

ATENA



FALSE CEILINGS AND COVERINGS




FALSE CEILINGS AND COVERINGS

INNOVATIVE ARCHITECTURAL SOLUTIONS HIGH PERFORMANCE SYSTEMS NEW EXPRESSIVE POSSIBILITIES

Atena has been conceiving and manufacturing false ceilings, external coverings and high quality marine fittings for over 30 years, producing in its factory in Italy and distributing in over fifty countries, through its dealers and partners.

Without any limit to the technical development, Atena offers innovative solutions to transform the designers vision into real works, all over the world. It stands out for the capability to make executive the most challenging projects by creating special metal bodies for interior and façade architecture.

In addition to the commercial synergies with different European realities, and not only, Atena cooperates with designers and construction companies, following customers at all levels from the idea to the installation; providing a qualified executive design service and specialized consultancy in acoustics, lighting and seismic engineering.



HIGH TECHNICAL PERFORMANCE
CERTIFIED SYSTEMS
CUSTOM MADE SOLUTIONS

ATENA H⁺

Atena H⁺ is the Atena metal ceiling range properly conceived to meet the specific requirements of healthcare, chemical, pharmaceutical and microelectronics industries where high levels of cleanliness, safety and environmental comfort are required.

A complete range of high-performance metal ceilings, integrated with the Atena Lux lightings to achieve the best technical result in all application field, from controlled atmosphere environments such as clean rooms and operating theaters, to areas with low risk of contamination such as waiting areas and halls.

Atena H⁺ is synonymous of air-tightness, resistance to chemical corrosion, high levels of hygiene thanks to the antimicrobial properties of Defence H⁺ materials, as well as ISO 2-certified air cleanliness of Syncro Evo systems.

Atena H⁺ the best performance for the highest environmental quality.

INDEX

4	ATENA H ⁺
8	24 SYNCRO EVO
12	35 SYNCRO EVO
14	AIR-TIGHT ENIGMA
18	AIR-TIGHT MATROX
22	AIR-TIGHT ENIGMA SYNCRO XL
26	LAY-IN CLIP-IN SYSTEMS
32	CLEAN ROOMS SYSTEMS
34	AIR-TIGHT SYSTEMS
35	ANTIMICROBIAL FEATURES
36	INTEGRATED LIGHTINGS
38	ANTISEISMIC SYSTEMS
40	PRODUCT SELECTOR
42	CERTIFICATIONS

CLEAN ROOMS CEILINGS

SYNCRO EVO

ISO 2
certified

24 Syncro Evo
35 Syncro Evo

ATENA H⁺

Pictures: "24 Syncro Evo" metal ceiling | "Ate_Taurus Evo" lighting by Atena Lux



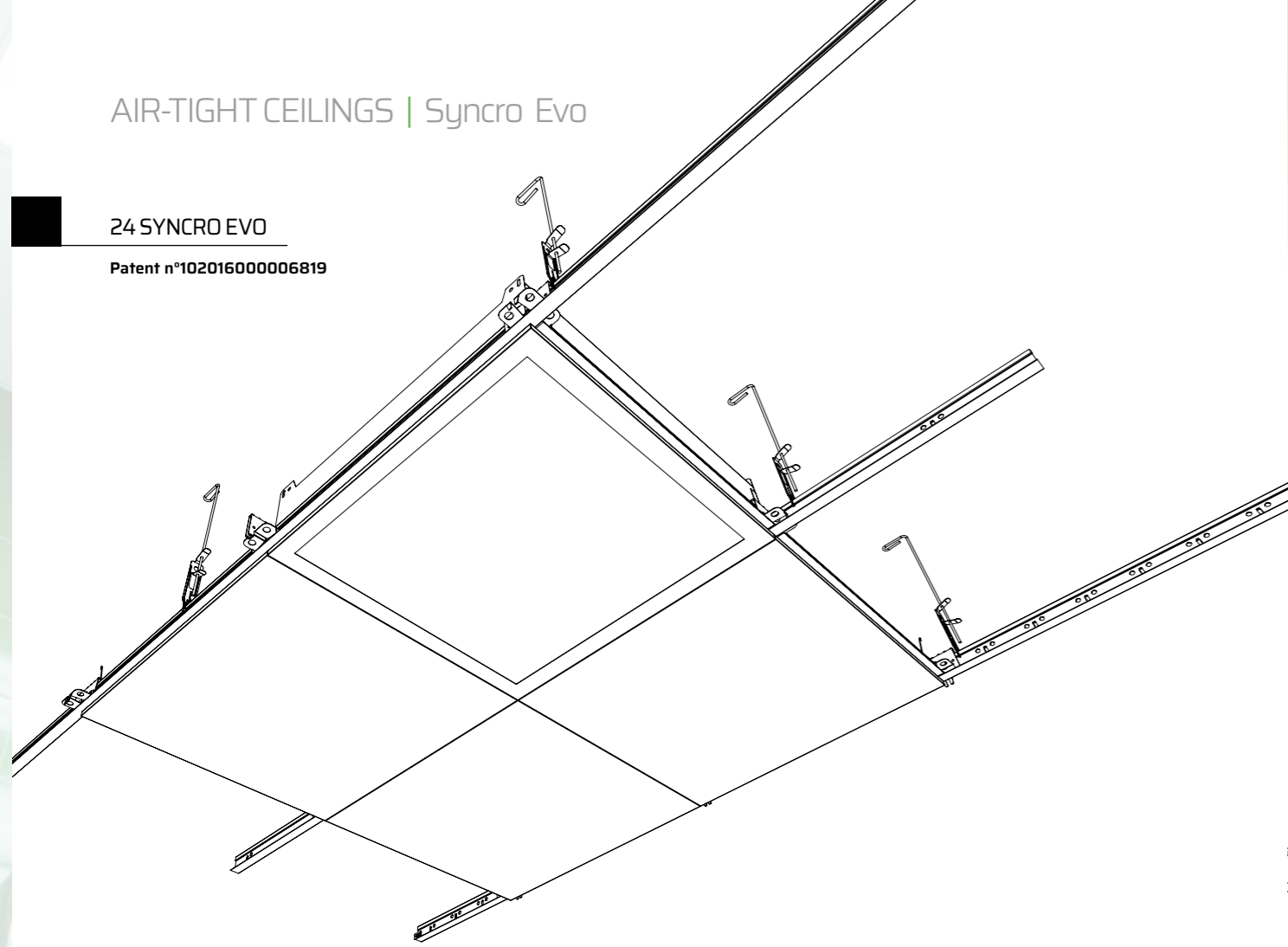
Fraunhofer
TESTED[®]
DEVICE
ATENA S.P.A.
HP93
Report No. AT 1907-1124



Fraunhofer
TESTED[®]
DEVICE
ATENA S.P.A.
ATENA HOSPITAL PANEL
Report No. AT 1907-1124

24 SYNCRO EVO

Patent n°10201600006819



FEATURES

PANELS' FEATURES

24 Syncro Evo spring panels
Right edge | Shaped edges to apply air-tight gasket and corners
600x600 | 600x1200 | 300x600 | 300x1200 mm
other dimensions on request

PANELS' MATERIALS

Steel 5/10 | 6/10
Aluminum 8/10

HIDDEN STRUCTURE

Steel Strong Easy T24 | Easy Antiseismic T24

ANTI-SEISMIC EQUIPMENTS

Atena Antiseismic Kit for ≤1,2 m plenum
Atena Antiseismic Kit for > 1,2 m high plenum
Compulsory for buildings in 3 and 4 Class (NTC 2018 - § 7.2.3)

HANGERS

Twister, Nonius, Standard with spring, 90° hanger

COLORS

Atena white, Atena silver pre-painted aluminum
Atena white, Atena silver pre-painted steel
RAL / NCS coatings

FINISHING

Plain surface
Sublimation of images and effects
Antimicrobial treatment (**Defence H⁺**)

