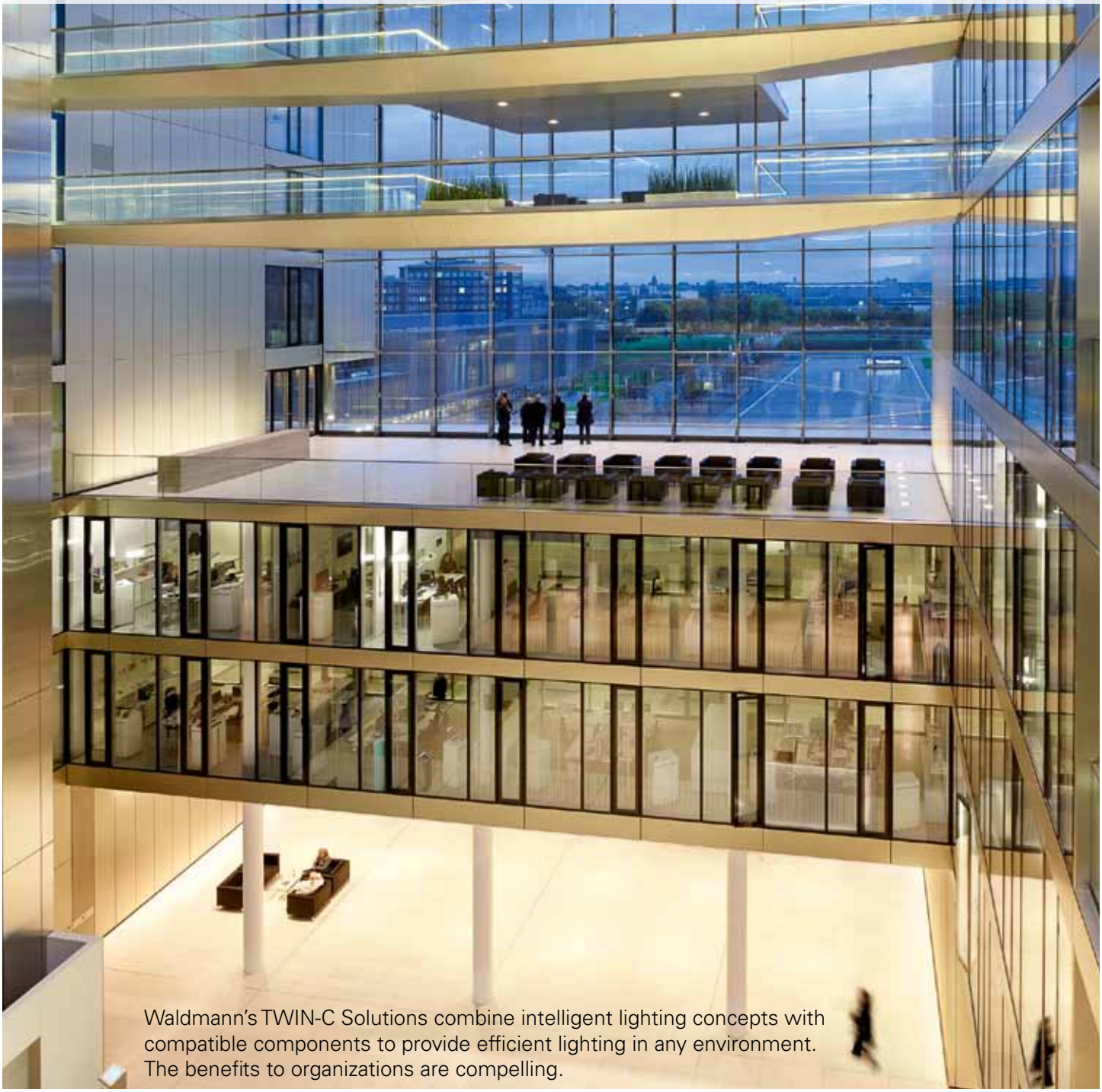
Waldmann

ENGINEER OF LIGHT.

TWIN-C REPORT

THYSSENKRUPP CORPORATION



Waldmann's TWIN-C Solutions combine intelligent lighting concepts with compatible components to provide efficient lighting in any environment. The benefits to organizations are compelling.

ENTERING A NEW ERA

Waldmann lights the way
The new group headquarters of ThyssenKrupp in Essen, Germany is the new administrative base for the company's steel group.

Based on plans created by JSWD Architects of Cologne and Chaix & Morel et associés of Paris, the campus-style complex is designed to facilitate closer cooperation between departments, and to encourage greater dialog and exchange of knowledge among employees.

Intended to showcase ThyssenKrupp's industrial focus, the striking new headquarters building makes extensive use of steel and glass, and today serves as home base to over 2,000 employees.

An innovative – and flexible – office design
Based on a concept developed by ThyssenKrupp with Germany's Fraunhofer Institute for Industrial Engineering, the office design provides individual space for concentration when working alone as well extensive group space for creative teamwork.

For example, all ThyssenKrupp employees have individual offices that connect to open-space, and can choose an office layout to suit their particular task. The concept also supports a wide range of meeting rooms as well as open spaces for discussions.

Adaptability is key to the new office design. Most rooms may be easily reconfigured as needs change. Of course, this flexibility requires an innovative and sustainable solution in all areas of building engineering – especially lighting.

Waldmann's TWIN-C lighting solution
ThyssenKrupp's office design concept is based on natural light, to be complemented by artificial light only when needed. It also relies on software-based room automation systems free of connective cables.

