

Multiservice Chilled Beams “MSCB” project references





active multiservice chilled beams

end client

***Buckinghamshire and Milton
Keynes Fire Authority
Kingerlee
Dunwoody
Alden***

main contractor
m&e consultant
m&e contractor

Frenger recently supplied the new £14 million state of the art Fire, Ambulance and Police Hub which is a base for Buckinghamshire Fire and Rescue Service, Thames Valley Police and South Central Ambulance Service to work together more effectively for the benefit of the local area. It incorporates multi-use community facilities to enable educative programmes based on fire prevention and crime reduction.

The construction comprises a concrete frame, fully glazed facade to the central hub and two steel frame 'wings' clad in the relative emergency service colour. The building also has both our Active Multiservice chilled beams complete with fully integrated DALI dimmable LED lighting and standard ceiling integrated Active chilled beams installed to provide the cooling, heating and ventilation whilst providing an energy efficient HVAC solution, along with superior room occupancy thermal comfort, long life expectancy and minimal maintenance.

Ashlands Blue Light Hub

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systems



Google

Image capture: May 2021 © 2022 Google

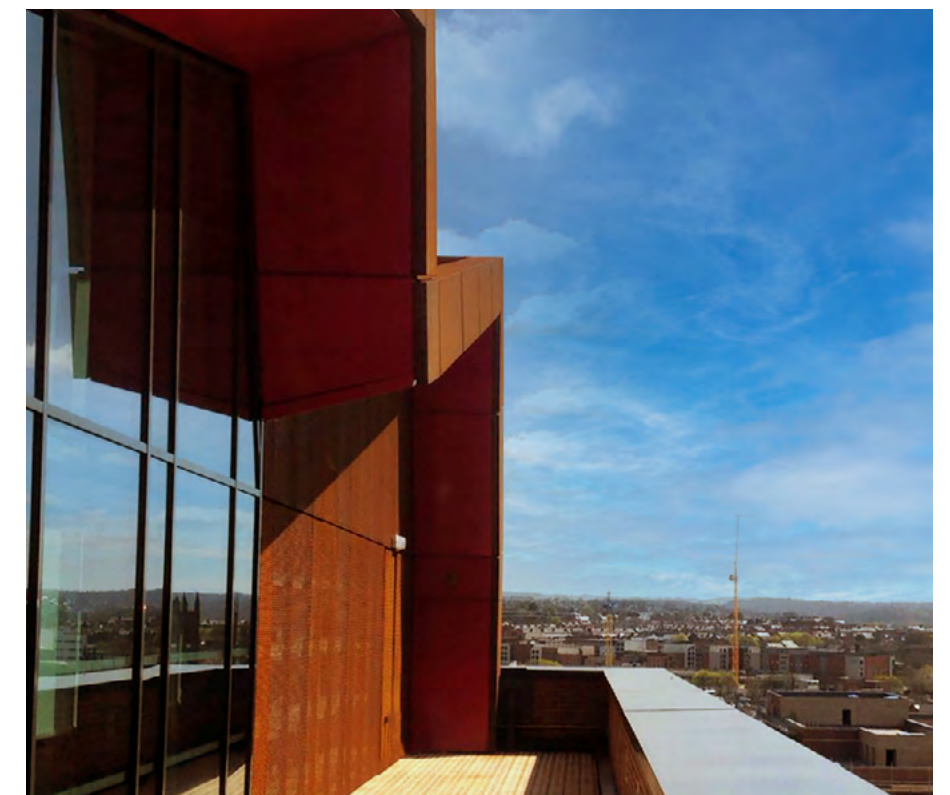
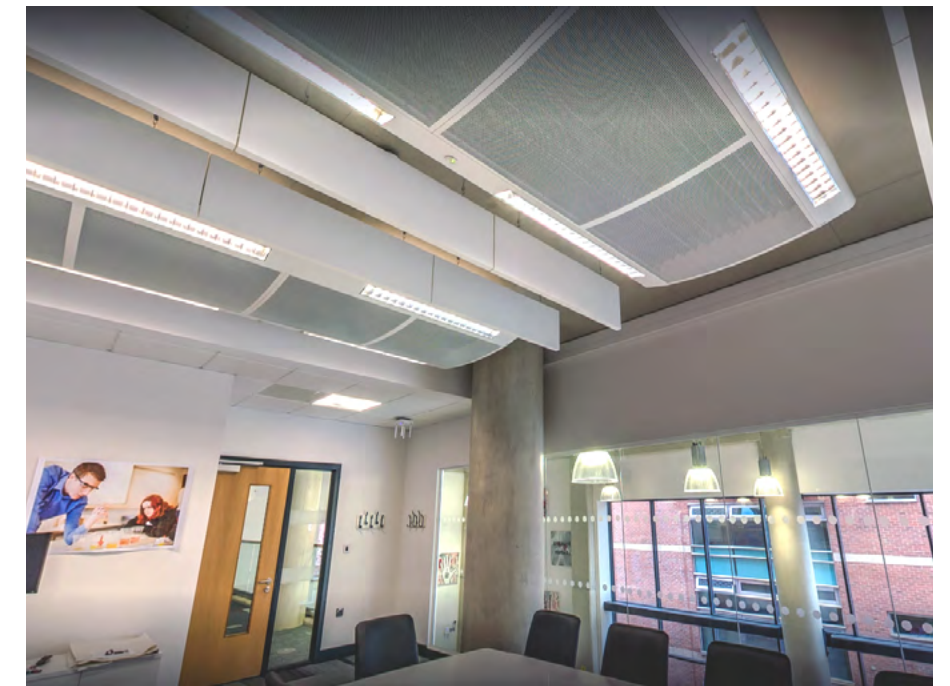
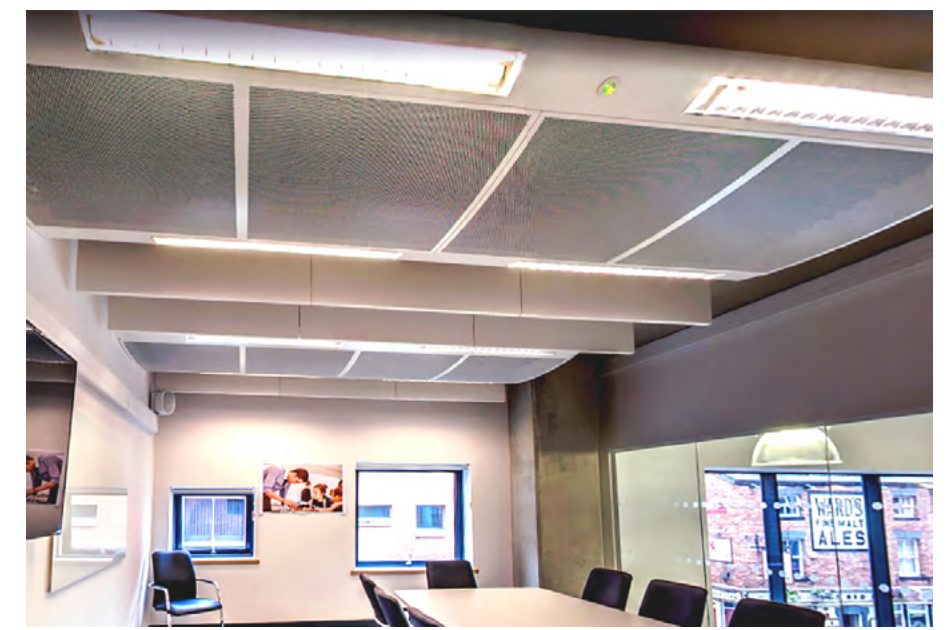
passive multiservice chilled beams

architects
contractor
end client

Bond Bryan
Balfour Beatty
Sheffield Hallam University

The £30 million project was constructed by contractor Balfour Beatty, with Bond Bryan behind the architecture, and designer Corin Mellor tasked with joining the new building with the existing Arundel Building, another Sheffield Hallam University owned building. Home to the Sheffield Institute of Education, the newly built campus provides a 268-seat lecture theatre as well as state of the art teaching, learning and social spaces, uncluding an outdoor terrace.

Frenger supplied the Sheffield Hallam Charles Street campus with passive multiservice chilled beams with integrated LED lighting solutions, providing the building owners a long term air conditing solution with minimal maintainece costs to help provide significant savings on operational costs.



Sheffield Hallam Charles Street

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active multiservice chilled beams



architect
consulting engineer
main contractor
m&e contractor

Cartwright Pickard
Chapman BDSP
Morgan Sindall
N G Bailey

Three of Frenger's Chilled Beam models were selected to be used in the Lambeth Civic Centre Building; Compact® Active Multi-Service Chilled Beams (MSCB's), X-Wing® Passive MSCB's and Eco™ HQ Ceiling Integrated Active Chilled Beams (CICB's).

The £45m building is constructed with a six-storey, post-tensioned concrete frame, which sits on 195 rotary piles. In order to attain a BREEAM Excellent rating a number of energy efficient systems have been utilised, such as Frenger Active and Passive Multi-Service Chilled Beams and an electronically charged intelligent glazing that provides solar control.

National Film and TV School

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active multiservice chilled beams

architect
consultant
m&e contractor
end client
structural engineer

Sheppard Robson
Meinhardt
MALA
Lazari
Ramboll

The new High Holborn building brings together sustainable design and contemporary modernist appeal to present almost 38,000 sqft of mixed office and retail accommodation. Located Midtown, London, the eleven floored building is set behind a visually stunning Portland Stone facade. The spacious building also features LED lighting (within the active multiservice chilled beams), communal bike storage, shower and locker facilities, ground source heat pumps and photovoltaic solar panels.

With a key focus on sustainability, Frengers Active Multiservice Chilled Beams were chosen as the supplier for High Holborns air conditioning solution. The chilled beams contain no fans or engines, meaning high quality air is deployed quietly for years to come. Frengers Active Multiservice chilled beams deliver significant cost savings, partly due to the low maintaince costs, also helping to save the building over seven tonnes of carbon annually.



262 High Holborn

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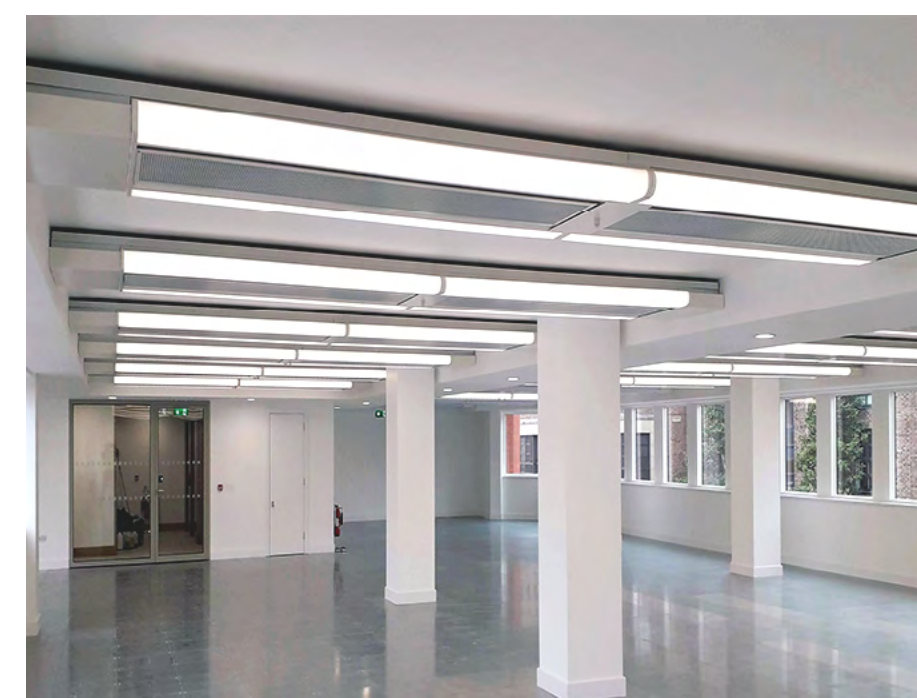
active multiservice chilled beams

consultant
m&e contractor
building use

JAE Engineering Ltd
Designer Group
Commercial Office

The 20,000sq foot commercial offices underwent a full refurbishment in 2019. This included a refurbishment of the facade, new windows, new lighting, new air conditioning solutions courtesy of Frengers Active Multiservice Chilled Beams, reception area, new raised access floors, with suspended ceilings.

