

sector criteria

commercial
education
healthcare
leisure

retail
transport
airports
controlled environments



Specification Criteria	
Acoustic Comfort	<p>Sound absorption Reducing open plan background noise.</p> <p>Reducing room to room noise transfer.</p> <p>Sound attenuation Clarity for verbal communication.</p>
Design Aesthetics	<p>Building module size.</p> <p>Product integration.</p> <p>Perforation.</p> <p>Corporate design scheme.</p>
Accessibility / Maintenance	<p>Easy access to services.</p> <p>Wipe Clean finish.</p>
Integration	<p>Prefabricated apertures for luminaires and other services.</p> <p>Demountable partitioning.</p> <p>Other SAS Room Comfort products.</p>



From large showcase developments to refurbishments the requirements for office interiors has changed. The office environment now plays an important role in staff motivation and efficiency. The function and aesthetic look of the interior finish plays an integral part in presenting a corporate identity and providing a comfortable work environment.

Modern office design requires flexibility ensuring there is the correct balance of acoustic absorption and attenuation, reducing background noise to increase concentration whilst enabling conversation.

Privacy is also an important acoustic demand in offices. The BRE (Building Research Establishment) assessment process BREEAM: Offices (BRE Environmental Assessment Method) promotes good building management and encourages effective building operation.

The operation of buildings in the UK accounts for over 50% of the total UK CO2 emissions. The use of energy efficient SAS Chilled Ceilings and beams in projects has contributed to the highest performance ratings. See page 171 for further information on Chilled Ceilings and Beams.

An occupant's use of commercial buildings is rarely static. Companies grow and contract in size and employ increasingly sophisticated communication and IT systems. Such changes place different demands on the interior finishes in a working environment.

Designing ceiling integration with lighting, heating and cooling, sprinklers, data cabling, fire alarms, speakers, signage and partitioning is imperative. The removal and refitting of partitioning often leaves unsightly holes, marks and other damage to the ceiling. If integrated with the ceiling during design stage this is eradicated.

Maintenance and changes in buildings have to be made quickly, efficiently and cost effectively, accommodating the dynamic needs of its occupants. Virtually any metal ceiling component can be identified, ordered, replaced and installed from a single tile to an entire system. This service facility is becoming an important client consideration as the UK market adapts to shorter leases and the exercise of lease break clauses due to ever changing space requirements.

Regular access through the ceiling for service maintenance can result in soiling or damage to individual tiles. Metal suspended ceilings are renowned for their durability and ease of maintenance.



SAS International are members of the British Council of Offices. The "Office Fit-Out Guide" and the "Best Practice in the Specification for Offices" highlight the acoustic issues relating to suspended ceilings.

Specification Criteria	
Acoustic Comfort	Sound absorption BB93 requirements under regulation E4 of the Building Regulations for speech intelligibility.
Design Aesthetics	Acoustic lighting rafts enable sustainable natural mass cooling. Range of modular clip in or lay in systems.
Accessibility / Maintenance	Secure voids using security clips. Durable, hygienic, wipe clean polyester powder coated finish. Easy access to services.
Durability / Sustainability	Durability providing sustainable solution in terms of whole of life costs. Recyclable at end of life.



The design and specification of education buildings is hugely important. The sector has various demands that ensure that the learning environment is right for children and students to be educated.

Acoustic comfort is arguably the most important requirement of an educational facility. Different areas of educational buildings will invariably have different acoustic demands: Classrooms, music rooms, corridors and libraries.

It has long been recognised that the learning environment discriminates against individuals with hearing impairment and classroom design is a contributing factor. A poor acoustical environment can be as much of an architectural barrier as a set of steps are to a wheelchair user.

The acoustic design of schools is covered by Building Bulletin 93 (BB93) published in 2003 by the DfES. Its requirements are mandatory, being referenced under regulation E4 of the Building Regulations 2000. Compliance with this regulation must be proved to the Building Control Officer by issue of a comprehensive design report.

