Ministry of Education Modular Building Programme

Programme Review

CONFIDENTIAL

December 2016

Auckland Level 5, West Plaza Building 3 Albert Street PO Box 6588 Wellesley Street Auckland New Zealand Tel 09 300 9980 Tauranga Tenancy 1C, Level 1 2 Devonport Road PO Box 13117, Tauranga New Zealand Tel 07 571 1643 Wellington Level 5 Spark Central 42-52 Willis Street PO Box 830 Wellington New Zealand Tel 04 499 0881 Christchurch HSBC Tower, L11 62 Worcester Boulevard PO Box 448 Christchurch New Zealand Tel 03 961 2760



Ministry of Education Modular Building Programme Review

Contents

1.0	Introduction	1
1.1	TBIG Role	1
1.2	Purpose	1
2.0	Process	1
3.0	Findings	2
3.1	Delivery Model/Project Management	2
3.2	Modular Building Design	3
3.3	Programme	3
3.4	Other Observations	4
4.0	Recommendations	4
4.1	Project Ownership	
4.2	Aligning terminology	4
4.3	Feasibility Planning	4
4.4	Ministry Guidelines	5
4.5	Poor Public Relations	5
4.6	Submission of Building Consent at time of PID submission	5
5.0	Next steps	5

Appendix A: Terms of Reference

Appendix B: Proposed Feasibility Process Map



1.0 Introduction

1.1 TBIG Role

The Building Intelligence Group (TBIG) was approached by the Ministry of Education (Ministry) to complete a high level review of the Modular Building programme based on the Terms of Reference prepared by the Ministry dated October – December 2016 and develop recommendations to improve the delivery of this accommodation solution.

Due to time constraints, TBIG's review predominantly focused on roles and responsibilities of those involved in the Modular Building (MB) programme along with the steps required from conception to completion of an MB including design through construction to onsite installation.

1.2 Purpose

The purpose of this short review is to:

- 1. Ensure that roles and responsibilities of people and teams involved in this work are clear;
- 2. Establish what is working well from a process/functional standpoint and determine if there are any areas in need of greater support;
- Based on organisational design principles, make recommendations about where the Modular Building function should sit within EIS:
- 4. Consider whether or not the current approach and product is delivering the best service and fit for purpose solution to meet the Ministry's school accommodation needs;
- Check progress against the original project objectives please refer to Appendix A for further information; and
- 6. If this is not the case, make recommendations about what could be done differently to improve processes and meet wider needs and key challenges like Auckland growth for example, this may include offering a lower whole-of-life cost Modular Building, or an alternative accommodation option.

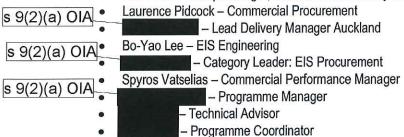
As noted above, due to time constraints our review was limited to consideration of items 1 to 4 above.

2.0 Process

Tess Browne and Jillian Rheinberger from TBIG undertook a review of relevant documentation to support meetings with key members of the MB project team, including Ministry representatives and Interlink.

Interviews were conducted with the following people:

- Angela Hawkings Director Capital Works, Education Infrastructure Service
- Rob Giller Group Manager, Infrastructure Advisory Services





3.0 Findings

As a result of documentation review and interviews with relevant staff/managers, TBIG have identified the following as areas for consideration:

Delivery Model/Project Management – A review of the number of Ministry and Interlink parties involved in project establishment through to signing off of the PID appears to be excessive. The level of coordination/dependencies across internal and external stakeholder's delays projects and more importantly, dilutes the ownership which in turn appears to be impacting the ability to deliver against programme.

Project Establishment – Current process indicates isolation between the various parties undertaking project establishment. As an example, the SPA/School are working with Interlink to determine the project requirements, then the CMO needs to take time also to understand the requirements prior to approving the PID, highlighting a potential inefficient use of resources.

