James Dornan MSP
Convener – Education and Skills Committee
The Scottish Parliament
EDINBURGH
EH99 1SP

Date 12 June 2017

Your ref

Our ref PW/AJD

By email to es.committee@parliament.scot

Dear Mr Dornan

Thank you for your letter to Andrew Kerr, Chief Executive, regarding the Education and Skills Committee enquiry on school buildings across Scotland. As the topic falls within my service area, I have been asked to provide a response, which is set out below and attached:

Overview of City of Edinburgh Council (CEC) position:

1.1 To what extent has the school estate been inspected?

Following the conclusion of the remedial works on the PPP1 schools, CEC engaged two of the key Structural Engineering consultancies involved in that assessment and remediation process to attend workshops to develop a suitable approach to addressing the possibility of similar issues across the Council's wider estate. The remit covered all CEC buildings, including schools.

The conclusion was that a 'proportionate risk based approach' was developed and approved. This approach has been shared with other interested parties when requested. In summary, CEC has split the investigation into four traches for inspection based on highest risk/priority buildings first, i.e., Tranche 1- Post 1995 to Date construction**,** which will capture those buildings constructed under D&B procurements. A more detailed overview of the approach is provided in **Appendix 1**.

The process specifically addresses the latent defects which caused the closure of the PPP1 schools (wall tie provision and embedment, and masonry panel restraint), and will be subject to lessons learn review on conclusion of Tranche 1

Other inspections conducted on the school estate on a cyclical basis include:

- All CEC properties are currently undergoing a condition survey with the surveys

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scheduled for completion in September 2017;
- Business as usual regime ensures that full condition surveys are conducted on a five-year cycle; and
- All required statutory compliance inspections and testing are carried out on an annual basis.

1.2 To what extent have faults been identified;

Up until 9 June, based on the estate wide structural inspections described in para. 1.2, faults requiring remedial work have been identified at one further school (i.e., excluding the original 17 PPP1 schools). This was an issue of a lack of wall ties on an extension building constructed in 1996. In addition, there was a lack of masonry panel restraint on three elevations of the extension. The required remedial work was immediately executed, and are now complete.

On 9 June, additional issues were identified at four other establishments, three primary schools and a community centre. In response, CEC has established herras fencing as a precaution with a view to implementing remedial work during the summer recess.

1.3 To what extent has remedial work been undertaken and the impact of this?

Ref 1.2 above. The initial issue had little impact on the operation of the school. Only a temporary decant was required with the work completed out with school hours resulting in minimal disruption.

Regarding the recent issues, and following technical structural engineering consultancy advice, there has been no need for a decant/closure of the facilities. As work will be implemented during the summer holiday period there will be minimal disruption.

2.1 How quality assurance is undertaken on current capital projects on the school estate

The Cole report captured the specific issues relating to the delivery of the Edinburgh Schools PPP1 contract, which was delivered in 2004/05**.** This construction programme was not representative of the approach to the delivery of other Capital Projects by CEC at the time and practices have also evolved since.

In response to the Cole Report, several additional provisions have been put in place on Capital projects going forward. With regard to the detail, a full response to the Cole report has yet to be considered and approved by the Council and this is unlikely to happen until 29 June. I will send you a copy of the paper prior to it going public on 23 June. In the interim, I attach **Appendix 2** which details South East Hub response to address the Cole Report Recommendations, particularly where they refer to D&B and DBFM type projects.

2.2 Whether the quality assurance of school capital projects has been reassessed since 2016

The response to 2.1 above captures the response to the Cole Report recommendations.

2.3 Whether there are, or were, particular issues depending on the funding model and the lessons to be learned?

Regarding the impact of funding, the Cole reports examines in detail the impact of D&B and DBFM (PPP) type procurement on various aspects of project delivery.

The CEC wider estates review also recognised the risk factors associated with these procurement methodologies but they are by no means the dominant factor, particularly around masonry panel restraint.

The Edinburgh PPP2 Estate is proving to be low risk (based on investigations to date). This is certainly a reflection of the different construction type of the teaching blocks at these schools but also likely a reflection of improved quality systems adopted on PPP2. This is evidenced by the inspections to date of the large masonry panels in the sports block areas being found to be compliant.

CEC's Estate Wide Structural review to date has identified the same latent defects on five establishments (four schools), which were constructed out with the PPP model. As this has happened recently it is too early to draw conclusions and the full process is yet to be concluded.

I trust the above and attached are of assistance.

Yours sincerely

Peter Watton
Head of Property and Facilities Management

CEC Apporach to Estate Wide Masonry Panel Strucutral Investigations (in response to Latent Defects identified in PPP1 Estate)

This paper provides extracts from internal reports and papers giving a summary of the the overall approach taken by the CECTechnical Working Group in delivering a prioritised risk based approach to the review of the wider CEC Estate**.**

Extract from Report to Corporate Leadership Team August 2016:
There is no evidence to suggest that the Council's Estate is at any greater risk of having the above defects than any other property across the country. However, it is recognised that an appropriate response would be for the Council to conduct risk based intrusive investigations more widely across its estate.

A Technical Working Group (TWG) was established with an aim to identify key characteristics of buildings (either type, age or procurement method) which would indicate an elevated risk profile. This approach was informed by the experience of the PPP1 investigations and remediation works and specifically focused on addressing those issues identified as potential latent defects in the PPP1 construction.

Although an enquiry (note: Cole Report) examining the background to the defects in greater detail has commenced, it was recognised by the TWG that a number of characteristics were identified as being possible contributory factors likely to increase the risk of a building having the above defects.

These characteristics would inform the approach to the investigation process (on a **prioritised risk basis**):

Cavity widths.
Wall cavities typically started to be specified in the 1920'sand cavity widths were generally standard up to the 1980s. At that time cavity widths began to be influenced by insulation requirements and also by architectural design features. The advent of increasing cavity widths (post 1980) required greater construction skills particularly with regard to wall tie specification and installation to achieve the specified tolerance.
(This suggests an elevated risk profile for buildings constructed post1980).

Masonry Panels.
Due to their insitu nature, infill masonry panel construction is susceptible to factors including tradesman skills, contractor management procedures, contractor checking, programme pressure, design team checks and Clerk of Works (CoW) checks. There is an argument to suggest that older buildings with more traditional supervision arrangements are more robust in this regard than buildings from the mid 1990s on.
(This suggests that Post 1995 buildings could represent greater concern).

Design and Build (Novation).
There is an indication the quality of monitoring and supervision will have been a contributory factor to the failure to meet design requirements. There is an indication that the disengagementof designers during the construction process under Design and Build (D&B) novation arrangements could also be a key contributory factor. For this reason Design and Build projects will also be prioritised as part of the process.
(This suggests a possible elevated risk profile of buildings construction post 1995 on the Council's Estate as D&B typically came into place post 1995).

