Installation guide

Contents

1. General

This publication provides basic information for the planning and installation of OWAcoustic/OWAconstruct ceiling systems.

The information contained within this guide is based on our recommendations and those contained within the current ASTM Standards. Inline with improving standards and techniques please make sure you are using the current issues of both documents (see contents for publication date).

As a manufacturer and supplier, we offer complete, tried and tested ceiling systems. OWA ceiling systems can be used to provide a variety of performances as well as aesthetic functions.

In all cases the correct installation of the ceiling is essential to ensure that the ceiling can fulfil any such requirements.

Where the OWA-ceiling is to provide any level of performance it must be installed in accordance with the relevant test report, assessment or those recommendations provided by OWA. Failure to use the specified components or comply with the installation recommendations will invalidate any test report, assessment or warranty.

A warranty declaration for mineral tiles up to 15 years is available. Ask your local OWA representative for details.

2. Basic planning

An OWA ceiling is installed using dry construction methods and is generally for interior use only. The basic principles of dry construction should be applied when installing the ceilings. Where additional materials such as timber or gypsum are used, the guidelines on working with those products should also be observed.

2.1 Site conditions

Before installing an OWA-ceiling the room/site conditions should be assessed. The area should be weather tight (windows and doors in place) and have a stable, dry environment. The ceiling should only be installed after the wet trades, such as plastering and screeding have been completed and the environment is dry and stable.

2.1.1 Reference values for site environments:

Generally the relative humidity should be **< 70 % RH** (reference temperature 77 °F), For reference values for OWAcoustic tiles see 3.2; conditions suitable for tradesmen's work, room temperature > 44.6 °F.

2.1.2 Relative humidity

Temperature has a direct correlation to relative humidity. Lowering the temperature in an enclosed space will increase the relative humidity of the area. Where an area may have a high level of relative humidity or be subject to a temperature variations it is important to ensure the area is monitored and if necessary ventilated to remove humid air. This is particularly important in areas where wet trades have been used such as new build projects.

The following table shows the effects of lowering a room temperature from 68 °F to 59 °F. The alteration in temperature ($\Delta T = 5°$) in an enclosed space has an effect on the relative humidity. This can be understood by considering the absolute humidity (g/m^3).

Example:

Room temperature 68 °F, absolute humidity at 12.1 g/m^3 = 0.000755 lb/ft^3 corresponds to a relative humidity of 70 %. Lowering the temperature to 59 °F with an associated comparable absolute humidity of 0.000755 lb/ft^3 means a relative air humidity at approx. 95 %. (12.23 g/m^3 = 0.000763 lb/ft^3 see table 59 °F and 95 % rel. humidity)

Temp. in °F	Relative air humidity in %							
	50	60	70	80	85	90	95	100
50	4.70	5.60	6.50	7.50	8.00	8.50	9.95	9.40
51.8	5.00	6.00	6.95	8.00	8.53	9.05	9.55	10.05
53.6	5.30	6.40	7.40	8.50	9.05	9.60	10.15	10.70
55.4	5.65	6.85	7.95	9.10	9.68	10.25	10.83	11.40
57.2	6.00	7.30	8.50	9.70	10.30	10.90	11.50	12.10
59	6.40	7.75	9.00	10.30	10.50	11.60	12.23	12.85
60.8	6.80	8.20	9.50	10.90	11.60	12.30	12.95	13.60
62.6	7.25	8.70	10.10	11.60	12.33	13.05	13.78	14.50
64.4	7.70	9.20	10.70	12.30	13.05	13.80	14.60	15.40
66.2	8.15	9.80	11.40	13.05	13.88	14.70	15.53	16.35
68	8.60	10.40	12.10	13.80	14.70	15.60	16.45	17.30
69.8	9.15	11.05	12.85	14.65	15.60	16.55	17.45	18.35
71.6	9.70	11.70	13.60	15.50	16.50	17.50	18.45	19.40
73.4	10.30	12.40	14.45	16.45	17.50	18.55	19.58	20.60
75.2	10.90	13.10	15.30	17.40	18.50	19.60	20.70	21.80
77	11.55	13.85	16.20	18.50	19.65	20.80	21.95	23.10
78.8	12.20	14.60	17.10	19.60	20.80	22.00	23.20	24.40
80.6	12.90	15.45	18.10	20.70	21.98	23.25	24.55	25.85
82.4	13.60	16.30	19.10	21.80	23.15	24.50	25.90	27.30
84.2	14.40	17.25	20.20	23.05	24.50	25.95	27.40	28.85
86	15.20	18.20	21.30	24.30	25.85	27.40	28.90	30.40
Absolute humidity in g/m^3 air								
Conversion factor in lb/ft^3: 1 g/m^3 = 0.000062428 lb/ft^3								

2.2 Fire

OWAcoustic tiles as building material according to ASTM E84 / ASTM E1264, building materials are divided according to their fire behaviour into the following classes:

Country	Test standard	Classification
USA	ASTM E 84-97 a	
	ASTM E1264	Class A
Canada	CAN/ULC-S102	

ASTM E 84 Surface Burning Characteristics
of "OWAcoustic Premium (Scrim Laminated) Products"

CAN/ULC-S102 Surface Burning Characteristics
of "OWAcoustic Premium (Scrim Laminated) Products"

2.3 Sound

OWAcoustic ceiling systems can fulfil a wide range of functions relating to the control of sound.

2.3.1 Optimising room acoustics

In many rooms, the correct reverberation time T [s] is required for good comprehension of speech or appreciation of music. Similarly in noise-intensive production facilities or workshops, the greatest possible sound level reduction is required to make the environment more comfortable.

Reverberation time required
Noise level reduction

In these examples of use, further details can be obtained from the following standards: see relevant standard on page 28

2.3.2 Optimising building acoustics

OWAcoustic suspended ceiling systems can be used to:
- increase airborne sound insulation of solid and timber joist ceilings
- improve the lateral room to room airborne sound insulation between two rooms with a common void.
- reduce sounds emanating from the ceiling void.

As installation conditions vary from site to site each project should be assessed on its own merits. Where the acoustic performance of a room is important it is recommended that a qualified acoustician be consulted.

2.4 Building physics - installing OWA-ceilings under roofs similiar structures

2.4.1 Warm roof construction (non-ventilated)
OWAcoustic ceilings provide a good degree of insulation and when installed may have an influence on the dew point in the ceiling or roof construction.

In order to avoid condensation, it is recommended that a dew-point calculation is carried out. In general there are no significant negative influences are produced by the installation of additional insulation if it includes a vapour barrier. This should be placed so that no more than 20 % of the insulation is on the warm (room) side of the vapour barrier. If this is not possible ventilation should be introduced into the void. The lambda value of OWAcoustic tiles is 0,055 W/mK

2.4.2 Cold roof (ventilated)
The structure of a cold roof generally consists of:
a) weatherproof outer skin
b) ventilation zone
c) heat insulating zone
d) moisture and airtight barrier
e) suspended ceiling (fire/sound/hygiene provision, etc.)

A ventilated roof or cold roof requires a circulating, through-ventilation zone in contact with the outside air, between the layer of insulation and the external roof.

