

POST OCCUPANCY EVALUATION

AMESBURY SCHOOL CHURTON PARK, WELLINGTON



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1 EXECUTIVE SUMMARY

The Ministry of Education (MoE) commissioned Opus International Consultants Ltd to undertake a Post Occupancy Evaluation (POE) of Amesbury School, Churton Park, Wellington. The purpose of the review in accordance with the commissioning brief was to: -

Evaluate the effectiveness of the design and procurement *process*.

Evaluate the end *product* of the completed school facility in terms of its compliance with the MoE guidelines.

Evaluate the *performance* of the completed school as a suitable learning environment.

The evaluation survey aim is to identify the positive and negative aspects of the new school project, and in doing so contribute towards increasing the effectiveness of future school development projects. The key recommendations identified have been catergorised into two sections, general and school specific.

1.1 KEY RECOMMENDATIONS - MOE

- Improve the document management system to provide a digital record of the design and procurement process from the inception of the project, through to the completion and handover of the Operational & Maintenance (O&M) manuals. This should be a maintained and accessible system.
- Improve the quality assurance procedure for the design and procurement process. This should commence at the briefing stage, brief sign off stage and through each subsequent stage of the design development process.
- Develop a consistent briefing template. This should include specific criteria that relates directly to the MoE requirements.
- Review the ICT design requirements. This should include hard wired systems which are potentially obsolete in certain circumstances.
- Review of the quality and value of post-handover support for user operation of the building systems.
- Audit assessments to be undertaken on the final design drawings and specifications before they are approved/signed off for contractor issue. (Note: Weathertightness and accessibility reviews undertaken with recommendations not actioned).

1.2 KEY RECOMMENDATIONS – AMESBURY S CHOOOL

- Fence the front boundary to improve safety and security.
- Review the operational parameters of the automatic window control system.
- Review the maintenance plan to reflect the weathertightness risks.
- Remove the trip hazards to the accessible external pathway.
- Replace the drain gratings.



2 BACKGROUND OF THE SCHOOL

Construction of Amesbury School was completed in January 2012. Stage one of construction provided the school with infrastructure suitable for 400 students and 10 learning areas for 250 students. Stage two plans to provide 6 additional learning areas for a total of 400 students. At the time of the survey in March 2015 the school was in its fourth year of occupation.



Figure 1 - Amesbury School main entry (looking north). Source: MayCroft Construction

The vision for Amesbury School was to provide flexible open plan learning and connection to outdoor spaces with natural daylighting and clear sightlines between spaces. Thirteen specific principles were developed by the Establishment Board as the vision of the school to be reflected in the design:

- Flexibility of the size of learning spaces
- Optimised potential of sunlight and mitigation of negative aspects of climate and weather
- Ecologically responsive
- Community friendly
- Functionality driving the design but with a sensitive interior
- Vistas for all learning areas
- The staffroom being a recreation space with oversight of the outdoors
- Areas for teacher professional development and cooperative planning
- Appropriate landscapes that support leaning
- Modern but long life materials
- Light and airy learning areas with good sightlines
- Centrally located library and learning resource area
- IT integral for teaching and learning

The principles have generally been achieved and the design has received a 5-star NZ Greenstar Grade signalling “New Zealand Excellence”. The design encourages open and positive interface with the community, incorporating Council community facilities within its multipurpose hall space and sited such that neighbouring properties overlook the school at each boundary.

The school buildings are orientated in the north-south direction allowing solar gain to indoor spaces and forming a central courtyard. Playing fields and hardcourts are to the east of the buildings, with the main entry to the south. The two main hubs containing the learning spaces are single storey, with the central Administration Space and Library Space containing a Staff Space above (see the white and black building with glazed upper wall in Figure 1).

3 THE SURVEY METHODOLOGY

3.1 THE METHOD

The evaluation methodology is based on the UK Building Research Establishment (BRE) early stage POE methodology combined with specific MoE design requirements, covering the complete procurement process from inception to completion. The three main assessment criteria used for the investigation are Process, Product and Performance.

PROCESS

This aspect of the POE seeks to answer how well the project performed using both a generic construction industry assessment framework and the MoE's design requirements. The information will be collated from contract documentation provided by the MoE and interviews with MoE project representatives.

PRODUCT

This aspect of the evaluation seeks to understand the extent to which the facilities meet the core elements of the MoE design requirements.

PERFORMANCE

The final element of the evaluation seeks to determine the contribution that the facilities make towards the MoE goal of excellent educational outcomes. Three key elements of this assessment are functionality and fitness for purpose.

