




Solutions for commercial and residential buildings



Building Connections

OBO Bettermann has offered innovative products and matching solutions for electrical installations for over 100 years. Our focus has always been on protective installations for the reliable protection of buildings, people and property. With our many years of experience and our comprehensive product range, we are one of the leading manufacturers in this area.

Every one of our more than 30,000 products contains OBO's special spirit of innovation, which acts as a guarantee for continuous further development. Partnership with the customer is of central importance to us. OBO staff are available to provide highly competent support to customers in all aspects of their projects, including products, mounting and planning. This means that you are always on the safe side.

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1

Listed buildings



Listed buildings

Listed buildings not only look good but also have a historical value. This is why we should protect them and “build for eternity”

The restoration of listed buildings is renowned for being difficult, because the requirements for the maintenance of cultural treasures (listed/monumental protection) are often in the way of today’s requirements for fire protection, lightning protection or technical equipment. Here, special solutions must often be found.

Solutions

Fire protection ducts

OBO fire protection ducts for fire protection improvements in existing buildings

Underfloor

Device installation in existing floors with cassettes and service outlets

Cable insulation

Cable insulation in F90-classified wooden beamed ceilings

Fire protection solutions in listed buildings



Fire protection ducts in escape and rescue routes

Fire protection experts regard stairwells and necessary corridors as a fire section requiring particular protection within buildings. They are considered to be the key escape and rescue route on the way outside, as well as an access route for the fire brigade. Cable fires must always be prevented to ensure that no hazardous smoke is created. Here,

fire protection ducts are a safe solution, because they actively encapsulate the fire load, thus preventing the spread of fire. Included in the OBO fire protection products, you will find, amongst other things, the PYROLINE® Rapid duct system, which, through its many fittings and comprehensive accessories, offers a high level of flexibility.



OBO PYROLINE® Rapid metallic fire protection duct

This special duct has the design of standard breast-work ducts with an openable cover. Its internal coating foams up during a cable fire, thus suffocating the fire in its initial stages and securing the environment against fire and smoke.

The PYROLINE® Rapid duct can be installed at a later date in any building and the colour can be adjusted to match the substrate.

You can obtain more information in our **Fire protection guide.**





Underfloor solution



GESM 9

Fine stainless steel design for installation in historic wooden ceilings

Our service outlet with floor covering protection frame is completely manufactured from stainless steel and can also be integrated into wooden beamed ceilings. For this, we have mounting covers in the portfolio, which can be used to create simple, construction-side solutions.

Just contact our Customer Service department.



GESM 9

Brass or stainless steel design for floor-flush installation in historic wooden ceilings

If the installation in wooden beamed ceilings is to take place flush with the surface of the floor, a special mounting frame and our OBO cassette design are the perfect choice. They can be used for perfect integration of particularly thick floor coverings, such as wood or stone.

Contact our Customer Service department about this.



You can contact our Customer Service on:

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Monday–Thursday
07.30–17.00

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07.30–15.00

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Cable insulation



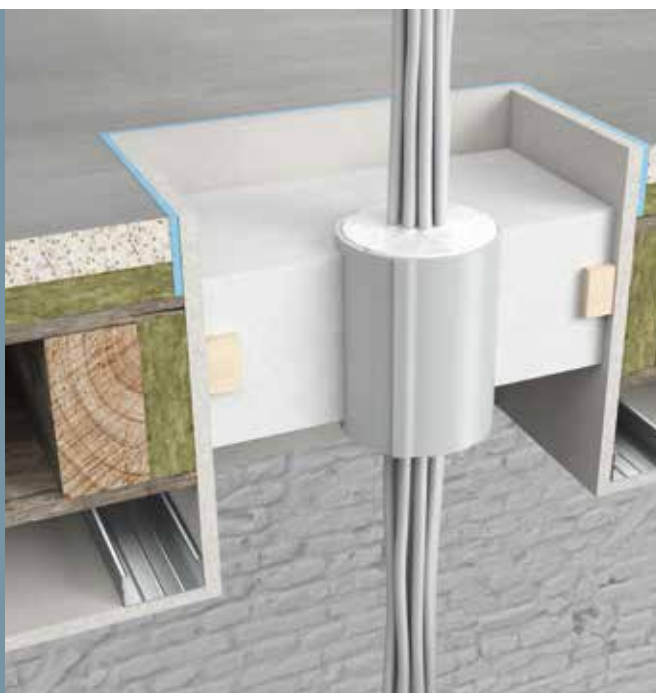
Conlit Bandage cable insulation

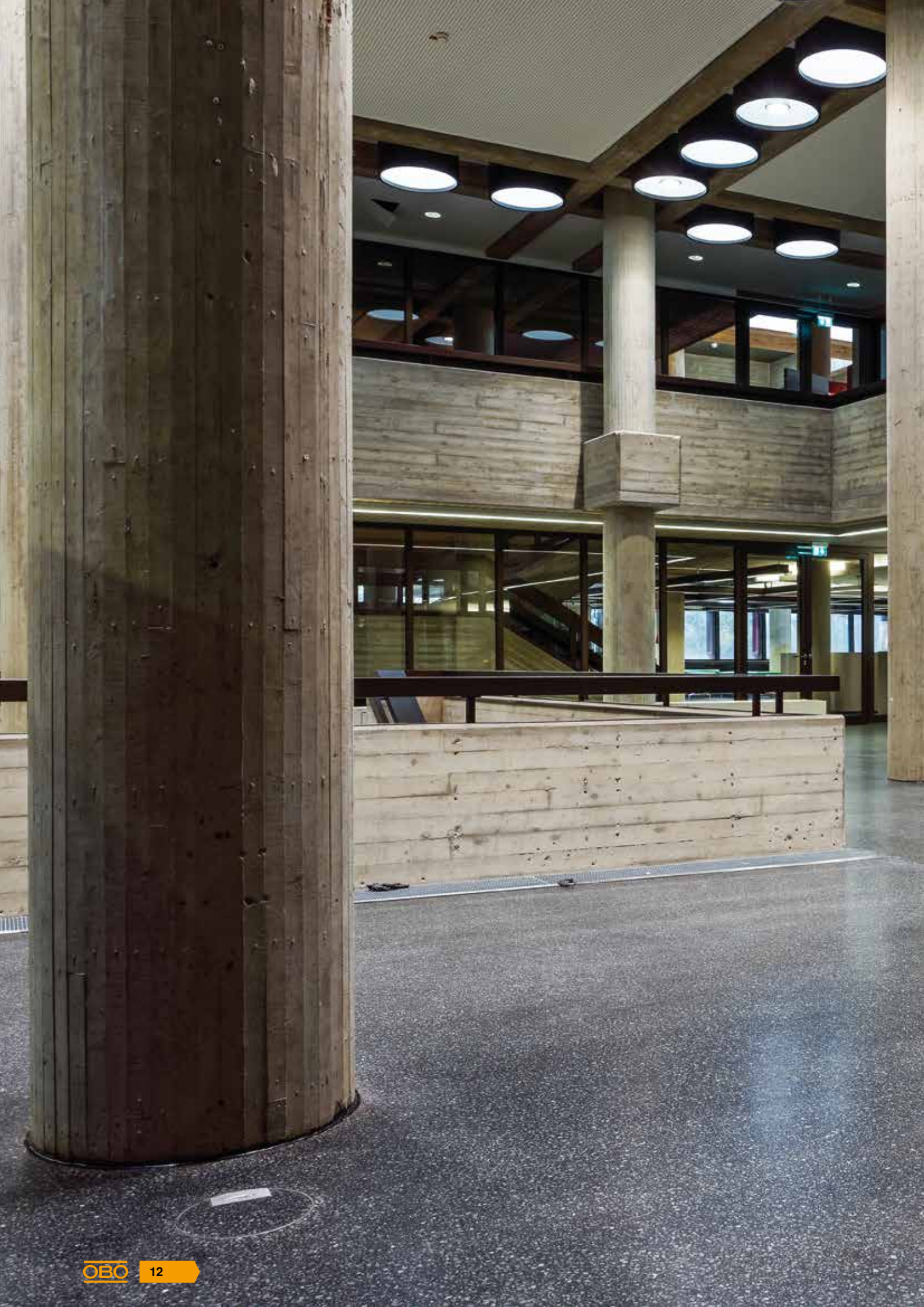
This type of cable insulation consists of an OBO fire protection bandage and can be created by winding it around already routed cable bundles or bundles of installation pipes. It is therefore particularly suitable for older, existing cable systems, which must be included in a fire protection measure at a later time. The system has an approval from DIBt and is suitable for the fire resistance class S30, S60 and S90.

