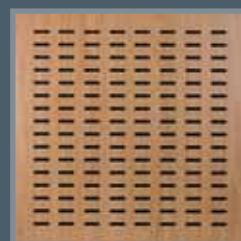
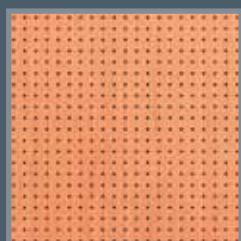
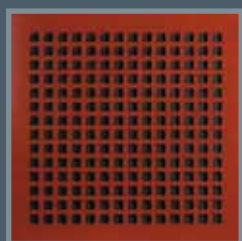


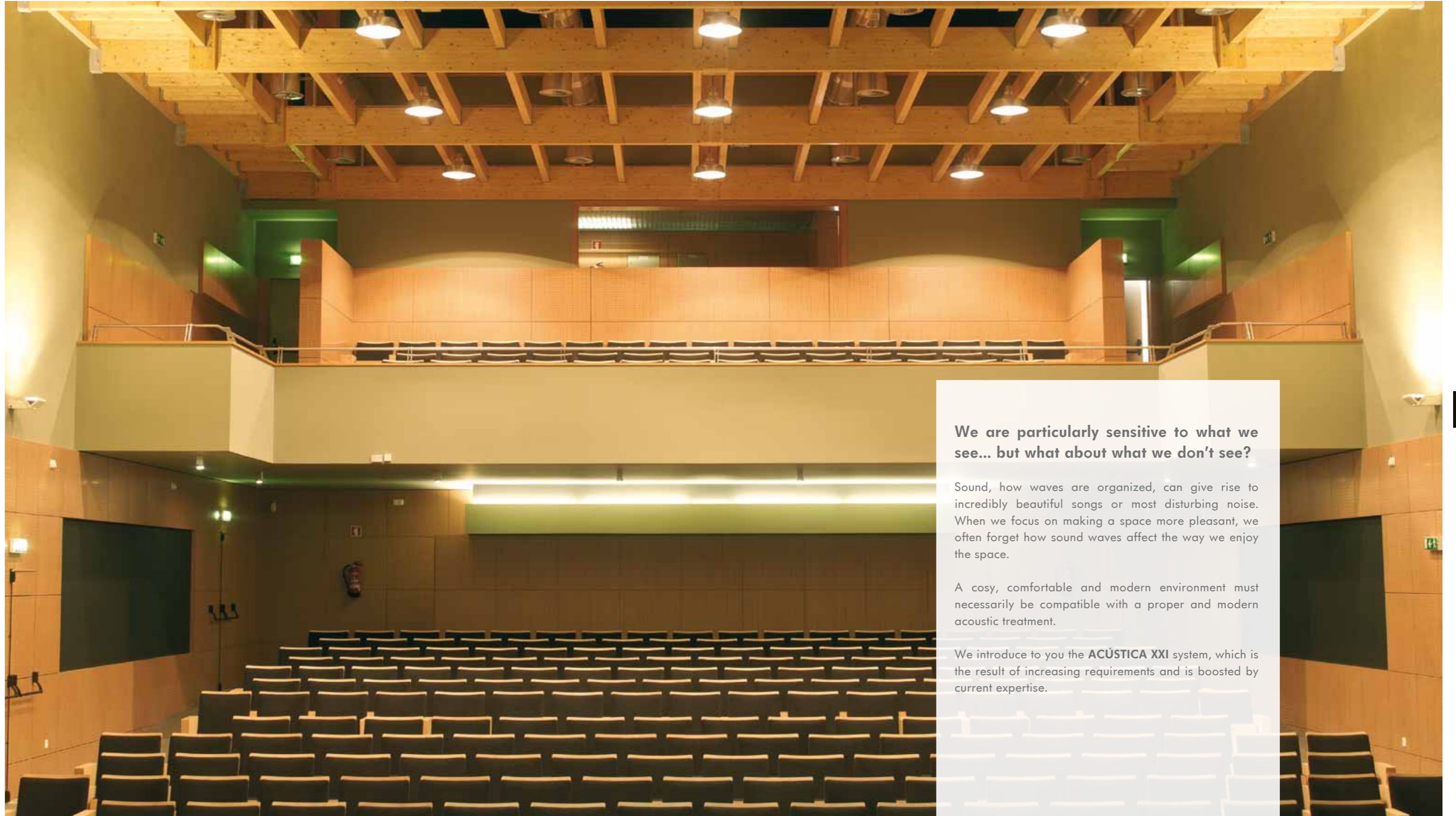
ACÚSTICA XXI

Wooden ACOUSTIC treatment panels



CASTELHANO & FERREIRA S.A.
INDÚSTRIA DE Tectos Falsos e Divisórias





We are particularly sensitive to what we see... but what about what we don't see?

Sound, how waves are organized, can give rise to incredibly beautiful songs or most disturbing noise. When we focus on making a space more pleasant, we often forget how sound waves affect the way we enjoy the space.

A cosy, comfortable and modern environment must necessarily be compatible with a proper and modern acoustic treatment.

We introduce to you the **ACÚSTICA XXI** system, which is the result of increasing requirements and is boosted by current expertise.



