

Built environment – Overarching framework for competence of individuals – Specification

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This BSi Flex

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Foreword

This BSI Flex was sponsored by MHCLG. Its development was facilitated by BSI Standards Limited and it was released under licence from The British Standards Institution.

Acknowledgement is given to Richard Harral (Technical Director CABE), member of Competence Steering Group (CSG) and involved with Working Group 0, WG1 – Engineers, Working Group 6- Building Control and Working Group 7 – Building Designers (including architects), as the technical author, and to the following organizations and their representatives as well as individuals who contributed as members of the Advisory Group:

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- Chartered Institute of Architectural Technologists
- Chartered Institute of Building
- Construction Industry Training Board
- Construction Products Association
- Electrical Contractors' Association
- Engineering Council
- Fire Sector Federation
- Health and Safety Executive
- Institute of Workplace and Facilities Management
- Local Authority Building Control
- Ministry of Housing, Communities and Local Government
- National Fire Chiefs Council
- Royal Institution of British Architects
- United Kingdom Accreditation Service

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Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Where words have alternative spellings, the preferred spelling of the Shorter Oxford English Dictionary is used (e.g. "organization" rather than "organisation").

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0 Introduction

0.1 Background

This BSI Flex has been produced in response to Dame Judith Hackitt's Independent Review of Building Regulations and Fire Safety. The review published two reports:

- Building a Safer Future, Independent Review of Building Regulations and Fire Safety: Final Report¹
- Building a Safer Future, Independent Review of Building Regulations and Fire Safety: Interim Report²

Both the interim and final reports identified serious shortfalls in the competence of individuals involved in the delivery of buildings where residents might be considered at higher-risk. The review concluded that a number of actions were needed to improve, sustain and assure building safety competence, including:

- That the construction and fire safety sector should develop leadership in delivering building safety; work with and learn from other sector good practice; and develop continuous improvement approaches to competence levels.
- Professional and accreditation bodies within the construction and fire sector should develop proposals for the role and remit of an overarching body to provide oversight of competence requirements and support the delivery of competent people working on higher-risk buildings.

In response to these recommendations, the Industry Response Group (IRG) established the Competence Steering Group (CSG) to develop proposals in relation to building safety competence. This work resulted in publication of *Raising the Bar – Interim Report*³ in August 2019.

Recommendation 20 of *Raising the Bar* stated: “R20: Industry should lead the creation of a benchmark competence framework for higher-risk buildings covering the core knowledge, skills and behaviour required to work on higher-risk buildings as part of a suite of national standards under the governance of the national standards body against which professional and trade bodies are expected to develop their individual sector or discipline-specific competence frameworks.”

This BSI Flex is only one part of a broader framework for competence of individuals in the built environment established in response to this recommendation. The new system in England will be overseen by the Building Safety Regulator and a committee on industry competence. This BSI Flex is intended for use as a benchmark for the structure and content of all built environment competence frameworks, including those relating specifically to higher-risk buildings.

Clause 0 provides background and context for built environment competence frameworks and behavioural competence.

Clause 1 defines the scope of this BSI Flex.

Clause 2 defines normative references.

Clause 3 defines key terms used in this BSI Flex.

Clause 4 sets out requirements for the structure and content of built environment competence frameworks.

Clause 5 sets out behavioural and ethical competences expected of all built environment competence frameworks.

Clause 6 sets core competences for building safety expected of individuals working on higher-risk buildings and includes informative appendices on fire safety, structural safety, public health and common terms used in sector-specific competence frameworks.

¹) Report available from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/707785/Building_a_Safer_Future_-_web.pdf

²) Report available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/668831/Independent_Review_of_Building_Regulations_and_Fire_Safety_web_accessible.pdf

³) <http://cic.org.uk/admin/resources/raising-the-barinterimfinal-1.pdf>

Compliance may be required with all or any part of this BSI Flex but in general all built environment competence frameworks will be able to comply with Clauses 4 and 5; with any sector-specific competence frameworks for higher-risk buildings also complying with Clause 6.

This BSI Flex sets requirements for competence frameworks for individuals. Organizational competence is discussed as the context within which individual competence needs to be assured but is itself out of scope of this BSI Flex.

Sector-specific competence frameworks developed in accordance with this BSI Flex may also be relevant evidence in meeting the competence requirements for skills, knowledge and experience required under the Construction Design and Management (CDM) Regulations 2015.

***NOTE** While the primary objective of this framework is to ensure competence in the safety of building work and buildings, the competence requirements under CDM Regulations relate primarily to legal standards of safety required in design, planning and execution of the work itself, including maintenance and demolition.*

0.2 Objectives

This BSI Flex is intended to complement existing training, development and competence frameworks for individuals working in the built environment. It is not intended to replace or contain all of the competences required for a particular role or discipline.

Over time, it is anticipated that built environment competence frameworks will be required to demonstrate how they meet these core requirements. This is intended to achieve three overarching objectives:

- To drive adoption of more consistent good practice in development and use of competence testing across the built environment;
- To enable consistent and objective assessment of different sector-specific competence frameworks against common criteria by regulators, clients and employers; and
- To enable requirements to be set for behavioural competence and building safety to drive improvements in culture and competence for all those working in the built environment.

These core requirements include:

- core requirements for the information, structure and procedural components of competence frameworks and how they are applied.
- a set of core behavioural competences against which sector-specific frameworks can be benchmarked to ensure consistency across different roles in the built environment, and to support sharing of good practice in developing a strong safety culture and improving productivity.
- core competence requirements against which compliance can also be required, specifically Section 3: Requirements for higher-risk buildings.

