

ECHOSORBA II™ BB93 Class C Acoustic Panels



PUBLIC BUILDINGS



CLASSROOMS

ECHOSORBA II Class C acoustic panels are extremely high performance noise absorbers. Their lightweight properties and low thickness not only make the panels easy to install but extremely suitable for adhering to a wide range of ceiling and wall surfaces. These panels are used widely in schools, offices, music studios, lecture theatres, multi purpose halls, interview rooms, training areas and cinemas. They meet the requirements of BB93 of the Building Regulations for acoustics in school buildings and are Class 0 fire rated hence meeting the Fire Regulations as well.

ECHOSORBA II™

Class C Acoustic Panels

ECHOSORBA II acoustic panels feature a highly sound absorbent fibreglass core that provides very high noise absorption whilst a white speckled laminated facing enhances the panel's visual aesthetics with a sleek contemporary appearance.

The panels have bevel edges contributing to an elegant look allowing unique wall and ceiling designs to be created. Although the panels come in a standard white colour to blend in with most ceilings, they can be emulsion painted to any colour.

Product advantages:

- Saves headroom space because exceptional noise absorption effectiveness is achieved by low (30mm) material thickness.
- Surfaces can be emulsion painted to any colour without significant loss in noise absorption (see test data graph opposite).
- Increased safety due to Class 0 fire rating which meets Building Regulations.
- Cost savings due to fast and easy installation.
- Lightweight and therefore are ideal for adhering to ceilings, which do not have a very high load bearing capabilities.
- Meets BB93 standards for school acoustics as well as common areas in flats for Building Regulations.
- Reinforced edges for increased durability.

DESIGN CONSIDERATIONS

ECHOSORBA II acoustic panels lend themselves for use in a variety of environments as they offer the possibility of creating different configurations giving an attractive appearance often desired in a noise reduction product. The option of butting the panels together or spacing them apart from each other adds to the design possibilities. The panels have reinforced edges to create a more durable product. Although this results in a slightly lower grade of finish on the edges this is not too apparent on high level wall surfaces and ceilings.



PAINT DECORATION

ECHOSORBA II acoustic panels are available in the white standard colour to match most ceilings, however they can be emulsion painted to any colour with little significant effect on acoustical performance, as can be seen on the test data on the opposite page. The panels can be painted for aesthetic reasons or even in the future to cover over any dirty marks or maybe discolouration from cigarette smoke etc. It is important that the paint is water based matt emulsion and is applied in a very light coat so that the acoustics are not effected.

BB93 ACOUSTICS IN SCHOOLS

ECHOSORBA II acoustic panels are unique architectural noise absorbers designed to meet the requirements of Building Bulletin 93 (BB93) linked to part E of the Building Regulations in schools and public buildings as well as stairwells, hallways, corridors for flats and other open spaces where noise reverberation is a problem. ECHOSORBA II panels are Class 'C' sound absorbers which are generally the main class required in the Regulations.

BB93 has been introduced due to the increasing awareness of the importance of noise and sound control in building spaces. BB93 requires reverberant noise to be controlled in school spaces such as classrooms, playrooms, libraries, music rooms and studios, dining rooms, assembly and drama halls, gymnasiums, swimming pools and corridors.

Good classroom acoustics are an important but often neglected issue. Studies have shown that the majority of classrooms in the UK suffer from poor acoustics which reduces the children's ability to learn when words in a sentence are not properly heard. Children find it harder to fill in the blanks when compared to adults as they have fewer words in their vocabulary and are less likely to be able to lip read.

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The Building Regulations Approved Document E contains guidance on the addition of sound absorption to common areas in buildings containing multiple dwellings such as flats. Two methods of application are given:

Method A

This requires that entrance halls, corridors or hallways should be treated with a Class 'C' performance noise absorber with coverage greater than or equal to the floor area. These noise absorbers are typically applied to the ceilings. The requirements also state that stairwells or stair enclosures have a Class 'C' absorber covering an area of at least 50% of the ceiling of the combined area of the stair treads, the upper surface of the landing and the top floor ceiling area. ECHOSORBA II acoustic panels are an ideal product to meet these requirements.

Method B

This method requires detailed acoustic calculations to assess the amount of absorption required over the octave frequency band of 50Hz to 4000Hz. Please contact Custom Audio Designs Ltd for technical assistance on this method.