The information gathered under the assessment criteria is then collated and grouped under four main headings: -

- Accessibility
- Health & Safety
- Modern Learning Environments
- Sustainability



Figure 2 – Outside Block B adjacent playing fields.

4 EVALUATION

4.1 ACCESSIBILITY

Positives: -

- Site has level access with a variety of surface materials.
- Pedestrian route throughout with accessibility ramps and marked crossing from the road through the car park.
- Entrances are easily accessible from level access car park/entrance to school.
- Large speed humps effectively mitigate traffic speed. Bike parks are provided. Scooters are accommodated by post construction installation of scooter park facility funded by parents.
- Student work spaces are provided separate to the general class space throughout. Students use spaces throughout the school, working everywhere.
- Toilets are present in each learning group area.
- There are wheelchair access toilets in each space and in the hall.
- School reports reception is working well, and the area is used by students for independent work.
- Dual entrances to the reception area.
- Parents don't tend to use reception space - gravitate towards hub/class space.
- Kitchen/refreshment facilities provided in reception.
- Car park is generally well lit, however requires external service provider to change the BMS operation of the lights for daylight saving.

Negatives: -

- High dependency space at the southwest corner of Block A is used as a store room and thus redundant - unable to access the facility.
- The High Dependency Space had no visible emergency call button.
- The High Dependency Space had no visible emergency general power outlet for connecting to a hoist.
- No clearly defined main reception entrance or exterior signage.



Figure 3



Figure 4



Figure 5

- Kitchen facilities within reception are on the main circulation route through the building - they are not recessed and are not suitable for all users as highlighted in the accessibility report. Potential hazard. See Figure 6.
- Sight impaired student sometimes struggles with step to north of Block A (step retroactively painted yellow). Ramp required.
- Sink/wet area facilities in Block B (vinyl lined) are on main accessible route through building, which are a slip hazard. The wet areas are the entire width of the circulation spaces.
- Car parking – user perception is that occasionally there are an insufficient number of spaces when very busy. No off-site parking available. Staff anticipate the requirement for additional parking when expansion (to school of 400 students) occurs. Drop off and pick up zone (particularly rainy days and winter) very congested.
- Scooter park is insufficient for number of students who use it.
- Bicycle storage is at front of property and in view of and accessible from the main road. Large metal hoops are not ideal and due to this many bicycles were lying on the ground. See Figure 7. The bicycle park to the west of Block A (adjacent maintenance shed) is unused, and not visible from school entrance - no signage.



Figure 6



Figure 7

4.2 HEALTH AND SAFETY

Positives: -

- The school reported general satisfaction with health & safety aspects of the design.
- Building services have been installed in accordance with standard practice without undue protrusion into hallways or escape routes. See Figure 8.
- RCD protection has been installed on power circuits accessible for use by students.
- PA system is installed which is used for emergency only.
- Underfloor heating is effective for thermal comfort.
- Mechanical ventilation is installed within toilets.
- Extract ventilation is provided within the dedicated printer bay.
- The school is surrounded by hills with residential properties overlooking the grounds. Neighbours have been vigilant with strangers entering school, and have advised staff at the time this occurs.



Figure 8



Figure 9

- No active security system in use at the school, night lighting is permanently on around the exterior of the building. Only minor vandalism has occurred since the school has been operational.
- Fencing provides separation from a waterway to the north of the site. See Figure 10 of west boundary.
- Staff report entrances are generally secure - minimal problems with this aspect. External after hours lighting has made visibility to school entrances very good after hours.
- Staff Space overlooks the central courtyard and front car park.



Figure 10

Negatives: -

- Rainwater grate with excessively wide gaps at the school entrance area and playground. Possible trip hazard. See Figure 11.
- Wet areas have been incorporated into circulation space. Possible slip hazard.
- Concrete step (which appears to be a post-design addition to mitigate deficiencies in accessibility) adjacent to the rear exit. Potential trip hazard, particularly to sight impaired users. See Figure 12.
- Projecting service outlets at low level in the Multipurpose Hall Space.
- The under-bench water heaters are accessible at low level. Possible burn hazard.
- Recessed timber bollard lights around car park have been permanently shut off as they were identified as a nuisance to residents at neighbouring properties. Possible safety and security hazard. See Figure 13.
- High level windows are fitted with electric window openers operable through wall mounted switches. User education is required for use of the windows to facilitate fresh air supply from outdoors during summer and winter.
- Some windows (e.g. south façade of gym) open out from top. They protrude out of building at student head height, posing a possible hazard.
- During holidays there has been issues with the automatically controlled (BMS) windows occasionally opening (due to settings versus the internal environment), leaving the buildings unsecured and requiring the principal/staff to return to the school to rectify this.
- Reception has no visibility to the front of the school with no way of monitoring visitors unless they report voluntarily.
- No fencing to the road frontage boundary/entrance and between playing fields and car park. See Figure 15.



