



COLT AUSTRALIA

FRONT/BACK/INSIDE FRONT COVER Photograph © Peter Bennetts

The Portfolio covers a selection of Colt projects from around the world which have been completed in recent months, or are nearing completion.

COLT AUSTRIA



Highpoint Shopping Centre, Maribyrnong, Victoria

Designed by Grimshaw Architects working in association with The Buchan Group, and completed by Probuild in March 2013, Highpoint Shopping Centre is the largest retail fashion outlet in Australia. All the shops are air conditioned but the main atria/malls in between the shops rely on natural ventilation, so the ventilation systems need to work together so the shops do not overheat, nor use excessive air conditioning.

Colt designed, manufactured and installed a bespoke operable glass louvred natural ventilation system to the Fashion Mall

and an insulated metal operable natural ventilation system to the Eco Mall. A Colt Control system operates three separate and independently controlled zones in each Mall.

The system provides the shoppers with clean fresh air and a sense of openness and enables a reduction in the carbon footprint of the building, ensuring the most effective contribution to the shopping centre's energy efficiency.

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Vienna International Airport Cargo Hall, Schwechat

The airport is the largest and busiest in Austria, and handled over 22 million passengers during 2012 and almost ¼ million aircraft movements. The cargo installations have direct and central access to the apron and a feeder road to the A4 motorway, ensuring rapid cargo handling for all concerned.

Colt Austria designed a smoke ventilation scheme with Colt Firelight Duo units for day to day and automatic fire ventilation. Since the ventilators are installed on the roof and access is required for maintenance and cleaning purposes, Colt has used special glazing as a safety feature.

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COLT HONG KONG



Hau Gok Tin Hau Temple, Tuen Mun

Hau Gok Tin Hau Temple is located at the side of a large open piece of ground. Because of its location right next to a main waterway, Tuen Mun became a magnet for the fishing community and no fisherman's town is complete without the requisite Tin Hau Temple. It was built for those ancient fisherman so they could continue to enjoy the protection and good will of the heavenly sea goddess.

Because of the additional co-operation of the local salt merchants – mainly from the To clan – who moved to Tuen Mun during the Ming Dynasty, the temple grew in size over the years. With the close ties between the salt and fishing businesses, Tin Hau also became the adopted patron of the salt men.

In order to have a better understanding of historical temples, the Government started to re-build a temple which could display some historical photos like a small

museum, and provide a place where locals and tourists could learn more about the history. The Colt distributor, FAS Engineering Limited, is responsible for the design of the exterior wall using Colt Louvres to provide better airflow with rain defence, providing an attractive place for people to visit and relax.

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COLT ISRAEL



Etgarim Centre, Tel Aviv

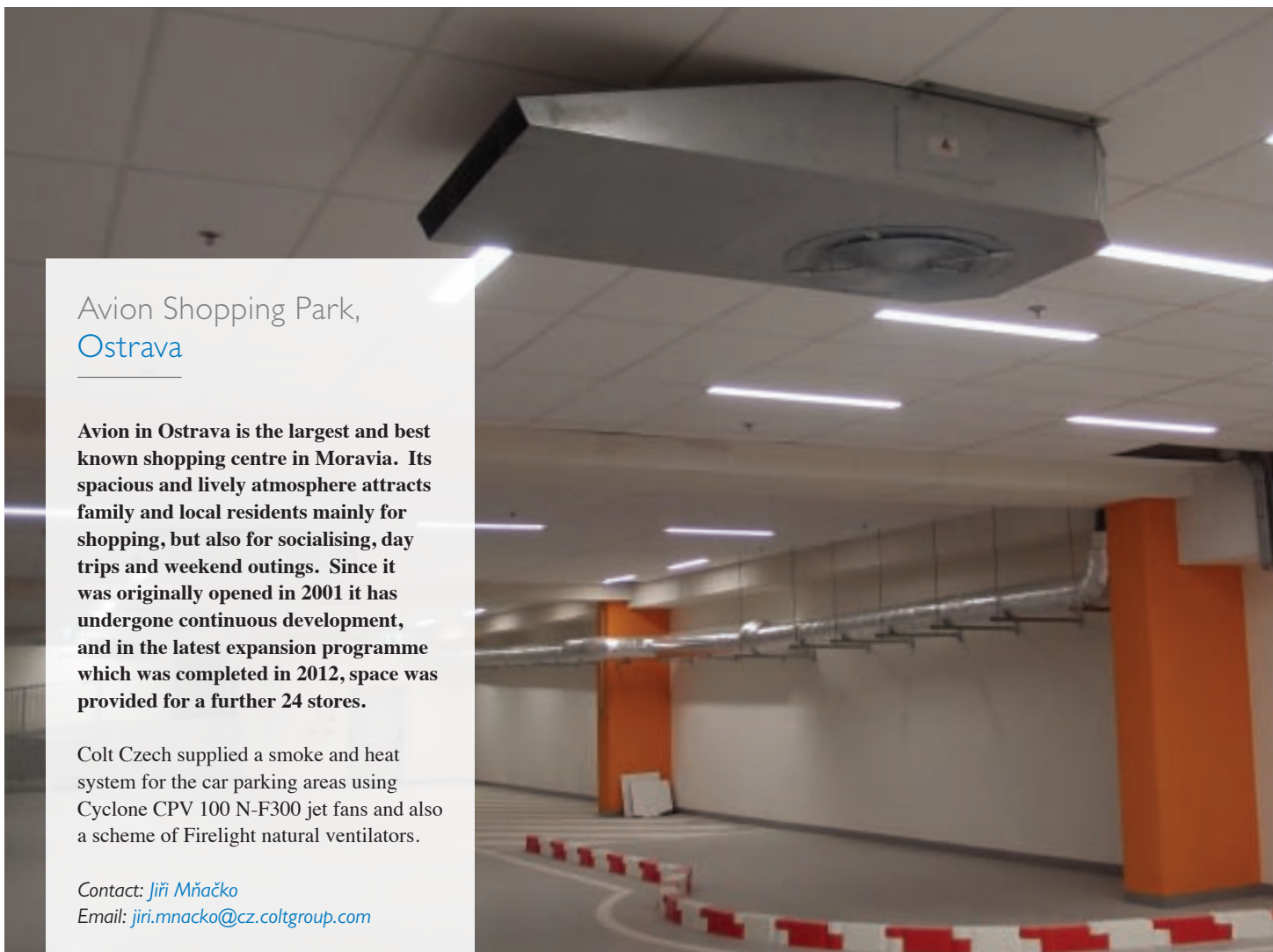
The Shneur Cheshin Complex is the new sports centre for the association called Etgarim “challenge”. Etgarim is a non-profit organisation which was founded in 1995 by a group of disabled Israeli Defence Forces veterans, disabled civilians and senior rehabilitation professionals. It was founded to help children, adolescents and adults to rehabilitate themselves physically, mentally and socially through challenging sports and outdoor activities, assisted by the Etgarim team of volunteers.

This new centre bears the name of Shneur Cheshin, who was killed in 2010 in a hit and run accident when cycling. Designed by architect Iftah Hayner, an Associate Architect at Yoav Messer Architects, the centre is situated between a main road and a park where all the activities are carried out, and needs to be readily accessed by the people who visit the centre for rehabilitation.

Various solar shading options were examined, and the Colt horizontal folding Ellisse system was selected as the perfect solution, both functionally and aesthetically. The system was tested over 10,000 cycles of opening and closing and installed by Promet Limited.