WALL ANGLES

"L" Syncro Evo with air-tight gasket to apply on site

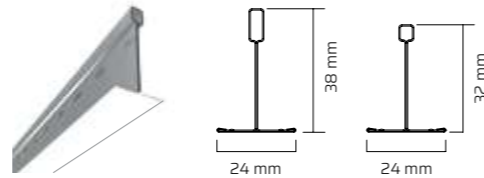
ACCESSORIES

ATE_TAURUS EVO IP65
integrated lighting by Atena Lux

System components

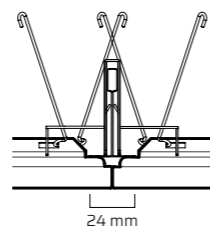
T-GRID

3700 mm h38
1200 mm h32
600 mm h32



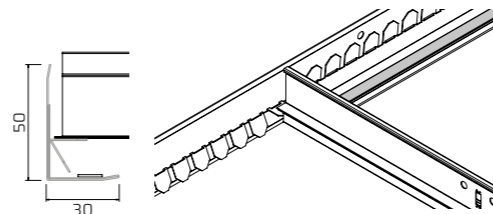
24 SYNCRO EVO PANELS

Atena H⁺ range
air-tight model
for clean rooms



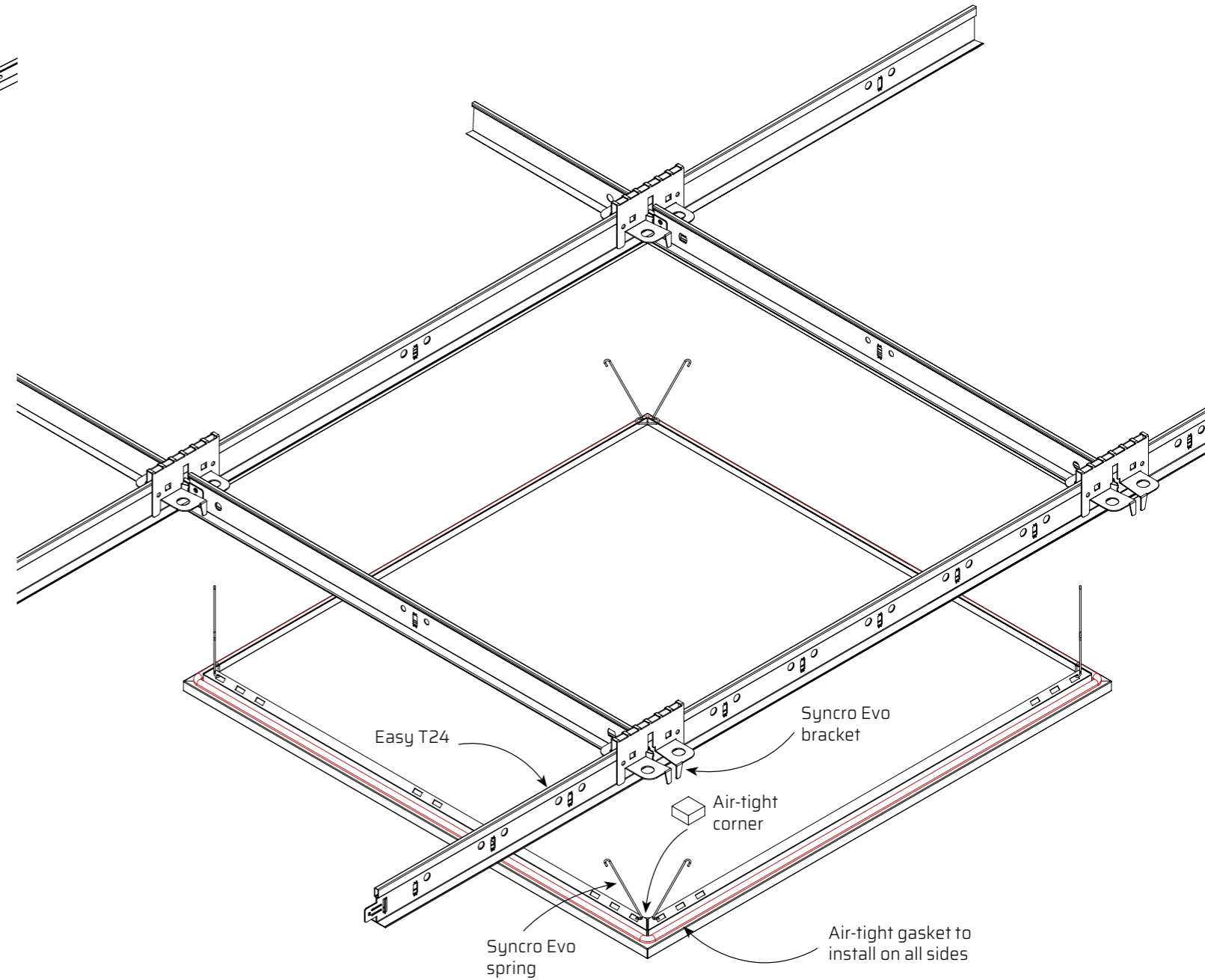
SYNCRO EVO WALL ANGLE

Special wings
for T profiles
setting and
panels locking

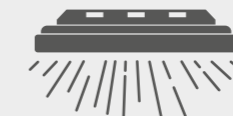


ISO 2
certified

Certified
system for
clean rooms



ATENA LUX ATE_TAURUS EVO
IP65 | ISO 2 - ISO 14644-1
INTEGRATED LIGHTING

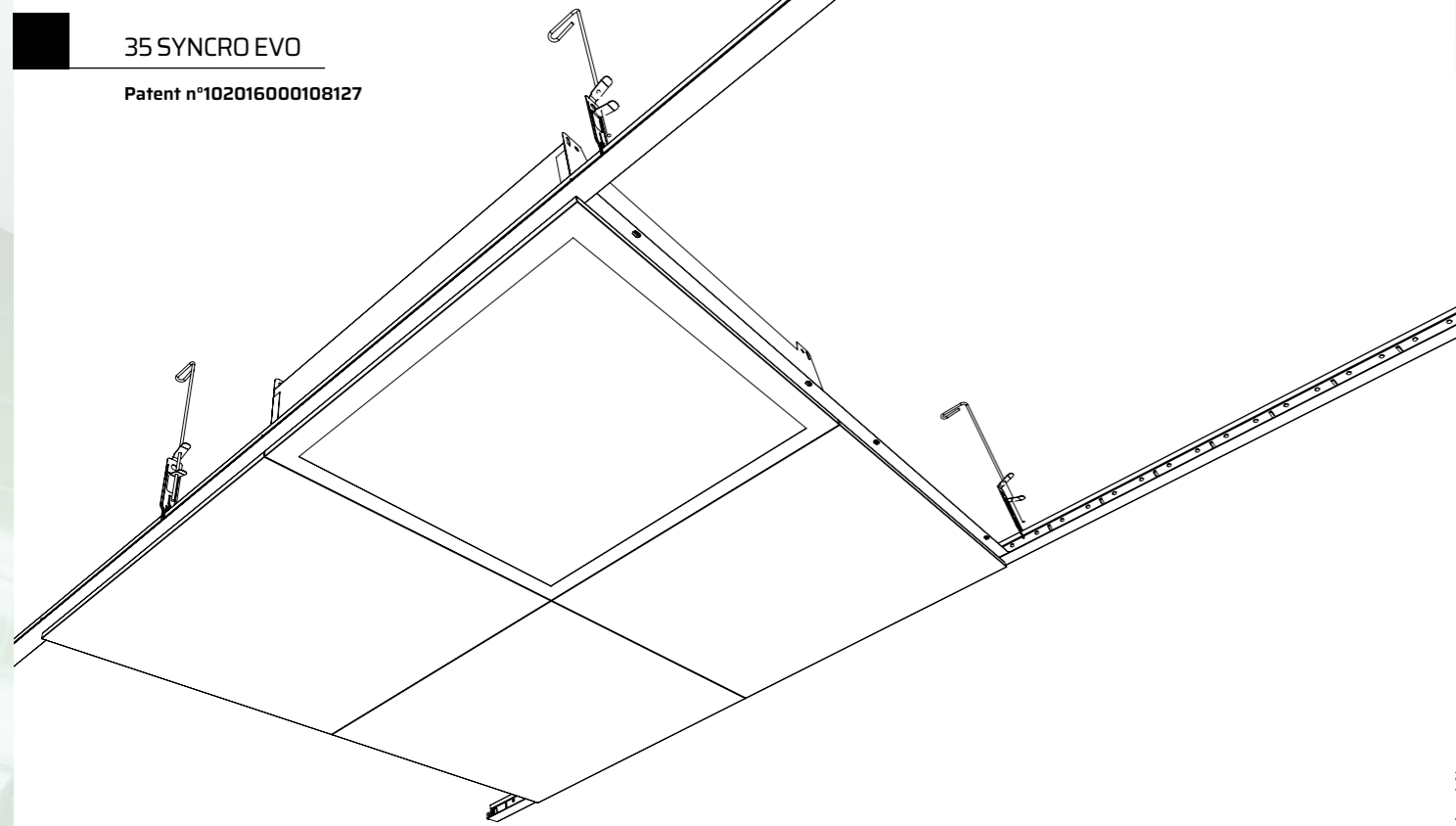


DEFENCE H⁺
ANTIMICROBIAL
RANGE



35 SYNCRO EVO

Patent n°102016000108127



FEATURES

PANELS' FEATURES

35 Syncro Evo spring panels
 Right edge | Shaped edges to apply air-tight gasket and corners
 600x600 | 600x1200 | 300x600 | 300x1200 mm
 other dimensions on request

PANELS' MATERIALS

Steel 5/10 | 6/10
 Aluminum 8/10

HIDDEN STRUCTURE

Steel Strong Base 35 with punched 1200 mm profile

ANTI-SEISMIC EQUIPMENTS

Atena Antiseismic Kit for ≤1,2 m plenum
 Atena Antiseismic Kit for > 1,2 m high plenum
 Compulsory for buildings in 3 and 4 Class (NTC 2018 - § 7.2.3)

HANGERS

Twister, Nonius, Standard with spring, 90° hanger

COLORS

Atena white, Atena silver pre-painted aluminum
 Atena white, Atena silver pre-painted steel
 RAL / NCS coatings

FINISHING

Plain surface
 Sublimation of images and effects
 Antimicrobial treatment (**Defence H***)

WALL ANGLES

"L" Syncro Evo with air-tight gasket to apply on site

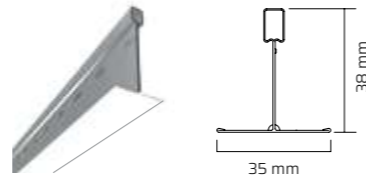
ACCESSORIES

ATE_TAURUS EVO IP65
 integrated lighting by Atena Lux

System components

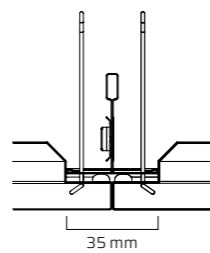
T-GRID

3700 mm h38
 1200 mm h38
 600 mm h38



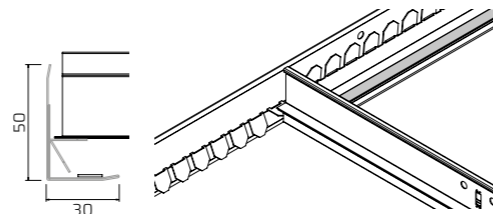
35 SYNCRO EVO PANELS

Atena H* range
 air-tight model
 for clean rooms



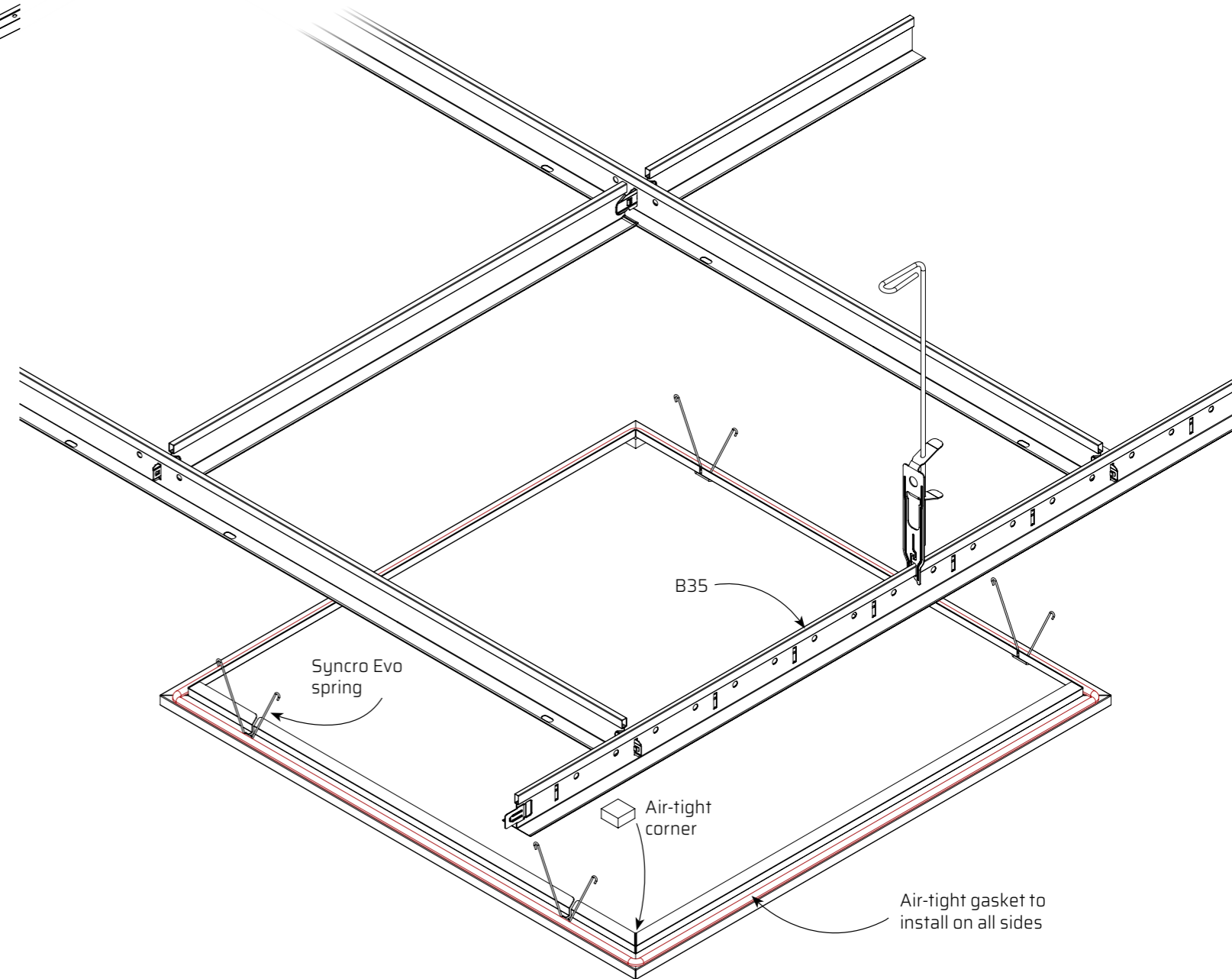
SYNCRO EVO WALL ANGLE

Special wings
 for T profiles
 setting and
 panels locking

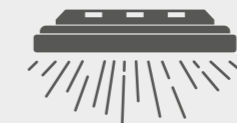


ISO 2
 certified

Certified
 system for
 clean rooms



ATENA LUX ATE_TAURUS EVO
 IP65 | ISO 2 - ISO 14644-1
 INTEGRATED LIGHTING



DEFENCE H*
 ANTIMICROBIAL
 RANGE



CEILING SYSTEMS

AIR-TIGHT ENIGMA

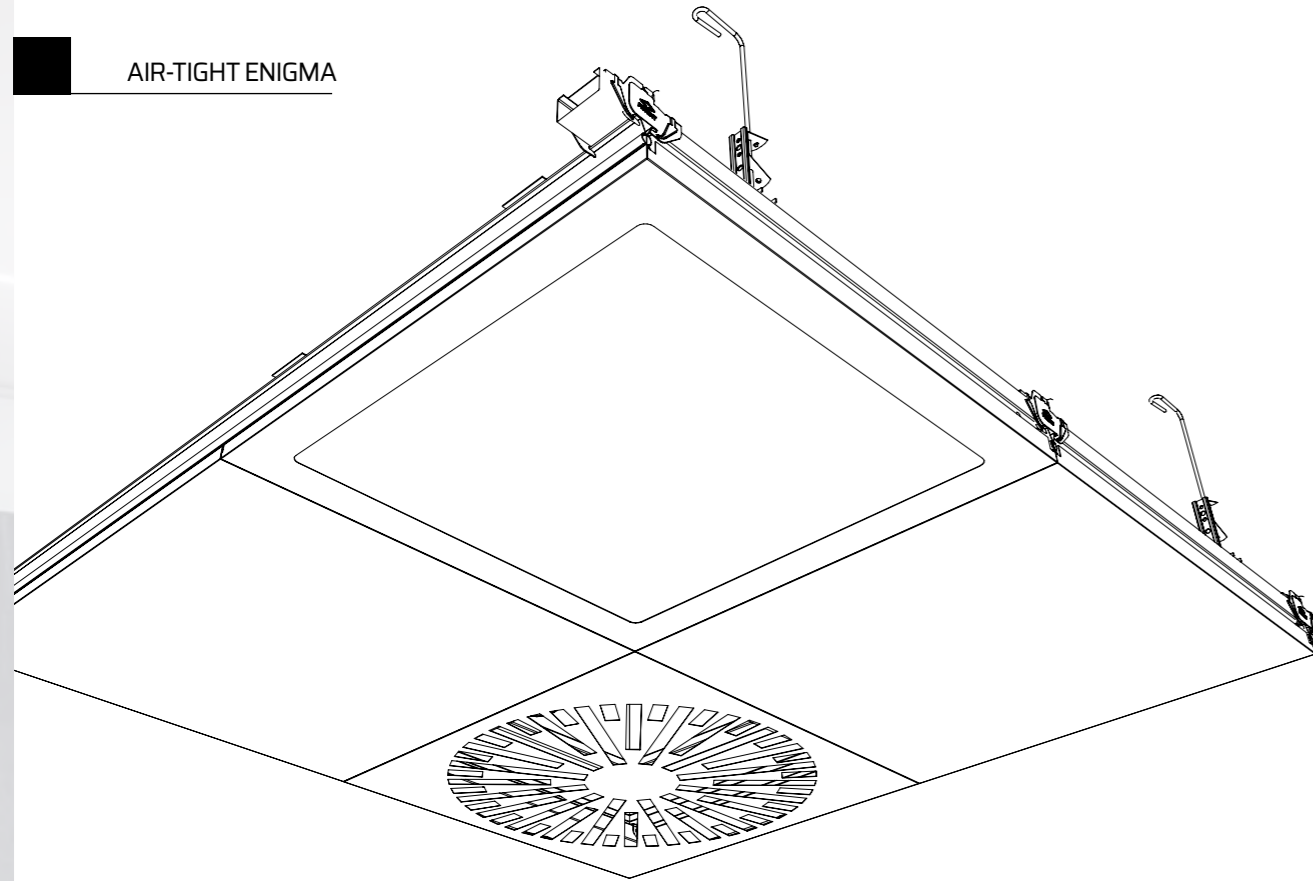


Airt-tight Enigma models

ATENA H⁺

Picture: "Air-tight Enigma" metal ceiling | custom made lighting by Atena Lux

AIR-TIGHT ENIGMA



FEATURES

PANELS' FEATURES

Enigma hooking panels | Right edge
Shaped edges to apply air-tight gasket
600x600 mm
other dimensions on request