Special application OBO PYROCOMB® Intube Installed in a soffit of non-combustible material

The following applies to all ceilings in existing buildings and wall constructions made of special components (sandwich elements): Mounting of insulation systems is permitted if this type of application is contained in the approval. In conjunction with the construction authorities, systems can be used which, according to the approval, are suitable for a similar application, e.g. within a layer of non-combustible materials.

However, the approval of the accepting office, e.g. the lower-level construction authorities or fire brigade, must always be obtained before mounting.







2

Education buildings

Education buildings

The requirements for the equipment of educational buildings increase continuously and must be taken into account for new buildings and renovations. Ingenious cable management systems are required for the combination of individual technical equipment and centrally controlled systems. Fire protection measures are essential to protect these building types and the people within them.

Solutions

OBO metal trunking for device installation

OBO metal desk trunking
OBO device installation trunking

Halogen-free plastic trunking

Trunking for cable routing and device installation, made of ABS

Service pole

Service poles for schools with individual devices

Cable trunking for device installation and cable routing



Metal device installation trunking

Thought-out down to the last detail

Their robust design and resistant surface using powder coating mean that the OBO device installation trunking made of sheet steel or aluminium is perfectly suited to the rough and tumble of schools or other educational facilities. The triangular shape of the OBO desk trunking shown in the image is ideal for installation on or above laboratory benches.

Halogen-free trunking for cable routing

For safe and fire load-reduced cable routing in public areas, OBO can offer halogen-free trunking made of plastic or metal for device installation and cable routing. It is especially the case that these materials are a wise choice in educational facilities, because if there is a fire they reduce the amount of toxic smoke gases and do not develop any corrosive substances.

With OBO plastic trunking, the material PC/ABS is used. This trunking is available in the colours pure white and light grey. Metallic cable ducts can be coated in many colours. In addition, this trunking can also accept cables with integrated maintenance of electrical function and be run in a visually discreet manner through the building.





OBO metal device installation trunking and poles



Sheet steel or aluminium trunking for large volumes of cables and devices

Universities and research facilities frequently require the routing of large quantities of cables and larger cable cross-sections, in order to operate the different measurement and testing systems. However, there must still be sufficient space in the trunking for device installation. Here, trunking dimensions of up to 210 mm x 90 mm are used, which can also be installed on the wall as double trunking or trunking with a partition. The cables are supplied from the ceiling (cable trays) using vertical supply trunking into the large, horizontally installed device trunking.

The OBO power pole for schools

This power pole was developed specially for the requirements of schools as an interface and control unit for the classroom. Here, the central fuse system of the electrical system, individual light control, alarm systems, individual displays or an analogue clock can be integrated. The generous space within the pole means that there are almost no limits to customer-specific device installation.



Alarm button



Loudspeaker announcements



Control of the workstations





3

Healthcare

Healthcare

In surgeries and hospitals, as well as care and geriatric homes, solutions from OBO Bettermann ensure a fault-free supply of power and data. They fulfil functional criteria and also hygienic criteria, depending on the area of use. It is our aim to provide patients and medical personnel with the best possible protection and to offer medical personnel the optimum technical support. With a powerful electrical infrastructure, healthcare facilities can improve the efficiency of their processes – ensuring comfort and securing the quality of the medical care.

Solutions

Magic® cable trays

For large volumes of cables and safe and quick routing
OBO Magic® cable tray for integrated maintenance of electrical function in case of fire

Wall trunking for device installation and cable routing

Device installation trunking with antibacterial surfaces assist with hygiene in hospitals

Lightning and surge protection

For fail-safety of key devices and systems and to protection patients and personnel

Our TOP solutions for you



Magic® cable trays Strong cable management for power and data supply

Large volumes of cables run for kilometres through the multilayered building complexes of hospitals. Here, there is often demand for medium-duty cable trays with panel thicknesses of 1.5 mm and heavy-duty suspension systems for multiple route layers. Nevertheless, sufficient cable ventilation of the power and data cables must be guaranteed. This is achieved by the more than 30% perforation of the tray base in the Magic® cable tray. This high level of hole components in the tray base means that the cable tray can also be used under sprinkler systems. The Magic® cable support system is also suitable for installations above suspended fire protection ceilings, thus making a contribution to the securing of escape and rescue routes in the event of fire.



Magic® cable trays For the maintenance of electrical function in the event of fire

A cable system tested for fire situations consists of the Magic® cable tray system (OBO RKS-Magic®) and the tested special cables for the maintenance of electrical function.

If there is a fire, this cable system can be used to keep essential systems operational and to save people, and for the fire brigade to fight fires.

Thus, escape route lighting, emergency telephone and alarm systems, rescue and fire brigade lifts and pressure increase pumps can continue to function for up to 90 minutes if there is a fire. This gains time to evacuate sick people from the building and give the fire brigade access to the source of the fire.





Metallic device installation trunking With powder coating as antibacterial surface

Experience in the healthcare sector and current knowledge from germicidal equipment – OBO combines the two in the new Rapid 45 and Rapid 80 device installation trunking with antibacterial surface. This trunking is coated with a special plastic powder, which even has an antibacterial effect on tough germs. It is suitable for use in doctors' surgeries, hospitals or care facilities and helps to reduce the infection risk. Installed on the wall, the trunking allows rapid access to power, data and multimedia signals and also accepts switch and button devices. It also makes a contribution to the safety of escape and rescue routes in the event of fire.

Rapid 80 Two trunking compartments – one system

The metallic Duo trunking unifies two separate trunking compartments into a single system. This construction type was developed for larger volumes of cables with different voltage potentials. The separate metal chambers achieves complete electrical separation of the cable types, even with a high assignment level.



PVC device trunking With antibacterial action

A new granulate mixture of PVC and silver ions also allows the manufacture of a plastic trunking system with antibacterial properties. The germicidal action is permanently contained in the material, meaning that cutting the trunking during construction does not reduce the effect.



