

POST OCCUPANCY EVALUATION

HOBSONVILLE POINT PRIMARY SCHOOL, HOBSONVILLE POINT, AUCKLAND



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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 Hobsonville Point Primary School, Hobsonville Point, Auckland. 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 categorised into two sections, general and school specific.

1.1 KEY RECOMMENDATIONS – GENERAL MOE

- **Auditing the Brief:** The brief should include the operational needs of the school and be subject to an independent review for compliance with the MoE requirements. The lack of natural ventilation and outdoor flow and reliance on electrical operation for critical systems with no resilience indicate a lack of understanding of the schools operational needs.
- **Auditing the Design:** The design should be subject to an independent design review of functionality and durability. This school has features that are in excess of MoE requirements contributing to unnecessary complicated design. The recommendations from the weather- tight and durability report should be realised in the design solution.
- **Community and Life Long Learning:** The community facing aspect of how the facilities could be offered from an operational viewpoint should be considered in the context of the design.
- **Green Star Tool:** Review the use of spoil retention on new school sites. The practice of retaining spoil on site in by using it to provide raised playing fields results in exposed playing surfaces and hidden areas of the school site, neither are desirable outcomes. Using the spoil to create raised bunds to provide wind shelters, environmental areas or a perimeter feature to enhance security would be preferable.
- **Accessibility:** Review the main entry point requirements to consider clear line of sight from reception, effective separation of the internal and external environment to mitigate uncontrolled heat loss, monitoring and security.
- **Health & Safety:** Review the student toilet requirements to consider the safety risks of unisex toilets with associated lack of visibility for monitoring toilet areas with fully enclosed cubicles.

1.2 KEY RECOMMENDATIONS – HOBSONVILLE POINT PRIMARY

- The foyer is a large space, reception does not overlook the main entrance and this area is the open connection between the Multipurpose Hall Space and the regular teaching spaces. Consider the introduction of a lobby with additional doors to protect the foyer from the prevailing wind, reconfiguration of reception to easily overlook the main entrance and the installation of a partition system to secure the regular teaching space from the foyer for after-hours use of the Hall Multipurpose Space.
- The covered outdoor learning environment could be greatly enhanced with the removal of fixed seating in the courtyard adjacent to reception.
- The Hall Multipurpose Space suspended ceiling tile system should be replaced with an impact resistant ceiling system to prevent damage to emergency systems such as fire protection sprinkler heads and ongoing maintenance for impact damage.
- The fully enclosed unisex student toilet cubicles, heavy doors and lack of emergency lighting and lack of staff visibility for monitoring, are a serious hazard for safety in an emergency, an alternative solution should be developed and implemented.



Figure 1 - Rear elevation of school

2 BACKGROUND OF THE SCHOOL

Construction of the Hobsonville Point Primary School was completed in February 2013, providing the school with infrastructure suitable for 690 students. At the time of the POE survey in June 2015 the school was in its third year of occupation with 174 students.

Procured by the Ministry of Education MoE on the basis of a Public Private Partnership PPP by the LIP Consortium and part of a contract that included the Hobsonville Point Secondary School, this school was completed a year ahead of the secondary school.

The primary school has many design characteristics that are common to both schools such as the repetitive internal layout, the visually striking building services plant located on the roof and cladding systems reduced in number resulting in a less complicated architecture.

A single storey building, the school is laid out longitudinally on the site with the rear area of the grounds raised by the grading of the spoil from the construction to form a playing field.

A 5-star NZ Greenstar rated building signalling “New Zealand Excellence”, the design has established planting and substantial parking provision with robust perimeter fencing and access controlled entrances providing a secure environment for students.



Figure 2 - Front elevation secondary entrance

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 as outlined in the MoE Development Compliance Framework 2014.2 June, 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 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 3 - Front view of Hall Multipurpose Space

4 EVALUATION

4.1 ACCESSIBILITY

Positives: -

- The main entrance located adjacent to the road intersection is welcoming and directly connected to the pedestrian pathway from steps or side ramp. See Figure 5.
- Visitor car parking and drop off area is in close proximity to the main entrance. See Figure 9.
- Staff car parking is located to the rear of the site with ramp access to the grounds.
- Scooter and bicycle racks located at the rear of the building are accessed from the pedestrian pathway through a side gate. See Figure 4.
- The site has easy pedestrian access to all areas of the building and grounds including the rear playing fields.
- The ground floor level has a circulation spine running centrally down the entire length of the building providing very easy internal access to all areas.
- The reception has space for both visitors and students. See Figure 7.
- The cafeteria is adjacent to reception and has a delivery entrance located to the rear with access from the road.



