

mineral  
metal  
wood  
suspension systems

# Overview brochure Armstrong main solutions



**Armstrong**

# The Armstrong range

## Mineral

Armstrong has a wide range of **mineral** (wet felt) and **soft** fibre (fibreglass or rock wool) ceiling tiles.

Specifiers have a large range of choices from **smooth textures** to more traditional **fissured** patterns, combining various edge details, sizes, colours, designs or performance solutions.

Throughout this catalogue, the **Armstrong range is presented by type of surface** amongst which you can find standard (basic performance), design (geometric patterns, colours) and performance solutions (acoustics, hygiene, durability etc).

The **Prima** category continues to offer enhanced acoustic performance, high humidity resistance (95% RH), excellent impact resistance, durability and fire performance. All this plus a 10 year guarantee against sag!

The whole Armstrong range is formulated and tested to achieve (and maintain) market **fire reaction** performance requirements. In addition, many of the tiles when combined with Armstrong grid systems can provide structural fire protection solutions.

This wide range will help satisfy your creative needs and further additions to the range will enhance and extend your choice of ceiling designs for the future.

## Basic

Armstrong **Cortega** and **Tatra** textures feature a fissured surface for sound absorption and are suitable for use in conditions of up to 70% relative humidity. They are available in Board and Tegular edge detail for installation on 24 mm exposed grid.

## Metal

Made from galvanised steel with polyester powder paint finish, metal ceilings are made to last. Their high performance specifications include excellent durability and unequalled acoustical properties. The satin appearance of metal ceilings gives an attractively modern, functional look.

## Wood

Wood will enable you to create the warmest original interiors for a comfortable and peaceful environment. Whether plain or perforated, paper laminate or wood veneer, you can select the precise texture and colour best suited to your project.

## Suspension systems

Armstrong offers coordinated ceiling systems with support grids that fully integrate with the ceiling tiles you choose. All systems are designed to meet performance needs, durability and aesthetics. Specifying Armstrong's Trulok Peakform suspension systems will ensure the highest quality of finished ceiling. In addition, Peakform grids provide a strong, easy and secure solution.



Ultima/Optima Vector



Madera MicroLook Perf. A1 with Silhouette BI



Orcal Axal

## Custom Solutions



Metal Ceilings by **Armstrong**

With Gema, Armstrong brings the best custom solutions available in metal. Gema is specialised in the design and production of sophisticated products combining tradition with innovation, safety and functionality. Managed by a team totally dedicated to delivering the best level of service to the specifiers, a number of decentralised manufacturing production sites offer optimised fabrication capacities and flexibility, thus providing a high level of quality products and customised solutions. For more information, please call your Armstrong representative.

## i ceilings



**i-ceilings Sound Panels** are speakers but look like the rest of the ceiling: so the speakers are invisible in the ceiling plane.

For background/foreground music and public address applications, i-ceilings Sound Systems deliver quality sound and broader coverage with fewer speakers. For active acoustics applications, when specific levels of speech privacy are required, i-ceilings cover distracting noise, creating more effective workspaces.



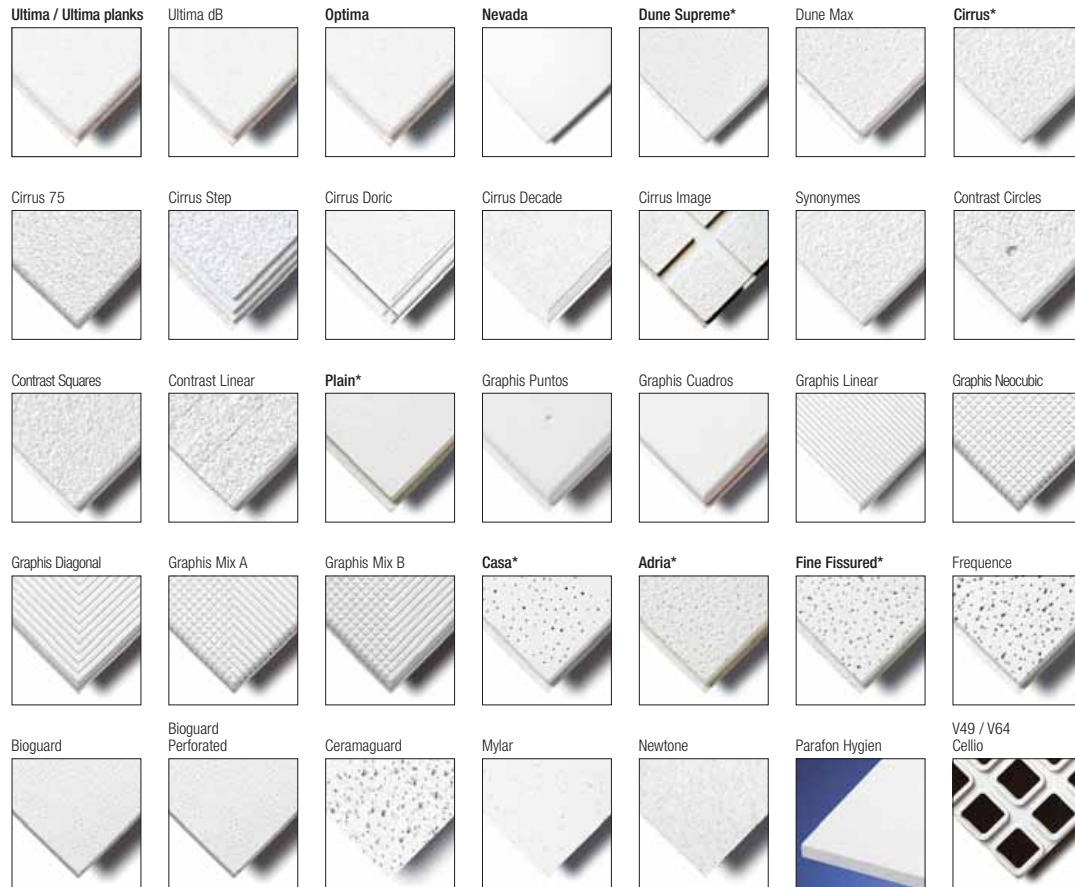
**i-ceilings Antenna Panels** are standard ceiling tiles in which antennas are

embedded. They provide wireless connectivity for both voice and data, enhancing employee mobility and workplace effectiveness, while sustaining the aesthetics of the ceiling plane. For further information :

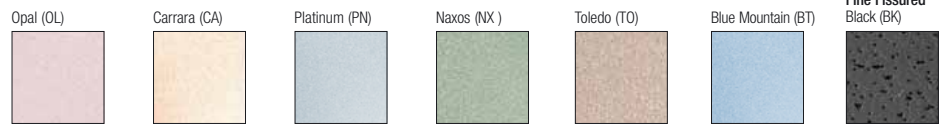
[www.armstrong-ceilings.co.uk](http://www.armstrong-ceilings.co.uk)

# The Armstrong range

## mineral



### Colortone



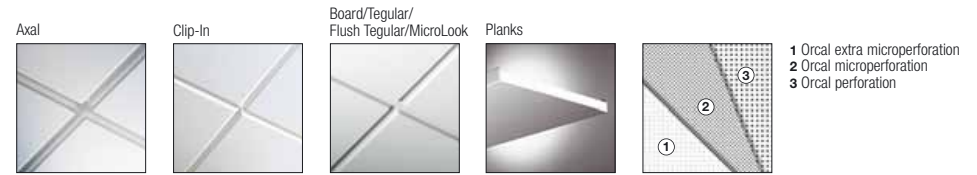
### Nevada Colours



\* Prima

## metal

## ORCAL



## wood

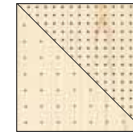
## MADERA

### Laminates

### Wood Veneers

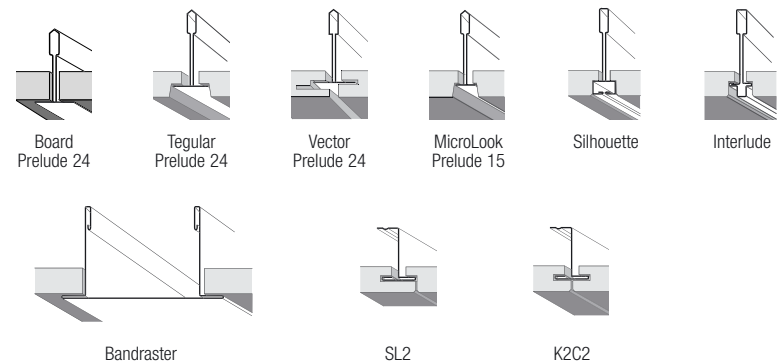


### Perforations



## grids

## TRULOK



# Product selector by suspension system

The illustrations opposite represent the suspension systems and product families of the Armstrong ceiling range presented in this brochure. These suspension systems and product families are also shown in chart form together with associated tile edges. For further information on Armstrong suspension systems, please consult our Internal Technical Sales.

	Ultima / Ultima dB	Optima	Nevada (4)	Dune Supreme (1)	Dune Max	Cirrus (1)	Plain (1)	Casa (1)	Adria (1)	Fine Fisured (1)	Academy	Merit & Diploma	Corona	Bioguard	Nylar	Newstone	Parafon Hygien	Orcal Planks	Madera
<b>24 MM EXPOSED GRID SYSTEMS</b>																			
<b>Board</b>																			
300/312.5 x 1500																			
300 x 1720		●																	
300 x 1800		●	●																
312.5 x 1800			●																
300/312.5 x 2500			●																
600 x 600	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
600 x 1200	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
600 x 1800	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
625 x 625	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
625 x 1250	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
675 x 675										●									
1200 x 1200	●	●																	
Variable lengths																			●5
<b>SEMI-CONCEALED GRID SYSTEMS</b>																			
<b>Tegular</b>																			
600 x 600	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
600 x 1200	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
600 x 1800	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
625 x 625	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
625 x 1250	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
675 x 675	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
1200 x 1200	●	●																	
Variable lengths																			●5
<b>Flush Tegular</b>																			
600 x 600 / 625 x 625																			●
<b>SL2</b>																			
300 x 1500/1800/2500	●	●																	
312.5 x 1500/1800/2500	●	●																	
600 x 600																			●
<b>K2C2</b>																			
300 x 1500/1800/2500	●	●																	
312.5 x 1500/1800/2500	●	●																	

(1) Prima (2) Visual V49 only (3) Ultima only (4) Neeva Board 25 mm can be produced in panel sizes up to 2500 mm

	Ultima / Ultima dB	Optima	Nevada (4)	Dune Supreme (1)	Dune Max	Cirrus (1)	Synonymies	Contrast	Plain (1)	Graphis	Casa (1)	Adria (1)	Fine Fisured (1)	Academy	Merit & Diploma	Visual V49-V64	Bioguard	Orcal Planks	Madera	
<b>24 MM EXPOSED GRID SYSTEMS</b>																				
<b>Vector</b>																				
600 x 600		●																		●6
625 x 625		●																		
<b>15 MM EXPOSED GRID SYSTEMS</b>																				
<b>MicroLook</b>																				
300 x 1200	●																			
600 x 600	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
600 x 1200	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
600 x 1800	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
625 x 625	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
625 x 1250	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
1200 x 1200	●	●																		
<b>MicroLook BE</b>																				
600 x 600	●																			
625 x 625	●																			
<b>Flush MicroLook</b>																				
600 x 600																				●
<b>CONCEALED GRID SYSTEMS</b>																				
<b>Clip-In</b>																				
600 x 600 / 625 x 625																				●7

(5) for more details please refer p.33 (6) Axial (7) To see all dimensions, see p.31 ● Colours available

## TRULOK



Tegular Prelude 24



MicroLook Prelude 15



Silhouette 6 mm



Silhouette 3 mm



Interlude

# How to use the brochure?

## Icon list

	<b>Fire performance</b> All Armstrong ceilings (except Madera which is Class 1) provide Class 0/Class1 against BS 476		<b>Scratch resistance</b> Superior level of surface scratch resistance, evaluated with the Hess Rake test		<b>Impact resistance</b> High level of impact resistance, evaluated with the Preston impact test		<b>Demountability</b> Ceiling system where the access to the plenum is very easy							
	<b>Durability</b> Overall ability to withstand cleaning, scrubbing, scratching and impact		<b>Colours</b> Available as coloured product		<b>Weight</b> Average weight kg per 1m <sup>2</sup>		<b>Washability</b> Occasional cleaning with moist cloth or sponge dampened in water containing mild soap or diluted detergent							
	<b>Hygiene</b> Suitable for areas, which have hygiene as a key requirement (food, health, pharmaceutical, computer industries)		<b>Antimicrobial</b> Offers specific performance against bacteria, mould and mildew		<b>High pressure water cleaning</b> Can be cleaned using a high pressure water spray		<b>Scrubability</b> For applications where cleanliness is a priority, tiles may require cleaning beyond normal maintenance procedures.							
	<b>Grid system</b> Recommended Trulok suspension system		<b>Dimension</b> Length and width expressed in mm		<b>Edge detail</b> Board, Tegular, MicroLook (BE), Vector, SL2, K2C2		<b>Thermal conductivity</b> Ability of the material to resist heat transmission							
	$\alpha_w$ <0.45		$0.45 \leq \alpha_w < 0.65$		$\geq 0.65$		<30 dB		$30 \geq \text{dB} < 35$		$\geq 35 \text{ dB}$			
	<75%		$75 \leq \% < 85$		$\geq 85\%$		70%		90%		95%		100%	<b>Humidity resistance</b> Ceiling tiles ability to perform without sagging

## Application areas

				
Office	Hygiene	Education	Retail and leisure	Transport

## Index

<b>Mineral</b>	
Academy Merit /	24
Academy Diploma	24
Adria / Casa	22
Bioguard / Mylar / Parafoin Hygien	26
Ceramaguard / Newton	27
Cirrus / Cirrus 75	17
Contrast / Cirrus Image	18
Dune Supreme / Dune Max	16
Fine Fissured / Frequence	23
Graphis	21
Nevada	15
Optima	14
Plain	20
Synonymes	19
Tatra / Cortega	25
Ultima	12
Ultima dB	13
Visual / Cellio	28
<b>Metal</b>	
Axal	30
Board, Tegular, Flush Tegular,	30
MicroLook	32
Clip-In	31
Orcal Metal Ceilings	29
Planks	33
<b>Wood</b>	
Madera	34
Madera SL2 / MicroLook	35
<b>Suspension systems</b>	
Bandraster system / T35 /	39
Prelude Sixty	39
Interlude XL / Silhouette XL	38
Prelude XL/TL 24* & 15*	37
Trulok suspension systems	36

\* Peakform

## Summary

### Information to choose a ceiling

2-3	The Armstrong range
4	Product Selector
	by suspension system
5	How to use the brochure
6	Making the right choice
6-7	Product Selector
	by performance
8-9	Product Selector by
	application areas / segments
10	Acoustics
11	Hygiene

### Product information

12-28	Mineral
29-33	Orcal
34-35	Madera
36-39	Trulok

### Technical information

40	Plank installation
41	Service integration
42	Perimeter finishes
43	Guide specifications
44-47	Installation and maintenance
45-46	Glossary

### This brochure includes all Armstrong standard and semi-standard products:

- The **Mineral** range (wet felt and soft fibre), made of biosoluble wool
- The **Orcal** range, made of metal
- The **Madera** range, made of wood
- The **Trulok** range, including **Peakform**, all suspension system solutions available

### To assist you in locating the most suited products to your specific needs, the content of this brochure is listed in different ways:

- **By product performance** (p.7): this section will help you to identify the ceiling you need, according to the performance required (acoustics, fire, light reflectance, washability, impact resistance, or hygiene).
- **By suspension system** (p.4): this information is given in chart form. The chart helps identify the appropriate suspension grid system to the ceiling tile edge detail.
- **By application** (p.8-9): depending on the selection criteria of specific areas of usage, you will find a list of Armstrong product recommendations.
- **By products listed in alphabetical order** (p.5): a quick means of finding a product for those already familiar with the Armstrong range.

# Making the right choice

All sorts of criteria need to be considered.

**Functional** – what type of building is involved? How will it be used?

**Technical** – what specific performance is required?

**And aesthetic** – how can the right effect be achieved?



## Design

Suspended ceilings also cover cracks, stains and damage on old drylined ceilings. They are easier, faster and less costly to install, remove and clean. They offer better lighting possibilities. Ceilings play a crucial role in optimising light reflection and saving on energy. Finally, they absorb and reduce noise.

## Acoustics

Noise reduction improves comfort and work productivity. Armstrong acoustical ceilings reduce noise levels in interior spaces, using high performance sound absorption materials and improve room to room sound attenuation; both measured according to detailed criteria (see page 10).

## Access to the plenum

Suspended ceilings hide and provide access to pipes and electrical fixtures. That means access to services such as telephone, ventilation, heating, air-conditioning, smoke detection and sprinkler systems.

## Durable edges on Prima Tegular and MicroLook, and on Ultima

Because the Prima **Tegular** and **MicroLook** edged products are up to 30% harder, the product “feels” better in the hand. This gives installers more confidence

in the product. It also makes the product less prone to in-service damage caused by plenum entry by various maintenance functions. The cleanliness of the edge detail also provides an improved visual appearance. This durable edge treatment is also applied to **Ultima**.

## Other requirements

It is vitally important to identify your needs accurately. Are you looking for durability? Washability? Or perhaps acoustics and demountability are more important to you. Armstrong has identified criteria to help you decide on your priorities. Your choice will naturally depend on your budget and design preference, but also on factors such as resistance to humidity and fire, thermal insulation, light reflectance and the ease with which the ceiling can be cleaned and maintained. Armstrong’s range of ceiling materials, mineral fibre, soft fibre, metal, and wood, will allow you to make the ideal choice.

# Product Selector by performance

Armstrong has developed various products to meet specific needs in demanding situations, whether acoustics, humidity resistance, hygiene, impact resistance or fire. In addition Armstrong gives a 10 year guarantee against sag with their Prima and 95% RH products.



## Acoustics

Suspended ceilings were originally developed to offer acoustic control. Since then the acoustic performance of ceilings has been further improved and Armstrong is always looking for new ways of enhancing the sound absorption and sound attenuation of its products.



## Fire

All Armstrong ceilings provide Class 0/Class 1 against BS 476 (except Madera which is Class 1), some of them may also provide additional fire resistance in order to meet the time rating required by building regulations.



## Impact resistance

Ceilings sometimes suffer rough usage in corridor areas, where equipment is generally located resulting in frequent tile removal. The level of impact resistance and durability has therefore received special consideration by Armstrong.



## 10 year guarantee

Armstrong World Industries Ltd guarantees the Armstrong PRIMA and 95% RH products shall be free from sag\* as a direct result of defects in materials or workmanship for 10 years from the date of installation of the material (for further information, please contact ITS).

\* N.B. Maximum sag as defined in the appropriate Code of Practice in the country of installation or where no such code exists, the British Code of Practice BS 8290 1991.



## Humidity resistance

Ceiling installations are facing more and more demanding humidity conditions such as: fast track programmes, buildings with intermittent heating and cooling, areas with a high concentration of people, structures which are open to the exterior environment, etc... To meet these requirements Armstrong now offers a wide range of products suitable for installation in conditions of up to 95% Relative Humidity, some of which excel in extreme conditions of up to 100% RH.



## Hygiene

Today’s stringent health and safety requirements demand ceilings which conform to the regulations governing the food and health industries. Additionally, the electronics, fibreoptics, pharmaceutical and computer industries have requirements for environmentally-controlled installations or may require Class 100 clean room conditions. Armstrong hygiene solutions are tailored to meet these conditions.



## Light Reflectance

Light reflectance of a surface is its property of reflecting light. The measure of light reflectance is that fraction of the specified incident light which is reflected by the surface expressed as a percentage value.



## Washability/Occasional Cleaning

Ceiling tiles can be cleaned with a moist cloth or sponge dampened in water containing mild soap or diluted detergent.