The specific objectives in the development and application of this benchmark competence framework are to:

- support development of a robust oversight and feedback process to ensure the aims of sector-specific competence frameworks are both delivered consistently and maintained for the life of this standard;
- identify core building safety competences that should be considered common to all relevant sector-specific competence frameworks;
- support good practice in the development of sector-specific building safety competence frameworks;
- identify requirements and good practice in the structure and application of sector-specific competence frameworks;
- enable sector-specific committees and oversight bodies to compare sector-specific benchmarks and assure their adequacy;
- support commonality and consistency across sector-specific frameworks;
- establish as far as possible common language and terminology across sector-specific frameworks;
- support development of competence frameworks for key duty-holding roles including Principal Designer, Principal Contractor and Building Safety Manager;
- ensure individuals are competent in their understanding and application of rules, regulations, guidance and standards; and
- support individuals and organizations working in the built environment to move away from a “qualify once/practice for life” approach to competence, by adopting an approach based on validation and periodic revalidation.

0.3 Competence and competence frameworks

0.3.1 General

Competence and competency-based assessment are widely understood and adopted across most industries. Competence is used as a key tool in describing job roles, job specifications, interviewing candidates for employment or promotion and in managing performance. It is also commonly used to assess eligibility for qualification, membership, registration, certification or licensing in specific disciplines or roles.

Legislation such as the Construction Design and Management Regulations 2015 require that duty-holders ensure competence of persons they appoint to undertake works where there are implications for safety of those undertaking that work. The Government has stated its intention to expand requirements in England for competence to include safety of buildings with the aim of protecting residents and building users once the building is occupied.

This BSI Flex sets out standardized criteria for the built environment against which sector-specific competence frameworks may be developed or assessed.

0.3.2 What is competence?

Competence is defined in many different ways across different industries. This is necessary to reflect the specific circumstances and meet the specific needs of the individuals and organizations that employ individuals, operating in those industries.

The work undertaken by individuals in the built environment is particularly diverse and encapsulates a wide range of roles including installers, skilled and unskilled trades, managers, construction professionals, finance, administration and manufacturing disciplines.

In order to promote consistent development and use of competence frameworks this BSI Flex uses a definition of competence derived from the CDM Regulations 2015 modified to reflect proposals to introduce requirement for competence into the Building Act in England.

Regulation 8 (1) of the CDM 2015 regulations states:

"8.—(1) A designer (including a principal designer) or contractor (including a principal contractor) appointed to work on a project must have the skills, knowledge and experience, and, if they are an organisation, the organisational capability, necessary to fulfil the role that they are appointed to undertake, in a manner that secures the health and safety of any person affected by the project."

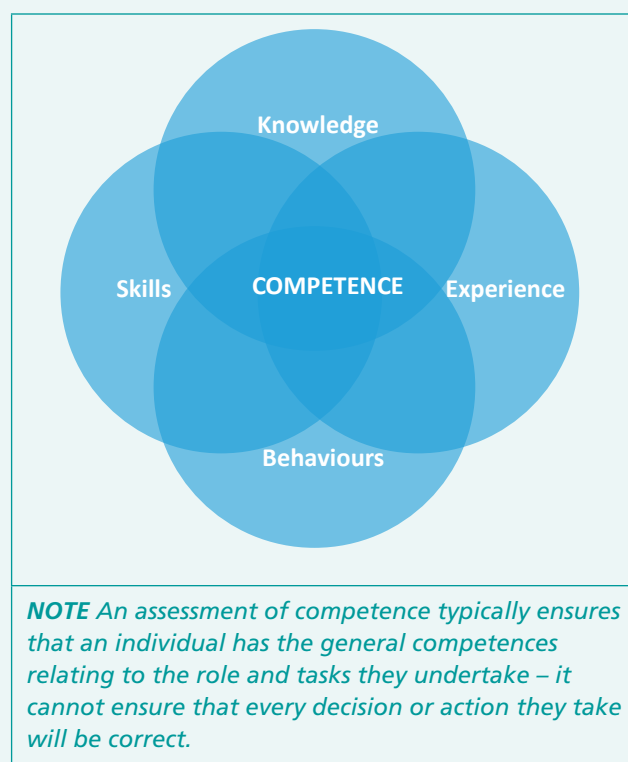
NOTE 1 This BSI Flex deals with frameworks for individual competence, and primarily refers to "individuals" rather than "persons" which in legal terms can be either an individual person or a legal entity such as a company or organization.

However, skills, knowledge and experience are no longer considered sufficient on their own in ensuring the right outcomes. Behavioural competence is also considered necessary.

NOTE 2 See Figure 1.

For an individual to be considered competent, sector-specific competence frameworks should therefore require that individuals have the appropriate skills, knowledge and experience, combined with appropriate behaviours, to be able to fulfil their defined role, function or activity and carry out appropriate tasks. This is sometimes referred to in shorthand as SKEB.

Figure 1 – Competence is a combination of Skills knowledge, Experience and Behaviours (SKEB)



It is important that built environment sector-specific competence frameworks reflect this broad range of technical, behavioural and interpersonal competence.

While the general competences required in any given role will vary, this BSI Flex sets out common behavioural competencies to be included in all competence development programmes and frameworks. Behavioural competence in this context is intended to promote a strong safety culture across the built environment and support improved productivity.

This BSI Flex also sets out requirements for common core competences that may be required in relation to particular types of work, role or tasks. For instance, Clause 6 sets out core competences relating to building safety in higher-risk buildings.

0.3.3 Skills knowledge and experience

Competence is primarily derived from an accumulation of learning and experience which help in the development of skills. This includes both formal and informal activities such as education and training combined with practical experience. Gaining practical experience is often best undertaken under supervision until such time as an individual is proven to be competent to work independently.

Because competence is an assessment of the total accumulation of learning and experience there is no prescribed order in which those activities take place.

Knowledge, which can be gained as formal or personal knowledge, is considered an essential building block of competence leading to the development of skills.

