TAIM Quality Standard for Metal Ceilings: Abridged version

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Refer to the THM (Metal Ceiling Handbook) for further information

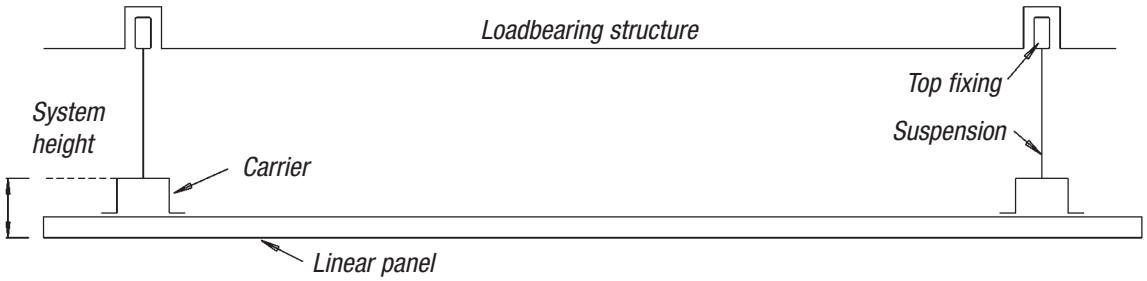
Quality Standard for Metal Linear Panels

1. Objectives

With the edition of this standard TAIM pursues the objective of redefining the technological developments of metal linear panels and unifying the quality standard (thus defining the liability of the individual members of TAIM).

2. Applicability

The standard applies to industrially manufactured metal -linear panels for interior use in standard applications. In case of special demands on performance, f.i. application in swimming pools- sport halls and exterior usage, additional relevant standards have to be taken into consideration.



Picture 1

2.1 Product definition:

Ceiling components of relatively narrow width with a length that is a multiple of the width.

Width max. 400 mm.

a) the linear panels attach with their sides to the carriers. In general the angel between linear panel and carrier is 90°.
b) the sides of the linear panels can be executed in many different shapes.
c) at both ends the linear panels are open.
d) the joint between the sides of the panels can have a width of 0 - X mm.
e) the modular dimension is panel width and joint.
f) the open joints between the linear panel sides may be closed with a join profile.

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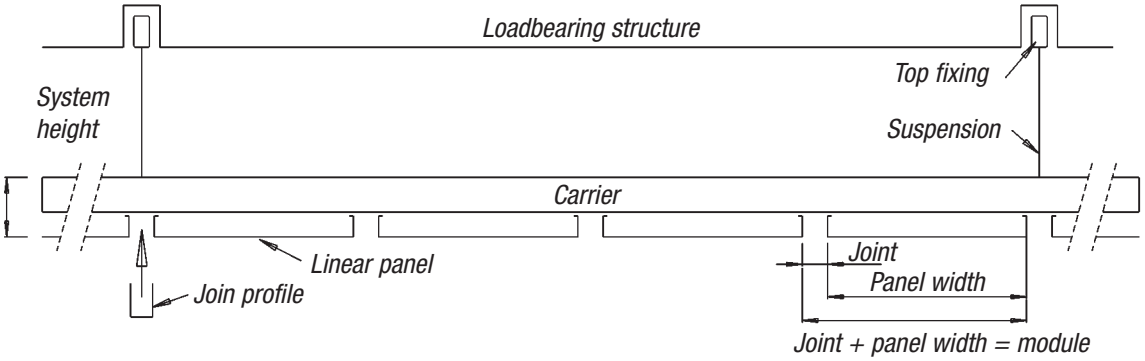


Picture 2

2.2 Construction parts: suspension, carriers and hangers

The sub-construction has to fit the linear panels. It is only allowed to use construction parts which are approved by the manufacturer.

2.3 Acoustic pads

with a maximum dead weight of 1.5 kg/m² are to be carried by the ceiling system.

Additional loads have to be calculated and approved by the manufacturer.

Inserts are permissible up to 400 g/m².

3. Material: Panels

Aluminium according to EN 1396.

