

# POST OCCUPANCY EVALUATION

## TE KURA KAUPAPA O WHANGAROA, MATAURI BAY, NORTHLAND



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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 the new school buildings (Te Wharekura o Whangaroa) and immediate exterior at Te Kura Kaupapa o Whangaroa, Matauri Bay, Northland. 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

- Lack of storage was a specific issue cited by the school management. This is a common school issue identified from the POE exercise. Consider reviewing the MoE criteria applied to storage provision.
- The quality and type of fencing & gates varies substantially between schools and is given relatively low priority and as a result is vulnerable to cost cutting. The provision of further guidance with defined minimum standards as regards purpose, positioning, materials & dimensions would improve consistency between schools and raise the quality of the fencing & gates installed.
- Whilst data points have been located and installed within the guidelines of the Ministry, only a small number are used with reliance placed on WIFI connectivity. As per other schools visited, Whangaroa reflects the general trend for users moving away from hard wire connectivity to wireless except for items such as photocopiers and audio visual equipment. This multiple school observation would be reason enough to revise the MoE requirement for power and data in classrooms setting a minimum number exceeded only by the school's peculiar requirements if any.
- The use of exterior grade plywood sheeting (Shadow Clad or similar) as a wall cladding finish should be reviewed as an acceptable design solution. Timber products of this nature are MOE compliant when correctly specified and are theoretically capable of a 15 year life when properly maintained, but in a school environment and particularly where the cladding lacks weather protection, the durability of these materials is compromised.
- Sliding doors, internal & external, their quality, specification and standard of installation is a common school issue identified from the POE exercise. Consider reviewing the MoE criteria applied to sliding doors. This school has no immediate problems with the sliding doors installed but signs of early wear that were apparent indicates that they will have over time. Sliding door sets are expensive to install and premature failure for whatever reason, expensive to rectify. Consider tighter specification guidance.
- There was no external teaching space provision at this school contrary to guidelines. Cost is a common factor cited for this omission. Review the relative priority given to external teaching spaces and their funding.
- The keeping and updating of Operating & Maintenance manuals is proving problematic for schools. Lost or incomplete more effort is required to maintain these valuable documents. A central MoE electronic archive of O & M manuals would help alleviate this problem.

## 1.2 KEY RECOMMENDATIONS – WHANGAROA

The new school accommodation was notable by its quality. The standard of the finish and the fixtures and fittings employed were among the best we have observed. The recommendations specific to this school are as a result limited, but are as follows:-

- There is an unguarded bridge over the pond, which varies in depth, to the environmental area. Access to this area needs to be managed or guard rails provided.
- The exposed exterior paintwork and ply panel clad walls should be subject to annual inspection and maintenance as necessary.
- Regularly inspect and maintain all sliding doors to prevent premature failure.
- Address the ventilation issue and place the photocopiers in the resource room.
- Review the hot water capacity issue serving the showers to block O2 changing rooms.
- Test and review the incoming electrical supply to identify the tripping out issue should it reoccur.
- The strained wire boundary fencing is of poor quality. Its purpose is to define the school boundaries, yet it provides no effective barrier to access or exit from the school site. Replace with a more robust and secure fence.
- There is no physical barrier between the vehicle access and drop off to the school and the car park and the children. This issue needs to be examined generally as there are a number of possible options to minimise the risk to children.
- The vehicle gallows style gates are not a barrier to pedestrians. The side access gates are unsuitable for the school environment and should be replaced.
- There is inadequate pedestrian access to the west school entrance, consider extending the existing path to the site boundary to improve accessibility.



## 2 BACKGROUND OF THE SCHOOL

The two new buildings (Te Wharekura o Whangaroa) at Te Kura Kaupapa o Whangaroa were opened in early 2014 increasing the total immersion Maori language school's capacity to approximately 120 students.

Located in rural Northland approximately 1.5km from the east coast at Matauri Bay, the kura's design incorporates environmentally conscious features to achieve a 5 star Education design rating from the New Zealand Green Building Council. With features such as rainwater harvesting, onsite treatment of sewage, a rain garden providing storm water mitigation and photovoltaic cells for energy generation, the Kura was the first of its kind to achieve this rating.

The new accommodation that was subject to the POE assessment was generally of high quality and complimented the existing school building seamlessly. The external environment was also of very high quality, with a natural soft feel which flowed between different spaces.