- **Formal knowledge**, also referred to as codified knowledge, is subject to quality control by editors, peer review and debate and is given status by incorporation into educational programmes, technical qualifications, examinations and knowledge-based courses. It does not include skills or know-how. A degree course or technical certificate are examples of codified knowledge.
- **Personal knowledge** has been defined as the cognitive resource which an individual brings to a situation that enables them to think and perform. Personal knowledge is largely acquired through a combination of formal and non-formal learning and workplace experience.
- **Skills** refer to the techniques and approaches that are employed in order to implement the knowledge that has been acquired and allow competence to be demonstrated and developed. As knowledge is applied, understanding develops. Understanding has been defined as being able to apply the right knowledge appropriately in a variety of contexts.

Competence is not limited to technical matters. Individuals working in the built environment are frequently involved in highly complex, multi and cross-disciplinary teams or within complex supply chains. This requires good team working, communication, digital and interpersonal skills at all levels of operation. Even when working independently these are necessary attributes to ensure that work is undertaken safely and that individuals can communicate effectively with clients, building users and residents.

In assessing competence, it is expected that a candidate would be able to demonstrate how knowledge and understanding developed from experience are put to practical use through the application of skills.

0.3.4 Competence framework structure

Assessment of competence is usually measured against standardized criteria set out in what is known as a competence framework. Because competence is relevant to the work that an individual undertakes it is necessary to produce a wide range of frameworks relating to role specific competences.

0.3.5 Sector-specific competence frameworks

0.3.5.1 General

Competence frameworks developed to enable assessment for particular roles, functions, activities or tasks are referred to as sector-specific competence frameworks. There are no limits to the number of competence frameworks that can be developed.

For most competence frameworks:

- elements of competence overlap and are interdependent;
- elements can be assessed separately or together; and
- it is recognized that development of competence is not necessarily a linear or formally structured path, but can be reported, recorded and assessed.

Competence frameworks typically include the following elements to ensure that they deliver the right outcomes and provide a suitable framework for assessment:

- a clear description of their purpose, principles and objectives;
- an explanation as to which aspects of the built environment and what roles the framework applies to;
- an explanation as to what types of built environment activity are relevant to those roles;
- requirements for prior learning or experience in relation to specific roles;

- the competence standards to be met in demonstrating necessary skills, knowledge, experience and behaviours;
- any levels of competence referenced;
- requirements relating to validation and revalidation;
- requirements for maintaining competence; and
- requirements relating to understanding limits of competence.

These elements are discussed in more detail below.

0.3.5.2 Purpose, principles and objectives

Sector-specific competence frameworks should provide necessary context for their use including any specific reasons for their development and application.

0.3.5.3 Scope of roles, activities and built environment sectors

Competence frameworks are more effective where they clearly define the nature of the roles that they cover, including what kind of activity in the built environment they apply to. Where a competence framework relates to specific types of buildings or types of work this has to be clearly expressed.

0.3.5.4 Prior learning and experience

For some people working in the built environment the route to developing competence will include formal education, training and qualifications combined with work experience. For others, on the job experience will form the main part of their competence development.

Candidates should be able to demonstrate competence using a wide range of evidence to reflect the diversity of ways that people can enter the built environment workforce.

This is best achieved by setting out clear expectations for the required level of knowledge and understanding by reference to recognized qualification frameworks and necessary experiential requirements. These are referred to as prior learning requirements and can be used as a benchmark or baseline against which wider experience and learning can be compared.

The process of comparing an individual's skills, knowledge experience and behaviours against these baseline prior learning expectations is known as assessing recognition of prior learning.

It is good practice for competence frameworks to clearly set out prior learning requirements in relation to specific job roles or grades and describe the process by which prior learning can be demonstrated.

0.3.5.5 Competence standards to be met

Competence frameworks work well where they clearly describe the attributes that candidates are expected to demonstrate. There are many ways to structure and describe the specific competencies that are required. It is usual for competence frameworks to be built around key competence themes with increasing levels of detail as to the specific skills, knowledge, experience and behaviours needed to undertake tasks effectively.

0.3.5.6 Levels of competence

Most sector-specific competence frameworks will cover a range of roles. It is likely that the required level of competence against any specific competence (a high-level descriptor of ability) or competency (a more detailed task level descriptor of ability) within the framework will vary from one role to another. This variation in levels of competence is reflected in a well-defined structure so that the necessary attributes candidates are able to demonstrate are clearly understood and are measurable.

For instance, while a team member and a manager are both expected to be competent in relation to managing risk, the manager may be expected to have a higher level of competence in terms of the complexity and impact of the decisions they make.

Regardless of the basis used for determining and describing levels of competence it is important that sector-specific competence frameworks have a robust rationale for the levels that are adopted which can be clearly explained and justified.

There are many alternative frameworks which can be referenced or used as a starting point to describe or develop levels of competence. This includes, for example, the European Qualification Framework (EQF) which sets out eight levels of learning outcomes, skills and associated levels of autonomy.

NOTE National Qualifications frameworks in the UK include:

- *Regulated Qualifications Framework (RQF) – England and N. Ireland;*
- *Credit and Qualifications Framework Wales (CQFW) – Wales; and*
- *Scottish Credit and Qualifications Framework (SCQF) – Scotland.*

