

Final Report

Working Group 1 – Engineers

Engineering Professional Competence Framework for Higher Risk Residential Buildings

Version 0.4 (DRAFT)

General principles for built environment professionals and workers



This competence framework has been developed taking into account the following principles.

Purpose

The fundamental purpose of all built environment professionals and those working on higher risk residential buildings is to deliver better living and working lives for the public. This includes procuring, designing, creating, operating and maintaining buildings that are safe and feel safe for those who live and work in them. Everyone connected to building procurement, design, construction, operation and management has a role to play in delivering this purpose, which is why it sits at the heart of our competence framework.

Principles

We expect those involved in the built environment to do what's right by following three key principles: people matter – buildings matter – professionalism matters.

Our work should be outcomes driven. This means that we will champion better living and working lives by making a positive difference on every level – personally and professionally. This includes behaving ethically and reflecting on individual behaviors.

Our work is evidence-led. This adds weight to professional judgement by supporting building safety during construction, refurbishment and in use through diverse sources such as research, gathering data and listening to our stakeholders.

[Refer to principles of competence here.](#)

Final Report

Working Group 1 – Engineers

Core behaviours

These are our ways of thinking and acting which makes us effective in our work. Core behaviours must include:

- respect for life, law, the environment and public good
- honesty and integrity
- accuracy and rigour
- responsibility for direction, conduct and communication

Core knowledge

Our core behaviours are supported by core knowledge. Regardless of our role, sector or specialism, these are the things we need to know to consider ourselves suitably expert in construction and operation of buildings to be able to work in the public interest.

Specialist knowledge

The individual frameworks for specialist disciplines set out the specialist knowledge required to enable individuals to work on higher risk residential buildings.

The following sections set out the competence framework for professionals working on higher risk residential buildings. However, we believe this has general application for the built environment profession as a whole.

Final Report

Working Group 1 – Engineers

0.1 Introduction

This competence framework has been developed in response to recommendations set out in the Final Report of the Independent Review of Building Regulations and Fire Safety following the Grenfell Tower fire in 2017.

The report made the following recommendations:

Recommendation 5.1: The construction sector and fire safety sector should:

- a. demonstrate more effective leadership in relation to developing a responsible approach to delivering building safety and integrity;
- b. work with other sectors to learn and translate good practice and implement it within the sector; and c. develop continuous improvement approaches to competence levels.

Recommendation 5.2:

a. The professional and accreditation bodies working within the construction and fire safety sectors should continue the work started in response to the interim report and present a coherent proposal to government within one year. As a minimum, this proposal should cover the role and remit of an overarching body to provide oversight of competence requirements and support the delivery of competent people working on HRRBs, including:

- the professional bodies, professions and disciplines in scope;
- its membership and governance;
- its role in receiving, agreeing and monitoring the individual competence frameworks for those bodies, professions and disciplines in scope for individuals within their membership or on their register, and/or whether a single competence framework for professional bodies in scope should be established;
- its role in agreeing and monitoring accreditation and reaccreditation, and the period within which the competence of individuals should be reassessed and reaccredited;
- its role in establishing a method for demonstrating or proving competence;
- how the correct balance between construction sector skills and fire safety skills should be balanced; and
- whether the competence requirements for those working on HRRBs should also be extended to cover other multi-occupancy residential buildings and to institutional residential buildings.

b. Progress should be monitored by government, with the professional and accreditation bodies providing government with quarterly progress reports.

c. If government does not consider that the proposed approach provides the necessary assurance to the JCA, or there is evidence that the fragmented approach to the oversight of competence will continue, then government should mandate a body to establish the competence levels required and oversee its implementation.

Recommendation 5.3: Relevant parties, along with the relevant professional bodies, should:

- a. Continue to work together to develop a new common approach and competence framework which meets the requirements of the new regulatory framework and the new skills required of Building Standards Inspectors when working on HRRBs, and those offering consultancy and verification services to duty-holders.

Final Report

Working Group 1 – Engineers

b. This framework should apply to all Building Standards Inspectors whether they are LABS Inspectors and part of the JCA or AIs offering their services to Building Standards or to duty-holders.

c. Consider whether these competence requirements for Building Standards Inspectors working on HRRBs, and AIs, should also be extended to cover those working on other multi-occupancy residential buildings and institutional residential buildings.

