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Design management systems

Part 4: Managing design in construction – Guide

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Contents		Page
	Foreword	III
	Introduction	1
	<i>Figure 1 — Functional relationships between organizations managing portions of a design process</i>	1
1	Scope	2
2	Normative references	2
3	Terms, definitions and abbreviations	2
4	Design management framework	3
4.1	Function of design management	3
4.2	Establishing the project team	4
	<i>Figure 2 — Example of a project team containing two delivery teams</i>	5
	<i>Figure 3 — Design management leads assigned by members of the project team</i>	6
	<i>Figure 4 — Competence as a combination of skills, knowledge, experience and behaviours</i>	8
4.3	Consistent approach	8
	<i>Figure 5 — A top-down, QMS (BS EN ISO 9000) driven approach</i>	10
4.4	Value management	11
5	Design management planning	12
5.1	General	12
	<i>Figure 6 — Design management plans applied to delivery teams</i>	13
5.2	Design management plan (DMP)	13
5.3	Health and safety and the CDM Regulations	14
5.4	Design responsibilities	15
	<i>Figure 7 — Example assignment matrix for assigning design responsibilities</i>	16
5.5	Design programme	16
5.6	Design communication protocols	20
	<i>Figure 8 — Protocol presented in workflow format to improve understanding</i>	21
5.7	Design review protocols	22
	<i>Figure 9 — High-level illustration of the key decisions during a review process</i>	23
5.8	Change control protocols	23
5.9	Design meeting protocols	24
5.10	Progress reporting protocols	24
5.11	Information management	25
	<i>Figure 10 — Example design information delivery plan in tabulated format</i>	28
5.12	Risk management protocols	28
Annex A	(informative) Design management competencies	30
Annex B	(informative) Assignment matrix	32
	<i>Figure B.1 — Assignment matrix</i>	33
	Bibliography	35

Summary of pages

This document comprises a front cover, an inside front cover, pages I to IV, pages 1 to 35, an inside back cover and a back cover.

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Foreword

Publishing information

This part of BS 7000 is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 31 May 2024. It was prepared by Technical Committee B/209, *General design and construction standards*. A list of organizations represented on this committee can be obtained on request to the committee manager.

Supersession

This part of BS 7000 supersedes BS 7000-4:2013, which is withdrawn.

Information about this document

This is a full revision of the document, and introduces the following principal changes:

- improved definition of design management and its integral role within construction projects;
- heightened emphasis on design management as a project function;
- augmented attention to customary design management activities, coupled with comprehensive guidance on good practice for individuals responsible for overseeing such activities;
- elimination of obsolete and informative references pertaining to information management and modelling practices originating from the deprecated specification [PAS 1192-2:2013](#); and
- introduction of inclusive language that embraces the expansive and diverse construction industry.

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Where websites and webpages have been cited, they are provided for ease of reference and are correct at the time of publication. The location of a webpage or website, or its contents, cannot be guaranteed.

Use of this document

As a guide, this part of BS 7000 takes the form of guidance and advisory recommendations. It is not to be quoted as if it were a specification or a code of practice.

Presentation conventions

The guidance in this document is presented in roman (i.e. upright) type. Any recommendations are expressed in sentences in which the principal auxiliary verb is “should”.

Additional commentary, explanation and general informative material is presented in smaller italic type.

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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Introduction

