State Claims Agency

Review of Occupational Health and Safety in the Technologies in Post-primary Schools

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State Claims Agency

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Foreword by the Minister for Education and Science

I welcome the publication of this joint Department of Education and Science and State Claims Agency Review of Occupational Health and Safety in the Technologies in post-primary schools.

The provision of a safe learning and working environment for both students and school staff is a fundamental responsibility of School Management Authorities. Safety is an especially key issue when students are learning how to use complex and diverse equipment.

Working with the State Claims Agency, my Department wanted to assess existing safety standards in schools and provide a structured approach, including the provision of funding, to address any deficiencies identified. This report addresses potential and actual issues in a large number of areas including room design and size, fire safety, machinery safety, training and the need for appropriate signage. It also offers a concise outline of how such issues can be addressed.

The report provides valuable guidance to school management authorities and will also serve as a reference document for schools to assist them in monitoring their progress and in planning for further health and safety improvements.

As a first step, I am providing funding this year to enable schools purchase new, or upgrade existing, equipment for Technology subjects as well as provide appropriate Safety Signage and Personal Protective Equipment. This significant investment underlines my commitment, and that of the Government, to the ongoing modernisation of school buildings.

I wish to express my gratitude to all who participated in the preparation of this report. I especially wish to thank the members of the working party who wrote the report and the representatives of all the partners in education whose work greatly contributed to the success of the collaborative process.

Mary Hanafin

Mary Hanafin T.D.

Minister for Education and Science

Foreword by the Director, State Claims Agency

The State Claims Agency's statutory mandate includes advice and assistance to Community and Comprehensive schools in managing occupational health and safety risks. This review concentrates on risks in technology facilities not just in the schools in question but, at the request of the Department of Education and Science, in all post-primary schools.

The occupational health and safety of pupils, teachers and other staffs is of paramount importance. A rigorous and accountable system of occupational health and safety management will help to prevent accidents. To the extent that they occur – and lead to civil liability claims – such a system will assist schools in demonstrating the discharge of their duty of care.

More widely, by emphasising to pupils the importance of a safe working environment, we can instil appropriate attitudes to occupational health and safety at an early age. A positive safety culture is a critical factor in helping to reduce accidents. Schools can play a vital role in this, and contribute to an enhanced awareness of safety issues at all levels of society.

The review's findings and recommendations are aimed at school authorities, principals, teachers, the Department of Education and Science and other educational partners. The report has been designed to be of practical benefit to schools, particularly in the day-to-day management of safety in their technology rooms and facilities.

I should like to thank all who played a part in developing this report – in particular, the schools who were involved in the field surveys, those who replied to the questionnaire surveys and the education partners. I would also like to acknowledge the strong contribution of the Department of Education and Science, with which we have worked closely throughout the review process.

Adrian J Kearns

Director, State Claims Agency

Chapter 1

Executive Summary

Chapter 1
Executive Summary

A joint risk review by the State Claims Agency (SCA) and the Department of Education and Science (DES), was conducted in 2004, to assess occupational health and safety standards in Post-primary technology workshops. For the purpose of this review, technology workshops included:

- Materials Technology (Wood),
- Construction Studies,
- Metalwork,
- Engineering,
- Technology.

The objective of the review was to assess existing occupational health and safety standards and to publish a report and guidelines, which would outline the measures (supplementary to existing guidance), required to address any deficiencies in safety standards that may have been identified.

It is not possible to review the management of risk in the technologies without doing so in the context of the structures and systems in place for the management of risk in the school as a whole. As such, the scope of the review was extended to include an assessment of the management of occupational health and safety throughout the school as it impacts on the technologies.

This report deals with what the review commonly found to be the critical issues within the technologies, which were not being adequately addressed by the schools occupational health and safety management system. There are other occupational health and safety issues, which are not dealt with in this report, either because they were assessed to be sufficiently addressed or were of insignificant risk for most schools. Other existing guidance can be referred to where schools require it.

Main Findings

A summary of the main findings of the review are as follows:

Management of Occupational Health & Safety Risk in Schools

- The approach to the management of the occupational health and safety risks varied across the schools surveyed.
- All of the schools visited were missing some of the key elements of an integrated occupational health and safety management system. The most critical being the lack of appropriate training for school Principals and teachers and the absence of sufficient mechanisms to formally monitor the implementation of health and safety policies.
- In all cases a more formalised approach to the management of occupational health and safety in schools needs to be adopted.

Technology Workshops – Environment, Equipment and Services

- The standard of the management of occupational health and safety risk in the technologies varied across the schools surveyed.
- The technology teachers are the determining factor in ensuring that the occupational health and safety risk is sufficiently managed. Even where workshops, machines and equipment are old, the risk can be significantly reduced where a teacher has the management skills to put alternative control measures in place. It is important however that this is done in the context of support from the School Management Authorities and the Principal.
- Certain concerns around room size, fire safety, electrical installations were common to a number of schools surveyed and will have to be addressed.
- The safeguarding of machinery was inadequate in the majority of schools.
- The Department of Education and Science will need to provide extra funding so that some of these issues can be addressed.
- Greater emphasis should be placed on occupational health and safety in examinations of the technologies.

Main Recommendations

A summary of the main recommendations of the review, aimed at School Management Authorities (SMA), principals, teachers, the Department of Education and Science and other education partners are as follows:

School Management Authorities

Management of Occupational Health & Safety Risk in Schools

1. Schools need to review, upgrade and communicate their occupational health and safety policy and procedures so that the Safety Statement document becomes a practical tool in the day-to-day management of occupational health and safety risk. *(Section 3.2 Safety Statement, Occupational Health and Safety Policy and Procedures)*
2. The roles and responsibilities of each constituent part of the schools' structure to manage occupational health and safety need to be clearly defined and set down in the Safety Statement. *(Section 3.3 Structure, Roles and Responsibilities)*
3. Schools should have an active safety committee. *(Section 3.4 Safety Consultation)*
4. Schools must ensure that they have appropriate systems in place to ensure ongoing hazard identification, risk assessment and risk control. *(Section 3.5 Hazard Identification, Risk Assessment and Risk Control)*
5. Schools should have an Annual Occupational Health and Safety Plan. *(Section 3.6 Developing an Annual Occupational Health and Safety Plan)*
6. Schools must prioritise the resources available to ensure that they are addressing issues of prime concern *(Section 3.7 Resourcing Occupational Health and Safety)*
7. Schools should have a formal process in place to identify training needs and to develop an annual safety-training plan. *(Section 3.8 Information, Instruction, Training and Supervision)*
8. Schools should have formal systems in place for investigating and reporting accidents. *(Section 3.9 Checking, Monitoring, Audit and Review)*
9. Schools should have formal procedures in place to monitor, audit and review occupational health and safety performance on a regular basis. *(Section 3.9 Checking, Monitoring, Audit and Review)*

Technology Workshops

10. Schools should carry out an assessment of their technology workshops, reviewing size, storage, layout and the amount of equipment to determine whether it is possible to operate safely within that area, taking into account student numbers. *(Section 4.2 Workshop Design and Size)*
11. Schools will have to limit class size where the room size is deemed to be inadequate for a full group. *(Section 4.3 Class size)*
12. Schools should take account of the characteristics of the student group when completing a formal risk assessment to determine class size. *(Section 4.3 Class size)*
13. Fire prevention and protection measures should be reviewed and, where necessary, upgraded to the appropriate standards. *(Section 4.4 Fire Safety)*
14. Schools must have a detailed emergency evacuation plan. *(Section 4.4 Fire Safety)*
15. All electrical installations in workshops should be reviewed and where necessary they must be upgraded so as to comply with the relevant legal requirements and technical standards. *(Section 4.5 Electrical Safety)*
16. Portable power tools should be supplied at a voltage not exceeding 125 V AC. When using a 125 V AC portable power tool off a 230 V supply, a step down transformer should be used. *(Section 4.5 Electrical Safety)*
17. Key operated emergency power isolators should be installed in each workshop to allow for the isolation of the power in the event of an emergency. These can also be used to isolate machines when the workshop has been vacated so as to prevent inadvertent use of the machines. *(Section 4.5 Electrical Safety)*
18. Schools should carry out an assessment of their workshop equipment to identify redundant machinery. An assessment of the safeguarding arrangements on the retained machines should then be carried out and the machines must be repaired, upgraded and replaced where required. *(Section 4.6 Machinery Safety)*
19. The use of the circular saw and planer thicknessing machines by teachers, while students are in the workshop should be prohibited. However given the current arrangements in place for technology teachers this may not be achievable immediately. A working group consisting of the Department of Education and Science and relevant education partners should be established to determine the arrangements required in schools to allow this recommendation to be implemented in as short a time frame as possible. *(Section 4.6 Machinery Safety)*

20. Bought-in pre-cut/pre-prepared woods should be used where possible to reduce the amount of machining. *(Section 4.6 Machinery Safety, Section 4.7 Exposure to Environmental Hazards, Section 4.10 Manual Handling)*
21. Junior cycle and senior cycle students should be prohibited from using certain machines/equipment. *(Section 4.6 Machinery Safety)*
22. Schools must carry out a risk assessment of the teacher's exposure to the environmental hazards in each technology workshop. *(Section 4.7 Exposure to Environmental Hazards)*
23. The use of hardwoods and MDF (medium density fibreboards) should be phased out. *(Section 4.7 Exposure to Environmental Hazards)*
24. Schools must carry out an assessment of the personal protective equipment requirements for students and teachers. *(Section 4.7 Exposure to Environmental Hazards and Section 4.14 Personal Protective Equipment)*
25. Schools must implement a preventative maintenance and service programme for the schools fixed service installations, machinery and equipment. *(Section 4.8 Maintenance and Servicing of Installations and Equipment)*
26. A formal monthly inspection should be carried out, which will include occupational health and safety housekeeping issues. *(Section 4.9 Housekeeping)*

Department of Education & Science (DES)

Management of Occupational Health & Safety Risk in Schools

1. The Department of Education and Science (DES) should request third level institutions, that provide pre-service teacher training, to review the current provision for the training of teachers in the management and teaching of occupational health and safety in their classrooms. *(Section 3.8 Information, Instruction, Training and Supervision)*

Technology Workshops

2. Where the Department of Education and Science wholly or part-fund projects, it should consider allocating additional resources to evaluate that the technology rooms delivered meet with the Department of Education and Science's specifications provided. *(Section 3.7 Resourcing Occupational Health and Safety, Section 4.2 Workshop Design and Size, Section 4.6 Machinery Safety, Section 4.7 Exposure to Hazardous Substances)*
3. The Department of Education and Science should consider carrying out a tendering process to identify a suitable number of suppliers who will be preferred providers of the machines on the Department of Education and Science's equipment lists. *(Section 4.6 Machinery Safety)*

4. The Department of Education and Science should provide the appropriate funding to enable priority health and safety issues to be addressed in all schools within the next three to five years. In particular the Department of Education and Science should introduce a scheme to allow for the upgrade and replacement of technology machinery as necessary and subsequently provide an ongoing funding arrangement to schools to allow them to maintain and repair or replace machines where required. *(Section 3.7 Resourcing Occupational Health and Safety, Section 4.6 Machinery Safety)*
5. The Department of Education and Science, in conjunction with the State Claims Agency and other interested parties, should consider carrying out a detailed analysis in a sufficiently large sample of Post-primary schools of the exposure to environmental hazards of noise, dust, fumes etc. in technology workshops. *(Section 4.7 Exposure to Environmental Hazards)*
6. The Department of Education and Science should consider carrying out a tendering process to identify a suitable number of suppliers, who will be preferred providers, of local exhaust ventilation (LEV) systems. *(Section 4.7 Exposure to Environmental Hazards)*
7. The Department of Education and Science should consider including a range of specifications for typical personal protective equipment on the equipment lists. *(Section 4.14 Personal Protective Equipment)*

National Council for Curriculum and Assessment (NCCA)

Management of Occupational Health & Safety Risk in Schools

1. The methodologies and reasons for carrying out risk assessments should be included as part of the technologies curricula. *(Section 3.5 Hazard Identification, Risk Assessment and Risk Control)*
2. NCCA should include an overview of additional topics e.g. legislation, hazard identification, risk assessment and control measures and environmental hazards in the curriculum delivery guidelines for teachers. *(Section 3.8 Information, Instruction, Training and Supervision)*

State Examinations Commission (SEC)

Management of Occupational Health & Safety Risk in Schools

1. The State Examinations Commission (SEC) should ensure that the health and safety aspects of the curriculum are fully examined at all levels. *(Section 3.8 Information, Instruction, Training and Supervision)*

Technology Workshops

2. The State Examinations Commission should provide guidelines to teachers to control the size of projects that are allowed for State Examination purposes. *(Section 4.11 Project Size)*

Post-primary Management Bodies

Management of Occupational Health & Safety Risk in Schools

1. Post-primary Management Bodies should consider ways in which they can share and promulgate information on occupational health and safety. *(Section 3.8 Information, Instruction, Training and Supervision)*

State Claims Agency (SCA)

Technology Workshops

1. The State Claims Agency, in conjunction with the DES and other interested parties, should consider carrying out a detailed analysis in a sufficiently large sample of Post-primary schools of the exposure to environmental hazards of noise, dust, fumes etc in technology workshops. *(Section 4.7 Exposures to Environmental Hazards)*

Chapter 2

Introduction

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Introduction

2.1 Background

Under the provisions of the National Treasury Management Agency (Amendment) Act 2000, responsibility for the management of personal injury claims against Community and Comprehensive schools passed to the State Claims Agency (SCA). The SCA's mandate includes a statutory brief to advise and assist the Community and Comprehensive schools in relation to risks which, if not addressed, may give rise to personal injury and property damage litigation.

The SCA's claims experience indicated that there was a higher level of claims arising from accidents in technology workshops than in any other subject, in Community and Comprehensive Schools. At the outset of this review, there were sixty-three claims against Community and Comprehensive Schools with a total reserve value (estimated cost of settling the claims) of €3.1m. Twelve and a half percent of these were associated with accidents that had occurred in the technologies. This accounted for 27% of the total reserve because the typical injury associated with the technologies has on average, a higher severity.

Towards the end of 2003, the SCA hosted four seminars countrywide for boards of management and principals of community and comprehensive schools. The SCA received very useful feedback from schools' representatives in relation to risk management issues associated with schools particularly regarding concerns over the hazards in the technologies.

In the light of that feedback, a number of meetings were held with the Department of Education & Science (DES). The Department had been aware of this issue and were planning to commission a survey of technology workshops. Arising from this, a joint review by the SCA and DES, was conducted in 2004, to assess the occupational health and safety standards in Post-primary technology workshops.

The structures and systems in place for the management of risk in the school as a whole will determine how risk is managed in the technologies. As such, the scope of the review was extended to include an assessment of the management of Occupational Health and Safety throughout the schools, as it impacts on the technologies.

The objective of the review was to assess existing safety standards and to publish a report and guidelines, which would outline the measures (supplementary to existing guidance) required to address any deficiencies in safety standards that may have been identified.

This report deals with what the review commonly found to be the critical issues, which were not being adequately addressed by the schools' occupational health and safety management system as it impacts on the technologies. There are other occupational health and safety issues, which are not dealt with in this report either because they were assessed to be sufficiently addressed or were of insignificant risk for most schools. Other existing guidance can be referred to where schools require it.

The report findings and recommendations are aimed at School Management Authorities, principals, teachers, the Department of Education and Science and other education partners.

2.2 Methodology

The risk review consisted of a questionnaire survey and a field survey.

Questionnaire Survey

A questionnaire was designed to elicit information required to determine existing occupational health and safety standards in technology workshops. Questions were based on statutory requirements and technical standards. Questions were designed, in so far as is possible, to require a 'Yes/No' answer to avoid subjectivity. The Occupational Health and Safety Review of the Technologies, 2004 Questionnaire is included in Appendix I.

One hundred and twenty seven schools were invited to participate in the questionnaire phase of the survey and sixty-two completed questionnaires were received. The distribution of replies across the three Post-primary education sectors was as follows:

Vocational Education Committee (VEC) Schools	31
Community and Comprehensive (C&C) Schools	20
Voluntary Secondary Schools	11

The information was analysed for each of the Post-primary education sectors and for the sample as a whole. Figures 1 and 2 show the distribution of the schools involved in the survey by school locality and student numbers.

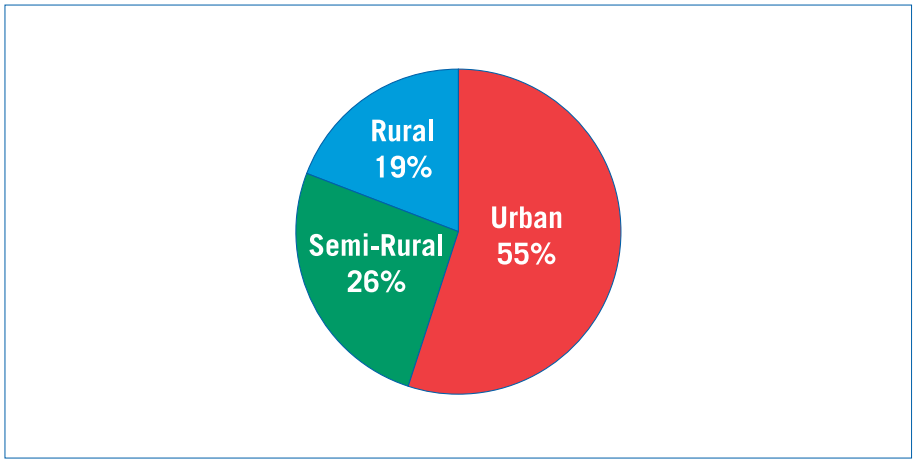


Figure 1. School locality (rural, urban or semi-rural)

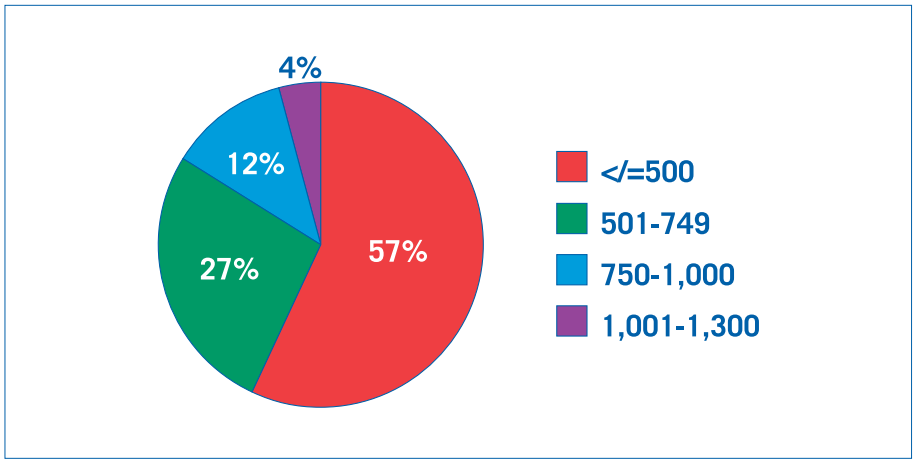


Figure 2. Total number of students in the school

The majority of questionnaires were completed properly and accurately. This was validated by having those schools that were part of the field survey, complete the questionnaire prior to a site visit and comparing the replies with the survey findings. In all of these cases it was found that the reply questionnaires reflected the field survey findings.

Some difficulties were encountered with some questions, where across the sample, the replies were too diverse to allow analysis or, in some cases, where questions were misunderstood. In this event the information has been omitted.

The results of the questionnaire survey were used to validate and inform the findings of the field surveys.

Field Surveys

The site survey schools were selected from the three Post-primary education sectors:

- Community and Comprehensive (C&C) Schools
- Vocational Education Committee (VEC) Schools
- Voluntary Secondary Schools

The selection criteria required that schools chosen provide at a minimum one of the technology subjects. The age of the school was also considered to ensure that a representative sample of schools was included in the survey.

A team drawn from the SCA and the Department of Education and Science carried out the field surveys. This provided an appropriate combination of expertise in occupational health and safety and in the teaching of the technologies.

Two schools were initially visited to determine what issues would need to be assessed. Detailed research was then completed to determine appropriate benchmarks and technical standards. Assessment tools were developed to gather information on:

- Occupational Health and Safety Management (as it impacts on the technologies);
- Materials Technology (Wood)/Construction Studies;
- Metalwork/Engineering;
- Technology.

The Field Survey Audit Checklist can be found in Appendix II.

The whole team carried out the first two school surveys. This was done to validate the questionnaires and to ensure that a common standard would be adopted. Thereafter, schools were surveyed in teams of two or three that included a Department of Education and Science Inspector and a SCA Risk Manager.

Having completed the surveys, individual reports were provided to each of the schools. Submissions from school and teacher organisations were invited at an early stage in the process. The findings of the individual field surveys, the questionnaires and the submissions from the education partners, identified the issues that this report and guidance addresses.

2.3 Submissions from School and Teacher Organisations

Written submissions were invited from school and teacher organisations listed in Appendix III. Concern was expressed about many aspects of health and safety. Those who responded welcomed the initiative that was being taken by the SCA and the Department of Education and Science to address these issues.

The submissions highlighted many of the issues relevant to health and safety in the technologies. Issues that were common to all the submissions included:

- Safety training and information requirements for teachers of the technologies;

- Safety training and information requirements for students who take technology subjects;
- Safeguarding of machines and equipment;

All of the submissions were considered when carrying out the field surveys and in the preparation of this report.

Chapter 3

Management of Occupational Health and Safety in Schools

Chapter 3
Management of Occupational Health and Safety in Schools

3.1 Introduction

Schools, in order to meet their statutory requirements, must have a systemised approach to the management of occupational health and safety based on an assessment of their risks. The Safety, Health and Welfare at Work Act, 2005, places a duty on every employer to manage and conduct work activities in such a way as to ensure, as far as is reasonably practicable, the safety, health and welfare at work of his or her employees.

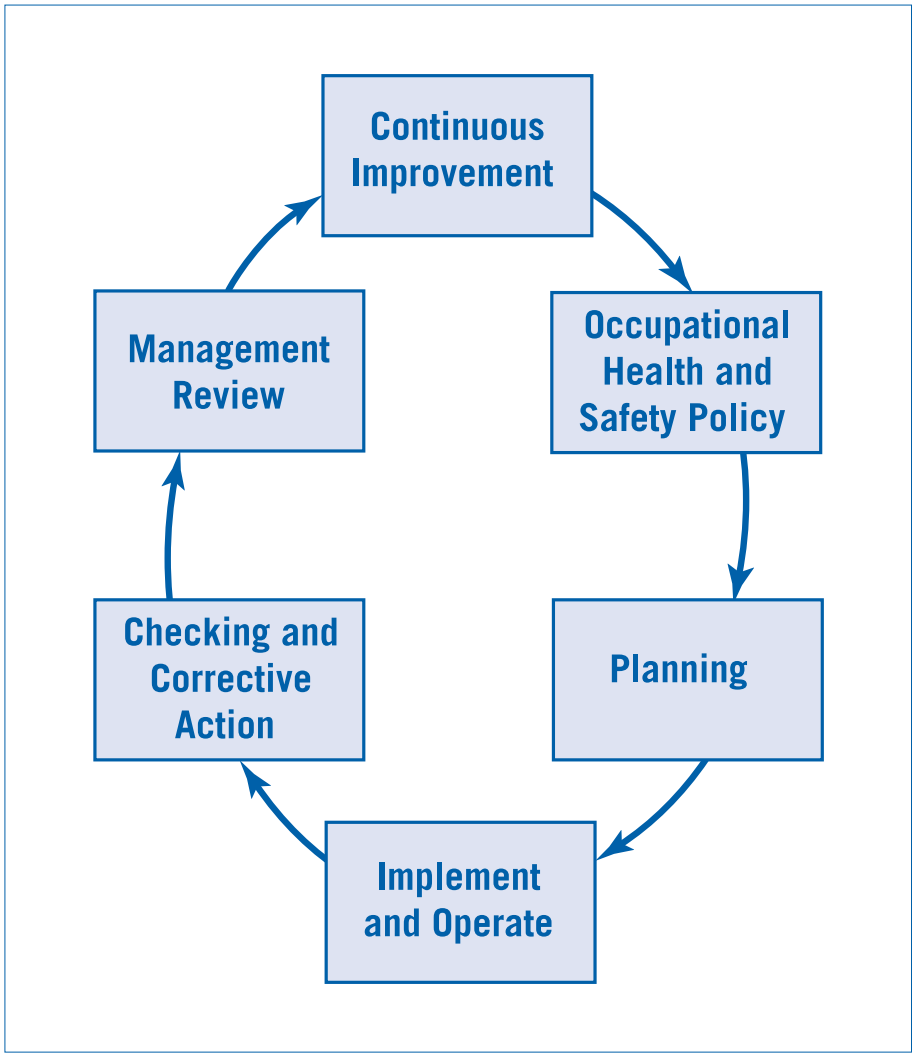
The report shall refer on a number of occasions, to duties required under the Safety, Health and Welfare at Work Act, 2005. This Act replaced the Safety, Health and Welfare at Work Act, 1989 on September 1st 2005. It should be noted that in the main, similar duties were required under the Safety, Health and Welfare at Work Act 1989. This risk review was carried out while the Safety Health and Welfare at Work Act 1989 was in force, however both the review and the report were completed in anticipation of the 2005 Act, which was then in draft form. It is important that schools are not under the misapprehension that the duties of care in the 2005 Act are completely new legal requirements, when in fact similar duties of care have been required for more than 16 years.