Figure 11



Figure 12



Figure 13



Figure 14

- No gates to secure the maintenance area to prevent access to service pits and equipment. See Figure 9.
- Main playing field area is not visible from the Staff Space despite entirely glazed walls to north and south (fields are east of this room). From the south deck the central courtyard (between hubs) is overlooked.
- Principal chose to relocate to the shared office with other staff to allow better oversight and connection with/accessibility to students.
- Smoke check doors (no smoke seals evident) with closers are permanently fixed open.



Figure 15

4.3 MODERN LEARNING ENVIRONMENTS

Positives: -

- Heating is underfloor water-based. Boiler starts up well before school (earlier than 7am). Underfloor heating is very effective – 18°C set point now, changed from original 22°C set point - this is generally a comfortable level. Control of boiler on/off time is available with 3 control zones. There is the ability to shut off one or multiple sections (blocks) of school.
- User flexibility – high level programming ability available to Principal. Easy enough to set heating - holidays programming is set, then it is overridden on day to day basis if required.
- The buildings enjoy a good degree of natural cross flow ventilation. Opening windows exceed the minimum requirements of the New Zealand Building Code (NZBC) of 5%. High level windows are provided to expel rising warm air layers. The fact that certain windows are controlled through carbon dioxide sensing is an advantage.
- Hot water is available where required. Hand wash basins are provided with automatic shut off tempered water.
- The lighting levels were measured at about 350-450 lux in room corners away from natural light - an appropriate level. Daylighting is very good with generously sized glazed windows. Lighting level measurements within 2 to 3 metres from the window facades were about 1000 lux.
- General power outlets have been installed as required for teaching spaces and administration areas. Power outlets have also been installed above bench levels where necessary to facilitate access and use. See Figure 17
- Generally sufficient numbers of general power outlets are provided within the teaching spaces, admin and circulation areas. It was observed that laptops and tablets are being charged using one or two power points connected to splitter boxes. See Figure 17 and Figure 18. Up to 10 laptops are charged in this way. This was discussed and it would seem to



Figure 16



Figure 17



Figure 18

be a school preference. The school did have a “computers on wheels” unit (COW) for charging of laptops.

- Benches and water outlets well provided for within designed wet areas. These appear to be used to full capacity in senior space.
- Covered walkway is provided between buildings. See Figure 19.
- Covered outdoor learning spaces are easily accessible and are generally located directly outside teaching spaces. See Figure 20.
- One drinking fountain per two classrooms provided. Made from stainless steel.
- The operable walls between classrooms provide flexibility and transparency between spaces. Walls are generally always left open.
- Multipurpose Hall storage spaces for gym equipment are well provided. Selected materials are hard wearing and easy to maintain. Sprinkler heads are protected by wire mesh.
- Multipurpose Hall is reportedly well used from 3.30pm onwards. The hall is available for community activities - income from this is additional funding for school. The school received additional council funding to increase the multipurpose hall facilities for use as a community centre.
- Library well used by students. Accessed from reception makes the library a focal point. Library is multipurpose. Students are able to check out books themselves unsupervised. Big sets of library books are stored elsewhere (in the Koru Hub). Mobile book shelves can go to hubs. Students have been using library as "local library" after school as they can use and check out themselves. See Figure 21 for a view of the library.
- Excellent use made of site wide Wi-Fi.
- Each student has a Chromebook - school owned. Charging stations were initially used but impractical- instead the Chromebooks are charged via power outlets.
- PA system - didn't have one initially, but installed for emergencies after opening. Not used for normal messages. "Bell minder" used for end of intervals - adjustable by software.
- Teacher Work Spaces were large and had shelving and work space for each teacher.



