



“People feel better in Colt conditions”:  
*Colt Products and Services for the Built Environment*



# About Colt

Since 1931 we have been harnessing the natural elements to provide healthy, comfortable and safe working and living conditions in buildings. we are a specialist in smoke control, climate control and HVAC systems, industrial ventilation and solar shading, with a presence in more than 50 countries.

## AN INTEGRATED APPROACH

We offer a range of products and services across a wide spectrum of specialties including smoke control, climate control, ventilation and solar shading systems. This puts us in the unique position of offering architects and building designers an integrated approach to create the ideal internal climate. In addition, our solar shading systems can provide the architect with exciting opportunities to create stunning architectural features for their designs.

## ENERGY-EFFICIENT

Our holistic approach is based on the integrated use of different technologies and focuses on four key areas:

- Reducing the building's cooling requirements with a solar shading system
- Passive cooling with natural ventilation
- Energy efficient technologies, such as evaporative cooling which uses the humidity in the air to cool the building
- Integrating in the building envelope solar energy conversion systems such as photovoltaic cells

Architects and building designers can choose from a wide portfolio of solutions, and our experts have the specialist experience to help them identify the best design, also by supplying calculations and simulation models.

## PEOPLE COME FIRST

People are at the heart of our business, which is all about providing them with a safe, comfortable and healthy environment. The Company's founder, Jack O'Hea, lived by the principle that "people are the most important asset", and this is true of the Colt team to this day. It is also reflected in the personal care and attention that our experts give to every project. It is reflected in the high motivation and enthusiasm of every member of our team. And it is reflected in the work of the Colt Foundation, which has been initiating and supporting research into occupational health issues since 1978. For further details on the Foundation, please turn to page 30.

*Front cover: The Co-operative Group HQ, Manchester, UK. 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, thereby reducing the levels of polluted air and assisting with the clearance of smoke in the event of a fire. Colt also installed a mechanical atrium extract system both for smoke extraction in an emergency and for day to day ventilation, and three Colt Shaft systems for ventilation of fire-fighting shafts, all controlled by an OPV control system.*

## AFTER-SALES SERVICE

We help our customers get the best performance from their building:

### Design support

We integrate into the architect's design the most effective solution for a new build or refurbishment.

### Maintenance

We provide a maintenance plan to keep the building performing at its best through time. We carry out preventative maintenance to extend the life of the equipment. We provide breakdown assistance to minimise downtime.

### Training

We provide training to help a building's personnel to operate its systems efficiently. We provide seminars on ventilation approaches, reducing energy usage and smoke control design technologies.

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We harness nature to create a healthy, safe and productive internal environment  
We harness nature to use energy efficiently in the built environment  
And we provide architects stunning architectural features that marry function and form

#### COLT PRODUCTS

We harness nature with a wide portfolio of products:

##### **Smoke Control**

Smoke containment  
Smoke ventilation

##### **Climate Control Systems**

Commercial natural ventilation  
Industrial natural ventilation  
Cooling and mechanical ventilation  
Heating and heat reclaim systems

##### **Glazing Systems**

##### **Solar Shading and Screening**

Solar shading systems  
Louvre systems

##### **Control Systems**

#### COLT CONDITIONS

People in Colt conditions enjoy:

- Optimum air quality**
- Optimum lighting quality**
- Comfortable temperature**
- Comfortable humidity levels**
- Better health**
- Improved productivity levels**
- A safe environment**

#### COLT BUILDINGS

- Office buildings**
- Hotels**
- Shopping centres**
- Car parks**
- Warehouses**
- Industrial buildings**
- Power stations**
- Airports**
- Railway and bus stations**
- Exhibition halls and theatres**
- Education buildings**
- Hospitals and health buildings**
- Prisons**
- Public buildings**
- Sports/leisure buildings**



# People are safe in Colt Conditions - *Colt smoke control systems*

## COLT PEACE OF MIND

Colt smoke control systems:

**Exhaust** smoke and heat > **contain** smoke > **delay** or **prevent** flashover

Providing:

**Smoke-free escape routes** that enable immediate evacuation

**Smoke-free access routes** that enable immediate fire-fighting

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## SAFE EVACUATION

Smoke prevents people from escaping and makes it difficult for the fire brigade to see where the source of the fire is. Colt's smoke control systems ensure that if there is a fire, smoke is contained and removed, allowing safe evacuation and fire-fighting, and minimising damage.



*Large scale fire tests*

## SMOKE CONTAINMENT AND EXTRACTION

Colt smoke containment systems prevent the movement of smoke and heat, creating a physical barrier using either smoke curtains or pressure differential systems. These systems channel the smoke in a predetermined direction and prevent or delay smoke entry into other areas. Colt ventilation systems then remove the smoke from the building either by powered or natural means.



*FH Frankfurt – smoke curtains prevent smoke moving from one zone to another*



**Smoke** is the greatest threat in a fire

A fire can fill an area of **10,000m<sup>2</sup>** with smoke **within minutes**

**5 breaths** are all it takes to lose consciousness

Effective smoke control **saves lives**



*Highbury Square, London - Colt Shaft systems ventilating the corridors*



*Alameda Forum, Portugal - extensive smoke control system, solar shading system and rooflights*



*Union Square, Hong Kong - Smoke control systems*

#### TAILOR-MADE SAFETY FOR EVERY BUILDING

Every type of building presents different dynamics and requirements to ensure highest levels of fire safety.

We can advise on the prevailing regulations and standards.

We understand both engineering and architecture and have the expertise to deliver smoke control solutions which satisfy the regulatory authorities but also which don't restrict architectural requirements and which aren't over-designed or over-complex.

Colt smoke control systems are suited to apartment buildings, car parks, shopping centres, warehouses, factories, buildings with large atria, as well as fire fighting shafts for tall or large buildings.

We offer design, project management and maintenance services, including a full system check after installation, and the training of people who operate the equipment.

#### COLT: THE SMOKE CONTROL PIONEER

Colt pioneered the science of smoke control and the research into the behaviour of smoke from fires. The Company designed the world's first smoke ventilation system in 1954, which was installed at the General Motors factory in Luton, UK. Colt has since funded much of the public research that is the basis for many National and European Regulations. The Company participated in the formulation of the European EN standards and led the industry in CE marking its products in compliance with the Construction Products Directive (CPD) that sets the standards of good and safe performance for construction products.

