



**LEONARDO DA VINCI  
Community Vocational  
Training Action Programme**

**Second phase: 2000-2006**



**Analysis and Comparative Study on  
construction inspection job performance  
regulations. European comparative study.  
“KNOWLEDGE”**

**Agreement No 2004-2243/001-001 LE2-51OREF**

## **Summary Report on State of the Art of the construction inspector job**

Deliverable version: DRAFT  
Preparation date: 28.02.2005  
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Classification: Restricted to consortium  
Contract Start date: 1<sup>st</sup> October 2004  
Duration: 18 months  
Project coordinator: ASM (Poland)  
Partners: BPM (Greece), EMI (Hungary), IST (Portugal), DJUG (Romania)

The project is financially supported by the European Commission



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## CONTENTS

<b>Executive summary</b> .....	<b>4</b>
<b>Introduction</b> .....	<b>6</b>
<b>1. GATHERING ESSENTIAL KNOWLEDGE ON THE CONSTRUCTION INSPECTION REGULATION EXISTING WITHIN MEMBER STATES, NEWLY ACCESSED TO THE EU COUNTRIES AND CANDIDATE COUNTRIES (LAW REGULATIONS, TECHNOLOGIES, CULTURAL AND MANAGERIAL DIFFERENCES, ROLE OF THE BUILDING ORGANIZATIONS) AS THE BACKGROUND INFORMATION SURVEYS</b> .....	<b>7</b>
<b>1.1. The main types of the job relating the client</b> .....	<b>7</b>
<b>1.1.1. Daily inspection in the process of the construction on behalf of the client</b> .....	<b>12</b>
<b>1.1.2. Supervisory job on behalf of Central, Regional or local Authorities</b> .....	<b>17</b>
<b>1.2. The main field of the construction inspection job</b> .....	<b>24</b>
<b>1.2.1. Type of the construction inspection job related to the project</b> .....	<b>24</b>
<b>1.2.2 Type of the construction inspection job related to the professional area</b> .....	<b>26</b>
<b>2. IDENTIFYING AND ANALYSING THE QUALIFICATION REQUIREMENTS IN ORDER TO BECOME A CONSTRUCTION INSPECTOR IN THE MEMBER STATES, NEWLY ACCESSED TO THE EU COUNTRIES AND CANDIDATE COUNTRIES</b> .....	<b>29</b>
<b>3. MONITORING THE PROCESS OF LIFELONG EDUCATIONAL AND TRAINING SYSTEM IN THE EUROPEAN COUNTRIES</b> .....	<b>35</b>
<b>4. IDENTIFYING THE FUNDAMENTAL PRINCIPLES AND KEY FACTORS ON WHICH THE PROFESSION OF THE BUILDING INSPECTORS IS BASED IN EACH PARTNER COUNTRY</b> .....	<b>37</b>
<b>4.1 Mandatory registration of the construction inspection job</b> .....	<b>37</b>
<b>4.1.1. Governmental / Regional / Local level of the required registration</b> .....	<b>38</b>
<b>4.1.2. Role of the Chambers in the mandatory registration system</b> .....	<b>40</b>
<b>4.2. Voluntary registration of the construction inspection job</b> .....	<b>43</b>
<b>4.2.1. The aim of the voluntary inspections</b> .....	<b>43</b>
<b>4.2.2. Main fields of the voluntary inspections</b> .....	<b>45</b>
<b>4.3. Validity for the construction inspection job</b> .....	<b>46</b>
<b>4.3.1. Time frame, time extension process</b> .....	<b>46</b>
<b>4.3.2. Opportunity of the fields of the extensions</b> .....	<b>46</b>
<b>5. RECOGNIZING OF HIGHER EDUCATION QUALIFICATION FOR PROFESSIONAL PURPOSES AND QUALIFICATION OF NON-ACADEMIC LEVEL FOR TAKING UP A VOCATIONAL ACTIVITY</b> .....	<b>47</b>

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<b>6. ANALYSING THE EDUCATIONAL AND VOCATIONAL SYSTEM PREPARING TO CONSTRUCTION INSPECTOR JOB IN THE PARTNER COUNTRIES.....</b>	<b>48</b>
<b>6.1 Examination process for the qualification.....</b>	<b>48</b>
<b>6.2. Practical training based on former activity.....</b>	<b>55</b>
<b>6.3. Pre-exam education practice for obtaining qualification .....</b>	<b>57</b>
<b>6.3.1. Framework of the education .....</b>	<b>57</b>
<b>6.3.2. Main types of the institutions.....</b>	<b>59</b>
<b>6.4. Post graduate and other courses for construction inspection job .....</b>	<b>60</b>
<b>7. IDENTIFYING THE POSSIBILITY OF TAKING UP PROFESSIONAL ACTIVITIES FOR BUILDING INSPECTOR'S REPRESENTATIVES OF THE EU MEMBERS STATES ON THE EUROPEAN MARKET, IN ACCORDANCE TO REGULATION OF FREE MOVEMENT OF PERSONS ON THE SINGLE EUROPEAN MARKET .....</b>	<b>62</b>
<b>8. ANALYSING THE POSSIBILITY OF TAKING UP PROFESSIONAL ACTIVITIES FOR THE REPRESENTATIVES OF BUILDING INSPECTOR FROM THE NEWLY ACCESSED TO THE EU COUNTRIES AND CANDIDATE COUNTRIES.....</b>	<b>63</b>
<b>8.1. Barriers related to the construction inspection job.....</b>	<b>63</b>
<b>8.1.1. Legislation barriers related to construction inspection job.....</b>	<b>64</b>
<b>8.1.2. Other barriers related to construction inspection job .....</b>	<b>65</b>
<b>8.2. Suggested opportunities related to the construction inspection job .....</b>	<b>66</b>
<b>8.2.1. Estimated need for enhancing of the pre exam education .....</b>	<b>66</b>
<b>8.2.2. Evaluation of the potential opportunity of EU-wide and interregional qualification.....</b>	<b>67</b>
<b>9. Best practice examples in the education of construction inspection job .....</b>	<b>69</b>
<b>Summary and conclusions.....</b>	<b>69</b>

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## Executive summary

Due to the different historical background and traditions of the participating countries, the regulation and the practice of construction inspection became also different. Construction inspection became a modern engineering job with many different areas that are separated from each other. Inspectors control just a part of the complicated process of construction. Nowadays the knowledge and also the legal background of construction is changing very quickly and the construction inspectors should be ready to follow it.

In the newly associated states (NAS) of the EU new building law was introduced after the political changes and the function of the construction inspector became separated from other engineering branch. These countries made their own regulation for design, administrative inspection and construction inspection.

In Europe there are various practice of construction inspection and many contradictions can be seen in regulation. The Polish, the Hungarian and the Roman regulations are more detailed than the Austrian and the Portugal regulations. In every country there are mandatory examinations. Professional experience is everywhere required, although its certification is different. The required professional background is similar in each country. Member states have no mandatory qualification process, education and registration. The newly accessed to the EU countries and candidate countries generally have qualification systems, the bases of which are postgraduate training.

In the building site the construction inspector works as a representative of the client. The construction inspectors are especially responsible for observing orders of the building law, orders of regional plans, orders of the permissions of authorities and of the contract, prescription of quality and safety and economic conditions.

In the participating countries the system of education and training for construction inspectors are different but we can notice some similarities. The practical experience and skill is the base to practice that profession in the building site. The pre-exam educational system is mandatory in Hungary, but in Poland and Romania the courses are not obligatory. The preparatory courses are not a prerequisite for admitting an applicant to the exam, although the participation in these courses increases the chances of passing the exam.

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Nowadays the regulation and practice of lifelong educational and training system in EU is not uniform. For the construction inspectors in some countries it is a possible – but not mandatory - solution to improve their knowledge and skills in varied field.

In the Member States, newly accessed to the EU countries and candidate countries there are several systems to practice the profession of construction inspection based on mandatory registration (Hungary, Poland, Romania) voluntary registration or without registration (e.g. in Portugal). For the registration of construction inspectors in each country – where there is mandatory qualification system – there is a register for applicants.

There are several barriers to the possibilities of taking up professional activities for building inspector's representatives of the EU Members States on the European Market. The construction inspector in own country can work with unlimited building authorization. However abroad the situation is not the same. For recognising the authorisation in a foreign country the construction inspector is liable to take a qualification process again. In Hungary the system recognises the former activity and qualification, but the registration is mandatory. The decrees does not mention necessary exam in that case. In Poland the qualification exam is obligatory in Polish for foreign people too. This is the biggest barrier for influence the free movement of persons on the Single European Market for construction inspectors. Other barriers are that here is no harmonized system of European requirements and regulation and also technical backgrounds are different. A harmonization process should start and joint registration should be developed (e.g. by FEANI)

In East Europe a barrier of development is that there is a strong insistence to tradition. And this is barrier for free movement of persons to EU. Another strong barrier is that very few people can speak well English. We have to notice that in Europe there is not any common language accepted everywhere in EU.

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## Introduction

The construction inspection as part of the construction process has a long historical background. The job of masters who controlled the construction of historical buildings changed to modern engineering job. Now this engineering job has many different areas that are separated from each other. Inspectors control just a part of the process of construction because this process is very complicated and needs a quite deep knowledge. That is why nowadays there is no one determinative person responsible for the execution process of buildings. Nowadays the knowledge of construction is changing very quickly. The staffs have to develop themselves as the technical and legal background changes.

In the newly accessed to the EU countries changed the political background in 90's and these country introduced new building law in their regulation. At the same time the function of construction inspector separated from other engineering branch. These countries made their own regulation for design, administrative inspection and construction inspection.

In Europe the performance of construction inspection are very various. They have a lot of contrast about the field of regulation: mandatory registration, voluntary registration, educational and examination system, possibility of postgraduate courses.

The report wish to give quick view about the similarity and diversity of the field of construction inspection to find the way of free movement of persons on the Single European Market for construction inspectors.

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## **1. GATHERING ESSENTIAL KNOWLEDGE ON THE CONSTRUCTION INSPECTION REGULATION EXISTING WITHIN MEMBER STATES, NEWLY ACCESSED TO THE EU COUNTRIES AND CANDIDATE COUNTRIES (LAW REGULATIONS, TECHNOLOGIES, CULTURAL AND MANAGERIAL DIFFERENCES, ROLE OF THE BUILDING ORGANIZATIONS) AS THE BACKGROUND INFORMATION SURVEYS**

The profession of the constructor inspector is different in each European country, according to their historical tradition, political and technical background. Because of this the role and the system of building inspectors in each countries are different, although there are some similarities.

### **1.1. The main types of the job relating the client**

In the building site the construction inspector works as a representative of the client.

The client might be in that aspect:

- investor in the private sector,
- government, regional or local authorities as the investor and
- administrative/authorities.

The construction inspectors is especially responsible for observing:

- commands of the building law,
- commands of regional plans,
- commands of the permissions of authorities and of the contract,
- prescription of quality and safety,
- economically conditions.

#### ***In Poland:***

In the range of building control one can distinguish administrative control (building control in the light of Building Code and investor's supervision).

The main responsibilities of architectural – building administration and building supervision (art. 81) are:

- supervision and control of observing the Building Code regulations, especially as for:
  - the conformity of land development conditions with local plans of land planning and the requirements of environment protection,

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- the security conditions as for people and their property while applying the solutions of from building design projects, while conducting building works and maintenance of building objects.
  - conformity of architectural-building solutions to technical building regulations and to technical knowledge,
  - correct performance of independent technical function in building sector,
  - introduction and application of building products, which are certified to be used commonly or in individual cases in building sector,
  - issuing administrative decisions in matters stated by the Act,
  - control whether a person who performs individual technical functions in building sector are authorized to do that,
  - control tasks which can be the basis to issue a decision or to undertake actions as stated in regulations of Building Code.

The bodies which deal with a case of building products introduced into circulation with the range regulated in the law on construction products (art. 11) and the bodies specialized as stated in the Act on the system of conformity evaluation (art. 38 paragraph 2) are the units of building control, which means:

1. Provincial inspector of building control;
2. General Inspector of Building Control.

Main responsibilities of these bodies are (art.12):

- control of construction products introduced into circulation,
- carrying out administrative proceedings in this range and
- executing tasks, which are stated in art. 39 paragraph 3 points 1-4 of the Act on the system of conformity evaluation, - as it refers to construction products labelled with CE – which are related to cooperation with the body monitoring the system of control of products introduced into circulation (the President of the Office and Competition and Customers Protection).