Where the ceiling is to provide a performance function such as structural fire resistance, it is recommended that the ceiling and insulation are installed as separated layers.

It is recommended that constructions described in 2.4.1, 2.4.2 and similiar structures are assessed by a qualified building consultant to ensure the use of insulation, vapour barriers and suspended ceiling have no detrimental effects on the building environment such as adversely altering the dew point.

Building physics – basic principles:
To ensure the functional design of a building is achieved, performance criteria such as fire protection, acoustics and insulation should be considered at the planning stage of every project. If in any doubt specialist consultants should be involved to ensure compliance with local building control, performance requirements and those of the client. This is outside the responsibility of the manufacturer.

2.5 Planning prior to installation

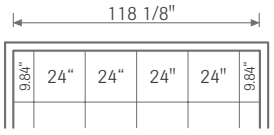
Essential preliminaries are the inspection of the site to establish local conditions, on-site measurement of the rooms to be fitted and the provision of a ceiling layout drawing. The layout should show the position of light fittings, ventilation grilles etc. and should be agreed with architect/client/main contractor.

2.5.1 Perimeter tiles
The size of perimeter tiles will be dependant on the ceiling layout and may be dictated by the position of services, walls, partitions etc. as well as other aesthetic considerations.

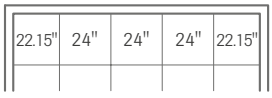
If the aforementioned points do not apply, we recommend laying the wall connection plates as follows: generally perimeter tiles should be as close to a full module size as possible, and **preferably larger than half a tile**. In the example shown below we take room 118 1/8" wide and install 24" x 24" tiles.

The recommended layout uses three full tiles and two cut perimeter tiles of 21.7". This is preferable to other example which uses four full tiles and two cut perimeter tiles of 9,84". The number of tiles is the same but the ceiling would require an additional run of suspension profiles; it is not only less decorative but also less economical (see example).

Example:



Uneconomical tile distribution



Economical tile distribution

2.5.2 Effect of light or illumination on the suspended ceiling

For architectural and optical reasons, light striking the suspended ceiling at a shallow angle should be avoided. This refers both to light fittings and to the full glazing of facades which extends up to the lower edge of the ceiling.

Unfavourable incident light can emphasise and exaggerate any minor difference in levels or pattern even when this lies within the tolerance range.

The installer can contribute significantly to the appearance of the ceiling by observing all of the manufacturer's recommendations.

2.5.3 Tolerances

In the case of mass produced ceilings, the user must expect a certain amount of tolerance.

Squareness:
The substructure (main and cross runners) has to be installed accurately and square. The admissible deviation depends on the dimensions of the applied membrane components and their fixing system. A practical method to control the squareness of the grids is by means of a regular control of the diagonals during the installation and/or by means of a correct fit of the membrane components to be applied. Linear components and carriers have to be installed absolutely square. The admissible deviation depends on the linear panel type but in practice, even slight deviations from the square lead to visible deformation of the panels.

Alignment of liner components:
Linear components, together with any elements and carriers, have to be exactly aligned on module. Special care has to be taken of the alignment of modules over the joint between carriers.

Cut to size membrane components:
As a general requirement, membrane components are divided from the middle of the ceiling area, be it from the middle of the component or the middle of a joint between components, in such a way that the perimeter panels have a minimum width of half the width (or length) of the standard panel. Otherwise, the division should be determined with the building designer, taking into account the location of columns, lighting fixtures, etc. Cut to size membrane components, when pushed against the body of the tee, should be supported by the edge profile on the opposite side by at least 3/8".

2.6 Pressure and wind loads on suspended ceilings

Additional measures must be taken to protect suspended ceilings against loads due to specific or non-definable pressure and wind loads. In the case of closed rooms or buildings with open facades etc., appropriate measures can be taken to ensure that the membrane and suspension elements are secure (see point 6.2). For standard applications and normal use, these measures are generally not required.

3. OWAcoustic tiles – general information

OWAcoustic mineral wool tiles are sealed with a primer coat on both sides. The tiles are free from asbestos. No formaldehyde is used in the mineral tiles' production process.The mineral wool used to manufacture OWA tiles is bio-soluble and satisfies the criteria for the classification as a non-carcinogenic substance according to the German Chemicals Prohibition Directive (§ 1 Appendix, Section 23, bio-persistent fibres). This classification is confirmed by the "RAL Quality Seal for Mineral Wool". This also satisfies the European Directive 97/69/EEC (Note Q).

This statutory information can be found both on the packaging and normally on the reverse of each individual OWAcoustic tile (see also 3.3 and 3.4).

Note: product data sheet
Corresponding product information e.g. composition, handling and storage, physical and chemical properties, details on toxicology and information on disposal and the OWA green circle recycling programme can be viewed here: www.owa-ceilings.com

3.1 Factory finish, colour, appearance

Due to the use of natural products, variations in surface texture and colour can occur as may the formation of surface striations during the sanding process. These are deemed to be acceptable visual variations.

Tiles are supplied in OWA white as standard. The paint used is produced by OWA and does not conform to any specific RAL or NCS colour reference.

3.2 Properties of OWAcoustic ceiling tiles

OWAcoustic premium for humid rooms:

Additional loading (support) per unit area: 40 N/m²

Additional loading – point loading (centre of tile): 2.5 N

Reaction to fire in accordance: Class 1 (ASTM E84) | Class A (ASTM E 1264) | CAN/ULC-S102

Volatile organic emission class according to (TVOC) according to DIN 18177: TVOC 1 ($x \leq 50$ µg/m³)

Formaldehyde emission class according to DIN 18177: FH 1 ($x \leq 60$ µg/m³)

Air permeability class according to DIN 18177: PM 1 ($x \leq 30$ m²/hm²)

Thermal conductivity λ: 0.031799 BTU/(h*ft*°F)

For cleaning instructions see brochure no. 9989 e.

Notes on cleaning:
Contamination with aggressive elements such as alkalis, acids, fats etc. is more difficult to clean to a satisfactory standard.

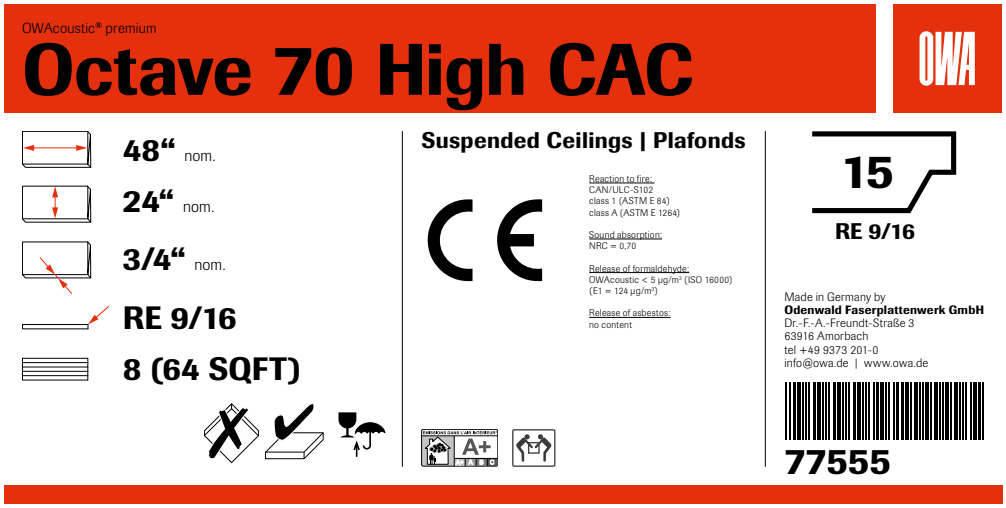
3.3 Identification marking of OWAcoustic tiles