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COLT CZECH REPUBLIC



Avion Shopping Park, Ostrava

Avion in Ostrava is the largest and best known shopping centre in Moravia. Its spacious and lively atmosphere attracts family and local residents mainly for shopping, but also for socialising, day trips and weekend outings. Since it was originally opened in 2001 it has undergone continuous development, and in the latest expansion programme which was completed in 2012, space was provided for a further 24 stores.

Colt Czech supplied a smoke and heat system for the car parking areas using Cyclone CPV 100 N-F300 jet fans and also a scheme of Firelight natural ventilators.

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Namiro Office and Parking House, Olomouc

The Namiro Office and Parking house, completed in autumn 2012, is located in the city centre and is used as an office building with underground parking. The ground floor of the newly built building is dedicated for public use, with shops, restaurants, and public service utilities. Municipal offices are located on the second, third and fourth floors. The top floor contains several luxury flats with terraces which are now awaiting their new occupants.

Colt supplied 10 Jetstream VeJe415T jet fans and 8 Cyclone PV250 low profile, high velocity induction fans, to control air movement, direct exhaust fumes towards the main extract positions, and assist with the extraction of smoke in the event of a fire.

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COLT UK

One Angel Square, Manchester

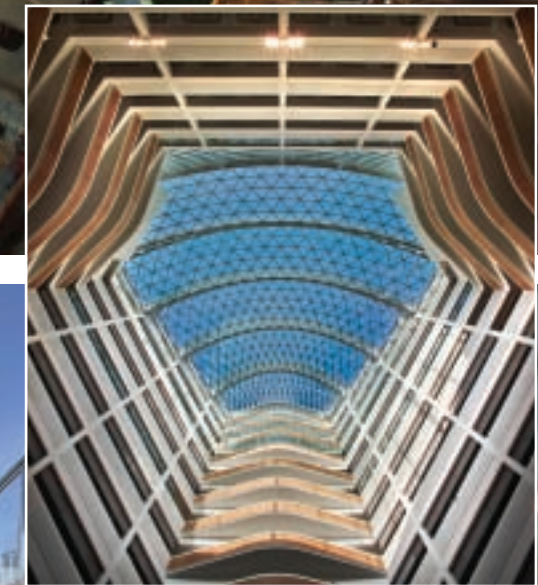
This is one of the most sustainable large buildings in Europe and is built to a BREEAM 'Outstanding' rating. It is an energy-plus building, producing surplus energy and zero carbon emissions and has received numerous awards for its striking aesthetic and sustainability aims. The landmark building is the head office of the Co-operative Group, standing over 72 metres high, and is

the centre piece of the new NOMA development in the northern quarter of Manchester city centre.

Colt provided a car park ventilation system to a two level car park/goods area, using Cyclone induction fans specially designed for car park and service area ventilation, so reducing levels of polluted air and assisting with the extraction of

smoke in the event of a fire. Using tunnel ventilation technology, the need for costly and bulky ductwork is eliminated, and running costs and noise are reduced. Colt also installed a mechanical atrium extract system in the building for both smoke extract in an emergency and for day to day ventilation, and three Colt Shaft systems for ventilation of fire fighting shafts controlled by an OPV control system.

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COLT DENMARK



The LEGO Group, Billund

Billund in Denmark is where the LEGO Group originated and where it still has its headquarters. The LEGO Foundation and Billund Municipality have a joint vision to develop Billund into a very special place for children – a Capital of Children, a national as well as international gathering point for them. Work on the vision started in 2010 and is now beginning to take shape, and among many other initiatives in 2012, LEGO donated a LEGO Education Innovation House to all the schools in the Municipality.

Colt has supplied articulated and fixed horizontal shutters to all four façades of the Innovation House. Each shutter consists of perforated aluminium skins, each anodised to one of 6 special anodised colours to create a 'ripple' effect around the entire building. They are controlled using an ICS-4Link control system, including a weather station.

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COLT AUSTRALIA



Yanget House, Bunbury, WA

A new three-storey lodging house was opened in Bunbury in early 2013 for the homeless and people on low incomes. The site has a long history as an inner city lodging house, and the new development will provide accommodation for up to 38 tenants. Retail space on the ground floor and commercial office space on the first and second floors will provide local employment opportunities, and tenants will be able to access additional training support.

Colt Australia manufactured a bespoke piece of commissioned artwork using perforated screens, where each panel is part of the finished art work and is bent and installed at an angle. Ensuring the pattern worked involved extensive design work and careful installation.

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Photograph © Rick Vermeij

COLT SPAIN



International Paper, Madrid

International Paper is a global paper and packaging company, working throughout Europe, Russia, Africa and the Middle East. The company is committed to respecting, protecting and improving the environment, and ensures compliance with all applicable environmental laws and regulations.

The company conducts business in an environmentally responsible and sustainable manner. It ensures that energy is used wisely and efficiently, technology is employed to minimize any risk of environmental impact and environmental performance is continuously monitored, reported and improved. It also ensures that International Paper uses no wood from endangered forests, and verifies that only wood fibre from sustainably managed forests are used in the company's products.

The company built a new plant in Madrid which was completed in 2013, and Colt Spain installed 142 EuroCO ventilators for smoke extract and natural ventilation. Over 500 square metres of SmokeMaster smoke curtains have also been installed to prevent the movement of smoke and heat in the event of a fire.

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COLT CHINA



Nan Fung International Convention & Exhibition Centre, Guangzhou

With its unique and advantageous geographical location, Guangzhou is the political, economic and cultural centre of southern China, supported by a strong base of manufacturing and business developments. The Nan Fung International Convention & Exhibition Centre (NICEC) covers an area of nearly 33,000 square metres. Developed by the Hong Kong-based Nan Fung Group with an investment more than 3 billion RMB, it's the first commercial flagship in Guangzhou that integrates exhibition facilities with a five-star hotel.

NICEC sits right next to the Guangzhou International Convention and Exhibition Centre, the venue for the Canton Fair. It is directly accessible by MTR and it is only 40 minutes to Guangzhou Baiyun International.

Colt China has installed over 4,000 square metres of ERD75 Universal Louvre panels, allowing high levels of ventilation with rain defence, and Kameleon ventilators, providing both day to day and smoke ventilation.

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COLT AUSTRIA



Bosch Mahle Turbo Systems, St Michael ob Bleiburg

Bosch Mahle Turbo Systems is a joint venture between Robert Bosch GmbH and MAHLE GmbH. BMTS develops and produces tailor-made exhaust gas turbochargers for passenger cars and commercial vehicles.

Situated in a stunning location, the owners were keen to provide a comfortable indoor climate within the factory for the employees. Colt Austria was asked to design and install a climate control system to ensure low temperatures, a relative humidity below 60%, good air quality, while still maximising energy efficiency.

CoolStream evaporative cooling systems and Colt Typhoon extract units will be installed in two phases, with the second phase due to be completed in 2014, ensuring lower energy bills and a comfortable working environment for the staff.

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COLT NEW ZEALAND



Harkins Building, Carmel College, [Auckland](#)

The Sisters of Mercy formed Carmel College to educate and empower young women to strive for excellence in accordance with the values and traditions of the Catholic and Mercy missions. The Harkins Building, which was officially opened in 2013, provides new facilities for performing arts, information technology, music, social sciences and a library.

Colt Products and Systems in Auckland installed Coltlite LWS natural ventilators and Colt FireMaster fire curtains in the stairway above the library for containment in the event of a fire.

