

GPD GLASS PERFORMANCE DAYS

Summer 2011
Tampere, FINLAND

The 12th Leading International Conference on Architectural & Automotive Glass

Are you interested to present a paper or workshop? Do you want to be an exhibitor? More info at www.gpd.fi

For further information, please contact:

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中国玻璃深加工研讨

GPD China

The Glass Performance Days, for the 7th time in China, were successfully organized in conjunction with China Glass May 11-12, 2009.

GPD China featured some 30 technical presentations given over two days. The conference sessions attracted an attendance of 300 participants from 19 countries, well in excess of the expectations of the organizers.

"The most popular session was solar and glass technology which clearly shows the interest and business potential of this business sector", says Brown Onduso, Coordinator of the GPD China Conference.

GPD China 2010 2-3 June, Beijing

Plans for the 2010 China GPD event are already in progress. "The lead theme is being developed along the lines of Going Green with Glass to highlight the potential of glass as a key element in energy efficient building solutions", Brown Onduso says. "Glass will thus match the current popular theme on designing green buildings and processes to underline the need for increased environmental friendliness".

Additional information is available from the coordinator

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Intelligent **PROTEK** system provides energy-efficient indoor climate control

"One of the most exciting and innovative designs in HVAC in the last 20 years"

Climate change and the need for greater environmental responsibility are driving architects, property owners and tenants to seriously consider how they heat, cool and ventilate a building.

It is simple to understand why - buildings account for almost 50% of the total UK carbon emissions with non-residential buildings responsible for approximately half of that figure.

This is a situation that is being successfully addressed with the use of photovoltaics (PV) in both new build and refurbishments that combine coated glass, solar thermal and PV systems into the fabric.

A PV system, which captures solar energy, is a FREE, convenient and clean source of energy for all types of buildings. Solar technology is increasingly being integrated into large façade areas and is destined to be the norm rather than the exception.

But what is the best method for heating, cooling and ventilating a building? According to Jackie Blanden of Protek the answer is

simple: "Marry the technology of intelligent glass with a superlatively efficient Protek system which is an innovative, yet simple, mainly ductless heating, ventilation and air conditioning system. And it offers the real possibility of attaining zero carbon emissions. This is an achievable reality, right now. Architects should now regard PV solar electricity as a standard building element and not as something to be considered for the future," says Ms Blanden.

The Protek method is an innovative concept, which simplifies the design and installation of flexible workspaces. Protek really stands out as an HVAC provider because of its unique approach. It combines the proven expertise and design skills necessary to assist architects, consultants and clients in the early planning stages of their project, and carries on through to provide its energy efficient products to the finished project. The company continuously conducts research to develop its products further, which are designed and fabricated in facilities in Sweden and also in Germany.

"The Protek system has been successfully installed in projects around the world and

is equally suitable for installation in new buildings, refurbishments, multi-storey and low rise edifices. It can also be used in listed buildings, providing the perfect indoor environment for the building occupants whilst retaining architectural features of interest," says Ms Blanden.

The system has been installed in projects as diverse as an historic film studio in Stockholm, which was converted into modern offices; a Grade 2 listed building in London and modern high-rise offices in Seoul among other projects worldwide. A prestigious building project in Sweden, utilising the Protek system, recently won a national Swedish Award. Scandinavian countries are renowned for their fastidious approach to energy savings and the environment.

Protek offers an integrated system, including Compact Outdoor Air AHUs to provide the fresh air; Zone Units to re-circulate the conditioned air and RAG units (underfloor fans) to distribute the conditioned air into the workspace. All of these products use energy efficient components and energy efficient design.

Raised flooring is used to create a void between the floor slab and raised floor tile which is used to distribute clean conditioned air throughout the floor area at each level. This under floor space is also used to locate all building pipe work and distribution of power, voice and data, with easy access for installation and modification.

Energy efficiency is built into every part of Protek's intelligent under floor system, including rotary energy recovery, CO2 sensors in the Compact Outdoor Air AHU's and EC fans in the Zone and RAG units. Apart from the efficiency of the components, it is the integrated system and Protek's Building Management System (BMS) which optimises the energy performance of the Protek system.

