



CEILING
LIGHTING
AMBIENCE

GREEN BUILDING

A stylized green leaf with a stem and veins, positioned over the word "BUILDING" in the main title.

durlum is certified to
ISO 14001:2015
ISO 50001:2011

Sustainable ceiling and lighting solutions

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ENVIRONMENTAL PHILOSOPHY

durlum develops and manufactures innovative metal ceilings, lighting and daylight systems for architectural applications worldwide. We work with our project partners on solutions that create a perfect synthesis between function and design. Solutions that make you feel at home.

Everything that happens in our company is guided by an awareness of our responsibility towards the people, society and environment that are dependent upon us.

As an innovative and ecological company, we work with environmentally compatible processes and technologies, and we develop sustainable product solutions. Our use of solvent-free coating processes or the expansion of our product range into the field of resource-conserving daylight technology are just examples of this approach.

To promote responsible and aware action right down the value-added chain, we work closely with our business partners and suppliers and actively involve our employees in that process. For example, we have taken part in the ECOfit programme for industry-based environmental conservation in the German federal

state of Baden-Württemberg to further improve our environmental credentials, and to hone our awareness of ecological issues.

durlum has been successfully certified to the international environmental management standard ISO 14001:2015. As a result of certification and its required recurring independent audits, we have systemized our environmental management and thus implemented a continuous process of improvement. To comply with the high importance of reduced energy consumption, we additionally acquired certification to the international energy management standard ISO 50001:2011, in June 2014.

As an environmentally aware partner durlum performs an active contribution with its products to the achievement of ecological building certification. We developed Environmental Product Declarations, so-called EPDs, for all steel, aluminium and chilled/heated ceilings. These documents follow the ISO 14025 and can be employed internationally and used as proof for environmental requirements in public procurement.

We shall be pleased to advise you!

LIFE CYCLE OF DURLUM PRODUCTS

METAL CEILINGS, LIGHTING AND DAYLIGHT SYSTEMS



1 | USE OF RAW MATERIALS AND THE SOURCING OF ENERGY

durlum uses raw materials and other materials of which a high proportion can be recycled, complying with the most stringent of environmental requirements. At our main company locations, we already source more than 50% of the electricity we require from renewables, and as a guiding principle, we are economical with all of our resources.



2 | MANUFACTURE

Our production facilities comprise a modern, efficient range of machines and are subject to continuous improvement in terms of energy usage. In our manufacturing process, we use VOC-free powder coatings and work tirelessly on ways to optimize our use of raw materials. Through our partner Interseroh, all of our waste materials are collected by certified businesses and are directed into the recycling cycle.



3 | DISPATCH AND TRANSPORT

As an international company, we endeavour to structure our logistics operations along environmentally sound lines. To this end, we have developed forms of packaging that minimize the use of materials, that can be stacked compactly and that, at the same time, use old packaging materials as filler. We have production locations around the globe, and we use logistics partners guided by ecological concepts to keep our transport distances short and our pollutant emissions low.



4 | USE AND APPLICATION OF OUR PRODUCTS

durlum metal ceilings are very hygienic and acoustically effective. Our cooling ceilings increase the thermal comfort of rooms, and our modern lamps and lighting solutions deliver energy savings. durlum daylight systems run without an artificial power supply and are therefore the most efficient as well as the most ecologically sustainable of all lighting systems. In all cases, as a company with an environmental focus, we consistently develop our products in line with sound ecological principles.



5 | REBUILDING AND RECYCLING

durlum products can be dismantled and recycled because the composite materials they employ are easy to separate out. Thanks to the use of metal as a construction material, our products are very long-lasting, which also makes them sustainable and lowers the impact on the whole life cycle.



ENVIRONMENTAL CERTIFICATION

Essentially, there are three categories of environmental certification: for companies, for products and for buildings. To reflect this, we used different methods and criteria of evaluation.

1. FORMS OF COMPANY CERTIFICATION

Companies can become certified by recording environment-related indicators, by setting up continuous improvement processes, by establishing safety procedures and health and safety at work [HSW] measures and by creating clear lines of responsibility for company-wide environmental management. There are various different norms and standards that a company can achieve. The two most important internationally recognized certifications are the environmental certification ISO 14001:2015 and the energy saving certification ISO 50001:2011.

Since 2011, durlum has been certified to this standard and receives regular audits. Obtaining ISO 14001:2015 certification is testament to durlum's many years of commitment to environmental awareness. Furthermore, durlum is adopting measures that exceed the requirements of this standard in order to do even more for the environment and in respect of health and safety at work. Our participation in the Interseroh recycling programme since 1995 or our participation in the ECOfit programme run by the federal state of Baden-Württemberg are examples of this.