Investor supervision means, among others, representing an investor at the building site, the control of conformity of construction works with design, and with construction permission, with standards and technical principles, the control and technical acceptance of construction works, and accounting for the cost of construction works. These tasks are usually executed by well-organized building supervision unit. But there are situations in which an investor decides for additional specialist supervision, co called „investor supervision”. It usually takes place on smaller building sites, where building control is done on investor’s account, when he needs additional technical help in more difficult stages of building, e.g. during the technical acceptance



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of foundation pit, where it necessary to evaluate the conformity of ground conditions with foundation conditions as accepted in the design – cementation of concrete benches, floors, foundations of appliances, assembling of the construction or equipment. Investor supervision can take place also while executing more complex constructions, when building control executes the control of building works systematically, and „investor supervision” participates in acceptance of major parts of work stages, in accounting the cost, etc.

***In Hungary:***

There are four fields for the inspection in building site:

- inspection on behalf the investor: construction inspection
- Building Control Authority
- Consumer Protection Authority
- inspection by the local government

In Hungary the inspection on behalf the investor would be:

- on private investment and
- on governmental/local authority’s investment.

And there are two levels:

- I. (first level– this is the highest),
- II. (second level).

The level depends on the person’s qualification. This level determines the volume of the building in the inspection what this person can manage.

The first (I) category is for those who have high school education. The second (II) category is for those who have secondary school education.

The courses and examinations are different for these two levels.

**Inspection by the Building Control Authority**

Legal background: according to 48/1997 decree of Ministry of Environment and Water (KTM).

This organisation is on the administrative charge and it controls the building site:

- Is there any building permit?
- Is the building operation equivalent to this authority?
- Are there any plans, is the designer’s qualification valid?

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- Does the construction company or building contractor have any qualifications?
  - Do the building materials have any technical approvals and compliance lists?
  - Is the building operation good, and safety by viewing?

#### Inspection by the Consumer Protection Authority:

In Hungary it is compatible to European norm. It is a commerce inspection and the legal background: according to 1997 years 155<sup>th</sup> law.

Its five functions with products:

- healthy protection, safety protection,
- protection for the economic interest of customer,
- rights of customer for the education and information,
- legal redress and
- advocacy of interest of customer.

#### Inspection by the Local government

Legal background: according to 47/1997 decree of Ministry of Environment and Water (KTM)

This organisation is on the administrative charge and it controls the building site:

- Is there any building permit?
- Is the building operation equivalent to this authority?
- Are there any plans?
- Does the construction company or building contractor have any qualifications?
- Do the building materials have any technical approvals and compliance lists?
- Is the building operation good, and safety by viewing?

#### ***In Romania:***

In Romania the quality of constructions is defined by the law 10/1995, as the sum of the totality of their behavioural performances in operation, in order to satisfy, during their existence, the requirements of users and communities. The requirements concerning the quality of technological outfits and equipments for production are established and are achieved on the basis of specific regulations for every field of activity.

The provisions of the law are applied to every category of constructions and to their afferent outfits - independently of the form of property or destination - designated later as constructions,

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and to the works of modernization and to their modernization, transforming, consolidation and repairs.

The quality system in constructions is applied depending of the categories of importance of the buildings, according to the application of provisions and procedures to every constituent of the system. The classification in categories of importance of the constructions is made depending the complexity, destination, usage, security risk degree as well as economical reasons.

In order to obtain constructions of proper quality, the achievement and the maintenance of the following requirements are compulsory, during the existence of constructions: a) resistance and stability; b) safety of usage; c) fire safety; d) hygiene, human health, environment, restoring and protection; e) thermal and waterproof insulation, energy saving; f) noise protection.

The quality system in constructions has the following components:

- a) technical regulations in constructions,
- b) the quality of components used in the achievement of constructions,
- c) the technical agreements for new products and procedures,
- d) the control of projects, of the execution of the projects and the expertise of projects for constructions,
- e) the management and quality assurance in constructions,
- f) the authorization and the accreditation of the laboratories for analysis and tests in the field of constructions,
- g) the activity of metrology in constructions,
- h) the acceptance of constructions,
- i) the behaviour in operation and interventions,
- j) the after-use of constructions,
- k) the State control of the quality in constructions.

In Romania there are three main types of construction inspector jobs:

- construction inspectors- employed by The State Inspection in Constructions – S.I.C., public institution having legal personality, subordinated to the Government of Romania,
- site inspectors (subject to authorisation) - employed by the client,
- technical inspectors (subject to authorisation) – employed by the contractor.

The tasks and the responsibilities of the construction inspectors are defined by the Romanian regulations in force.

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Authorized specialists have the right to be inspectors of a building site in the authorized field and to perform this activity for the unities, for investors/ users-legal entities or specialized unities for consulting in the field of the quality control.

***In Austria:***

In the building site the construction inspector works as a representative of the client. Their contact is regulated by contract, but not by law.

Architect and civil engineers do the profession of construction inspection, and they work on building site like managers.

There is not difference between investment of the private sector and investment of central/regional/local authorities.

On governmental (central/regional/local authorities) inspection is regulated by law.

**1.1.1. Daily inspection in the process of the construction on behalf of the client**

***The Polish system:***

An inspector of administrative building control may (but does not have to) inspect every object, which should conform to the principles of Building Law.

In case of investor supervision, Building Law states that in cases of highly complex building works and ground conditions, an investor has to secure supervision of building works by person who owns sufficient professional qualifications. Moreover, the investor can always appoint an inspector of investor supervision at the building site, or request a design author to perform author supervision.

The administrative body which issues a construction permission can impose on an investor an obligation of appointing an inspector of investor supervision as well as securing author supervision in cases of highly complex constructions or due to prospected influence on environment. The provision defines the types of building objects, at the realization of which the appointment of an inspector of investor supervision is obligatory, and the list of building objects and technical criteria, which the body should apply while imposing the obligation of inspector of building control's appointment.

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A necessity of investor supervision refers to, among others, building objects of public use and to objects of collective residence of the cubature of 2500 m<sup>3</sup> and more, and to objects listed on the monument register within the range of reconstruction, modernization and renovation.

***The Hungarian system:***

It is not obligatory to apply construction inspector in case of private investments. If a construction inspector is applied, the inspector needs to have permission (according to chapter 2). This permission is registered by Public Administration Offices. The list of registered construction inspectors is published on the Internet.

The inspector is the deputy of the investor: He stands for the investor, as the investor is not a specialist for construction. The construction inspector assists the investor to lead the project as a manager or as a supervisor.

The construction inspector can control the whole process of construction from the idea of investment to the finish. The construction inspector:

(before the construction)

- controls the selecting of the designers,
- controls the plans, drawings,
- controls the existence of the necessary permissions and approvals,
- controls the financial issues of the investment before the execution,
- assists to choose the best builder/builders,

(during the construction)

- controls the execution process (from the set out to the finish),
- controls the whole procedure whether it matches to the permissions of authorities and to the contract,
- controls the conformity of construction work with design,
- controls and validates the necessary changes,
- controls and countersigns the log-book of construction,
- controls the quantities and quality before the masking of structures,
- controls the necessary examinations made by the builder,
- controls the realized final general plans,
- is liable for the good finance and for the deadlines,
- is liable for the conformity of permissions of authorities and of contract,

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- is liable for using suitable materials and technologies,
  - is liable for observance of safety regulation.

This list is optional for construction inspectors in private investments. In practice generally it is limited to certain issues depending on the wish of the investor and according to the contract between the inspector and the investor.

### ***The Portuguese system:***

There is no legislation for private constructions. In this case the usual procedure is to use the legislation for Public Constructions, which does not refer “civil construction inspectors”, but gives indication of the role of the supervisors in general type of works (decreto-lei nº 59/99) and in specific cases, “safety” – decreto-lei nº41 820/41 821 and “provisional installations” – decreto-lei nº46 427.

There is nevertheless the so called “Quality Mark of buildings”. In this case several companies are accredited by LNEC- Laboratório Nacional de Engenharia Civil, to award his Quality Mark. Those accredited companies performing the supervision (fiscalização) of a building construction can award the quality mark at the end, if specific construction procedures are followed. Supervisions need to be civil engineers and get a minimum experience on the field.

### ***The Rumanian system:***

The rights and the obligations defined below according to the Romanian regulations in force are not limitative, the building site inspector being able to participate as a representative of the investor/beneficiary in all the stages regarding the conception, designing and performance of the construction works, limited by his prerogatives established by the regulations in force and by the contract with the investor/beneficiary.

There is no special rule to classify the construction inspector jobs by value limit.

The inspectors of a building site are responsible towards investor/user, according the law, for the activity of the right checking of the execution of the construction works and they have the following principal rights and duties:

1. *The inspector of a building site in the field of "building materials and products":*

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- a) checks up the observance of the legislation concerning the utilized materials referring to: the existence of the documents that certified the quality, the conformity of their quality with the regulations stipulated in the quality certificates, contracts projects,
  - b) forbids the utilization of the inadequate semi-manufactured and prefab goods or without conformity certificate, conformity statement or without technical agreement (for untraditional materials).
2. *The inspector of a building site in the field of "constructions works":*
- a) checks up the existence of the authorization of constructions as well as the accomplishing the legal provisions concerning this,
  - b) checks up the conformity of the authorization's provision with the project,
  - c) assumes the emplacement and the levelling marks and hands over to the performer free of any task,
  - d) participates together with the designer and the performer to the general drawing of the construction and fixes together the bench marks,
  - e) hands over to the performer the land reserved for the building site organization,
  - f) studies the projects, the conditions of project, the technologies and procedures established for the performance of the constructions,
  - g) checks up the existence of all written and drawn, correlation between them, the observance of the regulations concerning the projects' control by the certified control specialists,
  - h) checks up the existence of the provisions concerning determinative stages, as well as the existence of the control program for quality,
  - i) checks up the existence of all the approvals, agreements as well as the respecting the legal provisions concerning the technical regulations,
  - j) checks up the existence and the respecting of the "Quality Plan" and the procedures of the process for the respective work,
  - k) follows the performance of the construction in conformity with the provisions of the contract, of the projects, of the condition of project and of the technical in force regulations,
  - l) checks up the respecting of the performance technologies, the correct use of them in order to provide the quality level established by the technical documents by the contract and by the technical in force regulations,
  - m) forbids the performance of the unauthorized workers in case of trades for which the technical regulations have special provisions,

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- n) performs the verifications stipulated by the regulations and signs the documents holding the result of the verification activities (official reports for determinant stages, official reports for hidden constructions works),
  - o) participates at the verification during determinant stages,
  - p) forbids the utilization of new technologies without technical agreement,
  - q) participates at the taking off the samples from the placement on the construction work,
  - r) follows the performance of the works from the technical the point of view as long as the performance works lasts, accepting for payment only the works that accomplish the quality level,
  - s) asks the performer, depending on each case, to cease the performance works, elimination or to remake the construction works performed inadequately, on the basis of the solutions given by the designer or by the persons enabled by the law to elaborate them,
  - t) transmits his own conclusions or those of the other participants at the construction works to the designer, regarding the non-conformities found during the performance works,
  - u) checks up the observance of the legal provisions regarding the requirements established by the Law no. 10/1995 concerning the quality in constructions, in case of modifications of the documentation or adopting new solutions that changes the initial conditions,
  - v) follows the executant to respect the indications given by the designer or by the other enabled bodies,
  - w) takes the documentation from the beneficiary and the designer and completes the technical book of the construction with all the necessary documents provisioned by the legal regulations,
  - x) follows the deactivation of the organizational works and hands over the ground to its owner,
  - y) participates to acceptance of construction works, ensures its secretariat and makes the necessary papers,
  - z) follows the solving of the problems found by the acceptance of construction commission and makes the necessary papers to accomplish the measures disposed by the acceptance of construction commission,
  - z2) hands over to the investor/user the papers for the acceptance of construction, economical and technical documentation of the construction together with the technical book of the construction.

The building site inspectors are responsible in case of un-accomplishing the obligations mentioned above according to the Romanian regulations in force, and also in case of



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uninsurance, of their fault, the realizing the qualitative level of the construction works as provisioned in the contracts, designs, conditions of projects and the technical in force regulations.

***In Austria:***

There is always a contract between client and contractor (investor). And the role, competence and responsibility of construction inspector have to be defined in their contract. Therefore the construction inspector is given the full competence of the client and works as a manager on behalf of the client.