Effectively schools must implement a system for managing occupational health and safety within the workplace and review this system on an annual basis. A rigorous and functioning system to manage occupational health and safety will prevent accidents occurring and will greatly assist schools to mount a due diligence defence should civil claims occur.

It is vitally important to demonstrate to students the importance of a safe working environment, as awareness of risk is a critical factor in reducing accidents. Schools can play a vital role in changing Irish societal values around workplace health and safety and this is particularly true of subjects, which prepare students for jobs in higher risk environments. The value to society of an education system, which increases risk and safety awareness, will be seen beyond the workplace and will deliver social and economic benefits to the country.

It is difficult to separate the management of the technologies from the general management of occupational health and safety across the entire school. The structures, systems and culture of safety within a school will determine for the most part, the structures, systems and safety within individual classrooms and workshops. This was recognised at the outset of this risk review and as such the overall system for the management of safety for the whole school, as it impacts on the Technologies, was reviewed.

This section (Section 3) outlines the key elements of a safety management system as shown in Flowchart A - Elements of an Occupational Health and Safety Management System, which if implemented, will deliver a process to drive continuous improvement in occupational health and safety in Post-primary schools.



Flowchart A - Elements of an Occupational Health and Safety Management System

3.2 Safety Statement, Occupational Health and Safety Policy and Procedures

Section 20 of the Safety, Health and Welfare at Work Act, 2005, requires every school to prepare a safety statement, which should specify the manner in which safety, health and welfare is managed in the school (previously required under Section 12 of the Safety, Health and Welfare at Work Act, 1989). The safety statement should be based on the identification of hazards, assessment of risks and set out the organisational measures in place to control these risks. The safety statement should be formally communicated to all employees within the school.

The findings of the questionnaire survey in respect of safety statements are shown in figure 3.

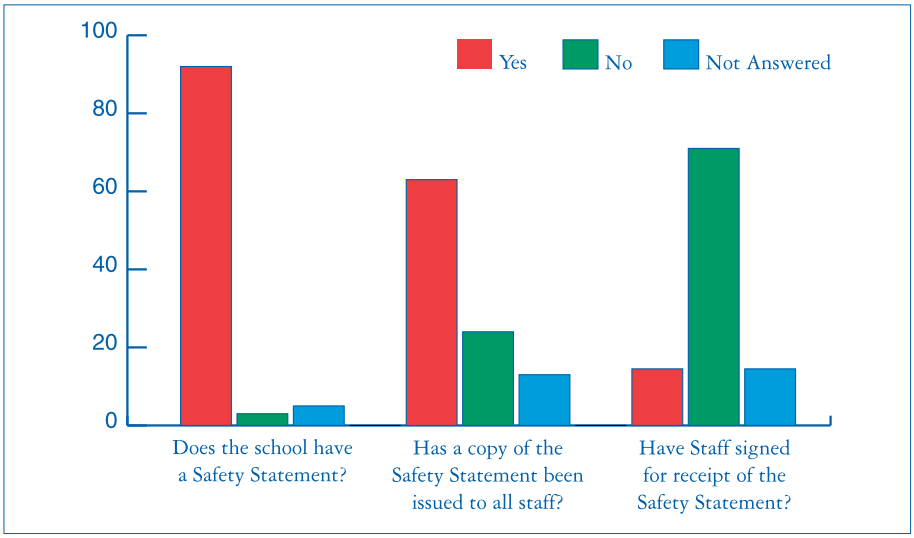


Figure 3. Information regarding schools' safety statements

The safety statement in most schools was produced primarily to fulfil the statutory legal requirement and was not an active working document used to manage occupational health and safety within the school.

Some are developed "in house" by a teacher who had received a certain level of training in health and safety, while others are produced in conjunction with a health and safety consultant. The majority appeared to be pro-forma documents, which contained useful information in respect of the control of hazards that are typical for schools, but did not address the specific issues to be found within that school.

Safety Statements should not be a disconnected list of management aspirations but an integrated guide on how to implement and monitor the schools occupational health and safety management policies and procedures. For example, it is not enough for the document to state that it is the policy of the school to ensure that all machines shall be adequately maintained.

In addition the document must also set out:

- who is responsible
- the procedure required for the servicing of the machines and
- the procedure for ensuring that the servicing is carried out effectively.

A good safety statement should be the base document for informing, instructing and training School Management Authorities, Principals, teachers and others on the management of occupational health and safety in a school.

Recommendations

1. School safety statements must address all of the key elements of an occupational health management system. These are:
   - Structures, roles and responsibilities;
   - Hazard identification, risk assessment and risk control;
   - Information, instruction and training;
   - Setting and implementing policies and objectives;
   - Performance monitoring.

   Note: further discussion and guidance on each of these elements is provided elsewhere in this report.
2. Safety statements should be documents that are actively used for the management of occupational health and safety in schools. Each policy statement should be accompanied by a set of clear implementation procedures (with the associated guidance and documentation).
3. The relevant sections of the safety statement should be formally brought to the attention of all employees, students, parents, and contractors. This could be achieved through training, briefings and promotional materials (see Section 3.8 Information, Instruction, Training and Supervision).
4. All visitors to the school should be informed of their duties as detailed in the Safety Statement. This may be accomplished through signage and/or the use of visitors' badges, which outline their duties.
5. Where amendments of consequence are made to the safety statement, (e.g. after each annual review, the introduction of new policies, etc.) then these should be brought to the notice of all members of staff. Where the School Management Authorities decide that these amendments are sufficiently significant, then the new policy and/or procedure, should be provided in writing and receipt signed for.

6. Amendments to the safety statement that directly impact on students should be communicated to them. Where the amendments made are of significance, then the students and parents should be notified formally and receipt signed for.

3.3 Structures, Roles and Responsibilities

It is critical to the success of an occupational health and safety management system, that the roles, responsibilities and authorities of all levels of the school structure, including students, are clearly set out and understood.

The role of Principals and teachers in the implementation of policies and procedures is critical to the successful management of occupational health and safety risk. During the field survey it was noted that some teachers managed the occupational health and safety risk even where engineering controls, such as dust extraction, were inadequate. Alternatively, where new workshops had been provided and where teachers were not operating basic occupational health and safety procedures, then the engineering risk controls quickly fall into abeyance. The emphasis in a school's occupational health and safety management system should be to enable teachers through training, resources etc. to fulfil their role and responsibility in managing risk in their area of control.

In the majority of the safety statements examined, a section was included, formally setting out roles and responsibilities. In many cases, these were not sufficiently defined and often overlapped between one role and another.

During discussions with Principals and teachers many were under the misapprehension that the Department of Education and Science had a direct responsibility for the management of Occupational Health and Safety in schools. The statutory responsibility for the safety of staff, students and others affected by the school, rests with the School Management Authorities.

Principals were found to be very interested and active in the area of occupational health and safety. They were sometimes hampered by a lack of resources, access to necessary expertise, inadequate school facilities and uncertain/undefined roles and responsibilities.

In some schools, a teacher had been nominated as the safety officer. This teacher provided practical support to the Principal in designing, developing and implementing health and safety policy on a day-to-day basis.

Recommendations

1. Each Post-primary school must carefully consider what structures it needs in place to manage occupational health and safety. Once the structure has been decided, the roles and responsibilities of each constituent part of that organisation e.g. the School Management Authorities, the Principal, Deputy Principal, teachers, students, parents and others needs to be clearly defined and set down in writing in the Safety Statement. Central to the role description should be a set of practical tasks, for example:
    - School Management Authorities should ensure that adequate resources are provided;
    - Teachers should complete a safety inspection of their classroom once a term;
    - Caretaker should ring fire alarm on a weekly basis.

See Appendix IV, which provides a suggested Outline of Occupational Health and Safety Roles and Responsibilities in Post-primary Schools.

2. All schools should have as a minimum one nominated Safety Officer (or Officers depending on a needs assessment). The role of a Safety Officer is to support the Principal and the School Management Authorities in the practical implementation and performance monitoring of the occupational health and safety policy. The post could be attached to a middle management post, (e.g. Assistant Principal), with designated duties. When assigning a Safety Officer, consideration should be given to the individual's existing duties in order to ensure the responsibilities can be completed within the time provided. Section 3.8. Information, Instruction, Training and Supervision sets out the training requirements to ensure that a Safety Officer would have the appropriate competencies to carry out his/her duties.

3.4 Safety Consultation

Section 26 of the Safety, Health & Welfare at Work Act 2005, places a general obligation on employers to consult with, and take account of, any representations made by employees on matters of occupational safety and health in the workplace. In addition, Section 25 of the 2005 Act entitles employees at a place of work to select and appoint a safety representative (previously set out in Section 13 of the Safety, Health and Welfare at Work Act, 1989). Under the legislation, the safety representative can consult with and make representations to their manager on matters of safety, health and welfare in order to prevent accidents and ill-health, to highlight problems and to identify ways of reducing the risk of injury. However, they are not responsible for safety standards in the workplace and have no authority in this regard.

The establishment of a formalised safety committee for the purpose of consultation between management and staff is emphasised under section 26 of the Safety, Health and Welfare at Work Act, 2005 and should function in accordance with the requirements of the act.

In most cases, a safety representative had been appointed in the schools surveyed. None of these schools had a formally established safety committee.

Recommendation

1. Schools should establish active safety committees. Guidelines for establishing and operating school safety committees are set out in Appendix V Guidelines for School Safety Committees.

3.5 Hazard identification, Risk assessment and Risk control

Section 20 of the Safety, Health and Welfare at Work Act, 2005, states that the safety statement shall be based on an identification of the hazards, and an assessment of the risks to safety and health, at the place of work to which the safety statement relates (previously required by Section 12 (3) of the Safety, Health and Welfare at Work Act, 1989). Hazards can occur from:

- Routine activities e.g. science experiments, technology projects, school tours, work experience;
- Non-routine activities e.g. major building works;
- Activities of all personnel, including contractors, who enter the workplace;
- School facilities e.g. buildings, machines, P.E. equipment and playing fields.

A structured, formalised and scheduled programme for the identification, assessment and control of hazards is at the core of good occupational health and safety management. It enables an organisation to identify its occupational health and safety issues and prioritise the allocation of resources for the implementation of control measures.

Some of the schools safety statements did identify the type of hazards likely to be encountered in schools. The risk assessments were mainly pro-forma, reproducing control measures as detailed in relevant technical occupational health and safety standards. Pro-forma risk assessments do not take into account the site specific factors, which can impact on the level of risk in a school e.g. the space and size available, the condition of the equipment, the type and range of activities being undertaken, the class type (junior or senior cycle), the number of students being taught etc.

In schools, risk assessments of varying types and complexities will be required. With these, varying levels of competency will be required by the risk assessor. From time to time, schools may require external expertise to advise on, or to carry out risk assessments where it is recognised that they do not have the necessary in-house competence.

For many of the hazards in schools there is ample in-house knowledge, which with direction (training, risk assessment tools, etc.) would allow schools to carry out the majority of risk assessments themselves. This was demonstrated on occasion during the field survey, where teachers on their own initiative had identified hazards, assessed the associated risks and implemented the necessary controls.

There is already a myriad of existing guidance on risk assessment. Examples of these are listed in Appendix XIV Bibliography.

Recommendations

1. Schools must ensure that they have the appropriate systems in place to ensure ongoing hazard identification, risk assessment and risk control.
2. The risk assessment and recommended control measures must be specific to the school and take into account the various factors that will affect the risk e.g. environment, room size, equipment, etc.
3. Risk assessments must be completed by individuals who are competent to do so. The majority of such assessments could be completed in-house where individuals have received the appropriate training. A standardised Machine Risk Assessment Tool for technology machinery was designed and developed based on the findings of this review. It is included (see Appendix VI Machinery Risk Assessment Tool) to facilitate the teachers of the technologies to assess their own work equipment.
4. The National Council for Curriculum and Assessment (NCCA) should include the methodologies and reasons for carrying out risk assessments as part of the curriculum.

3.6 Developing an Annual Occupational Health and Safety Plan

Once hazards have been identified and assessments of the associated risks have been completed, control measures then have to be implemented. This needs to be done in a structured, formal and scheduled manner, usually referred to as an Annual Occupational Health & Safety Plan. This plan sets out the schools occupational health and safety objectives for the year. None of the field survey schools reviewed had a formal annual occupational health and safety plan in place.

The development of the annual occupational health and safety plan should be linked to a budgetary process so that the necessary resources are put in place. This could involve either making monies available within the existing school budget, fund raising or School Management Authorities making an appropriate application to the Department of Education and Science for funding.

It is at this stage that the risk assessment process leads to the prioritisation of safety critical issues. This ensures that higher-priority safety-critical issues are not surrendered to issues, safety related or otherwise, of a lesser priority to the school. The manner in which issues are prioritised and the available budget is disseminated is a critical role of the School Management Authorities.

Recommendations

1. The School Management Authority should ensure that an annual occupational health and safety audit is carried out. They may delegate the development of the audit report for their approval to a member staff. The report should be completed using a standardised format (See Section 3.9. Checking, Monitoring, Audit and Review), which will identify the objectives and inform the occupational health and safety plan. The plan should include the designated responsibilities, methods and time scales for achieving each objective. The plan should be reviewed at regular intervals through out the academic year and where necessary be amended to reflect changes in the school e.g. change in staff members. See Appendix VII Sample Annual Occupational Health and Safety Plan.
2. The School Management Authorities should approve, amend or reject the objectives as set out by the audit report and where necessary take the appropriate action to provide the necessary supports (including appropriate resources) to allow these objectives to be fulfilled.

3.7 Resourcing Occupational Health and Safety

The Safety, Health and Welfare at Work Act 1989 and subsequent regulations made thereunder, placed significant duties of care on all workplaces including schools. When this body of legislation was enacted, many schools would have had little in terms of safety structures or safety organisation. In addition most schools would have had to invest significant resources to bring their buildings, equipment etc. in line with these statutory requirements.

Many initiatives have taken place since the introduction of the Safety, Health and Welfare at Work Act, 1989. The Department of Education

and Science has provided specific funding to enable schools to implement improvements to comply with the legislative requirements. However, despite the efforts of both the School Management Authorities and the Department of Education and Science, many schools are still not compliant with basic statutory requirements regardless of these regulations being in place for over ten years. Where personal injuries arise from such non-compliance there is little that can be done to defend any resultant claims.

Schools can only be expected to deal with a limited number of issues in any one school year within their current financial resources. This risk review was established because both the SCA and the Department of Education and Science required objective data on the standard of health and safety within the technologies in Post-primary level education. The review has confirmed that there is inadequate training, facilities and/or equipment in a significant percentage of schools and in many cases schools will require Department of Education and Science funding to address these issues.

The majority of the elements of an occupational health and safety management system such as policy, training and information, inspection and auditing can be put in place immediately in most schools with little or no financial implications. The absence of funding to implement engineering controls should not impede schools implementing all possible elements of management controls.

Recommendations

1. Schools must prioritise the resources available to ensure that they are addressing issues of prime concern (breaches of statutory duties, high risk hazards, issues likely to give rise to claims etc.).
2. The Department of Education and Science should provide the appropriate funding to enable priority health and safety issues to be addressed in all schools within the next three to five years.
3. Where the Department of Education and Science wholly or part-fund projects, it should consider allocating additional resources to evaluate that the technology rooms delivered meet with the Department of Education and Science's specifications provided.

3.8 Information, Instruction, Training and Supervision

General Requirements

The Safety, Health and Welfare at Work Act 2005 places a duty on School Management Authorities, as an employer, to ensure, as far as is reasonably practicable, the provision of information, instruction, training and supervision as is necessary to ensure the safety, health and welfare at work of employees (previously required under Section 6 of the Safety, Health and Welfare at Work Act, 1989). This must be provided at all levels of the school organisation. This includes:

- School Management Authorities;
- Principals;
- Deputy Principals;
- Teachers;
- Students;
- Parents;
- Visitors and Contractors.

It was noted during the review that individual schools, Management Authorities and other education partners are working in isolation on many occupational health and safety issues that are common to all. Schools are often developing systems, policies and procedures that are already in place in other schools. Individual schools or Management Authorities paying consultants to individually provide safety documentation and advice is not the best use of available resources.

General Awareness

The findings of the questionnaire surveys showed that only five per cent of the teachers of the technologies had additional formal occupational health and safety training.

The general impression given during the field surveys was that the knowledge of occupational health and safety as it applies to workshops, among technology teachers was low. Among the teachers involved in the field survey, only one had received additional formal occupational health and safety training. To some extent, this finding may have its roots in the lack of a systematic approach to the management of occupational health and safety. They generally acknowledged this gap in their training and would welcome guidelines on occupational health and safety together with appropriate in-service training.

Pre-Service Training

The impression given by many of the technology teachers during the field survey was that the focus of the pre-service teacher training course they

completed is on the academic aspects of teaching. The scope of this report did not extend to an assessment of the teacher training programmes in preparing the technology teachers for the management of occupational health and safety in their workshops.

In-service Training

Currently, there is no appropriate in-service training on workshop occupational health and safety available for teachers of the technologies.

Teachers Safety Induction Training

Only one field survey school had a formal occupational health and safety induction programme for teachers. In some schools, there was an informal process where teachers, on joining the staff, would be provided with a set of documents which would include safety information.

Teachers Ongoing Training and Information

Schools varied in their approach to providing information and instruction on health and safety on an ongoing basis. Some, on an annual basis, would include key safety information in the teacher's handbook, school handbook, or similar publications. Others provided copies of the key documentation at formal meetings.

Training and Information for Students

The Report of the Advisory Committee on Occupational Health and Safety at First and Second Levels in the Education Sector to the Health and Safety Authority, 1995, noted *'that schools can play a major role in the development of a safety culture among young people to prepare them for the workplace'*. This report also acknowledges the vital role schools can play in changing Irish societal values around workplace health and safety. This is particularly true of subjects, which prepare students for jobs in higher risk environments. A critical factor in the causation of accidents is the lack of awareness of risk and the low level of health and safety knowledge among management and employees.

The value to society of an education system, which increases safety awareness, will be seen beyond the workplace and will deliver social and economic benefits to the country.

In general, students are not currently made aware of the safety statement, as it affects them, though in some schools, policies such as bullying and general safety information are included in students handbooks.

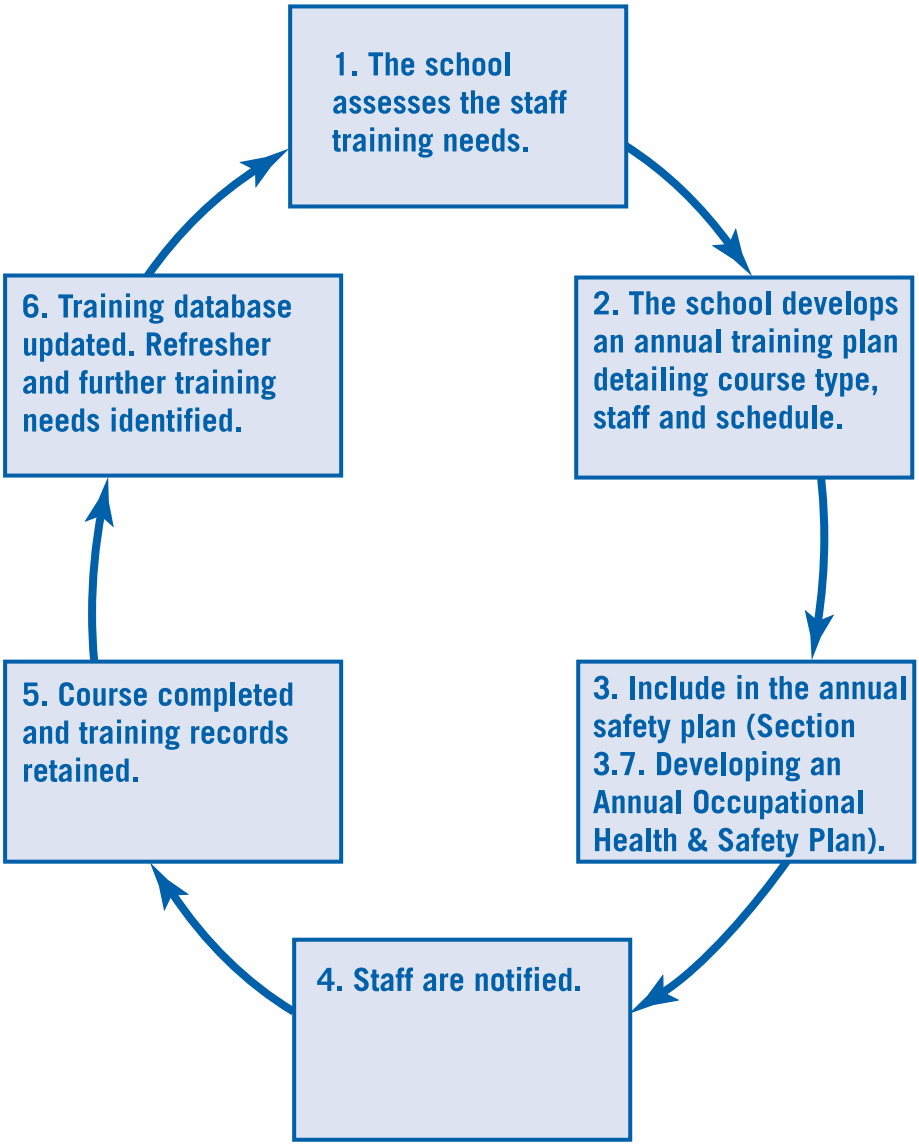
All schools involved in the field survey stated that they provide safety information to students as part of the normal teaching program. This normally involved outlining the main hazards, safeguards and other precautions prior to the use of any machine. However, with the exception of one school, the system was not formalised.

The revised curriculum for students includes the majority of key occupational health and safety elements, however, legislation, hazard identification, risk assessment and control measures and environmental hazards (i.e. dust, noise etc) were not specifically covered.

Standards vary but in some respects schools are teaching students in environments, which would not be acceptable in an industrial setting. When these students enter the workforce as young employees they will be expected to adopt their employers safety culture. This will be unfamiliar to them if during their formative years the impression given is that occupational health and safety is not a key value.

Recommendations

1. Post-primary School Management Bodies should consider ways in which they can share and promulgate information on occupational health and safety.
2. The Department of Education and Science (DES) should request third level institutions, that provide pre-service teacher training, to review the current provision for the training of teachers in the management and teaching of occupational health and safety in their classrooms.
3. Schools should implement a formal process to identify training needs and develop an annual training plan. This would be included as part of an annual occupational health and safety plan. An outline of this process in schematic form is given in Flowchart B – Sample Procedure for Developing and implementing an Annual Training Programme for school staff.
4. All individuals must be provided with the necessary training to carry out their duties as set out in the safety statement. Table 1 Recommended Training Requirements gives an outline of the training requirements for all levels within schools. Appendix VIII Training Programme Guideline for Post-primary Schools outlines the suggested content for individual courses.
5. In-service training programmes should be developed and provided by Department of Education and Science for teachers already in-situ.
6. In addition to the topics covered by the revised curriculum, the NCCA should include an overview of the following additional topics in the curriculum delivery guidelines for teachers: legislation, hazard identification, risk assessment and control and environmental hazards.
7. The State Examinations Commission (SEC) should ensure that the occupational health and safety element of the curriculum is examined at all levels.
8. Where possible, and particularly for subjects like the technologies, students should be made aware of the relevant parts of the school's safety statement.



Flowchart B – Sample Procedure for Developing and Implementing an Annual Training Programme for school staff.

Table 1 - Recommended Training Requirements

Group	Training Requirement(s)	Provider(s)	Comment
School Management Authorities	• Formal briefing	Nominated by the SMA e.g. safety officer, teacher education centre	• The briefing should outline the contents of the school's safety statement with emphasis on the roles and responsibilities of the School Management Authorities. • This could be linked to existing Board of Management training.
Principals	• In-service training on Occupational Health and Safety Management	Nominated by the SMA e.g. teacher education centre	• A suggested outline for this training programme is included in Appendix VIII.
Safety Officers	• Certificate level or equivalent in Occupational Health and Safety	Nominated by the SMA e.g. teacher education centre	• Delivered as an in-service training course.
Teachers and School Staff	• In-service training • Induction training – general and subject specific • Refresher briefings	DES Principal/Safety Officer Principal/Safety Officer	• A suggested outline of pre service, in service, induction and refresher training programmes are included in Appendix VIII.
Caretakers	• A formalised system must be put in place to ensure that the Caretaker is competent to complete his/her duties.	Principal/Safety Officer	
Students	• Induction training – general and subject specific • On going training in safety issues	Class Teacher Class Teacher	• A suggested outline of a training programme is included in Appendix VIII.

Note: The State Claims Agency is willing to assist the appropriate bodies in the development of any of the above recommended training programmes.

