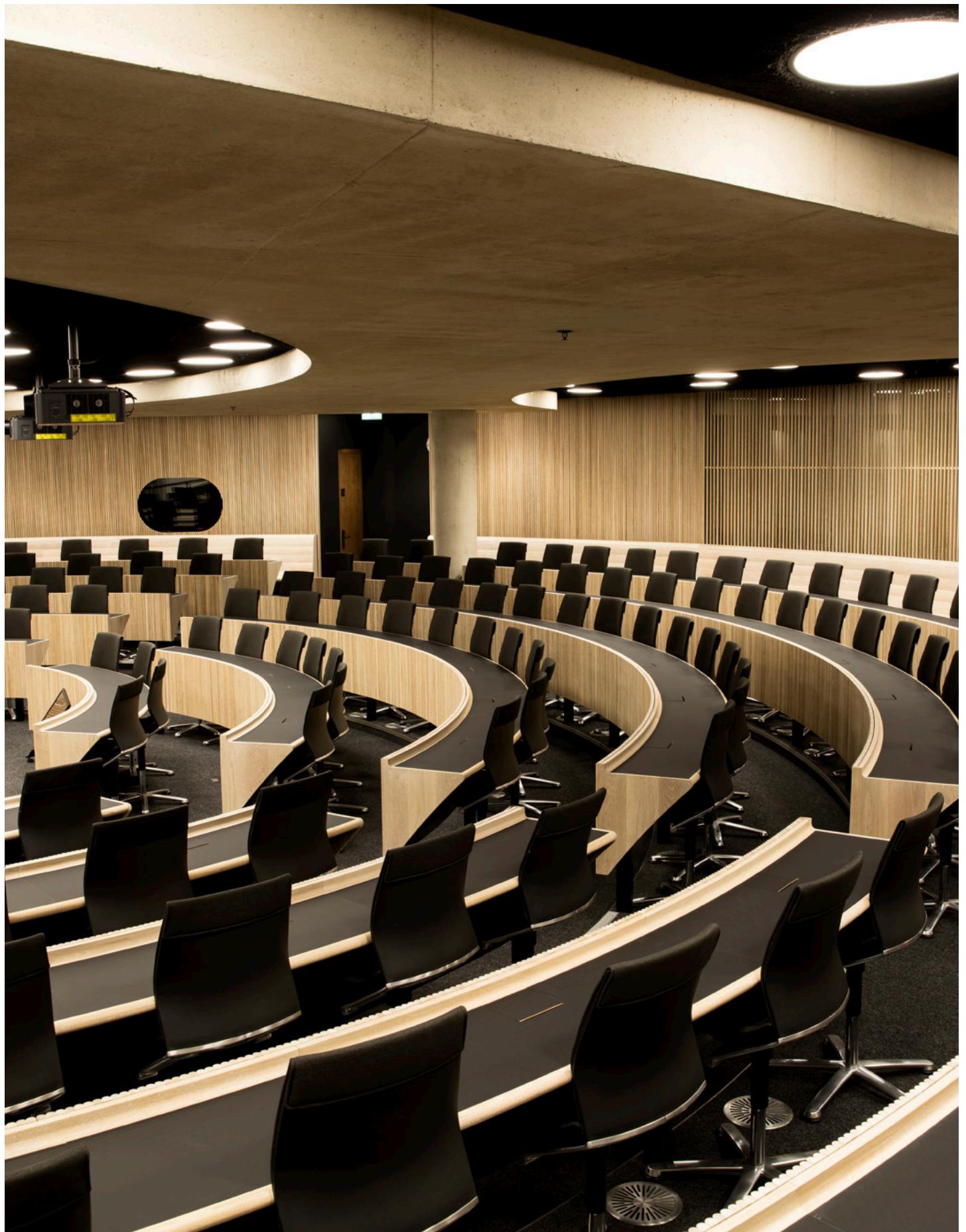


Wilkhahn

# 🔥 Fire Safety





Blavatnik School in Oxford with Modus task chairs. Architects Herzog & de Meuron. Photo: Vojislav Nikolic  
Cover photo: vepa office furniture, NL

# Preface

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## Fire Safety

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As a successful, family-run company that's more than a century old, taking entrepreneurial responsibility is integral to Wilkhahn's identity. Sustainable management, which includes social aspects, the environment, the economy and culture, governs our corporate culture. Over the decades, our approach has frequently won us accolades, such as the German Environmental Prize, the Council on Economic Priorities' Corporate Conscience Award and the European Good Practice Award in Safety and Health at Work.

Which is why fire safety aspects are, of course, taken into account when we develop products. In addition to the product itself, it's also important to consider where it's used. In multi-story office buildings, hotels, schools, colleges, airports, stadiums, kindergartens, hospitals and other public facilities, it's vital to get lots of people, especially those with special needs, to a place of safety quickly. At the same time, it's very important that fire and smoke are effectively prevented from spreading. The details are set out in building regulations, in the assembly area ordinances for instance, which are passed by each of the states in Germany. Whatever the fire safety concept or the civil engineering and architectural solutions used, the escape and rescue routes on the one hand and containing or extinguishing fire or smoke on the other hand are the cornerstones of any concept. The purpose of this brochure is to tell you about the key regulations and our safety standards with regard to furniture because fire safety regulations are becoming more and more stringent.

Chapter 1 explains why upholstered furniture is not assessed in the same way as construction materials. Chapter 2 outlines the various fire safety ratings for upholstered furniture. Chapter 3 presents relevant German and international standards on fire safety in (upholstered) furniture and chapter 4 describes how Wilkhahn products meet the applicable standards. And finally, chapter 5 will illustrate how Wilkhahn incorporates fire safety issues when developing furniture.

We hope that our brochure will be able to give you some guidance. Local authorities will be able to advise you in each case. If you have any questions or require any more detailed information please contact us.