City of Edinburgh- Estate Wide Masonry Panel Assessments

PPP and NPD/DBFM.
While these models have design and build characteristics, there was a significant perceived benefit associated with a PPP style contract as the Special Purpose Vehicle (SPV) retained responsibility for all maintenance under the contract for the concession period (typically 30 years). The SPV carries the risk around building failurefor this period. This *may* have influenced arrangements for independentconstruction supervision while overlooking any impact of the disengagement of the construction arm of the SPV on construction completion. However, this would suggest the SPV or the FM contractor would take a more active role in quality monitoring. These considerations along with the novation issue, common to a normal Design and Build, suggests potential elevated risk.
(**PPP/NPD DBFM delivered projects could have potential elevated risk profiles).**

Design Features.
There will be a need to focus on specific building design features such as large gable end masonry panels. This being the characteristic of the element which failed at Oxgangs Primary School.
(Buildings with more sensitive features will not be age related but such features coupled with variable cavity widths would also elevate the priority of post 1980 construction).

Building Risk Group.
The Building Standards Technical Handbook identifies the issues to be considered with respect to assessing the risk group of a building. These include occupancy level, use, the number ofstoreys and floor areas. This approach will also form part of the building Risk Assessments by the Structural Engineers.

Construction Type.
The PPP1 issues relate to cavity wall ties and securing masonry panels to the structural steel frame. While panel restraints may be more simply addressed in concrete framed buildings, this cannot be assumed. Both steel and concrete framed buildings represent similar risk with regard to cavity width. For this reason, both Steel Frame and Concrete Frame buildings will be treated equally in elevating the priority level.
(Framed buildings with masonry panels should be treated as having elevated risk).

Summary.
While the above assessments are subjective, they will form an initial basis for a prioritised list of buildings. The relevance or importance of these initial observations will be further informed (and taken into account) as the review and investigation process proceeds.

Overall a significant number of the possible characteristics of potential at risk buildings are age related. On this basis it is suggested that the estate be addressed in a number of tranches based on age and within each tranche a prioritisation be carried out of non age related characteristics.

Tranche 1 Post 1995 to Date construction. This will capture those buildings constructed under D&B procurements, projects with potentially reduced site supervision, greater variation of cavity widths.

Tranche 2 1980 to 1995 construction. This captures buildings with increased risk of poor wall tie embedment due to variable and increasing design cavity widths.

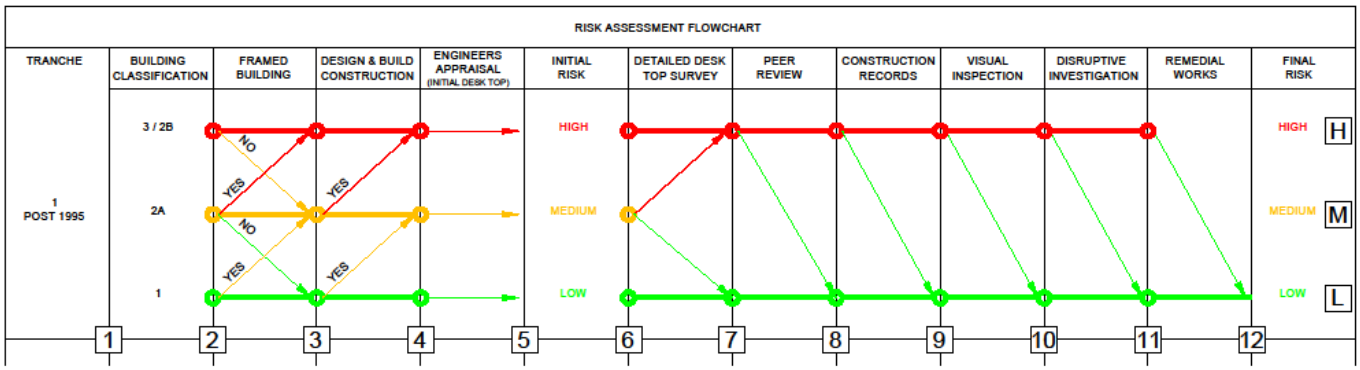
Tranche 3 1920 to 1980 construction capturing the introduction of wall cavities.

Tranche 4 Pre 1920. While there will be less, or no, instances of cavity ties, some building types may have potential panel restraint issues.

The above approach also recognises that older buildings will have been exposed to a greater numbariation of extreme weather events. Some may have also been subject to local remediation of conruction defects of this nature since completion.

The TWG then established the following methodoloqy to assessing the risk profile of each building and approach to addressign high risk properties.

Technical Working Group (TWG)
Methodology for a Prioritised Risk Based Review of the Wider CEC Estate



A general description of each stage is given below. For more detailed information regarding the philosophy behind this process please refer to Appendix A.

Stage 0-1 TRANCHE

Buildings are put into tranches 1-4 depending on the time of original construction, with Tranche 1 properties seen as higher risk and prioritised for assessment.

Stage 1-2 BUILDING CLASSIFICATION

Buildings are classified in terms of their Risk Group as noted in the Buildings Standards Technical Handbook.

Stage 2-3 FRAMED BUILDINGS

Risk level will be increased or decreased depending on whether the building comprises a framed construction.

Stage 3-4 DESIGN AND BUILD

Risk level will be increased where the building has been constructed using a Design and Build procurement process.

Stage 4-5 ENGINEERS APPRAISAL

An independent review will be carried out by a qualified structural engineer to identify whether there are mitigating or contributing features of the building which would justify an adjustment to its risk classification. An example of the risk factors that the engineers will consider is contained in Appendix B.

City of Edinburgh- Estate Wide Masonry Panel Assessments

Stage 5-6 INITIAL RISK CLASSIFICATION

This is a record of the initial risk classification for the property as agreed by both structural engineers.

Stage 6-7 DETAILED DESK TOP ASSESSMENT

Buildings with a 6L (low risk) rating – no further action

Buildings with a 6M (medium risk) rating – A detailed desk top assessment including examination of all available design drawings to determine if there is sufficient information which would allow the building to be given a low risk classification. In the absence of any mitigating information the building will be classified as 7H (high risk).

Buildings with a 6H (high risk) rating – All building with 6H rating will require a detailed desk top assessment including examination of all available design drawings to fully understand the construction details and design intent.

Stage 7-8 PEER REVIEW

An independent review by a second qualified structural engineer will be carried out at this stage.

Stage 8-9 REVIEW OF CONSTRUCTION RECORDS

Buildings with an 8L (low risk) rating – no further action

Buildings with an 8H (high risk) rating – A detailed examination of all available construction records, including QA sheets, clerk of works reports, photographs etc. Where the design information is considered to be of a good quality, construction records can be used to assess the build quality. In cases where both the design information and construction records are considered to be good then the building may be given a 9L rating (low risk).