# Colt smoke control systems

INNOVATION FOR SAFETY

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**Coltite** | NATURAL LOUVRED  
GLAZED VENTILATOR



**EuroCO/Seefire** | NATURAL LOUVRED  
INLET & EXTRACT VENTILATOR



**Airlite** | HIGHLY INSULATED  
NATURAL LOUVRED EXTRACT  
VENTILATOR



**FCO** | NATURAL LOUVRED  
INLET VENTILATOR



**Apollo** | NATURAL FLAP  
VENTILATOR



**Apollo Mono** | NATURAL FLAP  
VENTILATOR providing extract  
ventilation and daylight entry



**Apollo ATI** | NATURAL FLAP  
VENTILATOR providing  
weathered ventilation



**Kameleon** | NATURAL GLAZED FLAP  
VENTILATOR

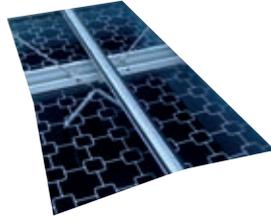


**Firelight** | NATURAL GLAZED  
FLAP VENTILATOR

## Smoke control systems



**Weatherlite | UPSTAND**  
Providing weathered ventilation



**Siteguard | ANTI FALL THROUGH GUARD**



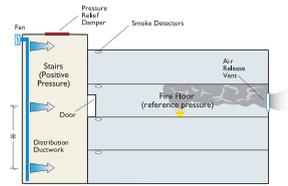
**Colt Shaft | ACTIVE FAN SMOKE EXTRACTION SYSTEM** to reduce space requirements and increase extraction capacity – for shafts



**Liberator | MECHANICAL SMOKE EXTRACT VENTILATOR**



**Mechanical Extract Systems | MECHANICAL SMOKE EXTRACT SYSTEM** which may comprise dampers, attenuators, fans, grilles and ducting



**Pressurisation Systems |** Designed to keep staircases free of smoke



**Cyclone | CAR PARK INDUCTION FAN** for use where headroom restricted



**Jetstream | CAR PARK IMPULSE FAN**



**Smokemaster | FIXED OR MOVABLE SMOKE CURTAIN**  
The movable option automatically deploys in the case of fire



**FM-1 | AUTOMATICALLY OPERATING FIRE CURTAIN**  
Designed to seal off an area so as to contain a fire and to prevent it from spreading to other areas



**Doorman | SMOKE SHAFT DOOR OPERATOR SYSTEM** to control the movement of smoke



**Defender | MOTORISED SMOKE DAMPER** to control the movement of smoke within a shaft



**ELECTRIC | ELECTRONIC CONTROL SYSTEMS**



**PNEUMATIC CONTROL SYSTEMS**

# People feel better in Colt Conditions - *Colt climate control systems*

## COLT CONDITIONS

We harness the natural elements to bring:

<b>Ideal</b>	temperature	>	better <b>health</b>	>	fewer sick days
	humidity levels	>	higher <b>productivity</b>	>	improved <b>profitability</b>
	air quality		for occupiers		for their employers
	light quality			>	<b>energy efficiency</b>

## CUSTOM SOLUTIONS TO CREATE COLT CONDITIONS

Every building is different. Its internal climate is affected by various factors: its location, orientation, the materials used in its construction, and what it is used for.

The building interacts with the environment, so that its internal climate is affected by seasonal changes in weather conditions and temperature.

Colt's climate control experts are able to design custom solutions that take into account all these factors and variables to create a **comfortable and healthy environment** for the building's occupiers.

## COMFORT AND PRODUCTIVITY

Colt climate control systems create ideal internal conditions by achieving the perfect balance of all the elements that determine the building's internal climate: temperature, humidity, air movement and solar intensity – the perfect balance that is a prerequisite for optimum comfort and productivity.

## COLT CONDITIONS IN INDUSTRIAL ENVIRONMENTS

Industrial buildings present different challenges depending on their use. Colt operates in a wide variety of industries, providing tailor made climate control systems to meet the specific requirements of each.

For example, Colt designs systems for the food industry, where constant temperature and humidity levels are necessary to guarantee **food safety**.

Colt's evaporative cooling systems are often employed in production or storage facilities where conventional air conditioning systems would not be **cost-effective**. Colt's natural ventilation systems are particularly well suited to large factory buildings housing manufacturing processes that produce **high heat** levels, such as foundries. Colt climate control systems can be found in all kinds of manufacturing premises, including in the food, engineering, automobile, plastics, chemicals, metals, paper and glass industries.



**Dovercourt Garage, London - mechanical inlet and natural extract ventilation**



## Meteorology for Interiors

The definition of **climate** is the average condition of the atmosphere above a specific region. It is defined by temperature, humidity, air movement and solar intensity.

**Internal climate** is defined by these same parameters, but with a difference: they are determined artificially by the building's **climate control system**.



*Royal Shakespeare Company, Stratford, UK - 4-sided movable LS-4 glass louvred ventilator*

#### COLT CONDITIONS IN COMMERCIAL ENVIRONMENTS

Modern commercial buildings are required to be lighter on both capital and running costs, to have a lower carbon footprint, and at the same time enhance occupier comfort and productivity. This is not always straightforward to achieve.

Colt's aim is to reduce energy loads where possible, provide energy input as efficiently as possible and incorporate simple solutions that will satisfy the client's requirement and be manageable by the end user.

Sometimes the best way to achieve this may not be adopting one single technology or solution, but a mixture of these.

#### COLT TECHNOLOGIES AND EXPERTISE FOR EVERY TYPE OF BUILDING

Colt experts can rely on a wide portfolio of products and technologies to bring Colt Conditions to every type of building: natural and mechanical ventilation, evaporative cooling systems, heating systems, air recirculation, or air conditioning systems. Colt also considers the opportunities presented to enhance the performance of the fabric of the building and thereby improve internal conditions by the provision of solar shading systems.

They can draw on their specialist experience to select the best technology or combination of products to create the right system for every building, from factories to warehouses, retail parks to leisure centres, apartment and office buildings to schools. Colt has the expertise to integrate these technologies.



## COLT AND NATURAL VENTILATION

Sustainability and energy efficiency are causing many to consider incorporating natural ventilation. Harnessing the freely available elements of wind and heat to move air through a building, natural ventilation can be effective whilst offering reduced capital, space and running costs compared to conventional air conditioning.

Capable of incorporating a mixed mode use of air conditioning combined with natural ventilation, Colt can also design pure bespoke natural ventilation systems. Colt's natural ventilation systems involve opening and closing windows, dampers and roof vents in a controlled manner. These systems range from a simple open/ close switch to a fully integrated energy management system, which could include carbon dioxide measuring, internal and external temperature measuring and external weather sensors, as well as interfaces with external solar shading and the main building management system.

Such systems often have a dual function of smoke ventilation, thereby protecting the building should a fire break out.