## **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



Classroom Block 01

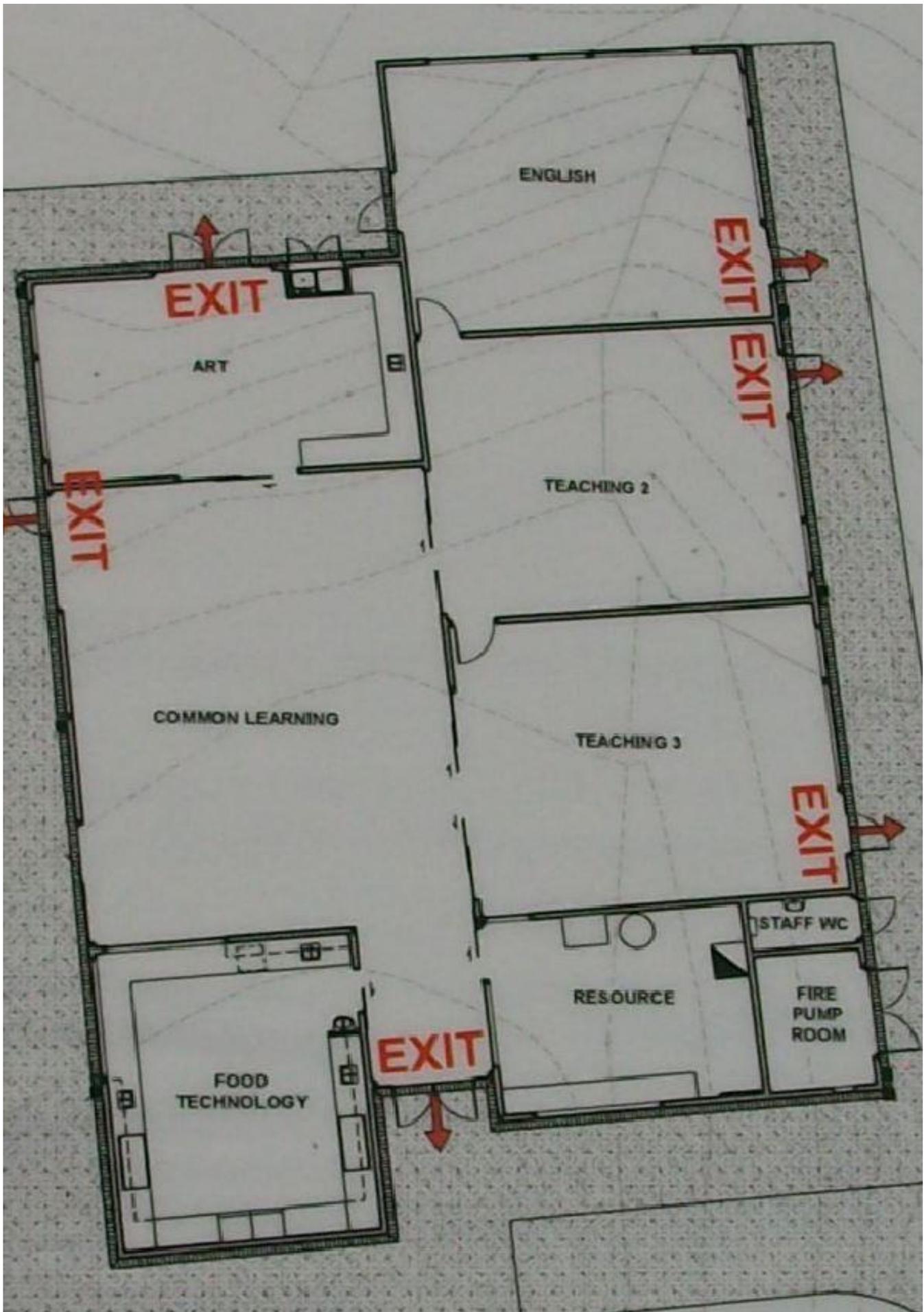


Figure 1

Gymnasium Block 02

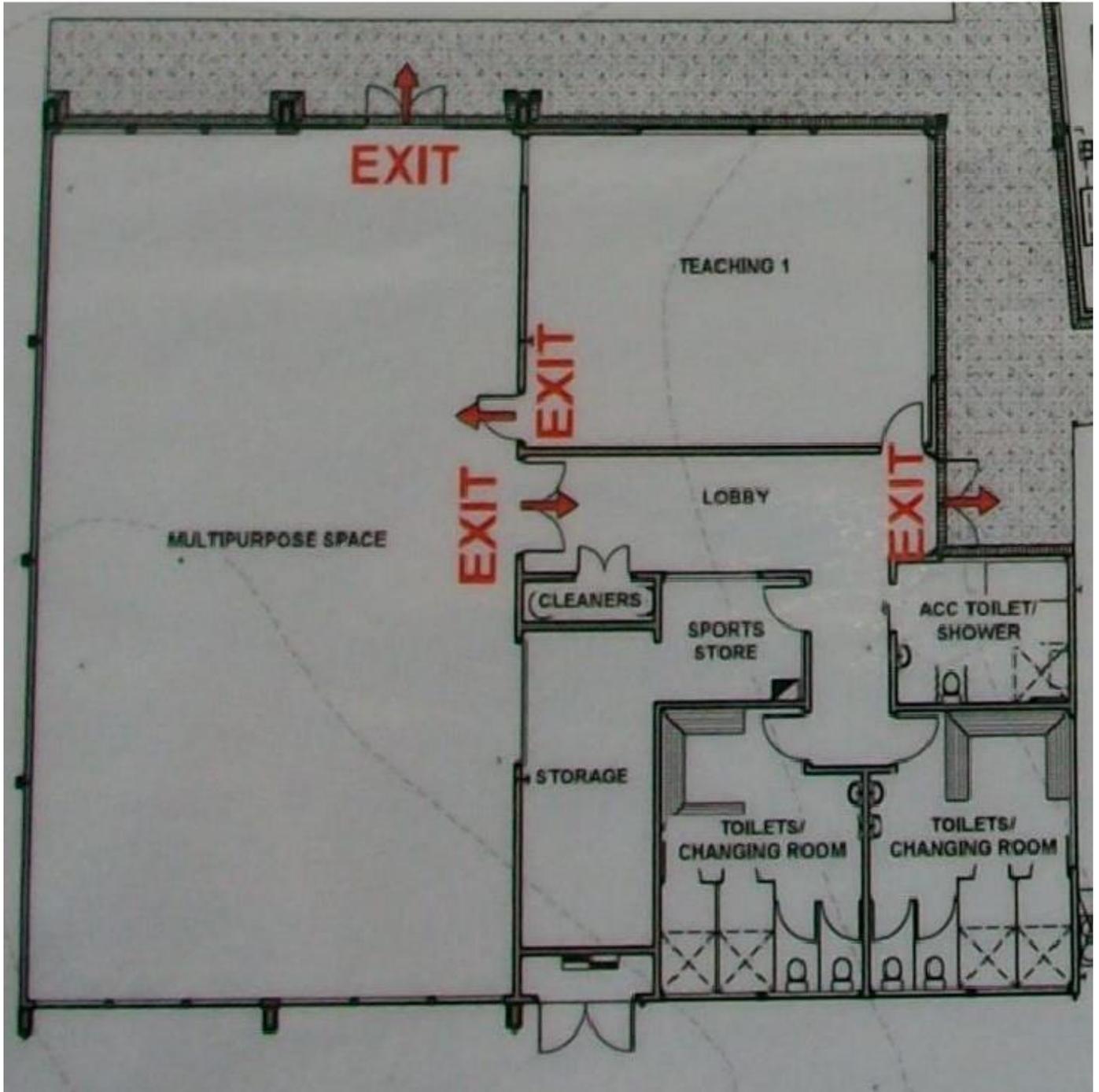


Figure 2

## 4 EVALUATION

### 4.1 ACCESSIBILITY

#### Positives: -

- The main entrance located adjacent to the road intersection is welcoming with an in out horseshoe arrangement for controlling traffic flow. See Figure 3 and Figure 4.
- Signage for the school is effective and well located, being visible easily from the main road. See Figure 5.
- Visitor car parking and drop off area is contained within the school boundaries and is in close proximity to the main entrance. See Figure 3 and Figure 4.
- On-site there is easy pedestrian access to all areas of the buildings and grounds including the rear playing fields.
- The bicycle and pedestrian pathway off school grounds is well separated from vehicle entrances. See
- Car parking is well located within the main street entrance area. See Figure 3 and Figure 4.
- The school reception is located in the building adjacent to the carpark, drop off point and footpath which is separate from the new development under evaluation in this report. Visitors register here before entering the rest of the site. See Figure 3.



Figure 3



Figure 4



Figure 5



Figure 6



Figure 7



Figure 8

- Main building entrances are generally well protected from the weather. See Figure 8.
- General circulation around the school works well for all users, according to staff. The building entrances<sup>2</sup> are generally located well for circulation.
- There are no corridors within the new classroom block, thus maximising floor space use. Circulation is directly room to room through a central meeting room, maximising the use of floor space. See Figure 1.
- Windows controls and other operable systems within the school are easy to use. Windows and ventilation are generally manually operated and easily accessible with remote winding top hung casements and sliding sash windows. See Figure 9.
- A water firefighting tank is provided at the school. Access to the rear of the school is available to fire and emergency services - side access is not sign posted. Playing fields are accessible.
- Accessible toilet suitable. No use of hoist as yet. Low level RCD protected power outlets and a data point have been installed.
- Special needs students now have no problem accessing any of school (new ramps were installed post construction).



Figure 9



Figure 10



Figure 11 - Paths laid to shallow gradients to provide level threshold access.

## Negatives: -

- There is inadequate vehicle and pedestrian separation on school grounds. Children are free to run into vehicle areas with no restriction. See Figure 12.
- There is no designated main road kerb-side parking provision for cars or cyclists to use to pull over or to park. See Figure 13.
- Sliding doors are too heavy to be easily used by the younger students. Over use of force and the lack of frictional resistance means that they are frequently pushed back onto their door stops and early signs of damage are apparent.
- Minimal physical barriers to control the visitors walking on to the site and into the school buildings. Large open gaps between batten and wire fencing and the gates. See Figure 15.
