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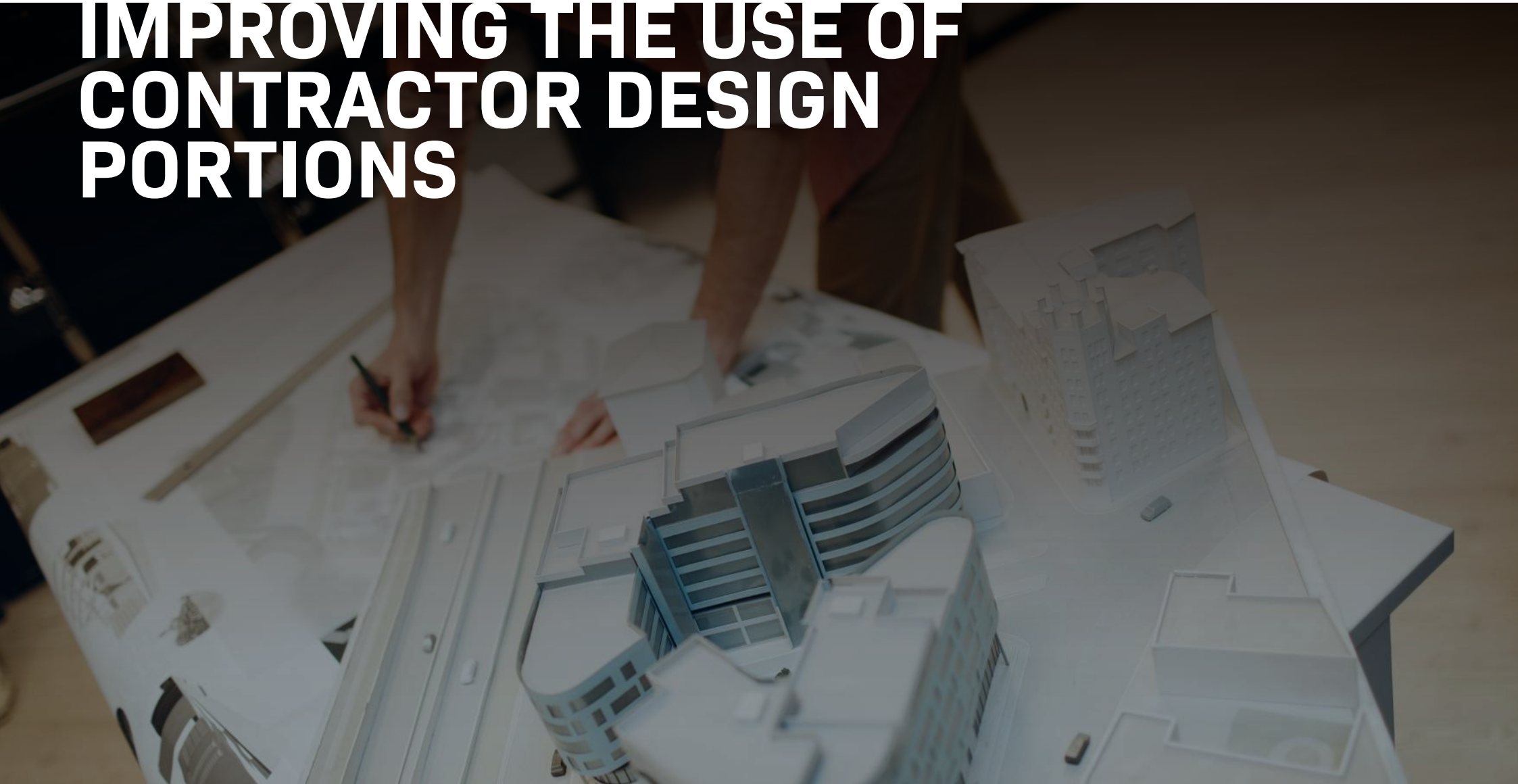
IMPROVING THE USE OF CONTRACTOR DESIGN PORTIONS



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What is the CQIC?

The Construction Quality Improvement Collaborative (CQIC) is a Scottish based campaign between the public sector and industry whose mission is to improve construction quality. The CQIC is the Quality Working Group of the Scottish Construction Accord's Transformation Programme. It was first set up following the Grenfell disaster and failures at Edinburgh schools. It looks to promote good practice to improve performance and help deliver compliance to building standards to create safer buildings.

Establishing and nurturing a sustainable quality culture requires commitment from all those involved in the whole life of a construction project. The CQIC has developed a Construction Quality Charter to build momentum for change that has been committed to by 141 organisations so far, collectively representing around 45,000 employees. The CQIC advocates for improving construction quality culture across the sector through engagement, workshops and producing guidance and it supports the development of related Scottish Government policy and guidance.

Contents

This Contractor Design Portions (CDP) Recommendations document is being promoted by the Construction Leadership Forum's Construction Quality Working Group, the CQIC, to support the outcomes and the shared vision of the Scottish Construction Accord. The Scottish Government support the Construction Accord and collaborate with industry across the work of the Transformation Action Plan; however, collaborative output does not represent Scottish Government Policy or Guidance. Any changes to Scottish Government policy or formal endorsements resulting from this work will be published through Scottish Government and Scottish Ministers.

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QUALITY
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COLLABORATIVE

1. EXECUTIVE SUMMARY

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1. Executive Summary

The CQIC has undertaken a survey on the impact of Contractor Design Portions (CDPs) on quality and how using CDPs can be improved across the design and delivery process. Based on the survey findings a number of recommendations arise and are summarised as follows:

1. Contractor Design Portions should be used where a specialised design is needed.
2. Contractor Design Portions should not be used to transfer commercial risks.
3. The Employer should, at RIBA Stage 1 in conjunction with the design team, identify as early as possible the required specialist design input. Reasons should be given to show why the specialist design is needed.
4. The Employer should appoint a Lead Designer who will be responsible for coordinating all CDP elements to ensure compatibility with other design elements.
5. The scope of the CDP packages should be defined as early as possible following identification at RIBA Stage 1 and the CDP scope finalised as early as possible and no later than RIBA Stage 3.
6. Design responsibilities should be clearly defined through the development of Design Responsibility Matrix.
7. Each CDP should be allocated to the appropriate member of the design team who will be responsible for reviewing that package and ensuring that it is incorporated into, and co-ordinated with, the rest of the design. The relevant member of the design team should prepare a preliminary design for the CDP design package not later than RIBA Stage 3.
8. CDP design should be developed at the same time as other designs and should be completed in RIBA Stage 4.
9. The Lead Designer should prepare a design programme showing when CDP design should be undertaken.
10. The Lead Designer should develop a strategy for CDP to ensure regulatory compliance is achieved.
11. Each CDP design should be reviewed collaboratively and timeously by both the design team and main contractor to check compliance and quality of the design and to ensure that the design complies with Building Standards.
12. CDP final designs should be submitted to the local authority Building Standards Verifier where they contain information that confirms compliance with the building regulations.
13. The Lead Designer should assess the risk of incomplete and late changes to designs following receipt of CDP designs.
14. Each CDP package should include a performance specification which clearly states the standards to which the design is to be conducted and the deliverables that are expected.
15. Designers must check to ensure that specialist designers will be capable of producing the deliverables that are specified in the preliminary design.
16. The designer, and where appropriate main contractor, responsible for the relevant CDP package should assess the competency of the CDP designer to ensure they are appropriately qualified and experienced to undertake CDP design.
17. Main Contractors should ensure that specialist designers/sub-contractors tendering for works are given the necessary documentation at tender stage so they are fully aware of their design responsibilities and the required deliverables.

1. Executive Summary (continued)

18. The design programme for each CDP should be reviewed by the main contractor to check compatibility with the time allowed in the project programme.

19. An industry standard procedure should be developed that sets out design responsibilities and encourages a detailed review of CDP by the design team.

Based upon responses from the industry, the CQIC recommends that organisations procuring, using, or delivering CDP on their projects consider and implement where appropriate the recommendations set out above and as further expanded upon within this document.

The production of the survey, analysis of survey results and production of this publication was undertaken by a representative selection of individuals from across the industry. CQIC thanks the following individuals for their time, knowledge and experience in the production of this document

Iain Kent
Morgan Sindall Construction & Infrastructure Ltd

Kevin Cooper
Norr Architects

Robert Storey
Storeys Design

Dean Carrick
AtkinsRéalis

Simon Bell
East Ayrshire Council

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2. INTRODUCTION

CONSTRUCTION QUALITY IMPROVEMENT COLLABORATIVE

2. Introduction

The purpose of this report

The purpose of this report is to provide recommendations for all organisations operating in the construction sector on how best to improve the impact CDP has on the quality of the facilities they own, design or construct. This includes Employers and professionals procuring facilities, designers, contractors and sub-contractors designing and constructing these facilities and any other relevant party who has an interest in delivering sustainable quality.