Stage 9-10 VISUAL INSPECTION

Buildings with a 9L (low risk) rating – no further action

All buildings with a 9H (high risk) rating are to be inspected by a structural engineer to assist in the scoping of disruptive survey investigations. All noted defects will be recorded and summarised in a written report. In exceptional cases, it may be possible to reduce the building classification to 10L (low risk) should the visual inspection reveal construction information that was not apparent through the previous desk top studies.

Stage 10-11 DISRUPTIVE INVESTIGATION

Buildings with a 10L (low risk) rating – no further action

All buildings with a 10H (high risk) rating are to have disruptive investigations to determine the actual construction of the areas of the building which are the cause for concern. These investigations will be scoped and coordinated by a qualified structural engineer and commence after consultation with the relevant Asset Manager. Where the results of the disruptive investigation show that the building has been constructed in

accordance with the available design details or that stability is satisfied through good quality construction then the building will be given a 11L (low risk)

Stage 11-12 REMEDIAL WORKS

Buildings with a 11L (low risk) rating – no further action

All buildings with a 11H (high risk) rating will require remediation and may also require temporary protection measures where the risk is deemed severe enough to pose an immediate danger to health.

The scope of remedial works will be based on the output from the disruptive investigations. Details and specifications for this work will be prepared by structural engineers. The scope of the works together with any protection measures will be submitted to the Programme Board for approval prior to commencement on site.

FINAL RISK CATEGORY

All buildings will reach a L (low risk) category at some point during the assessment process. A letter confirming this will be signed by the structural engineer carrying out the assessment and countersigned by an independent checking engineer.

APPENDIX A – BACKGROUND TO METHODOLOGY

There is no evidence to suggest that the Council's Estate is at any greater risk of having the type of defects that occurred on the PPP1 Schools than any other property across the country. However, it was recognised that an appropriate response would be for the Council to conduct risk based intrusive investigations more widely across its estate.

It was also recognised however that there are several characteristics which may be contributory factors, likely to increase the risk of a building having these types of defects.

These characteristics have informed the approach to the investigation process (on a prioritised risk basis) and can be summarised as follows: -

Cavity widths. - Wall cavities typically started to be specified in the 1920's and cavity widths were generally standard up to the 1980s. At that time cavity widths began to be influenced by insulation requirements and by architectural design features. The advent of increasing cavity widths (post1980) required greater construction skills particularly regarding wall tie specification and installation to achieve the specified tolerance.

(This suggests an elevated risk profile for buildings constructed post1980).

Masonry Panels.- Due to their insitu nature, infill masonry panel construction is susceptible to factors including tradesman skills, contractor management procedures, contractor checking, programme pressure, design team checks and Clerk of Works (CoW) checks. Older buildings with more traditional supervision arrangements are more robust in this regard than buildings from the mid-1990s on.

(This suggests that Post 1995 buildings could represent greater concern).

Design and Build (Novation). There is an indication that the quality of monitoring and supervision will have been a contributory factor to the failure to meet design requirements. There is an indication that the disengagement of designers during the construction process under Design and Build (D&B) novation arrangements could also be a key contributory factor. For this reason, Design and Build projects will also be prioritised as part of the process.

(This suggests a possible elevated risk profile of buildings construction post 1995 on the Council's Estate as D&B typically came into place post 1995).

Design Features- There will be a need to focus on specific building design features such as large gable end masonry panels. This being the characteristic of the element which failed at Oxgangs Primary School.

(Buildings with more sensitive features will not be age related but such features coupled with variable cavity widths would also elevate the priority of post 1980 construction).

Building Risk Group- The Building Standards Technical Handbook identifies the issues to be considered with respect to assessing the risk group of a building. These include occupancy level, use, the number of storeys and floor areas. This approach will also form part of the building Risk Assessments by the Structural Engineers.

Construction Type - The PPP1 issues relate to cavity wall ties and securing masonry panels to the structural steel frame. It is considered that both steel and concrete framed buildings represent similar risk regarding cavity width. For this reason, both Steel Frame and Concrete Frame buildings will be treated equally in elevating the priority level.

(Framed buildings with masonry panels should be treated as having elevated risk).

Timber Frame above 3 Storeys

In circumstances where there are large exposed masonry panels at high level, the benefits of timber frame construction (see low risk factors below) can be negated by the need to provide additional ties to withstand higher local wind pressures. There is also historical evidence that panels of this type are more prone to failure than in low rise construction. The presence of large cavities may also further increase the risk to these buildings. For these reasons, timber frame construction above 3 storeys' in height should be given an elevated risk level with regards to cavity ties.

APPENDIX B – RISK FACTORS FOR ENGINEERING APPRAISAL STAGES 4-7

LOW RISK FACTORS

Buildings without masonry panels.

Single Storey Timber Frame Construction. Whilst it is recognised that timber frame wall ties can have specific quality issues due to incorrect fixing of the ties back to the timber stud it is considered that they are less likely to suffer from the type of defects that lead to the Oxgangs failure. Cavity wall ties in timber frame construction are fixed directly to the frame. As such the issue of variable embedment depths in the inner leaf is not an issue. Wall ties are also generally specified to suit stud spacing and brick coursing, typically 600mm horizontally and 450mm vertically and therefore for single storey buildings have an increased factor of safety against failure. Single storey panels are also considered to present less risk of severe injury.

Buildings with a Steel Frame Studs (SFS). The type of ties that are for used in SFS construction typically involve a vertical channel screwed back to the studs which then receive a sliding tie. The tolerances used for this type of construction, the fact that the ties can be positioned to suit the brick coursing and the elimination of embedment issues in the inner leaf are all considered to be factors that make this type of construction low risk.

Traditional Construction. The issue of wall panel restraints between masonry and steel which was found to be defective at the PPP1 Schools does not apply to traditional construction because the wall panel stability is generally provided by the direct connection between walls and floors. For this reason, traditional construction is considered to be low risk.

Small buildings with a plan area of less than 200m2. The external walls of buildings which have a small floor plan can often benefit from additional robustness due to regular returns, in these circumstances the buildings can have a reduced risk of instability.

Buildings with a geometry that provides additional stability to wall panels e.g. cellular construction with masonry cross walls.

Buildings in very sheltered locations such e.g. extensions in courtyards of existing buildings. This is only likely to apply where permanent sheltering can be demonstrated such as the case for a minor courtyard extension of an existing building.

Framed structures without large masonry panels (possibly strip or piers only).it is considered that these types of masonry elements are more likely to be tied to the substructure but that they would also exhibit more distress before failure.

Buildings where masonry panels are less than two storeys high. Where no wall panel exceeds a height of one storey the risk of severe harm is low.

Buildings with cavities less than 125mm. The potential variation of cavity widths is seen as a reason for lack of embedment. Cavities up to 125mm are more of a standard construction and subject to standard tolerances and hence of lower risk.

Full set of engineer's drawings well detailed in terms of both cavity and restraint ties

Properties that have a signed set of as built details.

Architectural details that reflect the engineering information and hence form well-coordinated design details.

