

AXTER ACOUSTICS

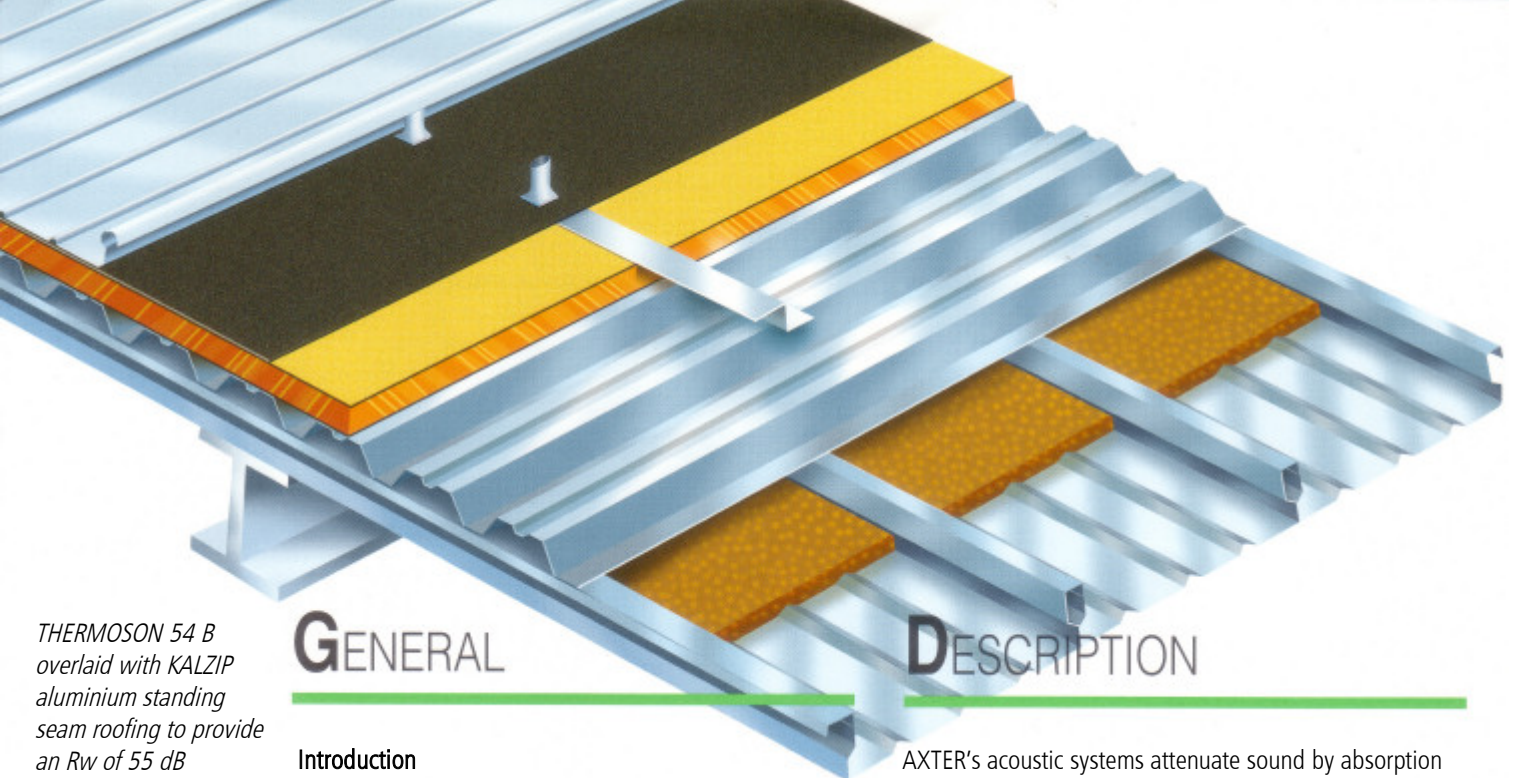
ACOUSTIC ENHANCING ROOFING AND CLADDING SYSTEMS