Labelling back of tile standard tiles:
- production date
- directional arrows
- manufacturer

Labelling of tiles with special properties:
Sanitas: SA02
Humancare: HC

3.4 Information shown on the carton label OWAcoustic:

- product designation and manufacturer‘s address
- storage-, transport- and Ssecurity-informations
- reaction to fire classification
- CE marking
- performance data
- design
- edge type
- dimensions
- article number
- number of pieces



3.5 Directional arrows

OWAcoustic tiles have directional arrows imprinted on the back. All tiles should be installed with the arrows pointing in the same direction unless the installation requires a chequerboard pattern.

3.6 Packaging and handling

When handling cartons do not throw, drop or place on edges or corners. When storing cartons place on a clean, flat surface within a dry, controlled environment.

Tiles are packed face to face and it is advisable to remove them in pairs.

To reduce possible damage to face and edges carefully cut away packaging before removing tiles.

Always hold tiles, during the installation and later use, with both hands (use glove to prevent marking the tiles).

Avoid using tiles from different production runs as this may result in ”shading” due to colour and/or texture variations.

The production data is printed on the back of tiles (see also point 3.1 and 3.2).

Note:
For more information on handling and storage, refer to the product data sheet: www.owa-ceilings.com

3.7 OWAcoustic tiles, standard edge details for OWAconstruct ceiling systems

Edge SQ (for system S 3 cliq and S 15 cliq) square edged

OWAcoustic premium tiles:
tile thickness approx. 5/8“ or 3/4“
tile dimension = module size – approx. 1/4“

Edge RE bolt slot (for system S15b OWAline) with shadow gap

OWAcoustic premium tiles:
tile thickness approx. 5/8“ or 3/4“
tile dimension = module size – approx. 1/4“

Contura-edges (for system S 3a cliq, S 15a cliq) angled, reveal edge

Edge RE 15/16“ (for system S 3a cliq)

Edge RE 9/16“ (for system S 15a cliq)

OWAcoustic premium tiles:
tile thickness approx. 5/8“ or 3/4“

For more details see individual system leaflets.

4. Construction of suspended ceilings

Individual System Guides for each system show construction details, dimensions and components for all OWAconstruct suspension systems. Detailed information on OWAconstruct components and accessories can be found in the OWAlifetime collection price list. Before planning or installing an OWAcoustic ceiling, the user should satisfy themselves that the leaflet reflects the most up to date information on the system and any standards that may relate to its use.

OWAconstruct profiles fall into deflection class 1 according to ASTM C635 (maximum deflection = L/360).

To achieve this classification the profiles should not be notched, drilled or altered in any other way that may affect its structural characteristics.

4.1 Additional load

OWAconstruct systems are designed to support the tiles and suspensions system. Additional loads, such as recessed and surface-mounted lighting, air outlets, insulation overlays, curtain profiles, partition walls etc. must be taken into account separately in each individual case. Additional measures may be required to support the additional loads as well as provide increased stability where necessary (see point 5.4). Hangers should not be used to support loads such as electrical cables etc.

4.2 Transportation and handling of profiles

To avoid transport damage, such as corrugated, bent or twisted
T profiles in thin material (e.g. carrier profiles), the following must be borne in mind:

Mechanical handling and transportation of cartons:
- Individual or multiple cartons should only be carried on pallets which are a **minimum of 78 3/4" long.**
- Avoid travelling on uneven surfaces when materials are in transit.
- If travelling on uneven surfaces is unavoidable adapt the speed of travel to the conditions.

Carrying cartons:
- Cartons should be carried by two persons.
- Cartons should not be dropped, twisted or jarred.
- Avoid any warping of the packaging unit during transport.

Carrying individual profiles
- Remove profiles carefully from the carton.
- Do not jar or knock.
- When removing from the carton take the profile out from the centre outward and hold and stabilise it right and left as much as possible, using both hands – do not pull the carrier profiles individually from the front out of the carton.

5. OWAconstruct/OWAcoustic standard ceiling systems

5.1 Fastenings

5.1.1 Load bearing structures and roofs

Top fixings
In order to form a solid connection between the soffit/roof and the OWAconstruct suspension system an approved fixing suitable for the substrate should be used.

Where appropriate this fixing should have third party test evidence.

5.1.2 Steel beam and solid soffits

The connection between the hangers of the suspended ceiling and the concrete soffit is to be made using approved fasteners third party test evidence. The installation instructions of the fastener manufacturer must be followed. The relevant valid authorisations or building standards test results of the attachment equipment (if applicable, extraction attempts) must be taken into account.

5.1.4 Lightweight/block floors

The connection between the suspended ceiling hangers and the soffit is to be made using approved fasteners such OWA hanger no. 97/9 (ETA or national approvals). The installation instructions of the fastener manufacturer must be followed.

5.1.5 Trapezoidal roof sheet

Single layer, non-ventilated roof (warm roof)
If direct fastening of the ceiling hangers to the trapezoidal sheets cannot be avoided, only the vertical sides of the trapezoidal sheets should be used for fixing. In all cases, the hanger should be connected using a mechanical fix such as a screw.

Suspension using wire hooks in holes is not permissible.

The main tees should be installed transverse to the profile direction of the trapezoidal sheets, in order to achieve an even distribution of load.

Note:
Trapezoidal sheet roofs quite often have large spans. Under adverse conditions, wind pressure or suction effects can transfer roof vibration to the suspended ceiling, via the ceiling suspension.

This can cause the opening of joints in the ceiling and/or produce movement noise in the vicinity.

A solution for this is the use of an ancillary sub construction which is independent of the roof sheets.

5.2 OWAconstruct hanger

Wire suspension
Suspended ceiling systems can also be installed using pre-stressed wire as hanger.

Example: pre-stressed wire galvanised Ø ≥ 3/32”, tied at least three-fold

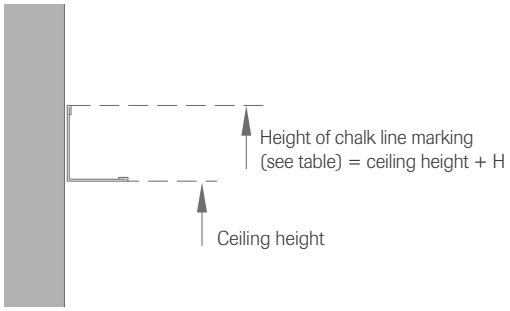
Minimum suspension height 3 15/16” (3 5/32”*)
* More complex and slower installation

5.3 Wall trims OWA standard ceiling systems

The installation of a wall trim is normally the first work to be carried out when installing a suspended ceiling. A levelled coloured chalk line is snapped along the wall at the required height. It is recommended that this line is set at the upper level of the trim to prevent marking the visible area of the walls. This also prevents the marking of any completed wall finishes.

