to their large counterparts.<sup>2</sup>

The underlying reasons behind this will be explained details in this thesis. Besides this, to serve as a benchmark a number of observations from European

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<sup>1</sup> Ministry of Labour and Social Security – July 2006 Report

<sup>2</sup> Government Regulations with the decision number of 2005/9617

Union will be illustrated and probable solutions for the problems in Turkey will be provided.

The main researches of the European Foundation for the Improvement of Living and Working Conditions have an objective observationally looking side. In the thesis European zone's construction vision will be described with detailed information. As a candidate of the European Union, Turkey has a changing period for according to the Union and in this period many departments of the Turkish government and Turkish CSO's are preparing for harmonious cooperation. By the way, many sectors are effecting directly or indirectly from this process. Especially construction sector and other sectors which have strong connections with construction sector are improving their systems and motivating for this partnership. This process is affecting very strongly these sectors and as a result of this some problems should be happens very often.

Mortgage is looking like a new era, but laws are not ready completely yet. However, mortgage is affecting to the sector already now. This system is giving new speeches for building high quality and well designed projects. Social and high – class houses and working places can be financed with this system as in other countries like United States, Canada or in EU. Housing approaches are changing day by day. Turkish people are chasing modern designs with a rising estimate more than last years. Classic housing techniques are also changing with this movement. Hoarding<sup>3</sup> buildings are vanishing and these buildings are being replaced with iron or concrete buildings. This trend shows us earthquake and other natural disasters are being seen as real problems by the citizens. In 1999, Izmit and Duzce earthquakes injured many people very deeply. These earthquakes show house quality must be in the highest level for all citizens. After these earthquakes and 2001 economic crisis, construction sector's growing ratio was passed through to a more stable position for nearly 2 years. In the questionnaire part of the thesis, % 64 of companies has declared this. Also % 16 companies still declares that they can not turn back to the economic growing velocity as on the previous period of 1999 and 2001.

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<sup>3</sup> Yiğma

These problems are going to be addressed with much better solutions nowadays. The sector has reached nearly % 4, 4 of the Turkish economy. This is a great score but as on the EU countries this ratio rises to %11, 8.<sup>4</sup> This shows us, construction sector must grow more than this, and the sector has to get a leading position in the economy.

In this thesis, some specialized problems were detected and these main problems are displayed clearly. Main headlines describe problems; give examples from other countries, especially EU countries. The consecutive parts explain the results of the research done via questionnaires and quantified with SPSS statistical software tool afterwards.

## **1.2. Main Problems of the Construction Sector:**

As an organizational chain the construction sector must improve itself and also must follow the new technologic trends day by day. However, this brings incremental costs and lower profit margins which are not wanted by the companies that work in a very competitive environment. This is one of the most important impediments on the improvement of the construction sector.

Having said that, it is right to state that the ‘Low profit margins’ understanding mainly differs across different points of view which will be explained in the following chapters via the publications of the ministry of public works and settlement.

The major problems of the constructions sector can be stated as follows;

1. None educated masters, non qualified workmen and subcontractors.
2. Building materials prices.
3. reproducing building plots from municipal governments
4. inflation of the construction companies
5. not being helpful chamber of commerce’s in some Anatolian cities
6. Software straits and ‘Open Source’ Information Technologies.

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<sup>4</sup> Report of Global Industrial Restructuring: Implications of small firms”, OECD Working Paper 2005 / 4, Sakai Kentaro

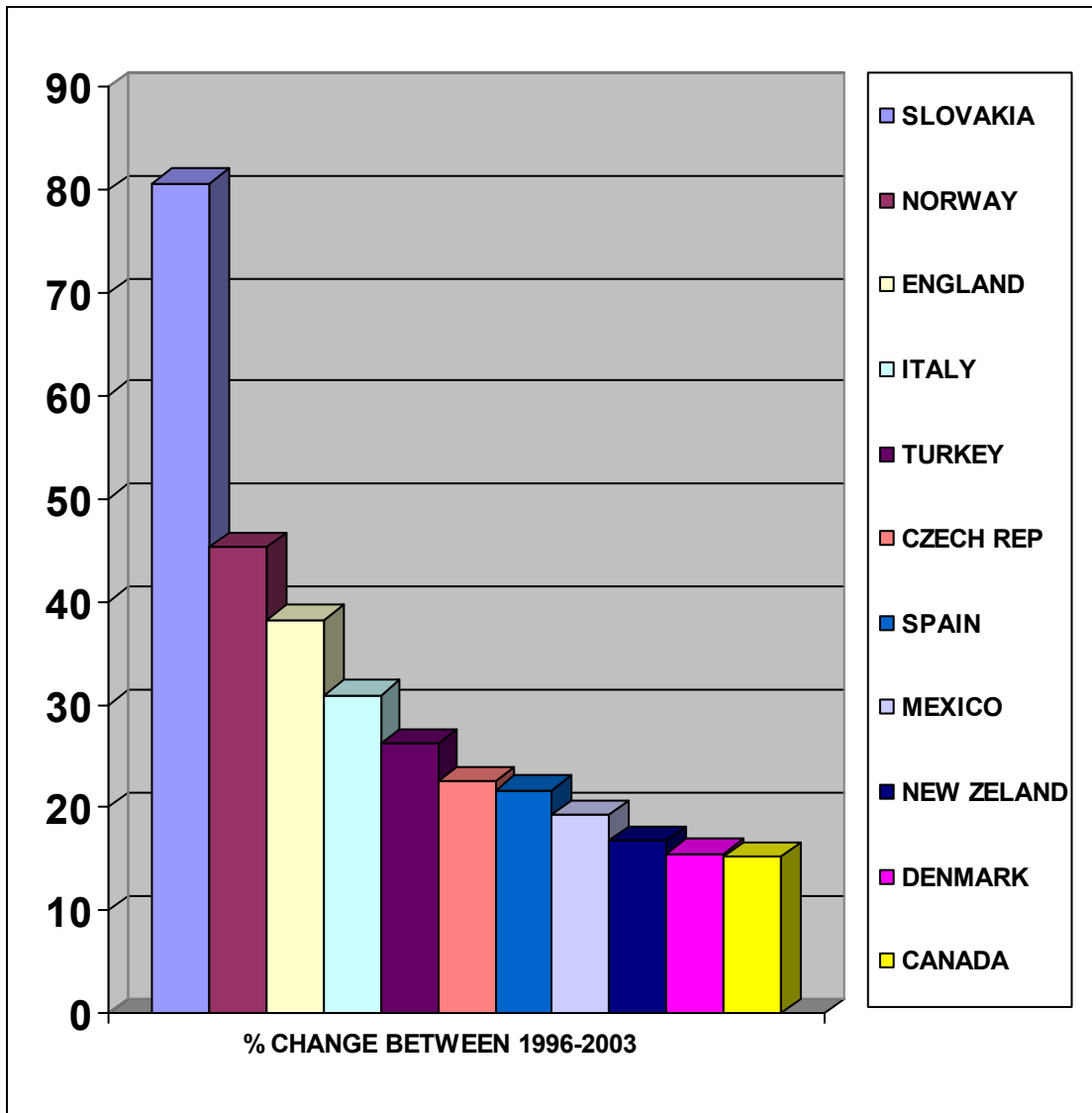
## **CHAPTER 2: MAIN PROBLEMS OF THE SECTOR:**

### **2.1. Situation of the Employees in the Sector:**

As said before, construction sector has a leading role in providing job opportunities to a wide range of people in terms of educational background. In this respect, this sector also accomplishes a sociologic mission by combining both well-educated and uneducated people with very different backgrounds. Non educated people usually choose to work in construction sector because some types of jobs in this sector only look for manual basic work and do not require any talent or educational background. This aspect of the sector attracts low-quality employees contrary to ‘machinery handling jobs’ or ‘knowledge intensive technological jobs in other sectors. Besides this, the sector offers people a minimum 3 – 5 years working period. This is also another advantage from agricultural jobs.

Payment system is another advantage for choosing construction jobs by non educated workers. Payment system depends on the company but the general treatment is ‘daily payment’. In Turkish SME Construction Market, employers’ propensity is ‘daily pay’ because by this way, employers avoid weekly / monthly payments. In addition to this, the sector had grown without any social insurance system from the past. In an emergency situation, like an accident at the building site, employer can pay the workers social insurance at the same day and by this way worker can deal with all hospitals. However, workers can not be a pensioner in their retirements because of not completing the minimum social insurance working period to be eligible for Social Security Benefits. It is worth pointing that workers that are not protected by the social security system must be educated about the risks of not having illness and impairment benefits.