Three Haddington Buildings were supplied with Frengers Active Multiservice Chilled Beams (MSCBs) to supply a consistent deployment of air due to Frengers patented 'burst nozzle' technology which entrains across the room due to the coanda effect taking place within the Chilled Beam.



Three Haddington Building

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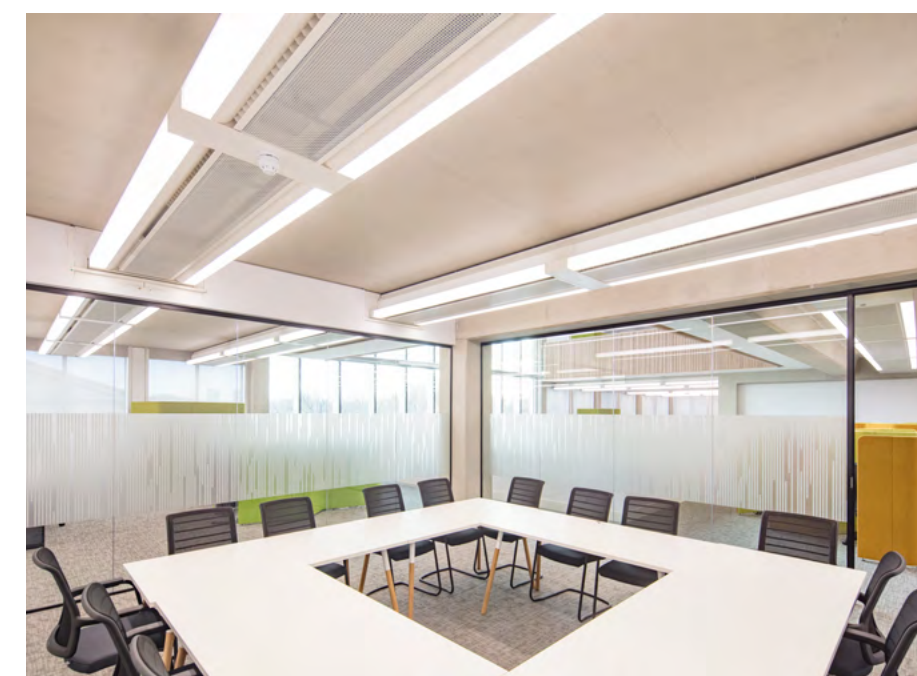
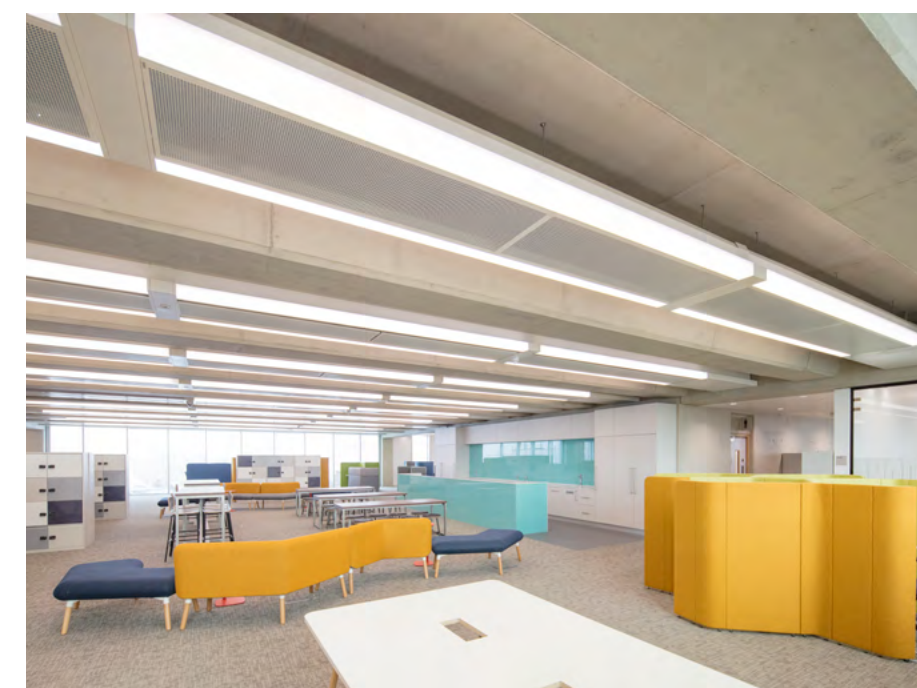
active multiservice chilled beams

architect
consulting engineer
main contractor
m&e contractor

Cartwright Pickard
Chapman BDSP
Morgan Sindall
N G Bailey

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Lambeth Civic Centre

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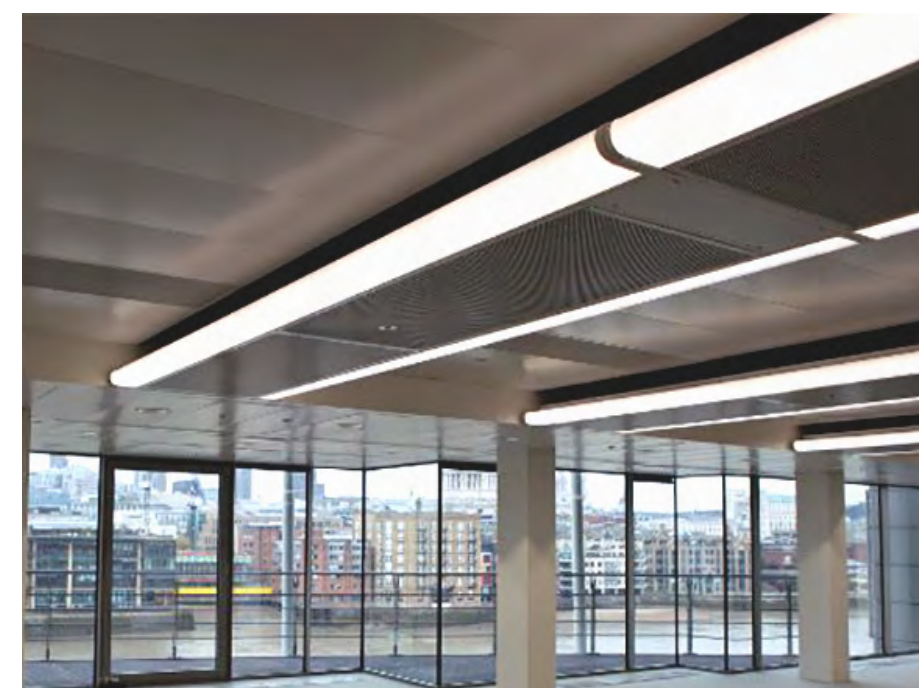
passive multiservice chilled beams

client
consulting engineer
main contractor
m&e contractor

OFCOM
YES Engineering
Overbury
Envirotech Services Ltd

Riverside House is the Headquarters of communications regulator, Ofcom and is located next to Southwark Bridge on the Thames in London.

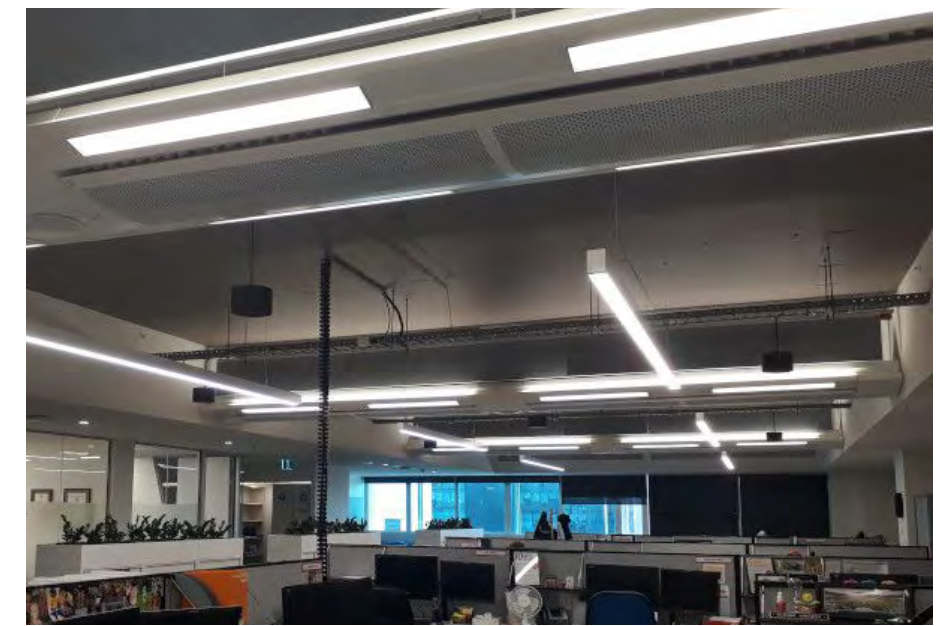
As part of a bid to revamp Riverside House, Frenger were selected to supply in excess of 350 of their X-Wing® Multi-Service Chilled Beam units for the 10 floor building. These MSCB units are equipped with continuous "Bullnose" polycarbonate LED luminaires, which are designed, manufactured and tested in-house by Frenger to deliver direct and indirect lighting with a uniform lighting level across the building whilst also being fully optimised for energy efficiency.



Riverside House - OFCOM

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active multiservice chilled beams

client
consulting engineer
m&e contractor

Red Cross
Amec Foster Wheeler
Triple-M (BSA)

As part of the comprehensive refurbishment of Perth's processing centre for the Australian Red Cross Blood Service, Frenger manufactured and supplied their Compact™ Active Multi-Service Chilled Beams.

The 5,500 sqm building is responsible for the processing and distribution of blood products for all Western Australia. After the renovation, which has been valued at \$30 million, the property now houses a full suite of PC2 testing and processing laboratories. The five-storey property was originally built in 1957 and is known to be one of Australia's first curtain-wall buildings.