3.9 Checking, Monitoring, Audit and Review

3.9.1 Accident Investigation & Reporting

Ten of the field survey schools had a system in place for accident reporting. However, the procedures were not formalised.

The breakdown for the questionnaire surveys is shown in figure 4.

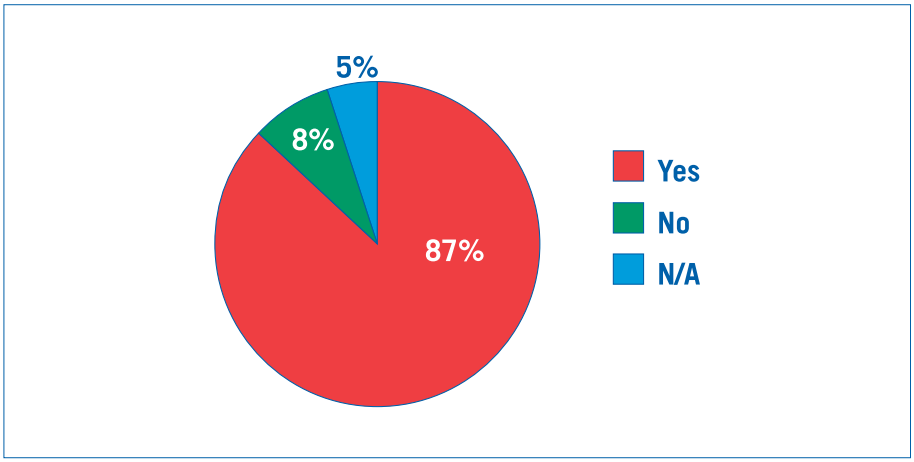


Figure 4. Percentage of schools that had an accident reporting system in place

Recommendations

1. A formal system should be developed for internal and external investigation and reporting of accidents. A detailed policy and procedure is included in Appendix IX Sample Accident Investigation and Reporting Policy and Procedure.
2. Accident report forms should be introduced which facilitate a full investigation of accidents. The objective of a report form is to identify the cause of the accident and therefore recommend the appropriate safety corrective and preventative action required to eliminate/reduce the risk of reoccurrence. Sample accident report forms are included in Appendix IX Sample Accident Investigation and Reporting Policy and Procedure.
3. In order to monitor the effectiveness of the occupational health and safety management system, accident and incident statistics should be reported to the School Management Authorities on a term basis.

3.9.2 Safety Corrective and Preventative Action

Safety corrective and preventative action is a term used to define the action taken in order to reduce or eliminate the risk associated with a hazard. Safety corrective and preventative actions may arise following a teacher's safety inspection, an external consultant's report, remedial action recommended after an accident to prevent reoccurrence, etc. This could include erecting warning signs, the installation of local exhaust ventilation on wood working machines, the purchasing personal protective equipment, training, etc.

Unless there is a formal system in place to manage and monitor the progress of identified safety corrective and preventative actions, they may not be implemented. During the review, it was noted that no school had a formal system in place to track issues for remedial action.

Recommendation

1. Schools occupational health and safety procedures should include a system to formally track the status of all hazards reported, control measures required, action taken to date, responsibility for action, time scale for completion and closure of action requests. The status of the requests for safety corrective and preventative actions should be reported at least once a term to the School Management Authorities through the Principal. Table 2. Safety Corrective and Preventive Action Register shows an example of simple log to monitor progress on identified actions.

3.9.3 Monitoring, Audit and Review

There were no formal processes in place, in any of the schools visited, for monitoring the implementation of the occupational health and safety policy at various levels in the schools, in a structured and scheduled manner.

Recommendation

1. Occupational health and safety procedures should be put in place to monitor, audit and review occupational health and safety performance on a regular basis. Primarily the procedures should focus on the implementation of the annual safety plan. Table 3. Monitoring and Reporting Performance summarises the type of monitoring and reporting required at each level in a school. The success of this process is dependant on the monitoring and reporting being completed at each level. Appendix X, Examples of Reports used to Monitor Occupational Health and Safety, shows examples of the types of reports that could be considered.

Table 2 - Safety Corrective and Preventive Action Register

Hazard/Issue	Date Reported	Reported by	Action Required	Interim Action to date	Close by	Closed
Large pothole at front entrance.	08/02/05	Care-taker	Fill pot-hole	Front entrance closed and using side and rear doors.	10/02/05	
Fire Extinguisher tampered with.	10/02/05	Science laboratory teacher inspection report	Call for service	Spare extinguisher provided.	17/02/05	
Crown guard damaged on circular saw.	12/02/05	Technology teacher.	Call for service and repair/replace guard.	Machine locked out and use prohibited until repaired.	20/02/05	

Table 3. – Monitoring and Reporting Performance

Type of Report/Review	Report Content	Purpose of Report	Method
Inspection of classroom (Once per term)	Physical conditions/ housekeeping at class room level	A formally recorded check on key aspects of physical conditions/ housekeeping as they impact on OH&S risk. Issues identified that are not within the remit of the teacher are reported for action.	Physical inspection using standardised tick checklist form. Time to complete Inspection 10 minutes (See sample inspection checklist in Appendix IX).
Term Progress Report	1. Progress on agreed annual objectives 2. Current status of safety corrective and preventative actions	A formal report each term to review progress on the implementation of the annual occupational health and safety plan. Any actions required reported to School Management Authorities.	Standardised written report based on targeted progress against actual achievement.
Annual Safety plan/ audit	1. Progress on agreed objectives 2. Review of major safety corrective and preventative actions for academic year completed. 3. Setting of objectives for forthcoming year.	A formal report to review OH&S performance across the school. The findings of the report will be used to set objectives for the forthcoming year.	Formal report based on an annual overview audit.

Note: The School Management Authority is responsible for ensuring the above reports are completed. The development of the reports may be delegated to an appropriate member of staff.

Chapter 4

Technology Workshops – Environments, Equipment & Services

Chapter 4
Technology Workshops – Environments, Equipment & Services

4.1 Occupational Health and Safety Management in Technology Workshops

The management, control and supervision of classes are issues affecting all teachers but the attendant risks in the technology subjects brings them into sharper focus.

The technology teachers are the determining factor in ensuring that risks are being sufficiently managed. Even where workshops, machines and equipment are in need of upgrading the potential risk can be significantly reduced where a teacher has the management skills to put alternative control measures in place. It is important however that this is done in the context of support from the School Management Authorities.

This section of the report, section four, deals with issues that are more specific to the hazards and risks directly associated with the technologies. As previously acknowledged there is a greater potential for accidents to happen in the technology subjects. However with the correct management approach the risks to teachers and students can be eliminated or effectively controlled.

4.2 Workshop Design and Size

Workshop design and size varied across the workshops surveyed. While the majority of workshop sizes were of the order of that set out in the Department of Education and Science's specification, the layout and use of space varied considerably from workshop to workshop. Poorly designed layout, clutter, unnecessary or unused machinery reduce available working space and increase the risk of accidents occurring.

It was noted that a number of recent workshop builds did not adhere to either the relevant building regulations or the Department of Education and Science specifications. In respect of workshop building/refurbishment projects funded by the Department of Education and Science, the

Department requires sign off by the school's consultant architect indicating that all builds are compliant with relevant regulations and specifications. However it is the School Management Authorities and their external design teams that are responsible for ensuring that builds are fully compliant with all relevant statutory requirements and the Department of Education and Science specifications.

Safe operational areas (i.e. a demarcated area which allows the operator to use the machine safely and prevent inadvertent contact from others within the workshop) were not evident during the field survey.

Recommendations

1. Schools should carry out an assessment of their technology workshops reviewing size, storage, layout and amount of equipment to determine whether its possible to operate safely within the available area taking into account student numbers.
2. When planning and designing workshop areas, School Management Authorities and teachers must look critically at the workshop layout, in order to ensure that the working conditions are as safe as possible and will permit ease of supervision. For new builds, the Department of Education and Science has developed specifications for workshop layouts, which if adhered to, will achieve this result.
3. Where projects i.e. extensions, up grade of electrics and/or installations etc. are self–funded, the School Management Authorities are solely responsible for ensuring that the build is fully compliant with all relevant statutory requirements and Department of Education and Science specifications.
4. Where the Department of Education and Science wholly or part fund projects they should retain an evaluation role. They should, as a minimum, require documentary evidence indicating that all builds are compliant with the relevant regulations and specifications. (See also Section 3.7. Resourcing Occupational Health and Safety, Recommendation No. 3.)
5. Schools should carry out a review of their workshops to identify a safe operational area around machines. Markings should be set down on the floor demarcating this safe operational area. This may require the relocation of machines.

4.3 Class Size

The numbers of students directly impacts on the level of risk within a workshop. All the field survey schools operated the '24 students per practical class' limit. Many of the classes particularly at senior level were operating at lower numbers.

The type and behavioural characteristics of students should be considered when deciding on numbers for teaching and supervising each class. The behaviour and number of students influences the level of risk in technology workshops. Complex inter-relationships occur when students with learning difficulties, particular behavioural characteristics and those unable to work in a responsible manner combine to significantly increase the risk of an accident. Some teachers, in the field survey schools, expressed concern that on many occasions the behaviour of students makes technology classes very difficult to teach and can compromise the safe day-to-day running of workshops.

The dominant factor contributing to the safety of students in school workshops is adequate supervision. Supervision is directly dependant on the class size, room layout and machinery accessibility. What may be an acceptable class size for Mathematics or English can cause supervisory difficulties for a technology teacher. The ages, abilities, attitudes and learning capabilities of students are important factors when arranging technology-working groups.

Recommendations

1. Schools should limit class size where the room size is deemed to be inadequate for a full group.
2. Schools should complete a formal risk assessment to determine class size taking account of the characteristics of the student group. Factors to consider include:
   - age/ability of the students,
   - students with special needs,
   - students whose first language is not English,
   - behaviour of students.

4.4 Fire Safety

4.4.1 Fire Detection and Alarm Systems

Post-primary schools are legally required to have systems in place to provide early warning in the event of a fire.

Seven out of the 62 schools that responded to the questionnaire survey reported that they did not have a fire detection and alarm system installed (see figure 5). Where fire detection and alarm systems are installed, 85% were serviced by external contractors. Of these, 50% were serviced annually, the remainder are serviced on a breakdown basis only.

One out of the 16 field survey schools had no fire detection and alarm system in place. For the remaining field survey schools, five had fire detection and alarm systems installed, but the automatic detection system was not extended to the workshop areas. Where systems were in place, most schools had them serviced annually by an external contractor. Only one school had their system serviced on a quarterly basis in accordance with the recommended code of practice.

Recommendations

1. Schools should review the fire detection and alarm system in their workshops.
2. Fire detection and alarm systems should be installed or upgraded to comply with I.S. 3218: 1989 Code of Practice for Fire Detection and Alarm Systems for Buildings. A minimum Type L2 System, as defined in the standard, should be considered which would ensure that the detection coverage is extended to all workshop areas.
3. Fire detection and alarm systems should be tested, serviced and maintained in accordance with I.S. 3218. These requirements are summarised in Section 4.8 Maintenance and Servicing of Installations and Equipment.

4.4.2 Emergency Lighting Systems

Post-primary schools must be designed to allow for safe means of escape in the event of an emergency. This includes the provision of emergency lighting.

Fifty-five out of the sixty-two schools that responded to the questionnaire survey had an emergency lighting system in place (see figure 5). These questionnaires did not enquire whether the system extended to the workshop areas. Where emergency lighting systems were installed, 70% were serviced by external contractors. Of these 50% were serviced annually.

Three out of the sixteen field survey schools had no emergency lighting system in place. Where emergency lighting systems were in place most schools had them serviced annually by an external contractor. Only one school was carrying out quarterly services in accordance with the recommended code of practice.

There was no emergency lighting system installed in a number of workshops identified both from the questionnaire and field surveys. Given the risk level in technology workshops and that they are in many cases occupied after the school day has finished, this is a breach of a schools statutory duty.

Recommendations

1. Schools should review the emergency lighting arrangements in their workshops.
2. The emergency lighting system should be installed or upgraded to comply with I.S. 3217, 1989 Code of Practice for Emergency Lighting.
3. The emergency lighting system should be tested, serviced and maintained in accordance with I.S. 3217. These requirements are summarised in Section 4.8 Maintenance and Servicing of Installations and Equipment.

4.4.3 First Aid Fire Fighting Equipment

Post-primary schools are legally obliged to have appropriate first aid fire fighting equipment i.e. fire extinguishers and fire blankets to reduce the risk of fire spreading.

Out of the 62 schools that responded to the questionnaire survey, 61 had first aid fire fighting equipment in the technology workshops (see figure 5). During the field survey it was noted that some of the first aid fire fighting equipment in place was not serviced annually. In other cases the number and type of extinguishers were not appropriate to deal with the risks in the technology workshops e.g. only water extinguishers available in locations where there was electrical equipment. Table 4 outlines the appropriate fire extinguishers for the different classes of fire.

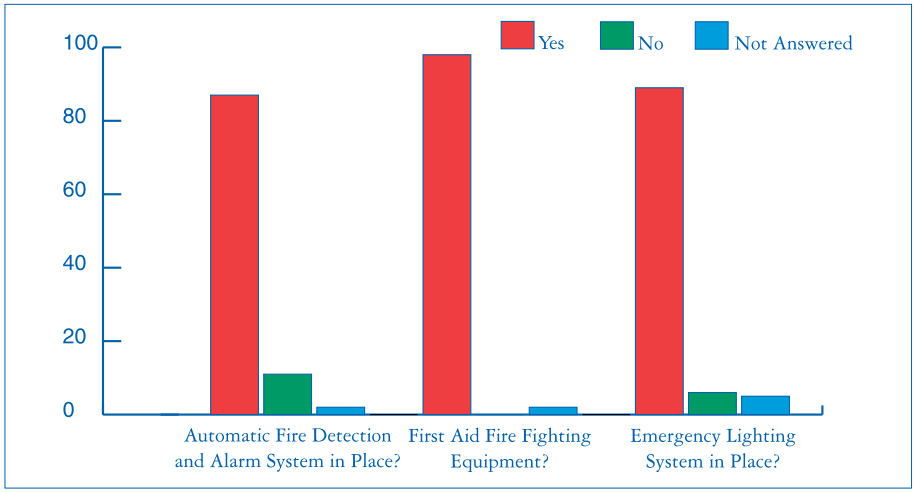


Figure 5. Fire Safety

Table 4: Portable fire extinguishers suitable for different classes of fire

Water and foam extinguishers should not be used on fires that originate in live electrical equipment.

Type and colour of marking	Type of Fire
Water	• Solid Combustibles e.g. wood, paper, textiles, curtains, furniture and plastics • **Must never be used on fires that originate in live electrical equipment**
Foam	• Flammable liquids e.g. petrol, oils, lubricants, paints, alcohol • **Must never be used on fires that originate in live electrical equipment**
AFFF (aqueous film forming foam)	• Solid Combustibles e.g. wood, textiles, curtains, furniture and plastics • Flammable liquids e.g. petrol, oils, lubricants, paints, alcohol • **Must never be used on fires that originate in live electrical equipment**
Dry Powder	• Flammable liquids and solids e.g. petrol, oils, lubricants, paints, alcohol • Electrical equipment
Dry Powder (multi purpose)	• Solid Combustibles e.g. wood, textiles, curtains, furniture and plastics • Flammable liquids e.g. petrol, oils, lubricants, paints, alcohol • Electrical equipment
Carbon Dioxide	• Flammable liquids and solids e.g. petrol, oils, lubricants, paints, alcohol • Electrical equipment

Recommendations

1. Schools should review the first aid fire fighting equipment arrangements in their workshops.
2. The first aid fire fighting equipment should be installed or upgraded in accordance with I.S. 291: 2002 The Use, Siting, Inspection and Maintenance of Portable Fire Extinguishers. At a minimum a workshop, based on a room size of 136m2, should contain the following:
   - a 2 kg Carbon dioxide extinguisher,
   - a 6 litre foam spray A.F.F.F. (Aqueous film forming foam) extinguisher
   - a fire blanket.
3. Heavy-duty fire blankets should be located in technology workshops in accordance with I.S. 415: 1988 Fire Blankets.
4. Technology teachers should be trained on the use of first aid fire fighting equipment. This should be incorporated into the school's emergency evacuation plan.
5. First aid fire fighting equipment should be tested, serviced and maintained in accordance with I.S. 291. These requirements are summarised in Section 4.8 Maintenance and Servicing of Installations and Equipment.

4.4.4 Emergency Planning

Post-primary schools are legally obliged to plan and provide the necessary measures for the evacuation of staff, students and others in an emergency. This includes contact details of the appropriate emergency services with regards to first aid and emergency medical care.

Of the schools that responded to the survey questionnaire, 95% carried out a fire drill annually. Of these, 54% completed two or more fire drills a year (see figures 6 and 7). On examination of the procedures during the field survey, it was evident in some schools that an emergency and evacuation plan was not documented and details of fire drills were not formally recorded.

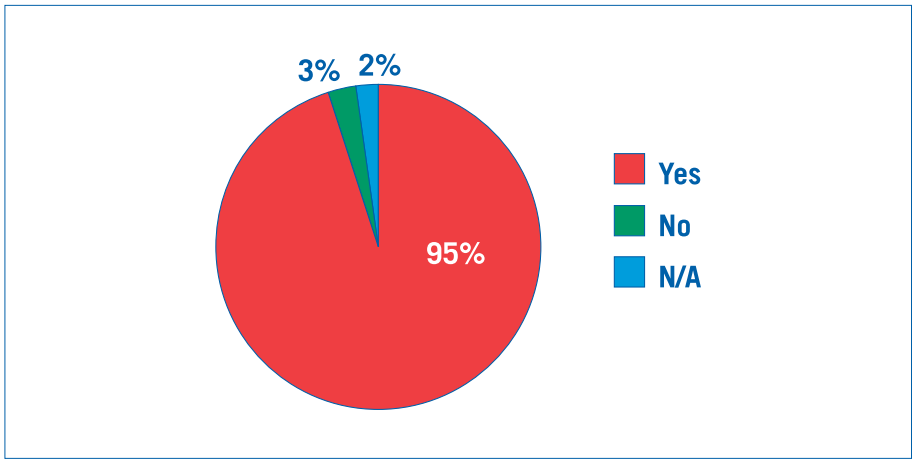


Figure 6. Are fire drills completed on an annual basis?

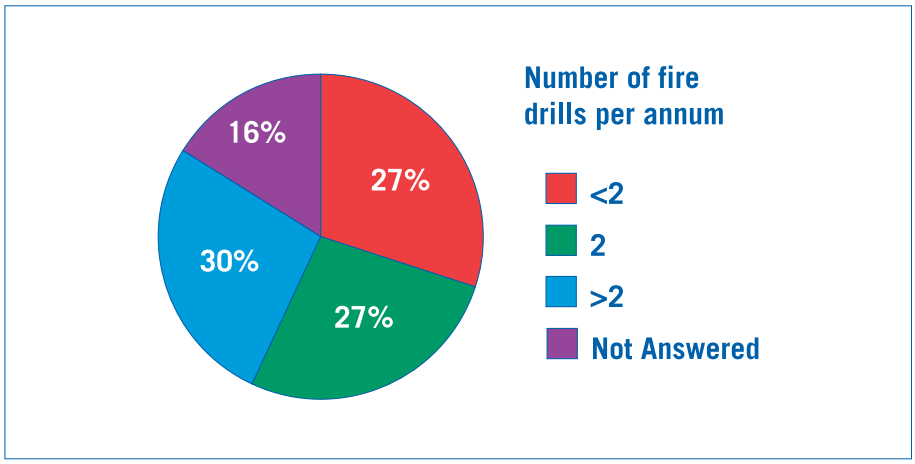


Figure 7. Number of fire drills completed on an annual basis

Recommendations

1. A detailed emergency evacuation plan should be documented for each school outlining the roles and responsibilities of nominated individuals, the procedures for a safe evacuation, and contact details for the relevant emergency services.
2. Two fire drills should be carried out on an annual basis. These should be formally recorded with the following details:
   - date and time of evacuation;
   - time it took to fully evacuate the building;
   - issues identified, actions required to rectify and individuals responsible.

(**Note:** The recommended time for clearing a building is 2½ minutes)

4.5 Electrical Safety

The standard of electrical installations varied across the workshops visited as part of the field survey. The electrical installations in the most recently built or upgraded workshops are of a high standard (visual assessment only). They included safeguards such as key operated emergency isolators on the walls, various rated power supplies, low voltage power tools, directly wired machines, individual isolators for each machine and appropriately rated residual current devices (RCDs) on 230 V circuits supplying socket outlets.

Older workshops had only some of these safety protections. In certain cases the installations were in direct contravention of specific requirements of the Safety, Health & Welfare at Work General Application Regulations 1993, Part-VIII Electricity e.g. RCDs were not installed on circuits supplying 23o V sockets.

Some of these older electrical installations were in a condition, which would restrict the introduction of new machinery and the upgrade of existing machinery.

A variety of portable power tools were encountered during the field survey. The majority of these were 12 V DC battery powered, with the others being either 110 V AC or 230 V AC.

Recommendations

1. Schools should review the electrical installations in their workshops and where necessary they must be upgraded so as to comply with the relevant legal requirements and technical standards. In particular, the review should determine if installations have RCDs on all circuits supplying 230 V sockets with a trip rating not exceeding 30 mA.
2. Portable power tools should be supplied at a voltage not exceeding 125 V AC. When using a 125 V AC portable power tool off a 230 V supply, a step down transformer should be used.
3. Key operated emergency power isolators should be installed in each workshop to allow for the isolation of the power in the event of an emergency. These can also be used to isolate machines when the workshop has been vacated so as to prevent inadvertent use of the machines.
4. Electrical installations should be tested, serviced and maintained in accordance with ETCI 'National Rules for Electrical Installations'. These requirements are summarised in Section 4.8. Maintenance and Servicing of Installations and Equipment.

4.6 Machinery Safety

4.6.1 Statutory and Civil Law Requirements

Civil law places a duty of care on School Management Authorities to provide safe plant and equipment for staff and students. In effect this means that School Management Authorities must ensure that machines comply with the relevant technical standards.

Statutory legislation introduced specific requirements for the safeguarding of machinery in the Safety, Health & Welfare at Work, General Application Regulations, 1993 - Part IV, Work Equipment. These regulations set out guidelines in respect of stopping/starting, emergency stops, guarding of moving parts etc. All machines, including those manufactured or purchased prior to 1993 have to comply with these requirements.

Subsequent to this, the requirement for CE marking was introduced. The CE marking is intended to facilitate the free movement of products within the EU by signifying that essential health and safety requirements have been met. This is a market driven system where the supplier verifies that the product complies with the requirements of relevant directives. Under machine safe guarding legislation, all machines being placed on the market must carry the CE mark, confirming and indicating compliance with the relevant directives. Second-hand equipment before resale must also be upgraded to comply with the CE marking requirements.

In parallel with this, Harmonised European Technical Standards have been developed, which give practical specifications for safety devices, safe guarding etc. e.g. BS EN 418:1992, Safety of Machinery - Emergency Stop Equipment, BS EN 1870:1999, Safety of Woodworking Machines – Circular Sawing Machines.

Manufacturers, designers and suppliers of new machines can self-certify the machines by ensuring that the proper safeguards are installed and that these comply with the appropriate machinery safeguarding standards. Employers with equipment supplied prior to 1995 can in a similar way self-certify their machines, ensuring that they comply with the regulations by upgrading their machines to comply with the appropriate safeguarding standards.

The questionnaire survey found that 70% of Metal/Engineering Machines, 53% of Materials Technology (Wood)/ Construction Study Machines and 64% of Technology Machines did not have a CE Mark. (See Tables 5, 6 and 7)

Table 5. Breakdown of CE marking on Metalwork/Engineering Machines

Machine	CE Marked	No CE Mark
Centre lathe	14 (25%)	42 (75%)
Milling machine	12 (33%)	24 (67%)
Drilling machine	13 (28%)	34 (72%)
Power saw	15 (34%)	29 (66%)
Grinding machine	11 (26%)	31 (74%)
Polishing machine	14 (35%)	26 (65%)
Welder	13 (30%)	30 (70%)
Forge	9 (29%)	22 (71%)
Brazing hearth	12 (38%)	20 (62%)

Table 6. Breakdown of CE marking on Materials Technology (Wood)/Construction Studies Machines

Machine	CE Marked	No CE Mark
Circular Saw	24 (48%)	26 (52%)
Planer Thicknesser	20 (43%)	26 (57%)
Band Saw	21 (52%)	19 (48%)
Sander	22 (63%)	13 (37%)
Drilling Machine	20 (57%)	15 (43%)
Lathe	20 (43%)	26 (57%)
Morticer	18 (39%)	28 (61%)
Sharpening Machine	15 (37%)	26 (63%)

Table 7. Breakdown of CE marking on Technology machines (machines used for the teaching of the subject Technology)

Machine	CE Marked	No CE Mark
Circular Saw	1 (20%)	4(80%)
Planer Thicknesser	1 (20%)	4 (80%)
Band Saw	5 (71%)	2 (29%)
Lathe (wood)	0 (0%)	1 (100%)
Lathe (metal)	1 (25%)	3 (75%)

Of the machines examined during the field survey phase of the review, 60% of Metalwork/Engineering Machines, 30% of Materials Technology (Wood)/Construction Study Machines and 10% of Technology Machines did not have a CE Mark.