CDPs are used where a specialist designer/sub-contractor is required to design specific elements of the work.

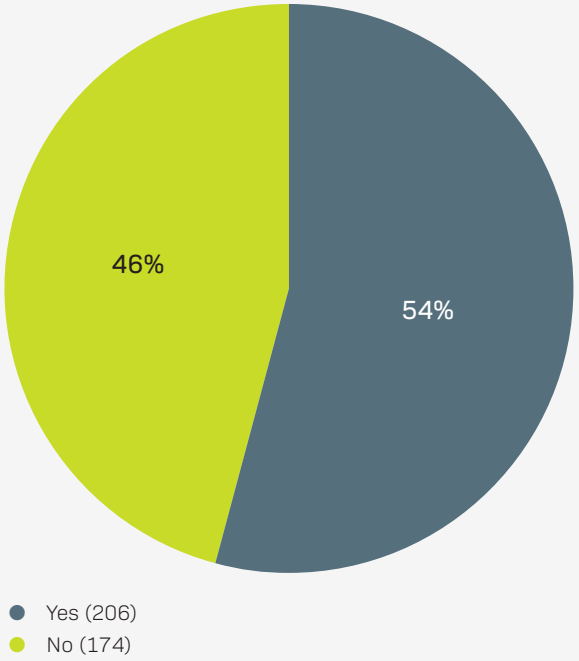
It is evident from the survey results that the industry strongly believes there is a need to change the approach to CDP. Free text responses to the question on *"What do you think needs to change to improve the CDP process?"* included the following:

"Education and understanding that specialist trades have knowledge that needs to be included in early stages to allow right first time solutions."

"More detail behind scope of works. More understanding of the consultant. Shouldn't be used as a tool to hide behind due to a lack of skills and knowledge."

"At present CDP is used to hold sub-contractors inherently responsible for timescales of design, procurement and project delivery, there needs to be a change in mindset towards a more collaborative approach, where 'no blame' culture prevails - this will lead to healthier working relationships, better build quality and more in depth coordinated technical design."

Question 3
Do you think the term *Contractor Design Portion* is clearly defined and understood?



"Clear understanding of a consultant's responsibility and where CDP element starts, on a large number of projects consultants are introducing additional CDP elements which would not be considered 'specialist' elements, e.g. selection of plant (which is already scheduled and specified)."

"An overall understanding of responsibilities and a willingness of multiple parties to take ownership over their input on the design."

"The correct appreciation of the benefits of early engagement in the process with suitable budgets identified and paid for the works being carried out. To stop looking at CPD as an opportunity to pass risk and as an opportunity to improve the product."

This report is structured to initially recommend when it is and is not appropriate to use CDP.

2. Introduction (continued)

Thereafter, we have collated the recommendations into the relevant RIBA Plan of Work stages to ease the use and implementation of the recommendations. The recommendations have been mapped within a table which is enclosed in Appendix A.

Finally, the report considers what may be the barriers to implement the recommendations and identifies how they may be addressed.

Background to the survey and recommendations

Over the last 25-30 years there has been an increasing tendency to use Contractor Design Portions (CDPs) in traditional contracts and Design and Build (D&B) projects for the procurement of publicly funded and privately funded commercial projects.

Recent public inquiries into construction quality have found that incomplete designs, which have not been properly co-ordinated, have a key impact upon construction quality. Scottish Government's response to the Grenfell inquiry https://www.gov.scot/publications/scottish-government-response-grenfell-tower-inquiry-phase-2-report/ has identified areas to be addressed which are consistent with the findings of the survey and the recommendations identified in this document.

The CQIC set up a working group to explore the appropriate use of CDPs on the quality of construction and to produce recommendations on the use of CDPs in project procurement.

The working group, consisting of representatives from professions and organisations across the sector, reflected on the output of recent CQIC engagements and found the following areas for investigation/ consideration:

- Decide what impact CDP had on construction quality.
- The reasons why this was the case.
- What are the opportunities to improve the impact CDP has on quality.

Based on the feedback from the CQIC engagements, the Quality Working Group prepared a survey which was shared with participants in the construction industry in February 2024 to obtain feedback on the issues listed above.

The survey was **completed by 381 respondents** representing professions and a wide range of organisations working in the construction industry in Scotland. The questions and results from the survey can be found in Appendix B. The working group has reviewed the survey results and the data from the results has informed the recommendations in this report.

Analysis was undertaken to decide whether there was any divergence in response to the survey questions from different professions and/or organisations. This analysis found that there was little divergence in question responses between different professions and/or organisations. The survey responses referred to in this document are therefore considered to be representative of the whole industry views on the matter.

CONSTRUCTION
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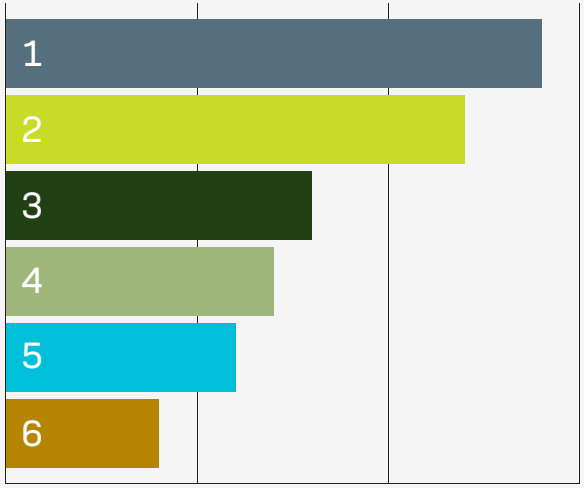
3. RECOMMENDATIONS

CONSTRUCTION QUALITY IMPROVEMENT COLLABORATIVE

3. Recommendations

This section of the report sets out several recommendations based upon the survey responses for improving the use of Contractor Design Portions, which in turn will improve construction quality.

Question 6
What do you think CDP should be used for? Please rate in order of priority, 1 being highest priority.



1 Specialist design knowledge
2 Completion of specialist design
3 Risk transfer
4 Cost certainty
5 Shorter overall programme
6 Obtain lowest price

Recommendation 1:
When to use Contractor Design Portions

Background

Responses to Q5, Q6 and Q7 indicate that most respondents are of the opinion that CDP should be used for Specialist Design knowledge and that risk transfer should be related to the completion of design where appropriate. Responses to Q7 also show that 'improvements to buildability' is a benefit of using CDP. Analysis of the free text responses to Q25 shows that there is consensus that there are circumstances where CDP should be used as follows:

- *CDP should be used where specialist design expertise is needed, and this experience cannot be found within the design team, e.g. piling, cladding or sprinkler system designs.*
- *CDP may also be used where the design of a particular element is bespoke to its supplier, e.g. curtain walling systems.*
- *To improve the buildability of the CDP design.*
- *Where a package of work has been selected for CDP, the reasons for its selection should be documented and provided to the Employer to determine its suitability.*

Recommendation 2:
When not to use Contractor Design Portions

Background

Responses to Q8 and analysis of the free text responses to Q26 indicates that there is consensus that there are circumstances where CPD should not be used as follows. It should be noted that many responders consider that the use of Contractor Designed Portion packages to transfer commercial risks without any significant benefit to the final design is one of the main reasons why CDP has not been effective:

- *Primary elements of design, e.g. steelwork although it is recognised that timber kits, modular construction or specialist structural solutions may be appropriate as a whole or in part for CDP.*
- *When the design team has the necessary expertise.*
- *Where the design risk is being transferred inappropriately e.g. transfer of commercial risk or to obtain the lowest price or where the design is complete.*
- *Basic designs – for straightforward or generic works.*
- *Where the Employer wants to retain design control.*
- *To save time, reduce fees or where CDP is insufficiently defined.*

CONSTRUCTION QUALITY IMPROVEMENT COLLABORATIVE

3. Recommendations (continued)

RIBA Stage 1
Design team appointment stage

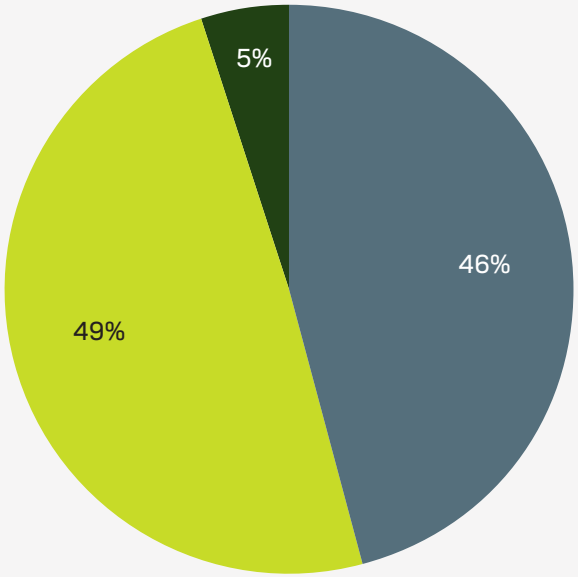
Recommendation 3:
Early identification of Contractor Design Portions

Following on from the recommendation that CDP should be used when specialist design expertise is required and this experience cannot be found in the design team, the Employer when considering appointment of the design team should initially identify which parts of the project they consider require specialist design input. It should be recognised however, that the expertise within different design teams will vary and hence to successfully implement these recommendations it will be necessary for the Employer to establish the capability of the design team as early as possible.