Your Wilkhahn team



Photo: weedezign, stock.adobe.com

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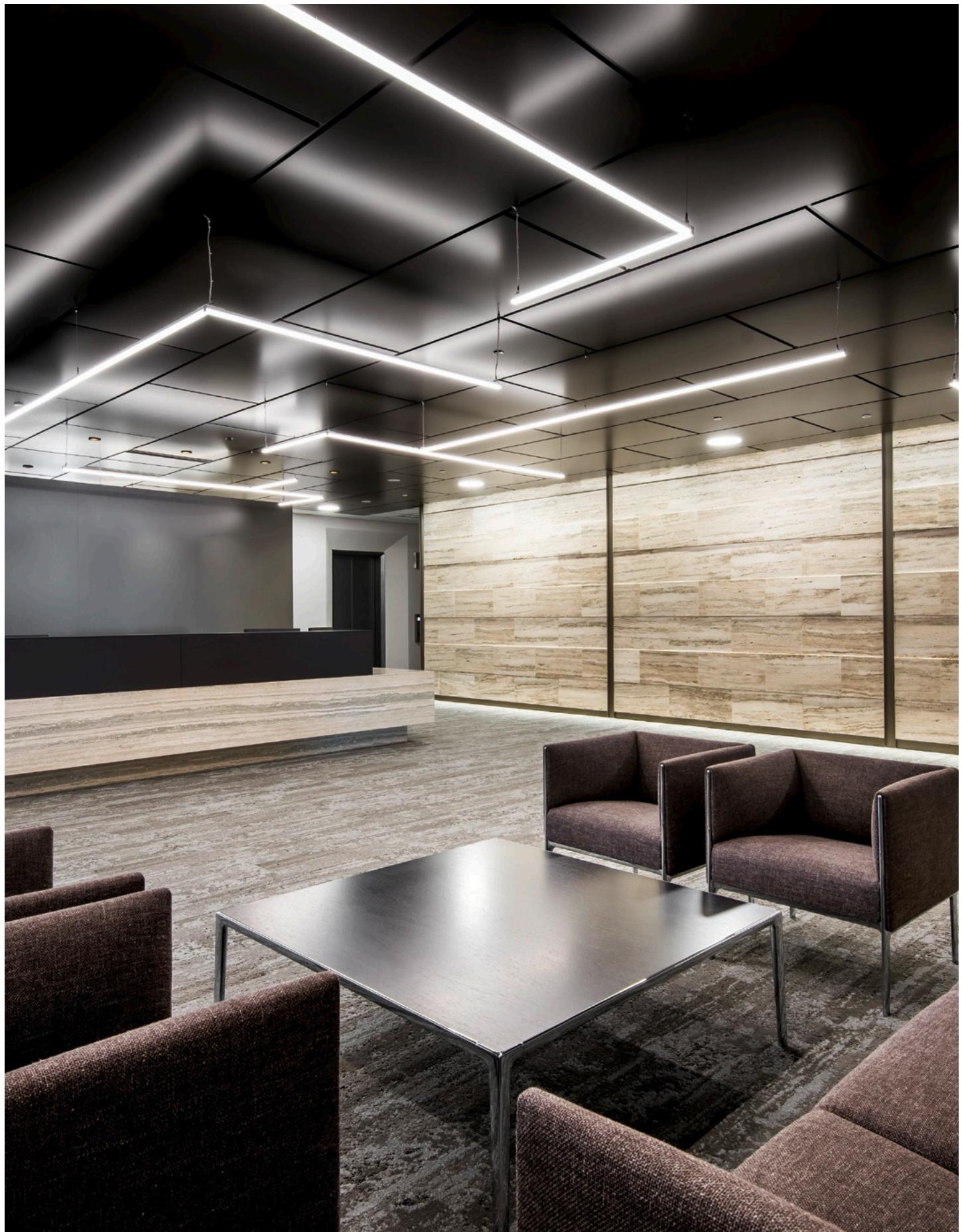
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Reception at an Australian mining company with the upholstered Asienta range. Photo: Dion Robeson

# Fire Safety in the Real World

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## Distinguishing between buildings and furniture

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It's unusual to find demands for fire safety concepts for furniture in public tenders or private construction projects. In these cases, all that's required is a B1 rating, which stipulates that building materials have to be flame retardant as specified in the DIN 4102-1 standard.

However, contract furnishings aren't building materials. If a fire breaks out, they behave differently than materials that are not part of a composite. This is particularly the case where upholstered furniture is made of several materials. In this case, the B1 rating gives no reliable indication of fire behavior. Because this only applies if the material that is rated flame retardant is at a distance of at least 40 millimeters to the next material. However, several materials are used to upholster chairs, such as the upholstery fabric with padding, upholstery foam and seat bearers. Even if each material is classified as flame retardant, the fire behavior and smoke development of each material affects the next one.

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## Special standards for upholstered furniture

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Which is why upholstered furniture has its own standards and the testing procedures include how the various materials in the upholstery composite might react to one another. In Germany, DIN 66084 is one of the most important rating standards and is the basis for testing the fire behavior of upholstery composites. As different standards and classifications apply in Europe and across the world, over the next few pages, we'll be providing an overview of what each standard involves and what testing procedures are behind each rating.

# Planning Safely with Upholstered Furniture

The ABC of fire safety ratings



The Intra upholstered chair range with the Versa conference table.

As other conditions apply to furniture than construction materials incorporated into buildings, its fire safety is rated differently. Therefore, unlike construction materials, the materials used in upholstered furniture can't be rated under DIN 4102 as non-combustible, fire resistant, flame retardant or highly inflammable. In the standard testing procedure for construction materials, a flat specimen is tested in a fire shaft of precisely defined dimensions. Items of furniture are normally too large for the rig and are therefore not suitable for this test.

Because several materials are added to upholstered furniture, fire safety is gauged according based on the fire test the upholstered furniture passes. The previously mentioned DIN 66084 is an important standard used in Germany for contract furniture. It classifies fire safety of upholstery composites in three ratings P-a (high), P-b (average) and P-c (low).

Because architects have got used to the DIN 4102 fire safety terms, we're going to give them a key to aid rating, even if it's not, strictly speaking, comparable.

P-a	P-b	P-c
The <b>p</b> aper cushion test	The <b>b</b> utane gas test (replaces the match in the test)	The <b>c</b> igarette test

Non-combustible upholstery composites that meet equivalents to fire safety rating A1 or A2 of DIN 4102 for building materials don't exist for furniture. Nevertheless, upholstered furniture also meets rigorous fire safety criteria.

#### **P-a: The ignited paper cushion test, the most stringent one**

**DIN 66084 P-a (high)** classification is the highest standard that upholstery composites meet. Items of upholstered furniture that carry this label have passed the most demanding fire safety test: They have to be able to withstand an ignited **paper cushion** without catching fire themselves. The standardized paper cushion (which weighs 100 g and is filled with special paper) simulates a burning newspaper. It's placed on the area where people sit on the furniture and then ignited. The test is considered passed if the flame is 45 cm lower than the height of the backrest and doesn't catch any armrests and the sides of the upholstered areas and the upholstery self-extinguishes after 15 minutes at the latest. Therefore, the P-a rating meets the flame retardant requirement that building materials in fire safety rating B1 fulfill.

#### **P-b like a butane gas flame, the match test**

A burning match is simulated as the source of the fire igniting to rate an upholstery composite as meeting the **DIN 66084 P-b** (average) standard. In the test, **burning butane gas** with a flame some 35 millimeters in size is applied and is held against the upholstery for 15 seconds. The upholstery must self-extinguish once the flame has been removed in 2 minutes at the latest and any parts that are smoldering must not reach the edges of the upholstery. An item of furniture labeled as meeting the **DIN 66084 P-b** standard is roughly comparable with the normal flammability category that applies to building materials under DIN 4102.