Recommendation 5.4: Relevant parties should work together, along with the relevant professional bodies, to develop and define a robust, comprehensive and coherent system for:

- a. the competence requirements for the role of building safety manager of HRRBs; and
- b. the remit of this role in introducing and overseeing the process by which residents in HRRBs would be able to access fire safety awareness training.

0.2 Objectives of the framework

We have set out a framework for the assessment of the necessary competences for engineering professionals working on higher risk residential buildings within the wider context of an overarching competence framework for all professionals working on these buildings. The purpose is to ensure that engineering professionals working on these buildings have the skills and knowledge to undertake their work in an effective way that ensures building safety and an awareness of the competences and responsibilities of other professionals working in the same environment.

The framework can also be used to:

- support the development of qualifications for engineering learning and training
- assist in assessment of candidate suitability for engineering roles [in the sector]
- support engineering professionals to develop their own career and personal development plans
- revalidate ongoing competence of engineering professionals on a periodic basis

The framework sets out the core competences required by any person undertaking work as an engineer or engineering technician and sets out the level of competence expected of these professionals. Typically, engineering professionals include the following roles:

- Principal/Lead engineer during design, construction or operation of a building
- Building Services engineer/technician
- Design engineer/technician
- Construction engineer/technician
- Façade engineer
- Heating and Ventilation Engineer
- Installation engineers and technicians where not covered by other frameworks
- Mechanical and Electrical/Building Services
- Structural engineer
- Building Engineers where not covered by other competence frameworks
- Fire Engineers where not covered by other competence frameworks
- Any other persons deemed appropriate by the Overarching Competence Body

Engineering professionals possess skillsets that are transferable to roles such as Fire Risk Assessors, Building Control, Building Designers, Building Safety Managers, Site Supervisors, Project Managers and Procurement. Engineering professionals undertaking such roles will need to meet the appropriate role-related competence framework.

Competence profiles for different roles are defined through a mapping exercise which reflects the different level of decision-making responsibility relevant to that role. Further information is provided in the following sections:

Annex F1 Engineering professional competence Framework guidance
16/05/2019

Final Report

Working Group 1 – Engineers

Section 1 – Using the Competence Framework sets out how to use this competence framework.

Section 2 – Engineering professional competence framework for higher risk residential building sets out the framework for assessment and validation and provides guidance on how suitable competence may be demonstrated.

Once the role of the Principal Designer in relation to HRRB is more clearly defined it will be necessary to consider how this framework may need to be amended to reflect that role, or whether a separate specific framework for lead engineers should be developed using this framework as a base.

0.3 Scope

This framework is relevant to any person undertaking engineering work in relation to the construction, alteration, extension, operation or maintenance of higher risk residential buildings. It includes Lead Engineers who are *responsible for ensuring all of the components of a building project are suitably coordinated and compatible with one another in terms of safety, functionality, efficiency and future maintainability*. It also includes discipline-specialists (such as façade engineers) who have responsibility for the design, construction, installation, commissioning, operation or maintenance of significant components of a building.

In this context, engineering professionals will have different roles at different stages in the lifecycle of a building. Suitably qualified engineers may undertake the role of Principal Designer or Principal Contractor as defined in the CDM Regulations during building design, construction or major refurbishment projects. Engineering professionals also undertake specialist and generalist roles during major and minor projects in buildings under construction, in use and during demolition and site restoration. They will have specific responsibilities in creating and maintaining the Safety Case for a building.

0.4 Roles and responsibilities relevant to this competence framework

In principle we believe that competence for engineering professionals should be managed at two levels: Engineering professionals leading on HRRB projects should be independently verified as competent against this framework, with all others undertaking engineering work under the supervision of an engineering professional internally assessed and audited against the same framework.

This is the practical framework against which industry can deliver effectively. MHCLG may wish to consider the extent that the assessment of competence which is not independently assessed (i.e. those working under supervision of engineering professionals) is audited or reported to the JCA for HRRB.

This could be achieved by imposing a legal duty on any business offering engineering services to ensure engineering work on an HRRB is led by a person independently validated as a competent [HRRB] engineering professional. Engineering professionals will then have a subsidiary duty to manage and take responsibility for assuring the competence of those working under their supervision on higher risk residential buildings.

In practice the responsibility and competence of those working under the engineering professional will vary depending on their role within the engineering team, experience and seniority. There should be an explicit duty on the engineering professional (both a legal entity and an independently validated person managing an HRRB project) to check and audit the competence of those working under their supervision.

