

# Sectoral Qualifications Framework for the Construction Industry in Europe

## Project “Developing and Introducing a Sectoral Qualifications Framework for the European Construction Industry (SQF-Con)”

### Final report of the Working Group

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### Members of the Working Group



**Edith Gross, Gerhard Syben, BAQ Forschungsinstitut für Beschäftigung Arbeit Qualifikation, (Bremen, Germany) – conducting of the Working Group**



**Bernd Garstka, Ulrich Goos, Björn Müller, Berufsförderungswerk der Bauindustrie Nordrhein-Westfalen e.V. (Düsseldorf, Germany)**



**Frank Bertelmann, Marcus Crone, Bildungszentren des Baugewerbes e.V. (Krefeld, Germany)**



**Mandy Welsch, Bildungswerk Bau Hessen-Thüringen e.V. (Erfurt, Germany)**



**Rossella Martino, Christina Bianchi, Giovanni Rodriguez, Formedil. National organisation for vocational and professional training in the Italian construction industry (Rome, Italy)**



**Elisabeth Mitroi, Maria-Luiza Enaru, Casa de Meserii a Constructorilor (Bucharest, Romania).**



**Harm Korporaal, Dirk Lont, GOA Infra Foundation, (Groningen, The Netherlands)**

**Forschungsinstitut für Beschäftigung Arbeit Qualifikation Prof. Dr. Gerhard Syben**

**Wachmannstrasse 34**

**D – 28209 Bremen**

**Tel. ++49 421 34 47 63**

**++49 421 168 28 58**

**Fax ++49 421 163 09 30**

**institut@baq-bremen.de**

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## **A Qualifications Framework for the Construction Industry in Europe**

In this paper, a sectoral qualifications framework for the construction industry in Europe is presented. It was developed with contributions from the Working Group being part of the project “Developing and Introducing a Sectoral Qualifications Framework for the European Construction Industry (SQF-Con)”, funded under the program LEONARDO DA VINCI.<sup>1</sup> Due to the tender, the development of the Sectoral Qualifications Framework was restricted to levels one to five of the entire European Qualifications Framework.

In the construction industry, a sector specific qualifications framework is of most use. European markets for construction services and labour are arising. Construction orders were submitted transnational. Employees were posted into other countries or they are seeking employment across the borders. A sector-specific qualifications framework will support cross-border activities in the construction industry by making qualifications more transparent and certificates more readable all over Europe, with no regard of the country nor the Vocational Education and Training system of their origin. It will support employees in construction to present their qualifications as well as construction companies to assess them. In doing so, it will assist companies’ human resources management as well as employees’ life-long learning and continuous professional development. Thus, the Sectoral Qualifications Framework contributes to lifelong-learning policy of the European Union as well as to competitiveness of the construction industry in Europe.

### **1. How to meet various varieties of working and learning in the construction industry in Europe**

A sectoral qualifications framework for construction must be applicable in all European countries. Thus, it must be expressed in a general way, which covers various conditions of working and learning.

First variety: As well known from the field of vocational education and training in Europe in general, vocational education and training systems are school-based in some countries whereas they are company-based in others. Even more: in some countries (e.g. France, Italy) in the construction industry, school-based systems and company-based systems co-exist; the latter organised in co-operation by training-centres and companies. Moreover, due to the need of systematic practical training, in some countries training centres, besides classroom and site, play an important role as an additional learning venue. A sectoral qualifications framework must cover qualifications provided by all these different types of vocational education and training systems.

Second variety: construction industry is not homogeneous with respect to products and modes of working and producing. A sectoral qualifications framework must cover building and civil engineering as well as new building and renovation and as industrial and artisanal form of construction.

Third variety: construction industry contains a wide range of professions and occupations. Thus, a sectoral qualifications frame must not be specific to individual professional qualifications, but must cover all of them.

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<sup>1</sup> Project number 137865-LLP-2007-DE-KA1EQF. For details see paragraph 4. below.

Thus, due to the overall aim of the Sectoral Qualifications Framework, a functional approach is needed, in order to construct a sectoral qualifications framework to be applicable as a common framework for the entire construction industry in Europe. This approach suggests following the logic, the principles and the structure of the European Qualifications Framework (EQF). The EQF, in order to serve as an overarching framework for all Europe, describes qualifications referring to learning outcomes. Learning outcomes are making a qualifications framework independent from all input variables like specific professional demands, individual learning routes or forms of learning as well as from vocational education and training systems of individual countries. As well known, to do so, EQF uses knowledge, skills and competence as descriptors to cover learning outcomes whatsoever their concrete nature may be.

Thus, this approach was adopted for the Sectoral Qualifications Framework for the European construction industry, because it meets the needs of a qualifications framework for the entire construction industry in Europe. The Sectoral Qualifications Framework follows the final version of EQF, proposed by the Commission and adapted by the Council and the Parliament. As EQF, the Sectoral Qualifications Framework is structured by levels and descriptors. However, whereas the EQF, in order to be valid also for all sectors of the economy, due to the needs of an overarching framework for all Europe is describing knowledge, skills and competence by levels in a general manner, the Sectoral Qualifications Framework intends to refer to learning outcomes specific for the construction industry.

## **2. Definition of EQF-levels for the construction industry**

Levels of the Sectoral Qualifications Framework have to be expressed according to the demands of working positions in the construction industry. On site and inside enterprises there are different tasks and a division of labour. Their levels can be defined by

- range and complexity of operation someone has to execute,
- degree of detailing of instruction necessary to enable someone to fulfil a task,
- intensity and form of control: may it be that someone is subject of control or if he or she controls others.

Respective to the mentioned restriction of the project's frame, levels five to one are described here in more detail.

### **• Level 5**

A most important work in the frame of construction projects is to link the phases of planning and execution. Employees in charge with this work do not have to be able to execute planning themselves, but they must understand principles and forms of planning and be able to transform the results of planning into detailed, short termed work plans and into a practical work organisation on site. They also have to be able to conduct and to supervise the work, to dispose labour, equipment and material in the frame of the overall planning, and to take responsibility for the fitting of results with tender specifications, quality norms and deadlines. Last but not least, they must be able to take over responsibility for health

and safety as well as for environmental issues. For this work knowledge, skills and competence on level five are required.

- **Level 4**

On bigger sites there are employees doing in principle the same work to link planning and execution phases of the construction project as described above, but who take over only parts of the full range or who are assisting an employee, who has the full responsibility resp. are working under his supervision. For this work knowledge, skills and competence on level four are required. Same requirements exist, when the full range of linking planning and execution is taken over, but on sites of small scale (not more than ten workers).

- **Level 3a**

Construction work very often is being done by small groups of workers, mostly called gangs. Gang leaders do the same work as gang members do, but moreover, their work requires very good knowledge, skills and competence concerning execution and additional ones concerning instruction and supervision of gang members as well as taking over responsibility for results. Referring to the fact that requirements on knowledge, skills and competence are not the same as on level four but to some respects more than level three, a new level 3a was inserted. Workers on level 3a are expected to have full knowledge, skills and competence as on level 3, and are in addition capable to conduct small groups.

- **Level 3**

Execution of work in the construction process on site includes all production work (like e.g. bricklaying, concreting, roofing, tiling, plastering or road making and others). Employees employed in this phase of production should be able to perform one or more tasks without any reservation. They must also be able to execute other tasks on site, if required, because knowledge, skills and competence are required in more than one field to safeguard flexibility of the company to take over various orders as well as to understand works upstream and downstream to manage interfaces properly. Furthermore, it is of most importance that employees are able to execute work without detailed instructions, autonomously and with supervision only on results rather than on procedure. For this work knowledge, skills and competence on level three are required.

- **Level 2**

If work in the fields of execution described above under level three is tailored more narrow and work is done inside a smaller range and under closer supervision, knowledge, skills and competence on level two are required.

- **Level 1**

For all work on site consisting of tasks of small range and low level, which can be done on the basis of only short instructions, which must be done under close supervision of procedure and where is no autonomy at all, knowledge, skills and competence on level one are required. However, this work included basic knowledge and competence concerning health and safety.

### 3. Sector-specific description of knowledge, skills and competence

Sector-specific descriptions of knowledge, skills and competence should reflect the demands of work in the construction industry. To define knowledge, skills and competence in a sector-specific manner, one has at first to take into consideration the procedure in which construction projects are processed. Projects in the construction industry, due to the one-off-production, are going on in characteristic phases. Once an order is received, work starts with the phase of planning. This phase is followed by phases of setting out site and surveying, before the phase of production itself is starting. The phase of handing over the product (building, bridge, road, renovated bathroom) to the client finalises the project.

Inside these phases, construction work is characterised by sector-specific requirements. They are mainly caused by the building of prototypes on variable sites, with a relatively low degree of standardisation, a high level of human intervention and in a cooperative process. To meet the needs of construction work on levels five to one, the characteristics of work on site have to be expressed. Knowledge, skills and competence, required on site, can be named as

- knowledge about equipment and material in use on site, as well as about the regulating and societal framework,
- all skills to execute operations on site and
- competence to be able to act and behave on site as well as in related working processes.

In different contexts, the one component or the other may have more weight. However, in all contexts all three: knowledge, skills and competence are needed.

Because requirements on knowledge, skills and competence differ by these phases, the Working Group first worked out separate matrices of knowledge, skills and competence by phase and level. These matrices are specific enough to cover the real working situation in construction. They are general enough to be applied in different countries and for various occupations.

Whereas in the phase of production knowledge, skills and competence of all levels are required, this is not the case in other phases. Thus, the respective boxes have been left blank. Concerning the phase of planning, it is to take into consideration that planning of the entire construction project is requiring knowledge, skills and competence on levels six and higher. These qualifications were, as mentioned before, not attended in the frame of the Sectoral Qualifications Framework. However, employees on level five have to have some knowledge, skills and competence in the field of planning, which are mentioned when describing level five below.