**1.1.2. Supervisory job on behalf of Central, Regional or local Authorities**

***The Polish system:***

The tasks of building control are executed by the following bodies (art. 80 paragraph 2):

- county inspector of building control,
- province governor with the assistance of the provincial inspector of building control, as the head of the provincial building control, being part of the united provincial administration,
- General Inspector of Building Control.

According to art. 83 paragraph 1, **the county inspector of building control** is, as a first instance authority, responsible for and competent to:

- issue information whether executing wavering from approved building design or from other conditions of building permit requires to apply for changing of decision of building permit. (art. 36a paragraph 4)
- transfer the decision on re-taking construction works (art. 40 paragraph 2),
- accept the notification on the planned start of construction works, for starting of which the building permit and statement building site manager and an inspector of building control (art. 41 paragraph 4),
- accept investor's notification on changes: of building site manager or construction works manager, of investor supervision inspector, of designer who executes author supervision (art. 44 paragraph 1),
- issue orders to scrap a building object or its part (art. 48, 49b, 50a, 51),

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- check the compliance of allotment or land development design with the provisions on land development and land planning; completeness of building design and owning all necessary opinions, permits and verifications; check whether the design has been prepared by a person with respective building authorization (art. 49),
  - the matters concerning legalization fee (art. 49, 49a, 49b),
  - issue the decisions to stop construction works (art. 48, 49b, 50),
  - issue the decisions concerning incorrect execution of construction works (art. 51),
  - accept notifications on construction works' completion and issue a decision on using the object (art. 54, 55, 57 paragraph 4, 59),
  - execute the compulsory building site control (art. 59a, 59b, 59c paragraph 1, 59d paragraph 1, 59g paragraph 1),
  - issue a decision to execute the control of building objects while using them (art. 62 paragraph 3),
  - demand from a proprietor or building object manager to present the protocols of object building control, evaluations, and expert opinions concerning the technical state and construction works documents and post-construction documents (art. 65),
  - issue orders, in form of decision, to remove irregularities found (art. 66),
  - issue decisions which impose the necessity of object scrap and land tidying in case when the object is not fit for renovation, reconstruction or finishing (art. 67 paragraph 1),
  - issue, as decisions, orders to the proprietor or building object manager to vacate or disconnect a part or the whole building object in the term settled; the decision sets the necessity of securing replacement residence under separate provisions (art. 68),
  - issue regulations; placement of danger notifications for people or property at the buildings and prohibition to use it, safeguard it temporarily and remove the threat for people or property settling the term of works execution (art. 68),
  - to safeguard, at the expense of the proprietor or building object manager to apply all necessary means, or taking action to remove a threat for people and propriety (art. 69),
  - accept post-control protocols referring to controls of technical condition of building object or its part (art. 70 ust.2),
  - order a proprietor or building object manager, in a course of decision, to restore the former way of object use or its part use; in case of changing the form of object use or its part use without permit (art. 71 paragraph 3),
  - carry out explanatory proceedings regarding construction accidents (art. 74),
  - accept the notification on construction accidents (art. 75 paragraph 1 point 3 lit. a),

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- appoint the commission to establish the causes and circumstances of construction accident and to take action to remove the threat for people of property immediately after receiving the notification on construction accident (art. 76),
  - the obligation of immediate notification of construction accident to the respective unit of building control and to general Inspector of Building Control (art. 76),
  - issue decisions referring to security actions in case of construction accident occurrence (art. 78),
  - submit the motions of investigation in the matters of professional responsibility in building (art. 97 paragraph 1).

**The provincial inspector of building control** is the higher-rank authority in relation to the county inspector of building control.

The responsibilities and competences of the provincial inspector of building control as a first instance authority are defined in art. 83 paragraph 1, with regard to issues stated in art. 82 paragraphs 3 and 4.

The tasks of building control bodies (art. 84 paragraph 1) are:

- control over the observance and application of the provisions of the building law, including:
  - control over compliance of executing the construction works with the provisions of Building Law, building design and conditions defined in the of building permit decision,
  - verification of owning due authorization by the persons performing independent technical functions in building,
  - verification of admittance to apply construction products in building sector (art. 84a paragraph 1),
- control of the activity of architectural –building administration units (provincial inspector of building control supervises starost’s activities, and General Inspector of Building Control supervises the one of province governor),
- carrying out proceedings which shall establish the causes of construction accidents,
- cooperation with state control bodies.

The units of building control while controlling the executions of building law provisions (art. 84a paragraph 2):

- verify the correctness of administrative proceedings in front of architectural-building bodies, and the correctness of decisions and resolutions issued in a course of it,

- 
- check the execution of tasks resulting from decisions and resolutions issued on the basis of building law provisions.

According to the Act of 16th April 2004 on construction products (O.J. No 92, position 881)

The responsibilities of **provincial inspector of building control** (art.13 paragraphs1-4) are:

- executing scheduled and ad hoc controls,
- conducting administrative proceedings in first instance courts,
- participation in controls carried out by General Inspector of Building Control - on GINB's call,
- ordering test of samples of construction products acquired during control,
- immediate transfer of resolutions and decisions to GINB,
- giving opinion on construction products for custom authorities,
- preparing of annual provincial control plans and submitting them for approval to GINB, till 15th November of the year preceding the one subject to the schedule,
- incorporating tasks assigned by GINB into the province annual schedule,
- preparing report on schedule accomplishment, including ad hoc controls and report information, submitted to the President of UOKiK, which are transferred to GINB till the end of March of the following year.

The responsibilities of **General Inspector of Building Control** (art.14 paragraph1) are:

- maintaining the National List of Questioned Construction Products,
- approving of annual provincial control plans,
- the cooperation with the President of UOKiK.

General Inspector of Building Control (art.14 ust.2), is allowed to:

- create the annual schedule of controls,
- carrying out scheduled and ad hoc controls,
- order to tests of samples of construction products acquired during control.

General Inspector of Building Control (art.14 paragraph 3) can call provincial inspector of building control to:

- participate in carrying out scheduled or ad hoc control,
- execute the ad hoc control within the defined range,
- introduce defined tasks into provincial annual schedule of controls.

### ***The Hungarian system:***

It is obligatory to apply construction inspector for government/state investments. At the first time it was regulated by the law of public procurement procedure (1995 years 40<sup>th</sup> law). By now this law was changed (2003 years 129<sup>th</sup> law). It orders to apply construction inspector for every governmental or state investment. In this case they have to use construction inspector I. or II. which depend on the value of the investment.

The tasks are similar in case of construction inspection for private investments. However the tasks are mandatory and they are wider in scope. The construction inspector

- controls the selecting of the designers,
- controls the plans, drawings,
- controls the existence of the necessary permissions and approvals,
- controls the financial issues of the investment before the execution,
- assists to choose the best builder/builders,  
(during the construction)
- controls the execution process (from the set out to the finish),
- controls the whole procedure whether it matches to the permissions of authorities and to the contract,
- controls the conformity of construction work with design,
- controls and validates the necessary changes,
- controls and countersigns the log-book of construction,
- controls the quantities and quality before the masking of structures,
- controls the necessary examinations made by the builder,
- controls the realized final general plans,
- is liable for the good finance and for the deadlines,
- is liable for the conformity of permissions of authorities and of contract,
- is liable for using suitable materials and technologies,
- is liable for observance of safety regulation,
- permits the payments,
- controls the correspondence to the law.

The construction inspector controls every task in the whole procedure of construction.

The legislation background stands on the 158/1997 decree of government (about the activity of construction inspection).

### ***The Portuguese system:***

The legislation states the role of the supervisor, in article 180, as:

“The supervisor is in charge of verifying the completion of the project contract specifications, its alterations and the plan of work, namely:

- a) Verify the implementation of the works, in accordance with the necessary specifications provided by the company,
- b) Verify the correction or error on project provisions, with the collaboration of the company, namely in what regards the land condition,
- c) Approve the materials to be used,
- d) Supervise the building processes,
- e) Verify the dimensional characteristics of the works,
- f) Verify in general, the procedures used to erect the works,
- g) Verify the completion of the dead lines established,
- h) Perform the necessary measurements and verify the progress of the works,
- i) Check if any rules in the contract or in the legislation have not been followed,
- j) Verify if the works are done in the order and with the means established in the plan,
- k) Communicate to the company the alterations introduced on the plan of work by the client and approve the proposals by the company,
- l) Inform about the need or convenience of enlarging the site or modify it and of the need of acquiring or expropriating. Give an opinion about the circumstances that have not been previewed in the project, and that lead to the right of indemnities to third parties and inform about its legal and contractual consequences,
- m) Solve, when within his capabilities, or submit, with his information, to the decision of the client, all the issues raised by the company and assure the correct development of the work, for perfect execution of the works, safety, quality and measurements,
- n) Inform the company about the orders of the client and verify its completion.

Article 181 focus on the role of the supervisor in works conducted on a percentage base and states the following:

“In the case of works performed on a percentage base, the supervisor must assure that the works are conducted correctly and economically and must also:

- 
- a) Follow all materials acquisition processes and decide on the correctness of these, namely suggesting or ordering to consult other providers that can supply the work in better conditions and within either in quality or cost,
  - b) Supervise all processes used in the works, suggesting or ordering, the adoption of the ones that lead to better result or economy,
  - c) Verify all expense documents, including materials and salaries,
  - d) Assure the correct stocking and application of the materials,
  - e) Verify the accounts of the works, and ordering to register what is found relevant.

The supervisors are supplied by the Ministry of Employment or by the City Council, depending on the type of work.

### ***The Rumanian system:***

The State Inspection in Constructions – S.I.C., public institution having legal personality, subordinated to the Government of Romania, represents the technical specialized structure for implementing the state control concerning the respecting of the discipline in town planning (urbanism) and of the regime of the authorization for the construction activities and also the unitary appliance of the legal provisions in the domain of the quality in constructions.

The State Inspection in Constructions from the Ministry of Public Works, Transports and Dwelling, the districts inspectorate for buildings and the inspectorate for buildings from Bucharest subordinated by the State Inspectorate for Buildings are responsible for the exercise of the State control, regarding the common application of the legal provisions in the field of the quality of constructions, in all the stages and components of the quality system in constructions, as well as for the establishment of contraventions, the application of sanctions established by the law and, in case, for the stopping of unsatisfactorily accomplished works.

Competences of S.I.C:

- it exerts the state controlling regarding the quality of constructions and the discipline in town planning;
- it verifies the legality of the emission of the authorization for construction;
- it authorizes the testing laboratories in constructions;
- it authorizes the specialized personnel in constructions for:
  - the directing of a building site,
  - the quality control,
  - to pursue the behaviour of the constructions in exploiting,
  - the control of the testing laboratories in constructions.

### ***The Austrian system:***

There is not significant difference between inspection of investment of the private sector and investment of central/regional/local authorities.

Although the authorities have competences for inspection of building site, which are regulated by the laws.

## **1.2. The main field of the construction inspection job**

### **1.2.1. Type of the construction inspection job related to the project**

#### ***The Polish system:***

In the light of law, a person who has obtained unlimited building authorization can act as building inspector within the range of his specialization branch; there are limits as for the type of investment, its size or its value. However, the investor himself can request (as he usually does) additional qualifications, e.g. long enough work experience, additional qualifications, etc.

#### ***The Hungarian system:***

In Hungary there is no difference by function of buildings related to construction inspection. But there are differences between general buildings and special buildings (underground constructions, road and railway construction, nuclear facilities, electricity works, water-gas-canalisation, energy and telecommunication).

The type of developer/investor is irrelevant. However the size of the project is important.

There are different fields according to building type:

- general,
- field of transportation building, water and canalisation, telecommunication, energy,
- nuclear facility (according to 1996 year's 116<sup>th</sup> law and 108/1997 decree of government, which determine rules and methods in this field).



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### ***The Rumanian system:***

In Romania, only authorized specialists have the right to be inspectors of a building site in the authorized field. The domains of authorisations are:

- Construction materials and articles,
- Construction works:
  - Farming, industrial and civil buildings (separated by category of importance),
  - Roads, bridges, tunnels, subway, tramway, flight strips, cable transport separated by category of importance: national, district, local),
  - Railways,
  - Hydrotechnical works (separated by category of importance),
  - Technical and urbanistic works:
    - water supply and sewerage,
    - land improvements,
  - Forest construction works,
  
  - Installations adherent to construction works (Categories of importance A, B, C, and D),
    - Electrical installations,
    - Installations sanitation, technical-ventilation, gas,
  - Networks:
    - electrical,
    - water supply and sewerage,
    - thermicals,
    - gas,
    - telecommunications,
    - for transporting of the mineral oil products,
  - Monuments, ensembles and historical places, piles, architectural or cultural:
    - reinforcements,
    - restorations.