**Central St Giles, London - movable glass louvred ventilator**



**Manchester Civil Justice, UK  
Colt-lite dampers used for natural ventilation**

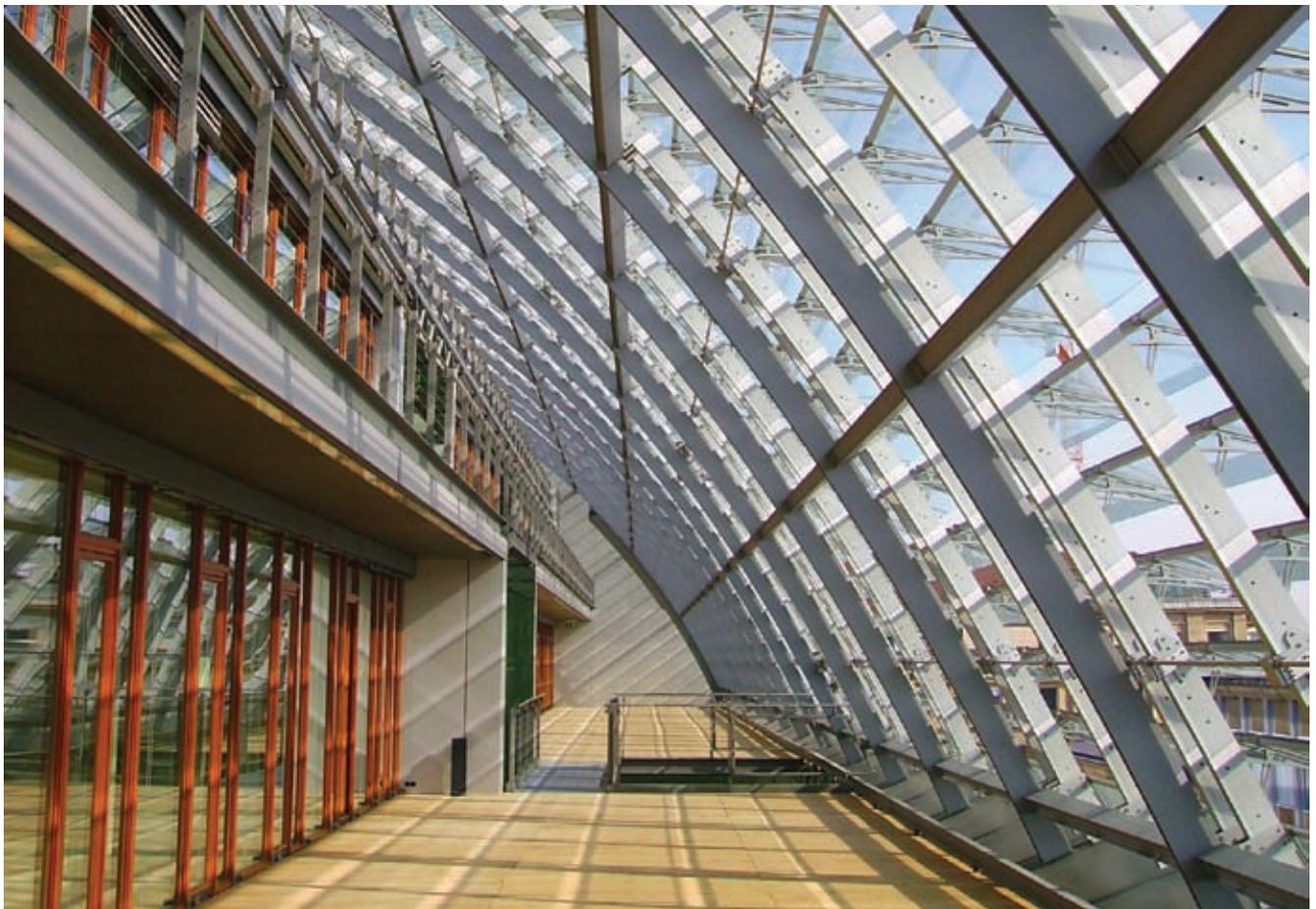
## SCREENING AND PERFORMANCE LOUVRE

Many buildings need heating, ventilation and air conditioning plant, which may involve the creation of terminations or apertures in the façade or roof.

Universal Louvre can provide the role of either screening or performance louvre in a wide series of configurations, depending on the required aesthetics and rain/ airflow performance. It is available in any RAL colour.



**One London Wall - Universal Louvre used for screening**



**Koeningsbau Passagen, Stuttgart, Germany - A transparent movable glass roof reveals the sky to shoppers, as sophisticated technology provides shelter from the direct influence of the elements.**

# Colt's natural ventilation product range



**Coltite** | NATURAL LOUVRED  
GLAZED VENTILATOR



**EuroCO/Seefire** | NATURAL LOUVRED  
INLET & EXTRACT VENTILATOR



**Airlite** | HIGHLY INSULATED  
NATURAL LOUVRED EXTRACT  
VENTILATOR



**FCO** | NATURAL LOUVRED INLET  
VENTILATOR



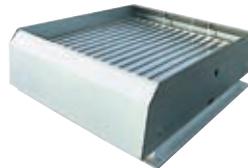
**Apollo** | NATURAL FLAP  
VENTILATOR



**Apollo Mono** | NATURAL FLAP  
VENTILATOR providing extract  
ventilation and daylight entry



**Apollo ATI** | NATURAL FLAP  
VENTILATOR providing  
weathered ventilation



**WCO** | NATURAL LOUVRED  
EXTRACT VENTILATOR providing  
weathered ventilation



**Labyrinth** | NATURAL EXTRACT  
VENTILATOR providing weathered  
ventilation, particularly suited to heat  
intensive and noisy industries



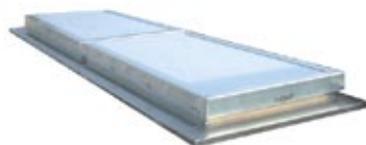
**Weatherlite** | UPSTAND providing  
weathered ventilation



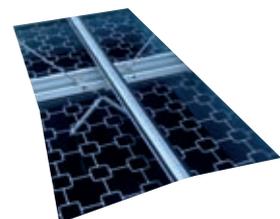
**Aerox** | NATURAL EXTRACT  
VENTILATOR providing high volume  
weathered ventilation