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COLT FRANCE



Lycée du Pays de Retz, Pornic

The new high school in Retz welcomed almost 800 pupils in the first intake after opening in September 2013. The school currently accommodates 850 students, but can be expanded to accept 1,000.

Colt France installed EuroCO natural extract ventilators with polycarbonate louvres, Kameleon glazed natural inlet and outlet ventilators and Coltlite glazed ventilators into the façade. All the units are multi-purpose, for smoke ventilation, natural day to day ventilation and natural night cooling.

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COLT HOLLAND



Drukkerij Damen, Werkendam

Damen is an online printing service based in Werkendam in Holland, producing high quality digital printing on its HP Indigo 7500 machines. It is a family run business, offering personal service to come up with practical solutions to all printing services, including letterheads, business cards, leaflets, corporate brochures, maps, etc. The business was greatly expanded as from 2011, doubling the size of the facilities.

The printing production process generates a lot of heat and it is important to have an internal climate with as few fluctuations in conditions as possible throughout the year, not only to provide a good working environment for the staff, but also because the heat and humidity affects the paper itself and quality of printing.

Colt designed and installed a system which ensures energy efficient heating of rooms in the winter by using the waste heat from the printing process, and providing energy efficient ventilation and cooling in the summer months. Mechanical exhaust ventilation and heat recovery to the warehouses is provided by Colt Typhoon extract units and recycling units.

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COLT SLOVAKIA



Faurecia, Hlohovec

Faurecia is involved in designing the cars of the future by pursuing innovation in three areas: technologies that make cars cleaner, vehicle weight reduction to improve fuel economy, and solutions for customizing vehicle comfort and style.

Colt has an excellent reputation for good quality products, and has good working relationships with clients in Slovakia. Colt Slovakia installed an automatic smoke ventilation system into this new warehouse building, providing Apollo Mono dual purpose ventilators which not only extract air, smoke and hot gases, but also provide natural ventilation and allow the entry of natural daylight.

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COLT HONG KONG



Che Kung Temple Railway Station, Hong Kong

The Che Kung Temple Station is located near the Che Kung Miu temple. On the third day of the first month in the Chinese calendar, many people use the station to get to the temple and it is always crowded during those days.

The transport operator MTR needed to improve the weather proofing of the system and having originally installed fixed Solarfin metal solar shading louvres ten years previously, asked Colt, through FAS Engineering Limited, to design a new system to allow natural ventilation and daylight into the concourse. Colt designed a pneumatic operable system which could resist the extreme wind speeds in the typhoon season, but would allow the fins to close in poor weather conditions and would open them automatically in an emergency.

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COLT HOLLAND



Driessen, [Helmond](#)

Driessen Human Resource Management (HRM) provides advice and support in the public sector, and has a new office building in the town of Helmond.

Colt Holland became involved in this building at the design stage, and installed the glass roof, with Coltlite natural ventilators fitted into the roof and into the walls of the building. Colt also fitted Colt FireMaster fire curtains for containment in the event of a fire with axial mechanical ventilators for smoke extraction.

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School III, [Arnhem](#)

School III was built in 1906 as a school building, but had become derelict over the years. In 2009 the building was sold, and renovation started in early 2011 to turn the old school into business offices. It now houses a variety of health practitioners and offices in a beautiful sympathetically restored local landmark building.

Colt Holland installed the Colt Caloris water source heat pump system as an ideal alternative to conventional air conditioning systems.

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COLT AUSTRALIA

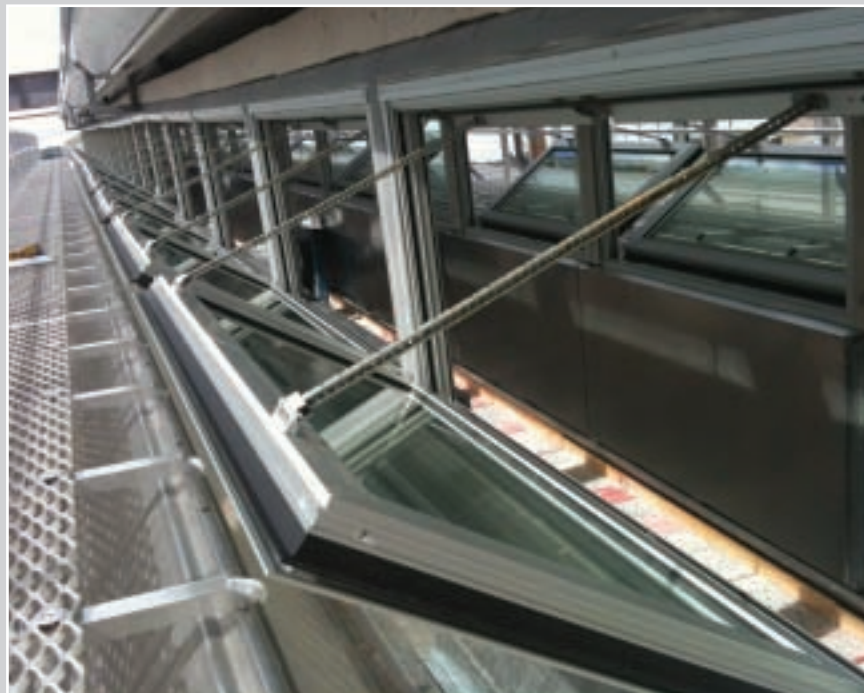
The Pinnacle Apartments, Sydney

Completed in 2013, this 24 storey high rise building complex in the exclusive Rhodes suburb of Sydney features high quality apartments with a retail section on the ground floor.

Colt was approached to provide a solar shading system because of its innovative approach and reputation for excellent project delivery of quality robust products.

Colt supplied an Ellisse sliding shutter system and bespoke sliding decorative screens, as well as supplying and installing fixed shading systems and combined Grata/Scherma sun screens.

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White Bay Cruise Ship Terminal, Sydney Harbour

The new \$57 million new cruise ship terminal adjacent to the iconic ANZAC Bridge was developed for Sydney Ports, to service the burgeoning holiday cruise market. Colt was commissioned to design, supply and install a complete passive smoke control system for the terminal.

Colt designed a scheme of Kameleon smoke ventilators with 24 volt DC double actuators, all controlled by a centrally located Colt Control Panel. The thermally broken ventilators include a 63-degree opening angle, low U value and a sound reduction system which keeps noise ingress in the terminal at acceptable levels.

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COLT GERMANY

Erfurt & Sohn KG, Wuppertal

Erfurt & Sohn KG is a paper mill, first set up by Friedrich Erfurt in 1827 and located to the east of the city of Wuppertal. The company is a world leader in the field of paintable wall coverings, especially woodchip and embossed papers, and exports to over 40 countries world-wide.

The management is very conscious of the environmental impact of paper production and operates an environmental management system (EMS) throughout the business. The Wuppertal Stadtwerke has developed the concept of a pulverised lignite power station for the company, with a thermal capacity of 19 MW and

an electrical output of 2.4 MW. Through combined heat and power cogeneration, it creates almost 50% lower CO₂ emissions per kilowatt hour compared with conventional systems.

Colt Germany installed EuroCO ventilators with Weatherlite units providing weathered ventilation, FCO natural louvred inlet ventilators, Securex explosion relief ventilators and Apollo natural flap ventilators for day to day and smoke control ventilation

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Mercedes Benz AG, Sindelfingen

Sindelfingen is a German town situated near Stuttgart. The town is home to the Mercedes Benz Technology Centre, which contains the Research & Development department for new Mercedes Benz models, and is the largest production facility for Daimler AG.