A massive advantage for the tenant is the PCO control unit, which enables all operations, made by PC connected to the PCO's TCP/IP Ethernet port. By using a web browser to connect to the PCO, all set points and parameters can be read and adjusted. The PCO stores all the alarms, data and statistics in the Web-Data-Base and this data is logged and monitored. This allows effective control and maintenance of the system from anywhere in the world by Protek's trained and qualified personnel in order to allow the tenant to optimise energy efficiency for each individual zone whilst also monitoring the electrical consumption.

"The PCO is a comprehensive BMS control system specific to the Protek installation with the advantage that it is written in an open protocol and merely requires a browser to access the program. This enables the control system to be managed easily by nominated persons with the agreed level of access in order to control, amend and read the on-line situation report on site, or remotely via a laptop or suitable mobile phone.

“The Protek system offers total freedom of design while the elimination of under floor ducting and the elimination of or reduced ceiling void offers another compelling lure for architects and developers...”

"During the warranty period Protek provides the remote service in order to monitor the system and correct it if necessary as controls may have been adjusted wrongly, thereby changing the operation from the way it was left on completion of commissioning," says Ms Blanden.

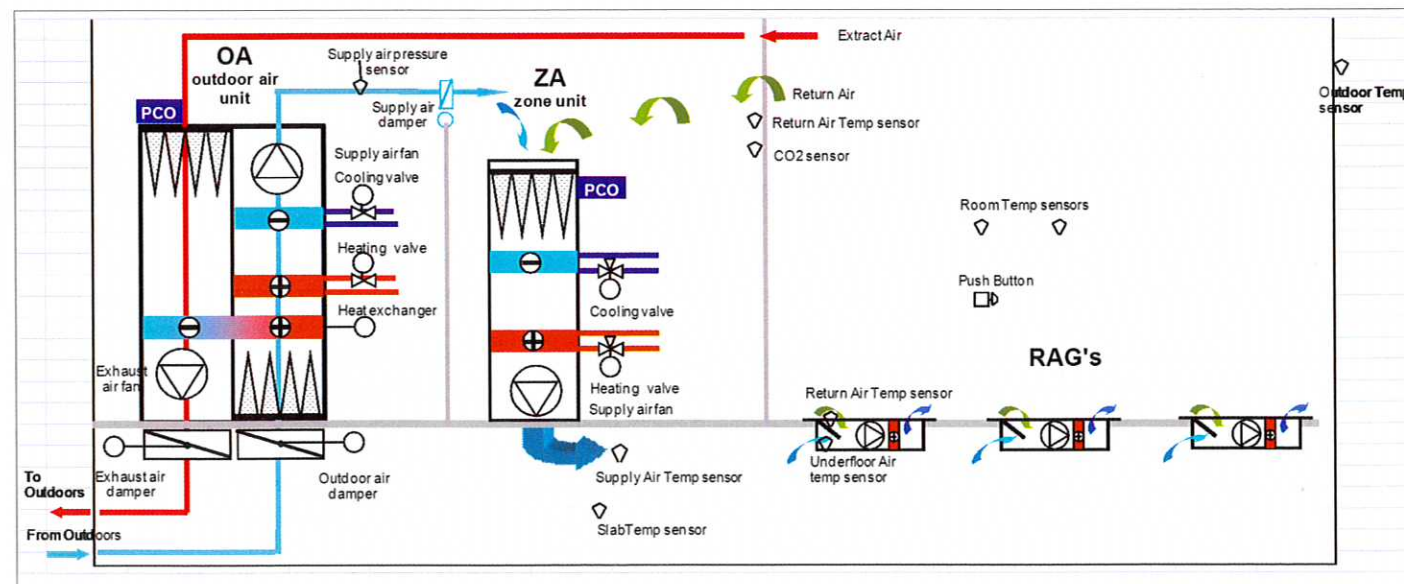
"The Protek BMS system can be accessed by the central BMS system via the building's intranet system and we recommend this division, which means our access will be limited to our own system, and therefore the integrity of the site-wide system is not compromised in any way."

