

# POST-OCCUPANCY EVALUATION REPORT



## GOLDEN SANDS SCHOOL

PAPAMOĀ | JULY 2015

# TABLE OF CONTENTS

<b>1.0</b>	<b>Introduction</b>	<b>1</b>
	POE Overview	1
	POE Team	1
<b>2.0</b>	<b>Methodology</b>	<b>2</b>
<b>3.0</b>	<b>Recommendations</b>	<b>3</b>
<b>4.0</b>	<b>Project Overview</b>	<b>4</b>
	Benchmark Data	4
	Project Team	4
	Project Timeline	5
	Master Plan	5
	Learning Environment Floor Plan	6
	Learning Environment Floor Plan and Diagram	7
<b>5.0</b>	<b>Analysis and Findings</b>	<b>8</b>
	Introduction to Findings	8
	Demographic Profile	8
5.1	Identity / Context	9
5.2	Site Plan	10
5.3	School Grounds	11
5.4	Organisation	12
5.5	Buildings	14
5.6	Interiors	16
	Ventilation	17
	Internal Temperature	18
	Acoustic Environment	19
	Lighting	21
	ICT	22
5.7	Energy and Services Strategies	23
5.8	Feeling Safe	23
5.9	Long Life, Loose Fit	24
5.10	Successful Whole	25



# 1.0 INTRODUCTION

## Overview

Post-Occupancy Evaluation (POE) encompasses the collections of information about the facilities' technical performance; functionality, operational processes, and examines buildings as they are actually used by the various stakeholders. This information can be then compared to the original design intentions to determine the extent to which these goals were met, based on the users' evaluation of how effectively the building works. POE can therefore help the Ministry of Education (MoE) to collect and use timely, relevant, and well-disseminated evaluation information to impact the design of future facilities.

There are various levels of POE, ranging from a very high level review to a detailed diagnostic study. There is a widely accepted POE process model that sets three levels of POE that can be undertaken, i.e. indicative, investigate, and diagnostic:

### Indicative

Indicative post-occupancy evaluations provide information on significant successes and problems and can be as simple as a walk-through evaluation. Selected interviews can also be included as part of the walk-through, or separately. Generally, indicative post-occupancy evaluations involve simple surveys of occupants to establish their views on the physical project outcome, and in some cases, the project process.

### Investigative

Investigative post-occupancy evaluations are more detailed and require formal data collection techniques. These interviews need to be structured and unambiguous. More time and resources are required for this type of review than for an indicative review. Questionnaires (standard or customised) can be used to survey the occupants. Structured interviews and recording of responses can also be included for analysis. together with responses to questionnaires. Investigative post-occupancy evaluations can be used for detailed evaluation of both the physical project outcome and the project process.

### Diagnostic

A diagnostic POE is more detailed than both of the previous types. These reviews are comprehensive and generally initiated for large-scale project reviews, or when serious problems have developed, or when the review is part of a rigorous research project. A diagnostic POE requires expert advice and management. The scope of these types of post-occupancy evaluations can be designed to encompass all aspects of projects according to needs.

The following POE report is based on indicative and some investigative processes and techniques. Further diagnostic evaluations may be required to understand the findings in greater detail and context.

## POE Team

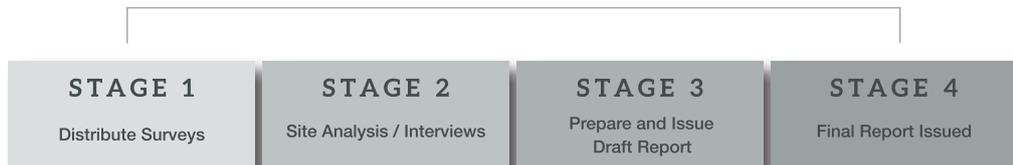
The assessment for this evaluation was carried out by a team composed of professional architects; education designers, project managers, and construction experts.

## 2.0 POE METHODOLOGY

The POE was comprised of indicative and investigative techniques carried out by the POE team. The process of the design/delivery of the project along with the overall facility was evaluated, with more indicative focus given on the learning environments. Multiple methods of data collection were used such as:

- Architectural documentation
- Full project walk-through evaluation
- Benchmark data compiled
- Staff and individuals surveyed
- Interviews with key stakeholders i.e EBOT, BoT, Principal and leadership teams involved in the design phases of the project
- Students, parents and families were not interviewed

*The POE process started with an introduction meeting held with the school to discuss the process and the requirements from the school during the POE. There were four key stages in the evaluation:*



The project was evaluated under 10 categories to gain a holistic view of the project:

- Identity / Context
- Site Plan
- School Grounds
- Organisation
- Buildings
- Interiors
- Energy and Services Strategies
- Feeling Safe
- Long Life, Loose Fit
- Successful Whole

The evaluation team asked standardised questions about the facility during the on-site investigations along with specific surveys for the users. The data from these strategies form the basis of the evaluation. We have standardised the questions, metrics and on-site analysis with the view to form better comparable cross-project data, and be able to draw more accurate conclusions overall.

## 3.0 RECOMMENDATIONS

### **Conclusions and Recommendations for Golden Sands School**

The evaluation team deemed the learning environment of Golden Sands School to be effective and believed that the adopted improvements between Stage One and Stage Two were positive. The facilities reflect sound design principles based on the BoT visions and the MLE guidelines. The new facilities were light, spacious, safe and secure. However, the evaluation team revealed a number of shortcomings that, if addressed, could improve certain areas of the school. Furthermore, this POE process aims to highlight the lessons that could be learned from these shortcomings, in order to benefit future school developments.

Below are our recommendations to improve the design and in-use performance of the new Golden Sands School buildings:

1. Occupants of the central collaborative space in Stage One expressed that the acoustics were poor. The evaluation team recommends that an acoustic engineer undertake diagnostic testing under normal working conditions to provide a better understanding of this issue. In the least, additional pin-board panels should be installed.
2. The internal sliding door tracks, which divide the Stage One studio spaces from the withdrawal and collaboration spaces, frequently misalign. These doors were designed to slide together to meet in the corner, however more robust commercial tracks and/or hardware are required. It is recommended that the internal sliding doors are reviewed by a specialist in detail so that robust recommendations and guidelines can be provided.
3. It is recommended that all external doors which swing 180 degrees should be removed and replaced with robust single hinged commercial doors with appropriate closing mechanisms, thresholds and hardware.
4. It was noted in the interview that the school was “frustrated with the Greenstar process”. The school felt that they were not completely informed of the limitations and restrictions of the Greenstar rating scheme during the design and operational stages of the project. The scheme was described as being “too rigid” and they believed that “points that they gained should have been fully explained to school”.
5. The Principal had not been appointed during the formative stages of the design process. Stage One would have benefitted from having a Principal to support the EBoT to ensure that the school’s educational vision was better aligned from the outset. Further strategies should be explored to help better integrate and align the pedagogy of each individual school within its design.
6. Development of a systematic handover and aftercare programme is recommended to help schools ease into their new facilities so they have a better understanding of its operational and day-to-day needs. A sound benchmark to help with the development of this strategy is the “Soft Landings Framework - CABE UK”. This framework provides a step-by-step process, which could be customised and made relevant to new schools built in New Zealand. (<https://www.bsria.co.uk/services/design/soft-landings>)

## 4.0 PROJECT OVERVIEW

Golden Sands is a new primary school designed and built in Papamoa, in the Bay of Plenty. It is located within 600 metres of the ocean within a modern residential subdivision which is generally flat. The school has been designed and constructed in two stages. Due to ongoing growth, stage three has just been approved. Once the third stage has been completed, the school will have capacity for up to 600 students.