Rising manpower costs is the main reason for unemployment and working with ‘minimum men for maximum job efficiency’ attitude. Turkey ranks 5<sup>th</sup> in the high manpower cost countries across OECD. The manpower cost changing index between 1996 and 2003 is %26.3. This is the highest 5<sup>th</sup> mark after Italy. (See Table 2.1)



GRAPHIC 2.1: UNIT MANPOWER COST CHANGING FOR WORKERS INDEX

Source: OECD

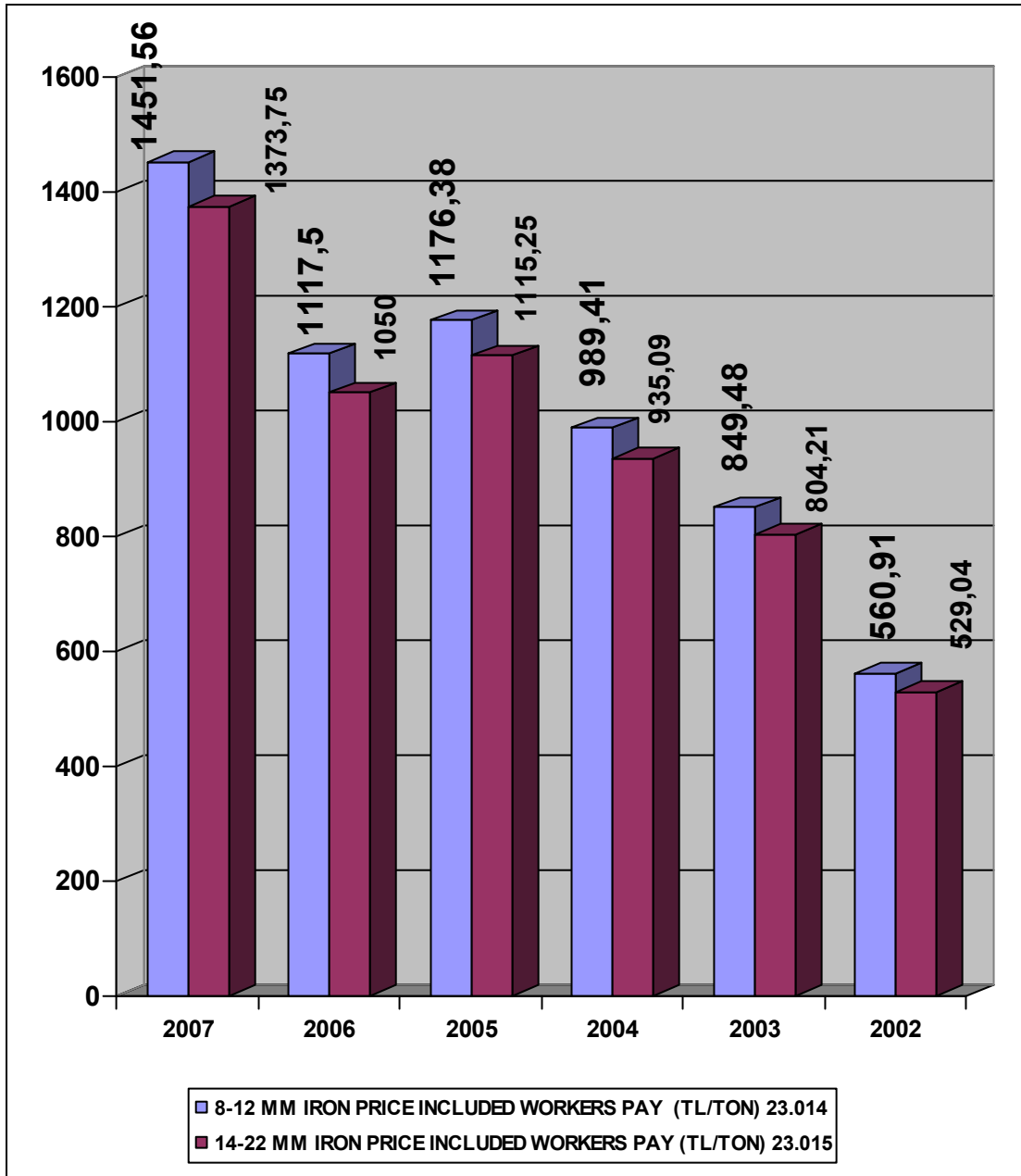
## 2.2. Out of Control Material Prices:

Material prices are a main reason on setting the sales costs. Actually material prices are changing from seller to seller. Increased costs have direct effects on selling prices. It can be said that SME typed construction companies are the most effected group by the prices. In this thesis, special focus is given to constructors working with minimum capacity and constructing inside alleys. Besides, questionnaires are applied to constructors that have finished buildings and that have ongoing projects

that are under 100 houses. Prices are built from different factors like; market conditions, building land buying percentage or the price of building land, material prices, worker x hour index, etc. Also the tendency for constructors is to buy from the sellers that they have close relationships. That is why material prices are an unrevealed topic and at this point 'Information Technologies' (IT) should help with solution methodology via providing transparency.

For example, TOBB (Turkish Chambers and Commerce Union) has an open source internet site which provides local price lists of many agricultural products. In accordance with this, Turkish Engineering Chambers can prepare a web based source of price lists locally for saving constructors and also for restricting non fair trading.

Also another important thing is; "The Unit Price List Book for Construction Sector" which is published every year by The Ministry of Public Works And Settlement and some other publications like "NATO Unit Price Book for Constructions" is prepared for whole cities. But this is a major problem for the authority who organizes and/or plans the construction site or the constructor who won the awarding and organizes for the construction. Construction materials prices affect the quality of the project and also practicability. Main materials that are used on the heavy part of a construction like iron or cement are very important as we all know. These main materials' prices are declared every year on the governmental publications. Inflationist economy and local markets' conditions do affect the prices. This problem can be observed in the other markets like structural iron markets. This market is having strongly aggressive price changes. In last 6 years structural iron markets' prices changed nearly about % 250. (See Graphic.2.2)



GRAPHIC 2-2 – Price changes of construction iron between 2002 and 2007 (Reference Ministry of Public Works Building Unit Price Books)

Also Turkish entrepreneurs sell some delicate products for using at wet floors or decorative products. But these are not the main cost increasers for a building. Local cement prices, structural iron prices, wages, building site casting concrete, brick and plaster prices are more selective parameters for a construction and these have, for sure, more effect on prices.

Prepared concrete prices for ‘C25’, type of a concrete, which means, 25 Mpa for 28 days with a 25 cm radius cylindrical concrete sample’s pressure test result, can be



sold from 60 YTL (VAT included) in Eskişehir city center whereas this price can increase to 90 YTL (VAT included ) in Gaziantep city center. Also the same product's price can be increased to 100 YTL (VAT included) in Istanbul and 115 YTL (VAT included) in İzmir. This kind of price changes effects the cost of the building easily.

Also concrete producers and cement factories positions to these establishments are important but the main reason is looking like hard competition conditions. For instance, there are 7 concrete producers in Eskişehir and there is 1 cement factory near the city. However there are 3 concrete producers in Gaziantep and same as Eskişehir, there is 1 cement factory near city center.

The same factor, logistics of the product, is a main problem for other materials. Railway is seeing a good solution but clumsy – working railways does not help to the sector very much for this period.

The same problem is also valid for the other materials. Cement, prepared concrete and iron are the main elements for coarse phase of the construction. However, workers and auxiliary materials wire, nail, etc. Also directly affects the cost of a construction.

### **2.3. Municipal Governments:**

Municipal governments are charged with preparing new building lots and social living zones' creations and serving fundamental needs to these zones like water and sewerage systems. Also municipal governments are responsible from controlling the building projects and have authorization for them. These are just the main functions but local governments have authority to affect many other topics for the sector.

SME typed companies surveyed showed us that nearly 90 % of the companies are not glad with their local governments. Also this survey shows us that only local governments are not enough for the companies. Other sources like electricity distribution companies or natural gas distribution companies are seemed to be not enough for the sector. It is obvious that this kind of a dynamic sector needs more effective service companies and local governments with a huge vision.

The common attitude of municipal governments in Turkey is to restrict the building plot areas in the city centers where as giving permission to high rise buildings and next – to next order style city planning.

As seen on the table, Rotterdam’s ratio is 0,052109. However, on this calculation the parameters are selected from whole cities. But if this calculation is made with city center area over population; this ratio changes with 0,002092. The rate decreased to 0,050017. If we examine this ratio for Eskisehir the rate decreased to 0, 02393.

		ROTTERDAM	ISTANBUL	ATHENS	ROME	PARIS	DIYARBAKIR	ESKISEHIR	HAMBURG	ANKARA
1	AREA – A1 - (KM <sup>2</sup> )	30424	15387	38964	12850	14518	15355	13653	75503	30715
2	POPULATION	583853	10041477	3761810	2547677	11511986	1362708	557028	1703464	4007860
3	RATIO1 (A1/ P)	0,052109	0,001532	0,010358	0,005044	0,001261	0,011268	0,02451	0,044323	0,007664
4	CITY CENTER AREA –A2- (KM <sup>2</sup> )	1222	4564	1386	4683	9713	312	323	1972	956
5	RATIO2 (A2/ P)	0,002092	0,000455	0,000368	0,001838	0,000844	0,000229	0,00058	0,001158	0,000239
6	DIFFERENCE BETWEEN A1/P & A2/P	0,002092	0,001077	0,0099	0,003206	0,000417	0,011039	0,02393	0,043165	0,007425
7	M <sup>2</sup> AREA FOR EACH PERSON	2,092	0,455	0,368	1,838	0,844	0,229	0,580	1,158	0,239

Table 2-1- Information about m<sup>2</sup> areas for a person in some cities.