Engineering details that show alternative means restraint such as walls built between beam flanges or channels

Buildings that have regular vertical restraints such as wind posts or structure showing adequate fixing details (i.e. obviously horizontally spanning)

HIGH RISK FACTORS

Large wall panels (greater than 20m2) with no intermediate restraint. Large wall panels put greater reliance on edge support for their stability. Hence the lack of panel restraint on walls such as this are high risk

Walls with the masonry inner leaf thicker than the external leaf. It is considered that the normal site working practice would be to position wall ties centrally to the leafs of the wall. At Oxgangs it was found that the ties would require to be positioned centrally to the ‘’cavity’’ to meet the design intent. This may not have been obvious unless both leafs were constructed at the same time. Therefore, when the wall is not symmetrical (inner leaf thicker than outer leaf) there may be a greater risk of defective installation of the tie leading to lack of embedment.

Panels at cross bracing locations. There is a risk that cavity widths are increased locally to accommodate bracing and this could result in lack of embedment.

Wall panels immediately adjacent to an external public assembly area.

Walls with an internal floor to ceiling height greater than 3 metres. Tall wall panels such as those in public assembly rooms generally require enhanced restraint.

Wall panels that have a cavity width greater than 250mm. The potential variation of cavity widths is a reason for lack of embedment. Cavities greater than 250mm are also likely to have thick thermal insulation and special window reveal details which may require special cavity wall ties. Two part ties are also necessary in some instances; it is considered that these special tie provisions may require more skill and supervision and hence are higher risk.

No detailing of wall restraints.

Wall restraint locations not identified clearly on drawings

Inadequate detailing of restraints, fixings, type etc.

No cavity wall ties detailed on engineering drawings

Wall tie lengths inadequate to provide a minimum of 40mm embedment.

No details were bracing bridges cavity.

Report of the Independent Inquiry into the Construction of Edinburgh Schools

1. PROCUREMENT RECOMMENDATIONS

	DETAILED RECOMMENDATION	ACTION
1.1 Expertise and resources **(Rec. 1)**	Public sector bodies engaged in the procurement of public buildings should maintain, or have assured access to, a level of expertise and resources that allows that body to act as an 'intelligent customer' in undertaking transactions with Private Sector Construction Companies. Before commencing a programme of work or an individual project, a public body should first assess this requirement and ensure that it has in place the requisite and appropriate resources in terms of governance arrangements, type of expertise, allocated time and the funding required to enable it to act as an 'Intelligent Customer'.	Hub SE agrees with the recommendation. Hub SE aims to provide that support by acting as the client's development partner. Through its experience in both DBDA and DBFM contracts, Hub SE can help the client to ensure that adequate arrangements are in place from the outset.
1.2 Ensuring compliance with specification **(Rec. 2)**	In any construction contract let by a public body, the public body should ensure that due diligence is undertaken at an appropriate level to confirm that the requirements of that contract are actually delivered in accordance with the terms of that contract. The level of due diligence applied should be determined through an informed assessment of risk of the likelihood or implications of non-compliance.	Contracts delivered through Hub contain a range of measures to ensure that adequate diligence is applied in terms of compliance. These are detailed in appendix 1 but, in essence, checks are undertaken by Independent Testers, Hub SE Project Development Managers, Designers and, in some cases, Clerks of Works. Detailed records are maintained which

	DETAILED RECOMMENDATION	ACTION
		include photographic evidence.

	DETAILED RECOMMENDATION	ACTION
1.3 **Public bodies cannot delegate duties** **(Rec. 3)**	In seeking to transfer as much risk as possible away from themselves in relation to the design and construction of facilities, public bodies should understand that they cannot delegate to others the duty that they ultimately owe to the public to ensure the provision of a safe environment for the delivery of services to their communities and this should inform their approach to their quality assurance processes of projects. There should always be an appropriate level of independent scrutiny in relation to all aspects of design and construction that are in effect largely or partly self-certified by those producing them.	In terms of independent scrutiny, and recognising the importance of design compliance, Hub SE has agreed with its clients that future hub projects will aim to employ the services of Clerks of Works. Ultimately however, this is a client choice. Alternative and supplementary measures may include; ➢ Utilisation of client in-house resources ➢ Extended role for Technical Advisors. ➢ Increased scope of works for the Independent Testers. ➢ Increased scope of designer's appointments to ensure they continue to be adequately involved during the construction phase.

1.4 **Building it right first time** **(Rec. 4)**	The procurement strategies adopted by public bodies should include appropriate investment in the provision of informed independent scrutiny of projects when they are being designed and constructed so that they are built right first time, rather than clients subsequently seeking to rely on their ability to seek remediation or compensation if they are not. It is the view of the Inquiry that seeking savings through cutting investment in quality assurance is inevitably a false economy.	Hubs Tier 1 works contractors already employ robust quality checking procedures. These in conjunction with those measured outlined in 1.2 and 1.3 should satisfy this requirement.

	DETAILED RECOMMENDATION	**ACTION**
1.5 **Quality of design and construction** **(Rec. 5)**	There should be a more informed approach among public bodies as to how best practice methodologies aimed at optimising the quality of design and the quality of construction can be incorporated into the current models of procurement of public buildings, whilst maintaining other benefits of these processes. One key element of such processes is a clear and considered articulation in a comprehensive brief by the client of the quality objectives for a project and of the methodology to be used for ensuring the achievement of that quality in both the design and construction phases. Appropriate time and resource should be	Hub SE believes that the hub programme already addresses this requirement through its extensive existing quality monitoring procedures. Hub SE works closely with its clients and its supply chain to agree from the outset which additional measures may be required in order to ensure that quality is assured. The client has an important part to play here by defining its long term objectives at an early stage in the process.

	allocated by clients during the initial stages of a project and during the development of the brief in order to establish and clearly define these quality objectives and approaches to ensuring quality.	

2. INDEPENDENT CERTIFIER RECOMMENDATIONS

	DETAILED RECOMMENDATION	ACTION
2.1 Nature of Inspection **(Rec. 6)**	There would appear to be a lack of shared understanding, both by those commissioning and providing the services of Independent Certifier in PPP forms of contracts, with regard to the level of inspection to be undertaken by the Independent Certifier and the degree of reliance that clients can place on the issue of Availability Certificates as to the quality of the construction. The level of service provided by Independent Certifiers needs to be reviewed and contracts of appointment written to reflect what clients actually require of the role, so that clients better understand exactly what they are getting and providers of the service better understand what is required of them. Standard forms for these appointments should spell out the nature of the inspection required.	The appointment of the Independent Certifier /Tester is jointly made between DBFM Co and the Participant and is not issued to the market until such times as the Scope of Service is fully agreed between the two parties. In order to address this concern Hub SE has extended the appointment duties to incorporate an optional service for the Client's consideration. This service scopes out C/W duties to be undertaken by the IC/IT through the works period. The fee ultimately agreed with

	The Inquiry is of the view that one possible model or option to overcome the type of issues identified in the PPP1 project would be to extend the range of services required in the appointment of Independent Certifiers to include the provision and management of Clerks of Works services.	the Independent tester reflects those extra duties. .

