

Inspirational solutions for

acoustics in TABS buildings



Ecophon[®]
SAINT-GOBAIN

A SOUND EFFECT ON PEOPLE

TABS is an opportunity

for design and functionality

The number of building projects involving TABS is growing rapidly. The use of bare concrete as part of the thermal system dramatically lowers energy consumption and makes TABS very environmentally friendly.

However, buildings with walls and ceilings of bare concrete present acoustic challenges. All sound will bounce off the hard surfaces and create echoes that easily spread across the office. The sound level will most probably escalate to the point where it will be hard to concentrate or communicate at all. This will create stress and a generally poor working environment for the people in the office.

TABS stands for Thermally Activated Building Systems, which is a technique for using the thermal mass of the building (e.g. concrete surfaces) for cooling purposes. TABS also applies to passive systems based on the same building technique.

Enhance wellbeing and performance

In TABS buildings you cannot use a wall-to-wall ceiling, but thanks to the many ways you can use Ecophon ceilings as free-hanging units, they are ideal for TABS buildings. Our tests show that a combination of free-hanging units, wall panels and screens presents an ideal solution, both thermally and acoustically.

So don't feel restricted when you design the interior of a TABS building. As you can see on the following pages, TABS is an opportunity to create an inspiring atmosphere that enhances wellbeing and performance.

Welcome to a world of good acoustics!

This publication shows products from Ecophon's product range and those of other suppliers. The specifications are intended to provide a general guide to which products are most suitable for the preferences indicated. Technical data is based on results obtained under typical testing conditions or long experience in normal conditions. The specified functions and properties for products and systems are only valid on condition that instructions, installation diagrams, installation guides, maintenance instructions and other stated conditions and recommendations have been taken into consideration and followed. Deviation from this, such as changing specific components or products, will mean that Ecophon cannot be held responsible for the function, consequences and properties of the products. All descriptions, illustrations and dimensions contained in this brochure represent general information and shall not form part of any contract. Ecophon reserves the right to change products without prior notice. We disclaim any liability for misprints. For the latest information go to www.ecophon.com or contact your nearest Ecophon representative.

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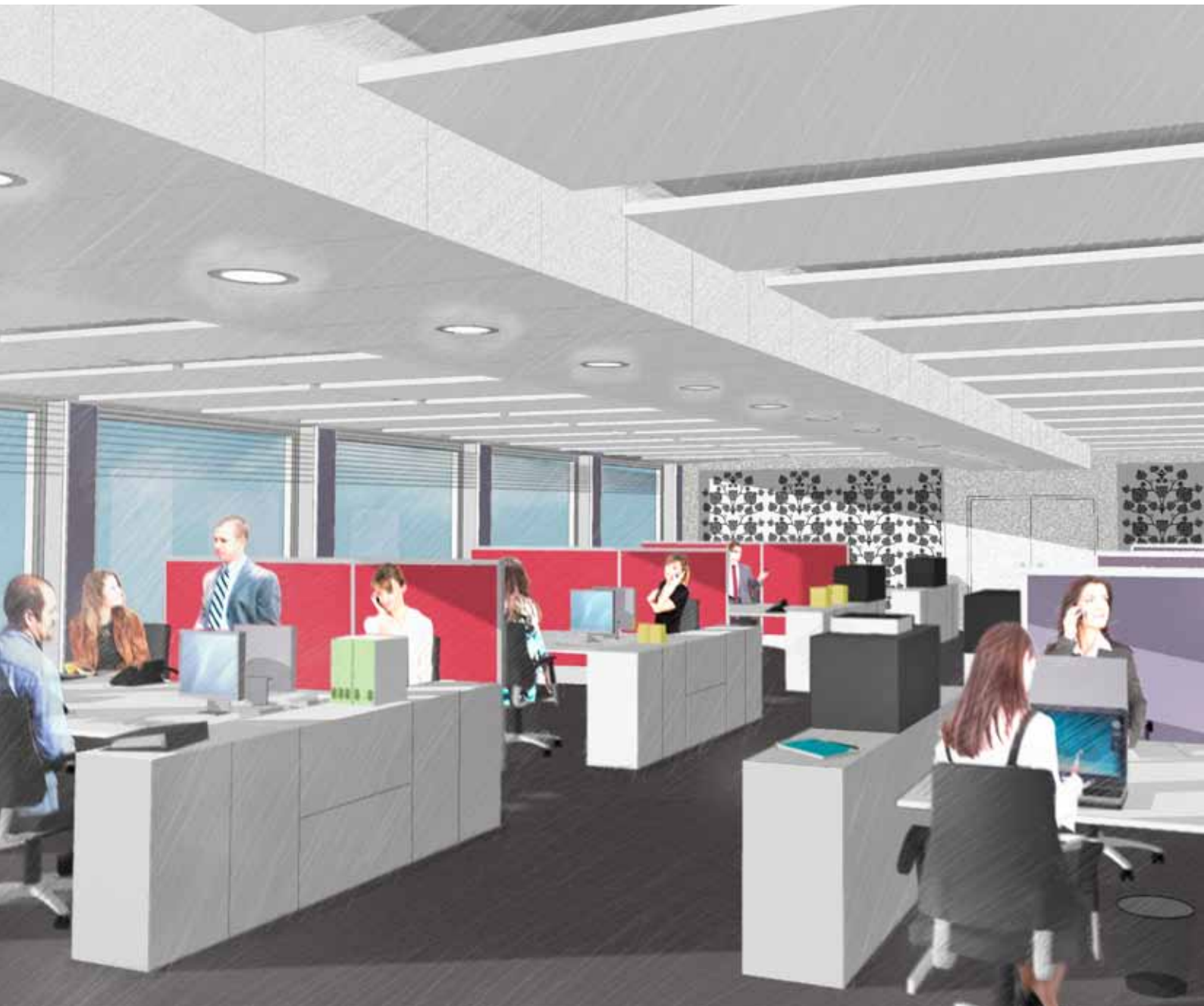
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Ecophon Focus™ Fixiform Ds