**Universal Louvre** | SCREENING OR  
VENTILATION LOUVRE



**Securex** | EXPLOSION  
RELIEF VENTILATOR



**Siteguard** | ANTI FALL THROUGH  
GUARD

# Colt's mechanical ventilation product range



**Coolstream S** | EVAPORATIVE COOLING UNIT for cooling applications



**Coolstream R** | EVAPORATIVE COOLING UNIT for cooling, heating and ventilation



**Coolstream N** | EVAPORATIVE COOLING UNIT for natural evaporative cooling



**Coltair** | AIR INPUT UNIT



**Tristar** | AIR HANDLING UNIT



**Tornado** | MECHANICAL EXTRACT VENTILATOR



**Whirlwind** | MECHANICAL EXTRACT VENTILATOR



**ELECTRIC** | ELECTRONIC CONTROL SYSTEMS



**PNEUMATIC CONTROL SYSTEMS**

# In the shade - *Colt solar shading systems*

## COLT CONDITIONS SAVE ENERGY

We control natural daylight:

We reduce solar heat gain  
We reduce cooling loads in summer  
We reduce heat requirements in winter

> We optimise **energy efficiency**

We enhance natural daylight levels  
We minimise glare

> We optimise **light quality**

We help create:  
Stunning architectural appeal

> **functional + aesthetic** impact  
for architects & contractors

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*EWE Arena, Oldenburg, Germany - Colt designed and supplied a movable solar wall complete with photovoltaic cells to provide both solar shading and the generation of electricity*

## SUN SCREENING FOR BUILDINGS

Buildings with large areas of glazing make the best use of natural daylight and passive solar heat. But there can be too much of a good thing: too much daylight in the wrong places can lead to glare, and too much sun can lead to overheating.

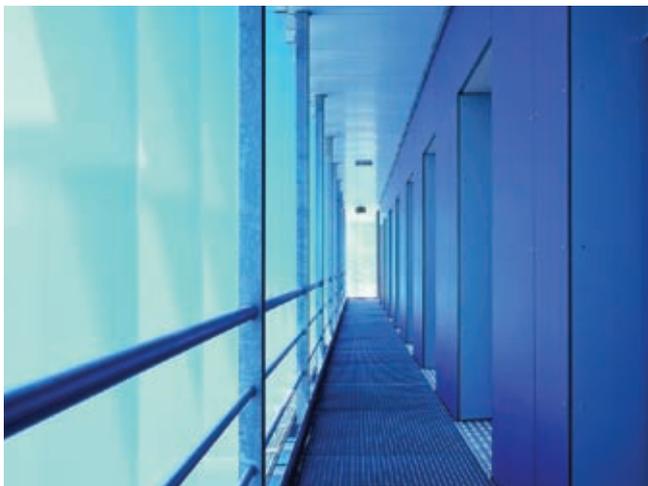
Colt's solar shading systems eliminate excessive glare and reduce solar heat gains in the summer. During the hotter months of the year, the building is protected against overheating by Colt's adjustable heat reflecting louvres, which are oriented according to the position of the sun. Radiation from the sun is partially absorbed and reflected by the louvres, which reduces heat gains within the building.

## WINTER WARMTH

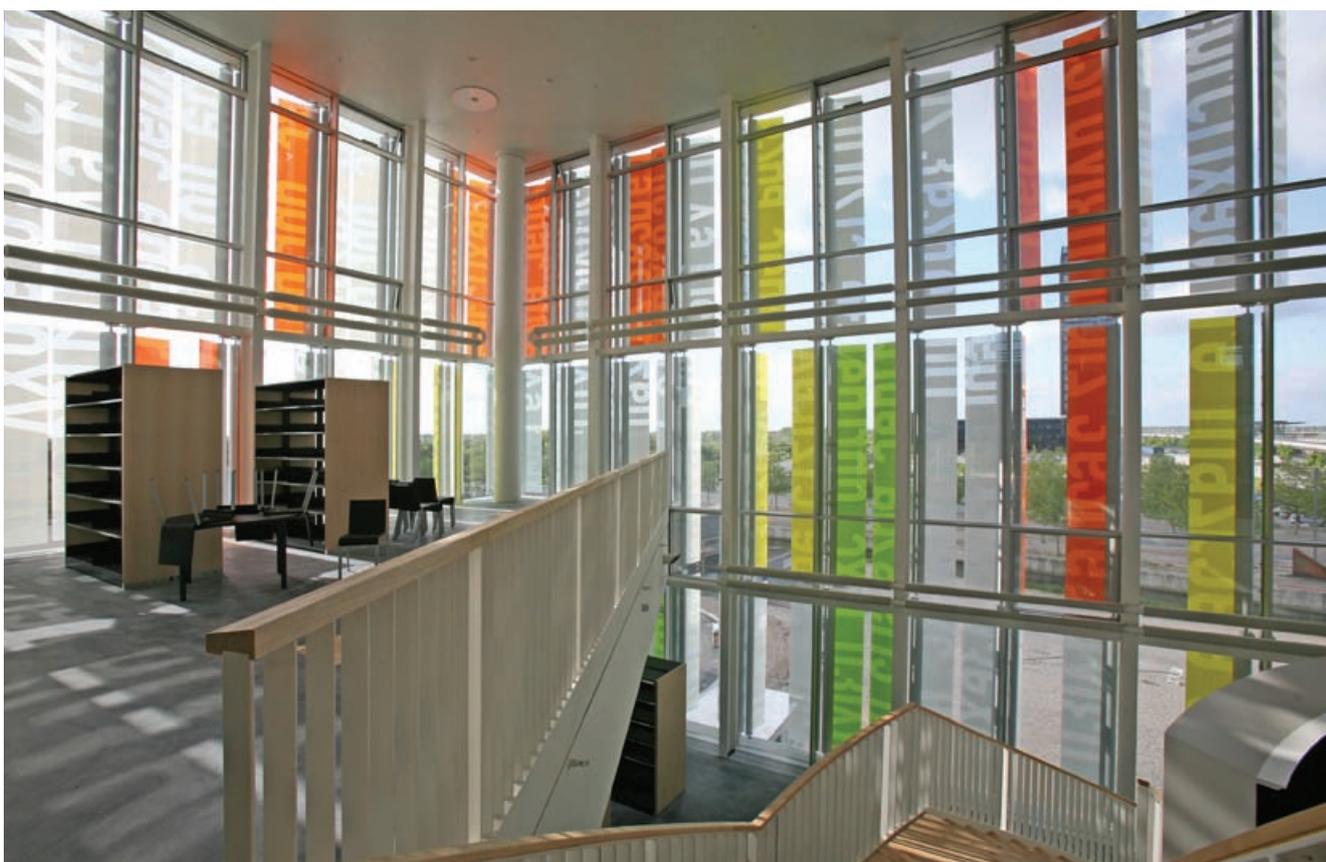
In the winter months, the situation is reversed, as buildings lose heat through their glazing. Colt's solar shading louvres can be positioned so as to reduce heat loss as well as to help capture any heat coming from the winter sun.