Programme – Inefficiencies associated with the CMO completing an internal review of the PID before an order is placed and Building Consent submitted.

3.1 Delivery Model/Project Management

The current delivery model (post confirmation of a project) requires input from a number of key stakeholders including:

- School/School Property Adviser completion of "School Pre-Meeting Checklist"
- Interlink review of site/initial design
- CMO Initial cost estimate/budget setting

Feedback received indicated issues were currently being experienced due to the school/SPA having to complete the comprehensive checklist. This included providing information on site conditions, existing plans and reports as well as types of systems (e.g. fire, sprinkler, data) currently in place. Completion of this checklist is required prior to the first meeting between Interlink and the Schools which was causing delays to some projects.

Comments received from both the Ministry and Interlink, and evidenced in the documentation, were that a number of schools required additional works to support the introduction of new teaching spaces and/or as a result of the masterplan.

The solution for these "extra works" appears to be either:

- Ministry/School contracting others to undertake works prior to the Modular Buildings being installed (preferred by Ministry and Interlink); and/or
- Interlink undertaking work outside their scope.

School Infrastructure: Typically MB's are being located onto schools who have roll growth requirements. An increase in learning environments usually triggers upgrades of school infrastructure such as carparking and/or services (such as fire, electrical etc.) which raises two issues:

- How to pay for the upgrades
- Project management of these additional items.

These upgrades appear to be generating more complicated design requirements then would typically be expected of a modular teaching space. The process around identifying who has ownership for completing the design and costs of construction works associated with any infrastructure upgrades is not well defined.

In addition, the cost of MBs are sometimes appearing disproportionally high because of the infrastructure requirements which aren't necessarily defined when the budget is established. There is a view that an MB should cost a set amount without really understanding the implications of the infrastructure.

Issues appear to have arisen with coordination of activities including upgrading of existing systems as well as works considered outside the project scope but incurred as a direct result of increasing teaching spaces (e.g. local council carparking requirements).

3.2 Modular Building Design

Quality: Whilst not undertaking a review of MB specifications, comments received through interviews and within existing documentation indicates the Interlink Modular Building products are high-quality and appropriate to their environments. A preliminary review of the production specification indicates there are potential savings (e.g. BMS, foundations, automated window openers etc.). This review has not focussed on what those savings could be, Interlink have expressed a strong desire to work with the Ministry to develop solutions which will reduce cost and potentially reduce manufacture timeframes. Further, these options will need to be progressed with Interlink outside of this review.

Ministry Guidelines: The MB product was designed to be nimble, fit into tight locations and have the ability to be removed quickly, however there is a view that the Ministry Guidelines can constrain the ability to meet those deliverables, a particular emphasis was placed on fire separation setbacks. Conversely, there also appears to be a perception that the design of the MBs does not meet Ministry EIS Guidelines or is not required to. Through discussions a theme that came through a number of projects is the dichotomy of temporary buildings being required to meet permanent building guidelines. In particular, it was raised that the 6m fire setback is compromising the ability to maximise the benefits of the modular building (ie. addressing constraints associated with landlocked/brownfield sites).

Design changes: Statements were received during the interviews, and referenced in the Ministry provided documentation, that design change requests outside the original scope were regularly sought by schools. Those that were implemented usually caused a delay to delivery. It was noted the design requests were a combination of a lack of clarity in what could be changed by school as well as requests to allow the school to meet Ministry Guidelines (eg. access to toilets through corridors rather than learning studios).

3.3 Programme

Whilst the programme for design and construction is defined and monitored, there are a number of factors that negatively impact timeframes:

CMO review of PID – The CMO undertake a review of the PID to check that it is meeting Ministry requirements, the site meets requirements and the solution is cost effective. This includes reviewing the programme and risks as well as the general quality of the solution. This review is scheduled to take ten days however as the CMO is required to familiarise themselves with the scope, seek clarification and confirm responses, this timeframe is rarely met. This then has a flow-on effect with confirming the order, commencing production and submitting Building Consent applications.