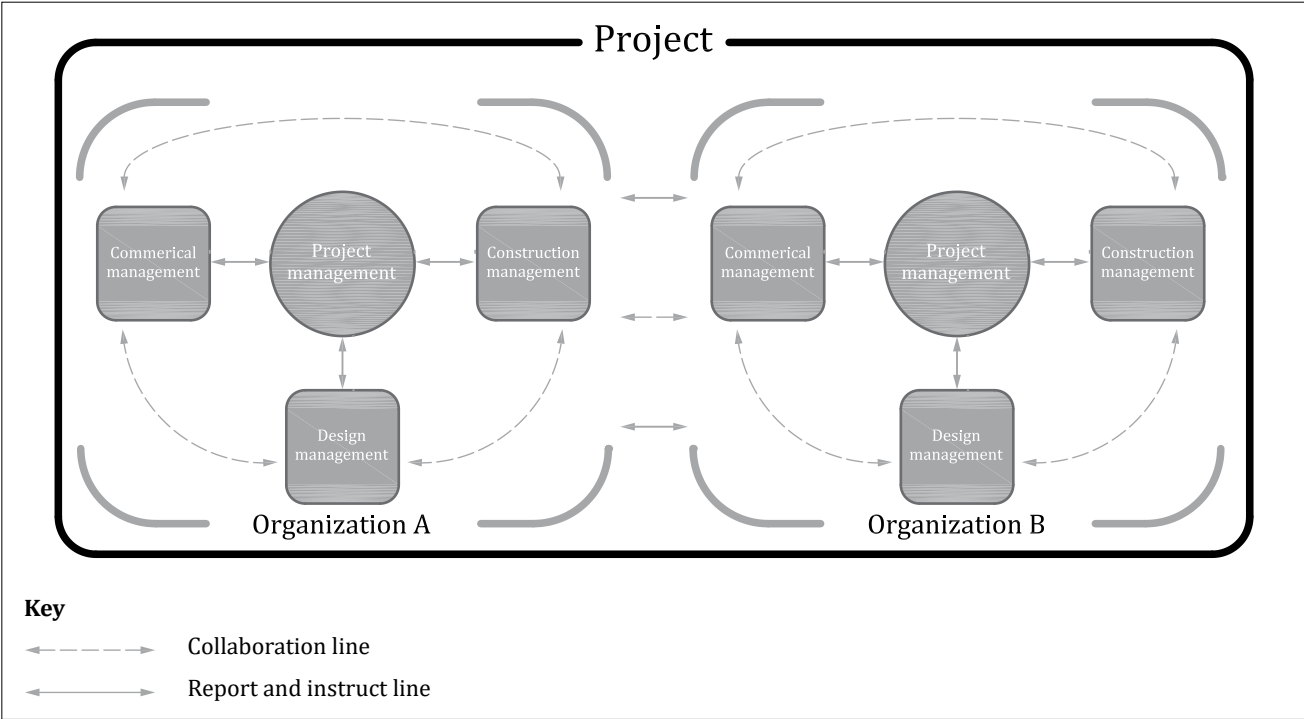
Design management plays a pivotal role in every construction project, encompassing a series of activities dedicated to the development and conclusion of a design process. Its scope extends well beyond the completion of construction, facilitating the proper installation and performance of the finished assets in accordance with the intended design. This function places significant emphasis on effective management of personnel, processes, information, risk and opportunities, with the aim of delivering quality and value within the constraints of the project environment.

In recent years, the significance of design management has grown in response to the escalating complexity of procurement and contractual approaches, accompanied by an increase in safety and sustainability legislation and the need for better definition, coordination and management of specialist products and systems. These developments necessitate a comprehensive handling of the interconnected processes involving people and information.

Whilst design as a process focuses on the parts being designed (how, size, colour, material, strength, performance), design management focuses on processes, resources, information, organizational infrastructure, planning, and the array of compliance checks and distribution of responsibilities that enable design to happen whilst maintaining the programme and collaboration at the heart of each activity.

Design management is often mistaken for project management, although both functions exhibit synergy. Design management, however, is a specialized function that typically operates within the project management framework alongside other functions that have their own distinct objectives and responsibilities, such as the planning, commercial and construction functions typically spread across project teams in various sectors. Figure 1 illustrates the interrelationship among some of these functions but is not exhaustive. As for other specialized roles, individuals assigned to design management require specific expertise and knowledge relevant to their respective areas of responsibility.

Figure 1 — Functional relationships between organizations managing portions of a design process



1 Scope

This part of [BS 7000](#) gives guidance for all types of construction projects on:

- a) the design and construction processes of the built environment; and
- b) the management of design activities throughout the design and construction period.

It is intended for those who work in and with the construction industry, particularly those managing the design process. Where general management principles are given, they may be adapted to suit any size of organization or construction project.

Specific guidance is provided for:

- 1) project clients who initiate projects;
- 2) principal suppliers who report directly to project clients;
- 3) suppliers who report directly to a principal supplier or other suppliers; and
- 4) individuals who lead on behalf of their organizations the management of design processes and information, as well as the people with whom they interface.

NOTE 1 The terms “principal supplier” and “supplier” are defined in [Clause 3](#).

This part of [BS 7000](#) makes reference to, but does not cover, activities prior to initiation of a project or factors considered by clients/employers when selecting the most appropriate form of construction procurement. Nor does it cover the in-use stage of a project once construction activities have ceased.