### Benchmark Data

**School profile number:** 6070  
**Type:** Full Co-ed Primary  
**Location:** 26 Golden Sands Drive, Papamoa Beach, Papamoa 3118  
**Site Area:** 3.3500 ha  
**Total GFA:** 2296m<sup>2</sup>  
**Staff Numbers:** 27  
**Student Numbers:** 385  
**Environmental Rating Credentials:** Greenstar 5 (pending)  
**In-use Performance:** 62/kWh/m<sup>2</sup>/annum (Stage One and Two combined)  
**Decile:** 5

### Stage One

**Facility Opened:** 2011  
**Gross Floor Area:** 1,511m<sup>2</sup> (includes 10 teaching spaces)  
**Capacity:** 200  
**Project Cost:** \$3,652,322.00 (2008/9)

### Project Team

**Master Planning:** Ignite Architects Ltd  
**Architect:** Ignite Architects Ltd  
**Structural Engineer:** Not known  
**Services Engineer:** Aurecon Ltd  
**Project Manager:** Greenstone Group  
**Contractor:** Marra Construction (GMP contract)

### Stage Two

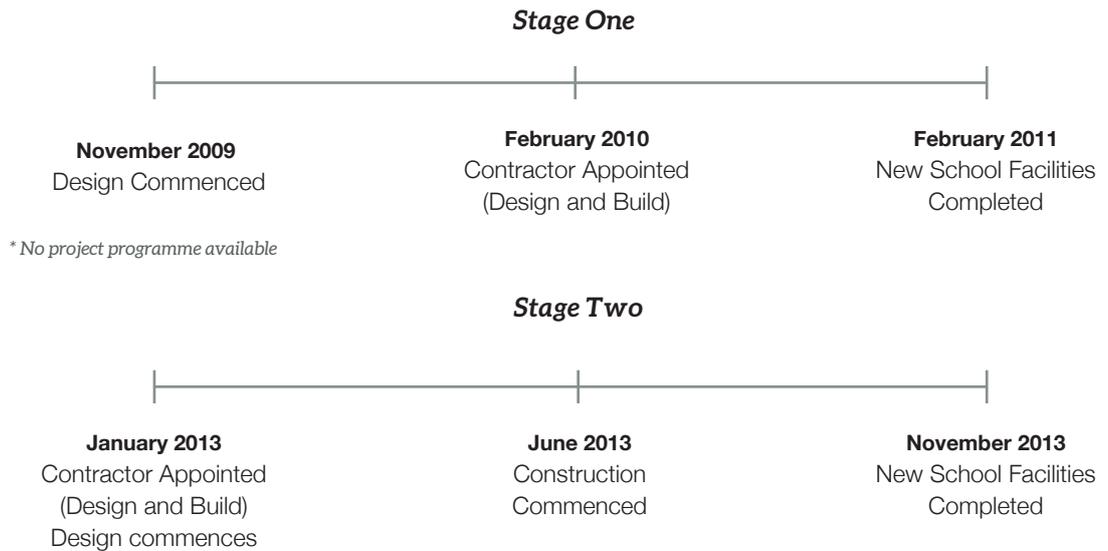
**Facility Opened:** 2013  
**Gross Floor Area:** 785m<sup>2</sup> (includes 8 teaching spaces)  
**Capacity:** 220-250 (School total 420-450)  
**Project Cost:** \$2,573,193.82 (2013)

### Project Team

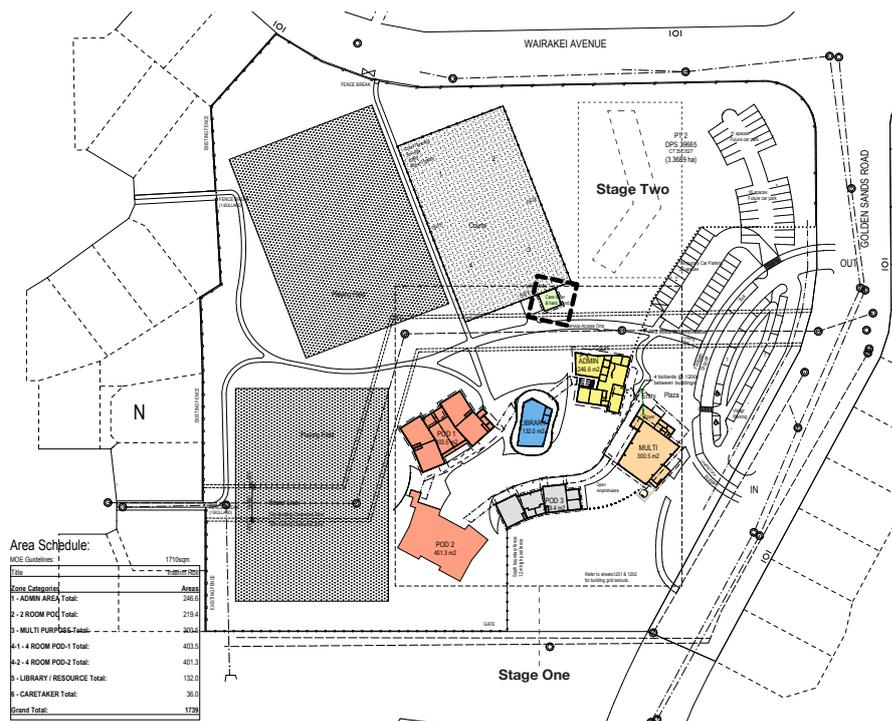
**Architect:** Jasmax Architects Ltd  
**Structural Engineer:** BCD Group Ltd  
**Services Engineer:** Innerscape Ltd  
**Project Manager:** RDC Pacific Ltd  
**Contractor:** Arrow International (GMP contract)

# 4.0 PROJECT OVERVIEW

## Project Timeline

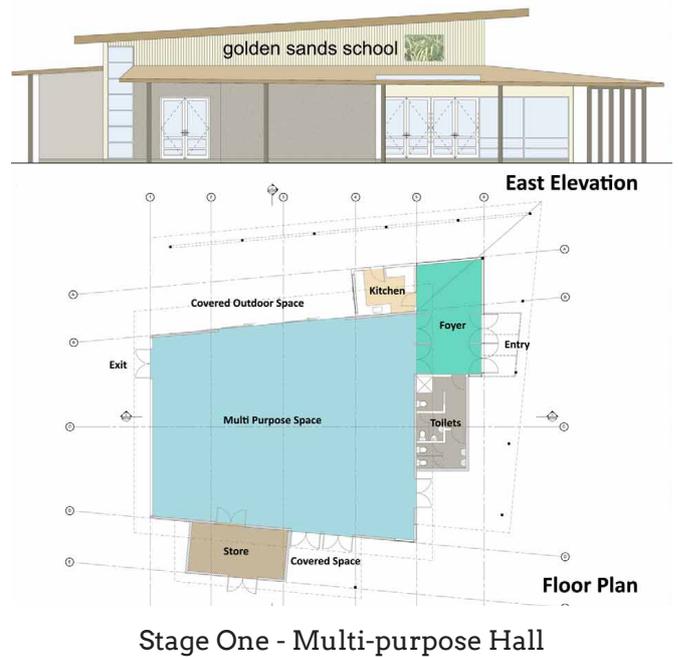
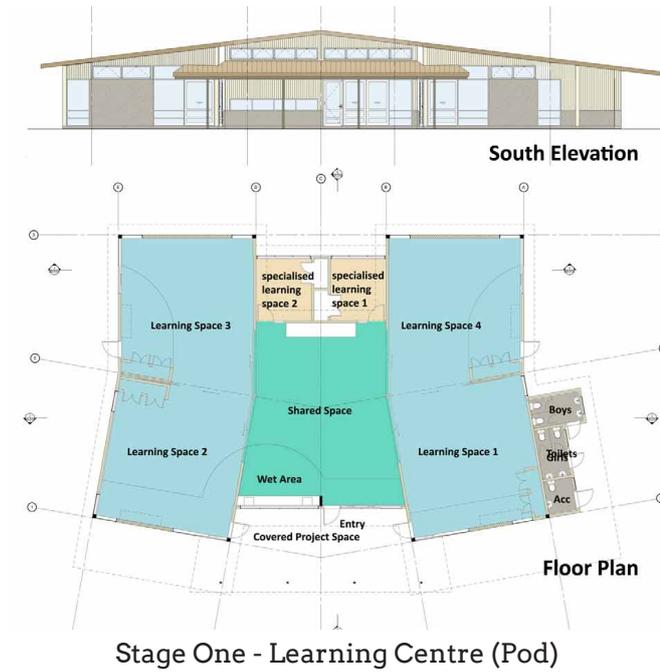


