



An Roinn Oideachais
Department of Education

Maintenance Guidance Manual for Schools

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FOREWORD

Schools are a central feature of local communities and suitable arrangements must be in place to ensure they are maintained as best as possible.

The Department's Planning and Building Unit has developed this updated guidance for schools about suitable practice arrangements for the maintenance of school buildings. The guidance is provided in an online format that is intended to be easily accessible and user-friendly for all schools.

The guidance also includes a helpful summary of the statutory maintenance requirements for schools.

This updated guidance manual for the maintenance of school buildings aims to share knowledge, feedback, lessons learned, and experiences with best practices. This guidance manual is intended to provide practical guidance and support for schools on the arrangements for having a good school maintenance regime.

The manual will be developed and updated as a live document with the most up-to-date version on www.gov.ie.

The Department of Education would like to thank all those involved in developing the guidance, including those schools that provided feedback, advice and support.

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1.0 INTRODUCTION

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1.1 INTRODUCTION

The new Maintenance Guidance Manual for Schools aims to help school authorities identify a practical approach to maintaining their school facility. All buildings require adequate maintenance arrangements. To manage the condition of school buildings, school authorities should:

1. Understand, as an Employer, the responsibility for the health and safety of building occupants.
2. Identify and carry out maintenance plans to keep the school facility in a safe and sound working order.
3. Regularly inspect and test all plant and equipment including keeping records.
4. Refrain from taking risks and identifying where expert advice is required.
5. Obtain the right advice for the particular maintenance job.
6. Facilitate and provide contractors with relevant information to enable maintenance work.

1.2 PURPOSE OF THE SCHOOL MAINTENANCE MANUAL

1. The purpose of this interactive document is to provide advice and guidance to School Authorities undertaking maintenance management in school buildings.
2. The document is designed into easy-to-read chapters for maintaining your school. These guidelines will be modified and updated continuously and as needs arise.

1.3 WHO IS THE MAINTENANCE MANUAL INTENDED FOR?

Generally, the Board of Management (BoM) is responsible for school maintenance. The duty extends to the safety, health and welfare of all employees, staff, teachers and pupils who use the facilities. The BoM may delegate tasks and responsibilities to employees to act on its behalf. In addition, the Principal, Deputy Principal, Caretakers, Teachers and others may undertake specific roles for managing school maintenance. However, the ultimate responsibility lies within the BoM. These guidelines do not purport to be definitive or exhaustive but rather are intended to assist in planning an appropriate response to the particular needs of individual schools.

School buildings should provide a welcoming, safe and suitable environment for the educational needs of all staff, students and pupils. A well-maintained external and internal environment enhances the educational experience for all school stakeholders.

1.4 KEY BENEFITS OF THE MANUAL

1. Get to know your school building.
2. Help you prioritise maintenance.
3. Ensure your school is a safe environment.
4. Get the right advice.
5. Provide better decision-making.

1.5 MAINTENANCE TYPE

Maintenance is often categorised as planned preventative maintenance or reactive maintenance. The ratio should be 70/30 in favour of proactive maintenance.

PLANNED PREVENTATIVE MAINTENANCE

Planned preventative maintenance forms an essential tool for this guidance manual and includes works or activities that are required:

- Before something fails.
- To prevent or stop building conditions or equipment failure.
- To fulfil a legal duty.

Planned maintenance comprises an organised plan carried out with forethought.

Boards of Management are expected to adopt a planned maintenance strategy for the school property for which they are responsible. The calendar of checklists appended this manual should be adopted and modified as appropriate for individual schools.

Planned maintenance will be based on a preventative approach and carried out so as to avoid damage or deterioration of the school building. A well-managed system of preventative maintenance will also incorporate provision for systematic inspections at regular intervals. Planned maintenance demands significant input and commitment by the Boards of Management, but ultimately lead to lower maintenance costs in the long term.

REACTIVE MAINTENANCE.

Reactive maintenance covers works or activities that are not planned or predicted. It includes:

- Accidental damage.
- Unexpected failure.
- Vandalism or anti-social behaviour.
- Urgent health and safety work in a school facility.

1.6 PLANNING SCHOOL MAINTENANCE

Planned maintenance can be further classified into three subcategories as follows:

- Major repair or restoration, such as reroofing or refurbishment works.
- Periodic maintenance, such as servicing heating and electrical systems or regular decoration.
- Routine or day to day to maintenance, such as cleaning of floors and windows.

Gathering and obtaining accurate data about the existing school building is the starting point for good maintenance planning. Consider the following items before planning maintenance timing.

- Are there floor plans of the school building on file?
- Is a Fire Alarm compliance on display in the school office or foyer?
- Are maintenance services certificates on file for the heating system / boiler etc?
- Relevant technical information for Boilers, pipework, components, etc.

1.7 TIMING OF MAINTENANCE

The manual will support school boards of management in planning for optimal maintenance timing.

- Some works may only be completed when the school and its site are partially used.
- Some works may be completed during school term time when permitted.

1.8 ROUTINE INSPECTIONS.

Routine inspections form the basis of a school maintenance plan. The following Chapter 2 “**School Building Maintenance Checklist**” will provide a good starting point.

- Regular completion by school personnel will offer all the information needed to keep a school safe and compliant.
- Areas requiring professional input, such as electrics, plumbing, and any structural conditions, should be assessed by the school principal, the Board of Management, and a qualified technical person.

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2.0 SCHOOL BUILDING MAINTENANCE CHECKLIST

EXTERNAL MAINTENANCE		
1	Regularly Inspect playgrounds, footpaths and driveways for possible safety hazards.	
2	Inspect the roof routine (Per section 13, calendar of checklists) and clean the gutters regularly to avoid problems.	
3	Maintain grass playing pitches and check drainage manholes and gullies are kept clear.	
4	Use outdoor security/sensor lights around the perimeter of the school building.	
INTERNAL MAINTENANCE		
1	Check blockwork walls and stud partitions for cracking, peeling paint or water stains.	
2	Inspect all flooring surfaces for wear and tear and possible safety hazards.	
3	Ensure all light fittings are working and convert to LED fittings to improve light quality.	
4	Monitor the life cycle of doors and windows and other equipment with a repair regime.	
SAFETY MEASURES		
1	Ensure statutory inspections of life safety systems are carried out; Emergency Lighting (annually) and Fire Alarm Systems (quarterly).	
2	Carry out risk assessments external / internal areas and record for school files.	
3	Ensure all exits routes are clearly signposted and unobstructed from bags or obstacles.	
4	Check and test fire alarms, emergency lighting and CCTV security camera system (where installed).	
CLASSROOM AND TEACHING FACILITIES		
1	Monitor all internal rooms using a weekly rotating roster, and check for maintenance.	
2	Inspect chairs and desks and other furniture for damage or defects.	
3	Open windows during breaktimes or when unoccupied to ensure sufficient ventilation.	
4	Check plasterboard ceilings or suspended ceiling grid tiles are free from defects.	
TOILETS AND SANITARY FACILITIES		
1	Liaise with principal / staff on the condition of toilets and when maintenance is needed.	
2	Provide a quick response to any plumbing problems to avoid putting toilets out of order.	
3	Check toilets, washbasins fixtures, pipework and drains for leaks and proper functioning.	
4	Ensure sanitary issues / food equipment is maintained.	
BUILDING SERVICES		
1	Service the school boiler annually and keep a written log, it works to optimum efficiency.	
2	Monitor temperature controls and avoid overheating of teaching rooms and spaces.	
3	Check electrical power services and school IT / Wi Fi services are in working order.	
4	Regularly review the hot and cold-water services and empty the water tank annually.	

3.0 ROOFS

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- 3.2 SCHOOL ROOF TYPES ►
- 3.3 LIFE EXPECTANCY OF ROOFS ►
- 3.4 WHEN TO INSPECT ROOFS ►
- 3.5 GREEN ROOF MAINTENANCE ►
- 3.6 ASBESTOS CONTAINING MATERIALS IN ROOFS ►
- 3.7 MAINTENANCE ISSUES TO CONSIDER ►

3.1 INTRODUCTION

The maintenance and repair of roofs are among the most common and costly items associated with school buildings. This chapter summarises the most common problems and highlights what Boards of Management can do to get the most out of the roofs of their facilities and, in the process, reduce maintenance costs. The roof's primary function is:

1. To protect from the weather.
2. Provide adequate thermal insulation.
3. Ensure fire performance.
4. Provide sound insulation.

There are three forms of school roofs:

1. Traditional pitched roofs with a slate or tile finish.
2. Flat roofs with a felt or membrane finish.
3. Lean to / Mono-pitch roofs with a metal or membrane finish.



Pitched roof



Flat roof



Lean to / mono pitch roof

3.2 SCHOOL ROOF TYPES

There are inevitable issues when periodic maintenance is not carried out on the roof. Typical roof types of build-ups used in schools are as follows.

- Pitched slate/concrete tiles on timber roof construction.
- Pitched and Lean to Mono-pitched metal profiled and insulated composite panels.
- Flat Roof – Asphalt on a concrete slab. Generally, on older school buildings.
- Flat Roof – Various roof membranes on timber or concrete substrates.

- Single-ply membrane (PVC).
- Bitumen felt.
- Green roofs - used on flat & mono-pitched roof construction.
- Blue roofs – controls rainwater where it lands on the roof.

3.3 LIFE EXPECTANCY OF ROOFS

The life expectancy of a roof varies depending on factors such as:

- Materials used during construction,
- Installation quality,
- Ongoing maintenance practices.

Roofing materials are rarely the first to fail. The failure of the fixings, decay of battens, and water entering where flashings have lifted or gutters have dislodged, combined with poor maintenance practices, are the primary causes of roof problems. In addition, joints or laps can open up over time at eaves level, allowing water to enter at the top of the external walls.

Typically, pitched / mono-pitched roofs in Ireland should last at least 60 years. Flat roofs require more maintenance and have a shorter life of about 30 years. Traditionally, school flat roofs were generally covered in a felt-based material, meaning that they are prone to wear and tear or damage.

3.4 WHEN TO INSPECT ROOFS

- As a general guideline, Roofs should be inspected twice yearly: Once in spring after winter weather has subsided and once in autumn before cold or wet conditions begin.
- School locations and exposure to the elements differ. Certain circumstances may necessitate additional roof maintenance inspections.
- Schools should implement a planned maintenance schedule to identify more minor issues before they become serious.
- The maintenance manual will help schools with practical housekeeping habits throughout the year.
- Pitched and Lean to Mono-pitch roofs are sufficiently durable to withstand most storm weather events.
- Flat roofs, given their nature, require more regular maintenance inspections.

Firstly, carefully assess the risks of inspecting a roof.

1. Is it safe?
2. What are the risks?
3. Is it necessary to access the roof?

Ladder access is only recommended if there are fixed ladder access points to different areas of the building. Unfixed ladders are hazardous and can cause accidents. If a ladder is the only form of access to a single-storey roof, it should be temporarily fixed back to the structure and only used under the supervision of other school / staff personnel. Inspect single-storey roofs from the ground level. Refer to Chapter 11.

3.5 GREEN ROOF MAINTENANCE

The roof covering to green roofs is hidden below the “grass” growing medium, so it is difficult to locate potential leaks. All green roof systems require some form of maintenance to keep the healthy roof growth flourishing. Maintenance and irrigation of the system is important and safe access is necessary in accordance with the original installation requirements. The environmental benefits of green roofs are substantial with both thermal and sound insulation to school buildings. The roof replaces the lost landscaped

area under the building footprint and absorbs carbon dioxide and produces oxygen. Surrounding areas also benefit with both cooling and dehumidifying. The surface attracts wildlife and absorbs dust and traffic fumes.



Example of single storey school with a green roof.

3.6 ASBESTOS CONTAINING MATERIALS IN ROOFS. (ACM's)

Profiled asbestos roof sheeting panels were used between 1950 and 1980. They are likely to release increasing levels of asbestos fibres if abraded, hand sawn or worked on with power tools. Cleaning asbestos roofs may also release fibres. The risk of falling through asbestos cement roofs usually means that inspection or testing is restricted. School boards of management as duty holders have a legal duty to manage any asbestos found in schools. The requirements placed on duty holders are:

- Take reasonable steps to determine the location of materials likely to contain asbestos.
- Presume materials to contain asbestos, unless there are good reasons not to do so.
- Make and maintain a written record of the location of the ACM's and presumed ACM's.
- Assess and monitor the condition of ACM's and presumed ACM's.
- Assess the risk of exposure from ACM's and presumed ACM's and prepare a written plan of action and measure necessary to manage the risks (ie the management plan).
- Take steps to see that these actions are carried out.

A management survey is the standard industry norm. Its purpose is to locate, as far as reasonably practicable, the presence and extent of any suspect ACMs in the building.

Appropriate Personal Protection Equipment (PPE) should be worn during any surveying of roofs containing asbestos containing material. The personnel must be properly trained where surveying or sampling areas are inspected. Disposable face respirators are also required.







Example of asbestos roof.



3.7 MAINTENANCE ISSUES TO CONSIDER



Regular roof maintenance inspections can help school authorities identify the issues with corrective measures before they become complex problems. However, it is best to consult with a professional advisor for most complex construction issues. They can provide expert advice on how to carry out the necessary repairs or replacements to ensure the school is fully functioning to its optimum. Refer to Chapter 12.8.


No:	What goes wrong?	Why?	Maintenance requirements.
1	Roof leaks caused by slipped slates.		
2	Roof leaks caused by defective metal flashings.		
3	Roof leaks caused by defective fillets at junctions.		
4	Roof leaks caused by blocked or defective gutter.		
5	Roof flooding.		
6	Roof ponding.		
7	Roof blistering.		
8	Roof wear and tear of materials.		
9	Roof leaks caused by excessive solar gain.		
10	Flat roof defective gutter.		
11	Rooflight leaks.		
12	Plumbing leaks.		
13	Dry rot.		
14	Wet rot.		
15	Woodworm.		
16	Bats in roof spaces.		
17	Birds, wasps, or vermin nesting in roof space.		
18	Birds nesting at eaves level.		
19	Sagging roofs.		
20	Condensation in roof spaces.		
21	Asbestos products in roof coverings.		
22	Lean to / Mono pitched roof leaks.		
23	Green roof gutter blocked.		
24	Roof damaged by other means.		


1 Roof leaks caused by slipped slates.		
What goes wrong?	Why?	Maintenance requirements.
 <p>What is the problem? Leaks are often first indicated by:</p> <ul style="list-style-type: none"> • Damp patches on a ceiling. • Dampness at the top of an external wall. • Water dripping into the school building. • Fragility is the key concern, as tiles and slates are vulnerable to breakage and need careful protection during maintenance. 	 <p>What is the probable cause?</p> <ul style="list-style-type: none"> • A safe working environment is essential and falls from a height are to be considered. • Leaks are caused by slipped, broken or missing roof tiles or slates. • Tiles or slates can become loose or slip during wet or windy storm. • Some nail fixings can fail. • Tile / slate material can deteriorate with age. 	<p>What should be done?</p> <ul style="list-style-type: none"> • Inspect the entire roof twice a year and after severe weather / storms for slipped, broken or missing tiles or slates. • Don't allow leaks to continue. Repair or replace tiles or slates as soon as possible. • Consider acquiring and storing a small stock of replacement tiles or slates for such maintenance work. • If in doubt, seek expert advice.


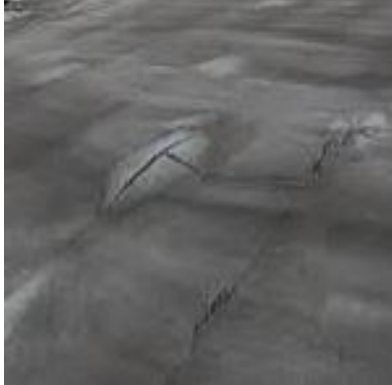
2 Roof leaks caused by defective metal flashings.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <ul style="list-style-type: none"> • Leaks above a suspended ceiling at a roof and wall junction. 	 <p>What is the probable cause?</p> <p>Leaks can occur at exposed roof and wall junctions. Metal flashings are provided to form a waterproof seal at junctions. Some defects are:</p> <ul style="list-style-type: none"> • Incorrect fixings of flashings. • Cracked or corroded metal material because of its age. 	<p>What should be done?</p> <ul style="list-style-type: none"> • Check the condition of all metal or equivalent flashings as part of twice-yearly roof inspections. • Seek advice about whether older metal flashings need to be repaired or replaced. • Where theft of lead flashings is a problem, for example replace with zinc metal, which is of low scrap value. • If in doubt, seek expert advice.



3 Roof leaks caused by defective fillets at junctions.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <p>Leaks above a ceiling beside a dis used chimney stack in an older school building.</p>	 <p>What is the probable cause?</p> <p>Concrete sand and cement fillets at junctions such as chimney stacks, which have shrunk or broken away.</p>	<p>What should be done?</p> <ul style="list-style-type: none"> Fillets are typically finished by a roofer, involving a splayed or rounded corner sand / cement material at the junction where roofs surfaces / walls meet. Defective fillets should be replaced with metal flashings for long term roof junction robustness. If in doubt, seek expert advice.



4 Roof leaks caused by blocked or defective gutter.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <p>High level metal rainwater gutter, that leaks.</p> <ul style="list-style-type: none"> A rusting metal gutter is a clear indication of a problem. Cracks and holes in a defective and or blocked roof gutter. Excess lodged water increases imposed weight load on the gutter. Blocked water at high level eventually drips or gets through the interior wall or roof causing further problems. 	 <p>What is the probable cause?</p> <ul style="list-style-type: none"> Defective or blocked gutters and rainwater outlets on high level roofs. Roof in the vicinity of trees. Loose gutter fasteners are also a probable cause. Aluminium gutter fixings, rivets may pop or become loose after sub temperature frost. Roof gutters at high level are typically Inaccessible for routine maintenance. 	<p>What should be done?</p> <ul style="list-style-type: none"> Rainwater gutters require regular checking and cleaning. Gutters should be cleaned every six months and checked for blockages. Check gutters and fasteners and tighten or replace them as needed. Damaged gutters beyond their life span should be replaced with good quality proprietary rainwater goods as specified by specialists. If in doubt, seek further advice.



5 Roof flooding		
What goes wrong?	Why?	Maintenance requirements.
<div style="text-align: center;">  </div> <p>What is the problem?</p> <ul style="list-style-type: none"> • High level or Inaccessible flat roof area prone to flooding. 	<p>What is the probable cause?</p> <ul style="list-style-type: none"> • Blocked or damaged rainwater outlets. • Debris on the roof surface. • Insufficient roof covering falls to rainwater outlets. • Possibly no safe access for inspection and follow up maintenance when the problem first occurred. 	<p>What should be done?</p> <ul style="list-style-type: none"> • Schools should engage a professional roofer who can perform roof maintenance to inaccessible areas of the school. • In some cases, modifying the configuration of the problem roof area may be necessary, especially if the school is located in an area prone to severe weather. • A possible longer solution is to opt for a blue roof. This comprises a flat roof area that temporarily stores rainwater and then gradually releases it, reducing the risk of flooding in areas with few permeable surfaces. Blue roofs can also harvest rainwater for, indoor use. • If in doubt seek expert advice



6 Roof ponding.		
What goes wrong?	Why?	Maintenance requirements
<div style="text-align: center;">  </div> <p>What is the problem?</p> <ul style="list-style-type: none"> • Water ponding on flat roofs. • Large volumes of water do not drain of the roof surface after routine maintenance cleaning. • Water remains in place on the roof surface for at least 48 hours. 	<p>What is the probable cause?</p> <p>Water ponding can be caused by:</p> <ul style="list-style-type: none"> • Inadequate drainage falls on the roof, i.e., the roof is laid too flat. • Rainwater outlets are clogged or wrongly located. • Rainwater downpipes are clogged / blocked. • Insufficient roof gutter falls or number of downpipes. 	<p>What should be done?</p> <ul style="list-style-type: none"> • Clear any blocked roof rainwater outlets. • Inadequate drainage falls or incorrectly located outlets may be from construction defects. • This problem cannot be remedied solely by maintenance works. • If in doubt, seek further advice.



7 Roof blistering.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <p>Blistering of flat roof coverings, where materials rise in bubble like blisters.</p> <ul style="list-style-type: none"> • Typically, a blistered roof part will have raised strips on the surface. • Internal flat roof leaks. • Damaged roof area is hazardous and soft underfoot. 	 <p>What is the probable cause?</p> <p>Blistering is caused by overheating of the roof surface in hot weather, combined with poor bonding of roof covering to material below.</p> <ul style="list-style-type: none"> • Roofing felt material blisters upwards and detaches from the timber base sheet below. • The sun's solar rays have reduced the design life span of the felt covering. 	<p>What should be done?</p> <ul style="list-style-type: none"> • Minimise the risk of blistering by ensuring the roof covering is protected against excessive solar gain. • Use stone chippings or reflective paint as appropriate (subject to structural load capacity checks of roof being first carried out) • It is not necessary to repair roof blisters unless they are damaged, or the roof covering is also cracked. • In such cases, local repairs should be carried out to avoid subsequent leaks. • Early inspection and intervention action can be a significant advantage to reduce more serious problems in the future. • If the problem persists, seek further advice.



8 Roof wear and tear of materials.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <ul style="list-style-type: none"> • Internal leaks above a suspended ceiling to flat roof with felt covering. • Rotten timbers discovered in the roof space during an inspection. • The leak source is not easily identifiable. 	 <p>What is the probable cause?</p> <ul style="list-style-type: none"> • Insufficient knowledge of the actual problem. • Previous inappropriate roofing patch repairs. • Timbers beneath may have deteriorated. • Felt roof covering is at the end of its life cycle. 	<p>What should be done?</p> <ul style="list-style-type: none"> • Where possible, restrict foot traffic on roofs to a minimum. • Care should be taken by operatives on roofs to avoid cracking tiles / slates or felt flat roof materials. • Use a roof ladder to minimise damage. • Use brushes to clear snow or ice off flat roofs. Shovels may puncture the roof surface material. • If in doubt seek further advice.


9 Flat roof leaks caused by excessive solar gain.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <ul style="list-style-type: none"> • Roof leaks discovered to a flat / pitched roof junction. • Part area of the school has to be closed off as out of use. 	 <p>What is the probable cause?</p> <ul style="list-style-type: none"> • Premature breakdown of roof covering, particularly on flat roofs. • The most common cause is excessive solar gain in hot weather. • The felt is subjected to chemical breakdown by the sun's strong rays, known as (ultraviolet degradation). 	<p>What should be done?</p> <ul style="list-style-type: none"> • Flat roof coverings should have appropriate solar protection, such as stone / spar chippings or reflective paint. • Ensure the chippings are smooth / rounded and spread evenly over the entire roof surface sufficiently to obscure the roof covering. • Purpose made reflective coatings may be provided where absent and checked annually and as necessary. • If in doubt, seek further advice.


10 Flat roof defective gutter.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <ul style="list-style-type: none"> • Flat roof leaks from a blocked or defective gutter. • Ceiling insulation gets soaked and suspended tiles may be dislodge or come loose. 	 <p>What is the probable cause?</p> <ul style="list-style-type: none"> • Flat gutter with leaves or other debris blocking the rainwater outlet. • Water builds-up and leaking may occur in that area. • If excessive leaves and debris and water builds up high enough, structural damage can occur. 	<p>What should be done?</p> <ul style="list-style-type: none"> • Internally, the immediate area should be cordoned off to minimise possible hazards from any falling ceiling tiles. • The roof drainage outlet that runs through a parapet wall should be cleaned. • Check outlets are not clogged, and that debris is not allowed to seep into the rainwater downpipes on external walls. • Keeping drains free flowing should be part of a planned maintenance program. • If in doubt, seek further advice.


11 Rooflight leaks		
What goes wrong?	Why?	Maintenance requirements
 <p>What are the problems?</p> <ul style="list-style-type: none"> • Internal leak damage to a classroom ceiling and furniture / equipment. • Flat roof covering defects where a rooflight is in poor condition. • Signs of rotting materials to adjoining areas. 	 <p>What is the probable cause?</p> <ul style="list-style-type: none"> • Breakdown of roof coverings, particularly on flat roofs, at the end of their "design life". • Lack of regular roof inspections for planned maintenance when the problem first occurred. 	<p>What should be done?</p> <ul style="list-style-type: none"> • When maintaining or cleaning, consideration should be given to Health and Safety in Roof work. • Rooflights should always be treated as fragile regardless of their condition. • If safe access is available, rooflights should be manually inspected and cleaned inside and outside. • Always use ladders correctly and safely when working at a height. • Patch repairs or maintenance of roof lights beyond their realistic life expectancy is likely to be of limited use. • Rooflight replacement may be a more cost-effective option in the long term.



12 Plumbing leaks.		
What goes wrong?	Why?	Maintenance requirements
 <p>What are the problems?</p> <ul style="list-style-type: none"> • Leaks in a roof space where the water tank is located. • Restricted access to the affected area, therefore damaged ceiling tiles may have to be pushed up individually and removed. • Wet insulation adds to the loading of metal supports and further problems can occur. 	 <p>What is the probable cause?</p> <p>Plumbing leaks within the attic space of pitched roofs arising from:</p> <ul style="list-style-type: none"> • Water tank overflowing. • Burst pipes because of freezing or other causes. • Failure of pipe joints or connections within the roof space. 	<p>What should be done?</p> <ul style="list-style-type: none"> • Ensure water tanks in roof spaces are fitted with an overflow pipe which visibly discharges water that will be noticed. • Check the operation of water tank ball valves and replace defective valves. • Check tanks are well insulated (lagged), and that insulation is securely fixed and located. • In older school buildings water tanks or pipes might not be insulated. If not arrange and insulate water tanks and pipes. • Where possible arrange for regular checks of school, when unoccupied during cold weather, midterms and Winter holidays etc. • Recommend, the water tank is drained at the end of the school year.