Note: The sample size of the technology workshops in the field survey was smaller and this may account for the variance in the findings between the questionnaire and field surveys.

4.6.2 Type and Number of Machines

The type and number of machines in each category of workshop varied from school to school. Some schools might have a large number of a particular type of machine (e.g. wood lathes) others had non-specified, redundant or out dated machines.

A significant number of machines encountered during the field survey were not in use. These included machines:

- no longer required e.g. replaced by a newer version;
- unsafe for use;
- beyond economical repair;
- not used because of the way in which the curriculum was being approached and the type of projects chosen.

There is a general reluctance to remove/discard machines. This reluctance increases clutter, reduces available space and increases the risk of someone inadvertently using an unsafe machine.

4.6.3 Safe Guarding of Machinery

A significant number of the machines do not comply with statutory requirements. In some cases there were deficiencies such as inappropriate guarding of mechanical parts, inadequate stop/start controls and/or emergency stops etc. In other situations, there were more significant issues such as failure to meet braking requirements etc. Table 8. summarises the most common risk issues found.

Table 8. Summay of Machinery Risk Issues.

	RISK ISSUES	ISSUES ARISING (EXAMPLES ONLY)
1.	None or inappropriate guards to prevent contact with moving parts.	• Crown guards were not appropriately designed and did not enclose the blade. • Where fixed guards were in place they were not properly secured. (Fixed guards should only be removable with the use of a tool) • Chuck guards on centre lathes were not interlocked. • Eye shields were missing or broken on grinders and polishing machines.
2.	The braking arrangements to bring the moving parts to a complete stop were not sufficient.	• Recommended braking time was exceeded because the current mechanism for braking was inappropriate or required repair or replacement.
3.	Controls were absent or inappropriate.	• The stop control did not have priority over the start control e.g. toggle switches. • Emergency stops were absent, not mushroom headed, inappropriately located and not colour coded. • Switching mechanisms were not in place to prevent inadvertent restart where power supply to the machine was interrupted. • On higher risk machines there was no lock-off mechanism to prevent unauthorised use.
4.	General Machinery	• Machines were not securely fixed to the floor or bench. • Trailing electrical cables. • Appropriate clamps to ensure that work pieces were secured were absent. • Sufficient warning and information notices were not displayed. • Location of the machines was inappropriate. • Working space around the machines was insufficient.

4.6.4 Purchasing of Machinery

Machines must be manufactured to a standard and quality to allow for the delivery of the curriculum over a reasonable time span i.e. machine life span.

Many of the older machines assessed during the field survey while deficient in current safeguarding requirements, were manufactured to a very high quality and were in good working condition. These machines were purchased at a time when there was a greater emphasis on preparing students for apprenticeships.

Most of the newer machines are less robust than their older equivalents though adequate to fulfil teaching requirements. Some of the guarding arrangements on newer machines while conforming to E.U. standards in performing their guarding function were assessed as insufficiently robust for the type of use that is expected in a workshop setting. In a number of cases the guards on recently purchased machines were already damaged or broken.

Many teachers expressed the view that there would be resistance to replacing older machines, as there is an impression that the new machines, which can be purchased under current funding levels, are of lesser quality/power and durability.

During the survey it was found that machines had been purchased, which were not guarded or were inappropriately guarded. In many cases the teacher of the technology subject was unaware of this. Teachers professed not to have the necessary knowledge of the safe guarding standards applicable to these machines to enable them to make informed purchases. The current direction from the Department is that the machine must meet the Department of Education and Science's equipment specifications, should comply with statutory requirements and carry a CE mark, though specific guarding standards are not detailed.

The Department of Education and Science have developed standardised equipment lists for the workshops. A number of the survey schools were found to use some non-specified machinery, which are not contained on the Department of Education and Science Equipment Lists. These machines will not have been assessed by Department of Education and Science and therefore are non-compliant with the Department's guidance. School Management Authorities that permit the purchase of such unspecified machines do so at their own risk.

4.6.5 Prohibitions on the Use of Machines

BS EN 4163: 2000 Health & Safety for design and technology in schools and similar establishments – Code of practice states that students should not use circular saws and planer thicknessers. It also states "young persons should not use high-risk woodworking machinery unless they are assessed as mature and competent and have received sufficient training.

High-risk woodworking machinery includes any hand-fed woodworking machinery, any sawing machine fitted with a circular blade or saw band, planing machines when used for surfacing and vertical spindle moulding machines".

For the remaining machines there is no definite guidance available to teachers setting out what machines are appropriate for use, or what machines should be prohibited from use, at junior and senior cycles.

During the survey it was noted that practices varied with respect to the use by the teacher of circular saws and planer thicknessers during class time. It was noted that these machines are used on a limited basis by some teachers during classes.

Control of use and access to the machines varied from school to school. Some schools had key operated electrical isolation switches installed which allowed the electrical isolation of individual machines or of the whole workshop. Others schools locked the doors to the workshops. The remainder had no controls in place.

Recommendations

1. Schools should carry out a preliminary assessment of their workshop equipment. Any equipment, which is obviously beyond economical repair or which cannot be repaired/upgraded to meet the relevant technical standards should be decommissioned, removed from the workshop and disposed of appropriately.

   A detailed assessment of the safe guarding arrangements on the retained machines should then be carried out. Where the assessment indicates, the machines should be upgraded to comply with appropriate guarding requirements. Again, where this proves technically impossible or cost prohibitive the machine/s should be decommissioned and be removed from the workshop.

   It should be ensured that the person(s) carrying out the assessment be provided with an appropriate assessment tool and training. A Machinery Risk Assessment Tool has been developed based on the findings of this report and can be found in Appendix VI. This will enable the assessor to assess the machine and identify action to be taken based on the recommendation list indicated in the assessment tool. This Machinery Assessment Tool has been designed specifically for use by teachers of the technologies.

2. The Department of Education and Science should consider carrying out a tendering process to identify a suitable number of suppliers, who will be preferred providers, of the machines on their Equipment Lists. The tendering process would ensure that machines are provided, which will meet the E.U. technical standards and are of such design as to be sufficiently robust and durable for school workshop environments.

3. The Department of Education and Science should introduce a scheme to allow for the upgrade/replacement of technology machinery as necessary. As indicated in Recommendation No. 1, following an assessment, a decision can be made taking into consideration the associated cost of bringing the machine(s) up to the appropriate safety standards either to upgrade or replace the machine(s).
4. The Department of Education and Science should provide an ongoing funding arrangement to allow schools to maintain/repair machines where required.
5. Schools should implement a formal programme of preventative maintenance for all machines. Details of the maintenance requirements for machines are set out in Section 4.8 Maintenance and Servicing of Installations and Equipment.
6. The Department of Education and Science should assess the need for high-risk wood working machines within schools.
7. Schools should ensure that the machines are not accessible to unauthorised users e.g. unsupervised students, cleaners and visitors. This may be accomplished by isolating the power supply to the machines, locking the classroom etc.
8. The use of the circular saw and planer thicknessing machines by teachers, while students are in the workshop should be prohibited. This includes machines located in adjacent rooms/preparation areas. However given the current arrangements in place for technology teachers this may not be achievable immediately. A working group consisting of the Department of Education and Science and relevant education partners should be established to determine the arrangements required in schools to allow this recommendation to be implemented in as short a time frame as possible. In the interim, control measures should be put in place to reduce the risk to as low a level as is possible in the circumstances. A thorough risk assessment should be carried out to determine these control measures e.g. supervision, guarding, location, warnings etc.
9. All preparatory work involving the use of circular saw and planer thicknessing machines should be completed before class.
10. Schools should consider purchasing pre-cut/pre-prepared materials, to be used where possible to reduce the amount of machining.

11. Students should be prohibited from using the following machines:

Junior Cycle:	Senior Cycle:
Circular Saw*	Circular Saw*
Planer Thicknessing machine*	Planer Thicknessing machine*
Grinder	Grinder
Polisher	Polisher
Portable Router	

* These machines must be locked out when not in use

12. It is recognised that some students will have varying abilities. Teachers should carry out an individual risk assessment in order to manage the use of machines by students at their varying developmental stages e.g. band saw for junior cycle. Factors to consider include: maturity/experience of the student, curriculum requirements, student behaviour etc.

4.7 Exposures to Environmental Hazards

Environmental hazards in this report refer to noise, dust and fumes as encountered in technology workshops.

4.7.1 Noise

The provisions of the European Communities (Protection of Workers) Exposure to Noise Regulations, 1990, apply to all work places where noise may present a hazard. These regulations require workplaces, including schools, to assess the noise levels and where the daily exposure is above the action levels 85 dB(A) and 90 dB(A), to implement control measures. It is important to note that new legislation is pending which will reduce the action levels to 80 dB(A) and 85 dB(A). The daily personal noise exposure is an average noise exposure that a person receives over an eight-hour period.

Figure 8, outlines the number of questionnaire schools who have completed noise surveys.

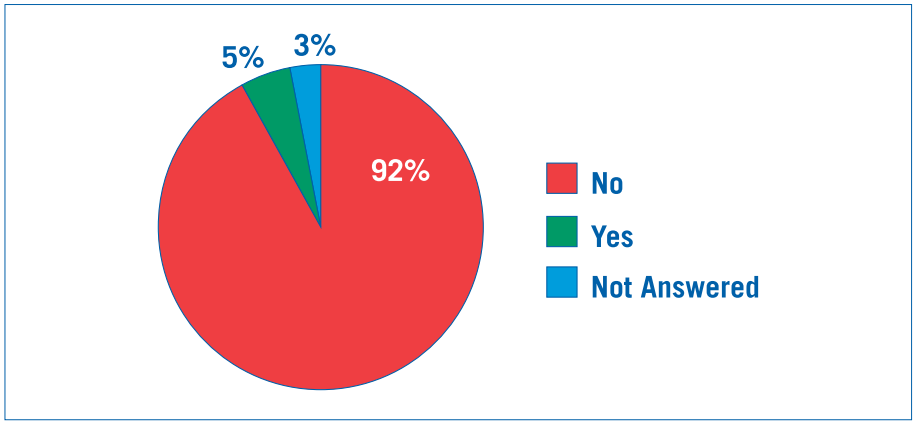


Figure 8. Number of Schools which have completed noise surveys

As part of the risk review, a programme was put in place to carry out noise sampling in a selection of technology workshops. Noise levels were taken during the machining of various types of wood, plastic and metal. Instantaneous sound levels for various types of machines for the duration of an activity e.g. cutting a piece of perspex or hardwood, sanding etc. were measured. The results indicated a difference in noise exposure on similar machines.

Obviously, in most work environments there are situations where very high noise levels are experienced for short durations during the day. However, critical to the protection of hearing is the noise dose experienced by a person averaged over the day. Unlike in many industrial environments technology teachers do not have a typical daily noise exposure. Some days will consist of teaching theory with a relatively low noise dose whereas others may be spent carrying out practical work with an associated higher noise dose.

A worst-case scenario for exposure in one day was postulated and a daily noise dose calculated. Even in this worst-case scenario the daily noise dose was below the action levels as set out in legislation. This limited study indicated that noise is not a significant risk in typical technology class environments.

The legislation requires employers, in this case School Management Authorities, to assess the risk from the noise hazard. As outlined above, this is difficult in schools because of the intermittent nature of the noisy activities throughout the academic year. As such, it is very difficult to accurately measure noise exposure to teachers over a period of time using standard methodologies.

The study that was carried out indicated that further data on exposure to noise in Irish Post-primary schools is required. This would involve taking a sample of schools and logging their activities and their associated noise levels over an academic year.

4.7.2 Wood Dust

The Safety, Health and Welfare at Work (Chemical Agents) Regulations, 2001 requires schools to assess the risk of any chemical agent including wood dust, used at a place of work.

The associated 2002 Code of Practice for the Safety, Health and Welfare at Work (Chemical Agents) Regulations, sets out Occupational Exposure Limit Values (OELV) for a large number of substances, which may be used in the workplace. An OELV is the maximum permissible concentration of an airborne contamination (e.g. dust) a person may be exposed to in a given period. Schools must ensure that the exposure levels of wood dust do not exceed the OELV and that it is kept as far as is reasonably practicable below these levels. Where carcinogens are involved there is a further requirement under the Safety, Health and Welfare at Work (Carcinogens) Regulations, 2001 to reduce exposure to as low a level as is technically possible.

Hardwoods (e.g. mahogany, teak and ash), softwoods (e.g. pine board), MDF and other manufactured boards were all in use. However a number of teachers indicated that they have reduced the use of MDF based on their perception of the health risks associated with its use. These materials have a carcinogenic classification as follows: -

- Soft woods – non carcinogenic,
- Hardwood – carcinogenic,
- MDF (not containing hardwood particles) –is a suspected carcinogen due to its formaldehyde content,
- MDF (containing hardwood particles) – carcinogenic.

Given the potential exposure to teachers and students the recommended option would be to avoid the use of hardwoods and MDF with a view to phasing them out completely.

Figure 9. outlines the number of questionnaire schools who have completed dust surveys.

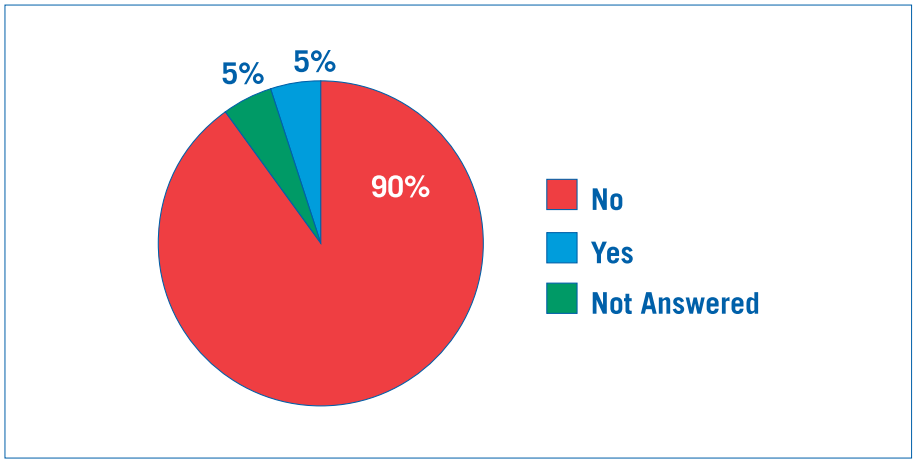


Figure 9. Percentage of schools that have completed dust surveys.

Eleven of the 16 field survey schools did not have the appropriate extraction system. In 2001, the Department of Education and Science introduced a scheme, which allowed schools to apply for funding for the installation of extraction systems for various woodworking machines. This is outlined in Circular M45/01 Wood Dust Extraction in Second Level Schools, see Appendix XII. In a small number of cases the schools indicated that they have applied for funding under the scheme and were waiting for Department of Education and Science notification to tender. However generally it appears as though this scheme is not being fully availed of. It is difficult to ascertain the main reason for this however factors that may contribute include:

- Lack of awareness of the scheme
- Delays on the part of the School Management Authority to avail of the scheme

- Delays by the Department of Education and Science in processing applications
- A lengthy tendering process.

Extraction systems that had been installed were assessed in a sample of five schools. In all cases assessed there was no maintenance programme in place and the systems were found to be operating below design capacity. The standard and quality of the configuration of ducting varied. Poor connections to machines and leaking pipe work was common. This arose in particular where the extraction system was connected to old machines that did not have the appropriate extraction points. The capture velocity and efficiency of the dust extraction system in these cases are greatly reduced.

Wood dust was measured in five schools where exposure was likely. All levels measured were found to be low and of short duration. Results were found to be well below the occupational exposure limit value, even when calculated for a worst-case scenario i.e. exposed for 8 hours per day.

Exposure to students is well below the occupational exposure found for teachers as students are not exposed for the same length of time as teachers.

4.7.3 Welding & Soldering

The amount of hot work carried out varies from school to school. Given the small amount of hot work carried out by teachers at the five sample schools the exposure levels were very unlikely to be exceeded

During hot work activities, additional control measures will be necessary. Most of the ventilation systems were poorly designed. Where possible some teachers carry out hot work outside providing natural ventilation.

Recommendations

1. The Department of Education and Science, in conjunction with the State Claims Agency and other interested parties, should consider carrying out a detailed analysis of the exposure of technology teachers to environmental hazards. This would provide a benchmark against which all schools can carry out a risk assessment.
2. All schools must complete a preliminary risk assessment on the environmental hazards. Where on completion of this assessment, the environmental hazards are assessed as a potentially significant risk; further assessments must be completed by measuring the levels of exposure.
3. Equipment and machinery must be in good working order otherwise they may contribute to the dust or noise level e.g. loose mechanical parts or panels, worn or defective components.

Schools should implement a formal programme of preventative maintenance for all machines (see Section 4.8 Maintenance and Servicing of Installations and Equipment).

4. The Department of Education and Science or School Management Authority must ensure that the noise emitted by new/replacement equipment will not significantly increase the noise levels in a workshop. When purchasing machines a noise specification must be included at the tendering stage (see Section 4.6. Machinery Safety, Recommendation No. 2).
5. Schools should consider the wearing of hearing protection by teachers when preparing materials for class. This must be indicated on or adjacent to the machines using the appropriate safety signage. For hearing protection specifications see Section 4.14. Personal Protective Equipment.
6. The use of hardwoods and MDF should be phased out. This may be achieved by substituting hardwoods and MDF with softwoods or other manufactured boards. In the interim, the appropriate controls must be implemented e.g. LEV, personal protective equipment etc.
7. The Department of Education and Science should re-issue Circular M45/01: Wood Dust Extraction Systems in Post-primary Schools.
8. The Department of Education and Science should consider carrying out a tendering process to identify a suitable number of suppliers, who will be preferred providers, of the local exhaust ventilation systems. The tendering process should ensure that local exhaust ventilation is provided which will meet all appropriate technical standards. An established list of suppliers should also reduce the time scale between the school's request and the installation and commissioning of the local exhaust system.
9. The Department of Education and Science should only sanction payment for LEV on receipt of a certificate from a competent assessor, which confirms that the LEV is working appropriately e.g. providing sufficient capture velocity for the particles being extracted.
10. Respiratory protective equipment (RPE) should be worn during the changing of filters and bags from the dust extraction units. For respiratory protection specification see Section 4.14 Personal Protective Equipment.
11. Schools should consider purchasing pre-cut/pre-prepared materials, to be used where possible to reduce the amount of machining. This has multiple benefits in reducing teacher's exposure to noise and dust (see Section 4.6. Machinery Safety and Section 4.10. Manual Handling).

12. Exposure of students to environmental hazards should be kept to a minimum (see Section 4.6 Machinery Safety, Recommendation No. 9)

4.8 Maintenance and Servicing of Installations and Equipment

Section 8 of the Safety, Health & Welfare at Work Act, 2005 places a duty on employers to ensure the design, provision and maintenance of plant and machinery or any other articles are, so far as is reasonably practicable, safe and without risk to health (previously required in Section 6 of the Safety, Health and Welfare at Work Act, 1989). In addition the Safety, Health and Welfare at Work (General Applications) Regulations, 1993 Part IV - Use of Work Equipment, requires the employer to take the measures necessary to ensure that throughout its working life equipment is maintained so that it complies with the relevant legislation and/or technical standards.

The questionnaire and field surveys examined arrangements for the servicing and maintenance of various fixed service installations, machinery, portable power-tools and hand-held electrical equipment. The findings of the questionnaire survey indicated that approximately 10% of the schools had a preventative maintenance programme in place. The remaining schools provided maintenance on a reactive basis i.e. in response to breakdown only.

External contractors carry out the majority of this reactive maintenance/servicing. However, in the field survey schools this maintenance of equipment did not appear to focus on the machinery guarding arrangements, as many machines despite being recently maintained were still missing basic safe guards.

Recommendations

1. Schools should implement a preventative maintenance and service programme for their fixed service installations, machinery and equipment. A schedule of recommended maintenance for the various types of installations and machinery is set out in Table 9. Fire Safety Installations and Table 10. Workshop Machinery and Equipment. It should be noted that a significant amount of maintenance and servicing can be carried out by school staff provided they are given basic instructions (see Section 4.6. Machinery Safety, Recommendations No. 4 and No. 5). Where schools are in doubt about the maintenance and servicing required for a particular machine or installation they should seek the manufacturers' or installers' advices.

Table 9. Fire Safety Installations

All maintenance and servicing should be completed in compliance with the relevant legislation and manufacturer's instructions.

Item	Internal Staff	External contractors	Relevant Legislation/Standard
Fire Detection	Daily • Check to ensure panel indicates normal operation. Faults should be recorded in a logbook. Ensure any previous faults have received attention. Weekly • The alarm should be sounded to ensure sounders are operational. • If the battery connections are open or accessible then a visible examination of the battery and its connections to ensure they are in good condition should be completed. The fuel oil and coolant levels of any standby generators should be checked and topped up where required. • If applicable any printer (located on the fire alarm panel) should be checked to ensure that its reserve of paper ink or ribbon are adequate for at least 2 weeks normal usage.	Quarterly	I.S. 3218: 1989 Code of Practice for Fire Detection and Alarm Systems for Buildings.
Emergency Lighting	Weekly • Check to ensure that the control or indicating panel shows normal operation. Faults should be recorded in a logbook. Confirm that all previous faults have received attention. • Ensure that all maintained lights and the LED (this is a small red indicator light located at the side/bottom of emergency lights to indicate that the battery is functioning) are illuminated.	Quarterly	I.S. 3217: 1989 Code of Practice for Emergency Lighting
Fire Extinguishers	Monthly visual inspection to ensure • all pins and seals are in place; • the gauge shows full charge i.e. is in the green 'full zone'; • the equipment is mounted, serviced, accessible and undamaged.	Annually	I. S. 291: 2002 The Use, Siting, Inspection and Maintenance of Portable Fire Extinguishers

Table 10 Workshop Machinery and Equipment

Item	Internal Staff	External contractors	Relevant Legislation/Standard
Machinery	Before use check to ensure that • all guards and covers are in place • there are no visible faults on the machine • all fixed tools are secured properly • all sockets, plugs and cables free from damage • there are no signs of non-standard joints or over heating • there are no exposed wires showing on entry to plug or equipment Faults should be recorded in a logbook. Ensure any previous faults have received attention.	Annually	In compliance with the Manufacturer's Instructions
Portable Power Tools	Before use check to ensure that • all guards and covers are in place • there are no visible faults on the machine • all sockets, plugs and cables free from damage • there are no signs of non-standard joints or over heating • there are no exposed wires showing on entry to plug or equipment Faults should be recorded in a logbook. Ensure any previous faults have received attention.	Annually	BS 4163:2000 (H&S for design and technology in schools and similar establishments – code of practice)
Hand Tools	Check once per term to ensure tools are free from damage		BS 4163:2000 (H&S for design and technology in schools and similar establishments – code of practice)
Hot Work Equipment	Before use	Annually	Ref to HSG 118, Electrical Safety in Arc Welding
Compressed air		Annually	Health and Safety Authority recommend an annual service by a competent person.
Local Extraction Ventilation	Minimum once per term check on filters	14 months	BS 4163:2000 (H&S for design and technology in schools and similar establishments – code of practice)
Electricity	Quarterly test of Residual Current Devices (RCD's)	Every 5 years	ETCI 'National Rules for Electrical Installation'
Gas		Annually	Gas Safety (Installation & Use) Regulations, 1998 (UK)

4.9 Housekeeping

Housekeeping may be defined as the state of the workplace with regard to:

- Organisation – orderly and structured placement and storage of equipment
- Obstructions – lack of trip hazards such as off cuts, lack of clutter, clear access to workstations, equipment, and exits etc.
- Cleanliness.

The standard of housekeeping varied from workshop to workshop. Formal procedures were not in place to review housekeeping.

During the field survey, settled and accumulated dust was evident in a number of workshops. This was due to inadequate capture velocity, broken or badly designed LEV and poor housekeeping. It was also noted that the practice of dry sweeping was being carried out by students, which leads to unnecessary exposure to secondary dust.

Recommendations

1. A formal monthly inspection should be carried out, which will include occupational health and safety housekeeping issues such as obstructions of emergency exits, passageways, and safe operating areas, storage arrangements, waste removal etc. See Appendix X, Examples of Reports used to Monitor Occupational Health and Safety, for a sample inspection form for teachers of the technologies.
2. A scheduled cleaning programme should be implemented. This should include wet sweeping or vacuuming accumulated and settled dust from all surfaces. Dry sweeping should be strictly prohibited.

4.10 Manual Handling

The Safety, Health and Welfare at Work (General Application) Regulations 1993 require employers to provide manual handling training for employees who are involved in the manual handling of loads. Approximately 20% of teachers of the technologies surveyed had received manual handling training.

Manual handling training was not being provided to students in any of the survey schools. The size and shape of projects vary from school to school but some included large pieces of furniture or metal gates, benches etc. Students involved in these types of projects are exposed to a risk of injury from the manual handling of loads.