## Master Plan



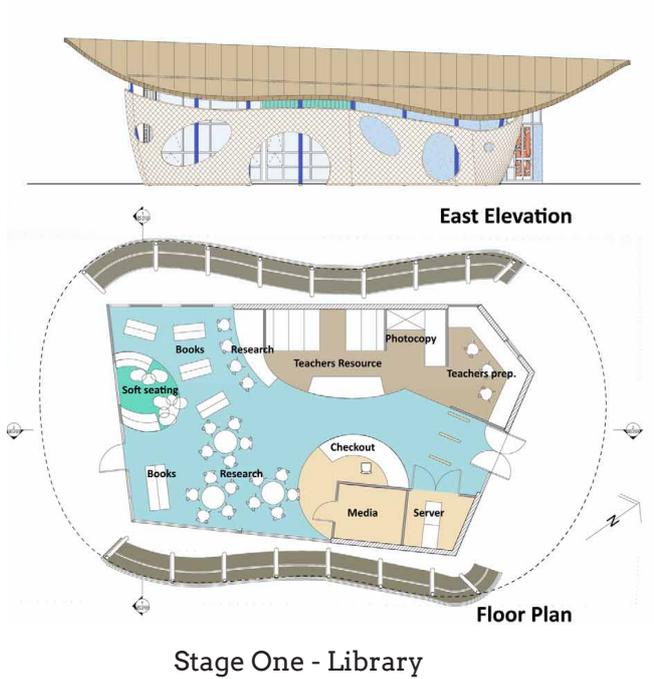
# 4.0 PROJECT OVERVIEW

## Learning Environment Floor Plan

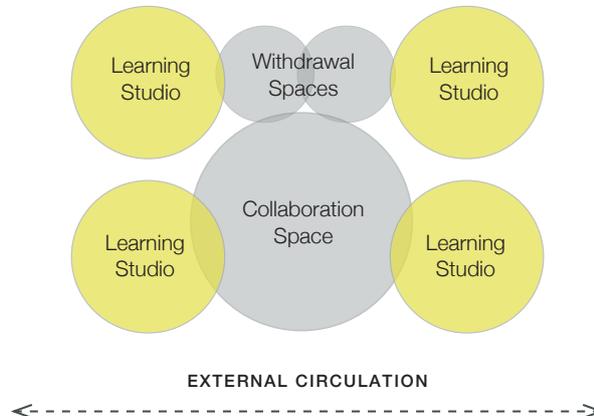


# 4.0 PROJECT OVERVIEW

## Learning Environment Floor Plan



## Learning Environment Diagram - Stage One (No documentation available for Stage Two)



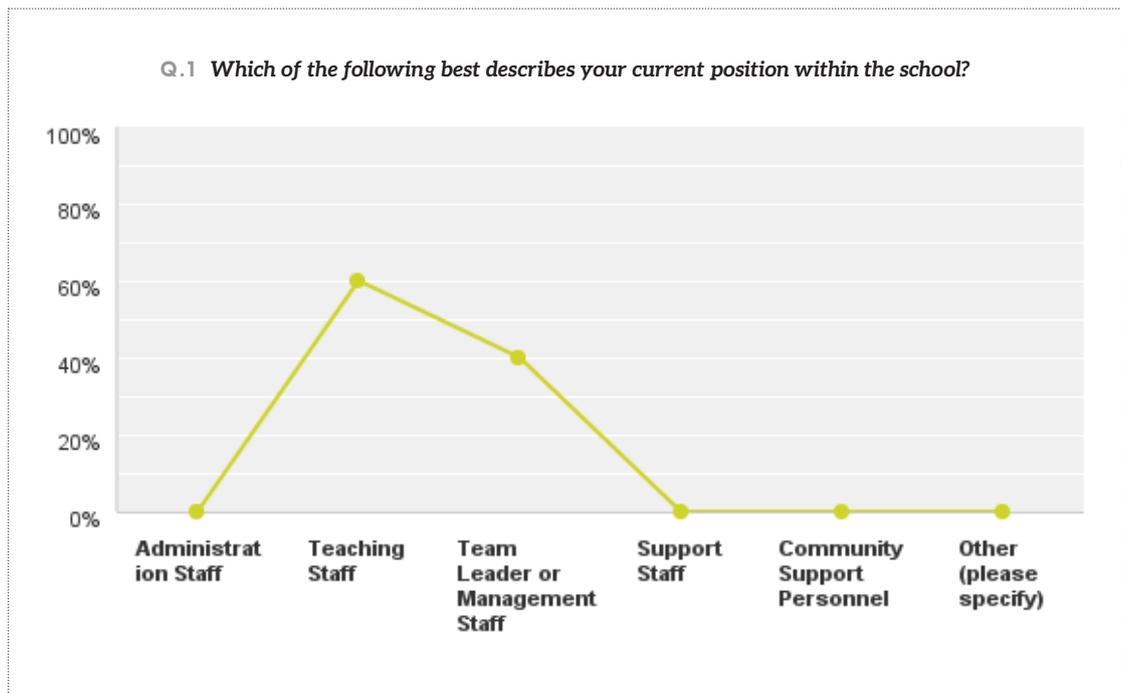
# 5.0 ANALYSIS AND FINDINGS

## Introduction to Findings

Staff participation for this report was 63% with 17 out of 27 staff completing the survey. Surveys were issued on April 3, 2015. The staff interviews and on-site evaluation were carried out on May 1, 2015. The site visit was performed on a clear, sunny day with light winds and the school was operating under normal conditions. The school's new facilities were evaluated during one site visit over a four hour period.

## Demographic Profile

Of the 17 personnel surveyed, 60% were teaching staff, and 40% were either team leaders or in management roles (see graph Q1 below). All of the respondents were full-time staff. 60% stated that they were answering the questions based on Stage One, and 35% stated that they were answering the questions based on Stage Two. 77% stated that they spent 8 hours or more in the facilities each working day, while 23% spent 6-7 hours in the facility each working day. Respondents stated that their time was spread across a wide range of spaces during the working week. 96% spent up to 5 hours each week in the office; learning environment, withdrawal spaces, library, technology spaces and sports facilities while 76% spent more than 26 hours each week in the learning environment, with 36% spending more than 35 hours.



### 5.1 Identity / Context

The school's motto (Te Rito o te Harakeke) reflects the history of the land on which the school has been built. Its logo is also representative of the local whenua. Relationships have been established with Nga Potiki iwi through consultation with kuia and kaumātua. Three trustees are parents of Māori students and provide useful links with whānau and iwi.\*

The school stands on what was a Greenfield site, situated on Golden Sands Road, Papamoa. The Master Plan developed the school in two stages, and are referred to as 'Stage One' and 'Stage Two'. Two different project teams were used for each stage. Stage One consisted of a new car park; arrival area, administration building, multi-purpose hall, library and three new learning centres. Stage Two consisted of a car park extension and a new learning centre.

The entrance to the administration building is well defined and is inviting to the community. The clear and well laid out car park, offering safe pick-up and drop-off areas, were stated by the school as being 'a positive attribute'. No bus facilities operate at the school. A clear hard and soft landscaping design supports the overall entrance.

The school buildings are visible to the street and are, in general, of a residential scale, which is appropriate to its suburban, residential context. Stage Two is visible from the arrival car park, and glimpses of learning can be seen which is a positive attribute. The Stage One learning centres are positioned behind the administration building and the multi-purpose hall. The cladding and the exterior colour scheme are both welcoming and sympathetic to their surrounds.

The bike stands were well utilised at the school, however it was stated during the interviews that due to its design it made securing bikes to the stands difficult. Due to roll growth additional bike stands are required, however extending the current bike stands in this location would not possible as the area is constrained by the adjacent service and emergency corridor.



Entrance to the administration building



A clear hard and soft landscaping design supports the overall entrance



Stage Two is visible from the street



Bike stands are well utilised

\* (Paragraph captured from ERO 2013)

### 5.2 Site Plan

The appointed architect developed the new Master Plan for the school during the first design phase of Stage One.

As the Principal was not established prior to the design stage commencing it had limited strategic input from the outset. If the Principal was involved earlier in the design of Stage One it would have enabled them to better align their educational vision with the built environment. The project was developed in accordance with the NZGBC Greenstar rating scheme.

The Master Plan was designed to foster a sense of place within the school. The Stage One learning centres were positioned to frame and create a clear outdoor social and learning area in the centre of the learning environment. The Stage Two learning centre is positioned near the front of the school between the car park and the hard-court.

The Master Plan, in general, created legible circulation patterns, with all-weather cover provided to the learning centres (in most instances). These covered ways are multi-functional and are well utilised for outdoor learning, assembly and performance gatherings. The school had invested in a number of shade-sail structures which are both well positioned and functional.

The placement of the multi-purpose hall is well positioned at the front of the school, next to the main entrance and car park, for ease of community access. The hard-court is positioned away from the arrival area, however, it is visible from an adjacent street. The school playground area is situated in the field next to the hard-court and it is well located for all ages to enjoy.

The external circulation routes are clear with canopies provided (in most areas) to protect students. Stage One is connected with external canopies which follow the irregular building placement. It was stated in the interviews that the “canopies do not extent over some of the toilet areas in Stage One and the students are affected by rain at certain times of the year”.

The Master Plan does not appear to have created a separate service entry for the removal of refuse and storage of maintenance equipment. The caretaker’s shed, which was built in Stage One, is positioned in the middle of the school. The evaluation team suggests that the caretaker’s buildings and maintenance equipment should be positioned away from learning centres and main student circulation paths.



Stage One outdoor learning area



Stage One external canopies



The multi-purpose hall is positioned well within the school



Caretaker's shed

5.3 School Grounds

The relationship between the school grounds and buildings is generally positive. The school presents a well designed landscaping scheme which works with the topography of the site to create a sense of place. The hard-landscaping in Stage One utilises a variety of colours and shapes to good effect. Stage Two is more limited in its landscaping design and implementation.