13 Dry Rot.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <p>Dry rot is a serious form of timber fungal decay.</p> <ul style="list-style-type: none"> In some cases, mushroom like fruiting bodies can be evident on roof timber rafters, joists or struts. Its sign of decay should be easily detected during roof maintenance inspections. Another feature of dry rot is a strong musty smell in the vicinity of outbreaks. 	 <p>What is the probable cause?</p> <ul style="list-style-type: none"> Dry rot is triggered by a combination of damp timber, humid conditions and heat. Once established, dry rot has the capacity to spread on dry timber. Left unchecked, it can spread widely throughout a building, needing costly remedial work. Dry rot attacks surrounding timber; becomes dry, brittle and eventually cracks. 	<p>What should be done?</p> <ul style="list-style-type: none"> Rigorously check all accessible timber annually for signs of dampness, fungus or mould. Older school buildings require preventative measures. Timber should be treated with an appropriate fungicide product and used as per the manufacturers' instructions. Where an outbreak of dry rot is suspected or detected, seek expert advice. It is essential that treatment is effective and comprehensive, so as to avoid recurrent outbreaks. Duplication of dry rot treatment work is very costly. Seek expert advice.



14 Wet Rot.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <ul style="list-style-type: none"> Wet rot problem discovered during a routine inspection. Timbers in roof spaces are susceptible to fungal decay. 	<p>What is the probable cause?</p> <ul style="list-style-type: none"> Wet rot is a fungus that impacts exceptionally moist timber and can cause timber to decay. Timbers rafters or joists built into the masonry can get wet and eventually rot. Wet rot can thrive on untreated roof timbers and cause dampness. In basic terms, "if there is no roof timber dampness, there is no roof timber rot". 	<p>What should be done?</p> <p>Good maintenance requires timber roofs to be checked annually for any signs of decay.</p> <ul style="list-style-type: none"> If wet rot is identified in its early stages, the problem will likely be localised to a small area. If it is ignored or left to develop the problems will greatly increase. Replacing damaged timber and rectifying any damaged timber is a specialist task. Treatment of wet rot decay should be done as soon as possible. This will prevent the spread of the decay to other areas of timber structure. Seek expert advice.


15 Woodworm.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <ul style="list-style-type: none"> • Close up photo of pockmark holes in school roof timbers. • Musty smell or crumbling dust on timbers. 	<p>What is the probable cause?</p> <ul style="list-style-type: none"> • Woodworm is insect attack on timber and characterised by small pinholes on the surface of timber. • It is more common in older buildings in roofs and timber floors. • Woodworm can occur too in fixed wooden furniture, particularly on the back panels of larger units fixed to masonry walls. • Ventilation is important allowing timber to breathe. 	<p>What should be done?</p> <ul style="list-style-type: none"> • Check all accessible roof timber annually. • Treat small outbreaks promptly. • In the case of extensive outbreaks, specialist treatment may be required. • For larger problems with woodworm, it may be necessary to replace the infected timbers. • Refer also to Chapter 10 Furniture and Equipment.


16 Bats in roof spaces.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <ul style="list-style-type: none"> • Bats discovered in a roof space during a roof inspection. 	<p>What is the probable cause?</p> <ul style="list-style-type: none"> • Bats are an important protected species, and they can live for approx 7 years. • They rarely cause problems in roofs and if they roost, they merely just hang up. • They don't build nests or eat human food. • They don't chew timber or any wiring / cables in roofs. • Bat droppings contain chitin and will disintegrate into dust. • Their guano should not be confused with normal rodent droppings. 	<p>What should be done?</p> <p>Bats are active in late spring to early summer. If they are discovered in schools' roofs, contact the National Parks and Wildlife (NPW) Tel 01 888 2000</p> <p>Schools might also consider:</p> <ul style="list-style-type: none"> • Covering any open top water tanks with an appropriate sheet lid. • Installing a simple heavy duty plastic sheet membrane above the ceiling timber joists to collect bat droppings. • Bat droppings / guano can be collected and disposed as per NPW guidance.



17 Birds, wasps, or vermin nesting in roof space.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <p>Birds, wasps, vermin may be nesting within in a pitched timber roof space.</p>	 <p>What is the probable cause?</p> <ul style="list-style-type: none"> • Access to the roof available through gaps in the construction. • Overgrown tree branches can damage roof eaves and gutters allowing access for birds etc. 	<p>What should be done?</p> <ul style="list-style-type: none"> • Cover water tanks within the roof space with a suitable lid. • Check roof space and water tanks annually for any evidence of nesting. • Close off all obvious means of roof access. • Do not block off roof eaves ventilation. If nesting occurs, it may be necessary to engage pest control specialists. • Note some breeds of birds are an at-risk species. • If in doubt, seek further advice.



18 Birds nesting at eaves level.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <ul style="list-style-type: none"> • Bird droppings on the ground under the projecting roofs eaves soffit. • Occurs during the breeding season March to May. 	 <p>What is the probable cause?</p> <ul style="list-style-type: none"> • Swifts tend to return to breeding sites including older type roofs with timber eaves. • New gutters and eaves hinder the familiar nesting territory. 	<p>What should be done?</p> <ul style="list-style-type: none"> • Swifts are an increasing at-risk bird species. • Schools may consider and purchase a minimum of three purpose made swift boxes, as they nest in colonies. • Fixings are relatively easy, and the boxes are lightweight for cleaning and demounting. • Bird's freefall when leaving the nest, so ensure there is a clear flight path outside the box. • In summary, it may present seasonal biodiversity opportunity for maintenance in education.



19 Sagging roofs.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <p>Damaged timber roof structure causing substantial leaks to a classroom.</p>	 <p>What is the probable cause? Sagging roofs can be caused by:</p> <ul style="list-style-type: none"> • Overloading of the roof, for example by additional water tanks. • Re-roofing a slated roof with heavier concrete tiles. • Inadequate design of the roof structure. • Weakening of roof timbers owing to rot or decay of the materials. 	<p>What should be done?</p> <ul style="list-style-type: none"> • Remedies for structural sagging is beyond the scope of maintenance works. • Substantial reconstruction may be necessary. • If in doubt, seek professional advice.

20 Condensation in roof spaces.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <ul style="list-style-type: none"> • Condensation in a roof space discovered during a maintenance inspection. • Moisture is present under the roofing felt between the sloping timber rafters. • No water leaks are evident. 	<p>What is the probable cause?</p> <ul style="list-style-type: none"> • Condensation can occur on the underside of poorly insulated roofs or the surfaces of “cold bridges”. These are part of the roof less well insulated than the surrounding areas. • Condensation can occur during the winter months, particularly in cold, damp weather. <p>The most notable problems are:</p> <ul style="list-style-type: none"> • Roofing felt problems. • Uncovered cold water storage tanks may generate moisture. • Recessed light fittings in ceilings are small moisture flues sucking air into the roof space. 	<p>What should be done?</p> <p>Key points are: Proper roof space ventilation.</p> <ul style="list-style-type: none"> • Ensure adequate ventilation of pitched and flat roofs. • Do not allow the eaves in pitched roofs to be become blocked by the insulation or other materials. <p>Open classroom windows for natural ventilation during, between and after use.</p> <ul style="list-style-type: none"> • Restrict vapour entering roof. • Surfaces affected by mould growth and decolourisation should be treated with an appropriate fungicide wash at regular intervals. • Ideally annually, and before any redecoration.

21 Asbestos products in roof coverings.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <p>Asbestos product are very occasionally discovered in roof coverings to older school buildings.</p>	<p>What is the probable cause?</p> <ul style="list-style-type: none"> • In some older school buildings, roof coverings incorporating asbestos fibre may be present. • In some cases, the natural age of the material can pose a health hazard, which warrants its removal. 	<p>What should be done?</p> <p>Refer to Chapter 8 and seek specialist advice.</p>

22 Lean to / mono pitch panel leaks.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <ul style="list-style-type: none"> • Lean to/ mono pitch roof leaks to an upper floor corridor ceiling. • Access to high level ceiling for inspection may not be readily available. • Loose or individual ceiling tiles that are disturbed by water volume from leaks. • Floors require constant vigilance with some areas not in use. 	 <p>What is the probable cause?</p> <p>Roof leaks to roofs can be caused by:</p> <ul style="list-style-type: none"> • Loose screw or gasket fixings. • Defective flashings. • Missing sealants. • Inadequate seams or overlap of roof panels. • Services upstands joint defects. 	<p>What should be done?</p> <ul style="list-style-type: none"> • Insulated roofing panels are typically single piece factory engineered metal panels systems. • They consist of metal base, integral insulation between and a profiled metal top cover sheet. • The panels are factory made and fitted as a unit. The panels are ideally suited to low roof pitches and a long dimensional span. • Easy access for inspection may not be available, for high ceiling roofs. • Lean to roof junctions may not typically be visible from ground level or within the school interiors. • Where leaks from high level Mono pitch roofs occurs, seek specialist advice.

23 Green roof gutter blocked.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <p>Ceilings leaks can occur at ground floor corridor.</p> <ul style="list-style-type: none"> • Mono-pitch green roof with the gutter not visible from ground level. • Leaks can occur if the gutter gets blocked. 	 <p>What is the possible cause?</p> <p>Roof gutter maybe blocked to a Lean to / Mono pitched roof.</p> <ul style="list-style-type: none"> • Caretaker photo showing location where internal leaks can occur at internal downpipes. • The internal (hidden) gutter cannot be seen from ground level in order to maintain it. • The gutter length has inadequate falls. 	<p>What can be done?</p> <ul style="list-style-type: none"> • Regular and safe inspection is advised of green roofs. • Roof requires irrigation and weeding annually as part of a planned maintenance regime. • Clear any hidden gutters that can become clogged with leaves, debris and in particular bird nests from (March to June) • If in doubt, seek expert advice.

24 Roof damaged by other means.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <ul style="list-style-type: none"> • Single storey roof gutter damaged. • Aluminium gutter becomes loose and leaks. 	 <p>What is the possible cause?</p> <ul style="list-style-type: none"> • Isolated incident out of school hours. • Refuse vehicle or equivalent reversed back and hit the projecting eaves gutter. 	<p>What can be done?</p> <ul style="list-style-type: none"> • School CCTV system should capture or record incidents. • The Board of Management should seek professional advice.

4.0 FLOORS AND WALLS

4.1 INTRODUCTION

4.2 FLOORS ►

4.3 WALLS ►

4.4 FLOOR TYPES AND COMPONENTS ►

4.5 WALL TYPES AND COMPONENTS ►

4.6 MAINTENANCE ISSUES TO CONSIDER ►

4.1 INTRODUCTION

The ground floor and external walls of school buildings, in conjunction with the roof form the envelope, which separates the accommodation from the external environment. The key functions of the ground floor and external walls are:

- The exclusion of dampness and moisture.
- To provide appropriate levels of thermal comfort.

4.2 FLOORS

School floors are a composite construction: the floor structure and finishes. Traditionally, older school buildings had timber floors. The structure in most school buildings constructed after 1970 is a concrete slab construction. The ground floor generally has a cast insitu slab on rigid board insulation on an untearable damp-proof membrane. Upper floors tend to be pre-cast concrete units prefabricated off-site with a follow-up smooth screed finish. Together, the structure and floor finish material covering have a combined requirement for:

- loading,
- fire performance,
- smoothness, comfort,
- slip resistance to ensure minimal tripping hazards,
- water resistance to withstand a reasonable level of footwear wetness,
- hygiene performance to ensure the school cleaning staff can easily clean smells or odours,

Given the above, schools should obtain the right maintenance advice for all floor finishes. Floors get damaged due to wear and tear and constant footfall by school users. Ensure any minor defects do not become a potential trip hazard. Maintenance of floors is a regular issue, and all school staff are responsible for reporting any floor problems or potential slip hazards to prevent accidents. Ensure floor finishes are safe and provide an accessible and inclusive environment for all school users. Refer also to Chapter 8 Internal Finishes.

4.3 WALLS

External walls generally do not require the same maintenance as roofs and rainwater goods. However, waiting for wall problems to disappear is not advisable. Problems may build up over several years, and a minor leak ignored may develop further defects not visible to the naked eye. Regular inspection tasks include monitoring any cracks, checking the condition of the mortar pointing between blocks, bricks & stones and the state of any plaster, render or paint coatings. The following is a general list to consider when inspecting and maintaining external walls.

- The surface/finish should be washed & cleaned down annually as part of a general inspection.
- Painted rendered surfaces are repainted every five years to seven years.
- Use good quality external masonry paint, apply three coats and apply in accordance what it says on the tin.
- Routine inspection should occur after a storm, and any defects should be noted.
- Carefully consider how the wall is cleaned to ensure the covering/finish is not damaged. The works should be carried out strictly following the manufacturer's instructions.
- The most common problems with exterior facade walls are hairline or structural cracking.

4.4 FLOOR TYPES AND COMPONENTS

Maintenance of floor finishes is covered in Chapter 8. However, as a guide: floor finishes, depending on the age of the school building and teaching location, typically are:

Vinyl	Linoleum	Marmoleum	Carpet	Timber board	Ceramic tile	Terrazzo
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4.5 WALL TYPES AND COMPONENTS

The following are examples of external wall types. Regardless of the building age, problems may occur when periodic maintenance is not carried out. Typical types of wall build-up used in schools are as follows:

1. Cavity wall construction. Two wall leaves with insulation within the cavity.
2. Older buildings have thick-width walls.
3. Insulated render systems.
4. Fibre cement, aluminium composite or timber cladding systems.



Painted rendered walls



Brickwork walls



Render & stone walls.



Aluminium cladding





Painted timber cladding







Hardwood timber facade



4.6 MAINTENANCE ISSUES TO CONSIDER WITH FLOORS AND WALLS.



No:	What goes wrong?	Why?	Maintenance requirements.
1	Penetrating dampness through solid walls.		
2	Penetrating dampness caused by foundation settlement.		
3	Penetrating dampness and damp-proof courses.		
4	Penetrating dampness by defective rainwater goods.		
5	Penetrating dampness caused by defective sealants.		
6	Penetrating dampness caused by wall or roof junctions.		
7	Rising dampness and damp-proof membranes in floors		
8	Rising dampness and damp-proof courses in floors		
9	Efflorescence on brickwork walls.		
10	Staining on brickwork walls.		
11	Frost action on walls.		
12	Structural wall cracks		
13	Bulging walls.		
14	Algae, mould and lichens on walls.		
15	Condensation on wall surfaces.		
16	Leaking heating pipes in floors.		
17	Condensation on floor surfaces.		
18	Radon within buildings.		
19	Timber wall cladding issues		
20	Other cladding issues.		



1 Penetrating dampness through solid walls.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <ul style="list-style-type: none"> • Penetrating dampness through walls. • Most commonly through walls exposed to the prevailing wind (driving rain) or where evaporation is poor. 	 <p>What is the probable cause?</p> <p>Damp penetration arises from solid wall construction, for example solid brick or stone walls.</p>	<p>What should be done?</p> <ul style="list-style-type: none"> • Solid wall construction is common in older school buildings. • Isolated patches of dampness or leaking will usually be due to a specific cause and can be dealt with by appropriate treatment. • More widespread dampness is likely beyond the scope of routine maintenance. • In such cases see expert advice on ways to deal with dampness.


2 Penetrating dampness caused by foundation settlement.		
What goes wrong?	Why?	Maintenance requirements
 <p>What are the problems?</p> <ul style="list-style-type: none"> • Cracks in blockwork walls that appear in a stair-step pattern. • Diagonal wall crack at windows / other openings. • Uneven or cracks in floors. • Separation gaps around doors or windows. • Doors and windows sticking. 	 <p>What is the probable cause?</p> <p>Cracks which can be caused by:</p> <ul style="list-style-type: none"> • Structural defects. • Foundation settlement. • Weak mortar or plaster mixes. • Inadequate design, construction or materials. 	<p>What should be done?</p> <ul style="list-style-type: none"> • Wall cracks should be repaired or sealed to prevent dampness penetration. • Expert advice is advised to assess the extent of the problem. The school should engage the services of a registered Structural Engineer. Refer to Chapter 12.9.

3 Penetrating dampness and Damp-Proof Courses.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <ul style="list-style-type: none"> Penetrating dampness caused by defective damp proof courses. Rising dampness through floors and walls owing to a lack or defective damp proof course and or damp-proof membranes. 	 <p>What is the probable cause?</p> <ul style="list-style-type: none"> The absence of Damp Proof Courses (DPC's) in walls or close to ground level. Generally, in older school buildings where DPC's would not have been used at the time. In newer school buildings DPC's might be incorrectly installed. 	<p>What should be done?</p> <ul style="list-style-type: none"> Older Boyd Barrett type primary school buildings constructed between 1930's and the 1960's do not typically have damp proof courses in the external walls. Seek expert advice on the best way to overcome dampness penetration arising from DPC's.

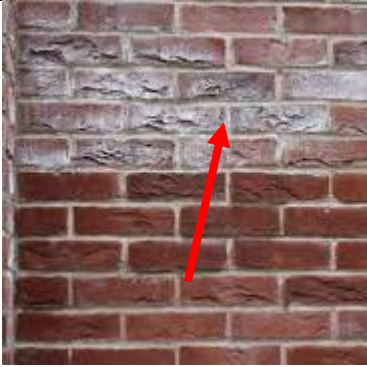

4 Penetrating dampness by defective rainwater goods		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <p>Penetrating dampness by defective rainwater goods</p> <ul style="list-style-type: none"> Rainwater downpipe is blocked and or roof gutter is damaged. Rainwater running down the external wall façade is an clear indication of a roof gutter problem. 	 <p>What is the probable cause?</p> <ul style="list-style-type: none"> Leaks in rainwater gutters or downpipes. Blocked or clogged roof gutters. Defective splits in aluminium gutter joints. Popped or missing metal rivets to aluminium roof gutters, caused after severe or freezing temperature. 	<p>What should be done?</p> <ul style="list-style-type: none"> Inspect rainwater gutters and downpipes regularly. Ensure all fixings are in place. Remove or replace any defective / cracked gutters or downpipes where the cracks cannot be repaired. If in doubt, obtain further advice.



5 Penetrating dampness caused by defective sealants.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <p>Door's thresholds are heavily trafficked areas and subject to wear and tear therefore defects can occur including dampness or leaks.</p>	 <p>What is the probable cause?</p> <p>Failure of mastic sealants surrounding doors and windows. Mastic failure can be caused by:</p> <ul style="list-style-type: none"> • Inadequate workmanship with original application. • Premature mastic failure. • Wear and tear with continued use of time. • Heavy goods moved across door thresholds. 	<p>What should be done?</p> <ul style="list-style-type: none"> • Check door and window surrounds for dampness not caused by condensation. • Carefully remove the existing mastic and replace with a suitable new level access material or compound. • Ensure to follow instructions for use of mastic. • If in doubt, seek further advice.


6 Penetrating dampness caused by building wall or roof junctions.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <p>Penetrating dampness caused by building wall junctions.</p>	 <p>What is the probable cause?</p> <p>Moisture ingress at the wall junction between extensions and existing building is caused by:</p> <ul style="list-style-type: none"> • Missing cavity trays. • Faulty DPC's. • Defective lead flashings at pitched roofs. • Movement due to shrinkage or equivalent thermal issue. • Differential settlement of the foundations. 	<p>What should be done?</p> <ul style="list-style-type: none"> • Material junctions are potential weak points where manual workmanship is typically required to finish or seal and thus weather adjoining materials. • Practical patch repairs to junctions requires a good understanding of weathering details in construction. • As such it is likely to outside of the scope of school maintenance staff. • Lead material is expensive to replace or install. • If in doubt seek further advice.



7 Rising dampness and damp-proof membranes in floors.		
What goes wrong?	Why?	Maintenance requirements
<div style="text-align: center;">  </div> <p>What is the problem?</p> <ul style="list-style-type: none"> Rising dampness in concrete floors. Damp proof membranes are fitted below concrete floors and therefore not visible. 	<p>What is the probable cause?</p> <p>Defective damp proof membrane (DPM) arising from:</p> <ul style="list-style-type: none"> Punctures due to poor workmanship. Junction where DPC and DPM meet incorrectly lapped. Failure of the membrane material. Absence of Damp Proof Membrane (DPM) in solid ground floors. In older school buildings, DPM's would not have been standard practice. In newer school buildings DPM's might be omitted in error or incorrectly installed. 	<p>What should be done?</p> <ul style="list-style-type: none"> Check timber or concrete floors for signs of dampness and staining on walls where dampness may have risen. Seek expert advice on whether or not the DPM can be readily fixed at junctions or whether or not the whole DPM needs to be replaced.

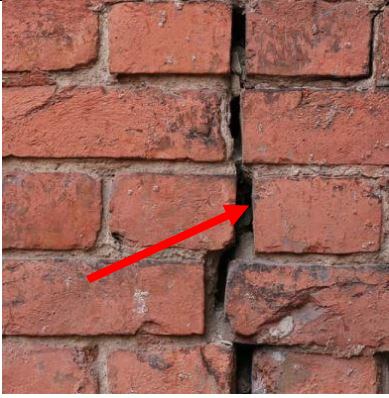

8 Rising dampness and damp-proof courses in floors.		
What goes wrong?	Why?	Maintenance requirements
<p>What is the problem?</p> <p>Rising dampness that bypasses the DPC can be caused by:</p>	<p>What is the probable cause?</p> <ul style="list-style-type: none"> Mortar droppings in cavity walls. External render bridging the DPC. Building extensions or similar without the proper cavity trays fitted to weather the walls. <p>Moisture that bypasses the DPC in wall at ground level:</p> <ul style="list-style-type: none"> DPC and DPM junction is faulty. DPC is incorrectly installed. Ground level is externally higher than level of DPC. 	<p>What should be done?</p> <ul style="list-style-type: none"> Check external and internal wall faces for signs of dampness, particularly at junctions of school extensions. Check for decolourisation and dampness at wall and floor junctions. Excavate the external ground or soil level that is higher than the wall DPC. Reduce the ground level to at least 150mm below the DPC. Seek advice in relation to the recommended detail or any construction faults.



9 Efflorescence on brickwork walls.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <ul style="list-style-type: none"> • Efflorescence is a white powdery substance that occurs on brickwork wall surfaces. 	 <p>What is the probable cause?</p> <ul style="list-style-type: none"> • Efflorescence occurs when salts and minerals within a masonry wall dissolve in water which migrates to the surface. • It may not pose an immediate risk, but its continued appearance should warrant further investigation. 	<p>What should be done?</p> <p>Efflorescence is essentially harmless and should disappear itself after a period of time. Schools should take note below if removal of small areas of efflorescence is carried out.</p> <ul style="list-style-type: none"> • The best time for removing efflorescence is when the weather is warm and dry. • On some smooth surfaces, use a stiff brush. • Rinse with a pressure washer, and re-rinse or brushing may be necessary. • Chemical or acid cleaning is not recommended for use on masonry walls to remove efflorescence as it can further stain or burn the surface. • If in doubt seek further advice.

10 Staining on brickwork walls.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <p>Unightly dark / black staining to a high level brick façade.</p>	 <p>What is the probable cause?</p> <p>Staining in brickwork finishes usually occurs:</p> <ul style="list-style-type: none"> • When rainwater runs freely down the external facade, with no protection given. • Roof gutter problem. • Inadequate roof parapet detail when first constructed. 	<p>What should be done?</p> <ul style="list-style-type: none"> • Check the external wall face for staining. Wash down affected area with clean water. • Green stains may be harder to clean or remove. • In addition, many stone and brick cleaning solutions contain strong acid which may permanently damage the materials. • Follow the manufacturer's instructions correctly. • If in doubt seek further advice.

11 Frost Action on walls.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <ul style="list-style-type: none"> Frost action cracks under external render (plaster) walls are vulnerable to water penetration Frost penetration can lead to spalling of the render surface. 	<p>What is the probable cause?</p> <ul style="list-style-type: none"> Stronger mortars are more prone to frost attack and are vulnerable to shrinkage and cracking. Render fails in random areas and crumbles away from the surface leaving unsightly pock marks and other blemishes. 	<p>What should be done?</p> <ul style="list-style-type: none"> Check the mortar and plasterwork for any wall or render cracks. If the wall face has already been attacked by frost, take photos for record purposes. It may be necessary to seek advice for the repairs of the damaged area. If the problems continue, seek professional advice.


12 Wall structural cracks		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <ul style="list-style-type: none"> Substantial diagonal external wall cracks. Internally the cracking follows the mortar joints of the blockwork courses in a stair step pattern. 	 <p>What is the probable cause?</p> <p>Wall structural cracks can be caused by:</p> <ul style="list-style-type: none"> Settlement of structural elements, (e.g., the differential settlement of a building extension relative to the original). Lack of, or incorrectly placed building movement joints Shrinkage due to moisture evaporation. Expansion of water penetration. Breakdown of concrete elements. Settlement of the wall foundations. 	<p>What should be done?</p> <p>Check walls and floors internally and externally for cracks.</p> <ul style="list-style-type: none"> Structural wall cracking repairs should be carried out by technical personnel. Obtain professional advice to understand the causes of the problem and to determine a suitable structural solution. Ensure re-rendered areas are allowed good time to dry before re painting. If in doubt seek expert advice from a registered Structural Engineer.


13 Bulging walls.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <ul style="list-style-type: none"> Noticeable or distinctive walls out of plumb or alignment. Large vertical cracking to external brickwork or rendered blockwork walls. 	 <p>What is the probable cause?</p> <p>Bulging of the walls is caused by a number of factors:</p> <ul style="list-style-type: none"> Exerted pressure when walls expand from moisture absorption which freezes and thaws in cycles. A lack of proper fixings (wall-ties) and expansion joints in the masonry. Vibration from road traffic. Increasing the floor loads or building on additional floors The original walls being insufficiently thick in relation to the height. Lack of lateral restraint between the external walls and floor joists, beams and partitions 	<p>What should be done?</p> <ul style="list-style-type: none"> Check walls and floors internally and externally for cracks. The wall should be inspected by a registered structural engineer, given the potential for structural failure. An Engineer can arrange plastic or similar tell-tale monitoring strip devices to be fixed to monitor wall cracking over a period of approximately six months etc. Any increase in cracks is recorded then reported for a professional survey report.

