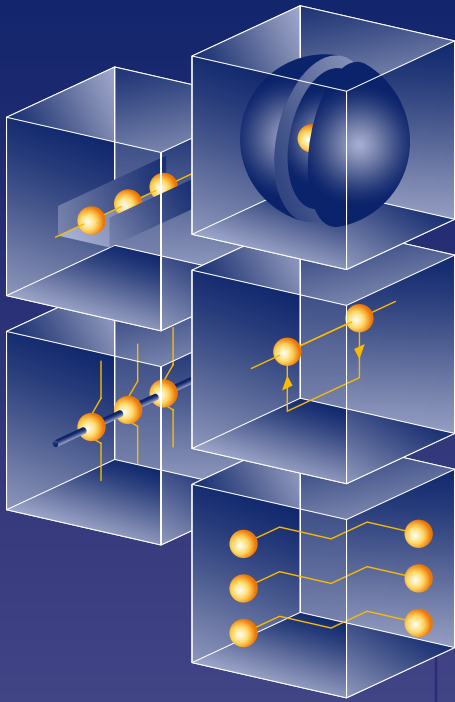
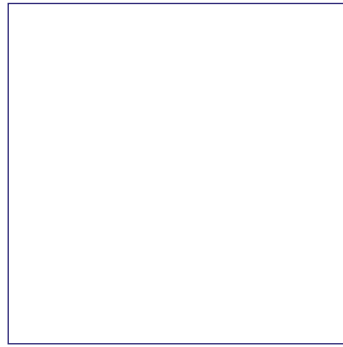


woertz





WOERTZ MUTTENZ





FAMILY FIRM WITH AN INVENTIVE SPIRIT

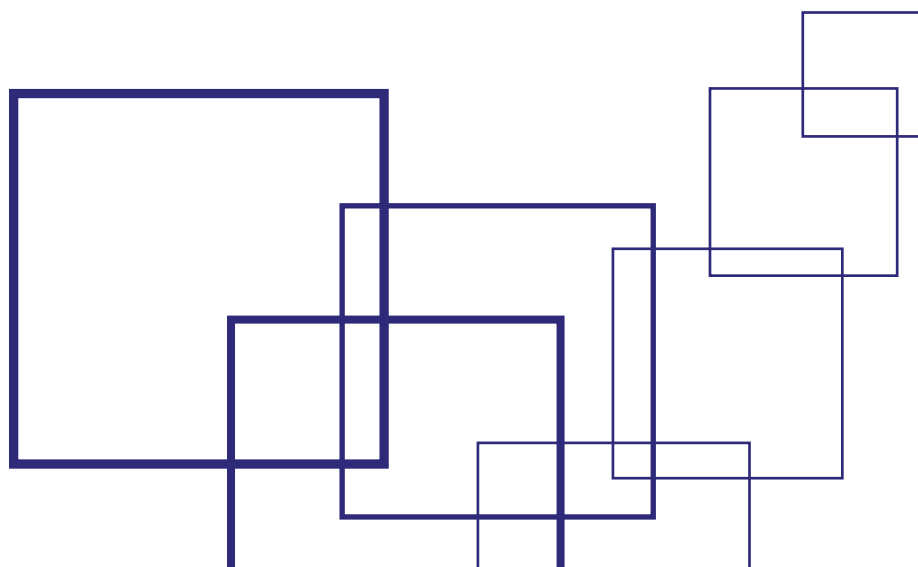
Woertz has changed the direction of electrical installation with its innovative solutions.

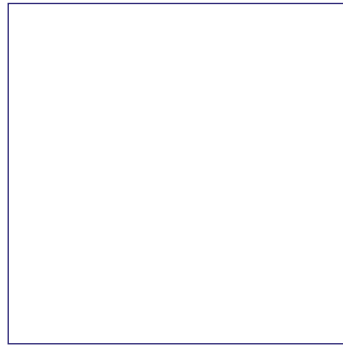
In 1928, Oskar Woertz had an idea. After listening to what Swiss electricians needed and wanted, the inventive entrepreneur simplified the electrical installation process with ground-breaking innovations and cutting-edge components. This made life easier for designers and tradesmen. Investors and property owners, for their part, were able to complete projects in less time with better quality thanks to his innovative new products.

In short, Oskar Woertz maximised efficiency and minimised costs with his innovative solutions. No wonder his idea quickly grew into a flourishing company that, three generations later, remains under family ownership.

Woertz currently employs 230 people in Muttensz and Hölstein. With Carole Woertz at its helm, it is one of the industry's last Swiss companies still run by the founding family. Being a Swiss family firm, Woertz feels a deep connection to Swiss values: quality in its product and services, innovation and inventiveness in its research and development, and reliability toward its customers and employees. We are proud that all our products are made in Switzerland. We are equally proud to have built long-standing partnerships with many of our customers. Despite pricing pressure from mass producers, we have remained true to our principles: we manufacture in Switzerland for the special needs of our Swiss clientele.

That is why we lead our home market. And we will continue down this road in the future.





END-TO-END SOLUTIONS FOR COMPLEX REQUIREMENTS

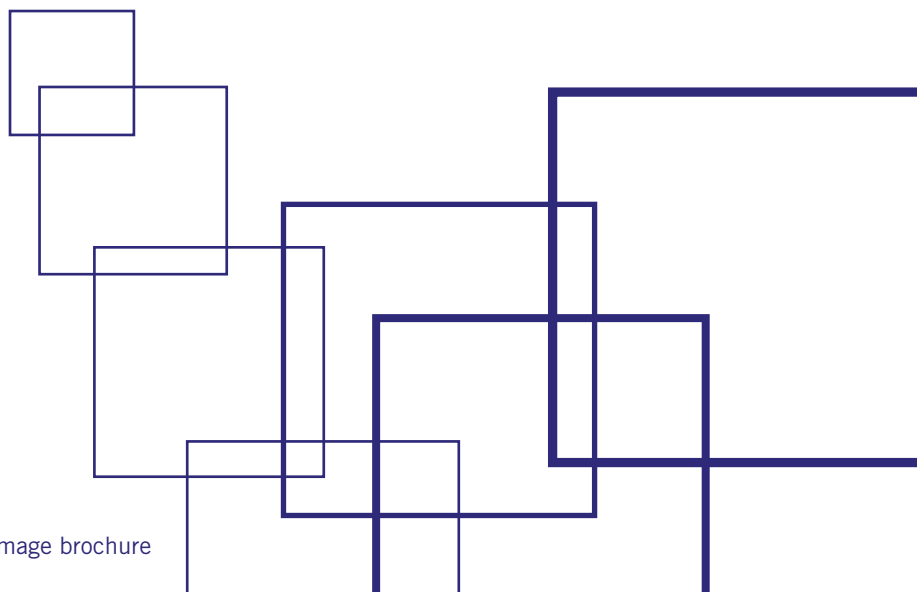
Woertz is known for quality, customer intimacy and system solutions.

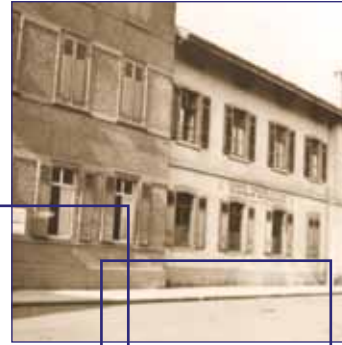
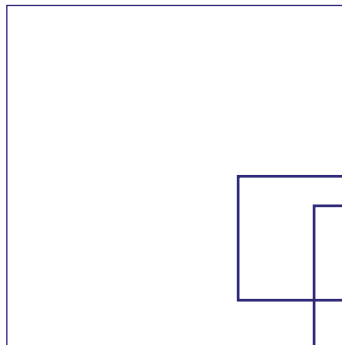
Modern buildings are complex systems that have to meet a multitude of requirements: from energy efficiency and high functionality to modularity and flexibility of use. But that can only happen if they are designed and built to exacting quality standards despite tight deadlines and budgets. And that, in turn, requires people and technology to work hand-in-hand.

When the going gets tough, we support our customers with intelligent solutions. As a leading supplier of all-in-one installation systems and electrical installation components, Woertz is known for quality, innovation and customer intimacy. We assemble a wide variety of technologies into carefully engineered packages. That way, we can meet customers' needs with a broad range of made-to-order products and systems. And if it comes from Woertz, you can trust it to be reliable, innovative and cost-effective over the long term.

In Switzerland, Woertz has acquired a reputation as a reliable partner and wants to live up to it. We are committed to staying in Switzerland and, as a medium-sized enterprise, feel an obligation toward our employees and the environment.

We strive to achieve economic success and constant growth. Research and development are critical to this process. Woertz brings together tradition and independence, quality and innovation, economic success and responsible conduct, scientific curiosity and entrepreneurial spirit. And that benefits both people and technological progress.





FACTS & FIGURES

Year established
1928

Sites
Headquarters in MuttENZ near Basel, Switzerland;
Plant in Hölstein near Liestal, Switzerland

Employees
Currently 230

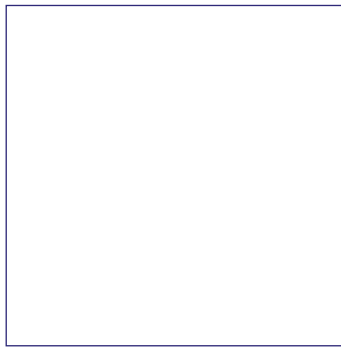
Core competencies
Development, production and distribution of all types of electrical conductor connections as well as systems for laying power and data lines in buildings and infrastructural structures.

Custom products: production and pre-assembly of customer-specific products in small and large lot sizes.