Other than EQF, which needs to be valid for all sectors and therefore consists of a general wording, for the Sectoral Qualifications Framework for the construction industry it is important to safeguard that all items, which are obligatory or necessary concerning knowledge, skills and competence in the construction process, are mentioned in the Sectoral Qualifications Framework.

Therefore, each of the three descriptors has been subdivided by sector-specific items. By this means completeness of description according to the needs of the sector is safeguarded (see table 1).



Table 1

**Subdivision of EQF-descriptors according to characteristics of construction work**

<b>Knowledge („knows“)</b>	<b>Skills („can“)</b>	<b>Competence („is able to“)</b>
tools, equipment	execute practical operations (practical skills)	manage control
material	execute logical operations (cognitive skills)	achieve results
rules, norms, regulation	planning, organising	take responsibility
procedures	communicate	
frame of action, actors, inter- faces		

The nature of this subdivision follows from the characteristics of site production and the nature of work in the construction industry.

- **Knowledge**

Knowledge in construction must comprehend objects, procedures of execution and the framework of action. Objects are at the one hand equipment and tools and at the other hand material, which has to be handled. Procedures concern the execution of work (including the productive mode of execution). The framework is legal (e.g. laws, norms, regulation of working time or others), professional (e.g. rules of appropriate and professional work) and institutional (e.g. other actors involved and the interfaces to manage).

- **Skills**

Skills in construction consist of four elements, which can be described as different, even if in reality they are closely connected. Because construction work on sites is far less mechanised and standardised than working in other industries, working processes even on workers level are demanding not only practical skills, but also logical skills and skills to planning and organising one's own work. Because of the co-operative nature of construction work, skills to communicate with others (colleagues, subordinates and superiors as well as persons from outside the site) on preconditions, procedures, execution and results is of high importance.

- **Competence**

Competence in EQF is described in terms of responsibility and autonomy. Again construction work by nature needs to split these requirements of ability in different parts. First is to manage and control one's own work resp. the work of others in case somebody is superior to them. Second, according to the fact that working is not determined by machinery, it is employees who have to safeguard that results are achieved as prescribed by tender documents, work plans and timetables. Third follows from the fact that employees on site have to make decisions (e.g. if drawings are incomplete or not detailed

enough) and that quality of results is directly dependent from their handling. Thus, it is necessary that they take responsibility for results of their work as well as for health and safety and environmental issues on site.

#### **4. A qualifications frame as means for the sector developed for by sector**

The Sectoral Qualifications Framework has been developed in the frame of the project “Developing and Introducing a Sectoral Qualifications Framework for the European Construction Industry”, funded under the program LEONARDO DA VINCI. Project management was taken over by Berufsförderungswerk der Bauindustrie Nordrhein-Westfalen e.V., (Düsseldorf, Germany). Project partners were BAQ Forschungsinstitut für Beschäftigung Arbeit Qualifikation (Bremen, Germany), Bildungswerk Bau Hessen-Thüringen e.V. (represented by its training centre in Erfurt, Germany), Bildungszentren des Baugewerbes e.V. (Krefeld, Germany), FORMEDIL, National organisation for vocational and professional training in the Italian construction industry (Rome, Italy), GOA Infra Foundation (Groningen, The Netherlands) and Casa de Meserii a Constructorilor (Bucharest, Romania). Further partner was Fédération Européenne de l’industrie de la construction (FIEC), the association of construction employers at European level, located in Brussels.

The Working Group consisted of members of each partner. Members of the Working Group were experts in vocational education and training in construction. Thus, the Sectoral Qualifications Framework is a means for the European construction industry developed by sector itself.

BAQ Forschungsinstitut directed the Working Group and provided the overall structure for the individual contributions. To do so, BAQ worked out the structure of the Sectoral Qualifications Framework by phases of the construction process and the subdivisions of descriptors according to the sector-specific requirements of the construction industry. As a result, BAQ provided schemes for each of the phases, structured by levels and by sub-structured descriptors. These schemes were used by members of the Working Group, which filled in knowledge, skills and competence for each of the phases as individual contributions (see paragraph 8.). BAQ also developed guidelines for drafting the descriptions of requirements, checked contributions of Working Group and gave comments and answered questions.

Working Group held three meetings to discuss drafts. After the third meeting, BAQ Forschungsinstitut worked out a summary of SQF-Con (see paragraph 7. below). An intermediate result of SQF-Con was presented to a first European conference organised in the Social Dialogue in European construction in order to get comments from a broader audience and preparing dissemination. The final result was presented to a second European conference again organised in the Social Dialogue in European construction in order to be adapted.

## 5. How to apply the Sectoral Qualifications Frame

The Sectoral Qualifications Framework provides descriptions of learning outcomes for construction by levels five to one according to the EQF-system. To make most use of it, the Sectoral Qualifications Framework first should be linked to national vocational education and training systems in construction. Such link requires involvement of and acceptance by institutions and organisations responsible for vocational education and training in the construction industry in the respective country. These may be, according to the national vocational education and training system, public authorities, social partners or chambers.

If the named authorities take initiative to implement the Sectoral Qualifications Framework, this would be foster its application top-down. To foster it bottom-up there are several possibilities.

Construction companies as well as training organisations can check certificates (existing ones or those to deliver in future), if they correspond with the descriptions of learning outcomes of the Sectoral Qualifications Framework. If so, they can develop rules of equivalence. This would increase transparency of qualifications and help disseminate the Sectoral Qualifications Framework. To improve conditions of doing so, diploma supplements containing descriptions of learning outcomes are helpful. (From 2012 on all certificates in the EU should be completed by diploma supplements anyway.)

Evidence of accordance to descriptions of learning outcomes could also be provided by documents referring to former learning. This should include former informal learning, i.e. learning at the workplace. Rules and procedures should be developed to link knowledge, skills and competence acquired at the workplace to descriptions of the Sectoral Qualifications Framework. The same could be done for witnesses of employers or self-witnesses. Last but not least, knowledge, skills and competence acquired by non-formal or informal learning could be assessed by tests. Training institutions and construction companies could develop such tests in co-operation. Descriptions of learning outcomes of the Sectoral Qualifications Framework could help to levelling such tests in order to link results to the national vocational education and training system and again improve transparency of qualifications and certificates.

## 6. Working process and contributions

The Sectoral Qualifications Framework was worked out by a working group of partners named above (see paragraph 4.) from Germany, Italy, The Netherlands and Romania. It started in early 2008 and was finished with a 2<sup>nd</sup> European conference in October 2009. Main actions, results and actors are given in the table below.

action	actors
<b>Preliminary meetings of German project partners</b>	
Presentation of EQF as general frame and developing of a working structure for drafting parts of a Sectoral Qualifications Frame for the European construction industry	BAQ
Agreement to overall working plan	German partners
<b>Partner meetings</b>	
Agreement on working structure of drafting parts of Sectoral Qualifications Frame by phases of construction process	all partners
<b>Working out drafts by phases of construction process by partners</b>	
Phase 1: Planning	BFW-NRW
Phase 2: Setting out site	BZB
Phase 3: Surveying	CMC
Phase 4a: Production Building	BIW-Bau
Phase 4b: Production civil engineering	Formedil
Phase 5: Checking, calculating and accepting	GOA Infra
Drafting by individual authors, comments and proposals for revision by BAQ, revision by individual authors, presentation at partner meetings, discussion and finalising at 3 <sup>rd</sup> partner meeting April 2009	all partners
<b>1<sup>st</sup> European conference (20 January 2009, Brussels)</b>	
Presentation of intermediate result to members of Social Dialogue	all partners
<b>Finalising</b>	
Summarising of individual drafts to a coherent Sectoral Qualifications Frame	BAQ
<b>2<sup>nd</sup> European conference (1 October 2009, Brussels)</b>	
Presentation of final result to members of Social Dialogue	all partners

The Sectoral Qualifications Frame is subject to dissemination to be undertaken by all partners. Activities should include Bulgaria, France, Lithuania, Norway, Poland, Sweden and United Kingdom.

## 7. Sectoral Qualifications Frame for the Construction Industry in Europe

<b>Level 5</b>		
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<b>Knowledge („knows“)</b>	<b>Skills („can“)</b>	<b>Competence („is able to“)</b>
<p><b>Tools, equipment</b></p> <p>Knows in comprehensive manner technology of construction, in particular tools and equipment used on site for production: their functioning, modes of use and features of performance as well as the boundaries of capability and applicability; how to locate equipment for application on site; knows methods and tools for measurement and representation of land and construction details and of working drawings; knows in principle about statics in construction; knows budget software.</p>	<p><b>Execute practical operations (practical skills)</b></p> <p>Can at comprehensive range: work out the layout of a site; apply methods for measurement and marking; use data collected by measurement to calculate surface and volumes; quantify quantities; calculate requests for provisions and delivery of labour, equipment and material according to production needs and schedules as well as make respective dispositions; carry out inspections and control quality and conformity with contract; use ICT-equipment; supervise writing up accounts.</p>	<p><b>Manage, control</b></p> <p>Is able in comprehensive manner to manage sites including unpredictable situations; to instruct and conduct workforce; to dispose resources, to supervise works on site; to check situation on site against plan and control conformity with contract, quality norms, schedule and cost plan; to control health and safety and environmental protection; in case of divergences find remedy; to rearrange work activities on site, to manage variations, to solve problems and find alternative solutions.</p>
<p><b>Material</b></p> <p>Knows in comprehensive manner material used on site for production, its characteristics, modes of use and behaviour when processed as well as the boundaries of capability and applicability; how material is delivered and stored on site; how hazardous material has to be handled.</p>	<p><b>Execute logical operations (cognitive skills)</b></p> <p>Can at comprehensive range: understand planning, analyse and assess performance and feasibility; transform planning into applications engineering of labour, equipment and material on site; transpose on plan results of processed data and develop topographic plans; elaborate the schedule of surveying activities; recognise and prevent safety risks and evaluate the safety plan.</p>	<p><b>Achieve results</b></p> <p>Is able in comprehensive manner to ensure that aimed results will be achieved and resources are handles properly; to identify operations needed to carry out work; to estimate time required; to offer solutions for problems and to suggest improvements for the construction process; to supervise accounting for works carried out; to correlate the tolerance level of results of measurement.</p>
<p><b>Rules, norms, regulation</b></p> <p>Knows in comprehensive manner standards, rules, norms and legal duties on national as well as EU-level relevant for production on site, applied topography, management of sites and production processes, quality management and vocational training, in particular concerning health and safety and environmental issues.</p>	<p><b>Planning, organising</b></p> <p>Can at comprehensive range: work out working plans; establish various work phases defining them in terms of resources, needs, realisation time and costs; handle specification systems; react to unforeseeable situations and solve technical and social problems on site; handle things ethically.</p>	<p><b>Take responsibility</b></p> <p>Is able in comprehensive manner to take responsibility for: procedures and result of work, quality and schedules, health and safety, environmental protection and vocational training of workforce; to intervene in case of divergence; to be aware of the client's value for the company.</p>