Control of reverberation in classrooms, corridors and stairwells as stated by BB93 has focused the need on good acoustic design, which need not stifle design flair. In a functional classroom (depending on the selection of acoustical material) often only 50% of the plan area needs to be considered for acoustic treatment to meet design criteria. Acoustic demands can be met by the use of acoustic lighting rafts. Used in accordance with an open soffit, rafts enable thermal mass cooling, naturally contributing to energy efficient building cooling. A combined perforated and non-perforated metal suspended ceiling system can be designed in a variety of ways to produce optimal acoustic design.

Durability of metal acoustic products reduces maintenance costs by being resilient to accidental and malicious damage. Cleaning is integral to the use of an educational building. Products specified should be non-staining, easy to clean, dust free and designed for robust infrequent accessibility

These elements provide a consistent safe environment for the life of the building. Quality specified products can perform to the highest standard for years, without reverting to external trades to maintain their performance.



SAS International are members of the BCSE, who are committed to excellence in the design and standard of educational buildings.

Specification Criteria	
Accessibility / Maintenance	Corridor solutions allow access to services. Durable, hygienic, wipe clean polyester powder coated finish. Optional Anti-Bacterial paint finish.
Acoustic Comfort	Meets requirements of HTM 2045 for acoustic performance.
Fire Performance	Performance rated to European Class A2 -s1, d0.
Design Aesthetics	Meets requirements of HTM 60, Building Components (Ceilings).



There is increased understanding and evidence that hospital design impacts significantly on patient recovery, as well as staff wellbeing and retention. In a recent CABA report 86% of nursing chiefs thought well designed hospital buildings improved the performance and morale of NHS nurses. Good light, air quality and acoustic environment are key internal elements and the type of ceiling installed can have a significant impact.

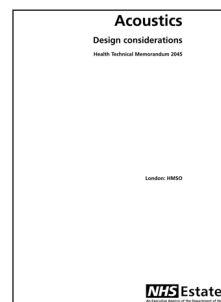
HTM (Health and Technical Memorandum) 2045 sets out acoustic performance criteria for sound insulation and absorption within hospitals. High levels of noise inhibit patient recovery and reduce staff productivity levels.

Metal ceilings offer a sophisticated look, enhancing the perceived value of a building and the internal environment by staff, patients and visitors. Metal does not suffer from pattern staining or air movement defect. The finish on a ceiling can also impact significantly on the diffusion of light around a space, for example a low gloss finish (SAS FT) option is available that provides a plasterboard effect, diffusing light throughout a room.

Anti-bacterial coatings (SAS AB), applied during manufacture effectively inhibit the growth of micro-organisms and control potential risk when used in conjunction with routine cleaning procedures. Ease of cleaning, is an important factor in the control of infection. Metal ceiling tiles, plain or perforated and backed with aluminium foil for sound absorption, act as a barrier to any filtering effect and render the tile a truly inert material. All that is required is simple washing.

Hospitals require seven times more mechanical and electrical services than office buildings. Metal ceiling systems allow services to be housed in the ceiling void; offering a range of different access options ceiling tiles can be easily and frequently removed without damage, see page 34.

Within humid environments the damaging nature of moisture can be combated by coating both sides of the ceiling, thereby satisfying the most stringent corrosion tests.



Specification Criteria	
Design Aesthetics / Paint Finish	A range of over 200 RAL colours are available to meet corporate brand requirements.
Durability	Durability providing sustainable solution in terms of whole of life costs.
Accessibility / Maintenance	Secure void using security clips.
Fire Performance	Performance rated to European Class A2 -s1, d0.

The leisure industry is a competitive sector, with many different types of activities on offer. However, much like the retail companies operating in this sector; they have to ensure their buildings are designed to reflect the nature of their business and brand identity, whilst ensuring they also are comfortable and relaxing spaces where people want to spend time.

The corporate brand identity of leisure businesses such as casinos, gyms or hotel chains can be enhanced by SAS products with a comprehensive range of RAL colours. This ensures that building occupants (whether they be customers or staff) appreciate a high standard of interior finish and brand recognition resulting in a comfortable environment throughout the building.