Figure 5



Figure 6

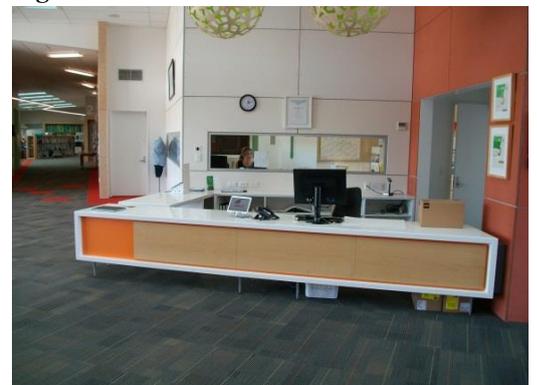


Figure 7



Figure 4 - Paved area and bicycle parking.



Figure 8



Figure 9 - Pick-up/drop-off zone

Negatives: -

- The signage for the school is easily overlooked as it is mounted too low to be visible from the road and obscured by planting. See Figure 10.
- Visitors frequently attempt to enter the secondary entrance located in the middle of the building as it is more prominent along the road front. Provided to accommodate student access when the school is at full capacity it remains locked at all times as it is unmonitored. See Figure 11.
- The main entrance initially had automatically operating doors opening into the prevailing wind, manual doors have been retrofitted to mitigate the wind tunnel impact on reception. In strong wind conditions the main entrance doors are locked and visitors directed to the rear courtyard entrance as the manual doors cannot be safely operated. See Figure 12.
- Interior doors throughout including those to the student toilets are too heavy to be easily used by the students with some students unable to exit toilets unassisted.
- PPP insurance requirements to enable community groups to use the school were difficult to resolve.
- PPP management requirements restricting access to the grounds outside school hours is not a good fit with the community focus.
- The multipurpose hall space cannot be closed off from rest of school making afterhours use of facilities by community groups difficult to manage.



Figure 10



Figure 11

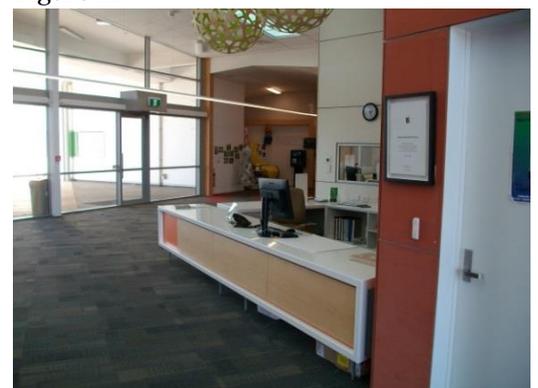


Figure 12

4.2 HEALTH AND SAFETY

Positives: -

- Galvanised metal fencing to the entire site provides separation of the grounds and the road, and the grounds are overlooked from the road. See Figure 13.
- Galvanised metal fencing within the grounds provides effective separation of vehicle areas from play areas. See Figure 14.
- Play equipment has safety mat surface. See Figure 15.
- External lights illuminate exterior doorways.
- Mechanical plant is roof mounted with access restricted to specialist contractors.
- Mechanical extraction is installed at point of source in Food Technology and to the dedicated photocopy room in Administration and to fully enclosed student toilet cubicles located between learning areas.



Figure 13



Figure 14



Figure 15 - Playground

Negatives: -

- The irregular building form and raised playing field prevents visual access to significant areas of the grounds. See Figure 13.
- Reception is located behind a meeting room without direct visual access to the main entrance and is rarely used with staff located in the administration area behind. See Figure 12.
- The extensive fencing segregating outdoor learning areas is unsecured with a gap to the wall suitable for student egress. See Figure 14.
- Unsecured and unmonitored side access gates allow student access directly onto the main road. See Figure 17.
- Emergency equipment protrude into circulation areas. See Figure 18.
- Student toilets are unisex fully enclosed cubicles with no visibility for monitoring. See Figure 18.
- Health Space is provided with sink and hand washing amenity but no toilet. See Figure 19.
- A washing machine and dryer retrofitted in a cleaners' cupboard located adjacent to the High Dependency Space and Multipurpose Hall Space has no dedicated fan extraction.
- Food technology does not have adequate heat resistant surfaces located adjacent to stoves. See Figure 20.