Figure 19



Figure 20



Figure 21

Negatives: -

- Wet areas poorly located - too far from the learning area. School had worked around the problem by installing their own waterproof vinyl (loose laid) to one teaching space, becoming the dedicated area for related tasks. See Figure 22 and Figure 23.
- Wet areas are insufficient - too much carpet, not enough vinyl. Generally one wet area for two class groups is less than half the MoE requirements. See Figure 29.
- Lack of storage. Insufficient provision generally throughout school, and in the teaching spaces specifically. See Figure 24.
- High level windows in learning spaces, corridors and access ways are operated automatically through carbon dioxide sensors, however we understand that the control system may not have been programmed correctly. Varying carbon dioxide levels cause the windows to operate erratically, operation is too loud and is disruptive to teaching/learning environment so has been turned off. Adjustment required
- Windows consist of top louvres and central height larger opening panes, many of which are sash type. It was noted that the top window louvres in the hall/transition routes were not open at the time for survey and the state of ventilation in those areas was "stuffy" and markedly different from the teaching spaces themselves.
- Staff are unable to modify the BMS programming to suit changing operational needs. External contractors have been necessary on repeated occasions to adjust – costly.
- The smoke detectors and lights within the multipurpose hall space require protective guards to be fitted and the detectors secured properly to prevent damage. See Figure 25.
- Several toilets are without access to natural ventilation.
- The work area for the principal and staff suffers from excess solar gain, requiring them to relocate to the meeting room (previously the principal office) on occasion.
- Insufficient meeting room space. Current meeting room was originally principal and deputy offices. An operable wall was requested post-design to provide an additional meeting/group work area in this space, however this is now considered surplus to requirements.
- Times when covered walkways and canopies are ineffective due to combination of wind and rain.
- Minimal (insufficient) seating was observed to the covered outdoor learning areas. Outdoor seating was provided mainly in exposed outdoor areas. See Figure 26.



Figure 22



Figure 23



Figure 24



Figure 25



Figure 26

- The covered outdoor learning spaces are generally used to shelter mobile storage cabinets for students' shoes and other equipment. See Figure 27.
- No drainage laid adjacent to drinking fountains, and mildew/moss was observed to be beginning to grow on pavement around fountains.
- Storage behind movable whiteboards adjacent to student storage space within the teaching spaces was generally unused.
- Student storage space located within teaching space for 25 students has 12 bag specific shelves provided. Some too high for students to access – requiring stools. See Figure 28.
- No space provided for laptop/tablet storage and charging in design. Power outlets for device charging reportedly generally satisfactory in number, but placement not ideal. See Figure 20
- Had to purchase new wireless access points - needed the next iteration /standard up from what was installed originally to provide compatibility with Chromebooks. Initially the school used hardwired, but now use Wi-Fi almost exclusively. Now not using interactive data projectors - buying less expensive ones where needed, and use apps on Chromebook to facilitate learning instead. The school is now buying less "gadgets" and trying to implement software apps, etc. into learning instead to save on cost.
- Dome tents are used (indoors) for students who need areas with less distraction, separation and monitoring by the teacher.
- Multipurpose Hall Space is not connected to paved/court areas and fields. Opens out to car park boundary and maintenance area.
- Insufficient protection to light fittings and smoke alarms on Multipurpose Hall Space ceiling - evident due to one damaged smoke alarm hanging from wiring.
- No gym change area facilities provided near/in Multipurpose Hall Space.
- Teacher Work Spaces lack visual connection to student areas. Staff report heat issues due to solar gain. It was observed that teacher workspaces were fairly large and had shelving and work space for each teacher. See Figure 30
- BMS as a learning resource, the interactive screen doesn't have enough information for students - they can't find "their" hub and see the various states.
- More cabling installed than needed for future proofing. Wired data outlets not used much throughout school - used in office only. For everything else (printing, etc.) wireless is used.



Figure 27



Figure 28



Figure 29



Figure 30

4.4 SUSTAINABILITY

Positives: -

- Heating system is appropriately zoned and controlled and achieves an energy efficient environment.
- Water supply fixtures provide adequate pressure while minimising water use.
- Water supply has adequate isolation valve systems that enable maintenance and alterations.
- Services have adequate access for maintenance
- BMS monitors water/power usage.
- Paths are generally easy to maintain with minimal localised flooding.
- Workable gardens are provided and planted with non-edible plants.
- BMS heating initially set too high - power bill reduction of 30% per annum achieved due to flexibility in the system to accommodate the lowering of heating set point to 18°C from 21°C.

Negatives: -

- After hours use areas cannot be measured separately for energy use.
- Whilst the majority of light fittings are fluorescent, there are a small number of 50W halogen fittings within the visitors waiting area adjacent to reception. LED replacement should be considered for longer life. Some fittings are located such that they would be difficult to maintain.
- Insufficient overhangs to control glare from sunlight. Lack of soffit overhangs at eaves exposing cladding. See example of minimal overhangs in Figure 32.
- As identified in the weathertightness report, inward sloping roof areas, rainwater outlets and internal gutters are particularly vulnerable to failure.
- Windows without external sills allow water to run down the face of the external cladding resulting in premature failure of the fabric and increasing operational costs. See Figure 33.
- Failing paintwork to the rafters of the covered outdoor areas on Block A. The cause appears to be water penetration through the UPVC roofing fixings and potential poor finish quality of paintwork. See Figure 34.
- The brown wooden panelling system is poorly detailed. The exposed transom framing is fixed square to the panel with an exposed joint. The dark colour of the cladding will promote



Figure 31



Figure 32



Figure 33

thermal movement causing the joint to open. Combine this with the lack of rain protection afforded by sills and eaves means that this is likely to become a maintenance issue.

