



The European Standards

The harmonized European Fire Standards are a set of test standards that have been accepted by all countries within the European Economic Community. This allows manufacturers to produce or import products that have been tested to a common standard without the need to test in each member state. Testing to these standards is now accepted in all EEC countries.

Compliance with the European Standards and regulations is mandatory.

All certified European test laboratories ("Notified Bodies") who are listed with EOTA (European Organisation for Technical Approval) may perform these tests and issue the corresponding test reports

(ITT – Initial Type Testing). In addition there may be national test or building regulation requirements that may need to be observed.

The Declaration of Performance (DoP) and the "KIT" CE label are the two main documents that will normally be required by local authority officers to show that the intended ceiling system will meet the specified performance level. The use of components other than those supplied by OWA will prevent the issuing of a KIT label.







Reaction to fire

If a fire is able to find sufficient flammable materials it will quickly spread through an area. It is therefore crucial to use materials of limited combustibility on key surfaces within a room, such as ceilings and walls. The use of such materials can dramatically reduce the speed flames spread through an area as well as minimise their contribution to the fire.

The European Standard EN 13501-1: Reaction to fire provides a number of performance criteria to measure the fire characteristics of building products. These cover spread of flame and contribution to fire as well the generation of smoke and the production of burning droplets. The table below provides an overview of the available classifications.

Addition	nal requirements	European class
No smoke	No burning droplets falling/dripping	according to EN 13501-1
✓	✓	A1
✓	✓	A2-s1,d0
✓	✓	B-s1,d0 C-s1,d0
	1	A2-s2,d0 A2-s3,d0 B, C-s2,d0 B, C-s3,d0
✓		A2-s1,d1 A2-s1,d2 B, C-s1,d1 B, C-s1,d2
		A2-s3,d2 B-s3,d2
✓	✓	D-s1,d0
	✓	D-s2,d0 D-s3,d0
		E E-d2 F
✓		D-s1,d2 D-s2,d2 D-s3,d2

The additional designations are:

Smoke | s1, s2, s3

s1 = little or no smoke generation

s2 = medium smoke generation

s3 = heavy smoke generation

Burning droplets | d0, d1, d2

d0 = no droplets within 600 seconds

d1 = droplet form within 600 seconds but do not burn for more than 10 seconds

d2 = not as d0 or d1

Country	Test standard	Classification
EC member states	EN 13501-1	A2-s1,d0 B-s1,d0
Switzerland	Guide to fire regulations, 1976	VI q.3 virtually non-combustible, smoke level low
USA	ASTM E 84 a / ASTM E 1264	Class I / class A

Resistance to fire

Resistance to fire class EN 13501-2	Resistance to fire duration in minutes
REI 30	≥ 30
REI 60	≥ 60
REI 90	≥ 90
REI 120	≥ 120
REI 180	≥ 180

For European categorisation, a reaction to fire classification is always given separately.

Structural elements based on EN 13501-2 encompass the whole structural element and not just the suspended ceiling. This may consist of the roof and the suspended ceiling or the structural floor and suspended ceiling. The entire element should resist the impact of fire on its structural ability for as long as possible. The length of time this can be maintained is the fire resistance duration and will classify it in one of the classes shown.

Test criteria

During the fire resistance test the laboratory will look out for adverse reaction as well as reporting on the following key criteria.

R. The structural element should not collapse or deflect beyond the permitted levels when subjected to the applied load.

E. The integrity of the room must be maintained. No breakthrough of flames is permitted.

The temperature on the non-exposed side of the structural element must not rise more than 140 °K above ambient as an average measurement and no more than 180 °K at any one location.

If one of the above criteria is exceeded the test is terminated and the duration achieved prior to failure will dictate the appropriate fire resistance classification.

Due to the diversity of the various structural elements currently available it is impossible to test each individually. We therefore endeavor to test the worst case scenario in each generic construction type.

The following examples show constructions within a test furnace.

The illustration below (fig. 1) shows an example of a typical steel beam construction with the OWA ceiling below.

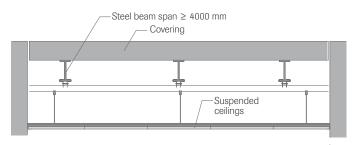


Fig. 1: steel beam floor

OWA Suspended ceilings can also be used to provide fire resistance to timber constructions.