#### **P-c: The cigarette test**

An upholstery composite is in the lowest-risk **DIN 66084 P-c** (low) category if, when in contact with a glowing **cigarette**, it doesn't burn or continue to smolder over a period of one hour. In terms of fire safety ratings for customary building materials, this would be roughly in the low-risk to normal flammability category.

# Standards and Testing Procedures

Key fire rating standards

	Building materials / Components	Upholstered furniture	
EU	EN 13501	EN 1021 (Part 1 + 2)	
D	+ DIN 4102	+ DIN 66084 DIN 54341	
UK	+ BS 476	+ BS 5852 Crib 5	
CH	EN 13501 VKF Standard	EN 1021 (Part 1 + 2)	
F, BE, LUX, ES	+ NFP 92 (F, BE, LUX) UNE 23723 (ES)	EN 1021 (Part 1 + 2) NF D 60-013 (F)	*
USA		CAL TB 117	*

EN 1021 cigarette test

EN 1021 match test

\* Similar testing procedure to the match test

Paper cushion test

\* Paper cushion test simulation with a gas flame

Testing procedure with wooden planks glued together to resemble a crib (Crib 5)

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## An up-to-date overview

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If an item of upholstered furniture passes the paper cushion test, it meets the toughest fire safety requirements. This rating's superior quality is obvious because it's not individual material components that are tested but the upholstery composite itself. Although this test is carried out in a lab, it does an excellent job of simulating reality in the case of a fire. However, the testing procedure under DIN 66084 is only applied in Germany.

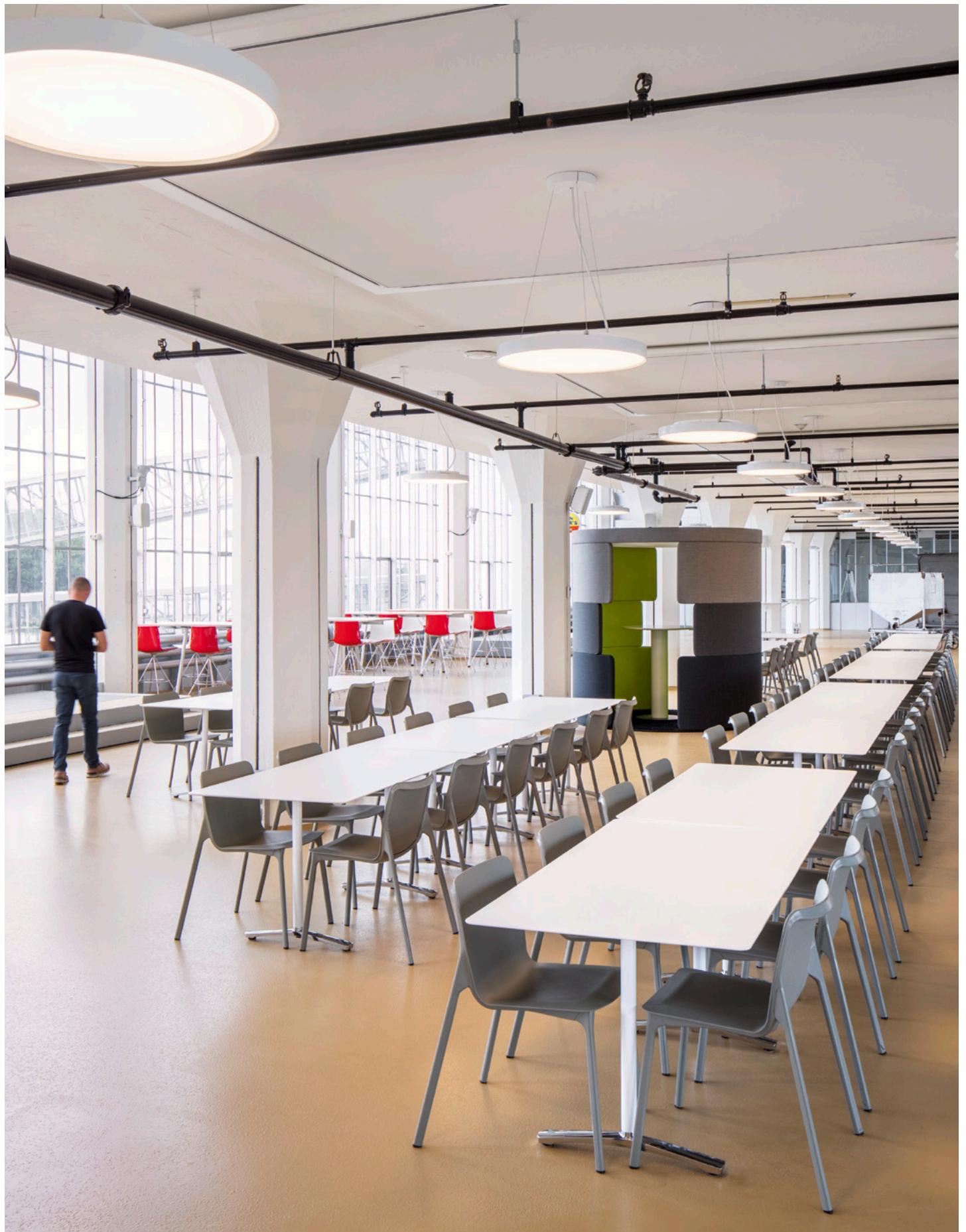
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## An international fire safety comparison

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Different standards and testing procedures apply internationally. In order to maintain an overview, it's useful to make a fundamental distinction between the standards that classify the fire behavior of building components and materials and the standards that test the fire behavior of upholstery composites.

In the EU, this is easier than it might initially appear. Because the EN 13501 standards for building materials and the EN 1021-1 and EN 1021-2 standards (cigarette test, match test) for upholstered furniture apply in all countries. Many countries convert the European standards to their own national ones, which either match or supplement the EU standards. Therefore, the core question at the planning stage is whether the fire safety standard required applies to fire safety of building materials or those in an upholstery composite?



The Van Nelle Factory World Heritage Site in Rotterdam, with the Aline table range and Chassis chairs. Photo: Stijn Poelstra

# European Standards

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International regulations

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## **EN 13501 – rating of construction products and types and their fire behavior**

At a European level, the standard specifies standardized fire safety requirements for construction products. There are a total of seven construction material ratings that assess fire behavior as “no contribution to fire” (A1, A2) to “no fire safety” (F). Similarly to the B3 rating in DIN 4102, the F category may not be used in high-rise construction. What's more, flue gas development and any burning drips from the building materials are also assessed.

## **EN 1021-1/2 – assessment of the flammability of upholstered furniture**

This standard applies across Europe to upholstered furniture. It tests the flammability of combinations of materials such as covers and padding/fillings. This means that a test is carried out on a rest rig and not the finished item of furniture. The test involves holding a burning cigarette (part 1) and a butane gas flame (part 2) against a model of an upholstered item of furniture.