14 Algae, Mould, and Lichens		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p>	 <p>What is the probable cause?</p> <p>Algae, lichen or mould can cause</p>	<p>What should be done?</p> <ul style="list-style-type: none"> Major wall cleaning is likely beyond the school maintenance budget. A phased cleaning process is recommended. Red algae are tough to remove. A typical DIY misconception is to use heavy-duty bleach, which may remove or reduce the red patches. Render surfaces may be further damaged, and the

<ul style="list-style-type: none"> • Red algae patches more noticeable on lighter surfaces such as rendered walls. • The problem can be an eye sore and of no fault with routine school maintenance. 	<p>staining to external wall surfaces, especially rendered blockwork.</p> <ul style="list-style-type: none"> • Red algae are commonly seen on properties throughout Ireland. • Buildings located on hillsides or exposed locations are more prone to attack. • Severe gusting wind carries algae spores, which can be deposited on any external surface. • The algae are technically a biofilm, a combination of algae, mould, and mildew that sticks to the damp rendered surface. 	<p>bleach flows into the water drainage system.</p> <ul style="list-style-type: none"> • The algae can reappear. • If in doubt, seek further advice.
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<div style="background-color: #004a33; color: white; padding: 5px;"> 15 Condensation on wall surfaces. </div>		
What goes wrong?	Why?	Maintenance requirements
<div data-bbox="165 913 553 1296" data-label="Image"> </div> <p>What is the problem?</p> <ul style="list-style-type: none"> • Condensation is reported as being the most common form of dampness in school buildings. • The problem can occur on buildings, no matter its age or location. 	<p>What is the probable cause?</p> <ul style="list-style-type: none"> • Condensation occurs when too much moisture is being produced in the building. • There is insufficient natural ventilation. • Older school properties are more likely to suffer dampness and condensation. • However, it can occur in more modern well insulated new buildings also. <p>Further guidance note: As schools improve their insulation and airtightness to making them more energy efficient, an unintended consequence is occasional condensation problems. This is caused by reduced natural ventilation and limits a buildings' ability to 'breathe'</p>	<div data-bbox="1171 936 1273 1245" data-label="Image"> </div> <p>What should be done? Schools may consider purchasing a digital hygrometer, a handheld pocket-sized humidity sensor which measures moisture and relative humidity levels.</p> <p>Further condensation advice.</p> <ul style="list-style-type: none"> • Prolonged periods of condensation can lead to the formation of black mould and potential health impacts. • Ensure there is sufficient wall ventilation and avoid trapped moisture. • Open and close windows regularly at the first sign of condensation on the internal wall surfaces. • If the problems persist obtain professional advice.


16 Leaking heating pipes in floors.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem? Leaking heating pipes under a timber floor</p>	<p>What is the probable cause?</p> <p>Leaks pipes can be caused by:</p> <ul style="list-style-type: none"> • Old age and corrosion. • Burst pipe due to freezing. • Poor pipe connections. • Punctures due to poor plumbing pipework. 	<p>What should be done?</p> <ul style="list-style-type: none"> • Under floor leaks are beyond the scope of maintenance. • If in doubt, seek expert advice. • Refer also to Chapter 7 Building Services.

17 Condensation on floor surfaces		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem? Condensation on floor surfaces.</p>	<p>What is the probable cause?</p> <p>High humidity levels, combined with cold, usually uninsulated floor surfaces.</p>	<p>What should be done?</p> <ul style="list-style-type: none"> • Ventilate the space as much as possible. • Improve the heating output level if possible. • Consider a change of the floor surface to low maintenance vinyl or linoleum. • If in doubt, seek further advice.

18 Radon within buildings.		
What goes wrong?	Why?	Maintenance requirements
<p>What is the problem?</p> <ul style="list-style-type: none"> • Schools in some parts of the country are more likely to have a radon problem. These parts of the country are called high radon areas. • The school Principal, along with the Board of Management, has responsibility for ensuring 	<p>What is the probable cause?</p> <ul style="list-style-type: none"> • Radon is an odourless, colourless, radioactive gas that occurs naturally in the subsoil. • In certain circumstances, it can accumulate in what are considered to be hazardous concentrations inside buildings. • Radon gas infiltrates buildings from the underlying ground 	<p>What should be done?</p> <ul style="list-style-type: none"> • The Department of Education funds radon testing, and any remediation work required. • Most schools have already been tested for radon as per Circular letter M46/2001. • For example, work such as replacing windows,

<p>that students and staff are not exposed to radon levels greater than the reference level.</p> <ul style="list-style-type: none"> Where test results were below the reference level, it is not necessary to retest unless significant work has been carried out on the building. 	<p>through cracks in floors, damaged membranes, and penetrations for building services and cavities and voids within the construction.</p>	<p>replacing the central heating system or insulating the school may result in changes to ventilation patterns with consequent changes in radon levels. In addition, an extension added to a school, then the new rooms should be tested for radon.</p> <ul style="list-style-type: none"> The Board of Management should employ a recognised specialist to conduct a radon survey of the building to check radon levels. If in doubt, contact the EPA. <p>EPA headquarters office Environmental Protection Agency Johnstown Castle Estate County Wexford. Y35 W821 Freephone Tel: 1800 300 600 Email: radon @epa.ie</p>
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<div style="background-color: #004a7c; color: white; padding: 5px;"> 19 Timber wall cladding </div>		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <ul style="list-style-type: none"> Timber cladding panelling problems to an older primary school building. The timber has further deteriorated despite subsequent repairs. 	 <p>What is the probable cause?</p> <ul style="list-style-type: none"> On newer schools any timber cladding on external surfaces is typically sheeted in a vertical (not horizontal) pattern to allow rainwater to disperse downwards. On the example here, the horizontal joints have allowed water infiltration and accelerated timber to rot and deteriorate. 	 <p>What should be done?</p> <ul style="list-style-type: none"> Arrange a survey by a professional advisor, who, will prepare an assessment report of the cladding issues. Rotten timber panels beyond their life span should be carefully replaced by a more robust low maintenance cladding material. If timber is used, it should be in small, sheltered areas only. If in doubt, seek further advice.

20 Other wall cladding		
What goes wrong?	Why?	Maintenance requirements
<div style="text-align: center;">  </div> <p>What is the problem?</p> <p>Fibre cement wall cladding damaged in extreme weather.</p>	<p>What is the probable cause?</p> <ul style="list-style-type: none"> Some panels can deteriorate by means of splitting, peeling or cracking given the slim panel thickness. Other problem gaps at installation joints. Junctions with other roof materials. Excessive wind suction in areas where a “wind tunnel” occurs in different building levels. 	<p>What should be done?</p> <ul style="list-style-type: none"> Fibre cement panelling requires an annual maintenance inspection. Seek expert advice from the original cladding manufacturer. In addition, contact a professional advisor.

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5.0 DOORS AND WINDOWS

- 5.1 INTRODUCTION
- 5.2 SCHOOL DOOR AND WINDOW TYPES ►
- 5.3 IMPORTANT CONSIDERATIONS ►
- 5.4 VENTILATION AND OVERHEATING IN CLASSROOMS ►
- 5.5 GLASS SAFETY IN SCHOOLS ►
- 5.6 HIGH LEVEL WINDOWS ►
- 5.7 EMERGENCY BREAKAGES PLAN ►
- 5.8 ISSUES TO CONSIDER WITH DOORS AND WINDOWS ►

5.1 INTRODUCTION

This Chapter provides guidance for maintaining doors and windows. Doors and windows are important fixtures subjected to substantial wear and tear in school buildings. Constant opening and closing and exposure to the elements inevitably take their toll. The most notable issues are:

- Leaks and draughts,
- Damage to the building fabric,
- Unnecessary heat loss,
- Additional energy costs.

Where routine maintenance of doors and windows is no longer possible, professional advice is essential for school boards of management.

5.2 SCHOOL DOOR AND WINDOW TYPES

A planned maintenance calendar with inspection timelines is included at the end of this document. Before carrying out routine maintenance, consider the following door and window types and what fixtures are at your school. Door and window material typically are:

- Aluminium
- UPVC
- Timber
- Steel.



Typical door and window issues include:

- The locks are no longer working.
- Alarms.
- Trickle vents broken or damaged.
- Safety glass condition.
- Handles and other Ironmongery fixtures.
- Single-glazed windows in older school buildings

5.3 IMPORTANT CONSIDERATIONS

Every school has a legal requirement to ensure that fire and entrance doors are correctly installed and maintained as fit for purpose. All doors should be regularly inspected by competent persons for damage that may prevent the door from performing in the event of an evacuation event or fire drill. This may form part of the risk assessment for the building. Door closers are to be carefully considered. Pupils may try to close the door behind them, as they might normally do at home. Door closers restrict them doing this which can in turn lead to breakage of the closer with resulting maintenance problems. Doors should be easy to open and close. The frame and opening mechanism should minimise the risk of collision and injury to fingers etc. A glazed viewing panel should be provided in solid core doors and a side panel to teaching areas.

SCHOOL FIRE DOORS

1. Fire doors in schools are a legal requirement and an integral part of school buildings.
2. Fire doors are designed to withstand intense temperatures for at least 60 minutes.
3. Fire doors provide vital time for people to evacuate to safety.
4. Fire doors should never be propped or wedged open in school buildings.
5. Fire doors must be inspected regularly, maintained and kept in good condition.

SCHOOL WINDOWS

1. Windows are one of the most critical building elements in school buildings.
2. Windows allow natural daylight to enter the classroom and increase productivity.
3. Windows allow natural ventilation (fresh air) to circulate in the teaching/learning spaces.
4. Windows provide a connection for pupils to connect/observe with the outside environment.
5. Windows provides important safety in creating a comfortable and stimulating environment.

5.4 VENTILATION AND OVERHEATING IN CLASSROOMS.

Generally, ventilation in school classrooms is provided naturally via opening windows. However, it is often found that there needs to be more awareness for the ventilation system to work correctly. Schools with high- and low-level windows, for example, or south-facing classrooms, can suffer overheating and a lack of fresh air intake. One reason identified with this guidance was that windows must be opened more often to ventilate the room adequately. The result is a build-up of carbon dioxide and a stale or stuffy atmosphere. Natural ventilation in schools relies on user intervention, and staff are required to open the windows to achieve suitable ventilation levels. Both high- and low-level window sections must be opened to allow adequate fresh air flow to the rear of the room. Some staff members may not be aware of this solution to overcome overheating or ventilation issues—high-level window sections which are supposed to open may be challenging to reach. In older schools' timber poles are required to open the top window sections. In newer schools, manual winders are fitted to assist with the opening. The school should seek further advice where lower sections of windows are difficult to reach due to extensive lengths of perimeter furniture.

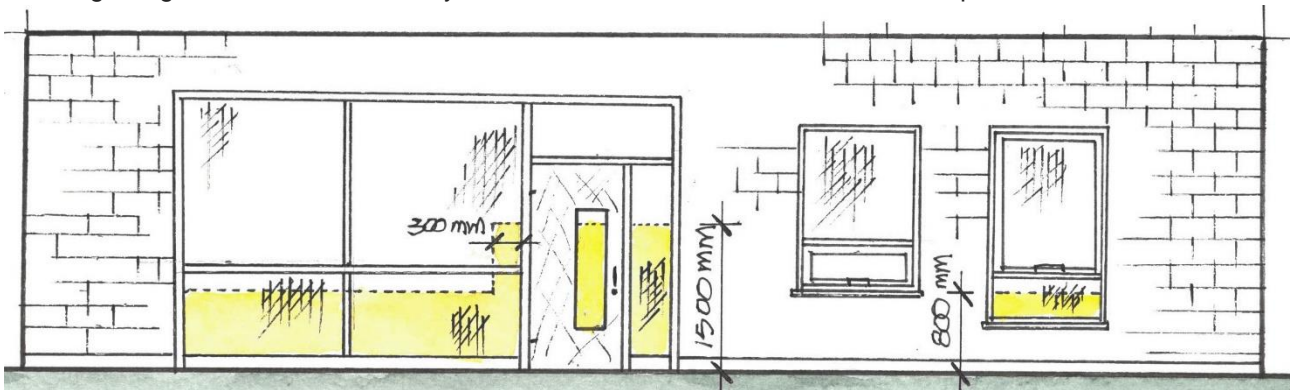
5.5 GLASS SAFETY IN SCHOOLS.

School authorities should be aware of the specific regulations and responsibilities regarding safety glass. Older school buildings may have glass that is not compliant with the current building regulations. Others may have repaired or replaced doors and windows with glass that is not appropriate. Newer school buildings have good quality glazing, but it is important to understand health and safety issues. As in all buildings, people must be protected from possible collision with an appropriate risk assessment. The main risk is that glass can shatter should collision occur.

Glazing within schools should be sufficiently robust to:

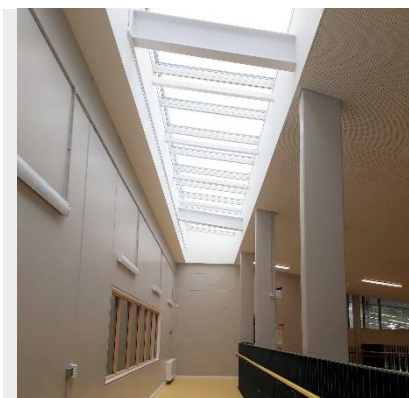
- Protect or shield people from impact.
- Resist impact without breaking.
- Should it break on impact does so in a way unlikely to cause injury.

Safety glass must be used in all replacement windows and doors. For internal screens and windows, safety glass should also be specified and installed. The use of Georgian wired glass, for example, is no longer recommended in doors and screens. Any glazing that has shattered should be replaced immediately. Ensure that all glazing below 800mm is Safety Glass and is kite marked. If in doubt seek professional advice



5.6 HIGH LEVEL WINDOWS.

High level / clerestory windows to corridors and teaching spaces given their location are difficult to operate and maintain. Some single storey buildings contain high level windows, and safe access for regular inspection is not always possible for maintenance. Older schools may have manual opening limited to handheld timber poles or lightweight aluminum reach device. New buildings using a proprietary mechanical winding system, placed either in the window reveal or at high level on the wall, above the normal pupil's head zone height. Electrically operated systems are expensive to install and maintain and should be avoided.



High level roof glazing which is not easily accessible.



PE Hall high level windows maintenance requires health and safety measures.




General Purpose Room glazing.

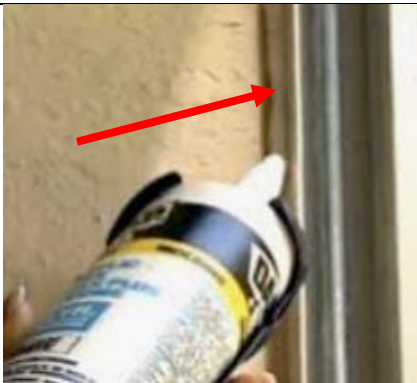

5.7 EMERGENCY BREAKAGES PLAN.



1	Educate staff and students on any Door or Window glass breakage.
2	The person who observes the breakage must inform the school principal immediately.
3	If any glass is on the floor / may cause risk to others in the area, the area is not to be unattended.
4	Arrange for the area to be cordoned off immediately.
5	Never attempt to handle broken glass without adequate Personal Protective Equipment (PPE)



5.8 ISSUES TO CONSIDER WITH DOORS AND WINDOWS.

No:	What goes wrong?	Why?	Maintenance requirements.
1	Fire door issues.		
2	Excessive draughts.		
3	Distortion or warping of the frames.		
4	Condensation.		
5	Operating problems.		
6	Glass breakage by accidental impact.		
7	Glass breakage for unknown reason.		
8	Damaged handles / ironmongery defects.		
9	Wear and tear with age.		
10	Leaks at doors and windows.		
11	Fungal decay.		
12	Timber decay or damage.		
13	Damaged window cill.		
14	Single glazed windows to a protected structure.		



1 Fire door issues.		
What goes wrong?	Why?	Maintenance requirements
 <p>What are possible problems?</p> <ul style="list-style-type: none"> • Fire door sign missing, or signage text worn/damaged? • Intumescent strip damaged? • Door not fully self-closing? • Frame plumb with a door leaf? • Insufficient hinges to carry door weight? • Loose hinges not maintained? • No manifestations on the glass? • Pull handles worn or loose? • Door closer missing or the high-level arm removed. 	<p>What is the probable cause?</p> <p>Doors in school buildings</p> <ul style="list-style-type: none"> • Door closers are to be carefully considered by school authorities as a priority with maintenance in mind. • Fire doors require a good understanding of evacuation in a fire. • Refer to guidance at 5,2 above. 	<p>What should be done?</p> <ul style="list-style-type: none"> • Fire doors are relatively sophisticated fixtures and should be specified, supplied, and installed/repaired by competent persons. • Seek advice and engage a specialist contractor to carry out repairs. • If necessary, replace like with like doors and ironmongery. • If in doubt, seek professional advice.

2 Excessive draughts.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <ul style="list-style-type: none"> • While all school buildings require natural ventilation, draughts can occur. • Excessive draughts in the building can occur when there is a noticeable current of air inside a building. 	 <p>What is the probable cause?</p> <ul style="list-style-type: none"> • Poorly fitted doors or windows. • Single-glazed windows beyond their life span. • Damaged trickle vents in windows or walls. • Cross corridor flow draughts. 	<p>What should be done?</p> <ul style="list-style-type: none"> • Fit brush seals or strips. • Apply self-adhesive draught strips. • Use caulk or silicone to seal gaps. • Use a temporary sealing product. • Check locks and hinges are in good working order. <p>If the problem persists, obtain further advice.</p>



3 Distortion or warping of the frames.		
What goes wrong?	Why?	Maintenance requirements
 <p>What are the problems?</p> <ol style="list-style-type: none"> 1. Inferior PVC doors or windows fitted to a school classroom showing signs of wear and tear. 2. Noticeable warping of the frames. 3. Wall reveals can also crack. 4. Exit doors don't operate easily unless by force? 	 <p>What are the probable causes?</p> <ul style="list-style-type: none"> • Shrinkage or swelling due to excessive moisture. • Extreme temperature changes. • Expansion and contraction of the frames. • Inadequate design and fabricated large width windows. 	<p>What should be done?</p> <ul style="list-style-type: none"> • Doors And windows and should be easy to open and close. • In the first instance, the school should contact the original supplier of the goods to rectify any problems under warranty. • Replacement for schools, available at www.gov.ie. • If in doubt, expert advice is recommended. • If the problem cannot be easily rectified, refer to the Department of Education, TGD 021-1a Window replacement for schools, available at www.gov.ie


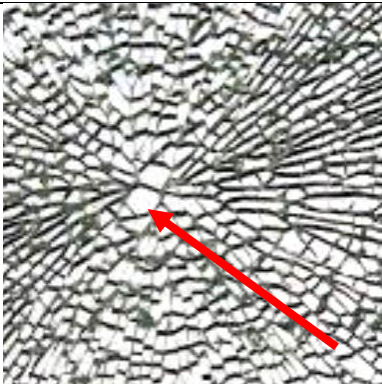
4 Condensation.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <ul style="list-style-type: none"> • Condensation in classrooms on the surface of windows. • Moisture is present on the glass. • Water drips down on the window cills causing further damage to adjacent materials. 	 <p>What is the probable cause?</p> <ul style="list-style-type: none"> • Condensation can occur during the winter months, particularly in cold, damp weather 	<p>What should be done?</p> <p>Open the windows regularly and allow fresh air to ventilate the room.</p> <ul style="list-style-type: none"> • Clean windows with mild detergent in warm water. • All gaskets, glazing tapes, sealants and compounds should be checked, internally and externally, for water tightness. • All drainage and ventilation holes are checked and cleaned out regularly. • Encourage ventilation of classrooms, during, between and after use. • If in doubt, seek further advice.



5 Operating problems.

What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <ul style="list-style-type: none"> Opening sections to classroom windows can be difficult to open or close? Windows may have broken or missing restrictors. 	 <p>What is the probable cause? The likely cause is excessive overuse or an inferior handle or restrictor.</p> <ul style="list-style-type: none"> Window restrictors are needed to allow sufficient ventilation and provide safety and security. Restrictors must be strong enough to prevent falls and unauthorised entry through partially opened windows. 	<p>What should be done?</p> <ul style="list-style-type: none"> If the window restrictor works too tight, apply oil or light grease to the mechanisms. Ensure the moving parts of the window are in good working order. Purchase and retain a small stock of replacement handles in storage. If the restrictor is broken or missing, replace it with a good quality product. If in doubt, contact a specialist window contractor.

6 Glass breakage by accidental impact.



What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <ul style="list-style-type: none"> Shattered safety glass to an escape door or classroom window Area has to be cordoned off which impedes school activity. 	 <p>What is the probable cause?</p> <ul style="list-style-type: none"> Accidental impact damage. Storm damage where the closer device breaks. Sports games in the area. Damage from anti-social behaviour or possible vandalism. 	<p>What should be done?</p> <ul style="list-style-type: none"> Understand and recognise the importance of glass safety in school buildings. In basic terms, pupils and glass should never mix. Repair all glass breakages promptly. In the case of glazing at low level or large single panes of glass in doors, appropriate toughened safety glass should be used. If in doubt, seek specialist advice

7 Glass breakage for unknown reason		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <ul style="list-style-type: none"> Shattered safety glass of an escape door. The inside glass panel of the double-glazed unit imploded. The outer glass panel has remained intact. The door is less than seven years old. 	 <p>What is the probable cause?</p> <ul style="list-style-type: none"> Spontaneous glass breakage. Close-up photos may show "butterfly effect" caused by a spontaneous glass breakage. The breakage may be the result of excessive solar gain to windows, particularly in very hot weather or when the school is unoccupied during the summer months. Safety glass is typically heat soak tested at the manufacturing process. Problems for breakage might be due to nickel sulphide inclusion. 	<p>What should be done?</p> <ul style="list-style-type: none"> Spontaneous glass breakage has occurred in school buildings constructed in the last 20 years. The problems tend to occur within the first seven years after the doors or windows were installed. Seek expert advice from a specialist window manufacturer.


8 Damaged handles / ironmongery defects.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <ul style="list-style-type: none"> Given their location, high-level / clerestory windows to 	 <p>What is the probable cause?</p> <ul style="list-style-type: none"> Wear and tear of the ironmongery. 	<p>What should be done?</p> <ul style="list-style-type: none"> The Board of Management should regularly review its existing school windows condition with planned maintenance. This may be by a simple schedule list or if available, marking notes on a floor plan. Electrically operated systems are expensive to install and maintain and should be avoided. If in doubt seek further advice.


<p>corridors and teaching requires forward planning for inspection / maintenance.</p> <ul style="list-style-type: none"> • Windows to school toilets are typically above adult head height level for privacy. • In newer school, opening and closing are controlled using a winding handle mechanism. • Older schools' windows can be awkward to reach. 	<ul style="list-style-type: none"> • Possible anti-social behaviour. 	
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9 Wear and tear with age.


What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <ul style="list-style-type: none"> • Security and maintenance problem with windows at ground floor level. • Domestic-type PVC replacement windows installed to a school approx 20 years ago. • Damage to surrounding wall and window cill materials. 	 <p>What is the probable cause?</p> <ul style="list-style-type: none"> • Significant wear and tear of handles and hinged fixings • Broken handles that are not easy to replace. • Condensation issues are possible within the double-glazed unit itself and the adjoining surfaces. 	<p>What should be done?</p> <ul style="list-style-type: none"> • The school Board of Management should obtain a copy of the Department of Education "Window Replacement" document TGD 021-a available for download at www.gov.ie. • Any replacement windows should be double-glazed. • If in doubt seek further advice.



10 Leaks at doors and windows.

What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <p>Leaks at and around Doors.</p>	<p>What is the probable cause? Damp penetration arises from:</p> <ul style="list-style-type: none"> • Gaps in and around doors and windows. • Poorly fitted doors and windows. • Inadequate damp proof courses. • Failure of mastic sealants. • Damage or missing weatherboards at door thresholds. • Broken glass. 	<p>What should be done?</p> <ul style="list-style-type: none"> • Replace or repair as appropriate. • Decorate timber finishes at regular intervals. • Some causes of leaks, such as the absence of damp proof courses, may be beyond the scope of routine maintenance.

11 Fungal Decay.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <ul style="list-style-type: none"> Fungal decay is most typically wet rot. Dry rot can also attack doors and windows. 	<p>What is the probable cause?</p> <p>See commentary in Chapter 3 on wet and dry rot.</p>	<p>What should be done?</p> <ul style="list-style-type: none"> See commentary in Chapter 3 on wet / dry rot. Note the importance of regular decoration in protecting timber elements against decay.

12 Timber decay or damage.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <ul style="list-style-type: none"> Bespoke hardwood timber doors and frames to a new school. Timber shows signs of decay within a short time after installation. 	 <p>What is the probable cause?</p> <ul style="list-style-type: none"> Window cill detail is vulnerable to wind-driven rain that attacks exposed ends of the timber. Timber splits across the grain. Problems with the joints. 	<p>What should be done?</p> <ul style="list-style-type: none"> Hardwood timber used as specified is robust and possibly Iroko or teak. The wood fades to a silvery finish over time. Do not paint hardwood timber doors or windows. <p>If in doubt, seek professional advice.</p>

13 Damaged window cill.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <ul style="list-style-type: none"> Defective window cill to an older type of primary school constructed in the 1950's. 	<p>What is the probable cause?</p> <ul style="list-style-type: none"> School may be located on a hillside or very exposed site. The concrete cills may have been damaged by severe frost over time. The concrete crumbles or "spalls away" from the window cill surface 	<p>What should be done?</p> <ul style="list-style-type: none"> A replacement window cill is recommended. Water may seep into the wall structure in due course, causing internal damp problems. The school should seek professional advice.