Certified quality
ISO 9001 and ISO 14001

Made in Switzerland
Swiss family firm. All our products are developed and produced in Switzerland.

International alignment
Dedicated sales organisations in Germany and the US. Represented in over twenty other countries by longstanding partners.



Muttenz headquarters

Woertz is headquartered in Muttenz. This site is home to 180 people, mainly in sales, consulting and production. As a specialist for electrical connection systems, Woertz manufactures many of its products here, including its proven terminals for connecting wires and cables.



Hölstein plant

Woertz moved into its Hölstein plant in 1993. Here, roughly 50 employees operate state-of-the-art production machines, including several fully automated systems. Woertz makes recessed floor ducts, modular under-window ducts and various flat cables in Hölstein. It also manufactures made-to-order products for specific customers.



Woertz Systemhaus Eisenach, Germany

Woertz Systemhaus is a young, dynamic company based in Eisenach. With its lean and agile workflows, sophisticated logistics and high-availability on-site warehouse, Woertz is able to meet customers' needs and expectations quickly and flexibly. It also has a wealth of expertise in building-bus engineering and offers training in KNX building automation.

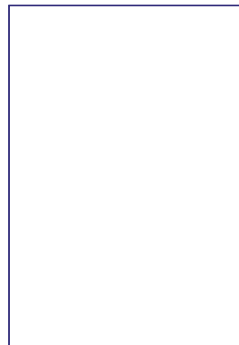
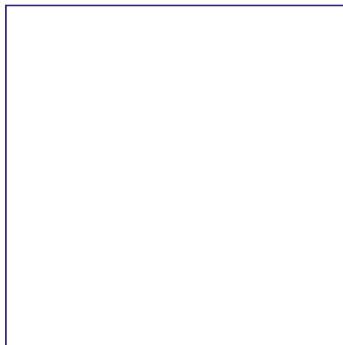


Woertz Carolina Inc., USA

Woertz has been selling products on the US market since 1986. In 1992, it took the next logical step and established its own sales office in the US. Initially, it mainly sold a wide range of terminals (terminal blocks, snap-on branching terminals for cap rails, etc.) and accessories. Now, in addition to selling stock products, Woertz also custom-engineers electronic controllers for customers in and outside the US.

The sales office is located in Florence, South Carolina.





DELIVERING EFFICIENT SOLUTIONS

Woertz provides more than a product and components.

Attractively packaged technology

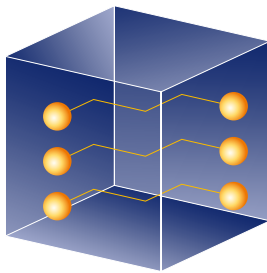
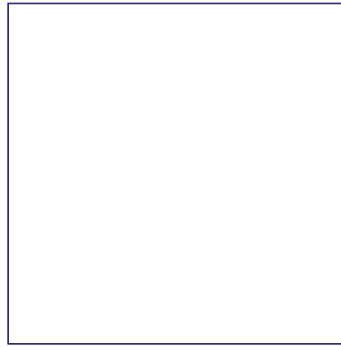
Buildings are more than just shelters; they should also provide attractive backdrops for living, working and interacting with one another. That is why our systems and solutions are not only technologically mature, but also elegant, efficient and economical. Since every project has its own structural and aesthetic requirements, we craft custom solutions for each building in cooperation with project managers. Discussions mark the beginning of every project, especially one that is highly complex. After all, the technology is not the only thing that has to meet a variety of challenges.

Project participants, for example, have to carefully coordinate their work as well without sacrificing efficiency.

Expert consulting: all part of the package

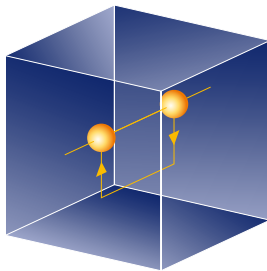
We do more than just supply components and solutions to engineering firms, architects, general contractors, electricians and property owners. Thanks to decades of experience, we are able to achieve excellent outcomes, even for highly demanding buildings. We are also constantly enhancing our services and product lines.

After all, we believe that if you are not moving forward, you are falling behind – especially in building automation. We set the bar high for our consulting services, too. We speak our customers' language, listen to them, plan with them, take measurements on site, and supply and install the systems on time. We carefully analyse the baseline conditions, assess the customer's needs in detail and propose customised solutions. At Woertz, you can rely on us providing personal, expert advice as well as high-quality products.



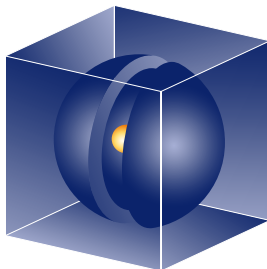
Cabling systems

Investors and property owners demand comfort, reliability, flexibility and value. With Woertz system solutions, they can efficiently implement lighting, security systems, temperature regulation, weather protection and other features using versatile, intelligent flat cabling installation systems.



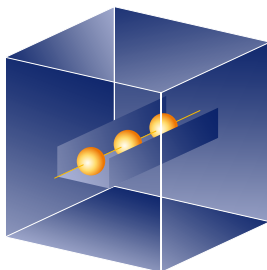
Building automation

Residential and purpose-built structures have grown increasingly automated over the years as users expect greater levels of comfort, safety, security and energy efficiency. We have made it our mission to help make building automation less energy- and material-intensive by utilising decentralised cabling .



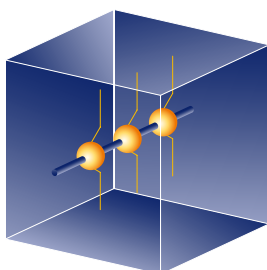
Fire protection systems

Long tunnels, sprawling office buildings or public institutions have to be evacuated quickly in the event of a fire. During the evacuation, energy must still be supplied for emergency exit lights, smoke extraction systems, alarm signals and communication systems.



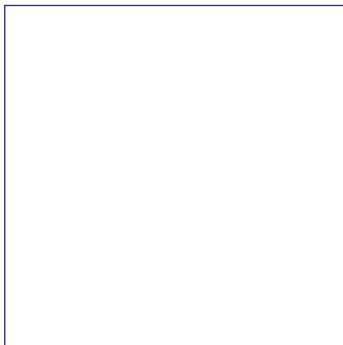
Cable routing systems

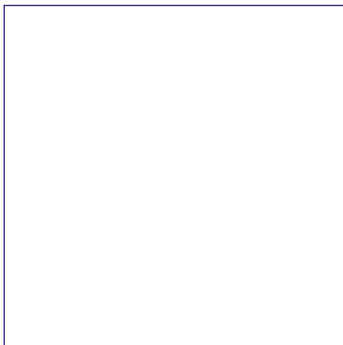
Woertz can supply solutions for every cable routing application. With its extensive experience, it has developed cable routing systems that are not only flexible, but also shaped and designed to integrate seamlessly in any environment. The wide product range, including countless expansion options, establishes these systems as the cornerstones of durable, cutting-edge electrical installations.



Components for electrical installation technology / terminals

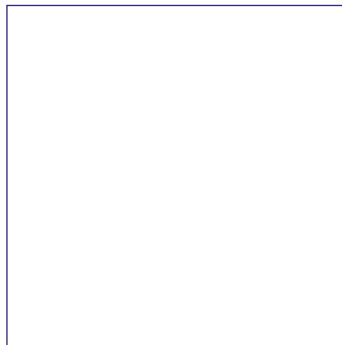
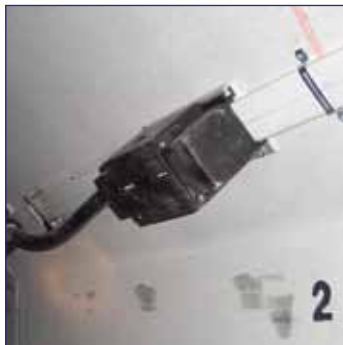
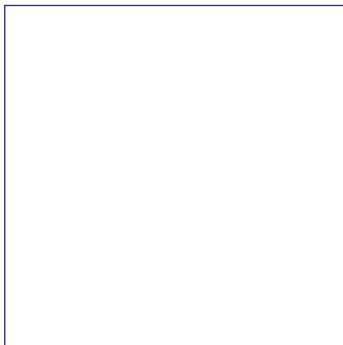
Terminals have an enormous impact on switchgear quality and service life. Woertz provides a wide range of electrical installation components and high-quality terminals for any application.





OUR REFERENCE PROJECTS





GOTTHARD BASE TUNNEL

Jobsite lighting in a rail tunnel. The temporary construction lighting must be installed quickly and reliably so it can withstand rugged conditions.

Property owner ABAG – Alpiq-Burkhalter Technik AG	Timeframe July 2011–August 2013
Designer Bürgin & Keller AG Electrical contractor Alpiq Intec Ticino SA, EW Altdorf	Volume Approx. CHF 700,000

Starting point

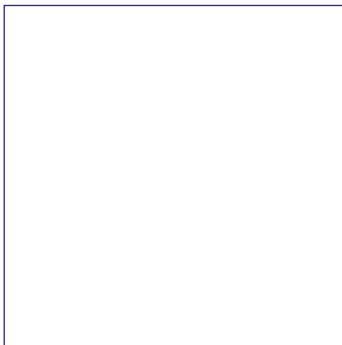
- 140 km Woertz 3G4 mm² FR/LSOH
- >6,000 IP68 flat cable boxes
- Temporary construction lighting

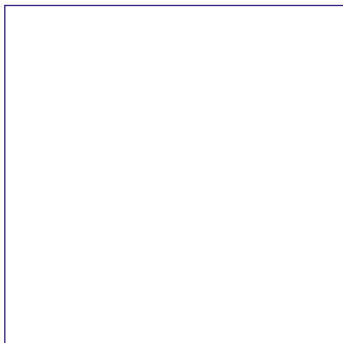
Execution

Switzerland may be small in size, but its impact on tunnel construction is huge – thanks to AlpTransit. This ambitious project revolves around the Gotthard Base Tunnel, expected to be the world's longest railroad tunnel at 57 km. This once-in-a-century structure is being built and operated using state-of-the art machines and technologies. Conditions are very harsh for workers and equipment. For this project, Woertz decided to develop a new box with a high IP rating. Not only does the box meet the demanding requirements, it also saves considerable time during installation thanks to quick connect technology.

