



Reference Design for School Buildings

Universal School Bathrooms

(Formerly known as High Dependency Unit (HDU) bathrooms)

Version 1.0, July 2017

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1. Introduction

A Universal School Bathroom, formerly known as a High Dependency Unit (HDU) bathroom, is designed for use by students with a diverse range of physical and sensory needs. Users may be independent or require others to support them.

A Universal School Bathroom (universal bathroom) provides a change table, toilet and accessible shower in a space that allows support and the ability to use mobility equipment. Designers, project managers and Ministry of Education (Ministry) staff are the key audience for this document.

The requirements in this reference design are applicable to all schools, including special schools and satellite units. This document sets the minimum requirements for a universal bathroom; adherence with the specified requirements is required.

It is important to consult with the Ministry's local Learning Support (Special Education) team to understand whether a universal bathroom is required, and if so, what the individual universal bathroom requirements are. Where there are factors that may influence the final bathroom dimensions or fixture configuration, these must be agreed by the local Learning Support team.

Questions and feedback about this document or other Ministry design guidelines can be directed to Property.Help@education.govt.nz. Your feedback will help us maintain these guidance documents as valuable resources for all of those involved in designing our schools as effective learning environments.

1.1 Inclusive Design

The principle of inclusivity is an educational priority in New Zealand and is achieved where all children and young people can be present, participating, and learning in their local schools.

Inclusive education is founded in the *Education Act* 1989, and further addressed in the *Education Amendment Act* 2013. They state: "people who have special education needs (whether because of disability or otherwise) have the same rights to enrol and receive education at state schools as people who do not". This means that schools are to have facilities that enable people, who may display a diverse range of physical, sensory and learning needs, to enrol and receive an education.

New Zealand schools also have binding obligations under the New Zealand Disability Strategy and United Nations Convention on the Rights of Persons with Disabilities to provide an inclusive education system at all levels, and to ensure that students are not excluded on the basis of having learning support needs. This obligation is backed up by the *New Zealand Curriculum, Te Whāriki* (the early childhood education curriculum) and *Te Marautanga o Aotearoa* (the curriculum for Māori-medium settings).

For more information about when a universal bathroom is required, please discuss with your local Ministry property advisor or Learning Support, if not already included within a specific project/education brief.

1.2 Design objectives and principles

When designing spaces for learners with learning support needs, designers are to be mindful at all times of the intended users of the space. The overall design objective is to provide:

- equitable access to education
- spaces that are inclusive
- the opportunity for full participation in everyday activities in the school community notwithstanding their personal needs.

1.3 Additional requirements

Universal bathrooms must comply with all relevant legislation and Ministry standards and guidelines including, but not limited to:

- *Designing Schools in New Zealand - Requirements and Guidelines*
- *Designing Quality Learning Spaces* suite of guidelines.

A universal bathroom does not specifically meet NZS 4121:2001 Design for access and mobility (NZS 4121) requirements due to the toilet centreline being greater than 450mm from the wall. The type of toilet grabrail specified also varies from a standard 90 degree bend grabrail. All components should comply with NZS 4121 standards unless stated otherwise. Planners must ensure schools comply with territorial authority and NZS 4121 requirements through adequate provision of accessible facilities.

1.4 Furniture and equipment funding

This reference design includes recommendations for items that may require additional furniture and equipment funding not included within capital building costs. For more information please discuss with the Ministry's local Learning Support team to ensure funding and resource matters are considered and understood.

2. Requirements

2.1 General

The fundamental design principles for universal bathrooms are:

- to have sufficient bathrooms to meet the demands of students requiring access. Consider whether this bathroom will be exclusive or accessible by other school users. The bathrooms should remain freely accessible for when their intended users require them
- privacy for students is maintained at all times
- the area allocated provides sufficient circulation space for students, and those assisting them, to manoeuvre their mobility equipment and for the safe use of bathroom facilities
- design structural support in selected areas to allow the use of suspended equipment, either now or in the future
- ensure that the height of fittings and spatial configuration can accommodate mobility devices and users
- ensure that fixtures and fittings are selected to accommodate people who have muscle weakness
- ensure that spatial and environmental factors such as visual or acoustic details, that may affect a student's comfort or confidence, are taken account of.

2.2 Location

Consider locating universal bathrooms adjacent to relevant learning areas where the student(s) will spend the majority of their time throughout their schooling.

The universal bathroom locations are to be:

- discreet and convenient for its intended users
- easily accessible by the students when they are based in different teaching spaces throughout the school, and as they progress through their years at the school
- the entry to the universal bathroom is to be given careful consideration to ensure that visual privacy is maintained for students so that they are not exposed when the door is opened. A retractable curtain may be strategically placed to achieve this
- where required, adjacent to laundry, storage and sluice sinks or medical macerator facilities.