The example below (fig 2) shows a timber floor construction with the OWA ceiling below

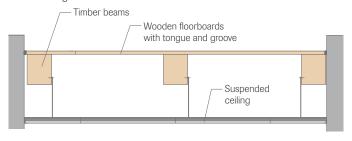


Fig. 2: timber floor

OWA have tested most standard floor and roof constructions with OWAcoustic Ceilings to EN 13501-2 and have achieved up to REI 180 as shown in the following table.

Where an OWAcoustic ceiling is used to provide structural fire resistance it is important that the ceiling is constructed in the same manner as that used in the test. Failure to use the same components and layout may invalidate any certification and prevent us issuing a KIT declaration.

Escape and rescue routes often have services containing combustible materials installed below the structural slabs. For this reason we recommend the use of OWAcoustic self contained fire resistant ceilings (see table on page 6 and 7). With this type of ceiling it is possible to provide fire resistance of El 30 to the services in the void as well as to the area below. The use of this system can help provide protected escape routes both from fire and smoke.







On the 1st of July 2013 the new European Construction Products Regulation (CPR) No. 305/2011 came into force and replaced the existing Construction Products Directive (CPD) 89/106/EU.

Part of the new regulation is the use of CE labelling for construction products that are regulated by a harmonised European Standard (hEN) or a European Assessment Document (EAD, formerly known as "ETAG").

In addition a "Declaration of Performance" (DoP) will be issued for all CE labelled construction products. This declaration will show a number of key performance criteria as well as a unique identification code of the product type. This replaces the existing document known as a European Declaration of Conformity

The harmonised European Standard EN13964 (Suspended Ceilings Requirements and test Methods), covers a number of essential requirements including:

- reaction to fire
- mechanical safety
- acoustics
- others
- resistance to fire
- hygiene, health and environmental
- corrosion

Important: in case of resistance to fire a CE label and DoP for the whole kit (ceiling tiles + subconstruction) is mandatory according to EN 13964 ZA 1.1

Loadbearing structure				Type of suspended ceiling	
	Types of structure and KIT reference number	Min. thickness of slab (d)	Min. cavity height (a)	OWAconstruct premium systems	
T T a	Steel beam floor KIT-16-01/2012 - S 3 KIT-16-01/2012 - S 3a	≥ 120 mm	≥ 200 mm		
d	Steel beam floor KIT-11-01/2008 - S 3 KIT-11-01/2008 - S 3a	≥ 90 mm	≥ 250 mm ≥ 150 mm ≥ 120 mm	S 3	
d	Steel beam floor KIT-27-01/2011 - S 3 KIT-27-01/2011 - S 3a	≥ 100 mm	≥ 200 mm	S 3	
Important note: The kits listed in the following	Steel beam floor KIT-28-01/2015 - S 3	≥ 90 mm	≥ 250 mm	S 3	
tables (KITs) can not be combined with all OWAcoustic surface patterns. Tables 1 and 2 on pages 12	Steel beam floor KIT-29-01/2018 - S 3	≥ 90 mm	≥ 250 mm	S3	
and 13 must be observed in connection with loadbearing structures types I - IV and fire resistance periods (REI 30 -	Steel beam floor KIT-24-01/2014 - S 3	≥ 90 mm	≥ 250 mm	S 3 with mineral wool	
REI 180). Type I Steel beam floor with aerated concrete slabs	Steel beam floor KIT-17-01/2013 - S 15 cliq	≥ 90 mm	≥ 230 mm	S 15 cliq	
Type II Steel beam floor with reinforced concrete slabs	Steel beam floor KIT-18-01/2011 - S 15a cliq	≥ 100 mm	≥ 200 mm	S 15a cliq	
Type III Reinforced concrete floors including prestressed concrete structures Type IV	Steel beam floor KIT-19-01/2011 - S 18p/S 6a	≥ 100 mm	≥ 200 mm	S 18p	
Timber structures Please note that only the test certificates listed in the following tables are currently	Steel beam floor KIT-20-01/2013 - S 1	≥ 90 mm	≥ 185 mm	S 1	
available. Expired documents and systems that are not listed are no longer available.	Steel beam floor KIT-30-01/2016 - S 7	≥ 90 mm	≥ 250 mm	S 7	
	Steel beam floor KIT-25-01/2014 - S 15 b	≥ 90 mm	≥ 250 mm	S 15 b	