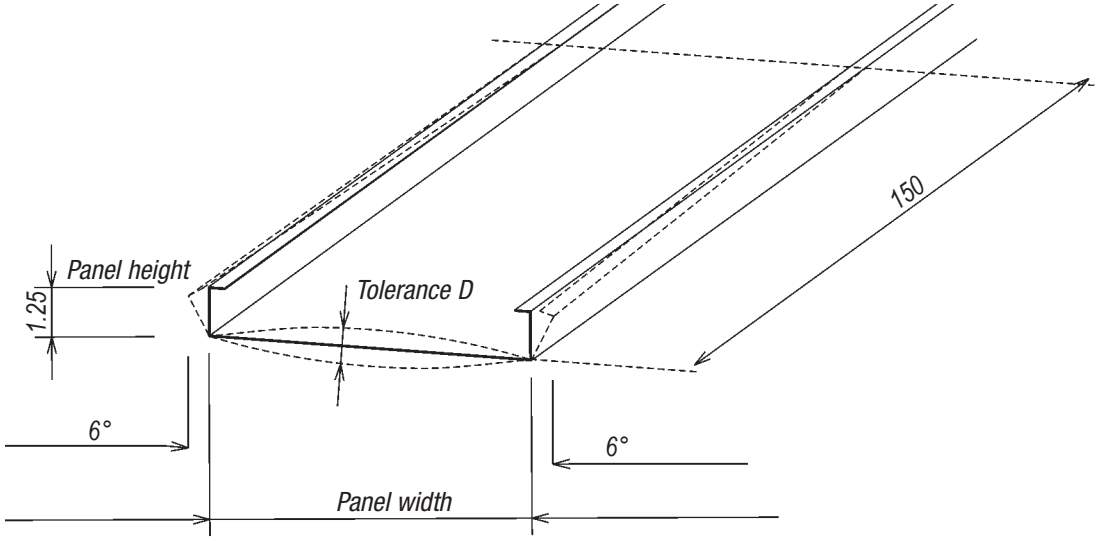
4. Tolerances of the Linear Panels

4.1 Dimensions

Panel height		± 0,30 mm
Panel length	850 - 3000 mm	± 1,00 mm
	3000 - 6000 mm	± 1,50 mm
Panel width		± 0,50 mm

Due to material- and production properties additional dimensional tolerances occur because of spring back at the panel ends (see pictures 3 and 4). The spring back is up to a maximum of 6° on each side or 0,1 x metal panel height (corresponding to 1,25 mm with a metal panel height of 12,5 mm).

Metal panel height	12,5	15,5	24,5	28,5	38,5
Spring back per edge	1,25	1,55	2,45	2,85	3,85

