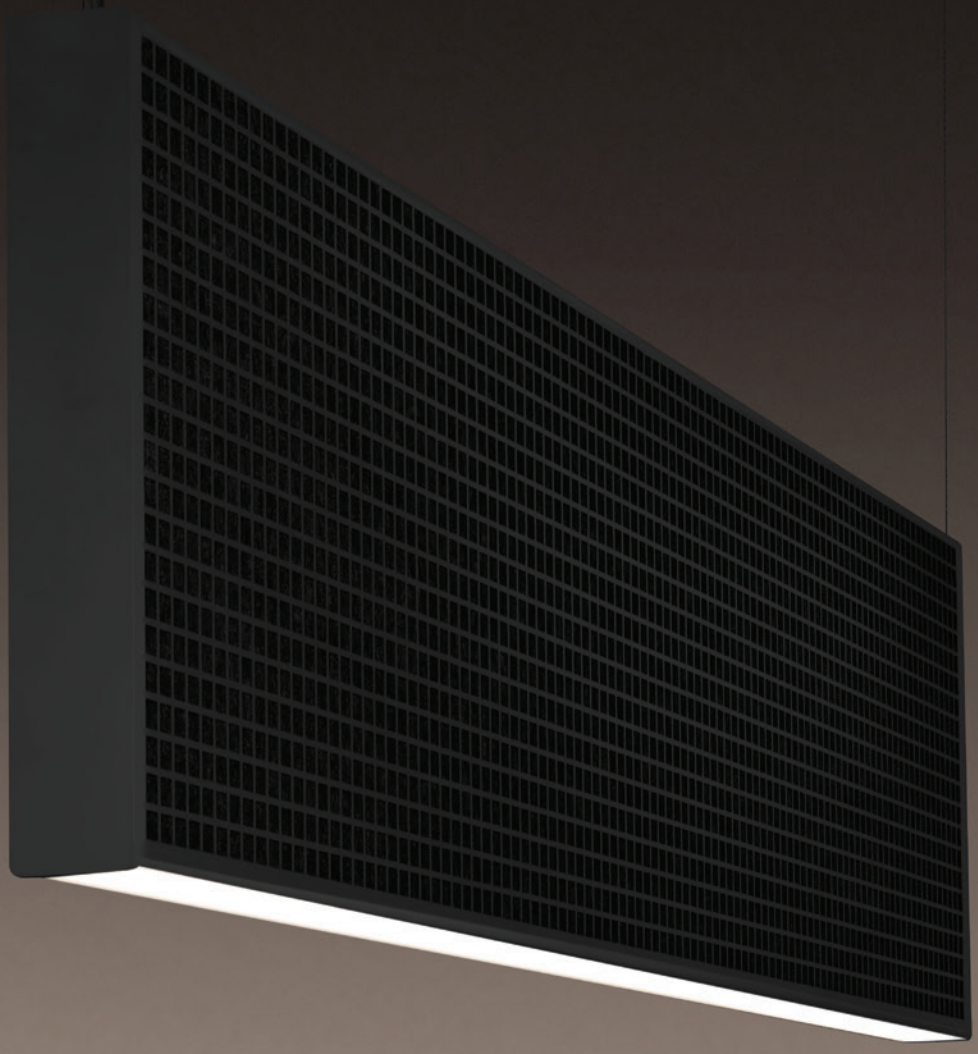
acoustix

Innovation for
acoustic lighting



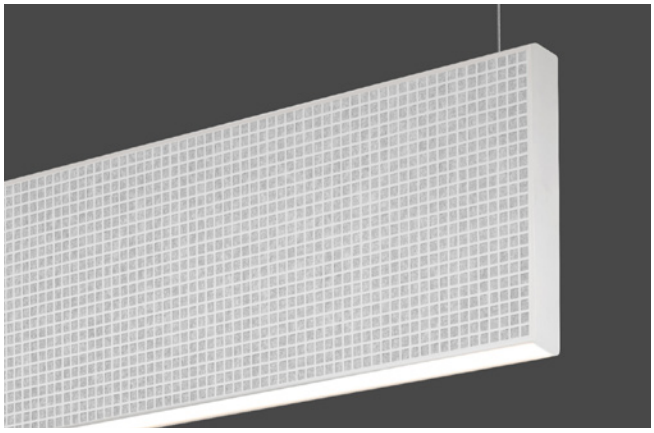
LUMENWERX

Introducing Acoustix

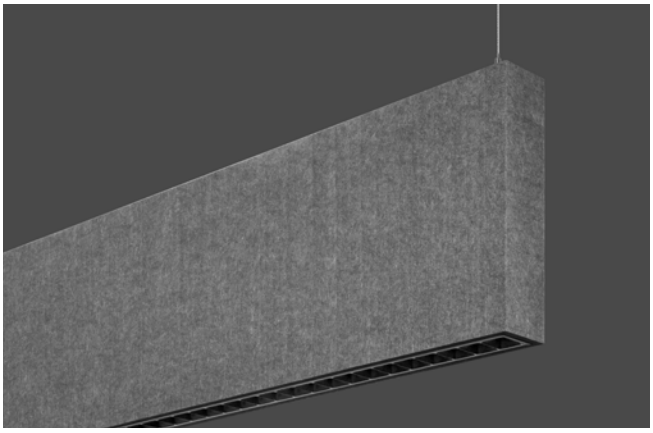
Thanks to open concept architecture and multi-use design, today's indoor spaces are much noisier than those of previous generations. To cut down on rising levels of clamour, Lumenwerx proudly introduces the ACOUSTIX family, luminaires with integrated sound absorbing technology.

Uncompromised illumination with excellent sound absorption

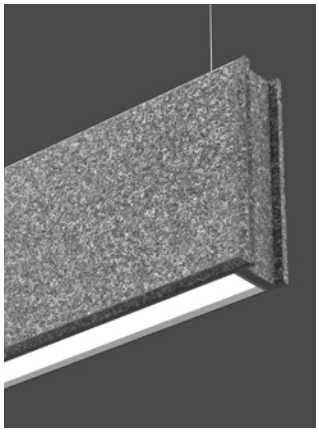
- Two sound absorption technologies
- Easy to use acoustic performance calculator
- White, Tunable White, RGB+W and Biologically optimized spectrum with Bios LED
- Multiple Control Solutions



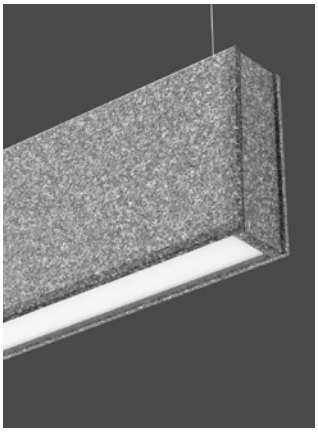
AUDIA



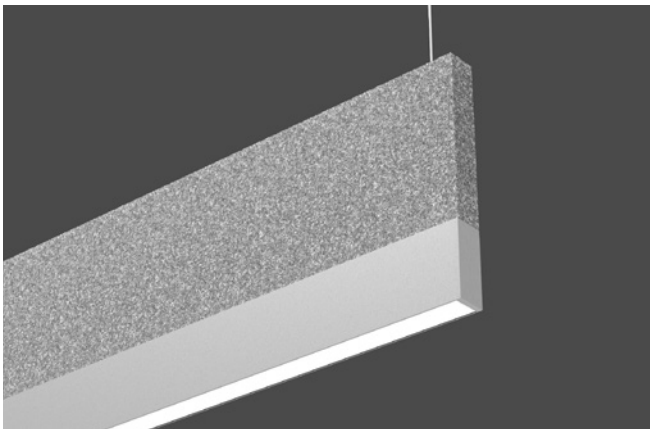
SQUERO ACOUSTIX



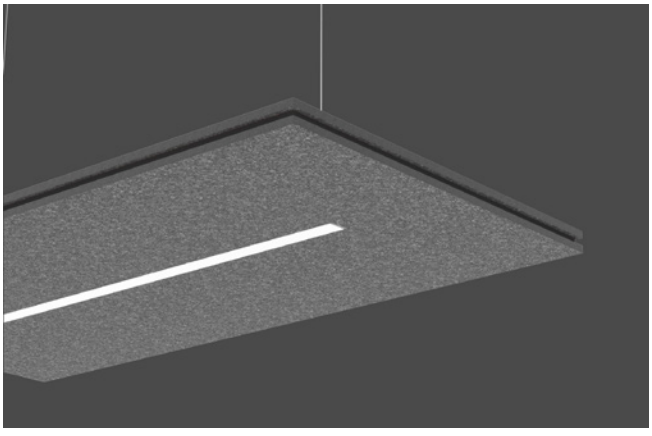
VIA 1.5 ACOUSTIX



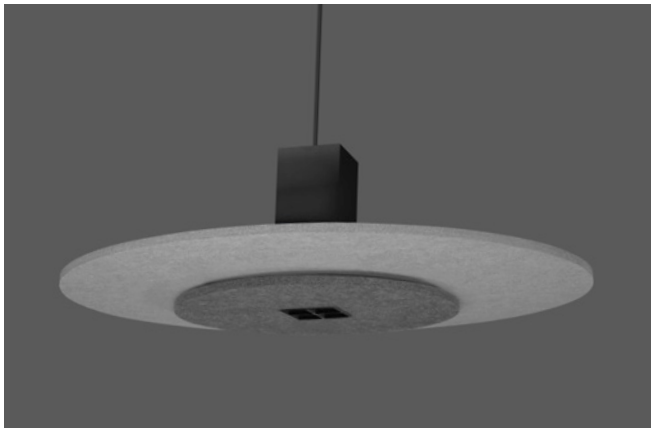
VIA 2 ACOUSTIX



VIA STIL



MIKRO WAFER



CLUSTER ACOUSTIX

RIM VERSO ACOUSTIX

TOGO ACOUSTIX

Acoustic challenges

Wide open spaces and spare lines are the defining elements of many architecturally advanced environments. Features like polished concrete floors, vaulted ceilings and open ductwork all contribute to spaces that are aesthetically inviting, but come with a critical unintended consequence – excess noise.