Establishing the capability should commence as part of the appointment process when each designer should be asked to list any features of the project that they would regard as requiring specialist design input, providing reasons to the Employer for that recommendation. It may be appropriate to appoint additional specialist designers/ sub-contractors at this stage, rather than utilising CDP potentially later in the process.

These Employer enquiries should commence early in the appointment process by means of appropriate procurement documentation including Scopes of Service and an initial Design Responsibility Matrix which allows the designers to declare what portions of the project they would normally expect to include as a CDP based on their own experience and previous experience of similar projects and knowledge of the brief.

Question 15
What impact does the timing of the appointment of any contractor with CDP responsibility have upon the overall design and design quality? Select one choice.



CONSTRUCTION QUALITY IMPROVEMENT COLLABORATIVE

3. Recommendations (continued)

RIBA Stage 1
Design team appointment stage

Recommendation 4:
Defining lead role for Contractor Designed Portions

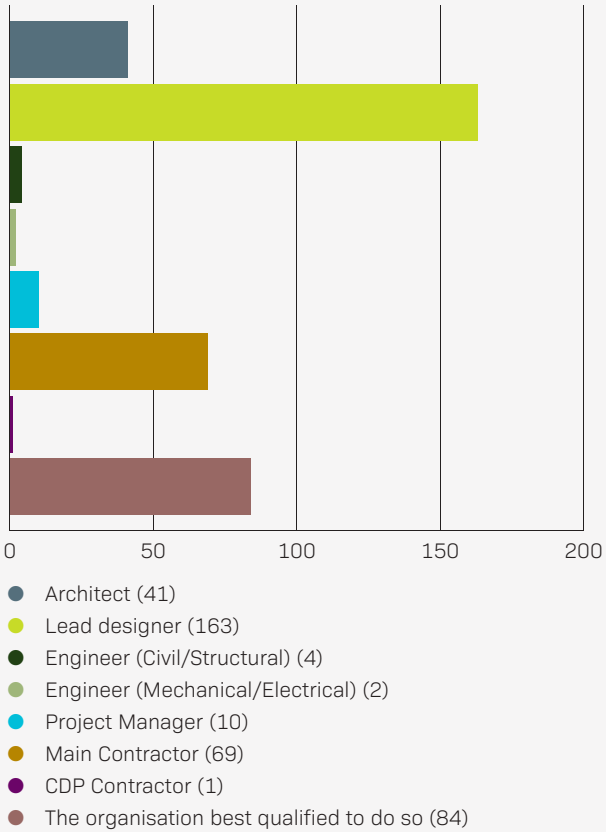
41% thought responsibility for lead role should sit with lead designer

Background

Responses to Q8, Q21 and Q22 indicate that a substantial portion of respondents felt that responsibilities for CDP were poorly defined and that the person most appropriate for coordination of all CDP elements was expected to be the Lead Designer. Question 21 in the survey asked respondents who they felt should be responsible for the coordination of any CDP design with the rest of the project design elements. 41% of respondents felt that this responsibility should be with the Lead Designer and 24% felt this responsibility should be with the Architect. In most projects the Lead Designer is the Architect, however in some specialised instances, for example a project with a strong engineering bias, or because of a particular procurement route, the Lead Designer may be another consultant, for example, an engineering consultancy.

Recommendation 4 therefore advises that the Lead Designer should be responsible for coordinating all CDP elements to ensure compatibility with other design elements. Responsibility for CDP coordination should be clearly shown in the design team appointments and this responsibility extended throughout the design and construction stages and included in the duty of other designers to report to them.

Question 21
Who do you consider should be responsible for coordination of all CDP design with the rest of the project design elements? Select one choice.



CONSTRUCTION QUALITY IMPROVEMENT COLLABORATIVE

3. Recommendations (continued)

RIBA Stages 2-3
Design team appointment stage

Recommendation 5:
Define scope of Contractor Design Portion Packages

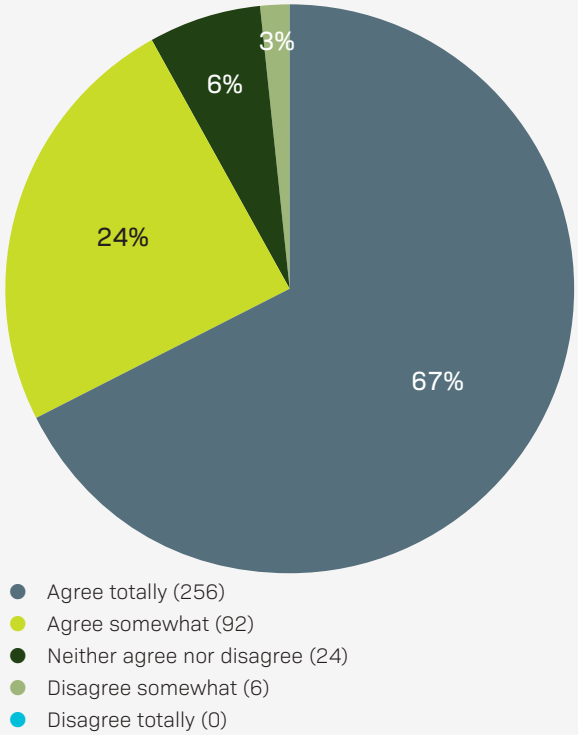
89% of respondents thought scope of Contractor Design Portions should be finalised at Stage 3

Background

The timing of when the scope of CDPs is defined is crucial. Questions 14 and 15 of the survey related to this issue. 68% of respondents to Question 14 felt that this timing impacted significantly upon the overall design and quality of the project, whilst an overwhelming consensus of 95% of respondents to Question 15 felt that the early appointment, or very early appointment, of those packages to be implemented by a contractor with CDP responsibility, provides a positive project outcome. CDPs should however only be used where a specialised design is required.

Most respondents agreed that the scoping of any CDP needs to be agreed at an early stage. Question 16 asked this question specifically. 40% of respondents felt the scoping should be agreed in RIBA Stage 2 whilst 39% felt this should be agreed in RIBA Stage 3, creating a strong consensus of 79% across all respondents for clarity of scoping at an early stage, and certainly prior to RIBA Stage 4 when the production information is produced. Clarity of CDP scopes assists with overall clarity of responsibilities and informs the project programme too.

Question 14
To what extent do you agree/disagree that the timing of the appointment of any contractor with CDP responsibility impacts upon the overall design and design quality? Select one choice.



CONSTRUCTION QUALITY IMPROVEMENT COLLABORATIVE

3. Recommendations (continued)

RIBA Stages 2-3
Design team appointment stage

Recommendation 5 therefore advises that the overall extent of any CDP requirements is defined as early as possible in the project process and by RIBA Stage 3. Contractors with CDP responsibilities should be appointed early or very early in the process.

