

Example of Competence Framework for Sustainable Construction Safety

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Introduction

ISHCCO (International Safety and Health Construction Coordinator Organization (www.ishcco.org) was founded in 2003. It has been working on the development of a qualification framework of occupational Safety and Health Construction Coordinators (SHCC). This framework meets European and national requirements for SHCC and, as well, international requirements.

The system developed by ISHCCO should enable benchmarking based on technical standards, on international and national criteria. For these reasons the decision was made to deduce quality criteria from the European legislation and from respective national implementations and support these with already established professional and international standards of the European Qualification Framework (EQF). The qualification framework is divided in three criteria for knowledge, skills and attitudes referring to the individual qualifications. In this detailed work the existing and accepted criteria from the area of SHCC professionals were examined and compared with the contents of the European Directive 92/57 by institutions, companies, educational and training organizations in Europe and rest of the world.

Considering changes brought by UNSDGs to construction sector ISHCCO prepared a proposal adapting the current IQF to include sustainability concerns about Ethics, Work and Health. Main topics of the proposal address mainly goals 3: Good Health and Well-being, 4: Quality Education, 8: Decent Work and Economic Growth, 9: Industry, Innovation and Infrastructure, 11: Sustainable Cities and Communities, 12: Responsible Consumption and Production, 16: Peace and Justice Strong Institutions and 17: Partnerships to achieve the Goal.

The adaptation of competences reflects the needs of SHCC to acquire knowledge, skills and attitudes necessary to have an effective contribution towards the development of the goals. The proposal also includes the recent implications provoked by the publication of the European Union - JRC "Green Comp Sustainability Competence Framework". Proposal includes suggestions on how these adapted competences can be acquired by active SHCC and by future professionals in terms of training and of education.

The ISHCCO Competence Framework

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 (European Directive, 1992). The tables below describe the core knowledge, skills and attitudes required by coordinators at three EQF levels: 5, 6 and 7 (CEDEFOP, 2008). The relationship can be observed in Figure 1.



Figure 1 - Application of IQF to the safety and health construction coordination

Each table of IQF starts with the standard EQF descriptor for each level, describes a typical construction 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 (ISHCCO, 2017). The functional requirements of coordinators are the same at each of the three levels it is the levels of skill, knowledge and autonomy and attitudes that increase at the higher levels.

IQF then presents the requirements on coordinators from the Directive, using the respective 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 (Attitudes) - the ability of the individual to apply knowledge and skills autonomously and with responsibility.

Sustainability Implications in IQF

ISHCCO finds that having a proper set of terms of reference to evaluate who is capable of performing the SHCC 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 (Safety Compass, 2020).

The possible developments of the IQF are various. The first could be to become a standard for SHCC around the world. That would give possibility for mobility of SHCC 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.

The sustainability concerns have risen in society and in the professional sectors. It has affected the activity of SHCC professionals and the qualification framework has been under review to accommodate the requirements, for instance, of the United Nations Sustainability Goals (United Nations, 2019) and of the Green Competence Framework (Green Comp, 2022). The ISHCCO working group has discussed the possible adaptations of the IQF. The current result of that list of additional competences resulting from The analysis of the GreenComp framework is translated as a draft version in Table 1.

Table 1 – Sustainable IQF competences proposal.

Valuing sustainability		
To reflect on personal values; identify and explain how values vary among people and over time, while critically evaluating how they align with sustainability values.		
Knowledge	Skills	Autonomy/responsibility (Attitudes)
Knows the main views on sustainability: anthropocentrism (human-centric), technocentrism (technological solutions to ecological problems) and ecocentrism (nature-centred) and how they influence assumptions and arguments	Can articulate and negotiate sustainability values, principles and objectives while recognising different viewpoints	Is prone to acting in line with values and principles for sustainability
Exploratory thinking		
To adopt a relational way of thinking by exploring and linking different disciplines, using creativity and experimentation with novel ideas or methods		
Knowledge	Skills	Autonomy/responsibility
Knows the main concepts of a circular economy and society	Can help build consensus on sustainability in an inclusive manner	Is committed to decreasing material consumption
Systems thinking		
To approach a sustainability problem from all sides; to consider time, space and context in order to understand how elements interact within and between systems		
Knowledge	Skills	Autonomy/responsibility
Knows that every human action has environmental, social, cultural and economic impacts	Can describe sustainability as a holistic concept that includes environmental, economic, social and cultural issues	Is concerned about the short- and long term impacts of personal actions on others and the planet
Problem framing		
To formulate current or potential challenges as a sustainability problem in terms of difficulty, people involved, time and geographical scope, in order to identify suitable approaches to anticipating and preventing problems, and to mitigating and adapting to already existing problems		

Knowledge	Skills	Autonomy/responsibility
Knows sustainability claims without robust evidence are often mere communication strategies, also known as greenwashing	Can analyse and assess arguments, ideas, actions and scenarios to determine whether they are in line with evidence and values in terms of sustainability	Trusts science even when lacking some of the knowledge required to fully understand scientific claims
Collective action To act for change in collaboration with others		
Knowledge	Skills	Autonomy/responsibility
Knows policies that assign responsibility for environmental damage (e.g. "polluter pays")	Can propose alternative pathways for sustainability	Is committed to becoming an agent of change to achieve sustainability
Individual initiative To identify own potential for sustainability and to actively contribute to improving prospects for the community and the planet		
Knowledge	Skills	Autonomy/responsibility
Knows one's own potential to bring about positive environmental change	Can apply the following principles: using fewer resources, doing better with fewer resources, and reusing the same resources	Is confident about anticipating and influencing sustainable changes
Knows that preventive action should be taken when certain action or inaction may damage human health and all life forms (precautionary principle)	Can take personal initiative and persist in achieving sustainability objectives even in contexts of uncertainty	Recognises that everyday action matters

The use of a qualification framework that defines the minimum qualifications of SHCC produced by ISHCCO has been evolving for about two decades. It has been proven as a valid instrument to act as terms of reference for training of professionals and for recognition in professional and academic terms. IQF follows the current European legislation and respects the frameworks for academic and professional qualifications. The pro-active attitude of ISHCCO to adjust the IQF to needs derived from the sustainability concerns provides from the goal of having properly qualified professionals in SHCC and has adopted the global requirements for a sustainable future.

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