Ecophon Solo™ Rectangle



Ecophon Akusto™ Screen A

Plan acoustics early and enhance performance

This is a very common seating arrangement in a modern office. In this space people will at any given time have telephone conversations, hold short meetings, discuss important issues across desks and concentrate in front of their computer.

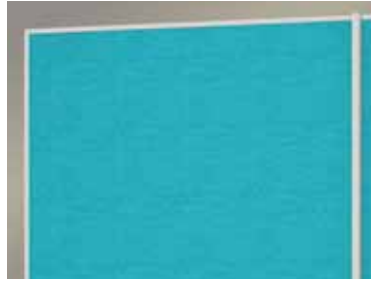
Challenge: *to keep sound from spreading in all directions, disturbing co-workers.*

Solution: *absorbers covering installations in the ceiling, free-hanging units covering 60 per cent of the floor area, wall panels on at least two walls and screens as dividers between workplaces.*





Ecophon Solo™ Square



Ecophon Akusto™ Wall C



Ecophon Akusto™ Screen A

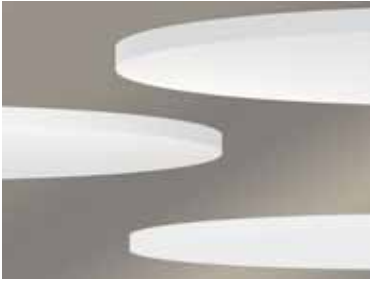
Successful individuals and teams

Normally this type of open space can cover an entire floor. It includes both group areas and individual desks. This means that some people work in teams and will talk a lot to each other, while others need to be quiet to fully concentrate. At the same time there will be people moving around, going to and from meetings in the conference rooms.

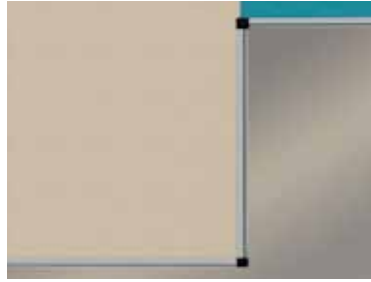
Challenge: *to keep sound from spreading in all directions, to stop speech levels from escalating, and to minimise the disturbance of co-workers.*

Solution: *free-hanging units covering 60 per cent of the floor area, wall panels on as many walls as possible and screens as dividers between group areas, individual desks and passageways.*





Ecophon Solo™ Circle



Ecophon Akusto™ Wall C



Ecophon Akusto™ Screen A

Enjoying a sociable lunch

A typical canteen is a large open space with a high soffit. In this type of space there are many conversations going on at the same time. There is also constant noise from tableware and cutlery, and there are a lot of people walking by the area or to and from their table, chatting to friends while they walk. Sound will move in all directions and in order to be heard, there is a big risk that a lot of people will increase their speech level dramatically.

