**Modern Learning Environment**

The majority of school buildings were built between1950 and the 70s. Since then, teaching practice and student learning needs have changed significantly. New technologies and building materials allow for new, vibrant and well connected learning spaces. All students deserve to be taught in these new modern learning environments, and benefit from new teaching methods.

# Modern Learning Environment questions and answers

**What type of items should I include in my 10 Year Property Plan (10YPP)?**All projects must now be priority one, two and three. Firstly you must address all urgent health and safety projects, then essential infrastructure, then Modern Learning Environment (MLE) upgrades. If you have undertaken all of these projects, you can undertake priority four projects.

**What are the four priorities for capital funding programmes?**

* **Priority one:** health and safety projects which could close the school if not fixed (such as broken fences near streams or cliffs). Includes defects which could harm children but not small things such as minor trip hazards in a carpark.
* **Priority two:** essential infrastructure projects are normally large scale projects that are necessary for the effective running of the school, for example re-roofing. Full-scale relaying of carparks, driveways or hard courts does not come under this category if they can be patched for a lower cost. Does not include work that should come under maintenance, rather than essential infrastructure, such as gutter clearing.
* **Priority three:** MLE upgrades include either:
  + upgrading existing classrooms to meet the [Designing Quality Learning Spaces (DQLS) standards](http://www.minedu.govt.nz/NZEducation/EducationPolicies/Schools/PropertyToolBox/StateSchools/Design/ModernLearningEnvironment/MLEDQLSStandards.aspx) and/or
  + reconfiguring a block/area to create breakout spaces or other modern learning spaces.
* **Priority four:** work that can only be undertaken if all priority one, two and three projects are completed. Examples of priority four projects include:
  + administration upgrades internal reconfigurations, extensions. Exceptions:
    - work areas for teachers (MLE 10.1), if these cannot be achieved in other blocks or within resource areas (MLE 10.3) or elsewhere near to student learning spaces
    - interview spaces (MLE 16.1)
  + ancillary buildings and areas, such as covered walkways between buildings
  + general landscaping, astro turf and shade sails, permanent fixtures such as verandahs are acceptable to reduce glare to classrooms and create indoor/outdoor flow, but free standing shade structures/sails are not essential. They are also not a health and safety requirement
  + grounds paving, Astroturf, resealing car parks and fencing
  + adventure playgrounds. New playgrounds are outside policy. Any existing ones funded from past 5YA may have safety issues such as fall material, but upgrading and replacement is not the responsibility of the Ministry
  + extensive school signage
  + CCTV cameras - ordinarily, 5YA will cover the wiring of security systems and not the camera’s themselves. However, a full scale security upgrade (including cameras) will be included as 5YA.

**What are breakout spaces?**These are shared spaces between classrooms to encourage independent learning, small group work and teachers working co-operatively across spaces. These are often created out of circulation space that was in the past used for corridors.

**What is a teacher work space?**There are a variety of support spaces needed across the school for staff to work when not in the classroom, to store personal resources, to plan and meet collaboratively, to interview and to socialise. These staff work areas can be no more than 2sqm per teacher and we prefer that they are decentralised.

**What are the rules about adding space in a project?**If you want to add square meters, this is called a footprint extension, and must be approved by the moderation panel. Here are a few things to look out for:

* you can only add square meters (footprint extensions) if you are under 300sqm in gross surplus
* surplus space cannot be rebuilt eg, by turning temporary into permanent, unless there is evidence of roll growth
* MLE should focus on making better use of areas for breakout spaces rather than adding area to classroom spaces.

**What kind of acoustics treatment is required?**The Ministry would prefer you install acoustic wall linings and ceiling tiles unless you can show that they are not needed, i.e. a sound check has been done.

**What do I need to watch out for during re-roofing projects?**It is advantageous to install insulation in both the walls and the roof during a re-roofing project, or a whole-scale refurbishment.

**Can I install a verandah to reduce glare to my classrooms?**Yes. Verandah type structures are acceptable as long as they are attached to the building. Free standing shade structures/sails are not part of Ministry policy and are considered a discretionary item.

**What type of lighting do you recommend?**The Ministry, through its Green Star programme, is advocating low-energy and efficient lighting systems like LED lighting.

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# Designing Quality Learning Spaces (DQLS) standards

All Modern Learning Environment (MLE) classroom upgrades must comply with the Designing Quality Learning Spaces (DQLS) standards on internal environment learning spaces design.

Guidelines have been developed by the Building Research Association of New Zealand (BRANZ) for boards of trustees, principals and teachers to help them understand the importance the internal environment plays in the design of quality learning spaces. The guidelines will also help boards to brief consultants and tradespeople on their school’s requirements when planning alterations or maintenance.

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* [Air quality design guide](http://www.minedu.govt.nz/NZEducation/EducationPolicies/Schools/PropertyToolBox/StateSchools/Design/ModernLearningEnvironment/MLEDQLSStandards.aspx#air)
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## Acoustics design guide

Poor acoustics can greatly influence learning, particularly for young children. Many older-style classrooms have poor acoustics; long reverberation times and ambient noise intrusion.