Colt installed a scheme of Labyrinth natural extract ventilators. This unit is particularly suitable for use in industries generating large amounts of heat and noise, where the heat has to be extracted but the noise nuisance restricted. It is of low weight, so can be fitted on all types of roof structure at any angle, and it can also be fitted into a wall to provide inflow of air.

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COLT CHINA



Pujiang Shuanghui Building, Shanghai

This mixed-use project with a collection of hotels, apartments and office space has added two 49-storey towers to the historic Shanghai shipyard site. Standing as a gateway to the Huangpu River, the two 215.8 metre symmetrical towers curve dramatically, framing the city skyline.

Colt China has installed nearly 1,000 square metres of 1UL/DH single bank deep section Universal Louvre, and 430 square metres of 2UL/DH double bank deep section Universal Louvre for screening and rain defence.

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COLT SLOVAKIA



Šperk, Holič

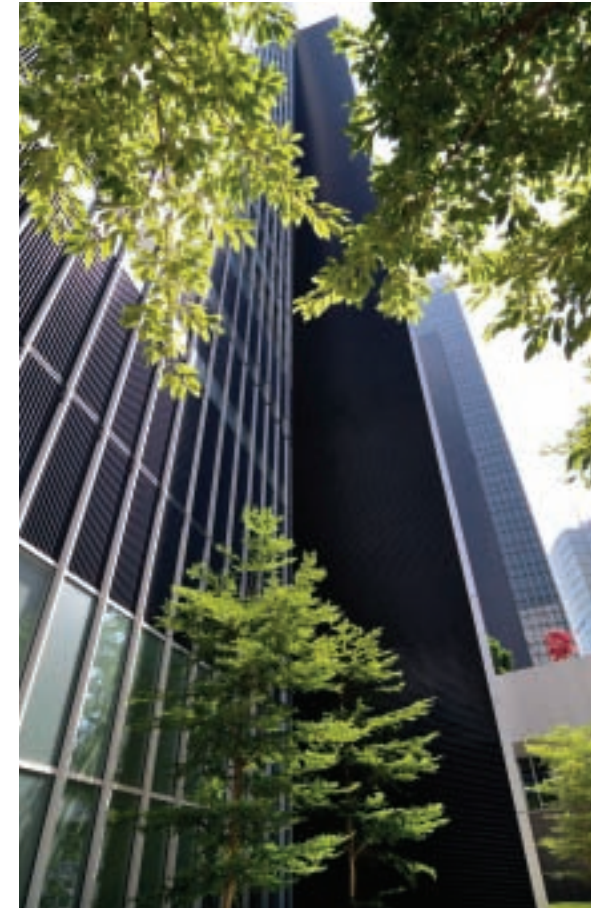
This multifunctional house in Holič is an administrative and office building, with some shops. The main outlet in the complex deals in gold and diamonds, and jewellery is also made and stored in a warehouse here.

Colt is the market leader in smoke and heat control in Slovakia, but is also in the business of enhancing living and working conditions. Colt Slovakia installed a Solarfin solar shading system designed to reduce heat gains and glare during the summer months and to provide a pleasant working environment.

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COLT HONG KONG



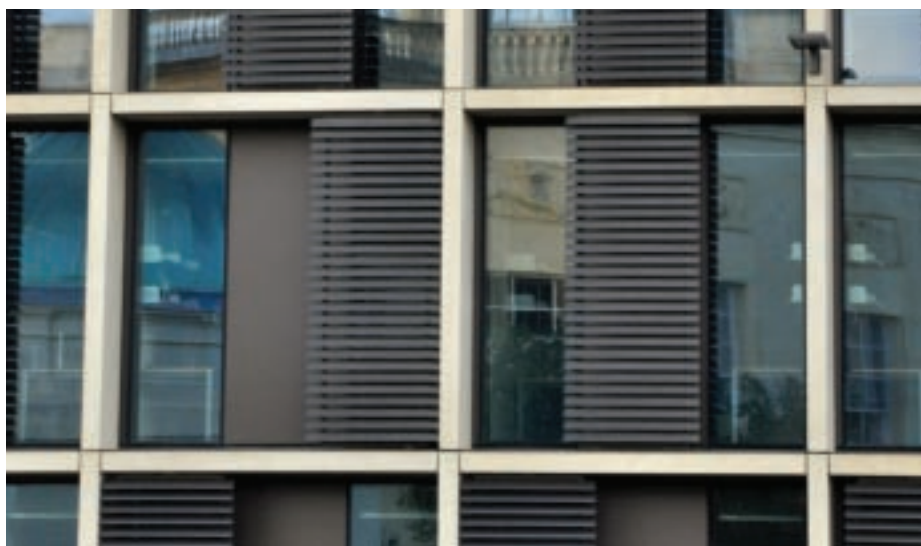
Hong Kong Government Headquarters, Tamar

Tamar is the new location for the offices of the Government of Hong Kong Special Administrative Region. The new government building is a mix of postmodern architecture and this winning design was from the Gammon-Hip Hing group. The Tamar site occupies a prominent location within the city's central business district and the design scheme for the Government Headquarters served as the heart of the plan to also create a unique public open space for Hong Kong's citizens.

Separate local laboratory tests were carried out to satisfy the customer's requirements, and Colt supplied an extensive area of Universal Louvre in conventional, inverted and vertical form. Colt also supplied EuroCO ventilators at the inlet and extract of the natural ventilation façade to the CEO's office building, all through FAS Engineering Limited.

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Mathematical Institute, [University of Oxford](#)

The Mathematical Institute was in three separate locations and has now been moved into a single dedicated facility designed by Rafael Viñoly Architects, providing research and teaching space for a diverse community of more than 1500 academics, students and support staff.

Colt installed 385 electrically operated Ellisse panels to provide solar shading to all façades of the new Mathematical Institute building to allow individual units to be operated independently for each room. All frames and guides were standards and the blades were bespoke extrusions specially designed for this

building. The actuators were also bespoke so they could be installed into recessed concrete, and the Architect required a special paint finish.

The smoke and day to day ventilation scheme was designed and developed with Hoare Lea & Partners, and consists of three Colt Shaft systems with Seefire ventilators fitted in the stairwells, whilst the atrium is fitted with SmokeMaster smoke and fire curtains linking into the smoke control system and window actuators. The flexibility of the Colt OPV system allows the whole scheme to be controlled in a single location via the OPV network.

Colt also supplied a smoke and heat system for the underground car park using Cyclone low profile, high velocity induction fans to control air movement, to direct exhaust fumes toward the Colt extract fans, and help with the extraction of smoke in the event of fire. Colt CO detectors are also fitted.

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COLT POLAND

THULE Sp. z o.o., ul.,
Wieleń

The Thule Group is a world leader in the manufacture of car accessories such as car racks, cycling grips, roof boxes and a wide variety of trailers for recreational vehicles. Originally founded in Sweden in 1942, Thule built its first production plant in Poland in 2001, and now has more than 50 production facilities and sales offices worldwide.

Colt Poland was asked to improve the working conditions in the production area in the plant in Wieleń where car roof carriers are made, and where temperatures are high during the summer months. Colt installed a CoolStream evaporative cooling system complete with textile ducts, and Apollo ATI natural flap ventilators with rain sensors for weathered ventilation and smoke control, providing an efficient, low cost and low maintenance system.