PANELS' MATERIALS

Steel 5/10 | 6/10 | 7/10 | 8/10
Aluminum 6/10 | 7/10 | 8/10
Stainless steel on request

HIDDEN STRUCTURE

TDW-T double triangular structure with Winger

ANTI-SEISMIC EQUIPMENTS

Atena Antiseismic Kit for ≤ 1,2 m plenum
Atena Antiseismic Kit for > 1,2 m high plenum
Compulsory for buildings in 3 and 4 Class (NTC 2018 - § 7.2.3)

HANGERS

Spring hook hanger | Nonius
Bridge bracket with threaded bar

COLORS

Atena white, Atena silver pre-painted aluminum
Atena white, Atena silver pre-painted steel
RAL / NCS coatings

FINISHING

Plain surface
Sublimation or digital print of images ad effects
Antimicrobial treatment (Defence H⁺)

WALL ANGLES

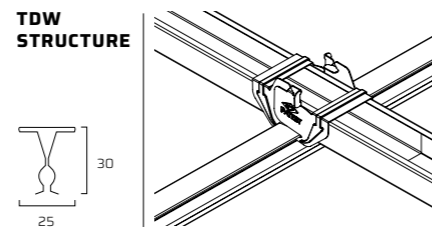
"C" 25x33x18 mm with "omega" spring and air-tight gasket to apply on site

ACCESSORIES

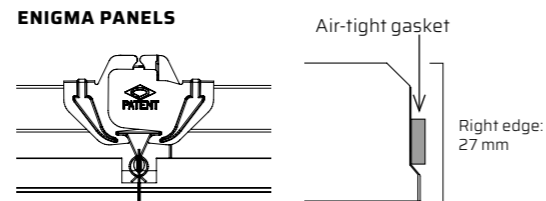
ATE_TAUROS CLIP
integrated lighting by Atena Lux

System components

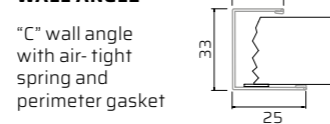
TDW STRUCTURE



ENIGMA PANELS

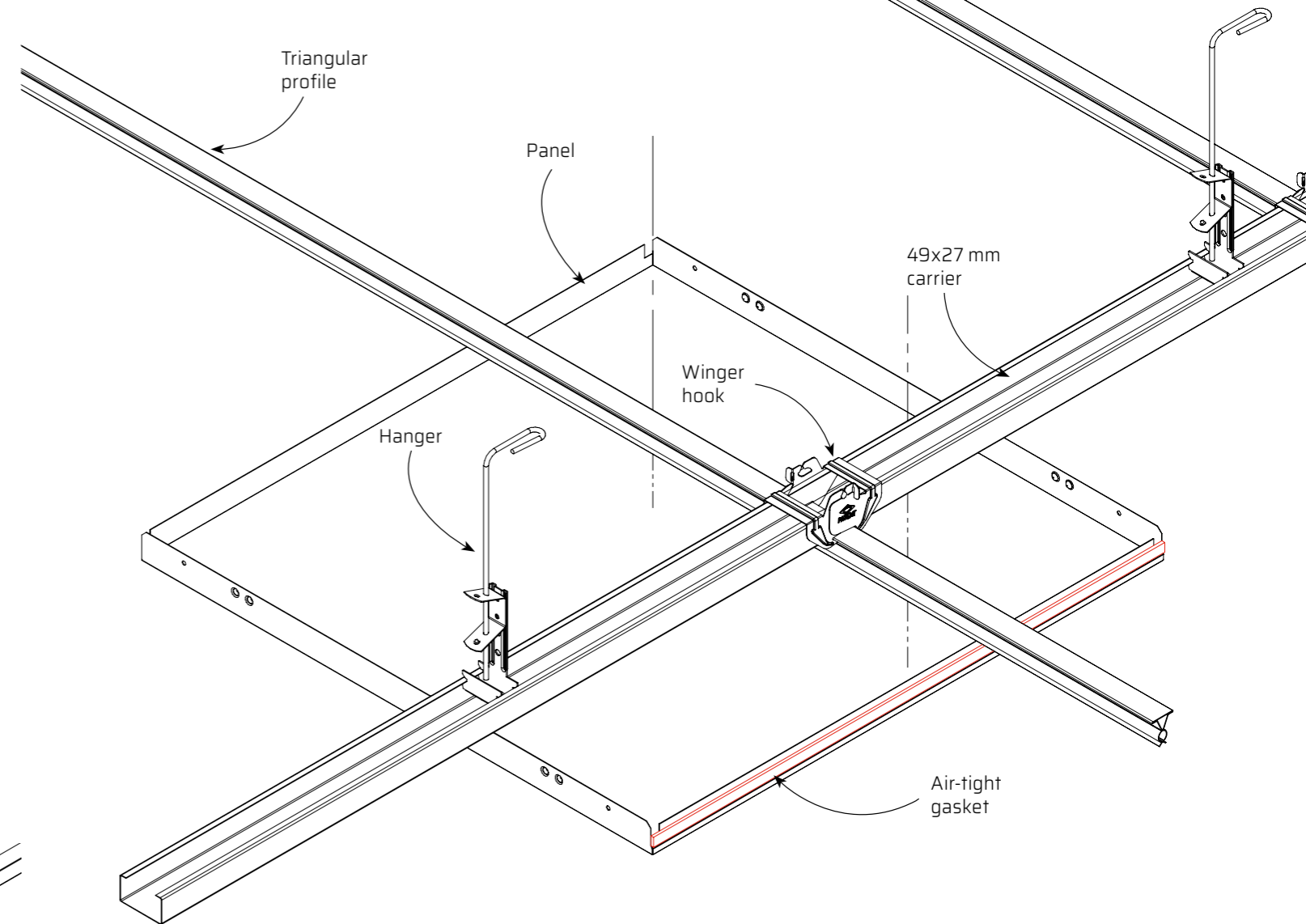


AIR-TIGHT WALL ANGLE

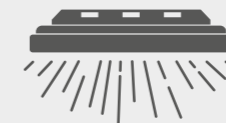


AIR
certified

Integrated system for clean rooms tested for air-tight (UNI EN 1026)



ATENA LUX
INTEGRATED LIGHTING



DEFENCE H⁺
ANTIMICROBIAL
RANGE



CEILING SYSTEMS

AIR-TIGHT MATROX

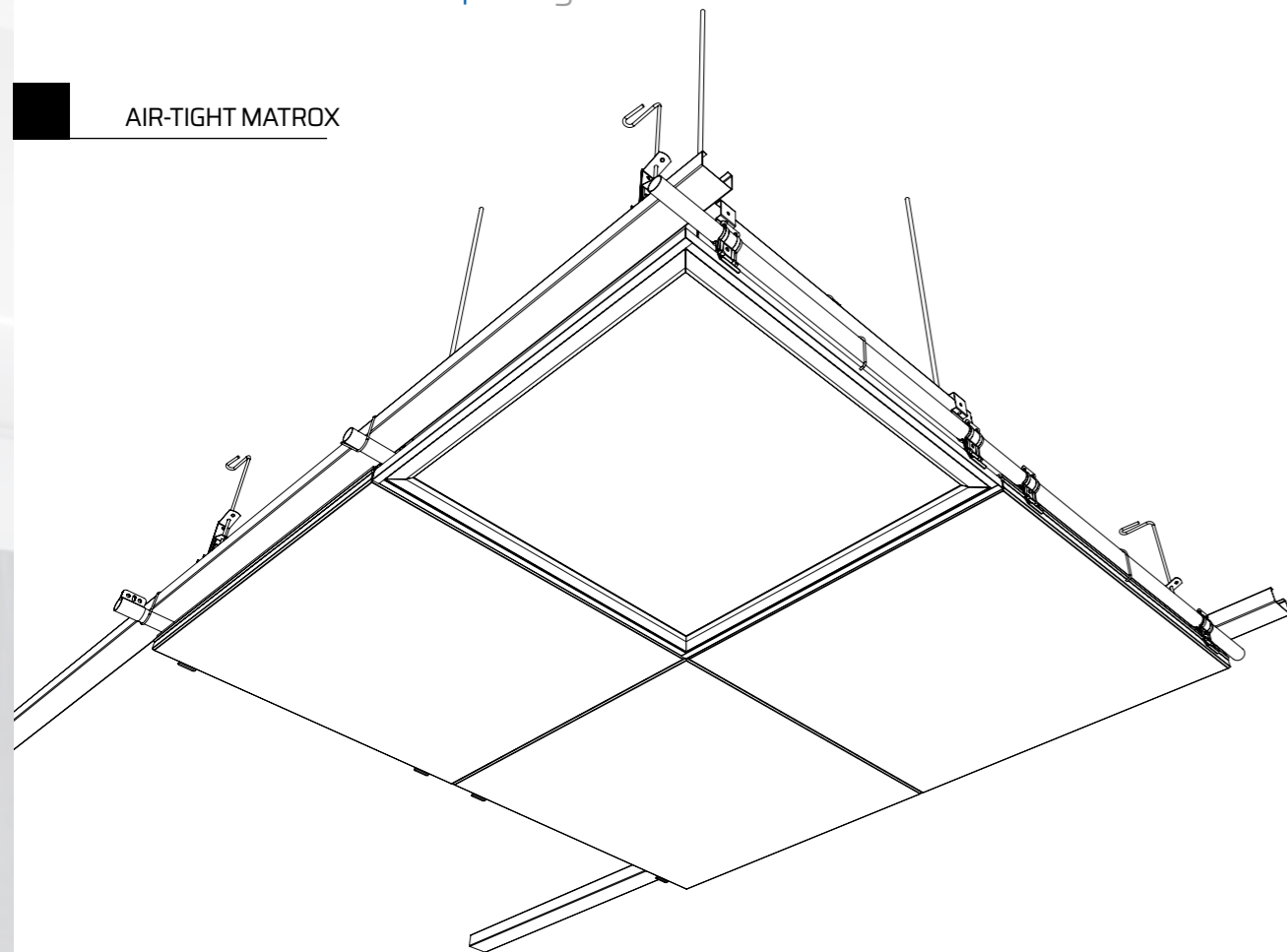


Airt-tight Matrox models

ATENA H+

Picture: "Matrox" metal ceiling | "Wall Decò" sublimated metal counter wall
"Ate_Taurus/N" lighting and "Sense" bed head beam by Atena Lux

AIR-TIGHT MATROX



FEATURES

PANELS' FEATURES

Matrox hooking panels
Right or 45° bevelled edge
Shaped edges to apply air-tight gasket
600x600 mm
other dimensions on request

PANELS' MATERIALS

Steel 5/10 | 8/10
Stainless steel 5/10 | 6/10
Aluminum 6/10 | 8/10

HIDDEN STRUCTURE

Matrox

ANTI-SEISMIC EQUIPMENTS

Atena Antiseismic Kit for ≤ 1,2 m plenum
Atena Antiseismic Kit for > 1,2 m high plenum
Compulsory for buildings in 3 and 4 Class (NTC 2018 - § 7.2.3)

HANGERS

Spring hook hanger | Nonius

COLORS

Atena white, Atena silver pre-painted aluminum
Atena white, Atena silver pre-painted steel
RAL / NCS coatings

FINISHING

Plain surface
Sublimation of images and effects
Antimicrobial treatment (Defence H⁺)

WALL ANGLES

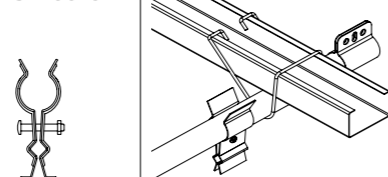
"C" 25x33x18 mm with "omega" spring and air-tight gasket to apply on site

ACCESSORIES

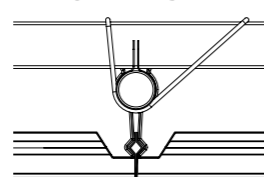
ATE_TAUROS/N IP65
integrated lighting by Atena Lux