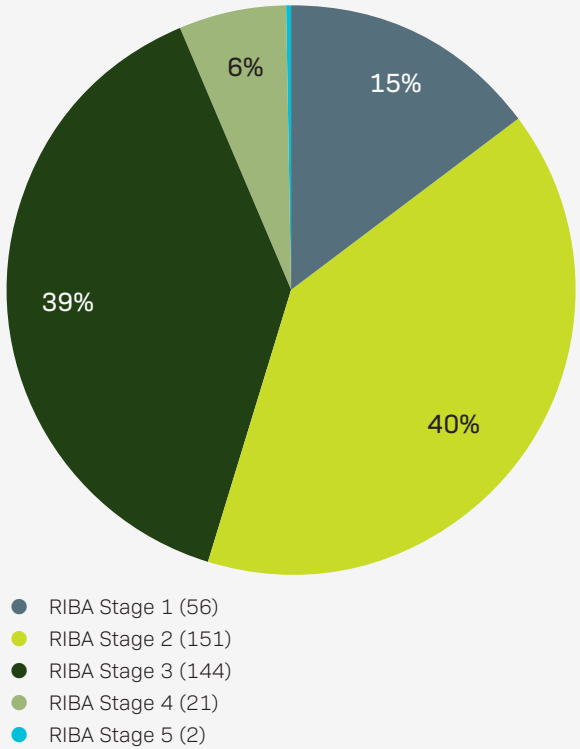
Building on recommendation 3, CDP packages should be scoped as early as possible in the project. This will commence during the appointment of the designers but should be finalised prior to the end of RIBA Stage 3. It is recognised that the extent of CDPs may continue to develop throughout the early stages of the project and may change from what has been assumed at the appointment stage as further areas of specialist design are identified.

Either the Employer should produce a draft list of CDP packages to be issued to designers as part of the tender pack or designers should identify their recommended list of CDP packages and why they are required as part of their tender return. This enables the Employer to assess which designers have the skills required and where this requires to be supplemented through specialist design.

CDP elements should however be clearly identified and agreed between all relevant parties by the end of RIBA Stage 3 at the very latest.

The reasons for using CDP for specialist design should be recorded as these will vary between projects.

Question 16
When should the scope of the CDP design work be agreed? Select one choice.



CONSTRUCTION QUALITY IMPROVEMENT COLLABORATIVE

3. Recommendations (continued)

Defining responsibilities for Contractor Designed Portion Packages

Recommendation 6:
Clearly defining design responsibilities

51% of respondents disagree that design responsibilities are clearly defined

Background

Questions 19 and 20 in the survey related to the reviewing and defining of design responsibilities for the various design packages required for the successful delivery of the project. Question 20 specifically asked respondents if they felt that the design responsibility for all elements is clearly defined and discussed prior to finalizing the design for integration of these elements into the workflow. The response was mixed, with 31% of respondents "agreeing somewhat" and 39% "disagreeing somewhat", strongly indicating that design responsibilities are not often clearly defined. In addition, the responses to Question 19 suggest that a significant proportion of the respondents do not feel that review processes are adequate to determine requirements or that scopes are clearly defined.

Recommendation 6 therefore advises that a Design Responsibilities Matrix is agreed at an early stage by the entire project team to bring clarity to the required scope.

It is expected that an agreed Design Responsibility Matrix will be used to record and track these actions. The Designed Responsibility Matrix needs to be in sufficient detail to clearly identify responsibility for producing the initial design, the completion of the specialist design and the member of the design team responsible for review and co-ordination of the specialist design. The relevant Design Responsibility Matrix should be included in design appointments and building contracts to clearly define design responsibilities. An example Design Responsibility Matrix can be found in the CQIC Construction Quality Guidance for Contractors - Sample DRM

CONSTRUCTION QUALITY IMPROVEMENT COLLABORATIVE

3. Recommendations (continued)

Defining responsibilities for Contractor Designed Portion Packages

Recommendation 7:
CDP Packages should be allocated to individual designers

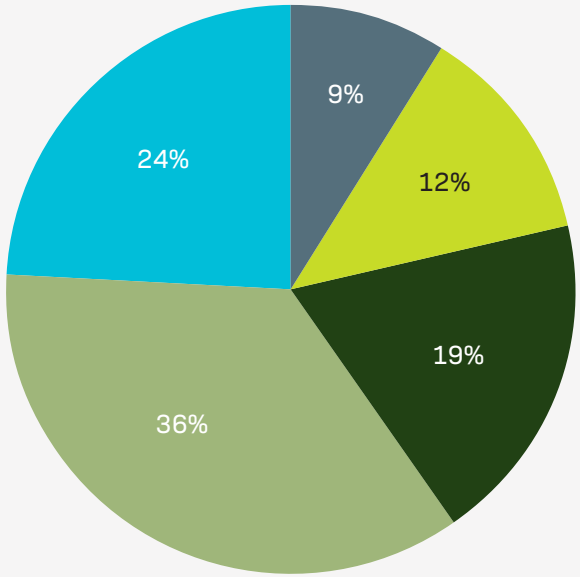
60% of respondents state design fees have a high degree of negative influence on the approach to using CDP

Background

Whatever the individual circumstances, each CDP should be allocated to the most appropriate individual designer, with that designer then reporting to the overall Lead Designer, depending on the needs of the specific project.

The consensus from Questions 25 and 26 was that CDP should only be used for specialist items. The response to Question 12 meanwhile suggested that 60% of respondents felt that lower consultancy fees were having "a degree" or "a high degree of negative influence" on the approach to the use of CDPs. A similar number also felt that increased Professional Indemnity Insurance requirements were having a similarly negative influence. Whilst the detailed scope of any individual specialist CDP package may not be established until Stage 3, clarity in scope and responsibility should nevertheless be agreed as early as possible, as these factors may have implications for fees and programme. The level of detail that needs to be included within the preliminary design and the deliverables that can be expected from contractors will vary depending on the complexity and the specialist nature of the element. The preliminary design must be sufficiently developed so that the interfaces with the remaining building elements are properly understood and the risk of significant changes occurring is minimal when the CDP has been completed.

Question 12
It is suggested that *"lower consultant design fees are influencing approach to CDP?"* To what extent do you think lower consultant design fees are influencing approach to CDP? Select one choice.



CONSTRUCTION QUALITY IMPROVEMENT COLLABORATIVE

3. Recommendations (continued)

Defining responsibilities for Contractor Designed Portion Packages

The design team will be required to prepare drawings which accurately show the extent and features of the CDP.

It is anticipated that designers will require to liaise closely with system suppliers to develop the preliminary design to a standard that is necessary to enable the contractor to complete the design without the need for any significant further information.

Recommendation 7 therefore advises that there should be early clarity of scope with each CDP which should then be allocated to an individual designer with due regard for the wider project context. That individual designer will then be responsible for producing the initial design and the review of the individual CDP and for reporting to the Lead Designer.

CONSTRUCTION QUALITY IMPROVEMENT COLLABORATIVE

3. Recommendations (continued)

Programming of Contractor Designed Portion Packages

Recommendation 8:
CDP design completed by RIBA Stage 4

Recommendation 8 therefore advises that CDP/specialist design work should be undertaken early in the programme, and by Stage 4, to ensure the desired quality is achieved.

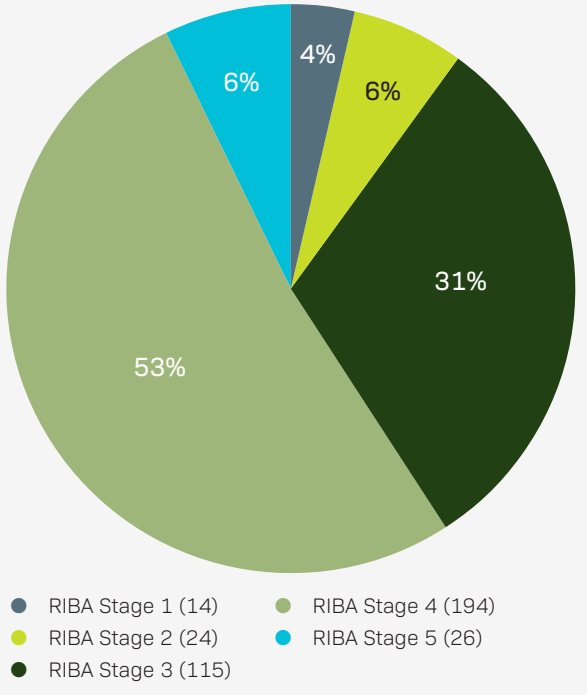
Background

The successful programming of a project based on realistic timescales and reasonable deliverables is crucial to its success. This includes the optimum timing for the introduction of CDP elements. Questions 14 and 15 of the survey asked if respondents agreed or disagreed that the timing of the appointment of any contractor with CDP responsibility impacts on the overall design and its quality. 68% "agreed totally" whilst 24% "agreed somewhat". The consensus is that early appointment of CDPs impacts positively on the design quality.