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Warta Glass Jedlice S.A., Ozimek

Warta Glass Jedlice S.A. is the third largest manufacturer of jars in Poland, specialising in the manufacture of colourless glass jars for food preserves. They manufacture to the most rigorous requirements in terms of product quality, customer service, environmental protection and work hygiene, and more than one-third of the production capacity is exported.

The furnace chamber and production line both generate high heat loads, particularly in the summer months, and Colt Poland designed a ventilation system which includes a scheme of Labyrinth 2S natural louvred inlet and extract ventilators with attenuators. The inlet ventilators are controllable.

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COLT GERMANY



Guntram End GmbH, Saarbrücken

Guntram End GmbH was founded in 1966. As a specialist manufacturer of screws and other fasteners, the company offers a wide range of innovative products and services. It has a modern, refurbished warehouse, in which the entire range is stocked to enable speedy delivery.

As part of the refurbishment works, Colt installed Apollo ATI natural flap ventilators, providing weathered extract ventilation, a Cosmotron light street system to provide uniform natural illumination of the workplace, a Coolstream system to provide low cost evaporative cooling, and a Tristar air handling unit to provide fresh, conditioned air to the workplace.

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COLT HOLLAND



NS Train Station, [Best](#)

The station at Best in the Netherlands was originally opened in 1866, and is located on the railway system between Tilburg and Eindhoven. There have been several different station buildings over the years, and the most recent building was part of the construction of two extra tracks between Eindhoven and Boxtel.

The station is underground and the high speed of the trains through the tunnel creates lots of pressure. A large number of Colt EuroCO natural ventilators have been installed in the roof, and as the trains approach, the EuroCOs open and relieve the pressure in the building. The EuroCOs also open automatically in the event of fire.

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COLT HONG KONG



MTR University Station

An innovative design concept was used to provide an environmentally-friendly new entrance to the MTR University Station. Opening in late 2012, the entrance provides a more convenient connection between the station and new campus buildings at the Chinese University.

The design has already won international recognition and was awarded Precertification Silver-level in the LEED (Leadership in Energy and Environment Design) Certification Scheme (Core and Shell category) by the US Green Building Council. The LEED Rating System is a global benchmark for projects satisfying specified green building criteria.

The design ensures annual energy savings of more than 30 per cent compared to a conventional station entrance/exit design because of the reduced need for electricity for daytime lighting and a comfortable environment has been provided through the open design with louvers to facilitate natural cross ventilation. Rainwater storage capacity of 5,500 litres has also been incorporated, enough to irrigate the surrounding greenery for 10 days, and timber benches have been made from recycled track sleepers for passengers to sit on.

FAS Engineering Ltd provided Colt Louvers to facilitate natural cross ventilation.

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COLT SPAIN



Puerto Venecia, Zaragoza

Puerto Venecia Shopping Centre and Retail Park in Zaragoza comprises a shopping centre with fashion and leisure outlets, offering over 200,000 m² of leasable space. It is the largest shopping

centre in Europe, covering a total area of over 600,000 m² and the building has been designed to be sustainable, with solar photovoltaic cells installed in the roof to supply energy for the building.

Colt Spain installed Firelight duo acoustic ventilators and EuroCO natural louvred ventilators for day to day ventilation and smoke control.

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COLT UK

Photograph © Jan Sansi

Library of Birmingham

The new Library of Birmingham was opened in late summer 2013, and is the biggest civic library in Europe. Designed by architect Francine Houben, founder and director of the Dutch architecture practice Mecanoo, the circles in the external motif are echoed in the internal lighting. The new library is linked by a large open foyer to the neighbouring Repertory Theatre, also refurbished as part of this project.

Colt provided Coltlite natural ventilators and Universal Louvre to the exterior of the building to provide natural ventilation and help regulate the internal temperature. In the interior of the library, Colt also installed Colt Shaft systems and Natural BRE Shafts to provide lobby ventilation, as well as ducted mechanical smoke extract systems, SmokeMaster SM-5 automatic smoke curtains and FM1 automatic fire curtains.

Car park ventilation has been provided using a Colt Jetstream impulse fan system, which will not only clear smoke in the event of an emergency but will also help clear exhaust fumes on a day to day basis.

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COLT HONG KONG



Sha Tin Station

Sha Tin Station is situated on the East Rail Line of Hong Kong's Mass Transit Railway (MTR) system, in the Sha Tin town centre.

The East Rail Line is an important line to link Shenzhen, mainland China and Hong Kong, and many people from Shenzhen prefer to shop near Sha Tin Station. The Colt distributor, FAS Engineering Limited, installed SmokeMaster SM5 smoke curtains for the staircases and escalators, and Kameleon natural ventilators at the concourse level for day to day and smoke ventilation.

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COLT AUSTRALIA

Baldivis High School, Perth

Baldivis is a semi-rural residential suburb to the south of the central business district of Perth, and the high school is located in the newly-developed area of the Rivergums Estate with residential development on two sides and open space on a third. The school was opened in 2013 and will eventually accommodate 1,200 students.

The Education Department wanted to use a natural ventilation system to reduce energy consumption. Colt provided a bespoke scheme of Coltlite CLS natural ventilators which will maintain a good internal climate with a low initial investment and low running and maintenance costs.

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WorkZone, 202 Pier Street, Perth

Located in Perth's thriving inner city fringe, WorkZone provides all the convenience and accessibility of a Central Business District location without the high occupancy costs of comparable space. The building was completed in September 2013 and over 75% was leased to the anchor tenant, Leighton Contactors. Not only does WorkZone create a unique working space for staff with multi-purpose facilities, but the building has also achieved a 5 Star Green Star rating for energy efficiency from the Green Building Council.

Colt worked on a very restrictive site which is built to the boundary of two roads, and liaised with the architect to provide a striking aesthetic façade with a shading system using aluminium tubes. Colt 1UL/SH, 2UL/SH performance louvres and Grata are also installed for mechanical exhaust and inlet.

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COLT BELGIUM



Stadhuis Beersel, [Beersel](#)

Beersel is a municipality located in the Flemish Belgian province of Brabant, with close to 25,000 inhabitants. It is close to the southwest centre of Brussels.

Colt Belgium worked closely with the architect on this project to improve the energy efficiency of the town hall, and ensure the work enhanced the appearance of the building. Colt installed a Shadovoltaic solar shading system to reduce the building's heat load, and incorporated photovoltaic cells to generate electricity.

The installation is controlled by a Colt ICS-4 Link control panel which optimises the output from the PV cells to maximise green energy. The programme closes the system during the winter months, providing a double façade to save on heating costs.

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COLT SPAIN



University of Deusto, [Bilbao](#)

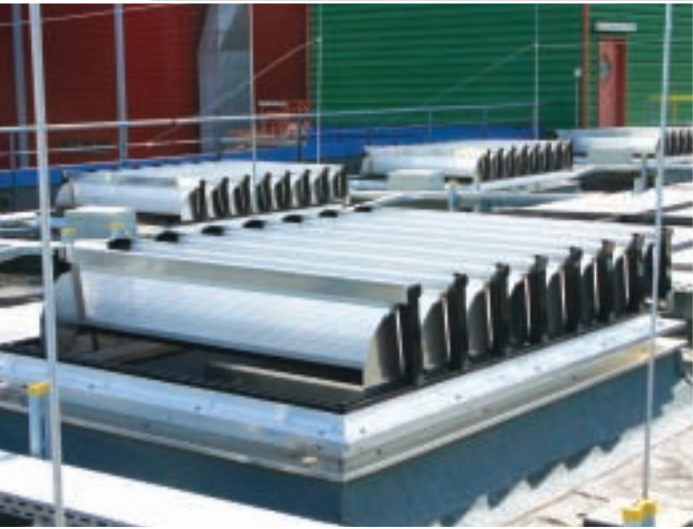
The University of Deusto first opened in 1886 as a result of the combined concerns and cultural interests of the Basque Country, which wished to have a university of its own, and of the Jesuit Fathers who wanted to move their

school of higher studies to a central location. The university has campuses in Bilbao and San Sebastián, and is one of the most prestigious universities in Spain with over 14,000 students.