	DETAILED RECOMMENDATION	**ACTION**
2.2 Professional indemnity insurance and Liability Period **(Rec. 7)**	The level of professional indemnity insurance sought and the liability period for Independent Certifiers should be assessed to properly and appropriately reflect the significance of their Certification processes and the degree of reliance that is to be placed on it.	At present both the Design Team and the Independent Tester provide PI level of £10m on an each and every claim basis for a period of 12 years on DBFM Projects. This is considered to be adequate.
2.3 Method of appointment of Independent Certifier **(Rec. 8)**	Given the essential requirement that those undertaking the role of Independent Certifier are truly independent, the appointment of Independent Certifiers should be made following properly advertised and conducted public procurement processes and not through nomination or recommendation by the private sector party (as appears frequently to have been the case).	Hub SE carries out a full procurement exercise in conjunction with the client prior to any appointment being made. The Authority participates in the selection of bidders and approves the final appointment.
2.4 Fees of Independent Certifier (Rec. 9)	The fees for undertaking the Independent Certifier role should reflect the level of service required, rather than the service being restricted to fit a predetermined budget.	See 2.1

	DETAILED RECOMMENDATION	ACTION
2.5 **(Rec. 10)**	Public sector clients should engage appropriately qualified individuals or with the necessary professional construction expertise to undertake on their behalf an appropriate level of on-going inspection of the construction of their buildings. This is in order to identify and report defective work to the client and to ensure proper rectification of same. Depending on the nature of the project, this inspection role, at the level at which the defects in the Edinburgh PPP1 schools occurred, is traditionally undertaken by a combination of resident architects, resident engineers and Clerks of Works, the use of whom has dramatically reduced over recent years, yet the essential role they played does not appear to have been effectively provided for by alternative arrangements within the forms of procurement currently in vogue. Clients need to reappraise this gap in the assurance processes which has been allowed to develop.	As described in section 1 responses above, Hub SE believes that between the existing measures in force on hub projects and the new measures recently agreed with the Territory Partnering Board in December 2016, the requirements of this recommendation are accepted and either are already being actioned or will be.

3. CLIENT'S RELATIONSHIP WITH THE DESIGN TEAM

	DETAILED RECOMMENDATION	ACTION
3.1 **Scope of service of design team members** **(Rec. 11)**	Under current models of procurement, the relationship between the client and key members of the design team has tended to become at least one or more steps removed, yet the inherent fundamental quality and safety of projects as determined by the design of spaces, the specification of materials and the structural intent behind the design, relies on the creativeness and effectiveness of their designs and the proper implementation of these on site. The extent of their appointments and the level of involvement of design team members (either with clients or on site) is now frequently delegated to contractors to determine. Public bodies should review current procurement arrangements to ensure they are providing the optimum level of communication between clients and key members of the design team and that clients are able to benefit to the fullest extent from their professional advice and expertise. They may wish to consider how more direct communication could be incorporated into current forms of contract, in addition to the existing requirement for the provision of	Whatever arrangements are used, the design liability on hub projects remains with the Tier 1 Works Sub-Contractor and it is important for the client's protection that it should continue to do so. It is recognised that, in the early days of Hub, some of these pressures became evident. However, it is now a key feature of Hub South East projects that the client is integrally and centrally involved from the outset in the design development process. The client is usually directly involved with all of the project team members to ensure that client requirements are fully understood and accommodated. Whilst the contractor is ultimately responsible for the design, he is no longer solely "in control" of the development of that design especially in the early stages.

	DETAILED RECOMMENDATION	ACTION
	collateral warranties.	Consequently, the remoteness referred to in this recommendation does not occur in Hub SE projects. It should also be remembered that the Authority has two additional obligations which can directly address this concern these being: a) The production of the ACR and b) The approval of DBFM Co proposals Both of the above if drafted correctly can give the Client confidence in relation to its ability to get what it wants.
3.2 **Role of design teams in inspecting works on site** **(Rec. 12)**	If clients do not wish to prescribe in their tender documentation the minimum level of services which they require to be provided by design team members when employed by a contractor, public sector clients should at least require that submitted tenders include a full description of the proposed scope of design team services, including any proposed role in the inspection of the works on site. This, in addition to the quality of the proposed design team or proposed design, should be	The hub design team appointments do contain an obligation on the Design Team to inspect on both progress and quality (see cl7.05 of standard appointments). It was agreed with the TPB in December 2016 to review and strengthen those responsibilities as a direct consequence of the concerns

	DETAILED RECOMMENDATION	ACTION
	important factors in the assessment of such tenders.	reflected in this recommendation. In addition, designers will be able to escalate legitimate concerns to the IT or to Hub Project Directors who, with the client, will act to ensure that those concerns are properly addressed. These extra responsibilities will be reflected in the fees agreed with design team members.
3.3 Notification of issues to public sector client **(Rec. 13)**	The Inquiry is of the view that, where possible, there should be a mandatory provision built into such contracts that where, to the knowledge of a professional design team member, a contractor has failed to take appropriate action as advised by a member of the professional design team on issues that could impact on the subsequent safety of building users or functionality of the building, the consultant in question should be required to inform the public sector client of the advice provided to the contractor.	Given the agreed risk transfer built into the Standard Form contracts, any Design Team concerns of this kind within hub projects should firstly be addressed, on DBFM projects, to the Independent Tester, who can then co-ordinate on behalf jointly of DBFM Co and the Authority. On DBDA projects, the first point of contact should be the Hub Project Development Manager.

4. INFORMATION SHARING RECOMMENDATIONS

	DETAILED RECOMMENDATION	ACTION
4.1 Production,	The production, retention and updating of accurate construction and operational	This recommendation is already largely catered for

	DETAILED RECOMMENDATION	ACTION
retention and updating of information **(Rec. 14)**	information and related documentation on projects should be regarded as a fundamental requirement and requires a systematic and disciplined approach by all parties to the contract. Public bodies should establish a mandatory protocol for receipt and processing of all such project information within their own organisations.	within standard hub contracts. Clause 17.18 of the DBFM states (16.16 of a DBDA) – "As soon as it is available, after the issue of the Certificate of Practical Completion…., DBFM Co shall provide to the Authority a copy of the as-built building specification, together with all drawings relating to the Works." This is then passed down into the Construction Sub-Contract. Hub SE will look with SFT at stipulating a period within which the information must be provided. Hub SE and its supply chain already has physical and digital measures in place to ensure that comprehensive and effective quality records are maintained and continue to be accessible.

