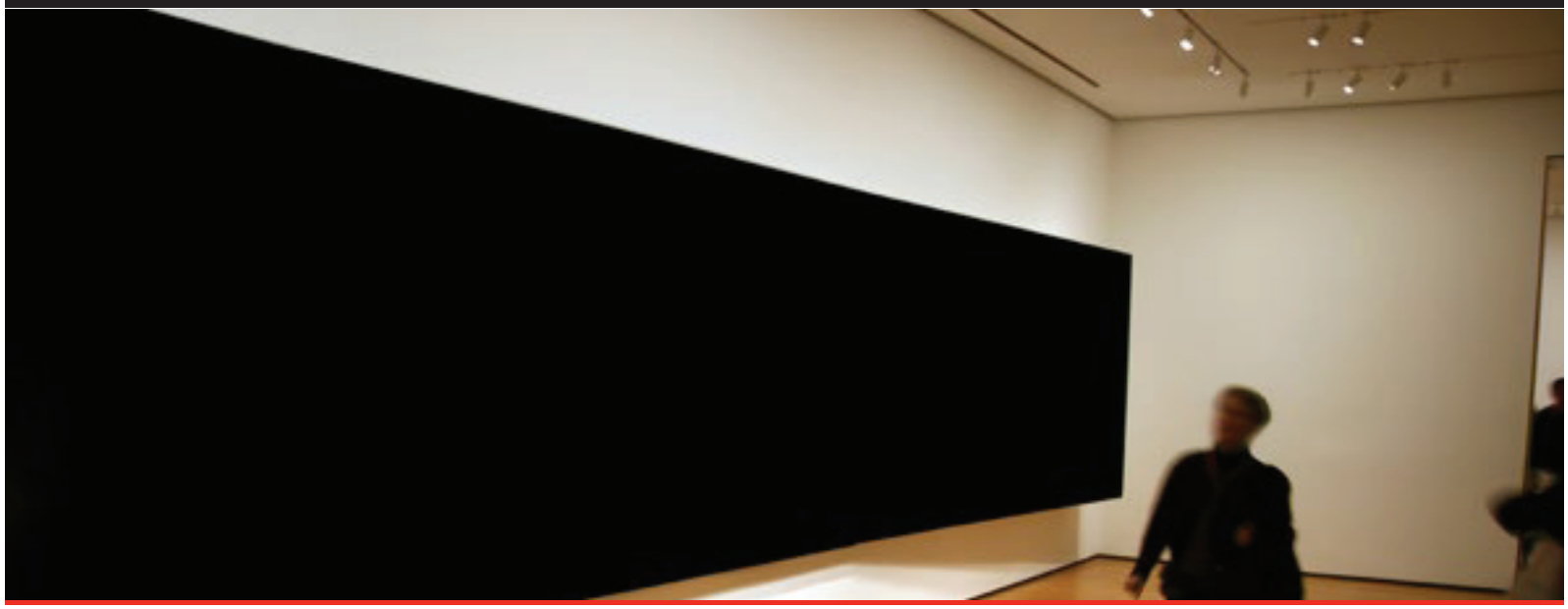
Learning Interrupted: How Excess Noise Affects Concentration

Understanding Challenges and Control of Noise in Educational Facilities



Pyrotek®

pyroteknc.com

on, the inability to
st scores[2]. These learning
articularly for young

The aim of this white paper is to examine the causes and impact of noise disruption on learning, concentration and ambience. In addition, we will explore effective solutions for creating peaceful environments where learning conditions are optimised.

nan
nction
tal

ter out non-essential
e at a volume where
uence is a noticeable
ng social behaviour

However, classroom volume is more often closer to 60dB; the equivalent of two people having a nearby conversation[4]. Not only does this impede student concentration and learning outcomes, it is the cause of increasing numbers of sick days for teachers suffering from voice strain[5].

classrooms should be
levels above 41dB
s[3].