System components

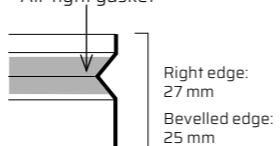
MATROX STRUCTURE



MATROX PANELS

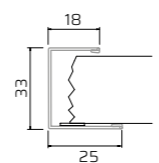


Air-tight gasket



AIR-TIGHT WALL ANGLE

"C" wall angle with air-tight spring and perimeter gasket

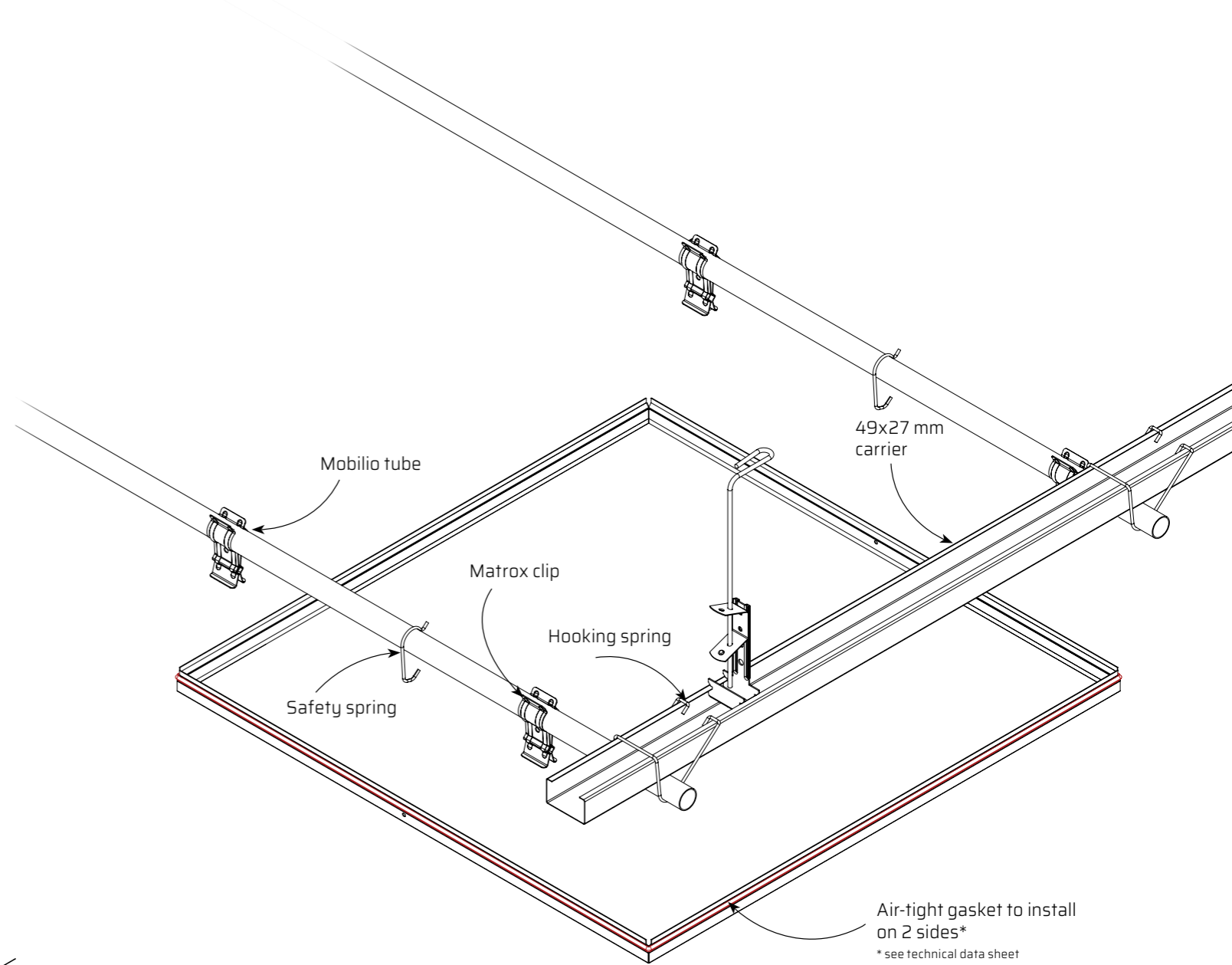


AIR
certified

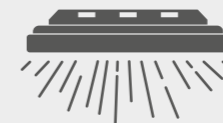
Air-tight
certified
system



TRASFERIMENTO TECNOLOGICO
INNOVAZIONE
SISTEMA CAMERALE VENETO



ATENA LUX ATE_TAUROS/N
IP65 INTEGRATED LIGHTING



DEFENCE H⁺
ANTIMICROBIAL
RANGE



CEILING SYSTEMS

AIR-TIGHT ENIGMA SYNCRO XL

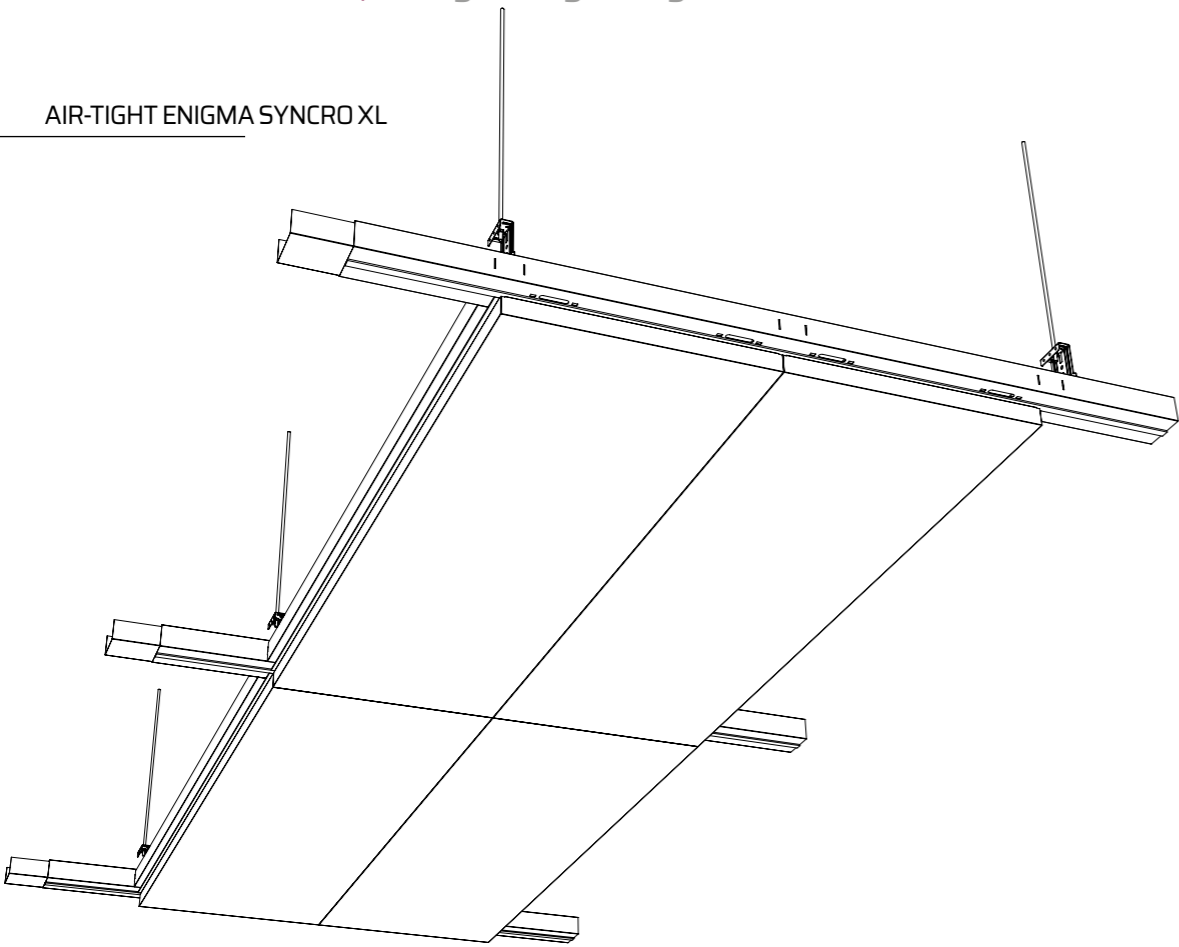


Air-tight Enigma Syncro XL models

ATENA H+

Picture: "Air-tight Enigma Syncro XL" metal ceiling | custom made lighting by Atena Lux

AIR-TIGHT ENIGMA SYNCRO XL



FEATURES

PANELS' FEATURES

Syncro spring panels
Right edge
600x1200 mm
other dimensions on request

PANELS' MATERIALS

Steel 5/10 | 6/10 | 7/10 | 8/10
Stainless steel 5/10 | 6/10
Aluminum 7/10 | 8/10

HIDDEN STRUCTURE

"C" Syncro beams and spacers with air-tight gasket to apply on site

ANTI-SEISMIC EQUIPMENTS

Atena Antiseismic Kit for ≤ 1,2 m plenum
Atena Antiseismic Kit for > 1,2 m high plenum
Compulsory for buildings in 3 and 4 Class (NTC 2018 - § 7.2.3)

HANGERS

Hooking bracket with threaded bar

COLORS

Atena white, Atena silver pre-painted aluminum
Atena white, Atena silver pre-painted steel
RAL / NCS coatings

FINISHING

Plain surface
Sublimation of images and effects
Antimicrobial treatment (**Defence H+**)

WALL ANGLES

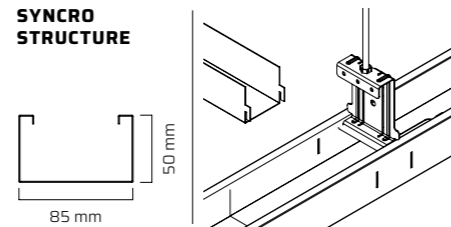
"Double L" 43x10x15x20 mm with "V" spring and air-tight gasket to apply on site

ACCESSORIES

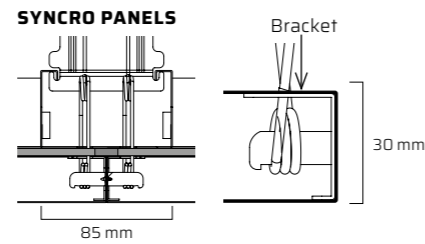
Custom made integrated lighting by Atena Lux