Given this criteria, ThyssenKrupp selected Waldmann's ATARO freestanding luminaires. Exemplifying Waldmann's TWIN-C lighting solutions (the combination of intelligent lighting concepts with compatible components), the luminaires automatically regulate the amount of light as needed through the use of daylight and presence sensors.

This capability not only makes the ATARO solution extremely efficient but also highly flexible. The freestanding luminaires readily adapt to the desired versatility of the rooms. This would not be possible with conventional ceiling-mounted or suspended luminaires.

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1 | 2 A symbol for efficiency: ThyssenKrupp's new headquarters in Essen.
Photographer: Lukas Roth.

3 At dawn, dusk and on cloudy days, ATARO freestanding luminaires with the PULSE light management system automatically complement artificial light.

4 Every ATARO luminaire is connected to the building via an integrated LON (Local Operating Network) interface.

DGNB

A striking combination of style and efficiency, ThyssenKrupp's new headquarters was awarded the DGNB Gold Certificate.

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Connectivity enhances total building efficiency

ATARO luminaires integrate with other ThyssenKrupp headquarters building engineering systems by LON (Local Operating Network) interface to reduce total energy costs. For example, the luminaire sensors detect both daylight and employee presence, communicating this data via LON to other sub-systems such as heating. If an employee enters his or her office, both the light and heating are automatically switched on.

Of course, users can manually adjust lighting levels to their individual needs. This can be accomplished directly by operating an intuitive switch on the luminaire, or by telephone, which is also connected to the LON.

To further increase efficiency, every night the building engineering system uniformly resets the lighting level to its original, most economical position.

From greater individual control, enhanced comfort.

Easily adjustable, the ATARO luminaires can be rotated in both directions by 45 degrees. In addition, they can be operated while users are either sitting or standing – a feature that makes them ideal for the height-adjustable desks of ThyssenKrupp employees.

Employing Waldmann's innovative AMBIO glare-free technology, ATARO luminaires offer high-quality lighting in two ways. The direct share of the light is approximately 30 percent, providing excellent luminance on desk surfaces without direct or reflective glare on computer monitors or other working materials. The uplight component of light evenly illuminates the entire room via the ceiling.

The efficiency of a Waldmann TWIN-C solution

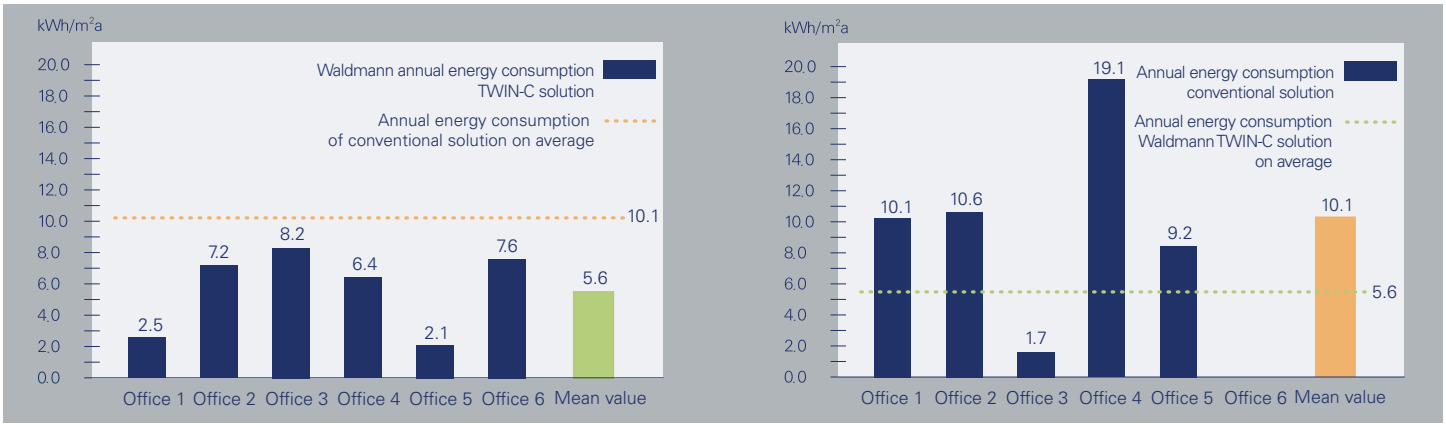
Given that approximately 30 percent of energy requirements in an administration building can be attributed to lighting, ThyssenKrupp studied lighting solutions far in advance, working with the Rosenheim University of Applied Sciences on energy monitoring.

Their studies show that Waldmann's ATARO intelligent freestanding luminaires reduce energy consumption by as much as 50 percent when compared to conventional solutions. In addition, CO2 emissions were reduced by over 50 percent. The graphs below show the energy requirements of the Waldmann TWIN-C solution in direct comparison with a conventional solution.

From outstanding sustainability, a prestigious award

Integrating Waldmann's TWIN-C lighting solution, ThyssenKrupp's new headquarters not only adhered to the company's principles of sustainable management, it also gained industry recognition. The German Sustainable Building Council (DGNB) awarded the project a Gold certificate.

WALDMANN'S TWIN-C SOLUTION SHOWS SIGNIFICANT ENERGY SAVINGS OVER CONVENTIONAL LIGHTING.



(In kWh/ft² this chart's values convert to: Average annual energy consumption of conventional solution = .94 and Average annual energy consumption Waldmann TWIN-C solution = .52). Office size = 20 m2 or 215.3 sq ft.

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