

Greek Report

1. Profile of the region

▪ Introduction

- **Location of the region/country and main characteristics**
- **Demographic aspects**
- **Industrial and technological infrastructure**

Greece is located on the southernmost point of the Balkan Peninsula and is flanked by 3 large bodies of water: the Aegean Sea, the Ionian Sea, and the Mediterranean Sea.

The 2010 population of Greece was estimated at 11,257,285.

Athens has a population of 3,876,480 and is a bustling urban centre. Urbanization has been an important trend in the 20th and 21st centuries, yet more than one-third of Greek society is classified as rural. Athens is known for its cosmopolitan lifestyle and for retaining many characteristics of village life such as the importance of family, family businesses, and the popular Greek entertainment.

Housing and building construction have always played a key role in Greece's industrial sector and have long been a major source of income.

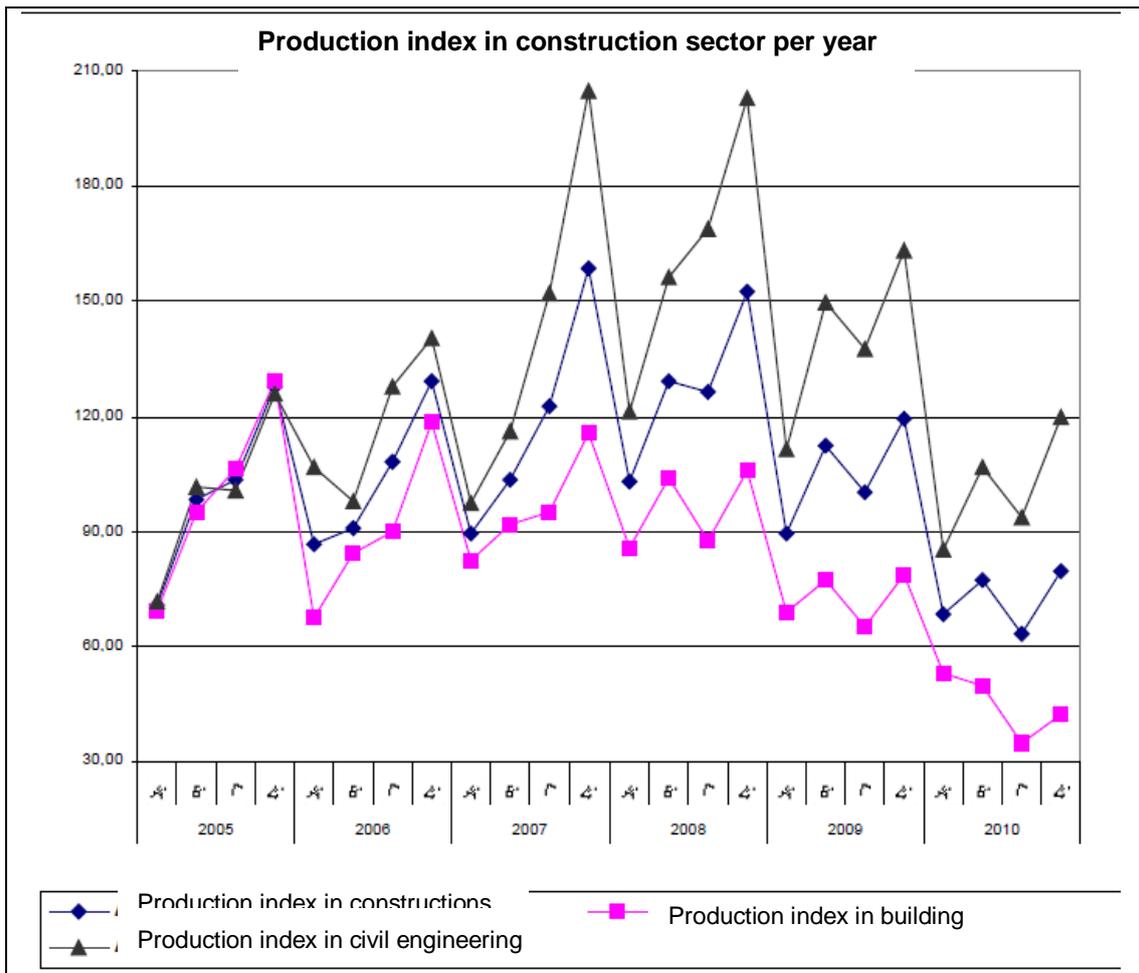
The construction of large public works, for the demands of the 2004 Olympic Games, which were held in Athens, has also played a significant role in this subsector of the economy. The new international airport in Athens was a major construction project planned by the government. The \$1 billion construction project involved both Greek and foreign private companies and the Greek public sector. Attiki Odos, a conglomerate of Greek construction companies, constructed a high-speed toll roadway, and new hotels were built near the airport. The Athens Metro subway system is another big construction project that has been developed, as well as new roadways, railroads, and bridges.

