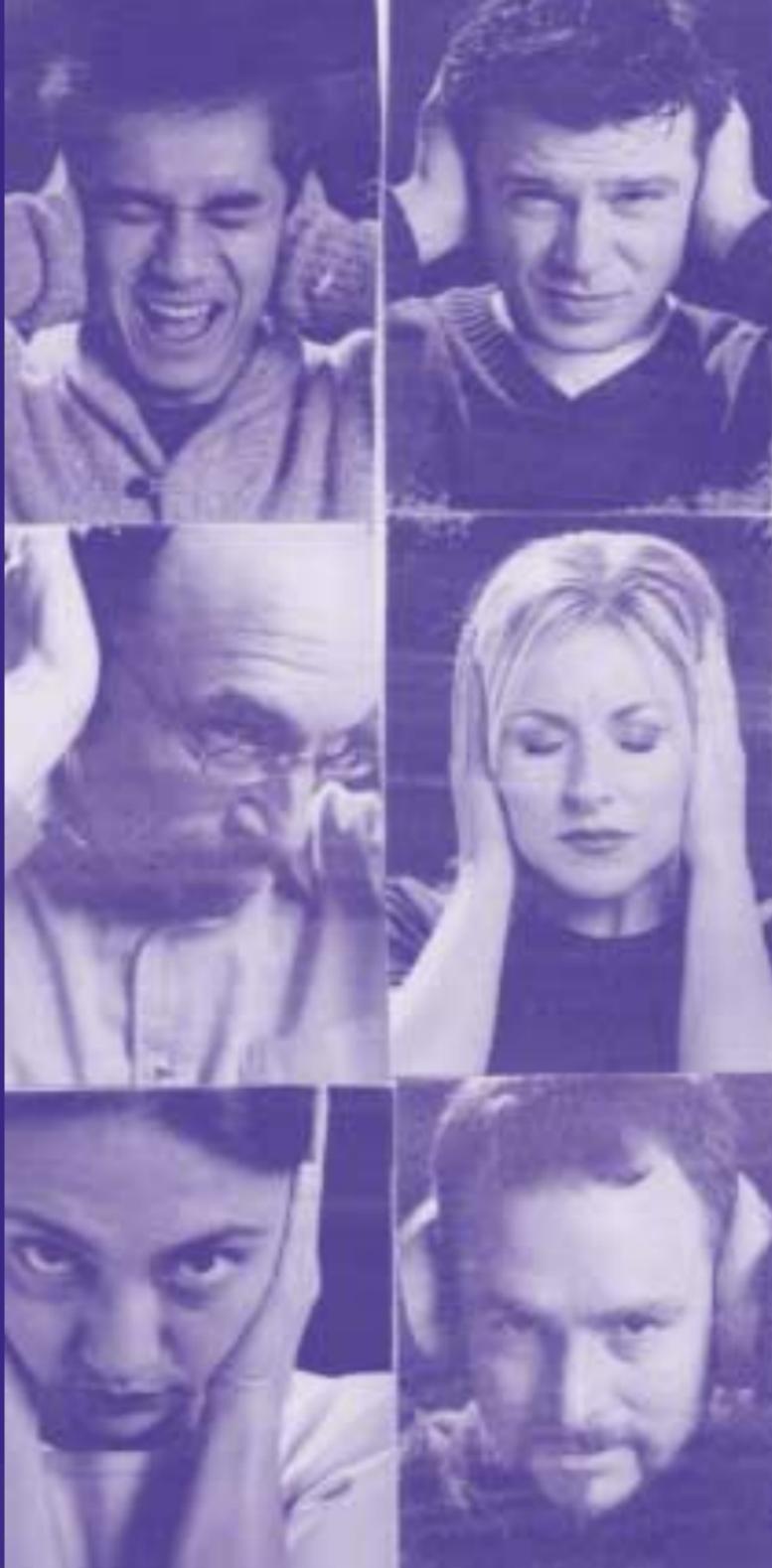


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# Keep The Noise Down

**SOUND ADVICE FROM THE  
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*Do you experience stress as a result of being unable to hear pupils in a noisy classroom?*

*Do you strain your voice as you attempt to make yourself heard?*

*Do you have to raise your voice to be heard by someone two metres away from you?*

If the answer to any of these questions is 'yes', you are suffering as a result of one of the most widespread and underestimated hazards which affect people at work: NOISE.