A range of scientifically designed lightweight roofing and cladding systems to improve the acoustic performance of all types of building

Features include:

- ◆ *enhancement of acoustic absorption and/or insulation characteristics*
- ◆ *specific acoustic solutions for individual buildings*
- ◆ *suitability for specialised or general building types*
- ◆ *used in conjunction with a wide range of external finishes*
- ◆ *direct liaison with acoustician, specifier, or end-user*





THERMOSON 54 B overlaid with KALZIP aluminium standing seam roofing to provide an R_w of 55 dB

GENERAL

Introduction

AXTER Ltd offers a wide range of low slope and pitched roofing as well as vertical cladding systems which are used to control airborne sound in all types of building. Special techniques have been designed to give levels of sound insulation which can normally be found only by using high mass concrete. AXTER relies on expertise developed by its parent company SMAC Acieroid, one of Europe's largest roofing and cladding contractors, who have proved the systems in use for many years on all types of buildings. The range of available systems is based on specially designed plain or perforated profiled decking or structural liner trays filled with sound absorbent materials. In some systems a secondary profiled metal deck is placed above the liner tray in order to facilitate the installation of thermal insulation and the external weathering materials. A wide choice of architect or end-user preferred external finishes can be incorporated into the design. Proof of performance acoustic test data can be included in the design specifications. AXTER is able to suggest the most appropriate system to produce the optimum acoustic performance, by incorporating one of over 60 standard tried and tested constructions or by designing a new build-up to meet specific requirements. The company has completed a considerable number of projects both in the UK and in Europe on a variety of buildings.

Applications

AXTER's systems may be used on both specialised and general building types. Specialised buildings include: auditoria, theatres, swimming pools, ice rinks, television and radio studios, arenas, libraries, power generation sites. General buildings include: airports, factories, hotels, restaurants, school classrooms, conference suites, night clubs.

CPD

AXTER is pleased to offer in-house seminars on acoustic design which can contribute to an individual's Continuing Professional Development Programme.

DESCRIPTION

AXTER's acoustic systems attenuate sound by absorption thus reducing internal noise levels and reverberation times, and/or by insulation which reduces the amount of sound passing through the building's structure.

Sound absorption...

...is a traditional method of noise control. Acoustic energy is removed by using porous absorption materials and reducing the acoustic energy that is reflected from the internal walls and ceiling. The performance of a material is quantified in terms of its sound absorption coefficient α which is defined as the ratio of sound energy not reflected from the material divided by the sound energy incident upon the material.

For a perfect absorber the value of α would be 1, while for a perfect reflector α would equal zero.

Actual results depend upon the frequency of the sound and AXTER is able to provide test data on the levels of α across the sound spectrum for each system.

Airborne sound insulation...

involves separating by a physical barrier the space to be protected from the space containing the noise source. Sound waves in the air on the sound source side impinge on the partition, causing it to vibrate and so radiate sound into the receiving space. The Sound Reduction Index, A , is a ratio of the sound intensity incident upon the partition and the intensity transmitted by the partition. AXTER can provide test data across the frequency range for each system.

Many system types are available to meet all requirements; a summary is provided on the following page.



ROOFING SYSTEMS

SUPER ALPHA and AQUALPHA

Lightweight roofing systems providing a high level of sound absorption. They comprise a perforated profiled metal deck with the troughs filled with sound absorbent fillers. These fillers can be surface treated to stop loose fibres falling through the perforations in the decking. SUPER ALPHA and AQUALPHA systems are often used in factories, gymnasias, sports halls and in high humidity buildings such as swimming pools where special techniques have been devised to obtain levels of α near to 1 at high frequencies whilst at the same time controlling the incidence of interstitial condensation within the thermal insulation. External weathering is usually a site applied single-ply or multi-layer membrane but metal roofing sheets can also be incorporated.