Source: [www.wikipedia.org](http://www.wikipedia.org)

#### **2.4. Inflation of the Construction Companies:**

This thesis' questionnaire has been applied 25 SME typed construction companies and these companies are especially chosen from different parts of Turkey. By this side, this thesis shows the sector's pulse as clear as it can be.

Some companies are mainly selected from capital cities and some of them are chosen from relatively small cities. By this way, these results can be more objective about the problems of the sector. This questionnaire's fillers are chosen from the people from inside the sector. That means, all companies' problems seem to be identical across the sector.

Economic fluctuations had influenced the constructors many times in the past. Genuinely, all economic fluctuations affect every sector from different angles. For the construction sector, we can easily say that this sector has really injured from the last economic crisis in 2001.

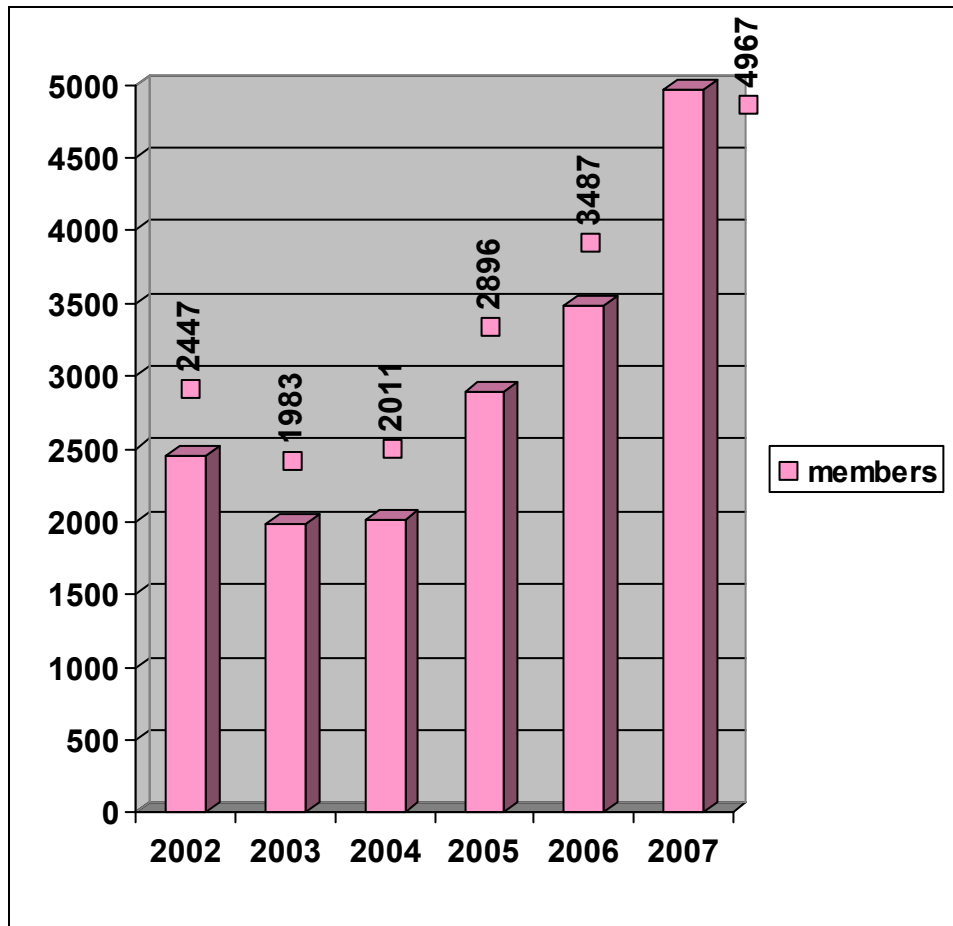
However, every crisis brings chances for some as well. After the 2001 crisis for example, we observed that, constructors started to get risk and take initiative. Chamber of commerce members are growing strikingly on the construction sector. This shows us; out of sector people are very fast for getting chances on the sector. But this can get problematic for real SME typed companies. These companies may spend so much effort for recovering from the adverse effects after the crisis even some of the companies had to close their businesses afterwards.

At this point the main problem is the continuity of companies inside the sector. For keeping these companies alive, there is no trade union or unity like as there is in some other sectors. If a company can not solve its economic problems and out of sector companies can grow whenever they want to; this makes matters worse for the original companies. % 24 of companies is thinking like this as seen on the questionnaire.

So, how can this situation change? This should be solved by an authority, which gives a certificate for being a construction company. There must be some

criteria for being a constructor because everybody agrees that construction sector affected everybody after earthquakes in various ways.

Another important index from ETO, (Eskisehir Chamber of Commerce) report for “Construction” department shows us that member numbers’ strikingly change. (See Table 4)



GRAPHIC 2-3: Construction classified member numbers of ETO.  
Between 2002 – 2007

### **2.5 Civil Society Organizations and Chambers:**

Civil society organizations and chambers which are interested in construction sector have some studies and organizational workshops about the sector. These studies are generally reported by a few of CSO and unfortunately these studies are just reported as a ‘periodical’ and ‘not included solution techniques’. TOBB (the

union of chambers and commodity exchanges of Turkey) has up – to – date reports for agricultural products on its web site. However construction sector which is a leading sector for Turkish economy has no knowledge – intensive resources. At least, Turkish CSO's have to catch up with the agricultural sector's information system standards for construction sector.

Also CSO's have some other obligations for saving the sector from outer economical and sociological dangers. Unfair revenue distributions and social insurance system warranties can be kept in safe with CSO's. These organizations should organize some educational workshops and also other occupational studies. Also CSO's should work as a dialog line between government and workers. By this way, workers can be told their specific problems directly.

Globalization and knowledge – intensive sectoral growing is getting more important day by day. However, especially SME's can not use these sectoral developments. For example, JCB operators are still a few people on the sector. There are same problems for all machine users like trucks, loaders, concrete pumpers, etc.

Today some organizations like İNİŞEV, Turkish Construction and Installation Workers' Education Foundation is a well organized, helpful enterprise in the sector.

Sector's needs must be followed and always reported by CSO's. For achieving success, monthly and yearly organizations must be prepared and by this way an efficient communication flow between constructors' should be established. Sector's problems should be revealed and detailed by first mouths and probable solutions should be discussed at these organizations. In other words, the power of communication must be used by every company. Experimental workshops must be prepared for transferring past experiences.

## **CHAPTER 3: TECHNOLOGY AND THE SECTOR:**

### **3.1. Technology and Construction Sector:**

Technology is growing day by day and every kind of job title has utilities from technology. In a circumstance like this, construction companies have, for sure, close links with technology. The most used technological tool in the construction sector is software solutions. But as a hard growing sector, construction companies are not able to adapt to new software programs and start using them easily. Today, a typical SME typed Construction Company; general uses basic Microsoft Windows® products along with basic accounting and finance tools to manage its daily operations.

Today's technologic trends are being set by well educated organizational companies in the whole markets. If a company cannot use technology profitably, this company will cease to die at some point in time.

### **3.2. Technologic Trends in Europe Zone:**

Economic conditions on construction sector for next 10 – 15 years are planned for European Union member countries from 'European Foundation for the Improvement of Living and Working Conditions' which is represented by 'European Monitoring Centre on Change'. This research reports discusses the year of 2005 and next 10 – 15 years. It has interesting results and Turkish construction markets should find some clues for their future from these reports.

The report called 'Trends and Drivers of Change in the European Construction Sector' has 4 different scenarios about the European construction sectors' future.

### **3.2.1. Future Scenarios for Construction Sector:**

Mainly, these scenarios' conclusions are;

Scenario 1: In this scenario, positive development of the world economy has led to extensive public and private investment in construction, and to international competition in the construction sector. A strong social dialogue together with legislation influenced by the 'flexicurity' - label policy initiatives that combine both employment and social objective goals model has resulted in a flexible labour market with a highly skilled and employable workforce. The sector's intelligent application of ICT<sup>5</sup> developments, nanotechnology and biotechnology has increased productivity significantly, and the principle of 'lean' construction is applied by all types of companies in the chain. In this scenario, the European construction industry is doing better on a global scale than 2005.