OWAcoustic tiles *			Resistance to fire		Tested ha			
Module	Thickness	Product surfaces	Classification min.	Test report no.	Centre of main tee	Centre of hangers	Hanger OWA-no.	Special characteristics
625 x 625 mm	14 mm nom.	Product surfaces in	REI 120	No. 297270/7130/CPD and further reports	1250 mm 1200 mm	1250 mm 1200 mm		
600 x 600 mm	15 mm	table 1 (page 12)	REI 90					
			REI 60	PB III/08-191-1Ä	1250 mm 1200 mm	1250 mm 1200 mm		
			REI 30				See page 11	
1250 x 625 mm	15 mm	Product surfaces in table 1 (page 12)	REI 60	Nr. 282291/6095/CPD and further	625 mm	1250 mm		
7200 X 020 11111	14 mm nom.	Product surfaces in table 1 (page 12)	1121 00	reports				
625 x 625 mm 600 x 600 mm	15 mm 20 mm	Product surfaces in table 1 and 2 (pages 12/13) excepting Sinfonia Silencia	REI 60	PB 3.2/14-338-1, PB 3.2/15-411-1 and further reports	1250 mm 1200 mm	1250 mm 1200 mm	See page 11	
625 x 625 mm 600 x 600 mm	20 mm	Product surfaces in table 1 and 2 (pages 12/13)	REI 45	PB 3.2/17-345-1 and further reports	1250 mm 1200 mm	1250 mm 1200 mm	See page 11	
625 x 625 mm 600 x 600 mm	15 mm	Product surfaces in table 1 (page 12)	REI 120	PB 3.2/13-320-1 and further reports	625 mm	750 mm	See page 11	
625 x 625 mm 600 x 600 mm	15 mm	Product surfaces in table 1 (page 12)	REI 90	PB 3.2/13-169-1 and further reports	625 mm 600 mm	1250 mm 1200 mm	See page 11	
625 x 625 mm 600 x 600 mm	14 mm nom. 15 mm	Product surfaces in table 1 (page 12)	REI 90	No. 285878/6379/CPD and further reports	625 mm 600 mm	1250 mm 1200 mm	See page 11	
≤ 2050 (tile length) x 312.5 mm	15 mm	Product surfaces in table 1 (page 12)	REI 90	No. 285879/6380/CPD and further reports	≤ 2130 mm	750 mm	See page 11	- C profile no. 36/70 - only in combination with surface- mounted luminaires
625 x 625 mm 600 x 600 mm	15 mm	Product surfaces in table 1 (page 12)	REI 90	PB 3.2/13-018-1 and further reports	1250 mm 1200 mm	1250 mm 1200 mm	See page 11	
2400 x 1200 mm	20 mm	Product surfaces in table 2 (page 13)	REI 60	PB 3.2/15-411-2 and further reports	1000 mm	1000 mm	See page 11	
625 x 625 mm 600 x 600 mm	15 mm	Product surfaces in table 1 (page 12)	REI 30	PB 3.2/13-322-1 and further reports	1250 mm 1200 mm	1250 mm 1200 mm	See page 11	

^{*} Please also see the corresponding data sheets

Loadbearing structure				Type of suspended ceiling	
	Types of structure and KIT reference number	Min. thickness of slab (d)	Min. cavity height (a)	OWAconstruct premium systems	
d	Reinforced block floor KIT-21-01/2013 - S 3 KIT-21-01/2013 - S 3a	≥ 200 mm	≥ 250 mm	S 3 S 3a	
8888 8888 dd a	Reinforced concrete hollow slab KIT-10-01/2007 - S 3 KIT-10-01/2007 - S 3a	≥ 250 mm	≥ 250 mm	S 3 S 3a	
d	Composite floor KIT-22-01/2009 - S 3 KIT-22-01/2009 - S 3a	≥ 70 mm	≥ 200 mm	S 3 S 3a	
a	Steel roof construction with corrugated steel sheets insulation (Foamglas) KIT-13-01/2007 - S 3	-	≥ 570 mm	S 3	
	Steel roof construction with corrugated steel sheets insulation + mineral wool KIT-23-01/2014 - S 3	-	≥ 600 mm	S 3	