The Protek system offers many other advantages for the end user including:

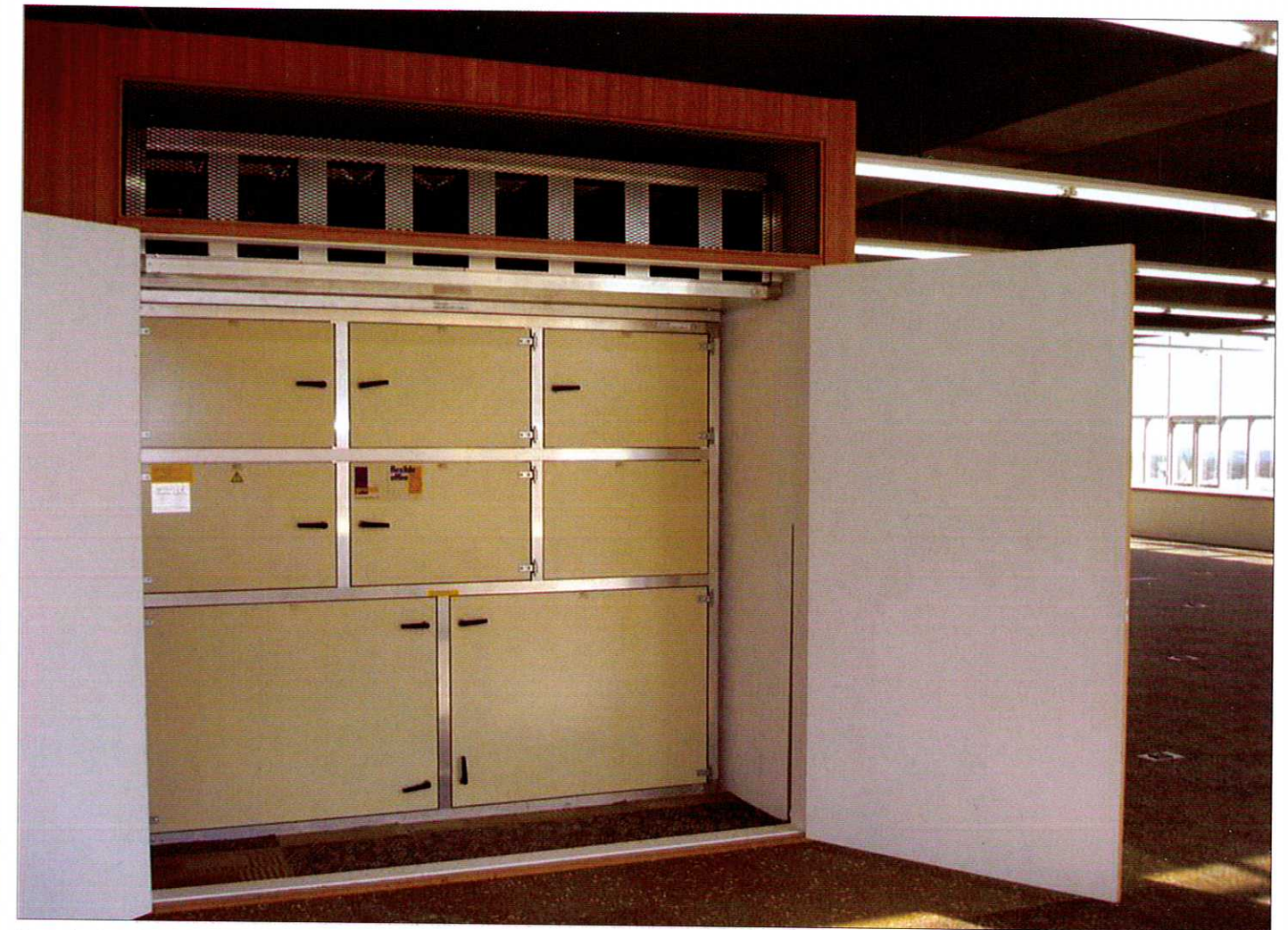
- Flexibility/low churn costs.
- A comfortable and healthy indoor environment.
- High cooling capacity available throughout the space.
- Virtually noiseless operation.

