

Sustainable School Buildings

economical resource-saving functional



The system makes the difference

Building schools means taking responsibility. As public buildings and places of education for future generations, school buildings have an exemplary role in terms of their design and function. It is therefore appropriate that they are subject to particularly high sustainability standards. For GOLDBECK, sustainability, functionality and economic efficiency are not contradictory. We design, build, and operate future-oriented school buildings from a single source: quickly, energy-efficiently and, sustainability certified. Whether it's a thermally optimised shell, energy-efficient technical building services, future flexibility, or ecological surroundings – we conserve resources systematically throughout the design and approval process.



Certified sustainability

We check the sustainability of our buildings and constantly develop them further. DGNB Gold / Platinum, LEED or BREEAM certifications are all possible for GOLDBECK school buildings as well as building to the passive house standard.



Whole Life-Cycle Carbon (WLC)

Our in-house Sustainability experts and partners calculate carbon emissions resulting from the materials, construction, and the use of a building over its entire life, including its demolition and disposal.



Integrated design

Our specialist design teams develop and optimise all aspects of your school building in an interdisciplinary, coordinated and future-oriented manner. Systematically resource-saving from the start.



In-house production in our own factories

Our manufacturing processes allow us to optimize each component and determine exact quantities of concrete, steel, and other materials, saving resources and avoiding waste. We already purchase steel with an average secondary material content of almost 90 percent. Residual quantities of steel are recycled according to type.



Flexible, open construction system

The GOLDBECK construction system provides the necessary flexibility to meet the bespoke needs of your project. The system-based school building can be connected to existing structures or be added to at a later date. In combination with our other system solutions e.g. for sports halls the systemised approach is highly adaptable.

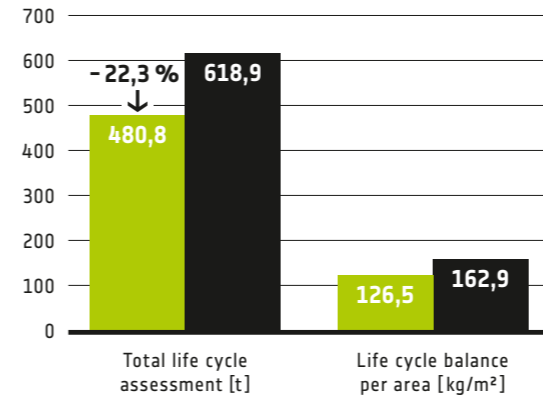


Ecosystem

We promote biodiversity with well thought-out concepts for external spaces, sustainable rainwater systems and additional accompanying measures around the building. These can include the creation of a 'green classroom' in which pupils learn the importance of ecology and environmental protection at an early age through the preservation and development of green spaces.

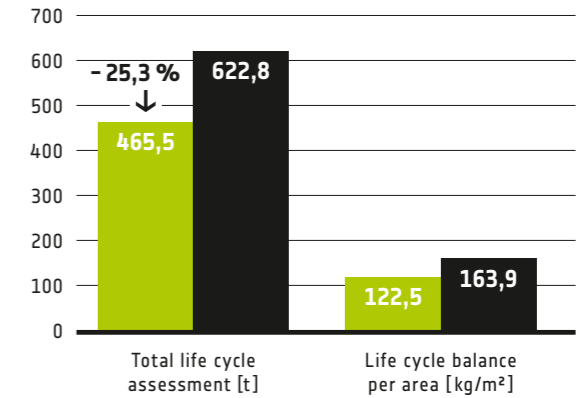
Manufacturing balance

CO₂ emissions by construction method



Manufacturing and deconstruction balance

CO₂ emissions by construction method



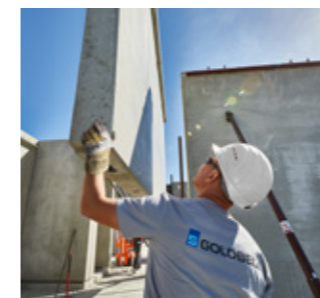
Legend:
■ GOLDBECK construction method
■ Conventional reinforced concrete construction method

Study project: The "Cube" in Engen on Lake Constance, six storeys, 3,800 m² – a typical GOLDBECK building.