# Product Selector by performance

Products mineral	Acoustic performance see p.10			Fire reaction	Light reflectance (>)	Humidity resistance	Washability	Impact resistance	Page
	$\alpha_w$	NRC	Dncw						
Ultima	<b>0.65(H)</b>	0.70	<b>37 dB</b>	Class 0/Class 1 (BS 476) <b>+</b>	88%	95% RH	yes	yes	12
Ultima Vector	<b>0.70(H)</b>	0.75	<b>37 dB</b>	Class 0/Class 1 (BS 476) <b>+</b>	88%	95% RH	yes	yes	12
Ultima SL2/K2C2 <b>+</b>	<b>0.65(H)</b>	0.65	<b>39 dB</b>	Class 0/Class 1 (BS 476)	88%	95% RH	yes	yes	12
Ultima dB	0.50(H)	0.50	38 dB	Class 0/Class 1 (BS 476) <b>+</b>	88%	95% RH	yes	yes	13
Ultima dB K2C2/SL2 <b>+</b>	<b>0.50</b>	0.45	<b>44 dB</b>	Class 0/Class 1 (BS 476)	88%	95% RH	yes	yes	13
Optima (15 mm)	0.90	0.90		Class 0/Class 1 (BS 476)	85%	95% RH			14
Optima (20 mm)	0.95	0.95		Class 0/Class 1 (BS 476)	85%	95% RH			14
Optima (25 mm)	1.00	1.00		Class 0/Class 1 (BS 476)	85%	95% RH			14
Optima Vector	1.00	0.95		Class 0/Class 1 (BS 476)	85%	95% RH			14
Nevada (18/20/25mm)	1.00	0.95		Class 0/Class 1 (BS 476)	83%	95% RH			15
Dune Supreme*	0.55	0.50	35 dB	Class 0/Class 1 (BS 476) <b>**</b>	83%	95% RH			16
Dune Max	0.65	0.65	35 dB	Class 0/Class 1 (BS 476) <b>**</b>	83%	95% RH			16
Cirrus*	0.55(H)	0.50	36 dB	Class 0/Class 1 (BS 476) <b>+</b>	83%	95% RH			17
Cirrus 75	0.70(H)	0.75	38 dB	Class 0/Class 1 (BS 476)	83%	95% RH			17
Cirrus Image	0.55(H)	0.55	36 dB	Class 0/Class 1 (BS 476) <b>+</b>	70%	70% RH			18
Contrast Circles, Squares, Linear	0.55	0.50	36 dB	Class 0/Class 1 (BS 476)	83%	95% RH			18
Synonyms Ribbon, Melody	0.55(H)	0.50	36 dB	Class 0/Class 1 (BS 476)	83%	70% RH			19
Plain*	0.15(L)	0.15	37 dB	Class 0/Class 1 (BS 476) <b>+</b>	90%	95% RH			20
Graphis Puntos, Cuadros	0.15(L)	0.15	36 dB	Class 0/Class 1 (BS 476)	90%	70% RH			21
Graphis Linear, Neocubic, Diagonal, Mix A, Mix B	0.15(L)	0.15	36 dB	Class 0/Class 1 (BS 476)	90%	70% RH			21
Casa*	0.60	0.55	35 dB	Class 0/Class 1 (BS 476) <b>+</b>	83%	95% RH			22
Adria*	0.60	0.55	34 dB	Class 0/Class 1 (BS 476) <b>+</b>	83%	95% RH			22

Products mineral	Acoustic performance see p.10			Fire reaction	Light reflectance (>)	Humidity resistance	Washability	Impact resistance	Page
	$\alpha_w$	NRC	Dncw						
Fine Fissured*	0.60(H)	0.55	34 dB	Class 0/Class 1 (BS 476) <b>+</b>	83%	95% RH			23
Fine Fissured SL2/K2C2* <b>+</b>	0.60	0.55	40 dB	Class 0/Class 1 (BS 476) <b>+</b>	83%	95% RH			23
Frequence	0.70(H)	0.70	35 dB	Class 0/Class 1 (BS 476) <b>+</b>	83%	95% RH			23
Academy Merit / Diploma	0.55	0.50	32 dB	please contact ITS	83%	95% RH			24
Tatra	0.55(H)	0.55	34 dB	Class 0/Class 1 (BS 476)	80%	70% RH			25
Cortega	0.55(H)	0.55	34 dB	Class 0/Class 1 (BS 476)	80%	70% RH			25
Bioguard	0.15(L)	0.15	37 dB	Class 0/Class 1 (BS 476)	90%	95% RH	yes		26
Bioguard Perforated	0.65	0.60	34 dB	Class 0/Class 1 (BS 476)	83%	95% RH	yes		26
Mylar	0.10(L)	0.10	36 dB	Class 0/Class 1 (BS 476) <b>+</b>	80%	95% RH	yes		26
Parafon Hygien	0.95	0.95		Class 0/Class 1 (BS 476)	84%	95% RH	yes		26
Ceramaguard Fine Fissured	0.55(MH)	0.60	39 dB	non combustible <b>+</b>	84%	100% RH	yes		27
Newtone	0.10(L)	0.10	37 dB	Class 0/Class 1 (BS 476)	85%	100% RH	yes	yes	27
Visual V49/V64	0.95 <b>▲</b>	0.95/0.90 <b>▲</b>		Class 0/Class 1 (BS 476)		70% RH			28

## metal

Orcal Axal /Microperforated	0.75 <b>●</b>	0.80	20 dB <b>●</b>	Class 0/Class 1 (BS 476)	71%	90% RH	yes <sup>‡</sup>		30
Orcal Clip-In/Microperforated	0.75 <b>●</b>	0.80	20 dB <b>●</b>	Class 0/Class 1 (BS 476) <b>+</b>	71%	90% RH	yes <sup>‡</sup>		31
Orcal MicroLook/Microperforated	0.75 <b>●</b>	0.80	20 dB <b>●</b>	Class 0/Class 1 (BS 476)	71%	90% RH	yes <sup>‡</sup>		32
Orcal Tegalur/Microperforated	0.75 <b>●</b>	0.80	20 dB <b>●</b>	Class 0/Class 1 (BS 476) <b>+</b>	71%	90% RH	yes <sup>‡</sup>		32
Orcal Planks /Microperforated	0.75 <b>●</b>	0.80	20 dB <b>●</b>	Class 0/Class 1 (BS 476)	71%	90% RH	yes <sup>‡</sup>		33

## wood

Madera	0.15(L)	0.15	42 dB	Class 1 (BS 476)		70% RH			35
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**▲** Performance achieved with 20 mm wool overlay

**+** Fire resistance test available for some products in that range (please contact ITS)

**\*\*** For further information, please contact your Armstrong Internal Technical Sales

**●** With acoustic fleece

**\*** Prima

**▲** Orcal Bioguard (see p.29)

**◆** SL2/K2C2 : Semi-concealed see p.4

# Application areas

Choosing a ceiling for a given space means considering several criteria, in order to define the best solution. Acoustics, fire protection, hygiene, demountability and humidity resistance are some of the issues that need to be considered in the design stage. The following pages will give you a summary of all important criteria to consider for the main applications.



## Office



## Healthcare



## Education

	AREAS	CRITERIA	RECOMMENDED PRODUCTS
	RECEPTION AREAS, SHOWROOMS	Design Acoustics Integration of services	ULTIMA CIRRUS 75 GRAPHIS ORCAL (AXAL, CLIP-IN...) MADERA
	CIRCULATION AND TRAFFIC AREAS, CORRIDORS	Acoustics Integration of services Demountability Durability	ULTIMA (dB) PLANKS (PRIMA / ULTIMA / ORCAL) ORCAL CLIP-IN ORCAL AXAL EXTRA MICROPERFORATED
	CONFERENCE ROOMS	Acoustics Design Light reflectance	ULTIMA OPTIMA / NEVADA DUNE MAX CIRRUS 75 ORCAL AXAL SYNONYMS
	PRESTIGE OFFICES	Design Acoustics Integration of services	ULTIMA ULTIMA dB OPTIMA (VECTOR) ORCAL MICROPERFORATION CIRRUS 75 MADERA
	OPEN SPACES, CALL CENTRES	Acoustics Integration of services Light reflectance	OPTIMA NEVADA ULTIMA CIRRUS 75 ORCAL PERFORATED
	PARTITIONED OFFICES	Acoustics Integration of services Preservation of the building framework	ULTIMA / ULTIMA dB OPTIMA NEVADA DUNE MAX PRIMA PLANKS (PRIMA / ULTIMA) ORCAL
	COMPUTER ROOMS	Acoustics Integration of services Demountability Clean rooms	ULTIMA ORCAL MYLAR BIOGUARD NEWTONE
	CANTEENS	Acoustics Design Hygiene	ULTIMA OPTIMA BIOGUARD DUNE MAX CIRRUS 75 COLORTONE ORCAL PERFORATED

	AREAS	CRITERIA	RECOMMENDED PRODUCTS
	CANOPIES, TERRACE-ROOFING	Durability Moisture resistance	CERAMAGUARD ORCAL CLIP-IN PLAIN ORCAL AXAL
	RECEPTION AREAS, SHOPS	Aesthetics Acoustics	COLORTONE VISUAL CONTRAST MADERA ULTIMA / OPTIMA ORCAL AXAL
	CIRCULATION AND TRAFFIC AREAS	Demountability Durability Impact resistance Integrating services	PRIMA PLANKS ORCAL PLANKS ORCAL CLIP-IN ORCAL AXAL
	INDIVIDUAL OFFICES	Acoustics Aesthetics Light reflectance	PRIMA ULTIMA ULTIMA dB
	WARDS CONSULTING ROOMS	Hygiene Acoustics Aesthetics Light reflectance	BIOGUARD ULTIMA dB ORCAL PLAIN
	TREATMENT ROOMS	Hygiene Washability Moisture resistance	BIOGUARD MYLAR CERAMAGUARD ORCAL PLAIN ORCAL BIOGUARD
	LABORATORIES, KITCHENS	Hygiene Washability Moisture resistance	PARAFON HYGIEN ORCAL CLIP-IN PLAIN ORCAL BIOGUARD
	TOILETS, CLOAKROOMS, HUMID AREAS	Hygiene Washability Moisture resistance	PRIMA NEVADA CERAMAGUARD
	CONFERENCE ROOMS, WAITING ROOMS, MEETING ROOMS, LIBRARIES	Acoustics Demountability Aesthetics Integrating services	DUNE MAX ULTIMA / OPTIMA CIRRUS 75 FREQUENCE ORCAL PERFORATED
	SWIMMING POOLS	Acoustics Moisture resistance	CERAMAGUARD NEVADA

	AREAS	CRITERIA	RECOMMENDED PRODUCTS
	CANOPIES, TERRACE-ROOFING	Durability Moisture resistance	CERAMAGUARD ORCAL CLIP-IN PLAIN
	RECEPTION AREAS	Aesthetics Acoustics	COLORTONE OPTIMA / ULTIMA VISUAL CONTRAST MADERA ORCAL AXAL
	CIRCULATION AND TRAFFIC AREAS	Demountability Integrating services Durability Acoustics Impact resistance	PRIMA PLANKS ULTIMA PLANKS ORCAL PLANKS ORCAL CLIP-IN PLAIN AXAL
	CLASSROOMS	Acoustics Light reflectance Durability Aesthetics Demountability Moisture resistance (temperature variations)	DUNE MAX FREQUENCE NEVADA COLORTONE PRIMA PLANKS PRIMA DUNE SUPREME
	AUDITORIUMS, AMPHITHEATRES, LIBRARIES, LANGUAGE ROOMS	Acoustics Aesthetics Demountability Integrating services	OPTIMA / ULTIMA DUNE MAX FREQUENCE NEVADA COLORTONE
	RESTAURANTS, CAFETERIAS, CANTEENS	Acoustics Aesthetics Hygiene	OPTIMA / ULTIMA DUNE MAX VISUAL ORCAL COLORTONE
	KITCHENS	Washability Hygiene Moisture resistance	PARAFON HYGIEN ORCAL CLIP-IN PLAIN ORCAL BIOGUARD
	COMPUTER ROOMS, LABORATORIES	Hygiene Clean rooms Washability Integrating services	BIOGUARD MYLAR ORCAL PLAIN ORCAL BIOGUARD
	TOILETS, CLOAKROOMS HUMID AREAS	Washability Hygiene Moisture resistance	PRIMA PLANKS CERAMAGUARD
	SWIMMING POOLS	Moisture resistance Acoustics	CERAMAGUARD NEVADA
	GYMNASIUMS	Durability Acoustics Impact resistance	ORCAL AXAL











# Transport

















# Leisure



# Retail

AREAS	CRITERIA	RECOMMENDED PRODUCTS
 <b>ULTIMA/OPTIMA</b>	<b>RECEPTION AREAS, LOUNGES, SHOPS</b>	Design Demountability Acoustics
	<b>BUSINESS CENTRES, WAITING ROOMS, MEETING &amp; CONFERENCE ROOMS</b>	Design Acoustics Demountability Integration of services
 <b>ORCAL AXAL</b>	<b>CIRCULATION AND TRAFFIC AREAS</b>	Washability Demountability Design Acoustics
	<b>INDIVIDUAL OFFICES</b>	Acoustics Integration of services Demountability Durability
 <b>CONTRAST</b>	<b>RESTAURANT, CAFETERIAS, BARS</b>	Acoustics Design Hygiene Washability (Kitchens)
	<b>COMPUTER ROOMS, TECHNICAL AREAS</b>	Integration of services Demountability Clean rooms Acoustics
 <b>VISUAL</b>	<b>TOILETS, CLOAKROOMS, HUMID AREAS</b>	Humidity resistance Washability
	<b>CANOPIES, TERRACE-ROOFING, EXTERIOR APPLICATIONS, WAREHOUSE</b>	Resistance to temperature variations Durability

AREAS	CRITERIA	RECOMMENDED PRODUCTS
 <b>ULTIMA/OPTIMA</b>	<b>RECEPTION AREAS, SHOWROOMS</b>	Design Acoustics
	<b>RESTAURANT CAFETERIAS</b>	Acoustics Design Integration of services Demountability
 <b>GRAPHIS PUNTOS</b>	<b>FAST FOOD</b>	Acoustics Resistance to temperature variation Washability
	<b>CIRCULATION AND TRAFFIC AREAS</b>	Demountability Durability Acoustics
 <b>ORCAL AXAL</b>	<b>CONCERT HALL, THEATRES, CINEMAS, AUDITORIUM</b>	Design Acoustics
	<b>SPORT ROOMS, TOILETS, CLOAKROOMS, HUMID AREAS</b>	Humidity resistance Washability
 <b>VISUAL</b>	<b>SWIMMING POOLS, SKATING RINKS</b>	Humidity resistance Washability

AREAS	CRITERIA	RECOMMENDED PRODUCTS
 <b>ULTIMA/OPTIMA</b>	<b>TERRACE-ROOFING, EXTERIOR WAREHOUSE</b>	Resistance to temperature and humidity variation Durability
	<b>WALKWAYS, SHOPPING MALL</b>	Design Integration of services
	<b>SERVICE STATION EXTERIOR</b>	Humidity resistance
 <b>GRAPHIS</b>	<b>INTERIOR</b>	Resistance to temperature variations
	<b>SHOWROOMS</b>	Design Integration of lighting and sign posting Acoustics Durability
 <b>MADERA</b>	<b>SUPERMARKETS, DEPARTMENT STORES, INTERIOR</b>	Demountability Integration of services Design Sign posting Budget
	<b>ENTRY AREA</b>	Resistance to temperature variations Acoustics
	<b>FOOD DEPARTMENTS</b>	Humidity resistance Washability
	<b>HAIRDRESSING SALON</b>	Cleanability Acoustics
	<b>LUXURY BOUTIQUE</b>	Design Integration of spotlights
	<b>FASHION</b>	Design Lighting Integration of services
	<b>BANK</b>	Acoustics Design
	<b>GARDEN CENTRE</b>	Resistance to temperature variation Integration of lighting and sign posting
	<b>DRY CLEANING, SHOWER AREAS, BATHROOMS</b>	Humidity resistance

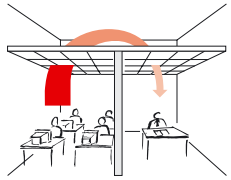


# How to choose an acoustical ceiling?

Noise can be a disruptive factor when it is not properly controlled (i. e. noise from other rooms, unacceptable reverberation, etc.).

To avoid such irritations, it is essential that architectural specifications incorporate the correct acoustic options.

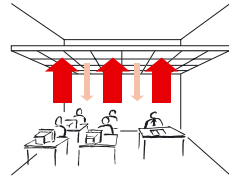
Acoustics embrace two important issues: the room to room sound attenuation which is measured in decibels (Dnc) and the sound absorption performance of materials, which is measured as sound absorption coefficient ( $\alpha_w$  0.0 to 1.0).



## Sound attenuation

Armstrong can provide tables showing the room to room attenuation performance of Armstrong ceiling tiles. These figures provide guidance for the many differing ceiling products that constitute the total range.

Actual performance will, of course, depend on the relationship of the ceiling to other construction elements and their particular performance characteristics. Professional and skilful assessment is therefore necessary when room to room attenuation is required to meet specific criteria.



## Sound absorption

Depending on the use or function of a room it may be necessary to calculate the noise reduction or reverberation time\* required to meet specific requirements.

To enable these assessments to be made, sound absorption coefficients are provided for all Armstrong ceiling tiles. It is worth noting that the increasing use of soft furnishings and carpeting in offices may require ceilings with only moderate sound absorption characteristics if a “lifeless” environment is to be avoided. Sound absorption coefficients are generally expressed in octave band frequencies from 125 to 4000 Hrc together with the Noise Reduction Coefficient (NRC) which is the average of the absorption at 250, 500, 1000 and 2000 Hz (third octave band values) rounded to the nearest 0.05.

For areas where the installation of a highly absorbent ceiling is recommended, Armstrong provides a variety of solutions such as Dune Max, Ultima (smooth), Frequence (finely fissured), Cirrus 75 (textured) face patterns, Nevada and Optima.

\* Reverberation time = the time taken for a sound to decay by 60 dB.

Sound absorption and sound attenuation values on mineral fibre range

Product name	$\alpha_w$	NRC	125	250	500	1000	2000	4000	Dncw	Page
Optima (Board 25 mm)	1.00	1.00	0.50	0.85	1.00	0.95	1.00	1.00		14
Nevada (Board 25 mm)	1.00	0.95	0.40	0.85	1.00	0.95	1.00	1.00		15
Nevada (Board 18 mm)	1.00	0.95	0.40	0.85	1.00	0.90	1.00	0.95		15
Visual V49 (20 mm wool overlay)	0.95	0.95	0.43	0.83	0.85	0.98	1.06	1.01		28
Visual V64 (20 mm wool overlay)	0.95	0.90	0.42	0.72	0.90	0.93	1.05	1.08		28
Parafon Hygien	0.95	0.95	0.40	0.85	0.90	0.90	0.95	0.90		26
Cirrus 75	0.70(H)	0.75	0.35	0.45	0.65	0.85	0.95	1.00	38	17
Frequence	0.70(H)	0.70	0.35	0.50	0.65	0.80	0.85	0.85	35	23
Ultima (Board, Tegular, MicroLook, MicroLook BE)	0.65(H)	0.70	0.25	0.40	0.65	0.80	0.90	0.90	37	12
Ultima (SL2/K2C2)	0.65(H)	0.65	0.30	0.45	0.60	0.75	0.85	0.80	39	12
Dune Max	0.65	0.65	0.35	0.50	0.70	0.75	0.70	0.45	35	16
Bioguard perforated	0.65	0.60	0.35	0.45	0.60	0.75	0.70	0.60	34	26
Fine Fissured	0.60(H)	0.55	0.30	0.40	0.50	0.65	0.70	0.75	34	23
Casa	0.60	0.55	0.35	0.40	0.50	0.60	0.60	0.55	35	22
Dune Supreme	0.55	0.50	0.35	0.40	0.50	0.55	0.50	0.55	35	16
Adria	0.60	0.55	0.35	0.40	0.60	0.70	0.60	0.55	34	22
Ceramaguard (600 x 1200)	0.55(MH)	0.60	0.25	0.30	0.50	0.80	0.85	0.75	39	27
Cirrus Image	0.55(H)	0.55	0.35	0.40	0.45	0.60	0.75	0.85	36	18
Synonymes	0.55(H)	0.50	0.40	0.35	0.45	0.55	0.70	0.75	36	19
Contrast	0.55	0.50	0.40	0.40	0.45	0.55	0.60	0.65	36	18
Cirrus	0.55(H)	0.50	0.40	0.35	0.45	0.55	0.70	0.75	36	17
Academy Merit	0.55	0.50	0.40	0.30	0.50	0.65	0.70	0.65	32	24
Academy Diploma	0.55	0.50	0.30	0.40	0.50	0.60	0.50	0.45	32	14
Colortone	0.55	0.50	0.40	0.40	0.55	0.55	0.50	0.45	35	16
Ultima dB (Board, Tegular, MicroLook, MicroLook BE)	0.50(H)	0.50	0.25	0.30	0.45	0.55	0.75	0.80	38	13
Ultima dB (SL2/K2C2)	0.50	0.45	0.30	0.35	0.40	0.50	0.60	0.55	44	13
Visual V64		0.40	0.71	0.21	0.26	0.46	0.74	1.01		28
Graphis	0.15(L)	0.15	0.35	0.20	0.10	0.10	0.15	0.25	36	21
Bioguard unperforated	0.15(L)	0.15	0.30	0.20	0.15	0.10	0.20	0.25	37	26
Plain	0.15(L)	0.15	0.30	0.25	0.15	0.10	0.15	0.25	37	20
Mylar	0.10(L)	0.10	0.25	0.15	0.10	0.10	0.10	0.15	36	26
Newtone	0.10(L)	0.10	0.25	0.15	0.10	0.10	0.10	0.05	37	27

# Hygiene

Armstrong offers the following solutions to meet hygiene requirements:

**Mylar** (as described on p.26) features a smooth polyester film facing which does not attract dust and performs to Class 100 Clean condition requirements.

The inhibitory treatment applied to **Bioguard** (as described on p.26) restricts bacteria development. In addition to this range of products available in mineral fibre, **Parafon Hygien**, from the soft range of products, is washable and suitable for cleaning with high pressure water systems (see p.26).