Scenario 2: The World economy has become more inactive and globalization has not developed at the step originally visualized in 2005. Major labor market reforms, aimed at less regulation and more flexibility, have been implemented in European countries. Such reforms, however, have been dominated by a liberal understanding of labor market dynamics and do not contain individual security measures, such as those envisaged in the 'flexicurity' model emphasized by the OECD (Organization for Economic Co-operation and Development) in 2005 as the way forward. Lack of successful implementation and integration of ICT on construction sites and within the value chain, as well as lack of development in building materials for 'module based construction', have led to a deskilling of many construction professions. Therefore, the gap between high-skilled and low-skilled jobs in the sector is increasing. This poses a number of challenges for different company types within the sector.

Scenario 3: This has had a serious impact on the construction sector, since customer demand in almost all sectors has fallen dramatically. The sector is also experiencing significant productivity problems, and information and communication technologies have not been implemented to the extent that was visualized in 2005.

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<sup>5</sup> Information and Communication Technologies

Scenario 4: Companies in the European construction sector are doing relatively well. The global political situation is relatively stable, and the world's leading economies are doing well. There is significant demand within the construction sector for many different types of projects, and generally, the sector has the competencies and technology to carry out these projects in a qualified and efficient manner. The major challenge in this scenario is an inflexible labor market in which wages are soaring and where companies in the sector are finding it increasingly difficult to recruit qualified personal.

These four scenarios show us that the small sized construction companies have no chance for growing for next 15 years except the first scenario. This study can help for Turkish construct markets with its technologic background and research techniques.

### **3.2.2. Main Groups Of Construction Companies:**

Also in this report, construction companies are divided into 3 different groups. These are;

1. Small construction companies
2. Medium and big sized companies
3. SME knowledge intensive companies



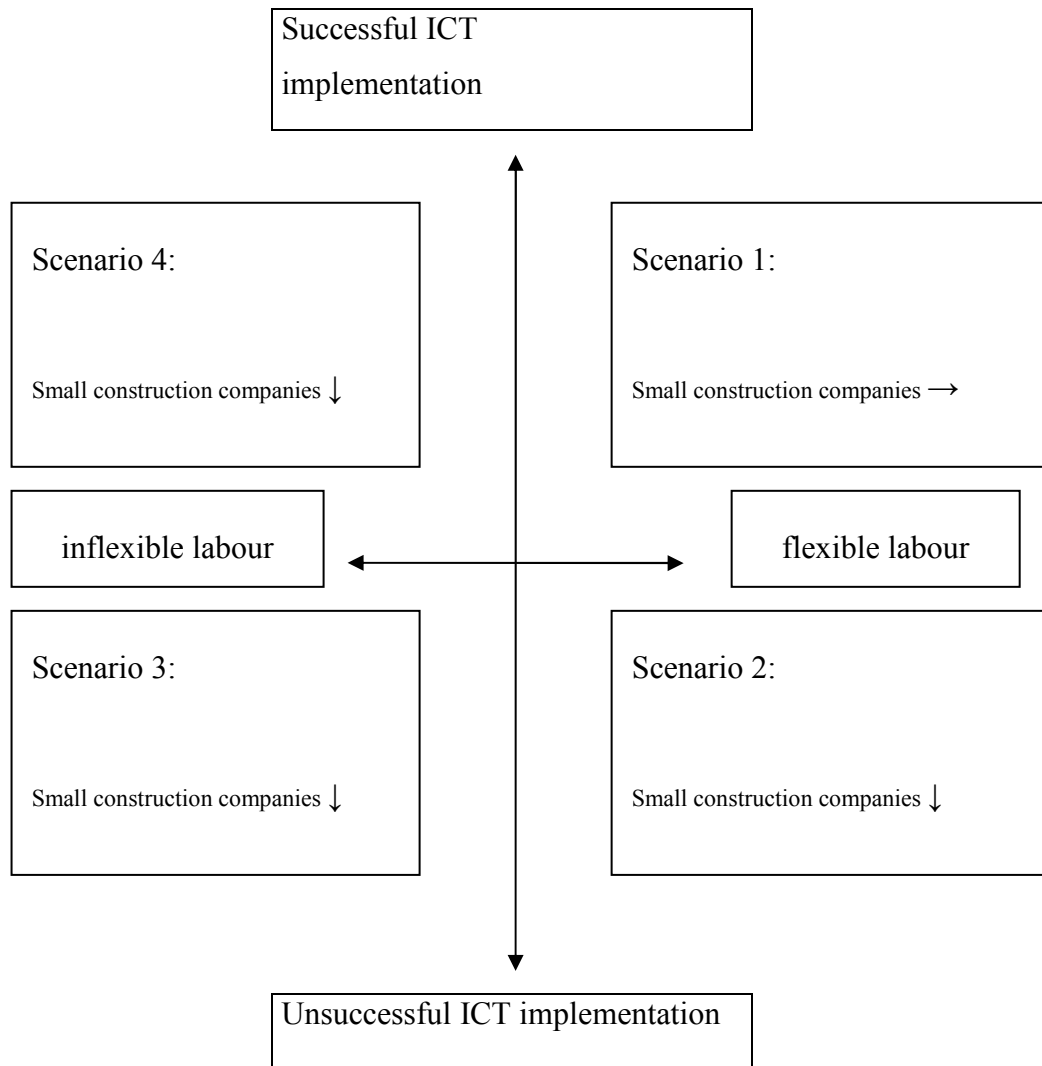


Table 3.1: Chart Successful / Unsuccessful Implementation<sup>6</sup>

SME knowledge intensive companies are mainly, a different type than other types. Basically, this kind of a company follows new technologic systems and implements to constructions. The main success point is ‘chasing new technologies’ for this type of companies.

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<sup>6</sup> Source: European Foundation for the Improvement of Living and Working Conditions, European Monitoring Center on Change

### **3.3. Operational Success Systems:**

Today's technical methods and processes are providing new approaches for us. For instance, licensed softwares are really helpful for construction sector. There are many big sized construction companies that utilize these ERP<sup>7</sup> for big projects. These softwares help companies in controlling, interfering and following every kind of information by responsible workers and managers. However these softwares are not really useful for SME typed construction companies.

Because those systems need to be utilized by good technical back grounded workers/engineers who are usually not apparent in SME's. Furthermore ERP systems are beneficial for companies which know their resources and constraints well so that they can plan to minimize the negative effects during the construction. However a large number of SME's are not very successful in knowing the completion date of their jobs. The research shows that % 48 of companies does not know the completion date of their project and they really do not need to know this.

Some ERP programs like Primavera, Avinal and MS Project Planner are not very popular softwares for SME's. As a matter of fact, these programs are not designed for SME's. These softwares are working with nearly 10000 job definitions and this is a huge number for a SME. Upgrading rather frequently to these programs is also another side effect for being no useful for SME's.

The general design and construction process introduces nearly 100 job definitions and this looks like for the responsible person in a SME very easy and basic. In fact, there is a big misunderstanding for this kind of SME managers. A construction site with a total of 100 job definitions should save many small job definitions accordingly cost - margin effects can be influenced easily. That means small type of constructions can save more expenses with controlling jobs.

Material and effort consumptions can also be saved by a good organizational operation. No matter what is the size of the project, every project must be designed

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<sup>7</sup> Entreprise Resource Projects

with a program. Important point is the organization of the 'project'. At this point, describing 'project' can be more helpful. To illustrate, the project; is an organization with its preparation, drawing periods, materials assurance phase, building zone preparations, constructing framework, constructing 'fine structure'. Of course, cost plans and financial organization – including money resource creations – must be added to these plans.

### **3.4. Designing a Good Construction Site and Getting the Best Efficiency:**

Until this point, Turkish construction sector's problems were described and futuristic scenarios are explained from European Union. From now on, the thesis will focus on finding solutions to the previously explained problems

Turkish construction sector has some characteristics that are different than some European, developed countries. Turkey has been passing from being a farming centered economy to being an industrial economy. This sociologic period is still passing with some economic dynamics. These dynamics mainly keep citizens together and also act as suspensions for social crisis. A leading dynamic, construction sector has a very important social role at this point. Low educated and non educated people can survive by this main sector. Many job opportunities can be way out for all people.

Some big sized companies are leading the sector all over the world. But small sized companies can not be very successful for their career. Knowledge intensity is a main reason for being successful on this sector. Wasting time with details is a dangerous point. However, many companies do not know time's importance. Long term construction periods can be a serious cost reason.

New technologies separates old – typed massive companies and New – typed modern world's companies. Actually this separation has become clearer after the internet's widespread using all over the world. Software solutions and internet's open sources can make big differences between these two types of companies. Calculating techniques are changing very fast and if a company can not follow this, company should not stay at its position or should not grow any more.

Today's modern world's engineering disciplines are also changing with new technologic developments. Engineering description has got some new meanings today. If we still try to say that, engineering is just 'being for optimum' we can not understand today's reality. Today, engineering is getting larger multi disciplinary organizational operations and construction sector benefits from these developmental situations. Softwares, construction machinery, internet, trade without dealers, well educated workers and engineers are helping for growing on that new sides for these situations.