THERMOSON A

THERMOSON A lightweight roofing systems are used where a requirement exists to control internal noise levels and to protect the building from a noisy external environment or to prevent noise break-out from the building itself. They comprise perforated structural liner trays filled with an acoustic domino and provide a high level of sound absorption as well as medium to high levels of sound insulation. The profile of the liner tray is designed for the dominoes to be mechanically held in place with no additional means of attachment. For low slope roofs THERMOSON A systems usually incorporate one or two profiled metal decking sheets supporting thermal insulation and the external weathering layer. For pitched roofing the above can be used with or without a metal skin but usually with roll form thermal insulation and the metal roofing supported on Z-spacers. External weathering can be site applied single-ply or multi-layer waterproofing systems or proprietary metal roofing.

THERMOSON B

THERMOSON B lightweight roofing systems are used to protect occupants from external noise levels or to prevent noise break-out into the surrounding environment. They comprise plain structural liner trays filled with an acoustic domino and provide a high level of sound insulation. As in THERMOSON A the liner tray is so designed that the dominoes are held in place mechanically without the need for additional means of attachment. External weathering is similar to that used with THERMOSON A.

ANTISON

A lightweight roofing system providing medium levels of absorption and insulation at an economic cost. ANTISON comprises plain or perforated profiled metal decking with combined thermal/acoustic insulation and site applied weathering. ANTISON is usually used on buildings where it is desirable to reduce or eliminate background external noise, such as road traffic, from entering the building.



CLADDING SYSTEMS

THERMOSON A and B

Lightweight cladding systems designed to control both absorption and insulation on similar lines to roofing (*left*) usually with profiled metal external cladding sheets. Other cladding systems such as timber can be incorporated into the design.

ANTISON and ANTISON PLUS

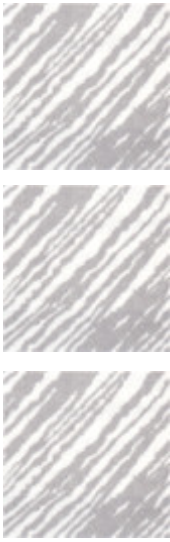
Lightweight cladding systems similar in design to ANTISON roofing systems which provide medium to high levels of sound absorption at an economic cost.

BDP

A lightweight cladding system providing medium to high levels of insulation at an economic cost. BDP comprises a double skin metal system with a combined thermal/sound insulation and is used to reduce or eliminate background external noise levels, such as road traffic, from entering the building.



Structural liner tray on a new auditorium at Woldingham School. Surrey



SERVICES

AXTER usually works in collaboration with an acoustician who makes an assessment based on the required acoustic performance within the structure measured against expected use. The acoustician then makes recommendations as to the necessity for acoustic enhancement. The design and function of the building, the nature of the environment and the protection of the inhabitants must be taken into consideration. By incorporating the test data provided by AXTER for sound absorption the acoustician can calculate the areas which need treatment to meet his requirements. For sound insulation the acoustician will provide recommendations for Sound Reduction Indices at octave or 1/3rd octave frequencies. AXTER will then be able to offer the most suitable system to meet those requirements and the architect's overall design.

AXTER also works with main or sub-contractors directly when the information above has already been provided and advice can be given as to which construction is the most appropriate for any particular application.

GUARANTEE

AXTER acoustic roofing and cladding systems are guaranteed to meet the attenuation levels as detailed in the specific test data. Complete noise control however is a function of the total building envelope and clients should be aware that every part of the building has to be designed with acoustics in mind if they wish to create an ideal environment.

SUPPLY

Complete roofing and cladding systems are supplied by AXTER from the address on this information sheet.



APPLICATION

Application is usually by one of AXTER's Recommended Installers a list of whom can be provided upon request. Systems are installed direct to main structural members or intermediate steel work such as purlins or sheeting rails. Span capabilities for all the systems are also available. Internal surfaces can be coated with a range of coloured finishes as can the external surfaces for the metal roofing and cladding systems.

FURTHER INFORMATION

Individual specification data sheets are available for all AXTER's systems along with acoustic test data. AXTER's technical staff are available to advise on and to provide full specifications if required.



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