Laboratory tests conducted in Germany show that when treated, **Casa**, **Cirrus** and **Adria** finishes do not encourage the development of germs and are easily disinfected with suitable agents. Also, according to the Swedish standard emission classification regarding volatile organic compounds of building materials, Armstrong ceilings fulfill class A requirements - low emission materials - and can therefore be used in premises where high cleanliness is required. Test reports are available on request.

The metal range now offers a hygiene solution with the **Orcal Bioguard** tiles (see p.29).



## Tested for your health

### Nutrition and Food Research Institute Bioguard

The tests conducted by TNO Nutrition and Food Research Institute have emphasised that Armstrong World Industries ceiling panels, standard Bioguard do not favour the growth of micro-organisms.

### Lebensmittel-Labor Dr Weßling GmbH Basic and Prima

The tests conducted by Lebensmittel-Labor Dr Weßling GmbH have emphasised that Armstrong ceilings (Casa, Adria, Dune, Cirrus) can be disinfected with standard agents.

### TNO V97.339 Nutrition and Food Research Institute Parafon Hygien

The tests conducted by TNO Nutrition and Food Research Institute have emphasised that Parafon Hygien ceiling panels do not encourage the growth of micro-organisms.

## Bioguard, the health tile

### Washability

This is an ASTM D-4828 test. The washability test evaluates a ceiling's ability to withstand washing. The test uses the washing (or scrubbing) action of a sponge and a non abrasive soap. This test measures a ceiling surface's resistance to repeated wash cycles. Ratings are based on either the ability of the surface to withstand up to 500 wash cycles without breakthrough, or the extent of abrasion.



Typical ceiling



Bioguard

The photographs show the superior washability of Bioguard versus a typical ceiling.

### Stain resistance

This test uses 3 familiar liquids: tea, coffee and cola. The test demonstrates the ceiling surface's excellent resistance to staining. Several drops of the staining liquid are applied to the surface. After 30-60 seconds the surface is wiped with a damp cloth. The stained area is rated a 1 for 'no visible stain' to a 5 for 'severely stained'.



Typical ceiling



Bioguard

The photographs show the improved stain resistance of Bioguard versus a typical ceiling.

### Water repellency

This test demonstrates the ceiling surface's resistance to water penetration. Several drops of water are applied to the surface. The shape of the water droplet demonstrates how well the surface repels the water and resists water penetration.



Typical ceiling



Bioguard

The photographs show the improved water repellency of Bioguard versus a typical ceiling.





▲ Ultima



▲ Ultima + Interlude grid



▲ Ultima + Silhouette 6 mm grid



▲ Ultima + Silhouette 3 mm grid

Ultima Vector ►



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ULTIMA	BOARD	TEGULAR	MICROLOOK	VECTOR
	Prelude XL/TL 24 mm	Prelude XL/TL 24 mm	Prelude XL/TL 15 mm Silhouette/Interlude	Prelude XL/TL 24 mm
	600 x 600 x 19 mm . . . . .9536 M . . . . .9538 M . . . . .9843 M . . . . .1920 M . . .	625 x 625 x 19 mm . . . . .9536 D . . . . .9538 D . . . . .9843 D . . . . .	600 x 1200 x 19 mm . . . . .9537 M . . . . .	625 x 1250 x 19 mm . . . . .9537 D . . . . .

	UK Class 0/Class 1 (BS 476)
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	α <sub>w</sub> NRC	Hz					
		125	250	500	1000	2000	4000
	<b>0.65(H) 0.70</b>	0.25	0.40	0.65	0.80	0.90	0.90
	<b>Ultima Vector</b>						
	<b>0.70(H) 0.75</b>	0.35	0.40	0.70	0.90	0.90	0.85

	Dncw	Hz					
		125	250	500	1000	2000	4000
	<b>37 dB</b>	19.3	28.0	31.2	38.6	43.1	47.6
	<b>Board/Tegular/MicroLook BE</b>						
	<b>42 dB</b>	21.3	32.6	46.3	66.2	69.9	66.7
	<b>Board/Tegular/MicroLook BE with overlay</b>						
	<b>Ultima Vector</b>						
	<b>37 dB</b>	18.7	28.1	30.5	39.5	44.9	45.2



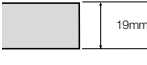
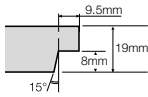
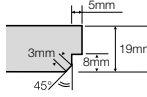
Also available in Planks. For more information, please contact Internal Technical Sales.

	λ = 0.052 - 0.057 W/m <sup>2</sup> K		88%		95% RH		≈ 5.2 kg/m <sup>2</sup>
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▲ Ultima dB




ULTIMA dB	BOARD	TEGULAR	MICROLOOK BE
	Prelude XL/TL 24 mm	Prelude XL/TL 24 mm	Prelude XL/TL 15 mm Silhouette/Interlude
			

	600 x 600 x 19 mm . . . . . 2038 M . . . . . 2040 M . . . . . 2041 M . . . . .
	625 x 625 x 19 mm . . . . . 2038 D . . . . . 2040 D . . . . . 2041 D . . . . .
	600 x 1200 x 19 mm . . . . . 2039 M . . . . .
	625 x 1250 x 19 mm . . . . . 2039 D . . . . .

	UK Class 0/Class 1 (BS 476)
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	$\alpha_w$	NRC	Hz							
			125	250	500	1000	2000	4000		
	<b>0.50(H)</b>	<b>0.50</b>	0.25	0.30	0.45	0.50	0.75	0.80		

	dB	Board/Tegular/MicroLook BE/MicroLook	Hz							
			125	250	500	1000	2000	4000		
	<b>Dncw = 38 dB</b>		19.5	28.4	31.7	40.0	44.7	47.5		
	<b>K2C2/SL2</b>									
	<b>Dncw = 44 dB</b>		21.2	37.2	40.9	47.9	54.1	54.8		

Also available in Planks. For more information, please contact Internal Technical Sales.

	$\lambda = 0.052 - 0,057 \text{ W/m}^2\text{K}$		88%		95% RH		$\approx 8.3 \text{ kg/m}^2$
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▲ Optima

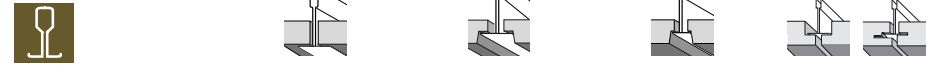


Optima MicroLook ▶

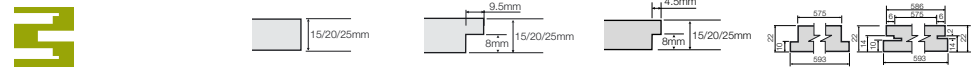
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OPTIMA BOARD TEGULAR MICROLOOK VECTOR



Prelude XL/TL 24 mm Prelude XL/TL 24 mm Prelude XL/TL 15 mm Silhouette Prelude XL/TL 24 mm



mm	OPTIMA 15 mm	OPTIMA 20 mm	OPTIMA 22 mm	OPTIMA 25 mm
600 x 600 x 15 mm	2327 M	2335 M	2349 M	2387 M
625 x 625 x 15 mm	2327 D	2335 D	2349 D	2387 D
600 x 1200 x 15 mm	2328 M	2336 M	2350 M	2388 M
625 x 1250 x 15 mm	2328 D	2336 D	2350 D	2388 D
600 x 600 x 20 mm	2335 M	2349 M	2363 M	
625 x 625 x 20 mm	2335 D	2349 D	2363 D	
600 x 1200 x 20 mm	2336 M	2350 M	2364 M	
625 x 1250 x 20 mm	2336 D	2350 D	2364 D	
600 x 1800 x 20 mm	2337 M	2351 M	2365 M	
1200 x 1200 x 20 mm	2338 M	2352 M	2366 M	
300 x 1720 x 20 mm	2339 M			
300 x 1800 x 20 mm	2340 M			
500 x 500 x 20 mm		2375 M		
600 x 600 x 22 mm			2387 M	
625 x 625 x 22 mm			2387 D	
600 x 600 x 25 mm	2379 M	2381 M	2383 M	
600 x 1200 x 25 mm	2380 M	2382 M	2384 M	



UK Class 0 / Class 1 (BS 476)



α <sub>w</sub>	NRC	Hz					
		125	250	500	1000	2000	4000
<b>Board/Tegular/MicroLook 15 mm</b>							
0.90	0.90	0.35	0.75	1.00	0.80	0.90	0.95
<b>Board/Tegular/MicroLook 20 mm</b>							
0.95	0.95	0.40	0.80	1.00	0.85	1.00	1.00
<b>Board/Tegular/MicroLook 25 mm</b>							
1.00	1.00	0.50	0.85	1.00	0.95	1.00	1.00
<b>Vector 22 mm</b>							
1.00	0.95	0.35	0.80	1.00	0.90	1.00	1.00

Also available in Planks. For more information, please contact Internal Technical Sales



85%



95% RH



15 mm ≈ 1.8 kg/m<sup>2</sup>  
 20 mm ≈ 2.3 kg/m<sup>2</sup>  
 25 mm ≈ 2.8 kg/m<sup>2</sup>  
 Vector ≈ 2.9 kg/m<sup>2</sup>



▲ Nevada



▲ Jade (JA)

▲ Amber (AB)



▲ Carrara (CA)

▲ Perl (PF)



▲ Cement (CG)

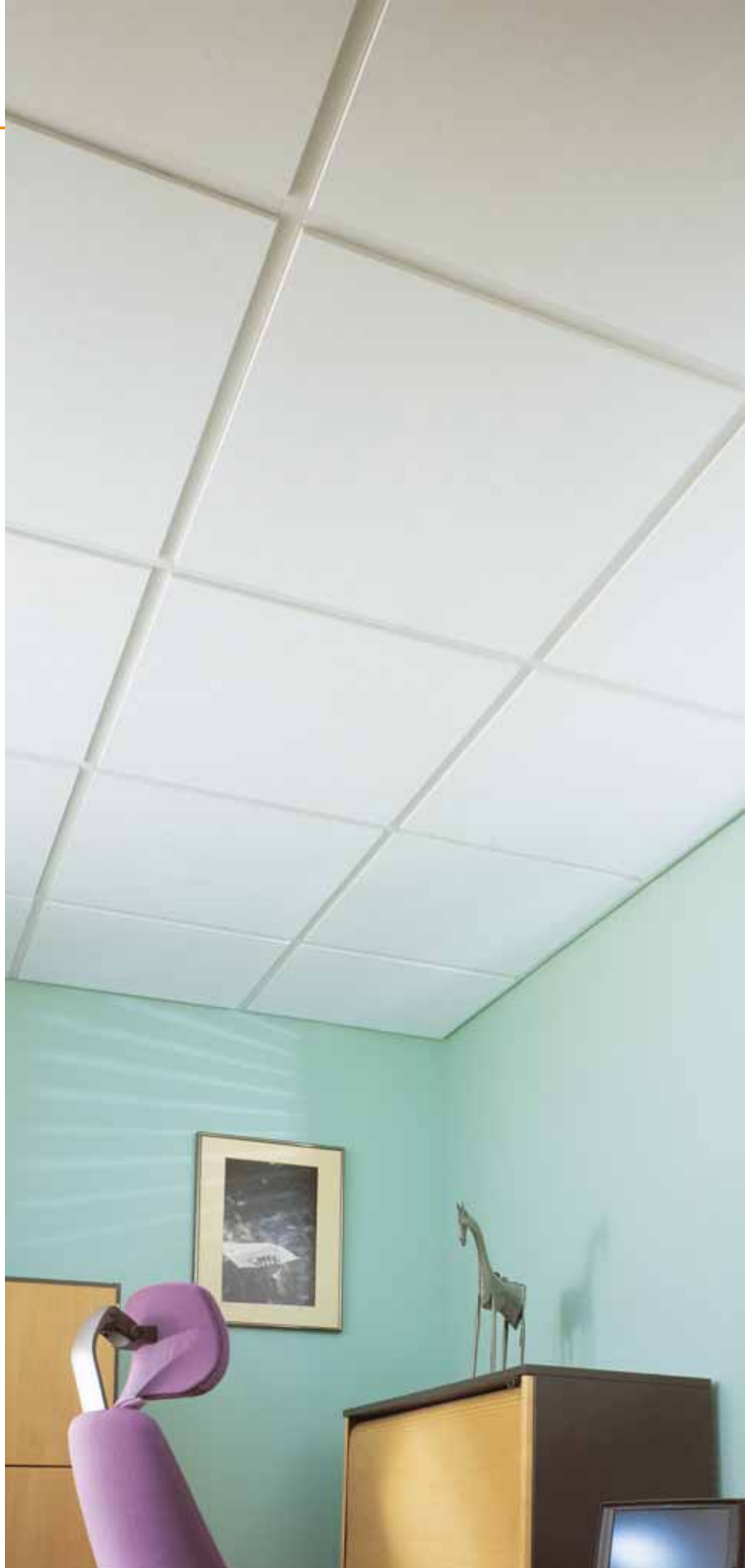
▲ Metal (MT)



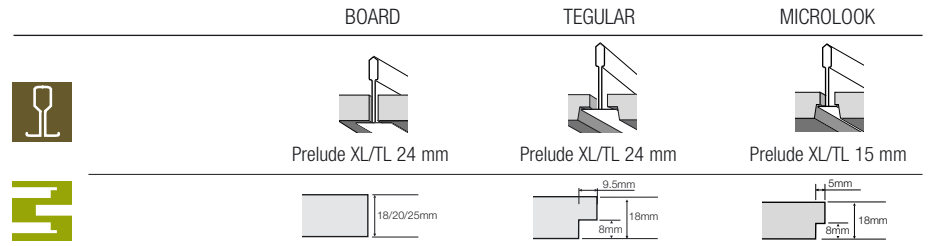
▲ Navy (NY)

▲ Black (BK)

Nevada Tegular ▶



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mm	NEVADA 18 mm	NEVADA 20 mm	NEVADA 25 mm
600 x 600 x 18 mm	2458 M	2477 M	2486 M▲
1200 x 600 x 18 mm	2459 M	2478 M	2487 D▲
1200 x 1200 x 18 mm	2460 M	2479 M	2488 M▲
1800 x 600 x 18 mm	2461 M	2480 M	2489 D▲
1800 x 300 x 18 mm	2462 M	2481 M	
500 x 500 x 18 mm			
600 x 600 x 20 mm			
1200 x 600 x 20 mm			
1200 x 1200 x 20 mm			
1800 x 300 x 20 mm			
1800 x 600 x 20 mm			
600 x 600 x 25 mm			
1200 x 600 x 25 mm			
1200 x 1200 x 25 mm			
1800 x 600 x 25 mm			

▲ Nevada Colour: Black (BK), Navy (NY), Metal (MT), Cement (CG), Perl (PF), Carrara (CA), Amber (AB), Jade (JA)

	UK Class 0/Class 1
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	Hz								
$\alpha_w$	NRC	125	250	500	1000	2000	4000		
	<b>Nevada Board 18 mm</b>	1.00	0.95	0.40	0.85	1.00	0.90	1.00	0.95
	<b>Nevada Tegular/MicroLook 18 mm</b>	0.90	0.85	0.35	0.40	0.50	0.60	0.60	0.55
	<b>Nevada Colour Board 20 mm</b>	1.00	0.95	0.45	0.90	1.00	0.95	1.00	1.00
	<b>Nevada Board 25 mm</b>	1.00	0.95	0.40	0.85	1.00	0.95	1.00	1.00

	$\lambda = 0.036 \text{ W/m}^2\text{K}$		83%		95% RH		Board (18 mm) $\approx 1.6 \text{ kg/m}^2$ Board (20 mm) $\approx 1.80 \text{ kg/m}^2$ Board (25 mm) $\approx 2.25 \text{ kg/m}^2$ Tegular & MicroLook (18 mm) $\approx 2.52 \text{ kg/m}^2$
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**PRIMA DUNE SUPREME  
DUNE MAX**



▲ Prima Dune Supreme



▲ Dune Max



▲ Opal (OL)



▲ Carrara (CA)



▲ Platinum (PN)



▲ Naxos (NX)



▲ Toledo (TO)



▲ Blue Mountain (MT)

Prima Dune Supreme  
MicroLook ▶

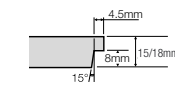
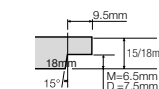


mineral  
fine textures  
dune supreme  
& performance

**PRIMA DUNE SUPREME DUNE MAX**



**PRIMA Dune Supreme / Dune Max** BOARD      TEGULAR      MICROLOOK



**PRIMA Dune SUPREME**

600 x 600 x 15 mm	..... .2271 M▲	..... .2273 M▲	..... .2274 M▲
600 x 1200 x 15 mm	..... .2272 M▲	..... .2273 M▲	..... .2274 M▲

**PRIMA Dune SUPREME UNPERFORATED**

600 x 600 x 15 mm	..... .2276 M	..... .2278 M	..... .2279 M
600 x 1200 x 15 mm	..... .2277 M	..... .2278 M	..... .2279 M

**PRIMA Dune PLUS**

500 x 500 x 15 mm	..... .9809 M	..... .9813 M
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**PRIMA Dune Max**

600 x 600 x 18 mm	..... .2250 M	..... .2252 M	..... .2253 M
600 x 1200 x 18 mm	..... .2251 M	..... .2252 M	..... .2253 M

Also available in Planks, please contact Internal Technical Sales.



Color tone: ▲ Opal (OL), Carrara (CA), Platinum (PN), Naxos (NX), Toledo (TO), Blue Mountain (BT)



UK Class 0/Class 1



		Hz					
$\alpha_w$	NRC	125	250	500	1000	2000	4000
<b>0.55</b>	<b>0.50</b>	0.35	0.40	0.50	0.55	0.50	0.50

**Dune Supreme Unperforated**

**0.30(H) 0.25**

**Dune Max**

<b>0.65</b>	<b>0.65</b>	0.35	0.50	0.70	0.75	0.70	0.45
-------------	-------------	------	------	------	------	------	------



**Dncw = 35 dB (Dune Supreme & Dune Max)**



$\lambda = 0.052 - 0.057 \text{ W/m}^2\text{K}$



83%



95% RH (Dune Max)  
99% RH (Dune Supreme)



Dune Supreme  $\approx 3,9 \text{ kg/m}^2$   
Dune Max  $\approx 4,16 \text{ kg/m}^2$



**PRIMA CIRRUS  
CIRRUS 75**



▲ Prima Cirrus



▲ Cirrus 75



mineral  
fine textures  
cirrus & acoustics

**PRIMA CIRRUS CIRRUS 75**

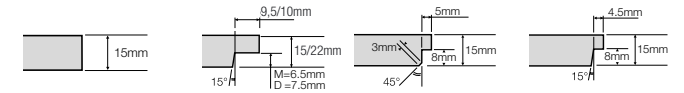
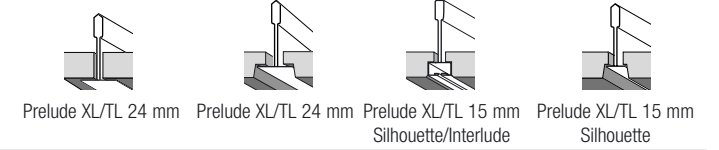


BOARD

TEGULAR

MICROLOOK BE

MICROLOOK



**CIRRUS**

600 x 600 x 15 mm	..... 9619 M	..... 9620 M	..... 9622 M	..... 9621 M
625 x 625 x 15 mm	..... 9619 D	..... 9620 D	..... 9621 D	..... 9621 D

**CIRRUS 75**

600 x 600 x 22 mm	..... 9290 M
-------------------	--------------



UK Class 0/Class 1 (BS 476)



		Hz						
$\alpha_w$	NRC	125	250	500	1000	2000	4000	
<b>Cirrus</b>								
<b>0.55(H)</b>	<b>0.50</b>	0.40	0.35	0.45	0.55	0.70	0.75	
<b>Cirrus 75</b>								
<b>0.70(H)</b>	<b>0.75</b>	0.35	0.45	0.65	0.85	0.95	1.00	



		Hz						
$D_{ncw}$	dB	125	250	500	1000	2000	4000	
<b>Cirrus</b>								
<b>Dncw = 36 dB</b>		20.2	26.9	29.5	37.3	46.1	53.6	
<b>Cirrus 75</b>								
<b>Dncw = 38 dB</b>		18.7	28.0	31.9	41.5	44.7	45.8	



$\lambda = 0.052 - 0.057 \text{ W/m}^\circ\text{K}$



83%

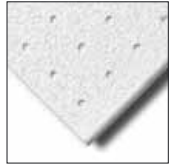


95% RH



Cirrus  $\approx 4,0 \text{ kg/m}^2$   
Cirrus 75  $\approx 6,5 \text{ kg/m}^2$

**CONTRAST  
CIRRUS IMAGE**



▲ Contrast Circles



▲ Contrast Squares



▲ Contrast Linear



▲ Cirrus Image



Cirrus Image ▶

Contrast Circles ▶

mineral fine textures design

**CONTRAST CIRRUS IMAGE**

Circles - Squares - Linear



CONTRAST			CIRRUS IMAGE
Circles	Squares	Linear	
MICROLOOK			MICROLOOK

CONTRAST	Circles	Squares	Linear
600 x 600 x 15 mm	.9902 M	.9903 M	.9904 M
CIRRUS IMAGE	600 x 600 x 15 mm . . . . . 8406 M		

	UK	Class 0/Class 1 (BS 476)
--	----	--------------------------

		Hz					
$\alpha_w$	NRC	125	250	500	1000	2000	4000
<b>0.55</b>	<b>0.50</b>	0.40	0.40	0.45	0.55	0.60	0.65
<b>0.55(H)</b>	<b>0.55</b>	0.35	0.40	0.45	0.60	0.75	0.85

**Dncw = 36 dB**

$\lambda = 0.052 - 0.057 \text{ W/m}^2\text{K}$ 
 Contrast: 83%  
Cirrus Image: > 70%
 70% RH
  $\approx 4,0 \text{ kg/m}^2$

# SYNONYMES



▲ Ribbon



▲ Melody



Synonymes Melody ►

Synonymes Ribbon ►

mineral fine textures design

# SYNONYMES

Ribbon - Melody

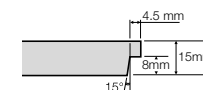


## SYNONYMES

## MICROLOOK



Prelude XL/TL 15 mm



## RIBBON

## A

## B

## C

## D

## PLAIN



600 x 600 x 15 mm . . . 2022 M . . . . . 2023 M . . . . . 2024 M . . . . . 2025 M . . . . . 2034 M . .