### **EN 1021 cigarette test (part 1)**

A burning cigarette is placed between the backrest and the seat of a model with a fabric cover and foam padding. The cigarette must burn to the end. After a period of 60 minutes, neither the fabric nor the foam must be smoldering or burning.

### **EN 1021 match test (part 2)**

In the second part of the testing procedure, a butane gas flame is directed to the same area. It simulates the match in the form of a flame which is 35 millimeters high and burns for 15 seconds. The model must not start burning either while the flame is still burning or for two minutes after it has gone out.

# Standards in Germany

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DIN 4102 – fire behavior of building materials and components

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The German standard specifies how building materials are classified in terms of their flammability. The standard makes no distinction between non-combustible (A1 and A2 ratings) and combustible materials (categories B1, B2 and B3). DIN-4102-compliant testing procedures examine and classify the behavior of combustible materials in terms of flammability, flue gas development, fire behavior, heat formation and extinguishing behavior.

## **A1 rating (non-combustible)**

Building materials in this category have no combustible components, do not cause smoke to develop or burning drips to form. These materials include concrete, bricks, steel and aluminum for example.

## **A2 rating (non-combustible)**

This fire safety rating includes building materials that are non-combustible but are allowed to have certain quantities of combustible components (e. g. plasterboard).

## **B1 rating (flame retardant)**

Building materials that don't continue to burn after exposure to a flame for ten minutes during the fire shaft test achieve this fire safety rating. What's more, a defined proportion of the material must remain undamaged. Special timber construction materials or textiles like Trevira CS meet these requirements.

## **B2 rating (normal flammability)**

When edges or surface areas have been exposed to flame, the flammability of materials in this fire safety rating must be restricted to a prescribed level. Wood and composite wood, which is a minimum of 12 millimetres thick, or fabric covers or foams meet this criterion for example.

## **B3 rating (highly flammable)**

Once ignited, these building materials continue to burn automatically. In addition to straw and paper, these materials also include plastics. Therefore, in high-rise construction, they may only be used as part of a composite or if they have undergone special fire safety treatment.

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## DIN 66084 – rating the fire behavior of upholstery composites

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The purpose of the standard is to classify fire safety qualities of upholstery composites in three ratings: P-a (high), P-b (average) and P-c (low). Three testing procedures, the paper cushion test, the match test and the cigarette test are used for rating (see page 13, Standards in Europe). While the cigarette and match test are used in compliance with the European EN 1021-1/2 standard, the more stringent paper cushion test is based on the DIN 54341 testing standard.

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## DIN 54341 – tests seats in railway carriages

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The purpose of the standard is to test the fire behavior of upholstered seats when a paper cushion is burned. The cushion is positioned on a mock-up with an upholstered seat and ignited. The flames must have extinguished automatically after 15 minutes at the latest. If the seating passes the test, the upholstery composite receives the highest DIN 66084 P-a classification.



Plön station, tourist information office with the Aline range, remodeling: Nagel architects BDA, photo: Perlbach Fotodesign

# Standards in the United Kingdom

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BS 476 and BS 5852 standards

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IG Metall conference center, Frankfurt, architects Gruber + Kleine-Kraneburg, Palette table system with FS task chairs.  
Photo: Vojislav Nikolic

In addition to the fire safety standard for construction materials (BS 476), the United Kingdom also has its own procedure to test the fire behavior of upholstered furniture. Similarly to the paper cushion test in Germany, it supplements the EN 1021-1/2 cigarette and match test. More demanding requirements apply here too, such as the crib test compliant with the BS 5852 Crib 5 standard.

## **BS 476 – fire tests on construction materials and buildings**

In addition to the EU standard and, just like the DIN 4102 standard in Germany or the NF P-92 standard in France, the standard dictates the testing and rating of materials in terms of fire safety.

## **BS 5852 – assessment of the flammability of upholstered seating by smoldering and flaming ignition sources**

In the United Kingdom, this standard involves carrying out testing procedures that rate the fire safety of upholstered furniture. Depending on where the furniture is destined for, the test method includes different ignition sources and periods during which the specimens are subjected to flames.

Usually, the Crib 5 ignition source is tested, where a wooden crib is placed on an upholstered model and then ignited with a fuse that has been soaked in alcohol. If the flames extinguish automatically within ten minutes and no flue gas development or any smoldering is detected 60 minutes later, the test has been passed.

If foam complies with this standard's strict requirements, it can call itself CMHR (Combustion Modified High Resilience) foam. The CMHR foam is part of all upholstery composites that we categorize as RESIST SUPER and RESIST SUPER + at Wilkhahn. We can add CMHR foam to the majority of our upholstered furniture on request.

# Standards in Switzerland

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## BKZ fire rating to VKF standard

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In Switzerland, the BSV 2015 fire safety regulations govern the flammability of building materials and fire resistance of a component. In addition to the Swiss VKF standard (VKF = Association of Canton Fire Insurance Companies), the EN 13501 is used for rating purposes. Upholstery composites can be rated based on EN 1021-1/2 (cigarette and match test).

In Switzerland, based on the EN 13501 standard, building materials are classified in terms of their fire behavior into four RF groups (RF stands for the French “réaction au feu”). These groups are as follows: “no reaction to fire” (RF1), “little reaction to fire” (RF2), “permissible reaction to fire” (RF3) and “prohibited reaction to fire” (RF4).

A fire rating is identified for classification purposes by testing the fire and smoke behavior of building materials separately. The fire rating (BKZ xy) is made up of the flammability level (x) and the smoke level (y) identified. The testing procedure is based on the Wegleitung für Feuerpolizeivorschriften: Baustoffe und Bauteile (Fire Service Instructions for Building Materials and Components).



Local history museum in the Schredl building, Schliersee, with the Aula multipurpose chair. Johannes Wegmann architectural studio. Photo: Robert Forster

# Standards in France, Belgium, Luxembourg, Spain

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Local NF P 92, NF D60 and UNE 237 standards

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In addition to the EN 13501 standard, France, Belgium, Luxembourg and Spain specify further testing procedures to analyze the fire behavior of building materials and components. However, in these countries, rating of upholstery composites is only based on the European EN 1021-1/2 standard (cigarette and match test).

## **NF P 92-503 (F, BE, LU) / UNE 23723 (ES) – test with an electric fan heater**

The testing procedure applies to flexible materials with a maximum thickness of 5 millimeters. To start with, the material is heated over an electric fan heater for 20 seconds. A butane gas flame is then pointed directly at the surface of the material. In addition to observing how long the flames last, the test also examines whether burning drips occur and damage spreads.

Similarly to the other two testing procedures based on the NF P 92 standard, combustible materials are classified in four categories, ranging from “flame retardant” (M1) to “highly flammable” (M4).

## **NF P 92-504 (F, BE, LU)/UNE 23724 (ES) – flame-spread-rate test**

This test supplements the one with the electric fan heater. The flame is directed repeatedly onto the surface of the material in order to check how long the afterburn is and whether any burning drips occur.