NOTE 2 Guidance on the design of manufactured products and services is given in [BS 7000-2](#) and [BS 7000-3](#) respectively.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes provisions, or limits the application, of this document.¹⁾ For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

[BS 7000-10](#), *Design management systems – Part 10: Vocabulary of terms used in design management*

3 Terms, definitions and abbreviations

3.1 Terms and definitions

For the purposes of this part of [BS 7000](#), the terms and definitions given in [BS 7000-10](#) and the following apply.

3.1.1 delivery team

principal supplier and the suppliers they engage to help them complete their duties

3.1.2 design management lead

role consisting of one or more individuals who take responsibility for design management function obligations on behalf of their organization

3.1.3 design management plan

document defining how the design is to be managed and any protocols to be adopted

¹⁾ Documents that are referred to solely in an informative manner are listed in the Bibliography.

3.1.4 project

unique process consisting of a set of coordinated and controlled activities with start and finish dates, undertaken to achieve an objective conforming to specific requirements, including constraints of time, cost and resources

NOTE 1 "Project" in the context of this guide is constrained to the wider construction works initiated by the client.

NOTE 2 A project usually consists of several project members, whether organizations or individuals, with specific scopes defining their roles and outputs.

3.1.5 project client

person or organization initiating and financing a project and approving the brief

NOTE The project client might be responsible for many more activities than those noted in this document.

3.1.6 project team

members of the project regardless of their position or hierarchy

3.1.7 principal supplier

supplier directly selected by a project client

NOTE This could be a project manager, lead contractor, costing consultant or design consultant.

3.1.8 supplier

person or organization providing materials, products or services

3.2 Abbreviated terms

For the purposes of this part of BS 7000, the following abbreviated terms apply.

DMP	design management plan
ICT	information and communication technology
IRS	information required schedule
KPIs	key performance indicators
O&M	operation and maintenance
QMS	quality management system

4 Design management framework

4.1 Function of design management

Design management has a broad function in the built environment, which can vary depending on several factors including the type of project, procurement route, contract and the role of each member of the project team likely to have some design management interface.

Design management creates a framework that facilitates effective design activities by assembling the right team members within specified time frames. It also involves the proactive management of risks and opportunities associated with specific design and construction processes. This is achieved through fostering a culture of collaboration and meticulous monitoring of people and processes throughout the design and construction stages.

The overarching objectives of design management are to:

- identify appropriate expertise and resources required for the production of design at each project stage;
- enable the structured flow of ideas and information between people;

- c) define deliverables and clarify responsibilities associated with production and development of the design within the team;
- d) plan delivery gateways, review design and manage programmes to facilitate timely delivery of the design;
- e) assure quality and value of a design to enable construction processes;
- f) bridge communication between design and construction teams;
- g) establish and agree protocols for the production, sharing, review, approval and use of the design;
- h) confirm the implementation of design assurance criteria, reviews and gateways, thereby enabling consistent alignment of the design with the project's objectives, timeline, costs, aspirations and statutory requirements;
- i) identify and manage areas of risk and deviations from the delivery of the required outcomes; and
- j) identify and manage change to design and project requirements impacting design.

The breadth of the function, including what is expected and why, is covered in detail in [4.2](#) to [4.4](#) and in [Clause 5](#).

4.2 Establishing the project team

4.2.1 General

Every project consists of individuals and organizations working collectively towards a common goal, and each begins with a project client. The project client establishes the project team and determines how procurement routes, scope of services and contract conditions can enable or impede the project team in achieving their objectives.