2.3 Bathroom dimensions

The floor area dimensions are to be a minimum 3.1m x 4.0m.

For new buildings or major projects, the internal floor to ceiling height is to be 2.7m to 3.0m to allow for track hoists.

For a retrofit, the minimum ceiling height is 2.4m providing hoist provisions for students can be met. The underside of a hoist track must be a minimum of 2.2m from floor level. Please discuss with your school property advisor and Learning Support team.

These dimensions do not allow for 'in-bathroom' storage of items other than for a change table, commode, mobile hoist and cabinet for student bathroom supplies. *Appendix 1* provides a floor plan

showing the recommended relationship between the various items in the bathroom. Any design should allow for:

- sufficient area to accommodate the required fixtures and fittings
- a clear floor area within the bathroom of 1.8m diameter to provide sufficient clear space for manoeuvring wheelchairs and other mobility equipment
- space each side of the toilet pan and between pan and basin for equipment and two staff to assist with manual handling and transfers
- sufficient storage to accommodate mobility equipment, like portable hoists and commode chairs, subject to the needs of the students and school.

2.4 Internal surfaces

All internal surfaces are to be robust and easy to maintain. Surfaces are to have high levels of impact resistance to withstand impact from student activity and equipment.

Surface finishes may also be influenced by factors such as acoustics, fire design criteria. Table 1.0 below outlines the internal surfaces recommended for universal bathrooms.

Table 1.0 Internal surface finishes for Universal School Bathrooms

Internal surface	Specification
Floor	<ul style="list-style-type: none"> • watertight with a coved upstand that is 150mm high, minimum • flooring material is to be homogenous with slip resistance qualities through the full wear layer (2mm minimum). Raised studs or non-slip coatings are not suitable • 1:50 in shower; 1:100 falls elsewhere. <p>Where the bathroom may be accessed from the outside, consider the floor's durability requirements.</p>
Walls	<ul style="list-style-type: none"> • waterproof thermo-welded wall vinyl • overlapping wall to floor junction or install to manufacturer's specification, where available. <p>Substrate wall linings must be a minimum of 9mm fibre cement sheet, for stability and impact resistance purposes.</p>
Ceiling	Acoustic ceiling tiles with a minimum NRC 0.85, suitable for bathroom.
Colours	<p>The visual environment should consider people with vision impairment, consider:</p> <ul style="list-style-type: none"> • high contrast colours for doors, architraves, handles, benches etc • minimising glare where required, use tactile indicators.

2.5 Ventilation

Bathrooms are to be mechanically ventilated with extraction fan above or near the shower location, diagonally opposite the fresh air source. If there are no permanent fresh air vents, the door requires a 25mm undercut clearance for airflow.

The Ministry's recommendation is for continuous ventilation to run throughout occupied school hours, unless deemed unsuitable for a school.

2.5.1 Ventilation requirements

The ventilation system should be speed controllable and set for:

- A minimum of ten air changes per hour for intermittent systems
- flow rates compliant with the Building Code for continuous systems.

If the fan is intermittent, consider how it will meet Building Code ventilation requirements and the acoustic needs outlined below. An intermittent fan system should be:

- automated and not rely on users to turn ventilation on; and
- independent. Not connected to lighting sensors.

A timer can be either:

- connected to a sensor set for a minimum 30 minutes run-on time; or
- time set for school opening hours with local override capability to increase.

2.5.2 Acoustic considerations

To allow the fan to be turned off for sound sensitive users, fit an additional sensor control switch with:

- manual fan 'off' function
- automated fan 'on' function once the bathroom is vacant. The system cannot rely on users to manually turn ventilation on.

For user needs, all ventilation components should be selected to minimise acoustic impact. Ventilation system design should aim to output no more noise than 30dB, when operating at the required air change settings.

The fan motor is to be practicably kept away from being directly above the ceiling of the bathroom and any adjacent learning spaces. The fan mounting method should ensure minimal vibration and ambient noise.

2.6 Thermal comfort

Students who have less control over their mobility are more sensitive to temperature variations. It is important that heating in the bathroom is separately controlled so that the bathroom is warm for immediate use.

Heating should be capable of maintaining bathroom temperature at 22°C. It is recommended radiant heat ceiling panels be used, otherwise the heating specification must not impact the hoist or other equipment operation.

Ventilation and thermal comfort design must both comply with the Ministry's *DQLS - Indoor Air Quality and Thermal Comfort guidelines*.