Wall trim height table

Wall profile no.	Description	Dimensions
50G	12' wall angle	3/4" x 15/16"
50/15G	12' shadow mold	15/16" x 9/16" x 5/16" x 9/16"
51/24G	12' wall angle	15/16" x 15/16"



5.3.1 Junctions of wall trim

The use of a true or overlap mitre is an acceptable way to join wall trims where that meet at the intersection of walls.

Wall irregularities can be filled using suitable filler material or spray etc. the sealing of the gaps may constitute an additional service.

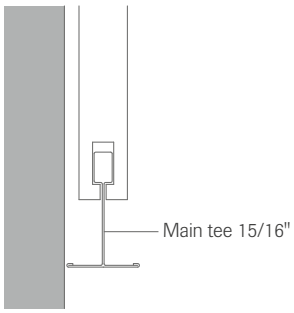
The tender document should give clear information on this point.

5.3.2 Attachment to flexible or vibrating backgrounds surfaces

If wall trims are attached to timbers/wood-based materials, decorative concrete elements or other **flexible or vibrating backgrounds**, measures must be taken at the point of attachment which will allow the background to "move" **without producing deformation of the wall profile**, e.g. the use of trims with slotted fixing holes. The thickness of the wall trim can also influence the interaction of the trim and background.

Construction options:

a) use wall trim with slotted holes, such as no. 51/20 or no. 53
b) form wall connection of sliding design, using no. 45



Sliding connection

Should mitre joints be required, this should be specified in the specification/tender documents.

Stepped wall trims, however, should be mitred. As a simpler alternative, inner and outer preformed corner pieces for stepped wall trims may be used.

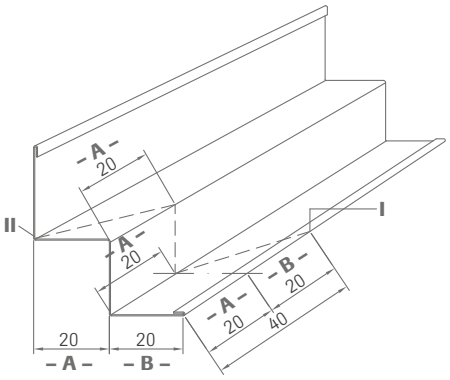
5.3.3 Production of mitred corners using snips

Tools required: right and left-handed snips

Method:
The desired mitre cut is to be drawn onto the visible side of the profile. The pencil outline is drawn according to the dimensions **– A –** and **– B –** shown in the drawing (see table). Using the right-handed snips, starting from point one make the first 45° cut followed by the first vertical cut.

Using the left-handed snips, make the second 45° cut beginning at point II. The mitred, stepped wall profile is fastened to the wall.

The adjacent profile is laid out, marked, cut and fixed. However a simpler method is to make the mitre cuts using a circular saw with a metal cutting blade.

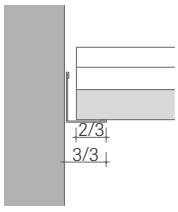


Example no. 56/20

Table: mitre cuts - stepped wall trim dimensions

Stepped wall trim	Dimensions	Recommended tool
50G 12' wall angle	3/4" x 15/16"	snips/metal circular saw
50/15G 12' shadow mold	15/16" x 9/16" x 5/16" x 9/16"	snips/metal circular saw
51/24G 12' wall angle	15/16" x 15/16"	snips/metal circular saw

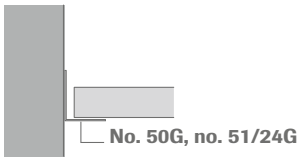
5.3.4 Support
All profiles and tiles must overlap the wall trim by at least 2/3rds of the width of the trim.

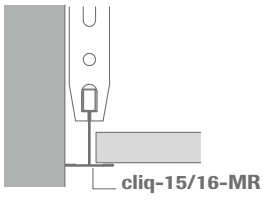


Minimum profile and tile support on the wall trim

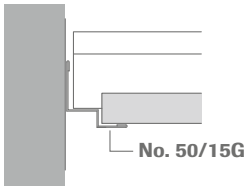
5.3.5 Installation of standard wall trims where there is no fire resistance required

Installation examples:





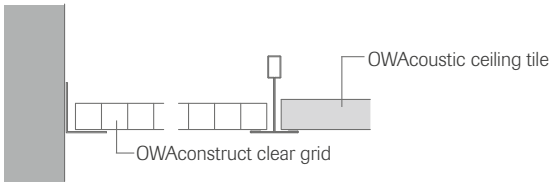
Fixing to the soffit (sliding connection)

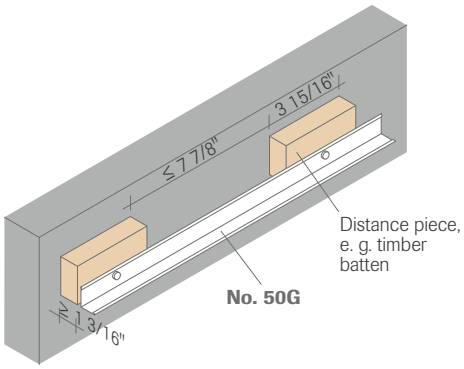


Contura ceilings
S 3a cliq and system S 15a cliq

5.3.6 Ventilated wall trims (no fire resistance requirements)

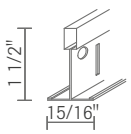
Examples showing the use of the perimeter to provide ventilation in humid areas or constructions with a non ventilated roof (warm roof construction).



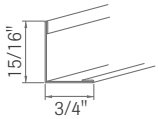


5.3.7 Wall trims

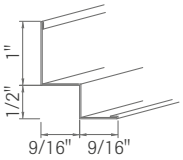
OWA white, galvanised steel wall trims, dimensions in inch



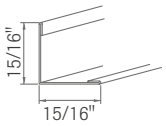
No. 45 visible side white
or **cliq-MR** visible side white



No. 50G 1/32“ thick



No. 50/19 1/32“ thick



No. 51/24G 1/32“ thick

5.4 Integration of recessed or surface-mounted lights, spotlights, ventilation fittings etc.

In general, it is the task of the electrical or the ventilation contractor to install the fittings either after or during the ceiling installation process. In all cases, this should be agreed between the trades concerned.

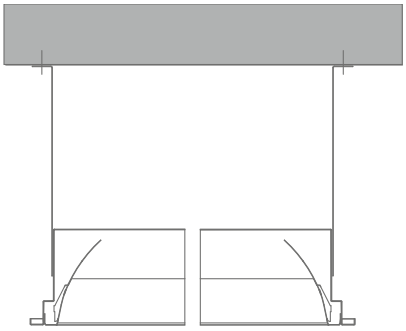
When fitting lights etc. it has been shown to be advantageous for the ceiling fitter to be entrusted with the incorporation of the recessed and surface-mounted fittings. These can be made available on site. It is essential that where recessed lights are used that they must be compatible with the suspension system, e.g. OWAconstruct lights. Connection of the fitted items should subsequently be carried out by the appropriate tradesman.

