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1. PURPOSE

- 1.1 The Ministry of Housing, Communities and Local Government (MHCLG), herein referred to as “The Authority”, is undertaking a procurement exercise to award a Contract to a Supplier to undertake research as part of the technical review of Approved Document B (ADB). This project is part of a larger programme of research being delivered jointly by The Authority and the Home Office regarding fire safety in high-rise residential buildings.
- 1.2 The aim of this project is to provide robust evidence and analysis to support review of the provisions for means of escape in residential buildings in ADB, including a review of evacuation strategies and building residents confidence and perceptions.
- 1.3 The project will collect up to date evidence on design approaches to blocks of flats and review the efficacy of different physical design provisions in supporting different evacuation strategies. The project will develop a robust approach to evaluate the impact of different fire safety provisions on risk and to support the review of different evacuation strategies in residential buildings.
- 1.4 The project will provide up to date evidence on public confidence and perception regarding different evacuation strategies and fire safety measures in residential buildings, with a focus on high-rise buildings, giving due consideration to a robust evidence base on human behaviour in relevant situations.
- 1.5 The evidence, data and analysis generated by this project will support future policy development by MHCLG and the Home Office.
- 1.6 The Supplier will be expected to report findings and present updates to an already established Technical Steering Group of industry experts appointed to support MHCLG and Home Office officials at a strategic decision-making level of the programme/projects and assist where necessary, steering the research programme and providing feedback on the methodology, as well as key deliverables and milestones throughout the duration of the project.

2. BACKGROUND TO THE CONTRACTING AUTHORITY

- 2.1 The Authority's aim is to help create great places to live and work right across the country and to back communities to come together and thrive. The Authority's responsibilities include:
 - Ensuring people throughout the country have access to affordable and high-quality housing
 - Providing opportunities for all parts of the country to thrive economically
 - Building integrated communities
 - Supporting effective local government



- 2.2 Amongst its other interests, the Authority has also established the Building Safety Programme which is responsible for delivering the changes where needed to make the building safety system fit for purpose.
- 2.3 The Building Regulations control certain building work – principally to protect the health, safety and welfare of people in and around buildings. Part B of Schedule 1 of the regulations relates to fire safety aspects of building design and construction and ADB, the statutory guidance to the regulations which demonstrates how the provisions can be complied with.
- 2.4 In response to Dame Judith Hackitt’s review following the Grenfell tragedy in 2017 the Government has committed to a full-scale [review](#) of Approved Document B.
- 2.5 The technical review started with a [Call for Evidence](#) which invited views on technical issues and further improvements that could be made to ADB. A [summary](#) of the findings from the call for evidence was published on the 5 September 2019.
- 2.6 The findings were used to set a proposed agenda, terms of reference and programme for the review and to identify what research is needed to inform the review.

3. BACKGROUND TO REQUIREMENT

- 3.1 Through the Call for Evidence, stakeholder workshops, and advice from the Building Regulation Advisory Committee (BRAC), The Authority has determined a need for research into means of escape and evacuation strategies used in residential buildings. The outputs of this project are expected to complement ongoing work across Government in implementing the recommendations of the Grenfell Public Inquiry Phase 1 report.
- 3.2 The adoption of an evacuation strategy and its effectiveness if employed during a fire is influenced by various factors including the implementation and performance of passive and active fire protection systems as well as human behaviour. Evacuation strategies are also dependent on building management and the response and operations of the Fire and Rescue service.
- 3.3 This project will look at the effectiveness of physical design provisions currently in use in supporting the evacuation strategy of the building, human behaviour during an emergency such as a fire, and resident and public perception of different evacuation strategies and fire safety measures in residential buildings. Additional research is expected to be procured separately to support additional aims of the overall research programme.
- 3.4 ADB sets out what, in normal circumstances, may be accepted as reasonable provision for compliance with the relevant requirements in Part B of Schedule 1 of the Building Regulations (2010). Various provisions in ADB underpin the choice of evacuation strategy of a building from fire resistance performance requirements through to provisions supporting compartmentation, smoke control, fire door performance, signage, fire detection and alarm, stair widths, sprinkler provision and maximum travel distances.