A number of teachers in the field survey schools indicated that their solution to handling large sized raw materials was to order them pre-cut/pre-prepared. Pre-cut wood also limits any additional requirements to prepare such pieces of wood for class, reducing machining time and associated risks.

Recommendations

1. Teachers of the technologies should be provided with manual handling training. This training must be completed by a competent person i.e. an individual who has completed a manual handling instructor's course. Refresher training in manual handling must be provided every three years.
2. Consideration should be given to providing manual-handling training to students also. Two approaches are suggested:

a. Manual handling training is provided as part of the curriculum on the basis that it is a life skill and to engender a positive safety culture. If this approach is adopted manual handling training would be provided once at Junior level and once at Senior cycle level to all students of the technologies as part of the subject curriculum. As for teachers above this training must be provided by a competent person.

b. Manual handling training is provided based on an assessment of the risk. Some senior cycle students depending on their project may need to engage in the handling of significant loads and therefore should be provided with the appropriate instruction, training and supervision. Teachers should carry out a risk assessment of all students of the technologies and decide which individuals need manual handling training.

3. Schools should consider purchasing pre-cut/pre-prepared materials, to be used, where possible to reduce the amount of manual handling.

4.11 Project Size

The physical size of projects varied considerably from school to school and workshop to workshop, ranging from desktop pieces to gates, benches, boats, etc. The State Examinations Commission prescribes or restricts project size for many examinations but in some instances no limits are stipulated. Construction Studies is a particular case in point.

Large sized projects compromise the space available within the workshop, increase machining time (particularly on the higher risk machines, circular saw and/or planner thicknesser), create storage difficulties and increase the manual handling risk.

Recommendations

1. Teachers of the technologies must carry out a risk assessment of project work to determine how it will impact on the safe operation and functioning of the workshops throughout the academic year. Project work, which would have unacceptable health and safety risks, should not be undertaken.
2. The State Examinations Commission should provide guidelines to teachers to control the size of projects that are allowed for State Examination purposes.

4.12 Lighting

Lighting levels were not measured as part of this risk review. In certain areas, it is possible, that lighting levels are below those required, for work of the type being carried out. This was particularly true of the Construction Studies /Materials Technology (Wood) workshops. Dust generation in these areas can reduce the efficacy of luminaries and thereby reduce the level of lighting emitted. Lighting affects safety, task performance and the visual environment by changing the extent and the manner in which different elements of the workshop are revealed.

Recommendations

1. In accordance with legal requirements light level surveys should be carried out in and around all workshops. Where required areas must be brought in line with the luminous levels as set out in the CIBSE (The Chartered Institute of Building Services Engineers) Code for Lighting /Health & Safety Executive guidelines. The CIBSE Code for lighting recommends that lighting levels in preparation areas and workshops (educational buildings) should be 500 lux.
3. A good cleaning and maintenance schedule for lighting fixtures and fittings should be incorporated into annual maintenance programmes. The monthly inspection, as recommended in Section 4.9 Housekeeping, should include a check on light fixtures and fittings to ensure that they are all functioning e.g. replace flickered, dimmed, discoloured, blown bulbs etc.

4.13 Signage

The standard of warning and instructional signage varied from workshop to workshop. Most workshops displayed the basic minimum signage for means of escape, PPE (Personal Protective Equipment), etc.

Safety signage should impart information in a standardised format on an on-going basis. This method of warning provides instant guidance and instruction to all users of the workshops. It also plays an important part in ensuring that schools fulfil their civil and statutory requirement of ensuring adequate information and instruction.

Recommendations

1. Schools should review the safety signage arrangements in their technology workshops.
2. The general safety rules for each workshop should be prominently displayed.
3. The main safe operating procedures and control measures for each of the machines should be prominently displayed.

4.14 Personal Protective Equipment (PPE)

The Safety, Health and Welfare at Work (General Application) Regulations 1993 requires schools, to provide personal protective equipment e.g. ear, eye, hand protection, where risks to safety or health cannot be avoided or sufficiently limited by other means. Personal Protective equipment was available in all of the workshops surveyed.

The PPE available varied considerably from workshop to workshop. Some of the equipment in use did not comply with the appropriate E.U. standards.

In the field survey, it was noted that students shared Personal Protective Equipment. This is not acceptable because of the associated hygiene issues and it may also limit the level of protection offered, as the equipment may not be suitable for that particular individual.

The selection of the PPE was generally the responsibility of the teacher and many expressed the view that they did not have the necessary knowledge to enable them to make the appropriate selection.

Recommendations

1. Each school must carry out an assessment of the PPE requirements for students and teachers and develop a standardised list of PPE, which complies with the appropriate standards. See Section 4.7. Exposure to Environmental Hazards. A guideline for typical PPE requirements in a school together with suggested specifications is set out in Table 11.
2. The Department of Education and Science should consider including a range of specifications for typical PPE on the Equipment Lists.

3. Where required, teachers should be provided by the school with their own full set of PPE.
4. Students should be required to provide their own safety goggles/glasses to the appropriate standard. Students who have been assessed as requiring manual handling training should also have to provide their own safety footwear. Hand protection could be disposable or in the case of hot work, glove liners could be provided. PPE suppliers will be in a position to advise on practical and cost effective solutions to school needs.
5. Where assessed as required, the wearing of PPE must be strictly enforced.

Table 11. Specification for Personal Protective Equipment

The following table sets out recommended specifications for teacher's PPE requirements based on the Occupational Hygiene monitoring carried out during the review. See Section 4.7 Exposure to Environmental Hazards.

Type of PPE	PPE Specification
Respiratory Protective Equipment	EN 149 FFP3 - Disposable Respirator Filter to EN 143-P3 fitted to either a half mask to EN 140 or a full-face mask to EN 136 - Re-Usable Respirator
Eye Protection	BS EN 166:2002 Personal eye-protection BS EN 175-1997 Personal protection. Equipment for eye and face protection during welding and allied process.
Hearing Protection	EN352-1, SNR30dB – Ear Muffs EN352-1, SNR32dB – Ear Muffs EN352-2, SNR30dB - Ear plugs EN352-2, SNR32dB - Ear plugs

4.15 First Aid

Trained/certified first aiders were available in most schools. Well-stocked first aid kits were available in the majority of the surveyed workshops.

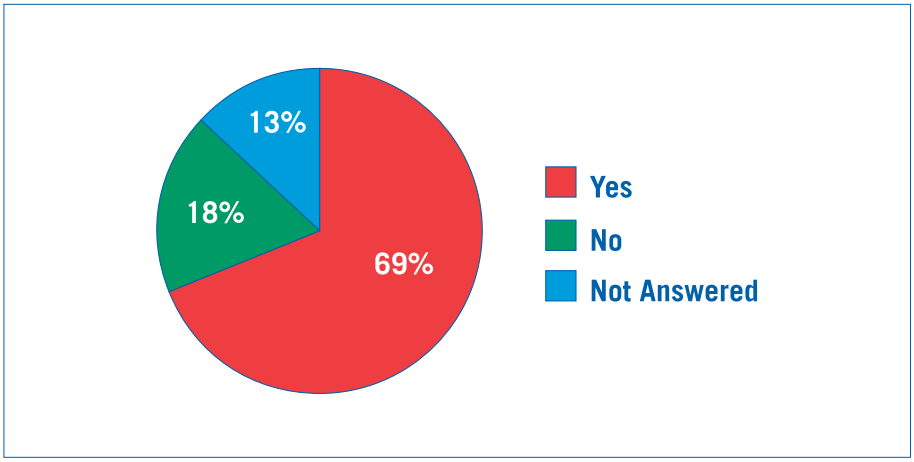


Figure 10. Percentage of questionnaire schools which have first aiders

Recommendations

1. School Management Authorities must assess the extent to which first aid is required, taking into consideration the hazards and risks, the size of the school, the distribution of the workforce and students and the distance from various emergency services.
2. First aiders should be provided with the appropriate training by the school and receive refresher training every 3 years.
3. In areas of higher risks such as the technologies, schools should endeavour to have these teachers trained in first aid.
4. The named first aider/s and the location of first aid kits should be contained in the safety statement and be clearly displayed through out the school.

Appendices

Appendix I

Review Questionnaire

State Claims Agency

Review Questionnaire

Occupational Health & Safety Review of the Technologies 2004

By the State Claims Agency in association with
The Department of Education & Science

AN ROINN OIDEACHAIS AGUS EOLAÍOCHTA | DEPARTMENT OF EDUCATION AND SCIENCE

Guidelines for completion of the Questionnaire:

- This questionnaire only applies to Technology Rooms, which for the purpose of this review are:
  - Metalwork/Engineering
  - Materials Technology (Wood)/Construction Studies
  - Technology

<u>It does not include any workshops that are used in the maintenance and upkeep of the school.</u>

- The questionnaire should be completed by the Principal, in association with the teachers of the Technologies.

- Please complete all sections, 1-17, and where not applicable, please mark 'N.A.'.

- Where there is insufficient space to allow you to provide the information you require, you may provide an additional submission.

1. General School Information

Name of School:	
Address Of School:	
Telephone Numbers:	
Email Address:	
School Roll Number:	
Questionnaire Completed By:	
Signed:	
Job Title(s):	
Date	

Please return completed questionnaire by May 28th 2004 to Risk Management Unit, State Claims Agency, Treasury Building, Grand Canal Street, Dublin 2

2. School Location (please 'X' the most appropriate box)

Urban	
Semi-Rural	
Rural	

Is the school in a designated area of disadvantage? Yes ☐ No ☐

3. Number of students in the School

	Number
Male	
Female	
Total	

4. Number of Workshops for the Technologies

	Number of Rooms	Approx. Year of Construction
Metalwork/Engineering		
Materials Technology (Wood)/Construction Studies		
Technology		

5. Number of students taking the Technologies

	Junior Cycle	Senior Cycle
Metalwork/Engineering		
Materials Technology (Wood)/Construction Studies		
Technology		

6. Teachers of the Technologies, their qualifications and training

Subject(s) taught	Teacher No.	Core Teaching Qualification (e.g. B.Tech (Ed) etc.)	Additional Health & Safety Training and Qualifications	Have teachers been trained in Manual Handling? Yes	No
Materials Technology (Wood)/Construction Studies	1.				
Materials Technology (Wood)/Construction Studies	2.				
Materials Technology (Wood)/Construction Studies	3.				
Materials Technology (Wood)/Construction Studies	4.				
Metalwork/Engineering	1.				
Metalwork/Engineering	2.				
Metalwork/Engineering	3.				
Metalwork/Engineering	4.				
Technology	1.				
Technology	2.				
Technology	3.				

7. Safety Policy

	Yes	No	Comment
1. Does the school have a Safety Statement?			
2. Has a copy of the Safety Statement been issued to all staff?			
3. Have the staff signed for receipt of the Safety Statement?			
4. Does the school operate an accident reporting system supported by the use of accident report forms?			

8. Fire Safety

	Yes	No	Comment
1. Is there an automatic fire detection and alarm system in place?			
2. Are there fire hose reels and/or fire extinguishers in place?			
3. Is there an emergency lighting system in place?			
4. Are fire drills carried out?			
How many per year?			

5. Who services fire equipment and how often?	Internal Contractor	External Contractor	How often?
Fire extinguishers			
Fire hose reels			
Fire detection and alarm system			
Emergency lighting			

9. General Servicing & Maintenance

	How often are these serviced/ maintained e.g. quarterly, annually, only in the event of breakdown etc.	Who services/maintains this equipment?		Are records of service retained?	
		Internal Contractor	External Contractor	Yes	No
Hand held electrical equipment such as drills, routers etc					
Electrical installation					
Dust Extraction					
Other Local Exhaust Ventilation					
Gas Installations					
Compressed Air					
Other (please specify)					

10. Personal Protective Equipment (P.P.E.) provided for teachers of the Technologies (please 'X' where appropriate)

P.P.E.	Yes	No	Personal Issue	Shared
Safety Goggles/Glasses (for machining)				
Overalls/Machine shop coat/ Aprons				
General purpose dust mask				
Hearing Protection (Ear muffs/ear plugs)				
Safety Footwear				

11. Personal Protective Equipment (P.P.E.) provided for students of the Technologies (please 'X' where appropriate)

P.P.E.	Yes	No	Personal Issue	Shared
Safety Goggles/Glasses (for machining)				
Overalls/Machine shop coat/ Aprons				
General purpose dust mask				
Hearing Protection (Ear muffs/ear plugs)				

12. Supervision

Is there any workshop machinery that students are prohibited from using?

Junior cycle	
Senior cycle	

13. Metalwork/Engineering Machines

Machine Type	Age of Machine	CE Marking		How often are the machines serviced/maintained? e.g. quarterly, annually, in the event of breakdown etc.	Who services/maintains the machines?		Are records of service retained?	
		Yes	No		Internal Contractor	External Contractor	Yes	No
Centre Lathes								
Milling Machine								
Drilling Machines								
Power Saw								
Grinding Machine								
Polishing Machine								
Welder								
Forge								
Brazing Hearth								
Other (please specify)								

14. Technology Machines – (machines used for the teaching of the subject Technology)

Machine Type	Age of Machine	CE Marking		How often are the machines serviced/maintained? e.g. quarterly, annually, in the event of breakdown etc.	Who services/maintains the machines?		Are records of service retained?	
		Yes	No		Internal Contractor	External Contractor	Yes	No
Circular Saw								
Planer Thicknesser								
Band saw								
Lathe (wood)								
Lathe (metal)								
Other (please specify)								

15. Materials Technology (Wood)/Construction Studies Machines

Machine Type	Age of Machine	CE Marking		How often are the machines serviced/maintained? e.g. quarterly, annually, in the event of breakdown etc.	Who services/maintains the machines?		Are records of service retained?	
		Yes	No		Internal Contractor	External Contractor	Yes	No
Circular Saw								
Planer Thicknesser								
Band saw								
Sander								
Drilling Machine								
Lathe								
Morticer								
Sharpening Machine								
Other (please specify)								

16. Occupational Health (please 'X' where appropriate)

	Hardwoods	Softwoods	M.D.F.	Other Manufactured Boards
1. What woods are used in Materials Technology (wood)/ Construction Studies and Technology?				
	Yes		No	
2. Have wood dust levels been measured?				
3. Have noise levels been measured?				
4. Do you have certified first aiders on staff?				
5. How many teachers of the technologies are first aiders?				

17. General issues (please answer YES/ NO/ Not applicable (N.A.))

	Metalwork/Engineering	Materials Technology (Wood)/ Construction Studies	Technology
1. Is there a separate material preparation area?			
2. Can the workshop be viewed from this area?			
3. Can a key operated isolation switch in the control of the teacher isolate the electrical supply for each of the following rooms?			
4. Where there is a gas supply, can the gas supply be isolated within the room?			
5. Are all electrical sockets protected by residual current devices (RCDs)?			

Appendix II

Audit Checklists

State Claims Agency

Audit Checklist

Metalwork/Engineering

School Name:_____

Occupational Health & Safety Review of the Technologies 2004

By the State Claims Agency with
The Department of Education & Science

AN ROINN OIDEACHAIS AGUS EOLAÍOCHTA | DEPARTMENT OF EDUCATION AND SCIENCE

Machinery/process	Risk	Yes	No	Comment
Centre Lathe Number:	CE marking? Drive mechanism guarded? Chuck properly guarded & interlocked? Hollow spindle adequately guarded? Braking/run down time (< 10 seconds)? Inadvertent restarting prevented? Appropriate stop/start controls? Electrical isolation (E. Stop)? Directly wired to power source? Securely fixed to the floor? Location/Space appropriate?			

Machinery/process	Risk	Yes	No	Comment
Milling Machine Number:	CE marking? Drive mechanism guarded? Cutters & cutting area guarded? Braking/Run down time (< 10 seconds)? Inadvertent restarting prevented? Appropriate stop/start controls? Electrical isolation (E. Stop)? Can work be securely fixed in place? Directly wired to power source? Securely fixed to the floor? Location/Space > 500mm?			

Machinery/process	Risk	Yes	No	Comment
Power Saw/ Sawing Machine Number:	CE marking? Drive mechanism guarded? Inadvertent restarting prevented Appropriate stop/start controls? Electrical isolation (E. Stop)? Auto-knock-off switch fitted? Can work be securely fixed in place? Directly wired to power source? Securely fixed to the floor? Location/Space > 500mm?			

Machinery/process	Risk	Yes	No	Comment
Grinding Machine/ Abrasive Wheel Number:	CE marking? Guarding of wheels and spindles? Eye shields appropriate and in place? Inadvertent restarting prevented? Appropriate stop/start controls? Electrical isolation (E. Stop)? Securely fixed (floor or bench)? Directly wired to power source? Are work rests fitted, with a gap < 3mm between the edge of the work rest and the wheel? Is the maximum speed of spindle clearly marked on the machine? Is there an appropriate warning and information notice? Location/Space appropriate?			

Machinery/process	Risk	Yes	No	Comment
Bandsaw Number:	CE marking? Top blade guide in place and adjusted? Top blade guard in place? Braking time (< 10 seconds)? Inadvertent restarting prevented? Appropriate stop/start controls? Electrical isolation (E. Stop)? Securely fixed to the floor? Directly wired to power source? Can work be securely fixed? Location/Space appropriate? Extraction provided?			

Machinery/process	Risk	Yes	No	Comment
Polishing Machine Number:	CE marking? Drive mechanism guarded? Brush or mops and associated spindles guarded? Are eye shields appropriate and in place? Appropriate stop/start controls? Electrical isolation (E. Stop)? Inadvertent restarting prevented? Securely fixed to the floor/bench? Directly wired to power source? Location/Space appropriate?			

Machinery/process	Risk	Yes	No	Comment
Pedestal Drill Number:	CE marking? Drive mechanism guarded? Is the chuck guarded? Spindle and drill tip appropriately guarded? Inadvertent restarting prevented? Appropriate stop/start controls? Electrical isolation (E. Stop)? Securely fixed to the floor? Can work be securely fixed? Directly wired to power source? Location/Space appropriate?			

Machinery/process	Risk	Yes	No	Comment
Guillotine Number:	CE marking? Appropriate guarding provided? Securely fixed (floor or bench)? Location/Space appropriate? Can operating handle be removed when not in use?			
Shears Number:	Approximate length of handle? Condition of the shears?			

Machinery/process	Risk	Yes	No	Comment
Welding	Suitable location? PPE and screen provided? Oxyacetylene cylinders adequately stored?			
Portable Electric Tools	Good general condition? 110V tools used?			

Machinery/process	Risk	Yes	No	Comment
Hot work • Appropriate equipment • Condition of equipment • Appropriate PPE	Forging Dip coating Enamelling Casting Soldering Brazing			

Machinery/process	Risk	Yes	No	Comment
Other Machines/ Equipment				

Fire Safety

Question	Yes	No	Comment
1. Is the designated means of escape adequate?			
2. Are fire exits free from obstruction?			
3. Are there maintained exit routes?			
4. Check for alarm system, fire extinguishers/fire hose reels, emergency lighting?			
5. Does spray painting take place, if so where & give details			
Comment:			

Stores/Room Layout

Question	Yes	No	Comment
1. Is there a dedicated store available?			
2. Does the store provide sufficient space?			
3. Is racking provided?			
4. Is the store well laid out?			
5. Is there good access & egress from the store for the delivery & handling of materials?			
6. Is there a separate preparation area?			
7. Can the workshop be viewed from this area?			
8. When is material for classes prepared?			

Housekeeping

Question	Yes	No	Comment
What is the physical condition of the rooms?			
Are floor surfaces in good condition?			
Are there adequate storage areas within the room?			
What arrangements are in place for waste removal?			
Is there sufficient lighting?			
Is there appropriate Safety Signage in place?			

Personal Protective Equipment (P.P.E.) provided for teachers of the Technologies (please 'X' where appropriate)

P.P.E.	Yes	No	Personal Issue	Shared	Specification (s)
Safety Goggles/Glasses (for machining)					
Overalls/Machine shop coat/ Aprons					
General purpose dust mask					
Hearing Protection (Ear muffs/ ear plugs)					
Safety Footwear					
Other					

Personal Protective Equipment (P.P.E.) provided for students of the Technologies (please 'X' where appropriate)

P.P.E.	Yes	No	Personal Issue	Shared	Specification (s)
Safety Goggles/Glasses (for machining)					
Overalls/Machine shop coat/ Aprons					
General purpose dust mask					
Hearing Protection (Ear muffs/ ear plugs)					
Other					

Is the wearing of Personal Protective Equipment enforced, if so by whom?

Supervision

List any workshop machinery that students are prohibited from using?
1
2
3
4
Comments:

Maintenance & Servicing

Comments: - (Current system, Contractor, Competence, Serviceability Records)

What is the condition of the Hand tools, Benches & Vices?

Electrical/Gas Safety

Question	Comment
1. Can a key operated isolation switch in the control of the teacher isolate the electrical supply for this room?	
2. What electrical supply is available – 110volts/220volts/360volts	
3. What voltage are portable handheld tools?	
4. Are transformers in use?	
5. Are machines fixed and permanently wired in place?	
6. Are all electrical sockets protected by residual current devices (RCDs)?	
7. Where there is a gas supply, can the gas supply be isolated within the room?	
8. Where is the main gas isolator? (Should be just inside building)	
9. What type of heating is used? Oil/ Electrical/ Gas	
10. Are there any portable gas or electrical heaters present? Specify.	

General Workshop Observations

Question	Yes	No	Comment
1. Is there a first aid kit present, if so what does it contain?			
2. How did you decide on what to put into first aid kit/ is it off the shelf?			
3. Is there eyewash available?			
4. Rules of the Workshop • Jewellery • Hair • Clothing/ties • Food & Drink • Promotion of personal hygiene (Washing of hands, use of barrier creams etc)			

State Claims Agency

Audit Checklist

Technology

School Name:_____

Occupational Health & Safety Review of the Technologies 2004

By the State Claims Agency with
The Department of Education & Science

AN ROINN OIDEACHAIS AGUS EOLAÍOCHTA | DEPARTMENT OF EDUCATION AND SCIENCE

Machinery/process	Risk	Yes	No	Comment
Circular saw Number:	CE marking? Bottom guard in place? Top guard (Crown Guard) in place? Riving Knife (Securely fixed)? Riving K. (3-8mm from blade)? Riving K. (<25mm below blade)? Rip fence installed? Braking time (< 10 seconds)? Inadvertent restarting prevented? Appropriate stop/start controls? Electrical isolation (E. Stop)? Lock off mechanism in place? Securely fixed to the floor? Directly wired to power source? Location/Space appropriate? Extension table provided? Extraction provided?			

Machinery/process	Risk	Yes	No	Comment
Planer/Thicknesser Number:	CE marking? Bottom guard in place? Top guard (bridge guard) in place? Braking time (< 10 seconds)? Inadvertent restarting prevented? Appropriate stop/start controls? Electrical isolation (E. Stop)? Lock off mechanism in place? Securely fixed to the floor? Directly wired to power source? Location/Space appropriate? Extraction provided?			

Machinery/process	Risk	Yes	No	Comment
Bandsaw Number:	CE marking? Top blade guide in place and adjusted? Top blade guard in place? Braking time (< 10 seconds)? Inadvertent restarting prevented? Appropriate stop/start controls? Electrical isolation (E. Stop)? Securely fixed to the floor? Directly wired to power source? Can work be securely fixed? Location/Space appropriate? Extraction provided?			

Machinery/process	Risk	Yes	No	Comment
Sanding Machine Number:	CE marking? Drive mechanism guarded? Inadvertent restarting prevented? Appropriate stop/start controls? Electrical isolation (E. Stop)? Securely fixed (floor or bench)? Directly wired to power source? Are work rests fitted, with a gap < 3mm between the edge of the work rest and the wheel? Is the maximum speed of spindle clearly marked on the machine? Is there an appropriate warning and information notice? Location/Space appropriate? Extraction provided?			

Machinery/process	Risk	Yes	No	Comment
Pedestal Drill Number:	CE marking? Drive mechanism guarded? Is the chuck guarded? Spindle and drill tip appropriately guarded? Inadvertent restarting prevented? Appropriate stop/start controls? Electrical isolation (E. Stop)? Securely fixed to the floor? Can work be securely fixed? Directly wired to power source? Location/Space appropriate?			

Machinery/process	Risk	Yes	No	Comment
Wood Lathe Number:	CE marking? Drive mechanism guarded? Inadvertent restarting prevented? Appropriate stop/start controls? Electrical isolation (E. Stop)? Securely fixed (floor or bench)? Location/Space appropriate? Appropriate turning tools in available & in use? Directly wired to power source?			

Machinery/process	Risk	Yes	No	Comment
Scroll Saw Number:	CE marking? Is the blade appropriately guarded? Inadvertent restarting prevented? Appropriate stop/start controls? Securely fixed to bench? Directly wired to power source? Location/Space appropriate?			
Plastic strip heater Number:	Electrical isolator provided Or, if portable, Socket protected by RCD? Guarding of heater system?			

Machinery/process	Risk	Yes	No	Comment
Vacuum Former Number:	CE Marking? Electrical isolator provided Or, if portable, Socket protected by RCD? Guarding of heater system? Timer with audible warning device fitted?			
Portable Electric Tools Type:	Good general condition? 110V tools used?			