	DETAILED RECOMMENDATION	ACTION
4.2 **Provision of as-built drawings** **(Rec. 15)**	The process of producing as-built drawings is frequently included in appointment documents as a requirement of the design team. In evidence to the Inquiry, design team members have stated a practical limitation on them in that they may be unaware of the detail of on-site changes to the issued design drawings or specifications that may be made by the contractor or it supply chain. Contractors should be required to put in place appropriate arrangements for the recording of all subsequent changes to final 'construction issues' drawings and arrange for the production of a final as-built set of documents to a standard suitable for issue to the client for retention as a permanent record of the detail of the project. Contractors should also be required to certify that the 'as-built' documentation as provided is an accurate record of what has actually been built.	The obligation already is on the Contractor to supply as-built information which reflects what is actually built. As per the recommendation in the Cole Report to go beyond this, Hub SE accepts the intent behind this recommendation and will look at this with its clients and its supply chain to review the practicality of such a change.
4.3 **Provision of as-built drawings to Building Control** **(Rec. 16)**	It is also recommended by the Inquiry that consideration be given to the requirement for 'as built' drawings as prepared for and certified by the Contractor to be submitted to Building Standards as a definitive record of what was built. This could be a formal part of the Completion Certificate process.	Hub SE would want to consider the practicality of this recommendation. Copying the as-built drawings to Building Control is not an issue but this should not become a

	DETAILED RECOMMENDATION	ACTION
		secondary validation requirement because the Building Control teams will not want to take on any liability for checking the accuracy of the as-built drawings.
4.4 **On-site accessibility of design information** **(Rec. 17)**	It is critical that there is effective communication of essential design information in an accessible form to tradesmen such as bricklayers working on site. In relation to the construction of walls and the incorporation of related structural accessories, in order to avoid mistaken omissions of accessories such as wall ties, head restraints or bed joint reinforcement, it is recommended that all relevant information should be fully integrated into a single document, rather than requiring reference by bricklayers to a range of different documents produced by different members of the design team. The design and construction professions should consider the need for the development of a better approach to the integration of documentation to reflect the practical needs associated with the implementation of design information in a building site environment. From the evidence provided to the Inquiry, there was a unanimous view that a	Hub SE believes that appropriate design information is already being made available to tradesmen, on all construction sites. However, Hub SE accepts this recommendation and will review this with its T1 contractors and, should there be any cause for concern, will consider any actions which may need to be taken

	DETAILED RECOMMENDATION	ACTION
	comprehensive set of all such information in regard to the construction of external cavity walls should be provided on a document produced by the structural engineering consultants.	
4.5 Communication of design intent **(Rec. 18)**	The evidence to the Inquiry suggested that the design intent in relation to the importance to the structural integrity of masonry panels of the proper installation of wall accessories and secondary steelwork, may not always be adequately conveyed in design documentation and may not be fully understood by those reviewing the documentation (or perhaps more importantly by those actually building the walls). Structural engineers should be required to describe in their documentation and drawings the approach and design philosophy adopted in their designs in terms of the reliance on the inclusion of bed joint reinforcement, wall head and lateral restraints or windposts in the required locations and in accordance with the specification, and the relative inter-dependence of these various components.	Hub SE will review this recommendation with its design team supply chain members and, if considered necessary, changes could be made to the Scope of Services for the Design Team. Currently, the actual details for such elements would normally be included on the Architects details but not the design intent behind them. Hub SE will therefore look, with its supply chain, at what else might be done to address this.
4.6 Structural	The approved building warrant system relies on buildings being constructed in	Any changes during construction need to comply

	DETAILED RECOMMENDATION	ACTION
amendments to be approved **(Rec. 19)**	accordance with the approved drawings. Contractors should ensure that any amendments to the structural design of buildings should only be implemented after having undertaken any necessary checks or amendment to the design by the structural engineer and any changes to the approved design should be documented and processed in compliance with the statutory obligations imposed by the Buildings Standards regulations under the amendment to warrant process.	with Building Standard Regulations. For Contractors to change the design in a way which is non-compliant would go against the obligations of the Contractor to obtain all Consents. For DBFM's the Independent Certifier would have an obligation to check that the design, as constructed, is compliant.
4.7 **Access to original construction information** **(Rec. 20)**	The City of Edinburgh Council was not automatically provided with all relevant design, construction and survey information relating to the original construction, the subsequent investigations and the implementation of the remedial works to the PPP1 schools. In response to requests for elements of this information, the Council was advised by various members of the supply chain that it did not have a direct contractual right to this information and would have to seek it through the various levels of ESP's supply chain, including members of their original supply chain who may be out of contract. PPP contract arrangements should incorporate clearly the right for public sector	Through the hub process, the Client is given a comprehensive copy of all the as-built information at the time of Completion and so should not need to have to pursue this information from the supply chain at a later date. The DBFM and DBDA contracts give the Client the right to obtain information through either DBFMCo or Hub SE. Hub SE will look, with its supply chain, at whether or not anything more needs to be done.

	DETAILED RECOMMENDATION	ACTION
	clients to be provided, by members of current and original PPP supply chains (and where relevant in return for an appropriate fee), with copies of all design and technical information, surveys, proposed amendments and as built documentation in relation to their projects.	

5. CONSTRUCTION RECOMMENDATIONS

	DETAILED RECOMMENDATION	ACTION
5.1 Building of leaves of cavity walls separately **(Rec. 21)**	The evidence from this Inquiry suggests that the subsequent practical difficulties that arise from building the inner and outer leaves of cavity walls at different times may have been significant contributory factors in the lack of embedment of wall ties achieved. The construction industry should carefully review this practice and if the separate building of the leaves of cavity walls is still required to achieve programme dates, it is recommended that standard wall ties should not be used and instead be replaced by alternative approved ties or by alternative construction to blockwork for the inner leaf e.g. use of structural framing systems.	Within Hub SE projects, these recommendations have already been implemented by the Tier 1 Works Contractors and inspection regimes have been put in place to ensure compliance.
5.2 Design of wall ties	There would be significant benefit if the design of wall ties, particularly the type	Hub SE will review this recommendation with its T1

	DETAILED RECOMMENDATION	ACTION
(Rec. 22)	used on the Oxgangs School, more readily enabled both those laying the bricks and those inspecting cavity walls before closure, to determine that the minimum or recommended embedment of wall ties was being or had been achieved. Clearer calibration or marking of these points through the introduction of colour, texture or shape could assist in this process, by making the level of embedment more clearly visible.	contractors.
5.3 **Design and use of head restraints** **(Rec. 23)**	There may be benefit in designers, contractors and manufacturers reviewing the practical complexity of installing the different forms of head restraints, particularly when being connected to sloping beams, and seeking to simplify this in terms of specification, design and fixing of this component, thereby reducing the time required to fit them and any potential reluctance on the part of bricklayers to install them. As in the case of the wall ties, it would be beneficial if they were designed to incorporate some visible indicator to prove in any subsequent inspections that they had actually been fitted, thus preventing the need for avoidable intrusive investigations.	Hub SE will review this recommendation with its T1 contractors.

