ISHCCO Qualification Framework For Construction Safety Coordinators

Abstract

ISHCCO (International Safety and Health Construction Coordinators Organization – www.ishcco.org) represents an European umbrella association of the national professional associations of Health and Safety Construction Coordinators (HSCC). One of the statutory aims of ISHCCO is to promote excellence in education, training and professional development in the countries of the national members. Since ISHCCO was founded in 2003 it has been working on the development of such a catalogue of criteria for the promotion and acceptance of qualification framework for HSCC. The ISHCCO qualification framework (IQF) developed enables benchmarking based on technical standards and European legislation complying with international and national criteria. IQF, like the European Qualification Framework, has three dimensions for the competences of HSCC: knowledge, skills and attitudes. What is described is the process followed to define these competences, the application of IQF for levels 5, 6 and 7 of EQF (technician, bachelor and master) and the connection with the European Directive 92/57 about temporary or mobile construction sites. The types of projects considered in IQF include requirements for simple projects, medium building construction and civil engineering projects and highly specialized construction projects or major projects. The target groups in construction are experts, institutions, professional associations, chambers of commerce, construction sector companies, authorities and building owner/clients. IQF can be used to define learning outcomes of HSCC training courses and respective contents and assessment.

Keywords

Competences, Construction Coordinators, EQF, Health & Safety, ISHCCO, IQF, Qualification Framework

DESCRIPTION

The European Temporary or Mobile Construction Sites Directive, 92/57/EEC, through national legislation in member states, places an obligation on clients to appoint safety and health coordinators for the both the preparation stage and the execution stage of a construction project [1]. The tables below describe the core knowledge, skills and Attitudes required by coordinators at three EQF levels, 5, 6 and 7 [2]. The relationship can be observed in Figure 1.

Each table of IQF starts with the standard EQF descriptor for the level, describes a typical project for which a person at that level might be an appropriate coordinator and presents some of the job names for that level of person that might be in common usage in some of the member states [3]. The functional requirements of coordinators are the same at each of the three levels it is the levels of skill, knowledge and Attitudes that increase at the higher levels.

Each table of IQF then presents the requirements on coordinators from the Directive, using the Directive Article numbers and beneath each requirement lays out the knowledge, skills and Attitudes that are required to discharge the function to that level. Each of the three tables starts with the functions of the preparation stage coordinator (Article 5) and then addresses the functions of the execution stage coordinator (Article 6).

The definitions of knowledge, skills and Attitudes used in this ISHCCO Qualifications Framework are adapted to Safety and Health Construction Coordination from the European Qualification Framework (EQF). The EQF definitions are:

- Knowledge – outcome of assimilation of information through learning. Knowledge is the body of the facts, principles, theories and practices related to a field of study or work;
- Skills – ability to perform tasks and solve problems;
- Autonomy and responsibility – the ability of the individual to apply knowledge and skills autonomously and with responsibility.