Tool-free installation

The lamps and flat cable branching boxes come pre-wired to save as much time as possible. In the tunnel, workers only have to mount the lamps and connect the flat cable branching boxes to the Woertz flat cable. No tools are needed to make the contact thanks to special brackets and piercing screws. IP68-rated technology reliably protects the connection from the harsh tunnel conditions. The temporary construction lighting can be installed in a snap.



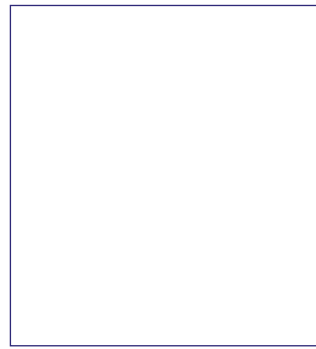
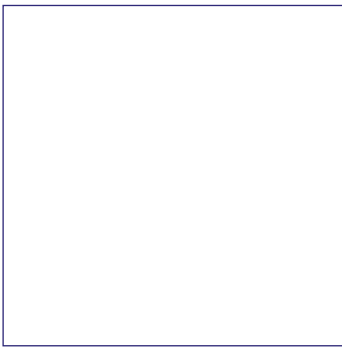


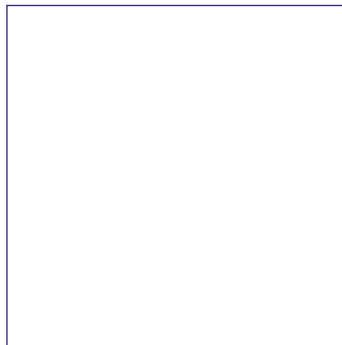
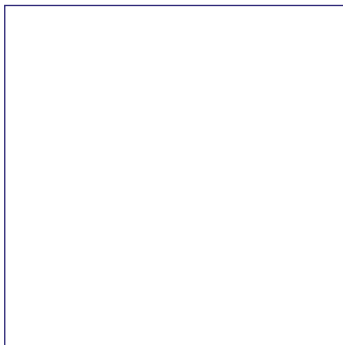
DEFINITIVE GOTTHARD BASE TUNNEL

Emergency lighting in a rail tunnel. To make sure nothing goes wrong if something goes wrong.

The emergency lighting in the tunnel may save lives.

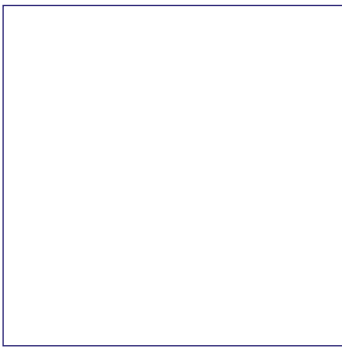
Property owner ABAG – Alpiq-Burkhalter Technik AG	Timeframe January 2012–November 2014
Designer Hefti, Hess & Martignoni AG Alpha Plan AG Amstein & Walthert AG Electrical contractor ABAG – Alpiq AG – Burckhalter AG	Volume Approx. CHF 2 million
Starting point <ul style="list-style-type: none">• 230km Woertz 3G2.5 mm² FE180 FR/LSOH• >10,000 IP68 flat cable boxes E30• Emergency lighting Execution <p>Safety comes first, even in the world's longest railroad tunnel. After all, accidents can happen not only during construction, but after it, too. That is why Gotthard Base Tunnel's operator is prepared for all eventualities during operations as well. It expects its emergency lighting to be reliable and clearly visible, even after several years of operation. This poses a daunting challenge for Woertz flat cabling. That is why the company developed an FE180 flat cable that can withstand fire for 180 minutes – enough time to safely evacuate the tunnel.</p> Development <p>We designed a new safe flat cable based on our innovative development expertise and extensive experience with flat cable technology. Our objective was to meet strict European standards in order to deliver a 100% system guarantee. This cable has been tested exhaustively by internal experts and outside testing institutes. Our revolutionary fire-resistant flat cable and components are not only safer, but also more cost-effective than conventional products.</p>	

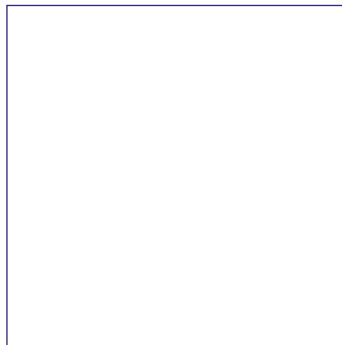
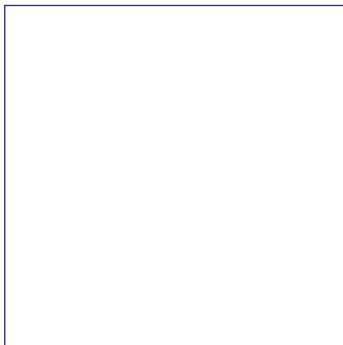




SERVICE AND ACCESS TUNNELS AMSTEG



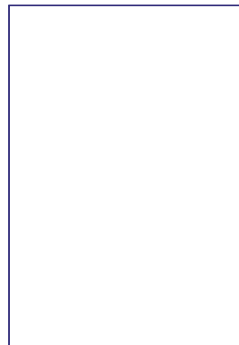
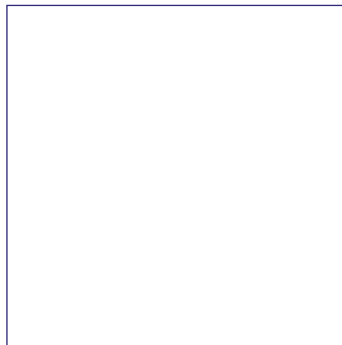
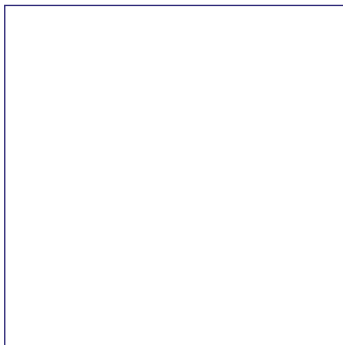




SBB WORKSHOP IN BELLINZONA

Customer SBB - Bellinzona	Timeframe December 2013 - February 2014
Designer Tecnoprogetti / Camorino	Volume CHF 17,000
Electrical contractor Instalux - Bellinzona	
Starting point The workshop covers 2,100m ² . The customer wanted to replace the old lighting system with a modern system for basic lighting and safety lighting. This installation only uses next-generation components. LED Polaris 186 DALI lamps were used for basic lighting (system power: 123W) and safety lighting (system power: 4W).	
Execution We chose the ecobus combi flat cable and branching boxes pre-wired with Dali plugs for the basic lighting system. For the safety lighting system, we selected the orange flat cable 3 x 2.5mm ² FE180 and Pyroline E30 branching boxes. Mr. Galli, the Instalux project manager for the installation, explains the various stages as follows: "We had to take certain aspects and customer requirements into account during project planning and cost estimation. For example, our installation work was not allowed to interrupt or even slow down the locomotive production process. So we decided to work at night." The electrical components had to be installed at a height of 15m, but without moving several industrial machines on the floor to improve accessibility. The designer's biggest challenge, in other words, was to minimise installation time. This is why the Woertz system was chosen. Mr. Galli gladly accepted our offer to test the components before they left our plant in order to rule out connection defects or errors in advance. Instalux installed this system 60% faster than a conventional system with on-site cabling. It is also much easier to maintain, as pointed out by Mr. Comperti, the designer, and greatly appreciated by the customer. Maintenance workers can replace light sources quickly, easily and safely as needed.	





GRANDI STAZIONI IN ITALY

F.I.D.A. SPA

Customer RFI (Reti Ferroviarie Italiane)	Timeframe 2007 - 2010
Electrical contractor F.I.D.A. S.p.a. - Via Volturno 137, Brugherio, ITALIA	Volume Approx. 30km flat cable system 5x16mm ² IP65, 3,000 IP65 branching boxes for a total cost of approx. CHF 850,000

Starting point

Upgrade of platform lighting equipment in specified railway stations

Execution

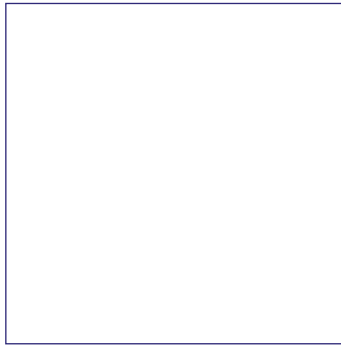
Railway stations in Turin, Milano Centrale, Verona, Venezia Mestre, Venezia Santa Lucia, Roma Termini, Bologna Centrale

The main problems for these systems are the climatic conditions (cold, heat, rain) and vibrations caused by arriving and departing trains. The designer had to find an installation system rugged enough to withstand these conditions. The Woertz flat cable system provided security, reliability and flexibility during project planning and installation.

Before anything even left the Woertz plant, the cables had been cut to length (each platform required a different length), the junction and branching boxes mounted and wired, and the entire system extensively tested. According to the engineering firm, this translated into considerable timesavings and a lower error rate during installation compared to a conventional installation. In addition, the reels were labelled with the platform numbers to avoid mix-ups.