Figure 16



Figure 17



Figure 18



Figure 19



Figure 20

4.3 MODERN LEARNING ENVIRONMENTS

Positives: -

- Outdoor learning areas are located adjacent to teaching spaces with fixed seating and drinking fountains. See Figure 23.
- Student storage areas located along the central circulation spine are well overlooked by staff and innovative design provides storage, screening and student work space to the back of the lockers. Current capacity is 50 students in storage area designed for 90. See Figure 21.
- Teacher Work Spaces initially designed to be closed off from the general learning areas are included within the general area and utilised by students.
- The practical areas within the regular learning spaces are well defined with vinyl flooring.
- The Multipurpose Hall Space will accommodate approximately half the school when at full capacity, is naturally ventilated and located with access to an outdoor paved area. See Figure 26.



Figure 23



Figure 24



Figure 21



Figure 25



Figure 22



Figure 26

Negatives: -

- The rear courtyard with access to reception provides a large covered outdoor learning area adjacent to the Multipurpose Hall Space however the flexibility of this space is compromised by the location of 4 fixed bench seats placed centrally across the space. This does not utilise the space effectively for seating and prevents the outdoor area being used for other activities. See Figure 27.
- The flexibility of paved outdoor space is compromised by the location fixed seating and has no shade or protection from the wind. See Figure 27.
- Outdoor learning areas are not well used due to the mechanical systems requirements to keep the doors closed at all times.
- The building generally has no opening windows with fresh air provided through the air conditioning system. This system is unsuccessful in providing a comfortable environment and occupants have no control of the variable local conditions. Temperature variability between spaces and at different times of the day maintained within the range of $18-26\pm 2^{\circ}\text{C}$ is too wide for comfort.
- The flexibility of the internal learning environment is compromised by the location of skylights throughout preventing the ability to have dark spaces and allow the use of projectors. Black paper has been retrofitted to the skylights in some rooms to provide black out conditions required for some activities. The fixed interactive whiteboards have been replaced with mobile whiteboards, however these are not often used due to glare. See Figure 29.
- Walls to break out areas within the regular learning spaces are acoustically separated from the general areas, this is not required for regular learning spaces and has resulted in a lack of flexibility for general areas and reduced visibility. Doors have been removed in some learning areas.
- Practical benching under bench storage is not ideal for materials and the sink has been retrofitted with a waste separation system. See Figure 30.
- Specialist space located remote from general learning areas are not flexible for student use or easily monitored by staff.
- Storage in regular learning spaces is supplemented by mobile storage units that are additional to the furniture supplied. Space to accommodate the mobile storage may be an issue when the school is at full capacity.
- The furniture type and layout provided are unsuitable for the school environment. The furniture was initially white and beige causing issues with glare. The tops have been retrofitted to darker colours. Too much furniture was supplied and the excess is currently stored in unoccupied areas, however as occupancy increases there will be insufficient space for learning. See Figure 32.



Figure 27



Figure 28



Figure 29



Figure 30



Figure 31

- Staff Space is too small for the staff when at full capacity, has no stove and no hot water boiler, the low flow hot water tap type dispenser is too slow. An area dedicated for staff work space is used as an art supplies store due to lack of alternative storage.
- There is a lack of staff storage space with staff required to store teaching materials remotely and bringing resources to school when required, reducing the accessibility and flexibility of the teaching programme day to day.
- There is a lack of display board where required, additional display board has been retrofitted and areas of painted wall are used for display with the risk of damage to surfaces.
- Wireless technology is widely used and the infrastructure installed for Ethernet cabling is redundant.
- Toilet and water systems require continuous electrical supply. The school must be evacuated within 2 hours of a power outage due to no working toilets, lights or air conditioning. Battery backup LED lights have been retrofitted to maintain lighting in toilets for a period of time in a power outage to allow students to exit the facility. The toilets have been retrofitted with fluorescent tape to provide light reflectance in a power outage.



Figure 32



Figure 33



Figure 34

4.4 SUSTAINABILITY

Positives: -

- Green Star 5 star rated building.
- The facilities management by external providers has transferred the responsibility for property management away from the Principal.
- Roof water collection is recycled for toilets.
- Lighting has motion sensor automatic control supplementing the natural light from windows and skylights to reduce electricity use.
- Brick veneer cladding system in some areas is a low maintenance and durable solution. See Figure 35.
- Waste storage area is in a fenced enclosure easily accessed for maintenance. See Figure 37.