Solutions for lightning and surge protection in hospitals

National and international standards specify that people, domestic animals and property must be protected against damage from lightning strikes and surge voltages. This also includes switching surges. According to the lightning protection risk analysis, hospitals are evaluated as having the greatest protection requirements. A lightning protection system for hospitals includes the systems listed here, whose interaction must be perfectly matched.



Air-termination and conductor systems

These arrest direct lightning strikes with an energy of up to 200,000 A reliably and dissipate them into the earthing system via the conductors.

Equipotential bonding systems

The systems form the interface between external and lightning protection. They ensure that dangerous potential differences are not created in the building.



Earthing systems

These dissipate around half of the energy into the earth. The other half is distributed via the equipotential bonding.

Integrated lightning and surge protection

An integrated lightning and surge protection concept offers reliable protection. Healthcare facilities are obliged to take precautions against direct lightning strikes. OBO transient and lightning protection systems reliably protect people, systems and medical equipment. Only when all the components are installed in and on a building is effective protection achieved.







4

Sport and event locations



Sport and event locations

Whenever thousands of people come together, nothing can be left to chance. This also applies to building infrastructure. OBO supplies reliable products: Cable management, maintenance of electrical function and robust, vandal-proof installations. Fire protection systems and systems for external lightning and surge protection guarantee safety – even in exceptional circumstances.

Solutions

Cable tray for indoor and outdoor applications

Deskboxes

Flexible connection for your devices to data, power and multimedia

Our TOP solutions for you



Cable tray in hot-dip galvanised version

The zinc layer thicknesses of these cable trays allow installation in outdoor and indoor areas with increased corrosion protection requirements. Despite the high humidity and chlorine levels in the air, the zinc coating ensures a long lifespan over multiple decades.



Deskboxes for power, data and multimedia

In the press centres of sports arenas, power, multimedia connections and cable data transmission are required directly at the workstation of the press employees, in order to guarantee immediate and secure processing of information.

The Deskbox, which is fastened to the table edge by clamping, can offer all the connection types and can be located flexibly, to ensure that there is always a sufficiently large work area on the table.



FCPSV

FAMILY CORNER: GROEI MEE MET PSV!

PSV

FCPSV

PSV



OBO cable trays for outdoor areas

In open stadia and arenas, cable trays and support systems must withstand weathering conditions over long periods without corrosion damage. Here, components with a zinc layer thickness according to DIN EN ISO 1461 of approx. 40–60 µm are used. In the Philips Stadium in the Dutch city of Eindhoven, OBO cable trays were installed for the LED illumination above the main tribune.

These cable trays in the colour RAL 9010 blend seamlessly into the overall appearance of the stadium, ensuring a safe and reliable power supply.

Cable trays with colour coating

The use of colour-matched cable support systems is becoming ever more popular. As well as aiding visual requirements, an additional colour coating can also provide increased corrosion protection.







5

Shopping centres



Shopping centres

Function and design, quality and a long lifespan: These are some of the factors that are at the forefront in terms of shopping centres. It is exactly these benefits that can be found with the underfloor systems from OBO Bettermann. In addition, these system must also correspond to all the modern fire protection requirements in buildings with large volumes of people. Here, OBO can offer a wide portfolio of solutions for electrical installations in floors.

Solutions

Electrical connections in heavily used floors with underfloor cassettes

Cassettes for stone/marble/tile floors
Floor sockets for high loads and mechanical cleaning

Cable routing system for zones free of fire load

Fire protection ducts made of metal and lightweight concrete

Our TOP solutions for you



Floor-flush cassettes with electrical connections

Stainless steel or brass cassette systems installed flush to the floor can accept up to twelve electrical devices for power, data and multimedia connections. These cassettes are very robust and the integrated hinged cover can be operated very easily, guaranteeing simple access to the electrical connections. These cassettes are the ideal solution for floors with high loads and coverings made of marble, stone, tiles or wood, which are dry or moist-cleaned.

Jointless floor areas, such as polished cement or poured asphalt screeds, are the latest trend in modern interior architecture. Architects and customers value this type of floor covering design for its varied design options and its economy. The cassettes from Ackermann made by OBO are suitable for installation in underfloor duct systems and in system floors. They are compatible with various underfloor systems. The screed-covering heavy-duty solution consists of six system components.



Floor-flush cassettes with electrical connections for mechanical wet cleaning

Large areas in shopping centres are subjected to permanently high traffic loads from the public, transport vehicles or other vehicles. These floor areas are often cleaned with self-driven cleaning machines. OBO developed special cassettes for these so-called wet cleaning methods, which can accept electrical connections and withstand the ingress of water and high traffic loads of up to two tonnes. These OBO "wet-care cassettes" can also supply high-demand areas with electrical connections, without restricting the cleaning methods.

Small round floor sockets with heavy-duty competence

Originally, the small floor sockets were developed for heavy-duty applications in car showrooms. They are extremely stable on account of their die-cast zinc housing. As the smallest round variant of a floor socket, today it is also used in many shopping centres. The visible diameter of the floor socket is only 140 mm and up to two sockets and two data connections can be installed therein. Thus, they are well suited to cash desk areas or kiosks, which occasionally require power and data connections.





GES R2 floor sockets Fine design and high-quality floor areas

The small, round floor socket (GES R2) with its nickel-plated surface is equipped with a hinged cover for simple access to the electrical connections. In the operating state, when connectors are plugged in, it is designed for dry floor care. However, in the closed state, it can also withstand mechanical wet cleaning and traffic loads of up to two tonnes.

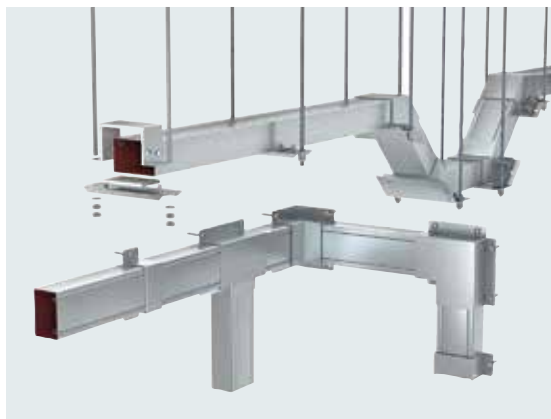
Floor socket with tube body cover (GES R2) for wet-care floors

We recommend the design of the floor socket with tube body lid for floors which are frequently wet-cleaned. However, the floor socket can also be kept operational during wet cleaning of the floor covering. The ingress of water into the interior is prevented by the raised cable outlet in the tube body design. Its solid design with tube body lid means that it can also withstand traffic loads of up to two tonnes.





In shopping centres, large, open galleries are part of a modern appearance. They offer additional space for temporary sales areas or quiet zones, whilst still permitting high traffic volumes. If there is a fire, these walkways serve as a rescue route and must therefore be kept free of combustible materials, such as cables.



Fire protection duct for metallic fire load-free zones

The OBO PYROLINE® Rapid fire protection duct offers an ideal option for encapsulated cable routing in the areas of escape and rescue routes and in stairwells. If there is a fire, an intumescent interior coating comes to life, suffocating the cable fire at inception and preventing dangerous smoke gas development. In addition, the system has an easy-to-open cover, thus allowing simple retro-assignment of cables during later operation. This saves operating costs for the owner.