14 Single glazed windows to a protected structure.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <ul style="list-style-type: none"> Defective timber windows with single glazing to a historic (protected structure) school building from 1930's. Draughts and leaks to a school that is a protected structure. 	 <p>What is the probable cause?</p> <ul style="list-style-type: none"> The timber frames are rotten in places. Glass putty is missing, Windows rattle in the wind. Lots of gaps in the frame. 	<p>What should be done?</p> <ul style="list-style-type: none"> The existing windows should be repaired or replaced to best practice conservation standards. Seek independent expert advice from a conservation accredited RIAI registered architect. Refer Chapter 12.8. Refer also to www.riai.ie <p>Please do not replace windows unless they can no longer do the job they were designed to do.</p> <p>Also, don't overlook the problems in isolation. Consider the windows in the context of the overall building.</p>

6.0 TOILETS AND SANITARY FACILITIES.

6.1 INTRODUCTION

6.2 SCHOOL TOILETS AND SANITARY FACILITIES ►

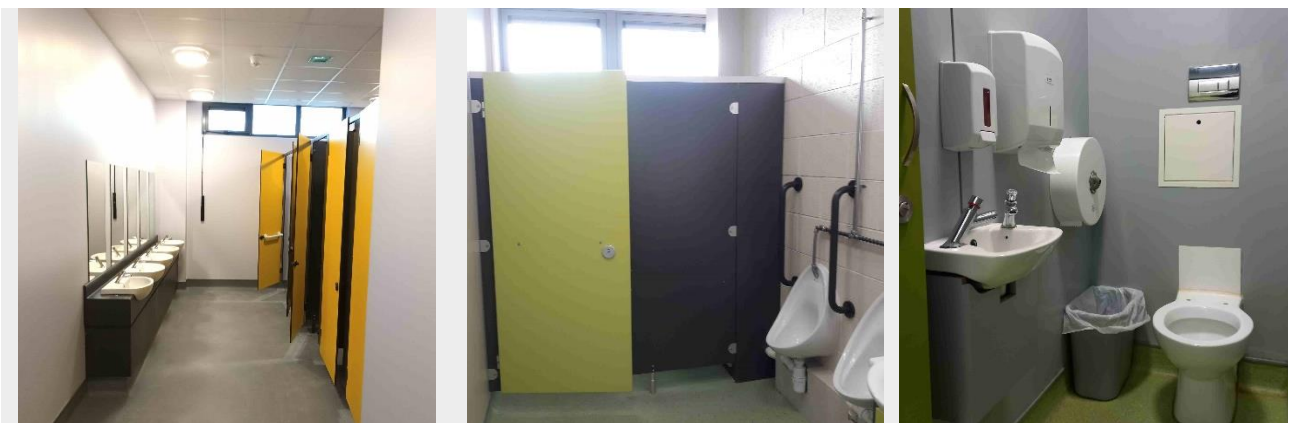
6.3 ISSUES TO CONSIDER WITH TOILETS AND SANITARY FACILITIES ►

6.1 INTRODUCTION

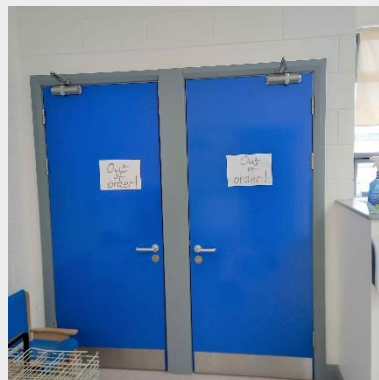
This chapter provides guidance for maintaining toilets and sanitary facilities. The Department of Education has an on-going policy to work in partnership with school authorities to provide toilets and sanitary facilities that comply with current guidance issued by the department. Student toilets differ in both Primary and Post Primary schools and a bespoke maintenance arrangement is advised for all students. Toilet locations and entrances should be easy to identify and ideally signposted where students pass by on a regular basis.

6.2 SCHOOL TOILETS AND SANITARY FACILITIES

Toilet and sanitary facilities are generally robust finishes with fair-faced blockwork or partition walls. The walls are mostly painted to allow a low-maintenance finish. In heavily trafficked or narrower toilets, corner protection is sometimes retrofitted to exposed wall edges. Plasterboard partition problems can occur due to damage to student bags. Careful attention is required, and appropriate paint is necessary for maintenance and redecoration. In Post Primary schools, internal cubicle doors or partition systems must be inspected regularly as they are subject to substantial daily wear and tear. Vandalism occasionally occurs in some schools, so the fittings must be inspected and maintained as required.




Examples of post primary school toilets.





Examples of primary school toilets.



6.3 ISSUES TO CONSIDER WITH TOILETS AND SANITARY FACILITIES.


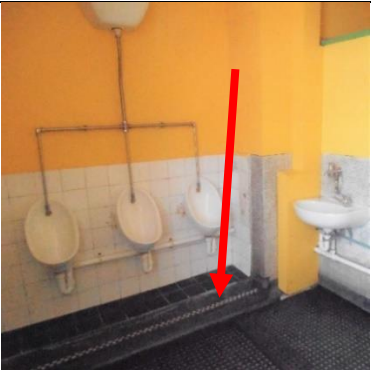
No:	What goes wrong?	Why?	Maintenance requirements.
1	Wash basin taps or plumbing.		
2	Wash basin exposed pipework.		
3	Toilets with concealed cisterns.		
4	Cubicles in older schools.		
5	Step up urinals.		
6	Toilet and wash basin floors and drainage.		
7	High level cisterns.		
8	High level windows.		
9	Belfast cleaning sink.		
10	Changing rooms.		


1 Wash basin taps or plumbing		
What goes wrong?	Why?	Maintenance requirements
 <p>What are the problems?</p> <ul style="list-style-type: none"> Leaking wash basin to Primary school ensuite toilet. Floor becomes possible trip hazard. Toilet cubicle may have to be put “out of use” thus interrupting class teaching. 	<p>What is the probable cause?</p> <p>The leak may be caused by:</p> <ul style="list-style-type: none"> A faulty or damaged tap. The push down button might be jammed on a “percussion” type tap preventing water shut off. Clogged paper or other item blocked down the curved pipework work below the wash basin. 	<p>What should be done?</p> <ul style="list-style-type: none"> Plastic under sink traps (U or P etc) are relatively cheap to purchase and fit to wash basins. Routine checking of school toilets is the simplest way to manage and spot problems. All toilet and wash basin pipework and cubicle cisterns should be checked regularly. Minor leaks or defects are relatively easy to repair maintain. If the problem persists, seek advice from a registered Plumber.


2 Wash basin with exposed pipework.		
What goes wrong?	Why?	Maintenance requirements
<div style="text-align: center;">  </div> <p>What are the problems?</p> <ul style="list-style-type: none"> • Leaks and exposed electrical wiring. • Complex copper plumbing mixed with white 'Wavin' pipes. • Opportunity for pupil damage or anti-social behaviour 	<p>What is the probable cause?</p> <p>The leak or problem may be caused by:</p> <ul style="list-style-type: none"> • Blocked waste pipes. • Faulty tap. • Clogged or blocked items down the sink. • Unfinished pipework. • Unfinished earthing. 	<p>What should be done?</p> <ul style="list-style-type: none"> • The Board of Management should engage a registered plumber in the first instance. • If the issues cannot be resolved or reoccur, seek further advice.


3 Toilets with concealed cisterns.		
What goes wrong?	Why?	Maintenance requirements
<div style="text-align: center;">  </div> <p>What is the problem?</p> <ul style="list-style-type: none"> • Toilet with a concealed cistern that does not flush or flushes incorrectly. • The toilet cubicle is now 'out of use'. 	<p>What is the probable cause?</p> <ul style="list-style-type: none"> • Concealed toilet cisterns are known as IPS system (integrated plumbing system). • They are increasingly popular in schools to reduce / prevent vandalism • With this method other plumbing issues can occur. • The push button flushing fixture might be damaged from over use. • The longer type spindle connection through the timber paneling may detach or become loose. 	<p>What should be done?</p> <ul style="list-style-type: none"> • The top panel may be a lift off or hinged type fitted with proprietary secret fixings. • Where duct access is available, repair or part replace the flush device. • If no access to the concealed cistern duct is possible, seek advice from a registered Plumber.


4 Cubicles in older schools.		
What goes wrong?	Why?	Maintenance requirements
 <p>What are the problems?</p> <ul style="list-style-type: none"> Defective cubicle doors locks and hinges. Internal floor trap drains blocked. High level cistern problems. 	 <p>What is the probable cause?</p> <ul style="list-style-type: none"> Older school toilet cubicles with heavy panel doors and partitions that warped and separated over time. Water plumbing leak damage to the base of timbers and metal support brackets. Unknown internal drainage manhole / smaller Armstrong Junction access to ceramic floor. The cubicles may be at the end of their original life cycle. 	<p>What should be done?</p> <ul style="list-style-type: none"> Maintenance of a row of toilet cubicles requires planned maintenance in addition to general hygiene cleaning. The School Board of Management should obtain further advice.


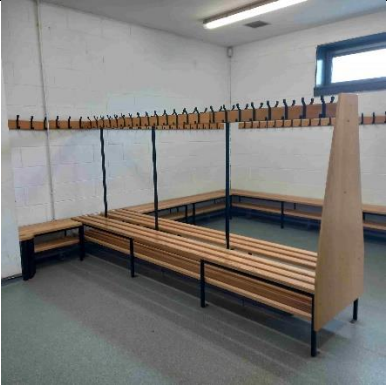
5 Step up urinals		
What goes wrong?	Why?	Maintenance requirements
 <p>What are the problems?</p> <ul style="list-style-type: none"> Step up to the urinal is regularly wet and slippery. Narrow contrast edge no longer provides proper slip resistance. Clogged wastewater pipework below the fittings. Potential hazard for pupils. 	 <p>What is the probable cause?</p> <ul style="list-style-type: none"> Urinals to older schools were typically built in terrazzo or similar heavy duty material. The surface may have worn down over many years. 	<p>What should be done?</p> <ul style="list-style-type: none"> Contact a specialist to advise on the floor finish. Toilet clogs are usually not too far down the drain and can, therefore, be unclogged with a plunger. If the object that is causing the clog is lodged in the siphon, use a flange plunger to get it out. Consider a new nonslip surface finish by specialist floor manufacturer. If in doubt, seek further advice.

6 Toilet and washbasin floors and drainage.		
What goes wrong?	Why?	Maintenance requirements
<div style="text-align: center;">  </div> <p>What are the problems?</p> <ul style="list-style-type: none"> Wash basin to an older school regularly blocks. No easy access to the fixed under sink pipework or the underfloor drainage. 	<p>What is the probable cause?</p> <ul style="list-style-type: none"> The drainage pipes in older school buildings was sometimes built under concrete floors slab to minimise exposed horizontal pipework in toilets. Floor can contain drainage traps or manholes. These are rarely opened for rodding or cleaning. Some 1960's / 70's schools contained a black colour asbestos lining or adhesive under the floor tiles. 	<p>What should be done?</p> <ul style="list-style-type: none"> A registered plumber should be engaged to replace above ground pipework in the short term. Blocked underground drains are beyond routine maintenance for school toilets. A planned maintenance refurbishment programme should be considered. The School Board of Management should seek professional advice.

7 High level cisterns.		
What goes wrong?	Why?	Maintenance requirements
<div style="text-align: center;">  </div> <p>What are the problems?</p> <ul style="list-style-type: none"> High level cubicle cistern fails beyond repair in an older school. Out of reach for routine inspection and maintenance. Water leakage or dirty filter issues. Replacement valves no longer readily available. Pull down flush chain or cord damages easily. Ventilation grille in ceiling leaks. 	<p>What is the probable cause?</p> <ul style="list-style-type: none"> Flush valves to high level cisterns typically supplied a 3/6 litres flush. The pull down rod has two settings which can get damaged from excessive force or misuse. Pull the rod down lightly for the 6 litres flush and push the rod up for the 3 litres flush. 	<p>What should be done?</p> <ul style="list-style-type: none"> Troubleshooting is unlikely to provide a satisfactory solution to the problems. The Board of Management should contact a registered plumber in the interim. A follow up visit by a professional advisor may be necessary for any replacement works.

8 High level windows		
What goes wrong?	Why?	Maintenance requirements
 <p>What are the problems?</p> <ul style="list-style-type: none"> • Inadequate daily natural ventilation. • Odours occur in the toilets. • Caretaker may have to carry a ladder around the school to open the toilet windows. 	<p>What is the probable cause?</p> <ul style="list-style-type: none"> • Fairly recent high level window replaced in a school (2015) not compliant with Department of Education (DoE) Technical Guidance documents. • The top opening section of the window is too high and only accessible by a ladder. 	<p>What should be done?</p> <ul style="list-style-type: none"> • The school Board of Management should be made aware of the current DoE guidelines for Toilets and Sanitary Facilities. • Any replacement window projects require good guidance and professional advice. • A coordinated maintenance programme is required for toilet windows and sanitary fittings.

9 Belfast cleaning sink		
What goes wrong?	Why?	Maintenance requirements
 <p>What are the problems?</p> <ul style="list-style-type: none"> • Restricted access to Construction studies room cleaning sink, known as a Belfast Sink. • Regular cleaning is restricted or difficult to perform. 	<p>What is the probable cause?</p> <ul style="list-style-type: none"> • Possible lack of storage for materials. • Room may have been reconfigured over time. • Maintenance inspection or checking not carried out frequently. 	<p>What should be done?</p> <ul style="list-style-type: none"> • The school should seek further advice.

10 Changing Rooms		
What goes wrong?	Why?	Maintenance requirements
 <p>What are the problems?</p> <ul style="list-style-type: none"> • Slippery shower room floors. • Blocked drains. • Shower leaks. • Damage cubicle doors. • Wet changing area floor. • Damaged or loose coat hooks. 	 <p>What is the probable cause?</p> <ul style="list-style-type: none"> • General wear and tear of materials. 	<p>What should be done?</p> <ul style="list-style-type: none"> • The Board of Management should seek further advice.

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7.0 BUILDING SERVICES

7.1 INTRODUCTION.

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7.3 HEATING SERVICES ►

7.4 ELECTRICAL SERVICES ►

7.5 ROOF SOLAR PANELS ►

7.6 KEY MAINTENANCE CONSIDERATIONS WITH BUILDING SERVICES ►

7.1 INTRODUCTION.

Building Services comprise all the systems that make the school building function. There are multiple services that have statutory maintenance periods particularly life safety systems. Most building services require maintenance in order to ensure function of the building for day-to-day use. Many schools have different types of services and the information provided is not definitive but a guide for the majority of school systems.

7.2 MAINTENANCE – ISSUES TO CONSIDER.

The following are general issues to consider for the regular maintenance of Mechanical and Electrical services, often referred as M & E.

1. Ensure life safety systems are regularly inspected and maintained in accordance with legislation such as Fire alarm, Emergency lighting and Gas safety systems etc.
2. Ensure maintenance contracts are updated for all specialist systems with contractors in that area.
3. Carry out the regular maintenance tasks listed, and do so, in a safe manner with a risk assessment being carried out for each task. Understand what the risks are with school services.
4. Building services maintenance issues should be reviewed by the school authority, prior to rectifying the issues. Firstly, gather sufficient information and forward to the specialist before they attend the school. This may assist with maintenance repair costs and efficiency with any follow up visit by that specialist or another.

7.3 HEATING SERVICES.

- Ensure there is sufficient fuel available for periods of severe cold weather.
- Ensure the boiler control mains switch for the heating system remains on, particularly during holiday periods.
- The school heating system should be fitted with a frost protection system.
- Ensure radiators in unoccupied lobbies or stores remain on in severe weather.
- If the heating system is frozen, contact a heating contractor for assistance.
- If a school has a gas-fired boiler system, ensure, only registered gas engineers are employed.

7.4 ELECTRICAL SERVICES.

- Ensure provision is place in the event of a power outage. Back up computer files regularly.
- Test and check general school lights are working especially approaching darker days before winter.
- Emergency lights inspection should be part of routine school circulation or walk about.
- If lights are left on in the school after hours, check the problem and obtain expert advice.
- Know what to if or when a fire alarm is sounding off.

- Check and maintain the security alarm and instruct responsible users to set it properly.
- Ensure any school lift is checked annually as part of a maintenance management contract.

7.5 ROOF SOLAR PANELS.

In 2022 the provision of a framework was set up to enable schools to install solar panels to a number of schools via a national rollout programme. This includes a planning exemption for the installation of solar panels to school buildings. Funding was announced in Budget 2023 for 6 Kilo Watt Photo Voltaic (PV) panels under the climate fund.

Refer to: School Sector Climate Action Mandate at www.gov.ie.

How to know when to maintain solar panels?

1. Please check the solar panel safety panel brochure supplied by the supplier.
2. It is advised to inspect solar panels every six months.
3. Regularly review the energy records and track the energy output is consistent.
4. An extended drop in energy production may indicate that maintenance is needed.
5. Dirt / debris can accumulate and impact on the amount of energy the panels produce.
6. Beware of other issues like bird droppings and or sap from nearby trees.

How to maintain solar panels?

1. Any roof maintenance work would require the school Board of Management to appoint a **PSDP** and **PSCS** with all the necessary method statements prior to the carrying out of any planned maintenance.
2. It is imperative to turn off the solar panel system prior to cleaning. Do not access the roof.
3. If possible, use a telescopic pole from ground level. Clean with a soft micro fibre cloth. Ensure roof gutters are also cleaned and remove any excess water.
4. Do not use cleaning agents or detergent or soap which may leave streaks on the glass and possibly damage the panels.
5. Avoid using hot water to clean or remove ice or snow. As the panels are fitted at an angle it will usually melt and slide off. Using hot water can cause the glass panels to crack because of the temperature difference.







An example of school projects fitted with new Photo Voltaic (PV) Solar panels to the roof. The works were carried out under the Department of Education “Pathfinder Project”.


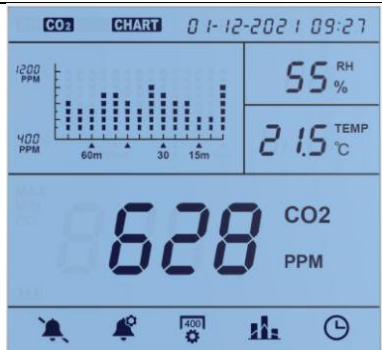
Refer to www.gov.ie


7.6 KEY MAINTENANCE CONSIDERATION WITH BUILDING SERVICES.



Key Mechanical and Electrical systems	
1	Oil heating services.
2	Gas heating services.
3	Ventilation in teaching spaces etc.
4	Hot water plumbing systems.
5	Cold water plumbing systems.
6	Air source heat pumps.
7	Mechanical Ventilation Heat Recovery unit.
8	Dust extraction system.
9	Electrical power services
10	Fire alarm system
11	Emergency lighting
12	IT Infrastructure / Wi-Fi Services.
13	Roof solar panels.
14	Roof services.


1 Oil heating services.		
What goes wrong?	Why?	Maintenance requirements
 <p>What are the problems?</p> <ul style="list-style-type: none"> No heating in the entire school. No heating in a single room. Heating pipes are leaking. Boiler is not working. 	 <p>What are the probable causes?</p> <ul style="list-style-type: none"> The boiler is not firing. The gas fired water heater is not firing. The hot water return pump is not working. The cold-water booster pump is not working. 	<p>What should be done?</p> <ul style="list-style-type: none"> Boilers not working generally have a lack of fuel either, gas or oil. The burners can be reset but check gas detection systems or if the oil is able to get to the burner. Ensure the school boiler is fitted with a frost protection system. If in doubt, contact a heating specialist.


2 Gas heating services.		
What goes wrong?	Why?	Maintenance requirements
 <p>What are the problems?</p> <ul style="list-style-type: none"> Examples of the gas main services at the entrance to two busy school sites. The yellow metal pipework clearly highlights the gas services and potential hazards. 	 <p>What are the probable causes?</p> <ul style="list-style-type: none"> Some smaller or older schools may not have the pipework indicated as yellow. 	<p>What should be done?</p> <ul style="list-style-type: none"> Schools should not carry out any works where Gas services are present. Contact a registered gas heating plumber in the first instance. Refer to contact detail as Chapter 12.10. If in any doubt seek expert advice.



3 Ventilation in teaching spaces etc.		
What goes wrong?	Why?	Maintenance requirements
 <p>What are the problems?</p> <ul style="list-style-type: none"> • A Carbon Dioxide (CO²) monitor turns orange or red. • A portable monitor was fitted on a school building in 2019, and its readings are not familiar by some staff. 	 <p>What are the probable causes?</p> <ul style="list-style-type: none"> • The amount of CO² in the room is too high. • Windows are not fully opened as possible when classrooms are not in use (during break or lunch times), and the end of the day. • The filter in a heat recovery ventilator (HRV) needs to be replaced if there is one in the room. 	<p>What should be done?</p> <p>Carbon Monoxide Monitors</p> <ul style="list-style-type: none"> • When CO₂ sensors turn orange or red, open windows to ventilate the room until the monitor light turns green again. • For basic maintenance guidance, rooms can be ventilated during break times to reduce CO₂ levels. • The school Principal and staff should educate pupils on the benefit of natural ventilation in classrooms. • Use diagrams and put them on display for information purposes. • Refer to DoE, practical steps for the deployment of good ventilation practices in schools – May 2021.



4 Hot water plumbing systems		
What goes wrong?	Why?	Maintenance requirements
 <p>What are the problems?</p> <p>No hot water in school.</p> <ul style="list-style-type: none"> • The boiler is not firing. • The Gas fired water heater is not firing, after a number of attempts. • The Hot water return pump is not working. • The Cold-Water Booster pump is not working. 	<p>What are the probable causes?</p> <ul style="list-style-type: none"> • Reset gas fired water heater. • Reset the pump. • Reset the booster pump. • The knowledge or cause of hot water plumbing issues is not typically within school personnel responsibility. 	<p>What should be done?</p> <ul style="list-style-type: none"> • If the problems persist, contact a heating specialist. • Obtain professional advice if the specialist advice warrants further works



5 Cold water plumbing systems		
What goes wrong?	Why?	Maintenance requirements
 <p>What are the problems?</p> <ol style="list-style-type: none"> 1. Leaking waste S trap in a toilet washbasin. 2. Adjoining wash basins plumbing also affected. 	 <p>What are the probable causes?</p> <p>Pipes can be burst for a variety of reasons including:</p> <ul style="list-style-type: none"> • Corroding pipework. • Debris etc down sinks etc. • Different mixed plumbing material such as copper, plastic or qualplex. • Circular rubber seals missing or damaged within connections. 	<p>What should be done?</p> <ul style="list-style-type: none"> • Localised plumbing leaks can be repaired by school personnel. • If the problems continue, contact a registered plumber to repair the problem. • If the problem reoccurs seek expert advice from a Mechanical and Electrical Engineer.



6 Air source heat pumps		
What goes wrong?	Why?	Maintenance requirements
 <p>What are the problems?</p> <ul style="list-style-type: none"> • Noisy fans near classrooms. • Performance levels drops in severe or cold temperatures. • Heat temperature produced fluctuates. 	<p>What are the causes?</p> <ul style="list-style-type: none"> • Air source heat pumps contain a large fan and a compressor. Standards apply with sound levels. • Heat pumps are usually designed to operate at outdoor temperatures as low as minus 15 degrees. • The machine may require a service to assess the problem. • Heat pumps mechanical malfunctions are not common and are designed to run effectively. 	<p>What should be done?</p> <ul style="list-style-type: none"> • The school should contact the original heating installer specialist to carry out a full service on the heat pump, fans and equipment. • The heating specialist should check the equipment operation, so the heat pumps are providing 90% of the heating energy.



7 Heat Recovery Mechanical Ventilation		
What goes wrong?	Why?	Maintenance requirements
 <p>What are the problems?</p> <ul style="list-style-type: none"> Location of the units can be difficult in existing school due to window heights or limited ceiling zones 	<p>What are the causes?</p> <ul style="list-style-type: none"> New MVHR (mechanical ventilation heat recovery unit) are fitted to many schools since 2022. 	<p>What should be done?</p> <ul style="list-style-type: none"> The school should seek professional advice on the most appropriate equipment type for their particular school building.



8 Dust extract system.		
What goes wrong?	Why?	Maintenance requirements
 <p>What are the problems?</p> <ul style="list-style-type: none"> Noisy or defective extract equipment in a post primary school construction studies class. Internal flexible ducts are not working efficiently. The dust extraction machine collector is full / overloaded. 	 <p>What are the probable causes?</p> <ul style="list-style-type: none"> The flexible duct between the extract system controls vibration and should be easily disconnected for maintenance. The external appliance should be inspected on monthly basis to ensure dust collection bags don't become clogged or full, which will lower efficiency levels. 	<p>What should be done?</p> <ul style="list-style-type: none"> Refer to the operation and maintenance manual handed over to the school when the machine was installed and fully certified. Ensure there are sufficient stock of dust collection bags available. Request further demonstration / training if necessary and obtain a wall chart to explain the operating / maintenance of the machine.


9 Electrical power services.		
What goes wrong?	Why?	Maintenance requirements
 <p>What are the problems?</p> <ul style="list-style-type: none"> Incoming supply to a school over 25 years old. Regular or constant electrical breakdowns with fuses. Blowing or circuits tripping. Switchboards or Distribution boards problems. 	 <p>What are the probable causes?</p> <ul style="list-style-type: none"> Electrical installations have limits with life expectancy. Wear and tear, damage to the electrical wiring installation Overloading of the circuits beyond its original installation capacity. The system may be outdated and require substantial replacement. Inadequate supply and possible loose cabling or tripping of the system 	<p>What should be done?</p> <ul style="list-style-type: none"> Where the electricity demand is exceeding the capacity, upgrading works may be necessary. Distribution boards should be labelled and covered. Test the RCD / RCBO tripping function. If there are any issues, contact a specialist. Refer to the Glossary at Appendices.

10 Fire alarm system.		
What goes wrong?	Why?	Maintenance requirements
 <p>What are the problems?</p> <ul style="list-style-type: none"> A Fire alarm sounder is going off / sounding off. A smoke alarm is malfunctioning. 	 <p>What are the causes?</p> <p>Fire alarm sounders are available in different forms, such as bells, sirens and pneumatic horns of different sizes and frequencies. Some problem causes are:</p> <ul style="list-style-type: none"> Break glass panel broken. Temporary smoke, eg (burnt toast in a staff room) Faulty detector. Condensation in roof space. Smoke or dust accumulation. High humidity levels. Inferior or expired batteries. Electrical interference. 	<p>What should be done?</p> <p>Schools must ensure their fire safety alarm systems are regularly maintained to meet current compliance regulations.</p> <ul style="list-style-type: none"> Carry out regular planned maintenance fire alarm testing. Replace break glass and reset system. Reset system. If in doubt, contact a registered Electrician. Refer to contact detail at Chapter 12.10.