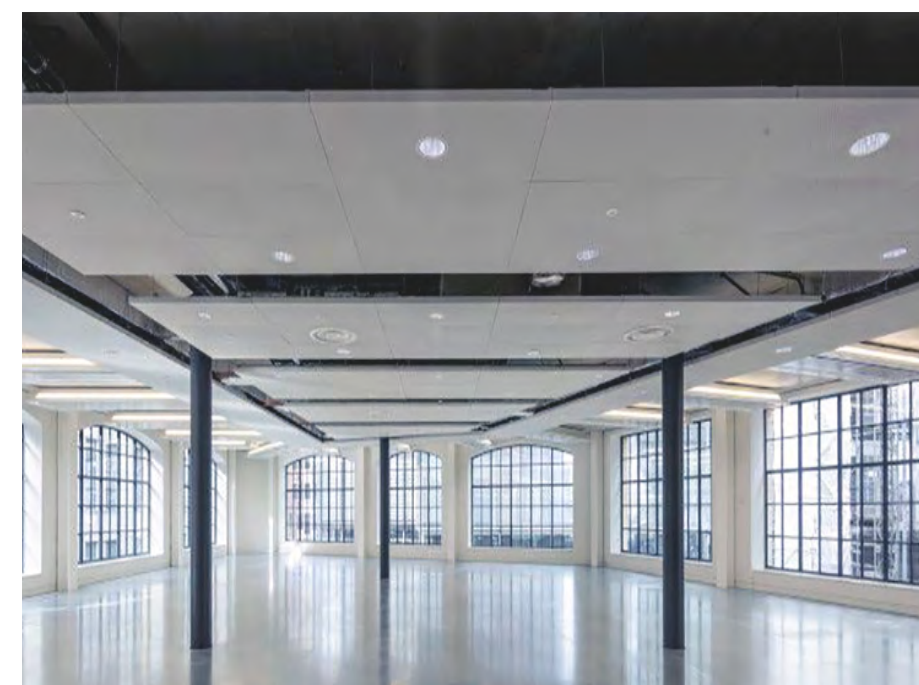
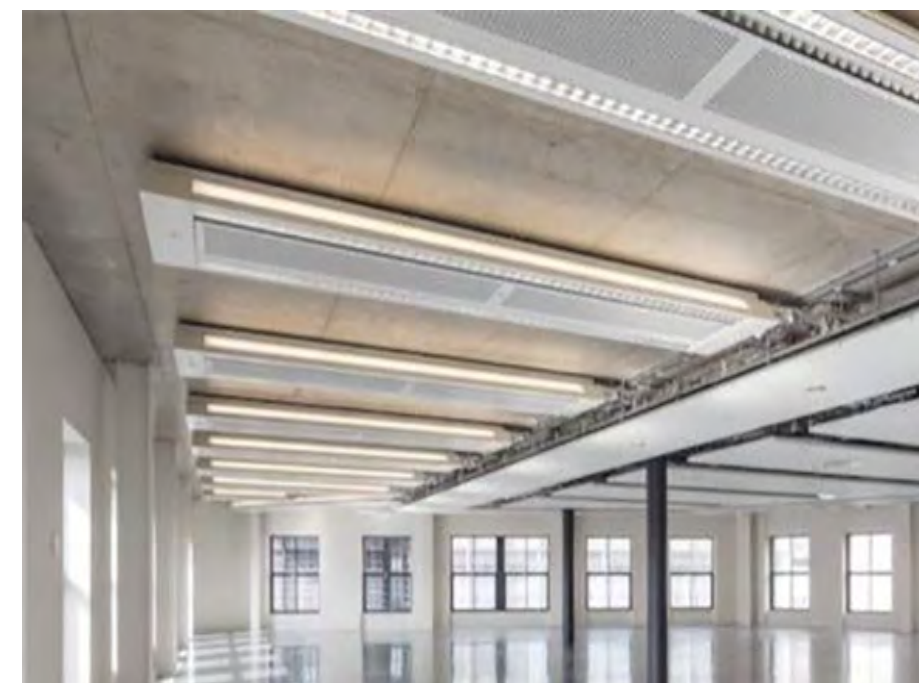
Red Cross

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systems



active multiservice chilled beams



client
architect
consulting engineer
main contractor
m&e contractor

Helical
Sheppard Robson
Sweco
Carillion
Michael J Lonsdale

Frenger Systems supplied and manufactured 100 of their Compact™ Active Multi-Service Chilled Beams (MSCBs) to 90 Bartholomew Close. The building offers over 24,000 sq ft of office and retail space and is located in central London.

Frenger's Active Multi-Service Chilled Beams installation was part of a redevelopment plan which was completed in May 2018. The property was originally a linoleum and carpet warehouse and showroom. Two new floors were added to the building during the refurbishment process.

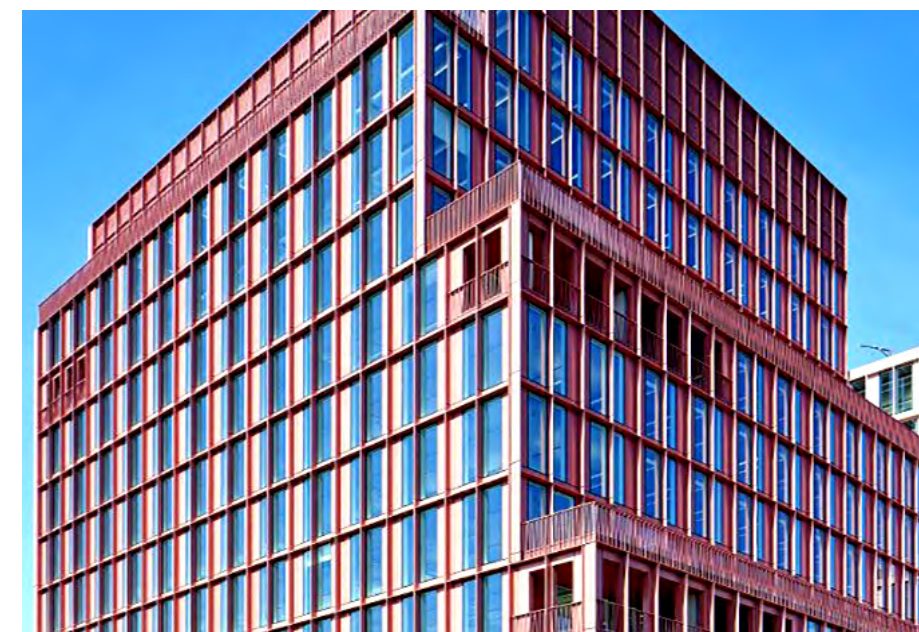
90 Bartholomew Close

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active multiservice chilled beams



client
architect
main contractor

Argent LLP
Duggan Morris Architects
Kier Construction

Frenger supplied the award winning Kings Cross Building R7 with their Active Multi-Service Chilled Beams (MSCB's) after working closely with the design teams to produce an engineering solution that meets the various demands of the HVAC system while also satisfying architectural inspirations.

Building R7 is a 10 storey mixed-use buildings in Kings Cross, London. The building consists of ground floor retail and 9-floor levels of commercial office space totalling approximately 180,000 sq ft.

Kings Cross Building R7

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active multiservice chilled beams

client
architect
main contractor
m&e contractor

ANTHC
KPB Architects
Jernstrom Engineering
Slayden Plumbing & Heating Inc

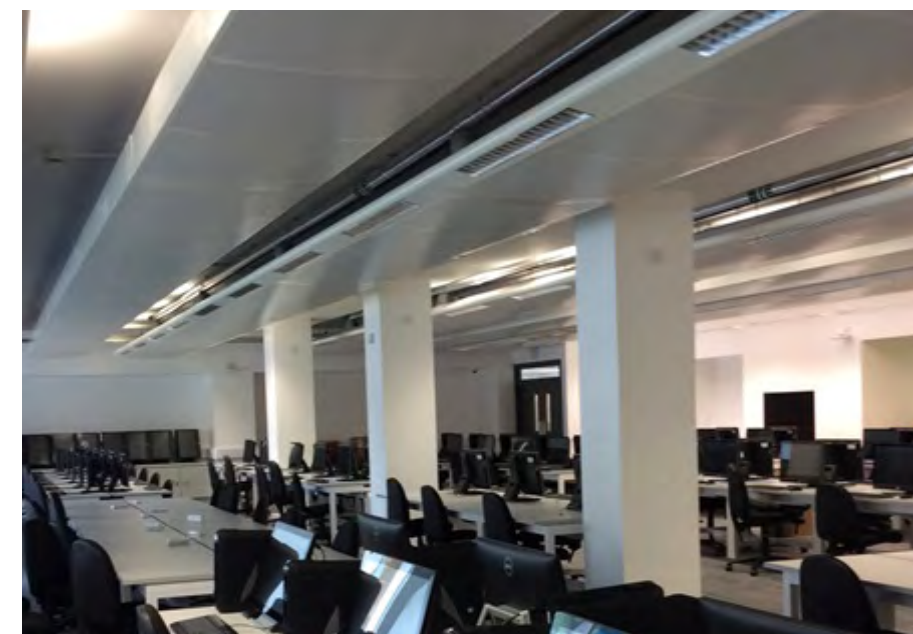
Frenger have successfully delivered their slimline Compact™ Active Multiservice Chilled Beams (MSCB's) to the ANTHC Sky Bridge which has recently been constructed to connect the Patient Housing facility to the ANMC Hospital to offer improved access for patients and families that have to travel to ANMC for care.

Frenger's Multiservice Chilled Beam (MSCB) solutions offer a fully integrated module which can be designed to accommodate building services to provide not only the mechanical space conditioning but can be tailored in terms of visual appearance and the services it can accommodate, in order to meet project specific requirements. In this way our MSCB solutions create a comfortable and attractive internal space environment.

Alaska Native Medical Center, Anchorage

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client
architect
main contractor
m&e contractor
mechanical consultant

Queens University
Kennedy Fitzgerald
O'Hare & McGovern
Blackbourne Limited
Williams Shaw

A four-storey 3,000m² building designed by Kennedy Fitzgerald Architects for Queen's University to accommodate Computer Science facilities. The building is built around the original concrete frame of the 1978 Bernard Crossland Building (BCB).

The building comprises reuse and extension of the BCB and refurbishment of the adjacent 14 – 16 Malone Road connected via a new glazed link. The completed project provides 5,911m² gross floorspace; 3,539m² refurbished existing floorspace and 2,372m² new floorspace. The building is designed to achieve the target of Building Research Establishment Environmental Assessment Method (BREEAM) 'Excellent' rating. To help meet this aim Frenger's "Radiant" passive MSCB's were chosen. The MSCB utilised integrated LED lighting with aluminium micro louvres.

passive multiservice chilled beams

Bernard Crossland Building, Queens University, Belfast

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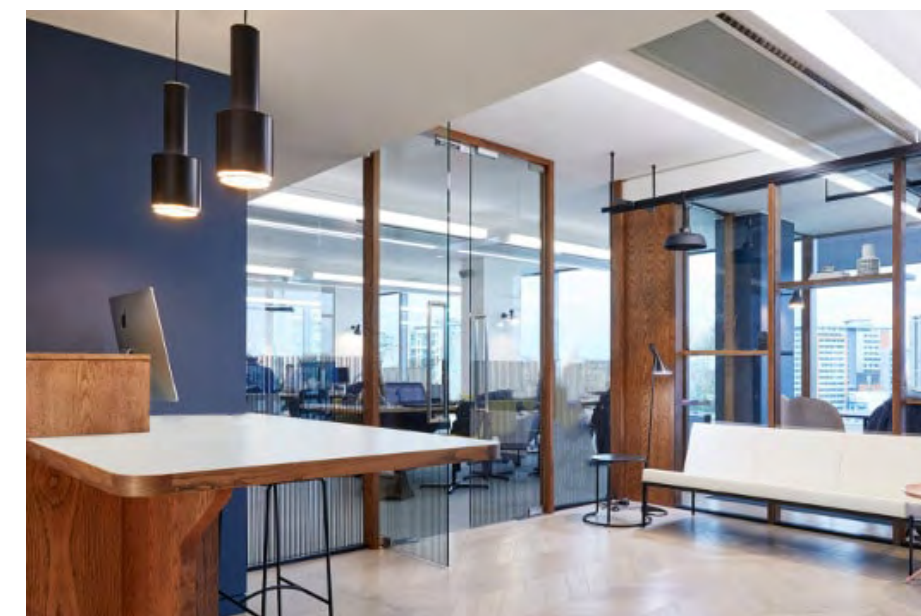
active multiservice chilled beams

client
architect
main contractor
m&e contractor

Land Securities
Fletcher Preist
Wates
Michael J Lonsdale

Frenger were selected by the professional team employed by Land Securities to provide the Multi Service Chilled Beams (MSCBs) for the renovation of one of their buildings within their extensive project portfolio. The building at 20 Eastbourne Terrace, London is 18 stories tall at 92,000 sq ft speculative office space. Located next to Paddington station, the 1950s built office tower is one of the oldest in London, but with the extensive restoration work the Category A office has achieved a BREEAM rating of Excellent. With an expected development cost of £66m for 20 Eastbourne Terrace, the value of the MSCB units was approximately one Million GBP.