Colt Spain has installed Coltlite LWS natural ventilators into the façades of the historic buildings at high level, under the glass roof of the courtyard, for natural and smoke ventilation.

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COLT GERMANY



AMK (Abfallentsorgungsgesellschaft des Märkischen Kreises mbH), [Iserlohn](#)

AMK is a waste management company, and has operated a waste management plant in Iserlohn since 1970. Recent refurbishment ranks the operation amongst the most modern of its kind in Europe, with emission levels well below the statutory limits.

The Colt ACE dual purpose ventilator was installed here to provide energy-efficient insulated day to day and smoke control ventilation. The ACE can be installed vertically for low level air inlet or for high level extract. It is aerodynamically efficient and has high resistance to weather, while providing a high degree of sound insulation.

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Audi AG, [Münchsmünster](#)

Audi AG opened its new production facility in Münchsmünster in November 2013. This facility is 30 kilometres east of the main plant, and will be producing body parts and suspension components with the application of new, innovative technologies. Some 800 Audi employees will work in Münchsmünster facility, with about 250 new jobs being created.

Colt installed a fire ventilation system using Firelight Duo glazed flap ventilators to provide smoke control. The Firelight is a dual purpose ventilator, providing both day to day and natural smoke ventilation, and the use of glazed panels allows daylight entry. It has a high aerodynamic, acoustic and thermal performance, with a high resistance to the effects of smoke.

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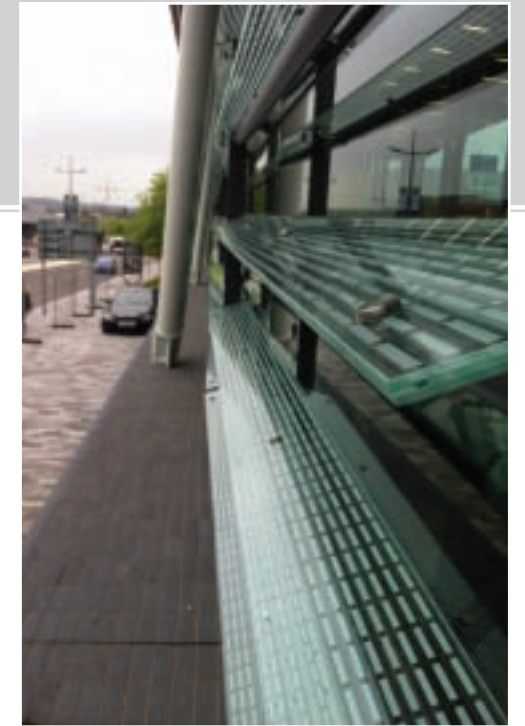
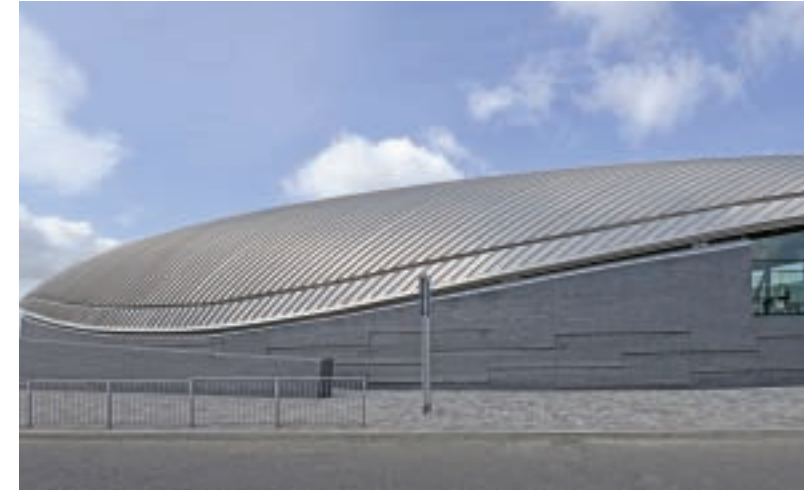
Fachhochschule Rhein-Waal, [Kleve](#)

Covering a total area of 48,000 square metres, the 19 buildings along the bank of the Spoy Canal can accommodate more than 3,000 students from around 70 countries. The buildings on the six hectare former harbour site are within walking distance of the town centre, and the quayside promenade draws not only students, but also the citizens of Kleve. Towering above the white campus buildings is an old, red-brick listed warehouse. Today it serves as a 'knowledge store', with 3,000 shelf metres of books and online access to countless databases and internet publications.

Colt installed Apollo natural ventilators, providing both day to day and smoke control ventilation, mounted on the roof and providing high level extract.

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COLT UK



Stoke Bus Station, [Stoke on Trent](#)

The new bus station at Stoke on Trent has been built as part of a multi-million pound development of the City Centre which will include more shops and other facilities to help rejuvenate the area around the old bus station. The station is expected to accommodate over 120 buses each hour, and has been designed by architects Grimshaw to provide state of the art facilities for passengers.

Colt installed the Shadoglass fixed glass louvre shading system, which reduces solar heat gain and lessens glare whilst maximising the use of natural daylight.

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Bryanston Office Park, [Johannesburg](#)

Robertson Ventilation Industries (Pty) Ltd, Colt's distributor, was appointed by Murray & Roberts Buildings South Africa in November 2012 as a specialist Sub-Contractor to install the Colt Solarfin CEL 400/60 vertical sun screens for Phase 1 – of the new Bryanston Office Park Development.

With the successful completion of the Phase 1 development, RVI progressed with the project team to carry out Phases 2 and 3, and all works on the site were completed in December 2013. The project team demanded an exacting standard from the Colt Solarfin system as the aerofoil extrusions are a prominent feature on the building façades.

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Rathaus Sempach, [Near Luzern, Switzerland](#)

Sempach is a town in the Canon of Lucerne and contains an old half-timbered house built in 1474 and now heritage-protected. It is located close to the lake and has recently been refurbished. Colt Lörrach was involved with the project and designed a bespoke system of vertical wooden louvres which not only act as a solar shading system, but also protect the façade against the driving rain coming from the lakeside.

Colt installed 111 custom designed louvres in three rows. They are electrically operated with sensors to detect rain, wind and sun but also have a manual override. They are stained red in colour to match the original façade of the building.

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COLT HOLLAND



Forbo Flooring, [Krommenie](#)

Forbo Flooring Systems is a global market player in vinyl and world leader in linoleum floor coverings, where it has a market share of over 60%. Forbo Flooring Systems is part of the Swiss Forbo Group which has 12 production facilities in various countries, and branches in 32 countries worldwide. Their international market leading entrance flooring brand, Coral, is produced at Forbo Flooring Krommenie. The factory is ISO9001 and ISO14001 certified.