In this outdoor installation, the IP65 flat cable system provided additional safety without requiring the installation of expensive covers.





FHNW BRUGG - WINDISCH

Renovation of main building, auditorium/cafeteria and laboratory building

Property owner Canton of Aargau Department of Finance and Resources Immobilien AG, Aarau	Timeframe: 2003–2004 renovation of main building: Stage I 2007 – 2009 renovation of laboratory building and main building: Stage II
General design contractor Architektengruppe Olten AG	Volume Approx. CHF 650,000

Starting point

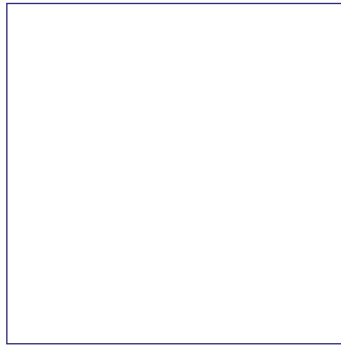
Electrical connections to the building automation system had to be modernised as part of the renovation of the 1960s-era Haller buildings.

Execution

The three buildings were assigned to different construction stages. A baseboard duct with a hinged cover was installed in almost every floor of the main building and in all the floors of the laboratory building on the façade side. Heating convectors were connected through the baseboard duct, which also allows electric appliances to be connected. Low-profile baseboard ducts with socket banks were installed on the walls. Column ducts were also installed at various locations in all three buildings. Our flat cables were used for power and control cabling.

Our components helped to produce a high-quality, sustainable solution. Now, Fritz Haller's seminal school buildings in the Canton of Aargau are ready for the next stage in their lifecycle.





HUBEN SCHOOL

Renovation of the entire Frauenfeld school

Property owner Schulverwaltung Frauenfeld Construction management MMT AG, Winterthur	Timeframe 2011–2012
Architect Felber Keller Lehmann, Dipl. Architekten ETH/ SIA, Zurich	Volume Approx. CHF 200,000

Starting point

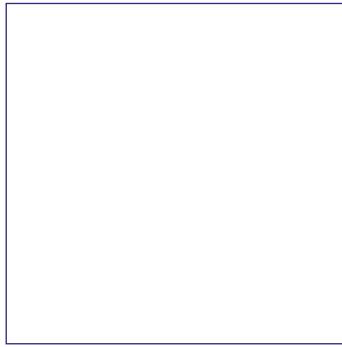
The Huben school complex, built in 1968, was fully modernised without undermining the building's architectural integrity.

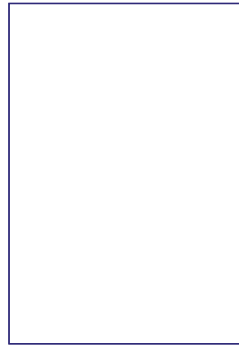
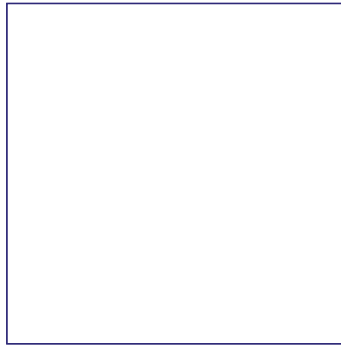
Execution

This extensive renovation and expansion was completed in one stage. Students, staff and faculty were relocated to another building for the duration of the project. As requested by the architect, Woertz made the entire under-window section – including the window casing – from decorative aluminium in close cooperation with the architectural firm.

In the gymnasium, an entire under-window section made from sheet aluminium was glued onto the wall, after being mounted on a wooden base, and covered with an integrated sill grating. This section contains no cable routing ducts.

Steel under-window ducts with aluminium covers were installed on the outside walls of the classrooms and hallways. The covers were fully integrated with the window sills. The ducting brackets, which we also supplied, double as radiator mounts. The cable routing system features a special under-window construction with a hidden cable routing duct.





COOP DIETIKON DISTRIBUTION CENTRE

Renovation and expansion

Property owner
Coop Immobilien AG, Bern

Timeframe
2007–2008

Architect
Hayek Engineering AG, Zurich

Volume
Approx. CHF 420,000

Starting point

Coop consolidated its Pfingstweidstrasse distribution centre in Zurich with its distribution centre for central Switzerland in Kriens. As a result, the combined complex had to be completely renovated.

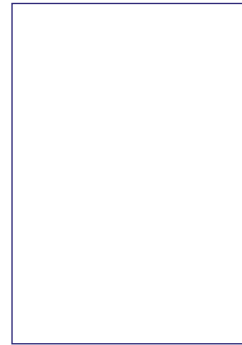
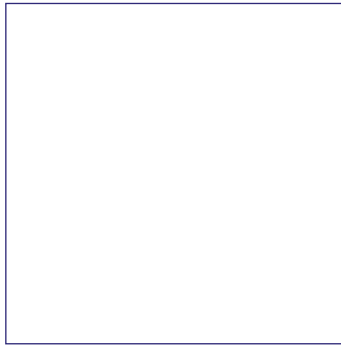
Execution

The entire complex was updated in one stage. The architectural firm collaborated on the development of powder-coated sheet metal panelling that would be installed under the window banks. However, the HVAC contractor wanted to install the radiators behind the cladding and duct brackets as well.

To meet this requirement, the brackets had to be very heavy duty.

Some parts of the building required special wall-mounted brackets for installing the under-window ducts. Elliptical energy distribution pillars and our flat cable system were also used.

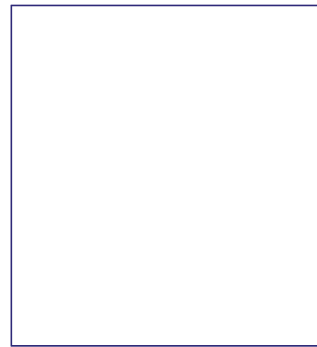
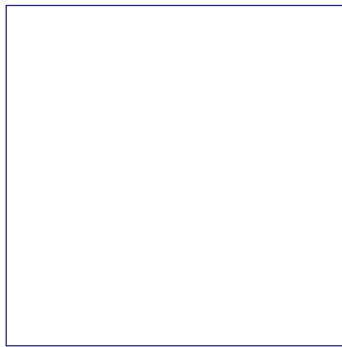


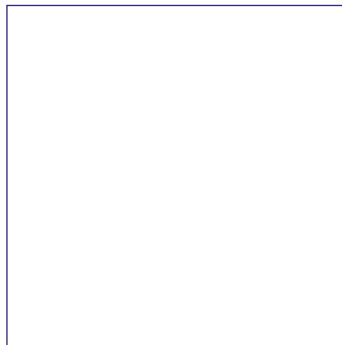
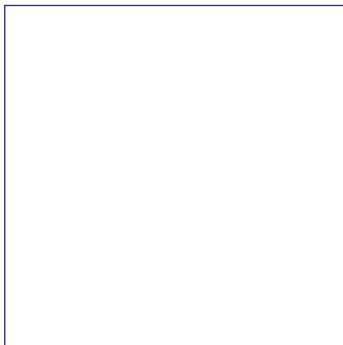


GHZ HOCHHAUS 1 SCHLIEREN

New construction: supplying under-window ducts, connecting ducts and flat cable systems

Property owner GHZ Gewerbe- und Handelszentrum Schlieren AG, Schlieren	Timeframe 2013
Designers Final design: Kohler + Ilario, Schlieren Execution: Peter Gysling, Schlieren Electrical design Enerpeak Salzmann AG, Dübendorf	Volume Approx. CHF 350,000
Starting point Bio-Technopark® in Schlieren expands onward and upward Gewerbe- und Handelszentrum Schlieren AG (GHZ) is adding a multifunctional commercial building to Bio-Technopark®: a 45 metre, eleven story high-rise located near Zurich. The new high-rise combines clear lines with an energy-efficient building shell. It will house attractive offices, doctor's surgeries and laboratories. Continued growth is expected in the years to come: The Wagi site development plan ("Wagi-Areal Süd") permits GHZ, the site owner, to build three more high-rise buildings in this area. Bio-Technopark® is a powerful symbol of Zurich's dynamic economy. Execution An under-window cable duct was developed with the property owner in the course of multiple project studies. Ducting was mounted on the concrete elements located between the façade supports. To access the interior of the duct, the electricians merely have to remove a cover that is attached along the entire length of the duct by magnets. The 230V outlets, 400V outlets and curtain switches are mounted on the front. Cables are run vertically to the main duct inside wall-mounted riser ducts with plug-in covers. The ground floor also has several domestic fuse boxes. Our flat cables are used for high-voltage power and control signals.	