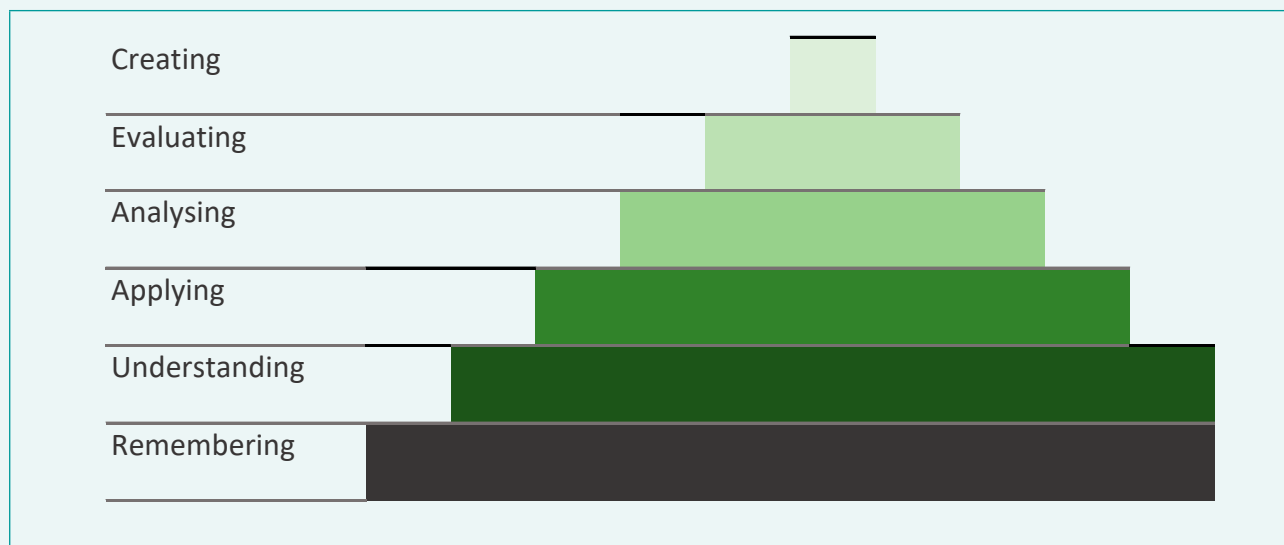
Figure 2 – European Qualifications Framework levels with knowledge descriptors – these are linked to skill and descriptions of responsibility and autonomy at each level (<https://europa.eu/europass/en/description-eight-eqf-levels>)

Level	Knowledge
Level 1	Basic general knowledge
Level 2	Basic factual knowledge of a field of work or study
Level 3	Knowledge of facts, principles, processes and general concepts, in a field of work or study
Level 4	Factual and theoretical knowledge in broad contexts within a field of work or study
Level 5	Comprehensive, specialised, factual and theoretical knowledge within a field of work or study and an awareness of the boundaries of that knowledge
Level 6	Advanced knowledge of a field of work or study, involving a critical understanding of theories and principles
Level 7	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
Level 8	Knowledge at the most advanced frontier of a field of work or study and at the interface between fields

An alternative example is Bloom's taxonomy; an educational and learning framework which can be used as a starting point for developing competence frameworks. The taxonomy describes skills and abilities which build progressively from one level to the next. These are:

- Remembering – the ability to recall facts and basic concepts;
- Understanding – the ability to explain ideas or concepts;
- Applying – using information in specific situations including performing tasks;
- Analyzing – making connection and drawing conclusions;
- Evaluating – appraising and justifying decisions; and
- Creating – developing and applying new approaches.

Figure 3 – Levels of Bloom’s taxonomy showing how knowledge at one level builds upon previous levels



Bloom’s taxonomy can be used as the basis for more tailored descriptors that help to identify more clearly where a candidate sits within overall expectations in relation to a specific role.

Successful competence frameworks also translate levels of competence and set out clear descriptors that can be recognized in candidates during development, training, and assessment.

For example, Figure 4 shows how Bloom’s Taxonomy can be used to create a four-level framework with more detailed descriptors for use in assessment and development processes. While using Bloom’s Taxonomy is not mandatory as the basis for describing levels of competence, it is important to have a logical explanation as to how those levels have been decided.

Figure 4 – Example of Bloom’s taxonomy used to develop a four level descriptor of competence expectations.

Creating	4	Detailed Application or expert proficiency	Advanced experience in particular competence. Applies creative solutions to difficult problems. Represents the organization internally and externally on critical issues. Sets standards within the organisation. Recognised as a subject matter expert.
Evaluating	3	Complex Application or proficiency	Independent contributor. Integrates work with other disciplines. Assess and compares options and makes key decisions. Often mentors, coaches or manages others.
Analysing	2	Basic Application or Proficiency	Performs fundamental and routine tasks. Requires occasional supervision in their execution. Increased functional expertise and ability. Works with others.
Understanding	1	Awareness	Has knowledge of construction technology and understands key concepts. Able to engage in discussions regarding specific competence. Performs routine tasks typically with significant supervision. Learns how to do things.
Remembering	0	n/a	

A third example of a recognized qualifications framework would be by reference or adoption of National Vocational Qualifications (in Scotland, Scottish Vocational Qualifications) more commonly known as NVQ or SVQ.

0.3.6 Validation and revalidation

One of the main problems identified within the built environment is that historically professionals and tradespeople have “qualified once” and then been permitted to practice for life without any form of ongoing or periodic assessment of competence.

Competence-based systems recognize that competence is not a constant and tends to decline over time unless actively maintained. To address this, competence systems typically adopt approaches incorporating validation and revalidation.

In this context, validation is the process by which an individual is first assessed as being competent to fulfil a specific role. This may give access to registration, a license to practice or the ability to work in a given role and will typically follow a period of monitored and supervised development.

Revalidation is a periodic re-assessment of competence to ensure that the necessary skills, knowledge, experience and behaviours have been maintained and that the individual remains competent to fulfil the specified role.

The time period between revalidations will vary depending on a number of factors including (but not exclusively):

- an assessment of risk relating to the role being undertaken – the higher the risks, the more frequent revalidation may need to be;
- the adequacy or otherwise of measures available to sustain and maintain competence; or
- the rate of change of skills and knowledge relevant to the role – if good practice is changing quickly, more frequent revalidation may be necessary.

Effective revalidation processes ensure that competence is maintained to the same level as the initial validation process but may also use a wider range of experiential evidence including training, learning and development activities undertaken in the intervening period.