ACÚSTICA XXI

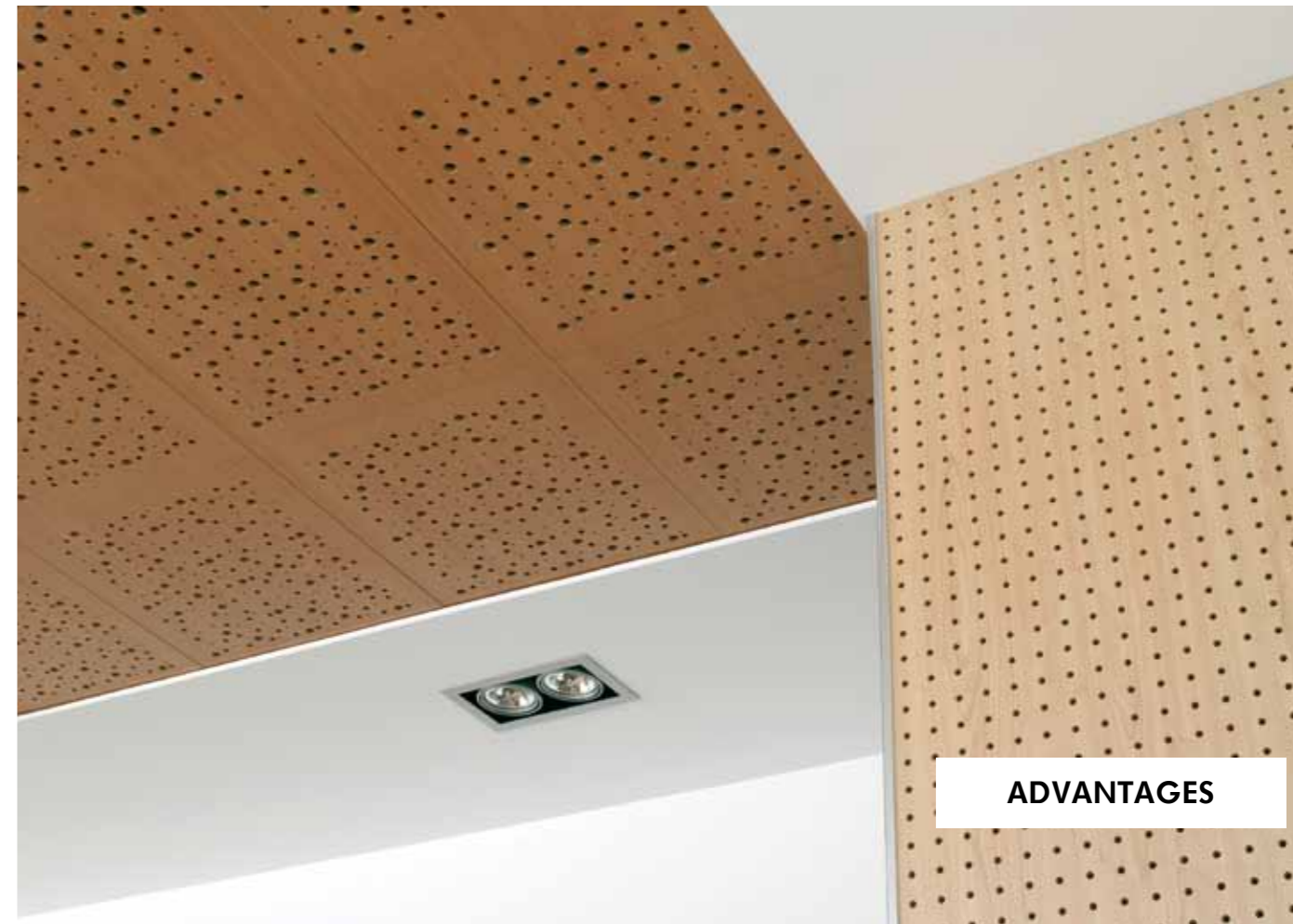
ACÚSTICA XXI

Technology is only truly innovative when each one of us can take advantage of it.

The ACÚSTICA XXI treatment system represents a technological innovation that is available to everyone. As such, interior large or small places have now the same opportunity to benefit from an ACOUSTIC treatment solution, integrating features of good ambiance and acoustic comfort. It is produced through high quality methods, along with strong aesthetic and functional concerns.

The application scope of the ACÚSTICA XXI boards include suspended ceilings and wall cladding, guaranteeing perfect treatment with different sound absorption coefficients.

The ACÚSTICA XXI panels have different types of finishing and perforation combinations and grooves, depending on its end-purpose. The finishings in wood as an organic element provide spaces with a natural ambiance and are a perfect decorative element of high quality and acoustic comfort.



ADVANTAGES



ADVANTAGES

The advantages of suspended ceilings and false walls have been known for a long time. They allow a faster and movable finishing while hiding pipes, cables, etc., allowing an easy access to these fittings. They have become essential to overcome the challenges of modern constructions.

We are aware that the acoustic comfort plays a key role in the well-being of the individual, stimulating concentration and enhancing communication. We have therefore developed the ACÚSTICA XXI system, combining the recognized advantages of suspended ceilings and false walls with a demanding ACOUSTIC treatment. The technique and aesthetics are combined with economy to offer greater comfort and quality in the use of spaces.