Knowledge („knows“)	Skills („can“)	Competence („is able to“)
<p><b>Procedures</b></p> <p>Knows in comprehensive manner methodology and procedures of planning, transformation of planning into production, control construction projects, quality control, surveying, marking and measurement, management of production on site (labour, equipment, material) including timetables, cost and return control systems; how to organise non-formal and support informal learning on site.</p>	<p><b>Communicate</b></p> <p>Can at comprehensive range: give to and receive from other actors involved in the entire construction project information necessary to run a site; communicate with actors outside site; document procedures and results of production process on site; report production data to superiors; inform about possible mismatches and/or propose corrections; formulate instalment plan and final payment; formulate how to save costs.</p>	
<p><b>Frame of action, actors, interfaces</b></p> <p>Knows in comprehensive manner responsibilities, roles, competence, rights, duties and way of work of other actors involved in construction projects.</p>		
<b>Level 4</b>		© BAQ-Bremen
<p><b>Tools, equipment</b></p> <p>Knows in a broad context tools and equipment used on site for production: their functioning, modes of use and features of performance; knows how to locate equipment for application on smaller sites; knows basic principles of methods and tools for measurement and representation of land and construction details; knows working drawings.</p>	<p><b>Execute practical operations (practical skills)</b></p> <p>Can at range of a smaller site: work out the layout of a site; apply methods for measurement and marking, collect and record accurate topographic data; use data collected by measurement to calculate surface and volumes; calculate requests for provisions and delivery of labour, equipment and material according to production needs and timetables; make respective dispositions; control quality and conformity with contract; use ICT-equipment.</p>	<p><b>Manage, control</b></p> <p>Is able to manage work processes on sites in the frame of guidelines, to instruct and conduct workforce and to dispose resources (equipment, material) as well as to supervise works on site; to check work processes against plan and control conformity with plan, quality norms and schedule; control situation of health and safety and environmental protection; in case of divergences find remedy.</p>

Knowledge („knows“)	Skills („can“)	Competence („is able to“)
<p><b>Material</b></p> <p>Knows in broad context material used on site for production, its modes of use and behaviour when processed; how material is delivered and stored on site; how hazardous material has to be handled.</p>	<p><b>Execute logical operations (cognitive skills)</b></p> <p>Can at range of a smaller site: understand planning, assess performance and feasibility; transform planning into disposition of labour, equipment and material of a working process; can transpose on plan results of processed data; can recognise and prevent safety risks.</p>	<p><b>Achieve results</b></p> <p>Is able to safeguard that aimed results of a work process will be achieved; is able to identify operations needed to carry out work and estimate time required; is able to offer suitable solutions for problems and to suggest improvements for the work process.</p>
<p><b>Rules, norms, regulation</b></p> <p>Knows in broad context standards, rules, norms and legal duties relevant for working processes on site, quality management, for applied topography; for management of production processes on site, in particular concerning health and safety and environmental issues.</p>	<p><b>Planning, organising</b></p> <p>Can at range of a smaller site: work out short termed work plans; establish various work phases defining them in terms of resources, needs and realisation time.</p>	<p><b>Take responsibility</b></p> <p>Is able to take responsibility for procedures and result of work processes of groups, for quality and schedules, as well as for health and safety and environmental protection.</p>
<p><b>Procedures</b></p> <p>Knows in broad context procedures of planning, transformation of planning into production, control working processes, quality control, surveying, marking and measurement, management of production on smaller sites (labour, equipment, material) including timetables and cost.</p>	<p><b>Communicate</b></p> <p>Can at range of a smaller site: give to and receive from other actors involved in the work process information necessary to run a site, document procedures and results of production process on site; report production data to superiors.</p>	
<p><b>Frame of action, actors, interfaces</b></p> <p>Knows in broad context responsibilities, roles, competence, rights, duties and way of work of other actors involved in construction projects.</p>		

<b>Level 3a</b>		
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<b>Knowledge („knows“)</b>	<b>Skills („can“)</b>	<b>Competence („is able to“)</b>
<p><b>Tools, equipment</b></p> <p>Knows in a specialised field of activity tools and equipment used on site for production: their functioning, modes of use and features of performance; principle mathematical formulas for calculation of surface and volumes; Principle notions of technical design; basic principles of methods and tools for measurement of construction components; working drawings.</p>	<p><b>Execute practical operations (practical skills)</b></p> <p>Can at range of an individual work process: perform practical operations like level 3; apply methods for measurement and marking; use data collected by measurement to calculate surface and volumes, calculate requests for provisions and delivery of labour, equipment and material according to production needs and timetables as well as make respective dispositions; control quality and conformity with work plan; use ICT-equipment.</p>	<p><b>Manage, control</b></p> <p>Is able to manage work of small groups on sites in the frame of guidelines, to instruct and conduct working groups and to dispose resources (equipment, material) as well as to supervise works of working groups; to check work against plan and control conformity with plan, and quality norms; control situation of health and safety and environmental protection; in case of divergences find remedy.</p>
<p><b>Material</b></p> <p>Knows in a specialised field of activity material used on site for production, its modes of use and behaviour when processed; knows how hazardous material has to be handled.</p>	<p><b>Execute logical operations (cognitive skills)</b></p> <p>Can at level of a specialised activity: read construction drawings, calculate quantities, identify operations to be performed and estimate the time needed for them, can control the quality of material; can identify hazards to safety and health at the workplace and take action for avoiding such hazards; can check the result of work.</p>	<p><b>Achieve results</b></p> <p>Is able to safeguard that prescribed results of a work process will be achieved; is able to identify operations needed to carry out work and estimate time required; is able to offer suitable solutions for problems and to suggest improvements for the work process.</p>
<p><b>Rules, norms, regulation</b></p> <p>Knows in a specialised field of activity standards, rules, norms and legal duties relevant for working processes on site and quality management, in particular concerning health and safety and environmental issues.</p>	<p><b>Planning, organising</b></p> <p>Can at level of a specialised activity: work out work plans for a small group; establish various work phases defining them in terms of resources, needs and realisation time; take into consideration the link between one's own work and the work done in prior as well as in later stages of work.</p>	<p><b>Take responsibility</b></p> <p>Is able to take responsibility for procedures and result of work processes of small groups, for quality and schedules, as well as for health and safety and environmental protection.</p>



Knowledge („knows“)	Skills („can“)	Competence („is able to“)
<p><b>Procedures</b></p> <p>Knows in a specialised field of activity function of component subject to own work in the frame of overall construction; procedures of transformation of plans into work processes, control working processes, quality control, measurement, management of working processes (labour, equipment, material) including timetables.</p>	<p><b>Communicate</b></p> <p>Can at range of a specialised activity: give to and receive from other actors involved in the work process information necessary to perform the work, document procedures and results of the work process on site; report production data to superiors.</p>	
<p><b>Frame of action, actors, interfaces</b></p> <p>Knows in a specialised field of activity responsibilities, roles, competence, rights, duties and way of work of other actors involved in working processes on site.</p>		
<p><b>Level 3</b> <span style="float: right;">©-BAQ-Bremen</span></p>		
Knowledge („knows“)	Skills („can“)	Competence („is able to“)
<p><b>Tools, equipment</b></p> <p>Knows in a specialised field of activity tools and equipment used on site for production: their functioning, modes of use and features of performance; modes of maintenance, transportation and preserving; principle mathematical formulas for calculation of surface and volumes; Principle notions of technical design; knows basic principles of methods and tools for measurement of construction components; knows working drawings.</p>	<p><b>Execute practical operations (practical skills)</b></p> <p>Can perform one or more of the following tasks in a specialised manner and without detailed instruction and has basic skills in the others, including measurement, calculation of surface and volumes; controlling of quality and conformity with work plan and use of ICT-equipment: earthworks, protecting and insulating construction elements, laying pipes, conduits and sewers, structural elements of bricks, reinforced concrete, prefabricated elements, gypsum plaster and wood, roof structures made of wood, applying plaster, jointless flooring, tiling, building traffic routes (roads, tracks, waterways); can conduct machinery (plant) on sites; can survey and level construction elements.</p>	<p><b>Manage, control</b></p> <p>Is able to manage own work on sites in the frame of guidelines, to dispose material needed to check work against plan and control conformity with plan and quality norms; to take at the work place the situation of health and safety and environmental protection into consideration, in case of divergences find remedy.</p>