As we see on some developed European Union members, the new century came with new trends. This can be mainly described as; good companies are not just big companies. Good companies are; well technological back grounded companies. Forethought is the main dynamic for these companies. Economic, sociologic, technologic, legal and other dynamic variables are one within the other. But fixing them is not so easy. Today's economic arenas are showing us, that producing is not the hardest part on construction. Today's economy is showing us, the main factors are managing with dynamic variables.

For designing a good company; technology must be the first dynamo. Technological developmental approaches should be helpful for standing and growing on the sector.

### **3.5 Taxes and Social Insurance Organizations in Turkey:**

In Turkey, social security and insurance system does not have a regular way of serving compared to many other countries, especially the European Union members. Furthermore, tax collection process from construction companies is another major problem. Tax rates and social insurance payments are calculated with an inappropriate system.

#### **3.5.1. Taxes and Social Insurance in Construction Sector:**

In the sector, limited companies are the most active legal organizations. On this sector, being a company means getting some advantages especially on the tax

rates. For example, if a company makes its own construction with its own workers, worker insurance payment rate decreases by %25. To illustrate; a construction's unit  $m^2$  cost is declared every year by "The Ministry of Public Works and Settlement". The least price of this construction is %9 of the construction's total cost. However if a company makes this construction with its own workers this rate decreases by %25 and the new ratio changes from %9 to %6, 75. This prevents the subcontractors' works with full staff on legal conditions.

Social insurance system regulations are being updated continuously with new proclamations; the last proclamation is updated on 10<sup>th</sup> March 2007. Also, social insurance law, numbered with 506 has regulated these conditions.

Subcontracting system is very useful on the sector but generally subcontractor's major workers benefit from social insurances. However, half qualified workers and non qualified workers can not benefit from any insurance confidences. It has several reasons. The major reason is that the constructor does not want to pay the insurance payment for each worker and declaring a unit price and minimum insurance payment ratio is also a way out for constructors. Because every constructor tries to reach for minimum costs and none of them wants to pay extra charges by assuming that they will not get a serious sanction by government.

By the way, as we see on that case, the main problem is declaring a minimum unit price and calculating insurance payment by using this unit price. For explaining the main problem more clearly, we must examine all foundations of this structure. Rate is calculated by the government but Turkey has a dynamic economy and it has also over 70 million of population. By this side, declaring a unit price for each type of construction is not very efficient. For a middle size Anatolian city, the unit price calculation should be true however as we saw on the differences between some cities of a unit  $m^3$  concrete price, we will not reach the accurate solution by this way. In a manner, some major cities like Istanbul, Ankara, etc. and some relatively small economic cities like Eskisehir, Mersin, etc. have not the same stabilities.

Being non-visionary should get some big mistakes. If we don't observe, Turkey's dynamic economy sufficiently, big faults come one after another. For

determining criterions, governmental unit price calculation techniques must be finished and local unit price calculations should be valid.

At this point, mainly, social insurance rates' and tax rates' calculations must be separated from each other. For insurance rates, Eastern and Western Turkey's economic contentment indexes must be considered. Istanbul and some small populated cities' economic and social life standards are not equal. This disparity has to remove in a short time and a fair social insurance system must become effective.

Tax rate calculations must be applied by observing Turkey's economy. The main difference in tax rates; active economic dynamics should change on an estates' position. This position should affect selling prices of an estate; city to city, street to street, or floor to floor. If we explain more clearly, generally estates' real selling prices can be up for an m<sup>2</sup> to 3000 TL.<sup>8</sup> The unit selling price should be increased by the position and view of the estate, auto parking and other services, etc. However, 'The Ministry of Public Works and Settlement's declaration of a unit producing price for whole Turkey is also valid for calculating tax rates as well.

For smaller houses than 150 m<sup>2</sup>, tax rates decreases from %18 to %1. This is an application for encouraging social housing in Turkey. However, a 150 m<sup>2</sup> house can be a luxury house with its size. A non – luxury social house should be smaller than 100 m<sup>2</sup>. Also we can observe that, majority of constructors are producing luxury houses and apartments that are less than 150 m<sup>2</sup> (Reference; Questionnaire, 15. question). This is also a way for not paying taxes. If governmental servants take precautions on these fronts; tax collections and workers social insurance situations will improve day by day.

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<sup>8</sup> Questionnaire: Question 22

## **CHAPTER 4:**

### **4.1. Methodology and Findings:**

In this research, an empirical study that reveals the characteristics of Turkish SME Typed Construction companies in terms of their operations in the market is conducted. The data for the research is collected through questionnaires (see appendix 1). Questionnaires are used because they are efficient data collection tools when the researcher knows exactly what is required and how to measure the variables of interest. In this research, 44 questionnaires are sent to the respondents via e-mail and 9 questionnaires are applied to the SME's face to face. Out of 44 questionnaires, 16 of them are received back forming a response rate of %36, 4. This response rate is achieved as a result of the calls made to nearly 20 companies before sending the questionnaires.

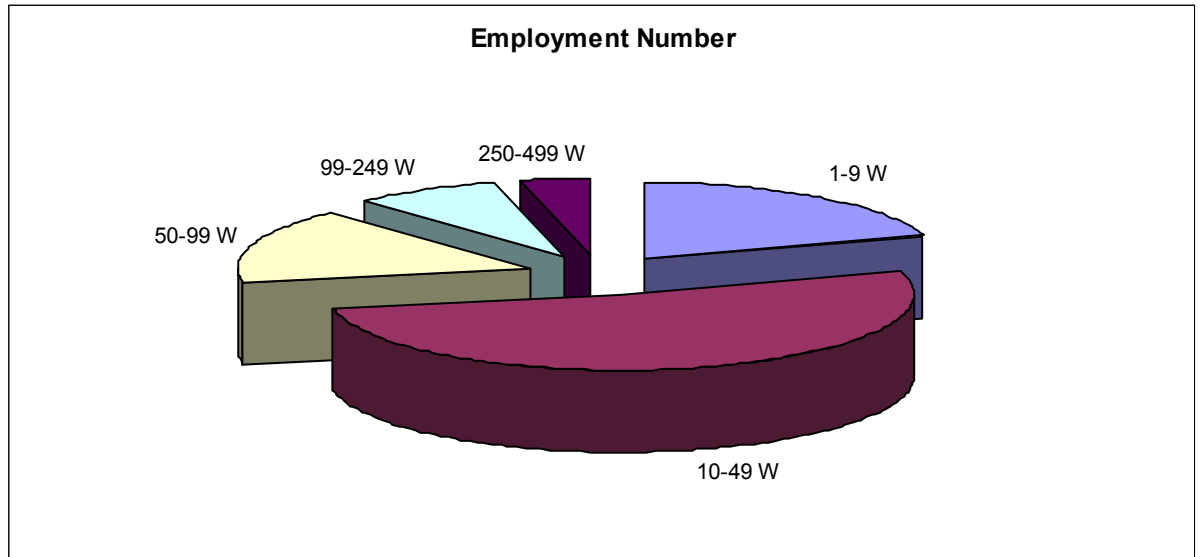
Reminding e-mails and follow-up phone calls are also made for the questionnaires that are sent via e-mail. In addition to the 16 questionnaires received back via e-mail, there are 9 personally administrated questionnaires making the total size of the sample 25. The sample 53 firms are constructed from the databases of Istanbul, Ankara, Gaziantep, Eskisehir and Izmir Chamber of Commerces, Finansbank KOBİ Center and Chamber of Civil Engineers.

### **4.2. Summary Statistics:**

- 1) 72 % of companies in the research are found be small enterprises which have employees less than 50 whereas only 4% of the companies have employees less than 250.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	5	20,0	20,0	20,0
	2	13	52,0	52,0	72,0
	3	4	16,0	16,0	88,0
	4	2	8,0	8,0	96,0
	5	1	4,0	4,0	100,0
	Total		25	100,0	100,0

Table 4.1: 12.Question. In this table; 1= 1-9 workers, 2= 10-49 workers, 3=50-99 workers, 4=99-249 workers, 5=250-499 workers



Graphic 4.1: Employment Number

2) Regarding the civil engineer employment statistics, it has been observed that 80% of companies have civil engineers whereas 20% of them do not. In terms of architect employment, 64% of the companies do not have their own architects working with them. This reveals us the fact that architect employment is much smaller scale than the civil engineer employment. Another point to mention is that, contrary to the expectations, 80%the companies that do not employ a civil engineer, instead outsource one, are operating the industry for more than 5 years.