Internal processes don't support agreed timeframes – Interlink are being measured against their ability to deliver PID documentation within their reporting (eg. timeframes), but whilst technically the Ministry have 10 days to complete PID review, this is taking longer, losing sense of urgency and Interlink are assessed against programme deliverables.

It is clear that initially Interlink underestimated the volume of work and didn't have the processes in place to support it. This appears to have been largely resolved but one of our findings has been that Ministry approval period has a consequence on the MB being constructed or the Building Consent being lodged, losing project momentum.

Other programme items that are not documented and should be on the critical path including resource consent/outline plan, capacity upgrade and other works as a result of Council requirements.



3.4 Other Observations

We acknowledge previous comments by the CMO on perceptions of the buildings and project as a whole. Whilst we haven't spent a great deal of time on this, we recognise there is still an expectation that the MBs can be adjusted to meet individual school requirements and that they are temporary buildings but the cost of construction and installation is similar to a permanent building. This appears to be driving an aversion to using this solution as the feeling is schools will be better placed with a permanent building.

A comment which is running through a number of our interviews was that the purpose of the MBs is for the Ministry to be able to scale up or down depending on the purpose of the school. Comments are that an MB does not enable that to happen for the following reasons:

- Dropped to site in three pieces and the work associated with completing the connections is significant which leaves people with the impression that they will be difficult and costly to deconstruct and remove.
- 2. The term modular building implies a level of flexibility around the adaptability and flexibility in how the spaces can be changed as the school requirements alters. This would appear to not be the case; once they are in and connected it would be almost impossible to make any changes.

4.0 Recommendations

4.1 Project Ownership

We recognise that there is value in this project and that the Ministry have purchased a quality product however the inefficiencies around delivery are having a negative impact on the overall programme. In particular, ownership of individual components within the programme need to be addressed to ensure delivery can be managed within agreed timeframes and budget.

To resolve this, we recommend functions of the CMO be transferred to the Capital Works teams to ensure alignment with other capital works project delivery processes. Capital Works Delivery Managers are equipped with the required skill set and overall understanding of project delivery to manage the projects and minimise the number of parties involved in the project.

Within Capital Works, a point of contact will need to be established with Interlink. This could be via a CMO Liaison Role, providing a national overview of the programme including contract deliverables and KPI's as well as ultimately acting as the contract manager, ensuring programme accountability however day-to-day management of the projects will be via the DMs and Interlink. A proposed updated process map for the Feasibility Stage is provided at Appendix B. which demonstrates the role of the Capital Works Delivery Manager in lieu of the CMO.

4.2 Aligning terminology

As part of the integration of the project to Capital Works, we recommend Ministry consider altering terminology around the PID to align with existing MINISTRY approval processes (eg. AP 1, 2, 3 & 4). All four shouldn't be required however it may assist with ensuring compliance with existing Ministry processes.

4.3 Feasibility Planning

It appears the Auckland delivery team have taken a holistic approach by introducing a feasibility stage into the programme to determine the suitability of an MB for a particular site before Interlink are notified of the requirement. The difference between this process and that which is currently documented and operating across the country, is the feasibility phase identifies whether an MB is the right solution for a school. The benefits of this are that should the feasibility study determine an MB is the right solution, the Ministry has completed their due diligence and can engage with the school with the confidence that an MB will meet, and potentially exceed, their accommodation requirements.

We recommend this process is activated across all projects as it will minimise negative engagement with the school and encourage commitment to the solution because the Ministry can demonstrate they've completed due diligence and shown MBs are the most fit for purpose outcome.

4.4 Ministry Guidelines

We recognise the competing requirements of meeting Ministry Guidelines whilst maintaining the benefits of an MB and recommend a closer collaboration between Interlink and the Ministry's Engineering Strategy team with the view to developing MB specific guidelines which can be adopted as required.