## **NF P 92-505 (F, BE, LU)/UNE 23725 (ES) – drip test**

If burning drips occur during the flame spread rate test, the drip test uses a fan heater and a drip tray filled with cotton to investigate further effects. If the cotton in the tray ignites due to burning drips, the fabric is given an M4 rating and disqualified because it is highly flammable.

## **NF D 60-013 (F) – paper cushion simulation**

The additional testing stipulation in France assesses the flammability of upholstered furniture. It tests covers and upholstery material that are composites with a propane torch with an ignition source equivalent to a paper cushion weighing 20 g (0.044 lb).

# Standards in the United States

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TB 117

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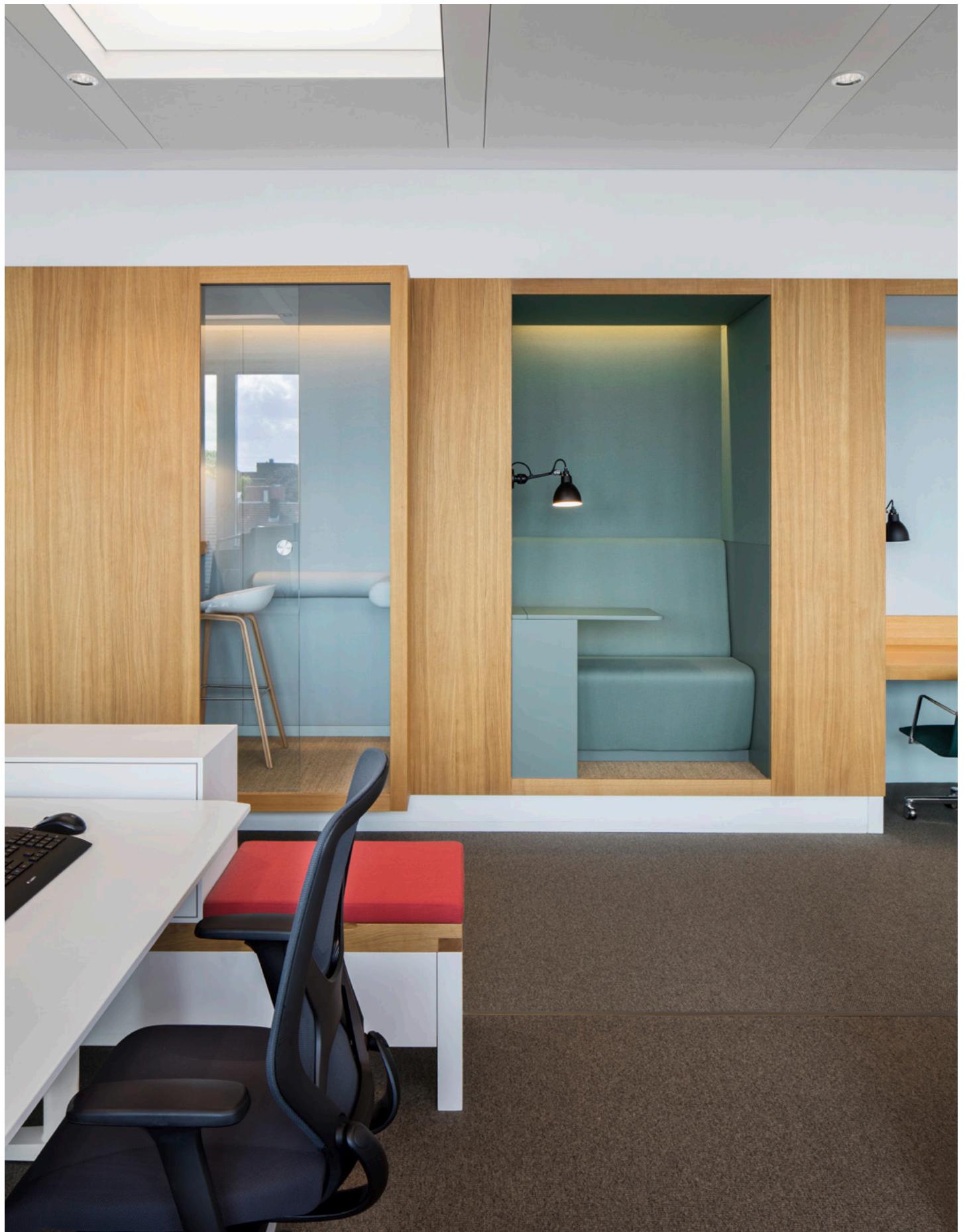
## **TB 117 - requirements, testing procedures and devices to carry out smolder tests on materials used in upholstered furniture.**

In the United States, the fire safety of seating is defined by the state of California's Technical Bulletin 117. Also abbreviated to CAL 117 E, section E of the technical bulletin specifies the requirements that individual components of upholstered furniture must meet. In addition to not igniting when subjected to an open flame, the materials also have to pass the smolder test criteria.

The TB 117 standard has been applied to seating in homes and public spaces since 2013. The TB 133 standard, used to examine the flammability of seating in public facilities, was therefore abolished.



IEX Group, New York, with Graph range conference chairs, photo: Eric Laignel Photography/TPG Architecture



Sparkasse Leer-Wittmund's variety of office spaces with IN office chairs, Ellwanger Chabert architects and ellwanger menzel architects and engineers, photo: Werner Huthmacher

# Fire Safety Today

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An interview with interior designer Ulla Basqué

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Offices need to be attractive places where people enjoy working. Both layouts and the furniture are changing due to the emergence of agile pop-up workspaces and the sort of sectional seating that wouldn't look out of place in homes. We asked interior designer and fire safety expert Ulla Basqué what the resulting fire safety challenges are.



Ulla Basqué is an interior designer who belongs to the bdia (Association of German Interior Architects/Designers) with fire safety certification that includes building category 4 in compliance with art. 62, section 2, sentence 2 no. 1 BayBO (Bavarian Building Ordinance). With Basqué Et Partner, she has been working on projects in offices, stores and apartments for 25 years. As a bdia consultant, she regularly carries out fire safety seminars. Since 2019, she's been spearheading the Interior design & Design department for shopfitting specialists Aichinger. Photo: Ulla Basqué

**Ulla, nowadays, offices have to meet more complex needs than traditional offices in the previous century. As an interior designer, what do you think about this trend?**

New remote styles of working are giving rise to digital nomads, people who can work anywhere

and at any time. As a result, office concepts are also changing. Many companies have a variety of different project teams, with people drawn from several departments. Consequently, versatile spaces and infrastructure are a must for agile styles of working. A few years ago, the Fraunhofer Institute found out that innovations primarily occur in companies themselves. In many cases, all that's required is to alternate between focused working and periods of relaxation, e. g. by having an informal chat to other people, in order to come up with new ideas and patterns of behavior. Which is why rooms need to be versatile. Today, offices are open plan with workspaces that can be moved around, as well as lounges or areas to engage in sport. These are break-out spaces where co-workers can get together over a cup of coffee and think outside the box.