11 Emergency lighting.		
What goes wrong?	Why?	Maintenance requirements
 <p>What are the problems?</p> <p>Escape Light fittings.</p> <ul style="list-style-type: none"> An internal escape light fitting (running man) is not working. 	 <p>What are the causes?</p> <ul style="list-style-type: none"> Light fitting defects can occur for different reasons, The in-built power pack fitting may have failed. 	<p>What should be done?</p> <ul style="list-style-type: none"> Emergency lighting repairs are beyond the scope of school maintenance. The school should review and update the maintenance contract and seek expert advice. <p>In advance of the specialist visit, some initial guidance.</p> <ul style="list-style-type: none"> Walk around the school and inspect the fittings. Check the LED indicator for Emergency Exit (running man) signs. Check LED indicator is red if not working or green, working. Check the running man signs are lit on escape routes.

12 IT Infrastructure / Wi-Fi Services.		
What goes wrong?	Why?	Maintenance requirements
 <p>What are the problems?</p> <p>School Wi-Fi is not working. Firstly.</p> <ul style="list-style-type: none"> Check the number of electrical items/ goods plugged into the circuit. Ascertain which item / goods is causing the tripping. Switch all items off. Turn them on again one by one to check the problem. 	 <p>What are the probable causes?</p> <p>If the Wi-Fi is still not working?</p> <ul style="list-style-type: none"> The router maybe frozen. The broadband connection may be suffered a power outage. Wi- Fi configuration could have other technical issues. In larger schools, the most common problem is, an inadequate number of access points, so connectivity coverage is inconsistent. 	<p>What should be done?</p> <ul style="list-style-type: none"> Reset the router and or restart the server or check the broadband connection. Contact the school broadband provider to reviews and rectify any Wi-Fi issues. The school Board of Management should review the terms and conditions of annual contracts to ensure the best possible service for the school. If in doubt seek specialist advice.

13 Roof Solar panels.		
What goes wrong?	Why?	Maintenance requirements
 <p>What are the problems?</p> <ul style="list-style-type: none"> Electrical connection issues with roof solar panels. Energy saving targets or readings don't equate with what is expected. 	 <p>What are the probable causes?</p> <ul style="list-style-type: none"> Solar panels are connected to the electrical grid and can experience problems with their electrical connections. Generally, this problem occurs in case of a loose connection or a break in the wiring. If the problem is not fixed, this can lead to a loss of electrical power or further problems 	<p>What should be done?</p> <ul style="list-style-type: none"> The most practical solution is to contact the original solar panel installers to ensure any electrical issues are fully safe and compliant. Connections should be neat and tight with no loose or damaged components. The roof panels may require cleaning in order to fully function. Dirt and debris need to be removed to ensure full absorption of sunlight for efficiency. Refer also to Chapter 3 Roofs for any planned maintenance works. If in doubt seek expert independent advice from a Professional advisor.

14 Roofs and services.		
What goes wrong?	Why?	Maintenance requirements
 <p>What are the problems?</p> <p>A school requires further services equipment to be installed on a school roof.</p>	<p>What are the probable causes?</p> <ul style="list-style-type: none"> Lack of practical knowledge and inadequate advice is the most common cause with new services on existing roofs. For example, new wire technology within school buildings requires external connections. Roofs and walls can be damaged by temporary safety ladder plugged fixings. Roofs can be damaged where installers do not have or use proper roof ladders to erect satellite dishes or heavy gauge wiring. 	<p>What should be done?</p> <ul style="list-style-type: none"> Electrical works are frequently required to meet all regulatory standards and early expert advice is not always available. To ensure repairs are done right, use a roofing contractor approved by the system manufacturer. Do not allow or expect a satellite installer or a well-meaning electrician to alter or modify the roof finishes or existing upstand services or penetrations. If in doubt seek expert independent advice from a specialist advisor.

8.0 SCHOOL INTERNAL FINISHES

8.1	INTRODUCTION
8.2	FLOOR FINISHES IN GENERAL ►
8.3	VINYL FLOORS ►
8.4	CARPET FLOORS ►
8.5	ENTRANCE LOBBY FLOORS ►
8.6	ASBESTOS CONTAINING MATERIALS IN FLOORS ►
8.7	DISPLAYS AND NOTICE BOARDS ►
8.8	PAINTING AND DECORATION ►
8.9	INTERNAL MOULD ►
8.10	ISSUES TO CONSIDER WITH INTERNAL FINISHES ►

8.1 INTRODUCTION

Internal finishes must be safe and hard-wearing for their intended use. Providing acceptable appearances to walls, floors, and ceilings, contribute significantly to the life cycle of the school fabric. Reasonable care of finishes can contribute not only to the appearance of a school and its environment but also to limiting the extent of wear and tear, prolonging its useful life and reducing running costs. Maintaining floors is a significant part of every school's time and budget. In summary this chapter examines the key maintenance issues for Boards of Management regarding internal finishes.

8.2 FLOOR FINISHES IN GENERAL

Floor finishes, depending on the age of the school building and teaching location, typically are:

Vinyl	Linoleum	Marmoleum	Carpet	Timber board	Ceramic tile	Terrazzo
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Vinyl flooring used throughout the majority of schools is designed to a reasonably high quality. Vinyl is used for circulation areas and stairs, with higher grade sheet used in post primary school specialist teaching. Carpet tiles is used in some classrooms which is easier to maintain than sheet carpeting. Timber sprung flooring is only used in larger areas such as assembly and PE halls.

It is important to obtain the right advice with all types of floor finishes, and more importantly when replacement of floors is proposed. Floor finishes should be:

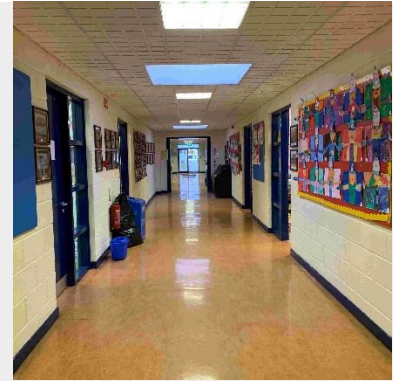
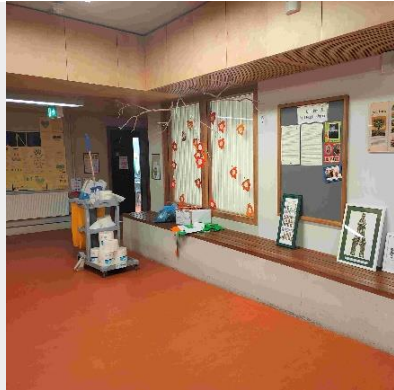
- Multi-purpose and impact absorbing.
- Nonslip.
- Acoustic
- Easy to clean.

8.3 VINYL FLOORS.

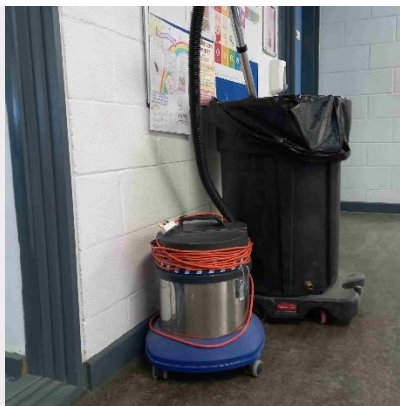
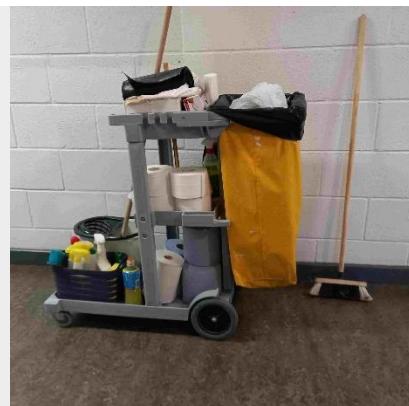
Generally, sheet vinyl is the most appropriate floor finish. A broad range of products is available for school buildings, and vinyl is preferable in both classrooms and circulation corridors. Corridors are noisy places, and durable and practical vinyl products have been specified by Design Teams on all schools' projects in the last 25 years. Vinyl is both functional and allows for regular / efficient maintenance. Vinyl sheet has a protective layer coating which keeps out dirt and more importantly moisture. For this reason, maintenance cleaning is both easier and faster, without the need for aggressive cleaning products or methods.

Preventive maintenance should be considered and keeping dirt off the floor is easier and less expensive than having to remove it later. Consider the following vinyl floor guidance:

- Regular vacuuming is the best maintenance mind-set for a cleaning regime.
- Remove inevitable spills quickly to avoid an unnecessary permanent stain.
- Particular attention is needed to home economics and technical rooms where flour or sawdust can result in very slippery vinyl surfaces. Cleaning of such specialist rooms requires specific cleaning.
- Arrange routine cleaning to suit the size of the school to retain the vinyl appearance.
- Deep cleaning of any heavy soiling is advised during school midterm / holidays or when it is closed from pupils.



Examples of vinyl floors and stairs.

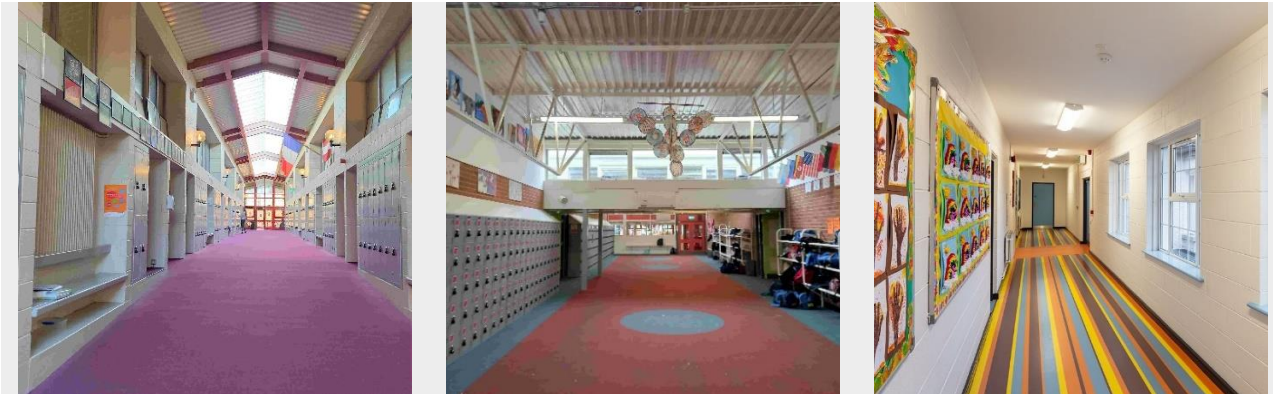


Examples of cleaning equipment.

8.4 CARPET FLOORS

Carpets are still in place in many school buildings. In newer schools, carpets are used for limited floor areas only such as the Office or Multi Activity areas. A carpet can reduce environmental noise, which is helpful for pupils who rely more on their hearing as a channel for information. It may assist in reducing background noise, allowing meaningful sounds to be more audible. Cleaning carpets is a relatively easy task but be aware of the costs and plan to relocate desks and furniture for cleaning consistency. Carpets can get damaged due to wear and tear and constant footfall by school users. However, make sure to avoid a small, damaged area becoming a hazard which may result in a replacement floor finish. Maintenance of floors is a regular duty, and all school staff have a responsibility to report any floor problems or potential slip hazards to prevent an accident. Regular carpet cleaning methods will depend on the amount of traffic, soiling levels, desired appearance, and hygiene standards. Ideally, floors should be maintained in accordance with the manufacturer's recommendations. Regular maintenance will require basic sweeping and cleaning with wet mop. Further checks and annual machine cleaning guidance is discussed further.

- Clean and remove surface soil, debris, sand or grit by vacuum cleaner with rotating brush.
- For small areas / spot cleaning & removing stains use a clean warm water, or non-foaming carpet detergent. In non-technical terms it is called the '*scrape, scrub, and rinse*' procedure. If the spill or stain is not completely removed, repeat using a neutral, non-foaming, carpet detergent or general-purpose spotter cleaner to the affected area. Rinse floors thoroughly with clean water and allow the floor to dry before use.



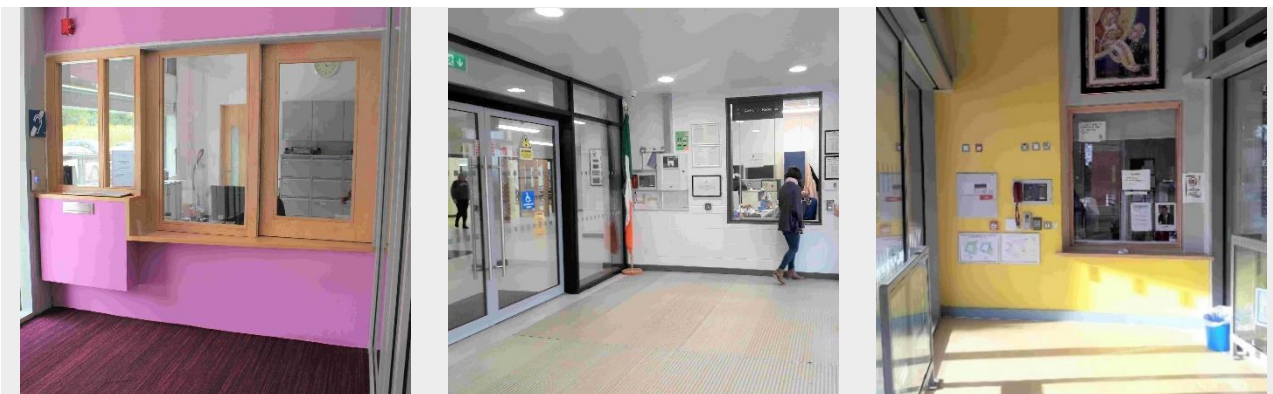
Examples of carpet floors

8.5 ENTRANCE LOBBY FLOORS.

School entrance matting or mattwells are important area for daily maintenance inspections. Typically, the material used is a heavy-duty grey / black colour matting to:

- Not impede wheelchair users or non-ambulant users.
- Be recessed or adhered to the floor structure. Loose mats are not advised.
- Heavy duty mats are advised to cater for large traffic flow throughout the school day.
- Removes moisture and dirt to prevent it from being carried into the school corridors/circulation spaces.

Weekly inspection is essential for school entrance lobbies. Any floor matting should be deep cleaned regularly with more cleaning undertaken in the winter months. Further deep cleaning can be carried out using a water spray extraction method. The water is sprayed into the carpet pile, agitated and then extracted along with the soil. A dry-cleaning compound method is also available. The cleaning compound is brushed into the mattwell where it binds to the soil and is vacuumed out. In doubt, seek expert advice.



Examples of entrance lobbies to Post Primary schools.

8.6 ASBESTOS CONTAINING MATERIALS IN FLOORS.

In older school buildings asbestos backing to vinyl floors was used. The paper back lining contained chrysotile asbestos. It was used in tiled products up to 1992. The fibre release is unlikely to be a hazard under normal services conditions. Fibre may be released when the material is cut, or the backing is power sanded. School Boards of Management should be aware of the Code of Practice document on the management of asbestos hazards which may be present in schools. Any asbestos could be disturbed as a consequence of:

- Construction works.
- Maintenance.
- Refurbishment works.
- Mechanical and Electrical Fit outs.

The Code of Practice applies to all school buildings including flooring products where an asbestos containing material may be present. Repairs to piping or radon remediation or floor covering replacement all require professional expertise. School Boards of Management must ensure a uniform approach to the management of asbestos risks.

8.7 DISPLAYS AND NOTICE BOARDS

School corridors and other circulations spaces form an important part of the internal school environment. Artwork and notice boards are seen in all schools and provide visible classroom learning and experience. Displays are encouraged providing maintenance is considered.

Feedback during research of the Guidance Manual, suggests school displays provide essential wayfinding for young children and encouragement for improving learning outcomes. There may be displays for national days, Halloween, Christmas, or other celebrations or events. There may also be other displays on an ongoing basis. These displays could contain large amounts of paper and decorations (such as paper chains, large posters, etc.) and present a potential fire load. Large displays or Christmas trees must not be in circulation spaces and escape routes (corridors, lobbies and stairway enclosures) or multi-level areas.

1. Displays and presentations are not permitted in protected or escape stairways.
2. Displays should not obstruct escape routes, fire notices, fire alarm call points, firefighting equipment, emergency lights or exit signs.
3. Displays must be kept away from doors and heat sources.
4. School notice boards can present a means of the flame's surface spread; therefore, their use, particularly in circulation areas, must be limited.
5. Notice boards require protective or toughened glass covers and a lock device to keep the escape routes as fire-sterile areas.
6. Paper notices, posters, artwork on notice boards must be carefully monitored by the school, to ensure fire safety measure are met.
7. Display cabinets on escape routes should be in hardwood timber or non-combustible framing, with toughened or laminated glass enclosure.



Examples of displays.

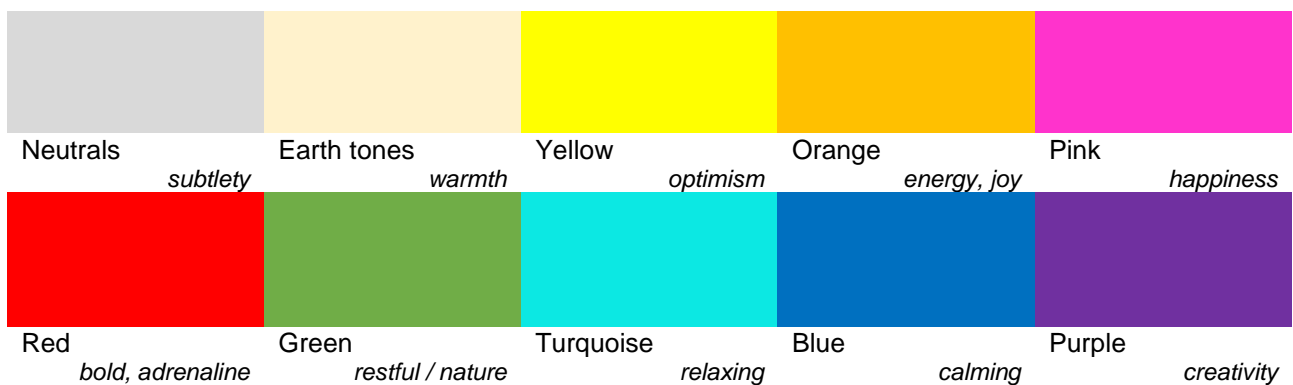
8.8 PAINTING AND DECORATION

Painting and decorating schemes vary in school buildings. Many schools have blockwork walls and plain finishes to reduce maintenance. Unplastered walls are often painted over time and the school authority should consider the costs for re painting every five years or as needs arise. Circulation spaces / corridors requires careful assessment and considered choices with painting and decoration blockwork walls and stud partitions.

Colour choices can influence staff and students. Maintenance of school walls in particular can help with day-to-day emotions in corridors and circulation spaces. Most schools have unplastered blockwork walls where the rectangular block pattern is evident. Generally neutral or earth colour paints colours are typically used for a low maintenance appearance. In larger schools, the use of accented colours can help with wayfinding where students move from class to class throughout the school day. Schools might introduce colours in particular areas to delineate corridors and circulation routes to highlighting assembly and social spaces. The merits of imaginative colour may stimulate visual interest; however, colour must not unduly impact on those with limited vision and must not impinge pupils with sensory sensitivities.

For further reference refer to [School Design Guide SDG-02-04](#)

[Primary & Post Primary School Specialist Accommodation for Pupils with Special Educational Needs.](#)



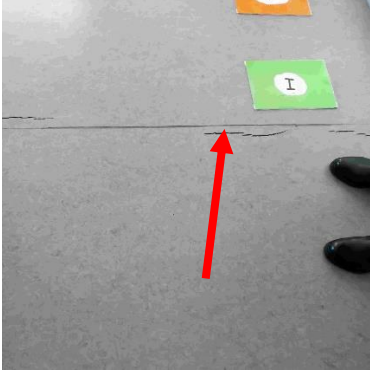

8.9 INTERNAL MOULD.


Mould is part of the natural environment and essentially a fungus on surfaces which are wet. Mould begins to grow indoors with tiny spores invisible to the naked eye. Mould spores are clearly visible usually black, blue or sometimes green coloured staining with a detectable musty odour. Older school buildings are more susceptible to mould, and it is important to highlight, this is not necessarily a health problem. The key factor with mould is that needs moisture to develop, and prevention of growth requires eliminating all sources of moisture.

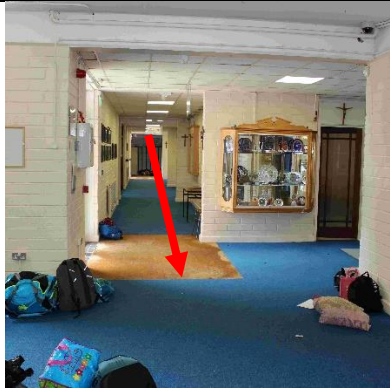
- Early detection is important, and small areas can be managed by school maintenance staff or caretakers. Larger areas will have to be dealt with by a specialist cleaning company which involves further costs. As a rule of thumb, mould growth larger than 3 square metres is beyond general school maintenance procedures.
- In most cases areas less than 3 square metres can be carried out by trained maintenance staff. Appropriate protective clothing is required PPE – Personal Protective Equipment.
- However, maintenance staff with acute asthma or other respiratory conditions should not carry out regular mould removal. Seek expert specialist advice from a registered cleaning company.
- If no cleaning company is available, the affected surfaces can be damp wiped and swabbed with 10% bleach, 90% water solution and the school area sealed off with plastic / polythene sheet.


8.10 ISSUES TO CONSIDER WITH INTERNAL FINISHES.


No:	What goes wrong?	Why?	Maintenance requirements.
1	Vinyl / Linoleum sheet floor splitting / tearing.		
2	Vinyl floor tiles containing asbestos material.		
3	Carpet wear and tear.		
4	Carpet with inadequate cleaning / maintenance.		
5	Ceramic tiles.		
6	Timber floor.		
7	Terrazzo floor.		
8	PE Hall or General-Purpose room floors.		
9	Exposed roof finishes.		
10	Leaking ceiling finishes.		
11	Excessive glare from high level windows		
12	Stair edges.		
13	Stair's balustrades.		
14	Under stairs voids.		
15	Mould on walls.		
16	Redecoration of walls.		


1 Vinyl / Linoleum sheet floor splitting / tearing		
What goes wrong?	Why?	Maintenance requirements
 <p>What are the problems?</p> <ul style="list-style-type: none"> Vinyl sheet splitting or torn to a school stairway. Vinyl sheet torn to a teaching classroom. 	 <p>What is the probable cause?</p> <ul style="list-style-type: none"> Vinyl sheet splitting may be caused due to shrinkage cracking of concrete floors. Floor slab was not sufficiently dried out during construction, prior to fitting of vinyl covering. Damaged or torn strips of vinyl is likely caused by inappropriate moving of school tables / desk furniture or by pupils rocking on chair legs. 	<p>What should be done?</p> <ul style="list-style-type: none"> The school Board of Management should contact the original vinyl floor contractor who installed the finished covering. If in doubt, seek further advice.


2 Vinyl floor tiles containing asbestos material.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <ul style="list-style-type: none"> Damaged or missing vinyl floor tiles to a storeroom in a 1970's school. The room is not regularly used and the floor defect is not known. 	<p>What is the probable cause?</p> <ul style="list-style-type: none"> The example highlights a 1970's vinyl tiled areas to a school storeroom. There is a possible asbestos adhesive used to fix the tiles when constructed. 	<p>What should be done?</p> <ul style="list-style-type: none"> In addition to Section 8.6 above, the school should seek professional advice. Removal of the floor tiles is not recommended, and any replacement should be discussed further with Board of Management. A manage in place proposal may be recommended by the specialist advisor, where the tiles are left in place and a new appropriate one piece vinyl sheet is fixed on top.



3 Carpet wear and tear.		
What goes wrong?	Why?	Maintenance requirements
<div style="text-align: center;">  </div> <p>What is the problem?</p> <ul style="list-style-type: none"> • Carpets to a school foyer and circulation areas can be difficult to keep clear and therefore maintain. • Insufficient or no entrance mattwell to catch dirt on peoples shoes. 	<p>What is the probable cause?</p> <ul style="list-style-type: none"> • Wear and tear to school carpet. 	<p>What should be done?</p> <ul style="list-style-type: none"> • Refer to the original manufacturers' recommendations for deep cleaning of carpets. • Clean and remove all surface soil, debris by a rotating brush vacuum cleaner. • If spills or stains are not removed use a non-foaming carpet detergent. • If the problems persist seek further advice.


4 Carpet with poor cleaning / maintenance		
What goes wrong?	Why?	Maintenance requirements
<div style="text-align: center;">  </div> <p>What is the problem?</p> <ul style="list-style-type: none"> • Dirty, watermark streaks to a classroom carpet • Previous replacement patch repairs with different tiles. 	<p>What is the probable cause?</p> <ul style="list-style-type: none"> • Uninformed or careless machine cleaning practice. • Dirty water not changed regularly in the machine; hence the water stripe blemishes on the carpet. 	<p>What should be done?</p> <ul style="list-style-type: none"> • The school Board of Management should obtain advice from a flooring expert on best practice cleaning and maintenance of school carpets.


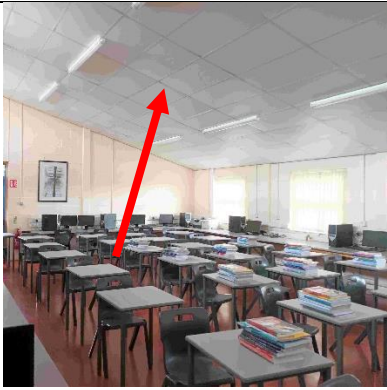
5 Ceramic tiles.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <ul style="list-style-type: none"> • Deterioration of hygiene in toilets in a busy school. • Ceramic tiles and grout joints have permanent stains. 	<p>What is the probable cause?</p> <ul style="list-style-type: none"> • Leaks from WC's or wash basins in school toilets. • Flooding due to anti-social behaviour. • Other leaks from ceiling service etc. • Inadequate maintenance when the problem was first encountered. 	<p>What should be done?</p> <p>Two maintenance methods are customarily used.</p> <ul style="list-style-type: none"> • Manual cleaning using a scrubbing brush or mop. • Machine cleaning using a high-pressure cleaner with spray injection. • Acids or ammonia should not be used, as chemical will further damage the tiles and grout. • If in doubt, seek further advice.