Outdoor spaces have been designed in conjunction with the buildings. Stage One provides an effective outdoor learning area at the centre of learning centres. Stage Two provides small outdoor learning areas or ‘courtyards’ connected to the studios which are fenced and can only be accessed from inside the learning studios. This is appropriate given their proximity to the car park and main road.

The school has invested in a number of shade sails to support its sun-safe directives. These are well positioned, effective and enjoyed by students for a variety of uses. The social spaces and play areas were well defined as a whole.

Of those surveyed, 69% stated that the entrance to the school from the street was ‘very accessible’. 69% stated that the hard-landscaping and canopies around the school were also ‘very accessible’. 85% stated that the vertical circulation around the school were also ‘very accessible’ (see graph Q15 below).

All survey respondents stated that the internal and external finishes were either ‘generally safe’ or ‘very safe’ for all of its occupants (see graph Q16 below).

It was stated during the interviews that the school had experienced surface water ponding issues where Stage Two currently sits. This caused a health hazard for the students when the school first opened. It was stated in the interviews that the Greenstar rating did not allow any fill to be removed from the site, which added considerable complications.



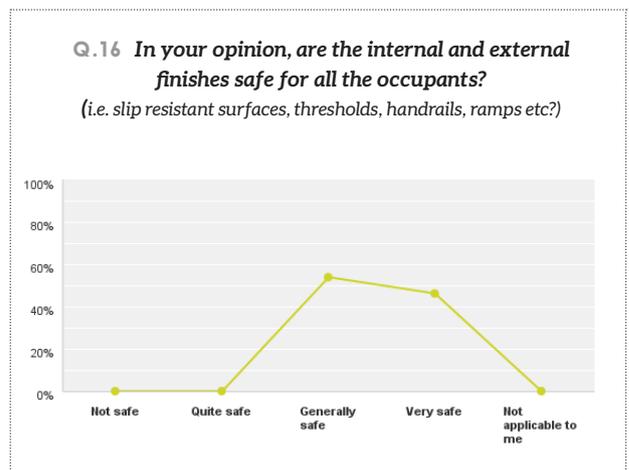
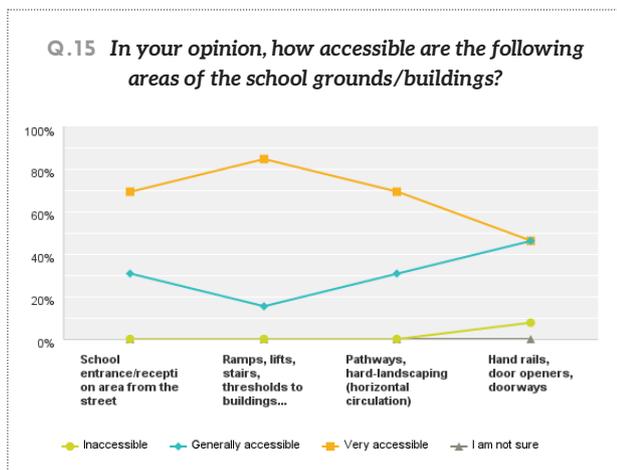
Stage One central outdoor learning area



Stage One hard-landscaping provides a good variety of colour and is well defined



The Stage Two hard-landscaping is basic yet functional



### 5.4 Organisation

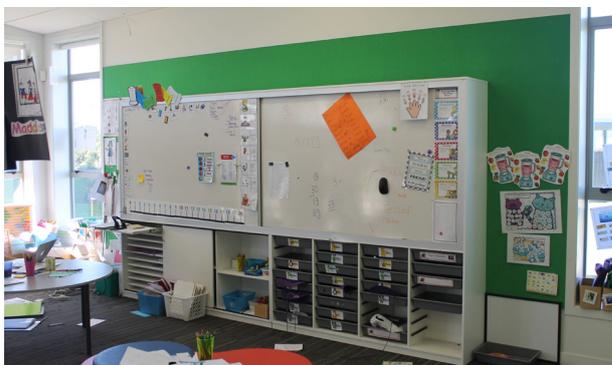
The spatial organisation of the learning environment varies between Stage One and Stage Two. Stage One consists of a series of separate learning centres (buildings). Each learning centre, in most instances, consists of four learning studios and a central multi-purpose space. In this central space there is access to a wet area and two withdrawal rooms. The learning centres (called pods in this project) were positioned in a semi-circle arrangement around a circulation route and outdoor learning area. There are clear links between the indoor and outdoor spaces with good transparency provided.

It was stated in the surveys that the withdrawal spaces were used for teacher work areas and resource storage overflow. Survey responses stated that the “storage space in the studios are limited”, and that “the storage provided is difficult to manage because it is covered by a sliding white-board and projection screen”. During the evaluation, the central space was used to gather all of the students from the four classes for a combined teaching lesson which was seen by the evaluation team as a positive use of the space.

The Stage Two learning centres, which are located under one roof in singular building, are positioned along a lineal axis. Stage Two consists of open studios, specialist teaching spaces, and a good variety of withdrawal spaces distributed throughout the learning environment.



Stage One learning centre



Stage One storage unit in studio



Stage One studio space. Central collaboration space on right-hand side of image



Stage Two learning centre

### 5.4 Organisation (continued)

Of those surveyed, 54% stated that they had ‘good access’ to a variety of quality internal and external learning spaces to facilitate their pedagogy. 31% stated that they only had ‘quite good access’ and 15% stated they had ‘excellent access’ (see graph Q8 below).

#### Library

The library’s central location is easily accessible for students and staff. The building is a unique design in relation to the other buildings on-site. During the interviews it was stated that the library was used to store (Lundia system) the majority of the teaching resource, and due to the school’s roll growth the library was being used for various purposes.

The shape of the library walls and roof are unconventional. During the interviews it was stated that the library and the multi-purpose hall buildings were not easy to adapt. The library’s large expanses of glass and high ceilings make it difficult for the school to maintain, service and install new equipment. It was stated during the interviews they “had to hire a mobile-lift to install new AV equipment”.

Stage One was completed in 2011 and has currently been occupied by the school for 4.5 years. The below list, which was provided by the school, outlines a summary of the lessons learned from Stage One which were to be corrected in Stage Two;

- Toilet numbers too low
- Windy site
- Acoustics – noisy
- Access – 20mm door threshold too high
- Wet areas – good
- Too many sliding doors and expensive to build
- Pin-board space – more preferred
- Cost of heating – under floor heating is expensive to operate
- Presentation zones required
- Bag storage is needed
- Design/construction issues (not to be repeated)

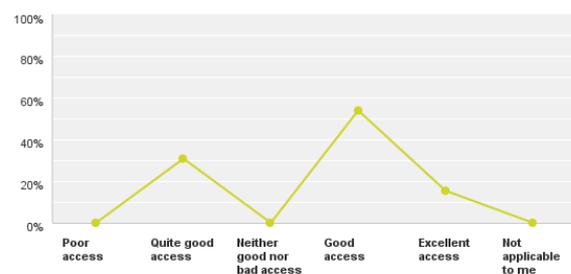


Stand alone library building (part of Stage One)



Library interior

**Q.8 In your opinion, do you feel you have good access to a variety of quality internal and external learning spaces to facilitate your pedagogy?**



5.5 Buildings

Main Learning Centres

Stage One encompasses a variety of buildings including the administration facilities; library, multi-purpose hall and main learning environments which establish the main site of the school. The Stage Two building is more simple and rectilinear in form than the Stage One buildings which do not, in general, have parallel opposing walls or 90° corners.

The Stage One and Two learning centres have been built using concrete and timber frame construction. The base of the external walls are concrete with a plastered exterior finish, and the remaining exterior walls are clad with vertical weatherboards. This strategy provides a robust surface at ground level. The roofs are constructed with lightweight metal cladding. Rainwater from the roof is collected for reuse in a grey water system.

During the interviews it was stated that the school was experiencing building maintenance issues. Staff stated that the internal and external doors required considerable attention to ensure that they functioned properly. In general, the buildings were all in good condition. The evaluation team noted that the steel work which supports the library was exposed to the outside environment. Due to the building’s proximity to the coast, there was evidence of the steel work coating starting to degrade. The library building’s hidden gutters (on the outside of the building envelope) will require regular monitoring by the school. It is recommended that these are replaced with external gutters. The other buildings show no obvious indications that they will require prolonged maintenance, and they should offer a long service life.

The Stage One and Stage Two buildings have extensive canopies which protect and shelter its occupants. However, the Stage One and Two buildings are not linked together by canopies, due to a fire service corridor which is positioned between the learning environments.

Toilet Blocks

The toilets in both Stage One and Two are externally accessed. Of those surveyed, 53% stated that the toilets were either ‘conveniently located’ or ‘very conveniently located’ for students in all weather conditions. 38% stated that the toilets were ‘quite conveniently located’ and 8% stated they were ‘not conveniently located’ (see graph Q12). Survey respondents stated that “some of the Stage One toilet entrances are not protected overhead and students get wet when it rains”.



