



**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/m<sup>3</sup> of <sup>1</sup>respirable particulate matter and a total <sup>2</sup>inspirable particulate matter of 10mg/m<sup>3</sup> 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

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

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

- 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.

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/m<sup>3</sup> while the total inspirable particulate matter levels were all less than 25% of the allowable level of 10mg/m<sup>3</sup>.

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 not 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 <sup>3</sup>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.

4.4 Guidelines for the design and installation of woodwork dust extraction systems in second level schools can be downloaded [here](#).

## 5 **Queries**

Queries concerning this Circular should be addressed to the Post Primary Building Unit, Department of Education and Science, Tullamore, Co. Offaly. Phone 01 873 4700 or 0506 21363 extensions??

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<sup>3</sup> 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

John Rigney  
Principal  
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fees are payable.