Glass - The amount of glass in a space is increasing due to daylight requirements and the modern design of natural light in our built environment. Glass is a very hard smooth surface with a poor absorption rate that creates issues as it bounces sound around.

Open Office - Traditionally office space was largely divided between private office space and cubicles. This has been replaced by today's open office concept. In open office space, noise increases and the need for acoustic strategies is a must.

Unfinished Ceilings - Pose a separate set of challenges; often having visible duct work exposed along with ambient noise caused by their systems. Water, conduits and data raceways are exposed as well resulting in increased clamour.

Hard reflecting surfaces - Metals, concretes, glass, brick, stone and tile all contribute to poor acoustical comfort of a space. Hard surfaces are usually clean but they tend to act poorly when it comes to sound absorption.

Visual language of the open office.

Increase use of Glass

Open Office Concept

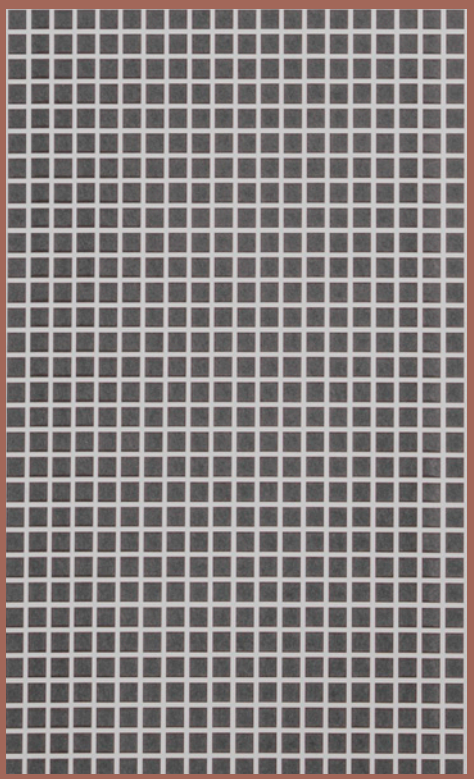
Unfinished Ceilings

Hard Reflecting Surfaces

Our acoustic solutions

The ACOUSTIX lineup uses one of two sound dampening technologies, Acoustic Felt (polyester), and EchoCore™, a technology based on Helmholtz Resonance principals.