Drying the linseed oil used in the production of linoleum produces vapour and temperatures up to 80°C. During the refurbishment of the plant, Colt Holland worked closely with Metaalbouw TSV to design and manufacture new EuroMeteor-type domes for day to day and smoke ventilation. The greatest innovation is the use of aluminium in the domes, which is lighter and more resistant to the fumes and heat than in conventional domes, and is also completely vapour-tight under all circumstances. TSV developed and delivered the metal tops for the domes, while Colt installed the ventilators.

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COLT AUSTRIA

REWE International GmbH, [Ohlsdorf](#)

The new central warehouse for the REWE supermarket chain was completed in Western Austria in 2013. Apart from the central warehouse in Vienna, this is the largest of almost 700 branches. The building was constructed in accordance with the latest environmental directives and certified by the Austrian Society for Sustainable Real Estate.

This was a complex project for Colt Austria, who designed and installed a new smoke control system for the 35,000 square metre warehouse. The natural and mechanical ventilation system provides both day and fire ventilation using Colt EuroCO and Coltlite louvred ventilators, Apollo Mono extract ventilators, and a Liberator powered smoke extraction fan. The central control panel is located at the fire brigade's main point of attack, and therefore Colt installed a combination of electric and pneumatic vents, using a Siemens Simatic system to control the ventilators in a total of 23 smoke zones.

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COLT FRANCE

Tereos, Origny, Sainte-Benoite

Tereos is a co-operative sugar group, processing agricultural raw materials into sugar, alcohol and starch. The company was originally set up in Tereos in 1932 as a co-operative distillery, at a time when the majority of sugar beet co-operatives were turning to alcohol production. The company now operates on a global basis, using sugar cane, starch products, etc. and recently started using betaine at the Origny site, making this the world's largest natural betaine production site.

Colt installed Coolstream evaporative cooling units, EuroCO natural/smoke ventilation units, and Weatherlite all-weather ventilation units at the Tereos site.

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MM Packaging France, Moneteau

With an annual production volume of over 40 billion folding cartons, Mayr-Melnhof Packaging, the packaging division of the Mayr-Melnhof Group, is one of the world's largest manufacturers of folding cartons, and the market leader in Europe.

The company has a commitment to the environment and recycling, and works towards sustainable development. The site at Moneteau in France was modernised and refurbished with a large extension and

new machinery and equipment, and Colt was asked to provide a system to ensure efficient and cost effective climate control. Colt Coolstream evaporative cooling units were installed, and these use the principle of evaporative cooling to provide cooled air as part of a balanced ventilation system, together with Colt EuroCO ventilators for natural extraction and smoke ventilation.

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COLT GERMANY



CentrO Management GmbH, Oberhausen

The CentrO shopping centre in Oberhausen is conveniently located for all public transport, and there are a number of motorway junctions in the immediate vicinity.

A recent expansion of one of the Malls has now made CentrO one of the largest shopping and leisure centres in Germany. Colt installed a series of SmokeMaster smoke curtains to prevent the movement of smoke and heat from one area to another in a fire by containing and channelling the smoke and heat. They are unobtrusive, moving to their active position only when needed.

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COLT UK

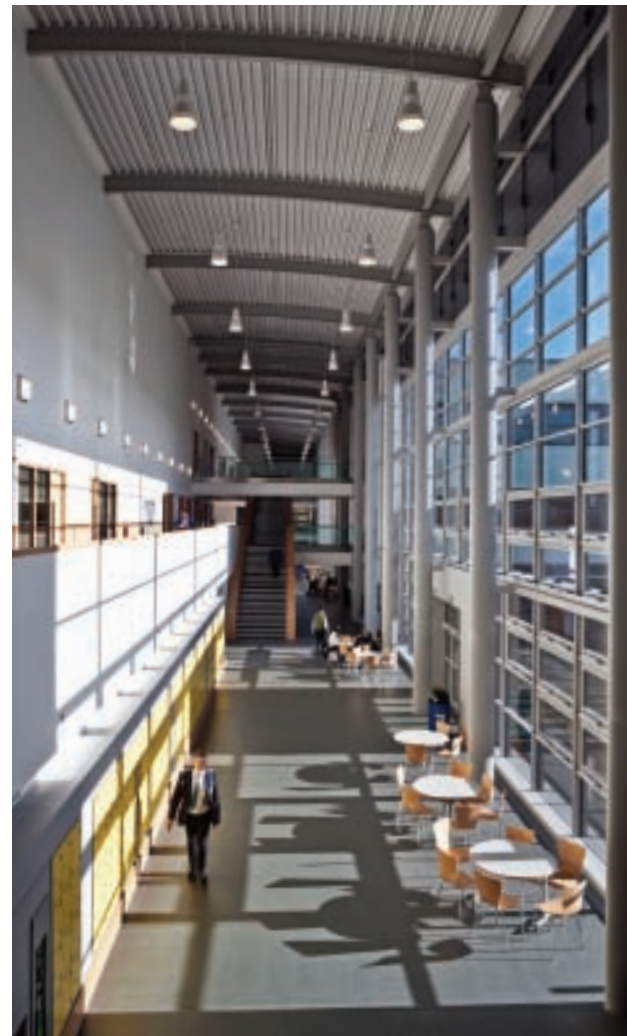


Auchmuty High School, Glenrothes, Fife

First opened in 1957, Auchmuty School is the first school for secondary education in the Fife council area of Scotland. It was extended during the 1970s, but the planning and construction of a completely new Auchmuty High School alongside the old school began in 2011 and was completed in 2013. New playing fields will be developed where the old school has been demolished.

Working with the design team, Colt manufactured and installed a combined natural smoke and weathered day to day ventilation scheme for the new school. Kameleon 5 natural casement ventilators were installed in the façade at low level for inlet, with Coltlite natural louvred ventilators for both day to day ventilation and smoke extract in the event of a fire. The Coltlites are combined with Colt single and double bank Universal Louvre for ventilation and screening whilst maintaining rain defence.

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COLT HOLLAND



Logoplaste Elst, Elst

Logoplaste manufactures rigid plastic packaging for some of the most reputable companies in the world, in food and beverage, personal care, household care and oil and lubricants sectors. The plant in Elst produces the PET bottles for H.J.Heinz tomato ketchup. Founded in 1976, the company has pioneered in-house manufacturing in Europe and beyond, with more than 60 factories around the world.

A practical and cost-effective means of improving working conditions was required in the production and transport areas. Overheating was at its worst in the summer when solar radiation through the roof structure added to the internal heat gains, but owing to the design of the building, uncomfortable conditions were being experienced throughout the year.

Colt installed a CoolStream evaporative cooling system complete with aluminium ducting, fans, a recirculation system, adjustable louvres, sound attenuators and a 4-way outlet grille. WCO louvred ventilators were also installed to provide extract ventilation and these allow the entry of natural daylight.

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COLT POLAND



Konstruktorska Business Centre, [Warsaw](#)

The Konstruktorska Business Centre (KBC) is a seven storey office building which has been constructed with environmentally friendly solutions, and has been awarded BREEAM pre-certification. In addition to over 48,000 square metres of office space, tenants have been provided with over 1,000 underground parking spaces.

Colt Poland has installed the Colt Jetstream VeJe 415 RT and VeJe 415T fans for directing exhaust fumes and smoke towards the main extract position in the car parks, with Colt Cyclone low profile, high velocity induction fans to control air movement. Colt SmokeMaster SM ST smoke curtains have also been installed to control the movement of smoke in the event of a fire.