Knowledge („knows“)	Skills („can“)	Competence („is able to“)
<p><b>Material</b></p> <p>Knows in a specialised field of activity material used on site for production, its modes of use and behaviour when processed; knows how hazardous material has to be handled.</p>	<p><b>Execute logical operations (cognitive skills)</b></p> <p>Can at level of a specialised activity: read construction drawings, calculate quantities, identify operations to be performed and estimate the time needed for them, can control the quality of material, can identify hazards to safety and health at the workplace, and take action for avoiding such hazards; can check the result of work.</p>	<p><b>Achieve results</b></p> <p>Is able to safeguard that prescribed results of his work will be achieved; is able to identify operations needed to carry out work and estimate time required; to suggest improvements for the work process.</p>
<p><b>Rules, norms, regulation</b></p> <p>Knows in a specialised field of activity standards, rules, norms and legal duties relevant for production on site and quality management, in particular concerning health and safety and environmental issues.</p>	<p><b>Planning, organising</b></p> <p>Can at level of a specialised activity: work out work plans for his own work; define resources needed and realisation time; take into consideration the link between one's own work and the work done in prior as well as in later stages of work.</p>	<p><b>Take responsibility</b></p> <p>Is able to take responsibility for procedures and result of his work, for quality and schedules, as well as for his own health and safety and that of others and of environmental protection.</p>
<p><b>Procedures</b></p> <p>Knows in a specialised field of activity function of component subject to own work in the frame of overall construction; procedures of transformation of plans into work processes, control working processes, quality control, measurement, management of working processes (labour, equipment, material) including timetables..</p>	<p><b>Communicate</b></p> <p>Can at range of a specialised activity: give to and receive from other actors involved in the work process information necessary to perform the work, in particular understand job orders, document procedures and results of his work; report production data to superiors.</p>	
<p><b>Frame of action, actors, interfaces</b></p> <p>Knows in a specialised field of activity responsibilities, roles, competence, rights, duties and way of work of other actors involved in working processes on site.</p>		

<b>Level 2</b>		
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<b>Knowledge („knows“)</b>	<b>Skills („can“)</b>	<b>Competence („is able to“)</b>
<p><b>Tools, equipment</b></p> <p>Knows in a specialised field of activity tools and equipment used on site for production: their functioning, modes of use and features of performance.</p>	<p><b>Execute practical operations (practical skills)</b></p> <p>Can perform one of the following tasks in a specialised manner and without detailed instruction, including controlling of quality and conformity with work plan: earthworks, protecting and insulating construction elements, laying pipes, conduits and sewers, structural elements of bricks, reinforced concrete, prefabricated elements, gypsum plaster and wood, roof structures made of wood, applying plaster, jointless flooring, tiling, building traffic routes (roads, tracks, waterways); can conduct machinery (plant) on sites; can survey and level construction elements.</p>	<p><b>Manage, control</b></p> <p>Is able to manage own work on sites under general supervision with autonomy in detail; to control conformity with plan; to take at the work place the situation of health and safety and environmental protection into consideration.</p>
<p><b>Material</b></p> <p>Knows in a specialised field of activity material used on site for production, its modes of use and behaviour when processed; knows how hazardous material has to be handled.</p>	<p><b>Execute logical operations (cognitive skills)</b></p> <p>Can at level of a specialised activity according to instructions: identify operations to be performed; control the quality of material; can identify hazards to safety and health at the workplace, and take action for avoiding such hazards; can check the result of work.</p>	<p><b>Achieve results</b></p> <p>Is able to safeguard that prescribed results of his work will be achieved.</p>
<p><b>Rules, norms, regulation</b></p> <p>Knows in a specialised field of activity standards, rules, norms and legal duties relevant for production on site and quality management, in particular concerning health and safety and environmental issues.</p>	<p><b>Planning, organising</b></p> <p>Can at level of a specialised activity: reflect how to work on work orders given; estimate if resources and realisation time needed differ from work programmes.</p>	<p><b>Take responsibility</b></p> <p>Is able to take responsibility for conformity and quality result of his work, as well as for his own health and safety and that of others and of environmental protection.</p>

Knowledge („knows“)	Skills („can“)	Competence („is able to“)
<p><b>Procedures</b></p> <p>Knows in a specialised field of activity procedures of working processes, control working processes, quality control.</p>	<p><b>Communicate</b></p> <p>Can at range of a specialised activity: give to and receive from other actors, involved in the work process, information necessary to perform the work, in particular understand job orders; document procedures and results of his work; communicate with superiors.</p>	
<p><b>Frame of action, actors, interfaces</b></p> <p>Knows in a specialised field of activity responsibilities, roles, competence, rights, duties and way of work of other actors involved in working processes on site.</p>		
<p><b>Level 1</b> <span style="float: right;">© BAQ-Bremen</span></p>		
<p><b>Tools, equipment</b></p> <p>Knows in a specialised field of activity modes of use of some tools and equipment used on site for production.</p>	<p><b>Execute practical operations (practical skills)</b></p> <p>Can assist the workers who have been assigned with construction operations.</p>	<p><b>Manage control</b></p> <p>Is able to manage own work on sites under supervision; to take at the work place the situation of health and safety and environmental protection into consideration.</p>
<p><b>Material</b></p> <p>Knows in a specialised field of activity material used on site for production; knows basic principles of how to handle hazardous material.</p>	<p><b>Execute logical operations (cognitive skills)</b></p> <p>Can understand orders and carry out work at the work place as instructed and in compliance with safety regulations; can take care of his own health and safety.</p>	<p><b>Achieve results</b></p> <p>Is able to safeguard that prescribed results of work will be achieved.</p>

<b>Knowledge („knows“)</b>	<b>Skills („can“)</b>	<b>Competence („is able to“)</b>
<b>Rules, norms, regulation</b> Knows in a specialised field of activity standards and legal duties relevant for his work on site, in particular concerning health and safety and environmental issues.	<b>Planning, organising</b> Can organize own work.	<b>Take responsibility</b> Is able to take responsibility for conformity of his work with orders, as well as for his own health and safety and that of others and of environmental protection.
<b>Procedures</b> Knows in a specialised field of activity procedures of working processes.	<b>Communicate</b> Can understand job orders and communicate with colleagues and superiors on work as well as on health and safety.	
<b>Frame of action, actors, interfaces</b> Knows members of his working group and their roles and competence.		

## 8. Individual contributions by phases and levels

### Phase 1: Participation in Planning (drafted by Berufsförderungswerk der Bauindustrie NRW, GE)

Level: 5

Knowledge („knows“)	Skills („can“)	Competence („is able to“)
<p><b>Tools, equipment</b></p> <p>Knows all relevant tools and equipments needed on site as well as all requirements regarding layout drawings</p>	<p><b>Execute practical operations (practical skills)</b></p> <p>Can prepare standard forms Can use ICT equipment</p>	<p><b>Manage, control</b></p> <p>Is able to manage a site so that quality, delay and amount of work as well as variations, offering alternative solutions is met including control processes</p>
<p><b>Material</b></p> <p>Knows all relevant materials needed on site</p>	<p><b>Execute logical operations (cognitive skills)</b></p> <p>Can understand planning assess performance and feasibility</p>	<p><b>Achieve results</b></p>
<p><b>Rules, norms, regulation</b></p> <p>Knows all relevant standards, associations, laws, arrangements and rules in essence, for example, waste disposal and recycling, occupational health and safety, legal duties</p>	<p><b>Planning, organising</b></p> <p>Can determine time need via descriptions of performances, reduce work time from existing calculations and transform into detailed and short termed work plans</p>	<p><b>Take responsibility</b></p> <p>Is able to take responsibility for the result as well as occupational health and safety and environmental protection and to supervise and lead workers of lower work levels</p>
<p><b>Procedures</b></p> <p>Knows the proceeding of construction projects and time tables</p>	<p><b>Communicate</b></p> <p>Can give to and receive from other actors involved all information necessary to run a site</p>	
<p><b>Frame of action, actors, interfaces</b></p> <p>Knows the responsibilities, roles, competence, rights duties and way of work of other involved actors</p>		

## Phase 1: Participation in Planning

### Level: 4

Knowledge („knows“)	Skills („can“)	Competence („is able to“)
<p><b>Tools, equipment</b> Knows all relevant tools and equipments needed on site</p>	<p><b>Execute practical operations (practical skills)</b> Can read construction plans and can give suitable orders especially for his divisions</p>	<p><b>Manage, control</b> Is able to manage several divisions of a site so that quality, delay and amount of work as well as variations, offering alternative solutions is met including control processes</p>
<p><b>Material</b> Knows all relevant materials needed on site especially for his divisions</p>	<p><b>Planning, organising</b> Can specify all essential site activities especially within his divisions  Can calculate the required floor space for several building materials and excavations on building site</p>	<p><b>Take responsibility</b> Can take responsibility for the result of his divisions and performances</p>
<p><b>Rules, norms, regulation</b> Knows all relevant standards, associations, laws, arrangements and rules in essence, e.g. the task of planned activities, enforcements of audits, bill of quantities for special or additional capacities</p>	<p><b>Execute practical operations (practical skills)</b> Can understand planning, assess performances and feasibility</p>	
<p><b>Procedures</b> Knows the proceeding of construction projects and time tables</p>	<p><b>Communicate</b> Can give to and receive from other actors involved all information necessary to plan and run a site</p>	
<p><b>Frame of action, actors, interfaces</b> Knows the responsibilities, roles, competence, rights duties and way of work of other involved actors</p>		

## Phase 2: Setting out Site (drafted by Bildungszentren des Baugewerbes, Krefeld, GE)

Level: 5

Knowledge („knows“)	Skills („can“)	Competence („is able to“)
<p><b>Tools, equipment</b></p> <p>Knows which equipment is used on site and how it should be located for application</p>	<p><b>Execute practical operations (practical skills)</b></p> <p>Can plan, organise, co-ordinate and check disposition works on site among other works</p> <p>Can organise the layout of the building site</p>	<p><b>Manage, control</b></p> <p>Is able to integrally operate overall site-targets in practice (qualitative, quantitative, in terms of deadlines and economically)</p>
<p><b>Material</b></p> <p>Knows how material is delivered and stored on site as well as how to handle hazardous materials</p>	<p><b>Execute logical operations (cognitive skills)</b></p> <p>Can react on unforeseeable situations and solve technical, organisational and social problems on site</p>	<p><b>Achieve results</b></p> <p>Is able to achieve positive results in his/her own tasks and to supervise lower work levels to reach positive results</p>
<p><b>Rules, norms, regulation</b></p> <p>Knows relevant rules, norms and regulations</p>	<p><b>Planning, organising</b></p> <p>Can lead and co-ordinate foremen and teams; can control workers and work results</p>	<p><b>Take responsibility</b></p> <p>Is able to take full responsibility for his/her tasks and the tasks of lower levels</p>
<p><b>Procedures</b></p> <p>Knows safety rules, special technical rules, norms and regulations from his/her frame of action and beyond</p>	<p><b>Communicate</b></p> <p>Can communicate with interfaces outside the building process</p>	
<p><b>Frame of action, actors, interfaces</b></p> <p>Knows which external actors have to be involved in preparation of the site</p>		