Machinery/process	Risk	Yes	No	Comment
Electronics	Soldering • Colophony-free flux used • LEV provided PCB production • Etching tanks protected • Appropriate PPE provided			
Other Machines/ Equipment				

Fire Safety

Question	Yes	No	Comment
1. Is the designated means of escape adequate?			
2. Are fire exits free from obstruction?			
3. Are there maintained exit routes?			
4. Check for alarm system, fire extinguishers/fire hose reels, emergency lighting?			
5. Does spray painting take place, if so where & give details			
Comment:			

Stores/Room Layout

Question	Yes	No	Comment
1. Is there a dedicated store available?			
2. Does the store provide sufficient space?			
3. Is racking provided?			
4. Is the store well laid out?			
5. Is there good access & egress from the store for the delivery & handling of materials?			
6. Is there a separate preparation area?			
7. Can the workshop be viewed from this area?			
8. When is material for classes prepared?			

Housekeeping

Question	Yes	No	Comment
What is the physical condition of the rooms?			
Are floor surfaces in good condition?			
Are there adequate storage areas within the room?			
What arrangements are in place for waste removal?			
Is there sufficient lighting?			
Is there appropriate Safety Signage in place?			

Personal Protective Equipment (P.P.E.) provided for teachers of the Technologies (please 'X' where appropriate)

P.P.E.	Yes	No	Personal Issue	Shared	Specification (s)
Safety Goggles/Glasses (for machining)					
Overalls/Machine shop coat/ Aprons					
General purpose dust mask					
Hearing Protection (Ear muffs/ ear plugs)					
Safety Footwear					
Other					

Personal Protective Equipment (P.P.E.) provided for students of the Technologies (please 'X' where appropriate)

P.P.E.	Yes	No	Personal Issue	Shared	Specification (s)
Safety Goggles/Glasses (for machining)					
Overalls/Machine shop coat/ Aprons					
General purpose dust mask					
Hearing Protection (Ear muffs/ ear plugs)					
Other					

Is the wearing of Personal Protective Equipment enforced, if so by whom?

Supervision

List any workshop machinery that students are prohibited from using?
1
2
3
4
Comments:

Maintenance & Servicing

Comments: - (Current system, Contractor, Competence, Serviceability Records)

What is the condition of the Hand tools, Benches & Vices?

Electrical/Gas Safety

Question	Comment
1. Can a key operated isolation switch in the control of the teacher isolate the electrical supply for this room?	
2. What electrical supply is available – 110volts/220volts/360volts	
3. What voltage are portable handheld tools?	
4. Are transformers in use?	
5. Are machines fixed and permanently wired in place?	
6. Are all electrical sockets protected by residual current devices (RCDs)?	
7. Where there is a gas supply, can the gas supply be isolated within the room?	
8. Where is the main gas isolator? (Should be just inside building)	
9. What type of heating is used? Oil/ Electrical/ Gas	
10. Are there any portable gas or electrical heaters present? Specify.	

General Workshop Observations

Question	Yes	No	Comment
1. Is there a first aid kit present, if so what does it contain?			
2. How did you decide on what to put into first aid kit/ is it off the shelf?			
3. Is there eyewash available?			
4. Rules of the Workshop • Jewellery • Hair • Clothing/ties • Food & Drink • Promotion of personal hygiene (Washing of hands, use of barrier creams etc)			

State Claims Agency

Audit Checklist

Materials Technology Wood/Construction Studies

School Name:_____

Occupational Health & Safety Review of the Technologies 2004

By the State Claims Agency with
The Department of Education & Science

AN ROINN OIDEACHAIS AGUS EOLAÍOCHTA | DEPARTMENT OF EDUCATION AND SCIENCE

Machinery/process	Risk	Yes	No	Comment
Circular saw Number:	CE marking? Bottom guard in place? Top guard (Crown Guard) in place? Riving Knife (Securely fixed)? Riving K. (3-8mm from blade)? Riving K. (<25mm below blade)? Rip fence installed? Braking time (< 10 seconds)? Inadvertent restarting prevented? Appropriate stop/start controls? Electrical isolation (E. Stop)? Lock off mechanism in place? Securely fixed to the floor? Directly wired to power source? Location/Space appropriate? Extension table provided? Extraction provided?			

Machinery/process	Risk	Yes	No	Comment
Planer/Thicknesser Number:	CE marking? Bottom guard in place? Top guard (bridge guard) in place? Braking time (< 10 seconds)? Inadvertent restarting prevented? Appropriate stop/start controls? Electrical isolation (E. Stop)? Lock off mechanism in place? Securely fixed to the floor? Directly wired to power source? Location/Space appropriate? Extraction provided?			

Machinery/process	Risk	Yes	No	Comment
Bandsaw Number:	CE marking? Top blade guide in place and adjusted? Top blade guard in place? Braking time (< 10 seconds)? Inadvertent restarting prevented? Appropriate stop/start controls? Electrical isolation (E. Stop)? Securely fixed to the floor? Directly wired to power source? Can work be securely fixed? Location/Space appropriate? Extraction provided?			

Machinery/process	Risk	Yes	No	Comment
Wood Lathe Number:	CE marking? Drive mechanism guarded? Inadvertent restarting prevented? Appropriate stop/start controls? Electrical isolation (E. Stop)? Securely fixed (floor or bench)? Location/Space appropriate? Appropriate turning tools in available & in use? Directly wired to power source?			

Machinery/process	Risk	Yes	No	Comment
Morticer Number:	CE marking? Drive mechanism guarded? Is the chuck appropriately guarded? Inadvertent restarting prevented? Appropriate stop/start controls? Securely fixed to the floor? Can work be securely fixed? Directly wired to power source? Location/Space appropriate?			

Machinery/process	Risk	Yes	No	Comment
Sanding Machine Number:	CE marking? Drive mechanism guarded? Inadvertent restarting prevented? Appropriate stop/start controls? Electrical isolation (E. Stop)? Securely fixed (floor or bench)? Directly wired to power source? Are work rests fitted, with a gap < 3mm between the edge of the work rest and the wheel? Is the maximum speed of spindle clearly marked on the machine? Is there an appropriate warning and information notice? Location/Space appropriate? Extraction provided?			

Machinery/process	Risk	Yes	No	Comment
Pedestal Drill Number:	CE marking? Drive mechanism guarded? Is the chuck guarded? Spindle and drill tip appropriately guarded? Inadvertent restarting prevented? Appropriate stop/start controls? Electrical isolation (E. Stop)? Securely fixed to the floor? Can work be securely fixed? Directly wired to power source? Location/Space appropriate?			

Machinery/process	Risk	Yes	No	Comment
Grinding Machine/ Abrasive Wheel Number:	CE marking? Guarding of wheels and spindles? Eye shields appropriate and in place? Inadvertent restarting prevented? Appropriate stop/start controls? Electrical isolation (E. Stop)? Securely fixed (floor or bench)? Directly wired to power source? Are work rests fitted, with a gap < 3mm between the edge of the work rest and the wheel? Is the maximum speed of spindle clearly marked on the machine? Is there an appropriate warning and information notice? Location/Space appropriate?			

Machinery/process	Risk	Yes	No	Comment
Portable Electric Tools Type:	Good general condition? 110V tools used?			
Other Machines/ Equipment				

Fire Safety

Question	Yes	No	Comment
1. Is the designated means of escape adequate?			
2. Are fire exits free from obstruction?			
3. Are there maintained exit routes?			
4. Check for alarm system, fire extinguishers/fire hose reels, emergency lighting?			
5. Does spray painting take place, if so where & give details			
Comment:			

Stores/Room Layout

Question	Yes	No	Comment
1. Is there a dedicated store available?			
2. Does the store provide sufficient space?			
3. Is racking provided?			
4. Is the store well laid out?			
5. Is there good access & egress from the store for the delivery & handling of materials?			
6. Is there a separate preparation area?			
7. Can the workshop be viewed from this area?			
8. When is material for classes prepared?			

Housekeeping

Question	Yes	No	Comment
What is the physical condition of the rooms?			
Are floor surfaces in good condition?			
Are there adequate storage areas within the room?			
What arrangements are in place for waste removal?			
Is there sufficient lighting?			
Is there appropriate Safety Signage in place?			

Personal Protective Equipment (P.P.E.) provided for teachers of the Technologies (please 'X' where appropriate)

P.P.E.	Yes	No	Personal Issue	Shared	Specification (s)
Safety Goggles/Glasses (for machining)					
Overalls/Machine shop coat/ Aprons					
General purpose dust mask					
Hearing Protection (Ear muffs/ ear plugs)					
Safety Footwear					
Other					

Personal Protective Equipment (P.P.E.) provided for students of the Technologies (please 'X' where appropriate)

P.P.E.	Yes	No	Personal Issue	Shared	Specification (s)
Safety Goggles/Glasses (for machining)					
Overalls/Machine shop coat/ Aprons					
General purpose dust mask					
Hearing Protection (Ear muffs/ ear plugs)					
Other					

Is the wearing of Personal Protective Equipment enforced, if so by whom?

Supervision

List any workshop machinery that students are prohibited from using?
1
2
3
4
Comments:

Maintenance & Servicing

Comments: - (Current system, Contractor, Competence, Serviceability Records)

What is the condition of the Hand tools, Benches & Vices?

Electrical/Gas Safety

Question	Comment
1. Can a key operated isolation switch in the control of the teacher isolate the electrical supply for this room?	
2. What electrical supply is available – 110volts/220volts/360volts	
3. What voltage are portable handheld tools?	
4. Are transformers in use?	
5. Are machines fixed and permanently wired in place?	
6. Are all electrical sockets protected by residual current devices (RCDs)?	
7. Where there is a gas supply, can the gas supply be isolated within the room?	
8. Where is the main gas isolator? (Should be just inside building)	
9. What type of heating is used? Oil/ Electrical/ Gas	
10. Are there any portable gas or electrical heaters present? Specify.	

General Workshop Observations

Question	Yes	No	Comment
1. Is there a first aid kit present, if so what does it contain?			
2. How did you decide on what to put into first aid kit/ is it off the shelf?			
3. Is there eyewash available?			
4. Rules of the Workshop • Jewellery • Hair • Clothing/ties • Food & Drink • Promotion of personal hygiene (Washing of hands, use of barrier creams etc)			

State Claims Agency

Audit Checklist

Management

School Name:_____

Occupational Health & Safety Review of the Technologies 2004

By the State Claims Agency with
The Department of Education & Science

AN ROINN OIDEACHAIS AGUS EOLAÍOCHTA | DEPARTMENT OF EDUCATION AND SCIENCE

1 General School Information

Name of School:

Address Of School:

Telephone Numbers:

Email Address:

School Roll Number:

Questionnaire Completed By:

Signed:

Job Title(s):

Date

2 School Location (please 'X' the most appropriate box)

Urban	
Semi-Rural	
Rural	
Is the school in a designated area of disadvantage?	Yes ☐ No ☐

3 Number of students in the School

	Number
Male	
Female	
Total	

4 Number of Workshops for the Technologies

	Number of Rooms	Approx. Year of Construction
Metalwork/Engineering		
Materials Technology (Wood)/ Construction Studies		
Technology		

Comment:

5 Number of students taking the Technologies

	Junior Cycle		Senior Cycle	
	No. of Classes	No. of Pupils per class	No. of Classes	No. of pupils per Class
Metalwork/Engineering				
Materials Technology (Wood)/ Construction Studies				
Technology				

6 Teachers of the Technologies, their qualifications and training

Subject(s) taught	Teacher No.	Core Teaching Qualification (e.g. B.Tech (Ed) etc.)	Additional Health & Safety Training and Qualifications e.g. First Aid, In-service training etc.
Materials Technology (Wood)/Construction Studies	1.		
Materials Technology (Wood)/Construction Studies	2.		
Materials Technology (Wood)/Construction Studies	3.		
Materials Technology (Wood)/Construction Studies	4.		
Metalwork/Engineering	1.		
Metalwork/Engineering	2.		
Metalwork/Engineering	3.		
Metalwork/Engineering	4.		
Technology	1.		
Technology	2.		
Technology	3.		

7 Teachers of the Technologies, their qualifications and training continued:

Question	Yes/No	Comment
1. Have the teachers been trained in Manual Handling?		
2. What type of course did they receive and by whom? (Half day certified Manual Handling Course)		
3. Can they produce a certificate of successful course completion?		

Comment:

8. Safety Policy

Question	Yes/No	Comment
1. Does the School have a Safety Statement? (Acquire a copy)		
2. Is it up to date?		
3. Has a copy of the Safety Statement been issued to all employees?		
4. Have the staff signed for receipt of the Safety Statement?		
5. How was the Safety Statement developed?		

Is there an accident/incident investigation and reporting procedure in place?
Do you have an accident report form? Acquire a copy.

In the event of an accident/fault/failure/defect, what procedure, if any, is in place to investigate, report and implement corrective actions?

9. OH&S Organisation

Question	Comment
1. What OH&S Management Structure is in place e.g. Roles & responsibilities of school staff & BOM	
2. What resources are in place to provide advice in respect of OH&S? In house expertise (Health & Safety Officer) or buy in advice?	
3. What resources are in place to manage the day-to-day OH&S issues?	
4. What mechanisms are in place to communicate and consult on OH&S? Safety Reps & Safety Committees	
5. Describe how the Board of Management, the Principal etc. review OH&S issues?	

10. General Servicing & Maintenance

	How often are these serviced/maintained e.g. quarterly, annually, only in the event of breakdown etc.	Who services/maintains this equipment?		Are records of service retained?	
		Internal Contractor	External Contractor	Yes	No
Hand held electrical equipment such as drills, routers etc					
Electrical installation					
Dust Extraction					
Other Local Exhaust					
Ventilation					
Gas Installations					
Compressed Air					
Other (please specify)					

11. General Fire Safety

Question	Yes/No	Comment
1. Is there an automatic fire detection and alarm system in place? (Life protection/ Property Protection)		
2. Are there fire hose reels and/or fire extinguishers in place?		
3. Is there an emergency lighting system in place? (Over doors, power packs, red light in exit routes)		
4. Are fire drills carried out? (Twice a year, to be completed in 2½ Minutes)		

5. Who services fire equipment and how often?	Internal Contractor	External Contractor	How often?
Fire extinguishers (Annually)			
Fire hose reels (Annually)			
Fire detection and alarm system (4 times a year)			
Emergency lighting (4 times a year)			

12. Occupational Health (please 'X' where appropriate)

	Hardwoods	Softwoods	M.D.F.	Other Manufactured Boards
1. What woods are used in Materials Technology (wood)/Construction Studies and Technology?				

	Yes	No
2. Have wood dust levels been measured?		
3. Have noise levels been measured?		
4. Do you have certified first aiders on staff?		
5. How many teachers of the technologies are first aiders?		

Appendix III

List of School and Teacher Organisations Invited to Provide Submissions

Association of Community and Comprehensive Schools
10H Centrepoint Business Park
Oak Road
Dublin 12

Joint Managerial Body Secretariat of Secondary Schools
Emmet House
Dundrum Road
Dublin 16

Irish Vocational Education Association
McCann House
99 Marlborough Road
Donnybrook
Dublin 4

Teachers Union of Ireland
73 Orwell Road
Rathgar
Dublin 6

Association of Secondary Teachers' of Ireland
Winetavern Street
Dublin 8

Engineering Technology Teachers Association
Dundrum College
Sydenham Road
Dundrum
Dublin 14

Techno Teachers Association
Colaiste Iosagain
Portarlington
Co. Laois

Association of Technology Teachers
3 Tullyvarraga Hill
Shannon
Co. Clare

Appendix IV

An Outline of Occupational Health & Safety Roles and Responsibilities in Post-primary Schools

The following is a suggested guideline that schools may use when developing the school's safety statement.

School Management Authorities

School Management Authorities are ultimately responsible for the school's occupational health and safety performance, day-to-day management and co-ordination of all occupational health and safety matters in the school in accordance with the Safety Statement. The School Management Authority will at each of its meetings include occupational health and safety on its agenda, reviewing performance for the previous period and dealing with any key issues that have been brought to its attention.

They will be responsible for the following:

- The School Management Authority shall, on an annual basis, review the Safety Statement and the performance of the occupational health and safety management policy in the school. This will include a review of:
    - The achievement of objectives set for the previous year
    - The approval of objectives that were set for the coming year
    - Any major issues that arose during the previous period or are likely to arise during the coming period
- The School Management Authority will be responsible for ensuring that adequate resources are provided to deal with occupational health and safety issues as they arise.
- Ensure that regular safety inspections are carried out.
- Ensure action is taken to put necessary controls in place when required.
- A representative of the School Management Authority should chair the school Occupational Health and Safety Committee.
- Identify staff training needs.

The School Management Authority can request or be requested to review specific issues during the year as the need arises.

Safety Officer:

The role of the Safety Officer is to support the School Management Authority, through the Principal, in the practical implementation and performance monitoring of the occupational health and safety policy.

This will include:

- Liasing with the Principal on occupational health and safety management issues and any concerns in implementing the Safety Statement.
- Completing risk assessments.
- Developing policies and procedures as required.
- Attendance at the school Occupational Health and Safety Committee.

- Co-ordinating information for the development of the Annual Occupational Health and Safety Plan.
- Providing safety courses and briefing sessions for teachers and school staff.
- Reporting accidents to the Health and Safety Authority (HSA) and State Claims Agency (**Note:** Reporting to the State Claims Agency only applies to Community and Comprehensive Schools).

Teachers

Teachers are responsible for the day-to-day management of health and safety in their classrooms and other areas affected by their teaching.

Specifically, this will include the following:

- Checking that their Classroom/work areas are safe.
- Checking equipment is safe before use.
- Ensuring safe procedures are followed by students.
- Ensuring protective equipment is used, when needed.
- Participating in inspections and the Occupational Health and Safety Committee, if appropriate.
- Bringing any problem that is outside the remit or authority of the Teacher to the Principal's attention.

Note: some teachers may be delegated special responsibility by the School Management Authority.

Caretaker

Caretakers have responsibility for the general care and maintenance of the school. As such in respect of occupational health and safety they may have specific responsibilities, which may include:

- First Aid fire fighting equipment.
- Fire detection and alarm systems.
- General housekeeping.

Their specific roles, in respect of these, shall be agreed with the School Management Authority and defined in the Safety Statement.

Appendix V

Guidelines for School Safety Committees

Section 26 of the Safety, Health and Welfare at Work Act, 2005 places a general obligation on employer's to consult with and take account of any representations made by employees on matters of safety and health in the workplace.

Section 25 also entitles employees at a place of work to select and appoint a Safety Representative. In certain schools, because of the numbers of staff involved consideration could be given to the election of more than one Safety Representative.

In order to facilitate and coordinate consultation in school premises, it is recommended that a school safety committee be established. A safety committee is a forum at which Safety Representatives can consult with the School Management Authority and make representations on issues of safety, health and welfare in the place of work. The School Management Authority as far as is reasonably practicable, must take account of such representations. For example, if it is not practicable to put suggestions made into effect, the management should explain the reasons. However, it must also be clearly understood that the School Management Authority is responsible for safety in the school. The School Safety Committee does not reduce or compromise this statutory responsibility in any way and as such the ultimate decision on all safety matters rests with the School Management Authority.

The following guidelines are intended to assist in setting up such a committee:

1. The number of members on a safety committee shall not be less than 3 and shall not exceed one for every 20 persons employed.
2. Where the number of members of which a safety committee is to be comprised is
   - 4 or less, one member of the committee may be appointed by the employer and the remaining members of the committee may be selected and appointed by the employees;
   - not more than 8 but less than 5, 2 members of the committee may be appointed by the employer and the remaining members of the committee may be selected and appointed by the employees.
3. Meetings should take place once every term or in the case of an emergency.
4. The duration of each meeting should not exceed one hour
5. The chairperson of the committee should be a representative member of the School Management Authority.
6. The committee should record recommendations and decisions.
7. Recommendations or points raised by the committee should be acted upon by the management representatives.
8. Committees may invite to meetings individuals with special expertise or knowledge who may be able to make contributions on particular topics.
9. The agenda should be set by the chairperson and circulated to the members in advance of the meeting.
10. Any committee member may contact the chairperson in order to have a specific item included on an agenda.

Appropriate items for consideration by the committee could include the following:

- Progress on the implementation of the Safety Statement/Annual Occupational Health and Safety Plan
- Examination of the accident records since the last meeting
- Special consideration of any recent serious accidents or dangerous occurrences
- Practical safety and health suggestions or solutions from management or employees
- The provision and use of protective clothing and equipment
- Special activities such as 'Safety Weeks'
- Safety and health training needs and reports on safety training courses attended by management or employees
- Changes in the workplace that may have a substantial effect on safety and health.

Appendix VI

Machinery Risk Assessment Tool

Contents

Introduction

This Machinery Risk Assessment Tool is based upon the relevant statutory requirements and the Harmonised European Technical Standards that have been developed, which give practical specifications for safety devices, safeguarding, etc. or other appropriate guidance documents.

The Risk Assessment Tool summarises the critical issues, which need to be assessed, for each of the workshop machines. In cases where the assessor is concerned about other safety aspects, he/she should refer to the original legislation, and/or the relevant technical standard.

Where the answer to any question is 'No' or 'Not Assessed', then the recommendation corresponding to the reference number, should be referred to in the Guidance/Recommendations Section of this Risk Assessment Tool. The recommendation will set out the appropriate action required to bring the machine up to the required standard, or indicate how further investigation might be taken.

The Guidance/Recommendation Section, sets out in practical terms what standards an assessor should require for guards, braking, controls and general safeguarding.

To check for braked run down times, reference should be made to the relevant standards.

Risk Assessment

1. Band Saw Risk Assessment

Risk Issue	Yes/No/Not Assessed	Comment	Recommendation Reference No.
1. Is the machine CE marked?			
2. Is the top blade guide/guard appropriately adjusted to the work piece?	N		3.
3. Is the top guard in place?	N		4.
4. Is the braking time (Run-down-time) < 10 seconds?	N		23.
5. Is inadvertent restart prevented?	N		24.
6. Are there appropriate stop/start controls?	N		25.
7. Is the machine fitted with an emergency-stopping device?	N		26.
8. Is the machine securely fixed to the floor/bench?	N		29.
9. Is the machine directly wired to the power source?	N		31.
10. Can the work piece be securely fixed in place?	N		32.
11. Is the machine appropriately located and a safe operational area provided?	N		43.
12. Is appropriate dust extraction provided?	N		35.

Refer: BS EN 1807:1999 Safety of woodworking machines – Band sawing machines

2. Grinder Risk Assessment

Risk Issue	Yes/No/Not Assessed	Comment	Recommendation Reference No.
1. Is the machine CE marked?			
2. Are the wheels and spindles appropriately guarded?	N		10.
3. Are the eye shields appropriate and in place?	N		11.
4. Are there appropriate stop/start controls?	N		25.
5. Is the machine fitted with an appropriate emergency-stopping device?	N		26.
6. Is inadvertent restart prevented?	N		24.
7. Are there work rests fitted, with a gap < 3mm between the edge of the work rest and the wheel?	N		38.
8. Is the machine securely fixed to the floor/bench?	N		29
9. Is the machine directly wired to the power source?	N		31.
10 Is the maximum speed of the spindle clearly marked on the machine?	N		37.
11. Is there an appropriate warning and information notice displayed?	N		39.
12. Is the machine appropriately located and a safe operational area provided?	N		43.

Refer: BS EN 13218: 2002 Machine tools – Safety – Stationary grinding machines

3. Morticer Risk Assessment

Risk Issue	Yes/No/Not Assessed	Comment	Recommendation Reference No.
1. Is the machine CE marked?			
2. Is the drive mechanism appropriately guarded?	N		1.
3. Is the chuck appropriately guarded?	N		12.
4. Is inadvertent restart prevented?	N		24.
5. Are there appropriate stop/start controls?	N		25.
6. Is the machine fitted with an emergency-stopping device?	N		26.
7. Is the machine securely fixed to the floor?	N		29.
8. Can the work-piece be adequately secured?	N		32.
9. Is the machine directly wired to the power source?	N		31.
10. Is the machine appropriately located and a safe operational area provided?	N		43.

4. Pedestal Drill Risk Assessment

Risk Issue	Yes/No/Not Assessed	Comment	Recommendation Reference No.
1. Is the machine CE marked?			
2. Is the drive mechanism appropriately guarded?	N		1.
3. Is the chuck appropriately guarded?	N		9.
4. Is the spindle and drill tip guarded?	N		8.
5. Is inadvertent restart prevented?	N		24.
6. Are there appropriate stop/start controls?	N		25.
7. Is the machine fitted with an emergency-stopping device?	N		26.
8. Is the machine securely fixed to the floor?	N		29.
9. Is the machine directly wired to the power source?	N		31.
10. Can the work-piece be adequately secured?	N		32.
11. Is the machine appropriately located and a safe operational area provided?	N		43.