Noise can be defined as any unwanted sound. It is a pollutant and a hazard to human health. It affects our well-being and quality of life.

Schools will never be among the quietest of workplaces and teachers generally cannot block out noise in the way that some other workers can. Noise levels in schools are, however, of growing concern across Europe. John Monks, General Secretary of the European Trade Union Confederation (ETUC) has drawn attention to the fact that workplace noise is not just of growing concern in traditional noisy industries, but in the education sector too.

## **Why is Excessive Noise a Danger to Teachers' Health?**

High noise levels in schools cause stress and can lead to voice strain. Ultimately excessive noise can contribute to hearing loss.

### **Stress**

Noise at work, even at quite low levels, can be a factor in work-related stress. There is evidence that it has an effect on the cardiovascular system resulting in the release of adrenalin which is associated with

stress and an increase in blood pressure. The long-term effects can reduce your effectiveness as a teacher. Noise increases the risk of accidents as high levels of noise make communication more difficult.

## **Damage to Hearing**

There is growing concern in the education service about the possibility of long-term hearing damage to teachers who work in the noisier school environments, for example teachers of PE, CDT, science, drama and music. The possibility of damage to hearing, however, extends well beyond these groups of teachers to include any who work with particularly noisy groups of children, as well as those whose working areas suffer from poor acoustic design. Noise generated by children often has a cumulative effect, as children shout to make themselves heard above the other noisy children. In the long term this can cause hearing impairment or tinnitus among teachers and pupils. High noise levels also lead to voice strain for teachers. Separate NUT guidance is available on this issue from the Health and Safety Section of the NUT website at [www.teachers.org.uk](http://www.teachers.org.uk).

## **European Health and Safety Week 2005**

This document is published to mark 'European Health and Safety Week 2005' the theme of which is noise. European Health and Safety Week begins on 24 October 2005. The document's relevance and usefulness to NUT safety representatives and members will, however, continue well beyond this date.

The NUT is urging its safety representatives to mark the week by focusing on noise-related problems. Suggested activities are set out at the end of this document. The week beginning 24 October 2005 will be half term in many areas. If this is the case, safety representative activity could take place

during the previous or following week. Issues to focus on could include poor acoustic design, external influences (such as noise from building work, or traffic noise) or pupil noise.

Set out below is practical advice on measures which can be taken in schools to reduce the impact of noise on teachers. Pupil behaviour issues are, however, covered in separate NUT guidance available on the NUT website at [www.teachers.org.uk](http://www.teachers.org.uk).

## **Acoustic Design**

Most schools in England and Wales were built before 2003 when the DfES strengthened acoustic requirements. This means that a large number of classrooms suffer from poor acoustic design. Problems are caused by noise transfer between rooms and/or excessive reverberation in rooms. There are many reasons for the poor acoustics:

- the acoustics of Victorian Schools were designed for the days when children were expected to sit in silence, copying from the blackboard, and are often unsuitable for modern teaching methods;
- more modern constructions do not always provide adequate sound insulation and may need special treatment; and
- open plan or semi open-plan layouts can cause problems because of sound intrusion.

Poor acoustic conditions increase the strain on teachers' voices, and the need to shout to keep control. It is for this reason that teachers form a disproportionate percentage of voice clinic patients.

Set out below is practical advice on steps which can be taken to reduce noise transfer between different parts of a school building.

## **Noise from Kitchens**

Roller shutters are sometimes used to separate kitchens from multi-purpose spaces, such as halls, which are used for assemblies and PE. Roller shutters provide minimal sound insulation so it is common for noise from the kitchen to disturb other activities. The fitting of doors in front of the shutters can greatly improve the sound insulation.

## **Stairs, Circulation Areas**

Noise from stairs and circulation routes and movement of furniture can be a significant distraction to teaching and learning.

Carpets and other soft, yet resilient, floor finishes or rubber flooring materials can be useful in limiting noise within a space. Carpets may, however, be difficult to clean and are sometimes not used because of their effect on indoor air quality. Feet can also be fitted to furniture to reduce noise within a space. Heavy curtains can also help.

Noise in corridors, entrance halls and stairwells can cause disturbance to neighbouring classrooms and other teaching spaces. Corridors outside classrooms can be improved with acoustically absorbent ceilings and/or wall finishes.

## **Open-Plan Classrooms**

Distraction and disturbance between groups using open-plan areas can be considerable. Remedial measures can be taken to improve acoustic separation between different areas. Carpeted floors can help, together with an acoustically absorbent ceiling (but see below). Full height double partitions with a large air cavity between, can be installed. Tall items of furniture can help too, for example bookcases, but their effect is more limited.