The MSCBs selected for this project, utilised Frengers 'Compact' active chilled beam for its shallow depth and high thermal performance for spatial cooling and heating, with continuous LED extruded polycarbonate side profiles and integrated building services such as smoke detectors and PIR sensors.



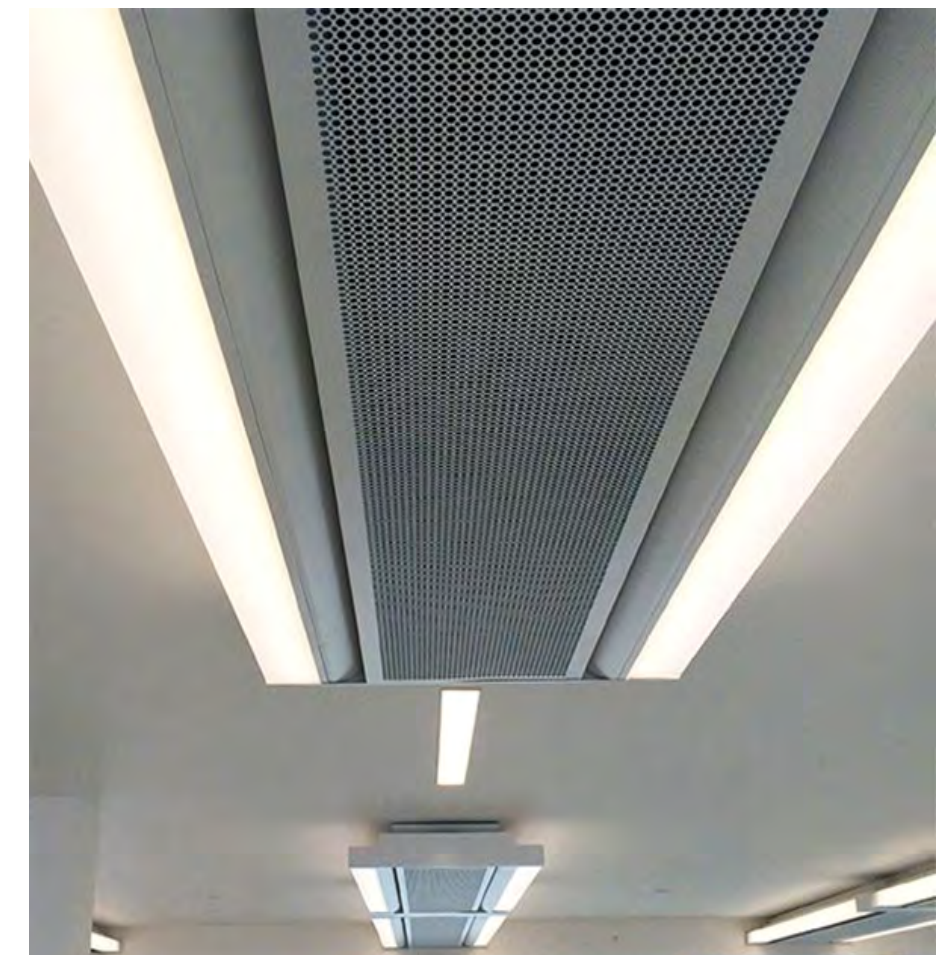
20 Eastbourne Terrace, London

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active multiservice chilled beams



client
consultant
m&e contractor

UBS
AWA Building Services
FES Company LTD

110 High Holborn offer 40,000 sq ft of high quality office space in the heart of midtown, london's new creative hub set amid a host of hotels, bars, restaurants and clubs. Highly efficient new office floor plates utilises three different variations of Frenger active chilled beams; the slimline Compact exposed (suspended below the roof soffit) Multiservice Chilled Beams (MSCBs) which include integrated LG7 lighting and building services, two-way discharge Ceiling Integrated Chilled Beams (CICBs) recessed into the plasterboard ceiling as well as one-way discharge CICBs recessed into the plasterboard perimeter margin.

Frenger not only manufactured the MSCB units, but also the luminaires. The lighting provided by the MSCBs are LED line systems that are designed to replace fluorescent lighting in new luminaires. The LED line systems are designed to produce pure white light for general lighting applications with high efficiency level, surpassing T5.

110 High Holborn, London

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active multiservice chilled beams

client

***Bell Hammer / Standard
Life Investments
KJ Tait Engineers
Beard Construction
Touch Building Services***

consulting engineer
main contractor
m&e contractor

Frenger supplied highly efficient Active Multiservice Chilled Beams to this heritage style building as part of the transformation of the inside of the building to be a large open plan area that appears to be clinically clean, light and airy whilst ultra energy efficient and which has the facility to be segregated for future cellular offices. The energy performance certificate for Beaufort House is EPC "B" and similarly the BREEAM rating is "Very Good".

Frenger not only inhouse manufactured the Active Chilled Beams cooling engines but also inhouse manufactured the lighting for LG7 compliance with PIR control and is Dali compatible.



Beaufort House, London

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active multiservice chilled beams



client
architects
consulting engineer
main contractor
m&e contractor

CLS Holdings
Hok International
Hoare Lea
Hoare Lea
PIP

Given the low slab to slab height at Great West House was a key driver for the clients choice of Frenger's "Slim Line" Active Multiservice Chilled Beams (MSCB's). For this project Frenger pre-fabricated their MSCB's to be only 150mm deep and to provide in excess of 600 watts waterside cooling per meter with minimum fresh air for the respiratory requirements of the occupants to enable the most energy efficient air conditioning solution. Frenger integrated LED lighting to provide energy savings and long life expectancy in addition to that of their "Slim Line" Active Chilled Beams "Compact r". The building was awarded BREEAM "VEry Good" and the offices are considered Grade A.

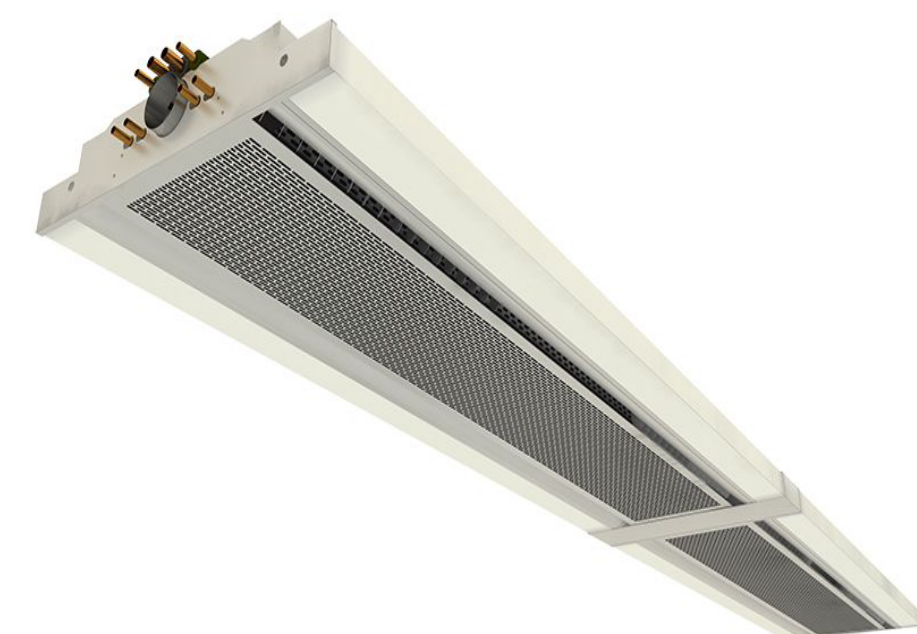
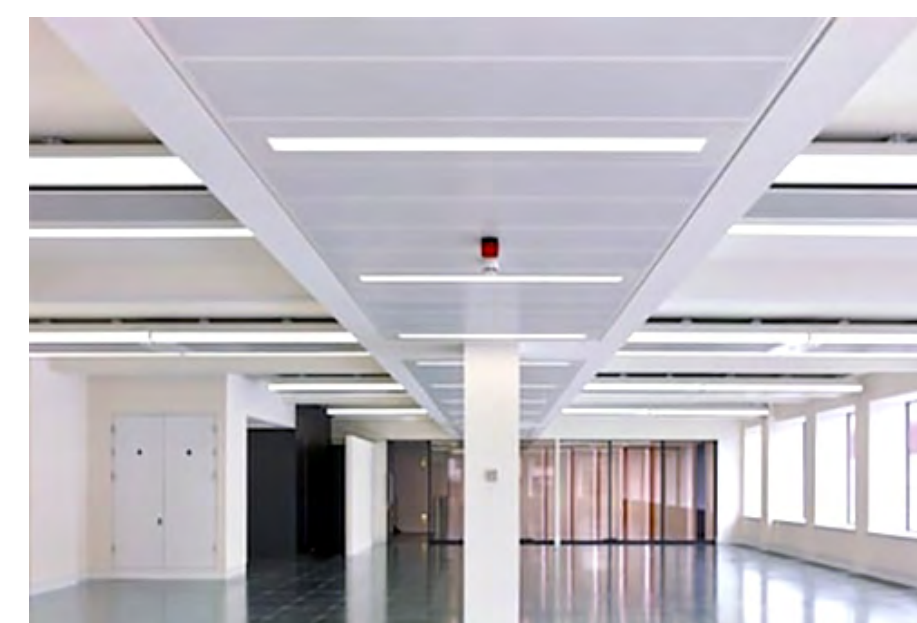
Great West House, London

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systems



active multiservice chilled beams



m&e contractor

Mala Engineering

91-93 Farringdon Road, also known as The Corner Building, occupies an imposing position on the intersection of Farringdon Road and Clerkenwell Road. The building recently underwent a major refurbishment, which included the installation of Frenger's Compact Active Multiservice Chilled Beams.

Frenger not only inhouse manufactured the Active Chilled Beams cooling engines but also the lighting. Continuous lighting was selected for the project which came in the form of T5 lamps concealed by full length square edged polycarbonate diffusers.