Cladding material selection of Stage One



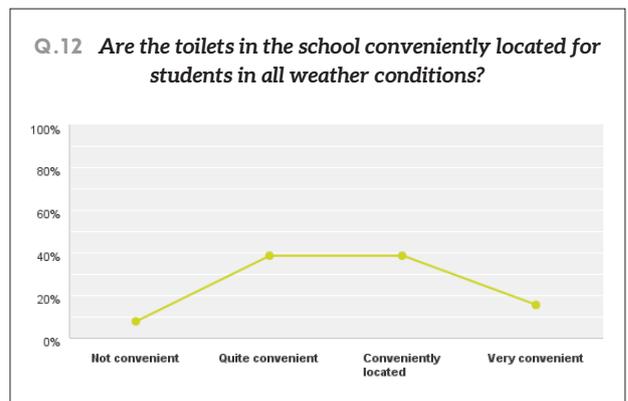
The cladding materials utilised in Stage Two reflects those used in Stage One



Stage Two toilets



Stage One toilets have limited overhead protection



5.5 Buildings (continued)

Storage

Of those surveyed, 38% stated there was 'not sufficient' storage within the learning centres for resources or teaching equipment. 23% stated that there was 'quite sufficient' storage and 31% stated that there was 'sufficient' storage for their teaching equipment and resources (see graph Q32 below). Staff mostly commented on the storage units situated at the front of each learning studio in Stage One. The teaching staff commented that it was difficult for students to access their equipment as they were located in the same unit as the teacher resources. Each unit has sliding white-board panel doors to access resources inside it. The units are designed to be projected onto. The staff stated that these aspects can be challenging to manage at times and that a wider variety of storage options distributed around the studios would be preferred.

The majority of the physical teaching resources are housed in the Lundia system in the library. From discussions with staff during the interviews, it was stated that the school's leadership team had a clear strategy on resource storage and that the current set up was working well for them, however the evaluation team deemed that the storage facilities were undersized to accommodate roll growth.

Internal and External Doors

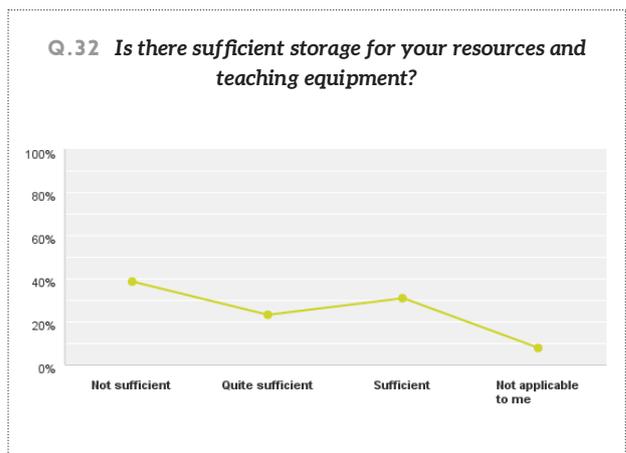
During the interviews it was stated that the interior sliding doors were too heavy for the junior users and that the bottom guides continually required realignment and on-going management by the school. Stage One had a number or external doors that were too heavy for the students to operate safely. Staff stated that the doors which swing 180° are of most concern as the wind can blow them open and it can make the learning environment uncomfortable. Due to these issues, the doors in Stage Two were made smaller and lighter. However, during the interviews it was stated that these doors were "too lightweight" for their purpose and that they "derailed" frequently. It was evident during the evaluation that the school had made attempts to improve the performance of the internal sliding doors by installing additional guides, however, this will be an ongoing maintenance issue for the school. Consideration should be given to this by future design teams.



Stand alone library building



Limited storage options in the Stage One studio space as stated by staff



5.6 Interiors

Learning Environment

Of those surveyed, 92% stated that they were either ‘quite satisfied’ or ‘very satisfied’ with the overall quality of their learning environment. 61% stated that they were either ‘satisfied’ or ‘very satisfied’ with the internal layout of their learning environment. 39% stated that were either ‘quite satisfied’ or ‘neutral’ in their perception, with 8% ‘not satisfied’ with the layout of their learning environment. Staff commented that the Stage One studios were perceived by staff as “individual classrooms” and the two small withdrawal spaces were insufficient for four studios to share (see graph Q7 below).

84% were either ‘quite satisfied’ or ‘very satisfied’ with overall quality of the library space. 8% were ‘quite dissatisfied’ with the technology spaces, the withdrawal spaces and the sports facilities. Respondents commented that the teachers do not have a dedicated space to complete their professional work within the learning environments.

Sports Facilities

During the on-site evaluation, it was evident that there was a lack of storage in the multi-purpose hall for equipment, as the toilets were used for storage overflow. It was commented in the survey that “there is insufficient storage for sports equipment in the multi-purpose hall”.

During the interviews it was stated that “the multi-purpose hall is no longer large enough to support the growth in students numbers”. The stated that they had school sought design advice on ways to extend the building however, they were told that the hall building could not be cost-effectively extended due to its unconventional shape, and that the area surrounding the building was restrictive. The evaluation team recommends that the growth of primary school facilities are better planned for in the design phase, especially with new and staged schools such as this one.

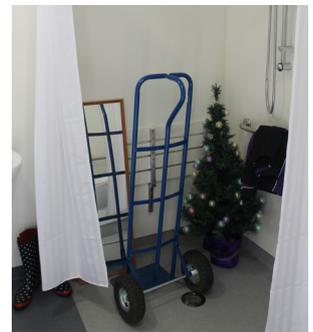
The evaluation team noted that the materials used on the hall’s ceiling were not as robust as they could be, and unprotected services hung from the ceiling. This will require on-going maintenance from the school. The evaluation team recommends a more robust specification of materials and protection for the ceiling fittings in these types of situations.



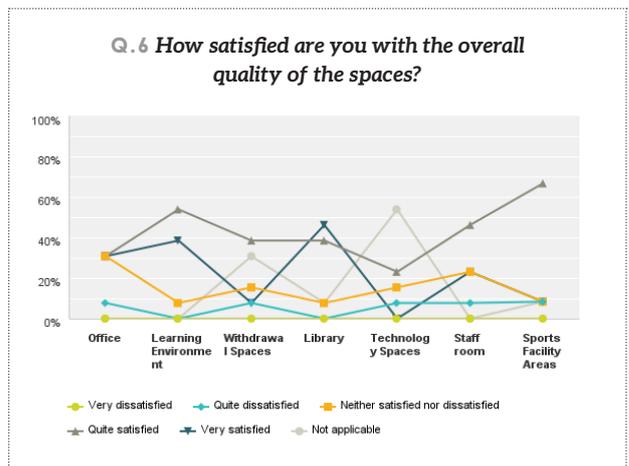
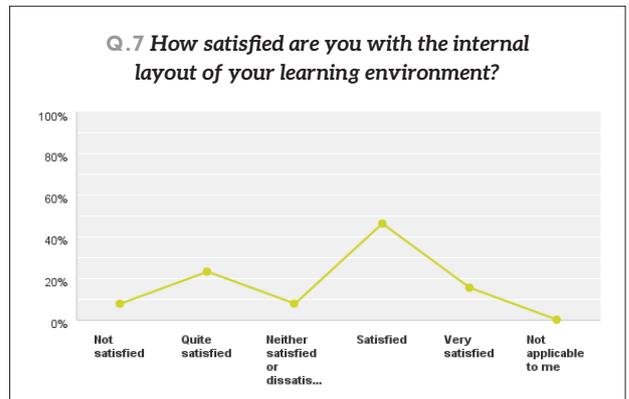
Stage One studio space



Multi-purpose hall ceiling



Multi-purpose toilets used for storage



5.6 Interiors (continued)

Ventilation

Both Stage One and Stage Two buildings employ a natural ventilation strategy with the assistance of electric ceiling fans. This is in-line with the Greenstar principles.

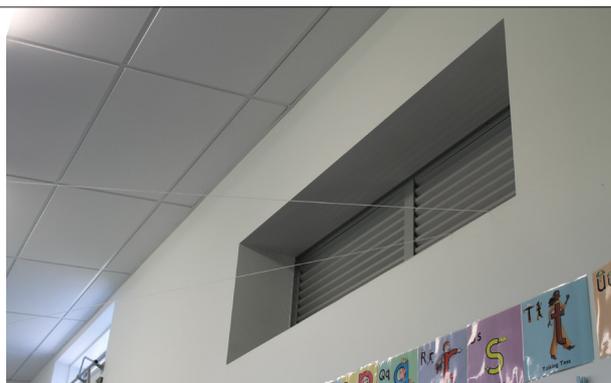
The Stage One learning centre has a wider footprint than Stage Two and is designed as a cluster of rooms. There are two or more rooms positioned next to each other, which will minimise the effectiveness of cross-ventilation strategies. To assist with airflow between the rooms, air grills between the collaboration space and the studio spaces were positioned at a high level. 46% of those surveyed stated that the air in the learning environment during winter was either 'quite stale' or 'very stale' (see graph Q18).