### Phase 3: Surveying (drafted by Casa de Meserii a Constructorilor, RO)

Level: 5

Knowledge („knows“)	Skills („can“)	Competence („is able to“)
<p><b>Tools, equipment</b></p> <p>Knows methods and tools for measurement and representation on plans of land and construction details: knows equipment for indirect measurement of distances and angles (optical, electronic, digital, GPS); knows specialized software for surveying; knows individual working and protection equipment</p>	<p><b>Execute practical operations (practical skills)</b></p> <p>Can operate tools, equipment and instruments for measurements, calculation means and dedicated software; can apply complex methods for measurements and marking.</p> <p>Can build up the plotting network and establish the methods of realisation.</p>	<p><b>Manage, control</b></p> <p>Is able to set up measurement techniques and leveling methods; is able to supervise the transposing on site of topographic plan; is able to verify the compliance with the working parameters of equipments; is able to take over the location: identifies location, checking the situation on the site against the plan.</p>
<p><b>Material</b></p> <p>Knows specific documentation for topography (e.g. topographic plans and maps) and information material for topography.</p>	<p><b>Execute logical operations (cognitive skills)</b></p> <p>Can process data collected by measurement and calculate surfaces and work volumes using basic formula from geometry and trigonometry.</p>	<p><b>Achieve results</b></p> <p>Is able to obtain written approvals and hand over the location to the constructor; is able to correlate the tolerance level with the method and equipment used for the measurement.</p>
<p><b>Rules, norms, regulation</b></p> <p>Knows specific standards and norms for applied topography and standards related to management systems.</p>	<p><b>Planning, organising</b></p> <p>Can transpose on plan results of processed data and develop topographic plans; can elaborate the schedule of surveying activities and develop specific procedures.</p>	<p><b>Take responsibility</b></p> <p>is able to set up the working program of the team; is able to develop and present reports for different stages of work activities and assess the activity of the team</p> <p>is able to take responsibility for the quality of the topographic works performed by the team and compliance with specific procedures.</p>

<p><b>Procedures</b> Knows procedures for topographic measurements and marking</p>	<p><b>Communicate</b> Can give to and receive from other actors involved all information concerning surveying results and process  Can inform about possible mismatches and/or proposing corrections (referring to the project, or to the tracing elements)</p>	<p><b>Instruct the team</b> Is able to instruct the team about working procedures for using equipment and technical procedures and for general and specific norms for quality, occupational health and safety and environment</p>
<p><b>Frame of action, actors, interfaces</b> Knows the responsibilities, roles, competence, rights duties and way of work of other involved actors</p>		

**Level: 4**

<b>Knowledge („knows“)</b>	<b>Skills („can“)</b>	<b>Competence („is able to“)</b>
<p><b>Tools, equipment</b> Knows profoundly equipments and tools used in surveying, marking elements, and protection equipments; knows notion about maintenance, transportation, preserving, handling of equipment used for surveying.</p>	<p><b>Execute practical operations (practical skills)</b> Can operate measurement equipment, tools and instruments specific for surveying; can transpose blueprint data on site by using topographic methods; can perform topographic works and leveling using required procedure.</p>	<p><b>Manage, control</b> Is able to obey the rules for procedures of the topographic equipment, tools instruments; is able to coordinate and supervise surveying team of workers and persue the logic development of work processes and use of appropriate materials and techniques.</p>
<p><b>Material</b> Knows topographic plans of the construction, common materials used for tracing, marking the points, the benchmarks, the distances, the profiles, the levels and conventional signs.</p>	<p><b>Execute logical operations (cognitive skills)</b> Can perform site measurement using topographic equipment/instruments and use simple procedures for measure distances.</p>	<p><b>Achieve results</b> Is able to collect accurate topographic data and record correctly collected data.</p>

<p><b>Rules, norms, regulation</b></p> <p>Knows basic norms and rules for applied topography, rules for using and maintenance of equipment (topographic and for individual protection), rules and regulations for occupational health and safety and environment specific for surveying works and performance indicators for surveying works.</p>	<p><b>Planning, organising</b></p> <p>Can read and understand blueprints, record collected data and process collected data/information; can perform working process in accordance with specific procedures for surveying.</p>	<p><b>Take responsibility</b></p> <p>Is able to take over responsibility of the quality of the work performed by self and the coordinated team; is able to ensure and take responsibility of the measurement results; is able to ensure compliance with tolerance limits of measurements.</p>
<p><b>Procedures</b></p> <p>Knows technical procedures for marking, measurement techniques and marking systems.</p>	<p><b>Communicate</b></p> <p>Communicate correctly with superiors providing an adequate report on the activities carried out.</p>	<p><b>Instruct the team</b></p> <p>Is able to coordinate, supervise and lead small groups of workers</p>
<p><b>Frame of action, actors, interfaces</b></p> <p>Knows about conducting small groups.</p>		

**Level: 3**

<p><b>Knowledge („knows“)</b></p>	<p><b>Skills („can“)</b></p>	<p><b>Competence („is able to“)</b></p>
<p><b>Tools, equipment</b></p> <p>Knows equipments and tools used in surveying, marking elements, and protection equipments; knows basic notion about maintenance, transportation, preserving, handling of equipment used for surveying.</p>	<p><b>Execute practical operations (practical skills)</b></p> <p>Can handle and transport equipment and tools specific for surveying and tracing; can climb part of building/hilly land</p>	<p><b>Manage, control</b></p> <p>Is able to maintain the surveying equipments, lay down the surveying equipments on appropriate position for collecting dates and the benchmarks on identified positions; is able to obide the working program and to identify the benchmarks specified in the documentation.</p>
<p><b>Material</b></p> <p>Knows common materials used for tracing, for marking the points, the benchmarks, the distances, the profiles, the levels and conventional</p>	<p><b>Execute logical operations (cognitive skills)</b></p> <p>Can identify equipment and tools in accordance to activities and proceses to be performed; can sort materials and tracing elements.</p>	<p><b>Achieve results</b></p> <p>Is able to protect the traces site until delivery and to deliver work result in accordance with requested level of quality.</p>

signs.		
<b>Rules, norms, regulation</b> Knows general and specific notions regarding occupational health and safety and environment.	<b>Planning, organising</b> Can understand and use specific working methods for surveying.	<b>Take responsibility</b> Is able to learn, understand and apply rules and regulations specific for own work.
<b>Procedures</b> Knows specific elements about working methods; knows benchmarks used for construction works (codes) and topographic coding systems; knows general notions regarding working methods for surveying.	<b>Communicate</b> Can communicate effectively within the team and with direct superiors.	
<b>Frame of action, actors, interfaces</b>		



**Phase 4: Production, Building (drafted by BIW Bildungswerk Bau Hessen-Thüringen, GE)**

**Level: 3a**

<b>Knowledge („knows“)</b>	<b>Skills („can“)</b>	<b>Competence („is able to“)</b>
<p><b>Tools, equipment</b></p> <p>Knows formulas for calculating areas and masses, basic principles of personnel management,</p> <p>Knows quality assurance measures, reporting system, various measuring methods</p>	<p><b>Execute practical operations (practical skills)</b></p> <p>Can perform work operations properly and professionally without further detailed briefing</p> <p>Can survey structural elements and build structural elements that are true to dimensions, from the main areas, with the appropriate tools, machines and/or equipment</p> <p>Can separate waste at the construction sites</p> <p>Can perform measurements and operate measuring equipment properly</p>	<p><b>Manage, control</b></p> <p>Is able to identify deficiencies and omissions in the preliminary work of other trades and to take measures in order to correct them.</p> <p>Is able to instruct, guide, and monitor a small group (of up to six people) to ensure that they are carrying out work properly and professionally.</p> <p>Is able to decide, which work steps should be carried out in which order, as well as which materials and tools will be used.</p> <p>Is able to carry out his work and that of his group independently.</p> <p>Is able to detect flaws in workmanship and correct them.</p> <p>Is able to compare, revise, and evaluate the result and quality of the workmanship with the actual order.</p>
<p><b>Material</b></p> <p>Knows various construction material and substances, their characteristics, and their behaviour when processed.</p> <p>Knows construction equipment, tools, auxiliary materials, and measuring devices required for carrying out the work.</p>	<p><b>Execute logical operations (cognitive skills)</b></p> <p>Can read building plans, determine quantities, identify required operations, and estimate the time required for them.</p> <p>- Detect any safety and/or health hazards at the work area and take measures to prevent them.</p>	<p><b>Achieve results</b></p> <p>Is able to make sure that all resources needed are available on time, in the required quantity, and with the required quality as well as to identify deficiencies and take measures in order to correct them.</p>



		Is able to evaluate the work with regard to technical regulations and make any necessary corrections (decisions for changing how the work is carried out)
<p><b>Rules, norms, regulation</b></p> <p>Knows the body of technical rules and regulations for processing the materials used and the tools and devices required for this purpose</p> <p>Knows the application of profession-based occupational health and safety regulations and accident prevention regulations, as well as of environmental protection and hazardous material-handling regulations.</p>	<p><b>Planning, organising</b></p> <p>Can understand work assignments, set up the work area while complying with all corresponding safety regulations, plan the use of tools and materials, and provide the necessary tools and the corresponding material</p> <p>Can check the preliminary work carried out by other trade groups with regard to the conditions that said work has created for the foreman's performance of his/her own work</p> <p>Can take into account the work of subsequent trade groups on the structural element</p> <p>Can check work results and document them.</p>	<p><b>Take responsibility</b></p> <p>Is able to represent and be responsible for the group's work results.</p> <p>Is able to use machines and equipment effectively in compliance with the applicable safety regulations.</p> <p>Is able to organize safety, health, and environmental protection aspects for his/her work assignment</p> <p>Is able to recognize any environmental impact resulting from the operations carried out.</p>
<p><b>Procedures</b></p> <p>Knows the function of the structural element to be built in relation to the overall construction; knows the additional work associated with the building process, generally speaking.</p>	<p><b>Communicate</b></p> <p>Can explain tasks and give instructions so that they are carried out properly and professionally; provide assistance during their execution</p> <p>Can write daily reports.</p>	
<p><b>Frame of action, actors, interfaces</b></p> <p>Knows the trade groups in charge of providing the preliminary work required to perform his/her own work as well as those that will work on the structural elements subsequently.</p>		