	DETAILED RECOMMENDATION	ACTION
5.4 **Payment of bricklayers** **(Rec. 24)**	The most common method of paying bricklayers in recent years has tended to be based on the number of bricks laid rather than on the time that bricklayers work. As generally applied, this approach would appear not to take account of the number, type and complexity of accessories that are required to be incorporated. The construction industry should seek to review this approach to remove any perverse incentive of the payment mechanism to encourage the omission of elements providing the essential structural integrity of walls.	Hub SE will review this recommendation with its T1 contractors.
5.5 **Contractor quality assurance processes** **(Rec. 25)**	The quality assurance processes applied by the contractors on the PPP1 projects failed to identify or rectify fundamental non-compliance with required standards in the construction of masonry walls. Irrespective of the potential role of independent inspections by agents of the client, such failures are and remain the direct responsibility of the contractor. The repeated failures across many different projects would suggest that either the quality assurance processes themselves or the manner in which these processes are implemented have frequently proved	Hub SE will review this recommendation with its T1 contractors.

	DETAILED RECOMMENDATION	ACTION
	inadequate. It is therefore recommended that the construction industry should seek to introduce, develop and promulgate standardised best practice methods in relation to the requirements of the related quality assurance processes, how they are implemented and who implements them. The design of such processes should consider the potential greater use of modern technology in relation to the digital recording of such areas of work.	
5.6 Inspection and sign-off of cavity walls **(Rec. 26)**	It is particularly important to note that in the case of the 17 PPP1 projects, visual only inspections of the external walls of these schools, by experienced teams of qualified structural engineers, failed to identify any indications of the subsequently identified presence of significant deficiencies in the construction of the walls. While visual inspections are clearly the first part of any structural assessment of walls and can help identify any movement, bulging or alignment issues, they should not be relied upon as evidence that the walls are properly constructed and have the required structural capacity to resist strong winds. It is therefore recommended that quality assurance processes on site are such that	On Hub SE projects, inspections are carried out following each days work in order to ensure the required quality is maintained through the structure. These inspections are fully recorded, usually with photographic records as well. However, Hub SE will discuss this recommendation with its T1 contractors and any other appropriate measures identified will be adopted.

	DETAILED RECOMMENDATION	ACTION
	they prevent the closure of walls before proper inspection and sign-off has been facilitated to confirm the quality and completeness of the work.	
5.7 Bricklaying profession **(Rec. 27)**	The Inquiry is of the view that, given the widespread nature of similar defective construction across the 17 PPP1 projects, undertaken by bricklayers from different sub-contracting companies, and from different squads within these companies, there is clear evidence of a problem in ensuring the appropriate quality in this fundamental area of construction. It is therefore recommended that the construction industry should re-examine its approach to recruitment, training, selection and appointment of brick-laying subcontractors, means of remuneration, vetting of qualifications and competence, supervision and quality assurance of bricklayers.	Hub SE will review this recommendation with its T1 contractors to consider how it can help to promote the intent of this recommendation.
5.8 Fire-stopping and fire-proofing **(Rec. 28)**	Fire-stopping and fire-proofing are fundamental aspects of the safety of buildings and must be treated with the importance that they deserve due to the potential implications for the safety of building users and the risk to property as a result of defects in their incorporation into the building.	Hub Tier 1 Contractors undertake inspection of these areas due to their importance to both the safety of users but also the integrity of the contract.

	DETAILED RECOMMENDATION	ACTION
	There has been significant evidence of failures of fire-stopping in PPP projects in England and questions have been raised as a result of the initial surveys of fire-stopping undertaken across the 17 PPP1 projects in Edinburgh. It is recommended that, in relation to these aspects, consideration be given to the introduction of independent in-depth inspection and certification by a suitably qualified person or specialist company, in accordance with the provisions made within the Building (Scotland) Act 2003, and that this certification be required to be provided to Building Standards as evidence of fully compliant installation, prior to the approval of the Completion Certification by Building Standards.	Inspections are also undertaken by our Tier 1 Service provider in order to ensure compliance at Service Commencement. In Hub projects, the Fire Engineer's appointment is a Tier 2 Design Appointment and therefore they simply feed information into the Tier 1 Designers, in particular the Architect, who covers the design work under its warranty. Any obligation to inspect would therefore become part of an extended inspection service by the Architect. Hub SE will review this with its supply chain and consider whether or not anything needs to be done.

6. TRAINING AND RECRUITMENT RECOMMENDATIONS

	DETAILED RECOMMENDATION	ACTION
6.1 Provision of training and	The evidence to the Inquiry from several experienced sources suggested that there is an increasing shortage of	Hub SE already works with its partners to promote the

	DETAILED RECOMMENDATION	ACTION
recruitment **(Rec. 29)**	essential skills and/or deskilling in the construction industry which is impacting on its ability to deliver and ensure the required quality of construction. Three particular areas were identified where a combination of a lack of funding, lack of appropriate training courses and lack of recognition of the level of requirement has led to serious skills shortages and difficulties in recruitment. The three areas were: • **Bricklaying** • **Clerks of Works** • **Building Standards Inspectors** The appropriate authorities should undertake a review of the current level of provision of training in these areas, and any others considered relevant, to ensure that the construction industry has access to an adequate properly trained and qualified resource in each of these areas.	development of construction skills through the projects which it develops. Hub SE will liaise further with its partners to see what else can be done specifically in relation to supporting the intent behind this recommendation.
6.2 Apprenticeships **(Rec. 30)**	In relation to the training of bricklayers, the Construction Industry Training Board (CITB) should review with the industry the effectiveness of current apprenticeship arrangements in meeting	Not immediately within the remit of Hub SE. However, Hub SE is liaising with industry partners to play its

	DETAILED RECOMMENDATION	ACTION
	the objective of developing a highly skilled bricklaying workforce. The current apprenticeship course and skills tests should also be reviewed to ensure that there is sufficient focus on understanding the function of and the practical installation of brickwork accessories.	part in developing and promoting effective apprenticeships.

7. BUILDING STANDARDS RECOMMENDATIONS

	DETAILED RECOMMENDATION	ACTION
7.1 **Scope of Building Standards inspection and certification** **(Rec. 31)**	The Inquiry formed the view that there was a common misconception as to the extent of the reliance that can be placed on the quality of construction of a building because it had successfully gone through the statutory Buildings Standards process. The typical frequency of site visits and the level and nature of inspections undertaken, as provided in evidence, can only confirm that buildings are being built generally in accordance with approved warrants. It would not appear to be either practical or appropriate for Building Standards Departments to be expected to undertake the type and level of detailed inspection that	Whilst this recommended action is not immediately within the remit of Hub SE, Hub SE will liaise with industry partners to play its part in developing and promoting effective inspection regimes. Beyond this, see previous responses in terms of current inspection arrangements on hub projects.