Two Solutions



1—EchoCore™ Technology

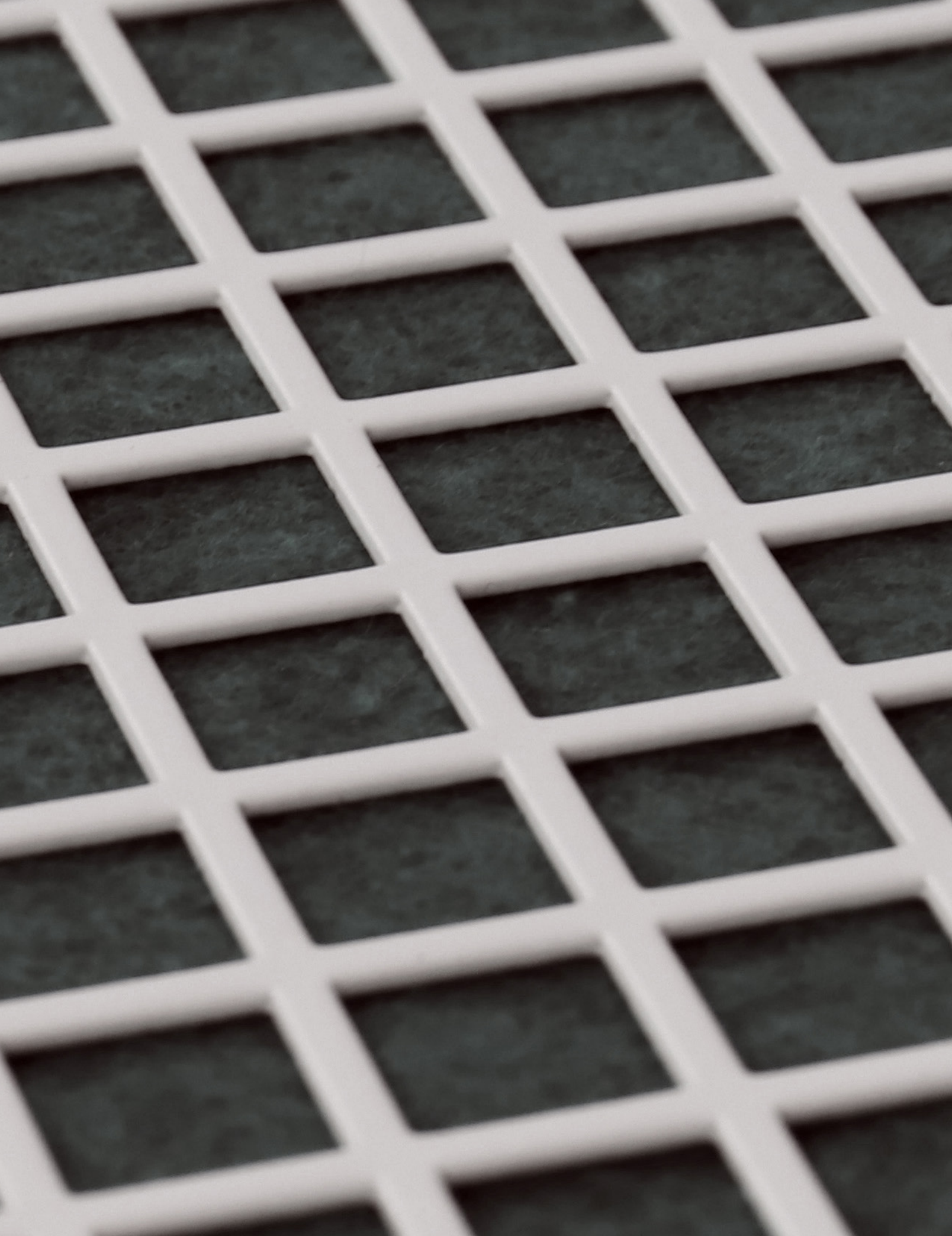
2—Acoustical Felt

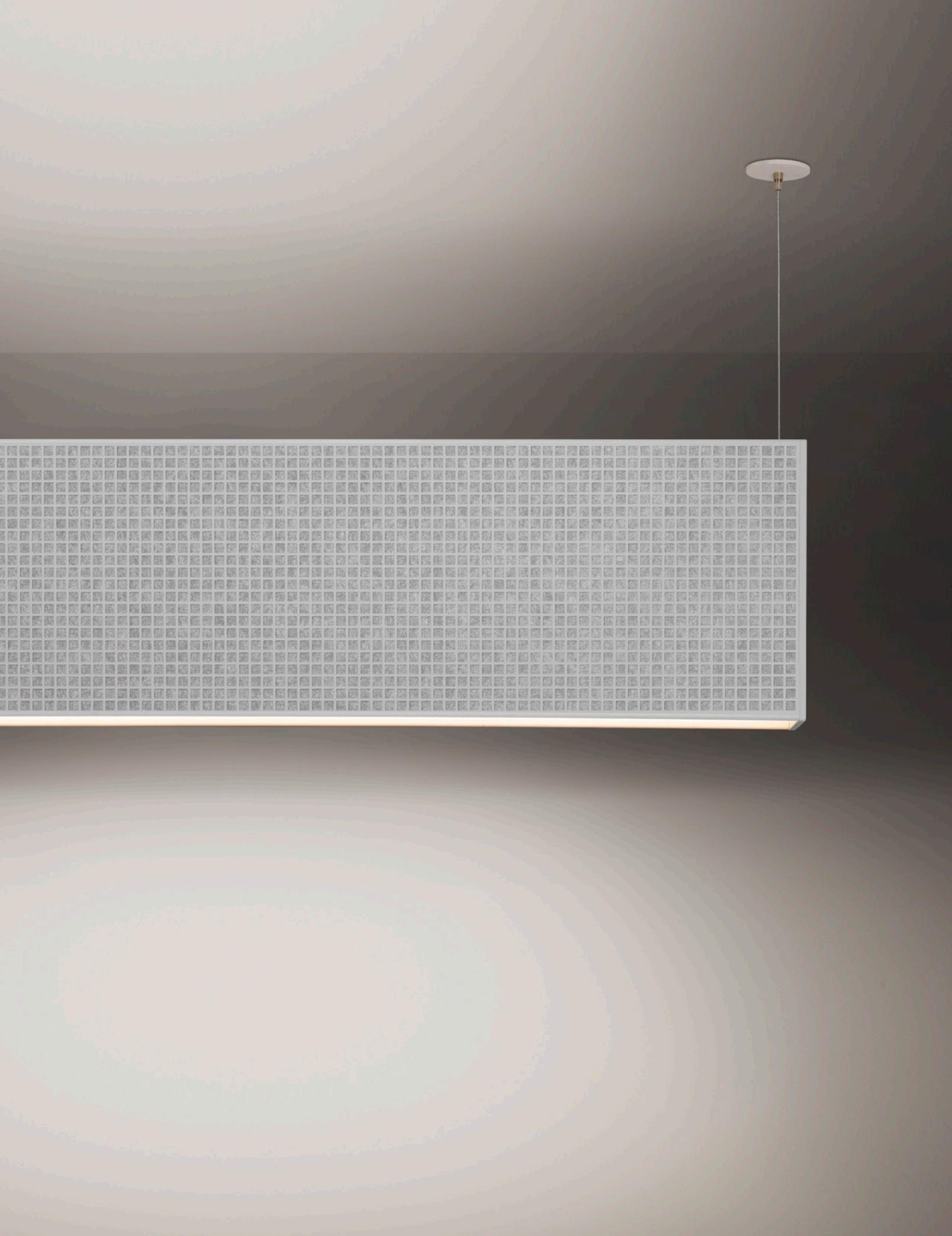
EchoCore™ technology

Lumenwerx EchoCore™ technology

This patent pending technology uses a die-cut aluminum wrap and multiple layers of sound-absorbing material to trap acoustic waves. Sound travels through the aluminum exterior into a sound absorbing core, resulting in a 30% increase in sound reduction compared to competing luminaires.

Related product:
Audia





Audia

30% acoustic improvement with EchoCore™ technology

A breakthrough in acoustic lighting

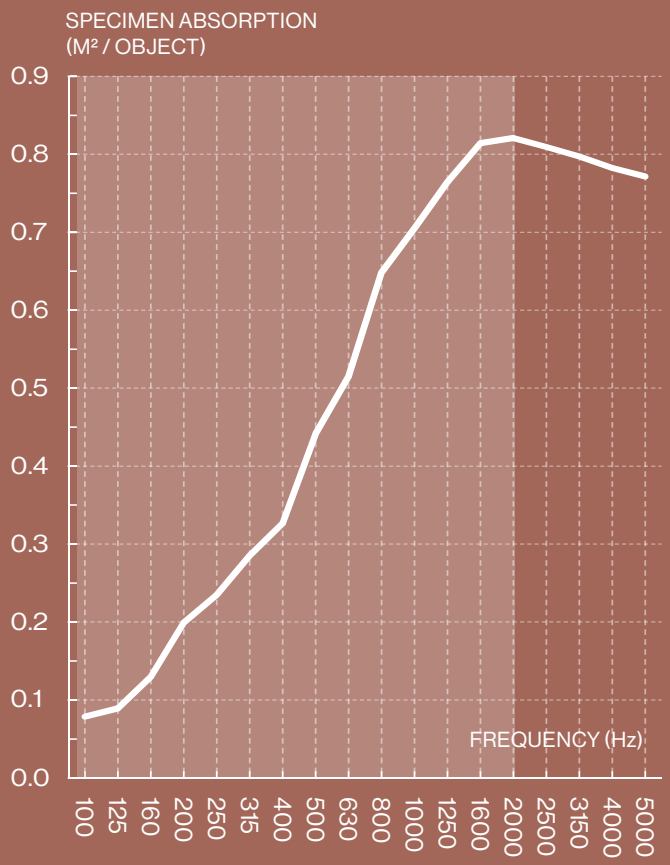
Our flagship offering, Audia uses the science of Helmholtz resonance principles to pass acoustic waves through aluminum lattice, it is then trapped by our proprietary sound-absorbing material called EchoCore™ technology. With its slim core, narrow body and multiple color options, Audia was designed from the ground up with sound and light excellence in mind.

1. 30% improvement in sound reduction over traditional acoustic luminaires
2. One of the slimmest acoustic profiles on the market (1.77 in)
3. Stylish, easy-to-clean die-cut aluminum
4. No compromise on illumination and performance

reddot winner 2020

Audia technology & design

Audia comes with a thin and sleek profile at 1.77” inches in width, it’s one of the slimmest acoustic luminaire profiles on the market with maximum sound absorption. The sound absorption technology used in EchoCore™ (patent pending) is based on the Helmholtz principal of sound. We have specifically sized lattice openings which allow sound to pass through but not escape. Once the sound has passed through the lattice, it is then trapped by a proprietary amount of eco-conscious sound confining material that is strategically layered.

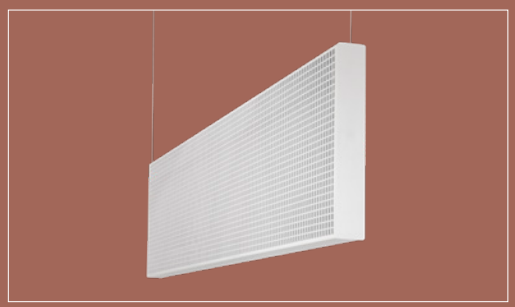


Sound Absorption Results – Lumenwerx Audia rows of 7 units spaced 28” o.c, bottom edge of unit 39.125” from the floor.

As demonstrated by the graph above Audia performs well at many frequencies. On average it out performs traditional acoustic felt luminaires by thirty percent.

Human hearing frequencies range: 20Hz-2000Hz

Option (Blank with acoustic only)



Audia half perforation
Fixture finish: Black | Interior color: True Black | Pattern : Square

Versatility

Distribution

Direct
Indirect
Direct/Indirect

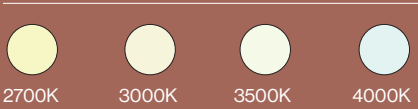
Color rendering option

80+
90+ (R9>50)

Size (height)

12 in
16 in

Color temperature



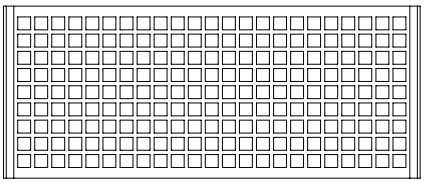
Optic direct

High Efficiency Lambertian Optic

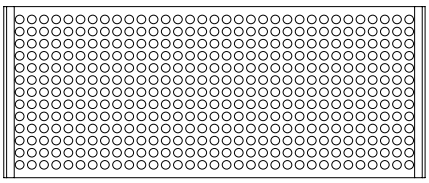
Optic indirect

Widespread Indirect Optic
Clear Lambertian Optic

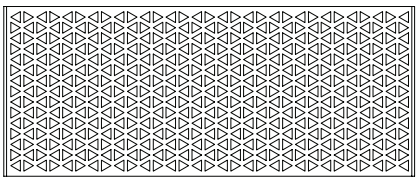
Fixture pattern



Square



Round



Custom

Finish

Matte black

Matte white

Silver

Custom

Interior colors

Frost white

True black

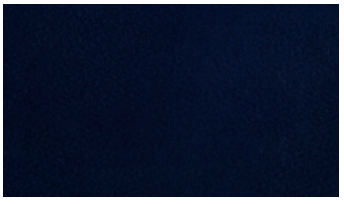
Cloudy

Fog

Iceberg

Blueberry

Sky



Midnight blue

Ivory

Sand

Latte

Taupe

Café

Mocha

Lemon

Orange

Cherry

Plum

Lime

Audia
Fixture finish: Silver
Interior color: Iceberg

Acoustical Felt

Acoustical Felt

Created from recycled PET polyester (polyethylene terephthalate), acoustic felt is a sound-absorbing panel made from PET resin. Panels feature an unwoven facing comprised of air pockets to trap sound.

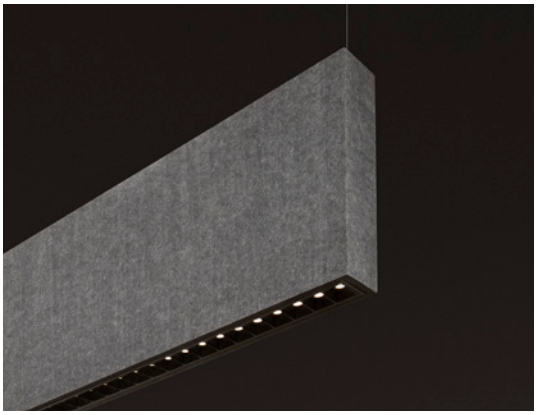
- Flame retardant
- Breathable
- Mold resistant
- Zero VOC emissions
- 60% recycled material

Related products:
Squero Acoustix, Mikro Wafer, Cluster Acoustix, Via 1.5 Acoustix, Via 2 Acoustix, Via Stil, Togo Acoustix, Rim Verso Acoustix.