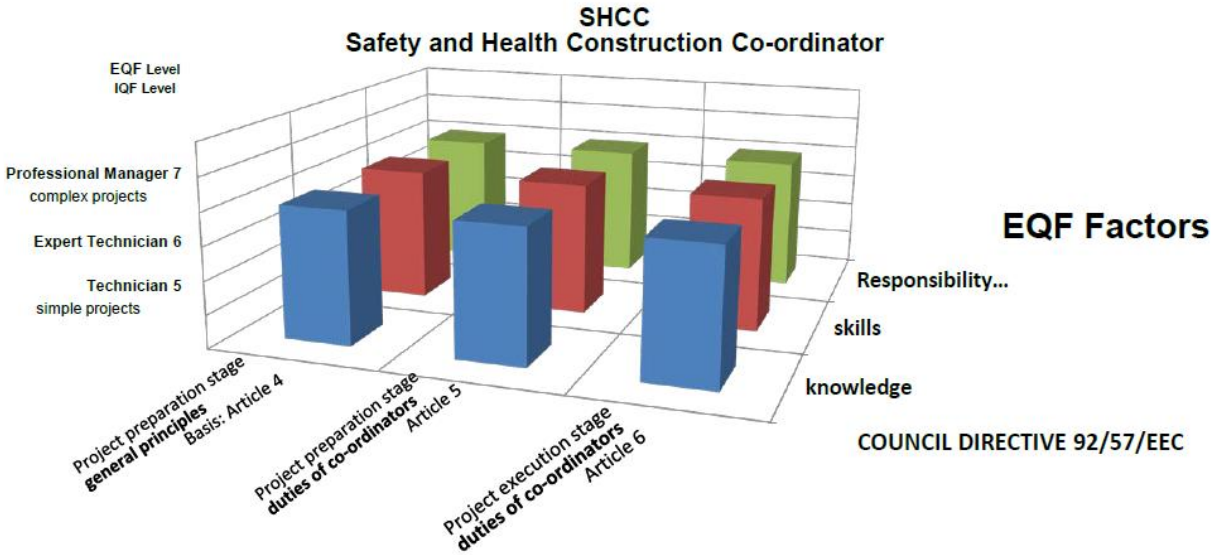

Figure 1 – application of IQF to the safety and health construction coordination

PROJECT BACKGROUND

These requirements expressd in IQF for HSCC are set in the context of health and safety construction coordination. The importance of understanding the design and construction processes to identify the interface risks between construction techniques. These can be best acquired with experience in design practice and on construction sites. The European Commission has produced a Non Binding Guide on the application of the Directive. In addition to the knowledge, skills and attitudes identified in IQF, HSCC wanting to work in European Union member states or in other countries around the world will also need to demonstrate that they understand and can apply the national requirements of the country of operation. An illustration of the requirements of HSCC can be that presented in Figure 2.

In terms of the project stages project stages different member states and countries have different definitions of the stages of a project [4]. In Figure 3 the stages are illustrated as described in the European Directive 92/57:

- The 'Project' starts when the client first makes contact with the construction industry and ends when the structure is complete.

- The 'Preparation Stage' starts at the start of the Project and ends when the role of the Preparation Stage safety and health construction coordinator is complete. This might be when the contractor starts work, when the design is complete, or at the end of the Project.

- The 'Execution Stage' starts when the construction work starts and ends at the end of the Project.

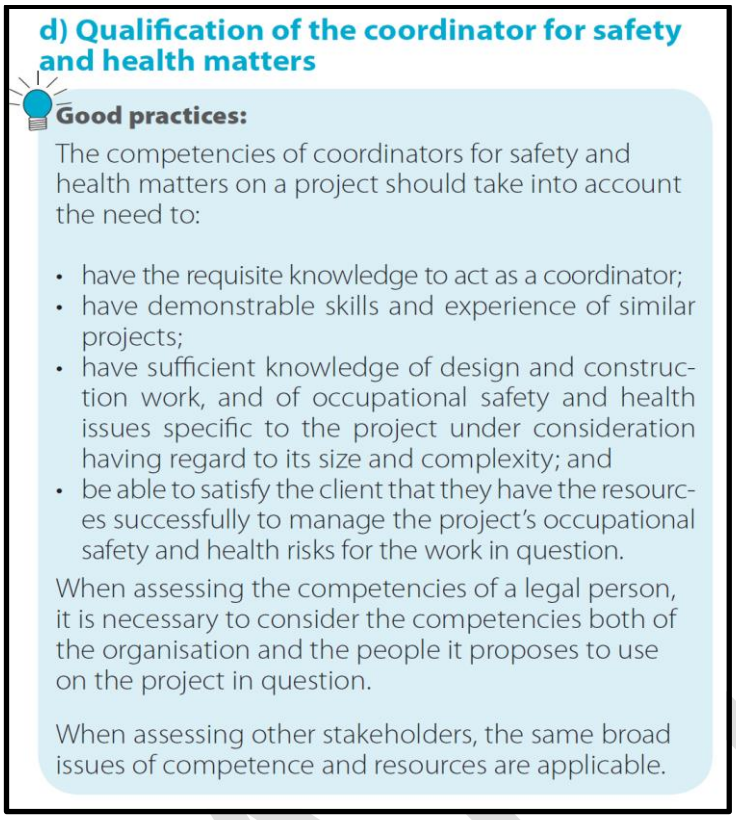

Figure 2. From ISHCCO IQF [3]

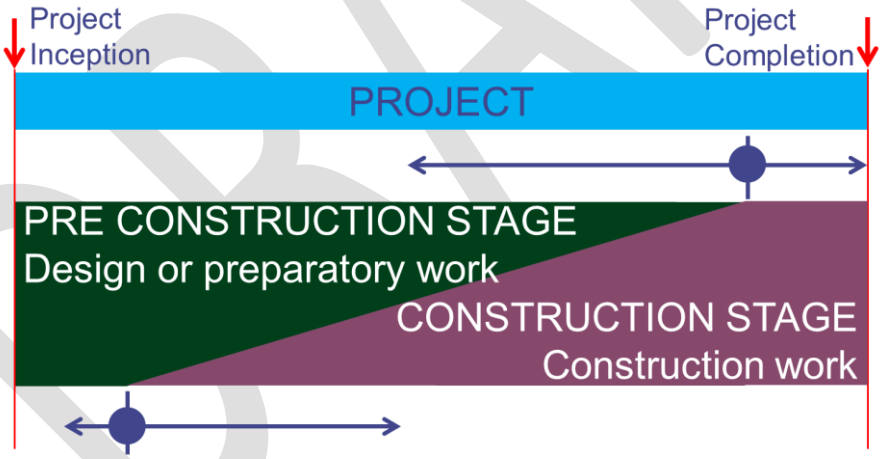

Figure 3. Project Stages

ISHCCO has produced the IQF with the contribution of a working group of members. The work was done in about four years and it was the result of several meetings held for a day dedicated to several steps towards the current IQF. Initially it was supposed to be developed as an accreditation tool for HSCC professionals. It was noted by association members that the task and responsibilities of carrying such a job of accrediting the professionals in each country was difficult due to the difference of procedures to be qualified as HSCC [5].