2.7 Lighting

Lighting is to be recessed LED fittings, controlled by occupancy sensors in accordance with the Ministry's electrical and lighting guidelines.

2.8 Electrical

Provide sufficient electrical services for current and future items such as change tables, hoist systems and chargers, docking stations and bidets. Power point placement should allow for any plugged in cable to be out of the way and safe.

All socket outlets and permanent connection outlets are to be compliant with Ministry guidelines and Building Code and be suitable for users. All hard wired and hard to reach outlets are to have labelled isolation switches.

3. Bathroom Fixtures and Fittings

3.1 Fittings

Fittings are to be selected to *NZS 4121* standards for ease of use by students with limited dexterity and muscle weakness.

They are to be conveniently located to encourage independent use by students.

Fittings should not interfere with hoist function, access or other specific requirements of the bathroom.

3.2 Fixings

All bathroom fixings are to be stainless steel. Wall or ceiling mounted fittings are to be fixed into solid timber as a minimum. No wall anchors or toggles.

For all fixtures with potential to load-bear the full body weight of a user (seats, change tables, hoists, dropdown toilet rails etc), solid fixing is to be, at a minimum, in accordance with the manufacturer's specification.

3.3 Door requirements

Sliding cavity doors are generally easiest for wheelchair users to operate and should be used where feasible. Set out below are the requirements for the two door options.

Cavity sliding doors:

- 900mm clear opening minimum
- kick plates are to be 300mm high to both sides.

Hinged doors:

- outward opening, 910mm leaf width
- double top hinge for durability, use 'rising-butt' hinges where door closers are not suitable
- kick plates are to be 900mm high to the inside face, 300mm high to the outside face.

3.4 Call button

Call buttons or telephones are to be conveniently located close to:

- the change table and shower at a height of 1.2m above the floor
- the toilet at a height of 1.0m above the floor.

Call buttons are to activate alarm sounders in the learning and administration areas.

3.5 Storage

Storage within the bathroom should cater for the requirements of individual users. Storage requirements are:

- towel and clothes hooks suitably placed
- a lockable cabinet for student sanitary and medical supplies. Storage should not impact hoist or other bathroom requirements
- Storage is to be accessible with any lock and handle no higher than 1.3m above the floor.

In most cases the universal bathroom will require additional storage. Discuss and provide additional storage adjacent to, or within, the universal bathroom. Consider the following items:

- extra nappies, wipes, gloves, disposal bags and towels
- hoist slings (each student will generally have their own sling)
- any other equipment needed.

3.6 Track hoist

3.6.1 General

Liaise with the local Learning Support team to determine whether a track hoist is to be installed as part of the building contract.

The installation of suspended equipment is not a mandatory requirement of the initial build. The Ministry of Health supplies some eligible people with personal mobile hoist units, so track hoists are not always required. However, the bathroom must be designed to support a track hoist that has full room coverage (not a single direction track).

When a track hoist is not included in the initial project, provide the Ministry and the school with an illustration clearly recording what wall framing and electrical provisions have been made for a potential future installation, and clearly identify the track hoist type that supporting infrastructure has anticipated.

3.6.2 Structural, area, and weight requirements

Where a track hoist is specified, designers should follow the structural requirements of the track hoist type.

Where a track hoist is not being installed in the initial build, follow the requirements set out in this document and the appended drawing. Factors to consider include:

- the minimum underside clearance of hoist track is 2.2m from the floor
- structural ceiling fixing requirements, depending on room dimension and potential track hoist type
- within a special school, structural support should be placed to allow for a hoist system that travels beyond the bathroom
- if the track system is likely to go through the door, then the track rails on both sides of the bathroom need to abut end-to-end
- ensure that any doors through which the hoist track must pass are suitably specified
- clearances required for hoist operation
- power supply, handheld controls and battery charging requirements (*see section 2.10.3*).

Hoists are to have a minimum lifting capacity of 200kg.

If the future hoist system is unknown, provide structural fixings to either side of each corner. Allow for various hoist fixing requirements and configurations.

3.6.3 Electrical requirements

Provide electrical supply with an isolating switch in a location to suit selected hoist unit.

Some hoists require their battery to be charged by 'docking' the handheld control unit in a wall receptacle. The wall receptacle should be mounted at approx 1.5m above the floor in a suitable location. This is to be discussed with Learning Support.

3.7 Toilet

The toilet is to be of *NZS 4121 standard*, with:

- a floor mounted, back-to-wall pan
- a close coupled, dual flush cistern with raised height buttons
- a soft closing seat
- dropdown grabrails with integrated toilet roll holders.