### Civil Engineer Employment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	20	80,0	80,0	80,0
	2	5	20,0	20,0	100,0
	Total	25	100,0	100,0	

Table 4.2: Civil Engineer Employment

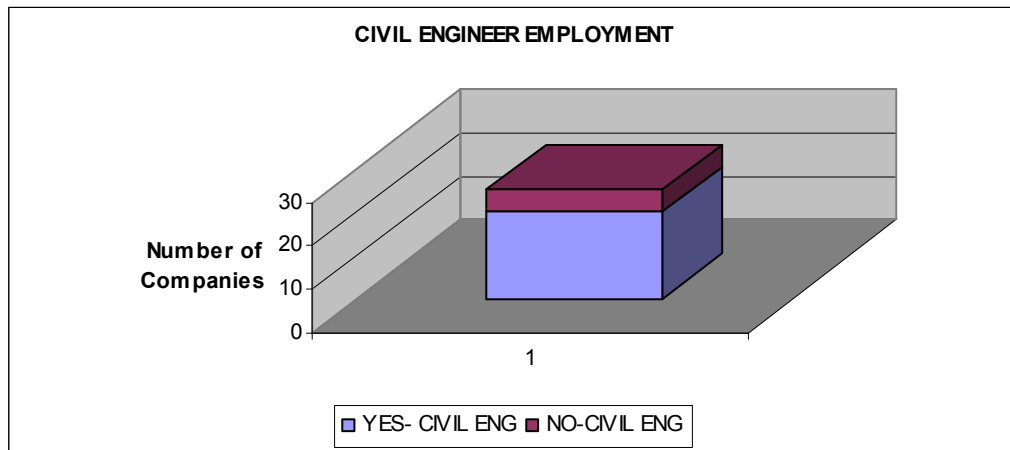


## Architect Employment

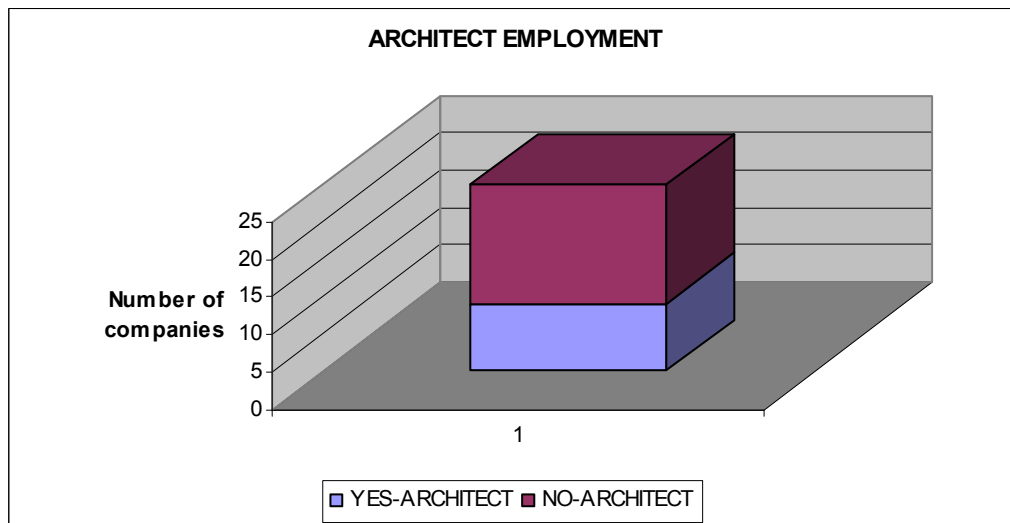
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	9	36,0	36,0	36,0
	2	16	64,0	64,0	100,0
	Total	25	100,0	100,0	

Table 4.3: Civil Engineer Employment

In these tables 1 means “Yes” and 2 means “No”



Graphic 4.2: Civil Engineer Employment Q9 in the questionnaire



Graphic 4.3: Architect Employment Q10 in the questionnaire

3) In terms of the difficulties faced by construction companies, the two most experienced problems are;

- a) The fluctuations in economic balances
- b) Inflationary construction and material prices.

On the other hand, interestingly the least experienced problem is found to be deficiencies in data sources, like internet. It can be because, the companies in the sector do not know how to fully utilize and benefit from internet or other new age technology open sources. Accordingly they do not think that these sources can help them do their work more efficiently. Thus, they do not see a major problem in not using these sources.

Another point to mention is that, many of the companies researched said that they see insufficient credit sources as a major problem. This can be related to the timing of the research when mortgage law was not in place. If the research will be reiterated, the findings on the credit resource question may change.

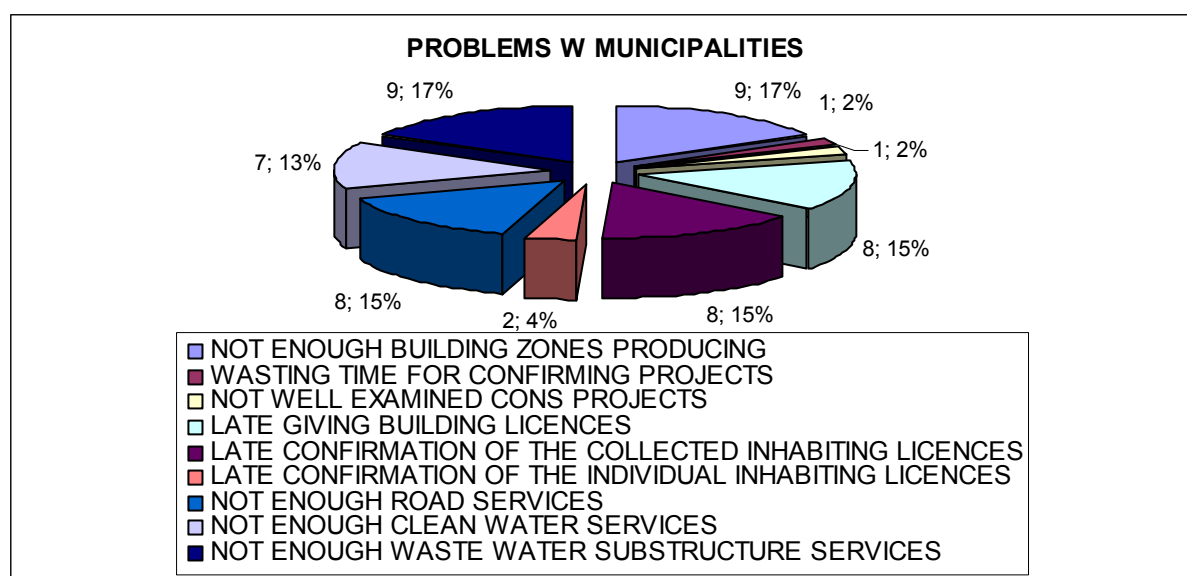
	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
NON-EDUCATED WORKERS	11	47,8%	12	52,2%	23	100,0%
INFLATIONALIST CONS MATERIAL PRICES	15	65,2%	8	34,8%	23	100,0%
ECONOMIC IMBALANCES	18	78,3%	5	21,7%	23	100,0%
NOT ENOUGH CREDIT SOURCES	10	43,5%	13	56,5%	23	100,0%
INFLATION OF CONS COMPANIES	7	30,4%	16	69,6%	23	100,0%
NOT HELPFUL CHAMBER OF COMMERCE	6	26,1%	17	73,9%	23	100,0%
NOT ENOUGH KNOWLEDGE SOURCES LIKE INTERNET	6	26,1%	17	73,9%	23	100,0%

Table 4.4: Problems of the Sector, question 23 in the questionnaire

4) As for the issues faced by companies in local governments, are insufficient building zones for production along with underdeveloped infrastructures.

Table 4.5: Problems with Municipalities

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
NOT ENOUGH BUILDING ZONES PRODUCING	9	36,0%	16	64,0%	25	100,0%
WASTING TIME FOR CONFIRMING PROJECTS	1	4,0%	24	96,0%	25	100,0%
NOT WELL EXAMINED CONS PROJECTS	1	4,0%	24	96,0%	25	100,0%
LATE GIVING BUILDING LICENCES	8	32,0%	17	68,0%	25	100,0%
LATE CONFIRMATION OF THE COLLECTED INHABITING LICENCES	8	32,0%	17	68,0%	25	100,0%
LATE CONFIRMATION OF THE INDIVIDUAL INHABITING LICENCES	2	8,0%	23	92,0%	25	100,0%
NOT ENOUGH ROAD SERVICES	8	32,0%	17	68,0%	25	100,0%
NOT ENOUGH CLEAN WATER SERVICES	7	28,0%	18	72,0%	25	100,0%
NOT ENOUGH WASTE WATER SUBSTRUCTURE SERVICES	9	36,0%	16	64,0%	25	100,0%



Graphic 4.4: Problems with Municipals question 24 in the questionnaire

5) It has been found that only 12% of the companies researched are using a kind of Project management program, whereas 88% of them are not using any Project management. On the other hand, around 64% of the companies researched are using a kind of statistics program. This proves the fact explained in the thesis before, that the information technology softwares are not commonly used in Turkey by SME construction companies.