After 2004, major construction projects were not a priority, except some roadways across Greece.

▪ Economic Analysis

The latest available statistics show that:

- The number of construction companies is 114.152
- The number of people working in construction sector is 289.520
- The annual turnover of construction activities is 16.150.587
- The annual turnover of building activities is 8.748.858



From January to December 2010, the size of the total Building Activity (Private-Public), measured on the basis of building permits issued in the whole country, amounted to 49,974 building permits. There was an 11.1% reduction in the number of building permits, 19.9% at the surface and 24.1% in volume, compared to the same period January - December 2009.

During the same period January - December 2010, the Private Building Activity displays, throughout the country, reduction by 10.9% in the number of building permits, by 19.8% in surface and by 23.7% in volume, compared to the same period January - December 2009. The percentage contribution of Public Building Activity in the total building volume for this period is 3.3%.

- **Social & Cultural Aspects**
 - **Education**

The National Technical University of Athens is divided in 9 faculties, each one for a specific sector of engineering. The duration of studies is 5 years and the obtained diploma is equivalent with a Master of Engineering.

The school of Civil Engineering, and specially the department of Engineering Construction and Management, is focused on construction sector.

Technical training in the construction sector can also be achieved in the Technological Educational Institute of Athens, in the department of Civil works and Infrastructure technology. The duration of studies is 3,5 years.

2. Profile of Small to Medium Sized Enterprises (SMEs) in the Construction Sector

- **General description of small enterprises, i.e. number, characteristics of the companies, e.g. family based, traditional organizational structures, implementation of technology and innovations**
- **Contribution to the economy and society**
- **Energy efficiency trends**
- **Challenges and opportunities facing SMES**

The number of SME's in Greece exceeds much 733.000. The ECU in order to define an enterprise as medium-sized, sets a limit of 250 employees. Even with the above limit the number of the SMEs in Greece doesn't grow dramatically, given the fact that the enterprises with more than 100 employees are very few.

From the total of these 733.000 SMEs, more than half, 394.000 or the 53,7% do not employ any salaried workers and they employ 11 people on average. These are enterprises of self-employed people in which members of their family also work.

The enterprises employing 50 persons and below form about 99,55% of the total number of enterprises and they employ 74% of the work force of the private sector.

SMEs with 1-9 salaried workers are 321.000 or the 43,8% of the total, with 508.000 salaried workers or average employment of 1,6%. SMEs with 10 up to 49 salaried workers are 16.100 or 2,2% employ in total 303.000 workers with average employment 18,8% a number which means that the majority of the enterprises of this category employs less than 20 people. Finally SMEs with 50 to 249 are up to 2.200 or 0,3% with the average employment of 100,9 which is just over the limit of 100 employers, in each enterprise are thus defined by the Monetary Committee as small and medium sized.

This means that micro-enterprises with 0-9 employees and in total 943.000 employees, self-employed or salaried, cover the 55,6% of employment, small enterprises with 10-49 employees cover the 18% of the employment with 303.000 people, from which 287.000 are salaried and the medium – sized from 50-249 people cover the 13% of employment with 222.000 salaried.

In total the SMEs employ 1.695.000 people, from which 712.000 on average are salaried. The big enterprises with over 250 employees cover only the 13,5% of employment with 230.000 salaried. As a result the proportion of the employment in SMEs on one hand in the big enterprises is 87,5% to 13,5% and as far salaried work is concerned is 75% to 25% or 3 to 1.

The main volume of employment is and of salaried work is found in SMEs and especially in enterprises with 1 to 20 employees.