Challenge: *to keep sound from moving in all directions and to prevent the sound levels from escalating.*

Solution: *free-hanging units at different heights covering 60 per cent of the floor area, wall panels on as many of the surfaces as possible and screens to create seating areas and to create a divider between the people walking past the canteen.*





Ecophon Solo™ Baffle



Ecophon Akusto™ Wall C



Ecophon Akusto™ Screen A

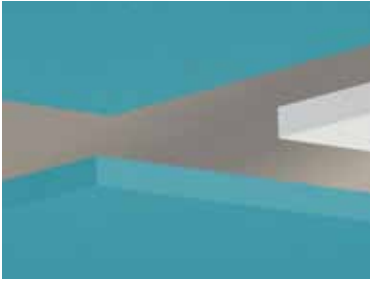
Letting everybody in the project team be heard

In a group room, project teams can discuss and work on their projects without disturbing the rest of the office. The room is often designed for two or more groups and it is therefore vital that one team doesn't disturb another. Since the room has large wall surfaces, it is easy for sound to bounce off the walls, creating an echo that will reach people at the opposite end.

Challenge: *to prevent echoes and to keep sound from spreading across the room, disturbing co-workers at the other end of the room.*

Solution: *vertical baffles, wall panels covering as much of the walls as possible and screens to divide the seating arrangement.*





Ecophon Solo™ Square



Ecophon Akusto™ Wall C

Hearing is the basis of understanding

In order to understand you have to be able to listen and think at the same time. If you have to use all your energy trying to hear what the speaker is saying, you will remember a lot less of what you heard. When you have a conference room in an office building, it is therefore vital to avoid large bare surfaces as they will reverberate sound and create echoes, making it almost impossible to hear what the speaker is saying.

Challenge: *to increase speech clarity and at the same time absorb unwanted reflections in order to reduce echoes.*

Solution: *free-hanging units covering 60 per cent of the floor area and wall panels on two adjacent walls, covering the equivalent of at least 20 per cent of the floor area.*





Ecophon Focus™ Wing



Ecophon Focus™ Ds



Ecophon Akusto™ Wall C

Sharing the message clearly

A meeting room is a place for conversations, presentations and discussions. It is almost always furnished with lots of equipment, such as humming projectors and speakers for telephone and video conferences. At the same time there are often two glass walls and a third that has the obligatory whiteboard. Speech will bounce off all the hard surfaces and create echoes that will hinder constructive meetings.

Challenge: *to prevent echoes and ensure clarity of speech in spite of the noise from technical equipment.*

Solution: *free-hanging ceiling covering 60 per cent of the floor area and wall panels covering at least one whole wall, but preferably two adjacent walls.*





Soundlight Comfort Unit



Ecophon Akusto™ Wall C

Supporting creativity

A meeting room is a place for conversations, presentations and discussions. It is almost always furnished with technical equipment, such as humming projectors and speakers for telephone and video conferences. At the same time there are often two glass walls and a third that has the obligatory whiteboard. Speech will bounce off all the hard surfaces and create echoes that will hinder constructive meetings. In a meeting room it is very important to enhance speech clarity so people can speak without having to raise their voices.

Challenge: *to prevent echoes and to ensure clarity of speech in spite of the noise from technical equipment.*

Solution: *free-hanging ceiling covering 60 per cent of the floor area and wall panels covering at least one whole wall, but preferably two adjacent walls.*





Ecophon Solo™ Circle



Ecophon Solo™ Circle on wall

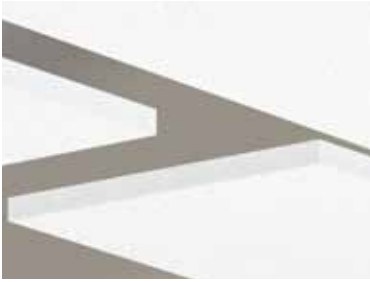
Enjoy the volume

A gallant and inviting atrium should impress with its size and magnificent light shining through the windows. A lot of people will at any given time occupy the space, socialising or just passing through. But if acoustics is not given enough attention, the desired positive feeling can easily become a negative one. In an atrium like this one, with a very high ceiling and very large wall surfaces, sound easily bounces around and creates echoes resulting in poor speech clarity. This in turn will often make people raise their voices to be heard at all.