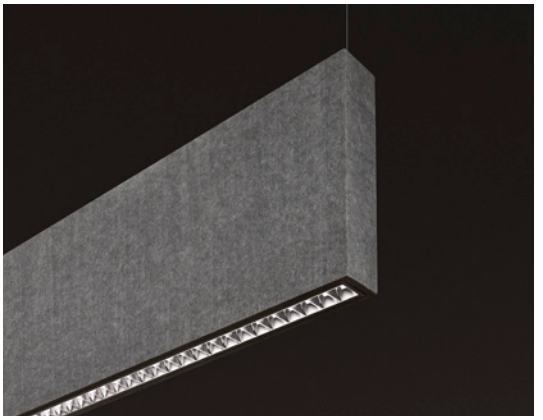
Squero Acoustix

Superior craftsmanship meets optical performance and premium sound absorption. Made from fine-cut acoustic felt, Squero offers four standard optics for advanced illumination: matte parabolic louver, specular parabolic louver, miniature reflector optic, high lambertian optics and adjustable accent modules.

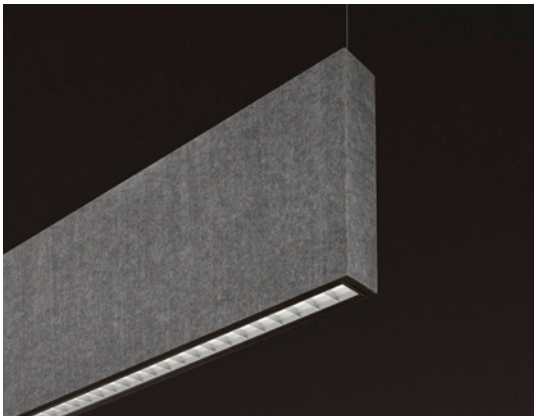
1. Multiple optic options: mini reflector, parabolic louver, diffusion lens
2. Flush lens to highlight the detail of the optic
3. <10 UGR (Unified Glare Rating)
4. Up to 116 lm/W illumination
5. Contemporary square-cut acoustical felt



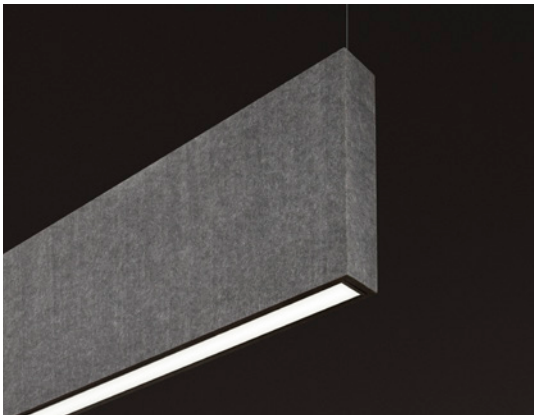
Miniature Reflector Optics



Specular Parabolic Louver



Matte Parabolic Louver



High-efficiency Lambertian Optic

Adjustable Accent Module

Integrated Track

Squero Acoustix

Distribution

Direct
Direc/Indirect
Indirect

CRI

80+ CRI
90+ CRI (R9>50)

Direct Optic

8 degrees Miniature Reflector Optics
35 degree Miniature Reflector Optics
55 degree Miniature Reflector Optics
Specular Parabolic Louver
Matte Parabolic Louver
High-Efficiency Lambertian Optic
Adjustable Accent Module

Indirect Optic

Widespread Indirect Optics
Clear Lambertian Optic

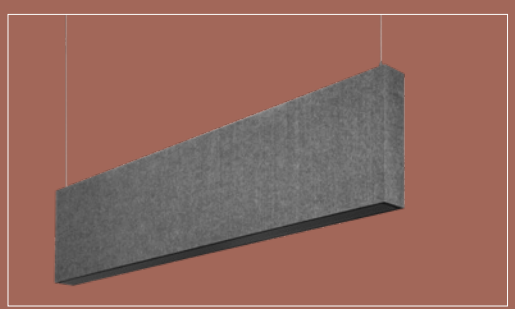
Color Temperature

2700K
3000K
3500K
4000K
SOLA
DUO
QUADRO
BIOS

Luminaire Height

8 Inches
12 Inches
16 Inches

Option (Blank with acoustic only)

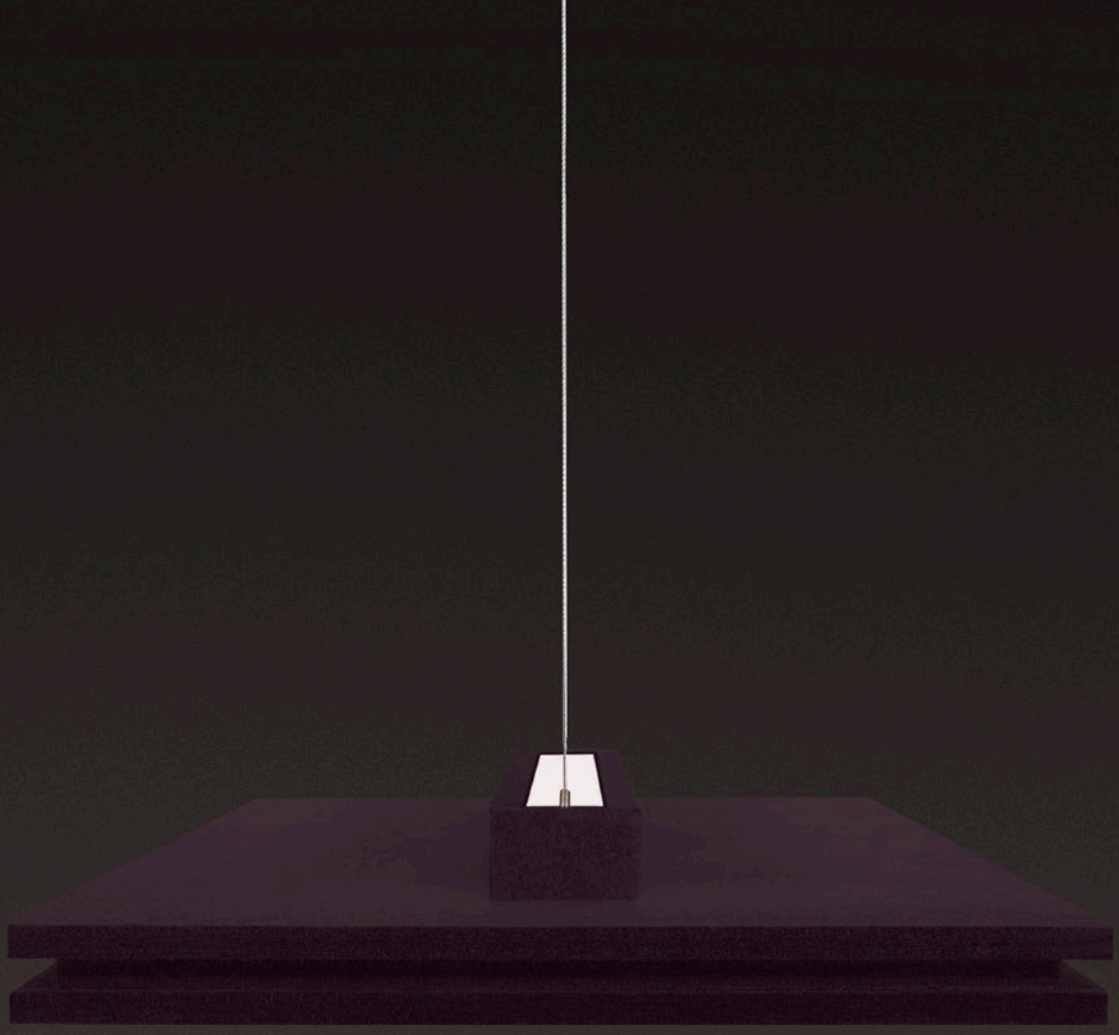


Squero Acoustix
Felt color: Iron
Optic: Matte parabolic louver in silver

Mikro Wafer

Introducing Micro Wafer, a sound absorbing wafer with our thinnest aperture yet. Featuring three layers of acoustic panels and our proprietary integral driver, Mikro Wafer tucks into open ceilings and ductwork for a clean look, and exceptional lines of light.

1. Increase of 20% sound absorption vs other horizontal acoustic luminaires
2. Up to 95 lm/W illumination
3. Available in 3 sizes
4. Biologically optimized lighting with BIOS LED.