Important basic principles:
No electric leads may be attached to the hangers of suspended ceilings. Similarly, the laying of leads of any kind on the ceiling must be avoided. Individual cables used for the connection of lamps or spotlights can be fixed to suspension media by agreement with the drywall contractor. The relevant regulations and where applicable, fire protection regulations must be observed. Fitting of built-in components must be commissioned by the client.

5.4.1 Additional loads

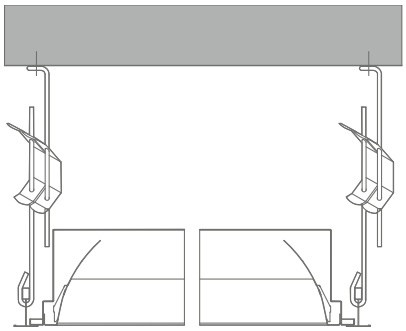
Each additional load which is transferred to a suspended ceiling is to be supported separately. This can be achieved in various ways:

a) Suspend the built-in component directly

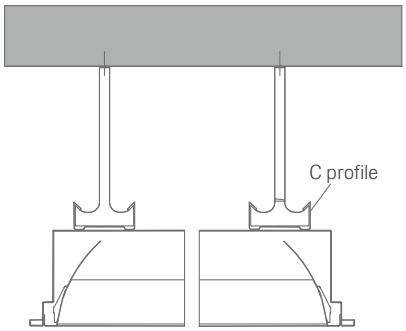


b) The construction of the suspended ceiling is to be provided with additional suspension elements, the minimum being two hangers per built-in component. The additional suspension elements are to be selected according to point 5.2. The load capacity is to be taken into consideration. Also to be considered is the possibility of over-loading of profiles.

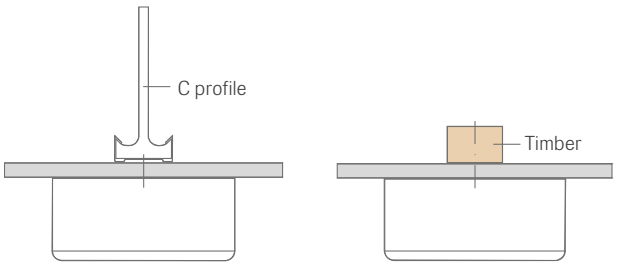
Alternatively, additional loads can be taken up via a reduction of the spacing centres of main tee profiles on the ceiling. Calculations should be made in advance for this method, taking into account the anticipated loads.



c) A further possibility is the fitting of an ancillary construction in the form of suspended C profiles or timber constructions. Where the ceiling is providing fire resistance please refer to our test reports.



d) In the case of surface-mounted lights, it is advisable to arrange an ancillary construction, similar to that shown under point c).



e) For surface-mounted lights with system S 3 cliq, the double hanger

Note: Neither the profile constructions nor the hangers or supports may be overloaded.

In the case of special constructions which vary from the manufacturer's guidelines, the installer must ensure that the proposed construction is capable of carrying the additional loads.

Exceptions to the standard laying can only be released as part of precise specifications (profile type, carrier profile distances, hanger distances, load type) by the manufacturer. In this case contact the service department OWAconsult. Depending on the profile type, the manufacturer provides load tables and load arrangements.

5.4.2 Spotlamps, loudspeakers and other fittings

Loads with a weight ≤ 0,551 lb can be supported by OWAcoustic premium tiles without special measures. Where additional loads are applied to a ceiling it is important to ensure that each component in the construction is capable of supporting the increased load. This includes hangers; fixing points as well as any mechanical fixings.

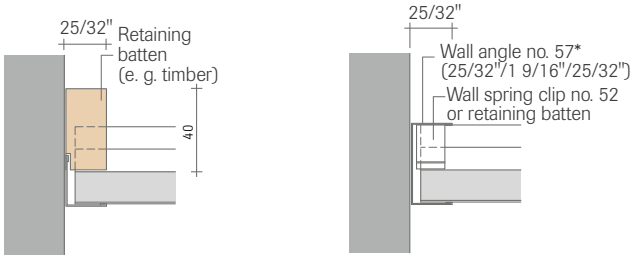
Care should also be taken to ensure the ceiling stays within the permissible deflection limits.

It should be verified by the installer that the measures used to support additional loads are suitable for their use.

6. OWAconstruct/OWAcoustic systems with special performances

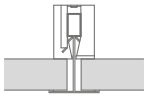
6.1 Suspended ceilings in humid rooms according to EN 13964; table 7 class of exposure C

Wall trims for ceilings in open rooms
All perimeter tiles should be installed to resist upward pressure.



* EN 13964 class B

Example of construction (cross-section)



Notes:
When constructing suspended ceilings in open areas, special care is required. The above-mentioned construction recommendations are to be adapted to suit the area of use and, if necessary, additional measures taken. Thus in certain circumstance such as excessive upward pressure, it may be necessary to use a top hat profile instead of a retaining clip (see sketch). Where used the retaining clips are to be fitted to all profiles at a maximum spacing of 7 7/8".

6.2 Suspended ceilings in hygiene-sensitive areas

6.2.1 OWAcoustic Sanitas® 02 tiles for sterile areas

Areas such as hospitals, clinics and laboratories sometime require ceilings that have fungistatic and bacteriostatic properties. These properties can be found in OWAcoustic Sanitas® 02 Plain.

Note:
Sanitas® 02 (SA02) tiles must be provided with a corresponding print identification on the reverse.

For more details see OWA-brochure no. 9898 e.

6.2.2 OWAcoustic Humancare | Octave

On the front fleece-backed hygiene tiles with high sound absorption and tested microbiocidal equipment (additional information see OWA-brochure no. 9898 e)

Cleaning and disinfection recommendations see brochure no. 9989 e.

7. Working with OWAconstruct/OWAcoustic ceiling systems

7.1 OWAcoustic premium/smart – OWAconstruct – exposed grid systems, S 3 cliq, S 3a cliq, S 15 cliq, S 15a cliq, demountable

Special features:
Exposed grid systems are extremely cost-effective and permit the simple removal of ceiling tiles. The listed systems all use the same suspension system.

The following systems offer a number of module size choices which can be achieved by the simple use of cross tee profiles. The constructions shown provide details of the basic systems. These may vary on site due to specific project requirements.