## QUALITY LIGHTING

The quality of daylight changes continuously within a building, depending on the time of day, the weather and the season. Colt's solar shading louvres can be oriented to enhance the levels of natural light while minimising glare, providing ideal natural light quality in the building throughout the daylight hours all year round, and reducing as much as possible the need for artificial lighting.



*Eawag Forum, Chriesbach, Switzerland - a Colt vertical glass louvre system acts like a second skin*



*Ørestandens Gymnasium, Copenhagen, Denmark. - Colt designed and installed 700 laminated and printed bespoke Shadoglass glass louvres over an area of 1700m<sup>2</sup> of façade for shading and ventilation. The different colours, films and frits provide a youthful and playful appearance.*

#### FORM AND FUNCTION

Colt solar shading systems can be used to great effect by architects to create a strong visual impact on a building's facade. Colt experts are able to work with the architect, designing and producing shading systems that make an architectural statement while meeting all the building's functional requirements. They will be able to provide comprehensive calculations of sun angles and heat loads to ensure that the selected system offers the best performance.

#### A RICH PALETTE OF MATERIALS

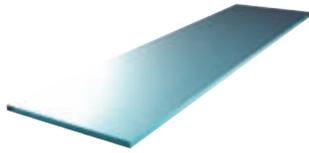
Colt presents architects with a rich palette of materials, finishes, coatings and configurations to create their design: aluminium and stainless steel profiles, as well as a choice of glass, textile, wood, terracotta and translucent acrylic louvres.

#### ENERGY-EFFICIENT BUILDINGS

Colt can help architects design highly energy-efficient buildings by integrating its natural ventilation and solar shading systems within one design and one control system. This can enable the building to become adaptive to the external environment and thereby potentially highly energy efficient. Energy efficiency can be further enhanced by integrating photovoltaic cells within the solar shading glass louvres.

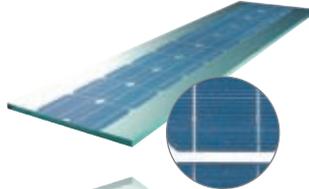
# Colt solar shading systems:

*Energy efficiency, optimal lighting quality, stunning design*



**Shadoglass | GLASS LOUVRE**

Available with a wide variety of tints, frits and clamping systems. Shadoglass may be installed horizontally or vertically, and may be either overlapping or flat



**Shadovoltaic | GLASS LOUVRE WITH INTEGRATED PHOTOVOLTAIC CELLS**

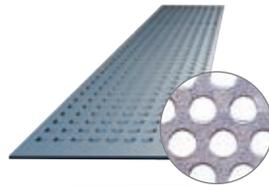
Has the dual function of electricity generation and solar shading



**Solarfin | FIXED OR MOVABLE ELLIPTICAL EXTRUDED ALUMINIUM LOUVRE** for installation horizontally or vertically



**Solar C | FIXED EXTRUDED ALUMINIUM C - SECTION LOUVRE**



**Shadometal | FIXED OR MOVABLE SHEET METAL LOUVRE**  
Available in many different patterns and materials



**Structural | SHADING LOUVRE FOR THE FACADE**



**Shadotex | TEXTILE SOLAR SHADING LOUVRE**



**Ellisse | MOVABLE SLIDING LOUVRE**



**Ellisse | PANELISED SUNSHADE SCREEN**



**Soltronic | STANDALONE SOLAR SHADING CONTROLLER**



Colt presents architects with a rich palette of materials, finishes, coatings and configurations to create their design: aluminium and stainless steel profiles, as well as a choice of glass, textile, wood, terracotta and translucent acrylic louvres.



*Cork County Hall, Ireland - a Colt active ventilated façade reduces the need for air conditioning*

# Here comes the sun - *Colt glazing systems*

## COLT NATURAL DAYLIGHT CONDITIONS

We use natural daylight to achieve:

- Ideal **light quality** > better **health** > lower artificial lighting costs
- > higher **productivity** > energy efficiency
- for occupiers



**Colt polycarbonate barrel vault systems are highly insulated and allow the integration of ventilation and shading elements**

## ARCHITECTURAL IMPACT

Colt rooflights enable architects to use natural light to great impact in their designs.

Colt experts can work with the architect to design rooflights to fit a wide variety of shapes, glazing types and profiles – single and double pitches, with or without sides, pyramids and rounded glazing elements, with a choice of polyester powder painted, anodised or mill aluminium profiles.

## INTEGRATED SYSTEMS TO REDUCE EXCESSIVE GLARE AND HEAT

Large areas of glazing in a building can lead to glare, or bring excessive solar heat gain and winter heat loss. Colt's range of glazing systems can be integrated with other Colt products such as solar shading louvres and ventilators to reduce excessive glare and solar heat gain. To identify the most effective combination, Colt can offer the building designer simulations of how solar shading and daylighting will interact within a specific model.

“ ”

## Seize the daylight -

Natural daylight has a **positive influence on people's** health and improves their concentration.

Natural daylight continuously changes in colour and intensity, greatly **influencing the feel of a building.**

Optimising the use of natural daylight can greatly **reduce** a building's **electricity** needs.

Architects look for ways to maximise the use of natural daylight.

*OVT railway terminal, The Hague - Colt provided the complete glass roof including Firelight natural ventilators and all associated framework*