Mikro Wafer

Distribution

Direct
Direct/Indirect

Direct Optic

High Lambertian Optic

Indirect Optic

High Lambertian Optic
Clear Lambertian Optic

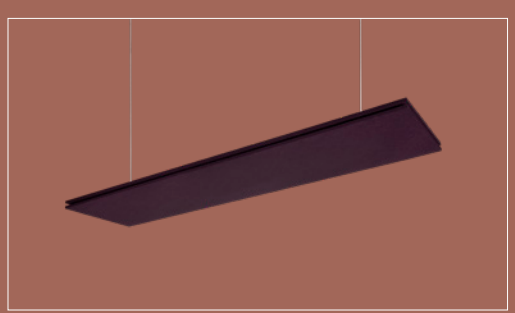
CRI

80+ CRI
90+ CRI (R9>50)

Color temperature

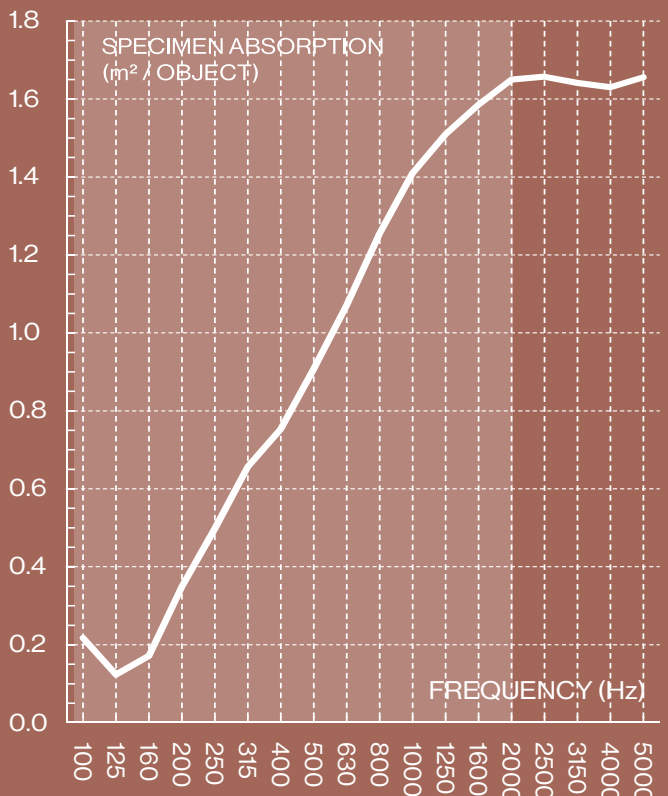
2700K
3000K
3500K
4000K
BIOS

Option (Blankwith acoustic only)



As demonstrated by the graph below, the Mikro Wafer performs well at many frequencies. On average it out performs traditional Acoustic felt luminaries by twenty percent.

Sound Absorption Results – Lumenwerx Mikro Wafer 2 rows of 4 units spaced 49" o.c, bottom edge of unit 48" from the floor.



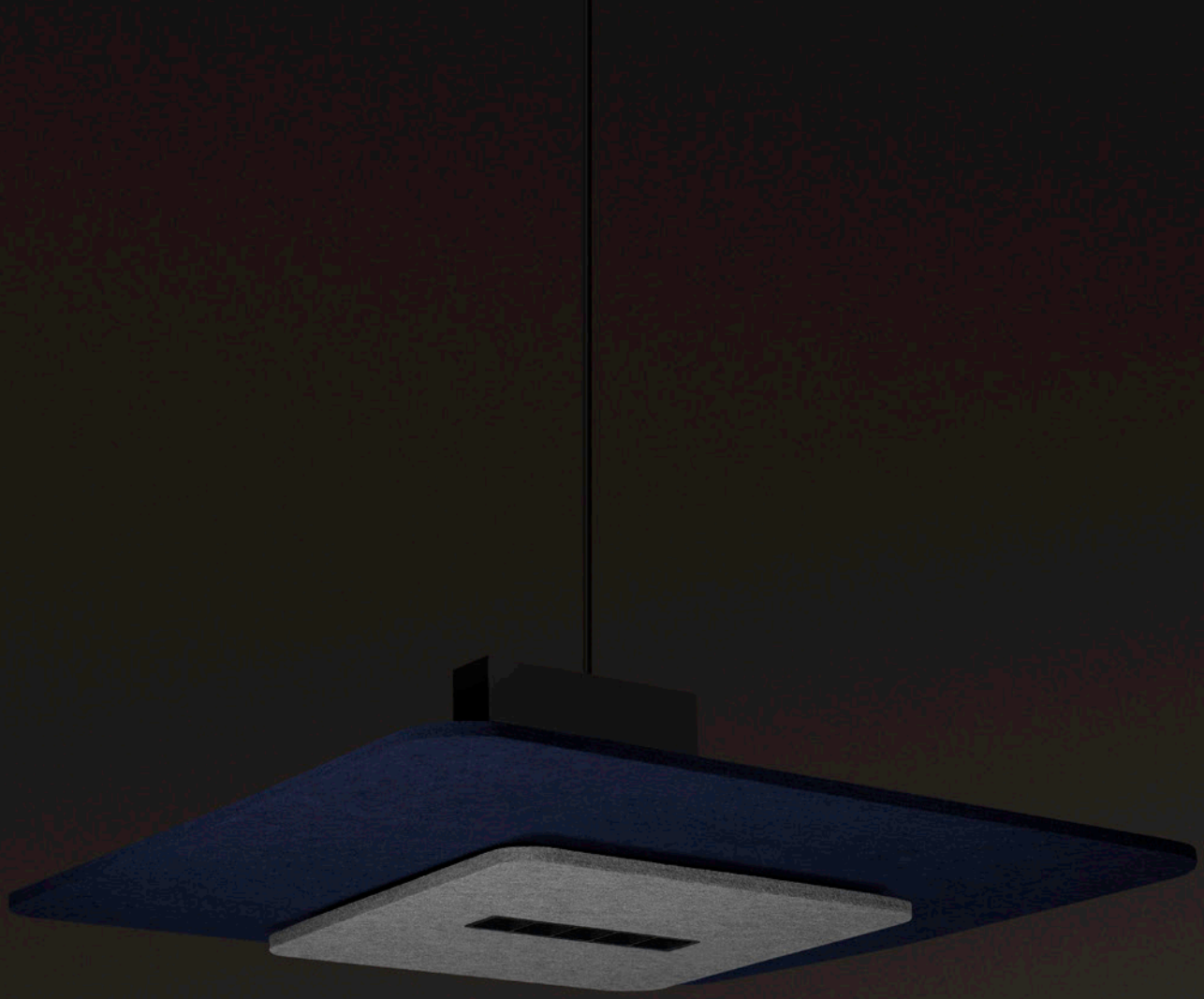
Human hearing frequencies range: 20Hz-2000Hz

Mikro Wafer
Felt color: Plum

Cluster Acoustix

A new spin on a classic cylinder. Cluster Acoustix offers up some stylish lighting. Cluster Acoustix is the small, precise, and soft warm lighting for any space. Based on a fundamental 1.2" square cell, Clusters provides a fresh, crisp look at architectural lighting. Cluster Acoustix comes in both planar or 4 cell configuration with many color choices on the optic louvers.

1. Sharp edge, soft edge and parabolic optics available
2. UGR of < 10
3. Conical, square or hyper parabolic louvers available
4. Matte black, matte white, black chrome, gold and copper louver color choices



Cluster Acoustix

Distribution

Direct

CRI

90+ CRI (R9>50)

Direct Optic

Parabolic
Soft edge downlight
Sharp edge downlight

Louver type

Conical
Hyperbolic
Square

Color Temperature

2700K
3000K
3500K
4000K
SOLA
DUO
BIOS

Louver Finish

Matte white
Matte black
Black chrome
Gold
Copper

Option (Blank with acoustic only)

* Please see the latest specification sheet on our website for all possible combinations for the Cluster Acoustix.

Cluster Acoustix
Felt color: Forest Green + Café
Optic: Matte parabolic louver in black

Rim Verso Acoustix

Noise cancelling and easy on the eyes, our Rim Verso Acoustix makes the perfect open office chandelier. Comprised of a circular sheet of sound-absorbing material surrounded by a continuous external luminaire, Rim Verso Acoustix is available in multiple colors to fit any interior design scheme.