The engineering professional or their employer will therefore be required to use suitable competence assessment techniques to map out specific responsibilities and skill sets and ensure people are working within the safe limits of their competence.

These assessment processes should use the different levels of competence described in section 1.3 of this document mapped against the engineering professional Competence Framework.

Final Report

Working Group 1 – Engineers

Engineering professionals may also undertake the Principal Designer role yet to be defined by MHCLG, as well as the Principal Designer role as defined by the CDM Regulations. These are additional competences which are not covered by this framework at this time.

0.5 Eligibility, qualifications and prior learning

Any person wishing to be independently assessed against this framework should:

- Be a current full member in good standing of a relevant engineering professional organisation
- Be required to have in place a suitable programme for continuing professional development (CPD)
- Be subject to and adhere to a Code of Conduct and disciplinary procedures
- Have suitable academic qualifications or equivalent learning in a built-environment subject
- Have the specified or relevant experience in complex building projects

The baseline minimum level of prior learning for a competent engineer to be independently validated against this framework will be at the level of a UK Bachelor degree (or equivalent) with at least 2 years post qualification experience relating to HRRB or similar more complicated buildings. The baseline level of prior learning for a competent Engineering Technician will be at level 3 in the regulated qualifications framework for England, Wales and Northern Ireland (or equivalent) with at least 2 years post qualification experience in HRRB or similar complex buildings.

0.6 Definitions

[Add once complete]

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Final Report

Working Group 1 – Engineers

SECTION 1

1.0 Using the Engineering Professional Competence Framework

1.1 What is competence?

Competence is the ability to put a combination of relevant knowledge, skills, behaviours and experience into practice in order to perform a job in an effective and efficient manner to an established standard.

Engineering professionals working on higher risk residential buildings must demonstrate that they have the competences necessary to ensure that design, construction and use of the building which they are working on, or over which they have authority protects life safety effectively throughout the building life cycle.

Engineering professionals must understand the performance of the building as a system and how the work for which they are responsible impacts on the life safety strategy of the building as a whole. They must have key competences relating to fire safety, structural safety, public health and building safety and be able to apply these principles consistently and effectively in practice. They must understand their professional obligations to only undertake work for which they are competent and their duty to warn Dutyholders and others where they see examples of practice and work which could compromise the safety of building users.

1.2 Who assesses competence?

[This should be aligned with OCB structure, process and accreditation once determined]

This framework sets out additional specific to higher risk residential buildings which are additional to the generic professional competence requirements for professional engineering registration with the Engineering Council. This framework and its associated assessment and associated validation process will be approved by the Overarching Competence Body (OCB) to ensure that it meets the required standard.

Assessment of individuals to meet the [overarching] competence framework is undertaken by independently verified professional bodies or suitably accredited certification bodies whose procedures for assessing competence have been approved by the OCB or an independent body approved by the OCB.

As set out in section 0.5 of this guide, engineering professionals must already be a member of a professional engineering institution licensed by the Engineering Council, with relevant qualifications and experience prior to seeking assessment against this framework.

1.3 Using the competence framework

[This should be aligned with OCB structure, process and accreditation once determined]

The way in which competence is assessed will be determined or approved by the OCB. The engineering professional competence framework is set out in section 3. Competences are structured under 5 key headings:

- A Technical knowledge and understanding
- B Design and development of processes, systems, services and products
- C Responsibility, management and leadership
- D Effective communication and inter-personal skills
- E Professional Commitment

Core competences for all professionals working on HRRBs are listed under each heading in column one of the Framework in Annex F2. Column two provides typical scope and knowledge relevant to

Annex F1 Engineering professional competence Framework guidance

16/05/2019

Final Report

Working Group 1 – Engineers

that competence that will be expected. The third column of the framework sets out the specific competences that engineering professionals should be able to demonstrate and the fourth column explains common ways that the competences could be evidenced. For engineering professionals these are tailored by the professional engineering institutions with reference to particular engineering disciplines or practice areas.

The level of knowledge, understanding and skill associated with each competence varies depending on the level of responsibility against which a candidate is being assessed and are described as follows:

Level 1 – Awareness / Foundation

Has an understanding of the competence, its relevance to own work and any key inter-relationships

Level 2 – Appreciation / Intermediate

Has sufficient knowledge and understanding to be able to apply the competence under the supervision of a more senior professional

Level 3 – Detailed knowledge / Advanced

Has all essential knowledge and understanding to be able to act with autonomy in making key decisions and delivering a broad range of outcomes relevant to the competence

Level 4 – Comprehensive Knowledge / Specialist

Has comprehensive and in-depth knowledge and the skills required to effectively make complex decisions and judgements in relation to the competence.