# Colt glazing systems



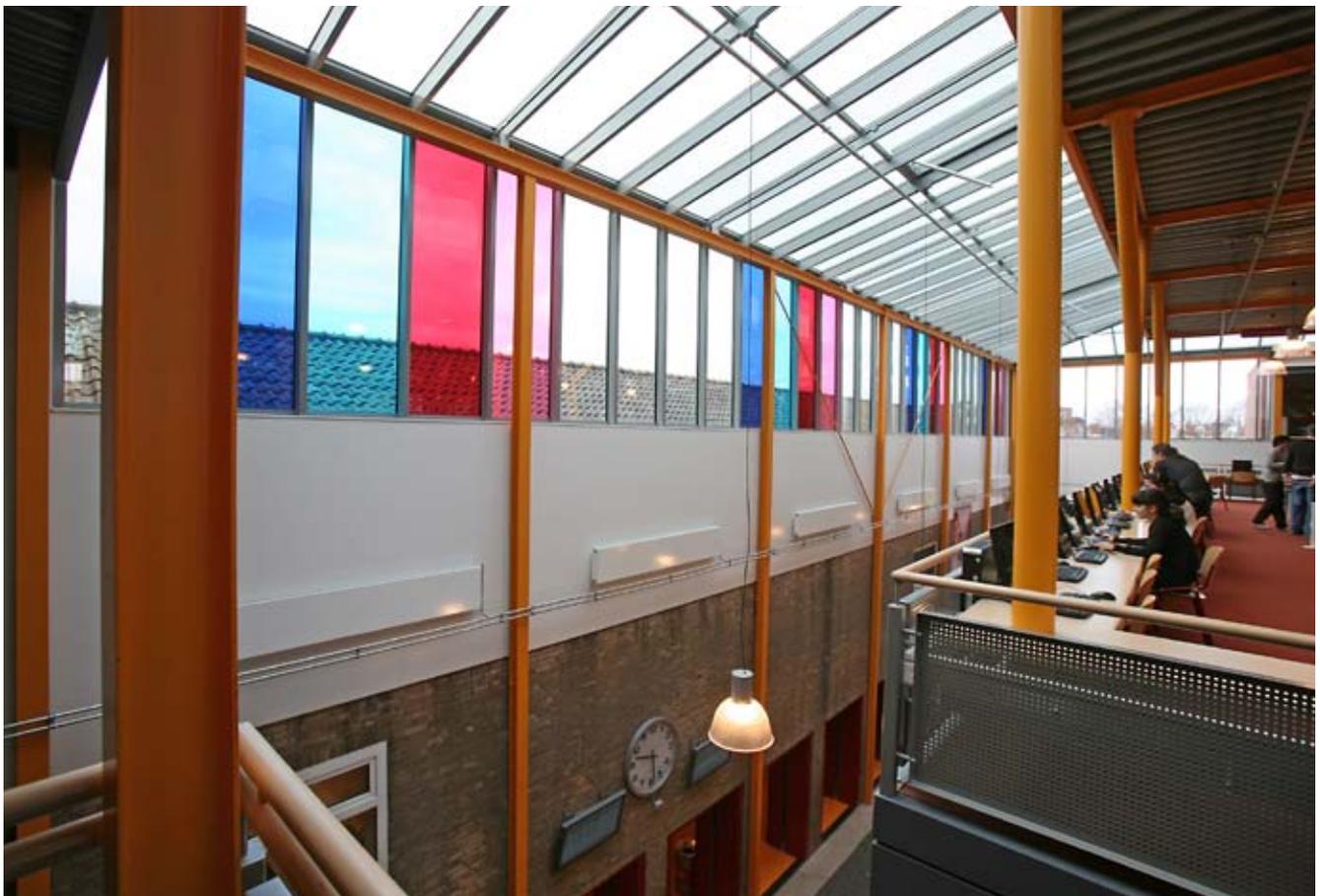
**Pyramid glazing system**



**Azur glazing system |**  
Glazing system with option  
of adding solar shading and/or  
ventilation elements



**Cosmotron | BARREL VAULT**  
Glazing system in polycarbonate  
with option of adding solar shading  
and/or ventilation elements



*Kennemer College, Holland - Firelight ventilators set into a glazing system*

*BMW, Lamschut, Germany - Comotron barrel vault daylighting system with integrated Apollo ATI smoke and day-to-day ventilators*



# Refurbishment

## COLT CONDITIONS IN REFURBISHED BUILDINGS

Improved **energy efficiency**

Enhanced **safety**

**Architectural** features

Renovations sympathetic to a **building's style**

### REFURBISH TO ENHANCE

When a building is refurbished, Colt is able to unlock considerable potential for improvements in energy performance, fire safety and appearance. Colt experts can design bespoke solutions that are sympathetic to the building's style and make the building a better and safer place to occupy.

Colt has extensive experience of renovation projects. Its approach is to look at every situation individually and to examine both aesthetic and energetic aspects to identify opportunities for improvement and optimisation. Colt experts can carry out a detailed analysis of the building's performance, complete with measurements of temperature, energy losses, heating parameters, air movement, noise and other significant variables.

### MODELLING TO SAFETY

Large areas of glazing in a building can lead to glare, or bring excessive solar heat gain and winter heat loss. Colt's range of glazing systems can be integrated with other Colt products such as solar shading louvres and ventilators to reduce excessive glare and solar heat gain. To identify the most effective combination, Colt can offer the building designer simulations of how solar shading and daylighting will interact within a specific model.



*Hotel Hafen, Hamburg - Fritted glass louvre system, enabling daylight to enter the building through the roof whilst reducing solar heat gain*

### NEW GLASSES FOR AN "OLDIE"

The Hotel Hafen in Hamburg is a graceful older style building that has recently been renovated. Colt installed a fritted glass louvre system and supporting structure to enable daylight to enter the building through the roof. Solar heat gain is reduced by using louvres that are toughened laminated green in colour and white fritted glass.

Colt's glass louvre system added a modern touch to the building's architecture, while providing the desired amount of daylight.



# Testing and product quality

## TESTING FOR OPTIMUM COLT CONDITIONS

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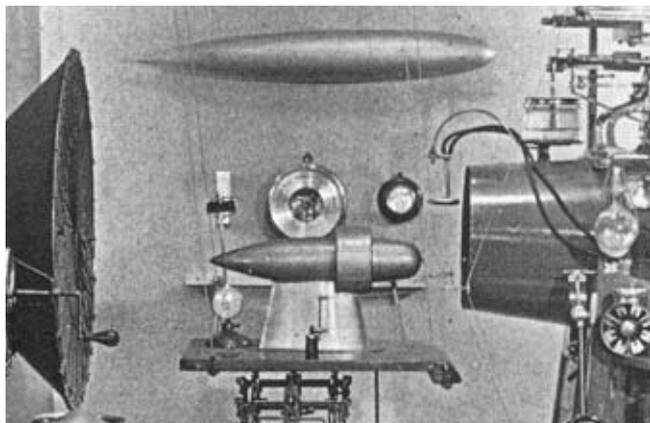
### TESTING HISTORY

Colt built its first wind tunnel in 1931, the first year of its existence, to support research in vehicle ventilators. Subsequently Colt has developed test facilities in the UK and Germany.

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### TESTING FOR INNOVATION

Throughout the years these facilities have supported Colt's Research and Development activities, analysing the performance of its products in all conditions to identify possible improvements and developments.



*The Colt Wind Tunnel in the 1930's*

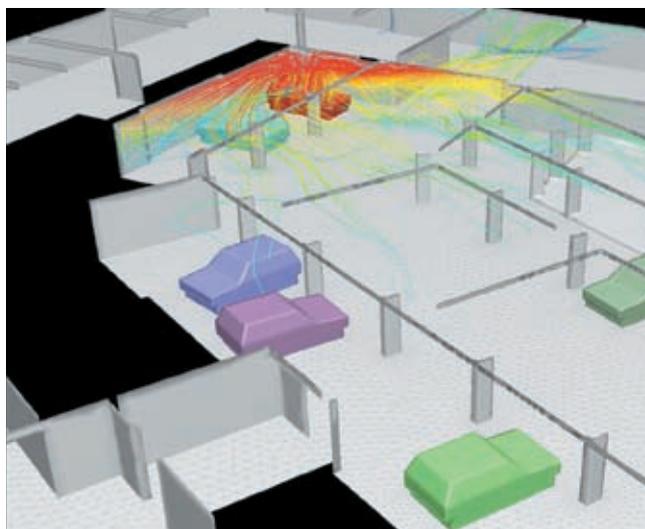
### PRODUCT QUALITY AND THIRD PARTY TESTING

The majority of Colt's products are manufactured under the Quality Standard EN ISO 9001 or 9002 and the Environmental Standard EN ISO 14001.