APPLICATIONS

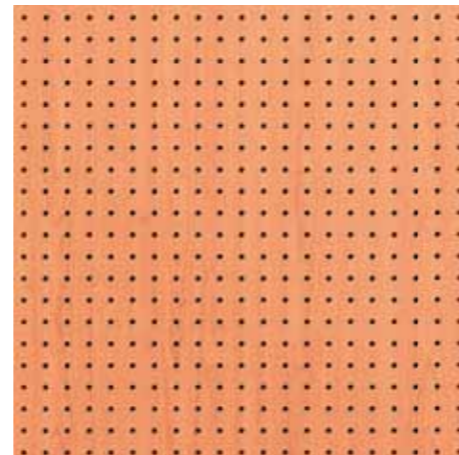
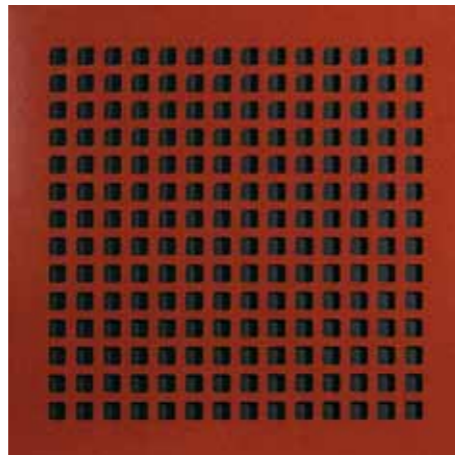


CHARACTERISTICS

APPLICATIONS

Until some time ago, for technical and economic reasons acoustic treatment was limited to places such as auditoriums and heavy traffic public spaces.

Today, the ACÚSTICA XXI system can meet even the strictest acoustic comfort requirements in any type of space in a practical and affordable way, making ACOUSTIC treatment available to everyone.



CHARACTERISTICS

The ACÚSTICA XXI panels consist of fire-retardant m1 MDF boards, according to Standards UNE 23727, B-s2-d0 and UNE-EN 13501-1, laminated or veneer, the latter finished with fire-retardant CF Matt varnish.

The ACÚSTICA COLORS panels are made of VALCHROMAT and finished with fire-retardant CF Matt varnish.

The panels are 12 mm thick and can have standard perforations or tears, as shown

in pages 8 and 9, or other at request, depending on the needs of ACOUSTIC treatment. To complement this system, we provide also flat panels, which offer a perfect and regular finishing.

The assembly of ceilings is done with standard profiles and can have semi-hidden structures with 24 mm and 15 mm, or hidden structures. With regard to the walls, the structure is also hidden, and is possibly covered with movable panels.

TECHNICAL SPECIFICATIONS

INTRODUCTION

The ACÚSTICA XXI ceiling boards and panels are manufactured based on fire-retardant MDF (according to Standards UNE 23727 and B-s2-d0 and Standard UNE-EN 13501-1), and coated with high quality laminates or veneers, or based on VALCHROMAT, these last two finished with M1 CF Matt varnish. On the hidden side of the panel is a fire-retardant ACOUSTIC screen.

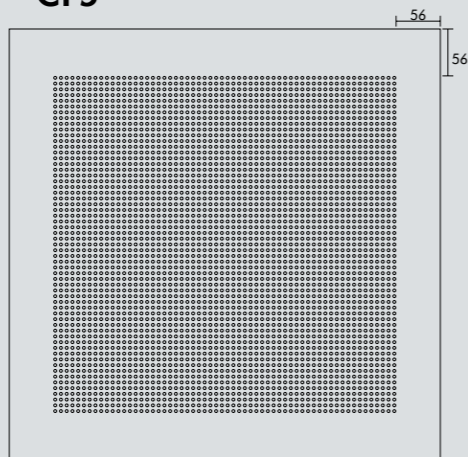
The diameter of the holes and the spacing of the grooves in the panels are made in accordance to the needs in terms of acoustic treatment of each space.

The ceiling boards are 12 mm thick and have a standard visible size of 600 x 600 mm, available in 3 types of fitting (see pages 12 and 13).

Note: other perforation configurations available at request.