For the Lead Engineer on an HRRB project, competence will be expected at Level 3 across all the core competences with Level 4 in key competences relating to the building as a system, hazard identification and risk assessment, and challenging statements or policies that give them personal or professional concern. The level of knowledge required to be demonstrated by those supervising smaller projects or work packages will reflect their responsibilities and area of expertise. The competence of those working under the supervision of an engineering professional should then be mapped and audited relative to their role.

1.4 Validation and re-validation

The accreditation and reaccreditation process should comply with requirements as set out by the OCB [as yet to be determined].

Independent assessment against the engineering professional [HRRB] competence framework may be carried out by professional engineering institutions licensed by the Engineering Council for this purpose.

Discipline-specific annexes to this framework have been developed by the professional engineering institutions. The Engineering Council maintains a list of institutions licensed to undertake the assessment in each discipline.

Following successful independent assessment, engineering professionals will be entered on the [Engineering Council HRRB register/HRRB section of the Engineering Council register at the applicable level/ JCA or OCB held register.....] for a period of xx years.

Registered HRRB engineering professionals should undergo a re-registration process every five years to ensure that:

Final Report

Working Group 1 – Engineers

- The scope of work for which they need to be competent has not changed, and if it has to reflect this in their re-registration assessment
- They have maintained their competence in relation to the work they undertake
- They have developed or plan to maintain their competence or develop new competences where necessary.

The validation and revalidation process for engineering professionals will be overseen by an independent validation panel consisting of at least two persons at the same level or higher seniority and with relevant experience in the same sector.

Where engineering professionals are working under the supervision of an independently validated engineering professional, their competence should be assessed (either internally or by third parties) by a panel composed of suitably experienced peers. This can include line managers within the same business, or for those professionals working in smaller organisations suitably qualified peers from another organisation.

The validation and revalidation process should as a minimum consist of:

Part 1 - Submission of records

- An updated competence self-assessment;
- An accompanying report setting out relevant experience gained over the preceding two to five-year period;
- CPD records and information on any additional qualifications or career development activity in at least the previous two years;
- A summary list of the work undertaken over the preceding two years providing brief details of the scale, nature and value of projects in that timescale;
- References or testimonials from professionals or clients relating to the competences.

Part 2 - A Competence based interview

An interview should be held and should use a structured competence-based approach utilising the information submitted to test key areas of the engineering professional's competence. The interview should consist of:

- A presentation followed by Q&A based on the report as submitted with the application.
- A structured interview which confirms appropriate awareness or comprehension of all core competences and tests key competences as defined for the discipline.

The outcome of the validation or revalidation process should be:

- A report confirming competence; or
- A report setting out areas for improvement, (with registration subject to submission and approval of a suitable personal development plan); or
- A report raising points of concern in terms of scope or competence.

Where the applicant succeeds in demonstrating competence the professional body will nominate them for admission to the HRRB Section of the Engineering Council Register. In the case of engineering professionals assessed as competent for the statutory roles of Principal Designer, Principal Contractor or Building Safety Manager the Engineering Council will pass their details on to the OCB for admission to the HRRB register.

1.5 Continuing Professional Development (CPD)

[Suitable requirements for undertaking and monitoring / evidencing CPD to maintain and develop competence should be introduced in line with requirements established by the OCB]

Final Report

Working Group 1 – Engineers

All engineering professionals working on higher risk residential buildings must comply with the continuing professional development (CPD) requirements of their relevant professional engineering body. They are responsible for demonstrating their continuing competence to work on higher risk residential buildings.

1.6 Personal Career Development

Engineering professionals at all grades should:

- Review their competence self-assessment annually
- Identify development needs; and
- Undertake relevant continuing professional development to develop or maintain existing skills.

This could be by meeting a set of prescribed objectives, or through setting a personal development plan.

1.7 Complaints, disciplinary and appeals

[A suitable mechanism to deal with complaints or concerns about the competence of engineering professionals will need to be in place in order to ensure that any person determined to be no longer competent is removed from the register].

Concerns about the competence of an engineering professional in relation to work on higher risk residential buildings may be raised with the registering professional engineering institution. The professional engineering institution should in the first instance deal with that complaint through their disciplinary procedures.