In Europe the majority of types of smoke control equipment falls under the requirement to show compliance to the Construction Products Directive and be CE marked. All such Colt equipment has been third party tested and certified in accordance with EN 12101. This provides specifiers and end users peace of mind, since they know that any such equipment is state of the art with regards to all aspects of safety, and meets all relevant regulations.

### CUTTING EDGE FACILITIES FOR TOP PERFORMANCE

Colt technicians test the products' air permeability, water tightness under static pressure, aerodynamic performance. Ventilators and louvre panels are tested for air leakage. Technicians also perform freeze testing, "fall through" tests and structural wind testing. The test facilities include a fire test rig, an acoustic facility and a life cycle area.



*Colt CFD modelling verifies scheme designs, in this case for a car park*

### BESPOKE TESTING

Colt's test facilities are also used to verify the effectiveness of its products when integrated into a customer's existing building or a new development, analysing their performance under different conditions.

## Problem solving and advice

### DESIGNING FOR OPTIMUM COLT CONDITIONS

Colt's service does not start with the customer's order. Colt can provide design input following the initial meeting with the client. With existing buildings, Colt can provide a no- obligation survey which can cover the measurement of temperature, energy losses, heating parameters, air movement, noise, and so on.

For smoke control schemes Colt can provide heat and smoke modelling. Where applicable all relevant data can be run through a computer fluid dynamics (CFD) model or run through a series of calculations.

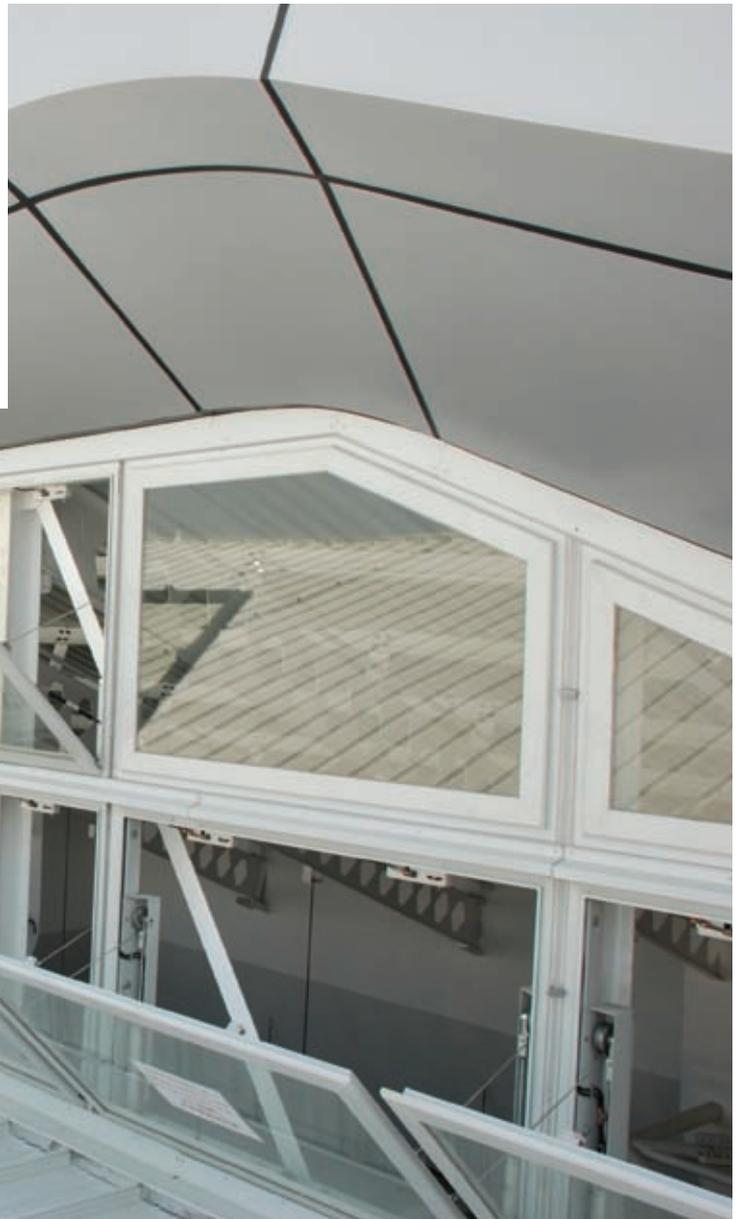
Colt also offers a series of professional CPD (Continuing Professional Development) seminars that can be carried out at the client's premises on a variety of subjects, from air conditioning to smoke control through to solar shading.



*Natural ventilator under test in a third party laboratory*



*Rain test rig for the ventilators to be installed at Sky Plaza, Hong Kong*



*Sky Plaza, Hong Kong - Kameleon natural ventilators*

# Continuation of optimum conditions

## ENSURING THE CONTINUATION OF OPTIMUM COLT CONDITIONS

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### SERVICING FOR TOP PERFORMANCE

Colt offers customers with a tailored maintenance regime to ensure their buildings keep performing at their best over time. Colt service technicians offer support for smoke control, climate control and solar control systems, and their associated controls and ancillaries. They service equipment from most other manufacturers, in addition to Colt's own equipment.

### PREVENTATIVE MAINTENANCE FOR LONGER LIFE

A programmed maintenance service can extend the life of a product, reduce the likelihood of downtime and ensure it consistently performs at its best. Such a programmed approach also enables to update the equipment with the latest technological advances and standards.



### BREAKDOWN ASSISTANCE

Colt operates an emergency call-out service and spare parts support to minimise downtime when a problem occurs.



### DESIGN SUPPORT

On occasion a building owner or operator will make alterations to the building fabric or change its use. In this case, it is important to ensure that the building's systems are modified to suit the building's new situation. Colt is able to assist the owner by carrying out a detailed survey and identifying the necessary adaptations and upgrades to the system in order to ensure the building continues to perform at its best in the new set-up.



### TRAINING FOR MAXIMUM EFFICIENCY

Colt supports the building operator in maintaining the building's performance through its life by the provision of seminars.