- 3.5 These provisions have different roles and may be more or less relevant to the overall fire strategy of the building depending on the adopted evacuation strategy. It is important that the guidance in ADB is based on an adequate and up to date understanding of current design approaches, trends and how different physical design provisions support different evacuation strategies and how effective they are in doing so.
- 3.6 Integral to any evacuation strategy is how residents and others in the building behave. This project will expand our understanding of the current research in this space regarding behavioural processes, influences on behaviour during a fire, and the impact different behaviours and responses can have on the overall evacuation process, including any impact on Fire and Rescue service operations.
- 3.7 One factor influencing behaviour is how building occupants feel about the chosen evacuation strategy of a building and how safe they feel in the building. This project will gather representative views of residents and building users to understand the current perceptions of and confidence in different strategies and public understanding of different fire safety measures in residential buildings.
- 3.8 The Authority, in conjunction with the Home Office, have held two meetings of a Technical Steering Group consisting of fire engineers, housing association representatives, academics, and Fire and Rescue service representatives. Discussions with stakeholders and the Technical Steering Group have further refined the requirement for this project.
- 3.9 In addition to the research being commissioned as part of this tender the review includes two additional workstreams being commissioned by the Home Office:
- Evidence review which is currently on-going and aims to assess available academic evidence on the most effective methods of evacuating apartment blocks.
 - Operational research which will consider the most effective means of moving from stay put to full or partial evacuation of an apartment block and will involve physically testing evacuation strategies. The research will also consider Evacuation Alert Systems (EAS) and how these may be an effective tool in the evacuation process.

The Supplier will be expected to collaborate with the suppliers of these work packages as appropriate.

4. DEFINITIONS

Expression or Acronym	Definition
ADB	Approved Document B (Fire Safety) volumes 1 and 2 2019 edition as amended in May 2020
MHCLG	Ministry of Housing, Communities and Local Government

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5. SCOPE OF REQUIREMENT

5.1 The overall scope of the project is to:

- Review and assess the effectiveness of different physical design measures in supporting different evacuation strategies in residential buildings;
- Provide robust assessment of building resident and user perception of and confidence in evacuation strategies and relevant fire safety measures in residential buildings;
- Review and assess the effectiveness of different evacuation strategies for residential buildings considering the current provisions in ADB, the current knowledge regarding human behaviour, and public perception and confidence.

5.2 This project is expected to consider all residential building typologies with a particular focus on blocks of flats with a top storey 11 metres or more above ground level.

5.3 At the completion of each milestone a suitable review will be carried out to ensure the suitability of research and allow for variations (improvements, expansion, and/or reduction). Such variations will be subject to formal change control where they include cost implications.

5.4 The supplier will establish facilities for face to face or video conference call meetings with MHCLG and other stakeholder groups to discuss any further research goals of the project required to deliver updates and agree elements with The Authority, and as required to deliver the project objectives.

5.5 This programme is one part of the full technical review of ADB. The technical review programme comprises a number of workstreams covering different policy areas. It is recognised that each area is not mutually exclusive and there may be evidence and considerations relevant across workstreams. As such the supplier is expected to work collaboratively across workstreams to share and consider knowledge.

5.6 The supplier is also expected to work collaboratively with industry, academia and government bodies and interest groups to collect and research knowledge related to the workstream.

5.7 The research will also be used to inform impact assessments for future consultation proposals where evidence suggests changes may be necessary to current statutory guidance.

5.8 The main output from the research will be an objective presentation of the results in the form of technical reports.

5.9 Each objective, as laid out in the next section, is mandatory. The supplier is expected to set out their approach to delivering these objectives in their bid.



6. THE REQUIREMENT

- 6.1 It is expected that the supplier will be able to provide enough resource to deliver the projects objectives according to the milestone delivery timeframe set out in section 7, which may require objectives and tasks to be completed in parallel.

Workstream A: Building Design

- 6.2 **Objective A1:** Identify common building design principles supporting different evacuation strategies;

- Conduct a systematic literature review on the role of physical design measures in supporting evacuation of buildings, with a focus on high-rise buildings (this should not necessarily be limited to residential buildings where pertinent information could be gathered from sources regarding non-residential buildings), including those supporting means of escape for people with disabilities;
- Review currently available building design guidance, including international examples, regarding provision of means of escape in residential buildings and any specific guidance on different evacuation strategies;
- Review current trends in design approaches to residential buildings relevant to means of escape.

The review will build on the information gathered during an evidence reviewed which is being conducted by the Home Office (see para 8.4).

- 6.3 **Objective A2:** Review and assess the effectiveness of physical design measures in buildings in supporting different evacuation strategies;

- Conduct a systematic literature review on evacuation modelling methodologies highlighting the required inputs, underpinning knowledge, advantages, disadvantages, and limitations of different modelling methods;
- **Develop a methodology and conduct an analysis to evaluate different evacuation strategies in residential buildings and the supporting physical design measures, this may include modelling;**
- Analyse the effectiveness of different physical design measures involved in means of escape in residential buildings and their impact on risk using an appropriately robust modelling approach;
- Identify and review the effectiveness of the relevant provisions in ADB supporting means of escape in blocks of flats, including those supporting means of escape for disabled people. Identify and review potential alternative approaches where necessary.