Lightweight concrete fire protection duct for the highest demands

The OBO PYROLINE® Con D/S fire protection duct is made of lightweight concrete fire protection plates, which can be used for indoor and outdoor areas.

This duct protects the safety cabling against a fire from outside (maintenance of electrical function), but can also protect the building and the people against a cable fire. The duct may be mounted on a support system, or directly on the wall, on the ceiling or mounted outdoors on the roof. Its smooth surface means that it can be painted or papered over easily, allowing optimum adaptation to the environment.







6

Hotels and restaurants

Hotels and restaurants

Our square floor sockets are frequently used in reception areas of hotels, restaurants and also congress centres.

Wherever mobile devices are to be charged or power and data is to be provided at specific points, that is where the UDHOME floor socket is an ideal choice.

Solutions

Square floor sockets

UDHOME square for up to twelve terminals

Design device trunking for counters and reception areas

Our TOP solutions for you

Square floor socket in fine design

Underfloor systems guarantee safe and flexible cable routing in the floor, taking the structural and standardisation requirements into account. The area of application for underfloor installation ranges from office and administrative buildings, through commercial exhibition areas, right up to the construction of living accommodation. It is important to take the floor covering into account. In the case of wet-care floors, a service outlet with tube body is used. With the compatible UDHOME floor sockets and floor boxes, great emphasis was placed on proper machining with high-quality materials. UDHOME offers the maximum flexibility in equipment and simple handling – from ordering to mounting.



The floor socket is available in brass and stainless steel. Depending on the version, between two and twelve devices can be integrated. The cassette design is very robust and suitable for accepting thicker, cut-resistant floor coverings, such as stone, tiles, wood or plastic. The square floor socket is height-adjustable and can be installed flush with the floor.



Wall trunking for increased design requirements

The OBO design trunking is made of aluminium. The surface of the trunking is anodised, guaranteeing an even, matt appearance. The specially shaped trunking covers completely cover the device installation, but can easily be opened upwards to operate the devices. Charging devices can also be hidden behind the trunking cover, guaranteeing a tidy appearance during operation. Optional LED illumination can also be integrated to set special accents.



UDHOME4 – the happy medium For high-quality architecture

The UDHOME4 can be flexibly equipped with power, data and multimedia technology using four support ring devices or six Modul 45 devices.

The UDHOME4 can fit neatly into high-quality interior architecture. All you can see is a slender metal edge and the cord outlet. The floor box is available in stainless steel or brass versions.

The installation unit possesses a height-adjustment range of up to 30 mm and can thus be adjusted to the level of the finished floor.

UDHOME9 – the big one Large floor box with wide-ranging use options

The UDHOME9 can be flexibly equipped with power, data and multimedia technology using nine support ring devices or twelve Modul 45 devices.

The UDHOME9 is the largest floor box of the UDHOME family. It combines unobtrusive design with a wide range of use options.

The UDHOME9 is available in stainless steel and brass versions.

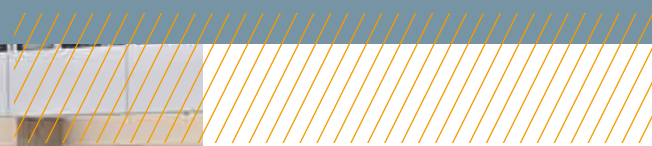






7

Office and administrative buildings



Offices and administrative buildings

Today, our working situations change very rapidly. This is also what the so-called "open space office" stands for. This modern office environment often includes floor-to-ceiling window fronts and large office areas without partitions. Here, the aim is to use the available space to the optimum and remain as flexible as possible with the furnishings. The electrical cabling must fit in with these requirements.

Solutions

Cable routing and device installation in the floor and at the desk

Floor-flush electrical ducts for device installation in the "open space office"
Deskboxes for device use are clamped directly to the desk

Device trunking for wall installations

Integrated windowsill trunking for device installation

Our TOP solutions for you

OBO Bettermann is the market leader in underfloor systems and its portfolio offers a large selection of different systems. Cable routing with floor-flush trunking systems offers space for volumes of cables and can take place invisibly or visibly in the floor. This trunking system is very robust but can also accept larger traffic loads and is designed for an entire building life with changing user requirements.



Level underfloor systems

To supply workstations up to the desk

Service outlets supply workstations and other areas in the centre of the room with power and data connections via the floor. There are versions for dry and wet-care floors. Service outlets are suitable for installation in floor-flush trunking systems, screed-covered underfloor systems and in all system floors.



Floor-flush trunking systems, type OKA

Ideal for large office areas with open space use

Large volumes of cables can be routed in the floor using the floor-flush type OKA trunking system. Devices can be installed in the trunking or can be installed next to the main cable routing.

This trunking system can be used to facilitate a flexible use of the office area.

The trunking can be opened and closed using the lockable covers. In addition, the floor boxes can be repositioned within the trunking route. This allows flexible adjustment of the outlets for power and data to changes in the room furnishings.





Services outlets, type GES

Various colours, shapes and sizes

Service outlets supply workstations and other areas in the centre of the room with power and data connections via the floor. There are versions for dry and wet-care floors. Service outlets are suitable for installation in screed-flush and screed-covered underfloor systems and in system floors. The GES service outlets are available in round and rectangular versions. Plastic or metal are used as materials. The plastic version is the tried-and-trusted solution for office installations. It is available in three colour variants. The metallic stainless steel or aluminium versions look refined and can carry an even greater load. Other solutions are available for areas with increased floor-load requirements.

Deskboxes

Workplace solutions for direct access to power and data

Deskboxes by OBO offer direct access to power, data and multimedia connections for every workplace. For individual requirements, three different Deskbox solutions are available in high-quality materials and with a fine design: the freely locatable Deskbox DB, the lowerable Deskbox DBV and the folding Deskbox DBK.

High-quality aluminium, a slender design and variable installation options: the Deskbox DB can be freely positioned in the workspace, offering direct access to all the connection solutions.







Rapid 80 double trunking Two trunking compartments – one system

The Rapid 80 double trunking unifies design and function in one system in an uncomplicated and convincing manner. The two completely separate trunking compartments are used to accept cables with differing potentials, e.g. data and heavy current cables. This excludes electromagnetic interference in the parallel cable route.

With an asymmetrical distribution of the trunking profile, the top trunking compartment is also used for device installation.

Rapid 80 trunking With integrated windowsill

The Rapid 80 trunking system can be fastened on the wall using panels and its depth can be adjusted. Slats are engaged on the panels as a top closure, thus forming a closure flush with the windowsill.

The slat structure on the windowsill allows unimpeded air circulation of the radiators installed on the wall.







8

Housing construction

Housing construction

There is scarcely another place in which we feel as secure and safe as within our own four walls. OBO can offer a range of electrical components, giving people a safe and comfortable life in their homes.

OBO stands for networked thinking and systematic actions. We combine our products into solutions for your specific residential project – from the photovoltaic system on the roof, through the electrical devices in the individual rooms, up to the complete, intelligent building control system.

Solutions

Brush bar trunking

Flush-floor trunking with a brush bar as a cord outlet

Floor sockets for the home

GES R2, the small round socket
UDHOME2, the small square socket

RAUDUO – skirting trunking

Combined heating and electrical skirting trunking

Our TOP solutions for you



Brush bar trunking system

Flexible use in the floor

The brush bar trunking system is designed to accept sockets and data sockets and to provide cable routing in the floor. The trunking system is installed along a wall or in the floor for floor-to-ceiling window fronts. The cover of the trunking system ends flush with the floor and can be opened and closed easily at any time. The cord outlet is a lengthwise side brush bar, which also forms the wall closure on the cover.