3.8 Bidet

If a bidet seat is not fitted initially, provision for one must be allowed, including:

- an RCD protected permanent connection electrical outlet provided adjacent to the pan, with isolation switch
- a separate water feed for the bidet seat is required if the specified toilet's cistern tap is concealed behind the pan.

3.9 Shower

The shower is to be set out as per the diagrams in *Appendix 1*. Other considerations are:

- the fall in the shower floor is to extend 100mm beyond the curtain to capture dripping water
- it is recommended the shower mixer is outside of the splash zone. Mixer to remain at 1.0m above floor
- the shower curtain system must not impede any hoist type, and have a weighted hem
- provide a height adjustable hinged shower seat.

3.10 Basin

A basin is to include:

- a wall-mounted vitreous china basin with a single tap-hole, supplied without plug
- a lever tap easily operated by wrist, supplying premixed warm water
- a durable prefinished backing to the basin as per the diagrams in *Appendix 1*.

For primary schools, basin selection should aim for lowest basin height possible whilst keeping to 675mm underside clearance to meet *NZS 4121* access standards. If there is a requirement to have a lower basin, please refer to *AS 1428.3 Design for access and mobility - requirements for children and adolescents with physical disabilities* or your local Learning Support team for guidance.

The clearance between the basin and the toilet pan is to be a minimum of 800mm.

3.11 Sluice sink / Medical macerator

A sluice sink or medical macerator should be considered, especially where a volume of soiled items could be expected.

Sluice sinks, or medical macerators, are better provided as part of an adjacent laundry area where clothing will be washed. If the sluice sink is provided within the bathroom space, then the dimensions must increase to allow for fully functional transfers.

3.12 Change table

The change table may be freestanding or wall-mounted. The type is to be determined after discussion with the local Learning Support team and Ministry representatives. Typical requirements for a change table are:

- 1.8m long, electrically operated (mains powered unless retrofitting creates health and safety issues)
- height-adjustment suitable for the age range of the students, to allow a student to self-manage (a primary school's requirements may be different to a secondary school)
- to have cot sides or safety rails and a water-resistant surface
- free-standing tables must be manual hoist compatible
- wall mounted change tables will require adequate support in wall framing.

3.13 Hand drying

The bathroom must have a paper towel dispenser for hand drying. It is recommended to be 900mm from the floor, near the basin.

If an electric hand dryer is selected, it should be quiet and accessible with downward air flow. Electric hand dryer noise can affect some users that are sensitive to sound.

3.14 Soap dispenser

Provide a fixed, tamper-proof dispenser adjacent to the basin. The dispenser should be 900mm from floor level, recommended to have foaming soap.

3.15 Toilet paper dispenser

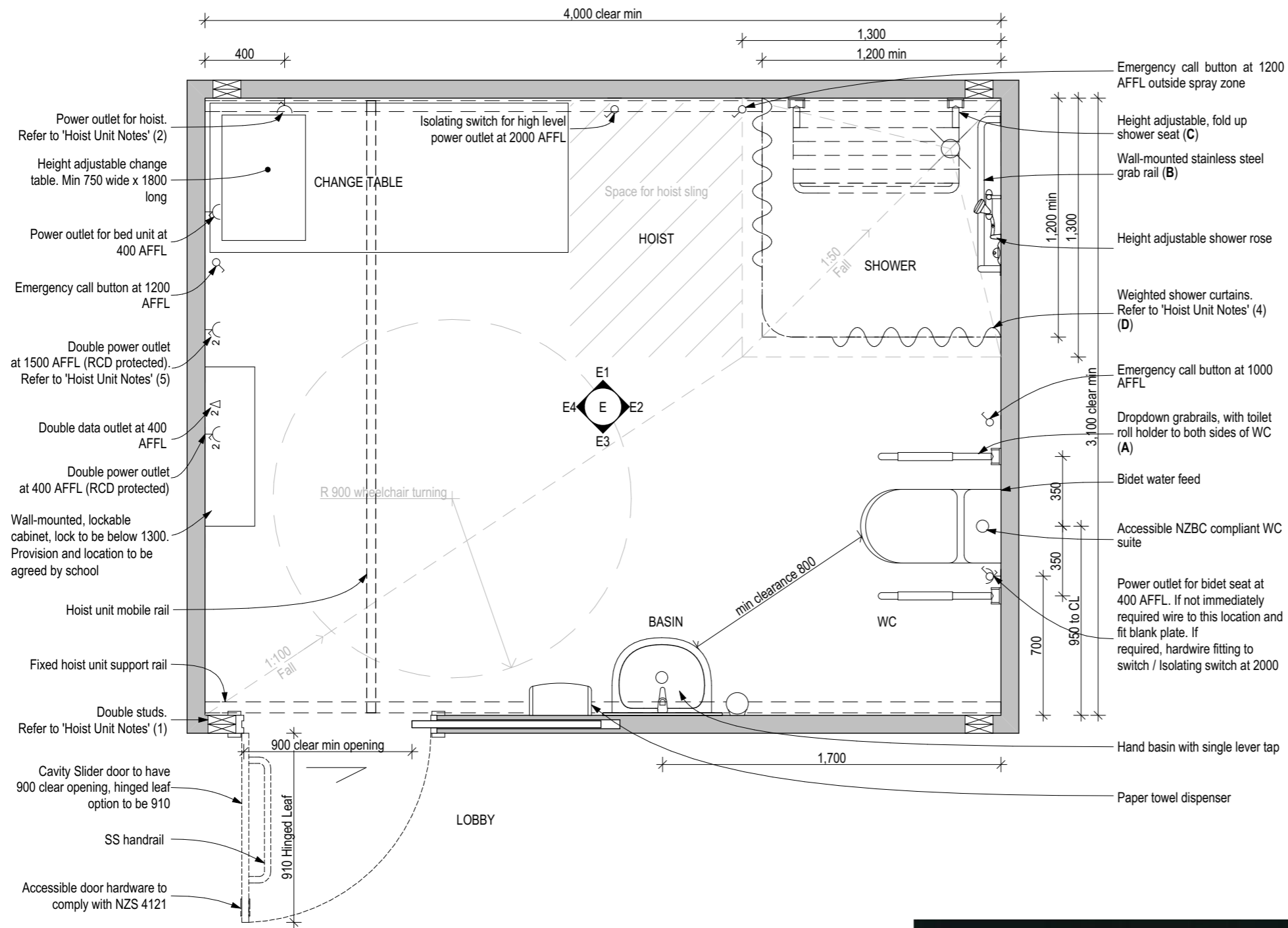
Provide a hinged grabrail with integrated toilet roll holder on each side of the toilet.