Figure 35



Figure 36



Figure 37

Negatives: -

- External cladding panels of wood fibre resin are damaged at low levels do not provide sufficient impact resistance. See Figure 39.
- Flaking paint system failure to PVC rainwater pipes. See Figure 40.
- Concealed box gutters are subject to blockages.
- Multipurpose Hall Space suspended ceiling is inappropriate for this physical education use with tiles constantly dislodged requiring relocation back into place and roof flashings installed over glazing will require removal if glazing is damaged.
- Services plant located on the roof is difficult to access for maintenance and roof leaks have been constant particularly around building services penetrations with a couple still active per heavy rainfall.
- The mechanical HVAC system is faulty and performs poorly, requiring constant management and specialist external contractors to attend to on-going issues. When the temperature externally drops below around 7 degrees the system locks out resulting in no heating and a cold internal environment. The only way to manage the problem is to have an engineer turn up 6:30 in the morning to switch the system on and off to reset itself and start. The problem is significant and it will either have to be significantly altered or possibly replaced sometime in the next year.
- Stainless steel sinks in practical areas under mounted in laminate tops and wall linings lack resilience. See Figure 42.
- Perimeter waterproofing systems installed at ground level will require the removal of cladding to maintain.
- Lack of irrigation to planting has resulted in replacement planting. See Figure 43.



Figure 39



Figure 40



Figure 41



Figure 42



Figure 43



Figure 38

5 RECOMMENDATIONS & FINDINGS

5.1 GENERAL RECOMMENDATIONS

5.1.1 DESIGN BRIEFING PROCESS:

The design brief needs to incorporate the schools operational requirements and confirm these at each stage of the design process.

BENEFIT:

The design brief will clarify the schools operational needs as the site specific design response develops to minimise retrofitting solutions.

FINDINGS:

The main entrance does not provide adequate protection from the prevailing wind, automatic sliding doors have been replaced with manually operated doors. The second entrance utilises a large floor area and does not provide adequate security, doors are locked at all times.

The regular teaching spaces include break out areas that are acoustically separated from general learning areas and are not suitable for a flexible learning environment, internal doors to these spaces have been removed.

The paved areas have fixed seating that is not suitable for a flexible outdoor learning environment, the school has requested the fixed seating in the courtyard adjacent to reception to be removed. The grounds have significant areas not visible from any part of the building and management of this safety risk is currently without a solution.

5.1.2 DESIGN QUALITY

The design needs to be suitable for a modern learning environment.

BENEFIT:

The appropriate design and selection of materials and systems will reduce maintenance and operational costs.

FINDINGS:

The Multipurpose Hall Space has a suspended ceiling, maintenance from impact damage is ongoing.

The HVAC system is unreliable and is not suitable for connection with the outdoor learning environment, system replacement is being considered. The fully electric powered systems without battery backup for critical services such as toilets and the external resin cladding panels vulnerable to damage are not suitable for the school environment.

The building perimeter has a complex weather-tight and durability design solution consisting of channel drains to all external doors and a membrane system behind wall cladding at ground level.

5.1.3 COMMUNITY AND LIFE -LONG LEARNING

The design needs to consider after hours use of the grounds and the building facilities for students, staff and local community groups.

BENEFIT:

A potential income stream to the school, community resources to support learning and enhanced security.

FINDINGS:

There is no provision for securing the regular teaching spaces for after-hours use of the Multipurpose Hall Space and the Library Space without the provision of active security. The grounds are fully fenced and secured after hours, use is restricted.

5.1.4 GREEN STAR RATING TOOL

The tool needs to be reviewed for the impact on the design process and outcomes to achieve Green Star 5 star rating.

BENEFIT:

Establish environmentally sustainable design strategies that are relevant for safe modern learning environmental outcomes.

FINDINGS:

Soil retained on site as raised playing fields to reduce the environmental impact reduces visibility across the grounds compromising student safety and site security.

HVAC systems reliance to achieve energy efficiency reduces connectivity to outdoor learning environments.

5.2 HOBSONVILLE POINT PRIMARY SCHOOL SPECIFIC RECOMMENDATIONS

5.2.1 ACCESSIBILITY

Modify the building to protect the main entrance from strong wind conditions and to secure regular teaching spaces when facilities such as the Multipurpose Hall Space are being used after-hours.

FINDINGS:

The main entrance doors to the foyer and reception are locked in strong wind conditions. The Multipurpose Hall Space is open and connected at all times to regular teaching spaces through the foyer.

5.2.2 SUSTAINABILITY :

Monitoring and replacement of components for the property to perform as expected.

FINDINGS:

HVAC system is unreliable. Roof leaks are unresolved. Concealed box gutters with blockages at downpipes. Planting and playing fields lack irrigation.

5.2.3 MODERN LEARNING ENVIRONMENT :

Modify building systems and materials to suit the schools operational needs.