FUTURO AREAL LIESTAL

New construction

Property owner Basellandschaftliche Gebäudeversicherung, Liestal	Timeframe 2008–2011
Electrical design Scherler AG, Zurich Architect Gruner AG, Basel	Volume Approx. CHF 600,000

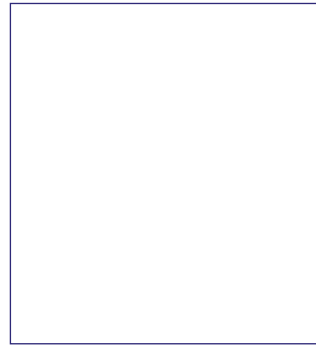
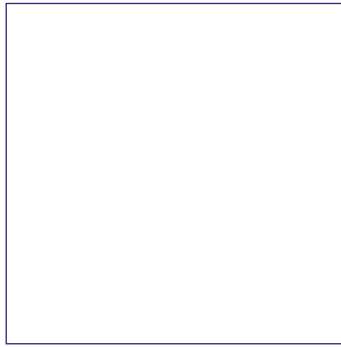
Starting point

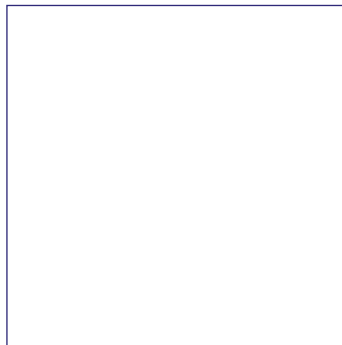
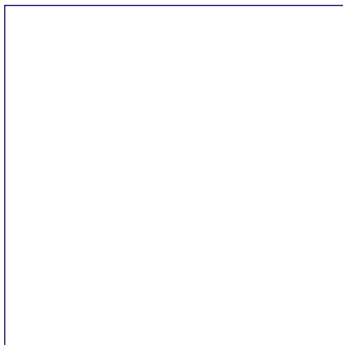
This large building stands apart in the up-and-coming suburb of Gräubern near Liestal. Transparent glass towers lend a delicate, elegant touch. With half of the floors located underground, the building blends in with its surroundings beautifully.

A new, expansive building complex with offices located mainly below ground level.

Execution

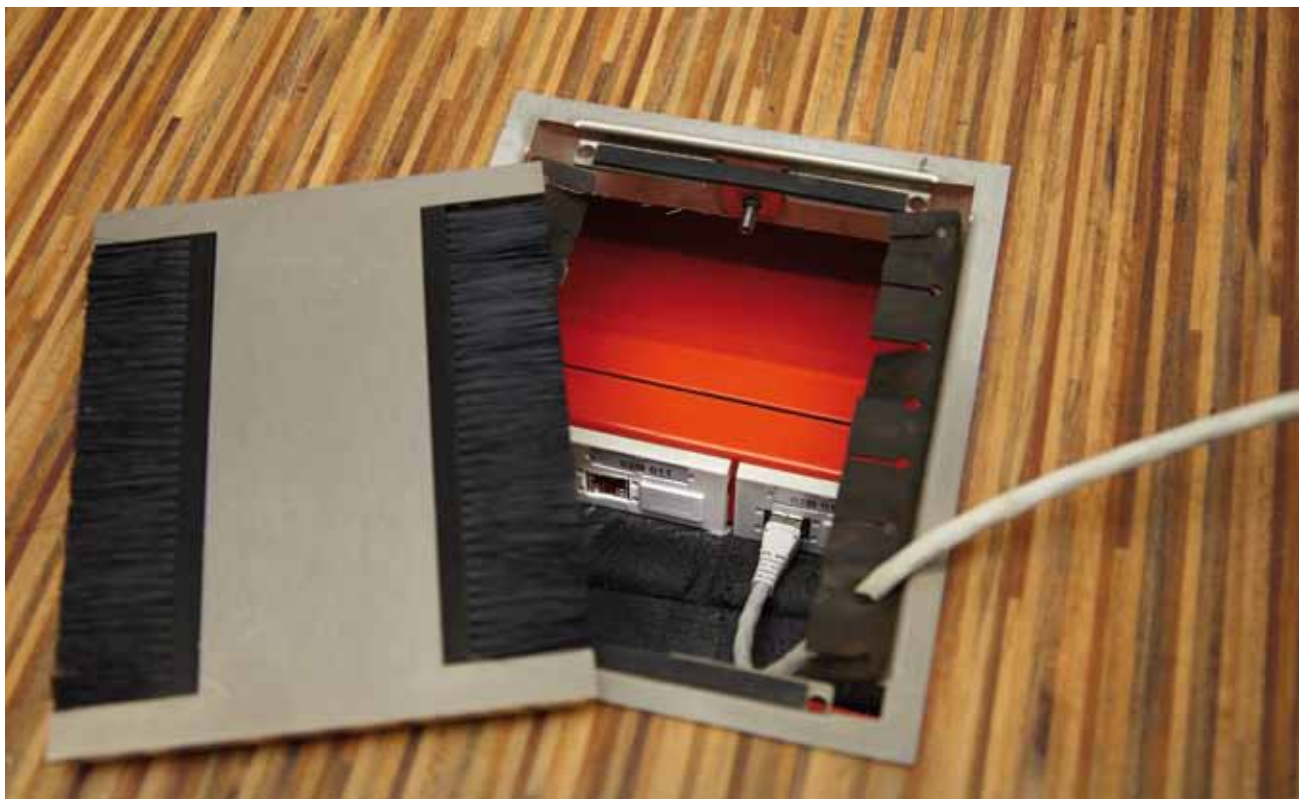
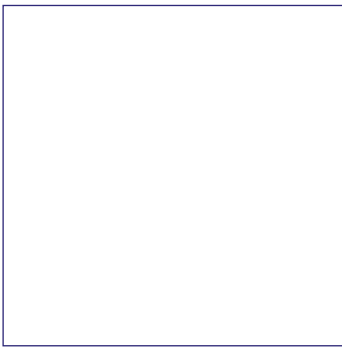
Hundreds of metres of coverable floor and underfloor ducts with outlet boxes and pull boxes were installed throughout the building. Under-window ducts were installed in various locations as well. Our flat cable system was used for the power and control cabling in the finished rooms.

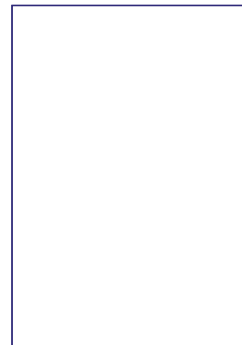
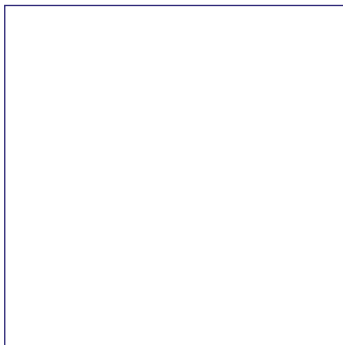




ACER EUROPE CORPORATE HEAD-QUARTERS

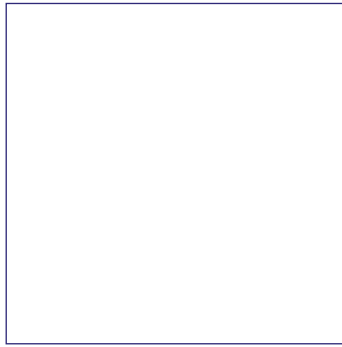
Customer Acer Europe	Timeframe 2011–2012
Designer Piona Elproject SA - Manno Electrical contractor Alpiq Intec Ticino SA - Rivera	Volume Approx. CHF 200,000
Starting point Construction of new headquarters	
Execution The following items were installed using a flat cable system laid in the false floor and ceiling-mounted ducts: <ul style="list-style-type: none">• Power distribution and supply with Woertz 2x1.5mm² data cable• Trench heater power and control lines using Woertz combi cable 5G2.5mm² + 2x1.5mm², installation of KNX fan coil controller and Woertz data cable• Lighting system power and control lines using Woertz power cable 5G2.5mm²• KNX control and power lines using Woertz combi cable• Control lines for internal curtains using Woertz combi cable 5G2.5mm² + 2x1.5mm² and Raptor modules• False floor outlet boxes with pre-wired flat cable system on main lines• Floor feed-throughs for false floor• Woertz 3G2.5mm² FE180 cable and IP68/E90 boxes were used to connect the emergency lighting system.	

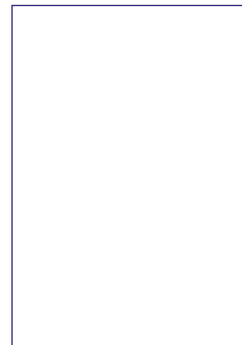
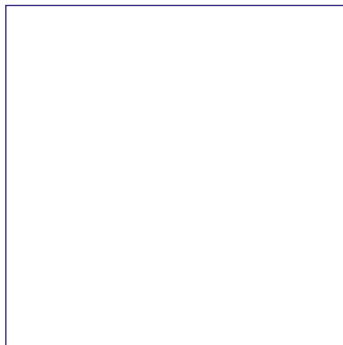
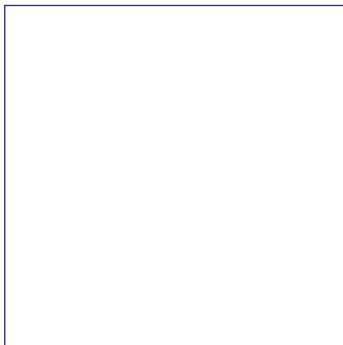




RESERVOIR DAM/HYDROPOWER PLANT

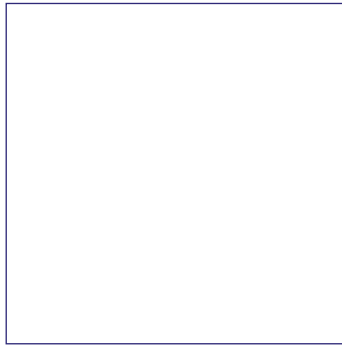
Customer Officine Idroelettriche della Blenio SA - Locarno	Timeframe 2011
Designer Officine Idroelettriche della Blenio SA - Locarno	Volume Approx. CHF 70,000
Starting point Access tunnel lighting	
Execution Ofima (Officine Idroelettriche) employees have to walk down an 800m access tunnel to conduct regular maintenance inspections of equipment installed in the Robièi reservoir dam. Environmental conditions in the tunnel are harsh: it is very cold in the winter, water drips from the ceiling in all seasons, and the humidity is stiflingly high. Ofima's lead engineers decided to install the Woertz flat cable system, which provides excellent IP68 protection and helped lower installation costs with quick connect outlets. Ofima used the same connection system for the Cavagnoli hydroelectric plant in 2012 and the central power plant in Val Bavona in 2010.	