- Number of on-site car parking spaces is occasionally insufficient. Not an immediate issue due to the low student role, but future traffic management arrangements need to be considered.
- The accessible route through the site and buildings is not continuous. There is uncovered footpath between the original buildings, Admin building and the newer buildings which are subject to this assessment. During times of inclement weather shelter or covered walkways are insufficient when moving between school blocks. The two new buildings are well connected to each other with covered walkways between them.
- There is no emergency call button within the accessible WC. The mother of a student got locked inside WC with child and the door would not unlock.
- Within the high dependency space there are no high level general power outlets for a hoist installed.
- The staff toilet in the classroom block 01 is in an odd location relative to the rest of the school, being at a far corner and accessible only from outside of the building. See Figure 14.
- Staff have found the maintenance and user manuals for the systems installed within the building too complex to make use of.
- The pump alarm for the water/waste water system is located in a cupboard at the back of the gym in block 02, when the alarm is activated it cannot be heard or seen.



Figure 12



Figure 13



Figure 14



Figure 15

## 4.2 HEALTH AND SAFETY

### Positives: -

- External lights illuminate exterior doorways.
- There is generally good visibility by staff from the school buildings to observe children around the exterior school site.
- Services generally, their access and operation, did not protrude into circulation areas. No specific trip hazards or other health and safety risks from services were identified.
- Perimeter lighting is very good. School is well lit on approach. Car park is well lit. See Figure 18.
- General power outlets are in appropriate locations as required for classrooms and administration areas and have 10mA protection. See Figure 17.
- Power outlets have also been installed above bench levels where necessary to facilitate access and use. See Figure 17.
- Services have been installed such that they are secure and provide adequate protection for occupants. Electrical distribution boards are located either within service cupboards or positioned in staff areas with lockable handles.
- An emergency power cut off switch has been installed in the kitchen/food prep area. See Figure 19
- The Main Switchboard is safely located in a service cupboard with locked external access. See Figure 21.
- The heating system is based primarily on ceiling mounted electric radiant heaters, which are out of reach of students and staff and local controls are provided. The heating system can also be overridden off remotely from the respective electric distribution boards. See Figure 16.
- Toilets have mechanical ventilation installed in addition to natural ventilation. The toilets are all mechanically ventilated with motion sensors/ light switch delay timers. Opening windows are also installed. See Figure 20
- Natural ventilation is provided in all of the teaching spaces. We note that ceiling mounted fans are not provided. May be an advantage during summer but can be retrofitted in if required.