Question 17 of the survey asked respondents when CDP design work should be undertaken. 93% of respondents stated that CDP design work should be undertaken by Stage 4, with 6% stating it should be undertaken in Stage 2, 31% stating it should be undertaken in Stage 3 and 52% stating it should be undertaken at Stage 4.

There is therefore a clear industry consensus that undertaking specialist design early improves design and construction quality, and this design should be undertaken no later than Stage 4. Where appropriate, remunerating such Specialists to provide appropriate early-stage advice, as designs are developed during RIBA Stages 2 and 3, will improve design quality. Programming appropriate design time for CDPs during Stages 3 and 4, and prior to starting on site, will mitigate against potentially costly delays or abortive design work during construction.

Question 17
When do you consider CDP design work should be undertaken and completed? Select one choice.



Recommendation 9:
Lead Consultant prepares an initial programme for CDP design

Background

The length of time required for the development of each CDP will vary depending on its specific nature and the complexity of the individual project. The consensus in the survey is that CDPs should be identified early, together with, where necessary, those of due competence responsible for delivering them. An appropriate allowance in the programme should also be identified for their design development so that everything is ideally in place in RIBA Stage 3 for the successful development and integration of the CDPs into the wider design during RIBA Stage 4.

Recommendation 9 therefore advises that the Lead Designer should prepare an initial programme which identifies the 'time' element required for the design of each area of specialist design and that the design is undertaken at the same RIBA Stage as the remainder of the design.

3. Recommendations (continued)

Regulatory Compliance

Recommendation 10:
Lead Designer should develop a strategy for CDP regulatory compliance

Background

Obtaining regulatory compliance for any project ideally involves early engagement with the relevant statutory authorities, in the case of CDP, with the local council's Building Standards Department. Effective communication is vital, especially with complex projects which may require staged warrant applications. The consensus from respondents in the survey was that CDP packages should be established early in the process. Building warrant approvals do however require designs to be completed before submission to the Building Standards Department and, consequently, some CDPs may then be on the critical path. A clear strategy for agreeing to any CDP elements in Building Warrant applications, based on a carefully considered programme, is therefore essential. The Lead Designer should agree a suitable strategy for obtaining building warrant approval for the project which may include Staged Warrant submissions.

Where appropriate the Lead Designer should agree the Construction Compliance Plan Strategy with the Building Standards Department as part of the approval process.

Recommendation 10 advises that a suitable strategy for obtaining building warrant approval, which reflects the complexity of the project, should be developed early in RIBA Stage 3.

Recommendation 11:
Detailed reviews of CDP designs to ensure their compliance with Building Regulations.

Background

Regulatory compliance is essential for all building projects; however, this can be achieved in different ways. For example, the fire strategy for a particular project may require the input of a Specialist Fire Consultant to achieve a strategy-based solution rather than a strictly compliance-based solution. Early engagement with Building Standards will therefore be required to ensure an acceptable solution within the relevant project parameters, including technical compliance, safety, cost and programme. Appropriate time periods should be allowed for the iterative development and detailed review of any CDPs to ensure no subsequent delays to the approval of warrants, particularly in a staged warrant situation. Ensuring any agreed CDPs are an integral part of an agreed Construction Compliance Plan is essential.

Recommendation 11 therefore advises that an appropriate, detailed review of each CDP is carried out to ensure compliance with Building Regulations.

Recommendation 12:
CDP final designs should be submitted to the local authority where they contain information that confirms compliance with the building regulations as required by Building (Scotland) Act 2003.

Background

CDP final design packages should be submitted to the Building Standards Department, and form part of the overall Construction Compliance Plan. These packages may, however, require SER certificates for certain aspects of the work. These require to be identified and programmed at an early stage to avoid delays and potentially abortive work later in the process.

Recommendation 12 therefore advises that final CDP designs should form part of the Building Warrant application, particularly in a staged warrant situation. These should be identified by the end of RIBA Stage 3.

3. Recommendations (continued)

RIBA Stage 4
Technical Design

Recommendation 13:
Identify the risks associated with incomplete designs and/or changes to design once CDP designs are received

Background

The answers to survey Question 18 highlighted that some of the main risks associated with using CDP were the potential for ' adverse impact upon programme' and 'the impact of late design decisions which also affect programme'.

Recommendation 13 therefore recognises that a project can be exposed to additional risks where CDP is used and that those should be identified as early as possible and clearly understood by all parties before tender stage.

The design team should prepare a risk assessment for each CDP and in particular note the known variations that may occur and how this may impact on the final design of the remaining building elements.

If there is an unacceptable risk of redesign, then further options should be considered for this CDP such as appointing specialist designers/sub-contractors or nominating a Preferred Supplier.

Recommendation 14:
Prepare a Performance Specification for each CDP element

Background

Text responses to question 4 identified that respondents thought that CDP elements were poorly defined.

Recommendation 14 therefore underlines the need for a performance specification which clearly sets out the design standards and deliverables expected from the specialist designer.

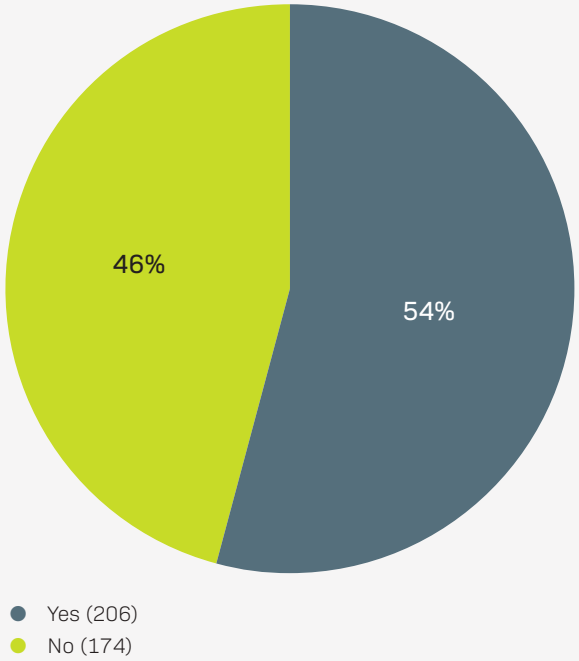
It is expected that the design team will be sufficiently familiar with the systems that are being specified to be confident that the deliverables are within the capabilities of the specialists that are expected to tender for the work.

The performance specification should clearly state the standards and quality that the contractor must comply with.

The performance specification should provide a Schedule of Deliverables that is expected from the contractor which will include but not be limited to drawings, calculations, test results and certificates.

It should be noted that the Scottish Building Standards System through the Building (Scotland) Act 2003 (the Act) requires applicants to provide a level of design information which may exceed that of other jurisdictions outside Scotland and therefore if specialist designer's/sub-contractor's information is to be used for this purpose, the design team should give consideration to any special requirements that have to be highlighted in this regard.

Question 3
Do you think the term *Contractor Design Portion* is clearly defined and understood?



3. Recommendations (continued)

RIBA Stage 4
Technical Design

Recommendation 15:
Designers must check to ensure that specialist designers will be capable of producing the deliverables that are specified within the preliminary design.

Background

The decision as to what level of detail is to be included in the preliminary design and what deliverables can be expected from contractors will depend on their competency and to some extent their normal method of operation.

The answer to survey Question 9 showed that respondents put design capability and competency as the top key factors in the selection of CDP Contractors.

It is expected that the design team will be sufficiently familiar with the general working practices and the competency of the contractors that are likely to tender for the systems that they are specifying and therefore be reasonably confident that the deliverables are achievable.

Recommendation 15 underlines the Designer's responsibilities in this respect.

The design team should make enquiries to check that the specified deliverables are within the normal competence for contractors that are likely to tender for the works.

It is important for the design team to be aware of the varying competence levels of different specialist designers/sub-contractors. Whilst all specialist designers/sub-contractors may be able to comply with the technical specifications of a particular element, their design capability may vary considerably and hence the deliverables should be tailored to ensure that specialist designers/sub-contractors are not unfairly excluded.

CONSTRUCTION QUALITY IMPROVEMENT COLLABORATIVE

3. Recommendations (continued)

RIBA Stage 4
Tender Stage

Recommendation 16:
Main contractors and design team members should make reasonable enquiry to check that specialists tendering for CDP have the necessary competence and experience to undertake CDP design.