## 1.2.2 Type of the construction inspection job related to the professional area

### *The Polish system:*

The functions of investor supervision inspector can be performed by a person who owns unlimited building authorization in the respective specialization branch. The specialization branches as defined by Building Law are:

- architectural,
- construction-building,
  - a) road construction,
  - b) bridge construction,
- installatory as for networks, installations and appliances of heating, ventilation, gas, water pipes and sewage system,
- installatory as for networks, installations, electrical and electro energetic appliances,
- or others, defined according to the article 16.3 by a directive issued by the Ministry.

Additionally, within the specializations the following specialization branches are pointed out:

<b>Specialization</b>	<b>Technical-building specialization</b>
architectural	-
Construction-building	- underground building objects
	- geotechnics
	- concrete constructions
	- metal constructions
	- wooden constructions
	- poles and industrial chimneys
	- water management building objects
	- sea hydro technical objects
	- building object on mountainous terrain
- building objects of hydro melioration	
road	-
bridge	-

installatory as for networks, installations and appliances of heating, ventilation, gas, water pipes and sewage system	- gas networks of pressure higher than 0,4 MPa, gas stations, gas extractor press
	- sewage treatment plant
	- appliances of atmospheric air protection
installatory as for networks, installations, electrical and electro energetic appliances	-

***The Hungarian system:***

There are four professional areas according to graduation and examination of construction inspector (regulated by 16/2003 decree of the Ministry of Interiors):

- building (É),
- civil engineering (M),
- sanitary engineering (G),
- electrical engineering (V).

In those fields the construction inspector can work on building site as a supervisor according to his permission and registration in the register of the regional Public Administrative Offices. Usually an inspector only has an unlimited building authorization in the respective specialization branch so in the building site often there are some inspectors.

***The Portuguese system:***

For certain type of construction components specific rules are used as e. g. gas, lifts, welding, etc.

The following construction components must be submitted to mandated inspections:

**A - Inspection of Lifts and Lifting Equipments**

Notification awarded by IPQ to ISQ - Notified Body Number 0028 – European Legislation is used in this case

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B - Inspection of Electrical Installations of Buildings and Industrial Installations (Low Voltage)

Accreditation awarded by General Direction of Energy - Ministry of Energy

Recognized organizations:

ISQ - Instituto de Soldadura e Qualidade - Lisboa

IEP - Instituto Electrotécnico Português - Porto

LIC - Laboratório Industrial de Qualidade - Águeda

C - Project review of Electrical Installations of Buildings and Industrial Installation (Low Voltage)

Accreditation awarded by General Direction of Energy - Ministry of Energy

ISQ - Instituto de Soldadura e Qualidade - Lisboa

IEP - Instituto Electrotécnico Português - Porto

LIC - Laboratório Industrial de Qualidade - Águeda

D - Certification Body of Telecommunication networks of buildings

Recognition awarded by ICP/ANACOM Instituto de Comunicações de Portugal/Autoridade Nacional de Comunicação

Open market - ISQ and other 102 organizations are recognized as certification bodies

E - Quality Mark of buildings (Civil Construction)

Accreditation Body - LNEC - Laboratório Nacional de Engenharia Civil

F - Energetic Efficiency of Building and Quality of indoor air

Legislation approved and on the way to be published (Recognition Accreditation awarded by DGE - General Direction of Energy - Ministry of Energy)

ISQ is one among several others candidates to be certification bodies

G - Pressure Vessels

European Legislation applied. Certification entities must be notified bodies:

ISQ and Rinave are the two Portuguese notified bodies.

NOTE:

For all the above mentioned areas there is no certified inspector scheme. If an entity is entitled to certify a specific type of construction component, their inspectors shall have

In what refers to Inspectors in Welding one of the Systems used for training and qualification is the International Training and Qualification System from IIW/EWF.

### ***The Austrian system:***

Depending of the size of the project the construction inspection is supported by one ore more specialists. The type of the project is irrelevant.

## **2. IDENTIFYING AND ANALYSING THE QUALIFICATION REQUIREMENTS IN ORDER TO BECOME A CONSTRUCTION INSPECTOR IN THE MEMBER STATES, NEWLY ACCESSED TO THE EU COUNTRIES AND CANDIDATE COUNTRIES**

**Member states do not possess with obligatory procedure** of qualification and training. Their registration system is voluntary or missing.

The **newly accessed to the EU countries** and candidate countries generally **have qualification system** based on post-gradual training mostly. Practical experience is required in every country but the ways of certification are different.

### ***The Polish system:***

To perform the function of investor supervision inspector one has to obtain unlimited authorization to manage the building works. Preliminary requirements refer mostly to:

1. A technical university degree corresponding to a given specialization (see: table below)
2. Completing the recorded practical training on the building site (2 years minimum). In case of investor inspection, an investor requires more work experience than it is stated in the Act on performing individual building functions, e.g. work experience of 10 years.
3. Passing the state exam to gain the building authorization.

### **Education**

The formal requirements related to the process of acquiring authorization to manage the building works are enumerated in the Directive Of the Minister of Land Planning and Building of 30th December 1994 on independent technical functions in building (O.J. of 1995, no 8, pos. 38). The detailed requirements concerning the education are presented in the table below.

Education	Studies specializations	MANAGEMENT OF CONSTRUCTION WORKS			
		Specialization of building authorization			
		architectural	Construction-building	Installations and sanitary network	Electric and electro energetic installations and networks
University degree	architecture	suitable	related	related	-
	building	-	suitable	related	-
	environment engineering	-	related	suitable	-
	environment protection	-	-	related	-
	electrotechnics	-	-	-	suitable

***The Hungarian system:***

On the field of construction inspection there are two levels:

- I. (first level– this is the highest),
- II. (second level).

The level depends on the person's qualification. This level determines the volume of the building in the inspection what this person can manage.

The first (I) category is for those who have high school education. The second (II) category is for those who have secondary school education.

The courses and examinations are different for these two levels.

**The Rumanian system:**

The table below presents in details the compulsory requirements per domain of authorisation in order to be authorised as a site inspector.

CURRENT NUMBER	DOMAIN OF AUTHORIZATION	STUDIES			
		LEVEL		SPECIALIZATION	SENIORITY
1	Construction materials and articles	superior	engineer	- Construction materials	4 years
			sub-engineer	- CCIA, CFDP, Hidro, Installations	6 years
<b>2.</b>	<b>Construction works:</b>				
<b>2.1.</b>	<b>Farming, industrial and civil buildings:</b>				
2.1.1.	Category of importance D	medium	technician	- Construction	10 years
		superior	engineer	- CCIA, CFDP, CH, IF, INS	3 years
			sub-engineer	- CCIA, CFDP, CH, IF, INS	5 years
2.1.2.	Category of importance B si C	superior	engineer	- CCIA, CH*, CFDP*	8 years
2.1.3.	Category of importance A	superior	engineer	- CCIA, CH*	10 years
<b>2.2.</b>	<b>Roads, bridges, tunnels, subway, tramway, flight strips, cable transport:</b>				
2.2.1.	national	superior	engineer	- CFDP, CCIA*, CH*	5 years
2.2.2.	district	superior	engineer	- CFDP, CCIA*, CH*	5 years
			sub-engineer	- CFDP, CCIA*, CH*	7 years
2.2.3.	local	superior	engineer	- CFDP, CCIA*, CH*	3 years
			sub-engineer	- CFDP, CCIA*, CH*	5 years
2.3.	Railways	superior	engineer	- CFDP	5 years

CURRENT NUMBER	DOMAIN OF AUTHORIZATION	STUDIES			
		LEVEL		SPECIALIZATION	SENIORITY
			sub-engineer	- CFDP	8 years
<b>2.4.</b>	<b>Hydrotechnical works</b>				
			engineer	- CH, CCIA, INS*, IF*	3 years
2.4.1	Category of importance D	superior	sub-engineer	- CH, CCIA, INS*, IF*	5 years
			engineer	- CH, CCIA, INS*, IF*	5 years
2.4.2.	Category of importance B si C	superior	sub-engineer	- CH, CCIA, INS*, IF*	7 years
2.4.3.	Category of importance A	superior	engineer	- CH, CCIA*	10 years
<b>2.5.</b>	<b>Technical and urbanistic works:</b>				
			engineer	- CH, INS, CCIA, IF, CFDP*	5 years
2.5.1.	water supply and sewerage	superior	sub-engineer	- CH, INS, CCIA, IF, CFDP*	8 years
			engineer	- CH, INS, CCIA, IF, CFDP*	5 years
2.5.2.	land improvements	superior	sub-engineer	- CH, INS, CCIA, IF, CFDP*	8 years
			engineer	- CH, CCIA, Sylviculture College, section of constructions	3 years
2.6.	Forest construction works	superior	sub-engineer	- CH, CCIA, Sylviculture College, section of constructions	5 years
<b>2.7.</b>	<b>Installations adherent to construction works (Categories of importance A, B, C, and D)</b>				



CURRENT NUMBER	DOMAIN OF AUTHORIZATION	STUDIES			
		LEVEL	SPECIALIZATION	SENIORITY	
2.7.1	Electrical installations	superior	engineer	- INS, Energetics Study College*	5 years
			sub-engineer	- INS, Energetics Study College*	8 years
2.7.2.	Installations sanitation, tehcnical-ventilation, gas*	superior	engineer	- INS, Specialized Technical College and authorization ANRGN*	5 years
			sub-engineer	- INS, Specialized Technical College and authorization ANRGN*	8 years
<b>2.8.</b>	<b>Networks:</b>				
2.8.1	electricals	superior	engineer	- INS, CCIA, fSpecialized Technical College and authorization from Electrica	5 years
			sub-engineer	- INS, CCIA, fSpecialized Technical College and authorization from Electrica	8 years
2.8.2.	water supply and sewerage	superior	engineer	- INS, CCIA, Specialized Technical College and authorization	5 years
			sub-engineer	- INS, CCIA, Specialized Technical College and authorization	8 years

CURRENT NUMBER	DOMAIN OF AUTHORIZATION	STUDIES			
		LEVEL		SPECIALIZATION	SENIORITY
2.8.3.	thermicals	superior	engineer	- INS, CCIA, Specialized Technical College and authorization	5 years
			sub-engineer	- INS, CCIA, Specialized Technical College and authorization	8 years
2.8.4.	gas	superior	engineer	- INS, CCIA, Specialized Technical College and authorization	5 years
			sub-engineer	- INS, CCIA, Specialized Technical College and authorization	8 years
2.8.5.	telecommunications	superior	engineer	- INS, CCIA, Specialized Technical College and authorization	5 years
			sub-engineer	- INS, CCIA, Specialized Technical College and authorization	8 years
2.8.6.	for transporting of the mineral oil products	superior	engineer	- INS, CCIA, Specialized Technical College and authorization	5 years
			sub-engineer	- INS, CCIA, Specialized Technical College and authorization	8 years

CURRENT NUMBER	DOMAIN OF AUTHORIZATION	STUDIES			
		LEVEL		SPECIALIZATION	SENIORITY
<b>2.9.</b>	<b>Monuments, ensembles and historical places, piles, arhitectural or cultural</b>				
2.9.1.	reinforcements	superior	engineer	- CCIA	8 years
2.9.2.	restorations	superior	architect	- Architecture	8 years

*\*) There are taken into consideration the situations with at least 2 years of seniority in the domain of authorizations, which are proved by the work card and recommendations.*

Legend:

CCIA = Farming, industrial and civil construction works

CFDP = Railway, roads, bridges

CH = Hydrotechnical works

INS = installation for construction works

### ***The Austrian system:***

So far the construction inspection was an engineer or architect. In future it is expected to be, especially for larger projects, rather “managers” of course with technical feeling and specialists.

### **3. MONITORING THE PROCESS OF LIFELONG EDUCATIONAL AND TRAINING SYSTEM IN THE EUROPEAN COUNTRIES**

Nowadays the regulation and practice of lifelong educational and training system in EU is not uniform. For the construction inspectors in some countries there is possibility but it is not mandatory. It is a solution to improve their knowledge and skills in varied field. However this kind of training system is very useful for saving and improving the level of knowledge of building supervisors, construction inspectors and engineers.

