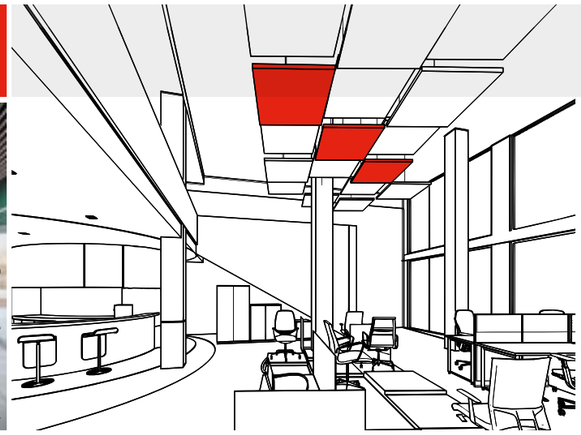
ATENA S.P.A. HAS A QUALITY MANAGEMENT SYSTEM CERTIFIED BY RINA IN COMPLIANCE WITH **ISO 9001**

PRODUCT TECHNICAL STANDARDS: FALSE CEILINGS

All Atena systems are conceived to achieve **the highest technical standards**, in compliance with applicable rules and sector regulations. Atena support customers from the early design stages with a specialized technical support in each specific sector such as **design** and **feasibility**, **acoustics**, **anti-seismic engineering**, **materials**, **finishing** and **application modes**.

TECHNICAL STANDARDS


ph:Tamás Bujnovszky



All Atena false-ceilings are produced for **internal use** according to the technical rules for construction NTC 2018 and UNI EN 13964 standard.

For **external application**, false-ceilings and coverings have to be dimensioned on environment features, to list some of the possible examples: earthquakes, wind, thermal expansion, place of installation, use destination of the building and project requirements.

According to NTC 2018 and EUROCODICI each Atena product for interior application has its own DOP (Declaration Of Performance) CE mark according to the European Law 305/2011.

CERTIFICATIONS

TYPE	DATA
FLEXION RESISTANCE	Maximum span mm 1200: 1 Class
DURABILITY OF POST-PAINTED ITEMS	C Class
DURABILITY OF GALVANISED ITEMS	B Class
RELEASE OF DANGEROUS SUBSTANCES	NONE
FIRE REACTION	Smooth or perforated tiles with Viledon Plus: A1 Class
	Perforated tiles with standard Viledon: A2s1d0 Class
CORROSION RESISTANCE	Galvanised steel products: C2 Class
	Pre-painted galvanised steel products: C3 Class
	Post-painted galvanised steel products: C4 Class
	Pre and post-painted aluminum products: C5 Class

For applications in aggressive environments such as swimming pools, industrial estabilishments with chemical and/or corrosive exhalations, please verify the best suited material and surface treatment with Atena S.p.A. technical and sale department.

While false ceiling systems are covered by Uni En 13964 standard, the exterior systems for facades, made up of aluminium, steel or composite materials tiles, hooked on carriers or directly fixed on metal profiles, are not covered by an harmonized technical standard, including those for curtain walling, therefore CE marking in not compulsory.

BEARING CAPACITY AND FLEXION RESISTANCE

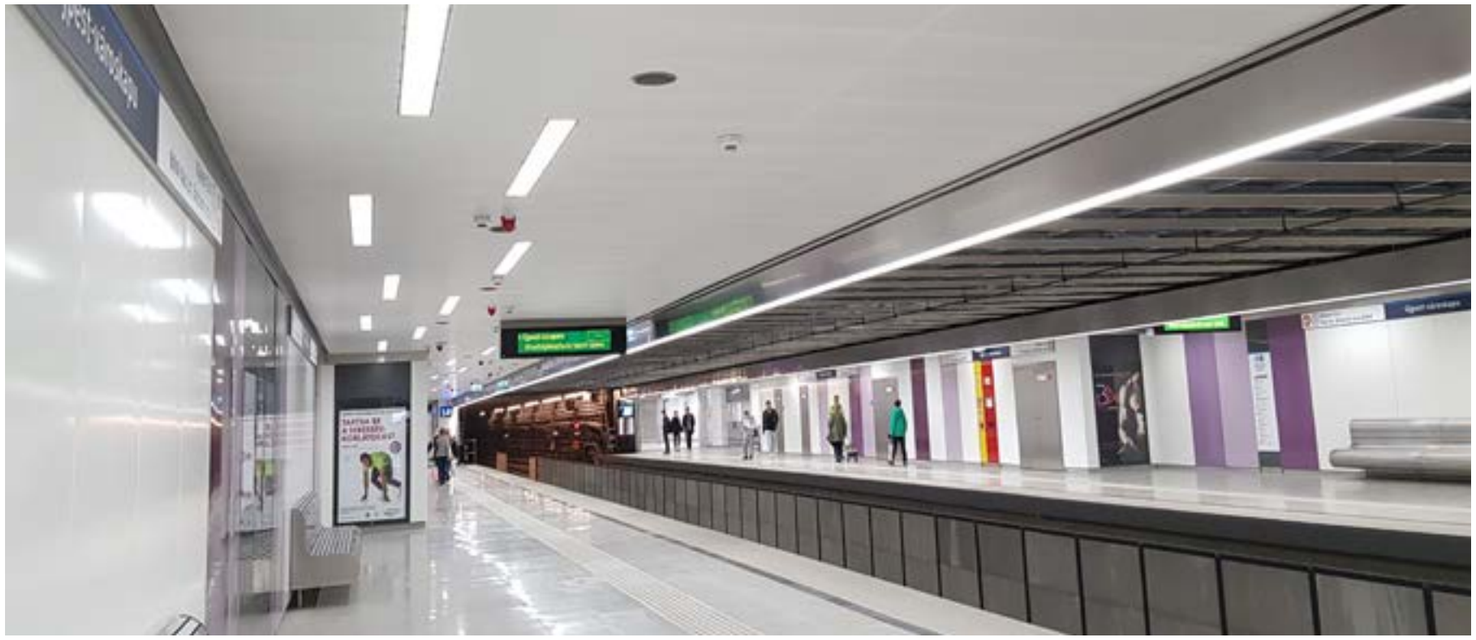
Limit states of bearing and flexion resistance of Atena structures and tiles are reported in technical data sheets. Atena tiles are classified in 1st Class of flexion resistance. Structures have generally a maximum span of 1200 mm. According to Techincal Norme for Construction - D.M. 14/01/2018, lighting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

DANGEROUS SUBSTANCES

Atena ceilings do not release dangerous substances. Painting and sublimation are made with substances without Volatile Organic Compounds (VOC/VOC).

FIRE REACTION

All Atena false 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.



All dimensions are nominal and expressed in millimeters.
All technical specification data and information can be changed without advise.
For further information please contact sales department:
tel. + 39 0421 75526 export@atena-it.com

WIND LOAD RESISTANCE

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 false-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.

ECO-FRIENDLY

All Atena recyclable products can contribute to gain scores, in order to obtain LEED certification.

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 - CIELab method.

DURABILITY AND CORROSION PROTECTION

Atena false-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 CLASSIF.
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 postpainted 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 false-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.

Technical standards

CHEMICAL CORROSION PROTECTION
According 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 false 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 84.

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 CORROSIVITY	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 an 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 (SO2 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 (SO2 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

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FALSE CEILINGS AND COVERINGS

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