- Poor workmanship by the fixing of external trims with adhesive instead of more durable mechanical fixings.
- Subsidence was occurring, apparently due to decomposing organic material. MoE have employed surveyor to make regular visits to check.
- Minor damage to external cladding on panels around openings - e.g. that of Figure 35.
- Cost to maintain infrastructure with grants for 150 students means 80% of the operations grant is spent on property maintenance costs. School must find the shortfall to maintain the property (due in part to the budget having to maintain infrastructure for a school of 400 students at present, but only funded for the current number attending). There is concern about maintenance to comply with warranties (i.e. building wash). Grounds maintenance also very expensive.
- Greenstar requires a lot of automatic control - however staff require manual control to get appropriate lighting levels so this was instituted. Changes made to manualise the lights (switches installed locally for example).
- Principal/Staff must get a contractor in to have BMS modified or to change settings which is expensive - more accessibility for BMS required.
- Staff have found BMS user guide is not particularly useful. This has instead been used more to find out which contractor is required to get information.
- The external sliding doors are already starting to fail. The runners and guides are prematurely failing or going out of adjustment making them difficult for students to open. Door maintenance will become increasingly expensive. Door type in Figure 36.
- Rubbish provided are not in use due to school take home rubbish policy, so bins have been sealed or removed. See Figure 37.



Figure 34



Figure 35



Figure 36



Figure 37

5 RECOMMENDATIONS & FINDINGS

5.1 GENERAL RECOMMENDATIONS

5.1.1 DOCUMENTATION MANAGEMENT:

The MoE project procurement process should include the adoption of a rigorous document management system. All documentation from the inception of the project, through to the completion and handover of the Operational & Maintenance (O&M) manuals are to be correctly filed and archived. Live documents, warranties etc. should be passed to the school managers and maintained to provide continuity of the records once the premises go into use.

BENEFIT:

Failure to adequately manage the documentation prevents effective audit, without which lessons cannot be learnt, with the inevitable consequence of repeated failures. Comprehensive and accessible information also allows the property users to operate the building as intended.

FINDINGS:

It is essential that there is continuity between the stated requirements of the final design brief, the final design approved for construction and the completed build. The fact that there are areas of divergence between what the Ministry of Education (MoE) guidelines require and what was constructed at this school indicates that the principle of a documented and fully controlled design and procurement process has not been adhered to as well as it might have been.

5.1.2 DESIGN CONTROL:

A quality assurance procedure should be adopted for the design and procurement process. This should commence at the briefing stage and brief sign off and through each subsequent stage of the design development process. E.g.

- Brief sign off check
- Master plan & concept stage design sign off
- Developed design stage sign off
- Detailed design stage sign off.

BENEFIT:

Poor designs & specifications would not get through the screening process, resulting in lower operational costs and more consistent design solutions that meet the needs of the end user.

FINDINGS:

The documentary evidence provided for the design stages does not provide a record of discussions that have resulted in the outcomes.

5.1.3 DESIGN BRIEF:

The brief must be consistent with the MoE design criteria. Project briefs to be signed off after they have been subject to a compliance audit.

BENEFIT:

The quality of the briefs will be consistently higher, the audit check will ensure compliance with the MoE requirements and reduce the cost for retrofitting.

FINDINGS:

It is essential that the operational requirements of a school are correctly interpreted in the design brief. Failure to fully engage the designers with the operational needs have resulted in inadequate briefing and design outcomes that are not consistent with MoE requirements.

The school management team were pleased with their new school, but inconsistencies existed between what they required from the facility as opposed to what had been provided. Whilst it is acknowledged that the current management team were not instrumental throughout the process stage of the new school project, significant compromises were obvious. The use of the very expensive high dependency space as a store due to lack of general storage is a case in point, together with the purchase by the school of vinyl sheeting to provide a wet area in a classroom due to the poorly located wet area provision, highlights failures and poor design outcomes.

5.1.4 IT PROVISION:

Review the requirements for the provision of computer networks within schools. Extensive hard wired systems are potentially obsolete in certain circumstances. Consideration to be given in the MoE guidelines for the charging of laptops, tablets and similar electronic teaching aids.

BENEFIT:

Project cost reduction.