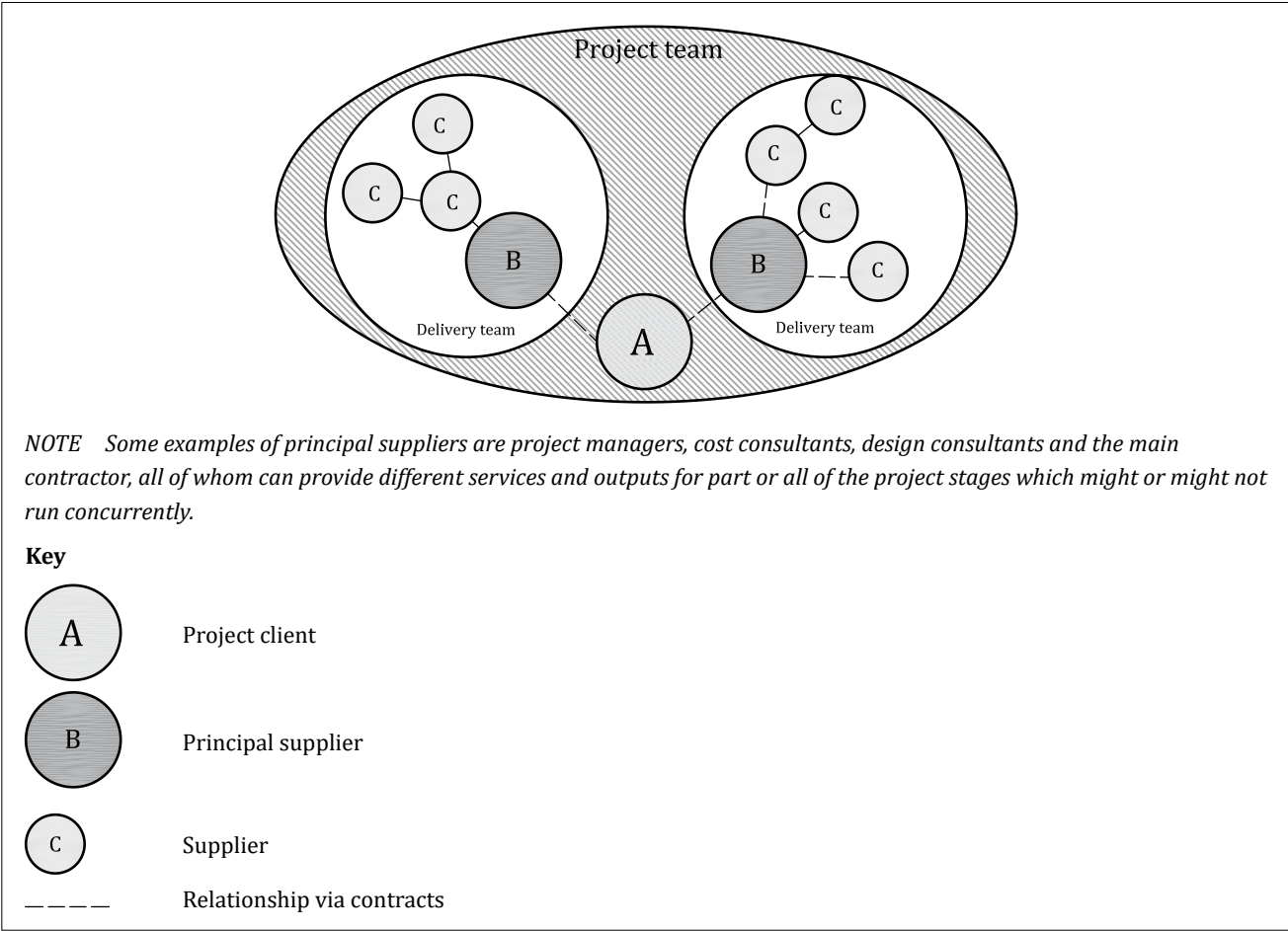
[Figure 2](#) shows an example of a project team, usually bound through some form of formal agreement. Typically, the project client is at the core and initially appoints organizations accountable for supplying or managing a defined portion of the project, including cost consultants, project managers, design consultants and contractors, hereafter referred to as “principal suppliers”. Each principal supplier bound directly to the project client may appoint individuals or organizations to provide services, products or materials on their behalf, hereafter referred to as “suppliers”. In such instances, each principal supplier should:

- a) define the scope of the suppliers' activities in a formal agreement; and
- b) specify for each supplier the unique deliverables they are to provide specifically for the principal supplier.

Each principal supplier and any suppliers they appoint are a delivery team, a unit typically responsible for delivering a portion of the project. Other delivery teams, each led by other principal suppliers appointed by the project client with a focus on their portion of deliverables, may run concurrently with one another or at different stages of the project. Together, they are part of the project team. Delivery teams that do run concurrently should coordinate and collaborate directly with one another or indirectly via the project client depending on contractual and procurement conditions.