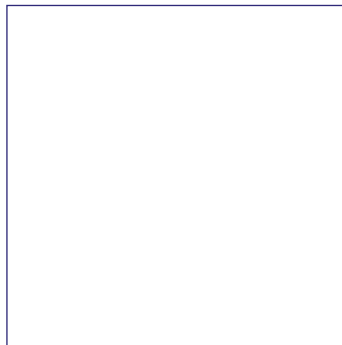
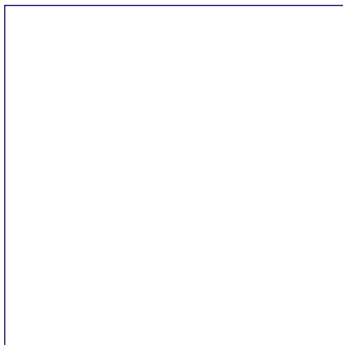




HYDROPOWER TUNNEL BIASCA – VAL PONTIRONE

Customer Officine Idroelettriche della Blenio SA - Locarno	Timeframe 2012–2013
Designer Officine Idroelettriche della Blenio SA - Locarno	Volume Approx. CHF 50,000
Starting point Officine Idroelettriche (Ofima) in Blenio had to replace and enhance the old lighting system in the service tunnel. Execution The environmental conditions in the 700m tunnel are extreme – high humidity, heavy condensation and dripping water. Any installation materials must be able to withstand these harsh conditions. After reviewing their options, Ofima's engineers found the ideal solution for their requirements: the 3G2.5 mm ² flat cable system combined with IP68-rated quick connect outlets. This system was also used in another power plant tunnel (850 m long) in Olivone (completed in 2013).	





FHNW CAMPUS BRUGG - WINDISCH

New campus

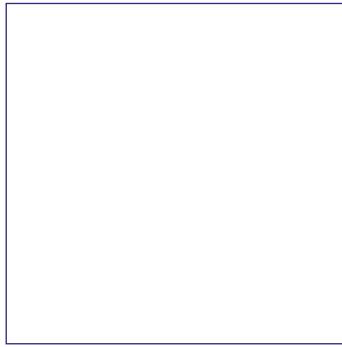
Property owner HRS Real Estate, Frauenfeld General contractor HRS Real Estate, Zurich	Timeframe 2012–2013
Architect Büro B, Bern Electrical design Herzog Kull Group, Aarau	Volume Approx. CHF 1,500,000

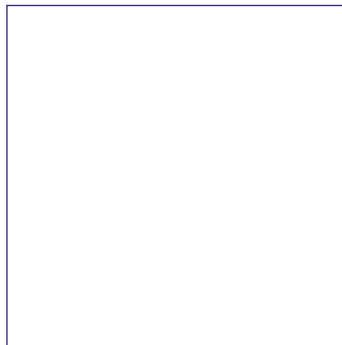
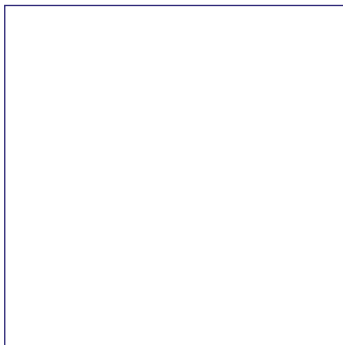
Starting point

After several years of planning, the University of Applied Sciences and Arts Northwestern Switzerland FHNW was built on the market hall grounds. The campus consists of two buildings connected by a multi-story breezeway. The ground floor contains the auditorium, larger classrooms and the cafeteria. The four upper floors contain smaller classrooms, special classrooms, faculty and staff offices, and a three-story library. Student workstations dot the hallways and breezeway. All these features add up to a building with multiple common and meeting areas that is flexible to use and easy to convert. Apartments are located on the fifth floor.

Execution

Coverable floor ducts are installed along the façade in all four upper floors using a special design developed with the university's lead electrician. The classrooms contain special junction boxes above the coverable floor duct with 400V and 230V FLF outlets for students. The offices, for their part, have outlet boxes integrated into the coverable floor ducts. Coverable floor ducts also line the interior walls and are complemented by underfloor ducts with intelligently positioned outlet boxes, which are also installed in the building's below-ground floors. One of the biggest challenges was to design appropriate floor duct covers, especially in the building's supporting columns situated in the floor ducting. The classroom and library floors consisted solely of Haltoplex rubber flooring. Since this type of flooring is poured onto the subfloor, all the covers had to be equipped with a lip to keep out the liquid. Every cover was measured at the site and made to measure. All the installation kits for the outlet boxes in the coverable floor duct and the junction boxes were pre-wired at our facility and delivered to the electricians for installation. We also installed the sound insulation between the rooms.





GUESS - BIOGGIO

New corporate headquarters

Property owner Guess Europe Bioggio	Timeframe 2012–2013
Architect Giraldi Associati Architetti Electrical design Consorzio Prati Associati SA - Elettroconsulenze Solcà SA	Volume Approx. CHF 200,000

Starting point

Designer brand GUESS built a dramatic new headquarters: a bright, modern, inviting office building that sacrificed nothing in terms of room economy or functionality. To allow for future growth, the rooms were designed to accommodate interior design changes over time.

Execution

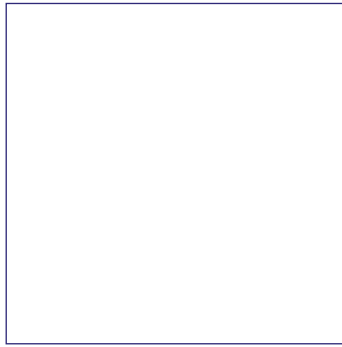
To allow the interior design to change without disrupting the physical infrastructure, junction boxes were installed under a false floor and equipped with outlets, structured wiring and freely adjustable cable glands. Flat backbone cables enable junction boxes to be safely and quickly added, removed or replaced without disturbing workplaces that require no changes.

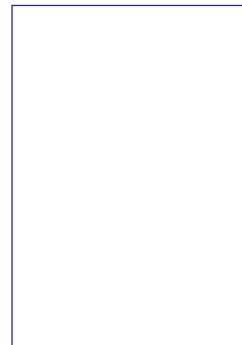
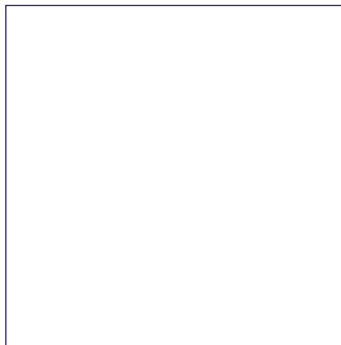
Sunshades on the building can be managed conveniently and intelligently thanks to use of the combi flat cabling for electrical distribution and shutter drives controlled by Raptor modules connected to a KNX building automation system. The system was also put in operation efficiently and quickly – a key benefit with today's tight construction schedules. The KNX signals were routed through the flat cable to intelligent bus buttons, too – the cabling is easy to implement and allows simple modifications when room interiors are changed.

The flat cable system and Woertz KNX equipment supported the following goals:

- High functionality by combining flat cables and a KNX system
- Maximum versatility to allow maintenance or modifications that do not disrupt other departments
- Faster completion and thus lower implementation costs
- Delivery details of cable glands for false floor

The halogen-free Woertz systems also help minimise property damage and personal injury in case of a fire.





BMW GARAGE HOLLENSTEIN AG

Flagship project at new Aesch-Nord site

General contractor Losinger Marazzi AG Electrical distribution panels ELVA AG, Dornach, production and distribution of electrical distribution panels and control systems throughout Switzerland	Timeframe 2012
Electrical contractor Schwarz + Partner AG, Reinach	Volume Approx. CHF 100,000

Starting point

In late January 2013, Garage Hollenstein AG moved into a new building complex in Aesch-Nord – the most advanced BMW and MINI centre in Switzerland.