6.4 **Objective A3:** Assess the effectiveness of “stay put” and other evacuation strategies, considering cost and public assurance, in single-stair blocks of flats built in accordance with current guidance in ADB.

- Evaluate evacuation strategies using a robust modelling approach considering the analysis of the effectiveness of physical design measures and human behaviour (including impact of public confidence and perceptions);
- Develop an objective assessment of the effectiveness of single stair blocks of flats, including those designed in accordance with Approved Document B, in providing adequate means of escape.

Workstream B: Human Behaviour and Public Confidence

6.5 The overarching aim of workstream B is to review and generate evidence to support analysis of the interaction between residents and the building they occupy during evacuation.

6.6 **Objective B1: Literature review on human behaviour during evacuation**

- Provide a systematic review of available literature relating to human behaviour during evacuation of blocks of flats and other relevant buildings. The review will build on the information gathered during an evidence reviewed which is being conducted by the Home Office.

6.7 **Objective B2: Survey of Building Occupants**

- Conduct and analyse a robust survey of building occupant perceptions, understanding, and confidence in relation to evacuation and fire safety measures in residential blocks of flats (including 11-18m buildings and 18m+ buildings) in England. This is expected to include:
 - Analysis of public understanding of fire safety measures in residential buildings and public confidence in the “stay put” evacuation strategy and alternative evacuation strategies;
 - A robust assessment of building occupant confidence in evacuation strategies and relevant fire safety measures in blocks of flats;
 - Analysis of the possible impact of public perception and confidence on different evacuation strategies and human behaviour during a fire emergency.
- The following research questions should be considered:
 - a) What do occupants understand of the evacuation strategies of their building?
 - b) What do occupants understand of the fire safety measures in their building?



- c) How confident are occupants in the evacuation strategies in their building?
- d) In the event of a fire, what do residents believe they would do?
- e) What is driving these predictions of behaviours?
- f) Do people from different groups behave in different ways, and have different requirements?

6.8 Objective B3: Review of evacuation strategy benefits with regards to building occupants

- Evaluate the benefits of different evacuation strategies for residential buildings with regards to residents and building users. The supplier is expected to take into consideration the points of views of occupants users collected during this project and related research.

6.9 The supplier will be expected to produce:

- A proposed methodology report;
- Interim reports for each objective; and
- A final report summarising the findings across each interim report.

6.10 The supplier will be expected to provide ad-hoc advice as requested by the Authority.

7. KEY MILESTONES AND DELIVERABLES

7.1 The supplier will provide and present to the Authority the following specific deliverables:

- A proposed research methodology consisting of a report (electronic and hard copy where appropriate) detailing the scope of the project, methodology, key deliverables and any preconceived risks.
- Draft interim reports (electronic and hard copy where appropriate) for each phase of the research including methodology, results/findings to date, detailed assumptions intended to underpin analysis along with any other issues identified and how these will be dealt with. Draft reports should also include indications of next steps the supplier will be taking, and any proposed further research not previously agreed with the contract manager. Draft reports should be preceded by a face to face meeting to update the Authority, the Technical Steering Group and any additional relevant groups of stakeholders
- Final report (electronic and hard copy where appropriate) including all results/findings throughout the project, detailed assumptions intended to underpin analysis along with any other issues identified. The final report should be preceded by a face to face meeting to update The Authority, the Technical Steering Group and any additional relevant groups of stakeholders.



- 7.2 All reports (draft and final) should include a front cover and Q&A sheet including: the report title, The Authority and supplier reference numbers, the milestone identifier, the version number, the date, and checking/approving signatures. The front should be marked as a draft until an approved final version is requested by The Authority. The front cover may be removed and replaced when reports are prepared for publication by The Authority.
- 7.3 All reports may be published on the gov.uk website after review and quality assurance.
- 7.4 The contractor is expected to produce at the end of the research a publishable report which summarises the findings of the research in a publishable format. This final publishable report should include the findings from all previously issued reports.
- 7.5 Research results/findings should be made available to the established Technical Steering Group. The contractor will be expected to present key findings to the Technical Steering group when they are available.
- 7.6 The supplier will be expected to update The Authority on progress at least monthly verbally and in writing, through a brief report when requested to do so by the Contract Manager.
- 7.7 All outputs must be clearly written and thoroughly proof-read prior to submission.
- 7.8 Performance measures:
- Methodology agreed
 - Updates to The Authority Contract Manager and Technical Steering Group to agreed timeframe
 - Draft interim reports provided to agreed timeframe
 - Final report provided to agreed timeframe
 - Satisfactory research output