The arrangement shown in [Figure 2](#) can represent a project team consisting of two principal suppliers during the early phase of a project; one a cost consultant, the other a design consultant appointed to produce an early concept design. However, at later stages of the project, some principal suppliers might complete their activities and leave the project, e.g. the initial design consultant, while others are appointed by the project client with responsibility for the remaining design and construction.

Figure 2 — Example of a project team containing two delivery teams



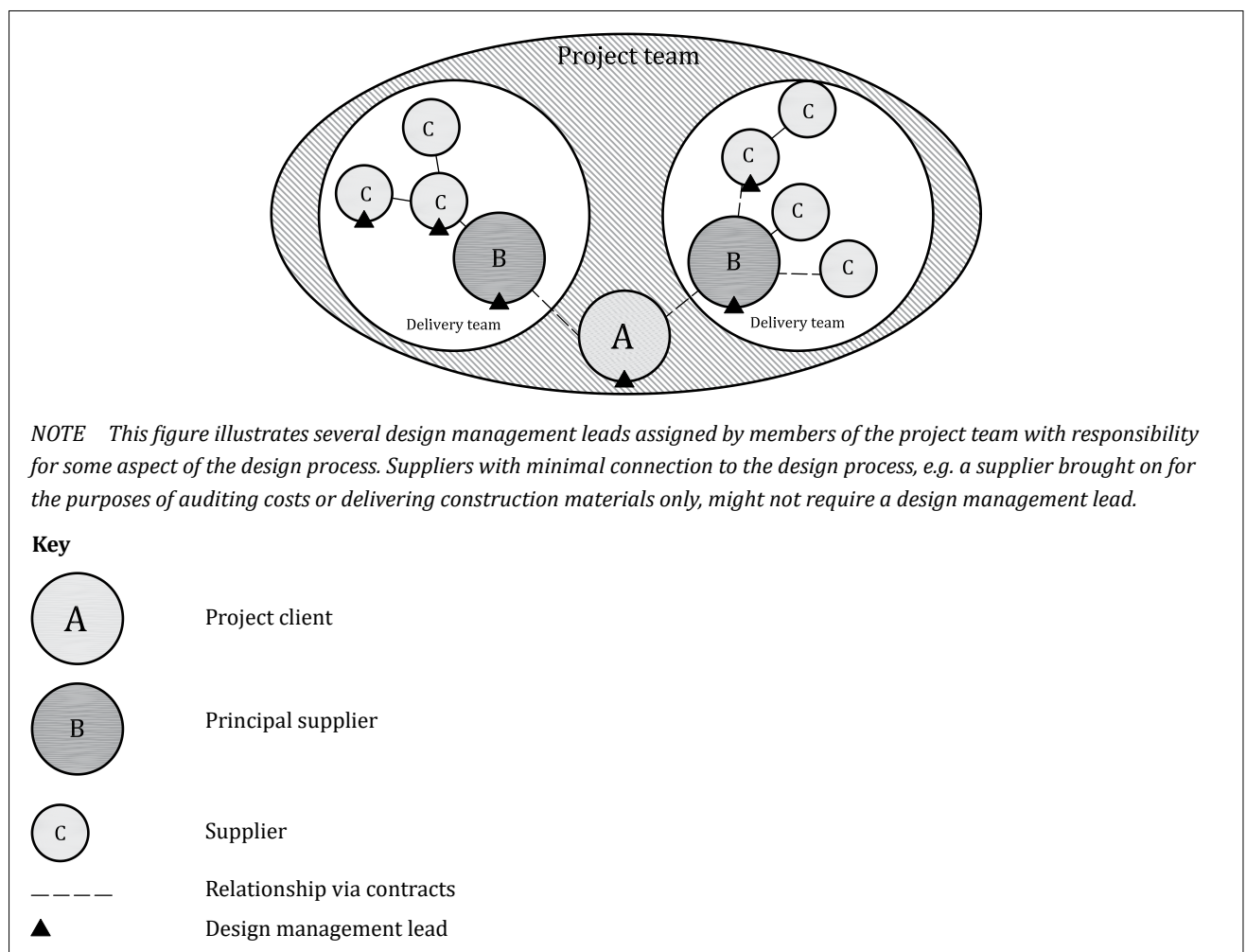
4.2.2 Design management lead

Each member of the project team is likely to have some aspect of the design management function to fulfill. The scope of responsibility can vary depending on their role and whether they are providing materials, products, services or all three. As that scope develops, so does the risk if those responsibilities are neglected.

