

# FIS Consultation Document: A Defined Design Development Process

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## 1. Objective

This paper has been created to interrogate the design development process in the context of duties and responsibilities enshrined in the Building Regulations, recent updates of the same and how design responsibility and the allocation of risk to trade contractors is managed within the context of the Contractors Design Portion (CDP) under construction contracts.

## 2. Introduction

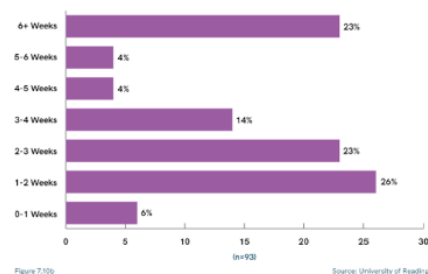
The Construction Design and Management Regulations 2015 state:

*“design” includes drawings, design details, specifications and bills of quantities (including specification of articles or substances) relating to a building, and calculations prepared for the purpose of a design.*

The Building Regulations etc. (Amendment) (England) Regulations 2023 place statutory duties associated with Design on the Principal Designer and Principal Contractor and functional duties on all designers and contractors involved in the construction process.

### Typical lead time from notification of contract

What is the typical lead time from notification of contract award to the date you are required to commence on site?



Common procurement routes do not consider nor allow for early Contractor/Subcontractor engagement. They often provide little time, and/or too much or insufficient unstructured information for all duty holders to safely and effectively interrogate design at tender stage.

Current practice simply does not facilitate effective collaboration between specialist contractors, manufacturers and those managing design (see Figure 1).

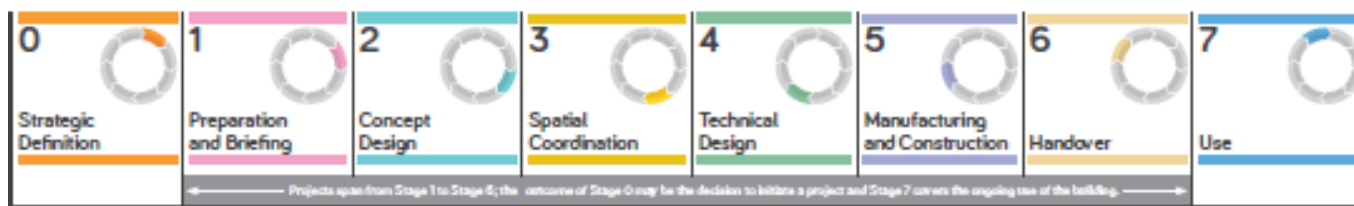
Figure 1: Source University of Reading

Problems are further exacerbated by the transfer of liability in complex amendments to standard form contracts which skew the risk onto Contractors and Subcontractors. Through these amendments Contractors and Subcontractors alike may find themselves assuming responsibility for, not only the compliance of details that they did not design, but also any inadequacies, errors or even ‘fitness for purpose’. This paper starts to explore how this should be co-ordinated more effectively through a more consistent design development process centred on a standardised approach to creating a fair and accurate Design Responsibility Matrix (DRM).

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## 3. The Contractor Design Portion (CDP) Process

Much of the industry and the Finishes & Interiors Sector works to the RIBA (Royal Institute of British Architects) Plan of Works which focuses on seven key stages:



The Plan of Works recognises:

- *“The interface between the design team and the construction team has also become more complex as aspects of building design are increasingly being carried out by specialist subcontractors.”*
- *“Stage 4 will overlap with Stage 5 on most projects”*
- *“It is crucial to review the responsibility Matrix before Stage 4 commences so it is clear who will be producing the Manufacturing Information and Construction Information and whether the design team will produce Prescriptive Information or Descriptive Information.”*

The BSRIA (Building Services Research and Information Association) Design Framework for building services follows a similar approach. Neither of these processes are typically referenced directly in contracts. This contributes to a lack of clarity in the allocation of design responsibility. The overlap of stages adds further confusion regarding precise definitions and responsibilities for design at each stage.

In recent years, this has become more of a concern as architects and designers are not always allowed the time or simply do not possess the necessary insurance or technically regulated or recognised competence for certain elements of detailed design work. As a consequence, design has shifted to a more “descriptive” rather than a “prescriptive” process. As a result, Contractors and Subcontractors are expected to assume greater responsibility and in turn liability for design either directly through CDP or via complex design development clauses contained in amendments to standard form contracts. Terms that include an obligation to “meet all statutory requirements” or make the contractor “Responsible for Compliance with the Building Regulations” are particularly concerning especially when they are not clear on interfaces of align to elements which the specialist have had no input into and relate to areas beyond their competence.

Such practices make it extremely unclear on who is ultimately responsible for elements of design, especially without a clear and agreed Design Responsibility Matrix forming a key part of the contractual suite. The result is that, at times, design detailing is not complete and problems often occur on construction sites or at approval phase.