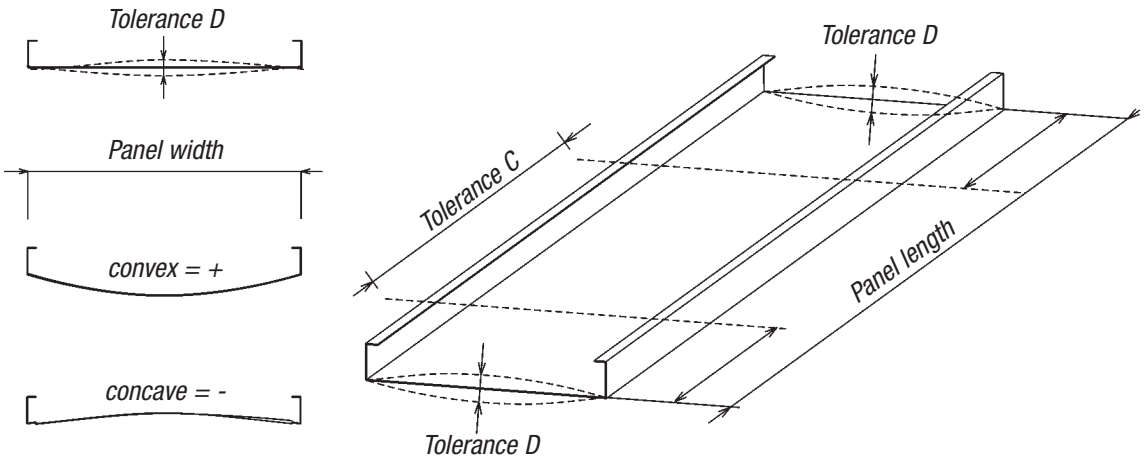


Picture 3

4.2 Plane and Ripples

4.2.1 Plane

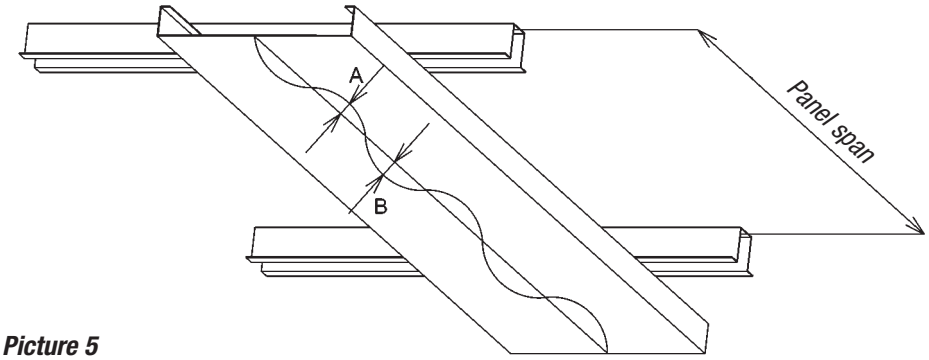
Linear panel width			
0 - 100	**101 - 200**	**201 - 300**	**301 - 400**
C	**C**	**C**	**C**
- 0.50 + 1.00	- 0.75 + 1.50	-1.00 + 2.00	-1.25 + 2.20
D	**D**	**D**	**D**
- 1.00 + 1.00	- 2.00 + 1.50	- 3.00 + 2.00	- 3.50 + 2.20



Picture 4

4.2.2 Ripples

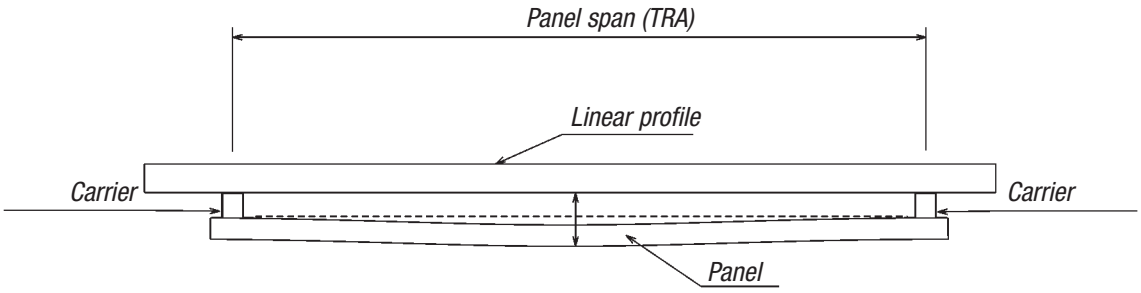
Ripples			
Linear panel width			
0 - 200		201 - 400	
A	B	A	B
- 0.25	+ 0.25	- 0.40	+ 0.40



Picture 5

4.2.3 Deflection between two carriers

The deflection of the panel between two carriers/ points of support is 1/500 x carriers distance (TRA), measured in the middle between two carriers/ points of support.



Picture 6

4.2.4 Special lighting conditions

Under special lighting conditions it is possible that material- and production specific deviations are visible even when above tolerances are kept.

4.3 Camber

Deviation is maximal 1/1667 x panel length, measured in the middle of the length of the panel (equals 0.6 mm over 1.0 m).

4.4 Perforation

The panels are perforated over the panel ends. Therefore differently cut perforation holes at the panel ends can occur.

4.5 System height of the linear panel system

The height of the linear panel system as defined by the manufacturer has a tolerance of ± 1mm (see picture 1 and picture 2).

5. Sub-construction

5.1 Carriers

The carrier should take up the panels in a modular way (see picture 2).

The shape of the carriers is manufacturer specific. The panels are fixed to the carriers either by clamping- or by hanging on the prongs.

Longitudinal connections of the carriers are realised by manufacturer-approved elements (modular carrier splices) or by way of a manufacturer-approved installation method.

5.2 Carrier distance/ panel span

Due to the often long length of the linear panels the:

a) carrier distances (panel spans)

b) distances between the suspension points over the length of the carriers (carrier spans)

should comply with manufacturers recommendations.