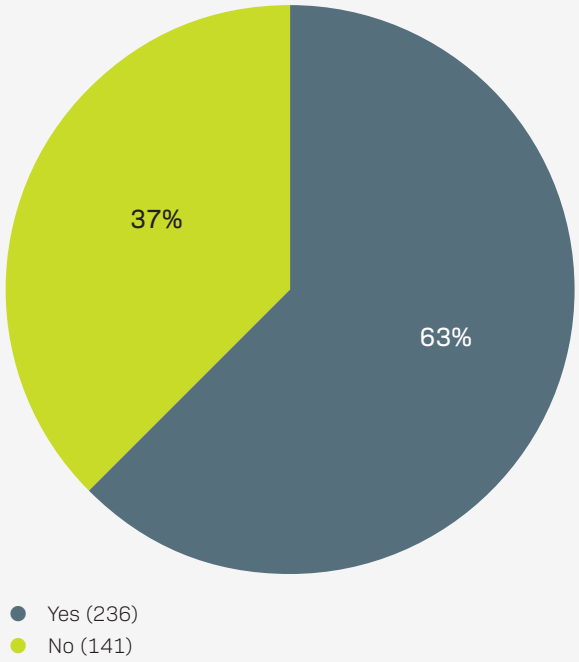
30% of respondents do not undertake sufficient checks of competency

Background

The response to Question 8 of the survey suggested that the "Competency of CDP designers" was the third most prevalent risk of using CDP. Mitigating this risk through robust enquiry is key to success. The two most prevalent responses to what the "key factors that drive selection of CDP sub-contractors" (survey Question 9) were design capability / competence and specialist design knowledge; it is these elements that competency checks should be focused on.

Question 13 of the survey asked respondents if "risk/competency assessments" were undertaken on CDP designers by their organisations. 63% stated yes, so slightly less than two-thirds of respondents, which would suggest over a third do not undertake sufficient checks on risk or competency when engaging specialist designers/ sub-contractors; this is sub-optimal practice. However, analysing the data further, of those stating no, some of them would not necessarily be the party that would be required to carry out these checks. However, there are a considerable number of the 37% (55, so circa 15% of all those responding to this question) who are noted as being, arguably, those who SHOULD be checking competency. Positively, therefore, this may suggest that the industry DOES undertake checks of this nature to a high degree.

Question 13
Are risk/competency assessments undertaken on CDP designers by your organisation?



CONSTRUCTION QUALITY IMPROVEMENT COLLABORATIVE

3. Recommendations (continued)

RIBA Stage 4
Tender Stage

Recommendation 16 therefore advises that there is criticality in ensuring that the main contractor and the design team are responsible for ensuring the competence of those likely to deliver the service and/or the works, continuing their responsibility throughout the process of CDP delivery.

The competency of sub-contractors with specialist design responsibility should be checked by the main contractor and the design team member responsible for the relevant CDP portion.

They will make reasonable enquiries to ascertain how the specialist sub-contractor intends to resource the design aspect of the CDP elements and obtain sufficient assurance that they have the necessary expertise to meet the specifications and deliverables.

It is expected that main contractors will obtain examples of recent projects where the specialist has provided similar services and CVs of the individuals who will be undertaking the design as a minimum requirement.

3. Recommendations (continued)

RIBA Stage 4
Tender Stage

Recommendation 17:

Main contractors and the design team should ensure that specialist designers/sub-contractors have been provided with the necessary documentation at tender stage so that they are fully aware of their design responsibilities and the required deliverables.

Background

The competency required to complete the design, including interfaces with other works, will be determined by the extent and completeness of the design information provided to the designers/sub-contractors.

One response to the free-text request to survey Question 30, asking for further comments, stated, "Design Responsibility Matrix [DRM] are key to the process and should be viewed as mandatory as an inclusion in tender documentation."

Liaison between main contractor and design team is key to being joined up and avoiding gaps between specialist elements, with further detail provided by a well-considered Design Responsibility Matrix. Both parties (amongst others potentially) should have a degree of responsibility in ensuring completeness of information for the purpose of tendering the design; and this may involve tender pack reviews prior to issuing to market.

Referring to survey response to Question 9, "What do you consider are the key factors that drive the selection of CDP Sub-Contractors?", it is clear that the capability, competence and knowledge of the specialist designers/sub-contractors should be the key criteria for assessment purposes; in order to do this comprehensive and complete information needs to be available for those who are subject to selection.

Recommendation 17 therefore advises that the main contractor must ensure that tendering sub-contractors are provided with all the available information from the design team concerning the CDP performance standards and deliverables, in order that they may properly assess their capacity and competency to undertake the required design work and be properly developed to allow the specialist to understand how their piece fits.

The Main Contractor should ensure that all specialist designers/sub-contractors are provided with the full design information, including the required deliverables for each CDP.

Competency checks being complete and the potential tender list for specialist designers/sub-contractors being authored leads to the process of tendering the design elements. The detail of the information provided to the tendering specialists needs to be robust and extensive enough to ensure clarity of requirements and of scope.

Issuing partial information, e.g. architect's but not engineer's drawings, can result in specialist designers/sub-contractors not being fully aware of the extent of their responsibilities or complexity of the work. Design responsibility matrices can assist in providing clarity in this instance, alongside existing design information.

Specialist designers/sub-contractors should submit capability statements and a tailored response to the scope/performance specification within their tender responses. This should contain any proposed alternative products or details.

3. Recommendations (continued)

RIBA Stage 4
Tender Stage

Recommendation 18:
The design programme for each CDP should be reviewed by the main contractor to check compatibility with the time allowed in the project programme.

Background

Part of this is in ensuring that the programme of delivering the CDP design is right and aligns with the requirements. The nature of who is involved and who leads on this aspect may differ depending on procurement methodology.

It is key to delivery that the specialist designer's/sub-contractor's ability is taken account of, and this extends to realistic design programmes and verifications. One response to Question 29 of the survey, which asked respondents to consider what needs to change to improve the CDP process, was "Competency and the timing of the CDP specialist solution's integration within the overall solution is seamless".

The response to Question 28, about barriers to change in regards to CDP, shows that project delivery timescales ranked only 5th out of 6. This lower ranking might suggest that programmes are able to be reviewed and accommodate specialist designer/sub-contractor requirements; however, it is still a barrier, so this highlights that a review of the programme is an essential activity by a competent construction deliverer.

One response to the free-text request in survey Question 30, asking for further comments, stated, "CDP packages often lack the deadlines on programme dates and correct implementation timelines." This suggests that the review noted above should be undertaken earlier in the process and the overall programme reviewed on that basis.

Recommendation 18 therefore recognises that the main contractor has a responsibility to ensure that their proposed sub-contractors can meet the design timescales allowed in the project programme.

The main contractor should review the design programme and satisfy themselves that the time allowance included for CDP is realistic.

Under a two-stage D&B approach the main contractor's site team (Contracts Manager) should review the design programme taking account of the Employer's Requirements for verification of CDP elements and satisfy themselves that the time allowance included within the programme for CDP is realistic.

It is expected that any perceived problems with achieving the CDP design times will be highlighted in the tender returns by the main contractor. Their delivery expertise should be deployed in reviewing the design programme as well as the overall programme.

Optimistic programmes outlined prior to main contractor involvement (say in a traditional procurement approach) may mean that the pressure placed on those delivering specialist design leads to suboptimal delivery and unintended consequences.

3. Recommendations (continued)

RIBA Stage 4
Tender Stage

Recommendation 19:
An industry standard procedure should be developed that sets out design responsibilities and encourages a detailed review of CDP by the design team.

Background

The aspect discussed here relates to the detailed review of the CDP design undertaken.

The responses to question 18 state that in the respondents' experience both design teams and main contractors do review the CDP design provided either fully or to an extent. There is however a contingent of respondents who state that a review is either limited, lacking, or (more damningly) significantly lacking.