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COLT SPAIN



Palacio Euskalduna, [Bilbao](#)

The Palacio Euskalduna conference centre and concert hall stands on the site of the former Euskalduna Shipyard. It is a 53,000 m2 multi-purpose centre that stands in the heart of the city of Bilbao, designed

to host many different kinds of corporate, financial, institutional, social and cultural events. It is also the venue of the ABAO opera season, a major event in Spain and Europe and home to the Bilbao Symphony Orchestra.

Colt Spain installed a series of Coltlite LWT 32 natural louvred ventilators for day to day ventilation and smoke control.

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COLT UK

Alderman Cogan's School, [Hull](#)

Alderman Cogan's School is one of the oldest schools in Hull, founded by Alderman Cogan in 1753. The current school has the famous old stone originally built in over the doorway of the original school. The school is committed to being an inclusive school – ensuring opportunities for all pupils and staff regardless of race, faith, gender or disability. The Governing Body has high expectations in both academic work and behaviour and every child is encouraged to reach their full potential.

Colt designed, manufactured and installed an external solar shading system using Colt Solarfin fixed metal louvres to reduce solar heat gain and lessen glare, whilst still maximising natural daylight. The Solarfin louvres are RAL colour coated to the client's design to provide an aesthetic façade.

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Silberline, [Fife](#)

Silberline is a family owned business founded in the USA in 1945 which is now recognised as a major world leader in the manufacture and supply of aluminum effect pigments. The company has manufacturing, technical and research centres in Europe, Asia and North America. The European manufacturing headquarters are based in Leven, Fife.

Colt was approached for recommendations on improving the year round working environment and fire protection within two main production bays during ongoing improvements to the manufacturing process and buildings at the Leven plant.

Colt provided an integrated system of Colt WCO ventilators to provide natural, weathered extract ventilation, and ColtAir Inflow Units with filters and hot water heating coils to provide warm air during the winter months. Colt Seefire ventilators have been installed for smoke ventilation. The work is being carried out in two phases, with the second phase being installed in early 2014.

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COLT GERMANY/ COLT LÖRRACH



Photograph © Manfred Staudinger

Raiffeisenbank Österreich, Vienna, Austria

The Raiffeisen Banking Group is the largest banking group in Austria, and is able to offer its customers a comprehensive range of financial services. Around 1.7 million Austrians are members.

Working with the architect DI Manfred Staudinger, the bank has invested in refurbishing its headquarters in the central plaza in Stockerau, providing a modern and environmentally friendly building for employees and customers, and also contributing to the regional economy by using local building trades.

Colt Lörrach installed a bespoke solar shading system using Shadoglass controllable glass louvres to reduce solar heat gain, lower air conditioning running costs, and lessen glare whilst maximising the use of natural daylight. The louvres are imprinted with the Raiffeisenbank logo.

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THE COLT FOUNDATION

The Colt Foundation was founded in 1978 by I J (Jack) O'Hea and members of his immediate family. The family had become concerned about the social responsibility implicit in the ownership of an industrial organisation the size of Colt, and established the Colt Foundation as a charitable trust with a gift of shares in the Colt Group of companies. The Foundation currently owns 22% of the business and the dividends from this holding provide part of the income of the Foundation.

The Foundation seeks to finance and encourage medical research into occupational and environmental health, especially looking at the causes of illnesses resulting from conditions in the workplace. The Trustees are particularly keen to support projects which will inform government policy and make a difference to working practices.

Jack O'Hea always placed great importance on the people who worked for him, and encouraged their training and development. The Trustees also believe that an investment in the training of young people is an investment in the future, and currently award up to 25% of all grants for the support of students. The Colt Foundation PhD Fellowships are awarded annually in competition to students who are studying some aspect of occupational health, and the Foundation has also provided long term support for the MSc in Human & Applied Physiology at King's College London.

Further information on the work of the Foundation and current projects can be found on the website www.coltfootion.org.uk or by contacting Jackie Douglas on +44 23 9249 1400 or by email to Jackie.douglas@uk.coltfootion.com

MANCHESTER 1824 Personal exposure to static and time-varying magnetic fields during MRI procedures in clinical practice in the UK

A. Molter¹, S. Keevil², M. van Tongeren³, S. Crozier⁴, H. Kromhout⁵, P. Gowland⁶, F. de Vocht¹

Background
 • Medical diagnosis using Magnetic Resonance Imaging (MRI) is the main source of exposure to high static magnetic fields in humans.
 • However, personal exposure levels of UK healthcare staff routinely working with MRI systems are currently unknown.

Aims
 • To measure personal exposure to magnetic fields of staff routinely working with MRI in UK hospitals.
 • To determine potential differences between jobs and between individuals with the same job.
 • To identify factors related to increased or decreased personal exposure.

Methodology
 • Hospitals across the UK were asked to participate in the study.
 • All staff routinely working with MRI and 1-2 unexposed members of staff acting as controls were invited to take part.
 • Personal exposure is measured during a normal work shift using a novel magnetic field dosimeter clipped to a waist belt (Fig. 1).
 • The dosimeter simultaneously measures the static magnetic field (B_{static}) and the temporal changes in the static magnetic field (δB_{static}) in all three orthogonal directions (x, y, z) with a temporal resolution of 50kHz and 6kHz (Fig. 2).
 • Prior to the exposure measurements participants complete a baseline questionnaire.
 • During their work shifts participants complete a work diary, documenting procedures and the times they enter and leave the scanner room.



Figure 1: Magnetic field dosimeter

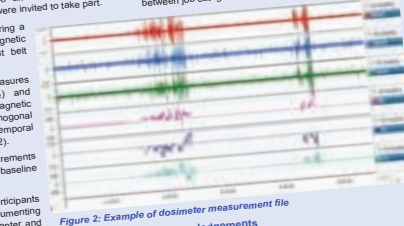


Figure 2: Example of dosimeter measurement file

Table 1: Personal exposure (in mT) to time-varying and static magnetic fields by job category

Occupation	Static field		Time-varying field		N
	Mean (SD)	Range	Mean (SD)	Range	
Radiographers	17.4 (±8.1)	6.5-47.6	15.7 (±9.2)	8.9-57.1	87
Health Care Assistants/ Radiography Helpers	16.7 (±9.5)	9.1-37.7	15.8 (±9.4)	8.9-38.5	12
Operating Department Practitioners	10.3 (±2.8)	8.3-12.3	9.7 (±0.1)	9.6-9.8	2
Anaesthetists	29.7 (±21.3)	8.9-73.7	15.0 (±6.0)	9.2-25.9	8
Total of exposed participants	18.1 (±10.1)	6.5-73.7	15.5 (±8.9)	8.9-57.1	110
Unexposed Controls	9.3 (±3.2)	6.2-15.5	9.4 (±0.1)	9.1-9.5	7

Fire-fighters and Acute Myocardial Infarction: Defining the mechanisms

Dr Amanda Hunter
 BHF Centre for Cardiovascular Science
 Royal Infirmary of Edinburgh
 University of Edinburgh

COLT FOUNDATION RESEARCH MEETING
 JANUARY 10TH 2014

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE

The cost-effectiveness of treatment vs. prevention: traffic-related asthma exacerbations in London schoolchildren

PhD candidate Carla Guerriero
 Department of Health Service Research and Policy

Work Funded by The Colt Foundation

COLT HOLLAND



Hiswa, Amsterdam

Hiswa is a trade group for the Netherlands water sports industry, and is famous for a twice-yearly organised consumer trade show for the water sports public. A new office building for the organisers of the water sports shows has been fitted with Colt Solarfin aluminium louvres which provide both solar shading and a stunning façade along the boardwalk.

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