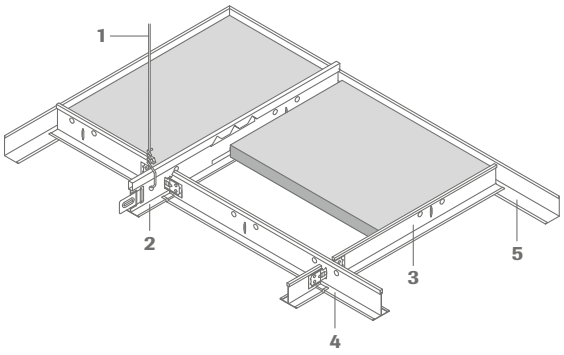
Systems S 3 cliq and S 15 cliq are similar and use square edge (edge SQ) tiles. Systems S 3a cliq and S 15a cliq are distinguished by a special Contura edge (edge RE 15/16“ and edge RE 9/16“). All systems utilise the same suspension methods and differ only in the width of the exposed decorative surface. Due to the different tile edge detail used in Systems S 3a cliq and S 15a cliq, a stepped wall trim is normally used. Generally, the tile dimensions are ~ 1/4“ smaller than the module size.

Further information such as dimensions, installation examples,
general specification and material requirement per sqft can be found in OWAconstruct system leaflets.

System S 3 cliq	**Exposed**
System S 15 cliq	**Exposed**
System S 3a cliq	**Exposed Contura**
System S 15a cliq	**Exposed Contura**
System S 15b OWAline	**Exposed**

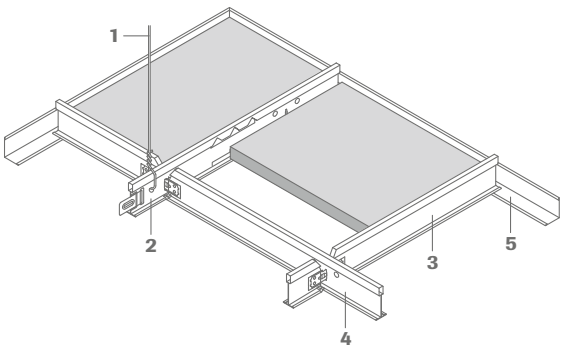
General construction detail of exposed systems

Fig. S 3 cliq:



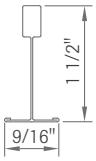
1 Wire (by client)
2 Main tee cliq-15/16-MR, slotted every 6“
3 Main tee cliq-15/16-CT, length 2’
4 Main tee cliq-15/16-CT, length 4’
5 Wall angle no. 51/24G

Fig. S 15 cliq:

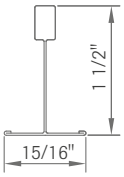


1 Wire (by client)
2 Main runner cliq-15/16-MR, slotted every 6“
3 Main tee cliq-15-CT, length 2’
4 Main tee cliq-15-CT, length 4’
5 Wall angle no. 50G

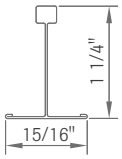
S 15 cliq / S 15a cliq
Main tee and cross tee



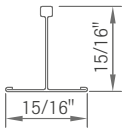
S 3 cliq / S 3a cliq
Main tee



Cross tee



Cross tee



Edge detail:

SQ

Edge detail OWAcoustic premium Contura

RE 15/16"

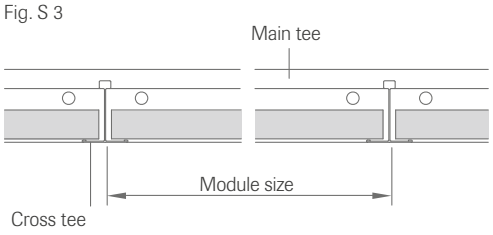
System S 3a cliq

RE 9/16"

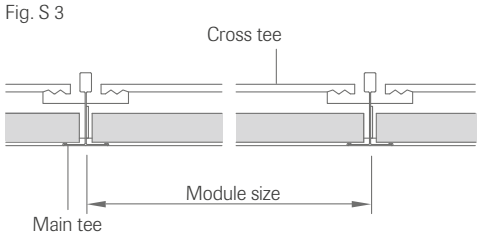
System S 15a cliq

System S 3 cliq and S 15 cliq

Longitudinal section:
Fig. S 3

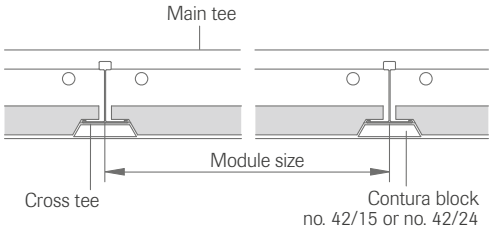


Cross-section:
Fig. S 3

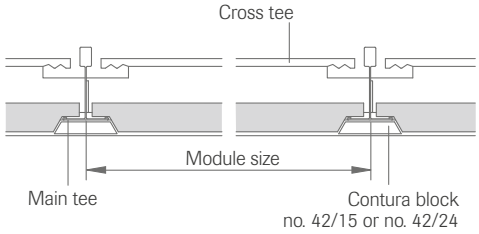


System S 3a cliq und S 15a cliq

Longitudinal section:
Fig. S 3a



Cross-section:
Fig. S 3a



7.1.1 Installation note

Exposed grid systems combine many of the advantages of dry construction methods. These systems are distinguished by their simple construction; high performance levels and in most cases the ability to gain access to the void without difficulty.

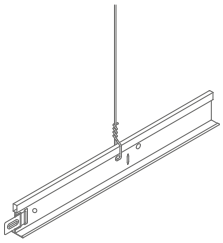
7.1.2 Integrated service elements

During planning and the installation of the ceiling the information shown in point 5.4 should be taken into consideration. Details of OWAconstruct Modular lights and downlighters can be found in the OWAlifetime collection price list.

7.1.3 Fixings
The type of fixing selected should suit the construction of the soffit (or wall). Please see point 5.0. for more details.

7.1.4 Suspension
For details of standard OWAconstruct hangers suitable for OWAconstruct exposed grid suspension systems please see point 5.2.

7.1.5 Hanger centres
Generally hanger centres should not exceed 49 7/32“. They should be installed between 15 3/4“ and 49 7/32“ from any perimeter depending on the ceiling function. In profile connection areas, additional hangers may be required.



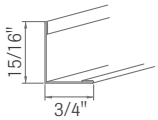
Wire suspension

7.1.6 Minimum suspension height:
Depending on the existing soffit the minimum practical suspension height is 3 5/32“ - 3 15/16“ with 4 3/4“ being the minimum recommended suspension height where ease of installation and removal of tiles is important.

7.1.7 Wall perimeter
see point 5.3

The wall trim defines the lower level of a suspended ceiling. It must be installed horizontally (unless otherwise instructed) and at the correct level. Junction details such as a mitre (see point 5.3.3) or overlap should be agreed with the client/architect prior to installation. The standard wall trim no. 50G is fixed to the wall at ≤ 11 13/16“ depending on the load.

Wall trim for system S 3 cliq and S 15 cliq
The standard wall trim for these systems is profile no. 50G (15/16“ x 13/32“ x 1/32“).

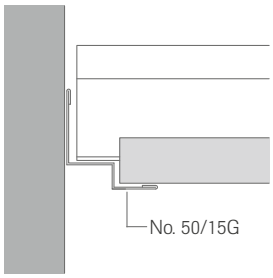


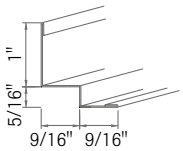
No. 50G 1/32“ thick

7.1.8 Wall trim for system S 3a cliq and S 15a cliq for product line premium – edge RE 15/16“ and edge RE 9/16“

The shape of the wall trim no. 50/15G is designed to compliment the standard tiles from the OWAconstruct system S 3a cliq and S 15a cliq range.

