NORTH WEST COMMUNITY CAMPUS, DUMFRIES

LEARNING LESSONS

February 2020

Introduction

Improving Project Delivery

The Scottish Futures Trust (SFT) is a Scottish Government independent centre of infrastructure expertise. Its job is to work with the public and private sectors to improve the economic, social and environmental outcomes from infrastructure investment and use across Scotland.

Building strong and positive working relationships between the construction industry and the public sector – both strategically and at project level – is critical in this, not only for improving the quality of infrastructure but also having a positive impact on Scotland's economy, environment and place.

SFT maintains a central role in that relationship and is working across sectors and programmes to improve the efficiency and effectiveness of construction project delivery.

As part of this, SFT also manages the hub programme across Scotland. The programme focusses on delivering community infrastructure and there are five regionally based public-private delivery partnership structures, called hub companies. Through this programme SFT has a role to promote and support continuous improvement in construction project delivery.

A Concern about Construction Quality and Compliance

There have been several high-profile discussions recently about construction quality and compliance. These have arisen from issues occurring at projects, such as; Oxgangs School in Edinburgh, Grenfell Tower, London and the Dumfries Leisure Centre, and have raised concerns across the public sector and construction industry, and with the public.

It is important that we learn lessons from these events. It is also of course necessary that we learn and build upon those instances where good project delivery is evident.

SFT in its role working across Scotland can capture lessons learned and develop these through our own delivery programmes as well as in other areas and sectors.

North West Community Campus

North West Community Campus is a new build educational facility by Dumfries & Galloway Council. The school was developed and constructed through the hub programme, with its regional delivery partner hub South West Scotland Ltd.

Construction of the new building was due for completion in July 2018, in time for an August school commencement. Just prior to certification of completion, significant issues arose with some of the building's ceilings and services construction. Agreement was reached between the Council, the hub company and the building contractor, that the building could be occupied while addressing these matters, and the Council took access to the school property. However, several other building issues

arose, and the Council took the decision for the school to be closed then re-opened when all these matters were sorted. The school reached completion in February 2019 and was then occupied, on a phased basis, between March 2019 and June 2019.

SFT felt it would be useful to commission an independent review of the project. This would determine what had happened on the project and make recommendations on how to improve performance in construction quality and compliance.

This work was commissioned in October 2018 and focussed on the three key building issues that occurred at the time of initial access to the school and which led to the decision to close the school until the rectification of defects was completed and the Council were satisfied that the quality of the work complied with the requirements signed up to by the parties. The review was to follow the form of a root cause analysis. The principal reason for commissioning the work was to learn lessons to support further improvement.

The three building issues were:

- the collapse of a ceiling which caused the failure of fire sprinkler pipework
- a sliding door coming off its tracks
- a classroom display screen coming away from its fixings

The review has been completed and a report prepared. A copy of the report is available on SFT's website[1].

Independent Review

The report of the independent review includes several recommendations, and these are repeated below.

SFT endorses the recommendations and will disseminate to, and work with, project participants in the public sector and construction industry to support their implementation.

To assist with this, SFT has developed the recommendations into a set of generic lessons learned so that they can be applied across all forms of project delivery, and these are also noted below.

[1] https://www.scottishfuturestrust.org.uk/storage/uploads/rootcauseanalysisreportnwccfebruary2020.pdf

Independent Review

The root cause analysis exercise has revealed several instances where the delivery of the project has not met the contractual requirements or levels of good practice.

Independent Review Recommendations

'None of these recommendations should be implemented in such a way to as to reduce the liability of the Design & Build contractor or to increase that of the Authority/Employer.

1. The Tier 1 project team should fully design the support systems for significant items and must be seen to do so by the Authority before each package is built. This will require design work after Financial Close, and so a plan must be in place to manage this. There must be a design to check against for those who have the powers to do so. No work element should proceed until its design is complete.

2. All the design drawings should be available to the Authority's quality oversight team in a readily manageable form.

3. The Contractor must develop their Quality Plans for Design and Construction as required in the Design and Build Subcontract. The Contractor's Quality Management Plan should be audited by hub's Employers Representative. Hub Co's Quality Management Plan should be audited by the Authority's Representative. These powers exist in the contracts and should be properly exercised.

4. We believe Design Teams should confirm that the works accord with their design as they progress and at completion.

5. All design should be either the responsibility of the Design Team or formally designated as a Contractor Designed Portion. All contractor design must be approved by the relevant members of the Design Team.

6. The Tier 1 contractor, designers and subcontractors should sign off the project at key points before proceeding. For example: completion of substructure; wind and weathertight; close-up of ceilings and walls; completion of second fix. The hub Employer's Representative should have a role in this.

7. Someone outside of the Tier 1 contractor's team must champion quality. The responsibility for delivery of quality, as opposed to merely running processes, should more clearly be placed with hub's Employer's Representative.

8. Hub's Employer's Representative (ER) and the Authority's Representative (AR) need to have sufficient level of expertise and capacity so that when they come to exercise their powers under the contract, they are suitably skilled and able to utilise them.

9. It should be made clear who is to lead the Authority's on-site quality team, e.g. the Clerks of Works. Reporting lines should be established at the outset. Technical roles to enable the ER and AR to exercise their contractual roles for technical oversight should be funded and resourced appropriately. The Authority must have a documented plan for exercising their powers under the contract.