The flush-floor trunking system can be covered with any floor covering.



OKB brush bar trunking system

Invisible device installation and discreet cable routing

There are almost no signs of how this room is supplied with power. Only a slender, discreet brush bar along the wall offers an indication. That is where the open, screed-flush OKB brush bar trunking system made by OBO is located. The special feature: the trunking has an opening towards the wall along its entire length. A brush bar covers this opening and serves as visually attractive sight and dust protection. The cables can be run out of the trunking at any location. The OKB system runs directly on the wall or along floor-height windows. The system is mounted directly on the raw concrete before the screed work. Alternatively, it can be installed in a prepared opening in the screed.



Small round floor socket for the home

The round floor sockets of the GES R2 series supply data and power exactly where they are required. Handling is particularly simple: the connection cables are inserted in the compact installation compartment and the installation compartment is closed with a cover. Depending on the cover version, the floor sockets are suitable for dry or wet-care floors. The version with hinged cover is available in the colours old copper, old brass, chrome, nickel, nickel-

oxidised and deep black. The plastic floor sockets are available in iron grey and graphite black.

The installation socket of the GES R2 floor sockets can be equipped with two Modul 45 devices, such as sockets and USB chargers, and optionally with up to two connection sockets for IT applications.



UDHOME2 square floor socket

Small but perfectly formed

The smallest square floor socket of type UDHOME2 is available in stainless steel or brass versions. When installed, the visible area is just 140 mm x 140 mm. The interior offers space for two sockets and two data connections. The hinged cover versions can be opened and closed easily and are designed for dry rooms. The variant with the round tube body outlet is suitable for wet-care floor coverings and is tested according to the protection rating IP54. Their compact, solid design mean that these floor sockets are also suitable for high traffic loads.





The risk-free renovation idea

The RAUDUO combined electrical and heating trunking is a renovation idea for safe, standardised routing of the electrical and heating lines in shared skirting trunking. Thanks to the clever 2-in-1 solution, heating pipes and electrical cables are simply routed in a shared trunking base.



RAUDUO combined electrical and heating trunking

With tested quality

Thanks to the thermobuffer, a shared skirting trunking for electrical and heating lines can ensure functional, tested heat insulation (tested according to DIN VDE 0298 Part 4).

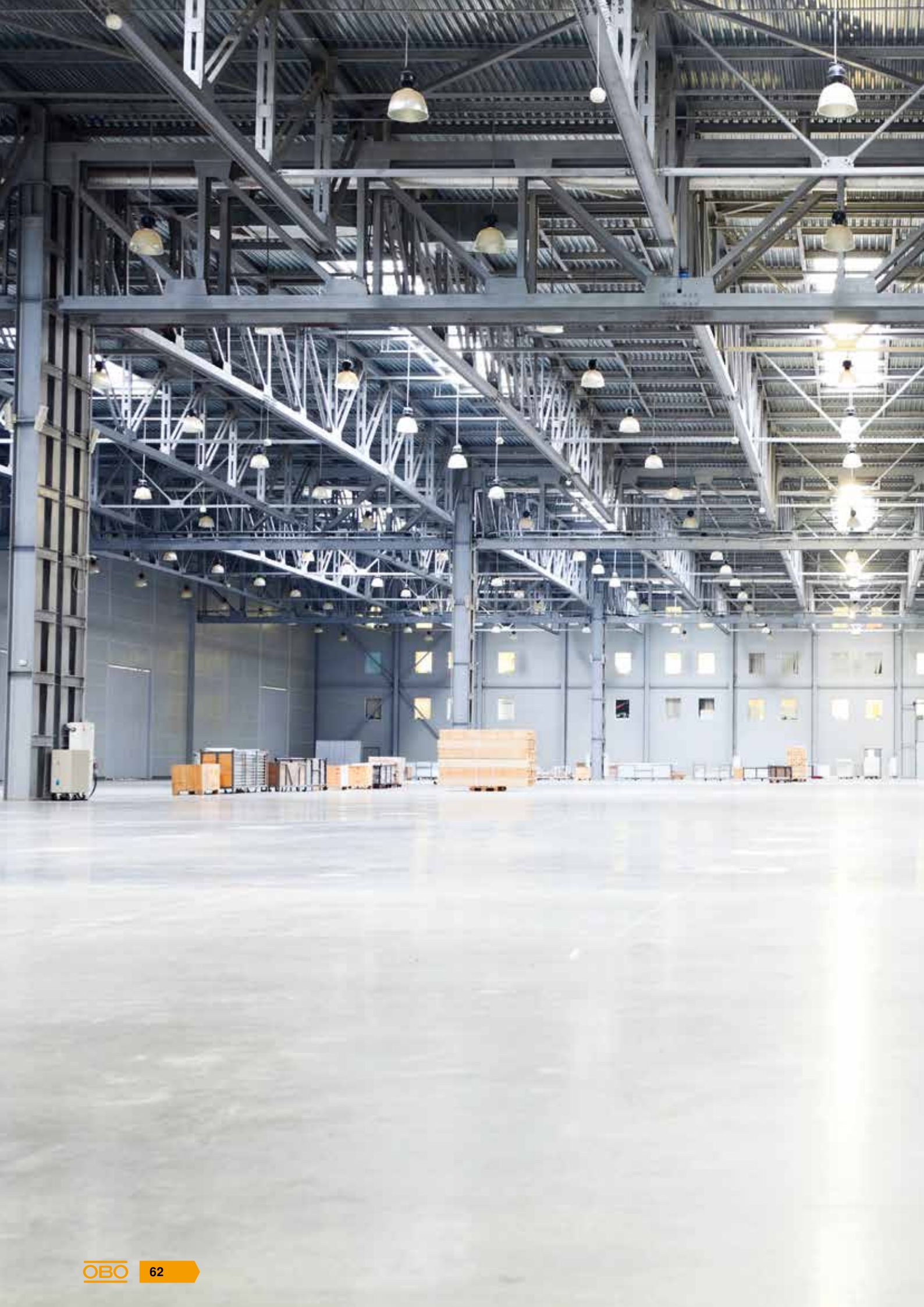
Even at high flow temperatures in the heating pipes, the temperatures in the installation areas for electrical cables remain under 30 °C and no problems will occur at normal current loads.

Trunking cover with sealing lip

Suitable for existing buildings and offering a perfect fit

The trunking cover of the RAUDUO system is available with either a sealing lip for existing buildings, with a lip width of 6 mm, or with a tapered lip end. This allows an exact wall and floor connection.







9

Logistics buildings



Logistics buildings

The construction of logistics buildings is marked by expansive steel or concrete structures, which cover large areas, in order to provide sufficient freedom of movement on the ground.

The electrical supply of the logistics areas often comes via concrete supports, on walls or on concrete roof ties under the hall roof. Often, large support distances must be bridged. It is in these situations that OBO's wide span cable support systems and heavy-duty vertical ladders come into play.