TYPES OF PERFORATIONS

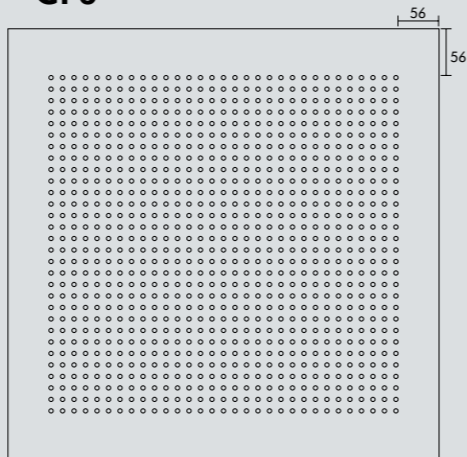
CF5



Perforation diameter 5 mm
Space between axes 8 mm
Perforation rate 16%



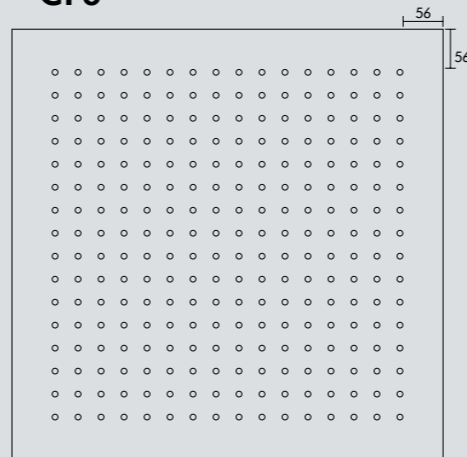
CF6



Perforation diameter 6 mm
Space between axes 16 mm
Perforation rate 10.62%



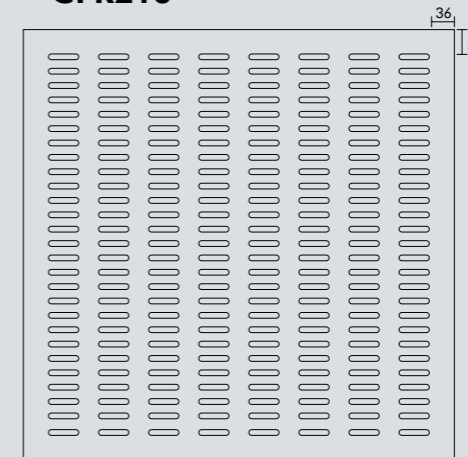
CF8



Perforation diameter 8 mm
Space between axes 32 mm
Perforation rate 4.72%



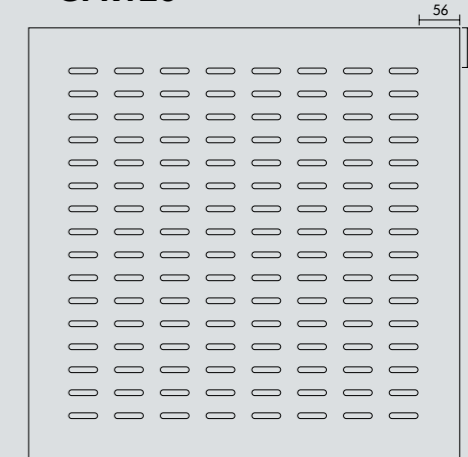
CFR216



Groove 40 x 8 mm
Horizontal spacing 28 mm
Vertical spacing 12 mm
Perforation rate 19.2%



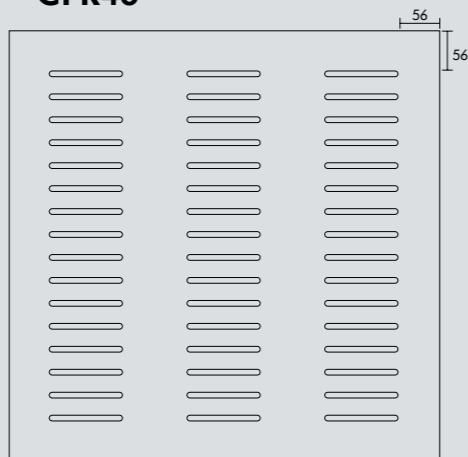
CFR128



Groove 40 x 8 mm
Horizontal spacing 23 mm
Vertical spacing 24 mm
Perforation rate 11.3%



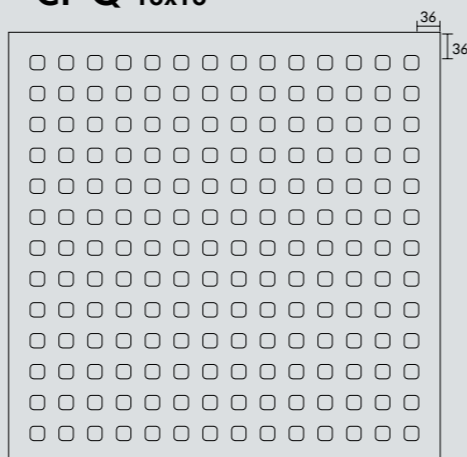
CFR48



Groove 100 x 8 mm
Horizontal spacing 90 mm
Vertical spacing 24 mm
Perforation rate 10.5%



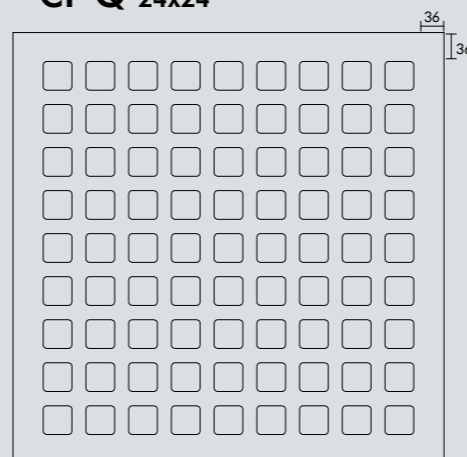
CF Q 18x18



Groove 18 x 18 mm
Horizontal spacing 12 mm
Vertical spacing 12 mm
Perforation rate 25.87%



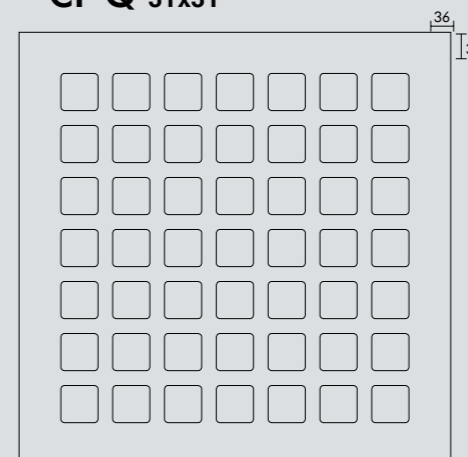
CF Q 24x24



Groove 24 x 24 mm
Horizontal spacing 12 mm
Vertical spacing 12 mm
Perforation rate 32.67%