Additional toilet paper dispensers are not required. If they are requested, consider its placement and whether it will impact on bathroom function. It should not affect the ability to store a commode.

Appendix 1: Universal School Bathroom plan – reference design layout

The following plan and elevations annotate the relationship between the various items in a universal bathroom. The drawings do not relieve the design team of their obligations to ensure that bathrooms are Building Code compliant and appropriately designed for each school.

The attached reference design is acceptable in itself. Where layouts need to be modified to suit the needs and configurations of individual projects, consult with your local Learning Support team.



- | GENERAL NOTES: | HOIST UNIT NOTES: |
|--|--|
| Provide 50 set down in base slab. Floor finished to fall towards floor waste of shower | (1) Provide double studs in each corner of room for hoist support rails |
| High durability homogeneous flooring to be used to throughout room to provide slip resistance | (2) Power outlet for hoist, located 300 down from ceiling and 400 in from corner |
| Ensure adequate in wall fixing support for drop down grabrails. Refer manufacturers instructions | (3) Ceiling lights to be flush mounted to avoid clashing with hoist |
| | (4) Shower curtain on opening rail, fitted so as not to interfere with hoist operation |
| | (5) Some hoists will require power for a handheld control unit |

E
-
Floor Plan
1:25



A
-
Dropdown grabrails
Indicative image only



B
-
90° Shower grabrail
Indicative image only

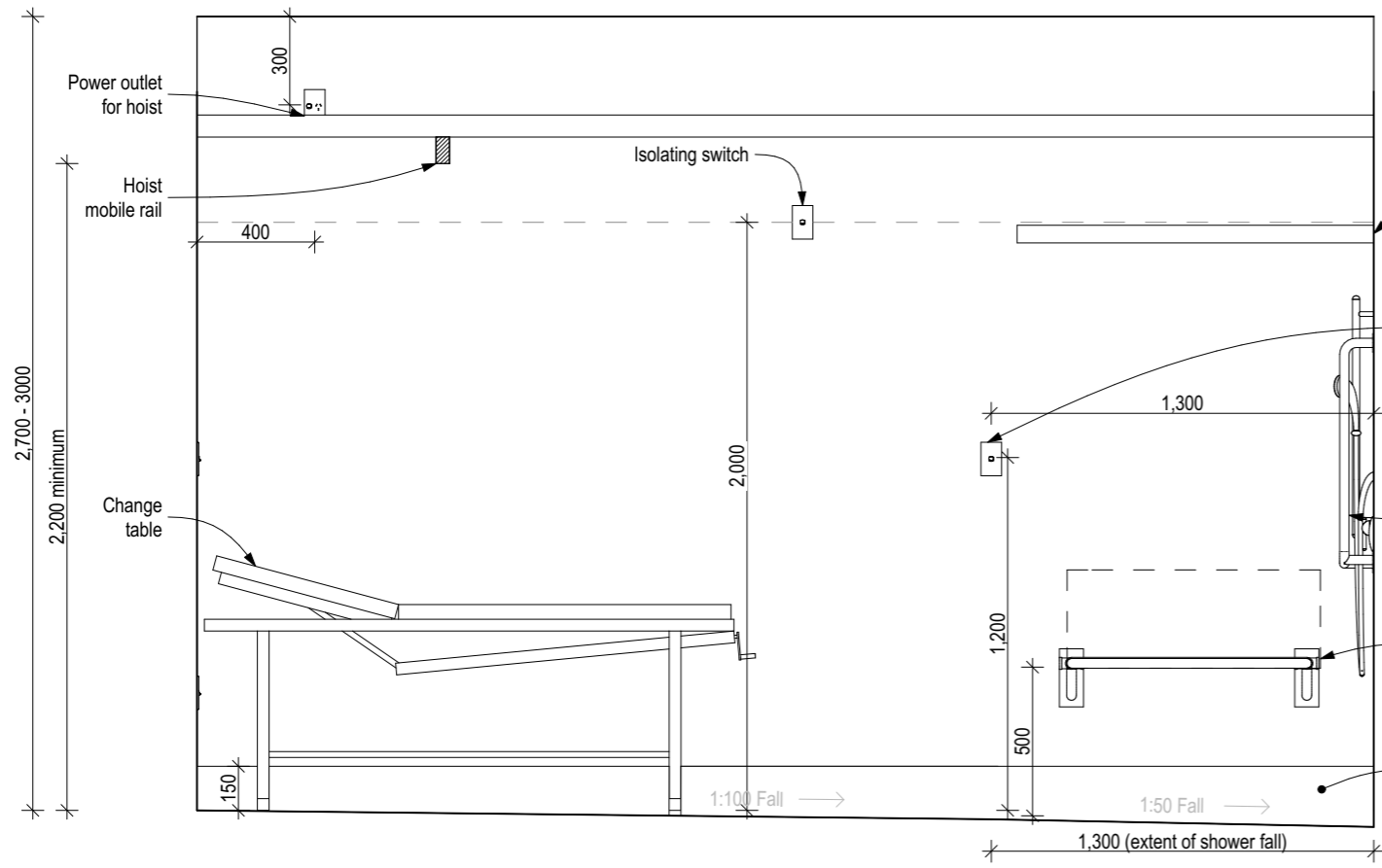


D
-
Shower curtain on opening rail