The energy saving credentials of the Protek mainly ductless system are borne out in a New Hall College Cambridge report on the recent installation in a refurbished office complex building at 77-79 Farringdon Road in London. The report confirms that the Protek HVAC system uses 71% less power than a conventional air conditioned building.

The study presents an investigation into efficiency and operation of an under floor system against a number of Key Performance Indicators (KPIs). The energy consumption of different system components had been monitored for seven months together with time log graphs of room temperature and carbon dioxide levels at each floor.



The Technology



Zone Unit with good acoustic properties

It is clear from this report that a modular mainly ductless HVAC system used in a building envelope with a high volume of PV glass can address energy efficiencies for the end user and also cut down on construction materials. As metal ducting is drastically reduced, there is significant reduction in the requirement for galvanised steel and internal insulation materials, thereby delivering the double whammy of cutting both costs and the use of precious resources. This ultimately gives a truly sustainable design.

And there is more: the Protek system offers total freedom of design while the elimination of under floor ducting and the elimination of or reduced ceiling void offers another compelling lure for architects and developers in that the space saved over 10 floors means they can get another floor constructed without an increase in the height of the building.

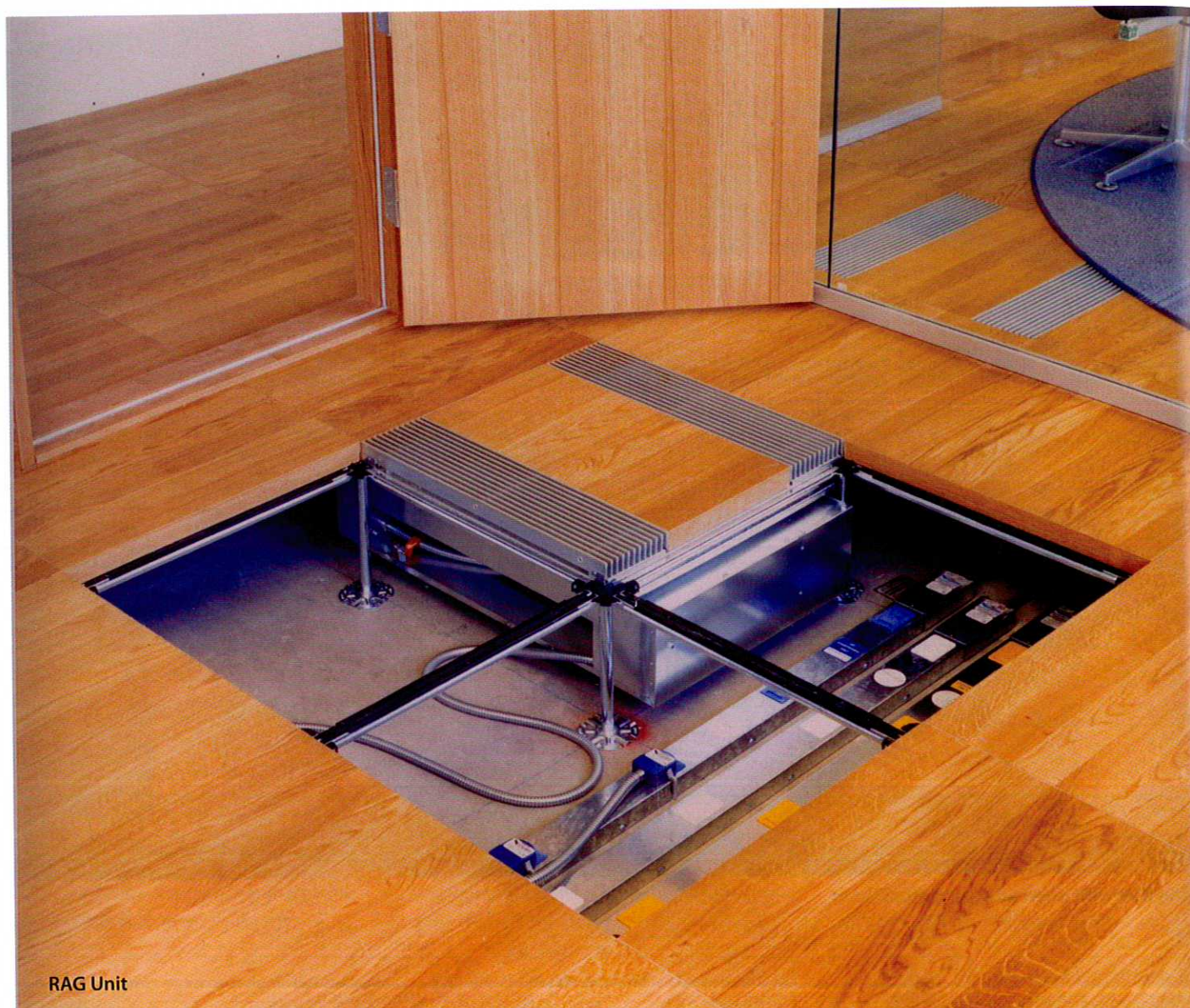
For the property developer as well as offering low development costs, an increased amount of development cost can be classified as Plant Machinery, Fixtures and Fittings (PMFF), which can be depreciated and offset against income before payment of tax.