A major improvement in the use of open-plan areas can be achieved by installing full height moveable walls which, if fitted with seals, can provide a reasonable degree of insulation between divided spaces.

## **Ceilings**

Ceilings can be made acoustically absorbent. 'Acoustic quilts' can be laid in the ceiling void under any existing layer of thermal insulation. It is not, however, always advisable for ceilings to be sound absorbing. A hard ceiling area is acoustically reflective which allows the teacher's voice to be reflected to all the pupils.

## **Internal Doors**

Choosing the right-door is critical in terms of reducing the transfer of sound between spaces. Lightweight internal doors can be improved by adding two layers of 9mm plywood or steel facings, as long as the frame and hinges can support the extra weight. Good sealing around the doorframe also helps ensure good sound insulation.

## **Floors**

Vertical noise transmission between classrooms can be a big problem, particularly in older multi-storey buildings with wooden floors, for example traditional Victorian school buildings.

Adding carpets can help but issues of cleaning, maintenance and effects on air quality need to be considered. Carpets are not suitable for some areas anyway, for example practical spaces. There are, however, other soft floor coverings which can be used such as an acoustic vinyl floor, or vinyl flooring laid on an acoustic mat.

Existing wooden floors can also be up-graded either by installing a floating floor system on top of the

existing floor or by removing existing floorboards and building a new floor on resilient material placed on top of the floor joists.

Use of suspended plasterboard ceilings above wooden floors can also achieve good results.

## **Walls**

Acoustically absorbent wall finishes can be used to improve sound absorption between different areas. It is important to note, however, that sound insulation will be no better than that provided by the weakest element, which is likely to be the window or door.

## **External Doors**

For external doors the level of sound insulation is determined by the combination of door and frame. It is important that an airtight seal is achieved between the perimeter of the doorframe and the opening into which it is to be fixed. Any gaps need to be packed with insulating material.

It is difficult to provide a high level of sound insulation using a single door. Two sets of doors separated by a lobby, will make a big difference in this respect and this also provides improved energy efficiency.

## **External Windows**

The sound insulation performance of a window is determined by the window frame, the sealing and the glazing. In existing buildings, secondary glazing can be installed as an alternative to replacing single glazing with double-glazing. The effectiveness of secondary glazing is determined by the thickness of the glass and the width of the air gap between the panes. It is also essential that the glazing in the window makes an airtight seal with its surround. Of equal importance is the need

for an airtight seal between the perimeter of the window frame and the opening into which it is to be fixed.

## **Arrangement of Rooms**

Although it is usually possible to achieve the necessary degree of sound insulation between two activities simply with a wall, this will not work if spaces are very different in their acoustic requirements, for example a sports hall and a music room. In such cases it is best to position these spaces apart from each other, separated either by an external space or a circulation space to act as a buffer between the two rooms.

## **EXTERNAL NOISE**

This includes noise from building works, noise from traffic (road, train and air) and from other activities such as grass mowing.

In some cases, activities are, at least to some extent, within the control of the school in terms of when they occur. Noisy building work, including drilling and sawing should, wherever possible, be undertaken outside of normal school hours. The same goes for grass cutting. If this is impossible, then at the very least seek assurance from management that staff will be informed when disruption is going to occur, so that teachers can plan their lessons accordingly.

Noise from road traffic can be alleviated by noise barriers. These can consist of a continuous close-boarded wooden fence with a mass of at least 12kg/m<sup>2</sup>. Landscaping mounds of earth can also be effective – more so than hedges or rows of trees which do not, in themselves, make effective noise barriers.

# **ACTION FOR NUT SAFETY REPRESENTATIVES**

## **What can you do?**

- Conduct a noise audit – ask members what their chief concerns are. You may find possible solutions in this document.
- Present a ‘wish list’ of changes needed to your school safety committee, or to the relevant governing body committee.
- If noise relating to pupil behaviour is the chief concern of NUT members, request that management address the issue through the school’s behaviour management policy.

Further advice and support is available from your local NUT health and safety adviser, or from your regional/Wales office.

A more detailed briefing on all aspects of noise in schools, including legal requirements and further advice on practical measures to address problems caused by poor acoustic design, is available from the NUT website at [www.teachers.org.uk](http://www.teachers.org.uk).





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