OWAcoustic tiles *		Resi	istance to fire	Tested hanger (max. distance)				
Module	Thickness	Product surfaces	Classification min.	Test report no.	Centre of main tee	Centre of hangers	Hanger OWA-no.	Special characteristics
625 x 625 mm 600 x 600 mm	14 mm nom. 15 mm	Product surfaces in table 1 (page 12)	REI 120	No. 311867/8160/CPR and further reports	1200 mm	900 mm	See page 11	
625 x 625 mm 600 x 600 mm	15 mm	Product surfaces in table 1 (page 12)	REI 180	No. 234562/2488/CPD and further reports	1250 mm 1200 mm	1250 mm 1200 mm	See page 11	
625 x 625 mm 600 x 600 mm	14 mm nom. 15 mm	Product surfaces in table 1 (page 12)	REI 120	No. 281196/6048/CPD and further reports	1250 mm 1200 mm	1250 mm 1200 mm	See page 11	
625 x 625 mm 600 x 600 mm	14 mm nom. 15 mm	Product surfaces in table 1 (page 12)	REI 90	PB 3611/427/07-CR and further reports	625 mm 600 mm	1250 mm 1200 mm	See page 11	
625 x 625 mm 600 x 600 mm	15 mm	Product surfaces in table 1 (page 12)	REI 30	PB 3.2/14-140-1	625 mm 600 mm	1250 mm 1200 mm	See page 11	97/30 97/32

^{*} Please also see the corresponding data sheets

Loadbearing structure				Type of suspended ceiling	
	Types of structure and KIT reference number	Min. thickness of slab (d)	Min. cavity height (a)	OWAconstruct premium systems	
a	Timber roof construction KIT-01-01/2005 - S 3 KIT-01-01/2005 - S 3a	-	≥ 250 mm	S 3 S 3a	
d a	Timber floor KIT-07-01/2008 - S 3	timber beam wooden particle board 18 mm + gypsum fireboard 12.5 mm alternative screed structure	≥ 245 mm	S 3	

Suspended ceiling | El 30 self-contained fire protection units to EN 13501-2

Ceilings with independent fire resis El 30 (a ←→ b) [a = above, b = below]	Types of structure and KIT reference number	Type of suspended ceiling OWAconstruct premium systems	
	Homogeneous OWAcoustic ceiling F 30 barriere fire resistance from above and below tiles demountable KIT-101-01/2002 - barriere B	F 30 barriere B clear span, concealed grid, demountable element length ≥ 1500 - 2100 mm	

OWAcoustic tiles *			Resi	Resistance to fire		nger (max. (
Module	Thickness	Product surfaces	Classifi- cation min.	Test report no.	Centre of main tee	Centre of hangers	Hanger OWA-no.	Special characteristics
625 x 625 mm 600 x 600 mm	14 mm nom. 15 mm	Product surfaces in table 1 (page 12)	REI 30	PB 3222/3473-CR and further reports PZ_3918_0633_CR PZ_3478_731_07	1250 mm 1200 mm	1250 mm 1200 mm	See page 11	
625 x 625 mm 600 x 600 mm	15 mm	Product surfaces in table 1 (page 12)	REI 30	2007 - Efectis RO 574 (E) and further reports	1250 mm 1200 mm	1250 mm 1200 mm	See page 11	

 $[\]ensuremath{^{*}}$ Please also see the corresponding data sheets

OWAcoustic tiles/ elements		Resistance to fire		Tested hanger (max. distance)				
Module	Thickness	Product surfaces	Classification min.	Test report no.	Centre of main tee	Centre of hangers	Hanger OWA-no.	Special characteristics
Width: 300 mm, 312.5 mm length: 1800 mm, 2000 mm, 2100 mm	44 mm	Cosmos/N Cosmos/O Constellation	El 30 a ←→ b	PB 3617/3831 PB 3619/3851 MPA Braunschweig and further reports	Clear span ≤ 2100 mm and bandraster ≤ 2150 mm	625 mm	79/75	Wall perimeter no. 51/25 for further details see OWA brochure no. 9915 e

Light fittings

When installing recessed luminaires in an OWAcoustic fire resistant ceiling an OWAcoustic fire box should be installed to ensure continuity of fire resistance. It is important to ensure that the performance of the fire box matches that of the installed OWAcoustic ceiling.