1. Flexible design with 3 size options
2. Direct view illumination
3. Up to 77 lm/W illumination
4. 8000 maximum lumen output

Rim Verso Acoustix

Distribution

Direct View

Optics

Uniform Lambertian Optic

CRI

90+ CRI (R9>50)

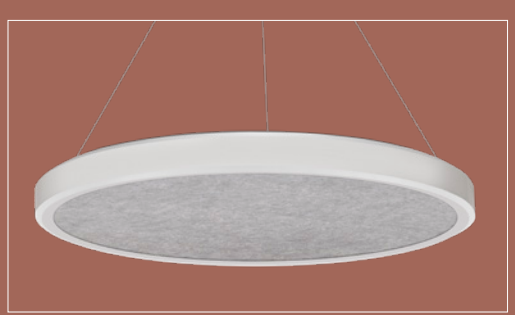
Sizes

24 inch diameter
36 inch diameter
48 inch diameter

Color temp

2700K
3000K
3500K
4000K

Option (Blank with acoustic only)

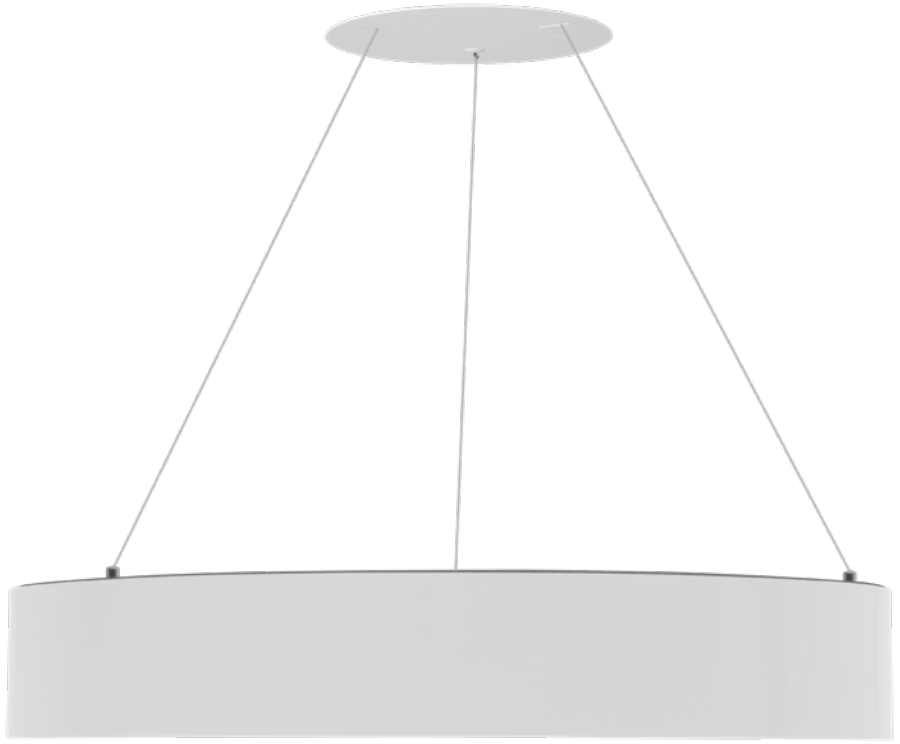


Rim Verso Acoustix
Diameter: 36 in
Color: Café

Togo Acoustix

With its gentle curves, sound dampening technology and single piece, seamless external luminaire, the Togo Pendant offers the best of form and function. Thanks to dual-purpose powered aircraft cable, the pendant appears to float in mid-air, offering low glare illumination and acoustic dampening that will enhance any space.

1. Flexible design in 3 size options
2. Up to 85 lm/W illumination
3. 9000 maximum lumen output
4. 12 standard color options for the housing



Togo Acoustix

Distribution

Direct only

Optic

Uniform Lambertian Optic

CRI

90+ CRI (R9>50)

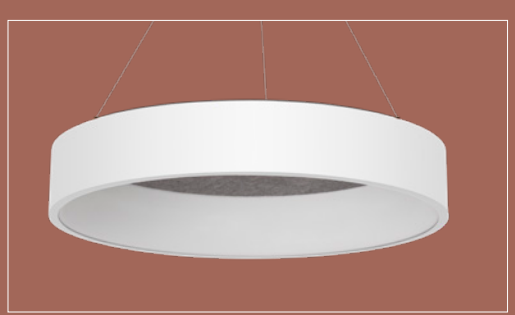
Sizes

24 inch diameter
36 inch diameter
48 inch diameter

Color temperature

2700K
3000K
3500K
4000K

Option (Blank with acoustic only)



Togo Acoustix
Diameter: 36 in
Color: Lichen

Via Stil

Make a bold, functional statement with Via Stil . Our thinnest acoustic fixture, Via Stil offers a dichotomy in textures: warm felt, capped with bold extruded aluminum. Designed for premium acoustic absorption and optimal visual appeal, Via Stil offers ambient down-lighting.

1. Optimal design ratio
2. Tunable white, RGBW & Bios Options
3. Up to 74 lm/W illumination
4. Up to 750 lumen/ft output

Via Stil

Distribution

Asymmetric
Direct
Wall Wash

CRI

80+ CRI
90+ CRI (R9>50)

Direct Optics

Asymmetric Reflector Optic
High efficiency Lambertian Optic
Wall Wash Reflector Optic

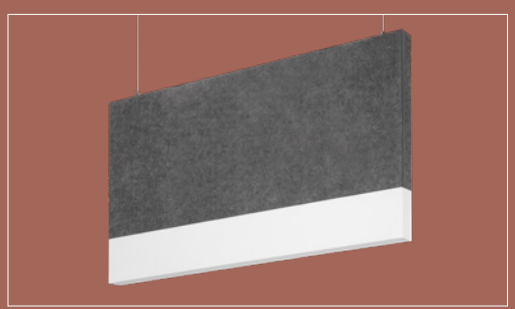
Luminaire Height

12 in
16 in
20 in

Color Temperature

2700K
3000K
3500K
4000K
SOLA
DUO
QUADRO
BIOS

Option (Blank with acoustic only)



Via Stil
Height: 20 inch
Color: Forest Green

Via 1.5
Via 2
Acoustix

Precision designed for an appealing aesthetic, Via 1.5 Acoustix luminaires combine the sound absorption of felt with a warm embedded luminaire, in a single unit. Made with precision mitered seams and regressed end cap, this cost-efficient fixture integrates seamlessly with open architectural spaces.

1. Continuous run available
2. <19 UGR (Unified Glare Rating)
3. Up to 74 lm/W illumination
4. 3000 maximum lumen output (4ft)

Via 1.5
Via 2
Acoustix

Distribution

Asymmetric
Direct
Indirect
Direct/Indirect

CRI

80+ CRI
90+ CRI (R9>50)

Direct Optics

Asymmetric Reflector Optic
High efficiency Lambertian Optic
Wall Wash Reflector Optic

Indirect Optics

Widespread Indirect Optic
Clear Lambertian Optic

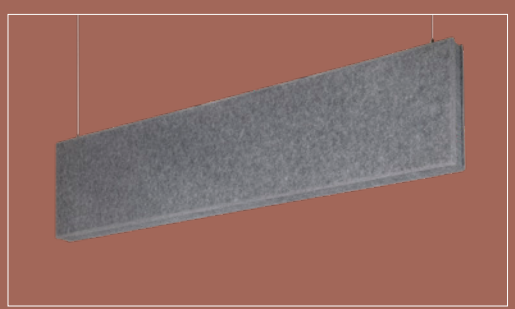
Color Temperature

2700K
3000K
3500K
4000K
SOLA
DUO
QUADRO
BIOS

Luminaire Height

8 in
12 in
16 in

Option (Blank with acoustic only)



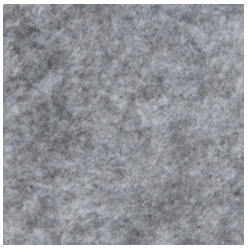
Via 2 Acoustix
Height: 12 inch
Color: Lemon & Iron

Color options for Acoustix*

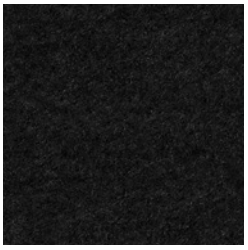
*Please consult factory for more color options, these colors are not applicable for Audia please see p. 15 for Audia color options.
Lead time may vary, minimum quantity may apply

Standard Felt Color Options

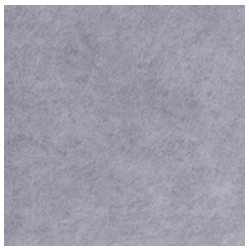
FROST WHITE


FOG


IRON


TRUE BLACK

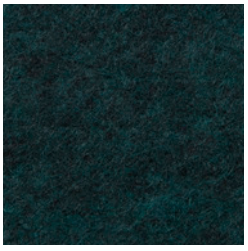

MIDNIGHT BLUE


LAVENDER


CAFÉ


CHERRY


PLUM


FOREST GREEN

Premium Felt Color Options

IVORY


CLOUDY


GREIGE


GRAPHITE


STEEL


CARBON

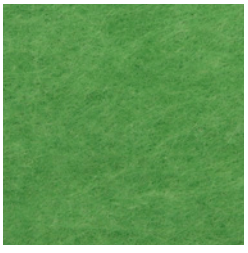

CHARCOAL

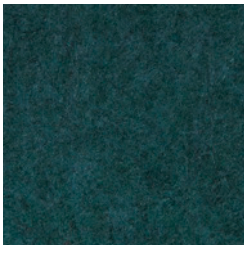

BLUEBERRY


SK Y


NAVY


LICHEN

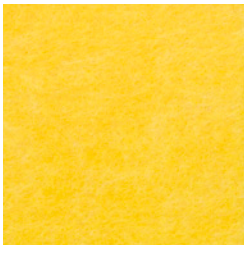

LIME


EVERGREEN


LATTE


MOCHA


ESPRESSO


LEMON


ORANGE


PAPRIKA

How do acoustics works?

Crafting the ideal solution

While in the past, sound was absorbed with carpet, wall hangings and ceiling grids, today's minimalist spaces need an architecturally integrated solution.

USEFUL GLOSSARY OF TERMS

Sabin - a unit of sound absorption, equal to one square foot of a perfectly absorptive surface

Hertz- (abbreviated: Hz) is the standard unit of measurement used for measuring frequency. Since frequency is measured in cycles per second, one hertz equals one cycle per second. Hertz is commonly used to measure wave frequencies, such as sound waves, light waves, and radio waves.