7.9 The following Contract milestones/deliverables shall apply:

Milestone/Deliverable	Description	Timeframe
1	Commencement date: Start Date	Within 1 week of Contract Award
2	Overall project methodology agreed	Within 3 weeks of Commencement Date
3	Objective A1 Draft Report	Within 3 months of Commencement Date
4	Objective B1 Draft Report	Within 3 months of Commencement Date
5	Objective B2 Detailed methodology report	Within 3 months of Commencement Date

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6	Objective B2 methodology accepted	Within 5 months of Commencement Date
7	Objective A2 Draft Report provided	Within 12 months of Commencement Date
8	Objective B2 Draft Report provided	Within 15 months of Commencement Date
9	Objective B3 Draft Report provided	Within 19 months of Commencement Date
10	Objective A3 Draft Report provided	Within 22 months of Commencement Date
11	Final Draft Publishable report provided.	Within 23 months of Commencement Date.
12	Final Publishable report provided	Within 24 Month of Commencement Date.
13	Contract completion	Within 24 months of Contract Award

8. APPROACH

8.1 It is expected that the supplier will propose a robust approach to achieving the objectives laid out in section 6, taking into consideration the evaluation methodology in attachment 2. However, some considerations related to the requirements objectives are discussed below.

8.2 Literature reviews

8.3 The supplier is expected to propose a robust approach to undertaking systematic literature reviews which review a variety of databases and use appropriate inclusion and exclusion criteria. Detailed methodology should be included in the methodology report after appointment and be agreed with the Contract Manager.

8.4 As part of the ongoing work the Home Office have commissioned an evidence review which is currently being completed. The evidence primarily focuses on answering the following questions:

- What are the most effective methods of evacuation from fires in apartment blocks?
- How do occupants make decisions about evacuation during fires in apartment blocks?
- How do firefighters make decisions about evacuating occupants from fires in apartment blocks?



The literature review conducted as part of the completion of objective A1 and B1 will therefore only build on the information collected during the evidence review conducted by the Home Office.

8.5 Evacuation Modelling

8.6 Approaches to modelling should include quantification of uncertainty (e.g. using Monte Carlo analysis) or sensitivity analysis.

8.7 The methodology should consider the collected evidence on modern approaches to modelling and human behaviour.

8.8 Any modelling approach should be supported by suitable validation and verification either already established or as part of the project.

8.9 Objective B2:

8.10 The Supplier is expected to detail their approach to a survey of occupants of blocks of flats in England including buildings with a top storey 11-18m and more than 18m from ground level. This should include a mixture of buildings of different tenure.

8.11 Suppliers should set out their approach to questionnaire development and testing, including their use of focus groups, cognitive testing and survey pilots. Deliverable 5 will be expected to include further detail with regards to the delivery of the survey as well as any necessary changes following completion of objective B1.

8.12 The Supplier is expected to detail in their bid all of the following:

- Their proposed sample design, including sample numbers; stratification (ensuring socioeconomic backgrounds, ethnicities, and people with disabilities or vulnerabilities are suitably represented); sampling frames to be used; respondent selection criteria; estimates of response rates; and approaches to dealing with non-response bias;
- Appropriate survey modes;
- How the approach to sampling, survey design, and analysis is appropriate, including supporting evidence and detail including the number of required responses;
- How the Supplier has considered available data on the number of flats in England and household makeup to determine their proposed sample design. The Supplier will be expected to justify their sample design, confidence levels and allowances for error;
- Processes to deal with ethical issues which emerge during the fieldwork;
- The Suppliers expertise in this area and any supporting evidence.

8.13 The Supplier should ensure their approach to management of personal data is compliant with all relevant regulations.



9. MANAGEMENT INFORMATION/REPORTING

- 9.1 The Authority requires a dedicated account management structure including a single point of contact for day to day enquiries, with a nominated deputy to act in their absence.
- 9.2 A detailed escalation procedure must be outlined, with named individuals outlined on an organogram provided by the supplier.

10. CONTINUOUS IMPROVEMENT

- 10.1 The supplier should present any proposed changes to the project methodology to The Authority during monthly update meetings with the Contract Manager.
- 10.2 Changes to the way in which the Services are to be delivered must be brought to the Authority's attention and agreed prior to any changes being implemented.

11. DATA PROTECTION

- 11.1 The provider will be required to handle sensitive information and must comply with the requirements of the Data Protection Act 2018 and the General Data Protection Regulation.
- 11.2 Supplier will be expected to have a secure email address to receive information (or must set up a secure email address if they do not have one already).