Recessed light fittings



OWAcoustic standard ceilings (steelbeam floor, timber roof construction, steel roof construction, timber floor)

OWAcoustic ceilings with recessed light fittings offer the same fire resistance as closed OWAcoustic ceilings, if the recessed light fittings are encased in a 15 mm thick MINOWA® firebox.

For details, see OWA installation Guide no. 9801 e.

When using 40 mm thick OWAcoustic premium tiles, 40 mm thick MINOWA® tiles should be used and for 20 mm thick OWAcoustic premium tiles, 21mm thick MINOWA® tiles should be used.

Also see information sheet on fire protection enclosure no. 9905 e.

Thickness OWAcoustic tiles	Thickness firebox	
14 mm, 15 mm	15 mm	
20 mm	21 mm	
≥ 40 mm	40 mm	

Perimeter trims

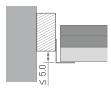
For fire resistant ceilings the perimeter trims should be installed in accordance with corresponding test report. Only approved fire resistant wall fixings should be used (ETA – European Technical Approval). Fixing centre ≤ 250 mm.



Standard wall perimeter for all standard ceilings



Wall perimeter for Contura ceilings S 3a

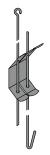


Wall perimeter with shadow gap

Hangers and suspensions



No. 11 Hangers for **exposed** systems



No. 12/.../...* Double-adjustable hangers **exposed** systems



Pre-stressed wire $\emptyset \ge 2.0$ mm; fixing ends are bound at least 3 times



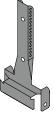
No. 17/45 Nonius hangers for **exposed** systems



No. 90 Hanger clips, adjustable for steal beams



No. 12/44*
"Click", adjustable hangers



No. 2001 OWAplan



No. /9/... Bandraster system



No. 09/10 Nonius hanger

Top fixings

Only approved fire resistant top fixings suitable for the substrate should be used (ETA - European Technical Approval).

Verification

For fire resistance requirements relating to OWAcoustic ceilings, it is recommended that you clarify the design for the relevant requirement prior to ordering and installing the ceiling.

When placing an order, please request the documents from your dealer by providing a completed checklist (download right). This is required in order to provide the correct documents (DoP, CE-KIT declaration).

OWA fire protection documents are only valid if OWAcoustic-tiles and original OWAconstruct system components (as tested) are used.

^{*} Adjustable hangers are not to be used with timber constructions REI 90.

Table 1

Product surfaces	Reinforced concrete/ steel beam floor: fire resistance classification REI in accordance with EN 13501-2 up to *	Timber beam floor/gang-nail trusses/ light roofs: fire resistance classification REI in accordance with EN 13501-2
Bamboo	180	30
Constellation	180	30
Cosmos	180	30
Creaprint Constellation	180	30
Finetta	180	30
Harmony	180	30
Janus (Cosmos, Constellation)	180	30
NEW Sandila	180	30
Plain	180	30
Regular perforated, 20 mm	180	30
Sinfonia dB	180	30
Sinfonia Privacy	180	30
Sinfonia Reflecta	180	30

^{*} Depending on system, tile dimensions and design

Table 2

Product surfaces for KIT 28-01/2015 only for steel beam or concrete floors	Reinforced concrete/ steel beam floor: fire resistance classification REI in accordance with EN 13501-2 up to *	Timber beam floor/gang-nail trusses/ light roofs: fire resistance classification REI in accordance with EN 13501-2
Bolero	60	-
Brillianto A	60	-
Creaprint Sinfonia	60	-
Multi Alpha	60	-
Ocean	60	-
OWAlux	60	-
OWAplan°	60	-
RAW°	60	-
Sinfonia	60	-
Sinfonia Balance	60	-
Sinfonia Humancare	60	-
Sinfonia Silencia°2	45	-

[°] Only applies to KIT-30-01/2016 °2 Only applies to KIT-29-01/2018

^{*} Depending on system, tile dimensions and design

Technical assistance

This brochure provides a very brief outline of European Standard EN 13501 and how OWAcoustic ceilings can help meet your fire resistance requirements.

If you require further information or assistance on any aspect of your proposed ceiling installation please contact us or visit our website.

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Product warranties

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