NRC - The Noise Reduction Coefficient (NRC) is a scalar representation of the amount of sound energy absorbed after that energy strikes a particular surface. An NRC of zero indicates a perfect reflection of the sound energy, and an NRC of one indicates a perfect absorption of it.

Frequency - the number of cycles or completed alternations per unit time of a wave or oscillations.

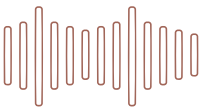
Decibel - a unit used to measure the intensity of a sound or the power level of an electrical signal by comparing it with a given level on a logarithmic scale.

Reverb - is a shaking or echoing effect that is added to a sound

Reverberation Time - is a measure of the time required for the sound to "fade away" in an enclosed area after the source of the sound has stopped.

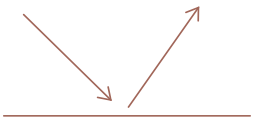
CHALLENGE:
SOUND

In unobstructed open space, sound travels at 1000 ft/second. In a 50" x 20" room, that sound might bounce off hard surfaces up to 60 times before dying out.



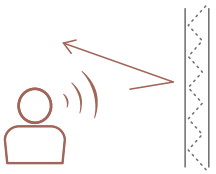
SOLUTION:
REDIRECTING SOUND

By redirecting sound we can reduce the speed that sound travels. When sound hits a barrier and bounces, reverberation time, or echo, is reduced.



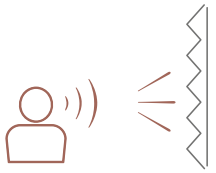
CHALLENGE:
ECHO (REVERBERATION TIME)

"Reverberation" is delayed sound caused by prolonged refraction. Excess reverberation creates noise issues in the built environment, and can reduce the comprehension of speech.



SOLUTION:
SOUND ABSORPTION

By using acoustical absorbing materials and sound trapping strategies such as the Helmholtz resonance principal, we can create areas to trap the sound. This can be done using wall coverings and carpets but given the desire for clean sleek minimal spaces it makes sense to deploy an acoustical system incorporating the lit environment of the space.



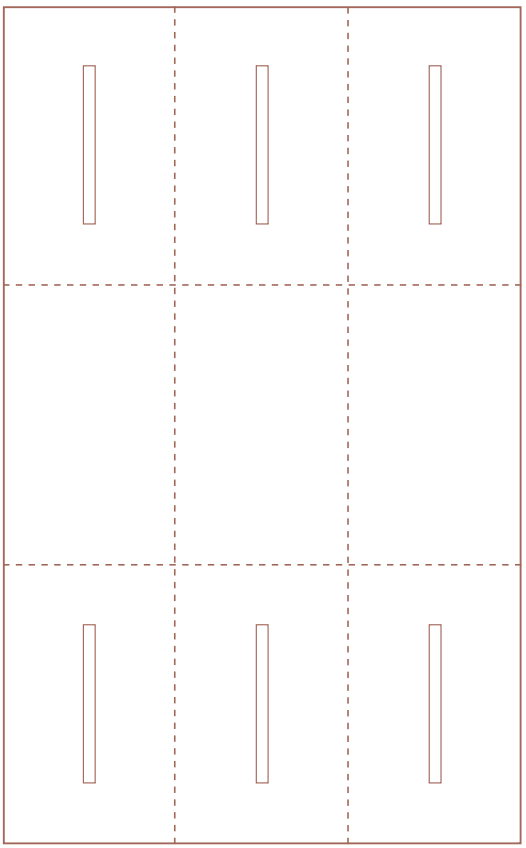
How to improve acoustics in a room?

Similar to lighting design, we approach acoustical design using the same principles. We want to create layers of sound absorption - one system offers an improvement but two or even three acoustic systems will show a decrease in reverberation time and reduction in unwanted noise. Humans can notice acoustical improvement of 0.2 seconds of reverberation time. We have incorporated this in our Good, Better and Best acoustic values calculations.

☺ General lighting

☹ No acoustic

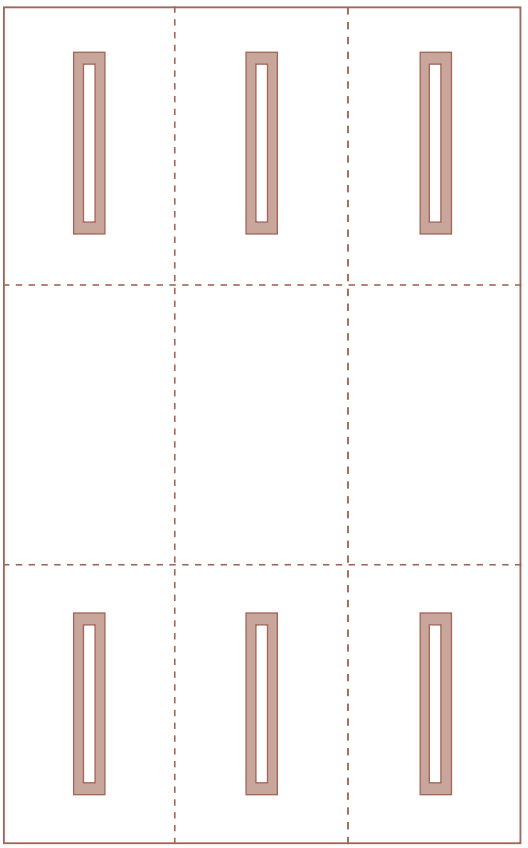
0%	1.3 s	Reverberation time



☺ General lighting

☺ GOOD Acoustic

-25%	0.98 s	Reverberation time

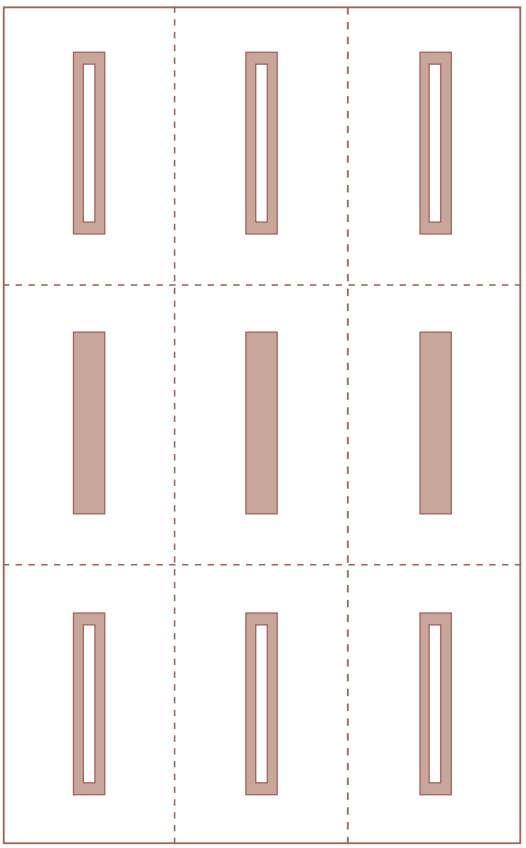


☺ Good: Reverberation time is reduced by 25%
☺ ☺ Better: Reverberation time is reduced by 40%
☺ ☺ ☺ Best: Reverberation time is reduced by 50%

☺ General lighting

☺ ☺ BETTER Acoustic

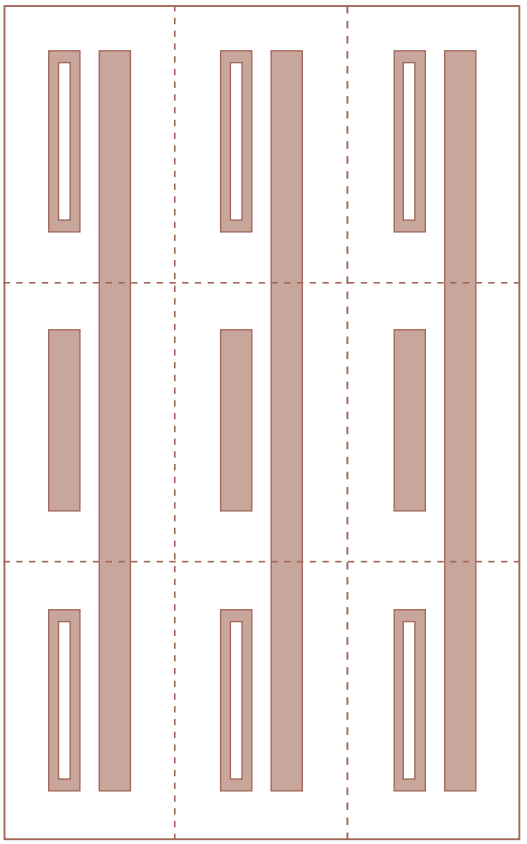
-40%	0.78s Reverberation time



☺ General lighting

☺ ☺ ☺ BEST Acoustic

-50%	0.65s Reverberation time



Easy acoustic calculations?