Figure 17



Figure 18



Figure 19

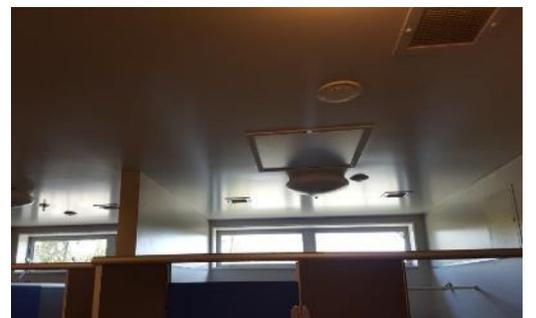


Figure 20



Figure 16



Figure 21

**Negatives: -**

- No restrictions to the wet area pond or falling from the bridge over it. See Figure 46.
- Unable to observe visitors, who have not registered, from accessing the new school buildings, from reception.
- There is no lighting to the path linking both ends of the school.
- There is no fencing separating the car park and road access from the school. Students are able to move freely into the road and car park.
- Potential pedestrian risk on the main road outside the school at busy times due lack of a hard shoulder, off road parking or pedestrian pavement. See Figure 13.
- Boundary fencing consists of open strained wire with intermediate wooden spacers between fixed posts. Easy to climb through and of low height this is ineffective at keeping students in, thus insufficient for protection towards the main road and towards forested areas at the rear of school. See Figure 22.
- The main gates at the entrances are to control traffic flow only and can be padlocked. They cannot restrict pedestrian traffic.



Figure 22

## 4.3 MODERN LEARNING ENVIRONMENTS

### Positives: -

- There is a covered area between the two new blocks to allow sheltered access between blocks. See Figure 25 and Figure 26.
- The hard and soft landscaping compliments the surrounding natural environment, its topography, texture and scale.
- Drinking fountain and tap provision is sufficient are well positioned. See Figure 27.
- Staff viewed the areas for display of student work as well provided for.
- Block 01: Open multi-use learning area (MLE) provided for. Comprising the central MLE with satellite teaching spaces connecting via sliding doors for open flow between them. Level of connectivity varies with each teaching space each having an additional connecting doorway.
- Block 01: Wet areas have been provided within the art and food technology rooms.
- Block 02: The indoor gym area is highly specified with quality finishes and workmanship evident. The flooring is of exceptional quality. The space is mainly set up for basketball. Figure 23 and Figure 24.



Figure 25



Figure 26



Figure 23



Figure 27



Figure 24

- There are an adequate number of power outlets generally.
- Data is via fixed outlets and Wi-Fi. The Wi-Fi is used primarily. Initially the school had some issues with Wi-Fi, but these have been resolved.
- School sounder system works effectively. Able to address particular classrooms through amplifier. Bell system is separate to intercom. The new buildings have a purpose built panel housing an amplifier for the PA system, as well as volume control switches for the different zones.
- Opening windows are generally manually controlled. Staff did not report any ongoing issues with window operation.
- Generally the staff have found the internal thermal environment comfortable.
- Staff are generally happy with the lighting throughout the school. There were no noted problems with glare.
- There are separate electricity meters for new school and old. The maintenance staff advised that there is no link between the old and new parts of the school in terms of power supply.
- Telecommunications outlets are located to effectively facilitate the activities relevant to each space. Electronic projectors and Wi-Fi are used extensively. The teachers display work on the projectors through their laptops.
- Food technology area was highly specified and quality finished. See Figure 30 and Figure 31.



Figure 28



Figure 29



Figure 30



Figure 31

- Hot water is available where required. Heat pump type pressure hot water cylinders are installed with auxiliary heating elements. Two heat-pump type cylinders are provided in a circulating loop which should give excellent energy efficiency.
- A combination of natural and energy efficient artificial lighting systems has provided effective lighting levels for the relevant task to each area. Lighting levels were measured at about 320-400 lux in the teaching spaces with about 850-920 lux in the gym. Lighting is primarily fluorescent throughout.
- Block 02: WC/changing rooms. Very high quality, some of the best we have seen in a school development. Robust and well designed. See Figure 32 to Figure 36.
- Block 02: Changing wet areas have been designed so that they are easy to clean. Fixtures have been wall mounted to allow for easy cleaning. See Figure 33 and Figure 34.