Challenge: *to prevent echoes (reverberation) and high sound pressure levels.*

Solution: *free-hanging units covering 60 per cent of the floor area and wall absorbers covering as much of the walls as possible.*





Ecophon Solo™ Rectangle



Ecophon Solo™ Square on wall

Welcome to our place

When clients and guests enter your reception area they should immediately feel welcomed. They should easily be able to talk to the people behind the counter and relax while they wait for someone to come and meet them. As always in a reception area, there will be lots of people walking by, telephone conversations and conversations at the counter. The large window and hard surfaces can easily make sound bounce and create echoes that will make it almost impossible to have pleasant conversations.

Challenge: *to absorb sound, improve speech clarity and keep the conversations at the reception desk from spreading around the room.*

Solution: *free-hanging units covering 60 per cent of the floor area and wall absorbers close to where most of the sound originates.*





Ecophon Solo™ Circle



Ecophon Akusto™ Wall C

Focusing on the task at hand

In an open-plan office there have to be so-called concentration rooms. These are used for, among other things, long telephone conversations, video conferences, meetings, or when you need to really concentrate on an important task. Without the proper absorption every sound will bounce off the nearest wall and create an echo, making the space unbearable to be in. In a space like this, where the wall areas are much larger than the ceiling area, wall absorption is of utmost importance.

Challenge: *to keep sound from moving in all directions and to prevent the sound levels from escalating.*

Solution: *lowered free-hanging units and wall panels covering at least two walls.*

Superior TABS solutions

evolved through 50 years of experience

60%

Ecophon tests show free-hanging ceiling units that cover 60 per cent of the floor area are an ideal solution for TABS buildings, both thermally and acoustically. And when you combine them with Akusto Wall and Akusto Screen you can achieve an atmosphere that is pleasing to both the ear and the eye.

To create the best combination of thermal and acoustic performance, Ecophon recommends an even spacing of free-hanging ceiling units across the ceiling. Every unit should have at least 20 cm gaps on two opposite sides. The only exception is if you are using rows of vertical baffles. Then the distance between the rows should be kept at 20 cm.

20cm

0.3°C

In a field study in Woopa's office building in Lyon, France, Ecophon proved that 50 per cent coverage with free-hanging ceiling units only increased the operative temperature by 0.3 degrees Celsius. 70 per cent coverage increased the operative temperature by 1 degree Celsius.

In order to maintain the desired cooling effect, Ecophon recommend that the distance between the concrete and the free-hanging ceiling units is at least 0.2 metres. And according to our lab studies, both the thermal and acoustic performance will improve if you can increase this distance beyond 0.2 metres.

0.2m

Echoes are created when sound bounces back and forth on opposite walls. To reduce echoes in a regular room with four walls, and to achieve the optimum benefits from wall absorbers, they should therefore be placed on two adjacent walls.

2 adjacent walls
adjacent walls

1.2m
1.2m

When you sit at a regular desk your head is approximately at a height of 1.2 metres. It is therefore important that sound absorbers are placed at this specific height. Ecophon recommend that absorbers placed between desks are 1.4 metres high, and absorbers between work groups are 1.8 metres high.

When you combine 60 per cent coverage by ceiling units with wall panels, Ecophon recommend that the wall panels should cover walls to the equivalent of 20 per cent of the floor area. In an office where most people sit at desks, the wall panels should be centred at a height of 1.2 metres. In offices where most people stand, they should be centred at 1.6 metres.

20%
20%

Aeq

All the tests and recommendations are based on Ecophon systems, with very high sound absorption qualities. These qualities are described as either equivalent absorption area (A_{eq}) or absorption factor (α) in our system specifications, which you can find on our website, www.ecophon.com. The percentages and recommendations presented here can therefore not automatically be applied to other products, with lower A_{eq} or α .

Ecophon®

SAINT-GOBAIN

A SOUND EFFECT ON PEOPLE

Ecophon dates back to 1958, when the first sound absorbers from glass wool were produced in Sweden to improve the acoustic working environment. Today the company is a global supplier of acoustic systems that contribute to good room acoustics and a healthy indoor environment with the focus on offices, education, health care and industrial manufacturing premises. Ecophon is part of the Saint-Gobain Group and has sales units and distributors in many countries.

Ecophon efforts are guided by a vision of earning global leadership in room acoustic comfort through sound-absorbing systems, enhancing end-user performance and wellbeing. Ecophon maintains an ongoing dialogue with government agencies, working environment organisations and research institutes, and is involved in formulating national standards in the field of room acoustics where Ecophon contributes to a better working environment wherever people work and communicate.

www.ecophon.com