The building of the Stage Two learning environment is narrower, with external doors and windows on both sides of the space, which is a more effective cross-ventilation strategy.

46% of those surveyed stated that the air quality for the students learning in their learning area was 'sufficient'. 46% stated that it was 'quite sufficient' and 8% stated that it was 'not sufficient'. Staff stated that "the learning environments are stuffy in the winter". In addition, it was stated that the spaces are also "stuffy in summer" (see graph Q17).

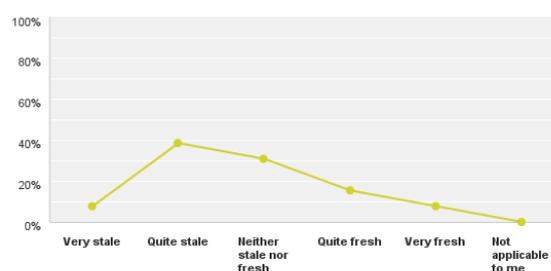
During the interviews it was stated that due to the coastal location of the school it was subjected to considerable wind in summer which, at times, meant that windows could not be used for cooling as the wind was disruptive to the learning environment. As this is a unique site-specific observation, further investigation is required in order to provide technical feedback and recommendations. No mechanical documentation was available, therefore observation was used to understand how ventilation was provided.

The windows are manually opened and closed, assisted by an electric window winder system. Of those surveyed, 46% stated that they had 'good control' of the ventilation in their spaces throughout the seasons (see graph Q19).

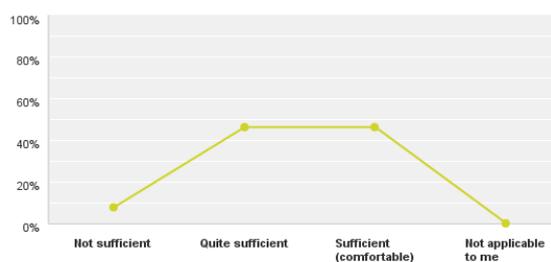


Stage One air grills between spaces

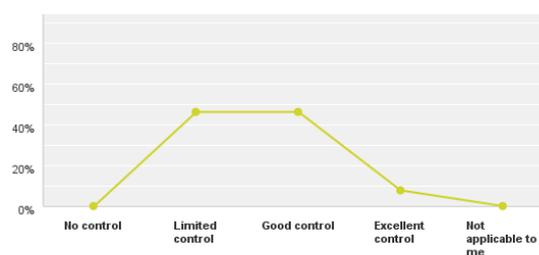
**Q.18 In your opinion, does the air inside the building smell fresh or stale from time to time?**  
(i.e. at the end of the day or during winter time)



**Q.17 In your opinion, how sufficient is the air quality in your learning environment?**



**Q.19 What level of control do you have over the ventilation in your space?**



5.6 Interiors (continued)

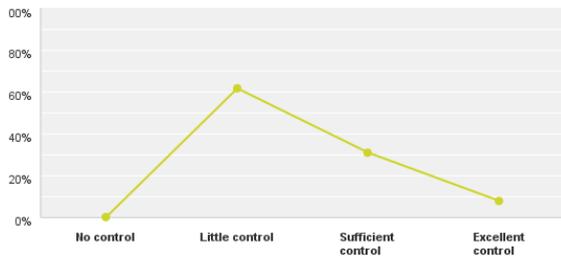
Internal Temperature / Heating

The internal heating is controlled by an under-floor hydronic system which is heated by electric heat-pumps. The split units are externally located at ground level in both Stage One and Two. As the heating system is controlled by the caretaker, 61% stated that they had 'little control' of the heating in their space (see graph Q23 below). However, 91% of those surveyed stated that the internal temperature of the learning areas were 'generally sufficient' or 'quite sufficient' (see graph Q20 below). It was stated during the interviews that the internal temperature during winter was generally well heated which was confirmed in the surveys with 78% stating that their learning environment was 'comfortable' (see graph Q21 below).

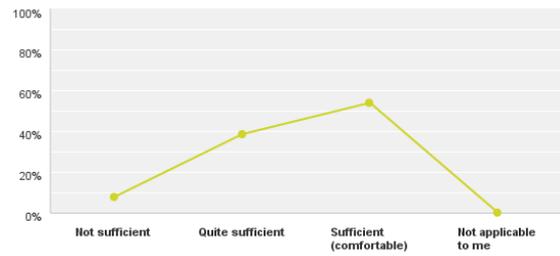
Internal Temperature / Cooling

63% of those surveyed stated that the learning environments in summer are either 'quite warm' or 'too warm' (see graph Q22 below). Staff stated that "the Stage One building gets too hot in summer" and "the ceiling fans do not provide sufficient cooling". When using a natural ventilation strategy for cooling, in comparison to mechanical systems, it will generally result in wider internal temperature deltas. The OPEX and CAPEX benefits for natural ventilation over mechanical is evident. However the in-use practicalities of these systems need further in-use investigation before the evaluation team can provide any recommendations or guidelines. There are also geographical and building design influences which can effect each strategy.

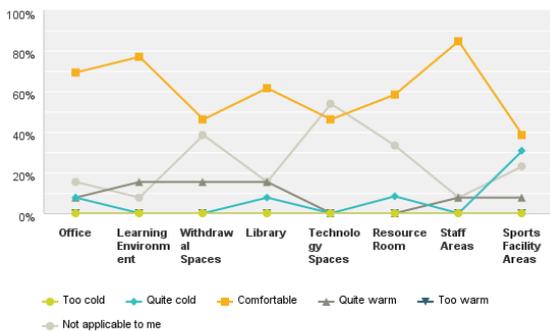
Q.23 What level of control do you have over the heating and cooling of your space?



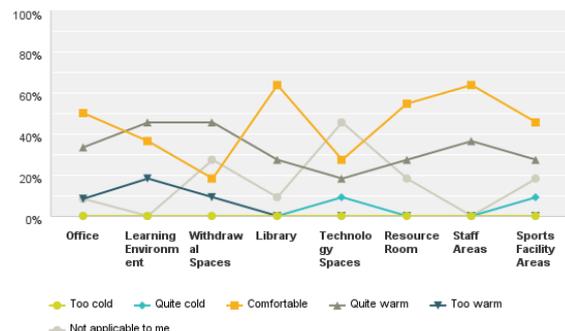
Q.20 In your opinion, generally is the internal temperature of the learning areas sufficient to support the students learning?



Q.21 In your opinion, generally is the internal temperature of your part of the building in winter too warm or too cold?



Q.22 In your opinion, generally is the internal temperature of your part of the building in summer too warm or too cold?



### 5.6 Interiors (continued)

#### Acoustic Environment

The acoustics of both stages were controlled with a mixture of suspended ceiling tiles, pin-board panels on internal walls (Autex or similar), and carpet tiles. Transparent internal glass sliding doors in the Stage One learning environment can be closed off from the learning studios or withdrawal spaces when required. The Stage Two learning environment has a more “open” studio area and more withdrawal spaces than Stage One.

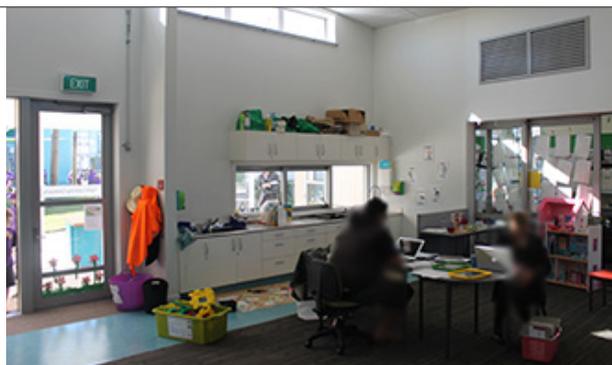
The Stage One central collaboration space was identified during the interviews as “being noisy”. Survey responses from staff also stated that “the acoustics in the Stage One central collaboration space were inadequate”. The evaluation team noted that the space had high ceilings (higher than 3 metres) and glass surfaces on three sides which limited the amount of acoustic wall panels. It was also evident during the evaluation that the doors were too heavy to move for the students with tracks experiencing wear and tear. Further investigation of this space is recommended.

When staff were asked if they, or the students, were interrupted by any noises coming from outside the building, 42% stated that lawnmowing noise was an issue. 33% stated that they were interrupted by noise coming from other learning spaces (see graph Q26 over page).

