Why should we consider acoustic comfort?

Comfortable acoustics are extremely important in private homes. Experts tells us that constant exposure to noise can cause headaches, stress and high blood pressure. In spite of this, acoustic comfort is often overlooked. When we’re building a new home or renovating the existing one, we naturally focus primarily on achieving the look we want. But ignoring the acoustics of the room can result in an unhealthy acoustic environment.

Sound moves in waves through the room. When these sound waves hit porous surfaces or objects, they are quickly absorbed, reducing the reverberation time. This makes for excellent acoustic comfort in the room.

If sound waves are not absorbed by porous surfaces but, instead, are thrown between hard wood floors, large window sections and painted ceilings and walls, we achieve quite a different effect. The sound will jump around the room, exactly like a ball that has been thrown. This is often a challenge in modern homes with clean, smooth surfaces and high ceilings.

As a result, it may feel like you’re eating dinner in the canteen at work rather than sitting at home.

We recommend considering acoustic comfort at the early planning stage of your building project since retrofitting can be both expensive and difficult.
Hear the difference?

Acoustics may not be the first thing you consider when you enter a new house, but spending time in a room with excessive reverberation can be both wearing and irritating.

We made recordings in a kitchen and living room before and after installation of soundproofing.

Visit akustikiboligen.dk to hear how the acoustic environment improves in a kitchen with Gyptone acoustic panels compared to a kitchen without soundproofing.

A European study indicates that 40% of people believe that equipment in our homes is one of the curses of modern life. Washing machines and vacuum cleaners are the household appliances that people consider most noisy. Half of those asked say that the kitchen is the noisiest room in the house.

* Facts: Market Intelligence Management Ltd conducted an extensive noise study on behalf of AEG Electrolux. 2000 people from ten European countries were interviewed. The study was approved by the UK Noise Association.

Rooms with hard surfaces

Porous surfaces such as textiles, carpets and large pieces of furniture absorb some sound, but not enough to create good acoustic comfort. Consequently, systems that absorb sound efficiently are needed to create a comfortable acoustic environment in rooms with hard surfaces.

Your new home should be a place where you recharge your batteries and restore your strength. A place where all of your senses can find rest. The acoustic environment should be considered right from the planning stages of your building project, and it’s important to focus on choosing solutions that provide acoustic comfort in the home to avoid the feeling that you are constantly sitting in a café.
Volume has a huge impact on the reverberation time in a room. Some rooms have horizontal ceilings, others have ceilings that slope down to the ridge beam.

The higher the ceilings, the greater the acoustic challenge! Extra high ceilings that improve the building’s aesthetics amplify any acoustic issues with long reverberation times.

Evaluating the reverberation time (i.e. the time it takes for the sound to ‘die out’) is an extremely complex business. An important factor when calculating reverberation time is the volume of the room. However, factors such as the materials on the walls, floors, number of windows and doors, furniture and, not least, ceilings and openings to adjacent rooms also have an enormous impact.

Dimensions of the perforated ceiling area
The guidelines below indicate the recommended ceiling area dimensions for perforated gypsum in order to achieve a reasonable reverberation time. The graph is merely a guideline because reverberation times differ depending on type of perforation selected and room type.

**Fitting**
Gyptone BIG ceilings are fitted on steel or wood shuttering and then filled on the recessed long and short edges. This gives a beautiful, continuous ceiling, showcasing the perforated surface and ensuring the best results, both aesthetic and acoustic.

Remember: Perforated gypsum panels must not be spray-painted. This impairs their acoustic properties. Gyptone BIG ceilings can be re-painted with a short-haired mohair roller.

**Structure**

1. Perforated Gyptone BIG ceiling panel
2. 45 mm mineral wool
3. 45 x 45 battens
4. Damp course
5. Underlying structure
   - Example
   - floors
   - roof structure

- The damp course must not lie directly under the gypsum board as this may impair the ceiling’s acoustic properties.
- We recommend mounting the ceiling panels on 45 x 45 mm battens, with 45 mm of mineral wool between them to achieve the full acoustic potential.
- Painting the battens light grey will make them less visible behind the perforations.

We recommend using as many square metres of perforated gypsum ceiling panels as possible to achieve the best acoustic result.

The graph applies to horizontal ceiling surfaces. In large-volume rooms with sloping ceilings, we recommend fitting perforated gypsum panels on the entire ceiling surface.

You could also ask a professional acoustics engineer to advise you on the optimal ceiling solution.
Create your own acoustic design

Gyptone BIG is available in two sizes, 900 x 2700 mm and 1200 x 2400 mm

Gyptone BIG patterns

Gyptone BIG Quattro 41
1200 x 2400 mm

Gyptone BIG Quattro 43
900 x 2700 mm

Gyptone BIG Quattro 47
1200 x 2400 mm

Gyptone BIG Line 5
900 x 2700 mm

Gyptone BIG Quattro 40
1200 x 2400 mm

Gyptone BIG Quattro 42
1200 x 2400 mm

Gyptone BIG Quattro 44
1200 x 2400 mm

Gyptone BIG Quattro 46
1200 x 2400 mm

Gyptone BIG Quattro 71
1200 x 2400 mm

Gyptone BIG Line 6
1200 x 2400 mm

Gyptone BIG Sixto 63
1200 x 2400 mm

Gyptone BIG Sixto 65
900 x 2700 mm

Visit www.gyproc.dk to find inspiration for your ceiling solution.

Gyptone BIG – with Activ’Air

Activ’Air is a patented technology that breaks down carcinogenic volatile organic compounds (VOCs) such as formaldehyde in indoor air. Laboratory tests show that the Activ’Air technology breaks down up to 70% of the formaldehyde concentration in a given room. Result: A considerable improvement to the indoor environment.

ACTIV’AIR

People spend up to 90% of their time indoors. Consequently, the indoor climate and the quality of the air around us are incredibly important. Many materials and substances, such as furniture, carpets and paint, give off VOCs, generating good conditions for an uncomfortably high concentration of compounds such as formaldehyde.

Read more about Activ’Air at www.gyproc.com

Gyptone ceilings have been tested according to the methods of the Danish Indoor Climate Label, the Finnish M1 Classification and the French health and environmental authorities’ A+ labelling scheme. All approvals are top class.

Gyptone acoustic ceilings are made of gypsum and paperboard and are 100% recyclable. The paperboard is made from recycled cardboard and paper. The gypsum we use consists of natural and industrial gypsum as well as recycled gypsum collected from building and recycling sites.

Saint-Gobain Denmark A/S, Gyproc
Hareskovvej 12,
DK-4400 Kalundborg
Tel.: +45 59 57 03 30
e-mail: info.gyprocdk@saint-gobain.com

December 2016. Gyproc A/S cannot be held liable for any typing errors and reserves the right to make changes to product lines and technical changes to products without prior notice.