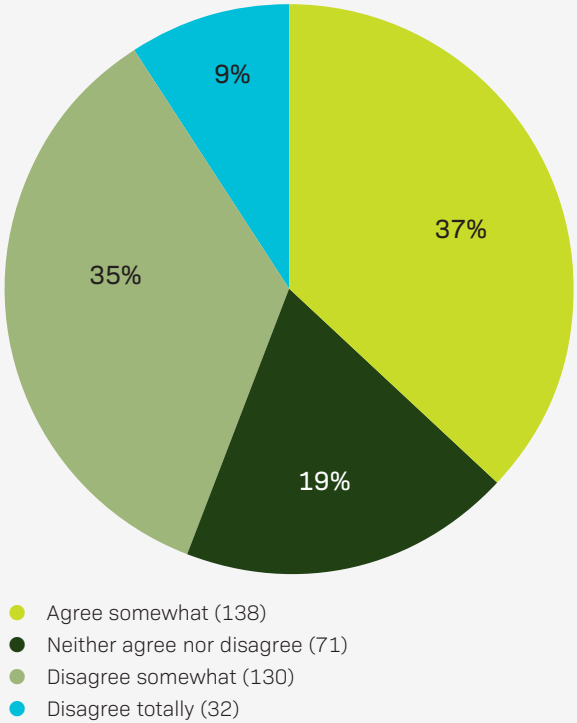
Further, on responses to Question 18, the likelihood of the design team reviewing fully or to an extent is higher than that for the main contractor, albeit marginally. Whilst it may be that, ultimately, the design team has the obligation to review and sign off the CDP design (by and large) it is important a detailed review of the CDP is also undertaken by the main contractor. Ideally the review of the CDP should be carried out by the design team and main contractor collaboratively, using the combined experience and knowledge of both parties to ensure a compliant, buildable and comprehensive design. Details of this review should be communicated to the Lead Designer who has overall responsibility for ensuring a compliant, comprehensive design. Obligations for review should be agreed between the parties in advance to ensure a comprehensive review is undertaken.

Question 19 of the survey extended the question of design review and resolution to the "timeframe required". The responses were somewhat split on if timescales were generally met.

- *Agreeing totally or somewhat* *37%*
- *Disagreeing totally or somewhat* *44%*
- *Neither agreeing nor disagreeing* *19%*

Whilst this may seem to be non-confirmatory either way, the higher percentage that states that timescales are not met generally is indicative of the discussion on Recommendation 17 around design programme. It is especially pertinent that the programme should account for appropriate design reviews. What it should not account for is the time required for those reviewing substandard designs and having to provide feedback on why it is not acceptable; the opportunity to encourage rushed or inadequately provided specialist design should be avoided.

Question 19
Based on your experience, to what extent do you agree with the following statement: *"once the contractors design details have been received and distributed the information is generally reviewed and resolved within the timeframe required."*



CONSTRUCTION QUALITY IMPROVEMENT COLLABORATIVE

3. Recommendations (continued)

RIBA Stage 4
Tender Stage

Recommendation 19 underlines that an industry standard approach to roles and responsibilities in CDP also requires you to formally consider the review, approval and feedback aspect.

It should go without saying that adequate checking of the CDP design deliverables is undertaken in an effective, timely and compliance-focused manner, and the research agrees that it is important that both the design team members and the main contractor's design representative (amongst others) review the final design for the CDP elements and, importantly, that there is a formal process of sign off for each element.

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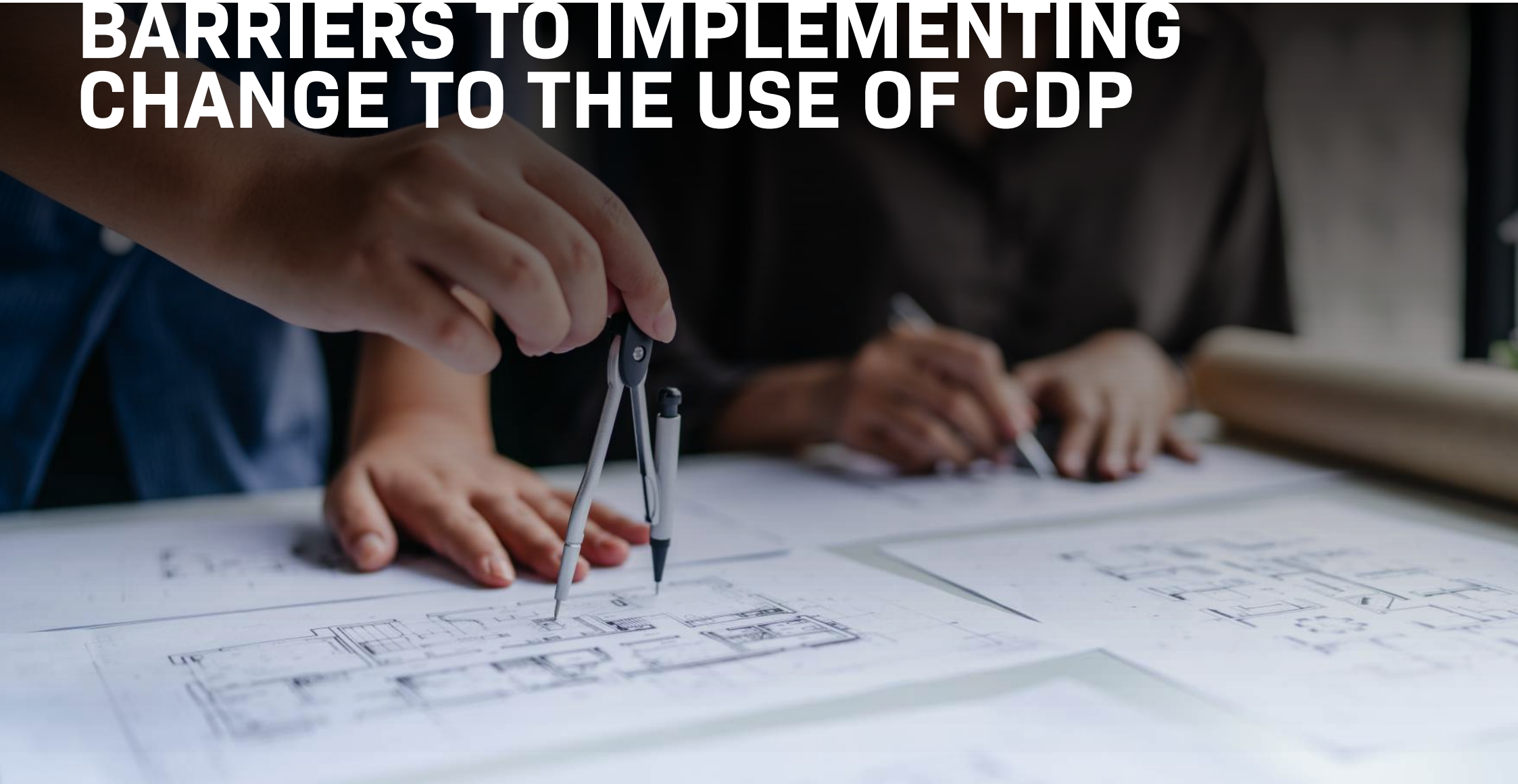
4.

BARRIERS TO IMPLEMENTING CHANGE TO THE USE OF CDP



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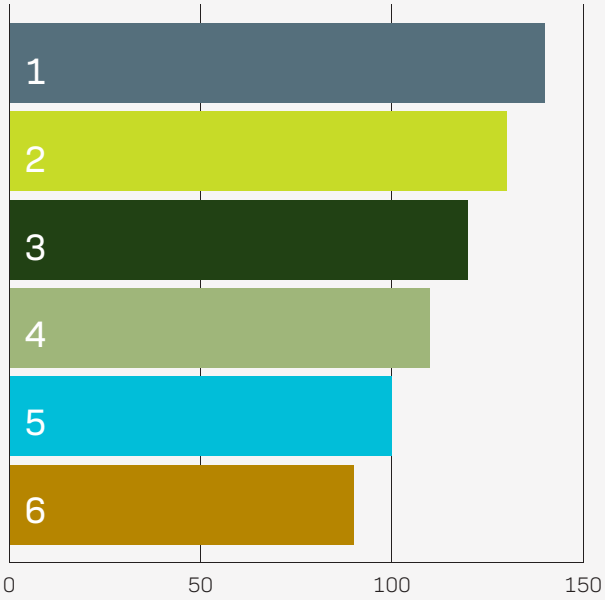
4. Barriers to implementing change to the use of CDP

In the final part of the survey respondents were asked to rank what they considered were the barriers to change in use of CDPs.

