



Technology

TBA guideline 3.7 for ceilings and walls

Processing instructions for installing and finishing seamless acoustic ceilings

January 2018



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1. Introduction

A seamless acoustic ceiling is a high quality system that must meet high-performance requirements both acoustically and aesthetically. To meet these high demands, stringent conditions apply to installing and finishing these ceilings. The ceilings are made of a metal framework onto which an acoustic panel has been fitted, or an acoustic panel has been fastened directly onto a subgrade and is subsequently finished with an open acoustic top coat. These are products that form part of the dry fitting out activities, so it must also be carried out in dry, climate-controlled conditions.

The quality of these ceilings is basically determined by the manner in which the various components are installed, but also by the necessary preparations and conditions on the construction site. The work must be carried out under comparable climatic conditions which will later prevail in the areas during use. This is especially true in the run-up to and during the jointing and finishing of the ceilings, but also after finishing the ceilings! If the indoor conditions before, during and after implementation correspond better to the future conditions, afterwards there will be fewer deformations, or tensions in the ceilings and the risk of undesirable consequential damages will be minimized. This includes cracking, colour differences in the finishing coat and a reduction of acoustic performance.

This *TBA* guideline addresses the preparations and minimum conditions applicable to the items listed below, unless the instructions by the relevant manufacturer indicate otherwise.

2. Climatic and construction site conditions

2.1 The construction site

The building must be windproof and watertight and tidied up.

2.2 Wet fitting out activities

Wet fitting out activities, such as applying wet plastering and floor screeds, cause a major increase in relative humidity. These activities and curing must be carried out before installation of the walls and ceilings.

2.3 Relative humidity (RH) and temperature (T)

During installation of the ceiling system the relative humidity must be between 40% and 70% and the temperature should be at least 10°C, preferably 18°C. When jointing the panel seams and applying the finishing coat, it is desirable that the temperature and the RH are the same as the conditions during use of the building. Before, during and after jointing and applying the finishing coat, a processing temperature of at least 15°C, preferably 20°C and a RH between 50% and 70% applies. Keep in mind that during application of the finishing coat the RH temporarily rises significantly.

The temperature and RH must comply with the above-mentioned requirements by no later than three days before carrying out the jointing work.

Climatic conditions during the activities		
Activity	Temperature	Relative humidity
Fitting	Ideal 18°C, at least 10°C	Between 40% and 70%
Finishing	Ideal 20 °C, at least 15 °C	Between 50% and 70%
Joints	Ideal 20 °C, at least 15 °C	Between 50% and 70%

2.4 Ventilation

There must be adequate ventilation during and after finishing the ceilings to stimulate drying.

2.5 Maintain a constant temperature and humidity

The temperature and humidity should be maintained as constant as practicable. Major and/or rapid fluctuations could lead to undesirable formation changes, which could result in cracking. In order to facilitate timely adjustments, it is advisable to monitor and record the climatic conditions during the work.

2.6 Increasing temperature

The increase in temperature is incremental up to 22°C and at a maximum of 3°C per 24 hours.

2.7 Blowing warm or hot air

Do not blow warm or hot air directly onto the ceilings.

2.8 Avoid prolonged exposure to moisture

Prolonged exposure to moisture must also be avoided after installing and finishing the ceilings.

3. Storage of materials

3.1 Protection against moisture and frost

Acoustic panels and accessories must be protected against moisture and must be stored frost-free in the building.

3.2 Acclimatise

Materials must be given the opportunity to acclimatise before being processed.

3.3 Storage of panels on flat and dry surfaces

To prevent damage (deformations and fractures), the panels must be stored on a flat, dry surface. For horizontal storage, the panels must be stored on pallets or on battening mutually spaced about 0.35 m apart.

3.4 Effects of careless storage

Careless storage and allowing absorption of moisture could lead to deformation of the panels, which could lead to an adverse end result.

3.5 Dry storage of insulation materials and battens

Insulation material and battens must also be stored and processed dry.

4. Installation

4.1 Installation

The acoustic panels must preferably be applied in the longitudinal direction of incident light.

The acoustic panels must preferably be applied in stretcher bond or with minimal staggering of one profile for right angled installation.

The surface to which the ceiling is fastened must be dimensionally stable and rigid.

4.2 Providing expansion joints

Expansion joints in the shell structure must be continued in the walls and ceilings to be installed. Maintain the maximum lengths and surfaces of the systems.

Always uphold the rectangular shape of the ceiling surface. An expansion joint must therefore be applied at the transition from a narrow to a wide ceiling surface (e.g. the transition from a narrow corridor to a wide hallway).

4.3 Detailing

The ceiling structure, in principle, is designed for carrying its own weight. When integrating technical installations and light fittings, additional measures may be necessary, such as applying trimmed openings or reinforcements and the tailing.

5. Joints and finishing the surface

5.1 Joint finishing and final finishing of seamless ceilings

The joint finishing and final finishing of seamless ceilings depends on the chosen system and is therefore wholly dependent on the requirements of the relevant manufacturer.

5.2 Completely dry surface for next treatment

At every following treatment the subgrade must be completely dry.

5.3 Connections to walls and columns

Connections to walls or around columns should be kept open and perhaps finished flexibly.

6. Other points of interest

6.1 Pollution

Due to pressure differences between the space below and above the ceiling, the ceiling surface may become polluted. This form of pollution is called filter action. This may cause outlines at seams, profiles, perforations, screws, and suchlike. To limit pollution as much as possible, the pressure below and above the ceiling must be kept the same.

6.2 Airtight construction

Airtight construction increases the chance of relative humidity becoming (too) high if ventilation in the building is inadequate during installation and finishing!

7. Surface assessment criteria

7.1 Certain criteria apply to smoothly finished and structured ceilings

Flatness seamless acoustic ceilings.

Flatness tolerances in mm for a mutual spacing between the measuring points of:

400 mm: < 1 mm

1 m: < 2 mm

7.2 Visual inspection

Visual inspection takes place at 1 metre from the surface.

7.3 Assessment without raking light

If the quality of the surface finishing is to be assessed of, in this case, seamlessly finished acoustic ceilings, this must be done without any raking light reflecting on this surface. In optical terms, raking light ensures extreme accentuation of minimal unevenness or irregularities in a surface.

Visible irregularities that are observable without raking light, such as corrugation, skewbacks, grooves, and suchlike are not permitted.

7.4 Craftwork

On assessing the work carried out, account must be kept of the fact that the application of ceilings is craftwork.



8. Applicable standards and guidelines

URL 0709 Implementing guideline for installation of wall systems and ceiling systems. Established by the Board of Experts on 'Fitting out activities' dated 27 February 2013. Declared to be binding by the management of IKOB-BKB and Kiwa Nederland B.V. on 9 July 2013.