"The Protek method in a modern, energy efficient building envelope offers a win-win solution for architects, developers and tenants alike. For the developer, the icing on the cake is that installation of this new system offers the possibility to achieve higher rents by providing major advantages in energy efficiencies to the end user," says Jackie Blanden.

The mainly ductless system uses a raised floor as a means of circulating clean, conditioned air re-circulated by de-centralised air handling or 'zone' units. Intelligent stand-alone under

floor fan terminals distribute clean air to the workplace wherever it is needed. In addition these under floor spaces can accommodate electrical power and IT distribution, eliminating the need for separate ducting and offering easy access for installation and modification. With Protek's revolutionary system it is even possible to change layout design at the last minute to suit the tenant's wishes with no great upheaval or extra cost.

The Outdoor Air AHU's are fitted with Rotary energy recovery units which provide approximately 70% energy recovery of heating or cooling of the outdoor air by the use of thermal wheels in the air handling plant. In addition, CO2 control ensures only the necessary amount of outdoor air is delivered into the conditioned spaces, lowering the average load of outdoor air to around 70% of the designed quantity.



RAG Unit

'Zone' units, use energy efficient fans fitted with EC Motors for stepless control of the airflow (providing efficiency of approx. 91%). In a well constructed building with high thermal efficiency, the required air conditioning can be delivered using 30% of the energy normally required. High efficiency filters provide air cleanliness. Both the British Allergy Foundation and Healthy Buildings International have given the Protek ventilation and air conditioning system their own Seal of Approval.

Ice storage chillers use off peak electricity to produce ice, which is stored in special tanks and melted down during the day when the cooling demand is required in the building.