System components

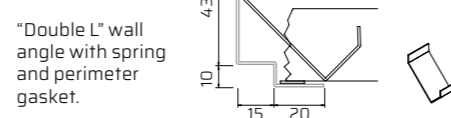
SYNCRO STRUCTURE



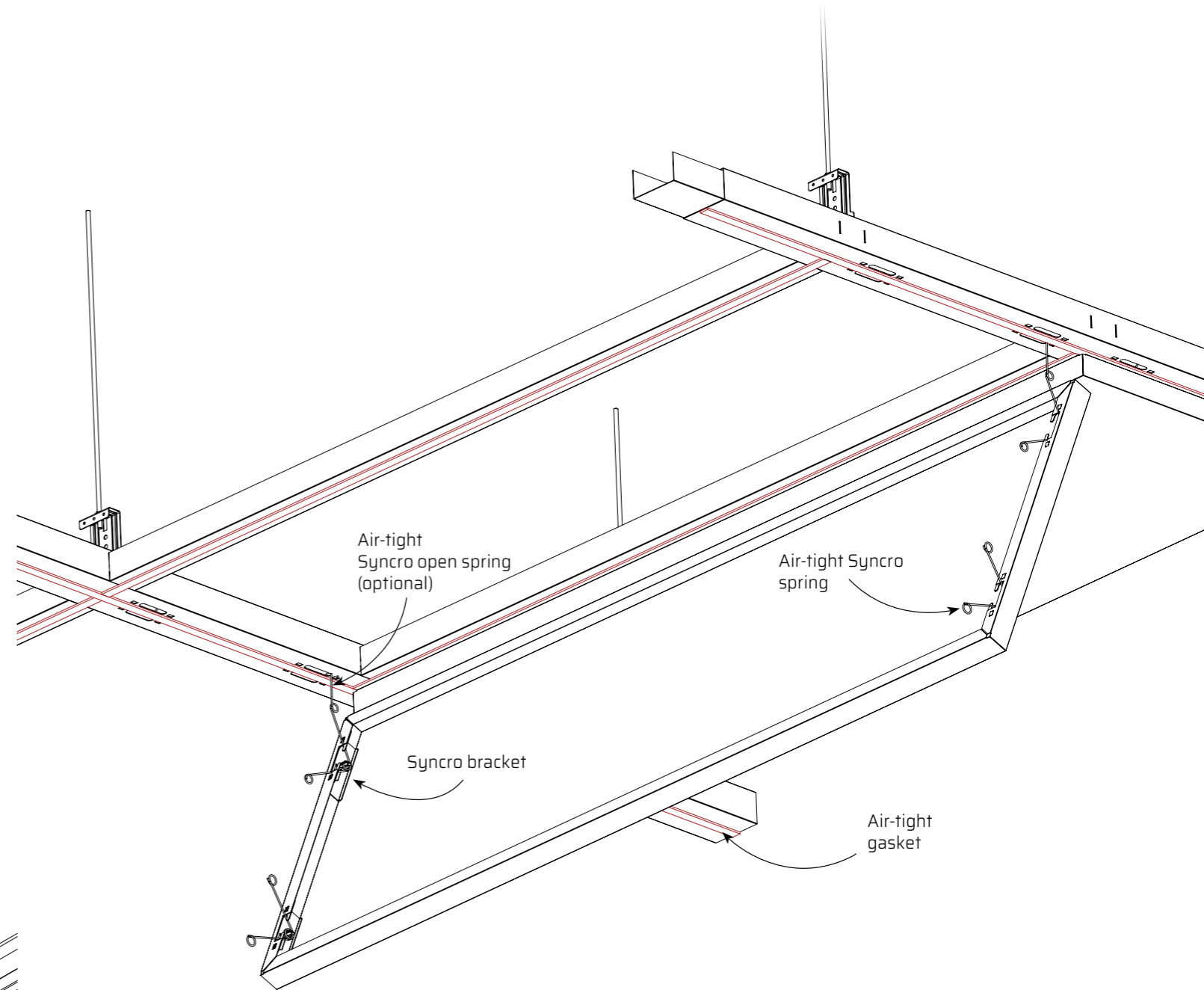
SYNCRO PANELS



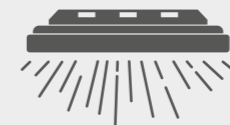
AIR-TIGHT WALL ANGLE



CUSTOM
made system



ATENA LUX
INTEGRATED LIGHTING



DEFENCE H+
ANTIMICROBIAL
RANGE



CEILING SYSTEMS

LAY-IN | CLIP IN

STANDARD MODELS WITHOUT AIR-TIGHT GASKET
SUITABLE FOR LOW RISK ENVIRONMENTS

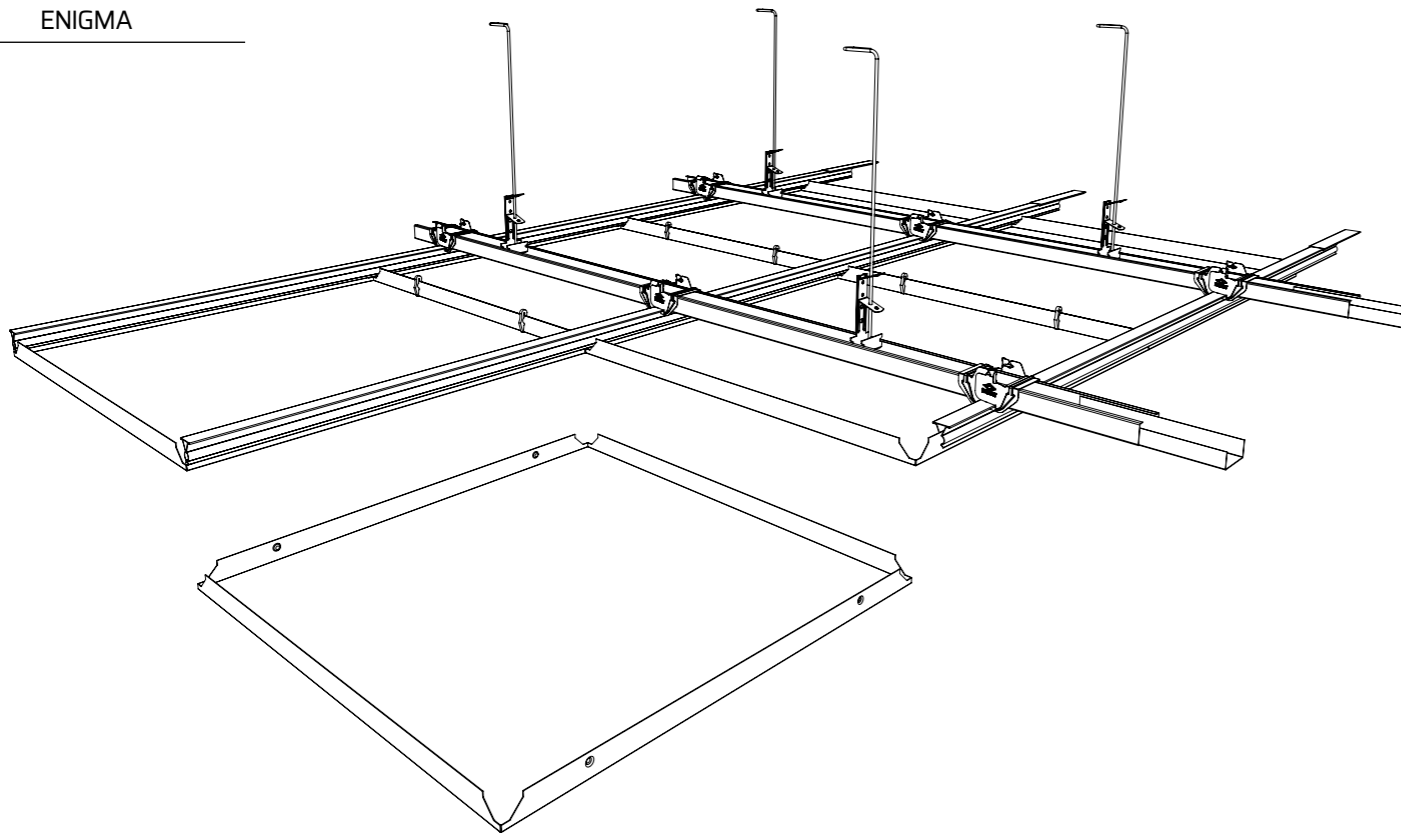


Enigma models
T-grid models

ATENA H⁺

Picture: "24 Linear Tegular" metal ceiling | "Ate_Plan" lighting by Atena Lux

ENIGMA



FEATURES

PANELS' FEATURES

Enigma panels
 Right or bevelled edge
 600x600 | 600x1200 | 625x625 mm
 300x300 | 300x1200 | 300x1500 mm
 400x1000 | 400x1200 | 400x1500 mm
 For Enigma Link system
 600x600 | 600x550
 550x550 | 500x550 | 500x500 mm

PANELS' MATERIALS

Steel 5/10 | 6/10
 Aluminum 5/10 | 6/10 | 7/10

HIDDEN STRUCTURE

Single triangular | double with Winger
 Single continental | double with Winger
 Double continental with "U" profile

ANTI-SEISMIC EQUIPMENTS

Atena Antiseismic Kit for ≤ 1,2 m plenum
 Atena Antiseismic Kit for > 1,2 m high plenum
 Compulsory for buildings in 3 and 4 Class (NTC 2018 - § 7.2.3)
 (For double structures only)

COLORS | FINISHING

Atena white, Atena silver pre-painted Aluminum | Steel
 RAL / NCS coatings
 Plain or perforated surface
 Sublimation of images and effects
 Antimicrobial treatment (**Defence H**)

SOUND ABSORBERS

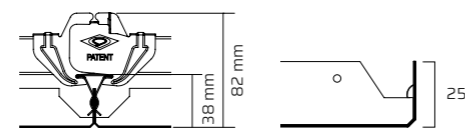
Thermoapplied black acoustic fleece
 Standard A1s2d0 | Plus A1
 Black Ecofiber Bs2d0

ACCESSORIES

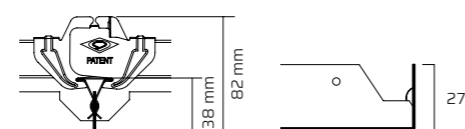
ATE_PLAN/N | ATE_LINK
 integrated lighting by Atena Lux

Panels | Edges

Enigma with bevelled edge

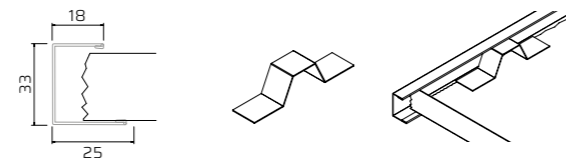


Enigma with right edge

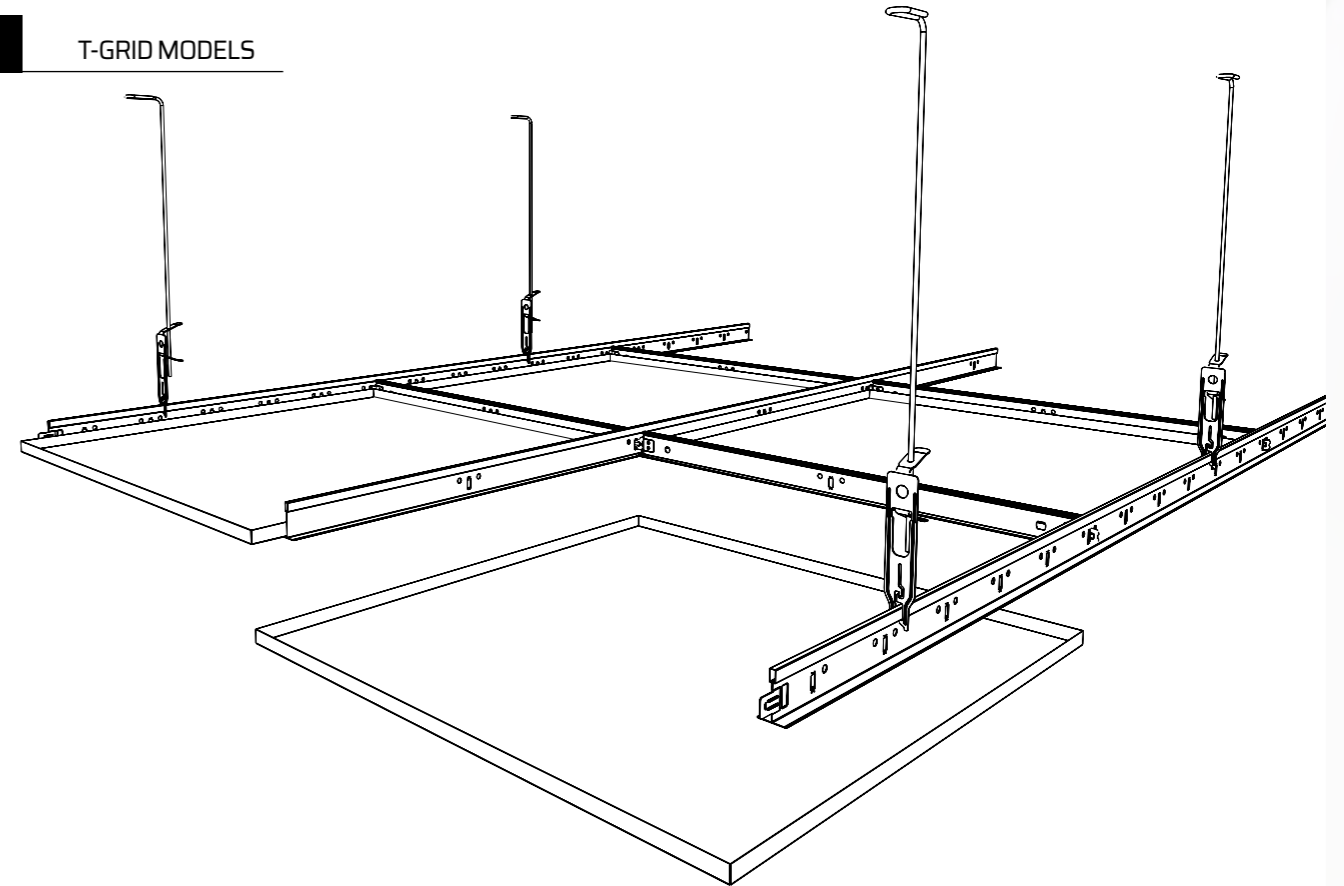


Wall angles

"C" 18x33x25 mm Optional "omega" spring



T-GRID MODELS



FEATURES

PANELS' FEATURES

T-grid lay-in | lay-on panels
 24 Linear Tegular | Flat | Plan 600x600 mm
 15 Linear Design 600x600 mm all models 600x1200 mm
 (only right edge, 9mm low.)

PANELS' MATERIALS

Steel 5-6/10 | Aluminum 5-6-7/10

STRUCTURE

Steel Strong T15 | T24 | T35 | T43 | Steel Strong Easy Line

ANTI-SEISMIC EQUIPMENTS

Atena Antiseismic Kit for ≤ 1,2 m plenum
 Atena Antiseismic Kit for > 1,2 m high plenum
 Compulsory for buildings in 3 and 4 Class (NTC 2018 - § 7.2.3)

COLORS | FINISHING

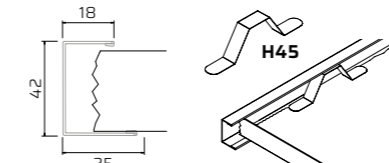
Atena white, Atena silver pre-painted Aluminum | Steel
 RAL / NCS coatings
 Plain or perforated surface
 Sublimation of images and effects
 Antimicrobial treatment (**Defence H**)

SOUND ABSORBERS

Thermoapplied black acoustic fleece
 Standard A1s2d0 | Plus A1
 Black Ecofiber Bs2d0

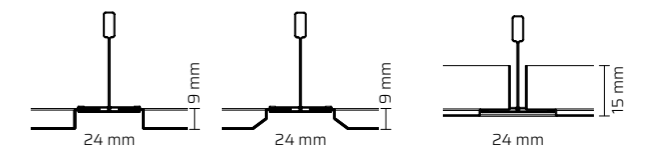
Wall angle

"C" 18x42x25 mm Optional "omega" spring

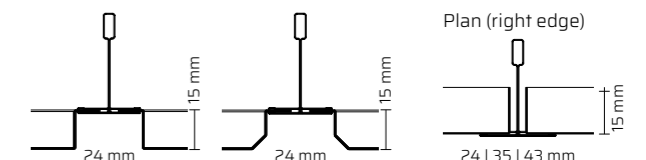


Panels | Edges

24 Linear Tegular T24 9/15 mm low.

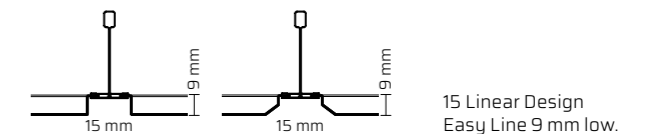


Flat (right edge)

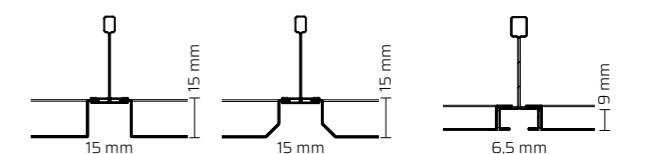


Plan (right edge)

15 Linear Design T15 9/15 mm low.



15 Linear Design Easy Line 9 mm low.



EXECUTIVE DESIGN

PERFORMANCES

DIMENSIONING, TECHNICAL FEASIBILITY



- Clean room systems
- Air-tight systems
- Antimicrobial features
- Integrated lightings
- Antiseismic kits
- Product selector

ATENA H+

Picture: "Ar-tight Enigma Syncro XL" metal ceiling | custom made lighting by Atena Lux

CLEAN ROOM SYSTEMS



“White Rooms” are controlled atmosphere environments in terms of **pressure, humidity** and **particulate pollution**, classified on the basis of 0.5µm **microparticles count** in a defined volume of air. Smaller is the particles quantity detected, cleaner is the room and lower is the class (ISO-5 ISO-6 etc.).