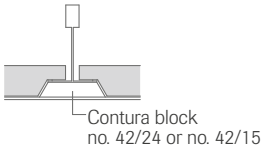
The perimeter tiles are cut square and sit on the bottom flange of the wall trim with the grid section sitting 5/16“ higher on the top, 9/16“ wide flange of the trim. The stepped trim should be mitred at corner junctions. The tee sections can be secured against lateral movement using perimeter bracket no. 8017.





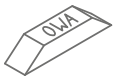
No. 50/15G 1/32“ thick

Contura blocks
When using wall trim no. 50/15G a trapezoidal opening is formed at the intersection of the OWAcoustic perimeter tiles/OWAconstruct tee section and wall trim. This can be filled using OWAconstruct Contura blocks which are compatible with the OWAconstruct wall trims no. 50/15G and no. 50/14 and the OWAcoustic range of tiles.



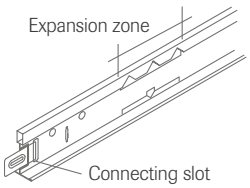
These parts are only to be used for the closure of trapezoidal openings and are not suitable for load bearing.

Contura blocks
no. 42/24 for edge RE 15/16“
no. 42/15 for edge RE 9/16“



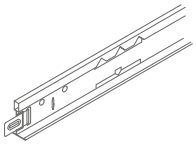
7.1.9 Profiles for exposed systems S 3 cliq and S 3a cliq

The main tees and cross tees are designed to create a number of standard module sizes e.g. 24“. The main tees are produced with slots at predetermined centres for click-on of the off-set cross tees.



Main tee (exposed width 15/16“)

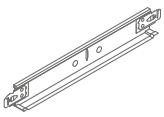
cliq-24-MR



for module 24“

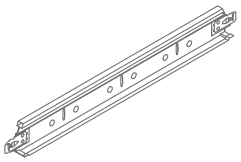
Cross tee profiles S 3 cliq and S 3a cliq (exposed width 15/16“)

cliq-24-CT short



module size 24“ – height 1“

cliq-24-CT long

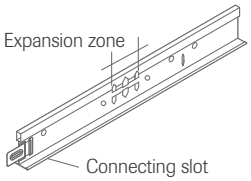


Module size 48 1/16“ – height 1 1/4“

The cross tees form an integral part of the suspension system and interconnect with both the main tees and other cross tees to form the desired module. They are supplied with connecting tabs either end which hook into the main tee/cross tee slot. To maintain the correct alignment when the next cross tee is installed in the slot ensure the tabs are placed on the correct side of the slot (see point 7.1.11).

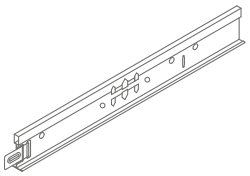
7.1.10 Profiles for exposed systems S 15 cliq and S 15a cliq

The Main tees are produced with slots at predetermined centres for click-on of the off-set cross tees.



Main tee (exposed width 9/16“)

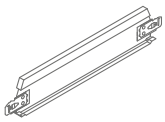
cliq-15-MR



for module 24“

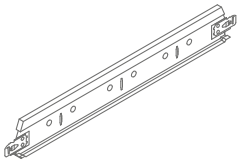
Cross tee profiles S 15 cliq and S 15a cliq (exposed width 9/16“)

cliq-15-CT short



module size 24“ – height 1 1/2“

cliq-15-CT long



module size 48“ – height 1 1/2“

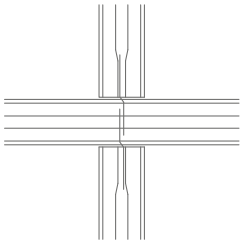
The cross tees form an integral part of the suspension system and interconnect with both the main tees and other cross tees to form the desired module. They are supplied with connecting tabs either end which hook into the main tee/cross tee slot. To maintain the correct alignment when the next cross tee is installed in the slot ensure the tabs are placed on the correct side of the slot (see point 7.1.11).

7.1.11 Intersection carrier profiles – cross tee

Cross tees are supplied with connecting tabs either end which hook or lock into the main tee/cross tee slot. To maintain the correct alignment when the next cross tee is installed in the slot ensure the tabs are placed on the correct side of the slot.

The ends of the Main tee profiles are provided with a splice connection slot and splice plate. The splice plate is inserted into the splice connection slot and pushed together until it locks.

Example:



7.1.12 Installation example for module size 24“ x 24“

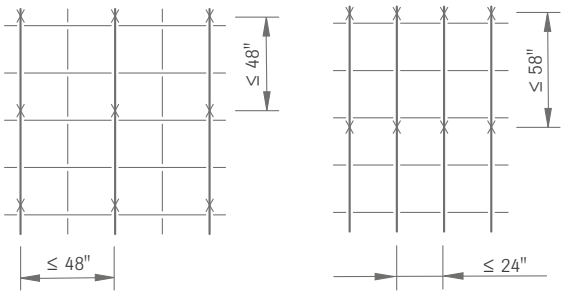
The cost-effective construction shown in Example 1 should not be used where the ceiling is providing any form of structural fire resistance. Where fire resistance is required the ceiling should be installed in accordance with the relevant test report.

This is particularly important where the ceiling includes integrated fittings (also see 5.4).

Hanger distribution:

example 1 approx. 0.1 pc./sqft
example 2 approx. 0.07 pc./sqft

Example 1: Example 2:



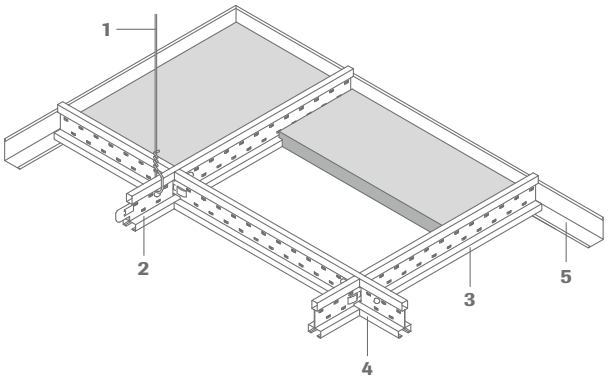
Carrier profile distance 24“Carrier profile distance 48“

7.2 OWAcoustic premium – OWAconstruct system S 15b OWAline, exposed, demountable

Special features:
System S 15b is a high-grade exposed grid system. Essentially, its construction is comparable with that of the systems described under point 7.1. See point 7.2.7 for perimeter detail options.

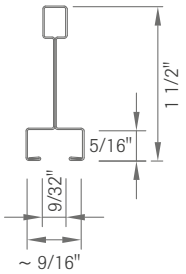
Further information such as dimensions, installation examples, general specification and material requirement per m² can be found in OWAconstruct system leaflet S 15b OWAline.