6 Timber floors.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <ul style="list-style-type: none"> • Timber floor boards are difficult to clean and maintain. • Soft underfoot in some localised areas. 	<p>What is the probable cause?</p> <ul style="list-style-type: none"> • Timber may be prone to fungal or insect attack. • The problem may be due to wet rot, dry rot or woodworm etc in older schools. 	<p>What should be done?</p> <ul style="list-style-type: none"> • Refer to Chapter 3 Roofs for guidance on how to manage and maintain timbers subject to fungal decay. • If in doubt, seek further advice.


7 Terrazzo floor.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <ul style="list-style-type: none"> • Trip hazard from cracking to a terrazzo floor in an older school. • Using a mat is a temporary solution only. 	<p>What is the probable cause?</p> <ul style="list-style-type: none"> • The likely cause is ground floor slab failure or foundations subsidence resulting in cracking of the terrazzo floor covering. 	<p>What should be done?</p> <ul style="list-style-type: none"> • The school should seek expert advice from a flooring manufacturer. • If in doubt, seek professional advice.

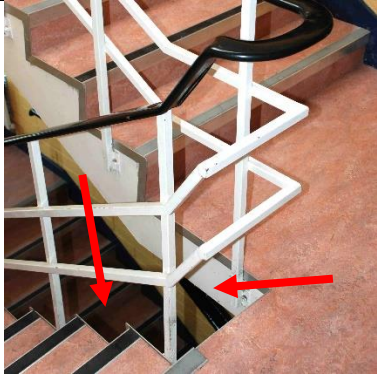
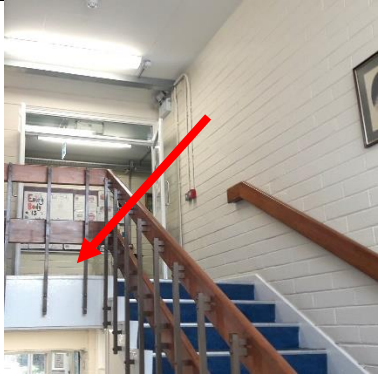
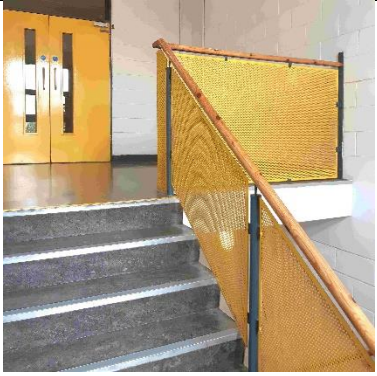
8 PE Hall or General-Purpose room floors.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <ul style="list-style-type: none"> • PE hall floor surface difficult to maintain during/ after school exam use. • General Purpose (GP) room floor maintenance. 	 <p>What is the probable cause?</p> <ul style="list-style-type: none"> • Damage by the legs of metal chairs and or wooden desks. • Heavy trafficked areas, which regularly get wet. • Possible leaks or spillages. 	<p>What should be done?</p> <ul style="list-style-type: none"> • The use of PE hall floors for other activities such as annual state exams, requires good maintenance procedures. • For larger floors a scrubber dry machine can be used. • For regular leaks or spillages, the Board of Management should seek further advice.




9 Exposed roof finishes.		
What goes wrong?	Why?	Maintenance requirements
 <p>What are the problems?</p> <ul style="list-style-type: none"> • General purpose room is constantly cold. • Condensation from metal roof with no ceiling. • Metal is rusting and the paint is badly peeling off • The carept is difficult to maintain. • It is a noisy space when it rains. 	<p>What is the probable cause?</p> <ul style="list-style-type: none"> • The example shows an exposed metal roof to an older 1970's school building. • A General Purpose room in a primary school that has no ceiling and unlikely to have limited roof insulation above the corrugated metal decking. 	<p>What should be done?</p> <ul style="list-style-type: none"> • Damaged or defective high-level roof spaces should be investigated by a specialist advisor. • Following a future inspection by a professional advisor, a partial roof replacement may be advised as per the Department of Education Circular 0068/2020 for Emergency Works.




10 Leaking ceiling finishes.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <ul style="list-style-type: none"> • Leaks in a roof space beside electrical wiring / light fittings. • Suspended ceilings can be problem area in school buildings given the location of pipes and other services concealed at high level. 	 <p>What is the probable cause?</p> <ul style="list-style-type: none"> • Higher school ceilings are generally out of reach for easy ladder access maintenance. 	<p>What should be done?</p> <ul style="list-style-type: none"> • Damaged or holes in suspended ceilings should not be left or ignored indefinitely. Repair as soon as is practicable. • A key aspect for ceiling finishes is the acoustic requirements, and holes in a suspended ceiling for example can reduce teacher – pupil conversation clarity. • Schools might purchase and store some spare ceiling tiles for long term maintenance management.


11 Excessive glare from high level windows.		
What goes wrong?	Why?	Maintenance requirements
<p>What is the problem?</p> <ul style="list-style-type: none"> Excessive glare from high level (Clerestory) windows in a post primary school technical room. There are problems for some students' vision to see the Teachers white board. 	 <p>What is the probable cause?</p> <ul style="list-style-type: none"> No blinds on high level glazing. 	<p>What should be done?</p> <ul style="list-style-type: none"> A school fitted temporary black sheet to the high-level glazing. The work was carried during the summer holidays. The school should obtain further advice for an appropriate permanent solution.

12 Stair edges.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <ul style="list-style-type: none"> Stair surfaces and treads can become loose or slippery, and a potential trip hazard. Occasional problem through spillages or the flow of pupil wet foot traffic during bad weather. 	<p>What is the probable cause?</p> <ul style="list-style-type: none"> Over time, hazards can develop and opportunity for trips and falls occur. Stairs are not easy to clean with the junctions, gaps and corners with finishes. Dirt can easily accumulate. On older schools, the thread surface may not have a slip resistance strip. 	<p>What should be done?</p> <ul style="list-style-type: none"> School stairs are high traffic areas and extra maintenance measures are required to ensure safety. Boards of Management should ensure a detailed risk assessment is carried out on stairs. The edge nosing of the stair should be apparent with a permanently colour contrasting anti-slip strip. Consider contacting a specialist to fit a 50mm wide (2 inch) anti-slip nosing, similar to the left photo. Contact a flooring specialist.

13 Stair balustrades.		
What goes wrong?	Why?	Maintenance requirements
 <p>What are the problems?</p> <ul style="list-style-type: none"> Open stairs balustrades in older primary schools. Potential trip hazard for pupils with open voids on stair flights and landings. 	 <p>What is the probable cause?</p> <ul style="list-style-type: none"> Stairways constructed in older school buildings may have simpler timber handrails and metal support balusters. 	 <p>What should be done?</p> <ul style="list-style-type: none"> Enclosing voids in existing stairs is beyond school maintenance. The Board of Management should review circulation on their stairways, and if necessary, seek further advice. Example above of a closed stairs balustrade.

14 Under stair voids.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <ul style="list-style-type: none"> Open area of a multi storey school stairway may allow pupils loitering during break time. Possible problems with anti social behaviour / bullying of pupils. Open areas beneath stairways can become an unofficial storage area which can present a fire and evacuation risk. 	 <p>What is the probable cause?</p> <ul style="list-style-type: none"> Stairways in larger schools are not typically monitored areas. Open areas under stairs may attract pupils. 	 <p>What should be done?</p> <ul style="list-style-type: none"> The Board of Management may consider closing off the open area. If in doubt, seek expert advice.

15 Mould on walls.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <ul style="list-style-type: none"> Mould to walls in a 1960's school with solid blockwork walls, (not cavity construction) 	 <p>What is the probable cause?</p> <p>Refer to Section 8.10 above.</p>	 <p>What should be done?</p> <ul style="list-style-type: none"> Professional advice is recommended for mould surfaces over 3 square metres. Mould removal requires appropriate safety clothing (PPE), including respiratory protection.

16 Redecoration of walls.		
What goes wrong?	Why?	Maintenance requirements
<p>What is the problem?</p> <ul style="list-style-type: none"> Stairs walls are busy circulation areas and can be difficult to maintain. Corridors walls can suffer periodic damage from moving furniture or equipment. 	 <p>What is the probable cause?</p> <ul style="list-style-type: none"> Stairways should have sufficient window sizes for natural daylight but may show marks or blemishes more noticeable. Blockwork walls tend to get marked from student shoulder bags given large numbers of pupils moving through the building, particularly in post primary schools. 	<p>What should be done?</p> <ul style="list-style-type: none"> Consider contemporary paint colour paint finishes with bright colour accents to select school wall locations. Paint manufacturers websites also provide guidance for educational facilities. If in doubt, seek further advice.

9.0 SCHOOL EXTERNAL AREAS

- 9.1 INTRODUCTION
- 9.2 EXAMPLES OF EXTERNAL AREAS ►
- 9.3 MAINTENANCE ISSUES TO CONSIDER ►

9.1 INTRODUCTION

External maintenance inspections should follow the same principles as inside the school building. Essential features such as boundary walls, railings, gates, block piers, and hard landscaping require well-planned maintenance. In addition, steps and ramps should be included with sufficient time allocated to keep the areas in a safe and sound condition. External paving and grassed areas are subject to significant wear and tear, not just from the occupants of the school but from weathering. If paved areas are cracked or not level, a trip hazard is possible, causing injury.

9.2 EXAMPLES OF SCHOOL EXTERNAL AREAS.

Examples of various school external areas are shown below.



Areas at front entrance canopy



Low maintenance play area



Low maintenance tarmac finish



Courtyard planting adds contrast



Raised bed planter for a SEN base.





Simple treated timber & planting



9.3 MAINTENANCE ISSUES TO CONSIDER.


The following guidance illustrates problems with school external areas.


1	Regular brushing is recommended to remove dirt, leaves or debris.
2	Use hot, soapy water with a mild detergent solution and apply a stiff brush to remove stains.
3	If power washing, use light to medium pressure only to clean general dirt and grime.
4	Be careful with rendered wall finishes, which can be damaged with excessive water spray.
5	For moss, lichen /algae, use hot water with detergent and brush to rinse with clean water.
6	Larger weeds should be removed, and the area treated with an appropriate solution.
7	Inspections and cleaning of external paved areas need to be carried out regularly.


No:	What goes wrong?	Why?	Maintenance requirements.
1	Pedestrian pathways.		
2	Stepped areas.		
3	Boundary walls and fences.		
4	Precast paving slabs cracking.		
5	Precast paving slabs misaligned.		
6	Other pavings – cobble lock, setts or bricks.		
7	Grassed areas.		
8	Tarmacadam general surface breakdown.		
9	Tarmacadam cracking.		
10	Tarmacadam potholes.		
11	Tarmacadam - kerb edge failure.		
12	Chain link fence rusting.		
13	Concrete posts cracking / spalling.		
14	Boundary wall copings.		
15	Playground shelters.		
16	School courtyards.		
17	External drainage.		
18	Septic tanks.		
19	Enhancing biodiversity in schools.		
20	School garden elements.		


1 Pedestrian pathways.		
What goes wrong?	Why?	Maintenance requirements
 <p>What are the problems ?</p> <p>Pedestrian pathways can be slippery at any time of the school year.</p>	 <p>What are the probable causes?</p> <ul style="list-style-type: none"> Pathway not getting the benefit of sunshine. Inadequate maintenance of path surfaces. Items blocking footpath. 	<p>What should be done?</p> <ul style="list-style-type: none"> Ensure pathways are kept clear of items that should be stored elsewhere. Clean path surfaces regularly around the perimeter of the building. Use warm water with non-bio washing powder and a stiff brush for moss and lichen growth. After cleaning thoroughly, rinse with clean water. If necessary, obtain advice on power washing treatments to maintain pathways safe and sound.



2 Stepped areas.		
What goes wrong?	Why?	Maintenance requirements
 <p>What are the problems ?</p> <ul style="list-style-type: none"> Two examples show i) steps up to a modular unit are hazardous. ii) Sloping steps up to a primary school. While ramps are provided, the steps are hazardous. 	 <p>What are the probable causes?</p> <ul style="list-style-type: none"> Both examples indicate the steps do not comply with the current building regulations. Steps are leading directly to a road or parking area. Risers and threads are different heights and widths. Metal handrails are incomplete. 	<p>What should be done?</p> <ul style="list-style-type: none"> Stepped surfaces require sensible safety measures. Ensure external steps are regularly inspected and cleaned. Consider nonslip edges to steps (nosings) applied with a proprietary hard-wearing paint (usually a bright yellow) colour for visibility. Stair widths should not exceed 1.8 metres, and an additional central handrail might be required. If in any doubt arrange an inspection by a professional advisor.



3 Boundary walls and fences.		
What goes wrong?	Why?	Maintenance requirements
<div style="display: flex; align-items: center;">  </div> <p>What is the problem?</p> <ul style="list-style-type: none"> Substantial structural cracks can occur at blockwork boundary walls. Ground levels can differ at boundaries with adjoining properties. 	<p>What is the probable cause?</p> <ul style="list-style-type: none"> The cracking is likely due to significant ground level differences at the boundary. The adjoining properties may be at lower level. Subsidence or settlement in the ground and foundations may have occurred over a long time period. There may be a lack of movement joints at the junction of blockwork courses and any structural piers when the wall was built. 	<p>What should be done?</p> <ul style="list-style-type: none"> The immediate area should be cordoned off to ensure health and safety for all persons. The school should contact a Structural Engineer to assess the problems and propose an appropriate solution. The school board of management should liaise with adjoining property owners on an agreed low-cost low maintenance solution for both parties. Fences and boundaries should not encourage or facilitate climbing. Erect signage if necessary Professional advice is recommended to alleviate further problems.


4 Precast paving slabs cracking.		
What goes wrong?	Why?	Maintenance requirements
<div style="display: flex; align-items: center;">  </div> <p>What is the problem?</p> <p>Cracking to precast concrete paving slabs.</p>	<p>What is the probable cause?</p> <ul style="list-style-type: none"> Cracking can be cause by: Settlement of bedding underneath. Joint between slabs too strong, with no room for movement. Inferior paving materials used. Slabs being laid and subject to traffic while (green) before concrete has fully set. 	<p>What should be done?</p> <ul style="list-style-type: none"> Remove cracked paving slabs. Replace with new slabs. Ensure that slabs are laid on a firm level and continuous bed of appropriate material, usually sand or a weak mix of sand and cement. If fault reoccurs seek further advice.


5 Precast paving slabs misaligned.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <ul style="list-style-type: none"> • Misalignment of paving slabs to a pedestrian pathway. • A risk of trips or falls is possible or injury to people walking on pathways. 	<p>What is the probable cause?</p> <p>Misalignment can be caused by:</p> <ul style="list-style-type: none"> • Settlement of the paving slab bedding material underneath. • Poor workmanship in laying of paving slabs. • Heavy duty or similar additional loading / forceful impact by machinery etc, window cleaning by a mobile elevated work platform (MEWP). • Refer also to Chapter 11. Health and Safety. 	<p>What should be done?</p> <ul style="list-style-type: none"> • It is essential to fully understand and appreciate the problem before a solution is agreed. • Clear and safe school pathways are essential where routine maintenance is concerned. • Remove the misaligned paving slabs and level the bedding underneath. • Replace the slabs and infill the joints between slabs. • Uneven paving slabs are a common cause of slips and trips or accidents. • Check carefully. If a fault occurs deal with it promptly.


6 Other pavings – cobble lock, setts or bricks.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <p>Cracking and misalignment of brick or similar cobble lock paving.</p>	<p>What is the probable cause?</p> <p>Cracking can be caused by:</p> <ul style="list-style-type: none"> • Settlement of bedding material underneath. • Joint between the slabs is too strong, there is no room for movement. • Poor materials used. <p>Misalignment can be caused by:</p> <ul style="list-style-type: none"> • Unfinished pavings or edge joint with surrounding ground. • Settlement of bedding material underneath. • Poor Workmanship when laying the paving. 	<p>What should be done?</p> <ul style="list-style-type: none"> • Remove cracked cobbles, setts or brick paving. • Replace with new cobbles etc. • Ensure cobbles are laid on a firm level and continuous bed of appropriate material, usually sand or a weak mix of sand and cement. • Edges of paving should be appropriately contained using kerbing or concrete haunching. • If any defects or faults reoccurs seek expert advice.

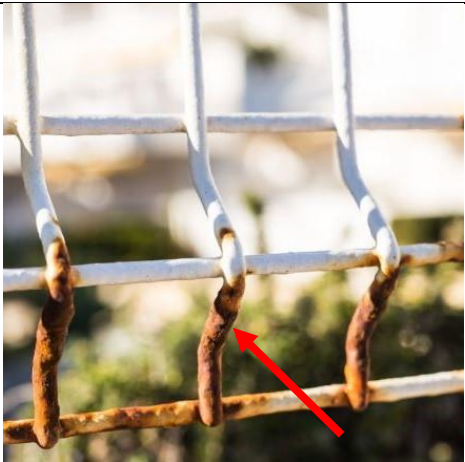
7 Grassed areas.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <ul style="list-style-type: none"> • Playing pitch maintenance can be difficult in winter. • Flooding or ponding to grass areas can occur. 	 <p>What is the probable cause?</p> <ul style="list-style-type: none"> • Flooding or ponding can be caused by blocked drains or gullies. • Ground level changes with no soakage 	<p>What should be done?</p> <ul style="list-style-type: none"> • Sufficient time is necessary to complete regular maintenance of soft landscaped areas. • Large areas of grass require regular cutting and any areas between the entrance and school building should be well kept with simple cost-effective maintenance planning. • Larger post primary schools may in time consider the use of a robotic lawn mower for their playing pitches.



8 Tarmacadam general surface breakdown.		
What goes wrong?	Why?	Maintenance requirements
 <p>What are the problems?</p> <ul style="list-style-type: none"> • Two examples of general surface breakdown of tarmac surfaces. • Pathways may have to be closed off. • Possible damage to vehicles. 	 <p>What is the probable cause?</p> <p>Tarmacadam surface breakdown can be caused by:</p> <ul style="list-style-type: none"> • Old age. • Wear and tear. • Oil / diesel spillage in car park areas. • Frost action and subsequent potholes. 	<p>What should be done?</p> <ul style="list-style-type: none"> • Maintenance of the side drains is essential to protect the road surface. • Temporary re surfacing should be carried out to prevent accidents with vehicles or trip hazards for pedestrians. • Consider erecting school signage in vehicle driveways / circulation areas. • For example, 10km per hour signs on display to slow down drivers attending the school driveway. • Tarmac issues outside the school boundary should be discussed with the local planning authority. • If in doubt seek further advice.


9 Tarmacadam cracking.		
What goes wrong?	Why?	Maintenance requirements
<div style="text-align: center;">  </div> <p>What is the problem?</p> <ul style="list-style-type: none"> Tarmacadam cracking over large areas where previous repair works have not been successful. Large areas of moss and lichen growth. 	<p>What is the probable cause?</p> <ul style="list-style-type: none"> Cracking can be caused by settlement of soil underneath the tarmacadam, and also because of poor materials or workmanship. Tree roots can cause cracking because of movement underneath the surface. 	<p>What should be done?</p> <ul style="list-style-type: none"> Fill in cracks and level the top surface. If the problems reoccur, seek further advice.


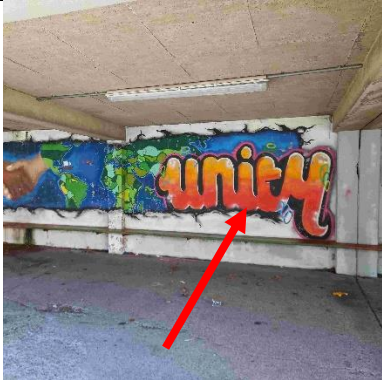
10 Tarmacadam potholes.		
What goes wrong?	Why?	Maintenance requirements
<div style="text-align: center;">  </div> <p>What is the problem?</p> <p>Potholes to a school driveway and vehicular circulation areas.</p>	<p>What is the probable cause?</p> <p>Potholes are caused by:</p> <ul style="list-style-type: none"> Settlement of the soil underneath the tarmacadam. When the weather freezes the tarmacadam can expand. An increased number or weight of vehicles in set down and parking areas over time. 	<p>What should be done?</p> <ul style="list-style-type: none"> Fill in potholes with tarmacadam and level the top surface. If extensive pothole failure reoccurs, it may be necessary to seek further advice.

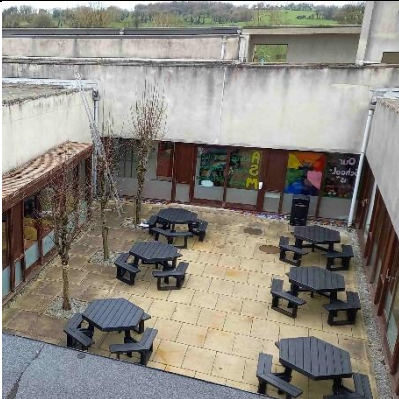

11 Tarmacadam - kerb edge failure.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <p>Concrete kerb edge failure can occur at tarmac surfaced playgrounds, and the junction with grass areas or other surfaces</p>	<p>What is the probable cause?</p> <ul style="list-style-type: none"> • Inadequate workmanship when fitting of precast kerbs, which are quite heavy for manual handling. • Inadequate support for edges of tarmacadam areas, for example, at a junction with a grassed area. • No drainage pipe or gullies fitted to sloped tarmac areas. • The kerb concrete support haunching used during the construction stage may have been weak mix or poorly installed for structural integrity. • Wear and tear with age of the materials. 	<p>What should be done?</p> <ul style="list-style-type: none"> • Provide properly bedded edging in the form of concrete kerbs or similar. • Local repairs to the areas of tarmacadam affected by edge failure may also be necessary. • Repair work should be carried out by personnel of appropriate expertise.



12 Chain link fence rusting.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <p>Chain link fence rusting reoccurs again after repainting.</p>	<p>What is the probable cause?</p> <ul style="list-style-type: none"> • Metal fencing exposed to the weather will rust or re-rust if not properly protected. • Inadequate cleaning / sanding down of metalwork • Inappropriate paint material used. 	<p>What should be done?</p> <ul style="list-style-type: none"> • Where costs permit, remove badly rusted chain link fencing. • Replace with a plastic or equivalent coated fencing.



13 Concrete posts cracking / spalling.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <p>Concrete fence posts cracking / spalling where the metal reinforcement has corroded.</p>	 <p>What is the probable cause?</p> <ul style="list-style-type: none"> Square concrete post is typically of a slim thickness (100 or 150mm) wide and include metal rods for structural reinforcement. Spalling occurs because of metal reinforcement being too close to the surface or physical damage to the posts. The concrete surfaces fail (spalls) in random areas where water enters and freezes. 	<p>What should be done?</p> <ul style="list-style-type: none"> Replace any damaged concrete posts. Excavate a small foundation and securely bed new posts upright in the ground. Backfill to ensure structural safety. For any works near or next to external services or underground pipes / drains, obtain further advice.

14 Boundary wall copings.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <p>The copings on top of the walls become loose.</p>	<p>What is the probable cause?</p> <p>Copings can become loose because of:</p> <ul style="list-style-type: none"> Poor mortar joint between the wall and coping. Wear and tear. Unauthorised climbing on top of the coping and dislodging it. 	<p>What should be done?</p> <ul style="list-style-type: none"> Refit / re-bed loose sections of coping on a bed of mortar. Replace broken or missing sections of coping stone. In the case of regular damage to copings, consider an alternate coping finish.

15 Playground shelters.		
What goes wrong?	Why?	Maintenance requirements
 <p>What are the problems?</p> <ul style="list-style-type: none"> • Examples of two playground shelters • A primary school play shelter not used. Steel poles and beams deflecting, therefore it is unsafe. • An uninspiring shelter had occasional graffiti slogans in black paint. 	 <p>What is the probable cause?</p> <ul style="list-style-type: none"> • The roof structure is showing evidence of wear and tear with age. Possible asbestos containing material to the roof slabs, (expert advice needed). • Prevailing winds gust can cause roof deflection, uplift and possible failure. • The structure over 40 years old and beyond its original intended life cycle. 	<p>What should be done?</p> <ul style="list-style-type: none"> • A replacement canopy roof or equivalent should be considered. • Consider some carefully designed art murals to enliven the wall surfaces. • The school Board of Management should obtain further advice.

16 School courtyards		
What goes wrong?	Why?	Maintenance requirements
 <p>What are the problems?</p> <ul style="list-style-type: none"> • Defective timber windows. • Inadequate roof parapets. • Mould on rendered walls. • Unfinished rainwater goods. 	 <p>What is the probable cause?</p> <ul style="list-style-type: none"> • Poorly constructed walls, roof and some boxed out windows materials. • Defective architectural details making maintenance difficult. 	<p>What should be done?</p> <ul style="list-style-type: none"> • School courtyards are designed to be low maintenance and inspiring “break out” spaces. • The choice of materials requires site specific decisions to ensure outdoor spaces are fit for purpose.

17 External drainage.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <ul style="list-style-type: none"> An example of school with blocked foul water drains. Both manholes were shallow (less than 900mm deep) and inspected by the caretaker. However, there was no knowledge how to clean the drains. 	 <p>What is the probable cause?</p> <ul style="list-style-type: none"> Some schools' drainage system is investigated only when a problem occurs. Green weeds etc around manholes is a visible sign of neglected maintenance. Lifting of steel manholes may show blocked foul drains from school toilets and sanitary facilities. 	<p>What should be done?</p> <ul style="list-style-type: none"> School drains should be checked annually at the end of the school year. A full flushing out of the system will greatly prolong the pipework longevity, keeping the school underground services fit for purpose. Large underground drainage problems are beyond regular maintenance. Minor blockages of gullies or shallow manholes / AJ's can be cleaned with the right / practical knowledge. For substantial drainage problems, a CCTV survey should be carried out by a specialist drainage cleaning company. This process will allow the location and clearing of any blockages quickly.