## MELODY

## PLAIN



600 x 600 x 15 mm . . . 2021 M . . . . . 2034 M . .



UK Class 0/Class 1 (BS 476)



$\alpha_w$	NRC	Hz						
		125	250	500	1000	2000	4000	
0.55(H)	0.50	0.40	0.35	0.45	0.55	0.70	0.75	



Dncw = 36 dB



$\lambda = 0.052 - 0.057 \text{ W/m}^2\text{K}$



83%



70% RH



≈ 4 kg/m<sup>2</sup>

# PRIMA PLAIN



▲ Prima Plain



Prima Plain Tegular  
Department store (Germany) ▶

mineral  
fine textures  
plain

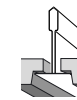
# PRIMA PLAIN



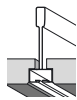
PRIMA PLAIN BOARD TEGULAR MICROLOOK



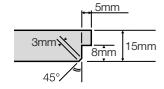
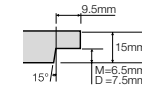
Prelude XL/TL 24 mm



Prelude XL/TL 24 mm



Prelude XL/TL 15 mm  
Silhouette



600 x 600 x 15 mm . . . . .	9587 M . . . . .	9589 M . . . . .	9590 M . . . . .
625 x 625 x 15 mm . . . . .	9587 D . . . . .	9589 D . . . . .	9590 D . . . . .
600 x 1200 x 15 mm . . . . .	9588 M . . . . .		
625 x 1250 x 15 mm . . . . .	9588 D . . . . .		



UK Class 0/Class 1 (BS 476)



		Hz						
$\alpha_w$	NRC	125	250	500	1000	2000	4000	
0.15(L)	0.15	0.30	0.25	0.15	0.10	0.15	0.25	



Dncw = 37 dB



$\lambda = 0.052 - 0.057 \text{ W/m}^\circ\text{K}$



90%



95% RH



≈ 4,0 kg/m<sup>2</sup>

# GRAPHIS

Puntos - Cuadros  
 Linear - Neocubic  
 Diagonal - Mix A  
 Mix B



▲ Puntos



▲ Cuadros



▲ Linear



▲ Neocubic



▲ Diagonal



▲ Mix A



▲ Mix B



mineral fine textures design

# GRAPHIS

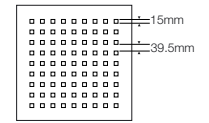
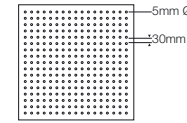
Puntos - Cuadros - Linear -  
 Neocubic - Diagonal - Mix A - Mix B



## GRAPHIS

## Puntos

## Cuadros



MICROLOOK

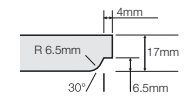
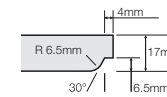
MICROLOOK



Prelude XL/TL 15 mm



Prelude XL/TL 15 mm



## Puntos

## Cuadros

	600 x 600 x 17 mm	.9900 M	.9901 M			
		<b>Linear</b>	<b>Neocubic</b>	<b>Diagonal</b>	<b>Mix A</b>	<b>Mix B</b>
	600 x 600 x 17 mm	.9220 M	.9221 M	.9222 M	.9223 M	.9224 M



UK Class 0/Class 1 (BS 476)



$\alpha_w$  NRC  
 0.15(L) 0.15



	Hz					
	125	250	500	1000	2000	4000
<b>Dncw = 36 dB</b>	19.2	29.6	31.2	37.4	40.0	39.5



$\lambda = 0.052 - 0.057 \text{ W/m}^2\text{K}$



90%



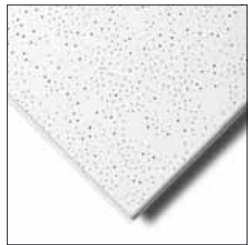
70% RH



$\approx 6,0 \text{ kg/m}^2$



▲ Prima Adria



▲ Prima Casa



Prima Casa Tegular ▶

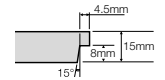
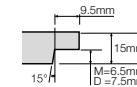
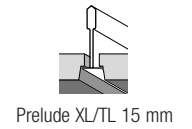
Prima Adria Board ▶

mineral   perforated   adria & casa

**PRIMA ADRIA   PRIMA CASA**



**PRIMA ADRIA, PRIMA CASA**   BOARD   TEGULAR   MICROLOOK



**PRIMA ADRIA**

600 x 600 x 15 mm	.9244 M	.9246 M	.9250 M
625 x 625 x 15 mm	.9244 D	.9246 D	.9250 D
600 x 1200 x 15 mm	.9245 M	.9686 M	
625 x 1250 x 15 mm	.9245 D		

**PRIMA CASA\***

600 x 600 x 15 mm	.9649 M	.9654 M	.9658 M
625 x 625 x 15 mm	.9649 D	.9654 D	.9658 D
600 x 1200 x 15 mm	.9650 M		
625 x 1250 x 15 mm	.9650 D		

\* Also available in Planks. For more information, please contact Internal Technical Sales.



UK   Class 0/Class 1 (BS 476)



		Hz						
$\alpha_w$	NRC	125	250	500	1000	2000	4000	
<b>Adria</b>	<b>0.60   0.55</b>	0.35	0.40	0.60	0.70	0.60	0.55	
<b>Casa</b>	<b>0.60   0.55</b>	0.35	0.40	0.50	0.60	0.60	0.55	



**Dncw = 34 dB (Adria)**  
**Dncw = 35 dB (Casa)**



$\lambda = 0.052 - 0.057 \text{ W/m}^2\text{K}$



83%

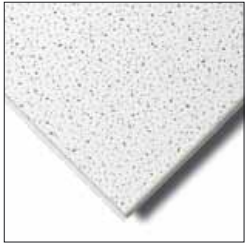


95% RH

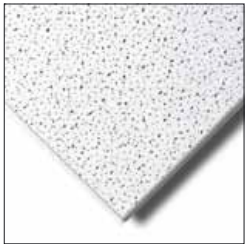


Adria  $\approx 4,0 \text{ kg/m}^2$   
Casa  $\approx 3,5 \text{ kg/m}^2$

**PRIMA  
FINE FISSURED  
FREQUENCY**



▲ Prima Fine Fissured\*



▲ Frequency



▲ Fine Fissured Black

\* Also available: SecondLook

Frequency MicroLook ▶

Prima Fine Fissured Tegular ▶



mineral  
fissured  
fine fissured  
& acoustics

**PRIMA FINE FISSURED FREQUENCY**



**PRIMA FINE FISSURED, FREQUENCY**

BOARD

TEGULAR

MICROLOOK



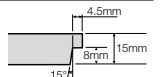
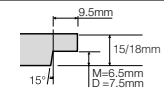
Prelude XL/TL 24 mm



Prelude XL/TL 24 mm



Prelude XL/TL 15 mm  
Silhouette



**PRIMA FINE FISSURED\***

600 x 600 x 15 mm	9121 M	9122 M	9202 M
625 x 625 x 15 mm	9121 D	9122 D	9202 D
600 x 1200 x 15 mm	9120 M		
625 x 1250 x 15 mm	9120 D		

**PRIMA FREQUENCY**

600 x 600 x 18 mm	9544 M	9546 M	9547 M
625 x 625 x 18 mm	9544 D	9546 D	9547 D
600 x 1200 x 18 mm	9545 M		
625 x 1250 x 18 mm	9545 D		

\* Also available in Planks. For more information, please contact Internal Technical Sales.



UK Class 0/Class 1 (BS 476)



$\alpha_w$	NRC	Hz						
		125	250	500	1000	2000	4000	
<b>0.60(H)</b>	<b>0.55</b>	0.30	0.40	0.50	0.65	0.70	0.75	
<b>0.70(H)</b>	<b>0.70</b>	0.35	0.50	0.65	0.80	0.85	0.85	



**Dncw = 34 dB (Fine Fissured)**  
**Dncw = 35 dB (Frequency)**



$\lambda = 0.052 - 0.057 \text{ W/m}^2\text{K}$



83%



95% RH



≈ 3.5 kg/m<sup>2</sup>  
(Fine Fissured)  
≈ 4.5 kg/m<sup>2</sup>  
(Frequency)

**ACADEMY  
MERIT & DIPLOMA**



▲ Academy Diploma



▲ Academy Merit



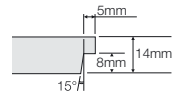
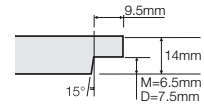
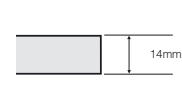
Academy Diploma Board ▶

mineral  
fine textures  
& fissured  
basic

**ACADEMY MERIT ACADEMY DIPLOMA**



**ACADEMY MERIT, ACADEMY DIPLOMA** BOARD      TEGULAR      MICROLOOK



**ACADEMY MERIT**

600 x 600 x 14 mm	2534 M	2536 M	2537 M
600 x 1200 x 14 mm	2538 M		

**ACADEMY DIPLOMA**

600 x 600 x 14 mm	2539 M	2541 M	2542 M
600 x 1200 x 14 mm	2543 M		



UK Class 0/Class 1 (BS 476)



$\alpha_w$  NRC 125 250 500 1000 2000 4000

**Academy Merit**  
0.55 0.50 0.40 0.30 0.50 0.65 0.70 0.65

**Academy Diploma**  
0.55 0.50 0.30 0.40 0.50 0.60 0.50 0.45



**Dncw = 32 dB**



$\lambda = 0.052 - 0.057 \text{ W/m}^2\text{K}$



83%



95% RH

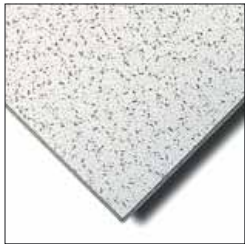


Merit  $\approx 3,2 \text{ kg/m}^2$   
Diploma  $\approx 3,48 \text{ kg/m}^2$





▲ Tatra



▲ Cortega



Tatra ▶

Cortega ▶

mineral    fissured    basic



**TATRA, CORTEGA**

BOARD

TEGULAR



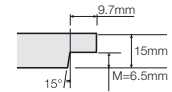
Prelude XL/TL 24 mm



Prelude XL/TL 24 mm



15mm



15°H

M=6.5mm



**TATRA**

600 x 600 x 15 mm	958 M	962 M
600 x 1200 x 15 mm	952 M	

**CORTEGA**

600 x 600 x 15 mm	9102 M	9105 M
600 x 1200 x 15 mm	9101 M	



UK Class 0/Class 1 (BS 476)



$\alpha_w$  NRC  
**0.55(H) 0.55**



**Dncw = 34 dB**



$\lambda = 0.052 - 0.057 \text{ W/m}^2\text{K}$



80%



70% RH



≈ 3,5 kg/m<sup>2</sup>

**BIOGUARD  
MYLAR  
PARAFON HYGIEN**



▲ Bioguard



▲ Bioguard perforated



▲ Mylar



▲ Parafon Hygien

Bioguard ▶

Mylar Board ▶



mineral fine textures & perforated hygiene **BIOGUARD MYLAR PARAFON HYGIEN**



BIOGUARD, MYLAR, PARAFON HYGIEN	BOARD	TEGULAR	MICROLOOK
	 Prelude XL/TL 24 mm	 Prelude XL/TL 24 mm	 Prelude XL/TL 15 mm Silhouette
	 15/18mm	 9.5mm 8mm 15/18mm	 5mm 8mm 15/18mm

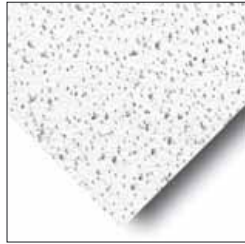
	<b>BIOGUARD</b> 600 x 600 / 625 x 625 x 15 mm ..... 2221 M/D ..... 2223 M/D ..... 2224 M/D ..... 600 x 1200 / 625 x 1250 x 15 mm ..... 2222 M/D .....
	<b>BIOGUARD PERFORATED</b> 600 x 600 / 625 x 625 x 15 mm ..... 2241 M/D ..... 2243 M/D ..... 2244 M/D ..... 600 x 1200 / 625 x 1250 x 15 mm ..... 2242 M/D .....
	Bioguard Acoustic also available. Please contact Internal Technical Sales.
	<b>MYLAR</b> 600 x 600 x 15 mm ..... 9527 M ..... 600 x 1200 x 15 mm ..... 9529 M .....
	<b>PARAFON HYGIEN</b> 600 x 600 / 625 x 625 x 18 mm ..... 9702 M/D ..... 600 x 1200 / 625 x 1250 x 18 mm ..... 9703 M/D .....

	UK Class 0/Class 1 (BS 476)
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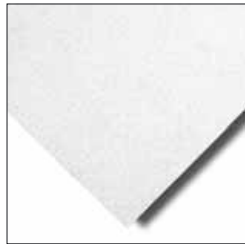
	$\alpha_w$ <b>NRC</b> <b>Bioguard</b> <b>0.15(L) 0.15</b> <b>Bioguard perforated</b> <b>0.65 0.60 0.35 0.45 0.60 0.75 0.70 0.60</b> <b>Mylar</b> <b>0.10(L) 0.10 0.10 0.25 0.15 0.10 0.10 0.15</b> <b>Parafon Hygien</b> <b>0.95 0.95 0.40 0.85 0.90 0.90 0.95 0.90</b>
	<b>Dncw = 34 dB (Bioguard perforated)</b> <b>Dncw = 37 dB (Bioguard)</b> <b>Dncw = 36 dB (Mylar)</b>

	Bioguard $\lambda = 0.052 - 0.057 \text{ W/m}^2\text{K}$ Mylar: $\lambda = 0.067 \text{ W/m}^2\text{K}$ Parafon: $\lambda = 0.036 \text{ W/m}^2\text{K}$		Bioguard: 90% Mylar: 80% Parafon: 84%		95% RH		Class 100		Bioguard $\approx 4,5 \text{ kg/m}^2$ Mylar $\approx 5 \text{ kg/m}^2$ Parafon $\approx 1,3 \text{ kg/m}^2$
--	---	--	---	--	--------	--	-----------	--	---

# CERAMAGUARD NEWTONE



▲ Ceramaguard Fine Fissured



▲ Newtonone

Ceramaguard  
Fine Fissured Board ▶

Newtonone Board ▶



mineral  
fissured &  
fine textures  
hygiene

# CERAMAGUARD NEWTONE



## CERAMAGUARD, NEWTONE

## BOARD



Prelude TL/NC 24 mm



6/15mm



### CERAMAGUARD

600 x 600 x 15 mm ..... 607 M  
600 x 1200 x 15 mm ..... 608 M

### NEWTONE

600 x 600 x 6 mm ..... 1201 M  
600 x 1200 x 6 mm ..... 1200 M



UK Non combustible/Class 0 (BS 476)



		Hz					
$\alpha_w$	NRC	125	250	500	1000	2000	4000
<b>Ceramaguard</b>							
<b>0.55(MH)</b>	<b>0.60</b>	0.25	0.30	0.50	0.80	0.85	0.75
<b>Newtonone</b>							
<b>0.10 (L)</b>	<b>0.10</b>						



**Dncw = 39 dB (Ceramaguard)**  
**Dncw = 37 dB (Newtonone)**



Ceramaguard  
 $\lambda = 0.052 - 0.057 \text{ W/m}^2\text{K}$   
Newtonone  
 $\lambda = 0.017 - 0.057 \text{ W/m}^2\text{K}$



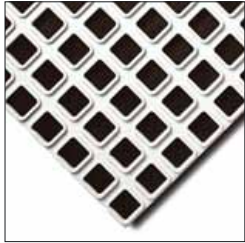
Ceramaguard: 84%  
Newtonone: 85%



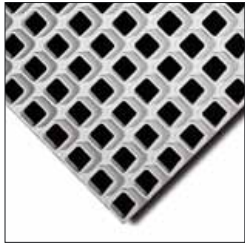
100% RH



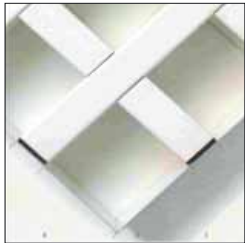
Ceramaguard  $\approx 7 \text{ kg/m}^2$   
20  $\text{kg/m}^2$  if wet  
Newtonone  $\approx 6 \text{ kg/m}^2$



▲ Visual V49



▲ Visual V64



▲ Cellio



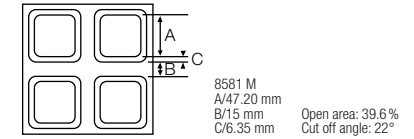
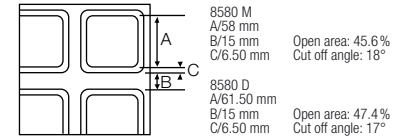
Visual V49/Cirrus Step ▶



**VISUAL, CELLIO**

**Visual V49**

**Visual V64**



**MICROLOOK**

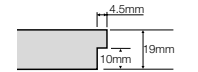
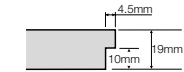
**MICROLOOK**



Prelude XL/TL 15 mm



Prelude XL/TL 15 mm



VISUAL	8850 M	8851 M
600 x 600 x 19 mm	8850 M	8851 M
625 x 625 x 19 mm	8580 D	

CELLIO	C64	C49	C36	C25	C16	C9
600 x 600 x 37 mm	.9002 M	.9003 M	.9004 M	.9005 M	.9006 M	.9007 M



UK Class 0/Class 1 (BS 476)



$\alpha_w$	NRC	Hz						
		125	250	500	1000	2000	4000	
<b>Visual V49 (20 mm wool overlay)</b>	<b>0.95</b>	<b>0.95</b>	0.43	0.83	0.85	0.98	1.06	1.01
<b>Visual V64</b>	-	<b>0.40</b>	0.17	0.21	0.26	0.46	0.74	1.01
<b>Visual V64 (20 mm wool overlay)</b>	<b>0.95</b>	<b>0.90</b>	0.42	0.72	0.90	0.93	1.05	1.08



Visual  $\lambda = 0.052 - 0.057 \text{ W/m}^2\text{K}$



Visual: 83%



Visual: 70% RH



Visual  $\approx 4 \text{ kg/m}^2$

Orcal ceilings offer a full range of plank and tile metal ceiling options:

- Standard tiles for installation in conventional grid systems
- Flexible size plank and tile where modules must be adapted to the needs of building layouts and aesthetics



Orcal Axal ▶

**MATERIALS**

Products are made of electrogalvanised steel. Gauge of steel used varies as is appropriate to product type, size and configuration.



**COLOUR**

**Standard colour**

RAL 9010 white (20% gloss), optional Global White (20% gloss)

**Colours available on request**

RAL 9001, 9002, 9016 white; RAL 9006, 9007 silver

**Special colours**

Other RAL colours available on request

**PERFORATIONS**

Products are offered in plain, standard perforation, microperforation and extra microperforation. Most items with standard perforation, and microperforation are produced with a nominal 10 mm plain border except for Orcal Board items which have an overall perforation, and Axal tiles which have a nominal 20 mm plain border. Extra microperforation products have an overall perforation.

**Standard perforation**

2.5 mm dia. holes – 16% Open area



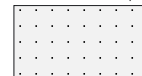
**Standard perforation**

1.5 mm dia. holes – 22% Open area



**Standard perforation**

0.7 mm dia. holes – 1% Open area



**FINISH**

Products are finished with a durable, electrostatic factory applied polyester powder coat.



**LIGHT REFLECTANCE**

**Pattern**

	<b>RAL 9010</b>	<b>Global White</b>
Plain (unperforated)	87%	77%
Extra microperforation with black fleece	85%	76%
Microperforation with black fleece	71%	63%
Standard perforation with black fleece	75%	68%

Measured in accordance with ASTM 1477-98



**FIRE AND ACOUSTIC PERFORMANCE**

Orcal products meet a variety of fire test classifications and have been tested for acoustical absorption and attenuation performance. All extra microperforated products are supplied complete with acoustic infill material factory fitted. Consult the following pages for details.