12. QUALITY

- 12.1 The supplier should operate under an appropriate quality management system, such as ISO (9000 series) or equivalent.

13. PRICE

- 13.1 Attachment 4 – Price Schedule must be completed. The supplier is expected to provide sufficient detail for evaluation as set out in Attachment 4 and Attachment 2.
- 13.2 The total price for this Contract is expected to be a maximum of £392,800 (excl. VAT) and be completed within 24 months of commencement.
- 13.3 Prices are to be submitted via the e-Sourcing Suite (Attachment 4 – Price Schedule) excluding VAT and including all other expenses relating to Contract delivery.

14. STAFF AND CUSTOMER SERVICE

- 14.1 The Supplier should provide a sufficient level of resource throughout the duration of the Contract in order to consistently deliver a quality service.
- 14.2 The Supplier's staff assigned to the Contract should have the relevant qualifications and experience (i.e. detailed knowledge of the construction industry, fire engineering, construction techniques, design, relating to means of escape or experience with public engagement/surveys, detailed knowledge regarding human behaviour) to deliver the Contract to the required standard.



- 14.3 The Supplier shall ensure that staff understand the Authority's vision and objectives and will provide excellent customer service to the Authority throughout the duration of the Contract.

15. SERVICE LEVELS AND PERFORMANCE

- 15.1 The Authority will measure the quality of the Supplier's delivery by assessing each task, including meeting target dates, appropriateness of methodology, completeness of information and readability of reports. The Authority will take account of the views of any Technical Steering Groups and will provide feedback to the supplier.

KPI/SLA	Service Area	KPI/SLA description	Target
1	Delivery timescales	Completion of milestones to agreed timeframe	100%
2	Research output	Completion of research to satisfactory standard	To be agreed with The Authority
3	Methodology	Proposal and agreement of appropriate methodology	To be agreed with The Authority
4	Project reporting	Updates to The Authority Contract Manager and Technical Steering Group to agreed timeframe	100%

- 15.2 The supplier will be required to report regularly on progress toward achievement of objectives. Suppliers will need to explain how they will collect and record this information to maintain a fully evidenced audit trail. It should be noted that if a supplier fails to deliver contracted outputs, a performance review may apply which could lead to early termination of the contract

16. SECURITY AND CONFIDENTIALITY REQUIREMENTS

- 16.1 There are no requirements for employees of the supplier to have any level of security clearance.
- 16.2 The Authority's office is part of the Home Office building, which has enhanced security arrangements, including baggage searches and photo-ID being needed for entry. The supplier must make allowances for delays caused by security when attending meetings or where the Suppliers staff is working at The Authority's office.



17. PAYMENT AND INVOICING

- 17.1 Payment can only be made following satisfactory delivery of pre-agreed certified deliverables and Milestones.
- 17.2 Before payment can be considered, each invoice must include a detailed elemental breakdown of work completed and the associated costs.
- 17.3 The Purchase Order (PO) number must be included when the Invoice is submitted.
- 17.4 Payment of Invoices follow a process of checking and approval; timeframe is subject to agreement with the Contract Manager.

18. CONTRACT MANAGEMENT

- 18.1 Feedback of performance will be provided to the contractor at progress meetings and at the end of the project, to ensure the quality of research is maintained.
- 18.2 The Contract Manager for this project will act as the formal point of contact between The Authority and the supplier.
- 18.3 The following will be agreed with the Contract Manager;
 - The outputs from the research (presentation, reports etc) and the proposed approach being taken by the suppliers to complete the research.
 - How progress will be fed back to The Authority (including the frequency of face to face progress meetings with the suppliers).
- 18.4 Where outputs will be required and cleared by The Authority, it will be important that the supplier is able to take into consideration the time for The Authority to clear these outputs.
- 18.5 All data and supporting information used in draft or any interim reports and the final report will be provided to The Authority in an electronic format at the end of the contract.

19. ADDITIONAL INFORMATION

- 19.1 This requirement can be undertaken by a single firm or a consortium.
- 19.2 In the case of a consortium, the Authority will only enter into a contract with the lead contractor and all formal contacts between the Authority and members of the consortium should be made through the lead contractor. The lead contractor will be expected to enter into Service Level Agreements (SLA) with consortium members and these members will form part of the Steering Group when it is established.
- 19.3 The supplier agrees to take out a policy of 'Professional Indemnity Insurance' with a capped liability level of 125% of the contract value.



20. LOCATION

- 20.1 The location of the Services will be carried out generally at the Suppliers offices, although there may be a need for some tasks to be undertaken at the Authority's office (currently 2 Marsham Street, London SW1P 4DF).