**Level: 3**

<b>Tools, equipment</b>	<b>Execute practical operations (practical skills)</b>	<b>Manage control</b>
<p>Knows formula for calculating surfaces and quantities</p> <p>Knows construction equipment, tools, consumables and measuring instruments needed for performing work</p> <p>Knows quality assurance action, reporting and miscellaneous measuring methods</p>	<p>Can execute one or more of the following tasks in a specialised manner and has basic knowledge on the others</p> <ul style="list-style-type: none"> <li>- remove soil using earthmoving equipment;</li> <li>- excavate building pits using earthmoving equipment</li> <li>- excavate foundations and pipe trenches</li> <li>- backfill and compact soil.</li> <li>- lay drainage pipes and sewers; and construct shaft structures</li> <li>- protect construction elements against pressing and non-pressing water</li> <li>- construct elements made of reinforced concrete (foundations, floor slabs, walls, ceilings, stairs, columns, girders, etc.) including formwork and reinforcement</li> <li>- survey and level construction elements, and independently construct such elements true to dimension by using the corresponding tooling, equipment and machinery in main areas</li> <li>- construct masonry elements (walls, lintels, arcs, etc.)</li> <li>- construct roof structures made of wood</li> <li>- install prefabricated concrete elements</li> <li>- install insulating material</li> <li>- install anchors and built-in components</li> </ul>	<p>Is able to make certain that the drawings, materials and tools are available in good time and in the required quantity and quality, identify shortcomings and take action for remedy</p> <p>Is able to identify defects or omissions in the prior work carried out by other trades, and take action to remedy any such defects or omissions</p> <p>Is able to decide the work steps, their sequence and the materials and tools to be used</p>



	<ul style="list-style-type: none"> <li>- apply plaster.</li> <li>- place jointless flooring</li> <li>- place tiles</li> <li>- construct walls made of gypsum plaster boards and line ceilings</li> <li>- separate waste on construction sites</li> <li>- carry out measurements, and operate measuring equipment appropriately</li> </ul>	
<p><b>Material</b></p> <p>Knows different materials and substances, their properties and their behaviour during processing</p>	<p><b>Execute logical operations (cognitive skills)</b></p> <p>Can read construction drawings, compute quantities, identify the operations to be performed, and estimate the time needed for them</p> <p>Can identify hazards to safety and health at the workplace, and take action for avoiding such hazards</p> <p>Can check the result of work</p>	<p><b>Achieve results</b></p> <p>Is able to perform job orders independently</p>
<p><b>Rules, norms, regulation</b></p> <p>Knows application of industrial safety and accident prevention regulations</p> <p>Knows technical rules and codes applicable to processing and work, the materials used and the tools and equipment required</p> <p>Knows the application of industrial safety and accident prevention regulations in addition to rules for environmental protection when handling any hazardous material</p>	<p><b>Planning, organising</b></p> <p>Can understand job orders, set up the workplace pursuant to safety regulations, schedule tool and material usage, and stage the tools and material as required</p> <p>Can inspect prior work performed by other trades as to the conditions created for the performance of one's own work</p>	<p><b>Take responsibility</b></p> <p>Is able to efficiently use machinery and equipment while observing safety regulations</p> <p>Is able to organise industrial safety, health protection and environmental protection according to one's job order</p> <p>Is able to identify service-induced environmental impacts and to decide the work steps and the sequence in which they are performed.</p>





<p>Knows regulations applicable to environmental protection and to the management of waste and hazardous material</p>	<p>Can perform work operations in a professional and workmanlike manner without further detailed instructions</p> <p>Can take account of the work to be performed on a construction element by the next trades</p>	<p>Is able to identify and correct errors in the work performed</p> <p>Is able to compare, check and evaluate the results of the work performed (construction element) against the job order</p>
<p><b>Procedures</b></p> <p>Knows the functions of the building elements to be constructed within the overall structure, and the supplementary work which is included in the overall construction process</p>	<p><b>Communicate</b></p> <p>Can document the result of work.</p>	
<p><b>Frame of action, actors, interfaces</b></p> <p>Knows the trades providing work prior to the performance of one's own work</p> <p>Knows the trades which will perform the next work steps on a construction element</p>		

**Level: 2**

<p><b>Knowledge („knows“)</b></p>	<p><b>Skills („can“)</b></p>	<p><b>Competence („is able to“)</b></p>
<p><b>Tools, equipment</b></p> <p>Knows construction equipment, tools, aids and measuring instruments required for carrying out the work.</p> <p>Knows quality assurance measures, the reporting system and various measuring procedures</p>	<p><b>Execute practical operations (practical skills)</b></p> <p>Can measure components according to individual instructions, use measuring instruments properly and produce components of the right size from the following key points (simple work orders) with the stated tools, machines and appliances</p> <p>Can separate waste on the construction sites</p>	<p><b>Manage, control</b></p>



<p><b>Material</b></p> <p>Knows various materials and substances, and their properties, and how they behave during use.</p>	<p><b>Execute logical operations (cognitive skills)</b></p> <p>Can carry out working operations correctly and properly according to individual instructions, and familiar tasks after general instructions.</p> <p>Can check the work performed with the stated procedure.</p>	<p><b>Achieve results</b></p> <p>Is able to provide the stated materials and tools in the right quantities and qualities as and when they are wanted.</p> <p>Is able to perform work steps in the stated order and using the stated materials and tools</p> <p>Is able to use machines and instruments under instruction and in compliance with the safety regulations.</p> <p>Is able to decide which work steps are to be performed in which order.</p>
<p><b>Rules, norms, regulation</b></p> <p>Knows application of trade-relevant work safety and accident prevention regulations.</p> <p>Knows environmental protection regulations and the handling of hazardous substances and waste materials.</p>	<p><b>Planning, organising</b></p> <p>Can understand simple work orders, set up the workplace in accordance with the safety regulations, and provide tools and materials in accordance with individual instructions.</p> <p>Can take into consideration the subsequent work of other trades on the component.</p>	<p><b>Take responsibility</b></p>
<p><b>Procedures</b></p>	<p><b>Communicate</b></p> <p>Can document the work performed</p>	
<p><b>Frame of action, actors, interfaces</b></p> <p>Knows the trades, which will subsequently be working on the component.</p>		

**Phase 4: Production, Civil engineering (drafted by Formedil, Rome, IT)**

**Level: 5**

Knowledge („knows“)	Skills („can“)	Competence („is able to“)
<p><b>Tools, equipment</b></p> <p>Knows technical design (architectural, structural, and plant), and the statics and technology of constructions.</p> <p>Knows the techniques for relief and tracking and calculation of inclination, heights, volumes and elevations.</p>	<p><b>Execute practical operations (practical skills)</b></p> <p>Can organise tests with relative certification necessary for running tests on work.</p> <p>Can supervise works according to the standards laid down in the terms of contract.</p> <p>Can formulate requests for provision of materials.</p> <p>Can supervise writing up of accounts.</p>	<p><b>Manage, control</b></p> <p>Is able to detect any upsets in programmed activities.</p> <p>Is able to organise activities on the works, offering alternative solutions.</p> <p>Is able to manage variations and operate decisional choices.</p> <p>Is able to control correct behaviour that does not conform with safety norms.</p>
<p><b>Material</b></p> <p>Knows technology of materials, characteristics of equipment and machines in relation to their use.</p> <p>Knows in-depth the characteristics of materials, methods adopted when using them in work operations.</p>	<p><b>Execute logical operations (cognitive skills)</b></p> <p>Can interpret the project forms, individualise technologies and materials, determine quantities.</p> <p>Can interpret the project forms and technical designs supplied by the project engineer.</p> <p>Can recognise and prevent safety risks, evaluate the operative safety plan for sub-contractors.</p>	<p><b>Achieve results</b></p> <p>Is able to identify the operations needed to carry out work and estimate the time required.</p> <p>Is able to supervise accounting for works carried out.</p> <p>Is able to offer suitable solutions for problems and suggest improvements for construction process.</p> <p>Is able to identify defects in materials and offer solutions for correction.</p> <p>Is able to reprogramming activities.</p> <p>Is able to evaluate conformity, suggesting corrective action for non-conformity.</p>



<p><b>Rules, norms, regulation</b></p> <p>Knows the rules of good technique, the terms of contract and the technical specifications.</p> <p>Knows documentation and safety plans.</p> <p>Knows national and EEC norms.</p>	<p><b>Planning, organising</b></p> <p>Can supply a complete prospectus of necessary resources</p> <p>Can establish the various work phases defining them in terms of resources, needs and realisation times</p> <p>Can adopt techniques for estimation of cost.</p>	<p><b>Take responsibility</b></p> <p>Is able to detect the degree of safety norms at work</p> <p>Is able to evaluate complete action regarding refuse matter and civil and production discharge.</p>
<p><b>Procedures</b></p> <p>Knows methodology for planning and control of projects (Gant, Pert, and others)</p> <p>Knows quality control procedures and quality plan</p> <p>Knows costs and return control systems and returns and revelation of costs</p> <p>Knows processes for the management of road works.</p>	<p><b>Communicate</b></p> <p>Can propose variants to altimetric plan and tracking.</p> <p>Can communicate correctly and establishing positive relations with workers and superior.</p> <p>Can communicate the outcome of management control activities to superiors, suggesting modifications.</p> <p>Can communicate superiors and supply appropriate report on documentation and safety plan, suggesting integrations, application of norms and procedures, accounting for works carried out.</p> <p>Can report on production data to superiors.</p>	
<p><b>Frame of action, actors, interfaces</b></p> <p>Knows methods, phases, processes and roles for the management of road works.</p>		