The suitability for clean rooms of the Atena **Syncro Evo** systems was tested by the Fraunhofer Institute IPA in Stuttgart according to the UNI EN ISO 14644-1 standard. In a range **from 9 to 1** where **1** is the “cleanest” level, the Atena **Syncro Evo** systems have been certified in **ISO2** class.

SYNCRO EVO

Certified systems for clean rooms



Picture: “24 Syncro Evo” metal ceiling | “Ate_Taurus_Evo” lighting by Atena Lux

The **clean room functioning** is based on the **forced recirculation of a laminar flow filtered air, in an air-tight room**. In these rooms the air cleanliness, is absolutely superior than in an operating theater.

The **UNI 11425: 2011** standard defines that the **operating room** At-Rest conditions (no surgical activity), must be at least in **ISO 5** class for complex surgical interventions (...), **ISO 7** for low invasiveness surgical interventions (...), **ISO 8** for short-term surgery.

Concentration limits per m³ of particles, source: ISO 14644-1.

Class	0.1µ	0.2µ	0.3µ	0.5µ	1µ	5µ
ISO 1	10	2	-	-	-	-
ISO 2	100	24	10	4	-	-
ISO 3	1000	237	102	35	8	-
ISO 4	10000	2370	1020	352	83	-
ISO 5	100000	23700	10200	3520	832	29
ISO 6	1000000	237000	102000	35200	8320	293
ISO 7	-	-	-	352000	83200	2930
ISO 8	-	-	-	3520000	832000	29300
ISO 9	-	-	-	35200000	8320000	293000

In a ISO 2 class chamber, in a m³ of air at most 100 particles with a diameter greater than 0.1 micron, 24 with a diameter greater than 0.2 micron, 10 with a diameter greater than 0.3 micron, 4 with a diameter greater than 0.5 microns must be contained. From 3rd to 9th class the parameters set increase by 10 times.



NORMATIVE REQUIREMENTS



UNI EN ISO 14644-1

Particle concentration limit values per m³ of air are calculated according to this formula:

$$C_n = 10^N \times \left[\frac{0,1}{D} \right]^{2,08}$$

Where:

- C_n represents the maximum particle per m³
- N is the classification number ISO; N ≤ 9
- D is the particle dimension and 0.1 is the constant value, both expressed in µm.

The clean rooms are used in industrial and scientific research, in microelectronics fields, in food, pharmaceutical and bottling industries.

The certification is carried out by the manufacturer after the chamber activation, using a particle counter.

DESIGN
SAFETY
COMFORT

CLEAN ROOM SUSTAINABILITY

AIR-TIGHT SYSTEMS



The metal ceilings **air-tight performance** is an important factor to prevent the exchange of gaseous agents between the plenum and the environment, in order to ensure the **contamination control** and the maintenance of the **thermo-hygrometric conditions** required.

AIR TIGHT MATROX ceiling was tested by the t2i Laboratory - trasferimento tecnologico e innovazione s.c. a r.l. according to ASME MCF-14M | UNI EN ISO 5167-1 using a computerized semi-automatic control and a measurement system which determines both the air flow rate using differential pressure devices and the pressure level inside the test chamber.

All Atena H+ air-tight systems range

24 | 35 Syncro Evo Air-tight Matrox and Enigma Syncro XL

conceived to achieve the air-tight.

Air-tight MATROX

Air-tight certified system



In the tests carried out, the system was subjected to positive and negative pressure equal to 50 | 100 | 150 | 200 Pa. In the test conditions the air-tight Matrox system obtained the following results.

Positive pressure	total losses	Losses on total surface	Negative pressure	total losses	Losses on total surface
Pa	m ³ /h	m ³ /hm ²	Pa	m ³ /h	m ³ /hm ²
50	10,2	4,66	-50	9,6	4,38
100	15,8	7,21	-100	15,4	7,03
150	20,4	9,31	-150	19,2	8,77
200	24,5	11,19	-200	22,7	10,36

ASME MFC-14M fluid flow measurement using small diameter precision orifice meters.

UNI EN ISO 5167-1 flow rate measurement using differential pressure devices inserted in ducts with a full circular section.

As a technical standard for the air-tight measurement has not been defined, the t2i Laboratory - trasferimento tecnologico e innovazione s.c. a r.l. has adopted the procedures set in ASME MCF-14M | UNI EN ISO 5167-1.



ANTIMICROBIAL FEATURES

DEFENCE H+

ISO 22916 | Special antimicrobial range to achieve the highest hygiene standard

* Information about the tested bacterial spectrum is available on request.

DEFENCE H+ is the Atena range of product materials in **steel** and **aluminium** with specific **antimicrobial features** to prevent the pathogens proliferation. Tested for different pathogens spectrum according to ISO 22196 standards | JIS Z 2801-2010 by independent laboratories, **DEFENCE H+** materials achieved a **reduction in microbial activity** > 99% after 24 hours of exposure*.



DEFENCE H+ RANGE

- "Defence 1H+" Pre-painted galvanised steel with antimicrobial treatment products
- "Defence 2H+" Pre-painted aluminum with antimicrobial treatment products
- "Defence 3H+" Post-painted aluminum with antimicrobial treatment products
- "Defence 4H+" Post-painted galvanised steel with antimicrobial treatment products



Picture: "Plan" metal ceiling | "Ate_Plan" lighting by Atena Lux



Check the performance required to **choose the right product**

- **Air cleanliness class**
- **Antimicrobial features**
- Suitability of **disinfection**
- High pressure **water resistance**



CHEMICAL RESISTANCE

DEFENCE 4H+

ISO 4628-1 | ISO 2812-1 chemical resistance suitability of disinfection**

The chemical resistance of the **Defence H4+ antimicrobial post-painted galvanized steel** has been tested by the Fraunhofer Institute IPA of Stuttgart according to the **VDI 2083 PART 17** standards; **ISO 4628-1; ISO2812-1**.



Chemical resistance			
formalin (37%)	A	hydrochloric acid (5%)	A
hydrogen peroxide (30%)	A	isopropanol (100%)	A
sulfuric acid (5%)	A	sodium hydroxide (5%)	B
phosphoric acid (30%)	A	sodium hypochlorite (5%)	A

A = EXCELLENT | B = VERY GOOD

** The tests were conducted with reagent concentration levels and exposure time (1/3/6/24 hours) higher than the common cleaning processes with diluted disinfectants in different application fields.

INTEGRATED LIGHTINGS



Properly conceived to meet the requirement of **each specific environment**, the **Atena Lux** lighting devices, are developed to achieve a perfect technical and aesthetic **integration** between lighting and metal ceiling.

High lighting standard:

- Last generation long-lasting LED sources
- High Colour Render Index (CRI > 90)
- "RGB" and "TUNABLE WHITE" technology
- balanced light emission
- Opal and microprismatic optics
- Protection degree IP65

Picture on page 32:
"24 Syncro Evo" metal ceiling
"Ate_Taurus_Evo" lighting
by Atena Lux

Picture on page 33:
"Enigma" metal ceiling
"Ate_Link" and "Ate_Taurus/N"
lighting by Atena Lux



TO REPRODUCE THE SUN LIGHT

Programmed **lighting systems** able to **mimic the natural light** according the circadian biorhythms

All Atena Lux lighting fittings are developed according to **Human Centric Lighting criteria**, therefore temperature, colour and intensity are programmed to **satisfy the human biological cycle system** in order to improve the general comfort and the performance levels, in relation to the **environment features and its uses**.



CERTIFICATED LIGHTING **ISO 2 certified**

Properly conceived to achieve the performance levels required **TAURUS EVO IP 65** lighting fittings for clean rooms and operating theaters are made up of **ISO2** certified air-tight frames using the antimicrobial material **"DEFENCE 4H"**.

- **Power** 50 W | **Efficiency** 114 lm/W | **Luminous flux** 5700 lm | **CRI** ≥90
- **Colour temperature** 4000 K (5000 K and 6500 K on request)
- High **transmittance** and **uniformity** opal methacrylate diffuser
- Microprismatic diffuser (UGR <19)
- **Protection level** IP65 | **Electrical safety classification** Class I
- **Duration** > 50.000 hours L80/F10 to Ta =25°C
- **Integrated power supply unit** | **Emergency lighting** on request.



atena lux®

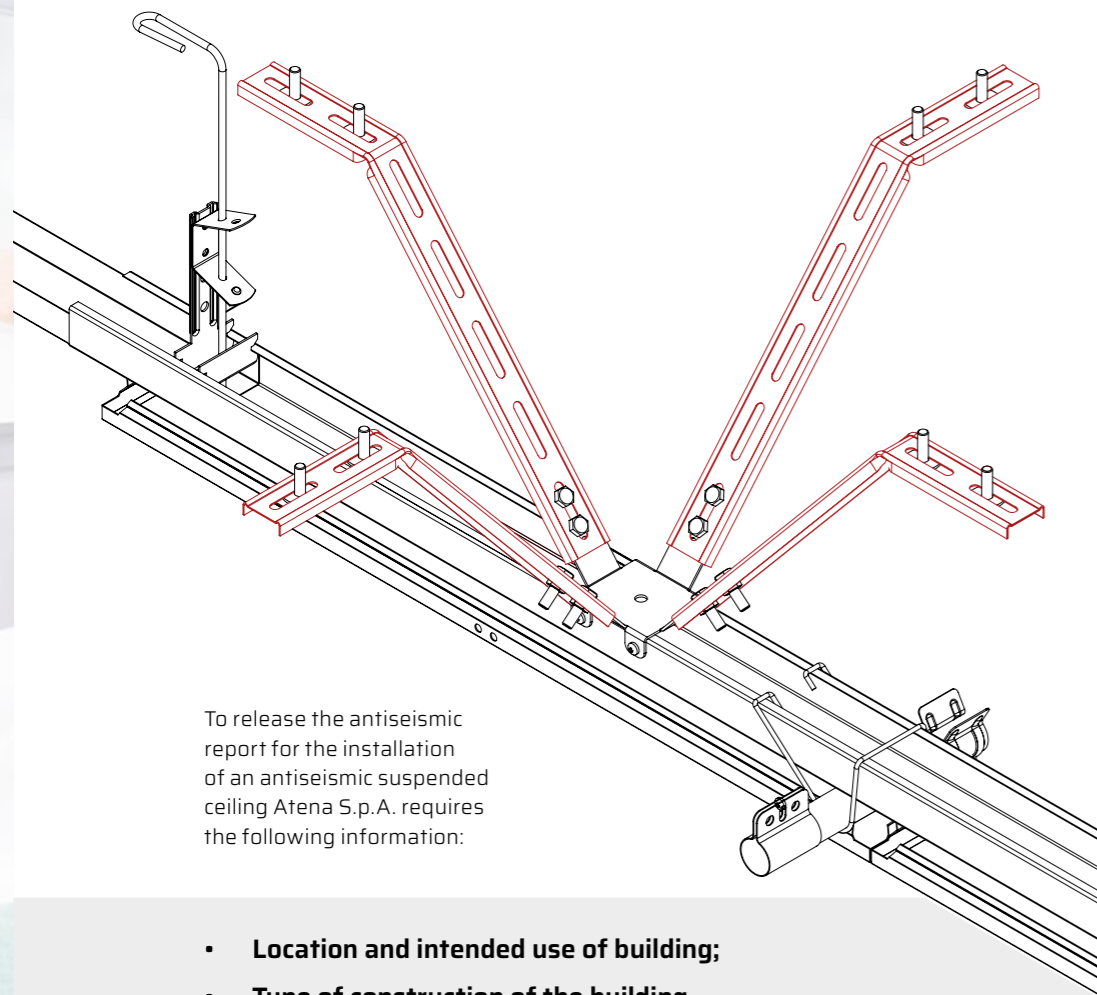
ANTISEISMIC KITS FOR METAL CEILINGS



According to **NTC 2018** standards, in all **buildings with public and strategic** functions the metal ceilings must be conceived and realized to withstand earthquake by guaranteeing the **safeguarding of life**.

All Atena metal-ceilings can be reinforced with **Atena Antiseismic Kit**, properly conceived to **dissipate the seismic energy** preventing the system fall.