Intermediate step consisted in defining modes of assessment that were adequate for the different types of competences and various levels of HSCC activities. In this approach the tool TALOE was used to define for each type of competence adequates modes of assessment like peer review, case studies, multiple choice questions, problem based questions, etc. [6]. This phase was concluded and

the proposals for evaluating the different competences were discussed and established. These are available for those interested in using these assessment methods.

The last phase consisted in developing training materials that could lead to the acquisition of the required competences. Some countries have their own training schemes based on local safety conditions and on construction practices. These training programs are different in terms of content, duration, periodicity, levels of qualification and definition of learning outcomes/competences. The idea of defining a common training program was researched but abandoned due to existing variations across countries. IQF has now this collection of training programs as an annex to the IQF so the choice of an adequate training program can be made.

LEVEL 7 HSCC Competences

Coordinator knowledge, skills and attitudes at EQF level 7 is presented as an example.

The level 7 Safety and Health Construction Coordinator (SHCC) according to IQF requirements for being qualified must have knowledge, skills and attitudes of the processes within the discipline of SHCC shown in the table below in addition to those for Levels 5 and 6. This can be achieved through training, experience or accreditation of prior learning.

EQF description of performances at Level 7 applied to the Safety and Health Construction Coordinator		
Knowledge (highly specialised knowledge, some of which is at the forefront of knowledge in a field of work or study, as the basis for original thinking and/or research; critical awareness of knowledge issues in a field and at the interface between different fields)	**Skills** (specialised problem-solving skills required in research and/or innovation in order to develop new knowledge and procedures and to integrate knowledge from different fields)	**Attitudes** (manage and transform work or study contexts that are complex, unpredictable and require new strategic approaches; take responsibility for contributing to professional knowledge and practice and/or for reviewing the strategic performance of teams)
Example of projects: Process plant; complex geotechnical challenges; multi-storey above 25 metres/10 floors; bridge structures with pre-stressing; tunnelling; deep excavations greater than ten metres; dams		
Examples of functional descriptor: Germany – Engineer Portugal – Engineer		

Article 5(a) Project preparation stage: duties of coordinators The coordinator(s) for safety and health matters during the project preparation stage appointed in accordance with Article 3(1) shall **coordinate implementation of the provisions of Article 4** *(General Principles of Prevention)*		
Knowledge	**Skills**	**Attitudes**
Understand the principles of ethical practice in construction safety and health	Demonstrate professional advocacy in relation to construction safety and health coordination	Justify construction coordination actions against organisational objectives
	Justify the principles and applicability of the tools and techniques available to	Utilise appropriate national and European standards to improve SHCC performance

	measure risk	
	Develop internal construction coordination competence schemes	
	Apply the theory of organisational communication with respect to construction safety and health coordination	

Article 5(b) Project preparation stage: duties of coordinators

The coordinator(s) for safety and health matters during the project preparation stage appointed in accordance with Article 3 (1) shall **draw up, or cause to be draw up, a safety and health plan setting out the rules applicable to the construction site concerned, taking into account where necessary the industrial activities taking place on the site; this plan must also include specific measures concerning work which falls within one or more of the categories of Annex II;**

Knowledge	**Skills**	**Attitudes**
Understand the influences on the culture of an organisation on construction safety and health	Devise a construction safety and health coordination system for a project	Compare ranges of communication techniques and be able to select appropriate techniques for the intended audience
Understand the construction coordination policies of organisations working on a project	Develop your professional skills portfolio and recognise the importance of personal reflection	Communicate construction risks in the context of project risk
Understand general management techniques and how these can be used to deliver construction safety and health coordination	Devise goals and performance targets for safety and health within safety and health policies	
Adapt systems to incorporate diversity and inclusivity in the workplaces		

Article 5(c) Project preparation stage: duties of coordinators

The coordinator(s) for safety and health matters during the project preparation stage appointed in accordance with Article 3 (1) shall **prepare a file appropriate to the characteristics of the project containing relevant safety and health information to be taken into account during any subsequent works.**

Knowledge	**Skills**	**Attitudes**
		Communicate construction risks in the context of project risk