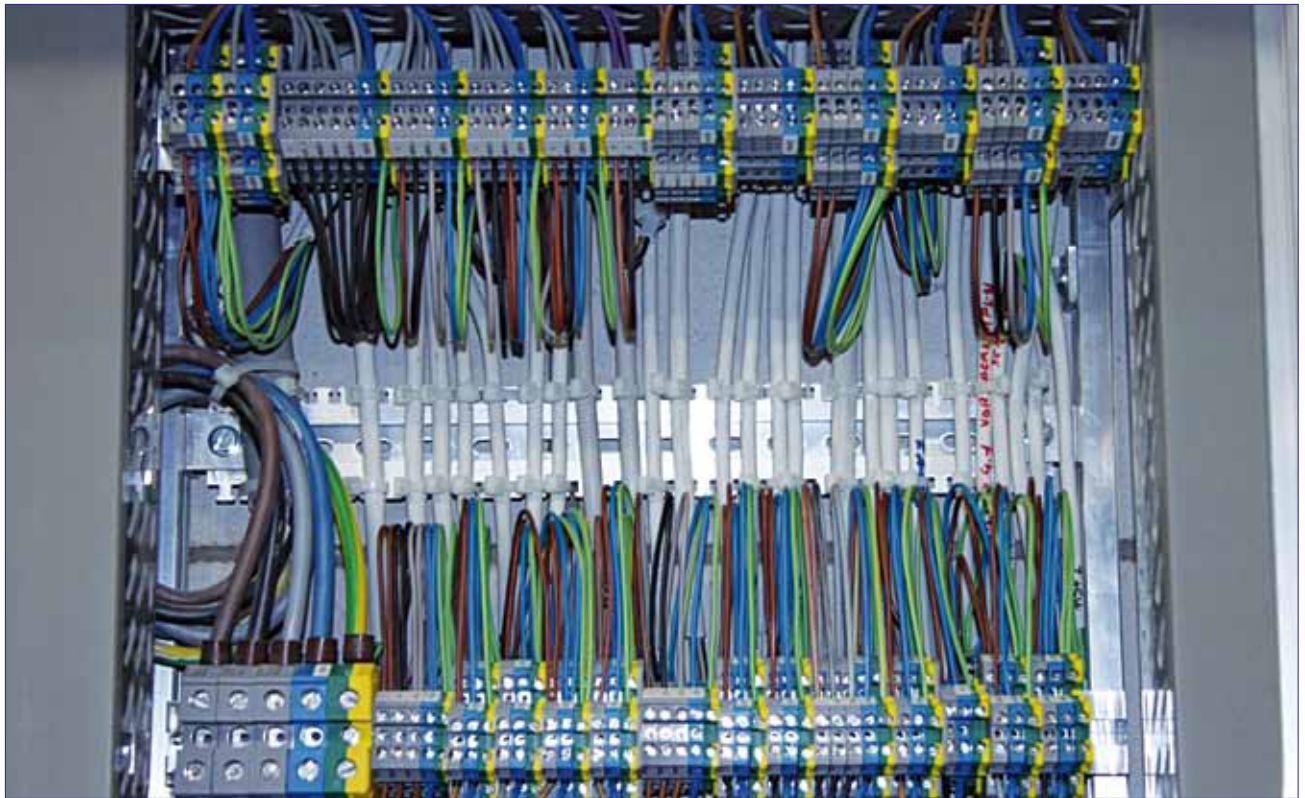
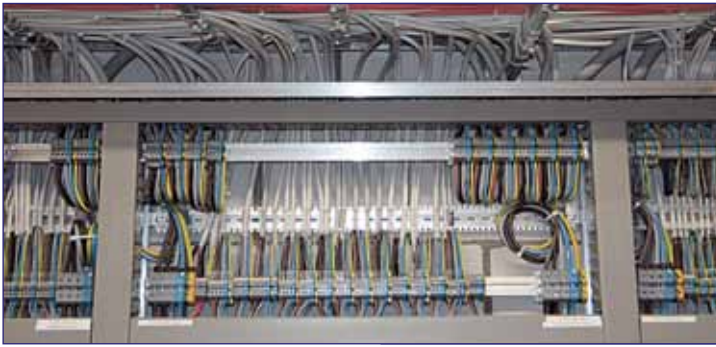
This ultra-modern 7,500 m² car dealership features a main building that holds the showroom and service department as well as an annex with an automated car wash and a washroom. The two buildings are connected underground. The main building follows BMW's CI guidelines and the latest environmental standards, making it BMW's largest flagship dealership for Switzerland.

Since BMW expects its buildings to deliver exceptional environmental and cost performance, the dealership meets Minergie® standards for heat insulation and energy efficiency. This includes the roof-mounted photovoltaic system – a compact, small-scale power plant that will feed around 100 kW into the power grid and shrink the building's environmental footprint significantly. Thanks to all these features, Garage Hollenstein AG can rightfully claim to be the first car dealership that meets BMW's latest standards. It will serve as a flagship dealership for other BMW dealers to emulate in and outside Switzerland.

Execution

ELVA AG is one of our best, oldest and most valued partners. This Dornach-based company produced and supplied all the electrical distribution panels (main and sub-distribution panels) for the entire family business. The sub-distribution panels for the administration, sales and service departments were built to Garage Hollenstein AG's specific requirements.

Our screw-type terminals were used for the following reasons: best contact, user friendly, high short circuit withstand capability, and vibration proof. Easy on resources for the following reasons: minimal energy loss, longest service life, less downtime, positive minimal carbon footprint.





MIGROS MÜHLEMATT OBERWIL

Renovation and new construction – electrical distribution panels

Property owner Migros Cooperative, Basel Electrical distribution panels ELVA AG, Dornach Production and distribution of electrical distribution panels and control systems throughout Switzerland	Timeframe 2012/2013
Electrical design Pro Engineering AG, Basel Electrical contractor ETAVIS AG, Basel	Volume Approx. CHF 250,000

Starting point

Migros Mühlematt, a store located in Oberwil, Switzerland, has seen its customer base grow steadily in recent years.

To keep up with demand, it decided to expand its net shop floor space from 2,100m² to 4,500m². It enlarged, upgraded and modernised its existing building in line with the latest energy efficiency standards. The additions were built to Minergie® standards. Customers can now park in a spacious two-story underground car park.

Execution

ELVA AG is one of our best, oldest and most valued partners.

This Dornach-based company produced and supplied all the electrical distribution panels (main and sub-distribution panels) for Migros Mühlematt in Oberwil.

The sub-distribution panels were built to Migros Mühlematt's specific requirements for the ground floor and first floor, the shop, the butcher's shop and customer service desk, the restaurant, bakery, car park area and UPS system.

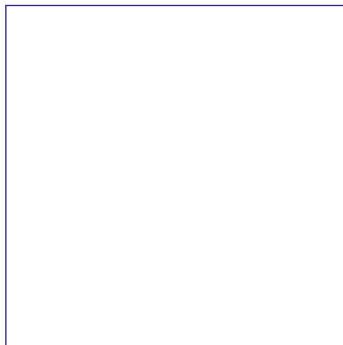
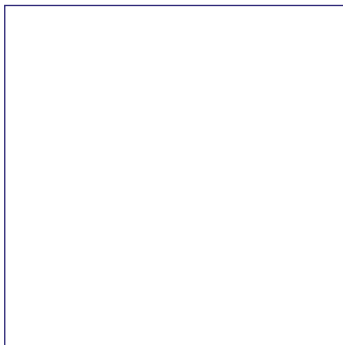
Our screw-type terminals were used for the following reasons:

best contact, user friendly, high short circuit withstand capability, and vibration proof.

Easy on resources for the following reasons:

minimal energy loss, longest service life, less downtime, positive minimal carbon footprint.





DEUTSCHE BUNDESBANK

Cost-effective building modernisation
Renovation during day-to-day operations

Property owner Hard Facility Management, Deutsche Bundesbank, D-Frankfurt am Main	Timeframe 2006–2007
Electrical design Ingenieur-Büro für Bau- und Projektleitung Michael Wirtz, D-Stolberg	Volume Approx. EUR 120,000

Starting point

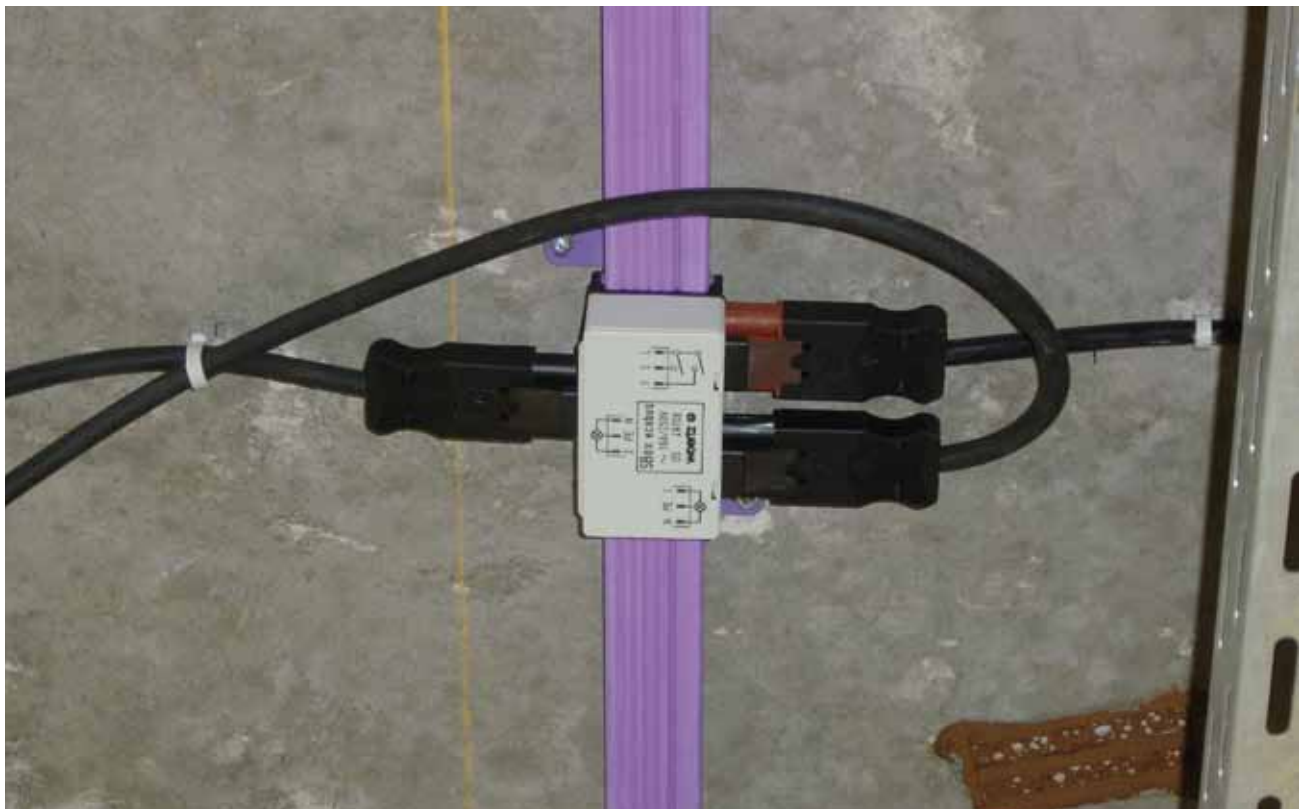
Changes to the fire code require certain power supply components to be replaced at Deutsche Bundesbank's main building in Frankfurt/Main.