### ***In Poland:***

In Poland there is no big tradition in building lifelong training. Construction sector was considered as very stable and not many innovative solutions were promoted before 90ties. Nowadays the situation changed. People (not only the ones connected with construction sector) got used to various solutions so among construction workers there is a need to improve the skills and knowledge which is very fast developing. One of the biggest international fairs in Poland is BUDMA in Poznań - totally devoted to modern construction solutions. Every year

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more than 55 thousands visitors come to see what innovative solutions are worth to know. This is an example proving that also construction inspectors cannot stay behind. Chambers of commerce related to building branches try to organize trainings, conferences and workshops for their participants. For example PIIB releases a free monthly magazine containing all information about changes to the law, new technologies and event which may be interested for construction engineers. These activities also ensure the lifelong learning. So even if there are not regular systems of training for building inspectors there are a lot of opportunities for them to increase their skills. They are not obligatory but because of short market they really have to care about improving qualifications. Building inspectors need rather very specialized trainings, general trainings are not really needed, because general knowledge is acquired by experience. Nowadays a lot of producers of building materials organize trainings for building contractors and simple workers. There are few ones addressed to more specialized building actors.

***In Hungary:***

So far the educational system have worked well. Nowadays there is a new idea for gathering vocational level in architectural and engineering field. The conception is not complete at that time but it would be similar to the chemist's educational system, and it would be a lifelong training.

Recently in the field of construction inspector the training system should work the same way. However there is a regulation about that for construction inspector in the law. The renewal the registration of construction inspector is mentioned by decree of 6. § (4) in 158/1997 (decree of government) but that method is not regulated by decree this time. It is need to make those decrees to run the system and it would be e.g. lifelong educational system.

***In Austria:***

The technical education additional legal, economic and language knowledge is important. Not only for construction inspectors. The training is the same as for the other architects and engineers.

The construction inspection is not an individual profession, so it does not need especially lifelong educational system, which different from engineer's field.

#### **4. IDENTIFYING THE FUNDAMENTAL PRINCIPLES AND KEY FACTORS ON WHICH THE PROFESSION OF THE BUILDING INSPECTORS IS BASED IN EACH PARTNER COUNTRY**

In spite of the practice of the member states the **newly accessed and candidate countries registration is obligatory** to the professional activity but managing of the register is different by the countries. The activity of professional chambers in some of the countries is just formal while in some other countries chambers play basic role. The voluntary registration system of construction inspection activity has not dominance among these countries possessing the register.

In these countries **prolongation of the authorisation** depends on certain conditions, (such as practicing professional activity, paying fees etc.) but generally **does not mean a special requirement** from construction inspectors.

In the Member States, newly accessed to the EU countries and candidate countries there are several system to practice the profession of construction inspector:

- mandatory registration,
- voluntary registration and
- without registration.

The registration of construction inspectors is not necessary In Portugal So in that country there is not a mandatory registration system.

Apart from mandatory registration system there is a voluntary registration system in some country. Those systems can exist next to each other but their aims and functions are different.

##### **4.1 Mandatory registration of the construction inspection job**

For the registration of construction inspectors in each country – where there is mandatory qualification system – there is a register for applicants.

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#### **4.1.1. Governmental / Regional / Local level of the required registration**

##### ***The Polish system:***

Everyone, who wants to act as investor supervision inspector or building control inspector should follow the qualification path as stated by the regulations, which is completed by the national exam and by being recorded in the register of Polish Chamber of Civil Engineers (PIIB). A detailed description of requirements that a person applying for building authorization to manage the construction works without limits should fulfil are included in the chapter 3. A person who has passed the exams to obtain the building authorization as mentioned above. The candidate who has passed the exams to obtain above mentioned building authorization gains the right to use the authorization at the moment of being registered in the District Chamber of Civil Engineers (OIIB). Each OIIB keeps its own register of candidates who have passed the exam. Additionally each OIIB is obliged to transfer the information about the candidates who have obtained the authorization to the General Office of Building Control. This obligation has been in force since 1995. Building authorization have been granted since 1928 so the list of people who have building authorization which allows them to perform investor's supervision is not exhaustive. Additionally, it is not known to the public, and General Office of Building Control (GNUB) is not obliged to publish it in any widely accessible materials. As it may seem from the PIIB information, the Chamber does not keep any central register. Such a register is only kept on the level of OIIB.

##### ***The Hungarian system:***

In Hungary there is a qualification system for registration. This is mandatory for the construction inspectors to practice this profession.

This system started about 6 years ago, but it has been mandatory for 3 years.

Now in Hungary the number of registered construction inspectors are about 5000. They are registered in registers, which are run by the Public Administrative Offices. These registers are published on the Internet.

##### ***The Portuguese system:***

No, there is no required registration of construction inspectors in general.

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In the area of safety in civil construction there is mandatory certification for:

- a) Safety Coordinator in Construction (Directiva 92/57/CEE, estaleiros temporários ou móveis; DL 133/99, 21 Abril) (there is no directive regarding conditions for certification or for course recognition).
  - b) Health and Safety High Level Technicien (Técnico(a) Superior de segurança e higiene no trabalho) - level 5- University Degree, (Decreto-Lei nº 110/2000, de 30 de Junho
  - c) Health and Safety Technicien (Técnico(a) de segurança e higiene no trabalho) - level 3 - Secondary School, (Decreto-Lei nº 110/2000, de 30 de Junho
- IDICT- Instituto de Desenvolvimento e Inspeção das Condições de Trabalho , is the body responsible for these certifications.

### ***The Rumanian system:***

Taking into consideration the classifications from the beginning of the report of the three types of construction inspector jobs we have three level of registration:

- construction inspectors- employed by The State Inspectorate in Construction (SIC) from the Ministry of Public Works, Transports and Dwelling (public institution having legal personality, subordinated to the Government of Romania) and the districts inspectorate for buildings (local public institutions subordinated to the SIC),
- site inspectors - subject to a local authorisation, issued by the local office of the SIC,
- technical inspectors subject to an authorisation issued by the Ministry of Public Works, Transports and Dwelling.

The registration of constructor inspectors is mandatory. According to SIC, the number of registered inspector is:

- |  |                              |
|--|------------------------------|
| – site inspectors for construction materials | – 217 authorized inspectors  |
| – site inspectors for construction works     | – 1902 authorized inspectors |
| – authorized testing laboratories            | – 441                        |

The authorization of the building site inspectors is made on the following legal bases:

- Law nr. 10/1995, concerning the quality in constructions
- The Order of the MLPTL (the minister in charge with the construction sector) nr. 488/2002

In order to become an authorised building site inspector, one should:

- have a graduation diploma from an education institute.

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- have a minimum activity in this field of activity.
  - fit in the examination requirements of the authorization commission.

At an interval of 3 months The Ministry of Public Works, Transports and Dwelling publishes in specialized magazines the list of authorised specialists, the list of previously authorised specialists that were suspended during last 3 months. It also publishes once a year the complete list of the authorised persons and the domain they were authorised for.

***The Austrian system:***

In Austria construction inspection is not a profession. So there is not a registration system for construction inspectors.

***The Bulgarian system:***

In Bulgaria the registration is mandatory for construction inspector.

In Bulgaria the Chamber of construction engineers leads the registration of the construction inspectors.

The Ministry of regional development and public works provides license to the private firm for 3 years to make reports for accordance of the project to the normative requirements.

In Bulgaria the private firms use only registered inspectors at the Chamber of construction inspectors for all specialties.

This register is published in public works and in Register at the Ministry of regional development.

To register an applicant to this register it is without exam.

#### **4.1.2. Role of the Chambers in the mandatory registration system**

***The Polish system:***

In 2003 the new act was introduced which settles the issues referring to trade self-government of civil engineers. The Polish Chamber of Civil Engineers (PIIB) was created, which includes State Chamber of Civil Engineers (KIIB) and District Chambers of Civil Engineers (OIIB). The Chamber has an important role; its main responsibilities are:

1. granting and refusing/taking away building qualifications in particular specialities and conferring the title of a building expert/surveyor,



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2. to hold exams and to confirm qualifications,
  3. providing opinion on minimum program requirements in respect to the professional education of civil engineers as well as making proposals regarding these issues,
  4. to cooperate in raising the qualifications of building engineers,
  5. to keep the list of members of trade self-government.

In the light of law and regulations in force so as to be able to perform the function of investor supervision inspector one must be a member of OIIB, respective for one's place of living, which means that one has to:

1. pass the exam for obtaining construction authorization to manage construction works without any limits,
2. pay the compulsory third-party insurance fee,
3. pay the compulsory membership fee.

### **Polish Chamber of Civil Engineers**

A trade self-government, next to legislative institutions, regulative structures, economy and business, constitutes an important pillar of the State of law. The activity of the trade self-government of civil engineers is regulated by the following provisions:

- the Building Law Act and acts on trade self-governments of architects, civil engineers and town planners,
- ministerial regulations: on independent technical functions in the building industry, on disciplinary procedures in respect to members of trade self-governments, on conditions of obligatory third-party insurance,
- internal resolutions: the statutes and rules and regulations of the chamber.

The Polish Chamber of Civil Engineers groups almost one hundred thousand engineers and technicians with building qualifications in the following specialities: architecture, construction and building, roads, bridges, installations of heating, ventilation, gas, water and sewage networks, systems and devices, electrical and power systems and devices.

The Chamber membership is compulsory and only those entered into the list of its members are entitled to perform independent technical functions in the building industry, i.e. to pursue the profession of a designer, a construction manager, a contract engineer or a construction supervision inspector. The third-party insurance due to the profession pursued is also compulsory.

The tasks of the trade self-government include, in particular:

- exercising supervision over diligent and scrupulous performance of the profession by members of chambers,
- representation and protection of professional interests of its members,
- establishing the rules of the ethics of the profession and supervision over the observance thereof,
- granting and refusing/taking away building qualifications in particular specialities and conferring the title of a building expert/surveyor,
- recognition of professional qualifications of foreigners,
- cooperation with government administration and local government bodies, as well as with other trade self-governments and associations,
- providing opinion on minimum program requirements in respect to the professional education of civil engineers as well as making proposals regarding these issues,
- trade self-government's assets and business management,
- conducting proceedings regarding the professional and disciplinary liability of members of trade self-governments,
- providing opinion on draft normative acts regarding the building industry,
- organization and administration of mutual aid institutions and other forms of material assistance to members of trade self-governments,
- keeping the lists of members of trade self-governments,
- implementation of statutory tasks.

***The Hungarian system:***

Before 1997 the Hungarian Engineering Chamber ran the register of construction inspectors. Now this registration is independent from the chambers.

The Hungarian Engineering Chamber can appoint its delegate to the examination branch, who is the member of the jury.

***The Portuguese system:***

Chambers do not have any particular responsibility regarding inspectors' qualification. They may organize, if they wish, in equal foot to any other organization or company training schemes for a specific field inspector.

***The Rumanian system:***

The Chambers of Commerce have no particular role in the registration system.

***The Austrian system:***

At this moment it depends of the profession of the construction inspector, which Chamber is involved. Of course in the case of a public investment (e.g. street) the construction inspection is governmental and there is no chamber involved. The system is considered as it works well.

***The Bulgarian system:***

In Bulgaria the Chamber of construction engineers leads the registration of the construction inspectors.

**4.2. Voluntary registration of the construction inspection job**

***In Poland, Hungary:***

Apart from mandatory registration system for construction inspector there is not voluntary registration.

***The Austrian system:***

In Austria construction inspection is not a profession. So there is not a registration system for construction inspectors.

**4.2.1. The aim of the voluntary inspections**

***In Portugal:***

The Construction Quality Mark is a voluntary scheme. There is no voluntary registration of construction inspectors.

For Welding Inspectors, Lift inspectors, Gas installation inspectors, there are certification systems managed by the organisations (e.g. ISQ – Instituto de Soldadura e Qualidade, IPG –

Instituto Português do Gás) that provide training, qualification and certification of inspectors in these fields. Also for instance for general Quality Managers, some companies require registered professionals at LNEC –Laboratório Nacional de Engenharia Civil. DGE – Direção Gereal de Energia, from the Ministry of Economy and Industry, is involved in training, qualification and certification of Inspectors in electrical and communication fields and keeps registers of these. There are over a hundred of companies providing supervision of civil construction works. These are subcontracted by the company building the construction and provide the supervisors with the required skills.

IEFP – Instituto de Emprego e Formação Profissional, an institution from the Ministry of Employment provides training and qualification of supervisors.