Solutions

Cable sections for large fastening distances

Wide span trays

Vertical ladders for vertical cable routing

Power pole for industrial applications

Industrial pole, type ISS

Our TOP solutions for you



Wide span cable sections Efficient and flexible

Industrial plants and technical companies require effective cable routing. With our cable trays and cable ladders from the wide span system, cables can be routed over wide distances with a support spacing of up to 6 m. The product range comprises many sizes. All the elements of the system are constructed to be robust and have a long lifespan, in order to withstand the loads of everyday industrial work over a long period of time.



Vertical ladders for high cable loads

For 45 years, the robust cable support systems, tested for many different areas of use, have been used successfully in the field of electrical installations. The systems have proven their worth in indoor and outdoor areas, both in industrial environments and in public buildings. In addition, they are used for the maintenance of electrical function of safety-relevant systems.

With the vertical ladders in the known OBO quality, all the challenges of electrical installations on the construction site can be mastered professionally and safely.



ISS power pole for industrial applications

Our industrial power poles bundle power, data and compressed air connections in a compact and robust form. This means that changes of location, for example when modifying production procedures, can be carried out particularly quickly and easily. Thanks to the modular set-up, it is easy to equip the service pole according to the new requirements. The ISS basic profile is fully compatible with all known items of MB Building Kit Systems.



Stand and ceiling fastening

A solid stand for floor fastening ensures safe mounting on the floor. The top closure is formed by a solid ceiling fastening, using which height differences can be compensated easily.





10

Fire and lightning protection



General introduction to fire protection

For years, the requirements for building safety have increased continuously. In this context, the sensitivity towards necessary fire protection in buildings is also growing.

However, professional fire protection is challenging and multifaceted. Nowadays, fire protection presents many planners and installation engineers of building equipment with almost insurmountable obstacles. Installations run like networks through the complex building structures and the art of the planner is to harmonise the various networks, such as supply and disposal, heating, ventilation and air conditioning, with the electrical installation.

When the fire protection design has been completed, the appropriate systems and components are installed. This is where the installation engineer is required. And it is here where there are requirements which cannot be implemented without further work. After planning and correct implementation, the fire protection building alignment must finally be approved. All the installations must be executed according to regulations and the appropriate fire protection proofs must be available. Consequently, the requirements are high, requiring comprehensive knowledge of the causes of fire, fire behaviour and fire avoidance, as well as the different options for limiting or preventing the spread of fire.

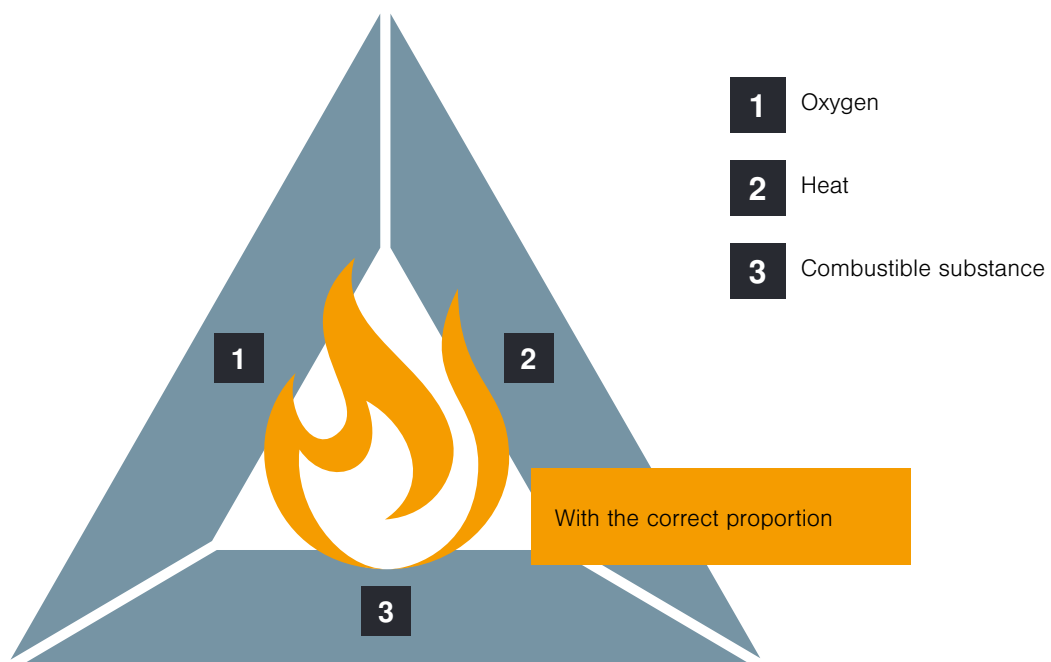
How does a fire occur?

Often, it is just carelessness – a forgotten candle, an unextinguished cigarette – or a technical defect, which triggers a catastrophe. Often, it only takes a moment for a flame to become a fire, from the first glow to a huge inferno.

A fire requires three basic preconditions:

- A combustible substance
- Oxygen
- An ignition source

It is only with the right mixing ratio and a (not always essential) catalyst that a damaging fire occurs.



Fire protection

The three protection aims

Three points are of fundamental importance when saving human lives and property from fire.

With 40 years of experience in fire protection and our unique, wide-ranging product range, we at OBO Bettermann are one of the few providers whose offers and advice can cover all the three necessary protection aims. This is because preventive fire protection can save human lives and property.



1. Limit the spread of fire

In buildings planned with fire protection, fire and smoke are prevented from spreading quickly. Here, insulation systems and cable bandages are used. These measures prevent the fire from spreading to other parts of the building.

2. Protect escape and rescue routes

If there is a fire, saving people's lives is the top priority. This is why escape and rescue routes are the lifelines of any building. They must be planned and constructed to be fireproof and remain usable under all circumstances.

3. Maintain electrical functions

If there is a fire, important technical equipment, such as fire alarm systems, smoke-extraction systems or emergency lighting, must continue to function. This allows safe evacuation and the fire brigade is supported in fighting the fire. Fireproof cable systems and cable support systems are essential here.

Insulation in practice

Limiting the spread of fire and smoke

Safe cable insulation is essential for effective fire protection. Only in this way is it possible to prevent the spread of fire and dangerous smoke. The OBO fire protection experts recommend insulation systems with foams of the PYROPLUG® series, e.g. blocks and plugs, as well as the PYROSIT® NG 2-component fire protection foam.

Core drill holes in solid walls and concrete ceilings are closed with plugs made of permanently elastic, closed-pore foam. Eight different sizes are available. Residual joints are simply closed off with filler. Special tools are not required for mounting. Retro-installations of cables are also possible with the minimum of effort.

Fireproof cable support systems in practice

For the maintenance of electrical function of electrical systems

In combination with many different cable types from various cable manufacturers, support and routing systems have achieved the maintenance of electrical function classes E30 to E90.

Fire protection ducts in practice

For safe escape and rescue routes

To ensure that no dangerous smoke is created in the area of escape and rescue routes, it is essential that cable fires are prevented. Fire protection ducts are a safe solution here, as they actively encapsulate the fire load, thus preventing the fire from spreading.

Within the OBO fire protection products, you will find, amongst other things, the PYROLINE® Rapid duct system, which, through its many fittings and comprehensive accessories, offers a high level of flexibility.