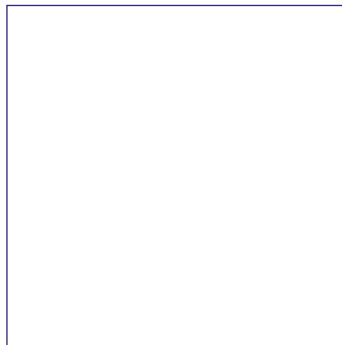
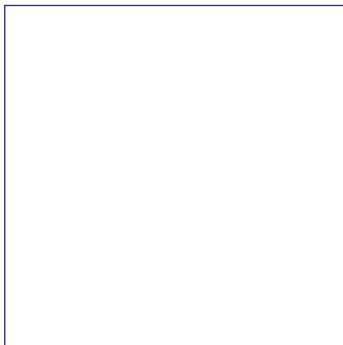
The challenge: the components must be installed while the equipment is running. Woertz flat cable installation systems ensure a seamless transition from the old system to the new one.

Execution

Each floor of the Bundesbank building contains several compartments. One compartment is the lift area. Other compartments include long hallways and adjacent offices. The offices are intersected by a Woertz ecobus combi flat cable mounted on the concrete ceiling. The cable will soon be covered by hanging a false ceiling. Lamp switching modules known as "SBoxes", featuring various switch options such as multiple-circuit or two-way switches, are mounted directly on the flat cable.

Two Woertz 5 G16 mm² flat cables are also installed – alongside each other for safety reasons – on the concrete ceiling. One cable provides an uninterrupted power supply to essential devices – a crucial requirement for Deutsche Bundesbank as Germany's central bank.





STRECK TRANSPORT FREIBURG

Construction of a new customer and data centre in Freiburg, Breisgau.

Property owner Streck Transportgesellschaft GmbH Freiburg	Timeframe 2008
Electrical design EGT Gebäudetechnik GmbH, Triberg	Volume Approx. EUR 60,000

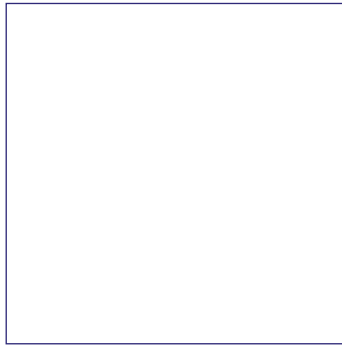
Starting point

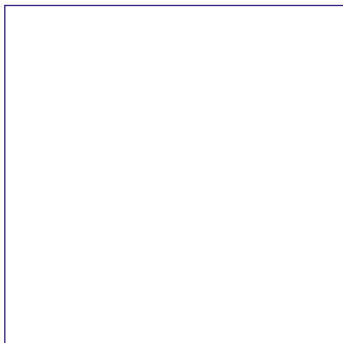
When Streck Transport decided to build a new customer and data centre in Freiburg, it had three goals: greater safety, stately rooms and a flexible design. To achieve them in its electrical infrastructure, the carrier and logistics service provider relied on meticulous planning and a state-of-the-art Woertz floor duct solution designed and installed by EGT Gebäudetechnik GmbH.

Execution

Streck Transport ruled out a "conventional" ducting system with fixed data and power outlets encased by poured concrete. Too many outlets would have been needed to provide the desired flexibility. Instead, the client opted for a covered ducting system and a flat cable system from Woertz. The floor duct covers came in various lengths, including 100 and 50 cm. Streck Transport ordered the 50 cm covers with knockouts on the side.

For its power needs, Streck Transport chose the Woertz Ecobus system. It is based on a flat cable consisting of five conductors, each with a cross-section of 2.5 mm². Screw-type terminals and special junction boxes attached with a base plate allow branch lines to be safely connected at any point on a flat cable, even if it is energised.





KATZENBERG TUNNEL

Jobsite lighting in the Katzenberg tunnel Low-cost connections using flat cable systems

Property owner Deutsche Bahn AG	Timeframe 2006–2007
Electrical design Katzenberg Tunnel Cooperative	Volume Approx. EUR 80,000

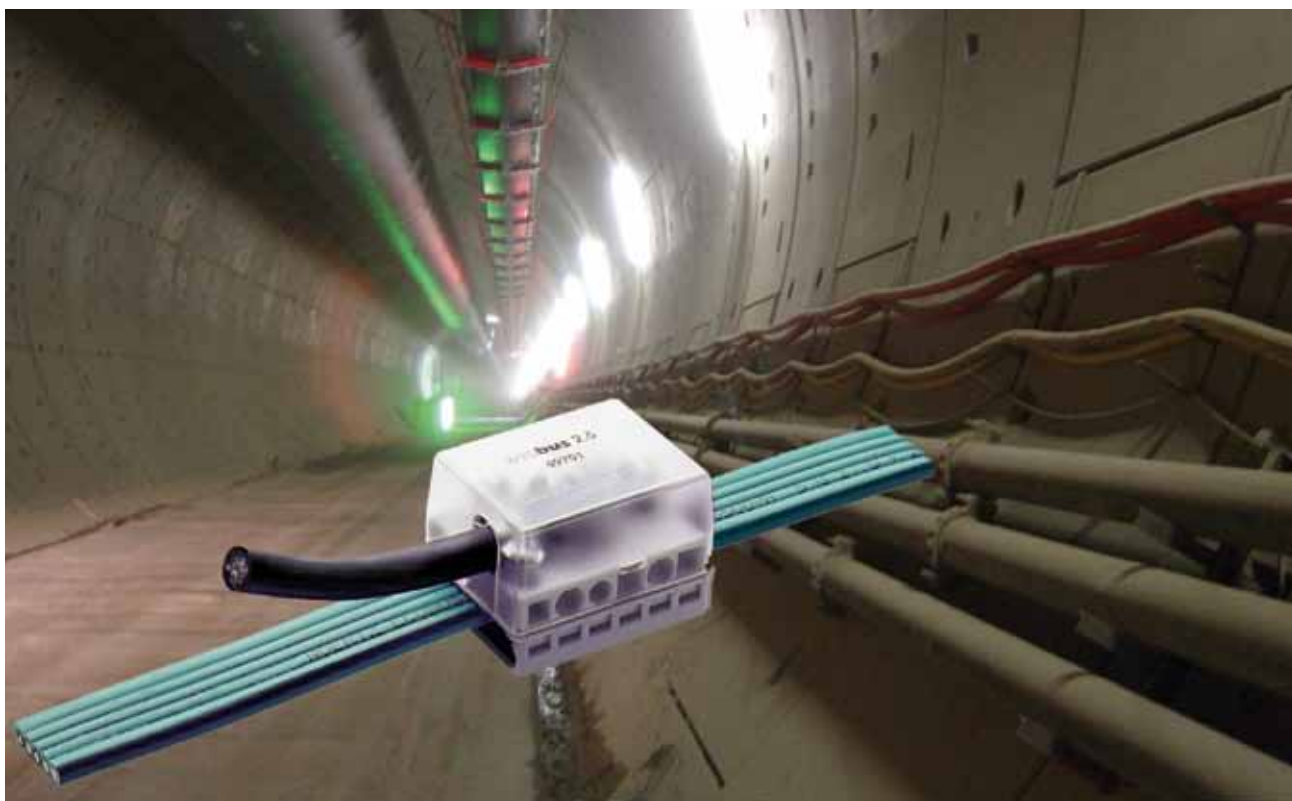
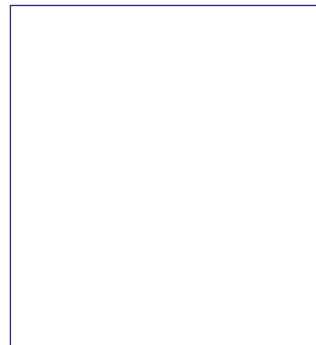
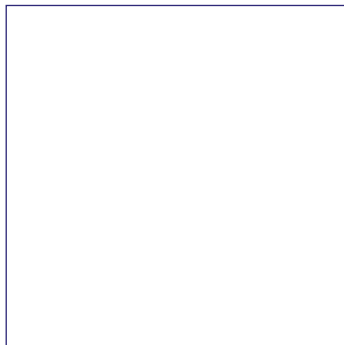
Starting point

Two gigantic tunnels are being bored through Katzenberg Mountain from Efringen-Kirchen to make room for a planned high-speed rail line from Karlsruhe to Basel. During construction, a cost-effective Woertz cable system supplies power and data connections for the lights and communication equipment.

Execution

The tunnel, which has been under construction since June 2005, is part of a new high-speed rail line between Karlsruhe and Basel. DB ProjektBau Südwest, the Karlsruhe-based subsidiary of German rail operator Deutsche Bahn AG, is building the tunnels to prepare the heavily used line for future traffic volumes. Once completed in 2010, it will connect to NRLA, the new railway link through the Alps (AlpTransit).

Supply via flat cables: The lights are installed on one wall of each tunnel and spaced approx. twelve metres apart. They are powered by a Woertz Ecobus Power flat cable. The lamps are pre-assembled with brackets and connection lines, placed on the initial set of trailers hauled by the 230-meter-long tunnel boring machine, and easily connected to the flat cable system. The last platform holds a cable reel with the Ecobus Power flat cable. Branch lines are laid and connected as the machine moves forward.



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TO THE WORLD'S LONGEST TUNNEL