Article 6(a) Project execution stage: duties of coordinators

The coordinator(s) for safety and health matters during the project execution stage appointed in accordance with Article 3 (1) shall **coordinate implementation of the general principles of prevention and safety:**

— when technical and/or organizational aspects are being decided, in order to plan the various items or stages of work which are to take place simultaneously or in succession,

— when estimating the period required for completing such work or work stages;

Knowledge	Skills	Attitudes
Understand the principles of ethical practice in construction safety and health	Develop your professional skills portfolio and recognise the importance of personal reflection	Justify construction coordination actions against organisational objectives
	Demonstrate professional advocacy in relation to construction safety and health coordination	Utilise appropriate national and European standards to improve SHCC performance
	Justify the principles and applicability of the tools and techniques available to measure risk	

Article 6(b) Project execution stage: duties of coordinators
The coordinator(s) for safety and health matters during the project execution stage appointed in accordance with Article 3 (1) shall **coordinate implementation of the relevant provisions in order to ensure that employers and, if necessary for the protection of workers, self-employed persons:**
— apply the principles referred to in Article 8 in a consistent manner,
— where required, follow the safety and health plan referred to in Article 5 (b);

Knowledge	Skills	Attitudes
Understand the influences on the culture of an organisation on construction safety and health		Utilise appropriate national and European standards to improve SHCC performance

Article 6 (c) Project execution stage: duties of coordinators
The coordinator(s) for safety and health matters during the project execution stage appointed in accordance with Article 3 (1) shall **make, or cause to be made, any adjustments required to the safety and health plan referred to in Article 5 (b) and the file referred to in Article 5 (c) to take account of the progress of the work and any changes which have occurred;**

Knowledge	Skills	Attitudes
Understand the differences between monitoring systems	Develop change strategies to improve construction coordination on a project	Compare ranges of communication techniques and be able to select appropriate techniques for the intended audience
Understand the construction coordination policies of organisations working on a project	Utilise benchmarking techniques	Communicate the changes necessary to SHCC activities
Understand general management techniques and how these can be used to deliver construction safety and health coordination	Devise goals and performance targets for safety and health within safety and health policies	Challenge existing SHCC systems when necessary
Understand the concept of continual improvement in construction safety and health coordination	Interpret feedback from safety and health management monitoring systems	Communicate construction risks in the context of project risk
Adapt systems to		

incorporate diversity and inclusivity in the workplaces		

Article 6 (d) Project execution stage: duties of coordinators

The coordinator(s) for safety and health matters during the project execution stage appointed in accordance with Article 3 (1) shall **organize cooperation between employers, including successive employers on the same site, coordination of their activities with a view to protecting workers and preventing accidents and occupational health hazards and reciprocal information as provided for in Article 6 (4) of Directive 89/391/EEC, ensuring that self-employed persons are brought into this process where necessary;**

Knowledge	**Skills**	**Attitudes**
	Illustrate how the systems devised meet statutory legal requirements in the jurisdiction of operation	Justify construction coordination actions against organisational objectives
	Develop internal construction coordination competence schemes	
	Apply the theory of organisational communication with respect to construction safety and health coordination	

Article 6 (e) Project execution stage: duties of coordinators

The coordinator(s) for safety and health matters during the project execution stage appointed in accordance with Article 3 (1) shall **coordinate arrangements to check that the working procedures are being implemented correctly;**

Knowledge	**Skills**	**Attitudes**
Understand the differences between monitoring systems	Explain the purpose of safety audits, their design and techniques	
Be aware of learning styles and their effectiveness in construction safety and health both for supervisors and the workforce	Interpret feedback from safety and health management monitoring systems	

Article 6 (f) Project execution stage: duties of coordinators

The coordinator(s) for safety and health matters during the project execution stage appointed in accordance with Article 3 (1) shall **take the steps necessary to ensure that only authorized persons are allowed onto the construction site**.

Knowledge	**Skills**	**Attitudes**
Be aware of learning styles and their effectiveness in construction safety and health both for supervisors and the workforce		
Adapt systems to incorporate diversity and inclusivity in the workplaces		

CONCLUSION

ISHCCO finds that having a proper set of terms of reference to evaluate who is capable of performing the HSCC tasks and jobs is fundamental to ensure society that professionals perform their tasks with quality. In an area like construction safety where accidents and fatalities rates are high it is a civic duty to assure that construction safety is coordinated by qualified and capable professionals [7].

The possible developments of the IQF are various. The first could be to become a standard for HSCC around the world. That would give possibility for mobility of HSCC across countries and would ensure that the competences have obtained quality levels. The second is that IQF can be adapted to the users acquaintance with competence frameworks using descriptors with concrete examples instead of competence definition. A third possibility is to specifically prepare IQF for different types of constructions like bridges, buildings, highways, dams, etc.

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