Source(s) : Source(s) : General Secretariat of National Statistical Service of Greece <http://www.statistics.gr/>

[http://www.statistics.gr/Athena2001/Athena2001.ASP?wcu=\\$lng=1](http://www.statistics.gr/Athena2001/Athena2001.ASP?wcu=$lng=1)

Hellenic Organisation of Small and Medium sized Enterprises and Handicraft S.A. <http://www.eommex.gr/english/new/index.htm>

TABLE 1

Diagram 1: Distribution of number of SMEs by category of economic activity (Source: GSNSS,2003)

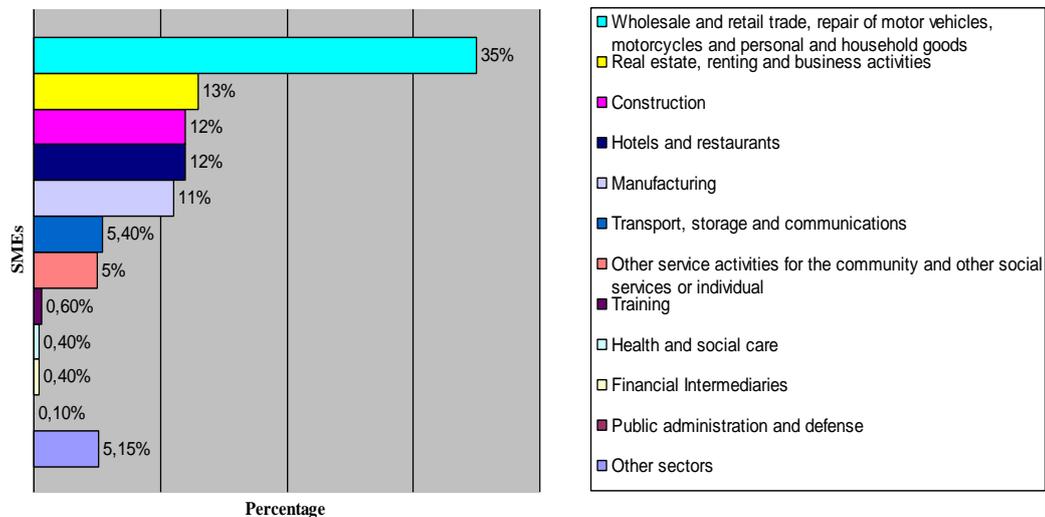
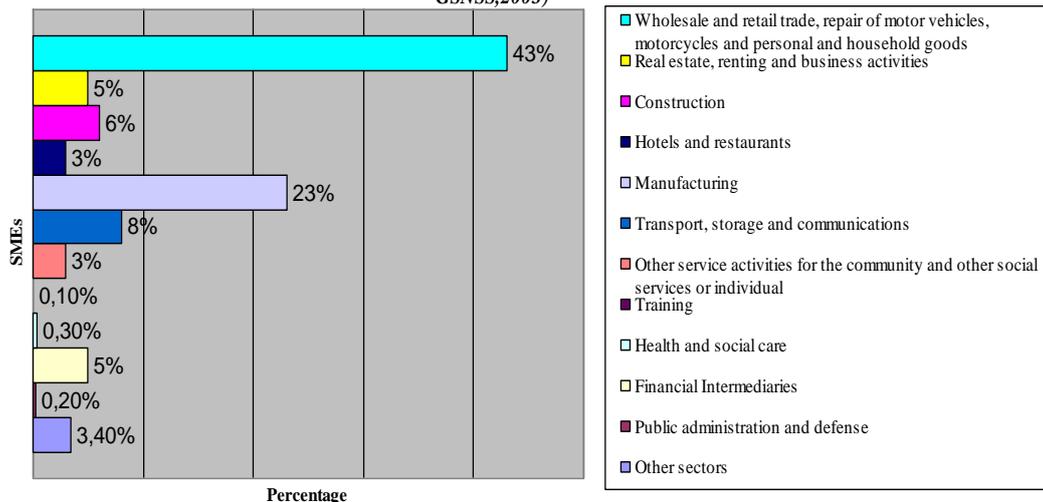


Diagram 2: Distribution of turnover (in million Euros) of SMEs by economic activity (Source: GSNSS,2003)



Source(s) : General Secretariat of National Statistical Service of Greece <http://www.statistics.gr/>

http://observatory.eommex.gr/eommex/154_ELL_HTML.aspx

The new tendencies in buildings

Trying to minimize the energy cost, the construction companies use new materials and new measurement and control equipment to control temperature and humidity.