**ORCAL PREMIUM**

A range of acoustic inlays for use with Orcal metal ceiling panels. Orcal Premium acoustic solutions have been developed to achieve a wide range of performance values for both sound absorption and sound attenuation. For example, room to room attenuation of up to 47 dB, and sound absorption of up to  $\alpha_w$  0.65. For further information please contact Internal Technical Sales.



**HYGIENE**

With its antimicrobial paint, **Orcal Bioguard** does not encourage the development of germs and can then be used in areas where hygiene requirements are requested. For further information, please contact Internal technical Sales.

**INSTALLATION**

All Orcal products are designed for simple and economical installation on standard exposed systems or purpose designed grids.

**ENGINEERING STANDARDS**

All Orcal metal ceilings are manufactured to meet or exceed TAIM standards.



Metal Ceilings by **Armstrong**

The Gema offer stands for fully engineered and custom designed metal ceilings for special projects. For full information call Internal Technical Sales.

# ORCAL

## Axal

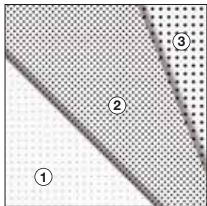
- Clean crisp detailing of 6 mm reveal
- Easy to install and remove without tools
- Downwardly accessible
- Minimal disruption
- Strongly formed edge resists damage
- Ideal for renovation and upgrading existing ceilings installed on Prelude 24 exposed grid
- Partially covers old grid



▲ Orcal Axal



▲ Plain



▲ 1 Orcal extra microperforation  
2 Orcal microperforation  
3 Orcal perforation

Orcal Axal is easy to install and access without tools ▶



metal axal

# ORCAL

## Axal



### AXAL



Extra microperforation    Microperforation    Perforation    Plain



600 x 600 x 19mm ..... 2118 M ..... 9420 M ..... 9419 M ..... 9418M .....



UK Class 0/Class 1 (BS 476)



#### Typical sound absorption values

Standard perforation with acoustic fleece

$\alpha_w$  **0.70 (L)**

Microperforation with acoustic fleece

$\alpha_w$  **0.75**

Extra microperforation with acoustic fleece

$\alpha_w$  **0.55 (L)**

Plain without acoustic fleece

$\alpha_w$  **0.10 (L)**



#### Typical sound attenuation values

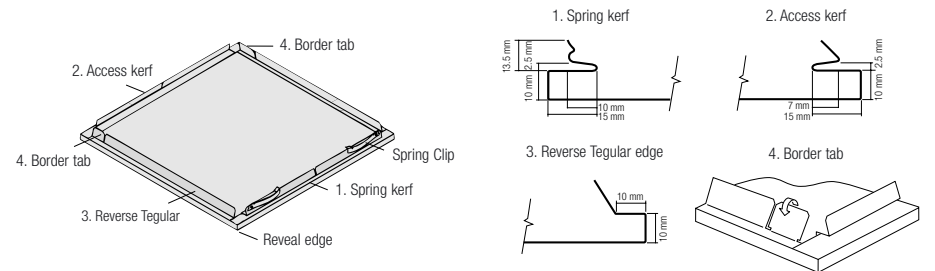
with acoustic fleece    with Premium B15

Standard perforation

& microperforation    **20 dB**    **41 dB**

Extra microperforation    **30 dB**    **40 dB**

Plain    **44 dB**    **47 dB**



Both border tabs have to be folded over the grid flanges when the tile has been cut for installation on perimeter.

(1) For a short term exposure or back painted products  
A range of acoustic infills is available to achieve various acoustic performance levels. Please contact your local Armstrong office for further information.

# ORCAL

## Clip-in

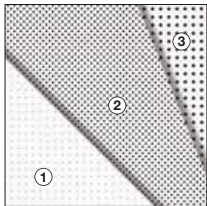
- Choice between 3 mm or 5 mm bevel
- Plain, monolithic surface
- Two Clip-In systems
- Choice of dimensions
- Easy to clean
- Swing down option for easy access in 3 mm bevel



▲ Orcal Clip-In



▲ Plain



▲ 1 Orcal extra microperforation  
2 Orcal microperforation  
3 Orcal perforation



# ORCAL

## Clip-in

metal clip-in



### CLIP-IN



Spring Tee Bar System 1800



Orcal 3000 suspension system



	Plain	Standard perforation	Microperforation	Extra microperforation
<b>Type Q Clip-In 3 mm Bevel - (Concealed spring A bar) Orcal 3000 Suspension System</b>				
600 x 600 x 33 mm	2056 M	2067 M	2076 M	2083 M
625 x 625 x 33 mm	2056 D	2067 D	2076 D	2083 D
300 x 600 x 33 mm	2058 M	2068 M	2077 M	2085 M
312.5 x 625 x 33 mm	2058 D	2068 D	2077 D	2085 D
300 x 1200 x 33 mm	2061 M	2070 M	2079 M	2089 M
600 x 1200 x 33 mm	2062 M	2071 M	2080 M	2087 M
400 x 1800 x 33 mm	2063 M	2072 M	2081 M	2090 M
<b>Type Q Clip-In and Clip-In Swing Down Square Edge - (Concealed spring A bar) Orcal 3000 Suspension System</b>				
600 x 600 x 33 mm				2094 M
625 x 625 x 33 mm				2094 D
<b>Type S Clip-In 3 mm Bevel - (Concealed spring A bar) Orcal 3000 Suspension System</b>				
600 x 600 x 33 mm	2055 M	2064 M	2073 M	2082 M
300 x 600 x 33 mm	2057 M	2065 M	2074 M	
300 x 1200 x 33 mm	2060 M	2066 M	2075 M	
<b>Type S Clip-In 3 mm Bevel Swing Down - (Concealed spring A bar) Orcal 3000 Suspension System</b>				
600 x 600 x 33 mm	2091 M	2092 M	2093 M	2094 M
<b>Clip-In 5 mm Bevel - (Concealed spring T bar) System 1800</b>				
600 x 600 x 33 mm	9300 M	9308 M	9337 M	
300 x 600 x 33 mm	4330 M	4331 M	4332 M	
300 x 1200 x 33 mm	9304 M	9312 M	9430 M	
300 x 1500 x 33 mm	9305 M	9313 M	9431 M	
600 x 1200 x 33 mm	4314 M	4315 M	4316 M	

Availability of products may vary according to country. Please contact your local Armstrong office for product range information.



UK Class 0/Class 1 (BS 476)



### Typical sound absorption values

Standard perforation with acoustic fleece

$\alpha_w$  **0.70 (L)**

Microperforation with acoustic fleece

$\alpha_w$  **0.75**

Extra microperforation with acoustic fleece

$\alpha_w$  **0.55 (L)**

Plain without acoustic fleece

$\alpha_w$  **0.10 (L)**



### Typical sound attenuation values

with acoustic fleece with Premium B15

Standard perforation & microperforation **20 dB** **41 dB**

Extra microperforation **30 dB** **40 dB**

Plain **44 dB** **47 dB**

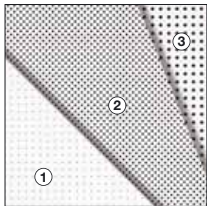
## ORCAL

Tegular  
Flush Tegular  
MicroLook  
Board

- Fully demountable - easy to replace
- MicroLook and Tegular available with 8 and 16 mm return
- Flush Tegular version for flush transition with grid
- Board tile is an economical way to obtain the benefits of a metal ceiling
- MicroLook to be installed either on Prelude 15 or Silhouette
- Tegular and Board to be installed on Prelude 24



▲ Plain



- ▲ 1 Orcal extra microperforation\*
  - ▲ 2 Orcal microperforation
  - ▲ 3 Orcal perforation
- \* Not available in Board

Orcal Extra microperforated  
MicroLook with Silhouette ▶



metal

Tegular, Flush Tegular, MicroLook, Board

## ORCAL

Tegular  
Flush Tegular  
MicroLook  
Board



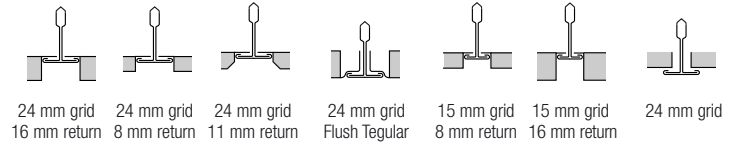
(1)

TEGULAR

FLUSH TEGULAR

MICROLOOK

BOARD



24 mm grid 16 mm return    24 mm grid 8 mm return    24 mm grid 11 mm return    24 mm grid Flush Tegular    15 mm grid 8 mm return    15 mm grid 16 mm return    24 mm grid



### Extra microperforation

600 x 600 mm	.....	2174 M	.....	2184 M	.....	2211 M
625 x 625 mm	.....	2145 D	.....	2174 D	.....	

### Microperforation

600 x 600 mm	.....	9682 M	.....	9685 M	.....	2150 M	.....	9444 M/2171 M*	.....	9324 M/2182 M*	.....	4702 M/2209 M*	.....	9427 M/2133 M*
625 x 625 mm	.....		.....	2150 D	.....		.....	2171 D	.....		.....		.....	2133 D
600 x 1200 mm	.....		.....		.....		.....		.....		.....		.....	2132 M/2134 M*

### Perforation

600 x 600 mm	.....	9681 M	.....	9684 M	.....	2149 M	.....	9443 M/2172 M*	.....	9339 M/2179 M*	.....	4701 M/2206 M*	.....	9335 M/2126 M*
625 x 625 mm	.....		.....	2149 D	.....		.....	2172 D	.....		.....		.....	2126 D
600 x 1200 mm	.....		.....		.....		.....		.....		.....		.....	2125 M/2127 M*

### Plain

600 x 600 mm	.....	9680 M	.....	9683 M	.....	2147 M	.....	9442 M/2168 M*	.....	9320 M/2175 M*	.....	4700 M/2189 M*	.....	9334 M/2119 M*
625 x 625 mm	.....		.....	2147 D	.....		.....	2168 D	.....		.....		.....	2119 D
600 x 1200 mm	.....		.....		.....		.....		.....		.....		.....	2123 M/2124 M*

\* depending on destination

Availability of products may vary according to country. Please contact your local Armstrong office for product range information.



UK Class 0/Class 1 (BS 476)



### Typical sound absorption values

Standard perforation with acoustic fleece

$\alpha_w$  **0.70 (L)**

Microperforation with acoustic fleece

$\alpha_w$  **0.75**

Extra microperforation with acoustic fleece

$\alpha_w$  **0.55 (L)**

Plain without acoustic fleece

$\alpha_w$  **0.10 (L)**



### Typical sound attenuation values

with acoustic fleece    with Premium B15

Standard perforation

& microperforation    **20 dB**    **41 dB**

Extra microperforation    **30 dB**    **40 dB**

Plain    **44 dB**    **47 dB**

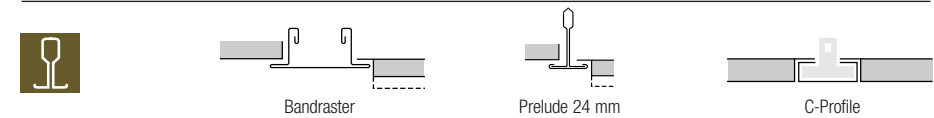
(1) For a short term exposure or back painted products  
A range of acoustic infills is available to achieve various acoustic performance levels. Please contact your local Armstrong office for further information.



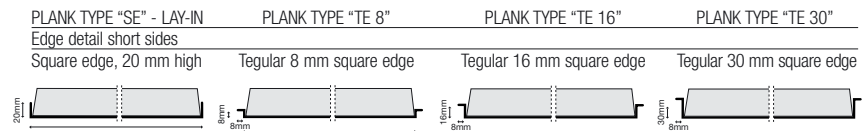
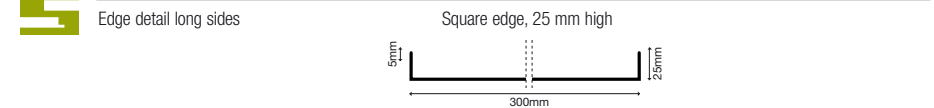
- Four edge details: SE, TE 8, TE 16 and TE 30
- Flexible lengths between 900 mm and 2000 mm
- Easy to install and demount
- Installation on Prelude 24 mm exposed grid or bandraster



**ORCAL PLANKS**



Four types of Orcal Planks are available featuring the following common details:



Perforations: Orcal Planks are offered in Plain finish, with Standard Perforation or with Microperforation and plain borders (see diagrams below). Orcal Planks with Extra Microperforation are perforated overall.



Width: 300 mm Length: variable between 900 mm and 2000 mm in increments of 1 mm

UK Class 0/Class 1 (BS 476)

**Typical sound absorption values**

Standard perforation with acoustic fleece

$\alpha_w$  **0.70 (L)**

Microperforation with acoustic fleece

$\alpha_w$  **0.75**

Extra microperforation with acoustic fleece

$\alpha_w$  **0.55 (L)**

Plain without acoustic fleece

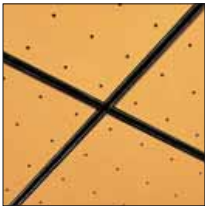
$\alpha_w$  **0.10 (L)**

**Typical sound attenuation values**

	with acoustic fleece	with Premium B15
Standard perforation & microperforation	<b>20 dB</b>	<b>41 dB</b>
Extra microperforation	<b>30 dB</b>	<b>40 dB</b>
Plain	<b>44 dB</b>	<b>47 dB</b>

(1) For a short term exposure or back painted products  
A range of acoustic infills is available to achieve various acoustic performance levels. Please contact your local Armstrong office for further information.

WOOD: the most beautiful, natural element you can find in the world for interior decoration, is available from Armstrong. Wood will enable you to create the most original and warm interiors. Whether plain or perforated, paper laminate or wood veneer, you can select the precise texture and colour best suited to your project.



▲ Madera MicroLook and Silhouette in Black



**DESCRIPTION**

Armstrong wood tiles are 600 x 600 mm, in MicroLook-edge and SL2 concealed grid. They are made of wood fibres of medium density or of Chipboard, surface treated to resist fire. The surface is plain or perforated with an acoustical black tissue fleece on the back. It is easy to install, and its smooth texture allows for clean perimeter finishes.

**Conditions of installation**

Madera tiles should be unpacked and stocked flat in an environment that is closed and not humid. Madera tiles should always be moved with care. Before installation, it is recommended to open the cartons and stack the tiles flat during 3 to 8 days in the room where they will be installed in order to stabilise the tiles in their future environment and conditions of use. Possible dimensional variations in a humid environment are those from typical wood-based tiles i.e. the amplitude between the driest and the most humid conditions can be up to 5 mm/m. The installation of Madera tiles should take place during the last phase of the job, in closed -and sometimes heated- rooms. No additional work potentially increasing the level of humidity in the room should be undertaken after the tiles are installed (concrete and plasterboards should be dry). Madera tiles should never be installed in rooms whose relative humidity is greater than 80% at 20°C.

The optimum installation conditions are reached when the room temperature is between 12 and 24°C for a relative humidity between 45 and 70%. In rooms where relative humidity is kept below 45% or above 70%, additional care should be given for installation.

**Installation recommendations**

Madera Veneer ceiling tiles are made with natural wood veneers. As they are natural products, their colour and structure regularity cannot be guaranteed. In order to obtain the best decorative effect, we advise you to follow the points below: 1. Display all the tiles before fitting 2. Arrange them aesthetically with regard to their shade and grain. 3. Install the ceiling tiles accordingly. With each order, it is recommended to allow for some extra tiles to accommodate for visual variations, as it will be very unlikely that similar looking tiles can be ordered later.

**Additional capabilities**

If required on a job site, cutouts can be factory made upon special request. Additionally, other veneers and laminates are available on special order basis.

**Applications**

Wood, the most beautiful and vivid material for interior decoration, will become your favoured choice for exclusive projects including conference rooms, lobbies, offices, department stores, restaurants, speciality shops, waiting and music rooms.



**GRID COORDINATION**

**MicroLook:** For better coordination between grid and tile the use of Prelude 15 mm in Black, Aluminium, or Brown is recommended. The elegant visual of Silhouette in Black is an excellent option, providing an aesthetically enhanced support grid with specific benefits where partition head locating positions are required.

**SL2:** The Madera SL2 ceiling range provides a monolithic visual by hiding the grid system and is available in the same finishes as MicroLook.



**ACOUSTICAL PERFORMANCE**

For improved acoustical performance, several perforation options are available upon request (diameter and percentage of perforations). For acoustical treatment, Mineral Ceilings and Wood tiles can be integrated by mixing Colortone or Nevada colour range tiles at the perimeters, to create (for example) excellent speech and listening qualities in any room, i.e. a sound reflective ceiling in plain wood tiles mixed with absorbent material can be utilised to optimise reverberation times.

LAMINATES



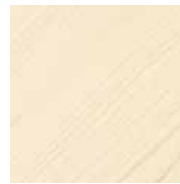
Curly maple (CM)



Pear (PH)



US Cherry (UC)



US Maple (UM)

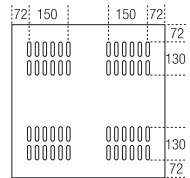


Lime tree (LM)

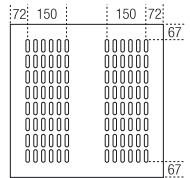


Beech (BH)

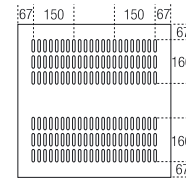
PERFORATIONS



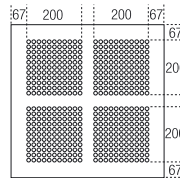
A8 (5.3% open area)



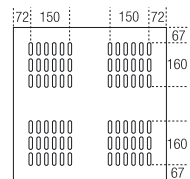
A11 (8.4% open area)



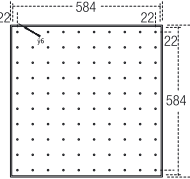
A12 (9.5% open area)



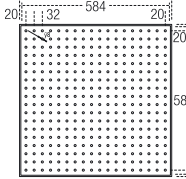
A13 (6.9% open area)



A10 (6.3% open area)

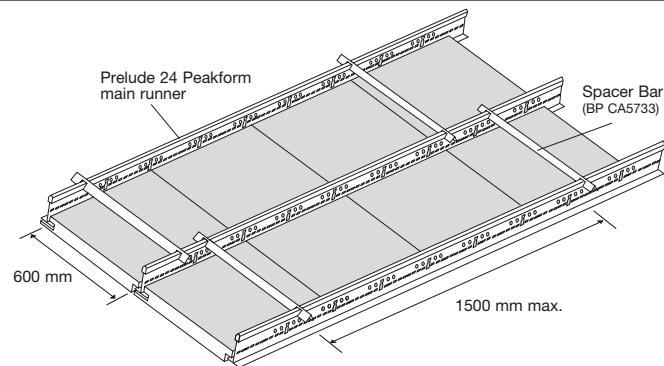


A2 (0.8% open area)



A1 (4.6% open area)

INSTALLATION SL2



WOOD VENEERS



MADERA

MICROLOOK

SL2



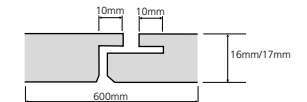
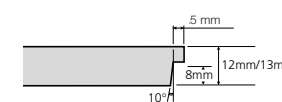
Prelude XL/TL 15 mm  
white, black, aluminium or brown



Prelude XL/TL 15 mm  
Silhouette



Prelude XL/TL 24 mm



Plain A2 A1 A8 A10 A11 A12 A13



MADERA MEDIUM DENSITY FIBREBOARD (MICROLOOK)

600 x 600 x 12 mm (1) . . . . . 9774 M . . . 9775 M . . 9776 M . . 9924 M . . 9925 M . . . 9926 M . . 9927 M . . 9928 M .  
600 x 600 x 13 mm (2) . . . . . 9777 M . . . 9778 M . . 9779 M . . 9930 M . . 9931 M . . . 9932 M . . 9933 M . . 9934 M .

MADERA CHIPBOARD (SL2)

600 x 600 x 16 mm (1) . . . . . 9936 M . . . 9937 M . . 9938 M . . 9939 M . . 9940 M . . . 9941 M . . 9942 M . . 9943 M .  
600 x 600 x 17 mm (2) . . . . . 9945 M . . 9946 M . . 9947 M . . 9948 M . . 9949 M . . . 9950 M . . 9951 M . . 9952 M .