91-93 Farringdon Road, London

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systems



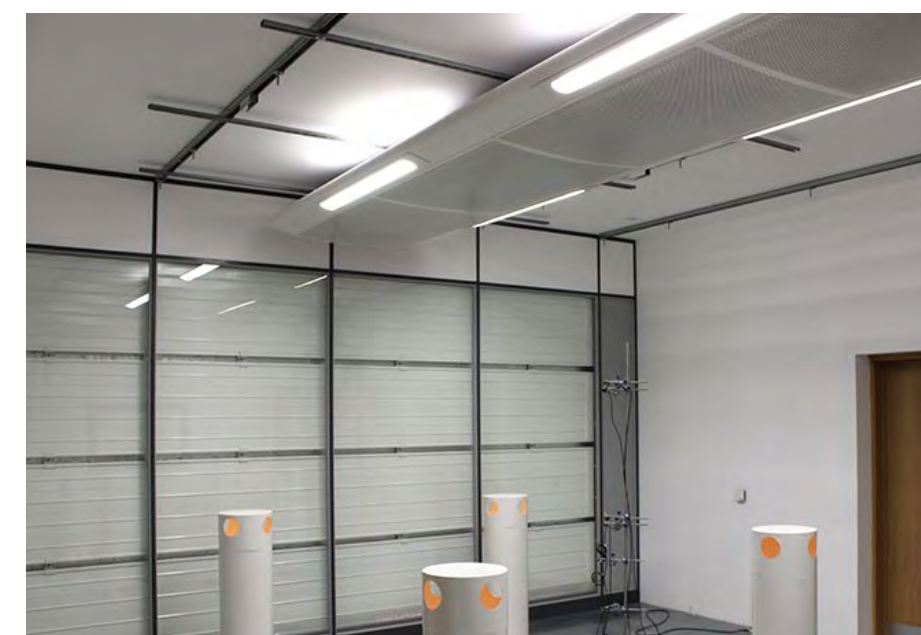
radiant passive multiservice chilled beams

client
architects
main contractor
consulting engineer
m&e contractor

University College Birmingham
Associated Architects
Shepherd Construction
CPW
SES

Frenger were delighted to be specified for the supply of the "Radiant" "Passive Multiservice Chilled Beam's (MSCB's) for the new University College Birmingham with a construction cost of £17 million.

The new college stands at 7,600m² and facilitates 2,500 students. It has two 125 person lecture theatres, one 250 person lecture theatre, small and large teaching rooms, technology blocks and a 200 person cafeteria. The use of Frenger's "Radiant" Passive MSCB's has helped contribute to the buildings EPC (Energy Performance Certificate) B rating and a BREEAM "Excellence" rating. Frenger's inhouse manufactured "project specific" Micro Lens Prismatic luminaires maximise LOR and Uniformity for the project specific height ratios. This approach coupled with their day light linking and PIR control as part of the Dali compatible systems helps reduce energy consumption for the integrated lighting. Similarly Frenger's "Radiant" absorption beams help reduce plant size, as their is an element of direct radiant exchange with the exposed concrete roof soffit assisting with peak loads, whilst also providing the cooling with minimal air movement below the beam for the optimum in occupancy room comfort to category A of BS EN ISO 7730.



University College Birmingham

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radiant passive multiservice chilled beams

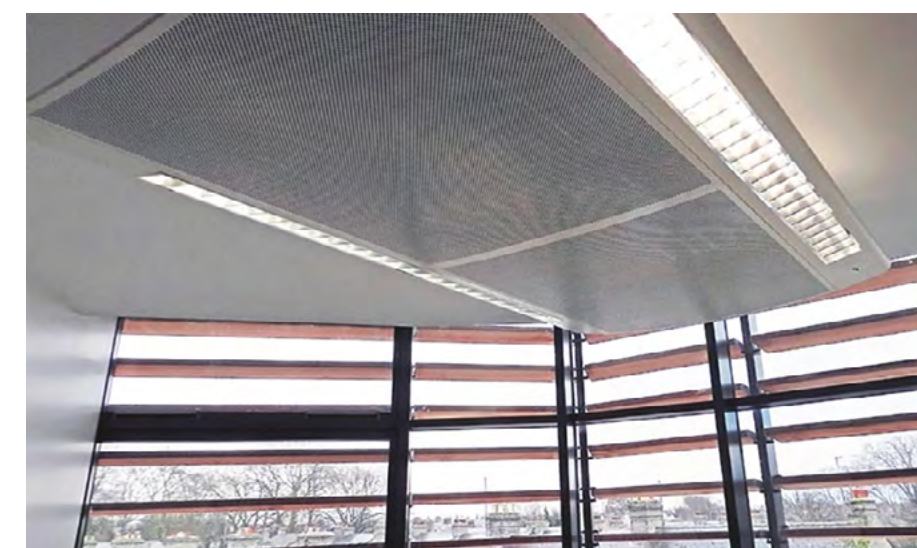
client
architects
consulting engineer
main contractor
m&e contractor

Anglia Ruskin University
Richard Murphy Architects
BDP
Imtech
Imtech

This was a three phase building development consisting of a new skills teaching block and 200 seat lecture theatre. The building design includes the use of chimney ventilation stacks to enhance the natural ventilation. This development won a "Green Apple Built Environment Award" in the national campaign to find Britain's greenest companies, councils and communities.

Frenger's Radiant Passive Multiservice Chilled Beams (MSCB's) were utilised to provide the cooling and lighting for an energy efficient and striking visual feature whilst promoting a light and airy solution.

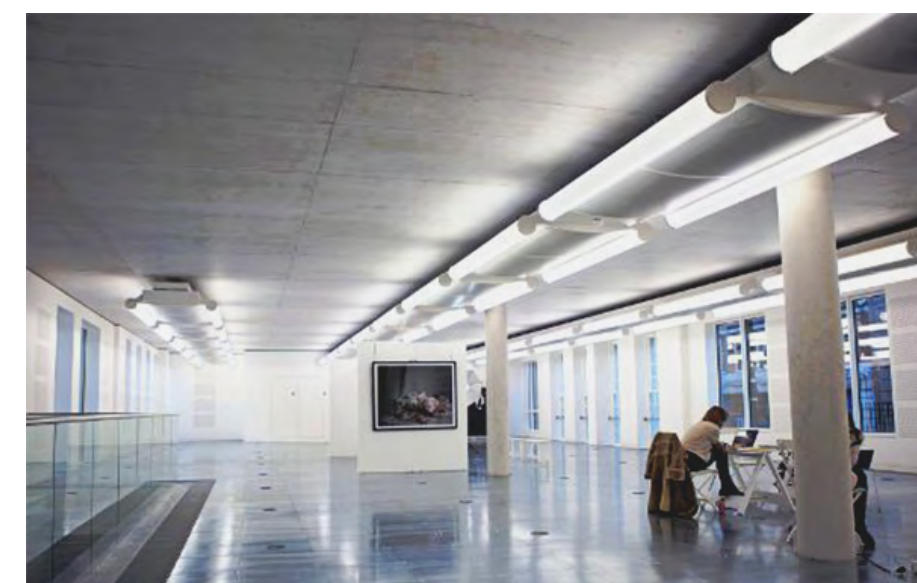
Frenger's inhouse manufactures lighting utilised T5 high efficiency lamps with day light linking.



Anglia Ruskin University, Cambridge

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radiant passive multiservice chilled beams

client
architect
consulting engineer
main contractor
m&e contractor

The Grosvenor Estate
GMW Architects
Hoare Leas
Sir Robert McAlpine
MJN Colston

This Central London project included “Radiant” Passive Multiservice Chilled Beams (MSCB’s) technology operating in conjunction with “sustainable” ground source energy and achieved a **BREEAM “Excellent”** rating and also provided Grade ‘A’ office spaces across 5 floor levels.

To further enhance the energy performance of the building, **Frenger’s MSCB’s were combined with an open loop ground source renewable energy system which provided 100% of the buildings heating and cooling requirements.** This innovative approach to comfort cooling meant that no chillers or boilers were required on the project, freeing up valuable space and providing an Energy Performance Certificate (EPC) rating of only 36. This development also won the London and South East Regional award from the British Council for Offices (BCO).

Grosvenor Hill, London

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active multiservice chilled beams

client
architects
consulting engineer
main contractor
m&e contractor

Neo
Roger Stirk Harbour + Partners
Hoare Lea Partners
Carillion Construction
Interserve

Frenger supplied Active Multiservice Chilled Beams (MSCB's) to the Bankside Project in London.

This extraordinary development is situated at the very heart of London's South Bank which is next to the Tate Modern and the Millennium Bridge. Frenger's Active MSCB's were selected in order to maximise the space whilst providing high levels of cooling, heating and thermal comfort to the building occupants. Frenger's unique Active MSCB's were also designed to achieve an aesthetic which was required by the project architect.



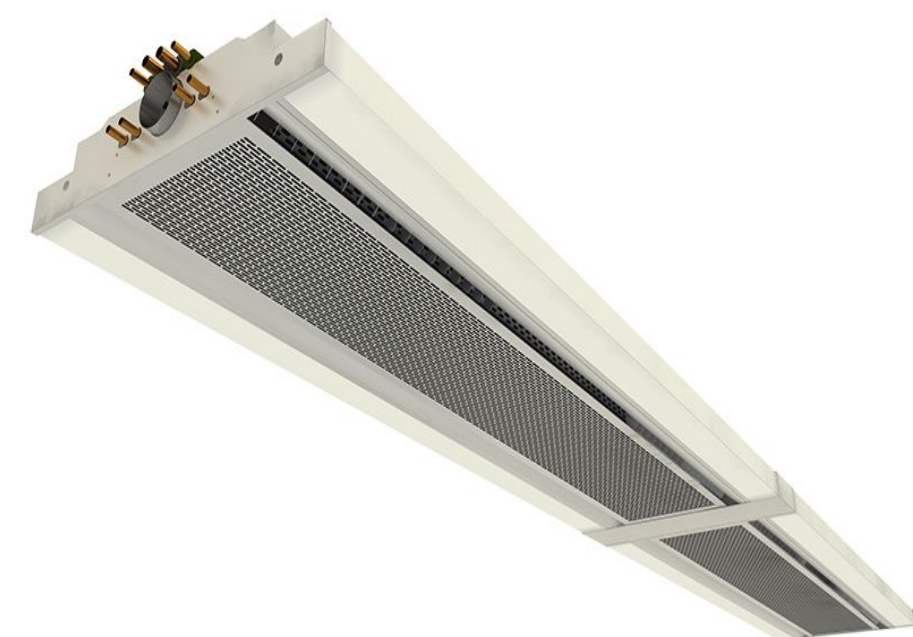
Bankside, London

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systems



active multiservice chilled beams



client
architects
consulting engineer
main contractor

Rockspring UK & Moorevale
ESA Architects
Meinhardt
Volker Fitzpatrick

Frenger provide "Slim Line" Multiservice Chilled Beams (MSCB's) that are only 133mm deep and that provide in excess of 500 watts waterside cooling per meter with minimum fresh air for the respiratory requirements of the occupants to enable the most energy efficient air conditioning solution. Frenger also inhouse designed, manufactured and Photometric tested LED continuous lighting to provide energy savings and long life expectancy of the lighting in addition to that of their "Slim Line" Active Chilled Beams "Compact r". The slimline construction of Frenger's Compact MSCB were required given the buildings 2.65m slat to slab construction. The building was awarded BREEAM "Excellent" and of the offices are Grade A.