Figure 32



Figure 33

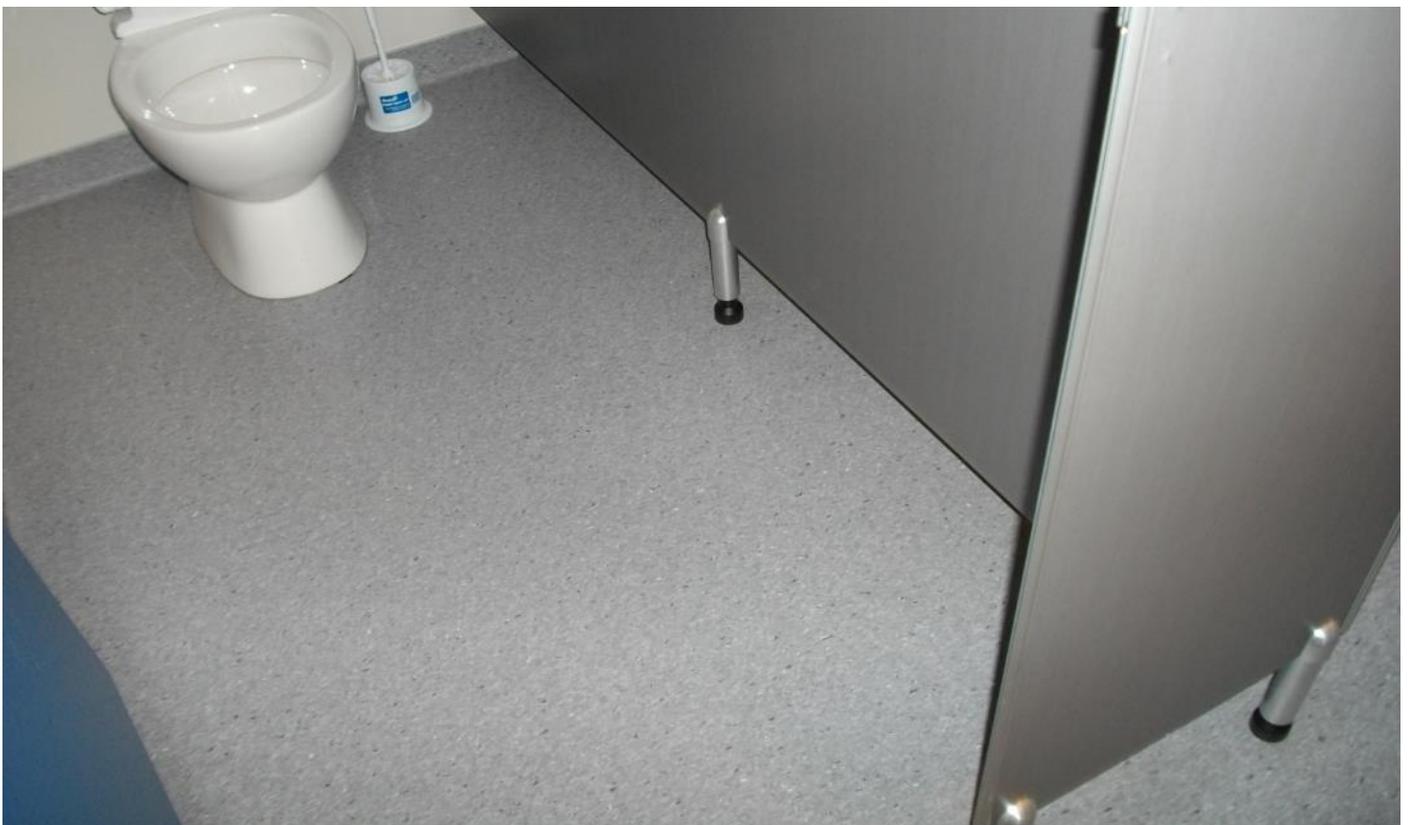


Figure 34



Figure 35

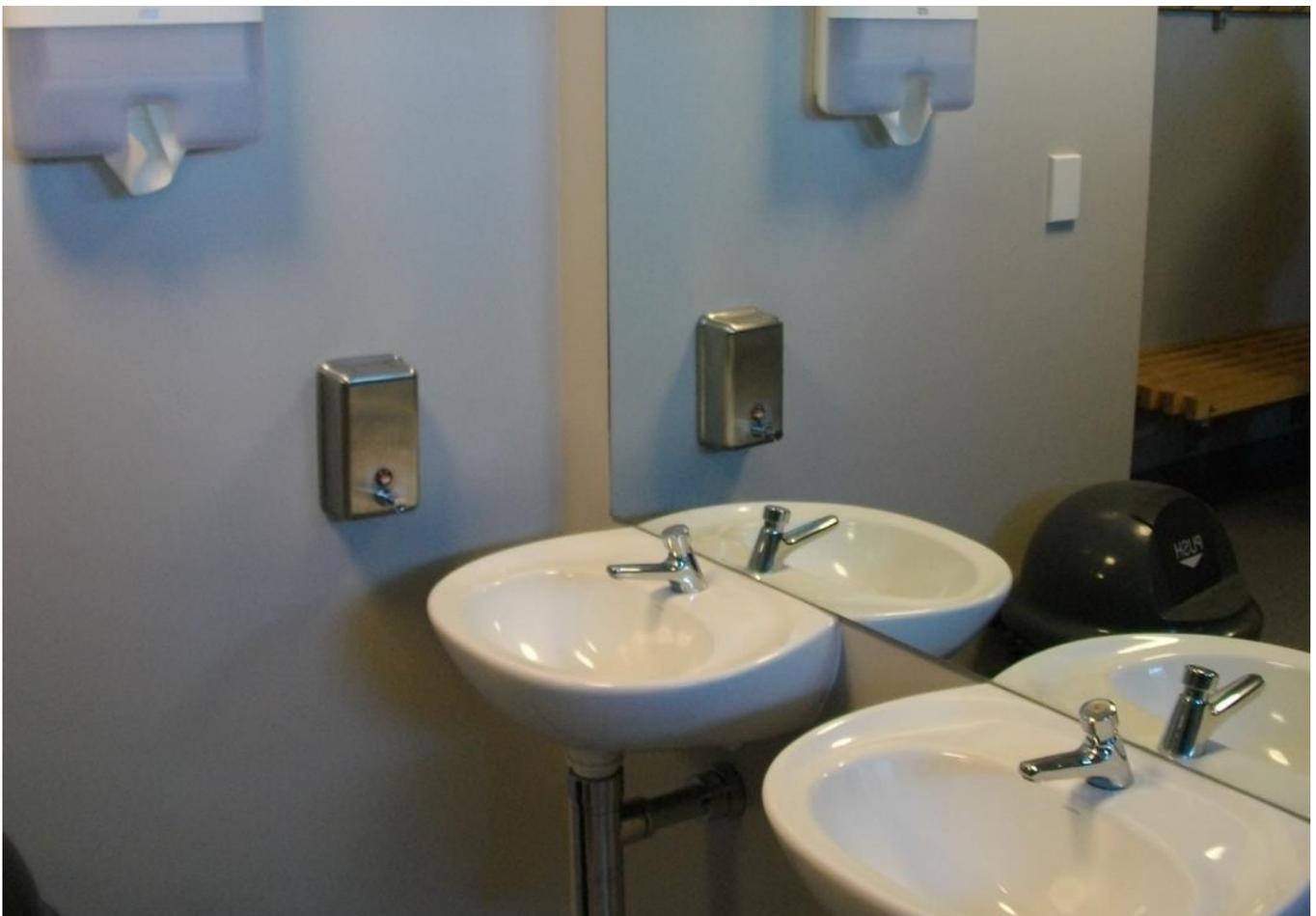


Figure 36

## Negatives: -

- There is no covered area or sheltered connection to the existing school blocks on the site.
- No fixed outdoor seating. School obtained several timber BBQ tables and built some seats for students themselves.
- Sheltered outdoor learning areas on the new blocks are minimal due to lack of large overhangs.
- Provision for storage for both staff and students is insufficient. Staff reported “not enough storage” and that there are “Not enough places to keep documentation or play equipment” and advised that this had been the case since prior to the new block’s design being conceived. Classroom storage limited to 3.9 cubic metres. The school have purchased some shipping containers and installed them on site to create additional storage. See Figure 38 and Figure 39.
- Block 01: Resource room is not large enough. Photocopier in resource room was not in a separated area, and additional partition walls were required to be installed post-construction to meet guidelines for Greenstar (ventilation as per Greenstar). The new partition walls now compromise the efficiency of the ceiling extract vent, further modifications will be required.
- Staff reportedly struggle to operate the heating system correctly due to its complexity. Thermostat controls govern the temperature in the building but local room control by teachers is being achieved by simply opening or shutting windows and doors leading to higher power consumption. This is a source of complaint from the School. See Figure 40.
- Block 02: Gym shower rooms, the hot water only lasts long enough for one person to use the shower. Despite the large cylinders (there are two, one for toilet and showers, 1 for kitchen) that were installed there is still a capacity issue.
- The power trips out at main switchboard and requires resetting semi-frequently (approx. once every three months. Usually only happens in winter (or high use times). This is an ongoing issue for the older half of the school, and it has happened intermittently for the new half of the school.
- The projectors in teaching spaces do not have sound/audio capabilities.
- Lack of an external teaching space for the arts. Detracts from the modern learning environment.
- No sink facility within the arts classroom for traditional fabric dying.
- One of the few issues with quality of products installed was with the lights within the gym block bathrooms. The light fittings are plasticising at an accelerated rate and bits of plastic are breaking off them. These are to be replaced with higher quality fittings.
- The defects/snagging aspects of the completion of construction took a long time to be completed, and there are still some outstanding



Figure 37



Figure 38: Resource room