FINDINGS:

Technological advance associated with adopting the latest cutting edge product solutions versus the security of choosing the tried and tested is a risk based decision that usually requires research and specialist assessment. The provision of the hard wired IT network infrastructure and the reality that the school uses Wi-Fi almost exclusively is a missed opportunity to spend financial resources more effectively. The decision making process in specialist areas will require greater expertise and design direction.

Figure 38 - Extensive use of Wi-Fi enabled laptops.



5.1.5 DESIGN AUDIT:

Audit assessments must be undertaken on the final design drawings and specifications before they are approved/signed off for release for contractor issue.

BENEFIT:

Design errors and non-compliance will be identified and mitigated, raising the standard of the build and reducing operational costs.

FINDINGS:

Based on the information received, the school design was subject to audits for weathertightness and accessibility. The accessibility report and weathertightness report recommendations have not been actioned in the construction. The weathertightness report did not take place until after the issue of the construction drawings. The absence of detailed design drawings makes the evaluation difficult but site observations support this conclusion.

This school has examples of poor prioritisation in terms of allocation of expenditure. Additional costs were incurred to provide complex roof forms, whilst economies were made in the quality of window and door systems. A lift serving one space for the staff does not represent best value. Components and elements will struggle to achieve their life expectancies without increased maintenance costs.

5.2 AMESBURY SCHOOL SPECIFIC RECOMMENDATIONS

5.2.1 DOCUMENTATION ARCHIVAL:

That the MoE identify the location of the documentation and keep this on file (digital archive) for reference, and also provide this to the Opus assessment team.

FINDINGS:

We are currently unable to assess the design & procurement process due to lack of available information.

5.2.2 ROAD SAFETY FOR STUDENTS:

The front boundary should be fenced.

FINDINGS:

At present there is no physical barrier to restrict student access to the road.



Figure 39 – Lack of front barrier fence.

5.2.3 ACCESS CONTROL:

Monitoring access, whether by directing all movements through a control point, such as reception or by a physical barrier preventing unwelcome intrusion.

FINDINGS:

As regards security, the school management are currently unable to monitor who enters and exits the premises. There is no oversight from reception to the school main entrance, which is also not clearly defined.

5.2.4 WI-FI IMPLEMENTATION:

Use this school as a benchmark to analyse how Wi-Fi can be effectively used in future schools and what the minimal requirements are for hard wired and Wi-Fi networks.

FINDINGS:

Amesbury School relies almost entirely on Wi-Fi for connectivity. As a consequence, wired outlets are not used other than for photocopying and providing connectivity to Wi-Fi routers. This is an important issue to note and consideration should be given for revising the MoE requirement for fixed data outlets in teaching spaces.

5.2.5 IT PROVISION FOR EVERYDAY USE:

That the charging of laptops, tablets and similar teaching aids be addressed in the MoE guidelines for an appropriate and consistent approach, such as clusters of power points and USB outlets for charging of laptops and tablets for each class group.

FINDINGS:

Generally sufficient numbers of power points are provided within the teaching spaces, admin and circulation areas. It was observed that laptops and tablets are being charged using one or two power points connected to splitter boxes. Up to 10 laptops are charged in this way. This was discussed and it would seem to be a school preference. The school did have a computers on wheels unit "COW" for charging of laptops.

Figure 40 – Tablets charging in learning areas.



5.2.6 ENVIRONMENTAL CONTROL OF MODERN LEARNING ENVIRONMENTS:

Review the automatic window control system and adjust this to be less sensitive to reduce disruption to occupants.

FINDINGS:

Automatic window controls are too sensitive causing continuous operation of the windows actuators in response to the control signal. The effectiveness of the automatic window control system is poor. The school have already resorted to switching this system off.

5.2.7 MAINTENANCE PLANNING:

The school should update its maintenance plan to mitigate issues identified in the weathertightness report.

FINDINGS:

Overly complex and potentially higher risk designs, such as inward sloping roof areas and exposed timber cladding, means that the structures are more vulnerable to water penetration and means that more frequent monitoring of the building fabric is required.



Figure 41 - Overly complex designs.

6 CONCLUSIONS

The school is visually pleasing, its location and orientation on the site is excellent with the natural topography providing a sheltered external environment. This has the added benefit of an externally enclosed space with the natural protection this affords the students, while limiting the potential for uncontrolled solar gain.

The school management team expressed satisfaction with the school as a learning space for students. They particularly liked the openness of the design. The initial impression gained by visitors is a well presented school in its fourth year of occupation that was standing up well to the school environment.