Leisure centres, libraries and museums are all buildings that have acoustic demands, be it offices, open plan libraries or study rooms. Metal ceilings offer equally good acoustic control through the use of perforations and/or the inclusion of acoustic pads.

Durability is important as many buildings are open and used constantly. Metal is one of the most durable raw materials used in the construction industry with excellent whole life cycle costs, it holds a residual value at the end of its use. As the demand on these types of buildings is constant it is important that the products specified do not need ongoing maintenance.

Metal ceilings often protect the building's M&E services and access to such areas must be planned at design stage, see page 34 for accessibility and maintenance information.

The integration of heating and cooling products, lighting, signage and communication/public address systems is also maximised with metal ceiling systems. Aperture tiles/panels can be pre-formed in factories to ensure that time spent on site during installation is limited, cutting budgets for clients and adding 'value' to the process.



Specification Criteria	
Paint Finish	<p>A range of over 200 RAL colours are available to meet corporate brand requirements.</p> <p>An optional fine textured paint finish, SAS FT, is available.</p>
Design Aesthetics	<p>Ceilings can be designed to incorporate any store design requirement.</p> <p>Floating rafts of ceilings can be designed incorporating bulkhead trims.</p>
Fire Performance	<p>Performance rated to European Class A2 -s1, d0.</p>
Integration	<p>Luminaires and other building services can be installed utilising factory formed apertures.</p>

As shopping evolves into a leisure activity the leading retailers and shopping centre owners compete to provide the ultimate shopping experience. The consumer now demands a more comfortable, attractive environment and SAS is dedicated to providing high quality metal solutions that satisfy their demands.

Clients particularly in the retail industry favour identifying their brand throughout a building. This can be achieved by colour, design and integration. SAS products can be designed in accordance with individual requirements. **SAS FT** (a low gloss fine textured paint coating) is available with a 5% gloss level, it replicates a plasterboard finish but has full access to the services and ceiling voids.

In any retail environment durability is imperative in making sure products are safe over a number of years. Durability of metal products reduces ongoing maintenance costs by being resilient to accidental and malicious damage.

Retail sector design demands need to focus on the safety of building users in a public space. Shopping centres, supermarkets and large open spaces need to consider these demands. SAS products, in accordance with a design specification can meet these requirements. Various public safety variables can be incorporated in to ceilings: perforation sizes for smoke extraction, fire safety product integration, and emergency lighting.

SAS have developed ceiling lighting and bulkhead package solutions for a number of retail chains. These solutions are value engineered and formalised as the standard specification for each new and refurbished store ensuring consistent value for the retailer.

Due to the nature of the retail sector, demand can often be aggressive and lead times short. SAS products can be ordered, manufactured and delivered in accordance with a demanding schedule of work. Many corporate, retail clients expect or request stock holding of their specified product. SAS can accommodate this in accordance with client specification and roll out.

Services, speakers, signage, fire alarms, sprinklers lighting, heating/cooling and partitioning can all be integrated with SAS products.



Specification Criteria	
Design Aesthetics	Ceilings be designed to reflect the shape and style of the project. Tubular and vaulted design can enable smoke extraction.
Fire Performance	Standard performance rated to European Class A2-s1, d0.
Accessibility / Maintenance	Secure accessible voids can be created for security considerations.
Integration	Services can be integrated into the ceiling, including lighting, public address and fire prevention.

Infrastructure projects are hugely important to ensure that the population are efficiently commuting and travelling on a day to day basis.

With motorways and roads constantly in use transport hubs that were traditionally designed to be totally functional are now being developed to become important areas for travellers to utilise before, during and after their selected journey.

Train, underground and bus stations are all part of large networks that are constantly in use and are in the process of development and change. The rise in the use of public transportation has meant that these types of buildings have become more important, representing some of the most creative and contemporary architecture in the world.

Often incorporating retail units and public areas the building interior reflects external architectural designs with quality designed specifications creating an inviting attractive environment.

Security and service integration are important specification criteria and the use of metal ceilings means that designs can be flexible but also totally usable on a day to day basis. Being one of the most durable construction materials metal cannot be easily damaged, even if a metal ceiling is utilised for regular access to the building services.