Atena offers a **specialized technical consulting** and releases a specific **antiseismic report**, where numbers and types of reinforced elements are indicated, according to the false ceiling features and the seismic area of the site.



To release the antiseismic report for the installation of an antiseismic suspended ceiling Atena S.p.A. requires the following information:

- **Location and intended use of building;**
- **Type of construction of the building and floors (masonry, ca ...) where false ceilings will be installed;**
- **Updated plans and sections 1:100 (paper or CAD) of the areas;**
- **Geological report, if available;**
- **Special prescription if required.**

THE EXPERIMENTAL CAMPAIGN



TESTED ANTISEISMIC KIT



UNIVERSITÀ
DEGLI STUDI
DI PADOVA



The effectiveness of Atena antiseismic systems has been tested by the **Department of Civil, Construction and Environment Engineering (DICEA) of the University of Padua**, which carried out the first international campaign of almost static and monotonous cyclic tests to verify the global seismic behaviour of Atena Antiseismic false-ceilings.



Picture: "Air-tight Matrox" metal ceiling | "Ate_Taurus/N" lighting by Atena Lux

PERFORMANCES

PRODUCT SELECTOR

The Atena H+ metal ceilings are conceived to meet the requirements of different application fields: from controlled atmosphere environments such as clean rooms and operating theaters, to areas with low risk of contamination such as waiting areas and halls.

A complete range of air-tightness, resistance to chemical corrosion and air cleanliness certified solutions.

Made in antimicrobial steel and aluminium Defence H+, the Atena H+ metal ceilings prevent the pathogens proliferation and contribute to the maintenance of the required environmental performances.

A complete range of high performance products for the highest environmental quality.



Picture: "Plan" metal ceiling | "Ate_Plan" lighting by Atena Lux



Picture: "Enigma" metal ceiling | "Ate_Taurus/N" lighting by Atena Lux

MODEL	STRUCTURE	AIR-TIGHT	WALL ANGLE	LIGHTING	AIR CLEANLINESS CLASS	AIR-TIGHT TEST	ANTIMICROBIAL FEATURES	DISINFECTION SUITABILITY	HIGH PRESSURE WATER RESISTANCE	ANTISEISMIC KIT	APPLICATION FIELD
24 SYNCR0 EVO	EASY T24 EASY T24 ANTISEISMIC	Neoprene gasket on all panels' sides. Neoprene inner corners.	Syncro Evo wall angle with air-tight gasket and non acetic silicone	ATE_TAURUS EVO IP65	ISO 2 ^(B)	-	Steel Aluminum DEFENCE H+ ^(D)	Steel DEFENCE H4+ ^{(D)-(E)}	SI ^(F)	Applicable	Clean rooms Operating theaters from ISO 2 to ISO 9
35 SYNCR0 EVO	BASE 35 PUNCHED	Neoprene gasket on all panels' sides. Neoprene inner corners.	Syncro Evo wall angle with air-tight gasket and non acetic silicone	ATE_TAURUS EVO IP65	ISO 2 ^(B)	-	Steel Aluminum DEFENCE H+ ^(D)	Steel DEFENCE H4+ ^{(D)-(E)}	SI ^(F)	Applicable	Clean rooms Operating theaters from ISO 2 to ISO 9
Air-tight MATROX	MATROX	Neoprene gasket on two panels' sides.	"C" wall angle with air-tight gasket and pushing panel spring	ATE_TAURUS/N IP65	-	+ - Pa ^(C) 50 100 150 200	Steel Aluminum DEFENCE H+ ^(D)	Steel DEFENCE H4+ ^{(D)-(E)}	-	Applicable	Clinics Hospital rooms
Air-tight ENIGMA SYNCR0 XL	SYNCR0 CROSSING	Neoprene gasket on beams.	Double "L" wall angle with air-tight gasket and pushing panel spring	-	-	-	Steel Aluminum DEFENCE H+ ^(D)	Steel DEFENCE H4+ ^{(D)-(E)}	SI ^(F)	Applicable	Clinics Hospital rooms Common areas
ENIGMA	TS TDW CS CSW CSU ^(A)	None	18x33x25 mm "C" wall angle with pushing panel spring	ATE_LINK ATE_PLAN/N ATE_TAURUS/N	-	-	Steel Aluminum DEFENCE H+ ^(D)	Steel DEFENCE H4+ ^{(D)-(E)}	-	Applicable	Common areas
LAY-IN T24 T15	EASY T24 T15 EASY T24 ANTISEISMIC	None	18x42x25 mm "C" wall angle with pushing panel spring	ATE_SKIN T24 ATE_PLAN T24 15 ATE_SPHERE T24 15 ATE_BUBBLE T24 15	-	-	Steel Aluminum DEFENCE H+ ^(D)	Steel DEFENCE H4+ ^{(D)-(E)}	-	Applicable	Common areas

Note (A) Structures for Enigma
 TS = single triangular structure
 TDW = double triangular structure with Winger
 CS = single continental structure
 CDW = double continental structure with Winger
 CDU = double continental structure with "U" profile

Note (B) Air cleanliness class
 Certificate n° AT 1907 - 1124
 Fraunhofer Institute IPA
 di Stuttgart | UNI EN ISO 14644-1

Note (C) Air-tight
 Certificate n° 119/13
 t2i - trasferimento tecnologico e
 innovazione s.c. a r.l.
 ASME MCF-14M | UNI EN ISO 5167-1

Note (E) Disinfection suitability
 Certificate n° AT 1907 - 1124
 Fraunhofer Institute IPA
 di Stuttgart | VDI 2083 PART
 17; ISO 4628-1; ISO 2812-1.

Note (D) DEFENCE H+ range
"Defence 1H" pre-painted galvanised steel with antimicrobial treatment products.
"Defence 2H" pre-painted aluminum with antimicrobial treatment products.
"Defence 3H" post-painted aluminum with antimicrobial treatment products.
"Defence 4H" post-painted galvanised steel with antimicrobial treatment products.
 Information about the tested bacterial spectrum is available on request.
 ISO 22196 | JIS Z 2801-2010

Note (F) High pressure water
 The metal ceiling can be washed with high pressure water if gaps are sealed with high resistance non-acetic silicone.

HIGH PERFORMANCE SYSTEMS

CERTIFICATIONS

INTERNATIONAL TECHNICAL STANDARDS

Certifications

ATENA-IT.COM

Picture: "Air-tight Enigma Syncro XL" metal ceiling | custom made lighting by Atena Lux

TECHNICAL STANDARDS



Picture: "Air-tight Enigma Syncro XL" metal ceiling | custom made lighting by Atena Lux

PROPERTIES

	FLEXION RESISTANCE	Maximum span 1200 mm - 1 Class EN13964
	CORROSION RESISTANCE ⁽¹⁾	Galvanised steel products: C2 Class Pre-painted galvanised steel products: C3 Class Post-painted galvanised steel products: C4 Class Pre/post-painted aluminum products: C5 Class
	(RH%) RELATIVE HUMIDITY RESISTANCE	Galvanised steel products: ≤ 90% Pre/post-painted aluminum products: > 90% Stainless steel and aluminum products: > 90%
	FIRE REACTION UNI EN 13501-1	Structure, suspension and wall angles: A1 Class Pannelli lisci o forati con tessuto acustico Plus: Classe A1 Pannelli forati con tessuto acustico Standard: Classe A2s1d0
	ACOUSTICS	Informations in "Acoustic Performance"
	COLOR STABILITY	In compliance with technical tolerances standard. Test according to the ΔE - CIELab method. ISO 7724-2 (3)
	LIGHT REFLECTION	Smooth glossy white: up to 85% ISO 7724-2 (3)
	DURABILITY OF GALVANISED ITEMS	B Class EN13964
	DURABILITY OF POST PAINTED ITEMS	C Class EN13964

1): For applications in particularly aggressive environments such as swimming pools, industrial plants with chemical and / or corrosive emissions, check the most suitable material and surface treatments with the Atena technical and commercial offices.

ENVIRONMENTAL CONTROL

	AIR CLEANLINESS CLASS	Syncro Evo - ISO2 Class ISO 14644-1
	AIR-TIGHT	Air-tight Matrox with reference to ASME MCF-14M UNI EN ISO 5167-1
	CLEANING ⁽²⁾	Wet cloth with warm water and neutral non-abrasive detergents. High pressure water: Syncro Evo Air-tight Enigma Syncro XL
	DISINFECTION SUITABILITY ⁽³⁾	"Defence 4H*" post-painted stainless steel products only. VDI2083 P.17; ISO 4628-1; ISO2812-1 - Fraunhofer institute - Stuttgart
	ANTIMICROBIAL FEATURES ⁽⁴⁾ ISO 22196 JIS Z 2801-2010	"Defence 1H*" pre-painted galvanised steel products: action > 99% "Defence 2H*" pre-painted aluminum products: action >99% "Defence 3H* 4H*" post-painted alu./steel products: action >99%
	RESISTANCE TO MOLD ⁽⁵⁾	"Defence H*" post-painted aluminum/steel products

(2): For environments with low risk of contamination. Clean the metal ceiling with a dry method before using water; the metal ceiling can be washed with high pressure water if all gaps are sealed with high resistance silicone.
(3): Frequent cleaning with diluted disinfectants containing active agents such as formalin, hydrogen peroxide, sulfuric acid, phosphoric acid, hydrochloric acid, isopropanol, sodium hydroxide and sodium hypochlorite.
(4): Information about the tested bacterial spectrum available on request.
(5): Pre and post-painted steel and aluminum products are naturally resistant to mold due to the chemical and physical material features. The products maintain the declared performance features if properly cleaned and maintained.

SUSTAINABILITY

	RELEASE OF DANGEROUS SUBSTANCES*	None CAM 2.4.1.3 EN13964		FORMALDEHYDE*	E1 Class CAM 2.3.5.5
	DISASSEMBLY*	Steel Aluminum 100% recyclable CAM 2.4.1.1		MATERIAL DEMOLITION AND REMOVAL*	Non hazardous waste in compliance with CAM 2.5.1.
	RECYCLED PRODUCT CONTENT*	CAM 2.4.1.8 compliance		GREEN BUILDING	Requirements: LEED (BREEAM and ITACA for cross-section aspects)

* Data declaration as required by the ISO 14021 standard

All Atena metal ceilings are produced for **indoor applications**, comply with the NTC 2018 technical standards for constructions and the UNI EN 13964 applicable standards, are CE marked and electronically accompanied by the Declaration of Performance (DoP) as required by the European regulation 305/11 concerning the construction product sales in the market.

For **outdoor application** the metal ceilings must always be sized according to the atmospheric and environmental agents such as, but not limited to, earthquake, winds, thermal expansion, in relation to the installation site, to the building use and to the technical characteristics of the project.

Regardless of internal / external use, metal ceilings as non-structural elements are subjected to the security test of civil constructions.



BEARING CAPACITY AND FLEXION RESISTANCE

Limit states of **bearing and flexion resistance** of Atena structures and panels are reported in technical data sheets. Atena panels are classified in 1st Class of flexion resistance. Structures have generally a **maximum span of 1200 mm**. According to Technical Norme for Construction - D.M. 14/01/2018, **lighting elements and accessories must be fixed directly to the concrete and not load the false ceiling system**.

According to the engineering criteria of metal ceilings, panels are tested to support their mass and to maintain flatness and curvature properties. On request Atena S.p.A. can conceive and produce tiles suitable to support additional loads, that must be clearly specified in terms of quantity, position and application modes.



LIGHT REFLECTION

The light reflection level of a metal ceiling favours the energy consumption reduction by diminishing the needs of the artificial light use.

The light reflection level depends on many factors such as the colour, the gloss degree, the metal ceiling inclination and the percentage of perforated surface. Generally a smooth white coplanar ceiling can reach a reflection of 85% calculated according to ISO 7724-2 (3).



COLOUR TOLERANCE

Atena S.p.A. has a **quality control management system** to ensure the **compliance with law requirements** in force and technical standard tolerances. All color controls included those on products made in different production periods or made and processed using raw materials and powders from different lots, are verified and test by Atena according the **ΔE - CIE Lab method**.



INDOOR WIND LOAD RESISTANCE FOR NON-AIR-TIGHT SYSTEMS

For the calculation on the tiles mechanical strength Atena S.p.A. considered the vertical dead load.

Any upward thrusts that can overcome the dead weight of the metal ceiling **should be checked at project stage** by identifying critical areas where upward thrusts can occur, such as in entrances, near the doors or windows, on the corners of buildings, in the presence of large or permanent openings such as car parks or access routes.

In all these cases, the ceiling must be dimensioned to withstand any wind aspirations or pressures.



DURABILITY

Atena metal ceilings are made of galvanized and painted materials suitable to the different **durability exposure classes** as set in UNI EN ISO 13964. Specifically, galvanized steel products are classified in exposure B class, painted steel products in C Class, the stainless steel and aluminum elements in D Class.

On request Atena S.p.A. can proceed with special treatments against galvanic and chemical corrosion in the most critical conditions.