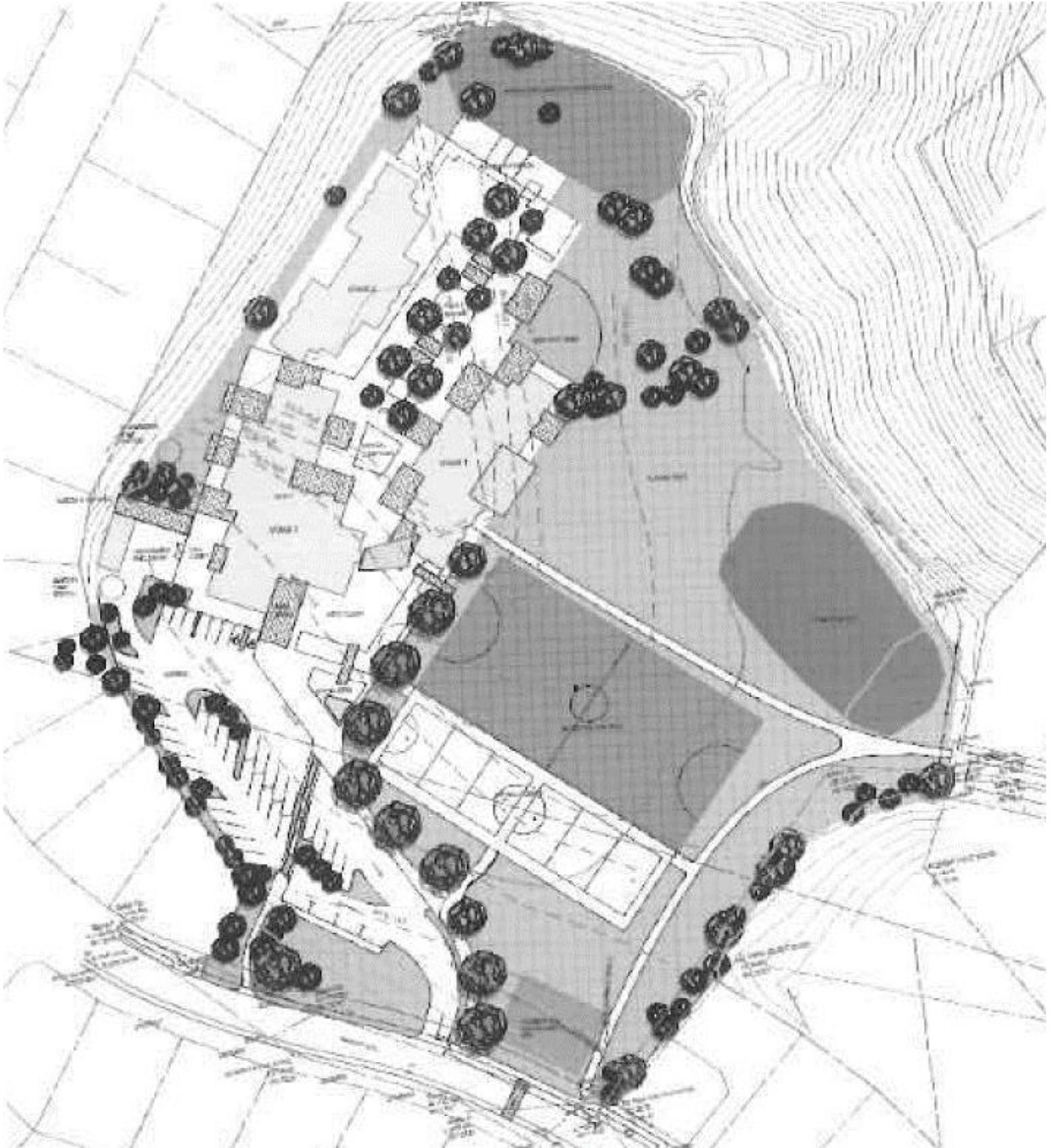
From the perspective of the post evaluation process, however, there were clear shortcomings in the design and its execution, some being minor and some more significant. This points to partial failure in the design and procurement processes.