**What are the changes in terms of interior design planning?**

Contemporary offices are flexible and very comfortable with laid-back lounge furniture, open-plan kitchenettes, fabric room dividers and sound-absorbent panels. The

open space trend was starting to emerge a few years ago, but the reason was totally different. In order to use space more efficiently, companies are embracing the use of transit or communal areas, or kitchenettes next to printers or photocopiers for meetings. In addition to very good acoustics, this new open-space trend also means that fire safety is vital.

**What fire safety challenges are posed in this case?**

At the planning stage, we always have to take a nuanced view, which starts with the building category. The categories are based on the type, height and floor space of the building. The higher the building category, the more stringent the requirements. In this case, particular attention is always paid to the transit areas, which the escape and rescue routes are usually also part of. It's important that no obstacles are placed in the escape routes that decrease their width, which is specified in the fire safety survey. In category 4 and 5 and special-purpose buildings, furniture in the escape and rescue routes even has to be affixed to the floor.



Wortmann in Detmold with an open-plan, versatile office space in a loft with IN office chairs, Stand-up stools and Stitz sitting-standing stools. Architect Andre Rhode, photo: Wortmann

Otherwise, if a fire breaks out, people might move the furniture and restrict the width of the escape routes or even block them. Consequently, a nuanced risk analysis can mean that, depending on what the fire safety goal is, a restricted degree of fire loading in rescue routes might be permitted in individual cases.

#### **What role can furniture play in fire safety?**

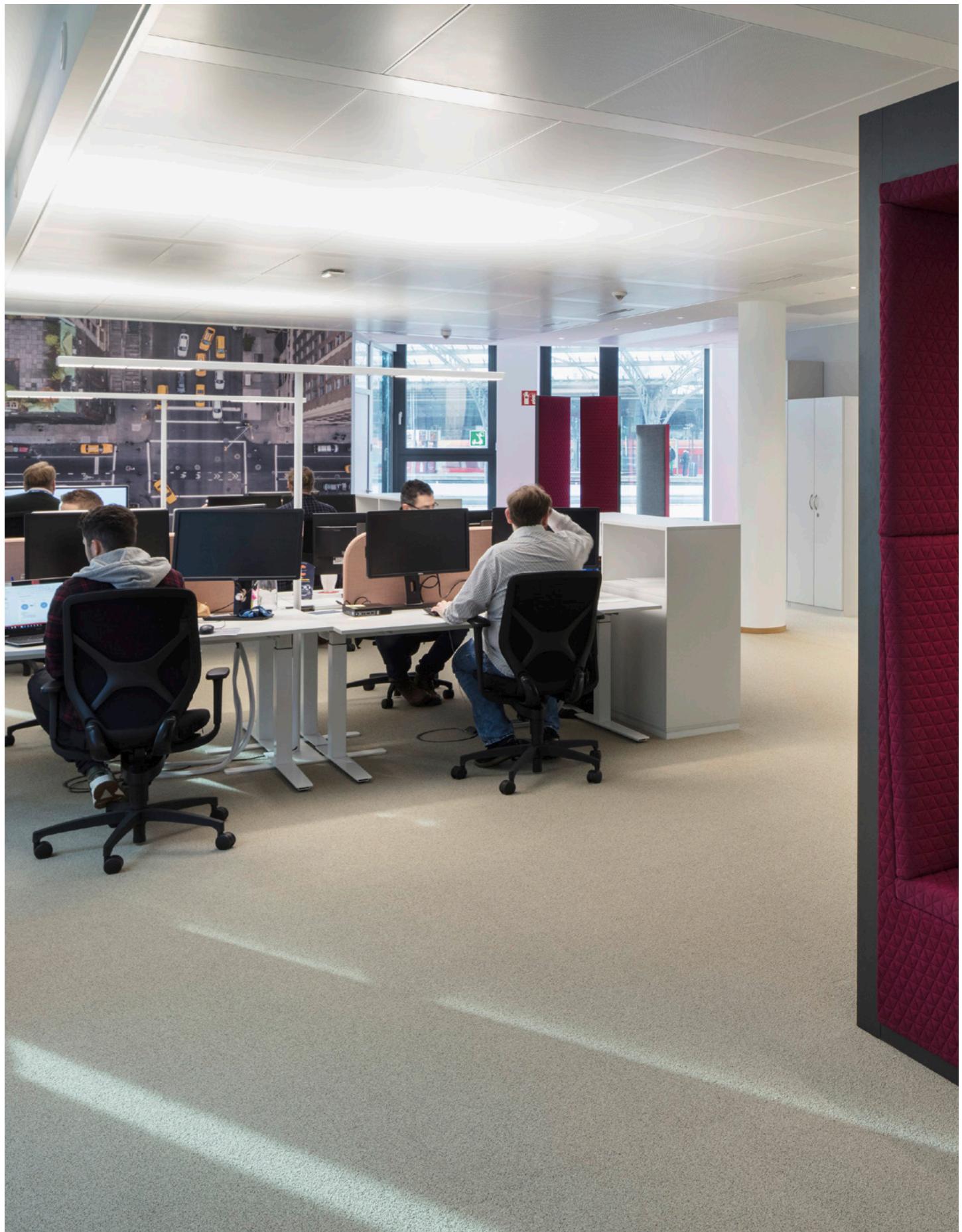
In Germany, upholstery composites are required to meet the DIN 66084 standard. This standard rates and classifies materials based on the results of the DIN EN 1021, part 1, "burning match" testing procedure and part 2, the "glowing cigarette" and DIN 54341 with the "burning newspaper". Upholstery composites with fire safety characteristics that exceed

these have passed the British BS 5852 standard wooden crib test. It's important to remember that the whole system is tested in each case and not just individual components like the upholstery materials. Items of upholstered furniture with improved fire behavior usually have fire barriers in the form of a non-combustible special fleece between the foam and the upholstery material.

#### **What advice do you give planners about selecting furniture?**

Even if calls for tender specify the rating of building materials and not furniture, it's always a good idea to look at the information provided by the manufacturer. What are the frame, cover and upholstery made of? Do the materials already meet the factory requirements? Furniture can make an important

contribution to fire safety if the upholstered furniture self-extinguishes. This is not required by any standards, but if a fire does break out, it's a good way of saving lives in very busy and open-space interiors.