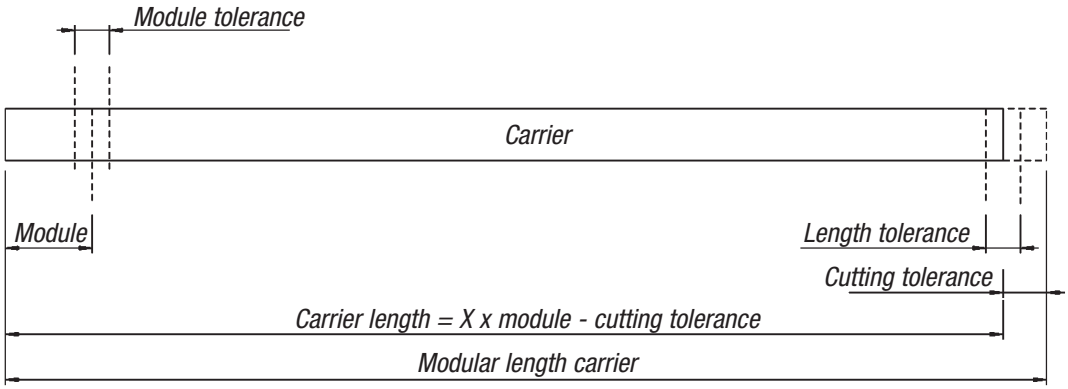
Lateral connections between the carriers are possible, however with linear ceilings not customary.

5.3 Material: Carriers

Material for the carriers can be aluminium according to EN 1396 or pre-coated steel strip according to EN 10169 part 1 and 3.

Carriers from pre-coated steel strip shall fulfil the requirements of 6.2

5.4 Tolerances of the carriers



5.4.1 Tolerance of the carrier module

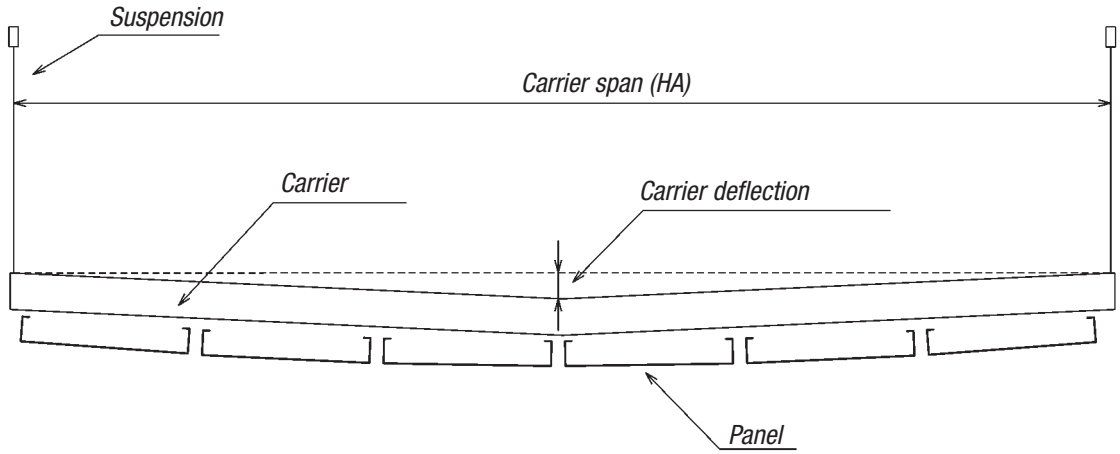
The tolerance of the carrier module is ± 5/100 of the linear panel module.

5.4.2 Tolerance of the carrier length

The length of the carrier is a multiple of the carrier module. The total length of the carrier follows from the number of carrier modules including the module-tolerance, minus a cutting tolerance which is determined by the manufacturer (see picture 6).

Production wise each carrier starts and ends in the joint of the punching-module.

Carrier splices or manufacturer 's installation instructions ensure the modular dimensions over the length of more carriers.



Picture 8

5.4.3 Deflection of the carriers between two suspension points

The deflection of the carriers between two suspension points is 1/ 500 x suspension distance (HA), measured in the middle between two suspension points.

6. Surface finishes

Measurement of colour differences
According to EN 1396

Coating thickness
According to EN 1396

Gloss
According to EN 1396

Allowable deviations in shade of colour
According to EN 1396

6.1 Mechanical properties/ resistance

Basically the paint finish is in compliance with EN 1396, Table C1, Category 2a.

6.2 Classes of exposure

The linear panels made from aluminium fulfil the requirements for normal use in normal climatic conditions in the interior of buildings, generally exposed to varying relative humidity up to 70% and varying temperature from +7° C up to +30° C but without corrosive pollutants.

In situations likely to produce corrosion contact between dissimilar materials shall be avoided.

Special requirements exceeding the above criteria must be agreed upon separately.

7. Installation

EN 13964 as well as regulations in the country of use, e.g. DIN 18168 Part 1 and Part 2, are mandatory.

The instructions for installation and applications as published by TAIM e.V. as well as the installation instructions of the manufacturer apply.