0.3.7 Maintaining competence

Competence is perishable over time and requires positive action to maintain. This includes building on and refreshing skills, knowledge and understanding, and keeping abreast of changes in context such as regulation or technology.

Amongst professional organizations maintaining competence is commonly referred to as Continuing Professional Development (CPD) and includes informal and formal activities. For others working in built environment trades, contracting or manufacturing roles, competence is more likely to be maintained through training and refresher courses, tool-box talks and mentoring or supervision.

To aid in consistency, it is beneficial for competence frameworks to set out expectations for maintaining competence for the different roles and grades of activity to which they apply. Common approaches to achieve this include the following:

a) Self-assessment

It is important that all individuals working within the remit of sector-specific competence framework are encouraged or required to undertake self-assessment of their own competence on a regular basis. Even where competence assessment is primarily a management activity, individuals are engaged in assessing the limits of their own competence as part of that process.

Self-assessment involves reflecting on the work that people undertake (or will be expected to undertake) and comparing this with the skills knowledge and experience that they need to have to undertake those tasks competently. This includes considering the type, scale and complexity of work being undertaken.

b) Personal development planning

The self-assessment process should re-enforce individuals understanding of the limits of their competence and identify any development needs. These needs should be used to prepare a personal development plan for training over the period leading up to revalidation as a minimum but preferably as part of an annual review process.

Personal development plans can involve the full range of knowledge and skill buildings activities including formal qualifications, training, general contextual CPD and mentoring or shadowing programmes.

c) Recording and monitoring

Maintenance of competence should be an audited and auditable activity. Individuals and organizations should keep records, review them regularly and take those records into account in identifying any further actions required to remain competent.

Maintaining competence is a key part of an active and positive safety culture. Management teams should ensure adequate time and resources are provided to support staff, those working under supervision and even subcontractors or subconsultants to do so.

0.3.8 Limits of competence

It is important that people do not act beyond the limits of their competence. In doing so, it is possible that they will expose themselves and potentially others to a wide range of risks. This includes risk of death or injury, litigation, prosecution and breach of contract (amongst others).

Competence frameworks and training and development regimes establish the right conditions to ensure that limits of competence are managed. This includes:

- ensuring people are aware of the limits of their competence – knowing when they have been tasked with or are about to undertake something that exceeds their ability;
- enabling a culture where it is seen as the right thing to do to flag concerns about limits of competence;
- ensuring competence in managing limits of competence including taking mitigating actions (such as providing additional training) or managing risks (i.e. by reallocating work to suitably competent people); and
- ensuring those who appoint, procure or contract others are capable of assessing that those individuals have suitable competence and appropriate tools and resources to do so.

A positive culture of disclosure and trust are both required to ensure that people and organizations are willing to acknowledge and manage the limits of their competence.

0.4 Behavioural competence

0.4.1 Behaviours, safety culture and ethics

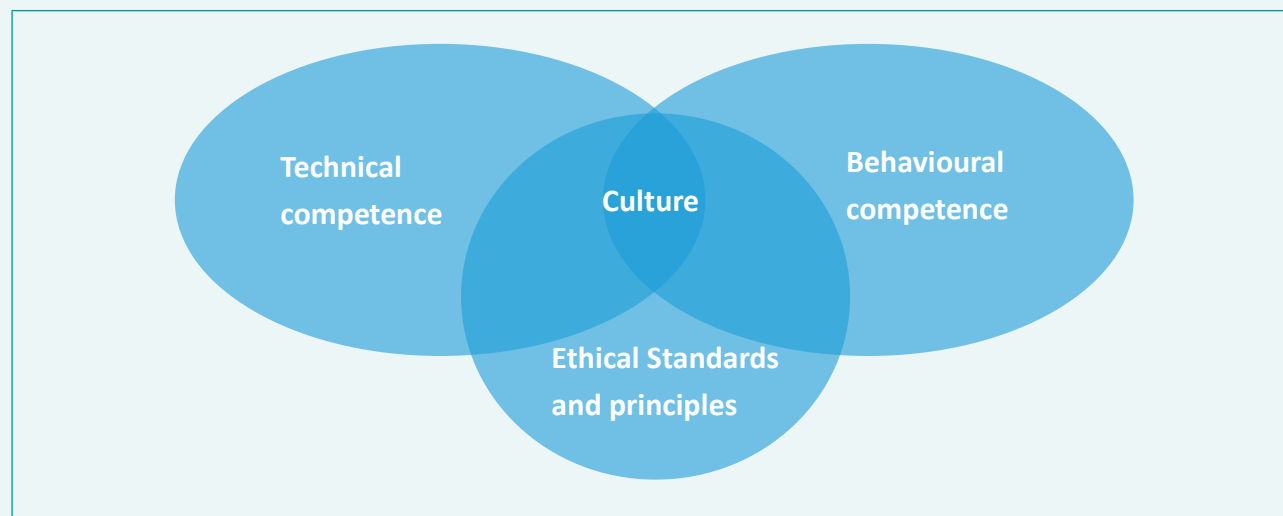
People and organizations working in the design, construction, maintenance and management of buildings (including the manufacture of their components and systems) are often subject to high levels of competition and intense cost and time pressures. It is recognized that these pressures can, if unchecked, lead to the development of business models, customs and practices which increase risk to co-workers and to the public and can incentivise unethical or undesirable behaviours.

As a result, there is an accepted need for improvement in the culture of individuals and organizations working in the built environment to ensure safe outcomes and to improve productivity. Criticisms following the Grenfell Tower fire included that the industry had a culture of indifference which promoted a “race to the bottom” where price and profit were placed ahead of safety.

NOTE This BSI Flex relates to frameworks for individual competence, not organizational competence. However, it is important that sector-specific frameworks are drafted taking into account organizational and inter-organizational context within which competence will be developed and assessed.