Refer: BS EN 12717:2001 Safety of machine tools – Drilling Machines

5. Surface Planing and Thicknessing Machine Risk Assessment

Risk Issue	Yes/No/Not Assessed	Comment	Recommendation Reference No.
1. Is the machine CE marked?			
2. Is the bottom guard in place?	N		2.
3. Is the top/bridge guard in place?	N		14.
4. Is the braking time (Run-down-time)< 10 seconds?	N		23.
5. Is inadvertent restart prevented?	N		24.
6. Are there appropriate stop/start controls?	N		25.
7. Is the machine fitted with an emergency-stopping device?	N		26.
8. Is there a mechanism installed to lock the machine "off" when not in use, to prevent unauthorised use?	N		27.
9. Is the machine securely fixed to the floor?	N		29.
10. Is the machine appropriately located and a safe operational area provided?	N		43. & 44.
11. Is the machine directly wired to the power source?	N		31.
12. Is appropriate dust extraction provided?	N		35.

Refer: BS EN 859: 1998 Safety of woodworking machines – Handfed surface planing machines
BS EN 860: 1997 Safety of woodworking machines – One-sided thickness planing machines
BS EN 861: 1998 Safety of woodworking machines – Surface planing and thicknessing machines

6. Circular Saw Risk Assessment

Risk Issue	Yes/No/Not Assessed	Comment	Recommendation Reference No.
1. Is the machine CE marked?			
2. Is the bottom guard in place?	N		2.
3. Does the crown guard comply with the relevant guarding standards?	N		5.
4. Is the riving knife securely fixed and within the recommended distance from the blade.	N		6.
5. Is the braking time (Run-down-time) < 10 seconds?	N		23.
6. Is inadvertent restart prevented?	N		24.
7. Are there appropriate stop/start controls?	N		25.
8. Is the machine fitted with an emergency-stopping device?	N		26.
9. Is there a mechanism installed to lock the machine "off" when not in use, to prevent unauthorised use?	N		27.
10. Is the machine securely fixed to the floor?	N		29.
11. Is the machine directly wired to the power source?	N		31.
12. Is the machine appropriately located and a safe operational area provided?	N		43. & 44.
13. Is an extension table provided?	N		7.
14. Is appropriate dust extraction provided?	N		35.
15. Is a rip fence provided?	N		41.

Refer: BS EN 1870-1:1999 Safety of woodworking machines – Circular sawing machines – Part 1: Circular saw benches (with and without sliding table) and dimension saws

7. Wood Lathe Risk Assessment

Risk Issue	Yes/No/Not Assessed	Comment	Recommendation Reference No.
1. Is the machine CE marked?			
2. Is the drive mechanism appropriately guarded?	N		1.
3. Is inadvertent restart prevented?	N		24.
4. Are there appropriate stop/start controls?	N		25.
5. Is the machine fitted with an emergency-stopping device?	N		26.
6. Is the machine securely fixed to the floor/bench?	N		29.
7. Are appropriate turning tools in use?	N		40.
8. Is the machine directly wired to the power source?	N		31.
9. Is the machine appropriately located and a safe operational area provided?	N		43.

8. Centre Lathe Risk Assessment

Risk Issue	Yes/No/Not Assessed	Comment	Recommendation Reference No.
1. Is the machine CE marked?			
2. Is the drive mechanism guarded?	N		1.
3. Is the hollow spindle covered/guarded?	N		15.
4. Is the chuck appropriately guarded?	N		16.
5. Is the braking time (Run-down-time) < 10 seconds?	N		23.
6. Is inadvertent restart prevented?	N		24.
7. Are there appropriate stop/start controls?	N		25.
8. Is the machine fitted with an emergency-stopping device?	N		26.
9. Are appropriate turning tools in use?	N		40.
10. Is the machine directly wired to the power source?	N		31.
11. Is the machine securely fixed to the floor?	N		29.
12. Is the machine appropriately located and a safe operational area provided?	N		43.

Refer: BS EN 12840: 2001 Safety of Machine Tools - Manually controlled turning machines with or without automatic control

9. Milling Machine Risk Assessment

Risk Issue	Yes/No/Not Assessed	Comment	Recommendation Reference No.
1. Is the machine CE marked?			
2. Is the drive mechanism guarded?	N		1.
3. Are cutters and cutting area guarded?	N		17.
4. Is the braking time (Run-down-time) < 10 seconds?	N		23.
5. Is inadvertent restart prevented?	N		24.
6. Are there appropriate stop/start controls?	N		25.
7. Is the machine fitted with an emergency-stopping device?	N		26.
8. Is the machine directly wired to the power source?	N		31.
9. Can the work-piece be adequately secured?	N		32.
10. Is the machine securely fixed to the floor?	N		29.
11. Is the machine appropriately located and a safe operational area provided?	N		42.

Refer: BS EN 13128: 2001 Safety of Machine Tools – Milling Machines (including boring machines)

10. Power Saw Risk Assessment

Risk Issue	Yes/No/Not Assessed	Comment	Recommendation Reference No.
1. Is the machine CE marked?			
2. Is the drive mechanism appropriately guarded?	N		1.
3. Is the machine fitted with an automatic knock-off switch?	N		28.
4. Is inadvertent restart prevented?	N		24.
5. Are there appropriate stop/start controls?	N		25.
6. Is the machine fitted with an emergency-stopping device?	N		26.
7. Is the machine securely fixed to the floor?	N		29.
8. Is the machine directly wired to the power source?	N		31.
9. Is the machine appropriately located and a safe operational area provided?	N		42.
10. Can the work-piece be adequately secured?	N		32.

11. Polisher/Buffer Risk Assessment

Risk Issue	Yes/No/Not Assessed	Comment	Recommendation Reference No.
1. Is the machine CE marked?			
2. Is the drive mechanism guarded?	N		1.
3. Are brushes/mops and spindles appropriately guarded?	N		18.
4. Are the eye shields in place?	N		19.
5. Are there appropriate stop/start controls?	N		25.
6. Is the machine fitted with an appropriate emergency-stopping device?	N		26.
7. Is inadvertent restart prevented?	N		24.
8. Is the machine securely fixed to the floor/bench?	N		29.
9. Is the machine directly wired to the power source?	N		31.
10. Is appropriate extraction provided?	N		36.
11. Is the machine appropriately located and a safe operational area provided?	N		43.

12. Scroll Saw Risk Assessment

Risk Issue	Yes/No/Not Assessed	Comment	Recommendation Reference No.
1. Is the machine CE marked?	N		
2. Is the blade appropriately guarded?	N		13.
3. Is inadvertent restart prevented?	N		24.
4. Are there appropriate stop/start controls?	N		25.
5. Is the machine directly wired to the power source?	N		31.
6. Is the machine securely fixed to the bench when being used?	N		30.
7. Is the machine appropriately located and a safe operational area provided?	N		43.

14. Vacuum Former Risk Assessment

Risk Issue	Yes/No/Not Assessed	Comment	Recommendation Reference No.
1. Is the machine CE marked?	N		
2. Is the heater system guarded?	N		21.
3. Is there audible timer fitted?	N		22.

Recommendations/Guidance

Recommendations/Guidance

Recommendation Reference		Recommended Action
Guarding		
General		
1.	Drive Mechanism	Install a fixed (removable only with the use of a tool) guard.
2.	Bottom Guard	Install a fixed (removable only with the use of a tool) guard.
Band Saw		
3.	Blade Guide	The top blade guide should be adjusted to the lowest position possible to ensure the blade is sufficiently guarded.
4.	Top Blade	The blade should be enclosed with a guard removable only with the use of a tool or alternatively be fitted with an interlocking guard mechanism.
Circular Saw		
5.	Crown Guard	The crown guard should extend from the top of the riving knife to a point above and as close as practicable to the work piece. The crown guard should extend down each side of the saw blade and the adjustment should ensure that the roots of the teeth are covered at all times.
6.	Riving Knife	Riving knife needs to be adjusted so that it does not exceed 8mm from the blade at bench level. Distance must be between 3-8mm.
7.	Extension Table	Assess the need for an extension table on the circular sawing machine. This should be based on the size of wood to be machined and the space available. Where required, it is essential that a suitable extension table is provided to give a minimum distance of 1200mm between the up running part of the saw blade and the further edge of the extension table for use when cutting large materials.

Recommendation Reference		Recommended Action
Guarding Continued		
Pedestal Drill		
8.	Spindle & Drill	Install an adjustable spindle/twist drill guard so that, the spindle and twist drill (to the tip) are guarded to the greatest extent possible.
9.	Chuck Guard	Install a fixed (removable only with the use of a tool) chuck guard.
Grinder		
10.	Wheel Guard	Install a guard to enclose the grinding wheels and spindles, with an appropriate gap at the front to allow access to the work piece.
11.	Eye Shields	Replace the eye shield/s. Ensure that the eye shield is constructed and fastened to the fixed flange guard so as to be strong enough to prevent disintegration in the event of a burst wheel.
Morticer		
12.	Chuck Guard	Install a fixed (removable only with the use of a tool) chuck guard.
Scroll Saw		
13.	Blade Guard	A blade guard should be fitted which can be adjusted to allow for the size of the work-piece while ensuring that the minimum amount of the blade is exposed during cutting.
Planing and Thicknessing Machine		
14.	Bridge Guard	Install an adjustable bridge guard (lockable in any position with out the use of a tool), height adjustable and sized appropriate to the cutter blocks.

Recommendation Reference		Recommended Action
Guarding Continued		
Centre Lathe		
15.	Hollow Spindle	A fixed guard (removable only with the use of a tool) should enclose the hollow spindle.
16.	Chuck Guard	Select from below, where applicable; • The chuck guard must be repaired. • The machine should be fitted with an interlocking chuck guard. • The chuck guard must be interlocked.
Milling Machine		
17.	Cutters and Cutting Area	An interlocking guard enclosing the table and cutting area should be installed.
Polishing Machine		
18.	Brushes/Mops	Install a guard to enclose the brushes or mops. The only gap in the guard should be at the front to allow access for the work piece. The guard should be able to prevent entanglement with the spindle ends and threaded mandrel.
19.	Eye Shields	Ensure eye shields are installed over each brush.
Plastic Strip Heater		
20.	Burn Guard Element	Guarding should be provided.
Vacuum Former		
21.	Heater System	The heating system should be shielded or guarded (in accordance with the manufacturers guidance) to prevent accidental contact with the hot surfaces
22.	Audible Timer	A timer with an audible warning device should be incorporated to prevent overheating.

Recommendation Reference		Recommended Action
Braking		
23.	Braking/Run-down-time	The braking time for this machine must be assessed. If the braking time exceeds 10 seconds, the existing braking mechanism should be repaired, or where applicable one of the following braking mechanism should be provided: • Replace the existing unbraked motor with a braked motor • Fit a direct current injection braking device • Fit a power operated mechanical brake • Fit a manual/ foot operated brake
Controls		
24.	Inadvertent Restart	Where applicable: • It should be confirmed that in the event of power supply interruption, after restoration of the voltage that automatic restart is prevented. • The switching mechanisms controlling power to the machine should be upgraded or changed, so that in the event of power supply interruption, after restoration of the voltage, automatic restart is prevented.
25.	Stop/Start	A "stop/start" switch must be mounted on the machine. The stop control must have priority over the start control. Normally this is in the form of separate buttons of which the stop is larger. (Note: Consideration should be given to Recommendation Number 24 above when replacing control switches)
26.	Emergency Stop	Install a mushroom type emergency stop control in an appropriate location, which is easily accessible in an emergency. The actuator must be coloured red. Where a background exists it should be coloured yellow.
27.	Lock Off Mechanism	A mechanism should be installed so that the machine can be locked "off" to prevent unauthorised use.
28.	Knock-off Switch	An automatic knock-off switch should be installed.

Recommendation Reference		Recommended Action
General Machinery Recommendations		
29.	Securing	The machine must be securely fixed to the floor/bench.
30.	Securing to Bench	The machine must be secured to the bench when in use.
31.	Securing of Leads	All electrical leads must be secured into position. Temporarily wired machines must be plugged in as close to the power sources as possible to prevent cables trailing across machines or becoming trip hazards.
32.	Securing Work Piece	Provide appropriate clamps to ensure that the work-piece is secured.
33.	Securing (Shears)	The shears must be securely fixed to a bench or a stand specifically designed for the purpose.
34.	Locking Action	When the shears is not in use it should be made safe by locking the action (pad lock or bolt) and if possible removing the operating handle.
35.	Extraction	An assessment of extraction requirements should be carried out for this machine and either a local/integral system or a centralised extraction system should subsequently be installed to this machine at a suitable number of extraction points. The Unit should be regularly checked for leaks and blockages. Refer to the Department of Education and Science Circular M45/01: Wood Dust Extraction Systems in Second Level Schools.
36.	Extraction/Exhaust	An exhaust system should be enclosed around the spindles/brushes and a competent person should assess the efficiency of the system.
37.	Spindle Speed	The maximum speed of the spindle should be clearly marked on the machine.

Recommendation Reference		Recommended Action
General Machinery Recommendations		
38.	Work Rests	Install appropriate work rests. These should be adjustable so that the minimum distance of 3mm from the wheel can be maintained as the wheel wears.
39.	Warning Notice	An appropriate notice setting out the dangers arising from the use of grinding wheels and the precautions to be observed in relation to them should be prominently displayed close to the grinder.
40.	Turning Tools	Only appropriate turning tools should be used, which are maintained in a good condition.
41.	Rip Fence	Install a rip fence, which is adjustable at right angles to the saw blade.
42.	Operational Area	The safe operational area around the machine should be demarcated with a space of at least 500mm between the machine table at the extreme ends of its travel and any fixed object.
43.	Safe Operational Area	A review of the workshop layout should be carried out to provide a safe operational area around the machine. Markings should be set down on the floor demarcating this safe operational area.
44.	Location	Because of the high risk associated with the use of this machine, school policy should strictly prohibit its use while students are in the workshop.

Appendix VII

Sample Annual Occupational Health & Safety Plan

Item	Objectives	Time Scale	Responsible
Policy and procedure	1. Review Safety Statement 2. Develop new occupational health and safety policy and procedure for work experience students in transition year.	Term 1 Term 1	
Hazard Identification and Control	1. Carry out risk assessments on all PC workstations. 2. Carry out risk assessment on manual handling tasks.	Term 2 Term 2	
Roles and Responsibilities	1. Include the requirement to carry out a monthly inspection of their areas of concern in each teacher's role description.	Term 1	
Training	1. Refresher training manual handling. 2. Two new first aiders required. 3. General induction training for new teachers and students.	Term 2 Term 3 Term 1	
Consultation	1. Safety Committee – meet once each term.	Term 1	
Emergency Preparedness and Response	1. Carry out two fire drills. 2. Service fire detection and alarm system. 3. Upgrade to 24-hour monitoring. 4. Service extinguishers.	Term 1 & 3 Term 1 Term 3 Term 3	
Monitoring and Review	1. Carry out weekly checks. 2. All teachers to carry out term inspection in their area of responsibility. 3. School Management Authorities to review OH&S at each meeting. 4. Annual audit and review to be completed by end of May 2005.	Term 2 Term 1 Term 1 Term 2	

Appendix VIII

Training Programme Guideline for Post-Primary Schools

The following are suggested outlines of the aims and contents of the main occupational health and safety training courses, which are recommended in section 3.8 Information, Instruction, Training and Supervision.

1. Certificate Level in Occupational Health and Safety for Schools

The aim of the course would be to provide the participants, with a practical understanding of a wide range of subjects relating to occupational health and safety in schools. Completion of this course will enable the individual to have the knowledge and competence to implement an occupational health and safety management system in a school and monitor and review its performance. The course should cover:

- Legislation
- Safety statement
- Risk assessment
- Fire safety management
- Electricity
- Machinery Safety
- Manual handling
- Occupational health
- Chemical Safety
- Workplace issues such as housekeeping, personal protective equipment, welfare facilities
- Ergonomics and VDU's
- Consultation
- Accident, Incident and Dangerous Occurrence Investigation and Reporting
- Auditing

Who should attend: Safety Officers and others who hold a significant brief for the management of occupational health and safety in a school setting.

Duration: 4-5 days (This course should be developed in-house to greatly reduce its duration).

2. Induction Training

The induction training should be tailored to cover all relevant aspects of the school's safety statement and may be given by a nominated member of staff. The aim of induction training is to outline the main elements of the safety statement that will directly impact on the inductee. The individual should be formally given a copy of the safety statement. This course should cover:

- Relevant contents of the schools safety statement
- Procedures for accident reporting, first aid procedures, fire safety
- Identification and outline of the school's hazards and control measures

Who should attend: all school staff e.g. Principals, teachers, caretakers, ancillary staff

Duration: 1 hour

3. In-Service Training

The objective of the in-service training course is to provide teachers with a knowledge, which will enable them to implement and monitor the safety statement in their area of control. This course should include:

- Relevant contents of the schools safety statement
- Procedures for accident reporting, first aid procedures, fire safety
- Overview of the common hazards and control measures
- Subject specific hazards e.g. Technology in Post-Primary schools - fire safety management, electricity, machinery, manual handling, housekeeping, personal protective equipment
- Inspections

Who should attend: All teaching staff on a once off basis and individuals who require refresher training e.g. teachers returning from career breaks

Duration: 1 day

4. Refresher Training

Refresher training should be provided by the Principal or a delegated responsible teacher such as a nominated Safety Officer. These may take the form of briefing documents communicated to the staff. The contents should be tailored to suit the requirements of the school, however a copy of the revised safety statement should be formally communicated to all members on an annual basis.
The contents should include:

- Revised contents of the safety statement
- Explanation of new procedures, policies etc
- Overview of key workplace issues and procedures
- Reminder of key procedures and issues

Duration: As part of regular staff meetings

Appendix IX

Sample Accident Investigation and Reporting Policy and Procedure

It is the policy of School Name to comply with all statutory requirements regarding the reporting of incidents, accidents and dangerous occurrences.

This section outlines the accident reporting procedures to be followed in School Name and the need for investigation and subsequent corrective actions to prevent recurrence in the event of accidents or dangerous occurrences.

Table 1 Internal and External Reporting Requirements

Reporting Requirement	Incident/Accident Type	By Whom	To Whom	Procedure Number
1. Internal	All	Teacher/Staff	Principal	1
2. Health & Safety Authority (H.S.A.)	A worker is prevented from performing his/her duties for 3 or more consecutive days.	Principal	H.S.A.	2 (a)
3. H.S.A.	Dangerous Occurrences	Principal	H.S.A.	2 (b)
4. State Claims Agency (S.C.A.) This applies to C&C schools only.	All incidents where injury has occurred.	Principals of Community & Comprehensive Schools.	S.C.A.	3

1. Internal Reporting of Accidents/Incidents & Accident Investigation

- All accidents will be reported by the teacher to the Principal/Safety Officer using the schools accident report form (see sample accident report form attached) and within the time frames set out in the Table 2 below. The detail required when carrying out an accident investigation is directly related to the severity of the accident.
- The teacher should carry out, an investigation as soon as possible after the incident.
- Written reports from witnesses and the injured party should be obtained even if first aid or medical assistance is not required. Witnesses should be interviewed and statements taken as soon as possible after the incident.
- The scene should be preserved until the investigation is complete.
- Materials and equipment associated with the accident should be collected and retained, where practical. It may be vital to establish the condition of the equipment later.
- Photographs and drawings should be used as necessary.
- In the case of Road Traffic Accidents (RTA), where the accident results in damage to the vehicle only, accident details must be provided on an accident report form.
- Where the RTA results in injury to a member of staff, student or member of the public the details of the accident must be reported.

Table 2 Incident/accident report forms and required reporting response times

	Form Title Response Time
Preliminary Notification	Within 24 hours
Accident Investigation Report	As soon as possible but not later than one week
Witness Report Form	As soon as possible but not later than one week
Injured Party Report Form	As soon as possible but not later than one week

When an incident or accident is reported, the Principal will then:

- contact the specific Teacher in order to establish the level of investigation conducted and to decide whether further investigation is necessary;
- notify the State Claims Agency and/or the Health & Safety Authority using the correct forms and procedures (as set out in procedures 2 & 3);
- monitor the process of investigation, reporting, and action in order to ensure that the necessary response times are met; and
- ensure the appropriate corrective action is implemented.

2. Reporting to the Health and Safety Authority

Accidents

The Safety Health and Welfare at Work (General Application) Regulations 1993 Part X [Notification of Accidents and Dangerous Occurrences at Work] requires that certain accidents and dangerous occurrences at work be notified to the Health and Safety Authority on approved forms.

The responsibility for the reporting of accidents or dangerous occurrences that are covered by the legislation lies with the Principal.

Completed forms, which are now web-based http://www.hsa.ie should be returned to the Health and Safety Authority in compliance with the legislation. Copies of the form should be retained in the school for, inspection by the Health and Safety Authority Inspectors.

The legal requirement to report accidents is an external reporting requirement and does not affect or change in any way the other internal accident reporting procedures.
The following procedure is intended as a practical guide to the Safety Health and Welfare at Work (General Application) Regulations 1993 Part X [Notification of Accidents and Dangerous Occurrences].

Notification is required when:

- A work accident causes the death of an employee – immediate notification.
- A work accident prevents an employee from performing his or her normal work for more than three consecutive days. (This does not include the day of the accident)
- An accident arising from a work activity causes death or injury to a non-employee e.g. passers-by, customers etc.

In the above cases, Form IR 1 must be used to notify the H.S.A. of the accident. Where an accident has resulted in death, the scene of the accident must remain undisturbed until it has been inspected by an Inspector from the Health and Safety Authority. The scene should be disturbed only if necessary to ensure the safety or health of persons remaining at the scene.

Dangerous Occurrences

A list of dangerous occurrences is set out on Form IR3. In the event of a dangerous occurrence, the Principal must inform the Health and Safety Authority using Form IR 3 as soon as possible.

Dangerous occurrences should be notified by post after the event, provided a death has not occurred. In the event of death, the procedure outlined above for the reporting of accidents to the H.S.A. should be followed.

Maintenance Accidents Records

The Principal must keep a record of accidents or dangerous occurrence reported, for a period of ten years after their occurrence. A copy of the approved form sent to the Health and Safety Authority and any other relevant documentation will suffice.

3. Reporting of Accident/Incidents to the State Claims Agency

THIS LEGAL REPORTING REQUIREMENT ONLY APPLIES TO COMMUNITY & COMPREHENSIVE SCHOOLS.

Under the National Treasury Management Agency (Amendment) Act, 2000, the management of personal injury and property damage claims against the State and of the underlying risks was delegated to the NTMA. When performing these functions, the NTMA is known as the State Claims Agency (SCA).

Duty to report adverse incidents

Under the Act, State authorities are obliged to report adverse incidents promptly to the SCA and to facilitate any subsequent investigation. In particular, Section 11 of the Act provides that a State authority is obliged to:

- report any adverse incident to the Agency as soon as may be;

- furnish to the Agency relevant information in relation to the incident;
- preserve relevant evidence; and
- permit the Agency to investigate the incident in such manner as it considers appropriate.

The Agency should be notified immediately in the event of a fatality or a serious injury. Otherwise, the following are guidelines as to the types of incidents, which should be reported:

- Injuries requiring medical attention by a doctor or attendance at a hospital, this includes employees, visitors, members of the public, contractors etc.;
- Where an employee is absent from work for any period of time and the absence is directly attributable to a work-related activity (this includes circumstances where the absence occurs some time after the incident);
- No Days Lost, however injury was sustained;
- Where the State authority becomes aware of an incident (involving personal injury) on its premises involving a visitor, recreational user or trespasser;
- Where a State vehicle is involved in a road traffic accident;
- Where the property of a third party has been damaged as a result of the activities of an employee of a State authority.

When an incident or accident has occurred the Teacher should notify the Principal who will notify the State Claims Agency.

Sample Accident Report Form

INJURED PARTY DETAILS:
Surname: First Name (s):
Address (Home/Company):
D.O.B.: Sex: - Male/ Female
Date of accident:
Date accident reported:
Status (Please tick appropriate box)
Pupil ☐ Teacher ☐ Visitor ☐ Contractor ☐
Other (please specify):

ACCIDENT/DANGEROUS OCCURRENCE CATEGORISATION:
Where appropriate, more then one box in each section may be ticked.

TYPE OF ACCIDENT	Tick
Injured/ Damaged by a person	☐
Struck by/ Contact with	☐
Caught in/Under	☐
Slip / Trip / Fall	☐
Sharps	☐
RTA/Crash	☐
Exposure to Substances/Environments	☐
Manual handling	☐
Property Damage	☐

MAIN AGENT WHICH CAUSED ACCIDENT:
_____
_____
_____
_____

TYPE OF INJURY	Tick
Fatality	☐
Bruise	☐
Concussion	☐
Internal Injury	☐
Abrasion, Graze	☐
Fracture	☐
Sprain	☐
Torn Ligaments	☐
Burns	☐
Scalds	☐
Frostbite	☐
Injury not ascertained	☐
Trauma	☐
Occupational Disease	☐
Other (Please specify:)	☐

PARTS OF BODY	
Head (except eyes)	☐
Eyes	☐
Face	☐
Neck, Back, Spine	☐
Chest, Abdomen	☐
Shoulder	☐
Upper Arm	☐
Elbow	☐
Lower Arm, wrist	☐
Hand	☐
Finger (one or more)	☐
Hip Joint, Thigh, Kneecap	☐
Knee joint	☐
Lower leg	☐
Ankle	☐
Foot	☐
Toe (one or more)	☐
Multiple injuries	☐
Trauma, shock	☐
Other (Please specify:)	☐

Consequences	Result	Anticipated Absence
☐ Fatal	☐ Sick Leave	☐ 1-4 days
☐ Non Fatal	☐ Excused	☐ 4-7days
	☐ Light Duty	☐ 8-14days
	☐ Medicine	☐ More than 14 days

DETAILED DESCRIPTION OF ACCIDENT / DANGEROUS OCCURRENCE.