4.5 Poor Public Relations

It was generally acknowledged there were a number of teething issues around quantity of MBs ordered when the programme was established. Interlink and the Ministry are in agreement that these issues have largely been addressed. The knock-on impact of these teething issues is a general perception that MBs are too expensive, slow to manufacture and install on site and not necessarily the right solution for schools. This is leading to resistance to commit to the product.

Positioning the programme within Capital Works and completing the feasibility phase to determine suitability should ensure Delivery Managers have confidence they've explored the options and determined the best outcome for the School and the Ministry. This in turn will result in better engagement by the school and the Ministry Property Team in the solution.

4.6 Submission of Building Consent at time of PID submission

By removing the CMO review and aligning the process with AP1 to 4 (scaled down version), this will enable Building Consents to be lodged at the time of Ministry review of design documentation. Given the repetitive nature of these projects, the risk to the Ministry of submitting a Consent prior to design review should be considered minimal and the programme gain will make a marked difference on delivery timeframes.

The Ministry are also minimising their risk by having a Delivery Manager involved through the design phase to avoid any surprises.

5.0 Next steps

In order to progress the above recommendations, we suggest the following actions:

- Immediate transfer of programme responsibility to Capital Works, Education Infrastructure Services (National Office);
- Commence alignment of programme processes with existing Capital Works process including timeframes/sequencing and adherence to (or exemption processes from) MoE Guidelines; and
- Establish a working group with Interlink and ESG to review Modular Building specifications with a view to confirming/ensuring best value for money.



Appendix A Terms of Reference



Appendix B Proposed Feasibility Process Map



Terms of Reference

Modular Building Review

Education Infrastructure Service

October-December 2016

Modular Building Review

1.0 Overview

- The national contract for Modular Buildings was established mid 2015.
- Delivery of these buildings is now a critical part of our accommodation solution to meet roll growth in schools but they are yet to be sources for our major capital works programmes.

2.0 Purpose of the review

- The Head of EIS is commissioning a short review to:
 - o check progress against our original project objectives (refer Appendix pp 6-7)
 - consider whether or not the current approach and product is delivering the best, service and fit for purpose solution to meet our school accommodation needs:
 - if this is not the case the Review Team will be asked to make recommendations about what could be done differently to improve processes and meet wider needs and key challenges like Auckland growth – for example, this may include offering a lower whole-of-life cost Modular Building, or an alternative accommodation option
 - o ensure that roles and responsibilities of our people and teams involved in this work are clear
 - establish what is working well from a process/functional standpoint and determine if there are any areas in need of greater support
 - o based on organisational design principles, make recommendations about where the Modular Building function should sit within EIS.

3.0 Pending the recommendations of the review

- There should be no internal changes or additional expenditure, beyond that needed to deliver business as usual activity.
- Current design work will be put on hold to allow further consideration of the desired approach to 2 storey accommodation solutions.

4.0 Key objectives for the Review Team

Review Team recommendations will form the basis for immediate actions and longer-term proposals designed to ensure:

- our national contract for Modular Buildings delivers the best, fit for purpose, cost effective and timely accommodation solution/s for New Zealand schools
- the Modular Building function is integrated with other EIS activities to streamline processes, leverage expertise and lift overall performance
- Modular Buildings are delivered as an integrated component of the services we offer schools.

5.0 Approach

5.1 Timing of the review

- The review will commence by end October 2016.
- The Head Education Infrastructure Service will consider the Review Team's recommendations and make any decisions by mid December 2016.