Each member of the project team should articulate their exposure to risks and decide whether to designate one or more individuals as accountable for completing the functions of design management. This lead role, hereafter referred to as the “design management lead”, confirms that their organization effectively oversees its design management obligations and associated risks, as illustrated by [Figure 3](#).

NOTE 1 Where principal suppliers or suppliers are made up of only a single individual rather than an organization, that individual is likely to be self managing and may share this design management lead role alongside other roles they perform.

NOTE 2 The role description of design management lead is not intended as an employment job title, which can vary significantly, especially where an individual undertakes multiple roles beyond design management.

Figure 3 — Design management leads assigned by members of the project team

NOTE This figure illustrates several design management leads assigned by members of the project team with responsibility for some aspect of the design process. Suppliers with minimal connection to the design process, e.g. a supplier brought on for the purposes of auditing costs or delivering construction materials only, might not require a design management lead.

When a supplier comprises just one individual accountable for fulfilling their project scope, that person assumes the responsibilities of design management lead along with other roles such as project manager and project planner for their designated scope of work.

Suppliers may choose not to require dedicated individuals to undertake the design management lead role depending on the scope of the project team member's contribution, and how many responsibilities they are likely to cover. For a supplier whose scope of work includes the procurement and installation of only one product, this role may be undertaken by the same individual who manages their wider project or commercial activities. However, the activities associated with the design management lead might still apply to this individual, so they should still be regarded as the design management lead on behalf of their organization by the project team.

However, a principal supplier, such as a contractor with many assigned individuals who is accountable for the delivery of the design and construction process, might find the extent of design management responsibilities warrants the appointment of an individual or team of specialists dedicated to the function.

Where a project team member decides not to assign the design management duties to a lead, they should assess the risks of leaving those duties to the self-management of their own employees.

The design management lead appointed by the principal supplier typically has seniority within the delivery team, overseeing and reviewing the team's overall performance by collaborating with each of their supplier's design management leads. This seniority arises from their responsibility for the overall coordination of the delivery team, in contrast to the design management leads of individual

suppliers who focus solely on their scope of work and, if applicable, their interfaces with others where coordination is necessary. The principal supplier's design management lead assumes the responsibility for coordinating with all other design management leads within their delivery team. Their role is to guide the team collectively, to meet the project objectives through a unified vision or plan, as detailed in [5.2](#).

The design management lead appointed by the principal supplier also collaborates and coordinates with the project client's design management lead, and potentially design management leads from other concurrently working principal suppliers. Design management leads working on behalf of suppliers do not usually interact directly with the project client or other delivery teams without authorization from the principal supplier's design management lead.

Some examples of duties undertaken by design management leads include, but are not limited to:

- a) determining how protocols, along with any tools and systems required to manage the design process, are implemented early and monitored regularly for conformity to project objectives, client requirements, statutory regulation and other third party requirements;
- b) identifying what information is needed from their own members, as well as those from other project team members, monitoring progress and completeness for timely delivery;
- c) identifying internal resources required and managing those who interface with the design process, including the assignment of responsibilities to them;
- d) confirming that they and others can communicate effectively and collaborate regardless of their discipline;
- e) defining their responsibilities throughout the design process and confirming that those responsibilities are performed on time and to standard;
- f) managing change; and
- g) keeping up to date with developments in construction technology or regulatory compliance that could affect the project.

4.2.3 Competence

The competence of the individuals and organizations working on a project is critical to the success of any outcome. Due to growing legislation and evolving design and construction technologies, it has become increasingly important to focus on competence frameworks and assessments. One such framework, set out in [BSI Flex 8670](#), builds on the definition of competence set out in the Construction (Design Management) (CDM) Regulations 2015 [\[1\]](#) and provides an approach to measuring competence that takes into account skills, knowledge, experience and behaviours as shown in [Figure 4](#).

Each member of the project team is responsible for evaluating the competence of every individual they designate for a specific role. The project client should, where appropriate, request written evidence of such competence regardless of each individual's role or degree of interface with the design process. However, particular attention should be given to clearly defining the relevant and necessary capabilities and competences specifically required to fulfil the design management lead function and carry out tasks (see [Clause 5](#)) appropriate to the specific project stage, type, scale, team organization and specific responsibilities within their team.