2. PRODUCT CERTIFICATIONS & PRODUCT STANDARDS

Products can be evaluated and certified in much the same way as companies. For this, there are certification systems such as the German "Klimaschutzengel" scheme [climate guardian angel] or the Swiss Minergie certification. At the same time there are classification systems that define product standards and that also impose demands on the manufacturing process, the materials employed, and on the safety or quality of products. These include designation systems such as the European CE marking scheme or European standards, or product evaluations such as life cycle assessments. These so-called EPDs describe the environmental behavior of a product.

As one of the world's leading ceiling and lighting manufacturers, durlum is committed to upholding high quality and environmental standards for metal ceilings, giving equal regard to design, build and room quality. Over and above that, we make a point of developing our products in accordance with ecological factors. One successful example of this approach is the "Minergie" accreditation accorded to our RELUME® standard luminaire.

3. BUILDING CERTIFICATIONS

A development over the last few years has gradually given the environmental factor much greater importance, even at the early stages of planning and construction of buildings. These certifications aim to guide architects, planners and builders at an early stage in how best to erect a given building in accordance with ecological criteria. Evaluation of buildings on the basis of their sustainability credentials usually takes the form of life cycle assessments or product declarations. The three most important certifications for buildings are the German „DGNB“-certificate, the international established „LEED®“-certificate and the BREEAM®-certificate, which is most common in Great Britain.

You will find the latest certificate as a download at:
www.durlum.com/certificates



BUILDING CERTIFICATIONS

DGNB, LEED® and BREEAM® are building certificates. As these are issued for the entire building, they cannot be awarded for durlum products. However, our products can contribute to buildings achieving the DGNB-, LEED®- or BREEAM® standards, as our product planning, materials and manufacturing processes comply with highest environmental requirements. Successful durlum projects in compliance with these certifications underline this claim. The office complex of the Süddeutscher Verlag in Munich, which was furnished with durlum raft ceilings with integrated lighting solutions, was the first building in Germany to receive an LEED® Award in GOLD.



DGNB GERMAN SOCIETY FOR SUSTAINABLE CONSTRUCTION

The German DGNB quality emblem for sustainable construction appeared on the scene in January 2009. It is the product of a joint project between the German Ministry of Transport, Building and Urban Development and the DGNB, the German society for sustainable construction. As a holistic certification system for the planning and evaluation of sustainable buildings, its focus is directed at the entire life cycle of a building. Hence, it incorporates ecological factors, economic, socio-cultural, technical and process-oriented factors, as well as building site selection. The DGNB award can be applied to a vast array of different types and kinds of buildings. Since its introduction, buildings in Germany as well as internationally have received this award. As a pioneer in terms of the life cycle approach, it has also gone on to influence established standards such as LEED®.

The DGNB quality award uses groups of primary criteria to assess the extent, in percentage terms, to which a building satisfies requirements such as the sustainable use of resources, interior hygiene, acoustic and visual comfort, or suitability for dismantling and recycling. The DGNB provides an evaluation matrix to assist in the planning process.

The DGNB award is sub-divided into three different compliance levels: Bronze, Silver and Gold. To even achieve the lowest level of certification, buildings must satisfy substantially more than the legally enforceable minimum standards. Here, the performance capability of a building is evaluated separately in each main category – weaknesses in one segment cannot be compensated for by particular strengths in a different segment.



LEED® LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN

The American certification LEED® [Leadership in Energy and Environmental Design] is the internationally best known and most commonly used building award. This award is bestowed on commercial or private buildings as well as infrastructure built in accordance with ecological and health-related principles. LEED® was drawn up in 1998 by the U.S. Green Building Council [USGBC] in the USA. Since that time, it has become the dominant force on the American market and is growing in importance in the European and Asian markets as well.

In overall terms, LEED® aims to assess if a building achieves high standards in defined core categories such as energy or water efficiency, the use of environment-friendly and regionally manufactured building materials, as well as comfort and room quality. For detailed planning purposes, the U.S. Green Building Council provides an overview that itemizes the precise and applicable specifications.

LEED® status is awarded by the U.S. Green Building Council and has various levels: Certified, Silver, Gold and Platinum, where Platinum constitutes the highest level of award. A credit point system is employed to establish whether or not a building achieves one or other of these levels of certification. Here, the performance capability of a building is evaluated separately in each distinct category – weaknesses in one segment cannot be compensated for by particular strengths in a different segment.