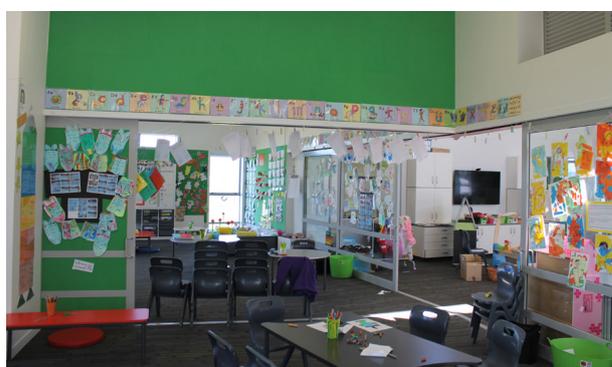
When staff were asked if they experienced any other sources or intrusive and/or distracting noises from within their space, 83% stated that they could not think of any, with only 8% stating ‘ventilation’ and 8% stating noise from ‘equipment’ (see graph Q27 over page).

The Stage One administration area was identified during the interviews as having “poor acoustics”. The evaluation team noted that the walls and ceilings were generally plasterboard which do not assist with reducing reverberation. The school had installed acoustic ceiling panels to improve the sound quality in the area. Further investigation of this space is recommended.

The Stage Two studios are more informal in their layout, arranged along a lineal axis with withdrawal spaces distributed along the length. The evaluation team noted that there were limited pin-board wall panels in Stage Two. Both stages were evaluated on a typical day with the learning environments at approximately 80-90% of capacity.



Stage One central collaboration space



Stage One studio doors



Acoustic panels fixed to the ceiling in the reception area



The design of the Stage Two studio is more open

5.6 Interiors (continued)

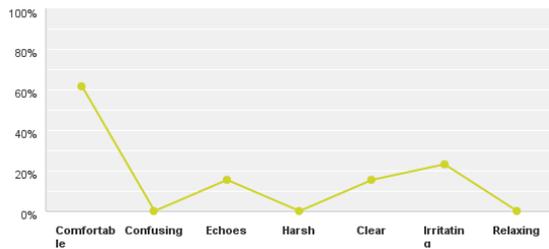
Acoustic Environment (continued)

Of those surveyed, 62% described the acoustic environment in the learning environments as 'comfortable'. 23% described the spaces as 'irritating'. Staff commented that "teachers and/or student groups can easily disrupt other groups when more than one class is using the main studio space at once" (see graph Q24 below). When staff were asked to rate the acoustic environment of their classroom, 62% stated that it was 'acceptable' and 31% stated that it was 'good' or 'very good' (see graph Q25 below).

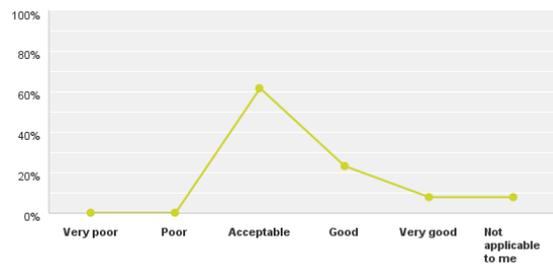


Stage One studio space with the doors open to the collaboration space

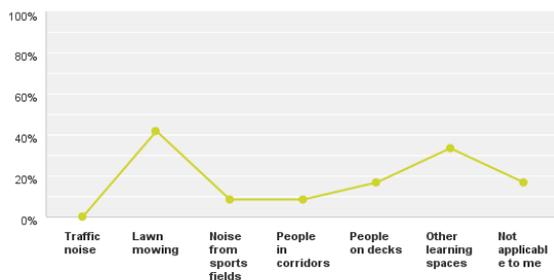
**Q.24 Which words best describe the acoustic environment of your space? (Select all that apply)**



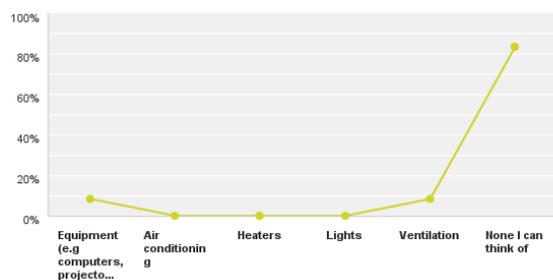
**Q.25 In your opinion, how do you rate your classroom acoustic environment?**



**Q.26 Are you or your students disrupted or distracted by any of the following noises during class time? (Select all that apply)**



**Q.27 Are there any other sources of intrusive/distracting noises which come from within your space? (Select all that apply)**



5.6 Interiors (continued)

Artificial Lighting

Surface-mounted ceiling lights provided artificial lighting in the learning environments which appeared to be well distributed and effective at the time of our evaluation. Of those surveyed, 77% stated that the artificial lighting levels were ‘sufficient’ or ‘quite sufficient’ to perform their professional role (see graph Q29 below).

Natural Daylighting

The Stage One buildings, in general, have standard eave overhangs. As the Master Plan has positioned the new learning centres in a ‘semi-circle’, each learning centre faces a different way in relation to north, therefore, users experience different natural light levels in the studios and withdrawal spaces. The evaluation team observed that some of the north and west facing studios had insufficient solar protection. The school had installed internal blinds in some spaces to help prevent over-heating. It is recommended that external shading devices are installed to help manage the most affected areas.

Daylighting is well controlled in Stage Two with a wide 3-4m eave on the north and northwest facing facades. The south and southeast sides of the building feature areas of full height glazing in the studios which provide, what appears to be, good quality natural light.

54% of those surveyed stated that the buildings either ‘effectively’ or ‘very effectively’ controlled the natural light. 38% stated that the buildings were only ‘quite effectively’ controlling the natural light, with 8% stating that they were ‘not effective’. Survey commentary stated that “the multi-purpose hall was difficult to use projection equipment in” due to “the high level windows and the general amount of glazing causing bright light to reflect on the projection screen” (see graph Q30 below).



Artificial lighting in both Stage One and Two appeared to be effective

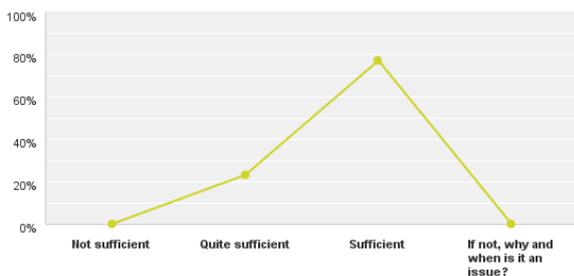


Stage One west facing windows have had internal blinds installed



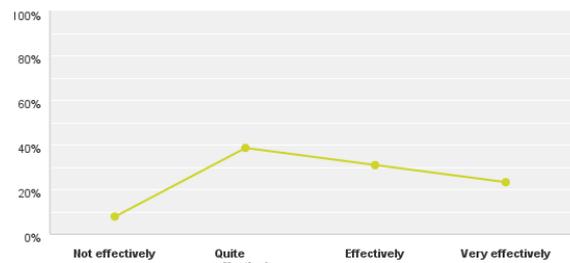
Stage Two glazing is well protected from solar heat-gain

**Q.29** In your opinion, is there sufficient artificial lighting in your part of the building to perform your role?



**Q.30** In your opinion, does the building effectively control the natural light throughout the day?

(Via eaves/blinds/curtains/shades)



5.6 Interiors (continued)

ICT

Stage One and Stage Two both provide sufficient power, data, and AV outlets, and are in-line with the MoE design compliance framework. 62% of those surveyed stated that the ICT is effectively positioned for teaching and learning. The school has SNUP technology and appears to be utilising its investment in devices and digital resources well. Stage Two has a room in the centre of the learning environment which is well equipped with AV and TV technology.

During the interviews staff stated that the project team had planned for and had installed a satellite dish, however, due to its complex system (of which was not understood by the school), is not being fully utilised. The equipment was a significant investment for the school and it now appears that this technology may be obsolete. While advancements in ICT are important, further research could have been undertaken in this case. Further investigation is recommended to understand this situation in detail before recommendations can be made.

During the interviews staff stated that the ICT strategy for the school was not effectively translated to them during the design stages. Due to the specialised knowledge involved with the ICT it was difficult for staff to understand what technology they were going to get and how to manage it on a day-to-day basis. Consultants are generally not engaged post-construction to provide hand-over or aftercare services. These areas were managed by the school, however, it was stated that they felt it was outside of their capabilities.

To help future schools understand and benefit from their new equipment, it is recommended a robust hand-over strategy is implemented.