The MLE tool encourages boards of trustees to self-assess classrooms and judge whether their acoustic performance needs to be improved. Generally, this can be done through installing acoustic ceiling tiles and acoustic wall linings.

* [Acoustics Design Guide for Schools and Boards of Trustees (BRANZ) [PDF; 1.82mb]](http://www.minedu.govt.nz/~/media/MinEdu/Files/EducationSectors/PrimarySecondary/PropertyToolbox/ModernLearning/AcousticsGuide.pdf).

## Air quality design guide

The [NZ Standard 4303:1990](http://www.standards.co.nz/web-shop/?action=basicShopSearch&mod=search&SearchBox1_txtShopName=4303&selStatus=CURRENTANDDRAFT&catalog=NZ) specifies minimum ventilation rates and indoor air quality. Schools need especially good ventilation as children breathe a greater volume of air in proportion to their body weight and because schools have much less floor space per person than found in most office buildings.

The Ministry’s [Design standards](http://www.minedu.govt.nz/NZEducation/EducationPolicies/Schools/PropertyToolBox/StateSchools/Design/DesignStandards.aspx) state that school buildings should be naturally ventilated, including in windy weather, and be cross-ventilated. There are a number of passive ventilation systems that can work including window vents. Schools can also install ventilation systems.

* [Ventilation and Air Quality Design Guide for Schools and Boards of Trustees (BRANZ) [PDF; 2.73mb]](http://www.minedu.govt.nz/~/media/MinEdu/Files/EducationSectors/PrimarySecondary/PropertyToolbox/ModernLearning/VentilationIndoorAirQualityGuide.pdf)

## Heating, temperature and insulation design guide

The Ministry has a design brief for heating and ventilation systems published in 1998. It is referred to in our [Health and Safety Code of Practice](http://www.minedu.govt.nz/NZEducation/EducationPolicies/Schools/PropertyToolBox/StateSchools/DayToDayManagement/HealthAndSafety.aspx). The Code gives temperature levels for various teaching spaces consistent with international guidelines.

Many schools are installing heat pumps to control the temperature of classrooms and staffrooms. While heat pumps are easy to install, they become expensive in the long run and, on average, need to be replaced every five years. They also have a tendency to shut down when the weather gets too cold.

* [Heating, Temperature and Insulation Design Guide for Schools and Boards of Trustees (BRANZ) [PDF; 2.69mb]](http://www.minedu.govt.nz/~/media/MinEdu/Files/EducationSectors/PrimarySecondary/PropertyToolbox/ModernLearning/HeatingInsulation.pdf)

## Lighting design guide

The Ministry’s Health and Safety Code clause 18 states that “boards of trustees shall ensure there is sufficient and suitable lighting, whether natural or artificial, in every part of a place of work in any building for the requirements of the tasks being undertaken”.

**Natural lighting:** Evidence suggests improved learning outcomes from spaces that have daylight as the predominant source of lighting. However, too much natural light can be as bad as too little by creating glare, shadows and excessive heat.

**Artificial lighting:** The [Ministry’s Design Standards](http://www.minedu.govt.nz/NZEducation/EducationPolicies/Schools/PropertyToolBox/StateSchools/Design/DesignStandards.aspx) recommend that schools follow the Australia and NZ standard 1680.2.4 1997 in conjunction with AS 1680.1. The specification for relocatable classrooms requires 300 lux at desk level, 300 lux for computer use, and 500 lux for libraries and laboratories.

* [Lighting Design Guide for Schools and Boards of Trustees (BRANZ) [PDF; 2.69mb]](http://www.minedu.govt.nz/~/media/MinEdu/Files/EducationSectors/PrimarySecondary/PropertyToolbox/ModernLearning/BranzLightingDesignGuide.pdf)

## EECA subsidy of lighting upgrades

Up to 40% of the cost (fittings and installation) of lighting upgrades will be met by the [Energy Efficiency Conservation Authority](http://www.eeca.govt.nz/programmes-and-funding) (EECA) if it can be demonstrated that worthwhile energy savings will be achieved over a three year period.

### EECA criteria for funding subsidy

The criteria include:

* lighting throughout a whole school block must be considered (see below if only part is to be done)
* a lighting technician must undertake an analysis to determine the energy savings that will accrue with new fittings; EECA Business Partners such as Thorn, Philips, offer this service free
* replacement fittings must be selected from a range that has been approved by EECA – these include fluorescents, bulkheads etc for interior and exterior use
* lighting sensors will need to be installed (cost included in the subsidy) - different types are available and some fittings have them built in. The sensors will:
  + turn lights on for a pre-determined time, when movement is detected
  + turn lights off if no movement occurs during a pre-set period
  + dim or turn off some/all lights depending on the amount of daylight entering the space therefore always maintaining the required light levels for the tasks being undertaken.

Sensors for rooms are usually PIR (passive infra-red) but microwave units fitted in corridors can detect movement up to 30m away. Today’s ‘intelligent’ sensors can even adjust the energy going to fittings, to compensate for the loss of light output that occurs as lamps age.