BREEAM® BUILDING RESEARCH ESTABLISHMENT ENVIRONMENTAL ASSESSMENT METHOD

BREEAM® was developed in 1990 in the UK and stands for Building Research Establishment Environmental Assessment Method. It was created by the Building Research Establishment [BRE] and is today one of the most widespread certification systems for sustainable building. Originally it only encompassed the process from planning to construction and use; following the 2008 amendment, the life cycle of a building is now also taken into consideration. The national evaluation systems based on BREEAM® are developed by the respective state representations. This allows the individual design in format and scope of state-specific systems as long as they conform to the requirements of the "Code for a Sustainable Built Environment".

BREEAM® is applied to a broad spectrum of building types, from private to commercial use to infrastructure buildings. Both new buildings and refurbishments are assessed. The system assesses the global, regional, local and interior effects of the building in the categories management, energy, water, use of land and ecology, health and well-being, transport, material and pollution.

A BREEAM® evaluation is possible for both new and existing buildings. Up to five stars can be awarded for new buildings. The following can be achieved: Pass, Good, Very Good, Excellent and Outstanding.

Our advisory team would be pleased to support you in questions relating to DGNB, LEED®, BREEAM® or other certifications: green-building@durlum.com

CONTRIBUTION OF DURLUM PRODUCTS

All our products are suitable for building certificates such as DGNB, LEED® and BREEAM®. They contribute to various parts of certification, depending on the type and design. Our team of advisors would be pleased to help you with the concrete environmental planning with regard to our products: green-building@durlum.com



PROCESSING QUALITY

We work with very modern inventory of machines that delivers exemplary energy conservation during the manufacture of our metal ceilings. The DGNB certificate acknowledges the low environmental impact involved in the further processing of metallic raw materials.



RECYCLING

With the metals used in durlum products, e.g. steel, aluminium or copper, we take care to protect the environment by achieving high percentages of recycling. We source these materials from quality-certified companies and provide builders and planners with the standard of corroborated data they need to obtain certification for their projects.



SURFACE QUALITY

The powder coatings on our metal ceilings and luminaries are free of VOCs [volatile organic compounds] and CFCs [Chlorinated Fluoro Carbons], as stipulated in the LEED® standard.



THERMAL COMFORT

In summer and winter, durlum cooling ceilings and hybrid ceilings contribute towards thermal comfort and can be adapted individually to suit projects and single rooms. This point is an advantage in respect of the certification process.



VISUAL COMFORT

Combined artificial & daylight solutions from durlum place the visual comfort of people centre-stage. Our shading and light-direction systems with individual or automatic controls ensure that natural sunlight can be used intelligently in interiors to promote a feeling of well-being and health.



REGIONALITY

Modern building standards also take account of the distance between production plant and construction site. Since durlum has several production locations in Europe and Asia, it is able to minimize the environmental impact of long-distance transport.



ENERGY EFFICIENCY

Efforts to save energy are highly valued by all of the building standards. For example, durlum daylight lighting solutions and LED lighting systems are able to reduce the energy consumption compared to conventional lighting systems by a substantial margin and to optimize energy requirements in conjunction with our control systems.

ENVIRONMENTAL PRODUCT DECLARATION

Environmental Product Declarations are of special importance for product certification. These declarations are verified by independent experts and are included directly in building certifications according to LEED®, DGNB or BREEAM®. durlum provides verified Environmental Product Declarations for all its metal ceiling systems.

THE EPD – ENVIRONMENTAL PRODUCT DECLARATION

EPDs describe the environmental behavior of a product by giving information on the life cycle of the building product, key values for ecological balance, as well as the test results for detailed evaluation.

To support compliance with building certifications DGNB, LEED®, BREEAM® or Minergie as best possible, durlum has developed Environmental Product Declarations for steel ceilings, aluminium ceilings and chilled / heated ceilings. These Environmental Product Declarations are subject to the international ISO 14025 standard and can therefore be used worldwide. The term EPD or Environmental Product Declaration is commonly used internationally.

An EPD is the fundamental approach to support building owners, architects and planners in the Green Building certification of their buildings. They are suitable as proof for environmental requirements in public procurement.

DURLUM EPDs CONTAINS IMPORTANT INFORMATION

Our Environmental Product Declarations provide information on the raw materials used, the manufacturing process, the usage scenario and product disposal. Quantitative information on the greenhouse effect, potential depletion of the ozone layer, and the use of fossil and non-fossil resources are of particular interest to environmental engineers involved in building assessment.