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
WORD	21	84,0%	4	16,0%	25	100,0%
EXCEL	20	80,0%	5	20,0%	25	100,0%
AUTOCAD	12	48,0%	13	52,0%	25	100,0%
IDECAD	6	24,0%	19	76,0%	25	100,0%
PROBINA	3	12,0%	22	88,0%	25	100,0%
STA4CAD	7	28,0%	18	72,0%	25	100,0%
PRIMAVERA	3	12,0%	22	88,0%	25	100,0%
MSOUTLOOK	4	16,0%	21	84,0%	25	100,0%
WINDOWS.98.XP.2000	22	88,0%	3	12,0%	25	100,0%
LINUX	0	,0%	25	100,0%	25	100,0%
AVINAL	0	,0%	25	100,0%	25	100,0%
MSPROJECTPLANNER	0	,0%	25	100,0%	25	100,0%
SURETRAK	0	,0%	25	100,0%	25	100,0%

Table 4.6: Software usage question 29 in the questionnaire

6) It has been found that 68% of the companies have their own websites. This indicates that internet usage is more common across companies than project management software usage.

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	17	68,0	100,0	100,0
No	8	32,0		
Total	25	100,0		

Table 4.7: Websites question 30 in the questionnaire

7) %48 of companies declared that they can not properly estimate the finishing time of the project. They do some estimation which in the end become irrelevant

compared to the reality. This is also inline with project management program usage trend across companies. Because only %12 percent of companies declares that they use management softwares, which is probably the reason that they can not make an efficient schedule of their works.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	CAN ESTIMATE FINISHING TIME BEFORE STARTING	4	16,0	16,0	48,0
	CAN ESTIMATE FINISHING TIME WITH 6 MONTHS DEVIATION	4	16,0	16,0	64,0
	CAN ESTIMATE FINISHING TIME WITH 12 MONTHS DEVIATION	5	20,0	20,0	84,0
	CAN NOT ESTIMATE FINISHING TIME	12	48,0	48,0	100,0
	Total	25	100,0	100,0	

**ESTIMATING.TIME.OF.YOUR.PROJECT**

Table 4.8: Estimating time of the project question 34 in the questionnaire

## **CHAPTER 5:**

### **5.1. Conclusions:**

The purpose of this study was to create a better understanding of the problems and issues faced by SME construction companies in Turkey. At the center of the study were the problems faced by the companies and as a part of the problem, the insufficient use of information technology and project management softwares.

At this point, it will be suitable to summarize the most important findings of the research. In my thesis, it has been observed that there are many problems faced by the SME construction companies however, in the context of the research we tried to touch only the major ones and propose solutions to them.

Firstly, construction companies are not supported by an information network in searching for the commodity prices for steel, concrete, wooden equipments etc. As seen in the research, local companies are found to be affected from aggressive price changes very easily since this situation affects their operating selling prices thus profit margins.

This problem can be solved via a network membership system, which unites all sellers and construction companies in a knowledge platform. Rivalry and more fair trade conditions that this network brings will help to decrease costs as well.

This situation can also help companies for saving sectoral rights and for the job-trainings. Staying in a well-communicated platform will be a step forward to all sectoral companies. Also this kind of platforms can be used as a new synergy at B2B and B2C. Minimized costs will positively affect selling prices and by this way, unit m<sup>2</sup> selling prices will decrease. Chamber of Commerces, Civil Engineering Societies or any kind of non-governmental sectoral associations should take initiative in building this kind of networks and databases.

Secondly, another main problem, as seen on the questionnaire<sup>9</sup>, many construction companies have some problems with municipalities. The questionnaire shows us that many services are presented at irregular intervals or sometimes even no service is provided. Urbanization is the main factor for a real estate's increasing value. If a construction is not made in a well organized site, with roads, electricity, natural gas, water services<sup>10</sup>, and other social urban life factors, that construction's profit margin will deteriorate significantly.

As a result, construction companies and local governmental organizations must be in close relations and work as team members. All infrastructures related services must be completed during the construction period. By this way, real estate's real value can turn back to the producer in a timely manner.

Thirdly, another problem is found to be that a large number of SME construction companies in Turkey are not utilizing any kind of project management software<sup>11</sup> that will help them to deliver better business results; save time and money. Furthermore, it was interesting to see that the companies were not even aware of the benefits that these kinds of softwares can bring to them. For instance, most of the companies were not accurately estimating the finishing time of their projects. This can be attributed to the reality that these companies are not using any Project management software that enables them to increase the efficiency and accuracy of their work processes.<sup>12</sup> Accordingly, they did not consider 'insufficient information technology sources as obstacles to their jobs. As a starting point, construction companies should employ civil engineers and architects that have software knowledge and can also apply and teach their technical information to their counterparts in the company.

It can be said that there is a lot way to go in the Turkish SME construction industry to be able to cope with the international standards in terms of information technology utilization. Although it is not a very easy task to accomplish we believe that several factors can help. For instance, training programs that are developed and

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<sup>9</sup> Please see Questionnaire, Question 24

<sup>10</sup> Please see Questionnaire, Questions 25-26

<sup>11</sup> Please see Questionnaire, Question 29

<sup>12</sup> Please see Questionnaire, Question 34

provided by Chambers of Commerce and Construction Sector Societies, the relatively cheap launch of Project management softwares can help alleviate the problem. Specifically, technical educational programs inline with the workers' line of mastery can be provided to them by the construction companies with the mediation of Chambers of Commerce. This will help leverage the mastery of workers, provide them solid information on the ways they are doing their jobs, thus increase their efficiency. Last but not least, it is really important that all workers have social securities provided to them by their employer companies.

Net, the study provided a way to reveal the problems of the SME construction companies and also supported the literature findings with quantitative research conducted via SPSS statistical software. On this front, we hope that this study will constitute a basis for improvement on current understanding on the subject as well as serving a tool for further research.



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**APPENDIX**

**QUESTIONNAIRE:**

1.) NAME:

.....

2.)

SURNAME:.....

3.) YOUR JOB TITLE:

.....

4.) COMPANY NAME:

.....

5.) COMPANY'S ACTIVITY START YEAR:

.....

6.) COMPANY

ADDRESS:.....

.....

.....

7.) COMPANY PHONE

NUMBER:.....

8.) COMPANY FAX

NUMBER:.....

9.) DO YOU HAVE CIVIL ENGINEER IN YOUR COMPANY?

a- ( ) YES

b- ( ) NO

IF YES, PLEASE SPECIFY HOW MANY PEOPLE? .....

.....

10.) DO YOU HAVE ARCHITECTS IN YOUR COMPANY?

a- ( ) YES

b- ( ) NO

IF YES, PLEASE SPECIFY HOW MANY PEOPLE?

.....

11.) DO YOU HAVE WORKERS WITH ANY TYPE OF UNIVERSITY DEGREE IN YOUR COMPANY?

- a- ( ) YES
- b- ( ) NO

IF YES, PLEASE SPECIFY HOW MANY PEOPLE? .....  
.....

12.) HOW MANY WORKERS DO YOU HAVE?:

- a- ( ) BETWEEN 1 – 9 PEOPLE
- b- ( ) BETWEEN 10 – 49 PEOPLE
- c- ( ) BETWEEN 50 – 99 PEOPLE
- d- ( ) BETWEEN 99 – 249 PEOPLE
- e- ( ) BETWEEN 250 – 499 PEOPLE

13.) HOW MANY HOUSES & OFFICES DID YOUR COMPANY MAKE IN YOUR CENTER CITY?

- a- ..... NUMBER OF HOUSES
- b- .....NUMBER OF OFFICES

14.) DID YOUR COMPANY MAKE HOUSES & OFFICES OUT OF YOUR CENTER CITY?

- a- ( ) YES
- b- ( ) NO

IF YES, PLEASE SPECIFY

..... NUMBER OF HOUSES.....CITY NAME  
.....NUMBER OF OFFICES..... CITY NAME

15.) WHAT TYPE OF CONSTRUCTIONS DOES YOUR COMPANY MAKE? YOU CAN CHOOSE MORE THAN ONE.

- a- ( ) APARTMENT WITH MAX. 4 FLOORS
- b- ( ) APARTMENT WITH MIN. 5 FLOORS
- c- ( ) VILLAS , WATERSIDE RESIDENCES, LUXURY CLASS SINGLE HOUSES
- d- ( ) MIDDLE CLASS HOUSES WITH GARDEN
- e- ( ) OFFICES, SURGERIES, TRADE CENTER BUILDINGS
- f- ( ) EVERY TYPE OF FACTORIES

16.) DO YOU WORK WITH SUBCONTRACTORS?

a- ( ) YES

b- ( ) NO

17.) DO YOUR WORKERS STAY AT YOUR BUILDING ZONE?

a- ( ) YES

b- ( ) NO

18.) DO YOU SEARCH FOR PRICES WHEN YOU ARE BUYING CONSTRUCTION MATERIALS?

a- ( ) YES

b- ( ) NO

19.) IF YES, FROM WHICH RESOURCES DO YOU SEARCH PRICES?

a- ( ) TELEPHONE

b- ( ) INTERNET

c- ( ) MY FRIENDS

d- ( ) FACE TO FACE NEGOTIATING WITH SELLERS

e- ( ) I ALSO SELL CONSTRUCTION MATERIALS IN MY COMPANY

f- ( ) OTHER. PLEASE SPECIFY

.....