### The Building Safety Act

The Building Safety Act 2022<sup>i</sup> introduced a multitude of legislative changes and when a HRB (High Risk Building) is concerned, it sets an expectation that Stage 4 and 5 design will not overlap with respect to Regulated Works. The Act calls for “plans as necessary to show that HRB work complies with all applicable requirements of the building regulations” to be submitted prior to commencement of construction. In addition to this, Change control plans are also required and there are explicit, defined change control protocols for Major Changes and Notifiable Changes and how these need to be reported and reviewed by the Building Safety Regulator. When it comes to Major Changes (which include amendments to the design of active and passive fire protection) these require sign off by the Building Safety Regulator before any works can commence.

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To support compliance associated with Safety Critical Products, the RIBA and CIOB published “A Guide to Managing Safety-Critical Elements in Building Construction”<sup>ii</sup>. The focus of this document being on the inspection rather than the design development process and asserts the following:

*“Design of any Element and the design of its interfaces with other elements must be complete and, where relevant, signed off prior to commencement of the construction of that Element”*

## The Design Responsibility Matrix

Whilst the Plan of Works and Design Framework falls back on the need to create and review a DRM, there is no standard agreed process for creating and updating the Design Responsibility Matrix nor is there guidance that clarifies how Early Supply Chain Involvement should and could be incorporated and managed to arrive at the correct description of the works with absolute clarity and fair apportionment of risk for all parties.

Penetrations, interface points and fixings are of most concern and the ground truth is that Specialist Contractors are often and sometimes inadvertently accepting responsibility for design elements outside of the scope of their work and competence. Beyond immediate safety implications, this has the potential to undermine insurance cover that they are being required to hold. The risks this creates are higher if Stages 4 and 5 are overlapped to accelerate the programme or where the design information is simply incomplete or inadequate, falling short of the expectations of each design stage. Further confusion also arises when there is mismatch between key documents such as the Bill of Quantities, Builders Work Information for different packages and conflict in drawings, documents and third party requirements such as planning.

The FIS is keen to explore the need for an agreed and standardised process to support the development of a formal Design Responsibility Matrix that embraces the design, tender, procurement, and construction stages but also helps to consider the responsibility of various parties for the safe and effective performance of systems, products and components in context (i.e. who is the designer, manufacturer and installer). Our aim is to set down an agile and collaborative process that encourages and engages the right parties within the supply chain to become involved at the right time and ensure responsibilities are effectively described in contracts.

## 4. Outline Proposals for Discussion

The process to support the creation and management of a Design Responsibility Matrix should be defined as the Design Development Process. As part of this, where suggested details are proposed to fulfil specific elements of design (or vitally where detailed information is omitted or is listed as CDP) these must be properly reviewed to ensure that a product or solution is available that:

1. Is appropriate to the circumstances of the building and building space it is designed to function within
2. Is described in the correct language to enable its prescription and so that regulated performance can be evidenced.
3. In the installed condition, it is compatible with all interfacing products or fabric elements and fixing details.
4. Fits into the form or space for where it was intended.
5. Can be installed safely and access for future maintenance.
6. It can be procured/supplied in the timeframe.

Where a product is available that meets these six steps, it should be incorporated into the Design Responsibility Matrix as:

*“Confirmed Detail” - covered by manufacturers warranty/scope of evidence in that the function is appropriate to the location for which it is being used.*

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This can then enable the design to be approved by the Principal Designer, any other approving authority, priced effectively, and constructed.

Where it cannot be determined against the six steps it should be recorded, as:

*“Nominal Detail” - not covered by manufacturers warranty/scope of evidence in that the function is appropriate to the location for which it is being used.*

In this instance it should be priced as a “Provisional Sum” noting that additional costs, changes to the design intent and potentially delays may arise from determining the appropriate design solution and any evidencing.

The uncertainty in essence should be recorded through the Design Responsibility Matrix and the relevant persons or entities consulted (under the control of the Principal Designer).

## Moving Through the Six Steps to a Resolved Detail or Construction

To shift a “Nominal Detail” into “Confirmed Detail” there is a need for a defined process to build the necessary evidence (see Figure 2). The options (to be agreed with the Building Control function) would be as follows:

- A. **Determine the scope of what the product or system of products need to meet.** All products that do not have a fire or structural safety performance will still need to meet their appropriate building regulations. Products that have a fire performance must also meet their appropriate building regulation or legislative function and their performance in terms of fire.
- B. **Engage with Manufacturers and Suppliers.** It is imperative to engage with the relevant product area manufacturer with the descriptive requirements determined from point A to see if there is any test evidence that is not currently in the public domain that will support the design need.
- C. **Secure an Engineering Assessment.** If there is no readily available evidence, the proposal would be to then seek advice from a competent person within the product area to see if a Technical Assessment is possible by a competent individual. Where the evidence is required for a fire resistance or reaction performance the proposal would be to seek advice from a competent person within the relevant file to see if a Technical Assessment is possible by using the PFPF Methodology<sup>1</sup>.
- D. **Test it.** Thereafter, a scope should be created along with a testing programme against the requirements that have been determined from the formal assessment protocols within point C.
- E. **Re-Design.** Design out the detail to ensure that the installation is designed within the scope of existing or new test evidence.