NOMINAL DIMENSIONS/ WEIGHT

Nominal size: 1200 x 600 x 30mm.

Nominal weight: 4kg/m².

Dimensional tolerances +/- 3mm.

LIGHT EFFICIENCY

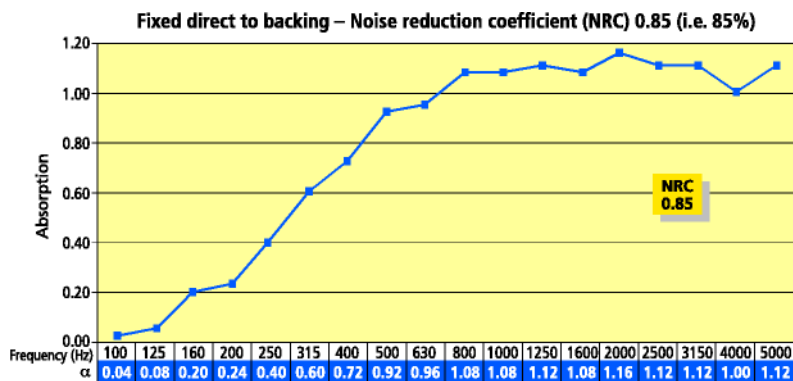
ECHOSORBA II acoustic panels provide 78% diffuse light reflectance.

FIRE SAFETY

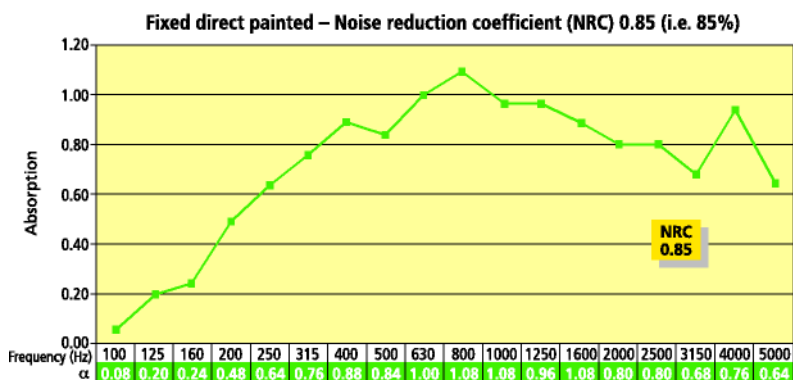
The ECHOSORBA I acoustic panels meet the requirements of Class 1 and Class 0 of BS476 Part 6 and 7. Class 0 is the highest fire standard required in the Building Regulations.

HUMIDITY RESISTANCE

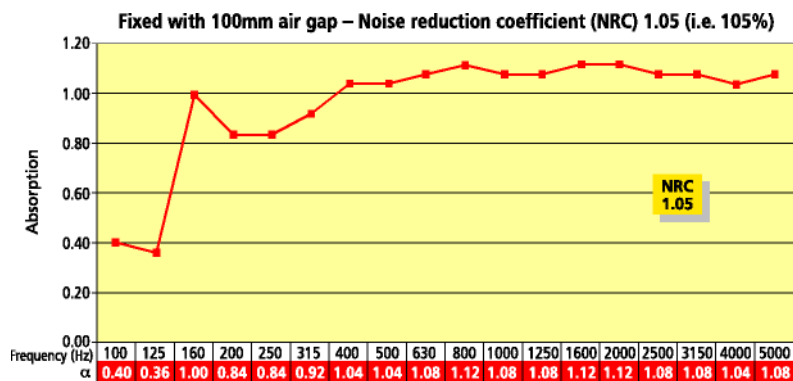
ECHOSORBA II acoustic panels resist up to 93% Relative Humidity at 40°C in accordance with ISO 4611.



The special construction of ECHOSORBA II panels gives a very high sound absorption rating 0.85 (i.e. 85%) with minimum headroom height loss (only 30mm).



The NRC of a standard panel is 0.85 (i.e. 85%) and an emulsion painted surface panel is also 0.85 (i.e. 85%). The only difference is that the thin coating of emulsion paint on the surface acts as a membrane absorber leading to higher absorption at the lower frequencies and a drop off at the higher frequencies. However the overall NRC stays the same at 0.85 (i.e. 85%).