Indicative image only

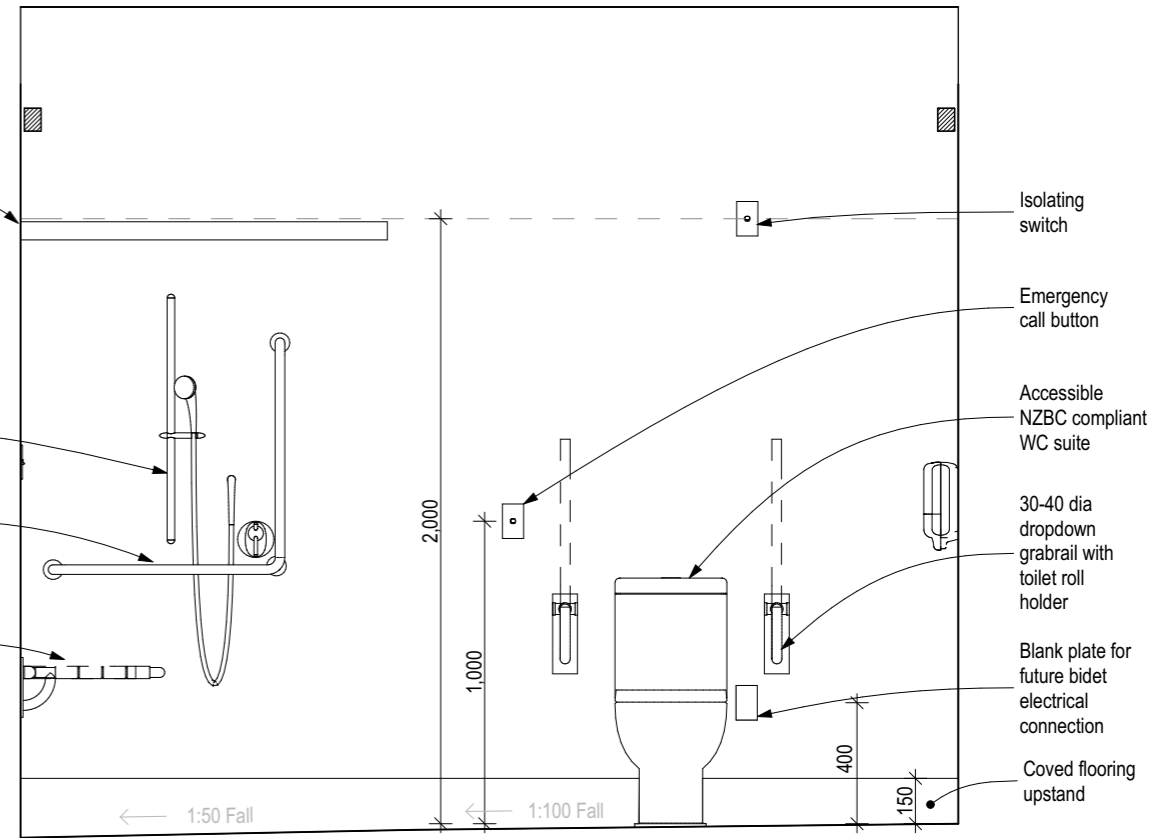


C
-
Height adjustable, fold up shower seat
Indicative image only

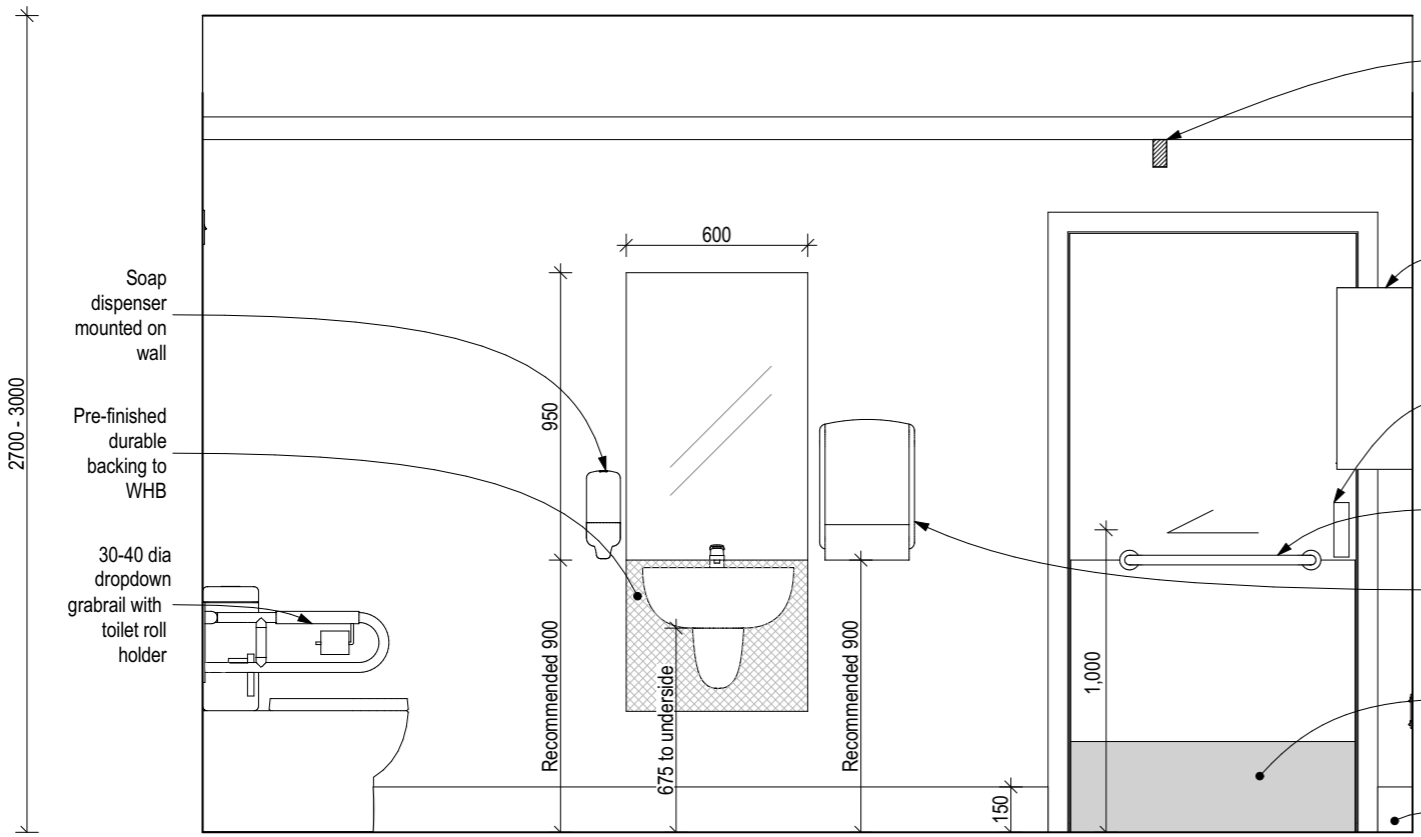
- Emergency call button at 1200 AFFL outside spray zone
- Height adjustable, fold up shower seat (C)
- Wall-mounted stainless steel grab rail (B)
- Height adjustable shower rose
- Weighted shower curtains. Refer to 'Hoist Unit Notes' (4) (D)
- Emergency call button at 1000 AFFL
- Dropdown grabrails, with toilet roll holder to both sides of WC (A)
- Bidet water feed
- Accessible NZBC compliant WC suite
- Power outlet for bidet seat at 400 AFFL. If not immediately required wire to this location and fit blank plate. If required, hardwire fitting to switch / Isolating switch at 2000
- Hand basin with single lever tap
- Paper towel dispenser