5.2 Oversight Committee

- An internal Oversight Committee will meet regularly to provide direction and consider the recommendations of a Review Team made up of external experts.
- Final decisions will be made by the Head Education Infrastructure Service.
- The Oversight Committee will be led by the Director Capital Works Central Southern and composed as follows:

	Position	Role
	Jerome Sheppard	Head Education Infrastructure Service
	Rob Giller	Group Manager Infrastructure Advisory Services
	Angela Hawkings	Director Capital Works Central Southern (Internal lead)
	Fabio Pagano	Director Capital Works Northern
	Laurence Pidcock	Director, Commercial Procurement
	Bo-Yao Lee	Senior Policy Manager, Engineering and Design Note: Bo-Yao will be on leave 14 Nov – 14 Dec
9(2)(a) OIA		EIS Strategic Reporting Manager

5.3 Review Team

- The Review Team will report to Angela Hawkings.
- Members of the Review Team are:
 - Project Lead Tess Browne (TBIG) s 9(2)(a) OIA
 Engineer Advisor (ESG) s 9(2)(a) OIA
 Design Advisor (DRP)
 - o QS Advisor Geoff Hayr (Maltby's)
- s 9(2)(a) OIA Other Technical Advisors and experts as required.
 - will provide support as writer on key papers.
 - The Modular Building project coordinator will provide secretariat support to the Review Team (IAS will provide backup as needed).

5.4 Review Team Operations

- The Review Team will agree its preferred operational approach with the EIS internal lead (Angela Hawkings) at the earliest opportunity.
- The Team are free to engage with any EIS staff that will help inform this work.
- The Oversight Committee will identify and agree specific people the Team need to include for feedback at this stage this includes:
 - o school accommodation customers, being:
 - Group Manager, Infrastructure Advisory Services (Rob Giller)
 - Regional Infrastructure Managers (and referred Property Advisors)
 - Brian Mitchell
 - Simon Cruickshank
 - Lucy Ross
 - Gary Anaru
 - Capital Works Directors (Angela Hawkings and Fabio Pagano)
 - Case Manager, Classroom Delivery, Auckland (Matt Ballantine)
 - o EIS specialists:

s 9(2)(a) OIA

Laurence Pidcock / Sam Fowler, Commercial Procurement

EIS Group Manager Asset Management & Finance

- Craig Cliff, EIS Senior Policy Manager
- Bo-Yao Lee / Andrew Smith (EIS Engineering and design perspective)
- Wayne Kedzlie, EIS Lead Data Analyst (EIS School accommodation demand patterns).

6.0 Internal communications

The following key messages are provided to support communications with staff and stakeholders about the review:

- The national contract for Modular Buildings was established mid 2015 and is now a critical part of our accommodation solution to meet roll growth in schools. It hasn't yet impacted our wider capital works' programmes.
- The Head of EIS is commissioning a relatively quick review to ensure the programme is well placed to deliver an increasingly critical aspect of education infrastructure – specifically this will:
 - o check progress against our original objectives
 - ascertain if the current approach is delivering the best, fit for purpose accommodation solution or, if this is not the case, - make recommendations about what needs to change to meet key challenges like Auckland growth
 - o ensure that roles and responsibilities of people and teams are clear
 - establish what is working well from a process/functional standpoint and determine if there are any areas in need of greater support
 - based on organisational design principles, make recommendations about where the Modular Building function should sit to leverage existing EIS expertise/processes, and ensure Modular Buildings are an integrated component of the services we deliver to schools.
- · Pending delivery of the Review Team's recommendations:
 - there will be no internal changes or additional expenditure on processes, beyond that needed to deliver business as usual activity
 - current design work will be put on hold to allow further consideration of the desired approach to 2 storey accommodation solutions.

The review will commence by end October 2016 and any decisions will be made by the Head Education Infrastructure Service by mid December 2016.

7.0 Communications with Interlink

- The Head Education Infrastructure Service will meet with Interlink management around 19 October.
- A formal letter will follow from EIS' Commercial Director that will communicate relevant key messages and advise the company to put 2 storey design work on hold pending the outcomes of the Review.
 - The letter will emphasise that the review is a positive step that reflects the importance placed on the programme and the need for group-wide ownership.
 For Interlink, it will also help establish service priorities by providing greater clarity around projected demand.