This fixing method results in very high sound absorption especially at low frequencies which is often very difficult to achieve. This product achieves an absorption coefficient of 1.00 (i.e. 100%) even as low as 160 Hz. This provides a very cost effective bass absorber for studios and music rooms at minimal cost.

The air gap can be created by using 100mm thick timber battens behind the panels or a similar method.

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CUTTING

ECHOSORBA II acoustic panels can be cut to the required size and around any light fittings and other services using a sharp utility knife. This avoids financial costs and lost labour time on site of removing and refitting light units etc. Any cut edges which are visually exposed can be touched up with matching white emulsion paint.

Ensure the panels are cut using a long sharp blade to avoid damage to the face of the panel. Care must be taken when cutting the edges of the panels as they are reinforced to create a more durable product. The cut edge should be lightly sanded. After sanding ensure the area is free from dust before painting. The core of the panel is very porous to paint and therefore may require more than one coat. However painting may not be necessary in areas where the cut edges are not seen.

INSTALLATION

ECHOSORBA II acoustic panels are simply adhered to ceilings and upper walls using our spray adhesive for walls or spreadable adhesive for ceilings. It is important to check the construction detail of the backing surface structure (ceiling or wall) to which the acoustic panels are to be glued. The ECHOSORBA II panels have a thermal conductivity of 0.034 W/mK at 10°C and therefore have good thermal insulation properties as well as excellent sound absorption. It is therefore important to ensure that there is no possibility of condensation or cold bridging occurring if the acoustic panels are applied to the surface of the structure. Should there be any potential for condensation or cold bridging, then it is very important that this problem is eliminated by suitable treatment, such as a vapour barrier etc, before the ECHOSORBA II acoustic panels are installed.

Also ensure that the backing surface does not have any holes or cracks through which air can pass. These must be completely sealed. Failure to take suitable precautions may lead to staining of the acoustic panels due to air and moisture movement. This can potentially occur, for example, where there is no heated upper floor above the ceiling to which the acoustic panels are to be fitted. Custom Audio Designs Ltd will not be liable if these precautions are not taken and staining occurs.

Our spray can adhesive is a quick spray-on application which comes ready to use in 500ml spray cans. The panels and adhesive must be kept and stored inside at room temperature at all times and acclimatised in the area where they are to be used for 24 hours before installation. The panels are adhered to the backing surface either with a butt joint effect or by using shadow gaps. To avoid soiling the panels, white cotton gloves should be worn when handling them. The backing surface must be clean, flat, level, dry, solid and free from dust, oil, grease and other similar residue which may affect the adhesion. We recommend that the contact adhesive is applied at room temperature of approximately 21°C and in well ventilated conditions.



The contact adhesive has to be applied to both the panel and the ceiling/wall surface in a web type pattern. The spray adhesive can should be held 150mm to 300mm away from the surface and at a constant 90 degree angle. To avoid overspray onto the edges of the panel or other surfaces, it may be necessary to mask any vulnerable areas.

The panel and the ceiling/wall surfaces should be fully coated and then allowed to dry for 3-5 minutes before bonding the surfaces together. The panels should be placed accurately into position

as the adhesive creates an immediate bond upon contact. Once the panel is in place it should be pressed firmly to ensure overall contact. We recommend a test adhesion is carried out to full satisfaction, before proceeding with the full installation. Coverage should be 100%. Each 500ml spray can covers approximately four panels on both surfaces, depending on workman and backing surface.

GUIDE SPECIFICATION FOR ARCHITECTS

A. General

1. All ECHOSORBA II panels should be installed in accordance with manufacturer's brochure instructions unless instructed otherwise in writing.
2. The contractor shall be responsible for the examination and acceptance of all conditions and project suitability prior to the acoustic panel installation, including eliminating any condensation or cold bridging possibilities and sealing all holes and cracks.

B. Product

1. Install ECHOSORBA II stick-on acoustic panels.
Nominal panel size 1200 x 600 x 30mm.
2. Installation to have shadow joint effect*/butt joint effect.*

*Delete as applicable.

Prices and Conditions of Sale

Our standard terms and conditions (copy available on request) apply to all orders. Since Custom Audio Designs Limited exercise no control over the use of its products, no legal responsibility is accepted for any application of their products. We reserve the right to change specifications without notice as our policy is one of continuous improvement. Copyright Custom Audio Designs Limited 2006.

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