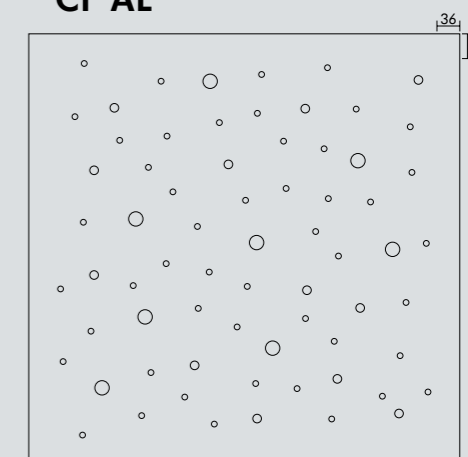
CF Q 31x31



Groove 31 x 31 mm
Horizontal spacing 18 mm
Vertical spacing 18 mm
Perforation rate 40%



CF AL



Perforation diameter 6, 12 and 20 mm
Random space between axes



Boards with no perforation are also available, complementing the ACÚSTICA XXI system.

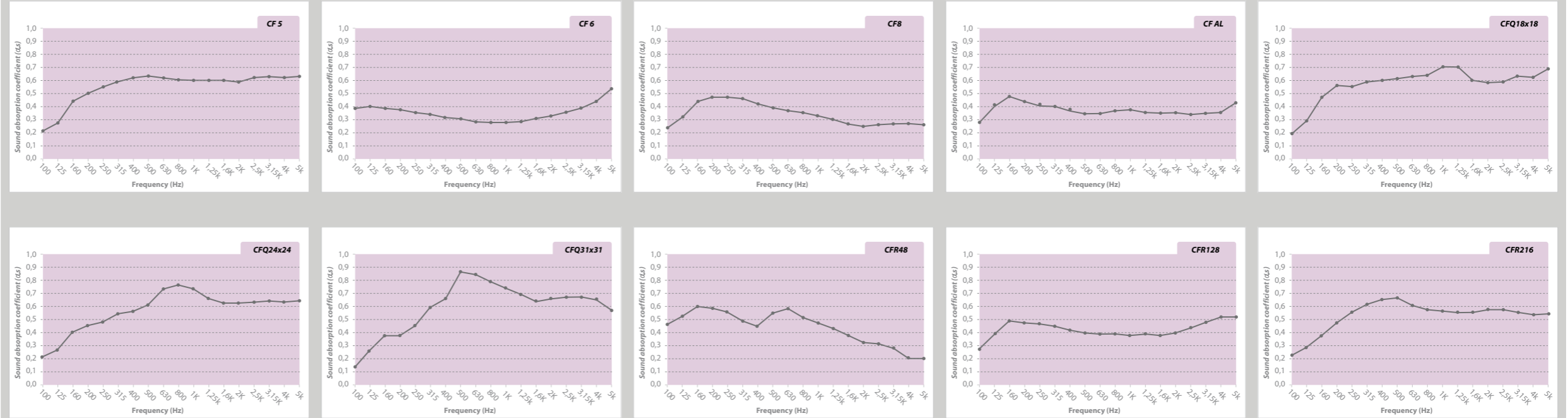
Note: Other perforation configurations available at request.

ACOUSTIC PERFORMANCE

TESTS RELATING TO WALL CLADDING

ACÚSTICA XXI PANELS

The ventilation spaces were filled with a mineral wool blanket 40 mm thick and 40kg/m² of density. Ventilation space - 40 mm.

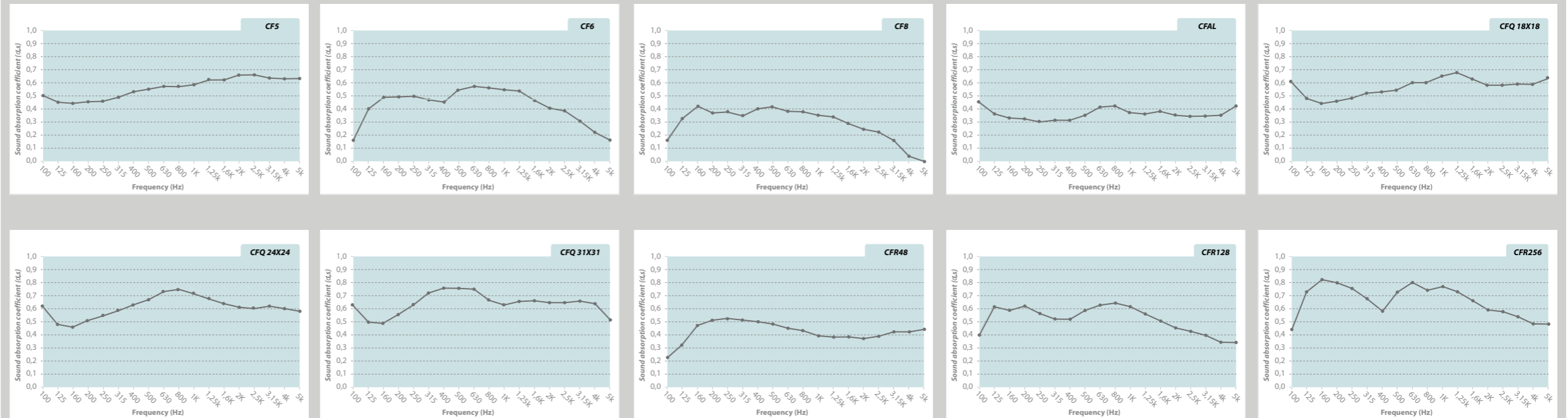


ACOUSTIC PERFORMANCE

TESTS RELATING TO CEILING COATINGS

ACÚSTICA XXI PANELS

The ventilation spaces were filled with a mineral wool blanket 40 mm thick and 40kg/m² of density. Ventilation space - 400 mm.