18 Septic tanks.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <ul style="list-style-type: none"> Noticeable septic tank smells or blockages. Flooding of the percolation area with effluent. 	 <p>What is the probable cause?</p> <ul style="list-style-type: none"> Excessive volume of sludge in the septic tank. Flooding of effluent in the percolation area indicates poor ground soakage conditions. The septic tank is at the end or near the end of its life cycle. 	<p>What should be done?</p> <ul style="list-style-type: none"> It is a statutory requirement to obtain planning permission for the replacement of a septic tank and percolation area/soak pit with a Wastewater Treatment System and percolation area. Make contact and inform the Local Authority. Always adopt safe working procedures with septic tanks. Desludge septic tanks at least once a year, not during school hours. Where possible use a reserve percolation area. The Board of Management must obtain advice from a professional advisor.

19 Enhancing biodiversity in school.



As part of supporting biodiversity, the maintenance and development of school grounds should be used as a support for a diverse and meaningful nature education. Some nature project examples are shown from a number of Primary schools.

20 School garden elements.

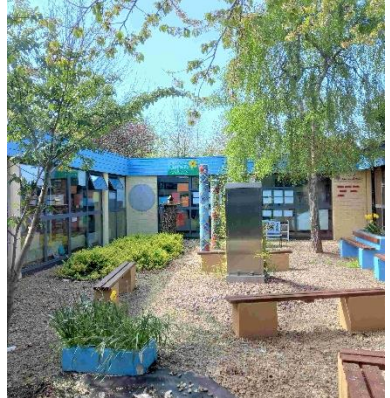
Elements of a school garden – Ideas for schools.



Wild flower planter



Wild flower boxes



Library garden



Recycle timber pallet murals



Pond with safety grid



Geodesic greenhouse



Sundial



Pergola



Leaf collector

OTHER IDEAS

Bird Feeder Boxes	Composter	Decaying Materials	Den Building
Fairy Garden	Fruit Bushes	Gardening Club	Hedgehog Club
Shelter	Tree Trail	Herb Garden	Maze
Meadow	Mud Kitchen	Music Wall	Nature Trail
Native Hedgerow	Outdoor Blackboard	Outdoor Wildlife Signs	Pollinator Beds
Sensory Garden	Spring Bulbs	Rainwater Harvester	Water Bath.



Example of rural school with a new historical art information wall mural

10.0 FURNITURE AND EQUIPMENT

- 10.1 INTRODUCTION
- 10.2 SCHOOL FURNITURE ►
- 10.3 SCHOOL EQUIPMENT ►
- 10.4 KEY MAINTENANCE GUIDANCE ►
- 10.5 EXAMPLES OF FITTED AND LOOSE FURNITURE ►
- 10.6 CLEANING TIPS FOR FURNITURE ►
- 10.7 AUDIT OF SPECIALIST EQUIPMENT ►
- 10.8 SAMPLE CHECKLIST FOR A POST PRIMARY SCHOOL SUBJECT ►
- 10.9 PRACTICAL ISSUES TO CONSIDER ►

10.1 INTRODUCTION

All schools are fitted out with fitted (fixed) furniture, loose furniture and equipment. This chapter provides helpful tips for keeping both furniture and equipment well-maintained and in good working order. School Authorities should keep up to date with the Department of Education website for advice. The website was last updated in October 2022 and is subdivided into three categories.

1. [Fitted Furniture.](#)
2. [Loose Furniture.](#)
3. [Post Primary Equipment List.](#)

Publication

Furniture and equipment

From [Department of Education](#)
 Published on 17 December 2020
 Last updated on 27 October 2022

1. [Fitted Furniture](#)
2. [Loose Furniture](#)
3. [Post-Primary Equipment List](#)

This page contains specifications and standards for furniture and equipment for post-primary schools.

Further guidance for school authorities, and their design teams, is available on our [School Building and Design](#) page.

[Refer to www.gov.ie](http://www.gov.ie)

10.2 SCHOOL FURNITURE

All furniture intended for school use should allow easy cleaning and low maintenance. Tired and poorly maintained classroom furniture can occur in schools, combined with other forms of damage. It creates a poor environment for teaching and learning. Traditionally, older schools had practical robust desk and chair furniture. The furniture was made with hardwood timber and built to last several decades. In newer school, the choice of furniture can make the difference between a manageable maintained layout and a restricted cleaning regime. Internal spaces need to be carefully considered, particularly how rooms are configured and cleaned during school terms. Overall, the responsibility lies with the Board of Management, which should be involved in any school furniture maintenance or replacement scheme.

In 2024, there is a new performance specification for loose furniture based on: The furniture product shall comply with the requirements set out in the latest versions of the following relevant EN standards that may relate to the durability, dimensional requirements, safety and strength of the product:

- EN 1729-1 Furniture - Chairs and tables for educational institutions - Part 1: Functional dimensions.
- EN 1729-2 Furniture - Chairs and tables for educational institutions - Part 2: Safety requirements and test methods. Schools should refer to the SPU (Schools Procurement Unit) for info on procuring replacement school furniture.

10.3 SCHOOL EQUIPMENT

The best practice for the maintenance of Post Primary school equipment involves routine visual inspection while the equipment is in service. Specialist teachers can regularly clean and lubricate machines and reduce equipment wear and tear. However, if in doubt, the first point of call is the Department of Education website at www.gov.ie

Sample Post Primary Equipment List

1	Applied Technology / Technology	15	Learning Support
2	Wood Machining and Preparation Room	16	Mathematics
3	Construction Studies. Wood Technology	17	Multimedia Room (Language Lab)
4	Engineering	18	Music and Drama
5	Graphics Design Laboratory	19	Physical Education (PE)
6	Design and Communication Graphics	20	Science Laboratory (Basic Science)
7	General Office Administration	21	Science Laboratory (Data Collection)
8	Art and Craft	22	Science Laboratory (Chemistry)
9	Kitchenette	23	Science Laboratory (Physics)
10	Audiovisual	24	Science Laboratory (Biology and Agricultural Science)
11	Cleaner's Store	25	Science Laboratory and Preparation Area
12	Dress Design	26	Social Studies (Environmental and Social Studies)
13	First Aid	27	DCG Laptop / Desktop
14	Home Economics		

10.4 KEY MAINTENANCE GUIDANCE.

KEY MAINTENANCE GUIDANCE FOR SCHOOL FURNITURE	
1	The School Board of Management are responsible for managing a school, and the furniture will be some of the most valuable items in the building.
2	Due to the costs needed to invest in furniture, the BoM should make sure that they actively caring for the furniture to keep it lasting for as long as possible.
3	Ensure desks or writable surfaces are regular cleaned and free of marks or blemishes. Check any veneered edges or corners are safe with no splinters or damaged marks.
4	Different types of desks, panels, and other surfaces may be damaged. These surfaces should be cleaned weekly.
5	Treat timber desks with good quality wood stain coatings. Ideally plan the work in advance and allow for fit for purpose furniture at the start of a new calendar year.
6	Adjust or repair loose chair and desk legs as soon as they are noticed. Consider replacing older metal chairs with bespoke rubber sealed end covers to prevent scratching / tears to floors.
7	Schools should educate rather than warn pupils, to take care of school property and their own desks and chairs. Encouraging pupil participation can have positive learning outcomes for all.
8	<p>If metal chairs have gone beyond their useful life cycle, review replacement chairs furniture with a lighter plastic, to allow pupils lift chairs with greater ease and protect floor surfaces.</p> <p>Ensure replacement chairs, tables and general school furniture conform to the appropriate quality and safety EU regulations, the Department has a framework of approved furniture suppliers in place for schools to use.</p>

10.5 EXAMPLES OF FITTED AND LOOSE FURNITURE.



Moveable Art Room Tables.



Special Educational Needs Room



Contemporary Engineering Room.



Computer Studies Room



Construction Studies Room



Home Economics Room.

10.6 CLEANING TIPS FOR FURNITURE

1	Pen and ink or soft grade pencil marks are some of the most common ways in which school furniture can become ruined. Consider a paste of baking soda and water – applying the mix to marks for 20 seconds and removing it with a soft, clean cloth can provide a natural alternative solution to chemicals. Rubbing in a circular motion is recommended.
2	From student snacking to stubborn fingerprints, greasy patches on classroom furniture are inevitable. Greasy patches can be removed by combining water and washing up liquid on a damp cloth. Where possible, try to use reusable cloths over single use paper towels to help the environment.
3	Discovering and removing chewing gum is the least enjoyable of all furniture maintenance tasks. Scraping it off will leave scratches or permanent marks. A simple method is to place ice in a sealed bag over the gum for a few minutes to harden it, before carefully scraping it off with a round edge putty knife.
4	Checking furniture regularly throughout the year will help prevent significant damage from occurring. Every few months, check school furniture fittings, such as screws, and adjust where necessary so that any faults can be repaired before the furniture breaks.

10.7 AUDIT OF SPECIALIST EQUIPMENT

There is a lot of specialist equipment in schools, particularly in the technology, engineering & construction areas. Schools should be advised to have specialist maintenance contracts on this equipment. At a minimum schools should carry out an audit of the specialist equipment every six months. Consider the sample checklist below and edit or revise to suit each specialist subject.



Construction Studies Room Drill



Engineering Room Lathe



Home Economic Room Oven

Sample Checklist for Specialist Equipment in Post Primary Schools.


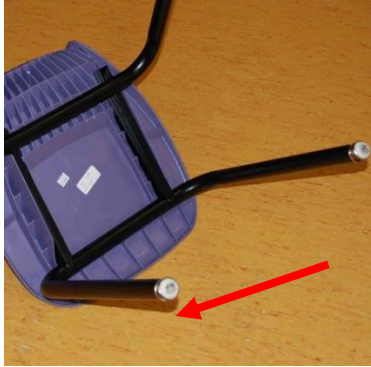
Item	Equipment	Notes	Inspection date	Checked by
1	The location of the machine equipment.	<i>Room name</i>	<i>Every 6 months</i>	<i>relevant staff</i>
2	Brand or model name of the machine.			
3	The CE Marks.			
4	The serial number.			
5	The age of the machine.			
6	The condition of the machine.			
7	The working to meet the users 'needs.			
8	Any repair history noted on the machine.			
9	Recommended services date.			
10	Any upkeep requirements, (oil or filters).			
11	Evidence of future needs.			
12	Estimated remaining useful life.			



10.8 SAMPLE CHECKLIST FOR A POST PRIMARY SCHOOL SUBJECT.


Subject: CONSTRUCTION STUDIES.				
<i>(a Microsoft word version template is available for download and editing to suit)</i>				
Item	Loose Furniture Schedule	Inspection date	Inspection signature	Person responsible
1	Student Workbenches			<i>Caretaker</i>
2	Student High Stools			<i>Caretaker</i>
3	Teachers Chair			<i>Caretaker</i>
4	Pinboards			<i>Caretaker</i>
5	Student Lockers			<i>Caretaker</i>
6	Other			<i>Caretaker</i>
Item	Fitted Furniture Schedule	Inspection date	Inspection signature	Person responsible
1	Large width sliding storage unit			<i>Teacher</i>
2	Teaching Wall			<i>Teacher</i>
3	Belfast Sinks and Drainer			<i>Teacher</i>
4	Other			<i>Teacher</i>
Item	Specialty Equipment Schedule	Inspection date	Inspection signature	Person responsible
1	Wood turning lathe			<i>Teacher</i>
2	Bandsaw			<i>Teacher</i>
3	Morticer			<i>Teacher</i>
4	Drill			<i>Teacher</i>
5	Vertical Sander			<i>Teacher</i>
6	Other			<i>Teacher</i>
Item	Services Checklist	Inspection date	Inspection signature	Person responsible
1	Audio Projector			<i>Teacher</i>
2	Data Sensor Absence Detector			<i>Teacher</i>
3	Data Projector Network Point			<i>Teacher</i>
4	Emergency Lighting			<i>Caretaker</i>
5	Heat Detector / Sounder			<i>Caretaker</i>
6	Light Switch			<i>Caretaker</i>
7	Public Address (PA) Loudspeaker			<i>Caretaker</i>
8	Wireless Action Position Network			<i>As needed</i>
9	Other			<i>As needed</i>
10				

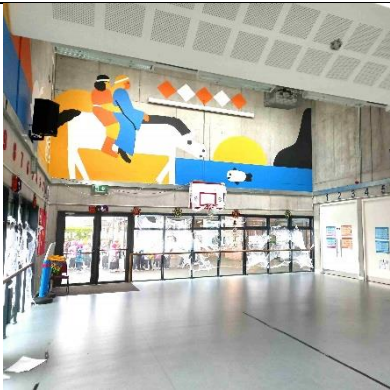
Post Primary schools can prepare and complete a checklist for each specialist subject and keep in the school maintenance file. The Department of Education Maintenance Manual will be a live document and updated further for school equipment.


10.9 PRACTICAL ISSUES TO CONSIDER


1 Classroom chairs.		
What goes wrong?	Why?	Maintenance requirements
 <p>What are the problems?</p> <ul style="list-style-type: none"> • Torn patches on vinyl floor. • Permanent linear scratches. • Damaged chairs or table legs. 	 <p>What is the probable cause?</p> <ul style="list-style-type: none"> • Generally isolated patches of torn vinyl floors are caused by dragging of tables or pupils leaning back / rocking on the chairs. 	<p>What should be done?</p> <ul style="list-style-type: none"> • Check the school files to see any standard certificate or undertaking by the furniture supplier. • Rubber caps or pads are readily available off the shelf products to protect school floors. • Any repairs to damaged furniture should be carried out by competent personnel. • Contact the original supplier or contractor. • If the problem persists, seek expert advice.



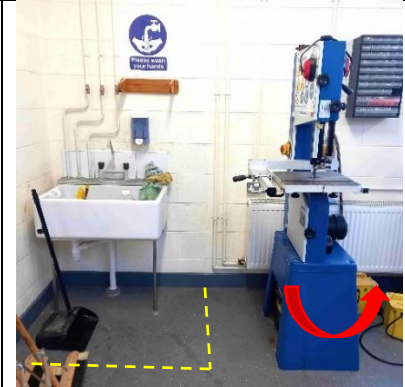
2 Classroom desk damage.		
What goes wrong?	Why?	Maintenance requirements
 <p>What is the problem?</p> <ul style="list-style-type: none"> • Classroom veneered desk or worktops that are split or damaged. • Some exposed edges for pupils. • Uncomfortable stools in Design Communication & Graphics classroom. 	 <p>What is the probable cause?</p> <ul style="list-style-type: none"> • Wear and tear to classroom desks. • Timber desk furniture over 25+ years old is now beyond its intended lifecycle. 	<p>What should be done?</p> <ul style="list-style-type: none"> • The lifecycle of school furniture depends on good maintenance management. • Minor scuff marks are expected due to wear and tear. However larger damaged veneered top surface desks should be replaced. • The Board of Management should seek appropriate advice from the Department of Education at www.gov.ie/education.


3 Staff room furniture.		
What goes wrong?	Why?	Maintenance requirements
<div style="text-align: center;">  </div> <p>What is the problem?</p> <ul style="list-style-type: none"> • Staff room under sink cupboards no longer functioning. • Faulty door hinges, warped panel door and damaged shelves from leaking taps. • Repair or replacement hinges have not solved the problem. • The units are not robust / suitable for staff for day-to-day use in a school building 	<p>What is the probable cause?</p> <ul style="list-style-type: none"> • The units may be domestic type, and not suitable for busy school use. • The timber panels are low grade veneered chipboard or similar which get damaged easily for refixing of hinges. • Units over 20+ years are beyond the expected life cycle. 	<p>What should be done?</p> <ul style="list-style-type: none"> • The Board of Management should consider replacing the units from the maintenance budget. • Refer to online risk assessment Template No 26 Staff Room, at www.hsa.ie/education. • If in doubt, seek further advice from the Department of Education at www.gov.ie/education.

4 General Purpose Room		
What goes wrong?	Why?	Maintenance requirements
<div style="text-align: center;">  </div> <p>What is the problem?</p> <ul style="list-style-type: none"> • Bespoke finishes to a post primary school general purpose room. • High level fitted timber panels, can get damaged during indoor ball game. 	<p>What is the probable cause?</p> <ul style="list-style-type: none"> • The colourful architectural designs are excellent and provide good educational encouragement for young pupils. • However, the timber panels or wall graphics should be inspected when the school is not in use, to prevent any potential hazards. 	<p>What should be done?</p> <ul style="list-style-type: none"> • The school should not use ladders above 4 metre height to inspect the wall fittings. • Obtain further advice where necessary to ensure low maintenance cleaning.

5 Home Economics Equipment.		
What goes wrong?	Why?	Maintenance requirements
<div style="display: flex; align-items: flex-start;">  </div> <p>What is the problem?</p> <ul style="list-style-type: none"> An unexpected electric shock from contact with a hot oven surface. Heat resistant gloves (gauntlets) may not have been used to handle hot objects. 	<p>What is the probable cause?</p> <ul style="list-style-type: none"> Possible defective electrical wiring or equipment. Previous faults not recorded in a maintenance schedule or logbook. Defects may not have been reported to ensure item is repaired or replaced. 	<p>What should be done?</p> <ul style="list-style-type: none"> Ovens should be serviced by a competent person and service records kept as part of the maintenance schedule. Teachers and students are typically informed of the hazards and risks using a specialist teaching class. Schools can take further action using the Health and Safety Authority - risk assessment templates No 34, 35 and 36 Home Economics. available for download at www.hsa.ie/education.

6 Construction Studies Equipment		
What goes wrong?	Why?	Maintenance requirements
<div style="display: flex; align-items: flex-start;">  </div> <p>What is the problem?</p> <ul style="list-style-type: none"> Mis-alignment problem with a Band saw in a Construction studies room at a Post Primary school. 	<p>What is the probable cause?</p> <ul style="list-style-type: none"> The machine is classed as “high risk woodworking machine” under the health and safety regulations, ref S.I No 36 of 2016. Given the potential hazards, any contact by persons other than the operator is advised. 	<p>What should be done?</p> <ul style="list-style-type: none"> HSA risk assessment No 57 (Technologies) woodworking circular saw provides a list of control measures for Construction studies. The school should seek expert advice to ensure the machine used is in compliance with the manufacturer’s instructions and that the operator’s manual is available.

7 Cleaning sink beside specialist equipment.		
What goes wrong?	Why?	Maintenance requirements
 <p>What are the problems?</p> <ul style="list-style-type: none"> While not obvious, these are both potential safety hazards in two post primary schools. Close proximity of Construction Studies equipment machines and Belfast type cleaning sinks. Example above: a person using the Drilling machine has their back to any person using the sink. Example opposite: As above, with materials incorrectly stored in the corner. 	 <p>What is the probable cause?</p> <ul style="list-style-type: none"> Incorrect positioning of the Drilling machine, not installed in accordance with the Department of Education Technical Guidance Documents. Routine or planned maintenance inspections have not taken place. Commissioned equipment maybe beyond the warranty period, schools should seek expert advice for any maintenance problems. 	 <p>What should be done?</p> <ul style="list-style-type: none"> As a temporary measure only, use a roll of Hazard Warning Floor Tape, 50mm wide, in yellow and black. A specialist should be contacted and engaged to review and advice on the problem. A possible suggestion might be, reposition and rotate the cutting equipment machine. If necessary, obtain further / updated training.

8 Portable specialist equipment		
What goes wrong?	Why?	Maintenance requirements
 <p>What are the problems?</p> <ul style="list-style-type: none"> A portable wood turning lathe is not secured to the bench top. While not apparent, a moveable machine is a possible hazard. 	<p>What is the probable cause?</p> <ul style="list-style-type: none"> The portable wood lathe is school owned. The actual machine model may not comply with the listed requirement by the Department of Education or the risk assessment template no: 68 Technologies (wood lathe). "A machine should be securely fixed to the floor or bench and work piece appropriately secured". "Movement of the machine may lead to injury during use" 	<p>What should be done?</p> <ul style="list-style-type: none"> A maintenance compliance inspection is advised to check the: <ol style="list-style-type: none"> 1) Make 2) Model 3) Serial Number 4) Electrics / motor rating. 5) Declaration 6) CE Mark The machine should be securely clamp fixed to the workbench below. For future compliance checks, the Board of Management should obtain expert advice.

11.0 HEALTH AND SAFETY

11.1 INTRODUCTION

11.2 SAFETY WITH ROOF INSPECTIONS ►

11.3 EXTERNAL GLAZING AND ROOFLIGHT MAINTENANCE ►

11.4 PE HALLS AND GENERAL PURPOSE ROOMS ►

11.5 EXTERNAL CLADDING AND RENDER SYSTEMS ►

11.6 FURTHER ADVICE FROM THE HEALTH AND SAFETY AUTHORITY ►

11.1 INTRODUCTION

Health and safety measures are essential when inspecting and repairing the building fabric. School Boards of Management must consider all building areas can be safely accessed, particularly areas above single-storey roofs or two-storey schools. In addition, authorities must consider maintaining and repairing the building external and internal fabric. Under Health and safety regulations, it is essential to have some understanding when inspecting and maintaining school buildings. If in doubt, obtain professional advice for any planned maintenance programmes. On 9th March 2018, The Department of Education published [Circular Letter 0018/2018](#) to: The Managerial Authorities of Primary and Post Primary Schools. Refer to www.gov.ie/education

11.2 SAFETY WITH ROOF INSPECTIONS – Refer also Chapter 3.4 Roofs

1. Firstly, carefully assess the risks of inspecting a roof. Is it safe? What are the risks? Is it even necessary to access the roof?
2. Look up at the roof from ground level. Is there adequate edge protection around the perimeter of the roof? It should be 1100mm (3ft 8inch) high and a parapet wall or railings?
3. Is there a fall arrest restraint system on the roof? A fall arrest system should only be used by trained personnel and only under the supervision of two operatives.
4. Ladder access is only recommended if there are fixed ladder access points to different areas of the building. Inspect any fixed ladders regularly inspected annually. Unfixed ladders are hazardous and can cause accidents and should be avoided wherever possible. If ladder access is the only form of access to a single-storey flat roof, they should be temporarily fixed back to the structure at base level with proprietary ladder fixings designed specifically for that purpose and only used under the supervision of two operatives.
5. Inspect single-storey roofs from the ground level. For two or greater storey schools, engage a contractor to carry out an inspection. Once a risk assessment is completed, the contractor may need to erect a scaffolding to gain access or hire a mobile elevated work platform, (MEWP).
6. If you consider there is an immediate risk from falling materials of roof and wall elements like slipped roof slates or tiles. Carry out the following:
 - a) Take photos from a safe or reasonable distance.
 - b) Arrange a secure temporary area to avoid accidents.
 - c) Contact a roofing specialist contractor for temporary protection at the roof eaves level.
 - d) Obtain further specialist advice on (a) the age of the roof and (b) roof construction.
 - e) Contact the Department of Education Emergency Works Section via [circular 0068/2020](#).
 - f) A significant challenge with older school roofs is it safe to access for a maintenance inspection. The challenge may be the structure's height or the lack of safe means of access for inspection.
 - g) Wherever possible, the first task should be to engage the services of a specialist roofing contractor.
 - h) No school personnel should access roofs without, first completing a risk assessment in writing and if necessary, obtaining expert advice.

**School Caretaker
THINK OF SAFETY FIRST**

		
Are you safe on a ladder?	Are you safe on the roof?	Never access fragile roofs

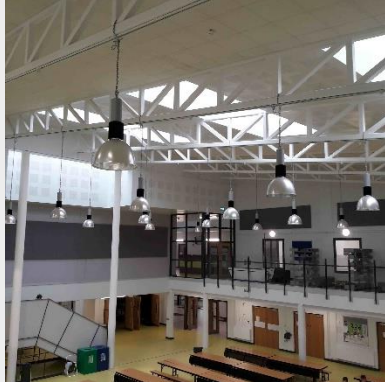
11.3 EXTERNAL GLAZING AND ROOFLIGHT MAINTENANCE

Two-storey school windows should be cleaned only from ground level with manual, long-reach pole appliances. On higher multi storey school’s specialist maintenance advice must be obtained. The cleaning of roof lights should be carried out by qualified and experienced maintenance personnel using long-reach poles, working from platforms on an articulated boom. MEWP (mobile elevated work platform) are available to hire but their use should only be by specially trained operatives only. The cleaning and repair of the roof lights in school corridors and double-height spaces require specialist roofing contractors. Request and obtain detailed risk assessments and method statements by those specialists.



11.4 PE HALLS AND GENERAL PURPOSE ROOMS

Cleaning and repair of roof lights or high-level clerestory glazing in PE Halls should be cleaned and repaired by specialist contractors. As above, detailed risk assessments or methods statements are required for the school safety file.



GP hall with high level rooflights



PE Hall after routine maintenance



GP room with defective ceiling requiring substantial repairs.

11.5 EXTERNAL CLADDING AND RENDER SYSTEMS

Where schools have engaged specialist advice, they should then request detailed risk assessments, and safe access must be put in place before starting external maintenance works. As stated throughout this guidance, similar safety procedures are required for works to the external fabric of school buildings. For example, external render cleaning is both costly and time consuming for school authorities. Finally, maintaining, proprietary cladding systems finishes are beyond the knowledge of most schools. In such instances, the board of management should seek expert advice.

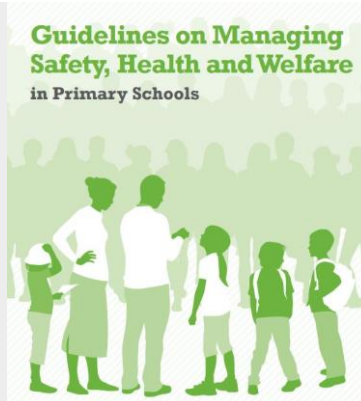


Examples of well-maintained building facades with cladding and render system finishes.