There is also voluntary certification on:

- Works Technician (Técnico(a) de Obra [Conductor(a) de Obra])
- Topography Technician (Técnico(a) de Topografia)
- Measurement and Budget Technician (Técnico(a) de Medições e Orçamentos)
- Technician on Drawing in Civil Construction (Técnico(a) de Desenho da Construção Civil)

All covered by the directive -Portaria nº 466/2003, de 06 de Junho-and being IEFP the certifying entity.

### ***In Romania:***

In Romania, except the mandatory registration form, there is no other form of voluntary registration or professional association targeted specifically towards construction inspectors.

However, part of the construction inspectors might be member of other special associations.

There is an association named “*The Ownership of Romanian Contractors*”, that is gathering natural both legal persons of research, design, consultancy bodies and building materials industry and is following to the promotion and protection of legal interests of his members and is jointing their responsibility, in order to increase the prestige of that Institution and to enhance his contribution for the development, growing up and updating of Romanian economy.

Apart the contractors association, we have also “*The General Association of the Engineers*” (A.G.I.R), that is a federative organization, with a flexible structure that is adaptable at its member's requirements. The AGIR's Departments were made up for the view to support the development of the activities complex of the association, for the achievement of its objectives.

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We should point out here both:

- The Organization & Relations Department, which is concerned with the establishment of organizations within the association, according the Statutes provisions, establishes internal and international relationships, support the European accreditation of the Romanian technical faculties and the international recognition of the Romanian engineers through the Eurlng title, and
- The Continuing Education Department, which organizes continuing education activities with the view to enlarge the knowledge of the engineers for their adaptation at the requirements of the society, collaborates with internal training institutions and from abroad, manages the data bases with the association s members.

***In Austria:***

At this moment a registration is not possible, because there is no institution, which could register the applicant.

**4.2.2. Main fields of the voluntary inspections**

***In Romania:***

A.G.I.R. recognizes to its members the right to associate in branches, professional societies, or circles in function of problems of common interest, of professional profile, working place or any other criteria, mutual accepted by at least 20 members. The branches, the professional societies and the circles collaborate and help one another in organizing and carrying out, on local and territorial plan, the AGIR's activities.

The professional societies are set up, according to statutes, as AGIR's organizations and function in conformity with their own regulations, elaborated in respect of these statutes. Until now, 19 professional societies are set up.

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### **4.3. Validity for the construction inspection job**

#### **4.3.1. Time frame, time extension process**

##### ***The Polish system:***

Building qualifications are granted of unlimited validity and are valid on condition that:

1. membership fee is paid regularly,
2. third-party insurance fee is paid regularly,
3. there was no violence of the professional and disciplinary liability.

##### ***The Hungarian system:***

The registration is valid for 5 years in Hungary. The construction inspectors have to renew their qualification after every 5 years but they do not have to take an exam again. According to 6. § (4) in 158/1997 decree of government, they have to do a process for renewing. This process includes a report about a special course for further education for construction inspectors, which would be regulated by the minister. However this system does not work yet.

##### ***The Rumanian system:***

The qualification is automatically of national level.

The construction inspectors from The State Inspectorate in Construction have this quality for as long as they are employed by SIC.

The site inspectors' authorisation is valid for a period of 4 years with the possibility of renewal after a new exam.

The technical inspectors' authorisation is lifetime valid.

#### **4.3.2. Opportunity of the fields of the extensions**

In Poland and Hungary after successful exam the constructor inspector get an unlimited authorization for profession activity and does not need more extension in field of inspector's supervision. However if he needs permission on another field of construction he must take a new exam for it but it has a lot of other requirements.

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In Hungary at that case there is a chance to recognise those parts of former exam and course (taken in field of construction inspection), which was the same or equal to the part construction inspector exam. For example: juristic, economical issues or quality management.

#### **5. RECOGNIZING OF HIGHER EDUCATION QUALIFICATION FOR PROFESSIONAL PURPOSES AND QUALIFICATION OF NON-ACADEMIC LEVEL FOR TAKING UP A VOCATIONAL ACTIVITY**

In the countries possessing with the register the former graduation is considered during the registration procedure. These countries **exactly determine the time and type of the professional practice** they can accept to the registration in addition to the graduation level. In Hungary there is an extraordinary possibility to accept – entirely or partly – the exams of former training courses, by the Building Control Authority instead of the official qualification exam.

##### ***The Polish system:***

The system requires and recognises the technical university degree corresponding to a given specialisation. But the exam is mandatory in every case.

##### ***The Hungarian system:***

The Hungarian qualification system requires and recognises the technical university degree and high school education degree of applicant corresponding to a given specialisation for performing construction inspector job.

There is not possibility to recognise former degree (e.g. juristic, economical degree) on behalf the vocational exam because of its complexity. However In Hungary there is a chance to recognise those parts of former exam and course (taken in field of construction inspection), which was the same or equal to the part construction inspector exam. For example: juristic, economical issues or quality management. The exam of corresponding to a given specialisation is mandatory in every case according to 16/2003 decree of the Ministry of Interiors (its annex 1, construction inspector I. and construction inspector II. art. V. 3.)

In a special case, when the applicant has an adequate (fully or partially) vocational qualification in other speciality which is accept by Building Control Authority the applicant can gain the permission for performing construction inspection regulated by decree of 3. § (8) in 158/1997 (decree of government). This way of gaining the authorisation is rather rare.

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This system has just started and there is not enough available information of its work. It is admitted that an education system is needed to develop the knowledge of construction inspectors in practice, but this development system does not work yet.

It need for the renewing the permissions of construction inspectors according to 6. § (4) of the 158/1997 decree of government. It is because this decree notices that a vocational post graduating system is needed for renewing the permission. However the rules of this system have not been presented yet.

***The Rumanian system:***

Recognition of former experiences in the field is not sufficient. The conditions regarding the level of studies are compulsory and cannot be replaced by experience.

***The Austrian system:***

During the studies (university or high school) the engineer gets all of necessary knowledge (technical, economical, juridical) for doing construction inspection.

**6. ANALYSING THE EDUCATIONAL AND VOCATIONAL SYSTEM PREPARING TO CONSTRUCTION INSPECTOR JOB IN THE PARTNER COUNTRIES**

If a would be construction inspector like to entering in to the register, **in the newly accessed and candidate countries it is prescript a compulsory professional exam**. Preparation for the exam generally can be done individually i.e. there is no obligation to participate in the centrally organised courses (in spite of Hungary).

**6.1 Examination process for the qualification**

***The Polish system:***

The issues of organization and way of holding the exam and granting authorization are stated in the resolution no 18/03 of State Qualification Committee of Polish Chamber of Civil Engineers. The exam to obtain building authorization is held at least twice a year. The exam is held at the local level – in each province. The term of the exam is settled by the District Qualification Committee respective for a given province.



## QUALIFICATION PROCEDURE

The exams which give authorization for building works are preceded by qualification procedure, the aim of which is to verify whether education and gained practical experience conform to the type of authorization and specialization chosen by a candidate. If a candidate wants to take an exam, one is obliged to submit a) a copy of engineer diploma and b) a record of practical training to an appropriate District Chamber of Civil Engineers (according to the address of living). Qualification boards, appointed by the president of the District Qualification Commission, verify the documents submitted and give a permission to admit a candidate to an authorization exam.

## EXAM

The exam consists of written and oral part. The written part is performed in a form of one option choice test. Passing a written test is a prerequisite to take an oral part. Both written and oral part test the following fields of knowledge and skills:

- I. the knowledge of legal regulations to the extant indispensable for their correct application and practical skill to use the regulations. The knowledge of the regulations contains:
  1. for all specializations:
    - a) the Building Code Act and the directives issued on its basis
    - b) the conditions of industrial safety while performing building-installing,
    - c) administrative proceedings,
    - d) the conditions of land development, environmental protection, cultural achievements protection, fire safety regulations, standardization and certification
  2. As it refers to specialization and the range of building authorization and specification of the region (e.g. building works on mining terrains, hydraulic engineering building works) the knowledge of corresponding legal regulations, others than mentioned above, is demanded as well as knowledge of practical implementation of Polish Standards in the range of designing, building, maintenance and demolition of building objects.
- II. the skill of practical application of technical knowledge, which the examination board tests by the task of defining technical notions connected to practical training.

The examination questions for both written and oral part are prepared separately for each type of authorization, for each specialization and each specialization branch.

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## WRITTEN PART

Written test to obtain the unlimited authorization to manage building works, which is necessary to perform the function of building control inspector consists of 75 questions, out of which:

- 42 questions refer to the Building Code Act and regulations issued on its basis,
- 20 questions refer to specialization branch,
- 7 questions refer to corresponding legal regulations,
- 6 questions refer to Code of Administrative Proceedings (KPA).

The time of the exam is 2,5 hours. To pass it, a candidate must answer correctly at least 56 questions (which makes 75% of total score). The oral exam usually takes place a few days later, which is the time necessary for correction and evaluation of written part of the exam by the examination board.

## ORAL PART

Passing the written exam qualifies/ enables to take oral exam. During oral exam for unlimited authorization for managing building works a candidate answers 8 questions prepared in a form of question set by the District Qualification Commission on the basis of Central Resources of Examination Questions (CZPE). An examinee has 40 minutes to prepare the answers and presenting them to the examination board. The members of the examination board evaluate the answers giving points in 0-5 scale. To pass an exam a candidate needs to answer correctly at least 27 questions out of 40, which makes 68%.

In case of passing both written and oral part of the exam, the examination board apply to the president of the District Qualification Commission (OKK) to grant a candidate a building authorization. In case of failing the exam, the president refuses to give an authorization, and in the decision he defines the period, after which a candidate can re-take the exam (the period cannot be shorter than 3 months).

## CENTRAL RESOURCES OF EXAMINATION QUESTIONS

The State Qualification Commission of Polish Chamber of Civil Engineers has created Central Resources Of Examination Questions (CZPE) for examination for building authorization, which consists of the base of written exam questions, base of oral exam questions and the software which allows to generate and to print sets of examination questions. CZPE is accessible at the

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head office of KKK PIIB. The rules of using CZPE are enumerated in “The Regulations of Using Central Resources of Examination Questions For Obtaining Construction Authorization”, which is an annex to “The Regulations Of Conducting the Examination For Obtaining Construction Authorization”.

The system was introduced in 2003 and it has been in the process of implementation. Every District Examination Board (OKE) shall soon receive bases of questions along with the software, on the basis of which it will be able to individually generate sets of questions for written and oral exams. The newly implemented system is aimed at more effective organization of work at OKE, and at improving standardization of examination procedure. Up till then a separate procedure is in force as described below. In the District Qualification Commission (OKKE) it is not possible to interfere into software or bases of questions. The examination questions are prepared by an administrator according to the demand made by individual District Qualification Commissions (a choice of questions from accessible base). After possible correction, an administrator presents two copies of printed test to the president of OKE to be signed. One copy is for OKE, another one is kept in the archive of State Qualification Commission (KKK).

A choice of questions for oral exam is done by the president of the District Qualification Commission (OKK) or a person entitled by a president to do that on the basis of Central Resources of Examination Questions for Oral Part received from an administrator. Every OKK is able to independently generate and print sets of examination questions for oral part of the exam.

CZPE shall be gradually verified and completed as the new legal regulations shall enter in force or be amended. All changes in CZPE shall be made by a group of specialists appointed by State Qualification Commission.

## EXAMINATION BOARD

Exams at the local level are held by District Qualification Commission (OKK) respective for each province. OKK is one of the bodies of District Chamber of Civil Engineers, authorized, among others, to conduct the exam for obtaining building authorization and to grant such authorization. In order to conduct the examination the president of OKK appoints examination boards which consist of 4-6 members. The members of the examination board are:

1. people with technical university degree and unlimited building authorization, and
2. people with university degree in law and work experience in state bodies of building control.

Members of examination boards should be appointed each time from the members of OKK or from the list of OKK examiner. The examiners from the list (with the exception of people with university degree in law) should fulfil the following conditions:

1. they should have:
  - a) technical university degree,
  - b) unlimited building authorization or authorization for managing construction works,
  - c) at least 10 years of work experience, after obtaining the rights from point B
2. they should be members of the respective district chamber of profession self-government of building engineers or architects,
3. they should have recommendation by organized profession group (e.g. chambers, scientific technical association).

***The Hungarian system:***

Legalisation background: 16/2003 decree of the Ministry of Interiors (requirements of training and examination), 32/1999 decree KHVM (requirements of training and examination for the registration in the register in the field of transportation building, water and canalisation building and telecommunication), 158/1997 decree of government (about the activity of construction inspection).