**Level: 4**

<b>Knowledge („knows“)</b>	<b>Skills („can“)</b>	<b>Competence („is able to“)</b>
<p><b>Tools, equipment</b></p> <p>Knows the technical design, elements of technology of constructions</p> <p>Knows the techniques for relief and tracking</p> <p>Knows the principles of technology of materials, the characteristics of equipment and the specifications of use of machinery, the functioning of measuring instruments and accounting systems</p>	<p><b>Execute practical operations (practical skills)</b></p> <p>Can write up the accounts he/she is responsible for, reveal costs</p> <p>Can use measuring instruments</p>	<p><b>Manage control</b></p> <p>Is able to manage tracking of road work</p> <p>Is able to control finished work</p> <p>Is able to suggest strategies to resolve problems arising from work delays</p>
<p><b>Material</b></p> <p>Knows in-depth the characteristics of materials</p>	<p><b>Execute logical operations (cognitive skills)</b></p> <p>Can interpret the project forms, determine quantities, identify the operations needed to carry out work, estimate the time required</p> <p>Can program and control the work being carried out respecting specifications laid down in the project designs</p>	<p><b>Achieve results</b></p> <p>Is able to carry out work according to the standards laid out in the terms of contract</p> <p>Is able to individualise any delays in work program,</p> <p>Is able to write up accounts for checking production</p> <p>Is able to carry out strategies for resolving routine problems</p> <p>Is able to identify any defects in materials and correction</p> <p>Is able to co-ordinate teams to get realisation of work</p> <p>Is able to evaluate conformity of final work</p>



<p><b>Rules, norms, regulation</b></p> <p>Knows the organisation of works</p> <p>Knows the rules of good technique of road works,</p> <p>Knows the contractual work program and the work realization</p> <p>Knows documentation and safety plan as well as norms regarding health and safety at work, environmental pollution</p>	<p><b>Planning, organising</b></p> <p>Can supply service orders and organizing the work stations of various groups according to the safety rules</p> <p>Can plan the use of equipment and machines organising the phases of work to be carried out</p> <p>Can fill out the forms necessary for request of materials or supplies</p> <p>Can organise the activity of the works respecting or remodelling times and work methods</p>	<p><b>Take responsibility</b></p> <p>Is able to adopt correct behaviour and necessary devices to ensure that safety norms on works are respected</p> <p>Is able to orientate him/herself with respect to the roles and the mansions</p> <p>Is able to correct errors during the work process and operate choices</p>
<p><b>Procedures</b></p> <p>Knows accounting and management of work</p> <p>Knows the processes used for choosing materials needed for carrying out the work specified in contract</p> <p>Knows quality control procedure</p> <p>Knows the system for programming provision of materials, machinery and equipment and, finding human resources</p>	<p><b>Communicate</b></p> <p>Can communicate correctly applying the current norms in force regarding safety at work and indications laid down in safety plan with superiors</p> <p>Can suggest solutions and notify results</p> <p>Can correctly reporting on production data to superiors</p>	
<p><b>Frame of action, actors, interfaces</b></p> <p>Knows organisation of work phases, the organisation of road works,</p> <p>Knows the work required for realisation of road infrastructure</p>		



**Level: 3a**

<b>Knowledge („knows“)</b>	<b>Skills („can“)</b>	<b>Competence („is able to“)</b>
<p><b>Tools, equipment</b></p> <p>Knows principle mathematical formulas for calculation of areas and volumes</p> <p>Knows principle notions of technical design and the principle techniques of relief and tracking</p> <p>Knows characteristics of equipment and the specifications on the use of machinery</p>	<p><b>Execute practical operations (practical skills)</b></p> <p>Can control the materials to be used and monitor how they behave once they are used</p> <p>Can carry out work effectively without receiving detailed instructions: moving ground, precision levelling, road surfacing, construction of accessory works in concrete for roadways, demolition, crumbling surfacing, assembling pre-compressed reinforced concrete components</p> <p>Can use equipment and earth moving machines</p> <p>Can use the functional collective and individual devices for own safety and safety of others</p>	<p><b>Manage control</b></p> <p>Is able to program, organise and verify the work group carries out to respect project design</p> <p>Is able to manage the work process of the group.</p> <p>Is able to control finished work</p> <p>Is able to putting into action for resolving problems</p>
<p><b>Material</b></p> <p>Knows basic knowledge of technologies of materials</p> <p>Knows the characteristics of materials and how they are worked</p> <p>Knows the functioning of measuring instruments</p>	<p><b>Execute logical operations (cognitive skills)</b></p> <p>Can read simple project forms, determine quantities, fill in requests for provision of materials</p> <p>Can interpret the project forms and technical designs</p> <p>Can control the quality of cement conglomerates by means of simple tests on works</p> <p>Can correctly use protection and control means, machinery, equipment and tools, and dangerous substances</p>	<p><b>Achieve results</b></p> <p>Is able to guarantee good use of assigned materials and equipment</p> <p>Is able to identify defects in materials that are being used</p> <p>Is able to facilitate exchange of information and knowledge</p> <p>Is able to evaluate conformity of final work with assigned quality</p>



<p><b>Rules, norms, regulation</b></p> <p>Knows the principle rules of technical realisation required</p> <p>Knows the contractual technical specifications</p> <p>Knows the norms and regulations regarding health and safety at work, and control of environmental pollution</p>	<p><b>Planning, organising</b></p> <p>Can understand the service orders and organise the team's work place according to the safety regulations</p> <p>Can identify operations necessary for carrying out work and estimate the time required</p> <p>Can plan use of equipment and machinery</p> <p>Can program and carry out the spray of concrete, the methods and the times for disarming the work , as well as take samples necessary for the next tests</p>	<p><b>Take responsibility</b></p> <p>Is able to respect the current norms on matters regarding safety at work</p> <p>Is able to orientate him/herself with respect to the roles and the mansions</p> <p>Is able to decide what individual operations are to undertaken and which materials and equipment can be used</p>
<p><b>Procedures</b></p> <p>Knows the preliminary processes which are the basis for the choice of materials</p> <p>Knows the company quality procedures</p>	<p><b>Communicate</b></p> <p>Can notify any resolutions for problems due to interference</p> <p>Can communicate correctly with superiors providing an adequate report on the activities carried out</p>	
<p><b>Frame of action, actors, interfaces</b></p> <p>Knows organisation of work phases the organisation of road works</p>		





**Level: 3**

<b>Knowledge („knows“)</b>	<b>Skills („can“)</b>	<b>Competence („is able to“)</b>
<p><b>Tools, equipment</b></p> <p>Knows principle notions of technical design</p> <p>Knows the functioning of measuring instruments</p>	<p><b>Execute practical operations (practical skills)</b></p> <p>Can use materials machinery and equipment for work assigned: moving ground, laying component materials used for foundations of road surfacing, road surfacing, verify the elevations and levels in relation to the project</p> <p>Can use individual or collective devices</p>	<p><b>Manage control</b></p> <p>Is able to orientate themselves in relation to structures, roles and mansions of the sector in which they are operating</p>
<p><b>Material</b></p> <p>Knows basic technologies of materials, characteristics of equipment and the specifications on the use of machinery</p> <p>Knows the characteristics of materials and how they are worked</p>	<p><b>Execute logical operations (cognitive skills)</b></p> <p>Can read simple project printed forms, determine the time required</p> <p>Can recognise the technical characteristics of materials respect the indications in safety plan</p>	<p><b>Achieve results</b></p> <p>Is able to assign equipment and materials respecting times, quantities and quality</p> <p>Is able to carry out individual operations as instructed and use the materials and tools assigned to him/her</p>
<p><b>Rules, norms, regulation</b></p> <p>Knows the rules and norms regarding health and safety at work, and accident prevention</p>	<p><b>Planning, organising</b></p> <p>Can plan the use of equipment and machinery, and suggesting which types will be necessary for the work to be carried out</p> <p>Can organise own work in relation to the other ongoing surrounding activities</p> <p>Can organise own activity respecting times and work methods</p>	<p><b>Take responsibility</b></p> <p>Is able to behave responsibly so as not to cause accidents</p> <p>Is able to carry out own activity respecting the norms in force on matters regarding safety and accident prevention</p>



<p><b>Procedures</b></p>	<p><b>Communicate</b> Can notify any defects that may occur and ask for instructions and communicate to superiors and co-workers</p>	
<p><b>Frame of action, actors, interfaces</b> Knows the organisation of work phases of road works and infrastructure</p>		

**Level: 2**

<p><b>Knowledge („knows“)</b></p>	<p><b>Skills („can“)</b></p>	<p><b>Competence („is able to“)</b></p>
<p><b>Tools, equipment</b> Knows the equipment, measuring tools and machinery (dozer, ripper, excavator, mechanical digger, dumper, compactor, motor-grader, motor-scraper, rollers, tanker, etc.) necessary for carrying out operations on road works</p>	<p><b>Execute practical operations (practical skills)</b> Can to use machinery according to safety rules laid down in respective handbooks.  Can to carry out operations assigned to him/her: moving ground, levelling, rolling component materials used for foundations of road surfacing and subsequent layers of construction of the elevated part, building accessory concrete construction works for roadways, demolition of old works of art  Can to use: the safety devices (be they collective or individual), according to instructions</p>	<p><b>Manage control</b> Is able to control the finished work according to assigned procedure and taking measurements with appropriate devices</p>
<p><b>Material</b> Knows the fundamental characteristics of the materials being dealt with (ground, concretes, Bitumen conglomerates) and how they are worked</p>	<p><b>Execute logical operations (cognitive skills)</b> Can carry out the service orders and work in work place in compliance with safety regulations and work phases according to received instructions</p>	<p><b>Achieve results</b> Is able to assign equipment and materials respecting times, quantities and quality and to carry out individual operations as instructed and use the materials and tools assigned to him/her</p>