Figure 39: Classroom storage

defects (e.g. downpipe and overflow adjacent kitchen appear to not retain water at all, and as such splashes a lot. This outlet is on the edge of an overhang.

- Network data points have been located and installed in accordance with the MoE guidelines, but their number exceed the operational requirements of the school, as with other schools they prefer the convenience and flexibility of WIFI connectivity.



Figure 40



Figure 41 - Block 01: Resource room – too small

## 4.4 SUSTAINABILITY

### Positives: -

- The Kura is the first Māori immersion school to achieve a '5 Green Star – Education Design' rating from the New Zealand Green Building Council.
- Lighting has motion sensor automatic control supplementing the natural light from windows and skylights to reduce electricity use.
- There are Photo-voltaic (solar power) cells for energy generation on the roof of the gym. See Figure 44.
- The heating is electric, with ceiling mounted radiant heaters which staff have found to be effective. Staff also advise that they find the system to be very complicated, and that anecdotally the local service technician struggles to comprehend its operation.
- The heating system is zoned and is controlled via thermostats in each room.
- The school makes use of roof-collected rainwater, which is stored in tanks on the school grounds. No issues with quantity of supply. Opinions vary among staff with regard to water taste. Water is filtered and treated with UV light. See Figure 43.
- Within the bathrooms water-saving fittings are installed (such as push-button taps/showers). There have been no complaints about the quality and usability of the water fixtures/hardware.
- Materials generally appear to have been selected with durability and ease of maintenance in mind. The specification of door ironmongery, side hung doors and windows, fixtures & fittings are all of good quality.
- Materials and finishes in the food technology area are durable and high quality. The stainless steel benchtop and sink are a good example of this. See Figure 47.
- School makes use of a septic tank and a wastewater treatment field behind the school. This is pump driven (due to the distance and elevation of the treatment field).
- A rain garden is provided for onsite rainwater/storm water management. This is both effective and attractive. See Figure 45 and Figure 46.
- The installation of general mechanical and electrical equipment has been carried out to a very good standard with energy efficiency in mind. The features installed are PV cells on the roof, heat pump style hot water cylinders and natural ventilation in classrooms.
- Water supply has been installed with adequate access to isolation valves.
- There is a website to look at statistics regarding sustainable aspects of the design, such as energy use and generation, water use etc.