Open-plan workspace at HRS GROUP's headquarters in Cologne with IN office chairs, interior design: Lepel + Lepel, photo: HGE sch



The Modus task chair range, design: Klaus Franck, Werner Sauer, is a benchmark of aesthetics and an eco-friendly design concept.  
Photo: Klemens Ortmeyer

# Wilkhahn Contract Furniture

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Safety and comfort whatever the setting

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At Wilkhahn, we develop durable and consistently people-centric solutions. This includes timeless, high-quality design, which makes Wilkhahn an exemplary, multi-award-winning company worldwide. Which is why, when designing contract furniture, our first question is how we reconcile national and international regulations and recommendations on comfort, health and safety with a strong aesthetic. What's the point of non-combustible seating if it's made of uncomfortable materials that aren't ergonomic? And conversely, what's the point of an office chair being ergonomic and robust if it doesn't meet fire safety requirements?

Which is why fire safety is part of product development from the get-go and ensures that seating can be configured to suit where it's destined for.

Whether it's a plenary chamber with over 200 upholstered seats or a law firm with 10 workspaces, the fire safety requirements of contract furniture are different depending on the setting. Which is why our furniture can be custom-adapted to suit the applicable standards. In the case of the base frames, there are always steel or aluminum alternatives. And even wooden base frames or table surfaces can play a role in fire safety if finished with varnishes with a DIN 4102 B1 flame retardant rating. Our table tops are also available with laminates that comply with exacting international standards, such as the French NFF 16101 for organic surface materials.

We're particularly demanding when it comes to selecting foams and covers for upholstery. We use covers that already meet key fire safety requirements as a standard and are described in detail with regard to the different standards. For example, many upholstery materials, such as the flame retardant Trevira CS (DIN 4102-B1) in the upholstery composite, meet the requirements of the EN 10211+2 standard (cigarette test and match test). Our polyester or wool covers also comply with many requirements, in some cases already in combination with a standard upholstery foam, otherwise with a CMHR foam (Combustion Modified High Resilience, see page 16). When selecting the material for the covers, we can adapt the upholstered furniture in the project to the rating required. And last but not least, in the majority of the ranges, we can include special layers so that the highest fire safety requirements placed on upholstery composites are met.

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## **Safety and comfort whatever the environment**

### **Customized protection in any setting**

At Wilkhahn, we have three categories of upholstery composites. Depending on the fire safety requirement, we call them RESIST, RESIST+ or RESIST SUPER +:



### **RESIST is the standard level of protection for upholstery**

When combined with a standard upholstery foam, Wilkhahn's upholstered furniture can usually be classified in the P-c category (cigarette test) and often even in the DIN 66084 P-b (match/lighter test) category.

### **Superior safety with the Wilkhahn RESIST+ upholstery type**

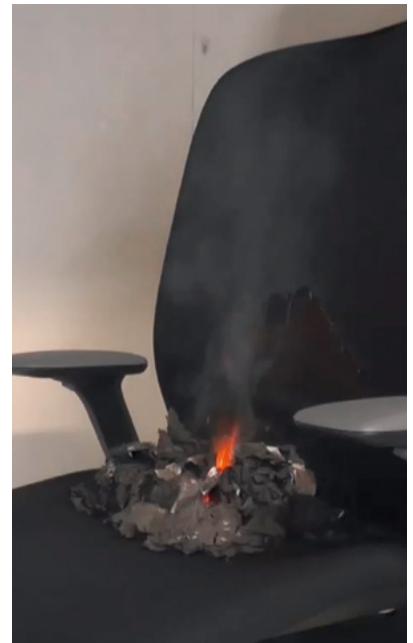
If a CMHR foam is used in the upholstery composite, virtually all upholstered types can be made to achieve an average rating such as P-b (match/lighter test) based on the DIN 66084 standard. Many of our upholstery materials in the average safety category even meet the British BS 5852 fire safety standard with a Crib 5 ignition source.

### **RESIST SUPER + is the maximum fire safety protection Wilkhahn upholstery provides**

For projects with exceptionally stringent fire safety requirements, we can offer upholstery composites as a combination of suitable covers, such as 100% Trevira CS, CMHR foam and added non-combustible fleece. This upholstery type achieves the highest P-a (paper cushion test) rating under DIN 66084.

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The Wilkhahn AT office task chair with RESIST SUPER + upholstery compliant with the paper cushion test under DIN 54 341 – the toughest German testing procedure for rating upholstered furniture. The flame must have self-extinguished after 15 minutes at the latest. In the test shown here, this was the case after less than five minutes already.



#### **How do materials self-extinguish?**

The key lies in the upholstery composite itself. A layer of non-combustible fleece is added between the flame retardant upholstery material made of 100 percent Trevira CS (DIN 4102 B1) and the CMHR upholstery foam. The fire goes out automatically, formation of hazardous flue gas is minimized and the risk of fire spreading is reduced considerably. In other words, chairs with this upholstery composite achieve the highest P-a rating under DIN 66084.



The AT office chair range with elevated sitting position (ESP) to encourage people to embrace sit-stand options. Photo: Frank Schinski



In our opinion, it goes without saying that fire safety is a key criterion for the quality of furniture. And without making any compromises on the design and functionality. Which is why our engineers leave no stone unturned until fire safety and aesthetics are not mutually exclusive. Our furniture already meets demanding requirements and nearly all Wilkhahn ranges can be adapted to comply with requirements in different regions for particular projects. Sewing department at Wilkhahn, factory architecture: Frei Otto.

Photo: Klemens Ortmeier

# Fire Safety to High Wilkhahn Standards

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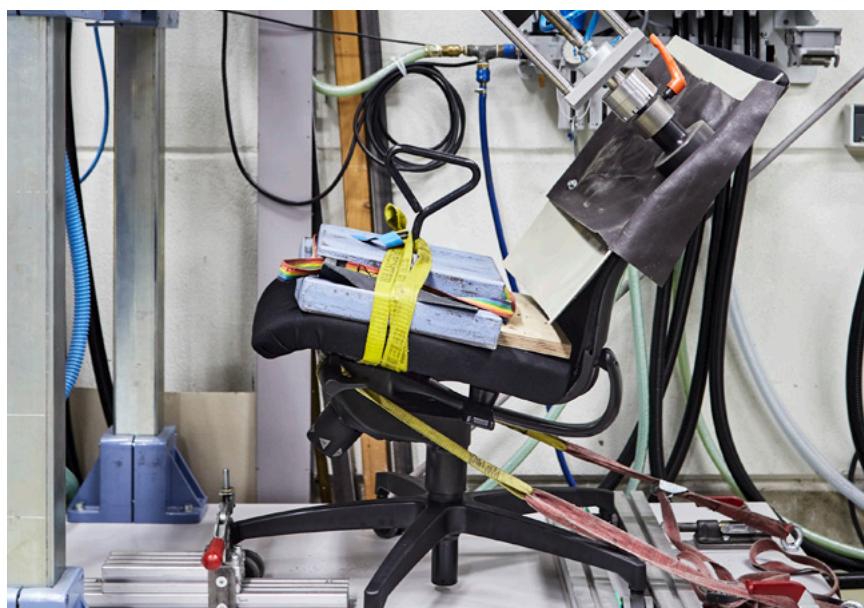
Durable, ergonomic, safe and with a strong aesthetic