Culture in this context is generally understood to mean the organizational, commercial and individual behaviours and norms found in the construction industry. Culture tends to be derived from a combination of technical competence (primarily having the appropriate skills and knowledge) combined with behavioural competence (how people act and conduct themselves) and with reference to accepted ethical standards and principles (what is adjudged to be right).

Figure 5 – Industry culture is a combination of technical competence, behavioural competence and ethical standards



Behaviours are typically described as “The way in which one acts or conducts oneself, especially towards other people”. In many respects how people or organizations behave is the most tangible and visible representation of industry and organizational culture. Culture can vary considerably both within and between organizations and recognizable groups, roles or functions.

The safety culture of an organization is understood to be the product of individual and group values, attitudes, perceptions, competencies, and patterns of behaviour that determine the commitment to, and the style and proficiency of, an organizations health and safety management.

Different types of organizational safety cultures can be understood by reference to Hudson’s *Safety Culture Ladder* (see Figure 6) which maps out recognizable characteristics associated with different levels of likely safety outcome. It is important to note that organizations which have a strong internal safety culture may behave differently to external organizations e.g. a main contractor may be ‘generative’ internally but behave pathologically to subcontractors.

Organizations on the lowest rung of Hudson’s *Safety Culture Ladder* are considered “pathological” and tend to focus on minimum requirements, regulation and avoiding getting caught – there is little focus on ensuring safe outcomes.

The next level is considered “Reactive” and reflects organizations which tend to address safety issues only when prompted by an event such as an accident or failure.

“Calculative” organizations on the next rung of the ladder build on reactive behaviour and put in place policies and procedures to manage safety risks.

“Proactive” organizations effectively manage and promote behaviours to ensure that policies and procedures are genuinely impactful. Proactive behaviour also enables risks to be anticipated and managed.

The most effective organizations on the top rung are considered “Generative” where safety culture is fully integrated from strategic to operational levels of activity and where every aspect of a strong safety culture is working well.

Figure 6 – Hudson’s safety ladder showing evolutionary stages of safety culture

It is important that competence frameworks developed in line with this BSI Flex consider how to integrate behaviours that promote proactive or generative safety cultures. Effective safety cultures are underpinned by improving trust and accountability within the supply chain and workforce and ensuring high levels of information sharing and communication. The behavioural competences set out in Clause 5 of this BSI Flex reflect typical attributes of strong safety cultures.

0.4.2 Safety behaviour

The actions of organizations and individuals involved in ensuring safe outcomes has been subject to extensive study. Behaviours are primarily understood to be influenced by activators (triggering events) and consequences. Activators precede and direct behaviour, while consequences result from the behaviour and can inform subsequent behaviour. This is understood as the ABC model of behaviour (see Figure 7).

Figure 7 – The ABC model of behaviour

The consequence of a behaviour tends to feedback into subsequent behaviour. Negative and undesirable behaviours are likely to be reinforced and repeated where they are positively rewarded or go unchallenged. For instance, rewarding people for reducing the time needed to undertake building work by using materials that perform to a lower standard of safety is likely to encourage the same behaviour to occur more frequently.

Correcting negative behaviours before they result in safety failure is therefore critical to supporting a positive safety culture.

There are several factors which correlate with risky behaviour including (but not exclusively):

- preference for saving time, reducing cost and convenience over managing risk;
- overconfidence and overfamiliarity with tasks and risks; and
- inadequacy of training and working environment.

There are also several common factors which help to change behaviour by creating positive activators including (but not exclusively):

- establishing positive engagement and feedback as part of a safety culture within the workforce (rather than simply imposing requirements);
- demonstrating safety leadership at all levels within organizations;
- ensuring management lines are committed and competent to support a strong safety culture;
- ensuring good communication in both directions;
- resilience in predicting, monitoring learning and reacting to challenges;
- safety capability – the capability to maintain safety of complex systems operating in uncertain and interdependent environments.

The behavioural competences set out in this BSI Flex represent core measures to promote positive actuators, challenge risky or unsafe behaviours and ensure that consequences reward behaviours which support a strong safety culture.

It is important that sector-specific competence frameworks consider how the relevant activators, behaviours and consequences can be addressed by setting more specific behavioural competences directly related to the roles and activities covered by that sector-specific framework.

0.4.3 Behaviour change

Changing behaviours is not a simple or easily measurable process. Behaviours stem from multiple influences. Embedded behaviours typically result from the social environment, background and culture that people grow up in prior to joining the workforce. These behaviours are then modified by influences in the working environment, organizational culture and industry custom and practice, often referred to as nurtured behaviours.

However, the combination of embedded and nurtured behaviours has an important impact on safe outcomes – it is estimated that 70% to 80% of workplace safety incidents involve human error in some form.

The Keil Centre at Edinburgh⁴ has developed a “safety culture maturity model” which identifies five levels of maturity – emerging, managing, involving, cooperating and continually improving and which are useful in gauging where an organization is on the pathway to embedding a positive safety culture.

The Keil Centre has also identified ten elements in enabling a safety culture as:

- visible management commitment;
- safety communication;
- productivity versus safety;
- learning organization;
- health and safety resources
- participation in safety;
- shared perceptions about safety;
- trust between managements and frontline staff;
- industrial relations and job satisfaction; and
- safety training.

The development of a stronger safety culture is facilitated by including the core behavioural competencies in all sector-specific frameworks to promote safety and productivity.

0.4.4 Behavioural competencies

Behavioural competencies provide checks and balances to ensure that good conduct and ethical behaviour are promoted, while poor conduct and risky behaviours are not tolerated and are challenged.

The outcome is a positive safety culture throughout the supply chain and at all stages of design, construction, development and occupation. This relates to all aspects of quality and safety of products, workmanship, completed building work and subsequent maintenance and management.

⁴ Keil Centre <http://www.keilcentre.co.uk/>

Ethical principles, standards and conduct are central to all behavioural competences and it is important that they are emphasized in sector-specific competence frameworks, formal education, training and activities relating to maintenance of competence.