There are several new products in the market, trying to suggest "smart" solutions to the energy efficiency issue. Mostly used are:

LIGHTS

- Lighting scenes
- Architectural lighting
- LED lighting
- Fiber optics
- Constant lighting level
- DMX Controllers
- DALI Controllers
- Green lighting

Lights can dim automatically depending the time of the day. The light level stays constant all day long. The combination of motion and light level sensors along with the astronomical clock save energy for the house.

SHADES

- Curtains
- Drapes
- Romans
- Tents

CLIMATE CONTROL

- Unified cooling and heating
- Under floor heating
- VRV systems
- Energy saving

INSULATION

- New building materials for walls
- Double glazing for heat and sound insulation

"GREEN" ENERGY

- Photovoltaic systems on the roofs
- Solar water heater

- Natural gas
- Energy fireplaces

3. Preliminary Findings

Please provide here some preliminary conclusions based upon this report and the field work conducted up to date.

The questionnaire for the Greek survey was sent by email to 94 building companies, all SMEs based all over Greece. We finally gathered 20 replied questionnaires and the responses were statistically analyzed.

The results of the survey are summarized in the attached questionnaire. A brief presentation of them follows.

Most of the interviewees work in companies that develop new buildings and make changes to existing buildings (managers, site managers, engineers, electricians, builders).

The vast majority agreed that:

- The use of energy efficient products help us to increase profit margins
- We must comply with strict energy standards and laws
- The use of energy efficiency in construction is important to our business
- Energy efficient products help us to improve the quality of our offering

Less agreed statements are:

- We can get grants for using energy efficient products in our projects
- We have a strategy in place to use more energy efficient products
- Our clients demand energy efficient products

Most used energy saving products appears to be:

- Insulation (cavity or solid wall; floor; tanks; pipes; attic)
- Ventilation
- Heat recovery systems
- Energy saving light bulbs
- Energy efficient glazing
- Smart meters

On the contrary, less used in Greece are:

- Geo-thermal / biomass systems
- Wood pellet burners
- Heating systems

- Wind turbines

In the question what is more interesting learning subject, the answers showed that there is high interest for everything regarding the subject of the energy efficiency. The vast majority replied that are interested to learn more about understanding relevant legislation that impacts the business, developing policy or strategic plans for the company, new trends in energy saving products and services, marketing energy saving products to customers, procuring energy saving products, developing structured plans for effective implementation.

The only subject that is less appealing is "conducting audits and impact assessments".

In the question "Would you use any of the following energy saving products if you had sufficient know how and support?", the interviewees give similar answers to question "Which of the following energy saving products do you use in your developments?". The replies differ from 1 to 2 points. This means that more popular are:

- Insulation (cavity or solid wall; floor; tanks; pipes; attic)
- Energy efficient glazing
- Ventilation
- Energy efficient boilers
- Energy saving light bulbs
- Passive solar features
- Smart meters

Less popular are:

- Geo-thermal / biomass systems
- Wood pellet burners
- Heating systems
- Building materials

The majority prefer a self-managed online training course because of the limited time that they can dedicate to the training. It is extremely difficult to arrange face to face trainings because there is no specific working timetable for a site manager. The most important factor for the success of the training is the easy access to the material. Also important is considered the access and exposure to industrial cases and the existence of best practice tools and checklists.

Secondary factors are considered the contact details of experts and problem based learning and exercises.

Less important is the engaging with fellow participants.

Conclusions

As main conclusion, the Greek building companies are highly interested in the issue of energy efficiency. It is without doubt a new tendency and the engineers are trying to familiarise with the new technologies in order to update their knowledge on this subject. The legislation is recently changed and every new building has to submit an audit for energy consumption. Soon we expect the same law to apply also to every apartment for rent.

All the biggest building companies invest to energy efficiency products and practices and they advertise their work as much as possible, aiming to attract more clients. The same example is followed by the smaller companies as it seems that the consumers have already seen the benefits of energy saving products and ask for solutions to reduce the energy consumption in their houses.

The know-how of the engineers regarding this issue is relatively high but there is always need for more information and more "marketing" materials. An important parameter that has to be taken into consideration when developing the training material is the extremely limited time that the construction managers have available for training. The material has to be very-easily accessed, self-managed and very concise. The attractiveness and the innovation of the lay-out will play a significant role to the impact of the material.