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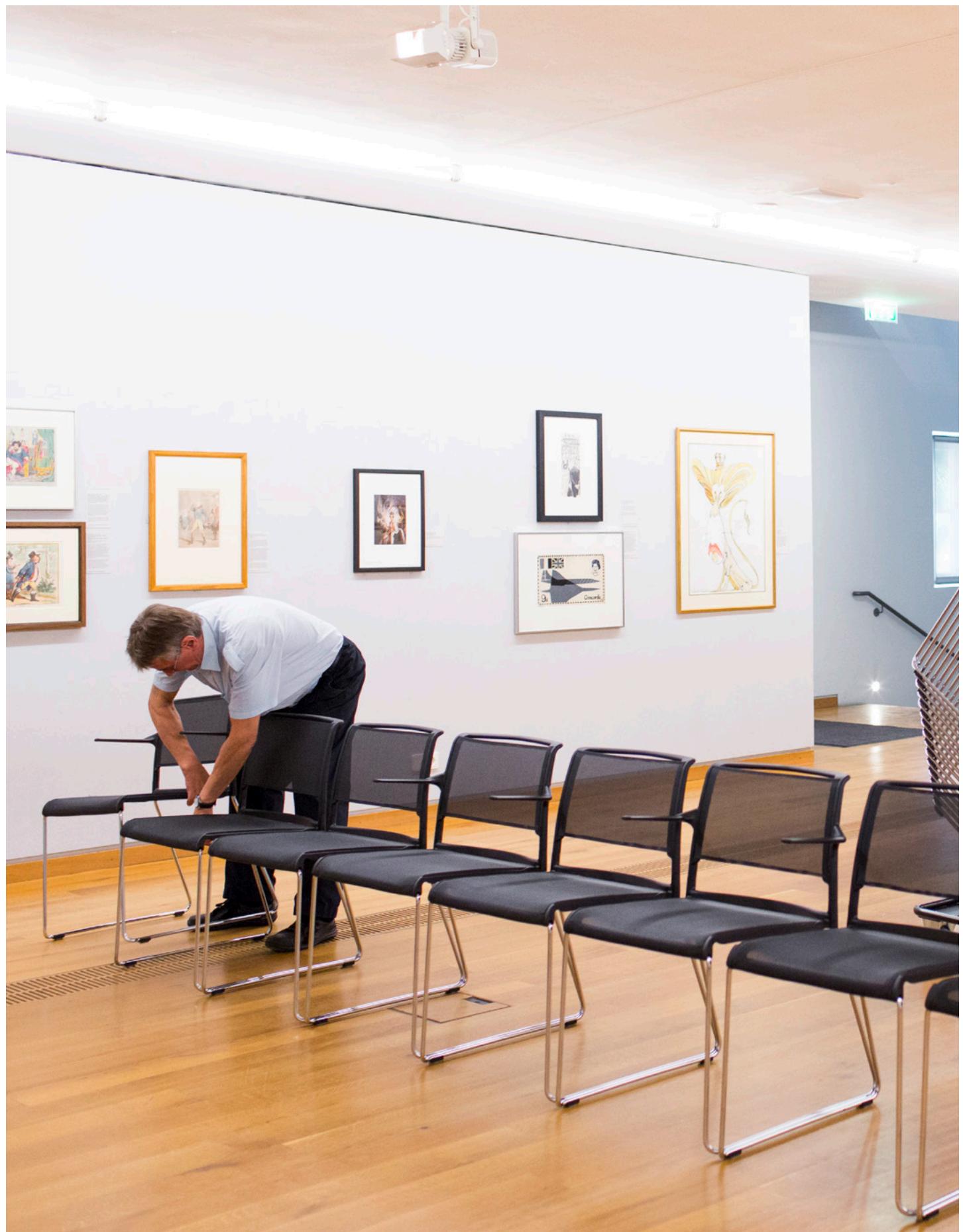
We strive to develop excellent, timeless solutions, both in terms of form and function. This is what makes us successful and a prime example of design made in Germany all over the world today. The company's passion for sustainable, people-friendly design repeatedly leads to pioneering innovations such as the award-winning, free-to-move office chairs, which help keep bodies and minds agile. The smart, mobile furniture solutions for projects and creative spaces are also considered international benchmarks. They boost team spirit, innovation and save a lot of resources at the same time. Entrepreneurial courage and a strong vision put environmental protection on the agenda early on. And the German Environmental Prize is just one of the accolades that our family-run company has received. The combination of leading innovations, excellent design and long-lasting quality with a clear approach produces attractive, future-proof and sustainable furnishing that is state of the art.

Fire safety is just one aspect of our comprehensive quality assurance system. Wilkhahn furniture is encountered on all continents and meets more than just the quality and safety standards in Germany and Europe. Depending on local regulations, it's put through its paces by recognized testing institutes. Which is why, in addition to the customary GS mark and Euro standards, many of our ranges also meet virtually all international quality and safety standards. These range from the American ANSI BIFMA and Greenguard to British Standard and Australian AFRDI certification to the FISP sustainability label.

Co-workers who blaze a trail for our company and partners, customers and friends who are all fired up about Wilkhahn, even years later, are the only type of flames we want to fan as best we can!



Our furniture is tested above and beyond the customary standards. For instance, our IN office chair undergoes custom-developed lab tests because separate testing standards for three-dimensional, dynamic office chairs don't exist.  
Photo: Frank Schinski



At events, inline connectors are used to link rows of chairs, just like the very comfortable and compact-to-stack Aline skid-base range here.  
Photo: Frank Schinski

# General Points

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## Further information

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Please refer to our price list for more information, pricing and terms and conditions. The fire safety requirements listed in this brochure are just examples. In the real world, requirements vary depending on the building and furnishing. Therefore, the items of furniture and their features must be adapted to meet contract furnishing specifications and tested accordingly. As far as projects are concerned, we recommend you liaise with the local authorities concerned. Contact us if you have any technical questions about our furniture.

Creative direction

Rainer Schilling

Design

scherrer.

Concept development

maipr, Arno Heitland

Editors

Arno Heitland, Burkhard Remmers

Photography

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Project management and production

scherrer.

Languages

German, English

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Germany



Plenary chamber in Lower Saxony's parliament building with upholstered Sola chairs. Architecture: Dieter Oesterlen, redevelopment by blocher partners. Photo: Heinrich Hecht

#### **Wilkhahn Germany**

Wilkening + Hahne GmbH+Co. KG, Fritz-Hahne-Str. 8, 31848 Bad Münder, Germany

#### **Wilkhahn worldwide**

Australia, Belgium, China, Deutschland, España, Hong Kong, Japan, Maroc, Nederland, Österreich, Polska, Schweiz, Singapore, South Africa, United Arab Emirates, United Kingdom, United States of America

[wilkhahn.com](http://wilkhahn.com)