Developed in conjunction with acousticians, the Lumenwerx Acoustix Value Formula (LAVF) is a simple math equation that uses a ratio to determine acoustic needs. In the LAVF we took assumptions that one wall would be glass, three walls and the ceiling are gypsum board and the flooring is concrete. The basis of the equation mimics a poorly performing acoustic space. By applying the ratios, we can determine how many luminaires are required for “Good”, “Better” or “Best” acoustic performance, using the standard ceiling height of 9 feet and 4 foot luminaires.

For advanced calculations please contact your regional sales manager. We have a team of trained experts that will be happy to assist you.

Good: Reverberation time is reduced by 25%
Better: Reverberation time is reduced by 40%
Best: Reverberation time is reduced by 50%

Lumenwerx Acoustix Value Formula.

1. Calculate the square feet of your room (length x width)

2. Select your luminaire

3. Choose the level of acoustical improvement you are looking for and select the associated Acoustix Value:
   ☺ Good ☺ ☺ Better ☺ ☺ ☺ Best

4. Use the Lumenwerx Acoustix Value Formula

Square Feet ÷ Value =	Number of luminaires needed in the room

See next page for illustrated example

* Lumenwerx acoustic calculators were developed to act as a guide.
For precise acoustic performance in a space, please consult an acoustician.

Using the formula

AUDIA (16in x48in)	GOOD ☺	BETTER ☺☺	BEST ☺☺☺
Acoustix value	51	25	17

In the above photo we are showing 3 lit and 3 blank Audia Luminaires

*The complete Acoustix offering value table can be found at the end of the brochure, see page 77.

Lumenwerx Acoustix Value Formula

1. Calculate the square feet of your room:
   (**L**:10ft x **W**:15ft) **150 sq ft**

2. Select your luminaire: **Audia** (16in x 48in)

3. Choose the level of acoustical improvement you are looking for and select the associated Acoustix Value:
   ☺ ☺ **Better : 25**

4. Use the Lumenwerx Acoustix Value Formula

150 ÷ 25 = 6 fixtures
(sq ft) (Acoustix value) (3 luminaires + 3 blanks)

The Acoustix Value Formula is a simple calculator used to establish the recommanded number of acoustical luminaires required in a space. For more complex spaces, or specific materials please contact your regional sales manager. We have a team of trained experts that will be happy to assist you with your calculations.

* Lumenwerx acoustic calculators were developed to act as a guide.
For precise acoustic performance in a space, please consult an acoustician.

Lumenwerx Acoustix Value Tables

Using the Lumenwerx Acoustix Value Calculator table; you can determine the number of acoustic lit and blank luminaires, required in a space by fixture type. We have three levels of recommended sound reduction good, better and best. Choosing one of these option will reduce the sound accordingly: the best option indicates the best acoustic improvement. The ratios are based on a standard ceiling height of 9 feet and 4 foot luminaires.

ROOM DIMENSIONS **UNDER 300 SQ/FT**

PRODUCT	GOOD ☺	BETTER ☺☺	BEST ☺☺☺
Audia 12"x48"	38	19	12
Audia 16"x48"	51	25	17
Cluster Circle Acoustix 22"	30	15	10
Cluster Square Acoustix 22”	38	19	13
Mikro Wafer 20"x24"	38	19	13
Mikro Wafer 20"x36"	55	29	19
Mikro Wafer 20"x48"	78	40	25
Rim Verso Acoustix 24"	18	9	6
Rim Verso Acoustix 36"	42	20	14
Rim Verso Acoustix 48"	75	38	25
Squero Acoustix 8"x48"	19	9	6
Squero Acoustix 12"x48"	29	14	8
Squero Acoustix 16"x48"	38	19	12
Togo Acoustix 24"	18	9	6
Togo Acoustix 36"	42	20	14
Togo Acoustix 48"	75	38	25
Via 1.5 & 2 Acoustix 8"x48"	19	9	6
Via 1.5 & 2 Acoustix 12"x48"	29	14	8
Via 1.5 & 2 Acoustix 16"x48"	38	19	12
Via Stil 12"x48"	19	9	6
Via Stil 16"x48"	29	14	8
Via Stil 20"x48"	38	19	12

ROOM DIMENSIONS **OVER 300 SQ/FT**

PRODUCT	GOOD ☺	BETTER ☺☺	BEST ☺☺☺
Audia 12"x48"	60	29	19
Audia 16"x48"	84	39	26
Cluster Circle Acoustix 22"	48	24	16
Cluster Square Acoustix 22”	61	30	20
Mikro Wafer 20"x24"	61	30	20
Mikro Wafer 20"x36"	92	45	30
Mikro Wafer 20"x48"	128	60	40
Rim Verso Acoustix 24"	28	14	9
Rim Verso Acoustix 36"	65	32	22
Rim Verso Acoustix 48"	120	59	41
Squero Acoustix 8"x48"	29	15	10
Squero Acoustix 12"x48"	45	22	14
Squero Acoustix 16"x48"	58	29	19
Togo Acoustix 24"	28	14	9
Togo Acoustix 36"	65	32	22
Togo Acoustix 48"	120	59	41
Via 1.5 & 2 Acoustix 8"x48"	29	15	10
Via 1.5 & 2 Acoustix 12"x48"	45	22	14
Via 1.5 & 2 Acoustix 16"x48"	58	29	19
Via Stil 12"x48"	29	15	10
Via Stil 16"x48"	45	22	14
Via Stil 20"x48"	58	29	19

Lumenwerx

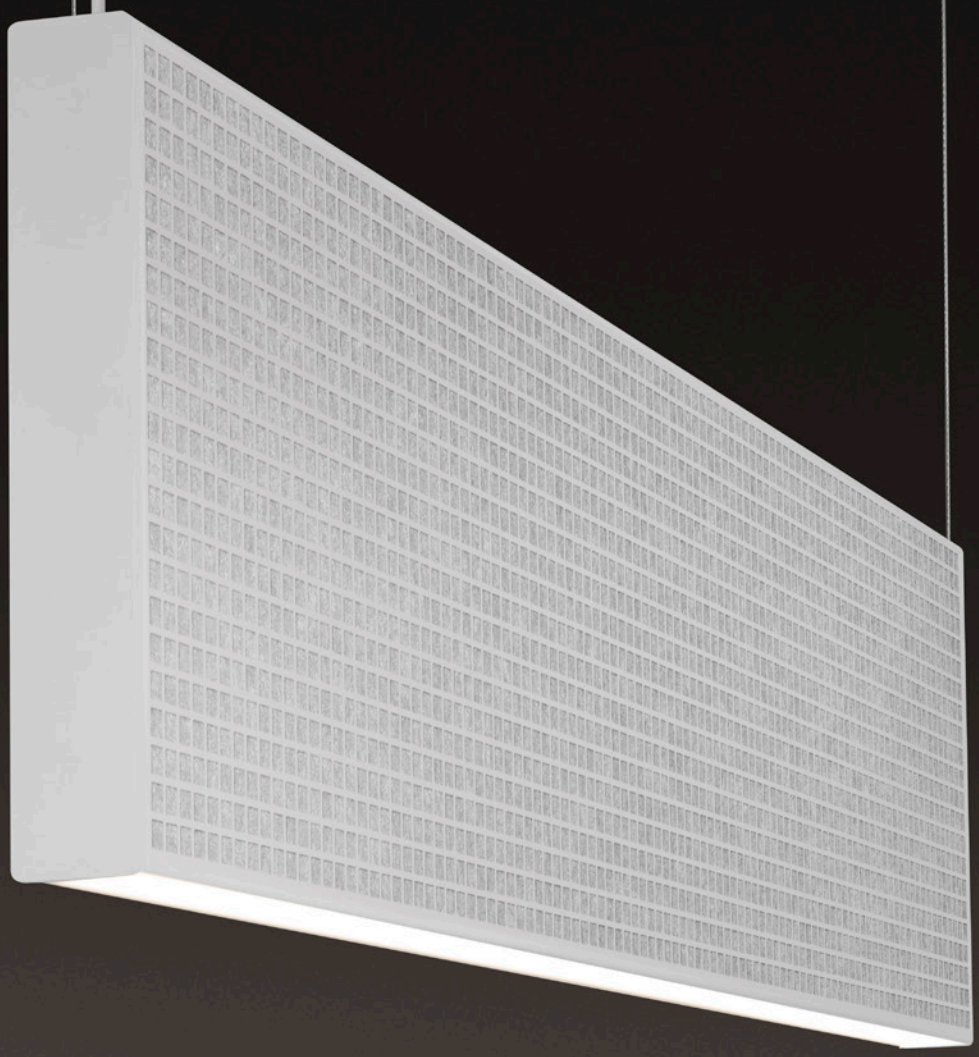
Making light work for you

Designed with human performance and technical optimization in mind, Lumenwerx offers an ever expanding portfolio of acoustic lighting solutions for many applications:

- Offices
- Conference rooms
- Libraries
- Education
- Foyer/ Lobby
- High ceiling application
- Fitness Centers
- Cafeterias
- Multi-Use room
- Retail
- Hospitality

For additional information please visit our website at www.lumenwerx.com

acoustix



Lumenwerx
3737 boul. de la Côte-Vertu
Saint-Laurent, QC
H4R 2C9

lumenwerx.com
T 514.225.4304
F 514.931.4862