Figure 42



Figure 43



Figure 44



Figure 45



Figure 46



Figure 47

## Negatives: -

- The external sliding doors are likely to cause issues. Plastic capping's to the stiles and door stops are already deteriorating. The runners tend to get blocked and doors can stick and are hard to open for some students. See Figure 48 and Figure 49.
- An unusual detail has been installed externally to the perimeter of the building at the external wall/path junctions. This is assumed to have been installed to provide level door thresholds by having raised paths relevant to the wall whilst maintaining the ground to wall cladding separation. However, the resulting gap has been filled with sheet metal to remove a potential hazard. In covered areas this is not an issue, but in exposed areas it allows rainwater to splash up the wall cladding. The use of metal grilles would have been a more effective solution. See Figures Figure 50 and Figure 51.
- School lighting is primarily automatic via occupancy sensors, there is some manual control, but lack of staff knowledge regarding operation of the system make the lighting system particularly disruptive to these not familiar with it.
- Permanently open ventilation system used in some areas of the buildings, food technology, was disliked by staff, but is required due to the gas hob system. The wall vent in the Art room leaks when it rains due to inadequate weather protection.
- Some issues with smells coming through drain via dried up shower traps. Regulations do not require installation of automatic trap primers for low usage areas.
- The facilities do not provide the ability to separately measure/meter energy use in the gym or other parts of the school that are used outside of school hours by community groups.
- The wastewater treatment system has overflowed a few times since the school has been operational.
- The current maintenance staff at the school do not have complete sets of manuals or as-built drawings. There have been staff changes since the construction and as such these manuals were not handed over to the new staff.
- The use of exterior ply wall cladding in areas where it is likely to get regularly wet and subject to splash back from the ground is not a recommended detail and a poor choice of material for this location.



Figure 48



Figure 49



Figure 50



Figure 51

## **5 RECOMMENDATIONS & FINDINGS**

### **5.1 GENERAL RECOMMENDATIONS**

#### **5.1.1 DESIGN STANDARDS:**

The design standards as regards storage provision require review. It is a consistent issue identified in the POE process.

The quality and type of fencing & gates varies substantially between schools and is often the subject of cost cutting. Clearly spelt out minimum standards would alleviate this recurring problem.

Provision of comprehensive hard wired IT networks is becoming redundant due to WiFi connectivity.

#### **BENEFIT:**

The schools are resorting to numerous measures to compensate for the lack of storage which includes the use of school funds to provide additional capacity.

Fencing is an essential feature of school design for the protection of children.

There is potential to save money by not installing redundant IT network infrastructure.

#### **FINDINGS:**

The school administrator stated that arrangements were in hand to purchase shipping containers.

The strained wire boundary fencing is of poor quality, its purpose is to define the school boundaries, and it provides no effective barrier to access or exit from the school site. Replacement with a metal railing fence is recommended.

As per other schools visited, Whangaroa reflects the general trend for users moving away from hard wire connectivity to wireless except for items such as photocopiers and audio visual equipment. This multiple school observation supports review of the current standards.

#### **5.1.2 SPECIFICATION QUALITY**

The material specification needs to be suitable for a modern school building; code compliance is not the recommended benchmark for quality.

#### **BENEFIT:**

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

#### **FINDINGS:**

The use of exterior grade plywood sheeting (Shadow Clad or similar) as a wall cladding finish to various external walls for no obvious benefit other than cost reduction.

#### **5.1.3 DESIGN BRIEF**

If outdoor learning areas are not being installed due to cost and lack of priority then their funding and provision as part of a modern learning environment should be reviewed.

#### **BENEFIT:**

Internal/external connectivity between areas of the school. Flexibility of learning spaces.

## **FINDINGS:**

There was no external teaching space provision contrary to guidelines. Cost is a common factor cited for this omission. The practical implementation of this requirement is not being consistently addressed in school designs.

### **5.1.4 OPERATING & MAINTENANCE MANUALS**

The increasingly complex systems in a school and the need for ever more sophisticated monitoring is often challenging for the school management team without professional support. The lack or loss of O & M manuals simply add to the problems. Consider a greater level of support to schools for maintenance management and the keeping of an electronic archive for all school O & M manuals.

## **BENEFIT:**

The proper understanding of how the school systems operate and the necessary maintenance required to maintain the school are essential if the design life of the buildings is to be achieved and for the building to be run efficiently.

## **FINDINGS:**

O & M manuals, their location at the school, their completeness and the understanding of them often proves a challenge for the school management team.

## **5.2 WHANGAROA SCHOOL SPECIFIC RECOMMENDATIONS**

### **5.2.1 SUSTAINABILITY :**

Exterior paintwork to the ply cladded walls should be subject to annual inspection and maintenance as necessary.

Regularly inspect and maintain all sliding doors to prevent premature failure.

## **FINDINGS:**

The exterior ply wall cladding specified is not the optimal solution for the locations in which it has been placed. Whilst it is likely to meet the weather tightness and durability requirements of a 15 year life, its location and proximity to the ground will compromise its life expectancy. Regular maintenance is essential.

The sliding doors are already showing signs of premature wear and tear.

### **5.2.2 MODERN LEARNING ENVIRONMENT :**

The photocopiers need to be placed in a ventilated space in the resource room

Review the hot water capacity issue serving the showers to block 02 changing rooms.

Test and review the incoming electrical supply to identify the tripping issue should it re-occur.

## **FINDINGS:**

The photocopiers are currently housed in the open learning space.

The hot water supply serving the showers to block 02 changing rooms is highly insufficient. Hot water is available only to the first few people who use the showers.

The Kura has experienced numerous issues with the electrical supply tripping at times of above average energy use, such as when a mobile dentist makes use of school power outlets. This was reportedly a recurring issue.

### **5.2.3 HEALTH & SAFETY:**

Review the fencing arrangements to the site perimeter and provide separation between the students and the road and parking areas.

Provide a footpath from the front edge of the site to the school to provide a safe and accessible route into the site.

There is an unguarded bridge over the pond, which varies in depth, to the environmental area. Access to this area needs to be managed or guard rails provided.

#### **FINDINGS:**

There is no fencing separating the car park and road access from the school. Students are able to move freely into the road and car park.