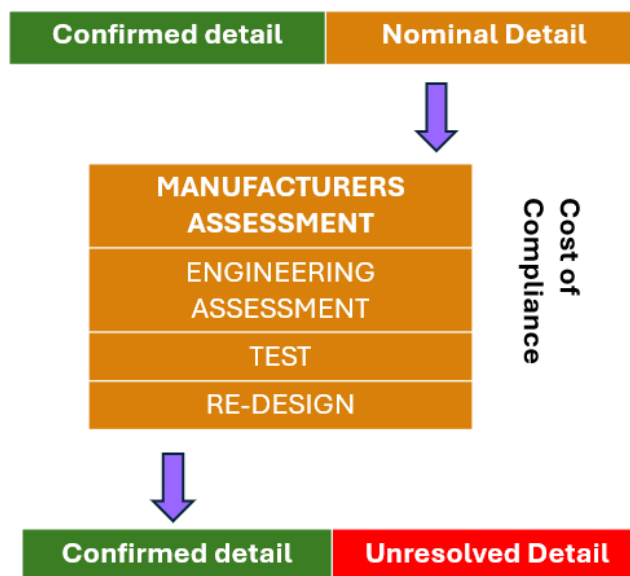


Figure 2: Developing Details in a Design Context

In following the above, should something fail to be evidenced then it we propose to downgrade this from a “Nominal Detail” to an “Unresolved Detail” which may then result in a return to Stage 3 and a practical re-design, as point E.

<sup>1</sup> Note: where there are different product fire performances that have to interface (i.e. a different substrate or interfacing component) the product manufacturers will not hold all relevant test data and a third-party UKAS accredited or other competent entity will need to be consulted. Any final assessment of the conformity of details should be checked to insure it is acceptable to the Principal Designer, any other approving authority and can be covered by the building insurance, warranties and any applicable Professional Indemnity insurance.

## 5. Roles and Responsibilities

Building upon the above, we also need to consider who is ultimately responsible; for example:

**Principal Designers** Need to be clear on the descriptive and the prescriptive elements of the specification. In identifying the descriptive elements, the Principal Designer must ensure a process is specified for creating the Design Responsibility Matrix that engages and allows the Principal Designer to have sufficient oversight and confidence that the descriptive design has undergone a robust process of creation, is in the right technical language that enables the prescriptive requirements to be met and without any changes to its core performance. In the identification of prescriptive design, the Principal Designer must ensure that there is robust descriptive design which aligns with the prescriptive solution such that they are presenting “Confirmed” not “Nominal Details”. It requires a clear protocol for determining the appropriate accountable party for the design of each element (with particular attention to interface and fixing).

**Designers** Responsibility should be captured on the DRM that is signed off by all parties. This signature indicates that they understand and accept liability and that they have the appropriate competency to design out the risks, safely and effectively.

**Principal Contractors Procurement Teams:** Must ensure that the contractual Contractors Design Portions are accurately defined (described) and the clarification and qualification process support rather than disincentives the risk management process by trying to procure and estimate an unknown unknown. They should engage the right supply chain partners (around regulated works) to verify the design requirements and then risks can be managed in the context of provisional sums appropriately for either “confirmed” or “Nominal Details” (i.e. fixed prices or qualified prices).

**Contractors:** Estimators need to be proactively identifying and flagging concerns - specialists also need to consider the importance of the [“Responsible No”](#).

**Manufacturers/Product Suppliers:** Tighter regulations now form part of the Building Safety Act to clarify manufacturers responsibilities. There remain challenges around describing products in terms of systems, products and components with in supersystems or complexes and ultimately buildings. It is also worth noting that there is already case law to [determine a contractor, when installing an assembly, could be held responsible as a manufacturer for the product performance](#).

## 6. Key Questions

1. Do you believe the Design Development Process is clear for all projects? Would a more standardised approach to Stage 4 Design be useful?
2. Do you already have a clear process for highlighting details where evidencing compliance of the product/fixing or interface could be problematic to ensure it is planned and monitored effectively?
3. Do you think highlighting “nominal details” as early as possible would support the design process?
4. Does this paper raise any issues that you think need to be looked at differently?
5. What is missing?

## 7. Contact for Comments

# FIS Consultation Document: A Defined Design Development Process



This paper has been prepared by Iain McIlwee and Joe Cilia of the Finishes and Interiors Sector and was initially developed to interrogate processes associated with a closing detail between compartment walls constructed from drylining which included a reduction detail from one supplier with additional insulation from another and after the fact it was realised that there was no test evidence to cover this assembly.

Your help to define a process aligned to your work on dampers will expand the reach and start to make designers responsible for their designs.

Please direct any comments Joe Cilia Technical Director at FIS [joecilia@thefis.org](mailto:joecilia@thefis.org)

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Latest Update: 10<sup>th</sup> May 2024

Please note that this document is intended for consultation purposes only. Versions have also been shared with members of the FIS Community and the [Passive Fire Knowledge Group](#).

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<sup>i</sup> [The Building Safety Act - GOV.UK \(www.gov.uk\)](http://www.gov.uk)

<sup>ii</sup> [A RIBA Guide to Managing Safety Critical Elements \(architecture.com\)](http://architecture.com)