The top five barriers to change were identified as follows:

1. Lowest price procurement
2. Procurement routes
3. Design/consultancy fees
4. Historical behavioural approaches to design
5. Project delivery timescales

Question 28
What do you consider are the barriers to change in regards CDP? Rank ALL in order (1 being most important or impactful)



1 Lowest price procurement
2 Procurement routes
3 Design/consultancy fees
4 Historical behavioural approach to design
5 Project delivery timescales
6 Transparency of communications / reporting

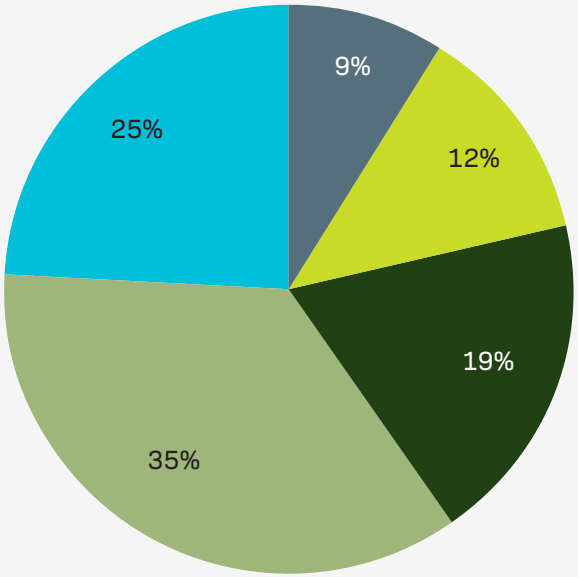
One of the biggest challenges to implementing the recommendations in this document will be current procurement practices. Most CDP packages are currently not appointed until RIBA Stage 5 and 94% of respondents in this survey believe it should be undertaken no later than RIBA Stage 4 and state that this is one of the greatest challenges to CDP quality.

Design/consultancy fees are seen as the third barrier to change in the use of CDPs. Q12 in the survey asked respondents to identify the extent that lower consulting fees are influencing the approach to CDP. 60% of respondents stated that in their view it had either a degree or high degree of negative influence on the approach to CDP. 50% of respondents to Q23 stated that an increase in designers' fees will allow a reduction in the use of CDP. Further discussion is required with consultant professional bodies on the appropriate level of fees for delivering a comprehensive design service. Recommendations 4, 5, 6, 7, 9, 10 and 11 all refer to additional Lead Designer responsibilities and Employers should ensure that an appropriate fee is provided for delivering these services.

We consider that implementing the recommendations in this document will help in changing historical behavioural approaches to design. Implementing recommendations 8, 9 and 17 will help in ensuring that the programmes for project delivery have CDP design happening at the correct time and there is sufficient time for the CDP design to be undertaken.

4. Barriers to implementing change to the use of CDP (continued)

Question 12
It is suggested that *"lower consultant design fees are influencing approach to CDP?"* To what extent do you think lower consultant design fees are influencing approach to CDP?
Select one choice.



The Transforming the Value of Consultancy programme has been considering task-based responsibility including the use of CDP and has identified similar areas for improvement. The CQIC will work in conjunction with this programme to develop recommendations where appropriate which should assist with changing historical behavioural approaches to design. CQIC will also work with Scottish Construction Accord's Transformation Board and Working Groups, including Construction Procurement, to address the above noted barriers to change to ensure the recommendations can be implemented.

The CQIC has also been working with Scottish Government Building Standards Division to consider how the recommendations in this report can support the developing Compliance Plan Approach. The new Compliance Plan Approach (CPA) has been developed in response to the recommendations made by the 2018 Review Panel on Building Standards Compliance and Enforcement[1]. The Review Panel was formed by the Ministerial Working Group on Building and Fire Safety[2] set up following failings in the construction of Edinburgh school buildings and the fire at Grenfell Tower, London. The CPA is a robust quality system for building regulations compliance. The actions of all parties involved in the design and construction process, as well as Building Standards Verifiers, are planned, recorded, and reported. This includes adherence to legislative procedural requirements, particularly the principle that all work must be fully designed and approved by the Building Standards Verifier before being undertaken on site. The timing of CDP elements represent a challenge in managing the requirements of legislation, particularly in terms of a staged approach to building warrant applications, where the pre-emptive nature of the building standards system requires a completed design to be presented to the Building Standards Verifier, or a Certifier of Design[3] in good time to allow their assessment. Scottish Government Building Standards Division support the recommendations in this report as they are consistent with the Compliance Plan Approach and will assist in ensuring compliant applications/ submissions are received and approved timeously prior to works being undertaken on site. The Compliance Plan Approach will also help in addressing the historical behavioural approaches to design.

The CQIC has also been supporting a working group with the Passivhaus Trust and BE-ST to develop a Passivhaus Guide for Contractors and the content of this guide also supports several of the recommendations in this document. A link to this guidance will be made available on the CQIC website once it is published.

1 Report of the Review Panel on Building Standards Compliance and Enforcement
2 Building and Fire Safety: Ministerial Working Group - gov.scot
3 Building Standards Certification handbook - gov.scot

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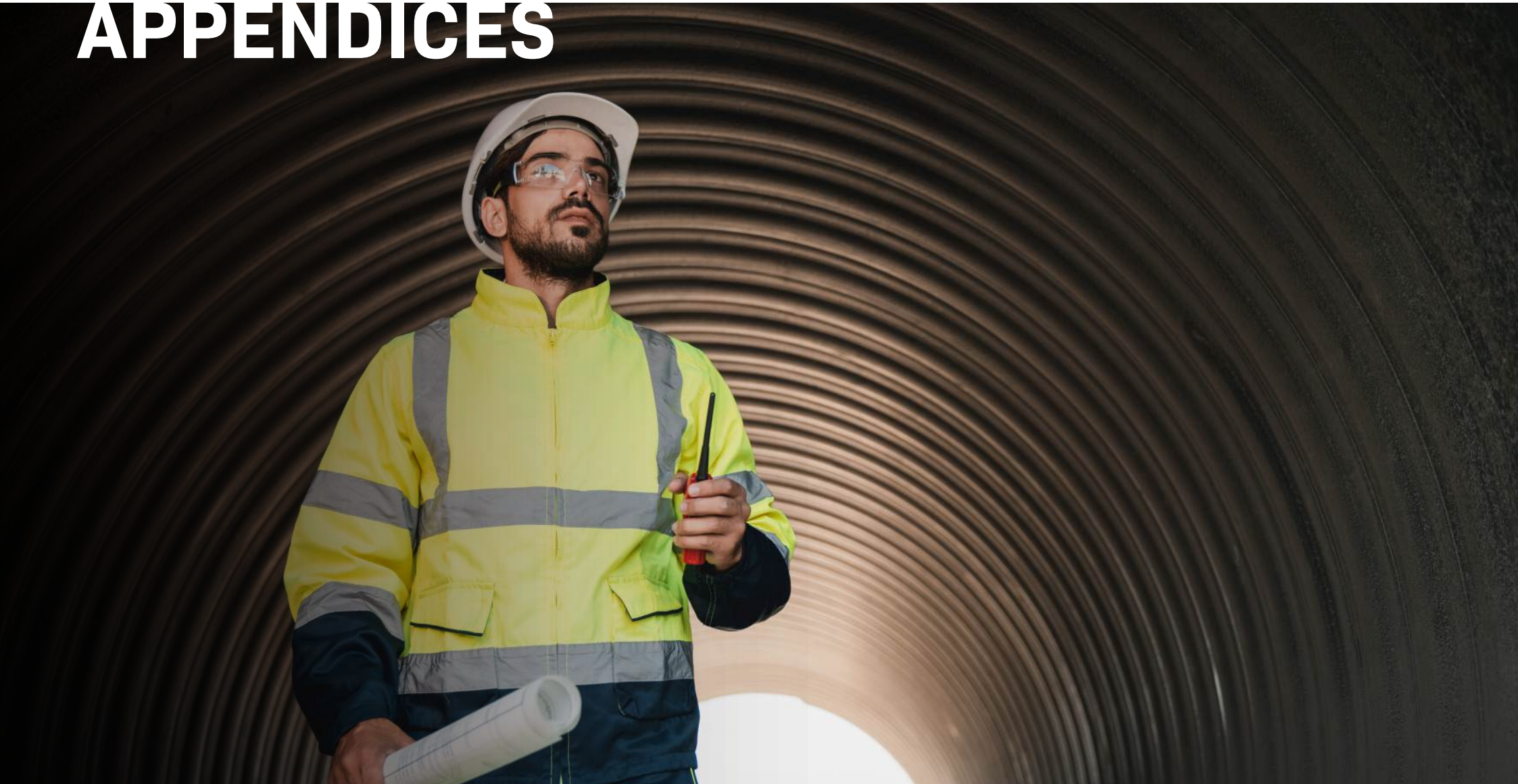
APPENDICES



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Appendix A

CPD RECOMMENDATIONS MAPPED TO RELEVANT RIBA PLAN OF WORKS STAGES

Appendix B

CPD WORKING GROUP SURVEY RESULTS

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