(1) Laminates: available CM, PH, LM  
(2) Wood veneers: available UC, UM, BH



Laminates

Curly Maple (CM)  
Pear (PH)  
Lime Tree (LM)

Wood Veneers

US Cherry (UC)  
Beech (BH)  
US Maple (UM)



Laminates

Curly Maple 74 %  
Pear 36 %  
Lime Tree 55 %

Wood Veneers

US Cherry 25 %  
Beech 39 %  
US Maple 62 %



UK Class 1 (BS476)



α <sub>w</sub>	NRC	Hz						
		125	250	500	1000	2000	4000	
Perforation A2 (06)								
<b>0.15(L)</b>	<b>0.15</b>	0.30	0.20	0.15	0.15	0.15	0.15	0.15
Perforation A1 (08)								
<b>0.45(L)</b>	<b>0.45</b>	0.50	0.50	0.45	0.45	0.35	0.30	
Acoustical performances estimated (indicative value)								
A8	α <sub>w</sub>	0.30 - 0.35						
A10	α <sub>w</sub>	0.35 - 0.40						
A11	α <sub>w</sub>	0.40 - 0.45						
A12	α <sub>w</sub>	0.45 - 0.50						
A13	α <sub>w</sub>	0.45 - 0.50						



Dncw = 42 dB (Plain)



λ = 0.12 W/m²K (MDF)  
λ = 0.14 W/m²K (Chipboard)



70% RH



	MDF	Chipboard
Laminates	≈10 kg/m <sup>2</sup>	≈11.5 kg/m <sup>2</sup>
Wood Veneers	≈10.5 kg/m <sup>2</sup>	≈11.5 kg/m <sup>2</sup>

THE TRULOK RANGE

The Trulok range provides a **wide choice** of aesthetic and performance solutions: **24 mm and 15 mm grids, Bandrasters, designer grids and 35 mm grids** (for exposed and concealed installations), **long span systems** and a full complement of **accessories**.

All key module sizes are supported and special size options are available in many of the ranges.

Both fire rated and lower cost options are a part of each of the most commonly used systems.

**Stab and hook type installations are available** to meet the preferences of every installer. Trulok suspension systems are designed for use with the wide variety of Armstrong ceiling products, mineral, soft fibre, metal and special solutions.

The Trulok range now includes the **innovative Peakform universal main runners** with the staked-on **Superlock clip** both in 24 mm and 15 mm widths.

A selected range of standard Prelude 24 XL long cross tees and standard Prelude 15 XL cross tees are available with the Peakform feature.



FULL RANGE OF ACCESSORIES AND PERIMETER SOLUTIONS

Trulok suspension systems are offered with a complete range of commonly required accessories and perimeter solutions.



PEAKFORM

Peakform is an innovative design for main runners and cross tees.

**Peakform profiles** are engineered to create a **stronger, more stable suspension system** making **installation both faster and easier**.

**Superlock** is an industry first **staked-on clip** for main runners which provide **tighter, secure bulb-to-bulb connections**; connections are confirmed by an audible click; main runners are easily disconnected and reconnected laterally.



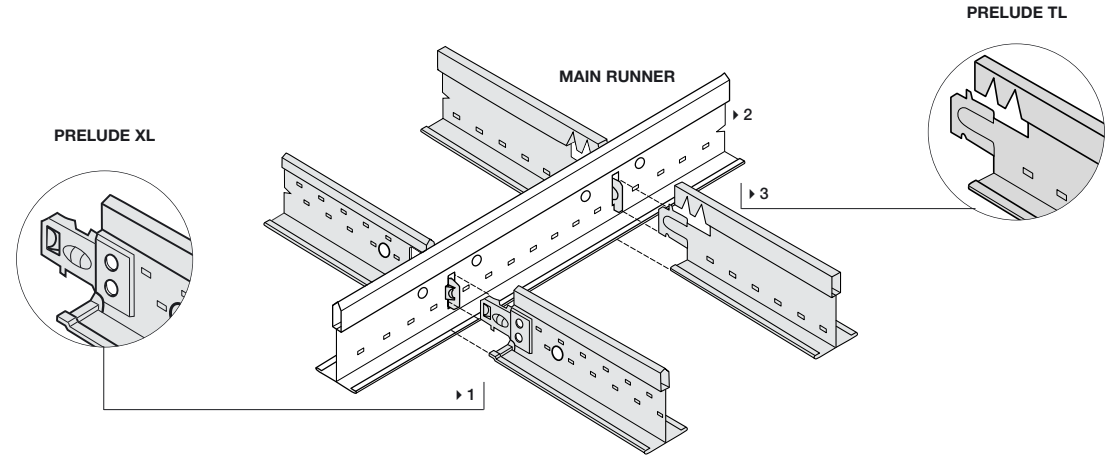
STITCHING

All Prelude components feature "stitched" construction. The two metal layers of the vertical web are mechanically locked together in a sophisticated in-line process. Stitching enhances the torsional resistance and general "feel" of the Prelude components.



COLOUR

Trulok suspension system components are manufactured in a range of colours and metal finishes including Global White to complement Armstrong ceiling tiles. For complete information call Internal Technical Sales.



▶ 1 PRELUDE XL "CLICK" INSTALLATION



Prelude XL cross tees in both **24 mm and 15 mm widths** feature an **advanced stab system** that locates with an **audible "click"**, ensuring a solid installation at all times. The stab end is precision stamped from a separate piece of high grade steel permitting an increased accuracy and economy of production over the more conventional integral forming of the cross tee ends. A selected range of standard Prelude 24 XL cross tees and standard Prelude 15 XL cross tees feature the **new Peakform design**. The cross tees are inserted to the right of each other through the main runner slots and easily pushed home.

▶ 2 THE PRELUDE UNIVERSAL MAIN RUNNER STORY

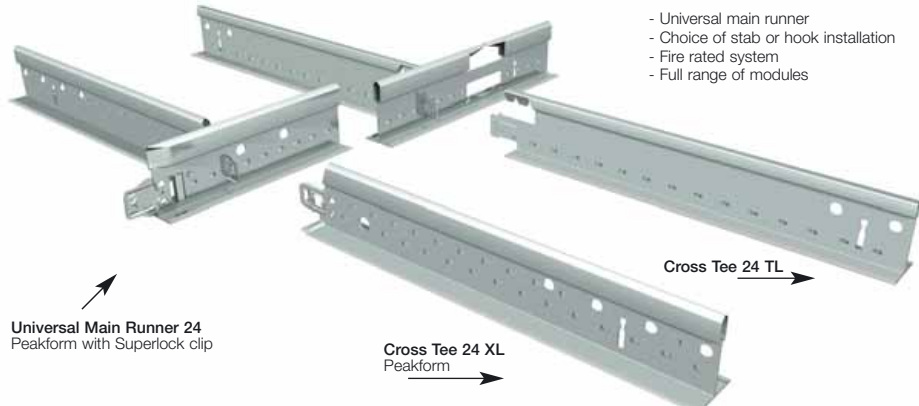


The Prelude universal main runner **supports the installation of either hook/butt cut or stab/joggled cross tees** from one simple inventory of main runners. The universal system is **available in Peakform design** in both 24 mm and 15 mm widths. The Peakform universal main runners with Superlock clip provide a quick and easy assembled main runner to main runner/ bulb-to-bulb connection. Metric sized main runners are **slotted at 100 mm centres for more flexibility**. Slots are machined to receive positive and accurate assembly of either Prelude TL (hook installation) or Prelude XL (stab installation) cross tees. The staked-on **Superlock clip** allows for main runners to be **disconnected and reconnected laterally in low-clearance areas** or in the middle of a room.

▶ 3 PRELUDE TL "HOOK" INSTALLATION

Prelude TL cross tees in both **24 mm and 15 mm widths** feature an integrally formed hook nose. This popular installation system has been a feature of Armstrong Trulok suspension systems for over 20 years and its proven ease of assembly and **precise butt cut joint** has been a favourite of installers. **Cross tee alignment is ensured** by locating the tees to the right hand side of the adjoining section.

PRELUDE 24 - EXPOSED SUSPENSION SYSTEM 24 MM (NOMINAL)



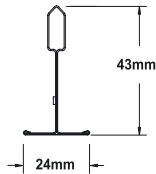
- Universal main runner
- Choice of stab or hook installation
- Fire rated system
- Full range of modules

Universal Main Runner 24  
Peakform with Superlock clip

Cross Tee 24 TL

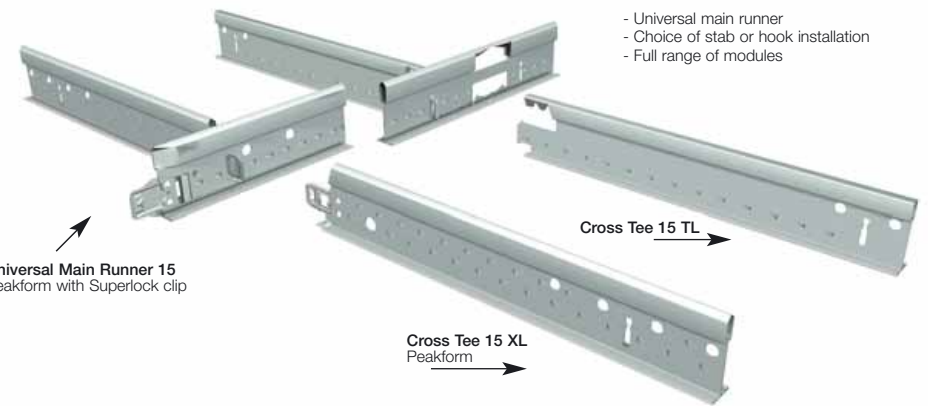
Cross Tee 24 XL  
Peakform

Prelude 24 Universal Main Runners  
Peakform



length (mm)	height (mm)
3600	43
3750	43
3375	43
3000	43

PRELUDE 15 - EXPOSED SUSPENSION SYSTEM 15 MM (NOMINAL)



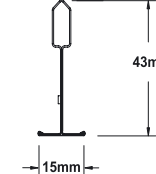
- Universal main runner
- Choice of stab or hook installation
- Full range of modules

Universal Main Runner 15  
Peakform with Superlock clip

Cross Tee 15 TL

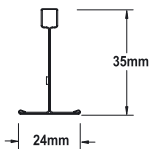
Cross Tee 15 XL  
Peakform

Prelude 15 Universal Main Runners  
Peakform



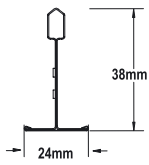
length (mm)	height (mm)
3600	43
3750	43
3375	43

Prelude 24 TL Cross Tees  
(hook system)



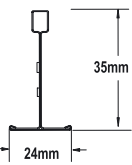
length (mm)	height (mm)
1200	35
1250	35
1350	35
1000	35
1500	35
1800	35
600	35
625	35
675	35
500	35
300	35
312.5	35

Prelude 24 XL Cross Tees  
(stab system) Peakform



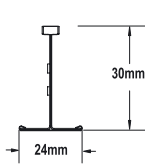
length (mm)	height (mm)
1200	38
1250	38
1000	38

Prelude 24 XL Cross Tees (stab system)



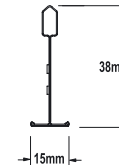
length (mm)	height (mm)
1800	35
300	35

Prelude 24 XL Cross Tees (stab system)



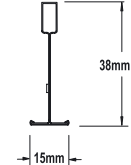
length (mm)	height (mm)
1200	30
600	30
625	30
500	30

Prelude 15 XL Cross Tees (stab system)  
Peakform



length (mm)	height (mm)
1200	38
1250	38
1350	38
1500	38
600	38
625	38
675	38
300	38
312.5	38

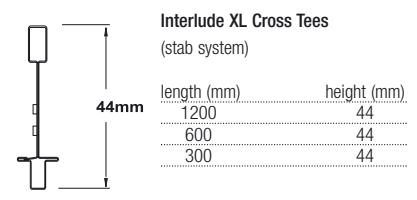
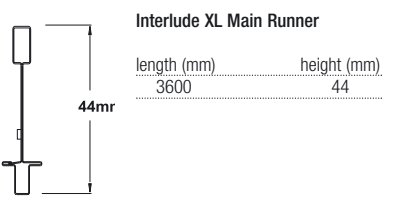
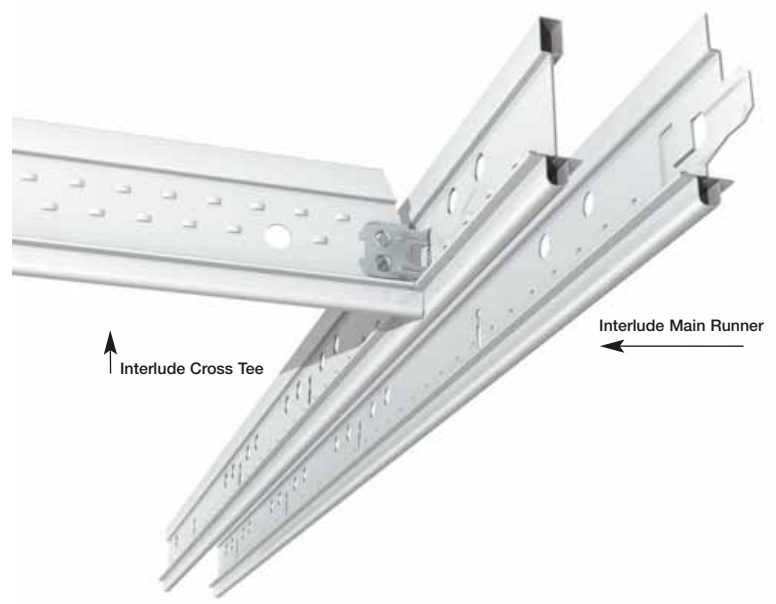
Prelude 15 XL Cross Tees (hook system)



length (mm)	height (mm)
1200	38
1250	38
1000	38
600	38
625	38
500	38

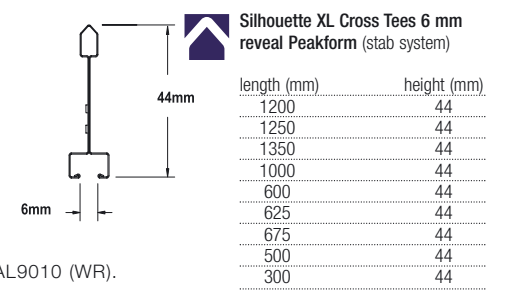
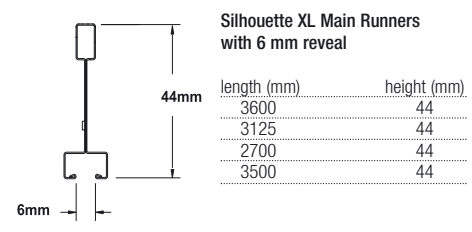
**INTERLUDE XL 15 MM (NOMINAL) DESIGNER GRID**

Interlude XL with its three dimensional rounded flange is available in Armstrong Global White.

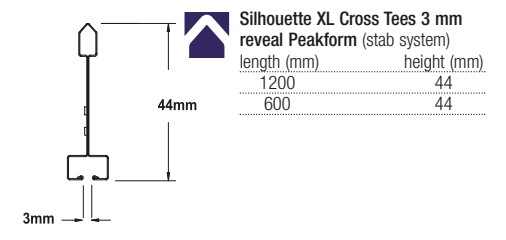
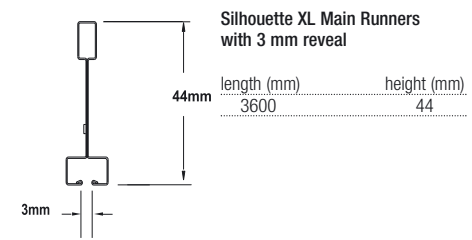


**SILHOUETTE XL 15 MM (NOMINAL) DESIGNER GRID**

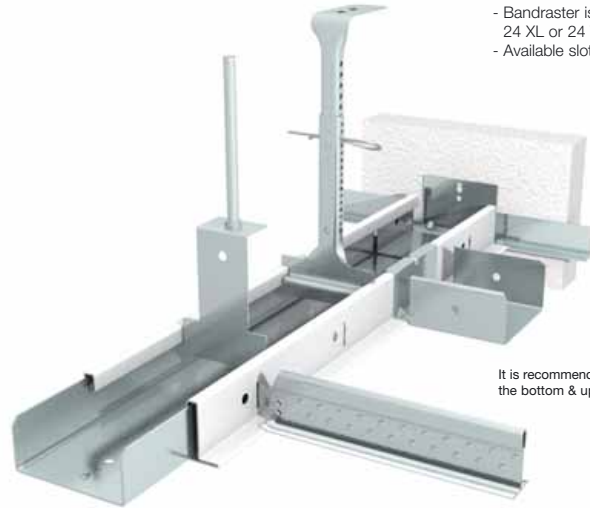
Silhouette with 6 mm reveal are available either in Armstrong Global White, Global White with black reveal (BI) or all Black (BK).



Silhouette with 3mm reveal are produced in RAL9010 (WR).



**BANDRASTER**



- Bandraster is compatible either with 24 XL or 24 TL cross tees
- Available slotted and unslotted

It is recommended to use 2 pins to connect the bottom & upper part of nonius

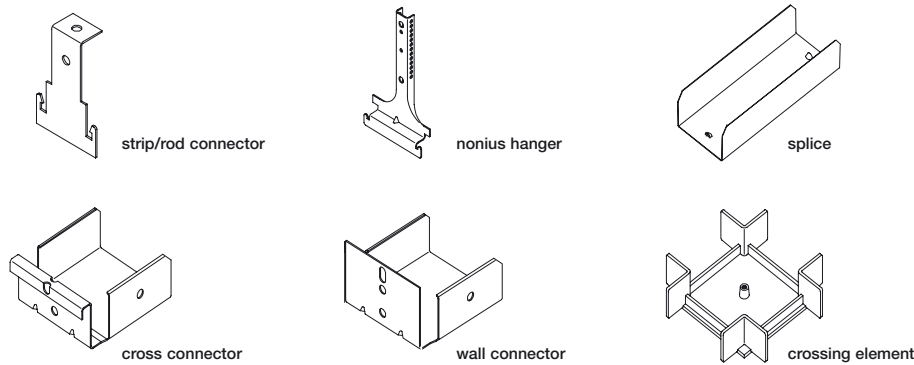


**Bandraster Sections (nominal sizes)**

length (mm)	width (mm)	slots at (mm)
3600	50	300 or 100
3600	75	300 or 100
3600	100	300 or 100
3600	125	300 or 100
3600	150	300 or 100
3750	100	312.5

(Bandraster 3750x100 does not exist in unslotted version)

**BANDRASTER ACCESSORIES**

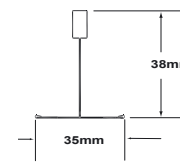


Please contact your Armstrong office for more information  
All sizes are nominal

**T35 - 35 MM EXPOSED SUSPENSION SYSTEM (NOMINAL)**

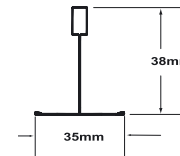
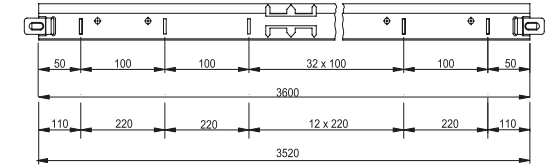
- 3 options available:  
T35 standard white  
T35 knurled for plasterboard  
T35 galvanised

- TL hook installation with override



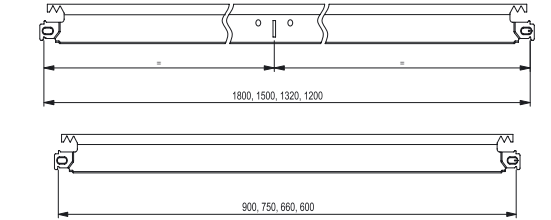
**T35 Main Runners**

length (mm)	height (mm)
3600	38
3520	38



**T35 Cross Tees**

length (mm)	height (mm)
1800	38
1500	38
1320	38
1200	38
900	38
750	38
660	38
600	38

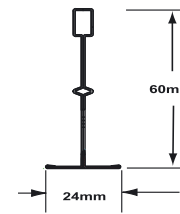


**PRELUDE SIXTY**

- Prelude Sixty main runners produced in double-layered, galvanised steel with stiffening rib