10. Quality Key Performance Indicators (KPIs) must be much more focussed on factors which affect the health and safety of the finished works. Performance against quality KPIs should be interrogated. Non-conformances must be closed out by those who raised them.

11. Authority Clerks of Works should have formal roles within the project. Their relationship to hub's Employer's Representative and the Authority's Representative must be formalised and all members of the Authority team must have an understanding of how this is to work to oversee quality. If they are to be the sole technical resource on the Authority team, this should be clear. Ultimately, they should feed in to the decision to sign Practical Completion.'

Developing Generic Lessons Learned

SFT has reflected on the findings, conclusions and recommendations of the report which were made based on the specific circumstances and contractual arrangements of the North West Community Campus project. These have been combined with work on construction quality in other areas and some more, broadly applicable, lessons learned have been crafted. These are relevant on all projects, irrespective of contractual structure.

Whilst not exhaustive, they are intended as a better-practice guideline for those involved in the commissioning and delivery of new public buildings and significant refurbishments and SFT would encourage their adoption.

There is no intention to imply that these points are not already widely adopted in the delivery of projects across Scotland.

The key areas have been grouped under the following headings:

- Overall project management
- Roles and responsibilities
- The development and management of design
- On-site execution and supervision of workmanship
- Quality assurance

Lessons Learned for Future Projects

Overall Project Management

- The project owner must ensure that those with a key role on a construction project have the required skills and experience, as well as the resource capacity and required authority. Reference could be made to the Baseline Skillset tool[2] developed by SFT.

- Maintaining continuity of key personnel on a project is important for implementing appropriate leadership and delivery of design and construction quality.

- The approach to managing assurance of quality by designers and contractors must be interrogated by commissioning authorities as part of the selection criteria leading to an appointment / contract award.

- Time allocations in project programmes should be sufficient, be based on a risk assessment, and be well managed.

- Testing and commissioning activities should never be compromised.

[2] The Baseline Skillset tool[2] can be found on SFT's website: https://baseskills.scottishfuturestrust.org.uk/login

- Key performance measures for delivering quality management should be agreed early, with a focus on those critical elements which impact on the health and safety of building users.

- All parties involved in a construction project should avoid transferring possession when the asset is known to have significant defects.

- Robust and project specific construction quality management plans should be in place and reviewed by all relevant parties before construction commences on site. Regular reviews of these plans should cover the availability of appropriate resources to implement the plans.

- A comprehensive record needs to be kept of all validation sign-offs and inspections of work. Supporting such records with photographic evidence would be beneficial. There are new technologies available to assist with this and their use is encouraged[3]. Full adoption of these technologies will require accessibility by all those directly involved.

- The organisation that is responsible for certifying completion of the works should at an early stage establish a set of completion criteria and schedule all the documents and inspection certificates required as evidence before the project can be handed over.

Roles and Responsibilities

- There should be a clear understanding across all parties involved in a construction project of the roles and responsibilities regarding the delivery of design and the quality of workmanship as set out in the contract documents. Establishing clear lines of authority and reporting is essential.

- A documented plan should set all of this out clearly and include, for example:

    - who designs which elements of the project and to what level of detail
    - the role and responsibility for design management and coordination
    - the role and responsibility for design review and approval of design, particularly for elements designated for specialist contractor design
    - the role and responsibility for inspection and validation of the works as construction progresses

- The task of preparing a design responsibility matrix is very important in all of this. And there are critical areas of risk to be considered when deciding who is best placed to take on the responsibility of key elements of design, particularly around those aspects which relate to health and safety of building users.

[3] SFT's Technology Navigator includes references to evidence capture technology. https://infratech.scottishfuturestrust.org.uk/

The Development and Management of Design

- No element of work on a project should be undertaken without there being an approved design and specification in place. This is particularly important for the specification of fixings.
- Those with lead design responsibility should ensure that any remaining design to be detailed by specialist sub-contractors is completed, documented and checked by those with appropriate skills and responsibility. Likewise, those specialist sub-contractors with design responsibility should ensure their design is completed and checked before they proceed with installations.
- Coordination of all elements of a project's design is a key role for the lead designer, which needs to be exercised well.

On-Site Execution and Supervision of Workmanship

- There needs to be an appropriate level of supervision of works on site by main contractors, with increased attention to the management of quality of workmanship.
- Those supervising construction works on site should ensure that the necessary information is available to build each element and that this is communicated to the site operatives.
- There should be a role for designers in carrying out site inspections and this should be agreed prior to appointment.

Quality Assurance

- Commissioning authorities and delivery partners should deploy adequate inspection and assurance activities and ensure designers and contractors are complying with their own quality management plans including any agreed sign offs of completed elements of work.
- Consideration should be given to having standalone quality management meetings (separate from the regular project management meetings) during the construction phase. There should be representation at these meetings from sub-contractors and designers as well as the client and main contractor. Checks on the operation of the various assurance and inspection mechanisms should be reviewed as well as discussing any reported non-conformances.

Moving Forward

Implementing Change

This exercise has identified several lessons arising from the North West Community Campus project. These will be disseminated by SFT across the Scottish public sector and construction industry to ensure there are changes to practise and improvement in outcomes. A significant amount of activity on improving construction quality is already in motion. But it is essential that there is follow-through on the recommendations from this collaborative review, with the implementation of continuous improvement on similar projects and programmes.