Give a full description of:

(A) The work/activity being carried out when the accident occurred.

(B) The equipment in use (if any).

(C) Detail how the accident occurred.

Attach:

(A) Injured party's report.

(B) Witness list (Level of detail required will vary depending on the severity of the accident).

(C) Witness statements. (Level of detail required will vary depending on the severity of the accident).

(D) Sketch or photograph of the scene, equipment etc. where appropriate.

Signed (Use capital letters):_____

Date:_____

Investigating/Reporting Manager/Teacher

Signature:_____

Appendix X

Examples of Reports used to Monitor Occupational Health and Safety

(i) Term Progress Report

Item	Objectives	Progress	Action Required	Time Scale	Responsibility
Policy and procedure	1. Review Safety Statement.	Draft safety statement forwarded to School Management Authorities for review.	School Management Authorities to approve.	Term 1	SMA Safety Officer
	2. Develop new safety procedure for work experience pupils in Transition year.	Procedure developed and forwarded to all transition year students and parents.	Relevant Sections shall be formally forwarded to staff, students parents etc. Follow up regarding receipts from parents required.	Term 1	Principal
Hazard Identification and Control	1. Carry out risk assessments on all PC workstations		Review in Term Two	Term 2	
	2. Carry out risk assessment on manual handling tasks		Review in Term Two	Term 2	
Roles and Responsibilities	1. Include the requirement to carry out a monthly inspection of their areas of concern in each teachers role description	Included in draft safety statement forwarded to School Management Authorities for review.	School Management Authorities to approve. Relevant Sections shall be formally forwarded to staff and briefing completed	Term 1	SMA Safety Officer
Training	1. Refresher training manual handling		Review in term 2	Term 2	
	2. Two new first aiders required		Review in term 3	Term 3	
	3. General induction training for new teachers and pupils		Review in term 3	Term 3	
Consultation	1. Safety Committee – meet once each term	Safety committee meeting held (see attached minutes)	Safety committee meeting shall be held in term 2	Term 1	Principal
Emergency Preparedness and Response	1. Carry out two fire drills	Fire drill held in term one	See attached issues raised from drill.	Term 1 & 3	
	2. Service fire detection and alarm system	Service contractor completing maintenance of fire detection and alarm system	Require funding for additional fire detectors in Technology workshop	Term 1	SMA
	3. Upgrade to 24 hour monitoring		Review in term 3	Term 3	
	4. Service extinguishers		Review in term 3	Term 3	
Monitoring and Review	1. Carry out weekly checks		Review in term 2	Term 2	
	2. All staff to carry out term inspection	Staff to complete after briefing session	Briefing session required to inform staff on requirements	Term 1	Safety Officer
	3. School Management Authority to review OH&S at each meeting	OH&S on all meeting agendas	Review at each meeting	Term 1	SMA
	4. Annual audit and review to be completed by end of May 2005		Review in term 2	Term 2	

(ii) Housekeeping Inspection Report

Classroom : Assessed by:	Technical Room		Comment/Safety Action Required	Responsibility	Closed
	Yes	No			
Housekeeping					
Floor free from Trip/Slip hazards?					
Emergency Exits / Routes & Passageways Clear?					
Items stored appropriately?					
Raw materials adequately stored?					
Are all tools stored safely and securely?					
Is all waste cleared?					
Fire Safety					
Fire equipment pins and seals in place?					
All fire equipment gauges reading correctly (i.e. in green)?					
Equipment mounted,serviced, accessible and undamaged?					
Emergency Exits indicated, illuminated & easily opened?					
Technical Rooms					
Is the local extraction ventilation working correctly					
Are machine guards & covers in place ?					
Are there any visible machine faults or defects?					
Are all hand tools free from damage?					
Are all chemicals stored safely and securely when not in use?					
Is Personal Protective Equipment in a good working condition?					
Is Personal Protective Equipment used where required?					
Electrical Safety					
All sockets, switches, plugs & cables free from damage?					
Any sockets overloaded?					
Are switch/fuse boards locked?					
Working Environment & Welfare					
All furniture & fittings in good repair?					
Are all light fittings working functioning?					
First Aid Box accessible and fully stocked?					
Relevant Safety Signs & Markings in place?					

If response is 'no' state what action is required and who is responsible

Signed:_____

Appendix XI

Occupational Hygiene Review Summary Report

The purpose of the occupational hygiene review was to examine a sample number of schools, where technology subjects were taught, for hazards and risk associated with occupational hygiene exposures.

Occupational Hygiene and Safety Services Limited (OHSS) surveyed five schools during December 2004, when the curricular activities were fully operational.

Workshop Dust

The Safety Health and Welfare at Work (Chemical Agents) Regulations 2001 apply to a very wide range of substances and preparations - a mixture of two or more substances - with the potential to cause harm if they are inhaled, ingested or come into contact with or are absorbed through the skin. These include individual chemical substances or preparations or substances listed with an Occupational Exposure Limit Value (OELV).

The National Authority for Occupational Safety and Health have in the 2002 Code of Practice for the Safety Health and Welfare at Work (Chemical Agents) Regulations, set OELV's for airborne contaminants. The Authority recommends in the Code of Practice that exposure levels should be maintained well below the OELV and should always be as low as reasonably achievable. Where carcinogens are involved such as hardwood dust the requirement of the Safety Health and Welfare at Work (Carcinogens) Regulations, 2001 apply. These regulations require that exposure be controlled to as low a level as is technically possible.

Table of relevant exposure limits as detailed in the 2002 Code of Practice for the Safety Health and Welfare at Work (Chemical Agents) Regulations

These limits are listed here for information.

CHEMICAL	OELV (8 hour)	COMMENTS
Soft Wood Dust	5 mg/m3	
Hard Wood Dust	5 mg/m3	Hardwood dust is listed as a sensitiser and as a carcinogen
Formaldehyde	2.5 mg/m3	MDF contains formaldehyde
Welding Fume	5 mg/m3	
Aluminium metal	10ppm	
Aluminium welding fume	5ppm	
Lead	0.15 mg/m3	Very unlikely to be produced at these levels during soldering.

Results of Dust Monitoring

All levels measured were found to be low and of short duration. There are minimum work activities that generate dust carried out in the classrooms during class and all work is carried out in accordance with good practice. In general where work activities are adequately controlled exposures will be very low. Based on the instantaneous reading it is unlikely that the OELV of 5mg/m3 would be exceeded. The duration of each task was estimated by interviewing the teaching staff in the area. In all cases the duration of these activities are less than an hour.

Machine	Location	Room	Dust Level
Cutting Perspex	Location 1	Metal Work	0.15mg/m3
Using Belt Sander	Location 1	Wood Work	0.79mg/m3
Table Saw	Location 1	Prep room	0.65-1.2mg/m3
Cutting Perspex	Location 2	Metal Work	0.2 mg/m3
Manual filing	Location 2	Metal Work	0.0 mg/m3
CNC	Location 2	Metal Work	0.1 mg/m3
Table Saw	Location 2	Wood working	0.91 mg/m3
Planer	Location 2	Wood working	0.08 mg/m3
Saw	Location 3	Technology	1.22 mg/m3
Planer	Location 3	Wood working	0.8 mg/m3
Cross cutting	Location 3	Wood working	0.85 mg/m3
Cutting Perspex	Location 4	Metal work	0.07 mg/m3
Manual Filing	Location 4	Metal work	0.01 mg/m3
Saw	Location 4	Wood work	0.4-1.7 mg/m3
Saw	Location 5	Wood work	0.56-1.7 mg/m3
During Class	Location 5	Wood work	0.03 mg/m3

Teacher Exposure

Difference between similar machines relate to the many different parameters that can affect the work exposure. These differences relate to condition of the saw blades, effectiveness of extraction, the size of the work piece, and the rate at which the work piece is offered through the machine. These results are average results based on monitoring throughout the time taken to cut or work with the work piece.

The duration of each activity during the monitoring period was short with a simulation exercise being conducted to estimate the exposure. The amount of time spent at each activity would result in exposures well below the occupational exposure limit value. This is based on a 25-hour working week in the classroom or approximately five hours per day. The legal limits relate to an 8-hour working day. Exposure may therefore be calculated as worst case scenarios as follows.

Sample calculation

Teacher machines wood using a saw where the maximum exposure level achieved was 1.7mg/m3 for 5 hours per day

$$Exposure = \frac{(T_1 * E_1) + (T_2 * E_2) + \ldots\ldots\ldots (T_n * E_n)}{8}$$

$$\text{Exposure} = \frac{(5 \text{ hours} \times 1.7 \text{mg/m}^3) + (3 \text{ hours} \times 0 \text{mg/m}^3)}{8 \text{ hours}} = 1.06 \text{mg/m}^3$$

Student Exposure

Exposure to dusts by students will be well below and occupational exposure found for the teaching staff. This results from the fact that students are not using the type of machinery that teachers are using during preparation of work pieces. Where sanding occurs using belt sanders the duration of the activity is short. Student exposures in the classroom are likely not to exceed 4 hours contact time per week and some of this time is used to teach theory aspects of the subject.

Respiratory Protective Equipment (RPE)

In some instances respiratory protective equipment may be necessary but this should be chosen based on risk assessment for the process involved. Based on the dust levels recorded during the initial survey RPE will not be necessary provided extraction systems are fitted and functioning correctly. It is recommended as a precautionary control measure that RPE is worn during the changing of filters and collection bags from the dust extraction units. In this case the following type of RPE should be used.

TYPICAL OPERATIONS	DISPOSABLE RESPIRATOR	RE-USABLE RESPIRATOR
Changing of filters and dust collection bags	EN149 FFP3	Filter to EN 143-P3 fitted to either a half mask to EN 140 or a full face mask to EN 136

Appendix XII

Circular M45/01
Wood Dust Extraction
in Second Level Schools

AN ROINN OIDEACHAIS AGUS EOLAÍOCHTA | DEPARTMENT OF EDUCATION AND SCIENCE

Circular Letter M45/01

Post Primary Building Unit, Tullamore, Co. Offaly.

Wood Dust Extraction Systems in Second Level Schools

TO: MANAGEMENT AUTHORITIES OF SECOND LEVEL SCHOOLS

1. Background

The Department of Education and Science has investigated ways of controlling air borne dust in specialist rooms in second level schools. The investigation was based on the occupational exposure limits for woodwork dust as set out in the National Authority for Occupational Safety and Health 1999 Code of Practice for the Safety, Health and Welfare at Work (Chemical Agents) Regulations, 1994.

The existing occupational exposure limit (8 hour reference period) is 5mg/m3 of[1] respirable particulate matter and a total[2] inspirable particulate matter of 10mg/m3 for both soft wood and hard wood.

Four specific items of machinery were identified as generating dust in Construction Studies/Woodwork and Technology rooms as follows:

- Band Saw
- Sander (belt and disc)
- Circular Saw
- Planer.

The investigation focused specifically on two differing methods of dust extraction, namely local/integral systems and central systems.

A **local/integral system** comprises a fan and filter collection unit mounted adjacent to the machine and connected to dust outlets or a fan and filter collection unit that forms part of the machine.

1 Respirable dust is dust in the particle size range (aerodynamic range diameter <10um) which allows the dust to reach the depths of the lungs and penetrate the small cavities of the lungs.

2 Inspirable dust is all of the dust that can be breathed and that can get trapped in the nose, mouth and upper respiratory tract.

A **centralised system** comprises one or more larger fans and filter collection unit that is situated remote to the machine. A system of ductwork is connected to the central unit and the machines.

The investigation revealed that values recorded for respirable particulate matter were all below 36% of the allowable exposure level of 5mg/m3 while the total inspirable particulate matter levels were all less than 25% of the allowable level of 10mg/m3.

The investigation concluded that both centralized dust extract systems and local/integral extract systems maintain air borne dust concentrations well within the exposure limits set out in the current Safety, Health and Welfare (Chemical Agents) Regulations. Additionally, the investigation demonstrated that there was no measurable difference in the performance of centralized systems as compared with local/integral systems in reducing air borne dust concentrations.

2. The way forward

2.1 Schools with Construction Studies/Woodwork/Technology Room(s) with a Separate Machining and Preparation Area (New layout)

Circular Saw and Planer Thicknesser
In schools with a Construction Studies/Woodwork/Technology room(s) that has/have a separate machining and preparation area the circular saw and the planer thicknesser are located in the machining and preparation area. Each of these two items of machinery should have either a centralized dust extraction system or each item of machinery should be equipped with a local/integral dust extract system.

Band Saw
The band saw is located in the teaching space. It may be fitted with either an integral dust extract system or be connected to the central system.

Sander
For safety reasons the sander, which is located in the teaching space, **must not under any circumstances** be connected to the centralized system. This should be connected to a local system; or the sander upgraded to a model with an integral extract system.

2.2 Schools with Construction Studies/Woodwork/Technology Rooms that do <u>not</u> have a Separate Machining and Preparation Area i.e. area is within the teaching space

Circular Saw, Planer Thicknesser and Bandsaw
In schools that have a Construction Studies/Woodwork/Technology room(s) that do not have a separate machining and preparation area the circular saw, planer thicknesser and bandsaw are located in the teaching space. Each of these three

items of machinery should have either a centralized dust extraction system or alternatively each of these three items of machinery may be equipped with a local/integral dust extract system.

Sander
For safety reasons, the sander, which is located in the teaching space, must not under any circumstances be connected to the centralized system. This should be connected to a local system; or the sander upgraded to a model with an integral extract system.

3 General Issues

3.1 To ensure compliance with the highest health and safety standards each of the four specific machines mentioned above should bear the following minimum particulars:

- Name and address of manufacturer
- The CE marking
- Designation of series or type
- Serial number, if any
- Year of construction.

In the context of installing dust extract systems, schools may upgrade these machines to conform with the above requirements.

3.2 Management authorities are reminded of their statutory obligation (Section 12 of the Safety, Health and Welfare at Work Act, 1989) to have a safety statement in place. Management authorities should ensure that there are adequate safety precautions and documented procedures that address all matters relating to operating hazardous machines or equipment.

3.3 The attention of management authorities is drawn to the need to ensure that where a central dust extract system is installed machines other than those mentioned in this Circular Letter should not be connected to the system. Sweep up points must not be connected to the system.

4 Application procedures

4.1 Management authorities of schools may decide to install integral/local dust extract systems to all of four items of machinery. The process of installing an integral/local system may involve either a replacement of some or all of the existing items of machinery or the adaptation of some or all of existing machinery. In either event, it may not be necessary to procure the services of a Consultant Services Engineer. In such situations, management authorities should obtain a minimum of three quotations for the supply, installation/adaptation and demonstration in the use of the relevant machinery from reputable suppliers. Details of the three quotations obtained together with details of programme for installation/adaptation should be

forwarded to the Post Primary Building Unit. The Building Unit will determine the level of grant aid to be provided and notify the school management authority accordingly. It should be noted that the level of grant aid must be approved prior to any purchase or installation/adaptation is made.

4.2 Alternatively, management authorities of schools may decide to install a combination of integral/local dust extract systems with central systems. This process requires the appointment of a Consultant Services Engineer. The fee payable to the Consultant Services Engineer shall not exceed 10% **of the[3] contract sum but excluding the cost of the machinery.** The role of the Consultant Services Engineer shall be to:

- work with the school's management authority in assessing and determining the appropriate dust extract system for the school;
- prepare and issue tender documents for the procurement of the selected system(s) including where appropriate upgraded machinery;
- post tender action, prepare a tender report with recommendations;
- prepare a report on the school's needs for the Post Primary Building Unit to include details of tender action and tender outcome;
- **following written approval from the Post Primary Building Unit to place a contract** to plan and supervise the installation of the system;
- ensure that school staff are trained in the use of the equipment;
- following the installation of dust extract system(s), confirm in writing to the school management authority and to the Post Primary Building Unit that the equipment has been installed in compliance with all relevant health and safety regulations and with the Department's specifications and guidelines as set out at Appendix A.

4.3 Attached at Appendix B to this Circular Letter is a list of Consultant Service Engineers that satisfy the Department's criteria for the award of commissions. The appointment of a Consultant Services Engineer must be made from this List. It is again stressed that the fee for this service is exclusive of cost of the four item of machinery that may be required and shall not exceed 10% of the builder's works.

5 Queries

Queries concerning this Circular should be addressed to the Post Primary Building Unit, Department of Education and Science, Tullamore, Co. Offaly.

John Rigney
Principal
June 2001

3 If it is necessary to replace some or all of the four items of machinery mentioned in this Circular Letter, the cost of these machines shall not be included for the purposes of determining the contract sum on which fees are payable.

Appendix XIII

Glossary

Abbreviation	Definition
SCA	State Claims Agency - the name used by the National Treasury Management Agency when managing claims against the State and providing risk management advice to State authorities with the aim of reducing the scope for future litigation.
DES	The Department of Education & Science
Technology Rooms /workshops	For the purpose of this report, technology rooms includes: • Materials Technology (Wood), • Construction Studies, • Metalwork, • Engineering, • Technology.
School Management Authorities (SMA)	Boards of Management and Vocational Education Committees
VEC Schools	Vocational Education Committee Schools
C&C Schools	Community and Comprehensive Schools
NCCA	National Council for Curriculum and Assessment
SEC	State Examinations Commission
Staff	Principals, Teachers, Ancillary, Maintenance and Cleaning staff
Engineering Controls	Engineering controls are the use of physical measures to minimize workplace hazards e.g. extraction at source by local exhaust ventilation, guarding of moving parts of machinery.
Safe operational areas	Safe operational areas (i.e. a demarcated area which allows the operator to use the machine safely and prevent inadvertent contact from others within the workshop, taking into account the task)
Daily dose noise exposure	The noise dose a person receives, equated to 8 hours.
OELV	Occupational Exposure Limit Values. An OELV is the maximum concentration of an airborne contamination a person may be exposed too in a given period.
MDF	Medium Density Fibre Board
PPE	Personal Protective Equipment
HSA	Health and Safety Authority

Appendix XIV

Bibliography

Legislation

Fire Services Act 1981

Safety, Health and Welfare at Work Act 2005

S.I. No. 203 of 1972: Factories (Woodworking Machinery) Regulations, 1972

S.I. No. 30 of 1982: Safety in Industry (Abrasive Wheels) Regulations, 1982

S.I. No. 157 of 1990: European Communities (Protection of Workers) Exposure to Noise Regulations, 1990

S.I. No. 44 of 1993: Safety, Health & Welfare at Work (General Application) Regulations 1993

S.I. No. 457 of 1994: European Communities (Personal Protective Equipment) (CE Marking) Regulations, 1994

S.I. No. 406 of 1994: European Communities (Machinery) Regulations, 1994

S.I. No. 372 of 1995: European Communities (Machinery) (Amendment) Regulations, 1995

S.I. No. 518 of 2001: European Communities (Machinery) Regulations, 2001

S.I. No. 619 of 2001: The Safety, Health and Welfare at Work (Chemical Agents) Regulations, 2001

S.I. No. 78 of 2001: The Safety, Health and Welfare at Work (Carcinogens) Regulations, 2001

S.I No. 188 of 2001: Safety, Health & Welfare at Work (General Application) (Amendment) Regulations, 2001

S.I No. 53 of 2003: Safety, Health & Welfare at Work (General Application) (Amendment no. 2) Regulations, 2003

Standards (Irish I.S and British BS)

I.S. 415:1988 Fire Blankets

I.S. 3218: 1989 Code of Practice for Fire Detection and Alarm Systems for Buildings

I.S. 3217: 1989 Code of Practice for Emergency Lighting.

I.S. 291: 2002 The Use, Siting, Inspection and Maintenance of Portable Fire Extinguishers

BS EN 418:1992 Safety of machinery. Emergency stop equipment, functional aspects – Principles for design

BS EN 418:1992, Safety of Machinery - Emergency Stop Equipment

BS EN 29454-1:1994 Soft soldering fluxes – Classification and requirements – Part 1: Classification, labelling and packaging

BS EN 626-1:1995 Safety of machinery – Reduction of risks to health from hazardous substances emitted by machinery. Part 1. Principles and specifications for machinery manufacturers

BS EN 1088:1996 Safety of machinery – Interlocking devices associated with guards – Principles for design and selection

BS EN 1083-1:1997 Power-driven brushes. Part 1. Definitions and nomenclature

BS EN 860:1997 Safety of woodworking machines – One side thickness planing machines

BS EN 859:1998 Safety of woodworking machines – Handfed surface planing machines

BS EN 861:1998 Safety of woodworking machines – Surface planing and thicknessing machines

BS EN 953:1998 Safety of machinery – Guards – General requirements for the design and construction of fixed and movable guards

BS EN 1598:1998 Health and safety in welding and allied processes – Transparent welding curtains, strips and screens for arc welding processes

BS EN ISO/IEC 17050-1:2004 Conformity Assessment. Suppliers Declaration of Conformity. General Requirements.

BS EN ISO/IEC 17050-2:2004 Conformity Assessment. Suppliers Declaration of Conformity. Supporting Documentation.

BS EN 1870-1:1999 Safety of woodworking machines – Circular sawing machines – Part 1: Circular saw benches (with and without sliding table) and dimension saws

BS EN 1870-2:1999 Safety of woodworking machines – Circular sawing machines – Part 2: Horizontal beam panel saws and vertical panel saws

BS EN 1807:1999 Safety of woodworking machines – Band sawing machines

BS EN 1870:1999, Safety of Woodworking Machines – Circular Sawing Machines

BS EN 1218-1:1999 Safety of woodworking machines – Tenoning machines

BS EN 848-1:1999 Safety of woodworking machines – One side moulding machines with rotating tool

Part 1: Single spindle vertical moulding machines

BS EN 848-2:1999 Safety of woodworking machines – One side moulding machines with rotating tool

Part 2: Single spindle handfed/integrated fed routing machines

BS EN 848-3:1999 Safety of woodworking machines – One side moulding machines with rotating tool

Part 3: Numerical control (NC) boring machines and routing machines

BS EN 4163: 2000 Health & Safety for design and technology in schools and similar establishments – Code of practice

BS EN 12717:2001 Safety of machine tools – Drilling Machines

BS EN 792-8:2001 Hand-held non-electrical power tools – Safety requirements – Part 8: Sanders and polishers

BS EN 13218:2002 Machine tools – Safety – Stationary grinding machines

ISSN0260-4809 BCGA Guidance Note GN7 – The Safe Use of Individual Portable or Mobile Cylinder Gas Supply Equipment

Health and Safety Executive, UK

Safety in the Use of Abrasive Wheels, HS (G) 17

Safe use of vertical spindle moulding machines, WIS 18

Drilling machines: guarding of spindles and attachments, PM 83

Safe use of hand-fed planing machines, WIS 17

PUWER 98: Retrofitting of braking to woodworking machines

Brakes on for old woodworking machines, WIS 38

Solder Fume and you, IND (G) 248

Health & Safety in Arc Welding, HS (G) 204

Electrical safety in arc welding, HS (G) 118

Engineering Workshops. New edition including guidance on LOLER and PUWER 98, HS (G) 129

Safe use of work equipment. Provision and Use of Work Equipment Regulations 1998. Approved code of practice and guidance, L 22

Safe use of woodworking machinery – Provision and Use of Work Equipment Regulations 1998 as applied to woodworking machinery, L 114

British Woodworking Federation. BWF Guide to health & safety in the woodworking industry

PUWER 1998 – Provision and Use of Work Equipment Regulations 1998: Open learning guidance

Lighting at Work, HS (G) 38

Info Sheet: Rotary knife wood turning lathes: safeguarding and reducing risks to health, WIS 28

Maintaining portable and transportable electrical equipment, HS (G) 107

Circular saw benches – Safe working practices, WIS 16

Health and Safety Authority

Health and Safety Authority Guidelines on Preparing Your Safety Statement and Carrying Out Risk Assessments

The Report of the Advisory Committee on Occupational Health and Safety at First and Second Levels in the Education Sector to the Health and Safety Authority (1995)

Guidelines to the Safety, Health and Welfare at Work (Chemical Agents) Regulations , 2001

The Department of Education and Science

Technology – TECH - Equipment list and Specification

Engineering – ENGM - Equipment list and Specification

Construction Studies – CS - Equipment list and Specification

Circular M45/01 Wood Dust Sysstems in Second Level Schools

Others

CIBSE (The Chartered Institute of Building Services Engineers) Code for Lighting /Health & Safety Executive guidelines.

The Design and Technology Association (DATA) Risk Assessment in Secondary Schools and College Design and Technology Teaching Environments - (revised edition 2003)