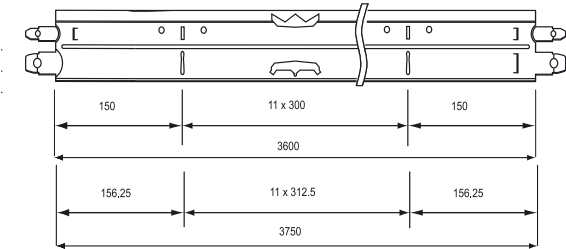
**LONGSPAN GRID (NOMINAL SIZES)**

- Compatible with XL cross tees
- Armstrong Global White



**Prelude Sixty Main Runners**

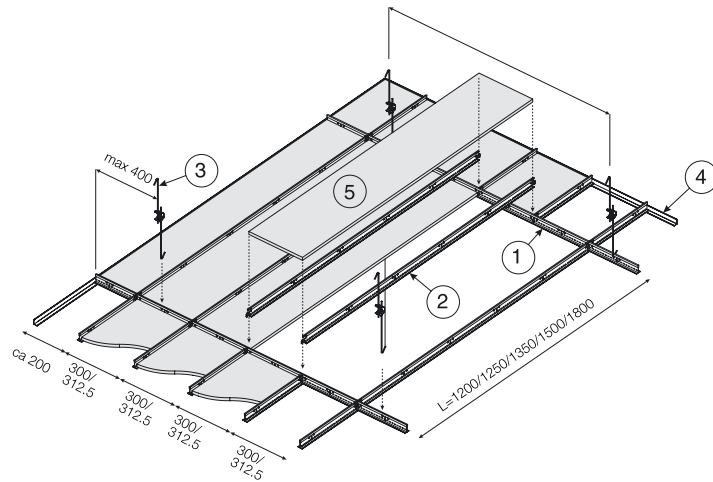
length (mm)	height (mm)
3600	60
3720	60



# Planks

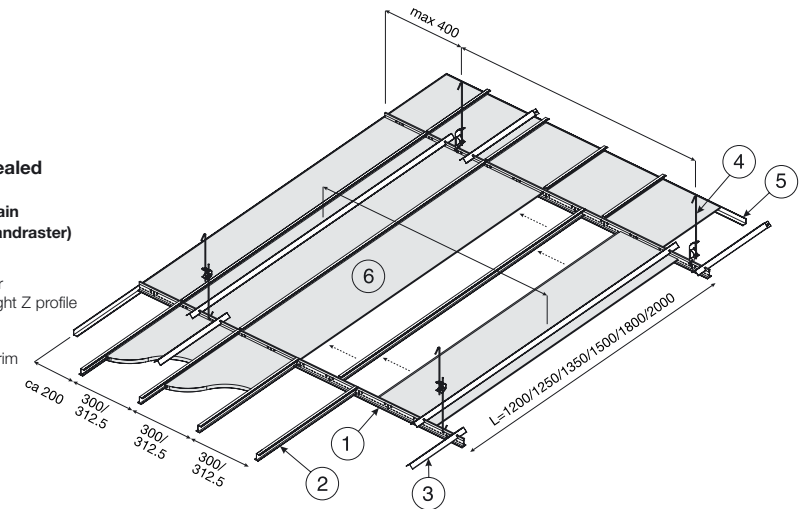
## Board, Tegular (Prelude 24)

- ▶ 1 Main runner
- ▶ 2 Long cross tee
- ▶ 3 Hanger
- ▶ 4 Perimeter trim
- ▶ 5 Plank



## Semi-concealed SL2/K2C2 (Trulok 24, Main runners or Bandraster)

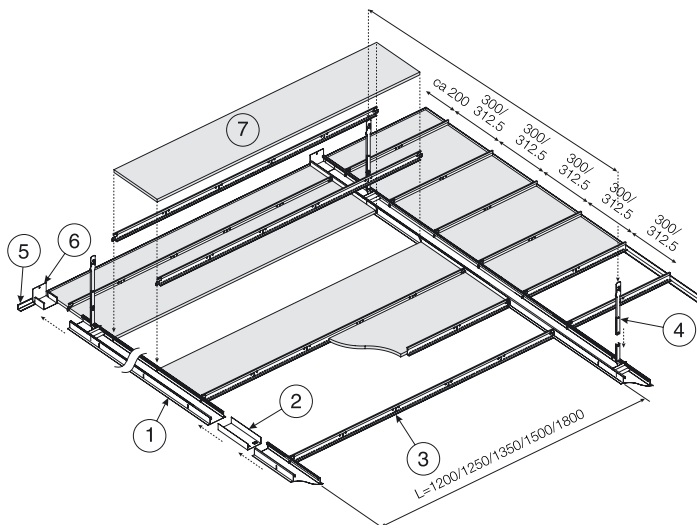
- ▶ 1 Main runner
- ▶ 2 Double height Z profile
- ▶ 3 Spacer bar
- ▶ 4 Hanger
- ▶ 5 Perimeter trim
- ▶ 6 Plank



## Board, Tegular, MicroLook\* (Bandraster)

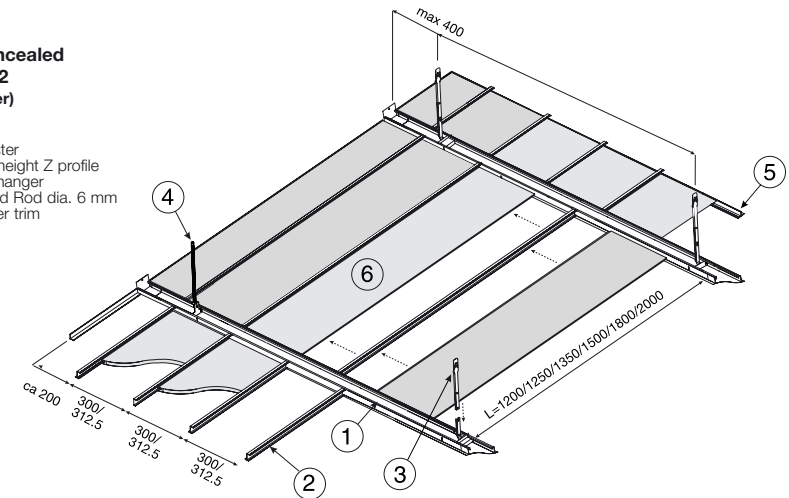
\*Specific MicroLook cross tee needs to be specified to fit with slotted Bandraster. Please contact Internal Technical Sales for complete information.

- ▶ 1 Bandraster
- ▶ 2 Splice
- ▶ 3 Long cross tee
- ▶ 4 Nonius hanger
- ▶ 5 Perimeter trim
- ▶ 6 Wall connector
- ▶ 7 Plank



## Semi-concealed SL2/K2C2 (Bandraster)

- ▶ 1 Bandraster
- ▶ 2 Double height Z profile
- ▶ 3 Nonius hanger
- ▶ 4 Threaded Rod dia. 6 mm
- ▶ 5 Perimeter trim
- ▶ 6 Plank





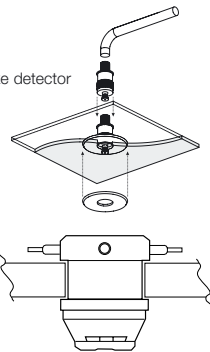
# Service integration

The drawings in this section indicate the ease with which various building services may be integrated into Armstrong ceilings. For details on the integration of elements not included below please contact our Internal Technical Sales.

## Sprinklers/fire



▲ Sprinkler head and smoke detector with Fine Fissured ceiling



### Sprinkler heads

Tiles installed to facilitate early fitting of sprinkler heads or smoke detectors (etc) should be the same batch number as tiles used to complete the ceiling installation.

### Sprinklers above open cell systems

U.K. sprinkler regulations require that the open area of open cell ceilings must exceed 70 % and the sprinkler head be greater than 800 mm above the ceiling.

### Integration of smoke detectors

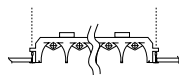
Smoke detectors are easily integrated into all Armstrong ceilings and enhance the safety aspects of all buildings (see sprinklers).

NOTE: Depending upon weight, a pattress may be required to transfer the load back to the grid.

## Luminaires



▲ Downlight with Visual V64 ceiling

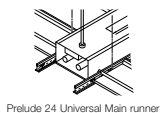


### Recessed luminaires

Care must be taken if luminaires are to be supported from the ceiling grid to avoid overloading with a possible deflection and/or twisting of the grid.

### Continuous lighting trunking

The support of cross tees needs to be considered as does any requirement for full module ceilings either side of a continuous lighting trunking.



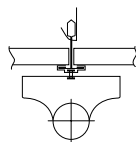
Prelude 24 Universal Main runner

### Surface mounted lighting

See comments for attachments to Trulok 24 and 15 grids.



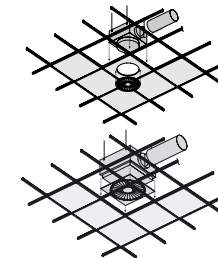
▲ Spot lights with Graphis ceiling



### Spot lights and downlights

Spot lights and downlighters may be easily incorporated into Armstrong ceilings but will require a bearing section or support pattress on the back of the tile to guarantee long term stability and position.

## Air grilles



### Integrated grilles

The grilles should always be independently supported unless special provisions are made in the structure of the suspended ceiling.

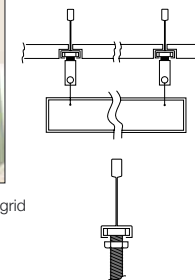
### Modular grille

See comments relative to continuous lighting trunking.

## Hanging signage/attachments to exposed grids



▲ Signage into Silhouette grid

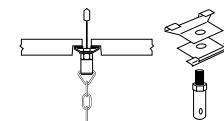


### Signage support

Signage can be supported from the ceiling grid but care must be taken to avoid overloading. Hanger clip ACE 7898 allows loads to be supported direct from the structural soffit. Please consult Internal Technical Sales.

### Attachment to Silhouette 6 mm reveal feature grid

Silhouette reveal feature grid sections provide an excellent platform to which demountable partitions may be fixed, surface mounted lighting attached or signage suspended.



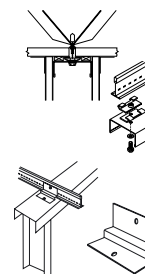
### Attachments to exposed T-sections

See comments relative to signage for loading information. A935 and ATW15 assemblies should be specified for use with Trulok 24 and 15 grids respectively.

## Partition heads



▲ Partition with Silhouette grid

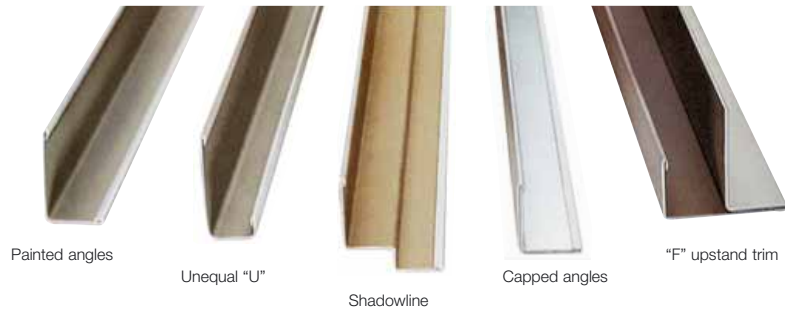


### Partitions to exposed tee systems

Where fire protection or sound transmission is a prime requirement ceiling tiles should be re-regularised to sit on to the partition head or the partition built through the ceiling.

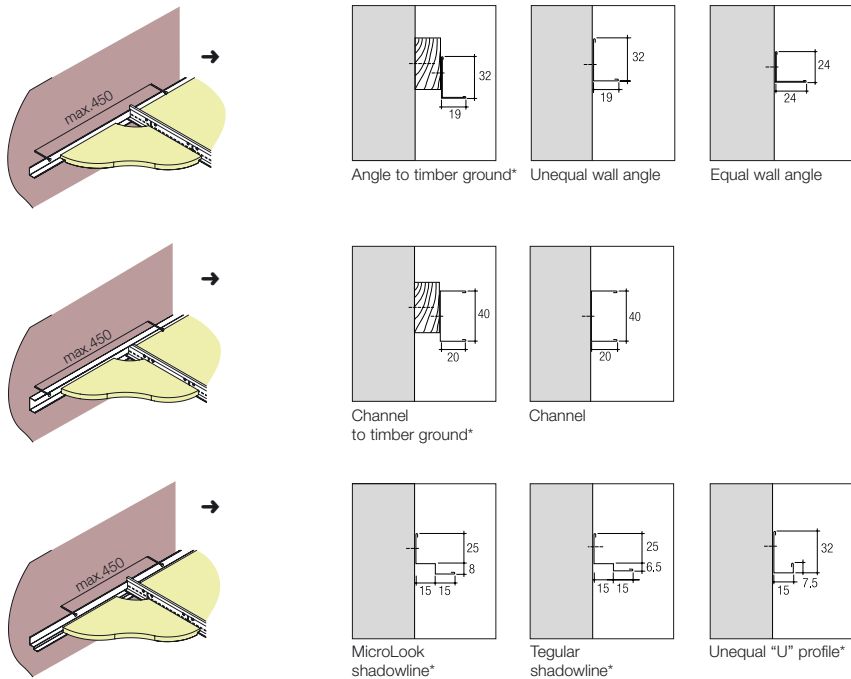
### Universal partition clip

Attaches to grid to provide fixing for partition headtrack: reversible for 15 mm or 24 mm grid.



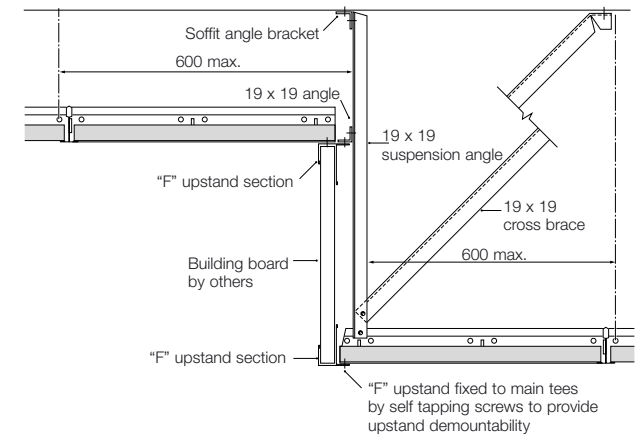
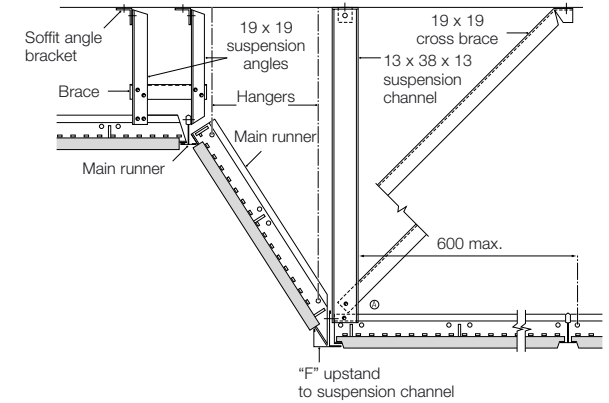
Perimeter finishes

Shown here are several methods of finishing suspended ceilings at the perimeter junction.



\*Non Fire rated

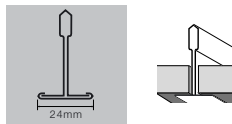
Attractive shadows, shapes and height variations are created when the edge details are modified. These could have a Board or Tegular finish combined with different types of perimeter trims. Specifiers may also wish to use alternative materials.



All the products presented in this brochure relate to one of the guide specifications below which are numbered. The guide specification number is mentioned next to each product in order to be easily and quickly identified.

**24 mm exposed grid systems**

Guide specification no. 1 for butt (square) edge tiles



Prelude 24 XL/TL Board

**Ceiling tiles** shall be Armstrong butt edge (state product name) tiles, with (state surface pattern) size (600 x 600 or 1200 x 600 mm), colour ( ) item no. ( ).

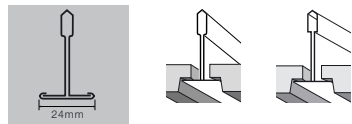
**Suspension system:** shall be the Armstrong stitched Trulok 24 exposed grid system with 24 mm wide T-section flanges, colour ( ).

**Installation:** to comprise main runners spaced at 1200 mm centres securely fixed to the structural soffit by approved hangers at 1200 mm maximum centres and not more than 150 mm from spliced joints. The last hanger at the end of each main runner should not be greater than 600 mm from the adjacent wall. Flush fitting 1200 mm long cross tees to be interlocked between main runners at 600 mm centres to form 1200 x 600 mm modules. Cut cross tees longer than 600 mm require independent support. 600 x 600 mm modules to be formed by fitting 600 mm long flush fitting cross tees centrally between the 1200 mm cross tees.

**Perimeter trim** to be Armstrong Trulok (item no.) wall angle or channel, colour ( ) secured to walls at 450 mm maximum centres.

NB 1: this guide specification should be read in conjunction with the installation notes on page 126 (item numbers are available by contact with our Internal Technical Sales at the address given on the back page of this brochure). In specific circumstances hanger spacing may be extended to 1800 mm (see technical bulletin RAED/04/95).

Guide specification no. 2 for Tegular and SecondLook tiles



Prelude 24 XL/TL Tegular SecondLook

**Ceiling tiles** shall be Armstrong Tegular edge (state product name) tiles, with (state surface pattern) size (600 x 600 or 1200 x 600 mm), colour ( ) item no. ( ).

**Suspension system:** shall be the Armstrong stitched Trulok 24 exposed grid system with 24 mm wide T-section flanges, colour ( ). **Installation:** to comprise main runners spaced at 1200 mm centres securely fixed to the structural soffit by approved hangers at 1200 mm maximum centres and not more than 150 mm from spliced joints. The last hanger at the end of each main runner should not be greater than 600 mm from the adjacent wall.

**SecondLook tiles:** flush fitting 1200 mm long cross tees to be interlocked between main runners at 600 mm centres to form 1200 x 600 mm modules. Cut cross tees longer than 600 mm require independent support.

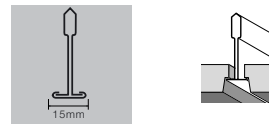
**Tegular tiles:** flush fitting 1200 mm long cross tees to be interlocked between main runners at 600 mm centres to form 1200 x 600 mm modules. Cut cross tees longer than 600 mm require independent support. 600 x 600 mm modules to be formed by fitting 600 mm long flush fitting cross tees centrally between the 1200 mm cross tees.

**Perimeter trim** to be Armstrong Trulok (item no.) wall angle or channel, colour ( ) secured to walls at 450 mm maximum centres.

NB 1: this guide specification should be read in conjunction with the installation notes on page 126 (item numbers are available by contact with our Internal Technical Sales at the address given on the back page of this brochure). In specific circumstances hanger spacing may be extended to 1800 mm (see technical bulletin RAED/04/95).

**15 mm exposed grid systems**

Guide specification no. 3 for MicroLook edge detail tiles



Prelude 15 XL/TL MicroLook

**Ceiling tiles** shall be Armstrong (state product name) tiles, with (state surface pattern), size (600 x 600 mm), colour ( ) item no. ( ).

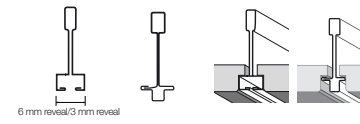
**Suspension system:** shall be the Armstrong stitched Trulok 15 exposed grid system with 15 mm wide T-section flanges, colour ( ), 15 mm grid.

**Installation:** to comprise main runners spaced at 1200 mm centres securely fixed to the structural soffit by approved hangers at 1200 mm maximum centres and not more than 150 mm from spliced joints. The last hanger at the end of each main runner should not be greater than 600 mm from the adjacent wall. Flush fitting 1200 mm long cross tees to be interlocked between main runners at 600 mm centres to form 1200 x 600 mm modules. Cut cross tees longer than 600 mm require independent support. 600 x 600 mm modules to be formed by fitting 600 mm long flush fitting cross tees centrally between the 1200 mm cross tees.

**Perimeter trim** to be Armstrong Trulok (item no.) wall angle or channel, colour ( ) secured to walls at 450 mm maximum centres.

NB 1: this guide specification should be read in conjunction with the installation notes on page 126 (item numbers are available by contact with our Internal Technical Sales at the address given on the back page of this brochure).

Guide specification no. 4 for MicroLook edge detail tiles to the Silhouette/Interlude reveal profile suspension system



Silhouette/Interlude MicroLook

**Ceiling tiles** shall be Armstrong (state product name) tiles, with (state surface pattern), (state, size, colour ( ) tile item no. ( ).

**Suspension system:** shall be the Armstrong Trulok Silhouette reveal profile grid system with 15 mm wide flanges incorporating a 3 or 6 mm central recess. Colour (state all white or all black or white with black reveal). Silhouette main runners and cross tees to have mitred ends and "birdsmouth" notches to provide mitred cruciform junctions. **Installation:** to comprise main runners spaced at 1200 mm centres securely fixed to the structural soffit by approved hangers at 1200 mm maximum centres and not more than 150 mm from spliced joints.

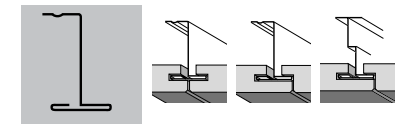
The last hanger at the end of each main runner should not be greater than 600 mm from the adjacent wall. 1200 mm long cross tees to be interlocked between main runners at 600 mm centres to form 1200 x 600 mm modules. Cross tees longer than 600 mm require independent support. 600 x 600 mm modules to be formed by fitting 600 mm long cross tees centrally between the 1200 mm cross tees. The 1200 mm cross tees to have central "birdsmouth" notches to facilitate fitting of 600 mm cross tees.

**Perimeter trim** to be Armstrong Trulok (item no.) wall angle or channel, colour ( ) secured to walls at 450 mm maximum centres.

NB 1: this guide specification should be read in conjunction with the installation notes on page 126 (item numbers are available by contact with our Internal Technical Sales at the address given on the back page of this brochure).

**Semi-concealed grid systems**

Guide specification no. 5 for semi-concealed grid plank systems (K2C2 and SL2)



K2C2 SL2 Double height Z on SL2

**Ceiling tiles** shall be Armstrong (state product name) (state surface pattern) with (state K2C2 or SL2) edges, size (state size), product item no. ( ).

**Suspension system:** shall be the Armstrong designated system for the type and size of plank specified. In view of the variation of plank type/size and differing requirements of individual projects, contact should be made with Armstrong's Internal Technical Sales at the address given on the back cover of this brochure.

NB 1: this guide specification should be read in conjunction with the installation notes on page 126 (item numbers are available by contact with our Internal Technical Sales at the address given on the back page of this brochure).