Integration of important lighting, public address, communication and fire prevention products can be carried out in a controlled factory environment meaning they are delivered to site ready for installation, saving time and money. Many ceilings for the transportation sector tend to be vaulted or tubular to allow for areas to feel spacious while ensuring smoke extraction can take place.



Specification Criteria	
Design Aesthetics	A range of design options from mega panels to vaulted triangular tiles can create a comfortable durable environment.
Integration	Service integration in ceilings and Architectural Metalwork products. Ceilings can incorporate daylight reflectors, service gantries.
Accessibility / Maintenance	A range of secure accessible void solutions are available.
Fire Performance	Standard performance rated to European Class A2-s1, d0.

Due to their size and number of users airports have become hugely important representing modern, creative design and architecture. Many projects are ambitious and dictate a cutting edge innovative process and approach. Demanding designs and solutions can contribute to the huge impact that these extensive buildings can offer.

As the demand for air travel increases airports create the first and last impression a traveller has of the country or city. In a competitive market the airport has become increasingly sophisticated incorporating shopping malls, restaurants and entertainment facilities that contribute to revenue and provide a more attractive environment.

The interior building elements form an integral part of this environment and are required to fulfil a wide range of functional and aesthetic requirements. SAS International has a proven track record of providing design flexibility and outstanding durability for airport projects.

Public safety and security are a major demand of any airport. Secure areas can utilise security designed ceilings which also integrate with emergency fire equipment and public address systems. In large public areas smoke extraction and signage is also a hugely important specification criteria.

Maintenance on busy working environments that are constantly being used by many people often needs to be infrequent and quick. When an airport building operates on a 24 hour basis the products specified and installed have to meet rigorous performance demands.

Durable easy to clean raw materials offer long term use meeting environmental credentials and performance criteria whilst offering reduced life cycle costs and maximum value.



Specification Criteria	
Paint Finish	SAS AB offers an anti-bacterial paint finish, reducing the risk of growth and spread of bacteria.
Accessibility / Maintenance	Systems allow secure rooms while providing void access.
Integration	Can be cleaned with vertical pressure without causing damage to the ceiling tiles.
Fire Performance	Standard performance rated to European Class A2-s1, d0.

In an environment where many people are making use of the same facilities the specification of high performance easy to clean products is essential.

Laboratories and Clean Rooms are highly demanding environments that need to be free of any contamination that could threaten the activity that is undertaken or the people within them. These spaces often have to be completely sterile and products used within them have to be specified in accordance with stringent cleaning procedures. Traditionally these environments are subject to a high level of use and have to be maintenance sympathetic.

SAS metal plain ceiling tiles can meet the most stringent of 'clean room' requirements, without the need to apply a silicon sealant between the joints of the tiles. System 120 and System 150 offer a concealed suspension system to give a completely flush ceiling finish. This improves the ease of cleaning whilst still providing total void access. In humid environments the damaging nature of moisture can be combated by coating both sides of the ceiling, this in turn meets the most stringent corrosion tests.

The risk of contamination in the food industry is always high. When preparing food for consumption the environment has to be specified with products that ensure the chance of cross contamination through air conditioning and condensation is limited.

Due to the development of cleaning and infection control procedures within hospitals and healthcare facilities the importance of specifying the best possible solution is paramount. Maintaining a public space and restricting the spread of infection is extremely difficult. Continuous hand washing, cleaning of associated equipment in working environments and using any protective products (e.g. gloves) are all ongoing procedures that are currently being developed to inhibit the cross-contamination of bacteria such as MRSA. **SAS AB:** an anti bacterial finish acts as an additional supplement to effective cleaning reducing the risk of the growth and spread of bacteria throughout a building. It has been estimated that hospital-acquired infections cost the NHS approximately £1 billion per annum.

For rooms that house MRI and X-Ray machinery a non-magnetic aluminium solution coated with polyester coating can be supplied. In environments where acoustic absorption is required, the inclusion of mineral wool pads encapsulated in cassette form with reinforced aluminium foil is possible. During normal maintenance there is also no release of particulate matter as a result of handling the tiles.