There are four other key behaviour sets necessary to demonstrate suitable behavioural competence:

- leadership, teamwork and communication;
- individual and organizational competence;
- personal responsibility and accountability; and
- duty of care to others including building occupants.

Figure 8 – Core components of the Built environment safety culture



These headings have been used to develop core behavioural competences set out in Clause 5 of this BSI Flex. In combination these core behavioural competences will tend to mitigate risks from bad practice and incentivise good behaviours and are discussed in more detail below.

0.4.5 Ethical principles, standards and conduct

It is important that behavioural competence frameworks are supported by clearly defined ethical principles and standards relevant to the roles, functions, activities and tasks they cover.

Ethics are defined as the moral principles and standards which underpin sound judgement and provide people with the moral authority to take responsibility for their actions and the actions of others. Ethics enable complex judgements to be made about what is right and what is wrong and help balance commercial considerations with wider duties to society and other people.

Critically, ethical standards and principles help to guide people to make the right decision when guidance, regulations or experience cannot do so. In this way ethics help people where there is ambiguity, lack of clarity, or decisions need to be made without reference to others.

In practice, ethical principles are most commonly found in codes of conduct, particularly within professional bodies. These often take the form of standards of conduct which reflect positive behaviours. These include:

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

NOTE Further detail on the core components of the four ethical competence groups above can be found in Annex A: Ethical Standards.

0.5 Leadership, teamwork and communication

Strong and visible commitment to behavioural competence is required from senior management to develop and sustain an effective safety culture within organizations. This requires leadership at the top, but also at every level throughout the organization.

Safety culture also requires a workplace where collaboration and teamwork are encouraged. People have to be empowered to take action where they have concerns and there has to be a safety positive culture where those concerns are listened to and acted upon.

In addition, communication has to be effective in all directions within and between organizations to identify and manage safety risks.

0.6 Individual and organizational competence

To act safely, people have to clearly understand the limits of their personal and organizational competence and act responsibly in ensuring they undertake activities within these limits. This includes regularly undertaking self-assessment activities to identify areas where improvement is required and for these to be translated into personal development plans and activities to maintain or develop competence.

It is also important that competence frameworks support a learning culture which constantly monitors, analyses and acts to improve competence and safety outcomes. This can be supported by ensuring people are equipped with the right competence to make sound decisions which includes:

- understanding when decisions have to be made and how to exercise authority in making those decisions;
- the ability to analyse likely problems that will be encountered in a logical, structured manner in order to identify necessary actions;
- the ability to identify risks, the consequences of action or inaction, and factor these into decisions;
- the ability to make timely and appropriate decisions and judgements even in the face of ambiguity or uncertainty;
- the ability to identify risks from action or inaction and factor this into their considerations; and
- knowing what is needed to escalate matters where they are unable to make decisions or judgements themselves.

0.7 Individual responsibility and accountability

It is important that competent individuals clearly understand how their actions can impact on others and what is expected of them in taking responsibility for those actions. This includes potential impacts on work colleagues and the general public both during and after they have fulfilled their role.

Competence assessment processes are structured so that candidates can demonstrate how they take personal responsibility, which includes:

- taking responsibility for their own actions and the actions of those under their supervision or direction;
- understanding their role and responsibilities in keeping others safe;
- knowledge and understanding of legal duties and responsibilities relevant to their role; and
- the ability to identify where boundaries of responsibility lie and communicate this effectively to/ with others.

0.8 Duty of care to others including building occupants

A positive safety culture ensures that everyone in the built environment supply chain understands that buildings have the potential to cause harm to others throughout the building's lifecycle. It is important that individuals and organizations recognize where they have a duty of care to protect people's safety and act accordingly. This includes:

- ensuring competence to design, construct, maintain and manage buildings safely;
- understanding the importance of effective consultation and communication with clients, residents, and others likely to be affected by buildings or building work; and
- consideration of factors affecting diversity and inclusion for individuals who will occupy or be affected by the building or building work.

0.9 Mapping and benchmarking against this framework

It is recognized that many existing competence frameworks have been developed in a format which is not compliant with this BSI Flex.

Compliance with this BSI Flex may be demonstrated through a process of mapping or benchmarking rather than through direct adoption of the structure and terminology of this BSI Flex. However, it is anticipated that as frameworks are reviewed and updated over time, they will align with this BSI Flex as far as possible in terms of structure, content and language.

Mapping and benchmarking can also be used in the development of new sector-specific competence frameworks to help ensure alignment with the requirements of this BSI Flex.

The recommended approach to mapping and benchmarking against this framework involves the following:

- a) Clearly identifying the scope of the sector-specific framework including the roles, tasks, sector and context.
- b) Creating a mapping template listing the requirements set out in Clause 4 and Clause 5 of this BSI Flex and any applicable annex.
- c) Reviewing the sector-specific framework to ensure that all of the information described in Clause 4 of this BSI Flex has been met and recording how and where this is set out in the sector-specific framework; clearly justifying any exemptions or divergence.

- d) Reviewing the sector-specific framework to ensure that all of the information described in Clause 5 of this BSI Flex has been met and recording how and where this is set out in the sector-specific framework; clearly justifying any exemptions or divergence.
 - e) Reviewing the sector-specific framework to ensure that all of the information described in any applicable annex to this BSI Flex has been met and recording how and where this is set out in the sector-specific framework; clearly justifying any exemptions or divergence.
 - c) the need to maintain their competence and how to do so; and
 - d) the importance of not working beyond the limits of their own competence.
- NOTE** In England the Building Safety Regulator will establish a committee on industry competence to provide oversight of built environment competence. It is intended that the role of this committee will include reviewing sector-specific frameworks and their assessment processes for adequacy, particularly in relation to higher-risk buildings.