The following characteristics apply to our EPDs:

- they apply to all durlum metal ceiling systems
- they are based on an ecological balance / life cycle analysis
- they were verified by independent experts
- they represent an unbiased and quantitative appraisal of all the environmental effects of durlum metal ceilings
- they can be included in the aggregated ecological balance of a building
- they already provide important information on environmental compatibility during the tender and award phase
- they are available in English and German

Our EPDs are included in the data base for building products Ökobau.dat. And, of course, you can view our EPDs on our Internet homepage www.durlum.com or request them per E-mail at: green-building@durlum.com

You can find our current EPDs *Environmental Product Declarations* as download at: www.durlum.com/environment





SÜDDEUTSCHER VERLAG

In 2008, the newly built head office of the publishing house "Süddeutscher Verlag" became the very first building in Germany to be awarded the American LEED® Gold quality emblem and to be certified as a Green Building. The sustainably constructed Munich media building convinced the judges with its ingeniously well thought out climate and energy concept, especially in relation to energy efficiency.

In this respect, the durlum ceiling and lighting systems employed make a positive contribution. Amongst others, about 2,800 dur-SOLO® ceiling panels with integrated lighting deliver acoustic and visual comfort at each workplace. These panels are perforated, backed with an acoustically active material and equipped with a direct-indirect luminaire, which delivers a pleasing and suffused light for working. Throughout daylight hours, a control system governs the amount of artificial lighting employed, ensuring that workplace lighting conditions are always optimum and also minimizing energy consumption.



Photo: Claus Graubner



AREVA MOVE II

In 2010, the new building complex AREVA MOVE II in Erlangen was awarded the DGNB Gold certificate. This administration building, in which roughly 1,600 staff work on a floor area of 60,000m², achieved this highest level of DGNB award for its user comfort and for its ecological and economic quality standard.

These modern office spaces use durlum's dur-SOLO® ceiling panels which assures optimum noise absorption, flexible room layouts and the ability to function as a cooling and heating ceiling rated for 120W/m². These are criteria that play a key role in any DGNB certification process.



Photo: Peter Langenbach



BREEAM®
★★★★

GIANT'S CAUSEWAY VISITORS' CENTRE

In 2012, the Giant's Causeway Visitor Centre was awarded the BREEAM® certificate for special sustainability with four stars for its respectful managing of the environment, the use of local building materials and its energy-efficient lighting.

The durlum LED lighting solutions used in both the interior and exterior, such as the light lines, in-floor spotlights, recessed spotlights and specially developed downlights, highlight the impressive architecture of the building. At the same time, their high energy efficiency supported the positive BREEAM® assessment.

Photo: Hutton + Crow

GREEN BUILDING WITH DAYLIGHT

Daylight determines our daily rhythm and has a direct effect on our well-being. In modern architecture this knowledge is reflected in the increased use of daylight. Visual comfort is not the only decisive factor here. High energy efficiency and sustainability are future-oriented.

Daylight solutions are rewarded by the building certification systems DGNB, LEED® and BREEAM®. Comfort criteria such as daylight availability, visual links to the outside or decentralized daylight control are particularly valued. Daylight solutions also scored in areas such as innovation and energy savings.

For many years now, durlum has realized daylight projects, for example the worldwide unique Terminal 3 of Changi Airport in Singapore. The airport terminal is provided entirely with daylight through a sophisticated ceiling construction with specially developed skylights and shade systems from durlum. Depending on the position of the sun and the brightness, the shade systems on the roof are aligned automatically. This allows daylight to enter the terminal without direct sunlight. When required, the artificial lighting switches on in addition. Overall, this special design saves 2,400 tonnes of CO₂ annually.



Photo: durlum GmbH, D. Phan

CONTACT

durlum looks forward to advising you on all questions relating to the ecological certification of buildings as its products make an active contribution towards achieving these standards. Just get in touch with us. We shall be pleased to advise you.

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Geschlossene Metaldecken | Closed metal ceilings | Plafonds métalliques fermés
Offene Metaldecken | Open metal ceilings | Plafonds métalliques ouverts
Funktionsdecken | Functional ceilings | Plafonds fonctionnels
Deckensegel und Akustik | Raft ceilings and acoustics | Plafonds flottants et acoustique
Designdecken | Design ceilings | Plafonds design



Objektbeleuchtung | Project lighting | Éclairage des objets
Innen- und Außenleuchten | Interior and exterior lighting | Luminaires pour l'intérieur et l'extérieur
Lichtmanagement | Lighting management | Gestion de lumière



Tageslichtrohre | Daylight tubes | Systèmes de lumière du jour
Umlenkssysteme | Redirection systems | Luminaires à réflexion
Abschattsysteme | Shading systems | Systèmes d'ombrage