Studies carried out by the Acoustic Laboratory from the Division of Civil Constructions of the Department of Civil Engineering of the Faculty of Engineering of Porto University according to 8-213 type a, 8-214 type a, 8-215 type a, 8-216 type a, 8-217 type a, 8-219 type a, 8-220 type a, 8-222 type a, 8-223 type e 400, 8-224 type e 400, 8-225 type e 400, 8-226 type e 400, 8-227 type e 400, 8-120/03 and 8-106/04

Luna Cherry



Colonia Maple



Beech C



Streaked Beech



Cherry



Streaked Oak



Other laminates or veneers at request.

Like all woods, the application of ACÚSTICA XXI in places where the humidity level is higher than 70% is not recommended. Panels should be placed on site 2 to 3 days prior to application so that they can undergo all the normal wood swelling processes.

PERFORMANCE

Orange



Yellow



Blue



Grey



Anthracite



Brown



Green



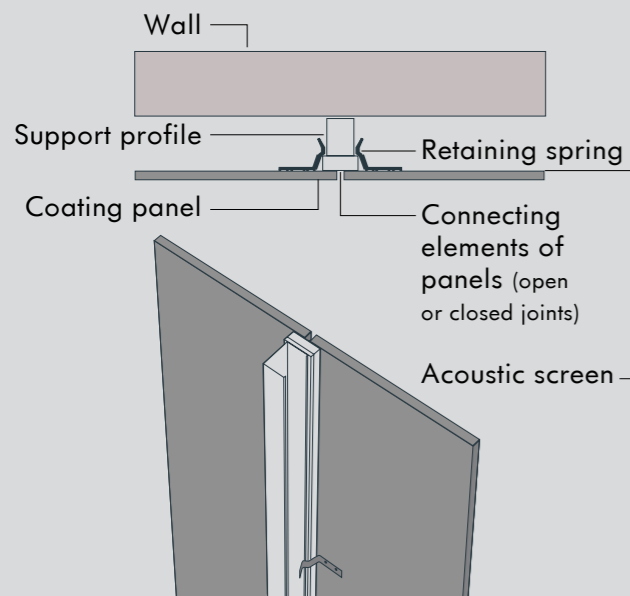
Scarlet



According to LNEC RI 14/LFF/06 report, boards with fire-retardant varnish finishing may take M1 characteristics. Note: 12 mm orange and grey boards are not manufactured.

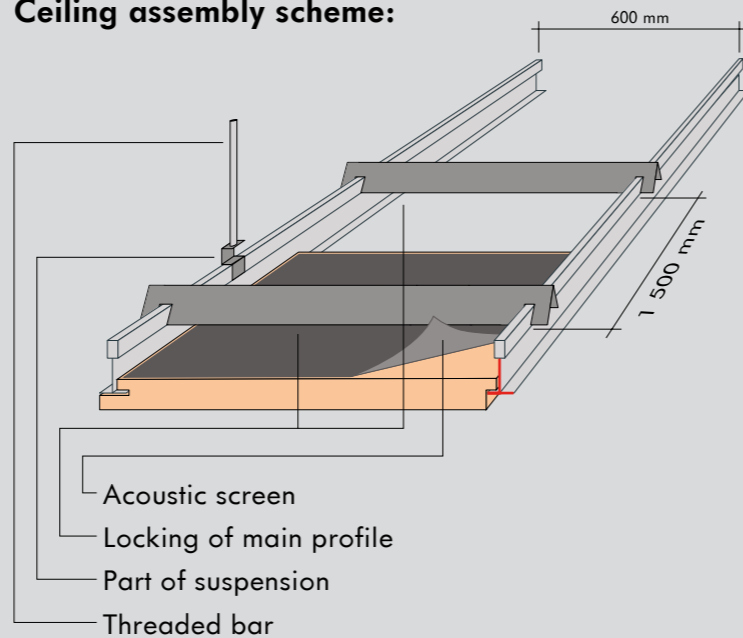
ASSEMBLY OF WALL CLADDING

Movable assembly scheme:

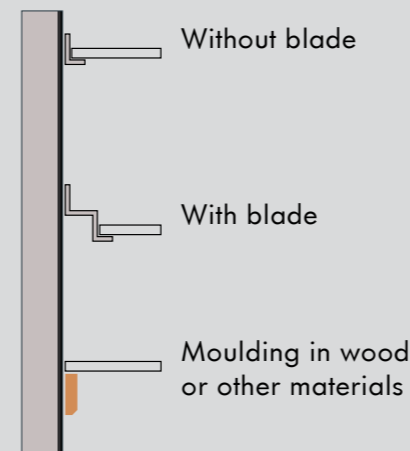


ASSEMBLY OF SUSPENDED CEILING

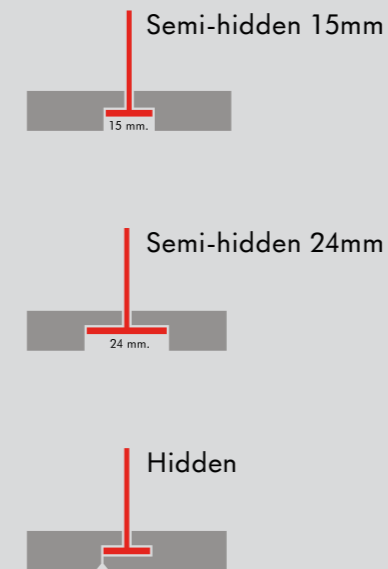
Ceiling assembly scheme:



Examples of profiled corner mouldings:



Profiles:

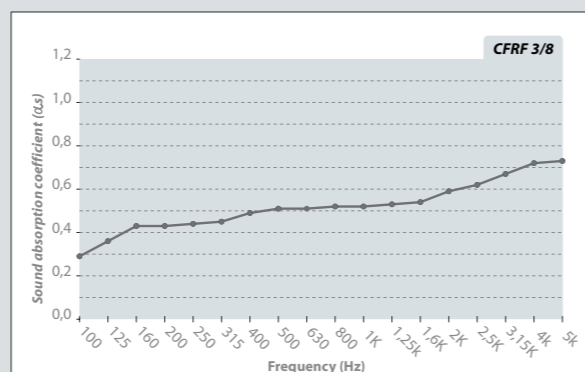
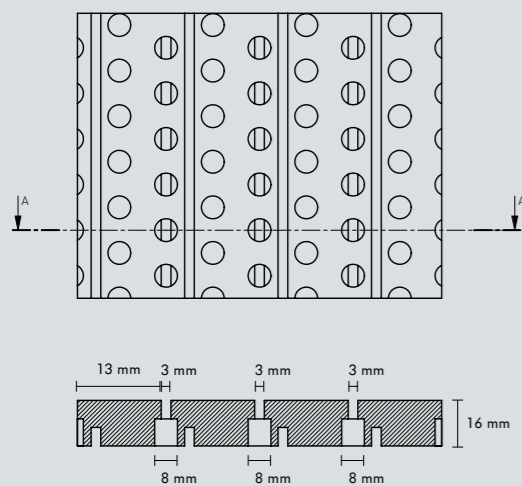


This ceiling can be complemented with a frame in undifferentiated material (e.g., gypsum plasterboard or the same material of the ceiling, but with no perforation) so that there are no cuts in the perforations of panels, allowing abutments to be done with profiles.

Note: This ceiling is completely movable allowing access to its upper part at any given time. In ceilings with a hidden structure embedded lighting must be 600 x 600 mm and implies the use of appropriate lights.