Fig. S 15b OWAline



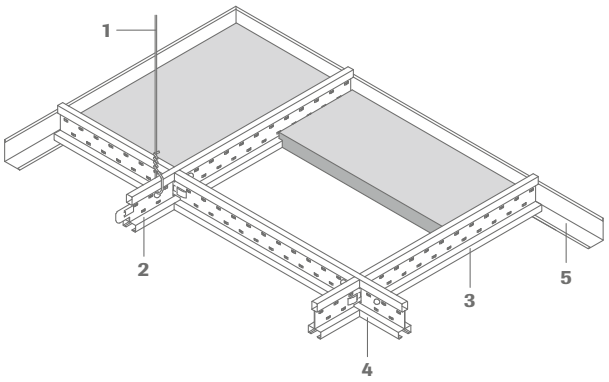
1 Wire suspension
2 Main tee no. 3500-3660, slotted every 24“
3 Cross tee no. 3512-610
4 Cross tee no. 3514-1220
5 Wall trim no. 50G

Profile dimensions: no. 3500, 3512 and 3514



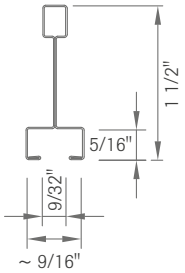
For other information, see OWAconstruct system leaflet S 15b OWAline.

Fig. S 15b OWAline for OWAconsult collection



1 Wire
2 Main tee no. 3500-3660, slotted every 24“
or main tee no. 3501-3660*, slotted every 48“
3 Cross tee no. 3512-610, 24“
4 Cross tee no. 3514-1220, 48“
5 Wall trim no. 50G

Profile dimensions:

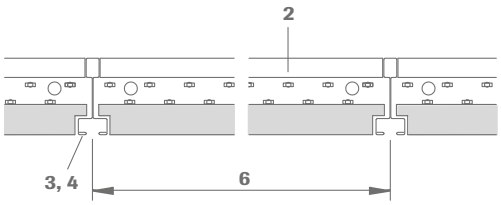


No. 3500, no. 3512, no. 3514, no. 3524

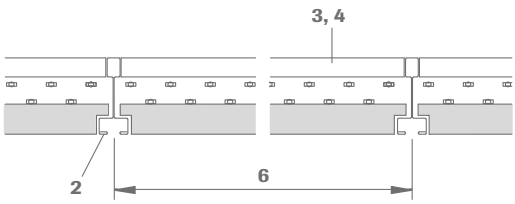
For other information see OWAconstruct system leaflet S 15b OWAline.

Edge detail OWAcoustic premium

Longitudinal section:



Cross-section:



7.2.1 Installation note

Exposed grid systems combine many of the advantages of dry construction methods. These systems are distinguished by their simple construction; high performance levels and in most cases the ability to gain access to the void without difficulty.

In contrast to conventional OWAconstruct exposed grid systems, the OWAline exposed grid system does not include any visible capping material. OWAline tees are prevented from opening by an integrated mechanical restraint on the vertical stalk of the tee. When the profiles are cut to length (e.g. at the perimeter) the two vertical layers forming the stalk of the tee must fixed together to prevent them separating. This can be done using a screw, rivet or similar mechanical fixing method.

7.2.2 Integrated service elements

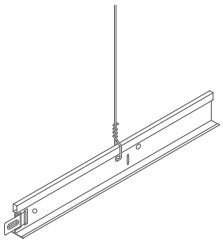
The use of OWAconstruct exposed grid suspension systems make the integration of compatible service elements much simpler. During planning and the installation of the ceiling the information shown in point 5.4 should be taken into consideration.

Details of OWAconstruct modular lights and downlighters can be found in the OWAlifetime collection price list. Because of the special profile dimensions, please ensure any integrated are compatibility with System S 15b.

7.2.3 Fixings
The type of fixings used in all cases should suit the substrate loading and system being used. See point 5.0

7.2.4 Suspension
For details of standard OWAconstruct hangers suitable for
OWAconstruct exposed grid suspension systems please see point 5.2.

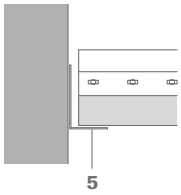
7.2.5 Hanger centres
Generally hanger centres should not exceed 49 3/16“. They should be installed between 15 3/4“ and 39 3/8“ from any perimeter depending on the ceiling function. In profile connection areas, additional hangers may be required.



Wire suspension

7.2.6 Minimum suspension height
Depending on the existing soffit the minimum practical suspension height is 3 1/8“ - 3 15/16“ with 4 3/4“ being the minimum recommended suspension height where ease of installation and removal of tiles is important.

7.2.7 Wall perimeter
The wall trim defines the lower level of a suspended ceiling. It must be installed horizontally (unless otherwise instructed) and at the correct level. Junction details such as a mitre (see point 5.3.1 and 5.3.3) or overlap should be agreed with the client/architect prior to installation. The standard wall trim no. 50G is fixed to the wall at ≤ 11 13/16“ depending on the load.



8. Application Standards

ASTM A 641	Standard specification for zinc-coated (galvanized) carbon steel wire (aka hanger wire)
ASTM A 653	Standard specification for steel sheet, zinc-coated (galvanized) or zinc-iron alloy-coated (galvannealed) by the Hot Dip Process
ASTM C 367	Test methods for strength properties of prefabricated architectural acoustical tile or lay-in ceiling panels
ASTM C 423	Standard test method for sound absorption and sound absorption coefficients by the reverberation room method
ASTM C 635	Standard specification for metal suspension systems for acoustical tile and lay-in ceilings
ASTM C 636	Standard practice for installation of metal ceiling suspension systems for acoustical tile and lay-in panel
ASTM D 2486	Standard test method for scrub resistance of painted surfaces
ASTM D 3273	Standard test method for resistance to growth of mold on the surface of interior coatings in an environmental chamber
ASTM D 4828	Standard test method for practical washability of organic coatings
ASTM E 84	Test method for surface burning characteristics of building materials (aka 25-foot tunnel test for smoke and flame spread on an individual product, not an assembly)
ASTM E 413-1c	Classification for Rating Sound Insulation
ASTM E 795	Standard practices for mounting specimens during sound absorption tests
ASTM E 1110	Standard specification for the determination of Articulation Class
ASTM E 1264	Standard for the classification of acoustical ceiling products
ASTM E 1414	Standard test method for airborne sound attenuation between rooms sharing a common ceilings plenum (previously known as ASTM E 413)
ASTM E 1477	Standard test method for luminous reflectance factor of acoustical material by use of integrating-sphere reflectometers (previously known as ASTM C 523)

This publication is for general guidance only.

The information contained within this publication is offered without prejudice and has been derived from existing standards test data and practical experience.

Because of intervals between revised publications you should ensure that the information contained within this publication is current and up to date.

This publication ceases to be valid when a new edition is issued.

Should you have any questions, our OWAconsult experts will be pleased to be of assistance:

tel. +49 9373 201-444
www.owaconsult.com
info@owaconsult.de

OWA USA Corp.
131 Ridge Road, Unit 1N | Munster, IN 46321
(800) 487-4308 | usa@owa-ceilings.com
www.owa-ceilings.com

Brochure **9801 us**
032200