The concrete PYROLINE® Con PLC fire protection duct is particularly suitable for installations in existing buildings. If pipes or cables from other systems, such as heating, ventilation or sanitary, have already been routed, then they can be elegantly passed by using the PYROLINE® Con PLC. The duct can be adapted to the existing cable routes.

The internally coated fire protection ducts can be mounted both directly on the wall or ceiling, on the raw floor or in the system floor, and also with the suspension system.



Fire protection

Protection of property and the environment

The protection of property includes not only the protection of the building or the system, but also the protection of cultural goods and irreplaceable data.

With regard to environmental protection, the German MBO prescribes this special protection aim: It states that “Public safety and order as well as life, health and the natural basics of life (may) not be endangered”.

When implementing fire protection measures, environmental protection must also be observed.

A plant must be designed in such a way that, even in the event of a fire, neither people nor nature are endangered unnecessarily. Of course, in the industrial sector, it is also mandatory to implement the construction fire protection requirements.

Also, in most cases, such plants require a fire protection concept, without which the plant cannot be approved. For the operator, besides the safety aspects for the people working at the plant, the protection of machines, production areas and warehouse facilities are in focus. These points are also of importance in terms of power generation. Protection of the usually very high investments in plant equipment is the main argument for a fire protection concept.

Building classes (with the example of Germany)

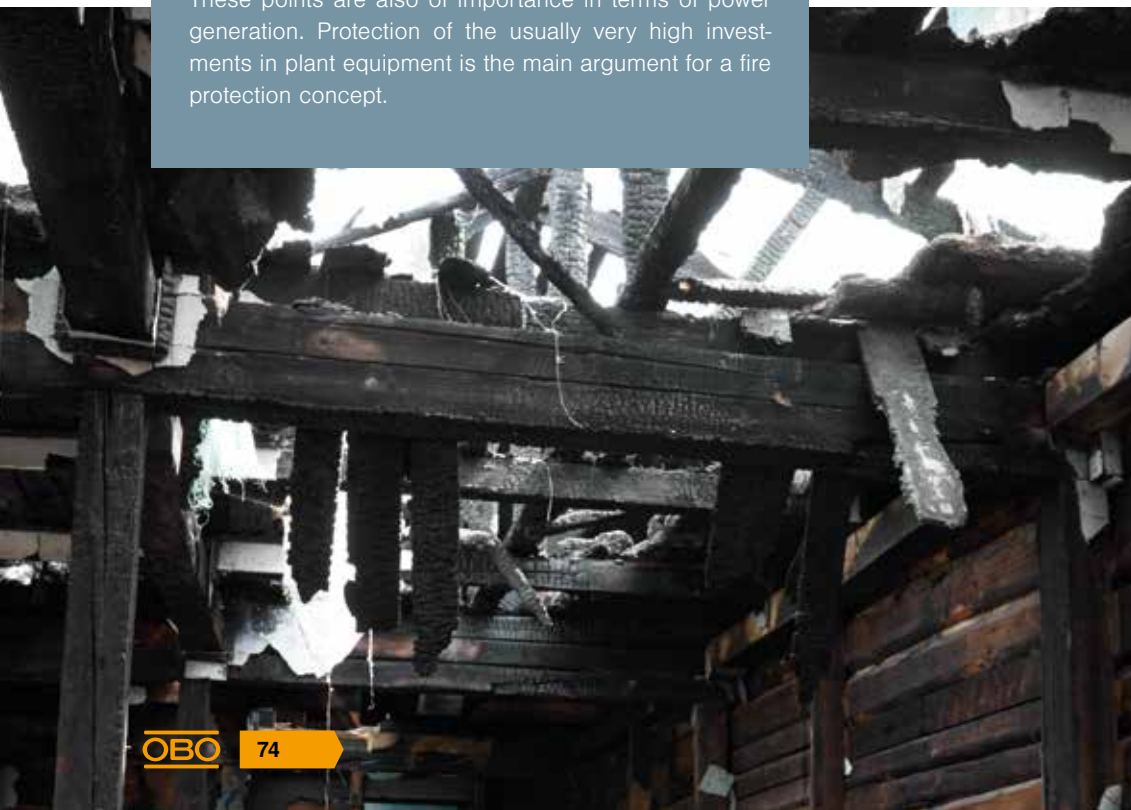
Not every building is subject to the high fire protection requirements. Therefore, in Germany, the Model Building Regulations (MBO) make a distinction between various building classes, which each have different fire protection requirements.

Thus, Classes 1 to 3 include primarily smaller buildings, which do not usually contain large amounts of people.

Higher buildings below the tower block limit of 22 m can be found in Classes 4 and 5. In these buildings, regulated according to Classes 1 to 5, a single structural rescue route, e.g. a stairwell, is sufficient.

Also in these buildings, communal areas in the upper storeys can be reached by the local fire brigade using portable ladders. For higher buildings of 22 m or more (top edge of the floor of the topmost communal area), elevated rescue vehicles are required, e.g. rotary ladders.

Not every municipality possesses an appropriately equipped fire brigade, as these special vehicles are very expensive to buy. This is why these municipalities rarely have tower blocks.



Special structures

The requirements for special structures such as industrial buildings, tower blocks or meeting places are regulated by special specifications. It is perfectly possible that a building complex is divided up into various construction sections, which are viewed and evaluated differently from a fire protection point of view, depending on the type of use.

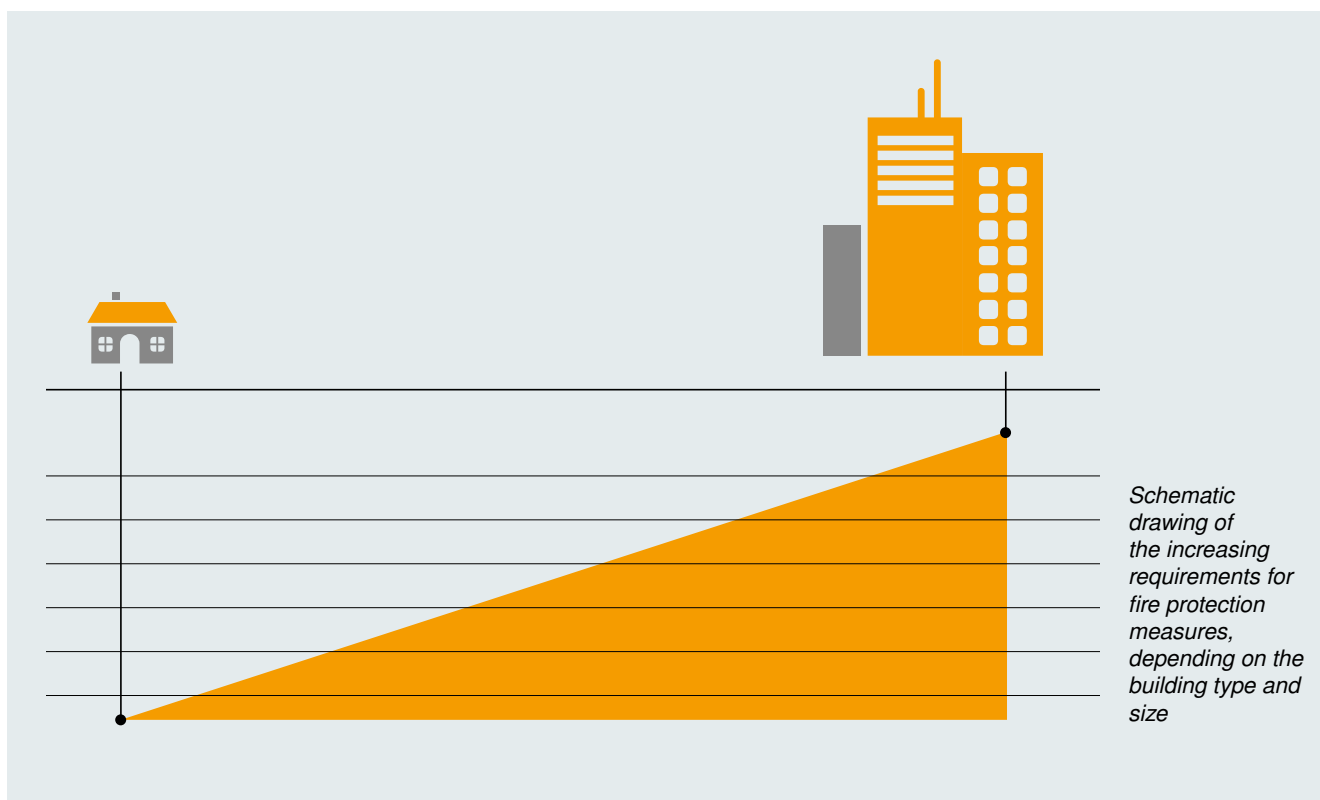
If there is no special ordinance for a building, then the minimum requirements of the state construction regulations take effect automatically.