EXPOSURE CLASS	ENVIRONMENT CONDITIONS	PRODUCTS DURABILITY CLASSIFICATION
A	Buildings frequently exposed to relative humidity up to 70% and varying temperatures up to 25°C but with no corrosive pollutants.	Atena galvanised steel products
B	Buildings frequently exposed to relative humidity up to 90% and varying temperatures up to 30°C but with no corrosive pollutants.	Atena galvanised steel products
C	Exposure to an atmosphere with 90% humidity level and risk of condensation.	Atena post-painted steel, Stainless steel and aluminum products
D	Critical conditions.	Atena products with specific treatment on request

The **durability** of a material/component is the **capability to maintain its performance properties and perform the required functions** during a defined period; Since the "moment zero", when the component is installed and put into operation, to the "end of its life cycle".

The **performance properties** declared in D.o.P. (Declarations of Performance) provided by Atena S.p.A. are guaranteed, if the metal ceiling is installed in the environment conditions for which it has been conceived, the recommended maintenance is executed and it is not affected from inadequate treatments such as tampering, cuts, abrasion, damages which can interrupt the coated layer, please check with Atena's technical department the specific environmental conditions to which the product will be submitted in order to choose the most suitable material.



FIRE REACTION

All Atena metal ceilings comply with the Euroclass standard for building materials; systems, with holed or metal membrane with acoustic tissue "PLUS", are incombustible and come into **A1 Class**.



CHEMICAL CORROSION PROTECTION

According to the UNI EN ISO 13964 standard all steel and aluminum components must be protected against corrosion in relation to exposure class. The material corrosion is a natural and irreversible deterioration process of the physical properties due to its slow and continuous consumption. The **corrosion resistance** is indicated as **low**, **medium** or **high**, near the **environment corrosion class**, in order to evaluate the performance of the coating in the environment and under operating conditions. It should be understood as an **indication of the effectiveness of a protection treatment for a given period of time**.

UNI EN ISO 12944-1 durability classes

- Low (L) = from 2 to 5 years
- Medium (M) = from 5 to 10 years
- High (H) = over 15 years

This is not a guarantee of durability, but an indication to schedule the maintenance tasks necessary to keep the **material's properties in relation to its life cycle**.

The durability tests based on the corrosion classes conducted by the Istituto Giordano S.p.A. on the galvanized steel, post-painted galvanized steel, pre-painted galvanized steel and aluminum Atena components used for the construction of metal ceilings, report excellent corrosion resistance and have been classified in **C5-M media**. Tests were carried out in compliance with UNI EN ISO 6270-2:2005 and 12944-6:2001 standards in humidistatic chamber with humidity atmospheres for the determination of moisture resistance and the protection of steel structures coating against corrosion. The excellent result has been confirmed by the **corrosion resistance tests in salt fog** conducted by the Istituto Giordano S.p.A. according to UNI EN ISO 9227:2012. As the laboratory environment can not represent the normal conditions of use, Atena S.p.A., according to its experience, recommends the choice of materials according to the classification given in the schedule on page 43.



PROTECTION AGAINST GALVANIC CORROSION

Electrochemical corrosion is due to the **contact of materials with different potentials** that produce galvanic currents.

In these cases Atena recommends the use of **polymer separators and/or the use of post-painted polyester-coated galvanized materials with at least 60 µm**; the paint is a good protection against galvanic corrosion in environment conditions that do not deteriorate the coated layer.

For specific applications, please check with Atena technical department the proper material according to the application field.

CLASS OF CORROSION	INTERNAL ENVIRONMENTS	OUTDOOR ENVIRONMENTS
C1 VERY LOW $r_{corr} \leq 0,1^*$	NOT AGGRESSIVE ENVIRONMENT Low humidity in heated environment, no pollution.	Dry or cold areas with very rare rain with very limited or absent moisture.
C2 LOW $0,1 < r_{corr} \leq 0,7^*$	LITTLE AGGRESSIVE ENVIRONMENT Temperatures and variable humidity in a no-heated environment, low pollution and moisture values.	Temperate areas with low pollution; Dry or cold areas with limited moisture; Countryside, small towns in hinterland.
C3 AVERAGE $0,7 < r_{corr} \leq 2^*$	AVERAGE AGGRESSIVE ENVIRONMENT Moderate presence of moisture and pollution due to light productive processes.	Temperate zone with average pollution values (SO ₂ up to 30 µg/m ³ or average chlorine content); Urban areas, seaside areas with low deposition of chlorides.
C4 HIGH $2 < r_{corr} \leq 4^*$	AGGRESSIVE ENVIRONMENT Frequent moisture and high pollution levels due to industrial processes and sports pools.	Very polluted urban areas, industrial districts, seaside with high deposition of chlorides.
C5-I VERY HIGH C5-M MARINE $4 < r_{corr} \leq 8^*$	HIGH AGGRESSIVE ENVIRONMENT Caves.	Very serious pollution (SO ₂ up to 250 µg/m ³); Areas with heavy industrialization, buildings on the coast.

* ENVIRONMENTAL CLASSIFICATION AND CORROSION RATES r_{corr} [=] µm/year (zinc thickness loss)

Source: ISO 9223 - Corrosion of metals and their alloys - UNI EN ISO 14713 - Zinc Coatings, guidelines and recommendations



H+ STANDARD



AIR CLEANLINESS CLASS

The suitability for clean rooms of the Atena **Syncro Evo** systems was tested by the Fraunhofer Institute IPA in Stuttgart according to the UNI EN ISO 14644-1 standard.

In a range **from 9 to 1** where **1** is the "cleanest" level, the Atena **Syncro Evo** systems have been certified in **ISO2** class.



AIR-TIGHT

All **Atena H+** air-tight metal ceilings **24 | 35 Syncro Evo | Air-tight Matrox | Air-tight Enigma Syncro XL** are conceived to prevent the exchange of gaseous agents between the plenum and the environment, in order to ensure the necessary conditions for the **contamination control**.

Air-tight Matrox ceiling was tested by the t2i Laboratory - trasferimento tecnologico e innovazione s.c.a.r.l. according to ASME MCF-14M | UNI EN ISO 5167-1 using a computerized semi-automatic control and a measurement system which determines both the air flow rate using differential pressure devices and the pressure level inside the test chamber.



CHEMICAL RESISTANCE | DISINFECTION SUITABILITY

The chemical resistance of the **DEFENCE H4+ antimicrobial post-painted galvanized steel** has been tested by the Fraunhofer Institute IPA of Stuttgart according to the **VDI 2083 PART 17** standards; **ISO 4628-1**; **ISO2812-1**. After 1/3/6/24 hours of exposure, the tested products achieved the "very good" level of chemical resistance against **sodium hydroxide** (5%), and "excellent" level under the action of **formalin** (37%), **hydrogen peroxide** (30%), **sulfuric acid** (5%), **phosphoric acid** (30%), **hydrochloric acid** (5%), **isopropanol** (100%), **sodium hypochlorite** (5%).

The tests were conducted with reagent concentration levels and exposure time higher than the common cleaning processes with diluted disinfectants in different application fields.



ANTIMICRIBIAL PROPERTIES

Atena **Defence H+** products have been tested according to SO 22196 standards | JIS Z 2801-2010 by independent laboratories for different pathogens. In all tests materials achieved a **reduction in microbial activity > 99%** after 24 hours of exposure. Information about the tested bacterial spectrum is available on request.



RESISTANCE TO MOLD

Steel and aluminum products are naturally resistant to mold due to the chemical and physical material features. The products maintain the declared performance features if properly cleaned and maintained.



GREEN ENERGY

By joining the "100% clean energy Dolomiti Energia" certification program, Atena uses **energy from renewable sources**.



RELEASE OF DANGEROUS SUBSTANCES

Atena products **do not release dangerous substances** including formaldehyde. Paints and sublimations are carried out using VOC-free substances.



DISASSEMBLY

Atena steel and aluminum products are **100% recyclable** and at the end of their life cycle can be prepared for re-use, recovery, recycling and selective demolition.



MATERIALS DEMOLITION AND REMOVAL

At the end of their life cycle, the Atena products become **non-hazardous waste** that can be prepared for re-use, recovery or recycling.



RECYCLED MATERIAL CONTENT

Atena products are, as a whole, **manufactured using recycling processes materials**, the **recycled content** is **calculated for each type of product**, in compliance with C.A.M. requirements and declared according to the ISO 14021 standard.

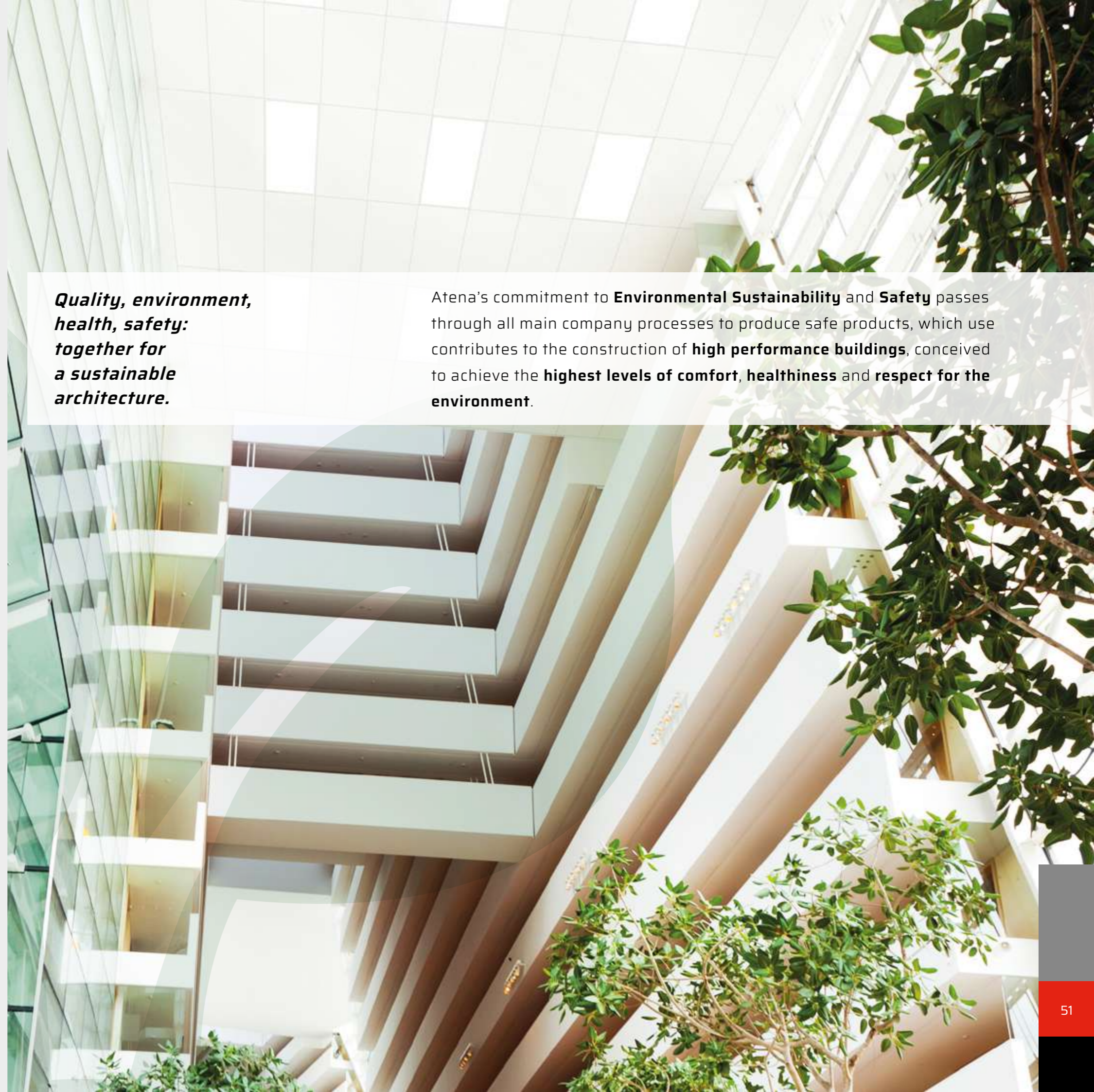


GREEN BUILDING

Get credits for building certification according to the **LEED protocol** and to **BREEAM** and **ITACA** standards for cross-cutting aspects, by using Atena products.

Quality, environment, health, safety: together for a sustainable architecture.

Atena's commitment to **Environmental Sustainability** and **Safety** passes through all main company processes to produce safe products, which use contributes to the construction of **high performance buildings**, conceived to achieve the **highest levels of comfort, healthiness and respect for the environment**.



TO BE INSPIRED
atena-it.com

follow us



Pictures:
istockphoto.com: p. 1-7,14,15,18,19,22,23,26,27,30,31,33,35,36,37,38,39,40,44,45,46,47,50
shutterstock.com: p. 8,9,28,29,32,33,40,48,49
adobestock.com: p.36,37,39
fotolia.com: p. 42,43
123RF.com: p. 14,33,35

The settings are reinterpreted with photorealistic reconstructions by Atena S.p.A.
All rights reserved.

INNOVATIVE ARCHITECTURAL SOLUTIONS



ISO 9001

All dimensions are nominal and expressed in millimeters.
All weights are expressed net of tare.
All technical specification data and information can be changed without advise.
More details concerning colours, perforations, perimeter profiles and laying instructions are described in technical data sheets suitable on line: atena-it.com
For further information please contact sales department:
tel. + 39 0421 75526 commerciale@atena-it.com



FALSE CEILINGS AND COVERINGS

Atena S.p.A.
Via A. De Gasperi, 52 - 30020 Gruaro (VE) Italy
Ph: +39 0421 75526 - Fax: +39 0421 75692
atena-it.com - info@atena-it.com