65 Southwark Street, London

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systems



client
architects
consulting engineer
main contractor
m&e contractor

Domino's Pizza
Q2 Architects
Walter Miles
Buckingham Group
CPW

This Six Million pound design and build contract for Domino's Pizza's new HQ in Milton Keynes utilised Frenger's "Radiant" Multiservice Chilled Beams (MSCB's) throughout the development to help condensate the installation program given that all the MSCB's were 100% prefabricated off site and factory tested which also assisted with the commissioning process.

All luminaires were bespoke manufactured by Frenger for the height to best suit and optimise LOR and Uniformity for the project specific height to space ratios. All luminaires were day light linked and PIR controlled via Multi sensors discreetly mounted within the extruded aluminium side profiles of the MSCB.

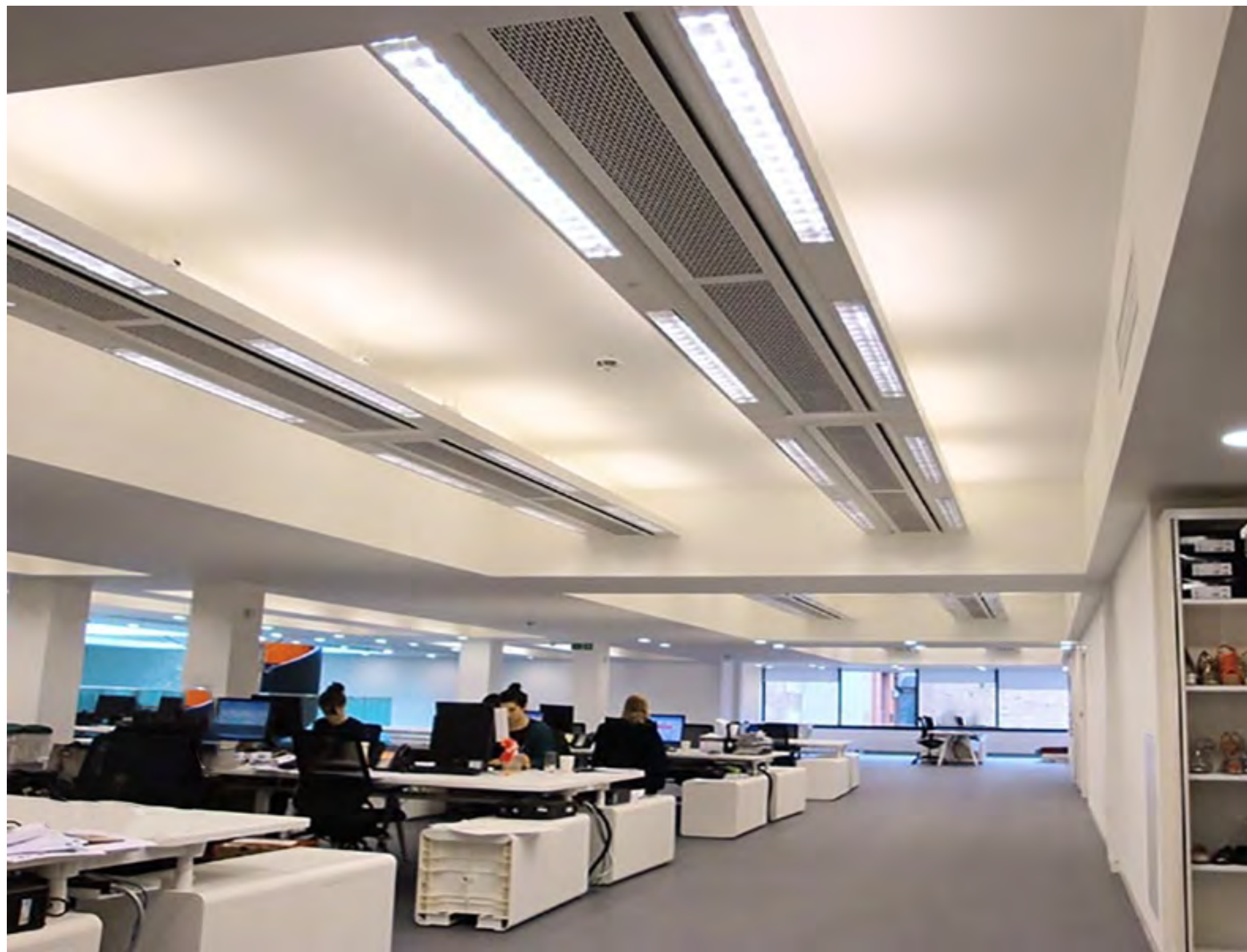
This flagship building for the Domino's group was awarded BREEAM "Excellent".



Domino's Pizza HQ, Milton Keynes

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systems



active chilled beams



client
architects
consulting engineer
main contractor

Great Portland Estates
Archer Architects
Cundall
Airmaster

This Grade 2 Listed Building constructed in the early 1970's situated in the heart of Clakenwell Conservation Area in central London was brought forward into the twenty first century as part of an existing Multi Million pound refurbishment project.

The client undertook dynamic modelling via their professional team and similarly worked with Frenger, making use of their inhouse Climatic Test Laboratories, Acoustic Laboratories and Photometric Lighting Laboratories given that Frenger were selected to provide the Cooling, Heating, Fresh Air and Lighting for both ceiling recessed in plasterboard applications and exposed Multiservice Chilled Beams, all of which with day light linking and PIR control. The regenerated five-storey building achieved a BREEAM "Very Good" rating and the office Grade A.

24 Britton Street, London

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systems



radiant passive multiservice chilled beam

client
architect
main contractor
m&e contractor

*Birmingham City Council
Associated Architects
Wates Construction
Dodd Group*

Frenger are proud to have been chosen for the design, supply and installation of over 4,500 linear meters of Radiant Passive Multiservice Chilled Beams to the refurbishment of Birmingham City Council's HQ building. Frenger were able to demonstrate to the Design Team the unique benefits of the radiant/convective cooling element in delivering high cooling duties with significantly reduced air velocities when compared to traditional Passive Chilled Beams.

The project presented challenges because the building was occupied and therefore works needed to be carefully co-ordinated with the Client. The transformation of the original "dreary" office space into a modern and pleasant environment has been universally appreciated and is a testament to the well-designed application of Frenger's Multiservice Chilled Beam capabilities and inhouse installation teams.



1 Lancaster Circus, Birmingham

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radiant passive multiservice chilled beams

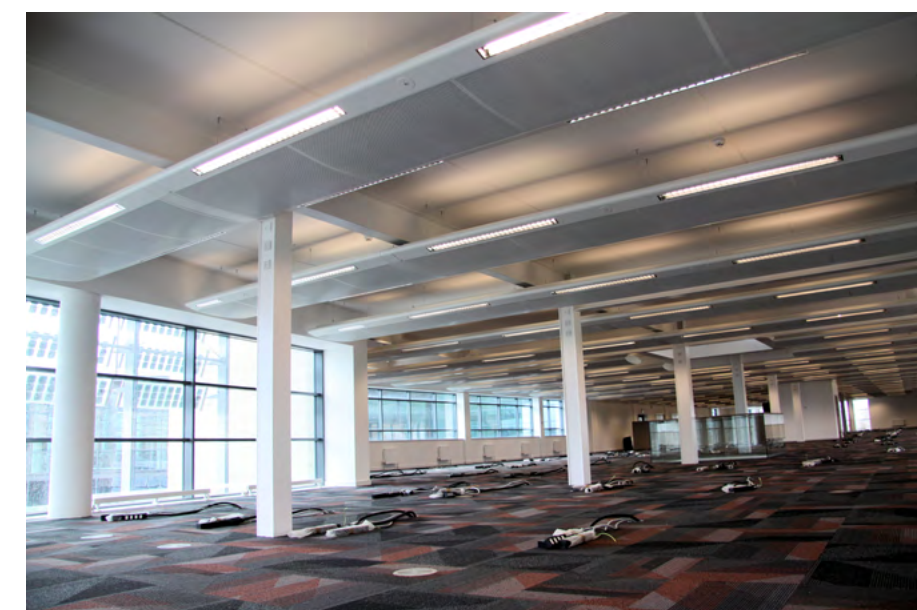
client
architects
main contractor
m&e contractor

Skipton Building Society
Bowman Riley Architects
Wates Construction
Airedale

Skipton Building Society's subsidiary HLM (Home Loan Management) new headquarters on the edge of Skipton, the gateway to the Yorkshire Dales, cost £18 million to construct and stands at an impressive 120,000 sq ft over 3 floor levels.

The 850 staff based at Skipton HLM are spread predominantly across open plan office space air conditioned by Frenger's "Radiant" cooling Multiservice CHilled Beams (MSCB's) which provide room thermal comfort to the standard of Category A of ISO 7730.

Frenger also inhouse manufactured the integral luminaires of their MSCB's with asymmetric louvres providing a lighting scheme compliant to LG7. The building achieved a BREEAM "Very Good" rating based upon its green credentials and also received a Commercial Award in 2011 - RICS Pro-Yorkshire Award.



Skipton Building Society, Skipton

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active multiservice chilled beams



client
consulting engineer
main contractor
m&e contractor

Camden Council
RMR Associated
Vinci Construction UK
Airedale

This £10 million pound refurbishment of the 1960's office building Bidborough House for the housing department of Camden Council brought it into the twenty first century with the latest in Chilled Beam Technology working with a "Sustainable" and "Renewable" energy source.

Frenger's Active Multiservice Chilled Beams (MSCB's) powered by Ground Source Heating Pumps (GSHP) with 120m-deep boreholes providing supply water at around 12°C both in the Summer and Winter. The GHSP returns cool water to the ground in the Winter and draws cool water from the ground in the Summer, with an overall balance being achieved.

Bidborough House, London

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systems



active multiservice chilled beams

client
consulting engineer
main contractor

Mulpha Australia
Crone Partners
J.L. Williams

Frenger successfully delivered an Active Multiservice Chilled Beam project for a significantly refurbishment program on Transport House, Sydney. The refurbishment of this important heritage listed building involved the design, manufacturing and shipping of 240 Multiservice Chilled Beams (MSCB's) which was successfully commissioned within a 12 month program. The project was the first major Active Multiservice Chilled Beam project of its type in Australia.

The MSCB's are designed to provide a cooling and illumination to the office space as well as accommodating a fast response sprinler system. The project needed to deliver high capacities (up to 550 w/m cooling) and provide excellent levels of occupancy comfort with minimal supply air rates and an under-beam installation height of approximately 2.9m. The use of Frenger's Active MSCB's allowed for the existing structural zones to be fully utilised even with a restricted slab height. The MSCB's offer a controlled environment within the office areas, combining exceptional levels of energy efficiency and low running costs.

This building was awarded a 5 Star Green Star Rating.



Transport House, Sydney

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active multiservice chilled beams

client
consulting engineer
main contractor
m&e contractor

Cambridgeshire County Council
White Young Green
Very Construction
SES

Frenger's Active Multiservice Chilled BEams (MSCB's) form part of the £35 million pound re-development works at the Cambridge University Campus. The MSCB's provide for a good room comfort within the Library. Low noise (less than 20 dBA), low air movement (less than 0.2 m/s in the occupied zone) and upto 150 w/m² of waterside cooling. The MSCB's were 100% prefabricated and off site tested by Frenger to reduce on site installation and commissioning. All MSCB's delivered with "Plug n Play" for LG3 compliant lighting and prefabricated air interconnection ducts provided by Frenger for "series linking" of air. MSCB's provided Cooling, LTHW heating (supply at 50 deg C), fresh air delivery and LG3 lighting.