8.0 Appendix 1

8.1 Background

- On 7 July 2015 the Government announced a new, long-term contract for the supply of more than \$100 million worth of modular classrooms to New Zealand schools.
- This centralised procurement approach was established to:
 - provide all schools in need of additional classrooms with a high quality, high specification design that meets Ministry standards
 - deliver cost savings over time (a high volume of goods delivered over an extended period enables the supplier to reduce costs and pass on savings to the Ministry).

Modular classrooms:

- are designed to support the delivery of the New Zealand Curriculum today as well as future changes in teaching and learning
- o can be adapted to meet the needs of a growing and changing population across the school estate
- o provide fit for purpose, high-quality, durable facilities that are easy to maintain and have a minimum 50 year lifespan
- o can be configured to suit specific site conditions and purposes
- meet the same standards and codes as new, permanent buildings
- are high quality, versatile and relocatable buildings that present the best whole of life value for the Crown
- can be provided in shorter timeframes than most traditional construction projects (subject to quickly resolving any site-specific issues)
- o where possible, local contractors are used for site specific works.
- Modular classrooms are currently being manufactured at factories in Christchurch and Auckland by one supplier, Interlink.
- Key features of modular classrooms communicated to the regions in late 2015 are included in paragraph 8.4 below.

8.2 Positioning of the Modular Building function within EIS

- The Modular Building team sits within EIS Commercial Procurement in the form of a Contract Management Office (the CMO).
- The CMO evolved from, and still includes, the original role of Category Lead, which was put in place to develop a business case for Modular Buildings and finalise the national contract.
- The Contract Management Office currently focuses on managing relations with the Modular Building supplier Interlink.
- Property Advisors handle liaison with schools to manage communications with schools (as they are aware of what schools are entitled to and need to manage school expectations).

8.3 Changes to EIS structure since the establishment of the CMO

- The two key organisation changes that have occurred since the initiation of Modular Buildings are:
 - the National Office Infrastructure Advisory Services' team manages roll growth allocation via its Regional Infrastructure Managers
 - two Capital Works Director roles have been established to coordinate all Ministry-led construction projects.

8.4 Introductory regional communications:

New Modular Buildings:

- can be configured as general classrooms, specialist teaching spaces like science laboratories or arts studios, toilets, changing rooms or administration areas
- incorporate integrated sophisticated information and communication technology
- comply with the same Ministry standards as permanent buildings for heating, lighting, acoustics, ventilation and accessibility, and for earthquake resilience, weathertightness and other risks
- meet the Ministry's Design Standards for School Property.

What this means for schools:

- schools won't have to spend time procuring these buildings or managing delivery, contractors or site health and safety - this is all part of the package
- the Ministry will provide the new Modular Building and meet all costs directly associated with providing it so, going forward, schools will no longer be involved in the cost side of roll growth classrooms

(any funding <u>already</u> allocated to schools for roll growth will be applied to the new buildings)

- buildings will be constructed off site, minimising disruption to school operations
- contract management will be handled by the Ministry and site works, delivery and installation by the supplier, reducing administration and management for schools
- delivery will be much faster than an onsite construction project that involves procuring a design team and contractors
- in situations where a school's roll declines, any decisions about removing Modular Buildings will consider whether or not this detracts from the availability of quality learning environments (refer the full policy statement at www.education.govt.nz - keyword search "modular").

Available options:

- Modular Buildings come in:
 - single studios (93m2)
 - double studios (186m2)
 - triple studios (279m2)
- Outdoor learning spaces can be established to enhance all studios.
- Modular Buildings can be configured as single level or 2-storey.
- Schools will be fully consulted to ensure the onsite location and orientation of the buildings meets their needs.
- Schools will also have a range of internal fit-outs and external colours to choose from.