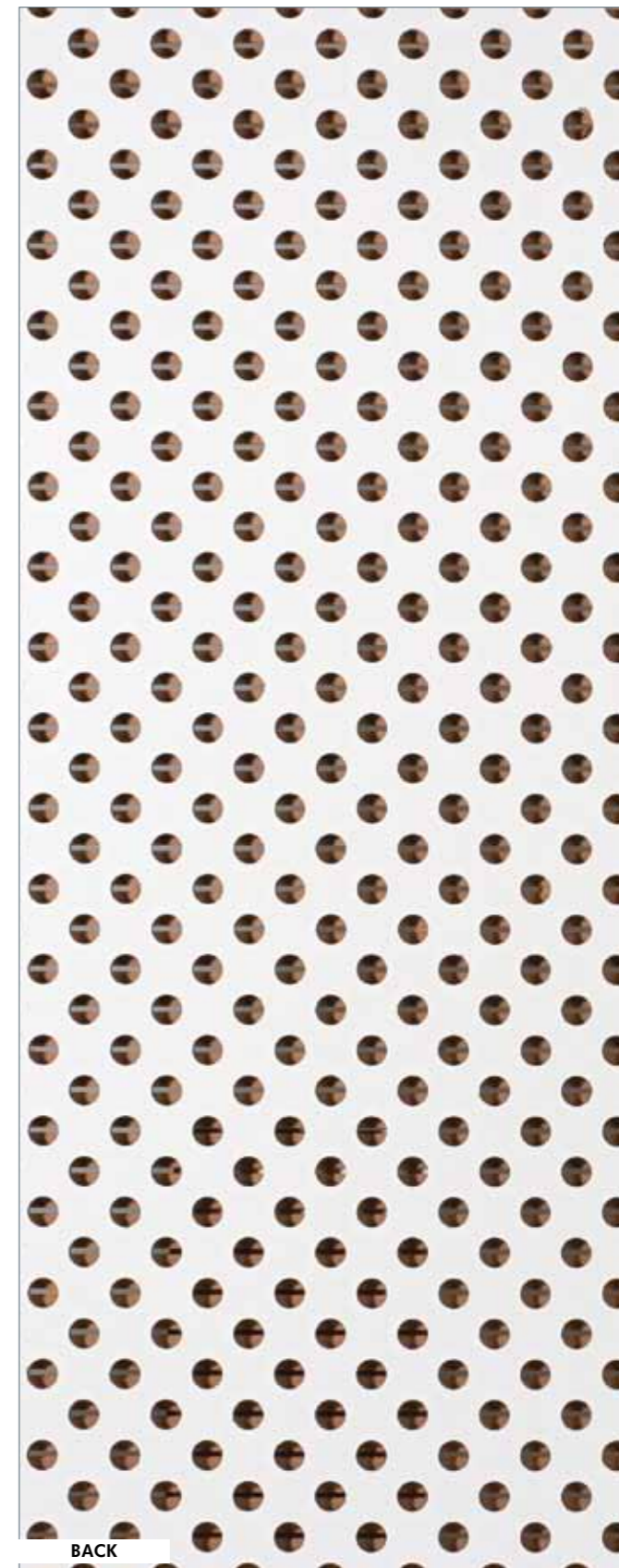
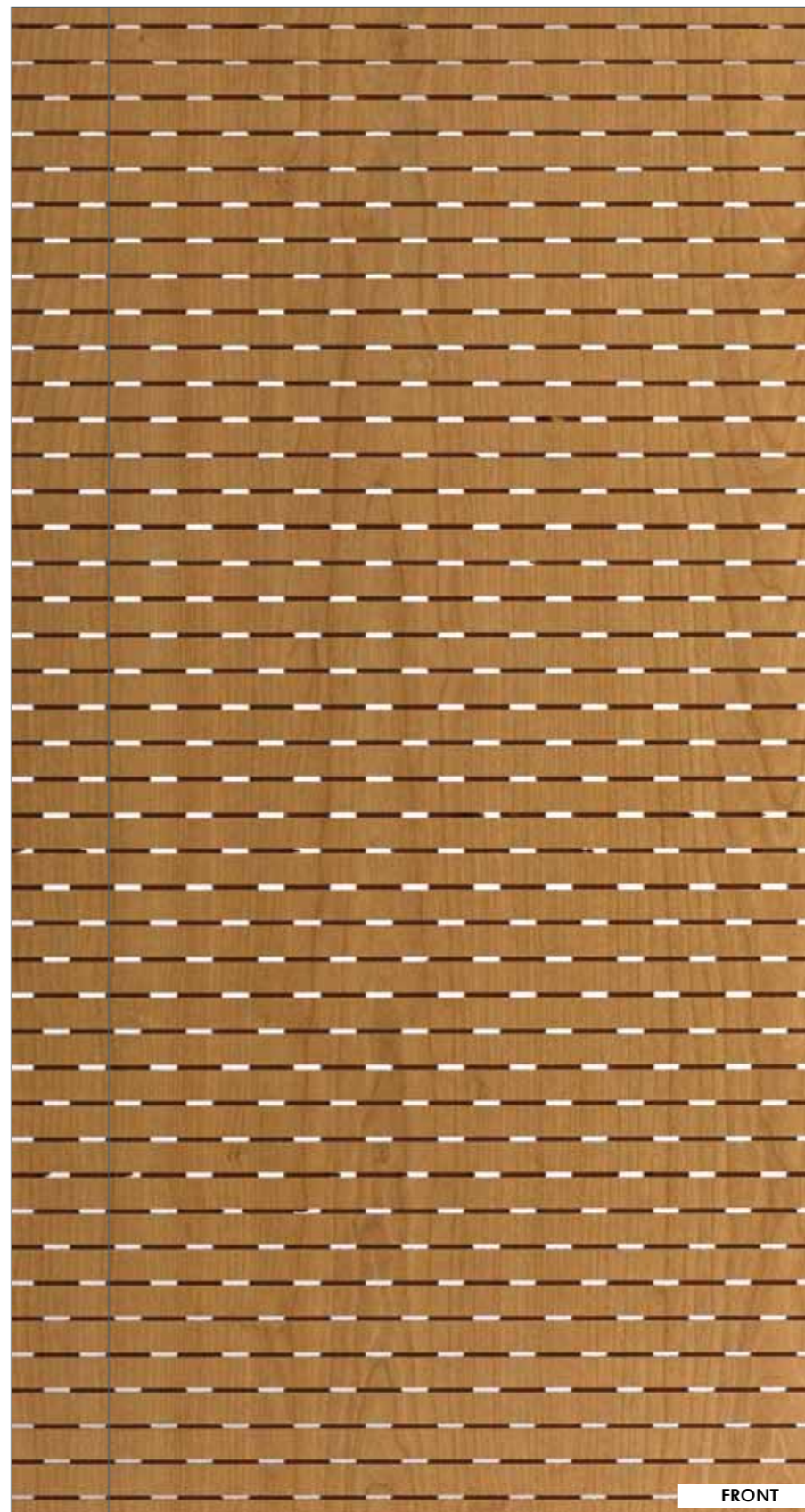
TECHNICAL SPECIFICATIONS

CFRF 3/8



Influence of the perforations in acoustic performance. Studies carried out by the Acoustic Laboratory of the Faculty of Engineering - University of Porto (report 214/08).

MDF M1 or standard Acoustic panel front-opened and back-perforated. All boards are laminated or veneer finished and coated in the back with acoustic screen. These boards are specially designed for wall cladding, and can be fixed in many ways. For more information on assembly schemes, see pages 12 and 13.



Characteristics



Fire-retardant M1 MDF board according to Standard UNE 23727 and B-s2-d0, and Standard UNE-EN 13501-1. M1 CF varnish is used in the veneer-coated boards.



Weight

10 Kg/m² Max.
3.6 Kg./board Max



Size

600 mm x 600 mm
2.16 m²/package



Package

No. of boards per package: 6
Weight per package: 21,6 Kg. Max.
Package size: 613 x 614 x 87 mm

Acústica XXI panels are manufactured by:



CASTELHANO & FERREIRA S.A.
INDÚSTRIA DE TECTOS FALSOS E DIVISÓRIAS



Leiria - Benedita - Lisboa - Vilamoura
Tel. +351 244 830 100 - Fax. +351 244 814 180
www.castelhana-ferreira.pt
geral@castelhana-ferreira.pt
Latitude: 39°44'43.92"N
Longitude: 8°527.09"W