Cambridge Library, Cambridge

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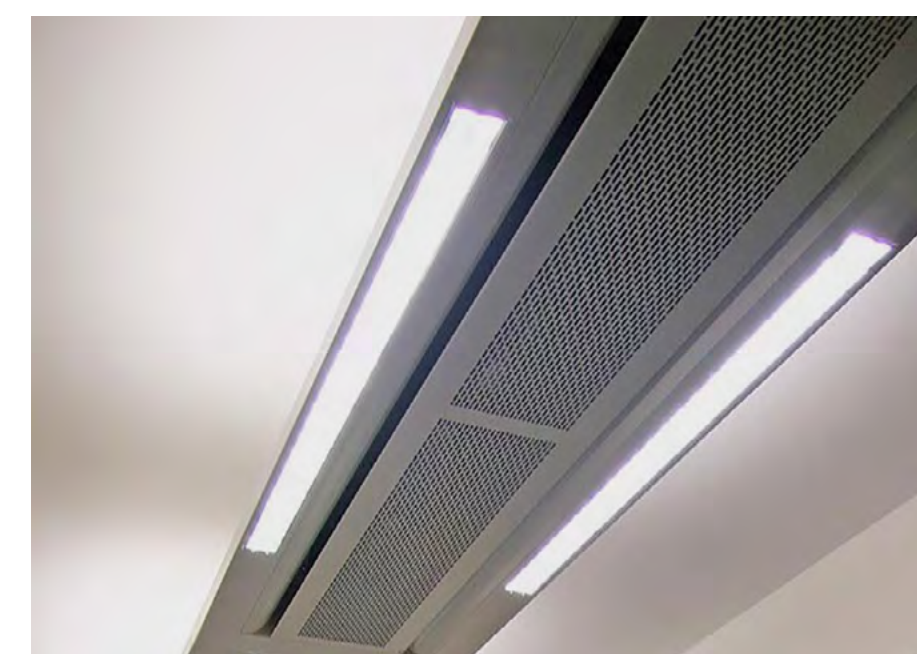


radiant passive multiservice chilled beams

client
architect
consulting engineer
main contractor

Nottingham University
Alexi Marmot Associates
DH Squire
G F Tomlinson

The re-development of this important educational facility demanded a product that would deliver the cooling, heating, ventilation and illumination to the space whilst providing a point of architectural interest. Active Multiservice Chilled Beams were selected because they can do all of this whilst providing an extremely comfortable environment with no uncomfortable noise or draughts. Further to prototype manufacture the Multiservice beam design was developed specifically for the client to deliver all of the required mechanical and electrical functions at a price point that met with their budget.



Hallward Library - Nottingham University, Nottingham

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systems



active multiservice chilled beams

client

**Greycoat Central London
Office Development
Sturgess Associates LLP
Faithdean PLC
MALA Engineering**

architect

main contractor

m&e contractor

The extensive refurbishment of 101 New Cavendish Street has been a most impressive and distinguished project incorporating nearly 2-kilometers of Active Multiservice Chilled Beams over 4-floor levels. The Developers 'Greycoat' have fully refurbished the building to provide over 8,500 square meters of Grade A office space, and have taken full advantage of the buildings central London location by creating a striking impression to the four streets that the building fronts.

The Multiservice Chilled Beams on this project provide the main architectural feature within the office space, therefore they were designed to enhance the building by using state of the art space conditioning technology whilst providing a striking aesthetic. To achieve a continuous linear aesthetic the Chilled Beams were series linked together to form run lengths of upto 19-meters long.

To achieve runs of this length with 100% off site pre-fabrication, Frenger manufactured each beam MSCB section 3m long complete with 'plug and play' systems for the Mechanical and Electrical services (thus saving our client time and money during the installation) interconnected behind 0.5m long plain removable joining infill profiles. All 3m long master and slave MSCB sections were factory set and tested both electrically and mechanically saving on site commissioning time.

In addition to the high cooling and energy efficient performance, the integrated luminaires were designed with full daylight dimming and presence detection ensuring that the total MSCB system continually operated with minimal energy consumption.



101 New Cavendish Street, London

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systems



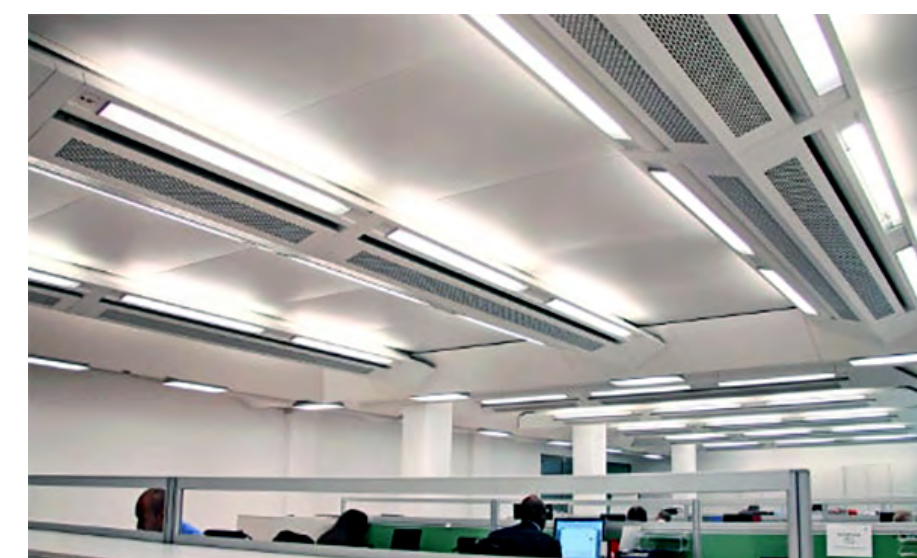
active multiservice chilled beams

client
architect
consulting engineer
main contractor
m&e contractor

**London & Regional
Make
Blyth and Blyth
HBG Construction (BAM)
HBG Building Services (BAM)**

The iconic 55 Baker Street building in London has been completely refurbished and redeveloped by London & Regional. The project's well-regarded success proves that 21st Century design can be applied just as well to existing building as it can to new buildings.

Frenger's order value was £7.6 million for the supply and installation of 4,500 Active Multiservice Chilled Beams (this equates to in excess of 114km of Multiservice Chilled Beams). The total refurbishment costs for this project were in the region of £200 million for HBG Construction (BAM) and this is still the worlds largest MSCB project to date - and Frenger developed a relationship with HBG that cumulated in the Frenger Team being considered as an Award Winning Supplier to HBG.



55 Baker Street, London

Frenger Systems Limited is an FTF Group Company

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systems



client
architects
consulting engineers
main contractor
m&e contractor

*The City of Edinburgh Council
Building Design Partnership
Cundall Johnson Partnership
Miller Construction
ECG Mechanical Services*

radiant passive multiservice chilled beams

The 41,000m² building for the City of Edinburgh's new Council offices was designed to be predominantly open plan and to accommodate approximately 1,800 office staff.

The building's northwards orientation maximises the glazed elevations without the problem of solar gain. The reinforced concrete frame, with exposed coffered ceilings, takes advantage of the high thermal mass to stabilise the internal temperature. Frenger's "Radiant" absorption Multiservice Chilled Beams (MSCB's) and tempered fresh air supply via floor diffusers in the raised floor complimented the performance characteristics of the building. Night time cooling also used to make use of the building's thermal mass and to improve the building's overall performance. The building achieved BREEAM "Very Good".

The building was designed to satisfy the most stringent Key Performance Indicators (74 in total) for sustainability set as project objective by the authority, including: Embodied energy in production and manufacture; CO₂ emissions; transport and installation; waste control and minimisation; total energy and water consumption; air tightness of building fabric; high efficiency heating and lighting; low NO_x boilers; and solar heating of water.



Edinburgh Council, Edinburgh

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systems



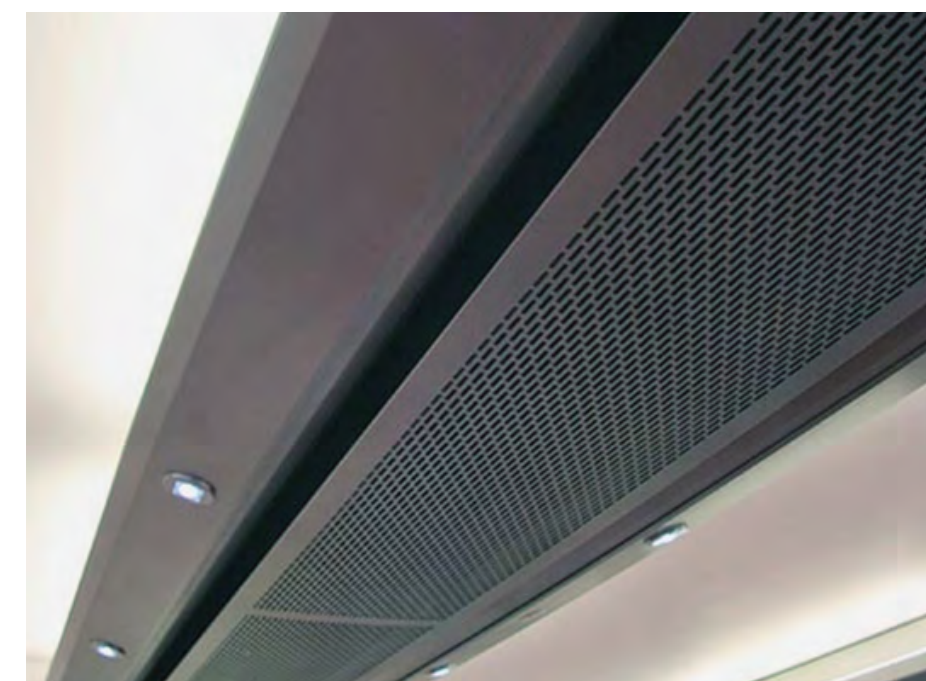
active multiservice chilled beams

main contractor
consulting engineer

EIWS
Meinhardt Group

Frenger's 100% pre-fabricated and off site tested Multiservice Chilled Beams (MSCB's) were selected to provide both energy savings, long life expectancy and minimal maintenance for this prestigious project in the heart of St. James, one of London's exclusive real estate areas.

The MSCB's worked in conjunction with air source heat pumps and the building was awarded BREEAM "Excellent". The Multiservice Chilled Beams provided water side cooling, LTHW heating, supply air diffusion and LED lighting.