Institutions organizing the preparatory course and examination body for the general field: (according to 9/2000 decree of FVM, not operative):

- University Szent István, Ybl Miklós Műszaki Főiskolai Kar
- University of Debrecen, Műszaki Főiskolai Kar
- BUTE (Budapest University of Technology and Economics) Department of Architecture
- Pécsi Tudományegyetem, Pollack Mihály Főiskolai Kar
- Pécsi Tudományegyetem, Budapesti Műszaki Főiskola
- Pécsi Tudományegyetem, Széchenyi István Egyetem

Institutions organizing the preparatory course and examination body for the field of transportation building, water and canalisation, telecommunication (according to 32/1999 decree of KHVM):

- BUTE (Budapest University of Technology and Economics)
- ÁKMI Kht.
- István Széchenyi College

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For constructions inspector I.:

The 3 mandatory part of the exams (according to 16/2003 decree of the Ministry of Interiors):

- written exam,
- oral exam,
- practical exam (essay about different topics from the practice).

Fields of the written and oral exams (according to 16/2003 decree of the Ministry of Interiors):

- legal knowledge,
- economics,
- standard and quality management knowledge.

For constructions inspector II.:

The 2 mandatory part of the exams (according to 16/2003 decree of the Ministry of Interiors):

- written exam,
- oral exam.

Fields of the written and oral exams (according to 16/2003 decree of the Ministry of Interiors):

- legal knowledge,
- economics,
- standard and quality management knowledge,
- technical knowledge of construction.

Minimum requirement to take an exam is that the candidate has to take part in 80% of the training. After the successful essay the candidate can take the written and after that the oral exam. Jury qualifies the exam.

Jury (minimum 3 members):

- head of jury: appointed by the minister,
- members of jury: appointed by the examination body and the Hungarian Engineering Chamber.

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There is no any special evaluator body to prove the system of qualification. The ministry and vocational organisations (e.g. chambers) make the work for it.

***The Portuguese system:***

The examination and registration are not except for construction inspectors, so there is not examination process.

***The Rumanian system:***

The exam for constructor inspector job concerns the operational knowledge and the legislation in force in construction domain.

In order to become a constructor inspector at SIC one has to take an exams prior to employment and also to fulfill minimum requirements regarding studies and seniority.

In order to become an authorized site inspector one has to pass the test organized at local SIC office.

In order to become a technical inspector one has to pass the test organized by the Ministry of Public Works.

The Authorizations Committees for site inspectors are appointed by Decision of the General State Inspector. The Committees can issue authorizations in all domains mentioned above (see table in 2.3.3) and for all category of importance of the buildings. The Committees can be gathered for a minimum of 10 applicants. Usually the members of these Committees are constructor inspectors of SIC, but also independent experts and University professors qualified in the respective fields.

One should present the following documents in order to be accepted to take the exam:

- a standard written request,
- a standard form CV,
- the graduation diploma,
- 2 recommendations related to the domain the applicant is requesting authorizations.

After analysing the submitted documents Committee let the applicant know the domain/ domains for which he/she can take the exam. The exam has two parts: one oral and one written. Both parts verify the understanding and comprehension of the legislation in force and

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compulsory technical rules. In order to pass the exam a minimum grade of 8 (out of maximum of 10).

The new authorizations issued after the test, are being registered in a special book by the Authorizations Committee. The list of the domains and persons authorized are published in specialty magazines.

### ***The Austrian system:***

It is not possible to take a particular exam for construction inspectors. In all studies (technical, economical, juridical) people get theoretical knowledge for construction inspection.

### ***The Bulgarian system:***

The applicant can be registered by Chamber without exam. In Bulgaria there is a qualification system for construction inspectors, but the examination process does not exist.

After completing the graduation at the University Architecture, civil engineering and construction each engineer may be registered as half part legal capacity construction inspector. After this period he receives the right to be full capacity construction inspector, without extra exam.

## **6.2. Practical training based on former activity**

### ***In Poland:***

The practical training, which is mentioned in point 2, should be done after graduation and getting technical university degree, or during extramural or evening courses at the technical university. Doing practical training should be confirmed by so called “record of practical training”, registered in Qualification Commission of the District Chamber of Engineers, respective for the place of living. In order to obtain registered record of practical training one has to submit an application form. The condition of completing the practical training is doing work – performing technical functions on the building site under the management of a person who owns building authorization and whose name is recorded on the list of members of branch self-government of building – (the District Chamber of Civil Engineers). The practical training can be also completed abroad, but in such a case it must be confirmed by a certificate issued by a manager of the unit, where the practical training has taken place. In case of practical training abroad, it must be supervised by a person who has an authorization in a given country. The practical training

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should be completed within the branch of specialization in which a person wishes to apply for building authorization (a detailed list of specialization branches is presented in the table).

The record of practical training should include the following data:

1. A list of building objects, at the realization of which a trainee has worked, defining the type, the purpose of the project, location and an object construction, and respectively to specialization branch of authorization – other characteristic technical data.
2. A weekly characteristics of responsibilities during the practical training, which is confirmed and evaluated by a person supervising the practical training at least every three months.
3. Evaluation of theoretical and practical knowledge of the profession, prepared by a person who has supervised the practical training.

A document which certifies completing the practical training abroad should include the following information:

1. A list of building objects, at the realization of which a trainee has worked, with naming the person who has supervised the practical training.
2. Confirmation of the periods of practical training with giving the dates of starting and finishing practise at the individual building objects and with the characteristics of tasks performed.
3. General evaluation of theoretical and practical knowledge of the profession, prepared by a person who has supervised the practical training.

***In Hungary:***

The recognition of former experience is regulated in 158/1997 decree of government (about the activity of construction inspection). Minimum 3 years practice is necessary in case of high school graduation and 5 years in case of secondary school graduation. Recognised former activity, experience:

- architectural design,
- work on construction,
- work for authority (in field of construction),
- investment (engineering field) and
- lecturer experiences.



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There are no any special requirements for construction inspectors in case of control for state or local authorities.

To be a member of a chamber is not mandatory for being construction inspector (this time).

***In Portugal:***

The practical training and former activity is not necessary for processing construction inspection.

***In Romania:***

Recognition of former experiences in the field is not sufficient. The conditions regarding the level of studies are compulsory and cannot be replaced by experience.

***In Bulgaria:***

For being a registered unlimited construction inspector, the applicant have to fulfil the practise.

### **6.3. Pre-exam education practice for obtaining qualification**

#### **6.3.1. Framework of the education**

***In Poland:***

In Poland there exists a system of preparatory courses for the exams to obtain building authorization. The courses are not obligatory, and they are not a prerequisite for admitting a candidate to the exam, although it is widely believed that participation in these courses increases the chance of passing the exam. It can result from the fact that the courses are organized by the same institution as the one responsible for holding the exams and granting the building authorization, which means Polish Chamber of Civil Engineers. Each of 17 District Chambers of Civil Engineers organizes the preparatory courses, e.g. for future building control inspectors which prepares them for the exam to obtain building authorization. The courses are usually held twice a year – in early spring and autumn – in the period preceding the terms of exams. A course syllabus usually consists of several thematic fields which are correspondent to the range of regulations, the knowledge of which is compulsory at the exam. The obligatory knowledge includes:

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- a) a) the Building Law Act and directives issued on its basis
  - b) b) regulations related to industrial safety while executing building-installation works,
  - c) c) chosen regulations of Administrative Proceedings Code,
  - d) regulations on land planning, environment protection, cultural achievements' protection, fire safety rules, standardization and certification.

Each thematic field is conducted by an expert from a given field of knowledge. Approximately the course takes about 20 hours. Lectures take place on weekends. Participants get educational materials, copies of legal acts and regulations they shall know for the exam.

The opinions expressed by the participants on the course have been positive. Former participants underlined the fact that the course helped them to systematize the knowledge, in particular within the range of legal regulations. Educational materials received during the course helped them to prepare for the exam.

### ***In Hungary:***

For being construction inspector the candidate has to take 160 hours preparatory courses. 100 hours are theoretical, 60 hours are practical. The candidate has to take part in 80% of the training of 100 hours.

The 160 hours course is mandatory, but the segments of it are free and it depends on the decision of the institute, which organizes the preparatory course.

For constructions inspector I.:

The 3 proposed part of the courses (according to 16/2003 decree of the Ministry of Interiors):

- |   |           |
|---|-----------|
| – legal knowledge                           | 35 hours  |
| – economics                                 | 25 hours  |
| – standard and quality management knowledge | 100 hours |

For constructions inspector II.:

The 4 proposed part of the courses (according to 16/2003 decree of the Ministry of Interiors):

- |   |          |
|---|----------|
| – legal knowledge                           | 35 hours |
| – economics                                 | 20 hours |
| – standard and quality management knowledge | 20 hours |
| – technical knowledge of construction       | 85 hours |

As an average, yearly 500-1000 people get diploma on these courses nationwide. The quantity of them will be decreased during the next years.

The post graduating system needs to be developed. Nowadays it does not work, but it is necessary for renewing the permissions.

***In Romania:***

There are not any compulsory preparatory courses in view of the exam of authorizations as construction inspector. College knowledge, prior experience, and individual study are sufficient in order to pass the exam.

The preparatory courses can be organized by various institutions (but usually not SIC). The courses are specialized on a certain domain, according to the domains of authorization, and are covering topics such as legislation in force, quality system in constructions and technical issues and rules regarding that specific domain. The trainers are professors or prior authorized inspectors.

***In Austria:***

It is not common to organise a particular educational training exclusively for construction inspectors. In all studies (technical, economical, juridical) the people get theoretical knowledge for construction inspection at university and high school.

***In Bulgaria:***

there is not preparatory courses for being registered construction inspector.

### **6.3.2. Main types of the institutions**

***In Poland:***

The main institution which organizes preparatory courses for the exam to obtain building authorization is Polish Chamber of Civil Engineers. Each of regional branches of PIIB – the District Chamber of Civil Engineers in each province organizes their own courses. In total 17

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District Chambers of Civil Engineers organize preparatory courses on the behalf of Polish Chamber of Civil Engineers.

Some private educational institutions also deal with organizing the preparatory courses for the exam to obtain building authorization. The courses related to building authorizations are presented in the educational offer together with the courses of cost estimation of building works, giving competitive tendering for building works, real estate management. It is difficult to evaluate the number of such institutions, which specialize in trainings for building sector. From what the people who have already gained the authorization declare the most popular are the courses organized by the OIIB.

***In Hungary:***

Institutions organising pre-exam courses and qualification process are mostly universities or colleges regulated by law.

The institutes are appointed by decree, according to 9/2000 decree of FVM (in abeyance) and 32/1999 decree of KHVM.

But some institutes have partners from business field to assist to organize courses.

***In Romania:***

Preparatory courses can be occasionally held by individuals already authorized or small private companies.

***In Austria:***

The education system works just at university and high school.

#### **6.4. Post graduate and other courses for construction inspection job**

***The Polish system:***

In Poland there is organized system of education of people who have already obtained unlimited building authorization for managing the construction works. Such people, who already own the authorization can apply for design authorization, which undoubtedly increases the range of their professional competences, but it is not necessary for performing the function of investor's supervision. The obligation of membership of persons authorized to perform investor

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supervision at Polish Chamber of Civil Engineers gives a chance to participate in free-of-charge trainings, which raise the professional qualifications of the members. District Chambers of Civil Engineers organize a few – several trainings per year on: the latest legal amendments, regulations of industrial safety and health protection at the building sites, new technologies applied in building sector. These trainings are on general free-of charge. Additionally each member of PIIB receives a monthly magazine „Inżynier Budowlany” (“Civil Engineer”), where one can look up the latest information on law, economics, new technologies, building issues in The European Union.