While facilities constructed with concrete or brick walls will have some defence against noise transfer, the trend toward economically-priced lightweight building materials has exacerbated modern noise issues in learning spaces.

is, the length of time a sound reverberates within a space – indicates the scale of the noise issue.

d satisfactory. However, classrooms, gymnasiums, music rooms, libraries and museums – areas with quate absorptive materials – may experience reverberation of more than 2 seconds, which creates a e room. This increases overall volume and can impact concentration and comprehension ability.

nd

es are now
multiple uses. The
useums and art
groups,
ations.

***monly found in
e to echo – a
tour guides to***

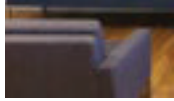
Solutions to noise issues

Fortunately, while noise issues are an ongoing problem in educational facilities, there are a variety of proactive solutions for all surfaces. These modifications are not only readily available, they're also cost-effective, customisable, and easily fitted to existing or new buildings.

The aim is to reduce the reverberation time in a room by increasing the amount of sound-absorbing materials. In addition, noise transfer can be targeted through soundproofing barriers and window double-glazing.

Best results are achieved by addressing several surfaces throughout the room simultaneously, rather than

to suit the practical needs of classrooms and library rooms, as well as the visual appeal of modern museums and exhibition centres.



Retrofitting vs Aesthetics

Soundproofing initiatives can be integrated during the design and build process; for exis
retro-fitted to target problem areas.

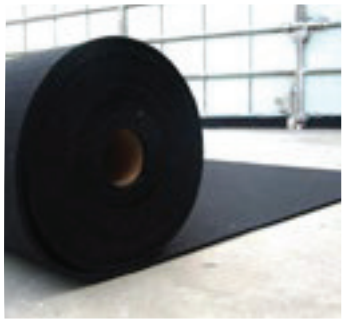
Luckily, that doesn't mean losing the architectural individuality of the space. This is partic
buildings such as museums and art galleries, where the interior is often an element of ar

Pyrotek's range of sound-absorbing solutions can be tailored to meet the aesthetic n

- Ceiling panels in a range of materials
- Digitally printed panels including corporate branding
- High performance acoustic treatment materials
- Custom trimmed acoustic textiles, various colours
- Powder-coated metal panels, microperforated absorbers
- Proven commercial solutions certified to fire codes

Minimise floor noise

Footsteps, sliding chairs and desks, and impact noise from floors can be significantly reduced using Pyrotek's high-density bonded foam underlay, **Silentstep®**.



Quality underlay also cushions floor noise from adjoining rooms, including those located on the floors below.

While **Silentstep®** supports a range of carpet applications, the new-generation underlay is also highly effective when placed under hard timber, tile or parquetry flooring, which are particularly prone to impact noise.

Noise transfer solutions

Facilities divided via partiti
museum exhibitions or lib
transfer between sections
performance flexible vinyl

Mass-loaded to achieve m
Wavebar® can be integrat
noise transfer in and out. T
to specifically target proble
frequencies.

Wavebar® can also be adh
to partitions, such as those
found between exhibition
classrooms or as temporar
dividers, to improve acous
insulation.

Outdoor and high resistance soundproofing

Sorberscreen Micro™ is a unique and decorative sound absorber for use in walls and ceilings, and is weather resistant for outdoor applications.

Made from micro-perforated metal with a 1mm aluminium finish, **Sorberscreen Micro™** can be supplied in several varieties and its unique look complements architecturally distinctive buildings. **Sorberscreen Micro™** can also be shaped to suit equipment with high

Pyrotek® Acoustic Solut

With over 40 years exper
advanced noise control t
solutions are continually
needs of a broad range o
visual appeal and aesthe

About Pyrotek®

Pyrotek® provides innovative noise control products and tailored acoustic insulation solutions to the Australian building and architecture market.

With an inhouse engineering team, Pyrotek® can create highly specialised products to designed specifications and performance requirements.

To find out more about Wavebar®, Sorberscreen, Echohush, Silentstep or other acoustic solutions, visit www.pyroteknc.com

Pyrotek®

pyroteknc.com