Duke Street, London

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systems



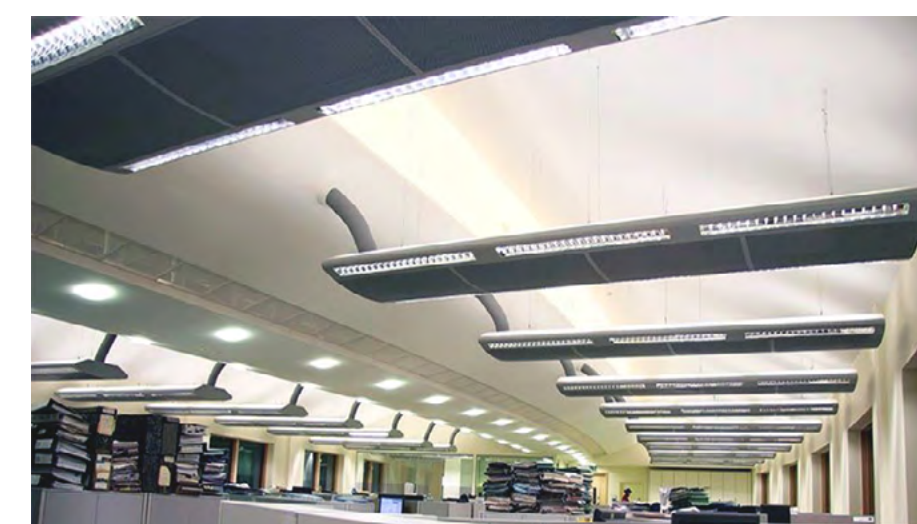
passive multiservice chilled beams, passive & active chilled beams

client
architect
consulting engineer
main contractor

National Farmers Union
Corstorphine & Wright
Hoare Lea
HGB (BAM)

Multiservice Passive Chilled Beams were used to provide the “wow” factor to this highly prestigious new-build headquarters development. The beams were carefully designed to complement the curved floor-plan of the building and provide a light and airy feel for the building occupants. The beam casing is provided with a metallic silver finish for an industrial futuristic appearance, especially the way in which they are link to the services bulkhead in such a way that they appear to float in free space.

Frenger also provided Passive and Active Chilled Beams for integration in areas with suspended ceilings, and worked closely with the project engineers to ensure optimal room comfort levels to all locations.



National Farmers Union, Warwickshire

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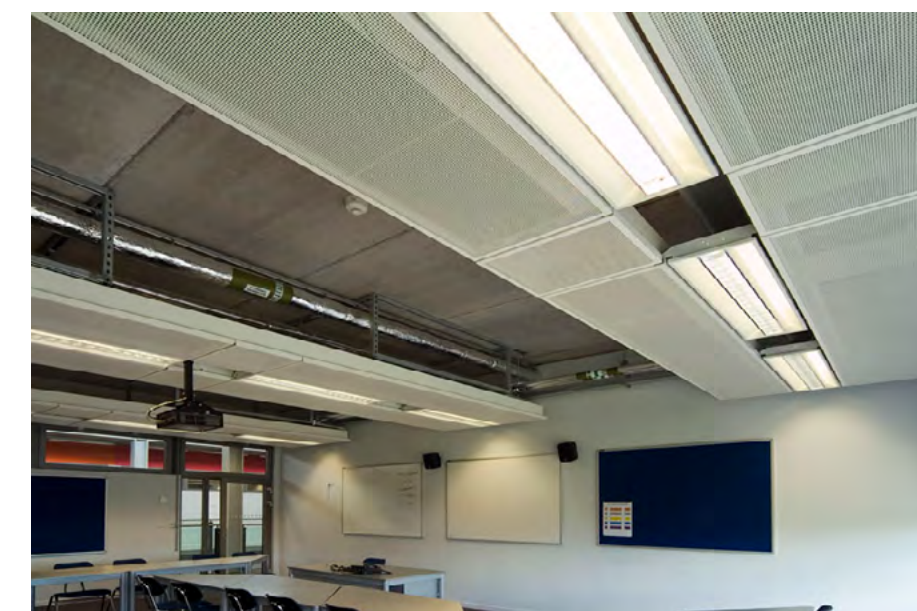
radiant passive multiservice chilled beam

architect
consulting engineer
main contractor
m&e contractor

Fosters & Partners
Buro Happold
SOL Construction
NG Bailey

The design for this 21st Century University facility required a Passive Chilled Beam cooling system to operate in an environment where it is possible to open windows for natural ventilation as a "mixed mode". Frenger developed a Chilled Beam design with integrated architectural underplate to conceal services pipework / ductwork.

The solution underwent extensive testing at Frenger's Climatic Testing Laboratories at their UK headquarters to establish environmental conditions and a condensation management strategy. The testing process also enabled the development of Chilled Beam design from a "buildability" perspective, such that the Multiservice unit could be installed in double-quick time by Frenger's own installation teams.



Djanogly Academy, Nottingham

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systems



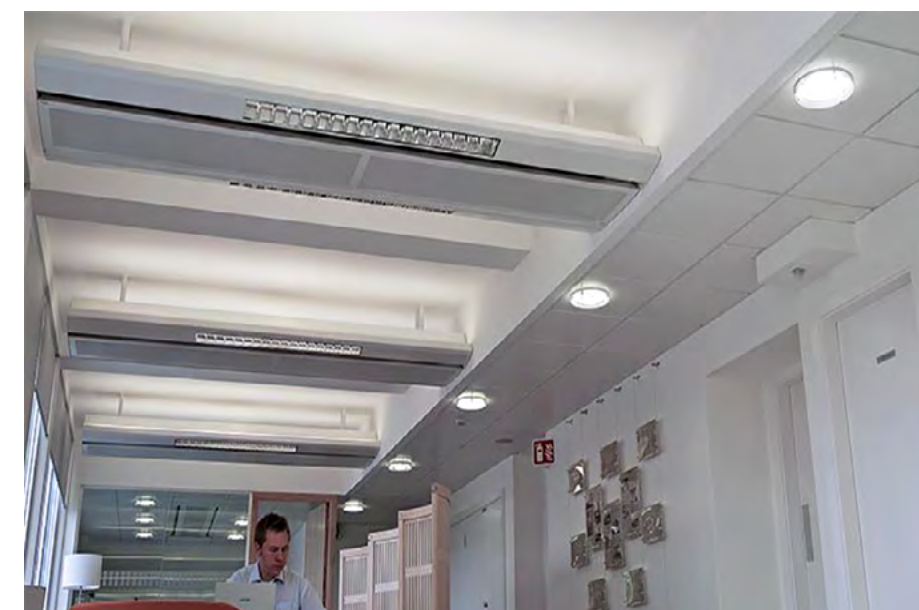
active ceiling integrated chilled beams

client
main contractor
m&e contractor

*National Audit Office
RCL Limited
Frenger*

This brief for the refurbishment of this 1970's landmark building was simple; bring it into the 21st Century, with an up-to-date heating, cooling, ventilation and lighting solution.

The application of Frenger's Active Multiservice Chilled Beams was the obvious solution due to the products ability to deliver high cooling and heating capacities with low air volumes. Frenger's installation teams undertook a full supply and installation of the Chilled Beam system.



National Audit Office, London

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systems



active multiservice chilled beams

client
architect
consulting engineer
main contractor
m&e contractor

Merck Sharp Dohme
Red Architectural
The Austin Company
AMEC Group
Hiltens / G & H

This prestigious office development for Pharmaceutical giants "Merck Sharp Dohme" called for an integral cooling / heating / lighting solution that delivered high comfort levels with low maintenance and low running costs. The selection of Frenger's Active Multiservice Chilled Beam units meant that the brief could be met with the added benefit of striking aesthetics and compliance with LG3 lighting requirements.

In the open plan areas the MSCB's are linked together in series on the airside (up to 2 beams in a single run) such that the water and air connections are concealed from view, and removable infill joining strip sections afford the capacity for future space partitioning. In cellular offices a single MSCB is positioned in the middle of the room with extra luminaires to provide adequate lighting distribution.



Merck Sharp Dohme, Hoddesdon

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FRENGER[®]
systems



client
architect
consulting engineer
main contractor
m&e contractor

Experian PLC
Sheppard Robson
NDY
Bower & Kirkland
G & H

This flagship headquarters building required a state-of-the-art cooling solution to optimise comfort levels whilst introducing a striking internal aesthetic. Multiservice Chilled Beams were chosen to provide a discreet uplighting of the soffit for compliance with LG3.

Frenger's Radiant Passive Chilled Beams were selected because of its cooling capacity with high thermal comfort levels. Furthermore, the Radiant effect of the beam allowed for an underplate perforated to just 33% so improving the visual aesthetic of the Multiservice Chilled Beam.

Extensive project-specific testing was conducted at Frenger's Climatic Testing Facilities to demonstrate that the Chilled Beam arrangement worked from a mechanical and architectural perspective to the entire design team and main contractors. Frenger supplied and installed all the service bulkheads, mechanical extract lighting and Multiservice Chilled Beams.

passive multiservice chilled beams



Experian, Nottingham

Frenger Systems Limited is an FTF Group Company

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systems



active ceiling integrated chilled beam

client
architect
consulting engineer
main contractor
m&e contractor

Bee Bee Development
C2
Downie
Mansell
Campbell & Law

The listed classification for the building coupled with minimal slab-to-slab height meant that this multi-storey speculative office development required a product that could deliver high levels of heating and cooling with minimal fresh air volume. This was achieved by Frenger's slimline Active Chilled Beams.

Frenger utilise 100% indirect lighting is delivered using TL5 lighting technology and opal diffusers to help assist with creating a light and airy aesthetic even throughout a very low floor to ceiling height. Tests were carried out at Frenger's laboratories to prove photometric data, climatic cooling and air distribution characteristics.



Saffron House, London

Frenger Systems Limited is an FTF Group Company

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systems



active ceiling integrated chilled beam

client
architect
consulting engineer
main contractor
m&e contractor

*Woolworth
CWHB
DSSR
Spectrum
RTT*

This major refurbishment to a landmark building required Multiservice Chilled Beams to an exacting technical specification. Minimal slab-to-slab heights and poor solar shading meant that the chosen solutions had to deliver cooling duties with the minimum fresh air requirement. Active Chilled Beams were required that could deliver 100w/m^2 of cooling at very low supply air (as low as 1.1 l/s/m^2). Frenger's unique twin-battery technology was the only design solution that met both the technical and aesthetic criteria of the design team.

The installation was one of the largest Multiservice Chilled Beam project in the UK at the time - with over on thousand Multiservice Chilled Beams used on total of seven floor levels.



Woolworth House, London

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systems



active multiservice chilled beams

client
architect
consulting engineer
main contractor
m&e contractor

Derwent Valley
Squire & Partners
Peter Deer & Associates
Sames PLC
RTT

The listed classification for the building coupled with minimal slab-to-slab height meant that the multi-storey speculative office development required a product that could deliver high levels of cooling with minimal fresh air volume.

Active Chilled Beams were developed to operate within the confines of the existing coffered slab, all primary fresh air and chilled water was distributed and routed through the Multiservice Chilled Beam (MSCB) casing.

Frenger also manufactured the T5 luminaires for a total "indirect lighting" solution with daylight linking and Dali control.



10 Green Coat Place, London

Frenger Systems Limited is an FTF Group Company

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systems



active multiservice chilled beams

client
architect
consulting engineer
main contractor
m&e contractor

Derwent Valley
Squire & Partners
Peter Deer & Associates
Sames PLC
RTT

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Active Chilled Beams were developed to operate within the confines of the existing coffered slab, all primary fresh air and chilled water was distributed and routed through the Multiservice Chilled Beam (MSCB) casing.

Frenger also manufactured the T5 luminaires with daylight linking and Dali control.



Gordon House, London

Frenger Systems Limited is an FTF Group Company

FRENGER[®]
systems