20.) DO YOU HAVE ANY OTHER JOB TITLES IN YOUR COMPANY?

a- ( ) YES

b- ( ) NO

21.) IF YES, PLEASE SPECIFY THE JOB TITLE;

a- ( ) REAL ESTATE, BUILDING LAND BUYING - SELLING

b- ( ) COAL, ROCK MINE MANAGEMENT

c- ( ) CONSTRUCTION MATERIALS SELLING

d- ( ) CAR BUYING - SELLING

e- ( ) SERVICE SECTOR

f- ( ) OTHER. PLEASE SPECIFY

.....

22.) WHAT IS THE PRICE FOR UNIT M<sup>2</sup> OF A HOUSE WHICH MADE IN LAST 2 YEARS AND PRODUCED BY YOUR COMPANY?

- a- ( ) BETWEEN 0 – 249 YTL
- b- ( ) BETWEEN 250 – 499 YTL
- c- ( ) BETWEEN 500- 749 YTL
- d- ( ) BETWEEN 750 – 999 YTL
- e- ( ) BETWEEN 1000 – 1249 YTL
- f- ( ) BETWEEN 1250 – 1499 YTL
- g- ( ) BETWEEN 1500 – 1799 YTL
- h- ( ) BETWEEN 1750 – 1999 YTL
- j- ( ) BETWEEN 2000 – 2249 YTL
- k- ( ) BETWEEN 2250 – 2499 YTL
- l- ( ) BETWEEN 2500 – 2749 YTL
- m-( ) BETWEEN 2750 – 2999 YTL
- n- ( ) 3000 YTL AND UP..... YTL.

23.) WHAT KIND OF DIFFICULTIES DO YOU HAVE ON THE CONSTRUCTION SECTOR?

- a- ( ) NON EDUCATED WORKERS
- b- ( ) CONSTRUCTION MATERIAL PRICES' INCREASES
- c- ( ) ECONOMIC IMBALANCES
- d- ( ) NOT ENOUGH CREDIT SOURCES
- e- ( ) INFLATION OF CONSTRUCTION COMPANIES
- f- ( ) NOT HELPFUL CHAMBER OF COMMERCES
- g- ( ) NOT ENOUGH KNOWLEDGE SOURCES LIKE INTERNET
- h- ( ) OTHER. PLEASE SPECIFY

24.) DO YOU THINK THAT MUNICIPALITIES HAVE DEFICIENCIES?

- ( ) YES
- ( ) NO

IF YES, WHAT ARE THE MAIN DEFICIENCIES OF LOCAL GOVERNMENTS?

- a- ( ) NOT ENOUGH BUILDING ZONES' PRODUCTIONS FROM MUNICIPALS
- b- ( ) LONG TIME PERIODS FOR CONFIRMING OF CONST. PROJECTS
- c- ( ) NOT WELL EXAMINED CONSTRUCTION PROJECTS
- d- ( ) LATE GIVING 'BUILDING LICENSES'
- e- ( ) LATE CONFIRMATION OF THE COLLECTED INHABITING LICENSES
- f- ( ) LATE CONFIRMATION OF THE INDIVIDUAL INHABITING LICENSES
- g- ( ) NOT ENOUGH ROAD SERVICES
- h- ( ) NOT ENOUGH CLEAN WATER SERVICES
- j- ( ) NOT ENOUGH WASTE WATER SUBSTRUCTURE SERVICES
- k ( ) OTHER. PLEASE SPECIFY

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.....  
.....

25.) WHAT DO YOU THINK ABOUT NATURAL GAS DISTRIBUTION COMPANYS' SERVICES?

a                    b                    c                    d                    e  
(   )                -   (   )                -   (   )                -   (   )                -   (   )  
VERY GOOD        GOOD                FINE                BAD                VERY BAD

26.) WHAT DO YOU THINK ABOUT ELECTRICITY DISTRIBUTION COMPANYS' SERVICES?

a                    b                    c                    d                    e  
(   )                -   (   )                -   (   )                -   (   )                -   (   )  
VERY GOOD        GOOD                FINE                BAD                VERY BAD

27.) IS YOUR COMPANY AFFECTED FROM 2001 ECONOMIC CRISIS?

(   ) YES  
(   ) NO

IF YES, PLEASE SPECIFY IN WHICH PERIOD DID YOUR COMPANY TURN BACK AS BEFORE?

a- (   ) SHORTER THAN 6 MONTHS  
b- (   ) BETWEEN 6 – 12 MONTHS  
c- (   ) BETWEEN 1 – 2 YEARS  
d- (   ) BETWEEN 2 – 3 YEARS  
e- (   ) BETWEEN 3 – 4 YEARS  
f- (   ) STILL NOT TURN BACK AS BEFORE

28.) WHAT TYPE OF CONSTRUCTIONS DID YOU PRODUCE?

a- (   ) REINFORCED CONCRETE CARCASS  
b- (   ) STEEL  
c- (   ) STACKING  
d- (   ) OTHER. PLEASE SPECIFY

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29.) WHICH PROGRAMS DO YOU USE IN YOUR COMPANY?

- a- ( ) WORD
- b- ( ) EXCEL
- c- ( ) AUTOCAD
- d- ( ) IDECAD
- e- ( ) PROBINA
- f- ( ) STA4CAD
- g- ( ) PRIMAVERA
- h- ( ) MS OUTLOOK
- j- ( ) WINDOWS NT / 98 / XP / 2000
- k- ( ) LINUX
- l- ( ) AVINAL
- m- ( ) MS PROJECT PLANNER
- n- ( ) SURETRAK
- p- ( ) OTHER. PLEASE SPECIFY

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30.) HAS YOUR COMPANY GOT A WEB PAGE?

- a- ( ) YES
- b- ( ) NO

IF YES PLEASE WRITE YOUR LINK.

www.....

31.) BY WHICH WAY DO YO CREATE YOUR COMPANY'S WEB PAGE?

- a- ( ) COMPANY CREATED IT'S OWN WEB PAGE
- b- ( ) ANOTHER COMPANY CREATED
- c- ( ) ANOTHER PERSON CREATED

32.) DOES YOUR COMPANY USE OTHER KIND OF TECHNOLOGIC SOURCES?

- a- ( ) YES
- b- ( ) NO

IF YES PLEASE SPECIFY

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33.) DID MINIMUM 1 PERSON GO TO ANY CONSTRUCTION FAIR FROM YOUR COMPANY?

- a- ( ) YES
- b- ( ) NO



34.) IN YOUR OLD PROJECTS OR IN YOUR ON- GOING PROJECTS, ON THE START OF THE PROJECT OR MAX. 6 MONTHLY PERIOD CAN YOU ESTIMATE THE FINISHING TIME?

- a- ( ) I CAN ESTIMATE
- b- ( ) I CAN ESTIMATE WITH 2 MONTHLY MISTAKE
- c- ( ) I CAN ESTIMATE WITH 4 MONTHLY MISTAKE
- d- ( ) I CAN ESTIMATE WITH 6 MONTHLY MISTAKE.
- e- ( ) I CAN ESTIMATE WITH MAXIMUM 12 MONTHLY MISTAKE
- f- ( ) I CAN NOT ESTIMATE

35.) AT THE END OF THE JOB, CAN YOU CALCULATE YOUR NET COSTS AND MARGINS?

- a- ( ) YES
- b- ( ) NO

36.) WHAT DO YOU THINK ABOUT CONSTRUCTION SUPERVISOR COMPANIES?

- a- ( ) NECESSARY
- b- ( ) NOT NECESSARY
- c- ( ) I DON'T KNOW

37.) WHICH FACTORS CAN MAKE A CONSTRUCTION MORE EFFICIENT?

- a- ( ) CHEAP CONSTRUCTION MATERIALS
- b- ( ) CHEAP WORKERS
- c- ( ) ECONOMIC WASTING OF CONSTRUCTION MATERIALS
- d- ( ) FAST PRODUCING
- e- ( ) BUILDING PLOTS WITH LOW PRICES / RATES
- f- ( ) OTHER. PLEASE SPECIFY

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THIS QUESTIONNAIRE HAS FINISHED. THANK YOU FOR YOUR HELP.  
PLEASE TURN THIS QUESTIONNAIRE BACK TO THIS E - MAIL ADDRESS.  
[gokmengoksel@gmail.com](mailto:gokmengoksel@gmail.com)