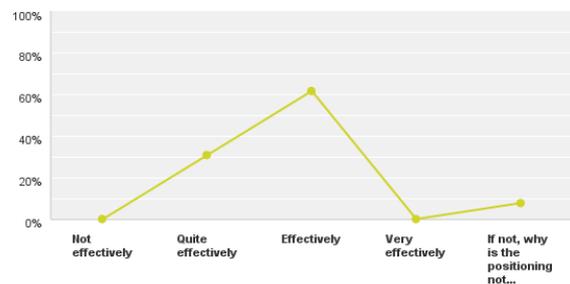


Satellite installed at the school



The school has invested in devices and appear to be well utilised

**Q.31** In your opinion, are the available power and data outlets, technology and audio visual devices positioned effectively for teaching and learning?



### 5.7 Energy and Services Strategies

The school adopted the Greenstar rating scheme. Stage One gained a 5 star rating. Stage Two, at the time of this evaluation, was still awaiting on its official accreditation. During the interviews the leadership team of the school stated that the Greenstar rating scheme was not effectively communicated to them. The school stated that the Greenstar rating scheme has had a restrictive impact on their future strategic decision making. This has been highlighted by the need for additional building developments due to the school's rapid growth.

One issue of note was that the school was not able to (due to Greenstar criteria) take any ground 'fill' off-site, which was stated as being very problematic during the design and building phases.

It is important to note that one of the core objectives of this evaluation is to understand and define potential "lessons learned". Therefore, the evaluation team recommends that further research of the Greenstar rating scheme (in this context) should be carried out to ensure that schools receive a better understanding of the design and build criteria along with the long term maintenance and day-to-day management required.

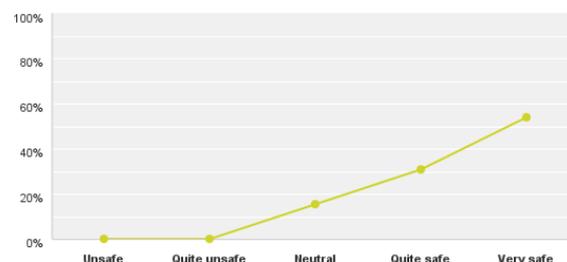
Due to the parameters of the POE process, the evaluation team has not reviewed the Greenstar rating scheme. Any comments stated above are those of the school.

### 5.8 Feeling Safe

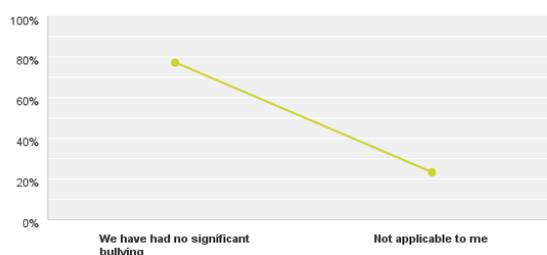
The school offers well designed circulation pathways which are open, wide and enable passive-surveillance. The school's boundaries consist of residential properties, a public reserve, and roads which are generally well fenced. The road boundaries are defined with low level fences and planting. During the interviews it was stated that the school was intentionally designed to be an "open facility" for the community. It was stated that the school has a great relationship with the community and no vandalism of note had occurred. 85% of those surveyed stated that they felt 'quite safe' or 'very safe' on the school grounds. No one stated they felt 'unsafe'. It was stated during the interviews that Golden Sands Road will soon connect with a new motorway that is currently being constructed which will result in a considerable increase in vehicle traffic passing the school. The evaluation team recommends that further investigation is undertaken to understand the impact this will have on the safety of the pick-up and drop-off areas of the school.

The internal environments are open; transparent, and well organised for teachers to easily oversee most spaces. No significant instances of bullying were noted by those surveyed.

**Q.9 How safe do you feel in the building, or school grounds?**



**Q.10 Have you noticed instances of bullying in the school?**



### 5.9 Long Life, Loose Fit

The school has been operating in Stage One for approximately four and a half years, and Stage Two for one and a half years at the time of this evaluation. The learning studios have adaptable furniture and are modified by the users to suit their needs.

The steady growth of the school has exposed a number of buildings which were not able to be cost-effectively extended or re-purposed. The positioning of the multi-purpose hall limits any chance of expanding it cost-effectively. Although the students enjoy the library building, its non-conventional shape will make it challenging to adapt for future uses. The Stage One learning environment will be challenging to extend or re-configure internally, due to the structural strategy and the irregular forms of the centres (pods). The administration building was stated as being “at capacity”, and the school was working through options to resolve this as the building was not easily adaptable.

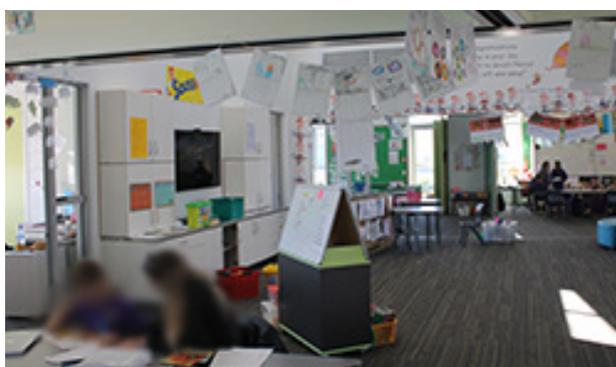
A simpler building form has been applied to the Stage Two learning environment. The spaces are open and airy. The structure of Stage Two spans the width of the building, which effectively limits the amount of bracing or load bearing on internal walls, and allows the internal spaces of the building to be adapted (should the need occur). The ceilings of both Stage One and Two are generous in height and this is seen as a positive attribute. The Stage Two learning environments appear to be flexible in their use, and appear cost-effective to adapt.

The Master Plan does not appear to have allowed for significant roll growth as the hard-court and the two fields border the current learning environments which restrict additional building development. The school is currently in the early phases of planning the Stage Three learning centre, however, no documentation was available at the time of writing this report.

Construction documents for Stage Two were unavailable to verify our team’s observations therefore professional assumptions have been made.



Stage One learning centre (pod)



Stage One learning centre (pod)



Stage One library building



The structural approach of Stage Two ensures it can be easily adapted

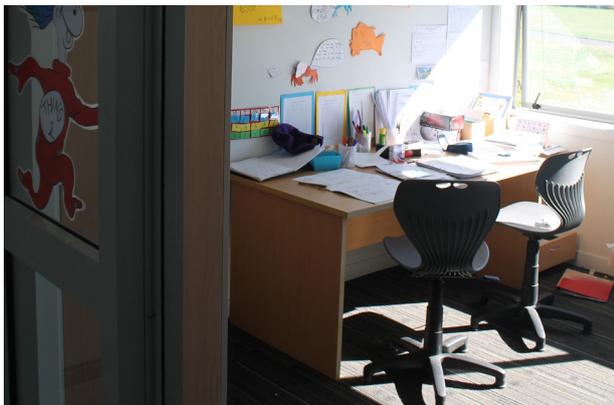
### 5.10 Successful Whole

The school facilities were pleasant, well maintained and working well as a whole. The school is managing well with the growth in student numbers. The design of Stage Two is a good example of an adaptable MLE. Stage One has created more challenges for the school as the roll has grown. During the interviews it was stated that “the students enjoyed the unique design of the library building, and the Stage Two MLE is a space they enjoyed being in”.

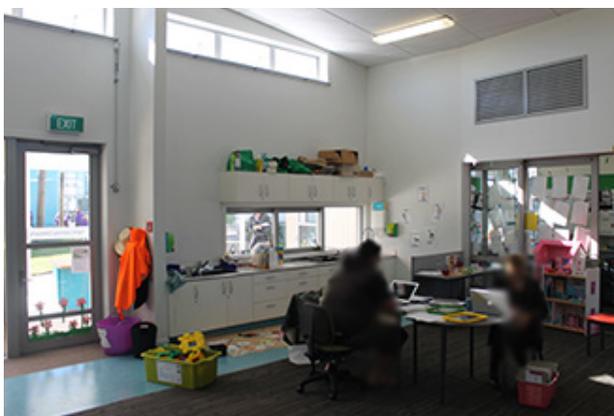
The evaluation team asked those surveyed if they had any final comments.

The most common responses were;

1. The “learning centres have limited teacher office space”
2. The “learning centres do not have enough display space”
3. The “gym and sports fields are small and difficult to use”



Stage One withdrawal space is used for teacher resource



There are limited amounts of pin-board for display in the learning centres

The evaluation team asked those surveyed what parts of the school they were most pleased with and what was most useful to them or the students.

The top five responses were;

1. The “indoor/outdoor access for teaching and learning”
2. The “shared space to accommodate a variety of group activities”
3. The “well-distributed built-in seating” within the school grounds which “the students enjoy”
4. The Stage Two “break out rooms which are well sound-proofed from the studios”
5. The “opportunity to close off or open up teaching spaces” depending on the needs of the teachers and students.



The withdrawal spaces in Stage Two



Well designed landscaped areas