**Site conditions**

While it is the contractor's responsibility to ensure that materials delivered to the installation site are safeguarded from the time of his purchase until he hands over the finished ceiling, specifiers will find it useful to know what conditions must be observed to obtain best results.

**Site storage**

Site storage and handling to the place of installation is generally provided by the Building Contractor. He must be informed as to the desirability of flat, dry, clean and safe storage facilities. Armstrong pack their products so they will withstand careful site handling. Shrink-wrapping is not waterproof. As a carton may be handled as many as 8 or 10 times from manufacturer to erection, any rough handling, rolling of cartons or dropping cartons on their edges may cause the product to deteriorate.

**Installation**

It is recommended that all ceiling products are cut with a sharp knife. If mechanically operated tools are used these tools should be operated with local exhaust ventilation in accordance with the Control of Substances Hazardous to Health Regulations 2002 (COSHH). When these installation instructions are followed no excessive dust is created. Unnecessary breakage of the product should be avoided.

If excessive dust is created approved respiratory protection should be worn. Such protection is deemed to be required when the total weight of inhalable dust exceeds 5 mg/m<sup>3</sup> or 2 fibre/ml, when averaged over an 8 hour time period.

**Installation conditions**

Armstrong suspended ceilings are interior finishes and the site conditions during the installation should reflect this. The range of products provides the building industry with a choice of performances. Prima or 95% RH products have warranted performance when fixed and maintained in humidity conditions not exceeding 95% RH (see page 6). This enhanced standard provides both building programme flexibility and increased safety margins should conditions vary during and following installation. Tatra, Cortega and the Design Range of products remain as 70% RH max. which was the industry standard for over 30 years. Having stored the product within the area to be fixed for 24 Hrs., Armstrong ceilings may be installed within a temperature range

of 11°C - 35°C. The stability of the temperature within that range is, however, the prime importance.

If there is an appreciable drop in temperature there will be a resultant increase in the RH % which may be to the detriment of the ceiling materials, both installed and uninstalled. At lower temperatures, particularly below 11°C, small reductions in temperature cause disproportionately high increase in RH %. The closer the temperature falls towards 0°C the more volatile the relationship becomes. The required stability of site conditions is only likely to be achieved if the building is weather-proof, dried out, fully glazed, and during the winter months some form of dry heating is provided. Increased ventilation should be used to reduce excess heat build up during the day caused by solar heat gain. Controlled ventilation should be used to disperse moisture-laden air. Mechanical de-humidifiers are designed to reduce the moisture content in the air within the building. The direct burning of fossil fuels such as butane or propane gas is not recommended as these liberate approximately 2.2 litres of water for every 500 g of fuel burnt. It is better to use dry heat such as electricity or indirect hot air and to use de-humidifiers only to reduce the % RH created by moisture emitting from the structure. A new building does not normally contain a reservoir of heat absorbed into the structure, thus during holiday periods the temperature within the shell may drop rapidly so that condensation could occur. Consideration should be given to delaying the installation of tiles or panels until after the holiday period, when the heating and any de-humidification are in operation. Where the fixing programme will not allow this, it may be possible to install the grid work and the tiles or panels in separate operations. This is generally more costly due to the increased labour costs and extended use of scaffolding and other services. There is also additional risk of damage to the installed grid by other trades during the enforced break.

**After completion**

Sometimes buildings are not occupied after completion and hand-over to the client. In such cases the building is allowed to cool and minimum background heating is provided to protect the finishes. Below 11°C the likelihood of condensation increases. To allow equalisation of the prevailing conditions above and below the ceiling, panels or access tiles should be temporarily removed. The sheet lenses of recessed luminaries may also be left out to achieve the same effect.

These options may not be available if the ceiling is to provide the passive fire protection of the building. Heat build up caused by solar heat gain may need dispersing to reduce the risk of condensation at or after dusk.

Special attention should be given to the situations where the presence of additional insulation, either on the back of the ceiling or within the roof construction, alters the temperature gradient in the construction with the corresponding movement of the dew point. The installation should therefore be checked by calculation and if there is a risk of condensation, the ceiling void should be sufficiently ventilated to avoid this.

It may be necessary to fit a vapour control layer between the suspended ceiling and the thermal insulation so as to control these effects.

**Maintenance and cleaning**

Maintenance on suspended ceilings should only take place after the effect of such work upon the technical functions of the installation (in particular the fire and acoustic performance), has been fully considered. If in doubt, please consult the Internal Technical Sales. The specialists there will help you in assessing your projected maintenance operation and offer advice on future performance of the existing ceiling after it has been carried out. Armstrong mineral wool ceilings require no more maintenance than painted ceilings. However, when maintenance is necessary, certain procedures should be followed to ensure continued high performance and attractive appearance.

**Cleaning**

First remove surface dust from the ceiling using a soft brush. Pencil marks, smudges etc. may be removed with an ordinary art gum eraser.

An alternative method of cleaning is with a moist cloth or sponge dampened in water containing mild soap or diluted detergent. The sponge should contain as little water as possible.

The ceiling must not be made wet. After washing, the soapy film should be wiped off with a cloth or sponge lightly dampened in clear water.

- Abrasive cleaners must not be used.
- Ceramaguard ceilings are unaffected by moisture and can be made damp with no adverse results.
- Parafon Hygien can be repeatedly washed and will withstand mild detergent and germicidal cleaners.

- Specialist contractors offer cleaning services using chemical solutions. Where these methods are employed, it is recommended that a trial operation is first carried out so that the result and overall effect can be assessed. It is best in this case to conduct such a test in a non-critical area of the building.

**Replacement or access of installed products**

While minor damage on ceiling tiles and boards can be repaired using commercially available fillers, a colour match is rarely achieved. When surface damage is extensive, consideration should be given to replacing the damaged tiles or boards. Methods exist of replacing installed ceiling tiles or panels. The installation of new material in this situation is likely to introduce colour variation. This effect can be substantially reduced either by redecoration of the complete surface or by using tiles or panels obtained by the replacement of a less significant area with new material. During access or removal of products, dust accumulated on the ceiling from various sources may make it necessary for approved respiratory protection to be worn. Such protection is deemed to be required when the total weight of inhalable dust exceeds 5 mg/m<sup>3</sup> or 2 fibres/ml, when averaged over an 8 hour time period.

**Caution**

Products should be installed in accordance with relevant British Standards and the Control of Substances Hazardous to Health Regulations 2002 Reference should be made to BS 8290 1991 Suspended Ceilings, which is published in three parts:  
 Part 1: Code of Practice for Design.  
 Part 2: Specification for performance of components and assemblies.  
 Part 3: Code of Practice for installation and maintenance. With respect to the COSHH Regulations further information is provided on Manmade Mineral Fibres (MMMF) in Guidance Note EH 46 published in November 1990 by the Health and Safety Executive. These regulations also require that a supplier makes available a Health Hazard Specification for all products and copies of these statements are available.

## acoustics

### A-weighted Decibel - dB(A)

The A-weighting is a correction applied to the measured sound pressure level which is considered to approximate to the response of the ear over the normal range of sound levels heard, and thus correlates well the subjective reaction to sound.

### Ceiling Attenuation Class, CAC

A single-number rating of the laboratory measurement of sound attenuation between rooms sharing a common ceiling plenum.

The rating is determined in accordance with ASTM E 413-87 from measurements made in accordance with ASTM 1414-91a over the third-octave band frequency range 125-4000 Hz.

### Frequency

The number of times per second in Hertz (Hz) at which sound pressure waves are generated by a source.

### Hertz (Hz)

The unit of frequency measurement. One cycle per second is one Hertz.

### Noise Reduction Coefficient, NRC

A single-number descriptor for random incidence sound absorption coefficients. Defined in ASTM 423 90a, as the arithmetical average, to the nearest multiple of 0.05, of the measured sound absorption coefficients at the four one-third octave band centre frequencies of 250, 500, 1000 and 2000 Hz.

### Reverberation

The persistence of sound in an enclosure, due to its continued reflection from the surfaces (walls, ceiling, floor, etc...), after the sound source has ceased. Reverberation is of significance in determining the quality and level of sound in an enclosure.

### Reverberation Time

The time, in seconds, required for reverberant sound in an enclosure to decay to one-millionth (60 dB) of its original intensity after the cessation of the sound source. Reverberation time is frequency dependent and is normally measured in third-octave or octave bands.

### Sound Absorption

The conversion of sound energy into heat (by friction) when passing through or striking a material or when causing a volume of air to resonate.

### Sound Attenuation

A term used in relation to the transmission of sound between rooms sharing a common ceiling plenum.

### Sound Insulation

A general term describing the separation of airborne sound between one space and another provided by a barrier between.

### Sound Transmission Class, STC

A single-number rating of the laboratory measured airborne sound transmission loss. It is calculated in accordance with ASTM E 413-87 using measured values of sound transmission loss obtained in accordance with ASTM E 90-90 over the frequency range 125-4000 Hz.

### Weighted Sound Absorption

#### Coefficient, $\alpha_w$

A single-number rating for random incidence sound absorption coefficients determined in accordance with EN ISO 11654. With this method measured values obtained in accordance with EN ISO 20354, are converted into octave bands at 250, 500, 1000, 2000 and 4000 Hz and are plotted on a graph.

A standard reference curve is then shifted towards the measured values until a "best fit" is obtained.

The derived value of  $\alpha_w$  will vary between 0.00 and 1.00 but is only expressed in multiples of 0.05 eg  $\alpha_w = 0.65$ .

### Weighted Sound Reduction Index - Rw

A single number rating of laboratory measurement of airborne sound reduction index. The rating is determined in accordance with EN ISO 717-1 from measurements made in accordance with EN 20140-3 over the third-octave band frequency range 100-3150 Hz.

### Weighted Suspended Ceiling Normalised Level Difference, Dncw

A single-number rating of the laboratory measurement of room to room airborne sound insulation of a suspended ceiling with a plenum above it. The rating is determined in accordance with EN ISO 717-1 from measurements made in accordance with EN 20140-9 over the third-octave band frequency range 100-3150 Hz.

## fire

### Fire Reaction

Classification of tested material specified laboratory procedures evaluating combustibility such as Surface Spread of Flame and Fire Propagation.

### Fire Resistance

Property of a ceiling acting as a horizontal cavity barrier either in isolation or in conjunction with other barriers.

### Non combustible

A definition of combustibility defined by a specific test method. Products not meeting this requirement are defined as "combustible".

### Structural Fire Protection

The use of tested systems to provide insulation to steel beams or steel lattice beams against the high temperature generated by a fire.

### Structural Fire Resistance

The use of a tested assembly to provide additional resistance to a floor which has inadequate resistance of its own.

## other definitions

### Bioblock treatment

Bioblock paint contains a special fungicide that inhibits or retards the growth of mould or mildew on the painted surface.

### Class 100

Class 100 is a classification for a "measured environment" known as a clean room. It limits the amount of particles greater than 0.5 microns to 100 per cubic foot of air as defined by US Fed Standard 209E (BS 5295).

**Clean Room**

A room for product assembly or health care whose dust, lint, or airborne pathogens air quality is critical. Such areas usually have smooth room surfaces to prevent dust collections; air precipitators or filters in order to keep dust, lint, etc... to a specified minimum level.

**Durability**

High resilience to damage. Resistance of the ceiling tile to the vigorous cleaning, scrubbing, scratching and impact.

**Hard Mineral Wool**

A wet formed material manufactured from slag wool or rock wool, perlite, cellulose and binders, that can be punched, rilled, scored and painted to form decorative ceiling surfaces.

**Humidity Resistance**

Ceiling tiles ability to perform without sagging. Standard tiles & panels are designed for installation within normal occupancy condition range of 11 to 35°C and maximum 70% RH. When temperature and humidity resistance are expected to exceed these ranges, the use of 95% or 100% RH products should be considered.

**Hygiene - Anti-microbial Treatment**

Where strictly controlled hygienic air quality is a project requirement, chemically treated tiles are available. Treatment is designed to inhibit mould, mildew and bacteria.

**Hygiene - High Pressure Cleaning**

The use of a superior quality fibreglass facing on the Parafon Hygien product means that it can be cleaned using a high pressure water spray (max 80 bar). The application must be in the form of a fan spray of min 30° and not a high pressure “cutting jet”. The suggested minimum distance between the nozzle and the ceiling tile should not be less than 300 mm and the angle of application should be 45°.

**Laminated Ceiling Product**

A hard mineral wool product with surface laminates such as metal laminate, glass wool scrim or polyester film.

**Light Reflectance (LR)**

Light reflectance of a surface is its property of reflecting light. The measure of light reflectance is that fraction of the specified incident light which is reflected by the surface expressed as a percentage value.

**Scrubability/Frequent Cleaning**

For applications where cleanliness is a priority, tiles may require cleaning beyond normal maintenance procedures. Ceilings with special facing material such as vinyl film offer superior performance. Metal ceilings may also be used for these applications.

**Soft Mineral Wool**

A ceiling product manufactured from raw materials such as rock wool, glass wool and binders with decorative facings.

**Thermal Conductivity ( $\lambda$ )**

Ability of the material to resist heat transmission. The lower the reported number, the better the thermal insulation provided.

**Washability/Occasional Cleaning**

Ceiling tiles can be cleaned with moist cloth or sponge damped in water containing mild soap or diluted detergent.

**systems/edge details/installation****Backcut**

The removal of the upper section of the kerf detail to enable the insertion of the vertical portion of the suspension member.

**Bandraster**

A wider than standard exposed grid system which can be used to define the ceiling module as linear, square or rectangular spaces. Bandraster is also used to provide location for partition systems.

**Board**

Edge detail used with 24 mm wide visible grid, resulting in a flat ceiling plane.

**Cross Tees**

Secondary element that is inserted into the main runner to form different module sizes.

**K2C2**

Kerfed two sides, backcut two sides.

**Kerf**

Groove in the edge of ceiling tile which locates and hides a suspension member.

**Main Runner**

Primary support element of an exposed tee ceiling suspension system which is suspended from the structure.

**MicroLook**

Rebated tile edge used with 15 mm wide visible grid, resulting in a revealed ceiling plane.

**Peakform**

Peakform, an advanced design of profiles for suspended ceilings.

The new bulb shape and taller profile make ceiling installations easier, faster and creates a better grid system all round.

**Perimeter Trim**

Components of right angled shape, either simple or compound (stepped), installed at the suspension grid perimeter to complete the ceiling.

**SL2**

Suspended ceiling with semi-concealed grid using tiles with a special “shiplapped” (SL2) edge detail allowing fast and easy access to the ceiling void.

**Superlock**

The Superlock main runner clip is engineered for a strong, secure connection and fast accurate alignment confirmed with an audible click.

**Tegular**

Rebated tile edge used with 24 mm wide visible grid, resulting in a revealed ceiling plane.

**Specifying ceilings**

The following information has been assembled as a means to assist you in the definition of your needs. The following points should receive consideration at the earliest possible stage of specification.

- Ceilings are customarily set out so that the cut panels at the perimeter are equal or greater in width than 1/2 a full tile module. They should be cut to a good fit.
- On 600 mm x 1200 mm items and plank items the direction of installation should be indicated on the ceiling plans. It is recommended practice to install products with directional face patterns in square modules, with the direction of the pattern alternating from tile to tile.
- The grid is primarily intended to support the distributed load of 4 to 6.5 kg/m<sup>2</sup> from the ceiling tiles or panels. This will ensure a deflection of the grid, between points of support, which is visually undetectable. With the Trulok Prelude 24 system (Peakform Main Runner and 35 mm and 30 mm primary and secondary cross tee respectively), using Main Runners at 1200 mm centres, and supported at 1200 mm centres, the maximum distributed load should not exceed 14kg/m<sup>2</sup>. With the Trulok Prelude 15 system (Peakform Main Runner and 38 mm cross tees), using Main Runners at 1200 mm centres, and supported at 1200 mm centres, the maximum distributed load should not exceed 12kg/m<sup>2</sup>. This will result in a deflection of the grid, between points of support, of approximately 3 mm which is in accordance with BS 8290:1991. See the separate Armstrong Trulok grid brochure for further details. By arrangement with the installer, increased loads may be accommodated either by alternative grid layouts or by providing additional hangers. Ideally, luminaries and air grilles should be independently supported so as to avoid overloading the ceiling system, which could result in excessive deflection or twisting of the grid and possible damage to tiles. However it is possible to support certain lightweight fittings from the stalks of main runners and full height cross tees provided Armstrong guidelines are observed. On no account should point loads be placed on reduced height or lightweight cross tees and only very lightweight fittings, of 3 kg or less, should be supported on the grid flanges. In any cases of doubt, please contact Armstrong Internal Technical Sales for further information.

Main runners or cross tees which bear on a perimeter trim should be suspended within 600 mm so that excessive loads are not transferred into it. However, this dimension may need to be reduced to 450 mm or less if additional loads e.g. dB panels, overlays or service fittings are installed.

**The following notes should be read in conjunction with guide specifications.**

- 1 Standard colours are specified by name in the text and by the addition of two letters or numbers after the white item numbers. E.g. For Carrara MicroLook the 15 (15 mm) Trulok main runner changes from FS3600A to FS3600A CA. Colours are: see page 3.
- 2 Our Internal Technical Sales can provide you with a full specification for any item in this brochure.
- 3 It is desirable to describe fully the structure to which the suspension hangers are to be attached.
- 4 Trulok suspension systems are generally manufactured from hot dipped galvanised components providing a 170 g/m<sup>2</sup> zinc layer meeting the requirements of BS 2989.
- 5 Any requirement for fire protection to structure by a suspended ceiling should be stated in the specification. Ceiling assemblies of this type are listed in tables which appear on page 7 but should only be specified after the full test report has been studied. Please request copies from our Internal Technical Sales where advice on this matter is also available. Armstrong ceiling Boards, Panels, Planks & Tiles are designed and manufactured to integrate with appropriate Trulok grid systems. Where grid systems other than those marketed by Armstrong World Industries Ltd. are proposed to be used, designers and installers should satisfy themselves that any specified functional requirements of the ceiling are retained.

**Many specifications call up the “manufacturers recommendations”, the following is given as a guide to those requirements. Where a specific point is not listed please contact Internal Technical Sales for information.**

- 1 At perimeters, two alternative details may be considered for cut Tegular and MicroLook (non-metal) tiles. If the grid face and perimeter trim are at the same level, the tiles should be site

reformed to the basic rebated detail using hand tools. However if the tile face and perimeter trim are at the same level then the tiles do not need to be reformed but the ends of the tees must be supported. Armstrong border clips or Armstrong Fill-in pieces (as shown in the Trulok brochure) are designed for this purpose.

- 2 Tegular and MicroLook tiles should be hand decorated where a cut edge is visible. This is generally not required at perimeters when the tile edge cannot easily be seen.
- 3 Perimeter trims should be neatly jointed at all external and internal angles and overlapped sections are an acceptable method of achieving this. Butt mitred junctions should be specified if required.
- 4 Where perimeter trims are to be fixed to surfaces and substrates which may be liable to shrinkage, such as timber or wood based battens, allowance should be made to prevent deformation of the trim occurring.
- 5 Armstrong recommend that the ceiling should be set-out so that perimeter boards or tiles are in excess of 1/2 a module. In the event of dimensional conflict the Specifier shall be the arbiter.
- 6 Except for ceilings required to provide structural fire protection or resistance, ceiling tile hold-down or retaining clips are not normally required unless specified as an extra over.
- 7 Suspension wire must always be mechanically pre-straightened prior to use and should not be less than 2 mm diameter.
- 8 The maximum length of any hanger suspension wire is governed by the ability to pre-straighten it.
- 9 When “tying off” hanger wire suspension it should have at least three turns of the wire to form a tight coil.
- 10 Suspension hangers should be vertical or nearly vertical wherever possible. However a hanger can be used at up to 45° from the vertical provided that there is a second adjacent hanger at up to 45° from the vertical that opposes the lateral force of the first hanger. Rigid braces that are used to provide lateral restraint must be less than 45° from the horizontal.

11 Spotlights, luminaries and other service fittings should not be supported directly onto the back of tiles or panels otherwise damage or excessive deflection could occur. A pattress or other suitable method must be used to ensure that the fitting’s load is transferred onto the grid, provided that the overall load does not exceed Armstrong’s guidelines. Alternatively direct independent suspension should be employed.

12 Anti-corrosive Grid Systems should be specified where atmospheric conditions regularly exceed 95% RH or the environment is corrosive to such an extent that occupants take special precautions, ie. clothes, masks, etc.

13 Ceramaguard is hydroscopic and its possible increased weight should be considered in relation to grid layouts.

14 Unless specifically accepted by the specifier any pop rivets and screw heads should not be visible.

15 Should the need arise to redecorate Armstrong Suspended Ceilings contact should be made with our Internal Technical Sales who will provide advice regarding general cleaning and painting precautions.

16 BS 8290: Part III 1991 forms the basis of Armstrong’s recommendations.

17 Armstrong will be pleased to provide a list of specialist ceiling contractors that have accepted ARIC status i.e. Armstrong Recognised Interior Contractors. Please contact our Internal Technical Sales, address on the back cover of this brochure, for further information.

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