Branch associations and organizations, the members of which are the specialists in a given specialization branch also organize qualification-raising professional trainings of their members and other interested persons within the framework of their activity. But these trainings must be usually paid for. Below there is a list of main associations, organizations and branch unions:

1. Polish Union of Building Engineers and Technicians – an organizer of Poland-wide conference entitled “ The Problems in Investment Realization” (the subjects of industrial safety and health protection on the building sites), they also hold paid trainings on new amendments in Building Law and the regulations concerning industrial safety and health protection at the building sites).
2. Polish Association of Engineers and Technicians of Sanitary Installations.
3. Association of Polish Electricians.
4. Association of Communication Engineers and Technicians.
5. Association of Engineers and Technicians of Water and Sewage Installations
6. Union of Bridge Engineers of Republic of Poland – issues qualifications certificates which additionally confirm the work experience in the field of bridge building works.
7. Association of Engineers and Technicians of Petroleum Industry and Gas Engineering.
8. Associations of Communication Engineers and Technicians of the Republic of Poland.
9. Association of Engineers and Technicians of Hydro and Land Melioration.
10. Polish Committee of Geotechnics (PKG) – issues the certificates which confirm high qualifications and competences of PKG member to execute geotechnic works: research, design, opinion-giving, expert, execution and supervision works.
11. Association of Engineers and Technicians of Building Materials Industry

Private educational institutions also offer the courses to raise qualifications for managers of the building sites and control inspectors. It is difficult to decide, however, whether the above-mentioned educational forms of raising qualifications are widely popular. There is no access to the statistic data or studies, which could allow evaluating the number of people who act as investor supervision inspectors and voluntarily participate in the forms of qualification raising.

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***The Hungarian system:***

This system has just started and there is not enough available information of its work. It is admitted that an education system is needed to develop the knowledge of construction inspectors, but this development system does not work yet.

We need it for the renewing the permissions of construction inspectors according to 6. § (4) of the 158/1997 decree of government. It is because this decree notices that a vocational post graduating system is needed for renewing the permission. However the rules of this system have not been presented yet.

***The Rumanian system:***

As any other university graduate, the construction inspector has the opportunity to attend postgraduate courses.

***The Austrian system:***

In Austria there are postgraduate and other courses. Usual their aim is to give engineers more economical and legal knowledge not to exclusively for construction inspectors.

**7. IDENTIFYING THE POSSIBILITY OF TAKING UP PROFESSIONAL ACTIVITIES FOR BUILDING INSPECTOR'S REPRESENTATIVES OF THE EU MEMBERS STATES ON THE EUROPEAN MARKET, IN ACCORDANCE TO REGULATION OF FREE MOVEMENT OF PERSONS ON THE SINGLE EUROPEAN MARKET**

In the western region of Europe the regulation of standards and legislation is similar, but **there is not common system for building sector**. Each country has its own regulation for this field. As we can observe the practice and tradition are different according to their historical background.

However in those countries the lack of a common language in the engineering field acts as a language barrier. Some smaller countries have been forced to own not just one language in their ancient historical period that is why they can speak several languages. **Presently it would be useful to have a common language for technical sector- obviously English**. On the

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other hand the level of command of languages is not to high but much better than in east region.

The profession of construction inspection is not studied at university or high school level, but there is no doubt that it is an autonomous profession.

**The practice of education of construction inspector is different in EU wide. Accordingly, the practice of qualification and examination is also different.**

We can consider that there is less legislation barrier in the former EU countries than in the NAS countries.

### **3 different opportunities to ensure the free moving of building inspectors:**

- With the reinforcing of the mutual acceptance of the construction inspector permissions, and the acceptance of EUR ING degree.
- With the establishment of a central registration system, which contains inspectors from all EU countries. The Engineers and Technicians could registrate themselves according their professional exercise and education. It is desirable that this register was run by an international European organisation like FEANI.
- General postgraduate courses for Engineers and Technicians from all the EU countries on different specific fields. With the successful exam they will get the “European Construction Inspector” degree (EUR CI), which will be valid in each country. A central registration / informational system and examination board is necessary. Common platforms are necessary to create the main principles and directives, according the latest EU standards.

## **8. ANALYSING THE POSSIBILITY OF TAKING UP PROFESSIONAL ACTIVITIES FOR THE REPRESENTATIVES OF BUILDING INSPECTOR FROM THE NEWLY ACCESSED TO THE EU COUNTRIES AND CANDIDATE COUNTRIES**

### **8.1. Barriers related to the construction inspection job**

The newly accessed to the EU countries and candidate countries are not similar in aspect of the economical state of development. So the technical background and legislation system is different in each country. That effects, that in each country the regulation of construction inspection is different.

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On the other hand these countries are not members of the EU with the same right as the EU Members States. In that aspect for these countries there are many relevant obstacle to practise abroad.

In East Europe the insistence to tradition is heavy, heavier then in the west. This is barrier for development. And this is barrier for free movement of persons to EU.

In that area one of the biggest problem is the language barrier. There are not many people who can speak well foreign language. It is not enough to have big technical experience, high graduation to practice the construction inspection abroad. But recently the situation is getting better.

In EU in the field of building the vocational regulation, standards, quality issues are different according to the state of development in each country.

#### **8.1.1. Legislation barriers related to construction inspection job**

##### ***In Poland:***

It seems that there are no legislation barriers which would limit the freedom of building inspectors' activity. In case of investor supervision, it is an investor who establishes very strict criteria while choosing an inspector, from who he demands, apart from qualifications as stated by the Act and regulations, much longer work experience in independent performing of building functions.

The construction inspector working for administration must have the same qualifications as the one employed by investor and usually additional experience is required. But the requirements are set individually by each office (national, regional or local level).

##### ***In Hungary:***

No legal barriers influence the practice and the effectiveness of the construction inspection job after their registration.

The transition period (from 1997 to 2003) have given enough time for training the inspectors.

However for becoming registered construction inspectors the people need a certificate about clean sheet. This is the only legal barrier before registration.



***In Romania:***

No legal barriers influence the practice and the effectiveness of the CIJ. The legal framework only sets the minimum requirements for the job and the rights and the duties of the titular of the authorization.

**8.1.2. Other barriers related to construction inspection job**

***In Poland:***

Legal requirements which people applying for authorization to perform the functions of inspectors have to fulfil are very demanding. Additionally, to conform to the demands of investors, the people who have obtained the authorization, who want to act as inspectors, try to raise their qualifications on their own account. The membership at branch associations, taking part in seminars and conferences can be a great advantage.

***In Hungary:***

According to decrees the main field of the courses is not the technical issue. And there is not any standardized level of exam in field of technical issues. It effects, that the abilities of construction inspectors are very different.

***In Romania:***

During the last years, the construction sector counted as one of the most dynamic and flexible areas of economic activity, which is in line with the new requirements of the society, has faced some constraints caused by the process of structural reform.

Over 90% of the economic agents, which operate in the construction sector, are private capital firms and also more than 98% of them are small and medium size enterprises which cover over a half of the total turnover.

The labour force of the sector represents only 4.5% of the population, having an average gross income a little bit over the average income on the national level, which is still very low in comparison with the other European countries.

In the last decade, construction prices have increased more than 650 times, the highest increases being as a result of increased railway transport fees, followed by the building materials costs and labour costs.

As a proportion of estimates for construction work buildings materials constitute about 40% of the cost, labour amounts to about 25% and transport about 11%.

All the above mentioned progress in Romanian construction sectors are more premises to a further development of construction inspectors jobs than barriers.

## **8.2. Suggested opportunities related to the construction inspection job**

### **8.2.1. Estimated need for enhancing of the pre exam education**

#### ***In Poland:***

The people who have gained building authorization, which means those who have passed qualification exam cannot see the point in raising the quality of preparatory courses for the exam. The course are organized by the institutions which hold qualification exams so their programme responds well to the needs of the exam.

Another question is, however whether the range of the exam is sufficient to perform well the function of the inspector. It can be seen in practise that those who have obtained the authorization rarely start working as inspectors immediately. The main criterion here is the lack of sufficient experience rather than the lack of certificates of additional courses or additional authorizations. The skill of using the construction knowledge in practice is far more important than the throughout theoretical knowledge.

It seems that additional trainings could include the knowledge on narrow specializations, or innovative technologies and solutions which are difficult to learn in practice under Polish conditions so as to prepare the inspectors-to- be for non-typical situations, which they have not experienced before. It refers mainly to big investments, which are not frequent, an in which, because of their size or the purpose the object is aimed for, non-typical solutions are applied. In such cases an investor has to hire the inspectors who have gained some work experience abroad.

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***In Hungary:***

It need for the renewing the permissions of construction inspectors according to 6. § (4) of the 158/1997 decree of government. It is because this decree notices that a vocational post graduating system is needed for renewing the permission. However the rules of this system have not been presented jet.

***In Romania:***

The education of construction inspectors should be analyzed in the larger context of Romanian education system.

The number of students specializing in the technical field is decreasing (1/3 against 2/3 in 1989), while the number of students specializing in economics and law, as well as those in exact sciences are increasing (1/4 against 1/10).

There is no common practice to develop qualifications and to undergo lifelong training improving skills of the building inspectors. Even some building inspector jobs require re-authorization every 4 years; the exams concern mainly regulation in force and less new development and progress in construction industry: new practices implemented in other countries, new law regulations, new technologies, and safeties systems and so on.

The enhancing of the education for CIJ should be part of the general restructuring of the technical and vocational education system, of the planned modernization of the Romanian education and professional training system, and of the harmonization of the education methods and study programs applied in Romania with those of the EU member countries.

### **8.2.2. Evaluation of the potential opportunity of EU-wide and interregional qualification**

***In Poland:***

Accordingly to the act of law concerning the trade self-government of architects, construction engineers and urban planners (15 December 2000) and the recent building law person who has the building authorisation in one of the EU or Switzerland Confederation country can apply for recognition of this authorisation in Poland. Accordingly to the rules of Polish Chamber of Civil

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Engineers the person has to submit:

- Application accordingly to the template
- Curriculum vitae
- Confirmation of building authorisation
- Copy of university degree certificate or technical high school certificate
- Document which confirms the work experience
- Two years in case of university degree education
- Four years in case of technical high school education
- Confirmation of the application fee
- Copy of applicant ID

All the documents must be translated into Polish by qualified translator.

When there is no lack in the application the qualification interview takes place. The interview is lead in Polish. When the interview is positive applicant receives a decision about recognition of foreign building authorisation.

If a foreign person does not fit the requirements or does not have any building authorisation he can apply for the Polish building application on the basis of general rules.

It seems that the interview in Polish might be relevant obstacle for foreigners who do not know Polish.

### ***In Hungary:***

According to 158/1997 decree of government (in 8/A. §) the construction inspectors from EU Members States on the European market can apply in register that needs for work in Hungary.

The application has to include:

- application form,
- certification about duration of vocational practice/experience,
- dues of the process.

The law of 158/1997 decree of government is suitable to:

- Council Directive 85/384/EEC
- Council Directive 89/48/EEC
- Council Directive 92/51/EEC

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- Council Directive 89/48/EEC
  - Council Directive 99/42/EEC

### ***In Romania:***

Construction and building inspectors must keep abreast of changes in areas of building codes, construction practices, and technical developments.

Continuing education is imperative in this field. A special accent should be put on new materials and technologies, and also on health and security issues.

## **9. Best practice examples in the education of construction inspection job**

In Hungary in ÉMI there are some engineers who have permission for make construction inspection. They have got their knowledge from courses organised by BUTE (Budapest University of Technology and Economics) with TERC Inc. In Hungary this organisation is the largest in that field.

The lectures come from the University (BUTE), from the industry of construction and from the ministry, which helps to make the rules of construction inspection.

TERC Inc. published the first book of construction inspection job (Handbook of construction inspectors). It collects the main knowledge of right, economics, standard and quality management. It helps for learners and for practising construction inspectors as well.

In this group (professors, jurists etc) are the most important vocational compliances for educate on the preparatory courses and in the post graduating system.

In Austria the technical universities have always a branch called economic engineering. There the students get theoretical knowledge in management, economic and legal affairs. This is a good practice although it is in contrast to the education at the technical high schools, because there mainly specialists are produced.

## **Summary and conclusions**

In the examined country the system of education and training for construction inspectors are different but we can notice some similarity.

We can declare, that the practical experience and skill is the base to practice that profession in the building site.

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In Portugal the registration and examination for that profession is not mandatory, is not regulated by state. Moreover there is no voluntary registration system.

In Hungary, Poland and Romania the registration is mandatory. The pre-exam educational system is mandatory in Hungary, but in Poland and Romania the courses are not obligatory. The preparatory courses are not a prerequisite for admitting an applicant to the exam, although the participation in these courses increases the chance of passing the exam.

The construction inspector in own country can work with unlimited building authorization. However abroad the situation is not the same. For recognising the authorisation in a foreign country the construction inspector is liable to take a qualification process again. In Hungary the system recognises the former activity and qualification, but the registration is mandatory. The decrees does not mention necessary exam in that case. In Poland the qualification exam is obligatory in Polish for foreign people too. This is the biggest barrier for influence the free movement of persons on the Single European Market for construction inspectors.