	DETAILED RECOMMENDATION	ACTION
	would be necessary to identify the risks to user safety that have been identified in this Report. However, an underlying core objective of their function as expressed in the Building (Scotland) Act 2003 is 'securing the health, safety, welfare and convenience of persons in or about buildings'. To resolve this issue, there is a need for Government and the construction industry to consider the introduction of methods that would provide Buildings Standards with the required level of assurance in risk areas. In this regard, it is recommended that consideration be given to the practicality of extending the concept of mandatory inspection and certification of construction by approved certifiers to elements of the building that could potentially pose significant risk to users if not constructed properly and which level of inspection cannot practically be undertaken by Building Inspectors themselves.	
7.2 Sanctions for non-compliance with Building	The evidence provided to the Inquiry showed a number of breaches in relation to the PPP1 schools compliance with the statutory applications and certification processes	DBFMCo is responsible for obtaining Building Standards approval under Clause 11 of the DBFM (then passed down

	DETAILED RECOMMENDATION	ACTION
Standards **(Rec. 32)**	required under the Building (Scotland) Act 2003. The Inquiry noted that: (a) there does not appear to be an automatic follow up by Building Standards Departments to require compliance, where proper processes have not been complied with; and (b) that the non-application for and non-issue of completion certificates for new buildings would not appear to be an infrequent occurrence. The Inquiry would recommend that in order to improve the effectiveness of the revised Building (Scotland) Act 2005, in delivering the key stated policy objective of, 'securing the health, safety, welfare and convenience of persons in or about buildings', systematic and appropriate administrative arrangements should be developed and implemented by verifiers to identify, pursue and sanction those who fail to comply with its statutory requirements.	to the Tier 1 through the sub contract). The Building Warrant Completion Certificates are an element of the Completion Criteria which the Independent Certifier will require to issue the Practical Completion Certificate.
7.3 **Temporary Occupancy Certificates** **(Rec. 33)**	In circumstances in PPP contracts where the Building Standards Certificate of Completion cannot yet be issued, and the issue of an Availability Certificate is permitted under the contract on the basis of a Temporary Occupancy Certificate, it is recommended that there should be a specific requirement	DBFM sign off is in accordance with the Completion Criteria, Schedule Part 10 Clause 4.1.1. Prior to the issue of a Temp Occupation Certificate on hub

	DETAILED RECOMMENDATION	ACTION
	that the Independent Certifier issuing an Availability Certificate should formally advise the public sector client of this fact and qualify the documentation to reflect this position. Additionally, it is recommended that there should be a requirement under the contract that, in such circumstances, a date should be set by which the Project Company should be required to have achieved an accepted Certificate of Completion or be in default.	projects, a programme must be agreed for the issue of the Final Certificate.
7.4 Prioritisation of risk factors **(Rec. 34)**	The Inquiry noted, from the evidence provided, the number and preponderance of visits by Building Inspectors which focussed on drainage issues compared to the limited number of visits that were undertaken in relation to the compliance of the construction of the general structure and fabric of the buildings, the design and specification of which would have represented the vast majority of information submitted and scrutinised by Building Standards prior to approval of the design warrant. It is recommended that a review be undertaken as to the overall objective of site visits undertaken by Building Inspectors to ensure that the planning of these properly reflects a prioritisation of the identification and inspection of areas of highest risk.	Whilst this recommended action is not immediately within the remit of Hub SE, Hub SE will liaise with industry partners to play its part in developing and promoting effective inspection regimes.

	DETAILED RECOMMENDATION	ACTION
7.5 Building Standards Department of the city of Edinburgh Council (Rec. 35)	It is recommended that a review be undertaken of the staffing and funding of the Building Standards Department in Edinburgh Council to ensure that these are adequate to meet the demand for services and to provide the level of service that is required.	Not a hub issue

8. INFORMATION SHARING RECOMMENDATIONS

	DETAILED RECOMMENDATION	ACTION
8 Sharing of information on matters of structural concern (Rec. 36)	The Inquiry found that there was a degree of reluctance on the part of some Local Authorities to reveal to the Inquiry full details of the extent and nature of defective construction that had been found as a result of investigations undertaken at some of their schools. This reluctance could be related to possible on-going litigation or a reluctance on their part (or that of their project company) to have this information made public. It is recommended that there should be a formal requirement on public bodies to make automatic disclosure to a central source of information on building failures, particularly in relation to building failures that bring with them potential risks to the safety of building users.	Not a hub issue

	DETAILED RECOMMENDATION	ACTION
	In particular, the collation and dissemination of information relating to matters of structural concern is a vital element of achieving safe structures. The Standing Committee on Structural Safety (SCOSS) has introduced the Confidential Reporting on Structural Safety (CROSS) scheme, to facilitate this process in circumstances where those providing the information may wish to retain a degree of anonymity. This should be used more widely.	

9. RECOMMENDATIONS FOR THE CITY OF EDINBURGH COUNCIL

	DETAILED RECOMMENDATION	ACTION
9.1 Minor Changes within PPP1 schools **(Rec. 37)**	The Council may wish to investigate what flexibilities there may be, or may be negotiated, in relation to the application of the provisions of the PPP1 Project Agreement that might better facilitate the implementation of requests for minor changes within the schools. This was identified as an on-going source of frustration by those members of staff and of Parent Councils who gave evidence to the Inquiry.	This is already included in the hub standard form usually up to a value of £10k.
9.2 Parents' and schools' review of management of closure **(Rec. 38)**	The Inquiry would suggest that, if not already done, the Council should facilitate a joint meeting with representatives of the Parent Councils and heads of schools to review all issues relevant to the management of the closure, to benefit from any learning gained from the experience and to help inform the development of protocols for future emergency situations.	Not a hub issue.
9.3 Fire-stopping **(Rec. 39)**	In light of the results of the fire-stopping surveys of the PPP1 projects, it is recommended that the City of Edinburgh Council should, in addition to the on-going checking of fire safety measures and components across its wider estate, require that appropriately frequent on-going inspections are undertaken by those responsible for the management of these	On Hub DBFM projects, regular inspections are undertaken by a number of parties including the long term FM service provider. On DBDA projects, Hub SE works with its clients and supply chain to ensure that adequate checking regimes are in force during the construction period.

	DETAILED RECOMMENDATION	ACTION
	buildings to ensure that these are properly maintained over time.	

10. FURTHER INVESTIGATIONS

	DETAILED RECOMMENDATION	ACTION
10 **Other clients of recently constructed buildings** **(Rec. 40)**	In relation to the potential presence of further defective construction in the external walls of other of their buildings, the City of Edinburgh Council is undertaking a proportionate and structured risk-based approach to investigating their wider estate, specifically regarding the issues identified on the PPP1 Estate i.e. wall tie embedment and the provision of appropriate restraints to masonry panels. Other clients of recently constructed buildings of a similar scale and form of construction to the PPP1 schools, if concerned that their buildings may contain similar defects, may wish to adopt a similar risk-based approach to any investigation process they may feel necessary.	Hub SE has worked with its clients and will continue to do so to provide whatever support is needed.