# Spreading Colt Conditions around the world

## COLT PROJECTS

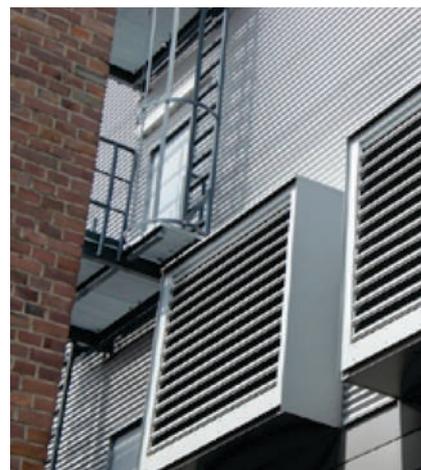
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*Bryanston Office Park, Johannesburg*



*Che Kung Temple Railway Station, Hong Kong*



*Erfurt & Sohn KG, Wuppertal*



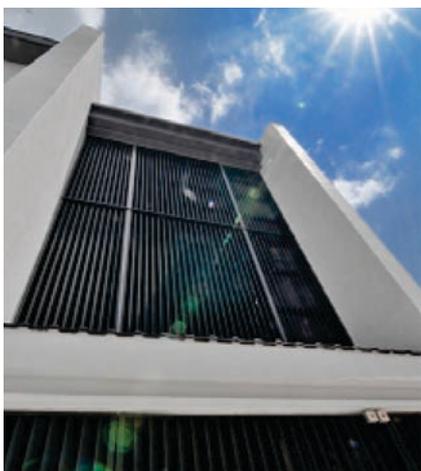
*Etgarim Centre, Tel Aviv*



*Faurecia, Hlohovec, Slovakia*



*Harkins Building, Carmel College, Auckland*



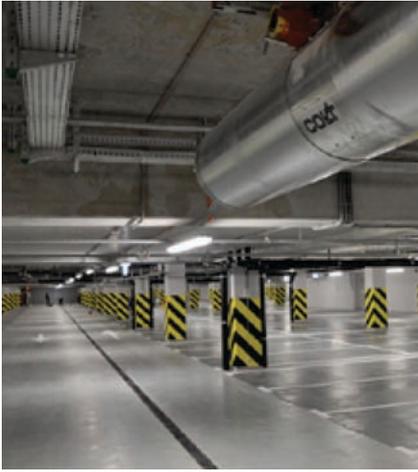
*Hau Gok Tin Hau Temple, Tuen Mun*



*Highpoint Shopping Centre, Maribyrnong, Victoria*



*International Paper, Madrid*



*Konstruktorska Business Centre, Warsaw*



*Library of Birmingham*



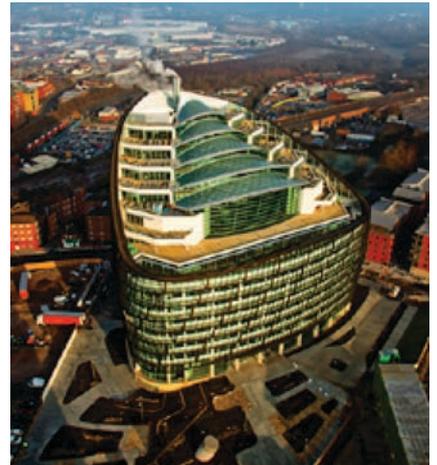
*Logoplaste Elst, Elst, The Netherlands*



*Mathematical Institute, University of Oxford*



*MTR University Station, Hong Kong*



*One Angel Square, Manchester*



*Puerto Venecia, Zaragoza*



*Pujiang Shuanghui Building, Shanghai*



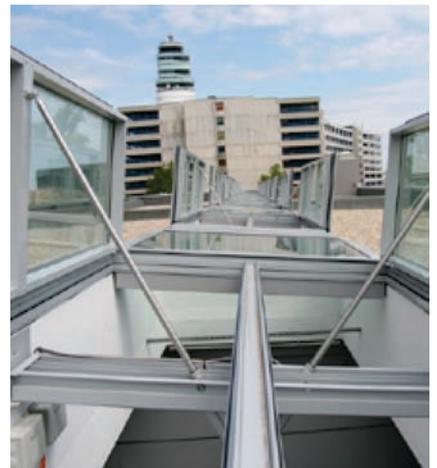
*REWE International GmbH, Ohlsdorf, Austria*



*Stadhuis Beersel, Beersel, Belgium*



*Yanget House, Bunbury, Australia*



*Vienna International Airport Cargo Hall*

# The Colt Foundation - *Improving people's working conditions*

For further information, please visit  
[www.coltgroup.com/the-colt-foundation.html](http://www.coltgroup.com/the-colt-foundation.html)

*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 its income.*

## THE OBJECTIVES OF THE COLT 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 that will inform government policy and make a difference to working practices. By January 2015 it had awarded more than £14.5 million in grants to over 200 projects and supported over 240 students studying some aspect of occupational health.

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 Kings' College London.

## ASTHMA IN ASHFORD

The Foundation's longest and most significant commitment - over £1.05 million has been to the Asthma in Ashford project, which started in 1993. The project followed a group of 630 children from pre-birth up to the age of 8 years old, to investigate the causes of childhood allergy and asthma with the aim of discovering why the latter is becoming more common. Although the Colt Foundation funding has now ceased, the children are in their teens and are still being monitored by the study team.



## HEALTH OF MINERS AT HIGH ALTITUDES IN THE ANDES

Although mining at high altitude is a high risk occupation, it is also a hugely important economic activity in South America, and this proposal aims to improve the physical and mental condition of all those miners labouring at high altitudes. A new project based at the University of Oxford started in January 2012 looking at translating recent advances in human physiology and genetics into improvements in health of miners at high altitudes in the Andes.



## ASSESSING THE SEVERITY OF COLOUR VISION LOSS IN OCCUPATIONAL ENVIRONMENTS



There is increasing concern with the minimum colour vision requirements that have been set within visually demanding, occupational environments, and the reliable assessment of human colour vision is becoming increasingly important. A team at City University London has been awarded a three year grant for research into an accurate assessment of colour vision loss, with an analysis of colour vision certification requirements for Air Traffic Controllers, and current colour vision standards for seafarers. They are collaborating with the Civil Aviation Authority in the UK and also with the Maritime Coastguard Agency. Work has progressed well during the period of the grant, and is due to be completed in late 2014.





**DMV Veghel, The Netherlands - Colt CoolStream evaporative cooling system**

*For further information about the location of Colt's local offices, to find out more about Colt's products and services, or to find out more about Colt's projects, please go to [www.coltgroup.com](http://www.coltgroup.com).*