FINDINGS:

The sealed heating and ventilation system is a barrier to outdoor learning areas. The mechanically reliant systems have no resilience in the event of power outages. The Multipurpose Hall Space ceiling is not impact resistant. Soft backing display board located below 1.2m and adjacent to practical areas is damaged.

5.2.4 HEALTH & SAFETY:

Modify the building and grounds to enhance safety for students.

FINDINGS:

Gates adjacent to a main road are unsecured. Concealed areas behind raised playing fields and fully enclosed unisex toilet cubicles are not easily monitored by staff.

6 CONCLUSIONS

An attractive building, Hobsonville Point Primary School presents a welcoming, safe and accessible connection to the community and positive learning environment for students. Internally the school has high quality material specification mixed with some design features that do not meet MoE requirements and which also have not considered the schools operational requirements in the briefing and design stages.

The maintenance costs of this building is likely to be high due to its complex form and heavy reliance on automated systems but for the duration of the maintenance contract with the external FM provider, the removal of responsibility for maintenance is a significant benefit for the school management team.

Although built by the same consortium as the secondary school, externally the primary school is a superior product, with design features and material specifications that are more appropriate and likely to extend operational life.



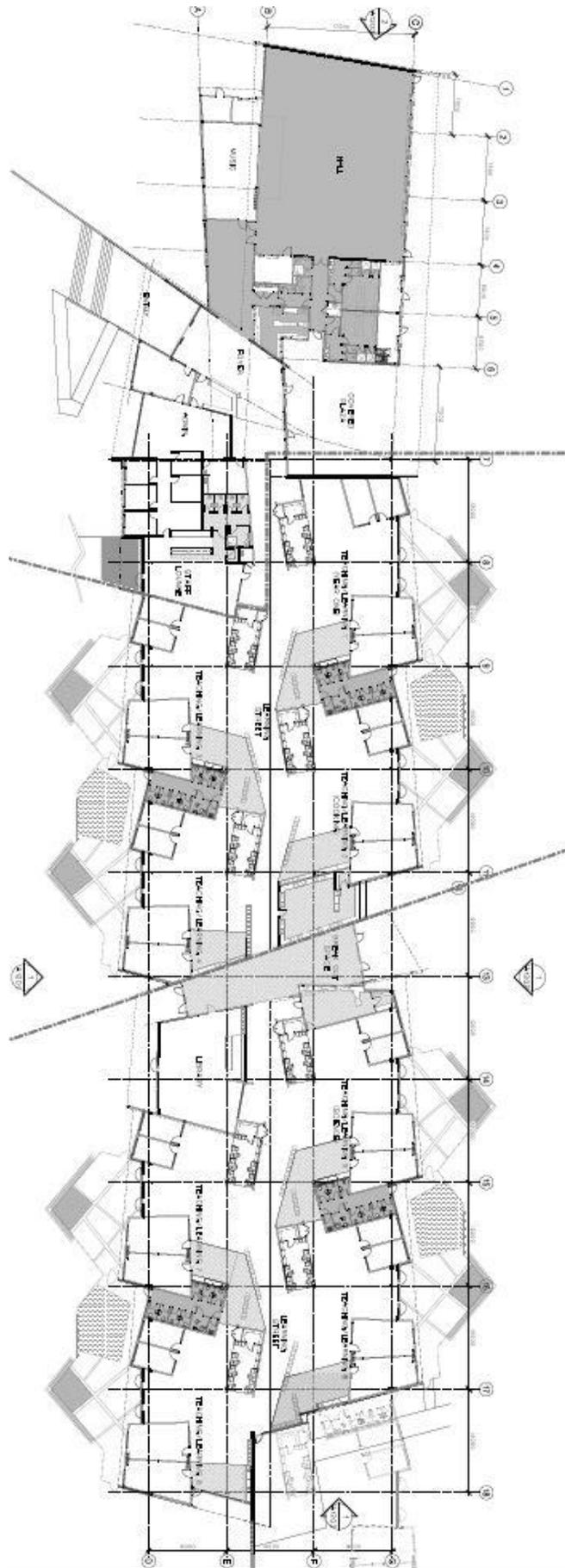
Figure 44

7 APPENDICIES

7.1 DESIGN SITE PLAN



7.2 DESIGN FLOOR PLAN - GROUND



7.3 CLIENT SUPPLIED INFORMATION

List of Information – Hobsonville Point Primary School, Auckland.

- Works completion report
- Completion report mechanical
- Completion report electrical
- Completion report fire
- Completion report acoustic
- Floor plan as included in this report
- Design management plan
- Demographic report
- Greenstar certificate
- Construction management plan
- Detailed business case
- Weather tightness report



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