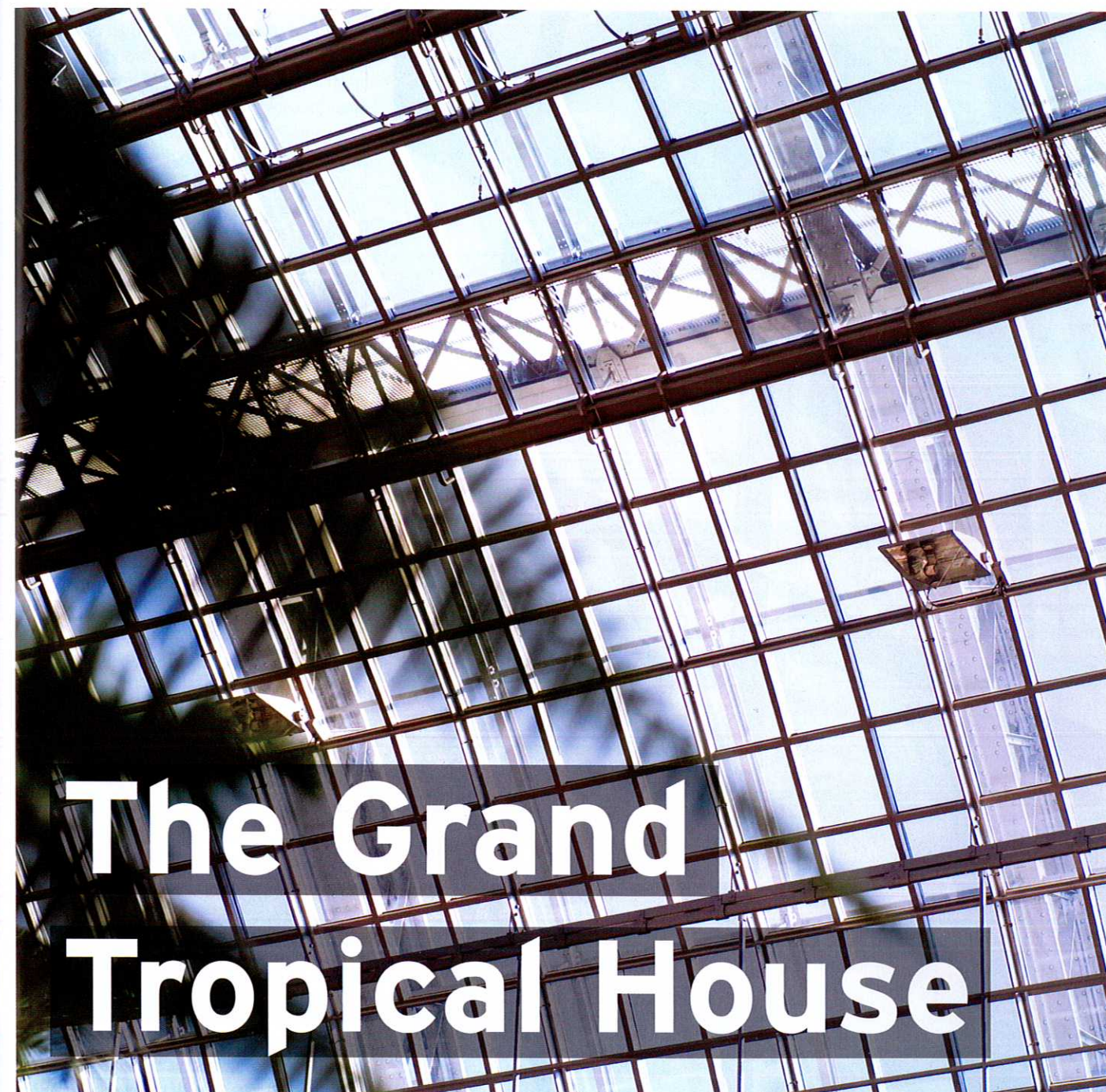
This design reduces the daytime demand on the grid, by spreading the demand over the night hours than 8 to 10 hours of peak daytime hours.

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Outdoor air handling Unit



The Grand Tropical House

Matthias Mai
Upgrading of a Tropical House in Berlin:
Ideal conditions for plant growth thanks to UV-permeable laminated toughened glass from EUROGLAS

Following a three-year period of construction, the renovation work to the Grand Tropical House in the Berlin-Dahlem Botanical Gardens has been completed. Over 100 years since it was originally built, the listed display greenhouse now for the first time has an outer shell that meets all necessary building requirements: it provides reliable protection for the artificially created room climate from the inside out, without blocking the UV elements of the sunlight which are needed for natural plant growth. This has been made possible by the use of specially developed,

high light-transmittance toughened insulating glass from EUROGLAS. Thanks to the use of a UV-transparent intermediate foil in the laminated toughened glass in the area above head height, it ensures optimum growing conditions for this plant collection which is of global importance. At the same time, its high thermal insulation significantly reduces the building's energy consumption. The Grand Tropical House will be officially re-opened on 16 September by the Federal Minister of the Environment.