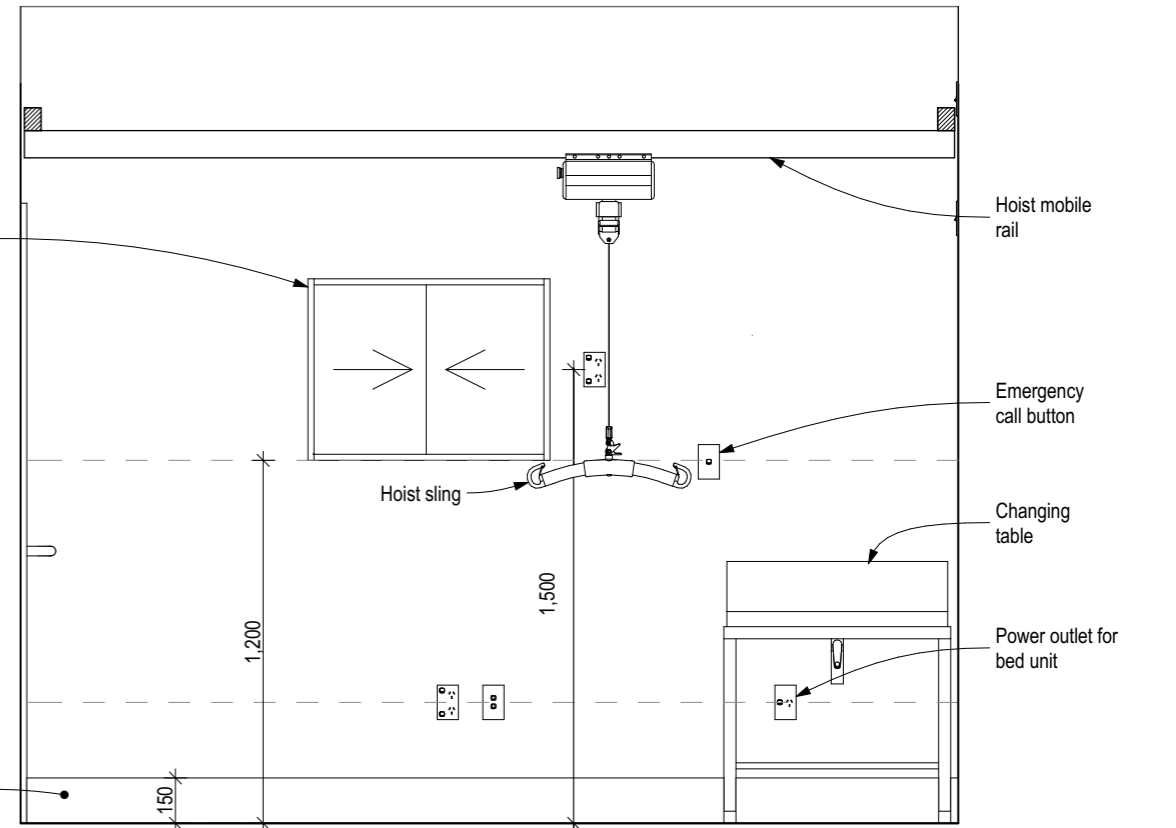
E1
Elevation 1
1:25



E2
Elevation 2
1:25



E3
Elevation 3
1:25



E4
Elevation 4
1:25

Published by the New Zealand Ministry of Education,
Education Infrastructure Service, July 2017

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Wellington, New Zealand

www.education.govt.nz

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