The evaluation process was hindered in three key areas: -

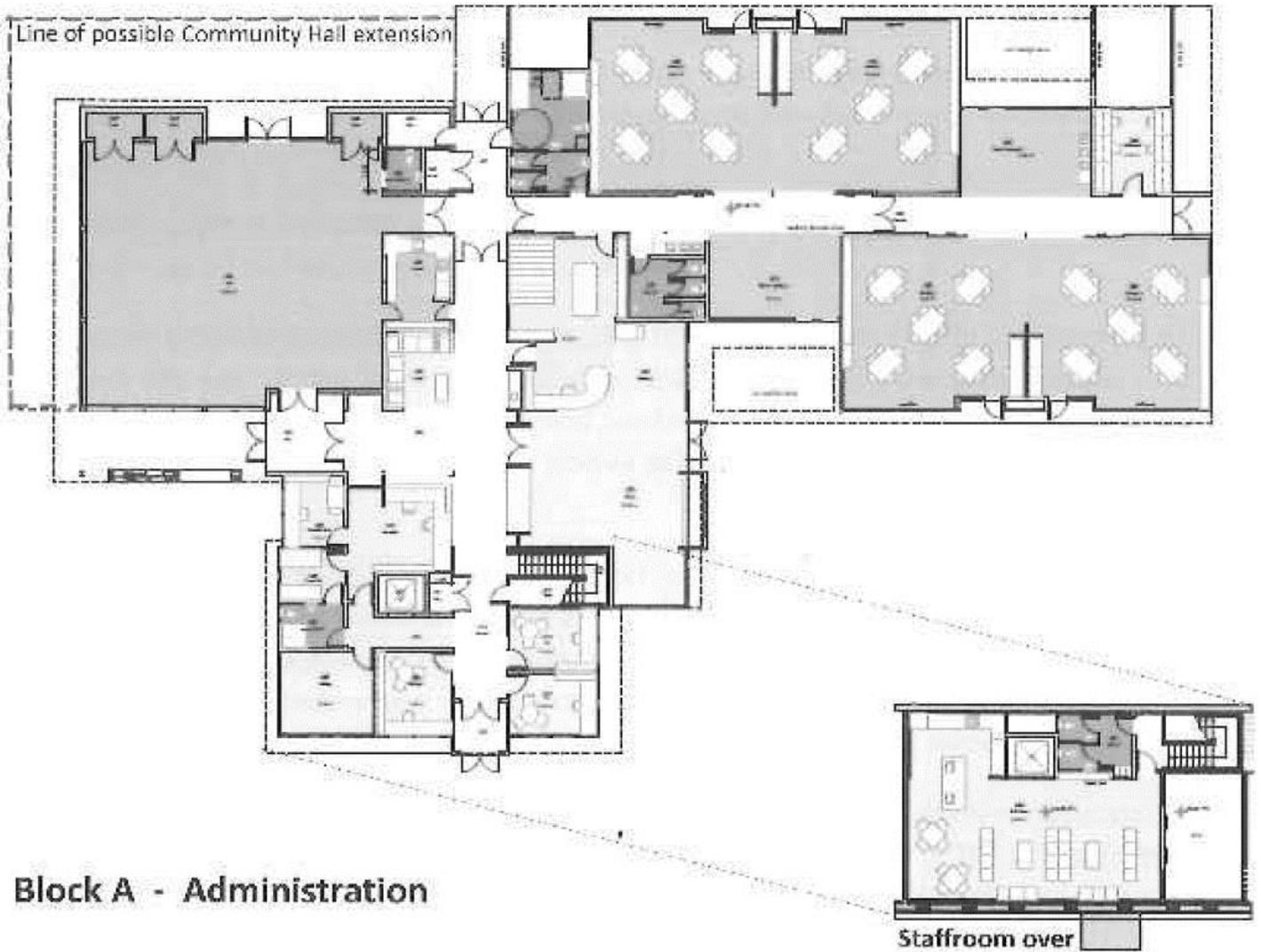
- The current management team did not form part of the design & procurement process.
- The unavailability of the MoE project manager due to their departure from the MoE.
- The lack of documentation available relating to the school design & procurement process.

7 APPENDICES

7.1 DESIGN SITE PLAN



7.2 DESIGN FLOOR PLAN



7.3 CLIENT SUPPLIED INFORMATION

List of Information – Amesbury School, Churton Park, Wellington

NO CONTRACT FINAL DESIGN DRAWINGS OR SPECIFICATIONS WERE AVAILABLE OR AS BUILT DRAWINGS.

- **Additional funding**
- Approval and request of additional funding for Construction P1

- **Completion 1 of 4 – Contract Completion Documentation**
- Confirmation of Practical Completion P4
- Code Compliance Documentation P18
- Statutory Test Certificates P35
- Producer Statements P55
- Warranty Agreements – Construction P103
- Defects Inspection List – Not included
-
- **Completion 2 of 4 - Warranty Agreements**
- Fourteenth Schedule – Form Of Guarantee – Contractor and Subcontractor and continuity guarantee P2 – P86

- **Completion 3 of 4 - Warranty Agreements**
- Fourteenth Schedule – Form Of Guarantee – Contractor and Subcontractor and continuity guarantee P1 – P58
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- **Completion 4 of 4**
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- Guaranteed maximum price design and build contract relating to Amesbury Drive School
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- First Schedule – Special Conditions of Contract P4
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-	
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- Note: No 10YPP during the maintenance period.	



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