When reviewing compliance with this BSI Flex, it is important to consider how the structural requirements, behavioural competence and core competences set out in any relevant annex are relevant to the scope, roles and tasks covered by the sector-specific framework.

This includes carefully assessing how each sector-specific framework interacts with other individuals or organizations in a way which could affect safety or quality.

0.10 Assessing individual competence

Competence in this context is understood to be the ability to apply skills, knowledge, experience and behaviours sufficient to achieve intended results. This includes undertaking specified tasks effectively and to an acceptable standard.

Competence testing is widely recognized in most industries and represents a more comprehensive assessment of an individual's capability than education or training alone, including soft skills as well as technical capability.

How competence is assessed will vary from role to role. This BSI Flex is not intended to replace existing professional, technical or vocational training or competence frameworks. However, where individuals are being assessed for competence to work on higher-risk buildings it is expected that the sector-specific frameworks against which they are assessed will comply with the competences set out in this BSI Flex.

In particular, the expectation is that individuals required to demonstrate competence against any sector-specific competence framework should be aware of:

- a) the competences expected of them to fulfil their role and the limits of their own competence;
- b) the need to be able to demonstrate what to do and how to report deficiencies that might affect their ability to fulfil their role;

0.11 Consistency of competence assessment

When developing sector-specific frameworks it is important to consider how to achieve consistency between assessment of individuals where that assessment may be undertaken by various different bodies or organizations. This is important to ensure that consumers of attested competence can have confidence that the same level of competence is attained by all individuals covered by any given sector-specific competence framework.

This could be achieved through, for example:

- setting and/or referring to standard criteria for assessment where a sector-specific framework is used;
- third party assessment by independent bodies which have been assured or accredited as competent to undertake that assessment; or
- setting criteria for management of the competence of individuals where assessment is undertaken within organizations.

It is recognized that third party assessment can provide enhanced assurance of the independence and robustness of competence of individuals. It is also recognized that it may not be practicable or proportionate for every role to be subject to external assessment. It is considered good practice to use third party assessment

- where roles are critical to delivery or safety;
- where individuals undertake work under entirely under their own supervision; and
- where individuals supervise the work of others

It is a requirement of this BSI Flex that sector-specific competence frameworks provide information on organizations considered competent to undertake third party assessment as per Clause 4.10 d) and Clause 4.11 d).

Where assessment of the competence of individuals is facilitated within organizations (rather than by third parties) through use of competence management systems, it is preferable for sector-specific frameworks to set expectations as to how the competence of the individuals carrying out the work should be assessed and how they should be managed and supervised.

NOTE *National regulators might also set requirements for organizations' undertaking assessment and re-assessment to be subject to oversight by third parties.*

0.12 Construction (Design and Management) Regulations 2015

In the UK, health and safety at work in the built environment is primarily regulated through the Construction (Design and Management) Regulations 2015. Historically this legislation has related to protecting the safety of people working on buildings throughout the building lifecycle from inception, through design, construction, occupation, maintenance and demolition.

The CDM regulations define a number of key duty-holding roles including Client, Principal Designer, Principal Contractor, Designer and Contractor.

The Government has stated its intention to introduce similar duty-holding roles and other regulated functions in England in order to improve the safety of building and building work for persons in or around buildings, with a particular focus on higher-risk buildings. This will include extending existing duty-holding responsibilities through legislative measures in the Building Safety Bill which is progressing through development and scrutiny in parliament at the time of publication of this BSI Flex.

This BSI Flex can still be used without reference to these new requirements. This BSI Flex will be updated as necessary if there is need to provide further clarification in relation to duty-holding or regulated roles.

Section 1: Preliminaries

1 Scope

This BSI Flex specifies requirements for competence frameworks for individuals working in the built environment. It is intended to support the development of an overarching framework for oversight of competence of individuals working on higher-risk buildings as defined within relevant legislation.

NOTE *The scope of higher-risk buildings is likely to change over time which will modify application of this BSI Flex.*

It is broadly relevant to any role in the assessing, procuring, designing, constructing, inspection, maintenance, management or operation of higher-risk buildings. This includes technical and non-technical roles, and individuals working under their own authority as well as under the supervision of other competent individuals. It is also intended to span a wide range of levels of competence from basic awareness to very detailed application by subject specialists.

This BSI Flex is of particular relevance to professional groups such as:

- engineers;
- fire engineers;
- fire risk assessors;
- fire safety officers;
- building standards professionals;
- building designers including architects;
- building safety managers;
- construction managers;
- site supervisors/independent construction assessors;
- project managers; and
- procurement professionals.

Technical groups such as:

- estimators;
- buyers and purchasing specialists;
- building technicians;
- civil engineering technicians;
- plant technicians;
- site inspectors; and
- design technicians.

Craft groups such as:

- installers;
- site operative in general;
- site joiners, carpenters, shop fitters and wood machinists;
- bricklayers, concrete workers, steel workers, framers;
- electricians, plant and systems engineers and installers;
- roofing contractors; and
- plasterers, decorators and interior contractors.

This BSI Flex is also relevant to regulated or duty-holding roles established by government as being subject to the following specific responsibilities:

- principal designers;
- principal contractors;
- designers;
- contractors;
- building safety managers; and
- building control professionals.

NOTE *Responsibility for ensuring that sector-specific frameworks are kept up to date rests with the authors of those framework given that the scope of regulation and duty-holding roles for higher-risk buildings is likely to change over time.*

This BSI Flex does not set out all of the specific requirements for any given sector-specific framework but does specify core characteristics to be included.

This BSI Flex is intended to be used by professional groups, trade associations, trades or any other group from relevant built environment actors looking to develop or achieve recognition for a relevant competence framework. It is anticipated that those frameworks will then be subject to review by a committee on industry competence working under the aegis of the Building Safety Regulator.

This BSI Flex will be of specific interest to assessment bodies who might be tasked with assessment of competence of individuals against any sector-specific competence framework.