To be able to classify a special construction, at least one of the following “facts” must be fulfilled according to the Model Building Regulations:

- Exceeding certain basic areas
- Exceeding specified building heights
- High number of people usually located in the building
- Special use
- Processing and storage of dangerous substances

The following are examples of special structures:

Tower blocks, shopping centres, schools, stadia, hospitals. To unify these special buildings, there are special technical construction regulations and ordinance e.g. venue regulations, tower block directives, hospital construction ordinance. These building types are termed “regulated” special structures. Besides them, there are also so-called “unregulated” special buildings, for which there are no special regulations. However, here, the general recognised rules of technology and the minimum requirements of the state laws apply.





General introduction to lightning protection

Lightning is a naturally occurring spark discharge or short-lived electric arc. Lightning discharges can take place from one cloud to another, or between a cloud and the ground.

Lightning – one of the “electrometeors” – generally occurs during thunderstorms, where it is accompanied by thunder. When this occurs, electrical charges (electrons or gas ions) are exchanged, i.e. electrical currents flow.

Depending on the polarity of the electrostatic charge, lightning can alternatively start from the ground. Some 90% of all lightning discharges between a cloud and the earth are negative cloud-earth strikes.

Here, the lightning begins in an area of negative charge in the cloud and spreads to the positively charged ground.

However, the vast majority of discharges take place within clouds, or from one cloud to another. NASA measured the annual global frequency of lightning over the period 1995 to 2003.

The local values obtained by NASA can be used to determine the annual number of lightning strikes per km² even for countries that do not have their own information on numbers of lightning impulses. For risk assessments according to VDE 0185-305-2 (IEC/EN 62305-2), it is recommended that these values are doubled.



Components of lightning and surge protection

1. Air-termination and conductor systems arrest direct lightning strikes with an energy of up to 200,000 A reliably and dissipate them into the earthing system.
2. Earthing systems dissipate approx. 50% of the arrested lightning current into the area, while the other half is distributed via the equipotential bonding.
3. Equipotential bonding systems form the interface between the external and internal lightning protection. They ensure that dangerous potential differences are not created in the building.
4. Surge protection systems form a multilayer barrier, which no surge voltage can by-pass.

Lightning strikes in buildings endanger people and property. OBO lightning protection systems offer reliable protection against the dangers of a direct lightning strike and the damage from partial lightning currents in buildings or systems.



Surge protection

The underestimated risk

Each year, 450,000 cases of damage from surge voltages are registered with insurance companies. Some 31% of these are caused by direct and indirect lightning strikes, and the others through everyday switching operations in the power grid, e.g. switching heavy plant on and off. Without the appropriate protection, people, systems and electrical devices are exposed to a constant danger. At the same time, our dependency on electrical and electronic devices is increasing continuously, both at work and in the home.

To offer people, systems and property sufficient protection, surge protection has been made mandatory since 2016 through DIN VDE 0100-443 in places where the impacts of surge voltages have an influence on human lives, public facilities and cultural property, commercial or industrial activity, groups of people or individual people.

Here, surge protective devices (SPDs) must be installed at least at the supply point of the system, e.g. at the meter.

In addition, DIN VDE 0100-534 specifies how this surge protection is to be implemented in individual cases. For buildings with an earth cable supply, a type 2 SPD is sufficient. Buildings supplied by exposed cables or an external lightning protection system must be protected using a type 1 arrester or a type 1+2 combination arrester.

Alternatively, surge protection can also be installed in the pre-meter area. However, for this, the surge protective devices must fulfil the requirements of VDE-AR-N 4100.

If resources are located at a cable length of more than 10 m from the last SPD, then a further surge protective device must be installed, either in the sub-distributor or directly in front of the terminal. In so doing, care must be taken that the protection level of the SPD does not exceed the necessary rated surge voltage of the resource. DIN VDE 0100-443 recommends that, in addition to the power cables, all the other cables, such as for telecommunications or cable TV, are also connected to the equipotential bonding at the entry point using suitable SPDs.

OBO surge protective devices limit the voltage at the installation location to a harmless 1,500 V, fulfilling the requirements for standardised electrical installations. Consistently matched protection of power, telecommunications and data cables ensures an effective protective circuit, preventing hazardous potential dangers.

Lightning protection – protection against dangerous contact voltages

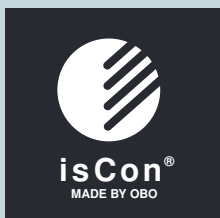
A millisecond with long-lasting consequences

Lightning strikes in buildings endanger people and property. OBO lightning protection systems offer reliable protection against the dangers of a direct lightning strike and the damage from partial lightning currents in buildings or systems. Here, tested air-termination systems provide external lightning protection, which runs the lightning impulse current safely via metallic conductors to the earthing system and into the earth in the best possible way. With RAL-certified OBO lightning protection components, even very high lightning pulse currents of up to 200 kA can be managed.

Building regulations mean that it is a legal requirement today that buildings incorporate personal safety and preventive fire protection elements. The work of public agencies, such as the police, ambulance and fire services, is also particularly worthy of protection. If an uncoated conductor is touched during a lightning strike, then part of the current path will run from the hand, through the body to the feet. This can have a fatal impact!

There is a particularly high risk of such a contact voltage with buildings in which uncoated conductors are routed directly in the entrance or communal areas near gathering points. This can, for example, include shopping centres, hospitals, universities, schools, kindergartens, theatres, smokers' areas in the workplace, trade fair sites or cinemas.

The isCon® Pro+ 75 GR conductor can be used as protection against this dangerous contact voltage. This has been tested successfully up to a length of 5 m with a contact voltage of ~ 100 kV ($1.2/50 \mu\text{s}$) during rain, thus fulfilling the high requirements for contact voltage according to VDE 0185-305-3 (IEC/EN 62305-3).



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Building Connections