Boundary fencing consists of open strained wire with intermediate wooden spacers between fixed posts. Easy to climb through and of low height this is ineffective at keeping students in, thus insufficient for protection towards the main road and towards forested areas at the rear of school.

The footbridge to the pond is an attractive feature but the risk of a child falling into the pond is considered to be high.

## **6 CONCLUSIONS**

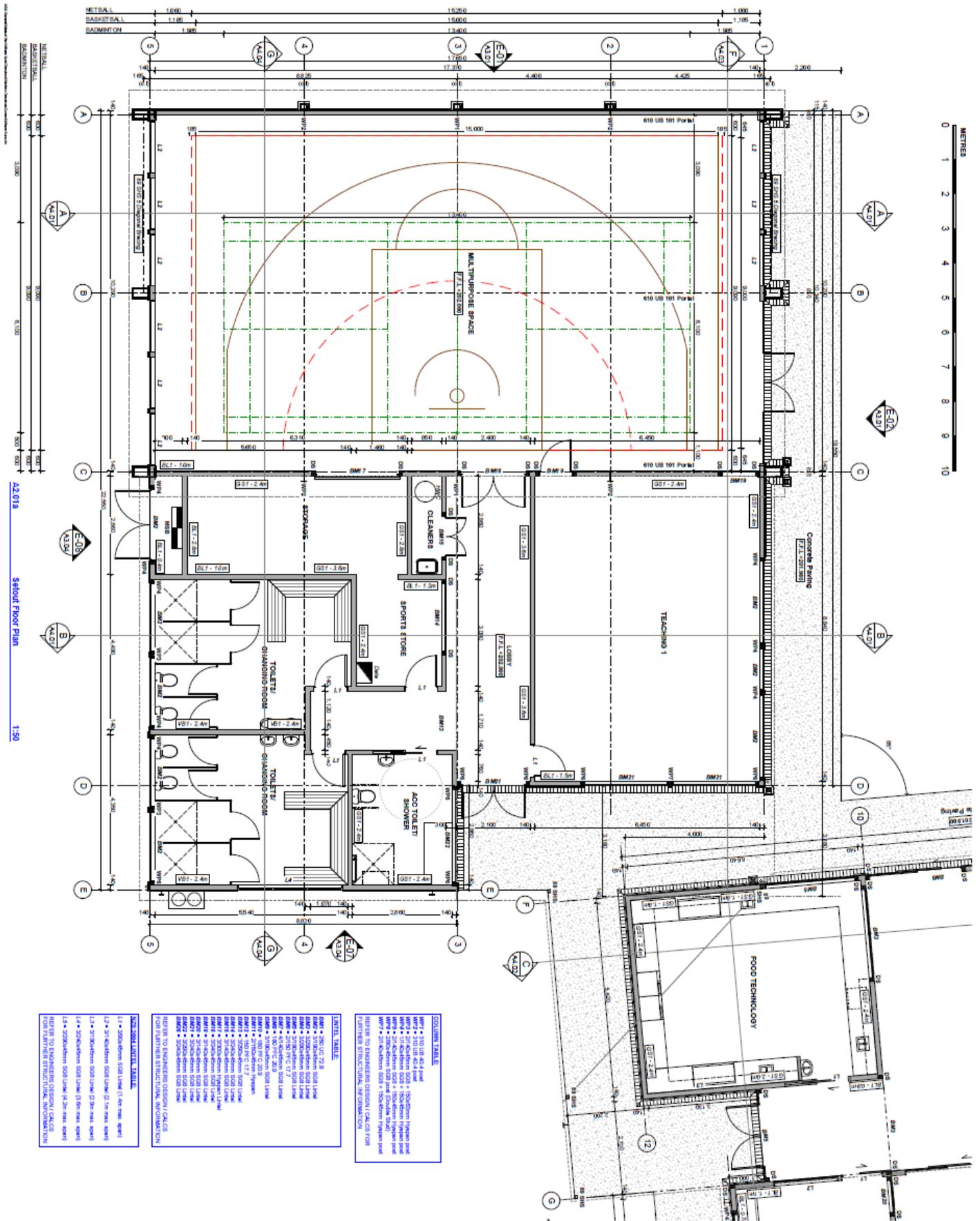
An attractive environment Whangaroa School presents a welcoming and effective response to the need for new school provision. The quality of the additional buildings and the design solutions adopted are practical and effective, in particular the specifications adopted for most of the materials and components is high. Where compromises to the MoE design guidelines have been made, budget is likely to have been the limiting factor.

This development indicates that the Architect had a good understanding of the school environment and the demands placed on school buildings.





# 7.3 DESIGN FLOOR PLAN – GYMNASIUM BLOCK 02



22.018 Sefidour Floor Plan 1:50

SYMBOL	DESCRIPTION
1.1	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.2	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.3	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.4	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.5	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.6	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.7	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.8	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.9	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.10	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.11	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.12	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.13	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.14	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.15	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.16	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.17	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.18	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.19	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.20	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.21	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.22	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.23	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.24	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.25	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.26	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.27	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.28	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.29	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.30	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.31	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.32	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.33	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.34	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.35	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.36	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.37	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.38	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.39	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.40	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.41	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.42	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.43	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.44	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.45	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.46	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.47	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.48	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.49	300x300x1200mm (1.2m x 1.2m x 2.4m)
1.50	300x300x1200mm (1.2m x 1.2m x 2.4m)

## **7.4 CLIENT SUPPLIED INFORMATION**

### **List of Information – Whangaroa School, Matauri Bay**

- Contract documentation
- Practical completion documents and defects report
- Design Development Plan
- Classroom floor area, use and materiality information
- Funding documentation
- Proposed project programme



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