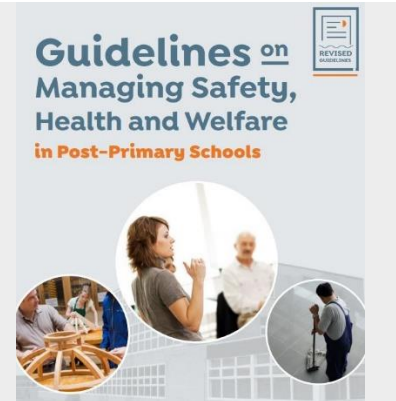
11.6 FURTHER ADVICE FROM THE HEALTH AND SAFETY AUTHORITY



Example of an MEWP for use by trained operatives only.



For further guidelines refer to www.hsa.ie/eng/education and <http://www.gov.ie>



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12.0 GETTING WORK DONE

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- 12.2 STATUTORY APPROVALS, TENDERS, CONTRACTS, TAX CLEARANCE ►
- 12.3 PLANNING PERMISSION ►
- 12.4 DISABILITY ACCESS CERTIFICATES ►
- 12.5 FIRE SAFETY STATUTORY OBLIGATIONS ►
- 12.6 SCHOOL FIRE DRILLS ►
- 12.7 BUILDING REGULATIONS - SCHOOL AUTHORITIES DUTIES ►
- 12.8 APPOINTING PROFESSIONAL CONSULTANTS ►
- 12.9 SCHOOLS THAT ARE PROTECTED STRUCTURES ►
- 12.10 APPOINTING BUILDING AND OTHER CONTRACTORS ►

12.1 INTRODUCTION.

This Guidance Manual states the minimum standards to maintain existing school buildings. The standards apply to all primary and post-primary schools, including special schools. School authorities must consider the building and the external grounds for new or updated maintenance management proposals. School Boards of Management are encouraged to refer to this manual, to ensure planned maintenance calendar checklists forms are completed and signed off for record purposes. Where the school appoints professional advisors, those consultants or design teams shall advise schools of the primary statutory legislation relating to the school.

The Department of Education provides funding to schools through minor works grant funding, emergency works grant funding and summer works schemes. It also supports maintenance through the employment of caretaker staff through capitation grants.'

12.2 STATUTORY APPROVALS, TENDERS, CONTRACTS, TAX CLEARANCE.

In undertaking works to its school, the Board of Management should consider carefully the scale and complexity of the task. Works to the school structure, or to the mechanical and electrical systems should not be undertaken without engaging a properly qualified professional advisor. If there is any doubt about the work being planned, professional advice should be sought. The professional advisor engaged, can:

1	Plan the works or project.
2	Check / prepare on any planning permission requirements (if applicable).
3	Check on any disability access requirements.
4	Check / prepare statutory fire safety requirements.
5	Check / prepare statutory health and safety issues.
6	Prepare tender stage documentation.
7	Invite tenders / quotations.
8	Administer the works /contract.
9	Advise on school board of management tax duties etc.
10	Periodically inspect and certify the works to practical completion stage.

12.3 PLANNING PERMISSION

Examples of works which might require an application for planning permission are:

- An extension of a school building.
- Any alteration which renders the external appearance of the school building inconsistent with the character of the building or of neighbouring structures. Where any doubt exists, the Board of Management should consult the local planning authority and take professional advice.

12.4 DISABILITY ACCESS CERTIFICATES

The current Building Regulations require a certificate of compliance under TGD Part M, Second Schedule (referred to as a Disability Access Certificate). A DAC is necessary for all works or a building to which Part III of the Building Control Regulations 1997 applies (all facilities currently require a Fire Safety Certificate as outlined above) Since January 2010, all new school buildings require a Disability Access Certificate (DAC).

12.5 FIRE SAFETY STATUTORY OBLIGATIONS

The primary legislation relating to fire safety in buildings in Ireland is the Fire Services Act 1981 and 2003. Section 18(2) of the Act places a duty on persons having control over premises to which the section applies. The Code of Practice for the Management of Fire Safety in Places of Assembly, published by the Department of the Environment (1989), provides guidance on fire safety management.

- The Building Control Regulations made under the Building Control Act state that the following works to school buildings are subject to the requirement for a Fire Safety Certificate:
- Extensions exceeding 25 square metres in floor area.
- Material alterations to an existing school building. A 'material alteration' is an alteration which has implications for the structure or fire safety of the building.
- Where the proposed works are significant, the Board of Management should check with the Local Planning Authority if the need for a Fire Safety Certificate arises. A Fire Safety Certificate application requires the lodgement of professional floor plans and other documents. Where the need for a Fire Safety Certificate arises, a consequential obligation is that a Commencement Notice is served to the Local planning authority, the Board of Management or their professional consultant.

12.6 SCHOOL FIRE DRILLS

School fire drills are intended for all staff and students. Designated staff training is important and follow up / regular rehearsal is mandatory. The key guidance, in the event of fire:

1	The school principal / board of management are responsible for fire evacuation drill procedures.
2	People who may be in danger, act in a calm and orderly manner.
3	Those with assigned responsibilities carry out their tasks to ensure the safety of all concerned.
4	The escape routes are used by a clearly displayed and practiced plan.
5	The immediate evacuation of the school building is carried out quickly and orderly.
6	People will react rationally in the event of a fire or other emergency at the school.
7	All fire drill routines must be site specific for each school.
8	The school building layout must be familiar with precise routes used for fire drills.

Fire Safety in Schools. 3 Golden Rules

1. Look around your school and eliminate the hazards.
2. Install a fire detection and alarm system and maintain it.
3. Prepare an evacuation plan and practice it regularly.

12.7 BUILDING REGULATIONS - SCHOOL AUTHORITIES DUTIES.

Any school building works carried out should comply in full, with the relevant sections of the Building Regulations. In particular Technical Guidance Document (TGD) Part A to M. Building Regulations generally apply to constructing new school buildings, extensions and material alterations. Material alteration" means an alteration (other than a repair or renewal) where the work, or any part of the work, carried out by itself would be subject to a requirement of Part A (Structure) or B (Fire) of the Second Schedule to the Building Regulations.

BUILDING CONTROL (AMENDMENT) REGULATIONS 2009 (SI NO. 351 OF 2009).

The introduction of SI. No. 9/2014 – Building Control (Amendment) Regulations 2014, typically referred to as BCAR, came into force in March 2014. Since then, the BCAR system of Building Control, where certificates and undertakings are required before commencement from the designer, an Assigned Certifier (AC) and the builder. The AC must provide and supply an additional certificate of compliance with the Building Regulations would also be provided upon completion.

12.8 APPOINTING PROFESSIONAL CONSULTANTS

As Section 12.2 above, for some categories of school maintenance and minor works, it may be necessary for the Board of Management to engage professional consultants such as a registered Architect or Engineer. Where issues in question are beyond the competence of the Board of Management, professional advice from a suitably experienced and qualified person is advised. To find an Architect, Engineer or Registered Building Surveyor, refer to the professional organisations below.

	<p>RIAI. The Royal Institute of Architects of Ireland. No 8 Merrion Square North, Dublin 2. D02 YE68 Telephone 01 676 1702. www.riai.ie/work-with-an-architect</p>
	<p>Engineers Ireland, 22 Clyde Road, Ballsbridge, Dublin 4. D04 R32N2 Telephone 01 665 1300.</p>
	<p>SCSI Society of Chartered Surveyors Ireland. 38 Merrion Square, Dublin 2. D02 EV61. Telephone 01 6445500</p>

12.9 SCHOOLS THAT ARE PROTECTED STRUCTURES

More commonly known as listed or historic buildings, a Protected Structure' is a structure that a planning authority considers to be of particular interest from an architectural, historical, archaeological, artistic, cultural, scientific, social, or technical point of view and is included in its Record of Protected Structures (RPS). Every planning authority must have an RPS that includes structures of particular interest. The RPS forms part of the county or city development plan.

The National Inventory of Architectural Heritage identifies, records, and evaluates the post-1700 architectural heritage of Ireland, uniformly and consistently as an aid in the protection and conservation of the built heritage. NIAH surveys provide the basis for the recommendations of the Minister for Housing, Local Government and Heritage to the planning authorities for the inclusion of particular structures in their Record of Protected Structures (RPS). Before carrying out any work, the School Board of Management should check if any current building stock is included in their Local Authority RPS or identified if listed in the National Inventory of Architectural Heritage.

Every owner or occupier of a Protected Structure must ensure that the building, or any element that contributes to its particular interest, is not endangered. The protection applies to all parts of the structure that contribute to its character and specific interest, including its interior, boundary walls, gates and railings, surrounding land, any other structures on that land, their interiors, and all fixtures and features of these structures. Generally, any works to a Protected Structure require planning permission. Even a small school extension or minor alterations in a building would not be considered 'exempted development' and likely require full planning permission.

12.10 APPOINTING BUILDING AND OTHER CONTRACTORS

Generally, maintenance or improvement works in school buildings involve the Board of Management, which engages individuals or firms to do the work. Such individuals or firms are referred to as "contractors". Some categories of work require greater levels of expertise and competence than others. In summary, Boards of Management should consider the level of knowledge appropriate to the task when appointing contractors.

	<p>Safe Electric. The Register of Electrical contractors of Ireland. Safe Energy Ireland, Hazel House, Millenium Business Park, Monread South, Naas, County Kildare. W91 PXP3 Telephone 091 480 974. Email: info@reci.ie</p>
	<p>AHPCI The Association of Plumbing & Heating Contractors of Ireland. Luddenhill house, Station road, Castlebar, County Mayo. Telephone 083 300 8075. Email: info@aphci.ie</p>

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13.0 CALENDAR OF CHECKLISTS

ROUTINE MAINTENANCE INSPECTION SCHEDULE FOR SCHOOL BUILDINGS

SCHOOL DETAILS												
Maintenance of External Areas.		Maintenance inspection carried out by:.....											
Add or edit tasks and frequency to suit		Adjust dates and tick X to suit											
Inspection Task	Frequency	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
School entrance gates	Monthly	X	X	X	X	X	X		X	X	X	X	X
Waste management	Weekly	X	X	X	X	X	X		X	X	X	X	X
Recycling scheme	Monthly	X	X	X	X	X	X		X	X	X	X	X
Boundary walls / fences	6 monthly			X						X			
Footpaths and paving	Quarterly		X			X			X			X	
Tarmac road surfaces	Quarterly		X			X			X			X	
Set down / car parking	Quarterly		X			X			X			X	
Car spaces markings	Annually								X				
Bollards or barriers	Annually								X				
Playground surfaces	Seasonal			X					X				X
Grass pitches	Monthly			X					X				X
Concrete kerbs	6 monthly				X						X		
Any stepped areas.	Annually									X			
Any ramped areas	Annually									X			
Drainage gullies	Annually									X			
Drainage manholes	Annually									X			
Lighting poles or lamps.	Annually										X		
CCTV system / cameras.	Seasonal		X			X				X			X
School signage	Annually									X			
Soft landscaping	Seasonal				X				X				
Pest control	As needed												
Bio-diversity projects	As needed												
Others as needed	X – Suggested timeframe only. For example, schools in exposed locations will require more regular inspections.												

Maintenance of Roofs and Gutters.		Maintenance inspection carried out by:											
Inspection Task	Frequency	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Glazed rooflights	6 monthly			X							X		
Pitched slates or tiles	6 monthly			X							X		
Pitched metal panel roof	6 monthly			X							X		
Pitched membrane roof	6 monthly			X							X		
Flat roof finishes - pvc	6 monthly			X							X		
Flat roof finishes - felt	6 monthly			X							X		
Metal abutment flashings	6 monthly	X							X				
Eaves rainwater gutters	6 Monthly	X							X				
Fascia and soffit boards	6 Monthly	X							X				
Service penetrations	6 monthly	X							X				
Pitched valley gutters	6 monthly	X							X				
Roof vents	Annually										X		
Roof timbers	Annually										X		
Evidence of dry/ wet rot	Annually										X		
Roof boiler flues	6 monthly			X						X			
Chimneys, older schools	Annually											X	
Lightning protection	Annually											X	
Fall and arrest system	Annually											X	
Other as needed													
		X – Suggested timeframe only. For example, schools in exposed locations will require more regular inspections.											

Maintenance of External Walls, Windows & Doors		Maintenance inspection carried out by:											
Inspection Task	Frequency	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Brick or render surfaces	Annually		X										
Other cladding finishes	Annually		X										
Entrance doors	Bimonthly	X		X		X			X		X		X
Accessible access	Bimonthly	X		X		X			X		X		X
Windows and doors	Quarterly		X			X			X			X	
Rainwater downpipes	6 monthly					X							X
Dampness or mould	Annually											X	
Any evidence of leaks	Quarterly	X			X			X			X		
Cracks of wall defects.	Annually		X										
Any dry or wet rot	Annually		X										
Any frost to finishes	Annually		X										
Any condensation issues	Quarterly		X			X						X	
Other as needed													

Maintenance of Internal Finishes		Maintenance inspection carried out by:											
Inspection Task	Frequency	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Reception / lobby areas	Monthly	X	X	X	X	X	X		X	X	X	X	X
Classroom loose furniture	Monthly	X	X	X	X	X	X		X	X	X	X	X
Classroom fitted furniture	6 monthly		X						X				
Classroom equipment	6 monthly		X						X				
Other fitted furniture	6 monthly		X						X				
Corridors & circulation	Monthly	X	X	X	X	X	X		X	X	X	X	X
Stairways & refuge area	Monthly	X	X	X	X	X	X		X	X	X	X	X
Toilets & sanitary areas	Weekly	X	X	X	X	X	X		X	X	X	X	X
Admin / Offices	Monthly	X	X	X	X	X	X		X	X	X	X	X
Storerooms or others	Monthly	X	X	X	X	X	X		X	X	X	X	X
All Floor finishes	Weekly	X	X	X	X	X	X		X	X	X	X	X

All Wall finishes	Quarterly	X			X				X			X	
All Ceiling finishes	Quarterly	X			X				X			X	
All Doors and ironmongery	Quarterly	X			X				X			X	
Glazed screens	Quarterly	X			X				X			X	
All Skirtings	Annually								X				
Stairways & refuge area.	Quarterly		X			X			X			X	
Other as needed													

Mechanical Services Systems		Maintenance inspection carried out by:											
Inspection Task	Frequency	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Servicer Oil or Gas system	Annually									X			
Building BEMS system	Annually										X		
Heating time schedules	Quarterly		X			X			X			X	
Boiler sensors	Quarterly		X			X			X			X	
Room thermostats TRV's	Quarterly		X			X			X			X	
Hot water	6 monthly	X							X				
Cold water	6 monthly	X							X				
Plumbing pipework	6 monthly	X							X				
Cold water storage tank	Annually						X						
Air filters	Annually										X		
Ventilation / CO2 sensors	6 monthly		X							X			
Heat Pumps	6 monthly		X							X			
Heat Recovery system	6 monthly		X							X			
Dust extract system	Monthly	X	X	X	X	X	X		X	X	X	X	X
Others as needed													
Support Technical Teacher	As needed in post primary schools for specialist or technical subjects: Art, Construction Studies, Design Graphic, Engineering, Home Economics, PE, Science etc.												

Electrical Services Systems		Maintenance inspection carried out by:											
Inspection Task	Frequency	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Electrical power	Monthly	X	X	X	X	X	X		X	X	X	X	X
Light fittings to ceilings	Monthly	X	X	X	X	X	X		X	X	X	X	X
Emergency lighting ##	Bimonthly		X		X		X		X		X		
Fire alarm system ##	Bimonthly		X		X		X		X		X		
Security / intruder alarm	Bimonthly	X		X		X		X		X		X	
CCTV camera system	Bimonthly	X		X		X		X		X		X	
Lifts	6 monthly		X						X				
Wi-Fi	Monthly	X	X	X	X	X	X		X	X	X	X	X
Others as needed													
Support Technical Teacher	As needed in post primary schools for specialist or technical subjects: Art, Construction Studies, Design Graphic, Engineering, Home Economics, PE, Science, etc.												

Note: Emergency lighting and fire alarm systems are lifesaving systems and **must be** inspected and certified in accordance with statutory requirements.

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APPENDIX: GLOSSARY OF TERMS

A

Abraded: Fragmented damage to a building material

ACM: Asbestos containing material.

AHU: Air Handling Unit.

AOV: Automatic opening vents, located at roof level / high with a control system to vent air or smoke in stairways.

Armstrong Junction (AJ): An AJ is a compact pipe connection solution for underground drainage.

Asbestos: Refer Asbestos in schools published by the Office of Public Works available at www.gov.ie

Attenuation system: An attenuation system directs excess rainwater from buildings into an underground tank facility.

B

Balustrade: The railing or baluster that prevents you falling over the edge of a stair for example.

Bargeboard: A sloping board along a gable covering the ends of the roof structure.

Belfast sink: Belfast sinks used in schools are manufactured from white fireclay, a robust finish for heavy duty uses in technical subjects / art, cleaners, construction and engineering study rooms etc. A built-in overflow prevents water overflowing.

BoM: The school Board of Management and key stakeholder who manages / controls school building maintenance.

BEMS: Building Energy Management System.

BIM: A Building Information Modelling system used in current school building design templates.

Blue roof: A blue roof is designed to control stormwater during heavy rainfall, before releasing it at a controlled rate into the school drainage system.

Boyd Barrett School: Basil Boyd Barrett (1908 to 1969) appointed chief schools' architect in 1947. Important Architect in Ireland during his career in the Office of Public Works, with a particular interest in school design.

C

Capping: A concrete protection, usually overhanging, for weathering the top of the wall.

Cavity: In a cavity wall, the space between the inner and the outer leaves of masonry.

Cavity trays: A damp proof membrane across the cavity (void) between two walls.

CE Mark: The CE marks means that the manufacturer takes responsibility for the compliance of the product with all applicable European health, safety, performance and environmental requirements. CE stands for "Conformité Européene" the French for European conformity.

CO₂ Monitor: Carbon Dioxide monitors provide useful indication that areas/rooms may not be adequately ventilated. They enable occupants to become familiar with the impact of activities, outdoor weather and window openings on levels of good ventilation within a room.

Circular 0068/2020: Department of Education Circular issued to school authorities outlining the process for the ongoing Emergency Works Scheme (EWS) application process.

Cold bridging: A bridge that allows cold pass through a wall can carry heat through it.

Colour wayfinding: is an appropriate / useful concept to alleviate confusion in school corridors.

Concrete fillets: A sloped wedge of concrete used instead of metal flashings, especially at roof junctions.

Copings: A brick, stone or concrete capping for weathering the top of a wall, chimney or similar element.

Couplings: A fitting that seals or joints two pipes or different materials.

Coved skirting: Transition area between floor and vertical surface for vinyl floors / skirtings in toilets.

D

DAC: Disability Access Certificate.

DCC: Data Communication Centre. A small room to locate the school mains distribution facility in newer schools.

Door closers: A device attached to a door so that when the door is left in the open position, it will automatically close.

Door thresholds: A horizontal element at the foot of an outside door, provided to prevent draughts and blown rain passing under the door.

Downpipes: Rainwater downpipes.

DPC (Damp proof course): A horizontal layer of untearable material built into walls and chimneys to exclude moisture and dampness.

DPM (Damp proof membrane): A layer of impervious material laid under a floor to prevent rising dampness.

E

Eaves: The lowest, overhanging part of a sloping roof.

Efflorescence: A milky white staining on brickwork surfaces. Colour appears visually unsightly.

Ensuite toilets: Ensuite toilets are typically fitted as two separate cubicles within primary school classrooms. The toilets are located on the external wall with high level windows for daylight and ventilation purposes.

Fall Arrest System: A roof safety system designed to stop or arrest a person falling. It typically includes a series of anchor points, safety lanyard, self-retracting lifeline and harness.

Fascia board: A wide board set vertically on edge, fixed to the horizontal edges of a roof. It carries the gutter around the eaves.

Flashings: Strips of impervious material, usually flexible metal (such as lead), which exclude water from the junction between a roof covering and another surface (usually vertical). Flashings, at their upper end, are usually wedged tightly into mortar joints which have been raked out to receive them.

Foul water drains: The collective pipework that carries away waste from school toilets and wash basins to external manholes and drainage system.

G

Glazing beads: A small hardwood strip, used instead of putty to retain glass in a window frame.

Glazing compound: A bedding material into which the glazing bead is set.

Gutter: A channel along the edge of an eaves to remove rainwater. Usually connects to downpipe.

H

Hoarding: Timber sheet hoarding is typically 2.4 metres high (8ft) and used to conceal building works, increase security and safety on building sites.

Haunching: Haunching is a portion of concrete material placed in an excavation on either side of a kerb.

HRV: Heat Recovery Ventilator.

Hopper head: An enlarged top, usually to a vertical pipe, where it receives water from a rainwater concealed gutter or rainwater outlet from a flat roof.

Hygrometer: Measures the amount of moisture in the air.

I

Intumescent strip: Narrow strip of material bedded into the top and sides of a fire door. In fire conditions, the material swells to hold the door in the frame and restrict fire and smoke spreading through the door opening.

IPS panels: (Toilet ducts) integrated plumbing system, which refers to the process of concealing all the mains services, waste and toilet cisterns within a small void behind toilets, urinals and washbasins.

Ironmongery: a list of door / window handles, closers, cylinders, hinges and locks.

L

LED Fitting: Low energy demand light fitting.

Linoleum (lino): A floor covering built up from linseed oil and hessian canvas.

M

Maintenance access floor: A small purpose-built metal structure fitted above ceiling level to allow access to the water tank or plant room services in newer multi-storey school buildings. Usually accessed by vertical metal ladder via an access hatch.

Manhole: A manhole is a large hole in a road or path which is covered with a metal plate and can be removed for access to inspect and clean underground drains

Marmoleum: Similar to linoleum, without PVC, and increasingly used due to the hardwearing, high hygienic properties.

Mastic: A permanently plastic waterproof material, which hardens on the surface so that it can be painted. It is used for bedding roof lights, window frames, sealing joints in gutters, flashings etc.

MEWP: Mobile elevated work platform that allows access to high level out of reach workspaces.

Mortar droppings: Splashes of mortar arising from the process of building brick or block walls.

P

Parapet: A parapet is a barrier cover on top of a wall junction with a roof. The word comes ultimately from the Italian "parapetto" meaning to cover / defend.

Percolation area: A network of below surface perforated pipes in stone filled trenches through which final wastewater is distributed into the soil to receive further treatment.

Pointing: The technique of finishing / repairing mortar joints between bricks or other masonry elements.

Polytunnel: Polytunnels are constructed from curved metal hoops and covered with clear or translucent plastic sheet. They are typically buried in a trench and increasingly for outdoor educational purposes. used in schools.

Post and wire fence: A cost effective non-obtrusive boundary or barrier, constructed of concrete or timber post supports and horizontal wire often used for an open appearance for rural schools.

PSDP: The Project Supervisor for the Design Process.

PSCS: The Project Supervisor for the Construction Stage.

R

Radon: A natural radioactive gas that has no taste, smell or colour. It is found to some degree in all soils and rocks. It is formed in the ground by the radioactive decay of small amounts of radium.

RCD: Residual current device is a safety device that switches off electricity automatically if there is a fault. RCDs are far more sensitive than normal fuses and circuit breakers and provide additional protection against electric shock.

RCBO: Residual Current Breaker with Over-Current. This protects against two types of faults and combines the functionality of the Mains Circuit Board (MCB) and the Residual Current Device (RCD)

Reflective coating: A paint, usually white or silver, which reflects the ultraviolet rays of the sun, and reduces heating of roof surfaces. Common on flat roofs.

Risers: The riser is the vertical surface of the stair.

Roughcast: A coarse heavy duty render with a rough textured finish.

RWO: Rainwater Water outlet.

S

Sealants: Materials used to fill and seal surface of a joint to prevent water and grit entering. It is usually applied, like mastic, with a pressure gun.

SEN: Special Educational Needs.

Septic tank: Older rural schools may have a septic tank, which is an underground chamber made of concrete or fibreglass and used to removed pollution and release treated wastewater into the environment.

Single-Ply membrane: A sheets of rubber and other synthetics that can be ballasted or chemically adhered to insulation to create a layer of protection to a roof.

Snow guarding: Snow guarding are devices used to prevent large amounts of snow and ice from accumulating on larger school roofs.

Soffit board: A horizontal board screw fixed to the underside of rafters, forming a soffit under an overhanging eaves.

Soft landscaping: The components that makes up school soft landscapes are almost exclusively natural. The soft elements of are fluid and alive, and most importantly changeable; therefore, they need to be well maintained.

Spalling: If reinforcement within a concrete element is too close to the surface, the effects of frost and moisture can cause the layer of concrete covering the steel to “blow” off, exposing the steel. This process is called spalling.

Structural elements: The parts of a building which carry load in addition to their own weight, as opposed to elements which only carry their own weight. Structural elements include walls, floors and roofs.

Subsidence: The gradual caving in or sinking of an area of land. Some older school foundations have issues.

Surface water drains: Surface water drainage is required to collect intensive rainfall or snow as essential underground infrastructure to mitigate storm overflow.

T

Terrazzo floors – Terrazzo is mosaic pattern flooring used on some older schools and consists of small pieces of marble or granite which is poured and set for an attractive floor finish to circulation spaces. The name “Terra” is a Latin word meaning “ground”.

Thermal bridging: The movement of heat across an object that is more conductive than the materials around it.

Timber ceiling joists and sloped rafters: Ceiling joists provide horizontal support and sloped rafters provide vertical supports to traditional school roofs.

Treads: The horizontal portion of a set of stairs.

Trickle vents: A trickle vent is a small slot/opening in a window or building envelope component that allows small amounts of ventilation (trickle ventilation)

U

UPVC: Unplasticised polyvinyl chloride. A lightweight plastic material (common with windows).

V

Valley Gutters: The area where two main roofs meet, or where there is a change in the direction of the roof.

VOC: Volatile organic compound. Chemicals used in the making of paints and not appropriate for schools.

Vinyl: Flexible plastic used, in tile and sheet form, as a floor covering.

Verges: Refer to barge board.

W

WAPNP: Wireless Action Position Network Point.

Watermain: The watermain is the primary distribution pipe in a water supply system.

Weatherboarding: Timber boards screw fixed / nailed on the outside of buildings.

Weephole: A small hole in a timber sill which allows condensation water to escape outwards. (b) A small gap in a cavity wall to allow water to drain out of the cavity.

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