<p><b>Rules, norms, regulation</b></p> <p>Knows the principle rules required for technical operations for road works processes</p> <p>Knows the rules concerning health and safety at work and accident prevention</p>	<p><b>Planning, organising</b></p> <p>Can assign tools and materials on the basis of individual instructions</p> <p>Can organize own work position</p>	<p><b>Take responsibility</b></p> <p>Is able to carry out own activity respecting the norms in force on matters regarding safety and accident prevention</p> <p>Is able to show responsible behaviour that does not cause accidents to him/herself or to others</p>
<p><b>Procedures</b></p> <p>Knows essential techniques for controlling and selecting material and equipment necessary for work</p> <p>Knows the function that each single part of the road infrastructure has within the sphere of the entire work</p>	<p><b>Communicate</b></p> <p>Can notify responsibilities on any errors that may occur in the sphere of his/her work</p> <p>Can ask for instructions whenever he/she sees necessary</p> <p>Can communicate to superiors and co-workers during professional day using appropriate language tool</p>	
<p><b>Frame of action, actors, interfaces</b></p> <p>Knows the subsequent phases of the entire work process.</p>		



**Level: 1**

<b>Knowledge („knows“)</b>	<b>Skills („can“)</b>	<b>Competence („is able to“)</b>
<p><b>Tools, equipment</b> Knows the equipment and tools to be used</p>	<p><b>Execute practical operations (practical skills)</b> Can assist the workers who have been assigned with the following operations: moving land surfaces, precision levelling, laying constituent materials, road surfacing, accessory concrete construction works for roadways, demolition of old works of art,</p>	<p><b>Manage control</b></p>
<p><b>Material</b> Knows the fundamental characteristics of the materials he/she is dealing with (ground, concretes, Bitumen conglomerates) and how they are worked</p>	<p><b>Execute logical operations (cognitive skills)</b> Can carry out the service orders and carry out work in work place in compliance with safety regulations  Can carry out individual tasks as instructed  Can use the tools suitable for his/her job as well as carry out necessary ordinary maintenance  Can take care of his/her own health and safety with correct use of, in compliance to the provided instructions and training,</p>	<p><b>Achieve results</b></p>
<p><b>Rules, norms, regulation</b>  Knows the principle rules required for technical operations for road works processes  Knows the rules concerning health and safety at work and accident prevention</p>	<p><b>Planning, organising</b>  Can organize own work position</p>	<p><b>Take responsibility</b>  Is able to carry out own activity with an appropriate attitude towards safety and accident prevention  Is able to behave responsibly so that he/she does not cause accidents to him/herself or to others</p>



<p><b>Procedures</b></p> <p>Knows the essential techniques for controlling and selecting material</p>	<p><b>Communicate</b></p> <p>Can communicate effectively in order to carry out his /her own activity</p> <p>Can communicating in situations regarding his/her own safety as well as that of colleagues'</p>	
<p><b>Frame of action, actors, interfaces</b></p>		

**Phase: 5, Checking, calculating and accepting (drafted by GOA Infra, Groningen, NL)**

**Level: 5**

Knowledge („knows“)	Skills („can“)	Competence („is able to“)
<p><b>Tools, equipment</b> <i>for cost estimation</i></p> <p>Knows about budget software</p> <p><i>for checking specifications</i></p> <p>Knows about laws and regulations</p> <p><i>for carry out project administration</i></p> <p>Knows how to work with spreadsheet and word processing (like Excel and Word)</p> <p><i>for carry out the final acceptance (handing over the finished work)</i></p> <p>Knows how to act according to company policy</p>	<p><b>Execute practical operations (practical skills)</b> <i>for cost estimation</i></p> <p>Can quantify quantities to be paid and is able to generate information from data which is gathered during the project</p> <p><i>for checking specifications</i></p> <p>Can use materials and resources effectively</p> <p><i>for carry out project administration</i></p> <p>Can carry out inspections</p> <p><i>for carry out project administration</i></p> <p>Can administrate</p>	<p><b>Manage control</b> <i>for cost estimation</i></p> <p>is able to put things together and has an overview of calculated costs and actual costs. Is able and aware of how to save costs during the production process</p> <p><i>for checking specifications</i></p> <p>Is able to make decisions and initiate activities in order to let the work go in line with the specifications.</p> <p>Is able to put in materials and resources effectively</p> <p><i>for carry out project administration</i></p> <p>Is able to come up with solutions when there are diversions in quality or in the application of materials and resources</p> <p>Is able to picture the effects of the alternatives by taking pro's and contra's into account</p> <p>Is able to inform proactively in a way that the administration can be adjusted.</p> <p><i>for carry out the final acceptance (handing over the finished work)</i></p> <p>Is able to persuade the principal and influence the process of handing over the finished work.</p> <p>Is able to show financial awareness</p>

		<p>Is able to be aware of the client's value for the company</p>
<p><b>Material</b></p>	<p><b>Execute logical operations (cognitive skills)</b></p> <p><i>for cost estimation</i></p> <p>can make analysis and can control in a way that the costs stay within the budget.</p> <p>Can calculate work in access and in less.</p> <p>Can make alterations and find out causes and effects of change in financial situations due to changes in the work</p> <p><i>for checking specifications</i></p> <p>Can handle building specification systems</p> <p><i>for carry out quality inspections</i></p> <p>Can come up with solutions to problems</p> <p>Can put things together from data gathered during the process</p> <p>Can handle things ethically</p> <p><i>for carry out project administration</i></p> <p>Can formulate correctly</p> <p><i>for carry out the final acceptance (handing over the finished work)</i></p> <p>Can formulate an instalment plan (progress payments)</p> <p>Can formulate the final payment</p> <p>Can formulate how to save costs during the performance of the project</p>	<p><b>Achieve results</b></p> <p><i>for cost estimation</i></p> <p>is able to come up with solutions to problems and is constantly aware of possibilities to reduce costs and make sure that the actual costs stay within the budget</p> <p><i>for checking specifications</i></p> <p>Is able to achieve that the work is carried out according to the contract, regulations, procedures or agreements</p> <p>Is able to stimulate that materials and resources are being used and maintained appropriately</p> <p>Is able to achieve that improper use of materials will not take place</p> <p><i>for carry out quality inspections</i></p> <p>Is able to analyse and check if the materials and resources are being used according to the quality standards</p> <p><i>for carry out project administration</i></p> <p>Is able to report precisely and completely</p> <p><i>for carry out the final acceptance (handing over the finished work)</i></p> <p>Is able to formulate calculation and interpretation to explain the process to the principal.</p> <p>Is able to seek for cost saving methods</p>

<p><b>Rules, norms, regulation</b></p> <p><i>for cost estimation</i></p> <p>knowledge of construction administration is necessary</p> <p><i>for checking specifications</i></p> <p>Knows about quality demands</p> <p><i>for carry out quality inspections</i></p> <p>Knows about supervision in the building process</p>	<p><b>Planning, organising</b></p> <p><i>for cost estimation</i></p> <p>Can reduce the construction costs during carrying out the work</p> <p><i>for checking specifications</i></p> <p>Can realise levels of productivity</p> <p>Can control levels of quality and productivity</p> <p><i>for carry out quality inspections</i></p> <p>Can formulate standards of quality and productivity, additional to the contract and can make sure that the execution is done according to these standards</p> <p><i>for carry out project administration</i></p> <p>Can cooperate and deliberate</p>	<p><b>Take responsibility</b></p> <p><i>for cost estimation</i></p> <p>is able to make decisions and take calculated risks by taking into account the pros and the cons.</p> <p>Is able to initiate actions and activities and intervene when costs during the building process are being exceeded or are expected to exceed</p> <p><i>for checking specifications</i></p> <p>Is able to take responsibility for his own decisions and actions and is able to account on this</p> <p><i>for carry out quality inspections</i></p> <p>Is able to enforce licenses</p> <p>Is able to take social responsibility</p> <p>Is able to handle things ethically and honestly</p> <p>Is able to provide quality to stimulate others in the building process also to do so.</p> <p><i>for carry out project administration</i></p> <p>Is able to inform the parties involved according to the protocol and is able to report according to the protocol about the daily course of events during a project</p> <p><i>for carry out the final acceptance</i></p> <p>(handing over the finished work)</p> <p>Is able to make decisions and initiate actions in order to finish the project.</p> <p>Is able to take client's objections seriously, regarding determination of instalments</p>
<p><b>Procedures</b></p>	<p><b>Communicate</b></p>	





<p><i>for cost estimation</i>                  knowledge about instalment plan is necessary</p> <p><i>for checking specifications</i>                  Knows about certification and inspection and knows how to provide quality</p> <p><i>for carry out quality inspections</i>                  Knows how to handle things in such a way that the environment is taken into account</p> <p>Knows to give priority to standards that are agreed upon</p> <p>Knows about controls levels of quality and productivity in the building process</p> <p><i>for carry out project administration</i>                  Knows how to follow up on instructions and procedures</p> <p>Knows how to work according to the procedures</p>	<p><i>for cost estimation</i>                  Can work in the preparation team</p> <p><i>for checking specifications</i>                  Can initiate actions and activities in order to improve the production process</p> <p><i>for carry out quality inspections</i>                  Can make sure that the agreements are met according to the contract and can negotiate when deviation turns out</p> <p>Can formulate standards of quality and productivity</p> <p><i>for carry out project administration</i>                  Can formulate and report</p> <p>Can aim communication at recipients</p> <p><i>for carry out the final acceptance</i>                  (handing over the finished work)</p> <p>Can perform an official report of completion of the work</p> <p>Can persuade the work force to reach an understanding</p> <p>Can mediate in a conflict</p>	
<p><b>Frame of action, actors, interfaces</b></p> <p><i>for checking specifications</i>                  Knows about performance and the contract that has been agreed upon</p>		