Building environmentally friendly buildings – is that possible?

For GOLDBECK, the answer is quite clear: Yes – because we build with a system we consider and optimise the sustainability of our school buildings during the design, construction, and operation phases – and even think about the deconstruction. Our system components are engineered to reduce material consumption. This, and a strictly coordinated process chain that avoids manufacturing errors and waste, makes our building system particularly resource efficient.

Taken together, the production, demolition, and recycling of a GOLDBECK system building saves over 25% of climate damaging CO₂ compared to conventional construction methods.



Over
25 %
 less CO₂ emissions compared to conventional reinforced concrete construction

Would you like to know more?
 We conducted a study in collaboration with independent engineering consultants IPU Ingenieurgesellschaft, Karlsruhe mbH.

You can find details of our comparison of construction methods in the brochure "Sustainable Buildings".



Your project – sustainable from every perspective

The GOLDBECK system construction method forms the basis for our sustainable building. In addition, we would like to individually define the sustainability of your property together with you and ideally harmonise it with economic efficiency and functionality.



Building sustainability

- **Photovoltaic system**
to cover own electricity demand (if necessary with energy storage)
- **Solar thermal**
as a support for the central water heating system
- **Sustainable insulation materials**
Use of recyclable, environmentally friendly wood fibre insulation material
- **Wood-aluminium windows**
Improve the CO₂ balance of the building in production and operation
- **Durable facade**
with high insulation values, weather-resistant, easy to maintain and recyclable by type (e.g. masonry)
- **Wooden slat façade**
Native woods from sustainable, certified cultivation
- **Green façades**
Provides a habitat for animals, filters air and improves the local microclimate
- **Building flexibly**
Open construction system reduces the need for demolition and new construction
- **Biodiversity/Green Roof**
to preserve biodiversity and as a water reservoir
- **Roof garden**
as a green outdoor area in an urban environment
- **Central ventilation system**
As part of an energy-saving concept and to improve indoor air quality
- **Building management system (BMS)**
Conserving resources via intelligent room and system control
- **Low emissions fit-out materials**
Low-emission, harmless building materials protect health and well-being
- **State-of-the-art heating plant**
Efficient utilization of renewable energy sources

Sustainable outdoor areas

- **Rainwater harvesting**
Rainwater utilisation, e.g. for system irrigation or toilet flushing
- **Rainwater attenuation**
Supports the recirculation of retained rainwater into the groundwater
- **Soakaways/SuDS (sustainable drainage)**
Manage runoff volumes and flow rates from hard surfaces, reducing urbanisation impact on flooding
- **Permeable paving/surfaces**
Supports groundwater replenishment
- **Irrigation**
Use of rainwater for outdoor irrigation
- **Electric Vehicle Charging Points (EVCs)**
Promotes the use of electric vehicles
- **E-charging for bicycles**
allow the use of e-bikes
- **Connection to public transport**
Design of the outdoor area to ensure safe access to public transport
- **Cycle shelters**
promote cycling to school
- **Wayfinding/Safe routing on the site**
for the safety of people and wildlife in external areas
- **Exterior design**
Child-friendly and close to nature with adventure areas for play, sport and regeneration
- **School garden**
creates joy in working in and with nature and promotes environmental awareness
- **Green classroom**
to raise awareness for nature and resource conservation
- **Safeguarding existing trees**
to protect the local ecosystem
- **Wildflower meadows**
to increase biodiversity
- **Bird nesting boxes**
as an important contribution to species conservation
- **Insect hotel**
to promote the ecological balance
- **Sandarium**
gives wild bees a home
- **Beehives**
for active species protection and delicious honey
- **Benjes hedges**
as shelter for insects and small mammals

Sustainability – perfectly tailored to your building

As a company that thinks sustainably, it is our concern to design our buildings in a way that conserves resources, even beyond the official requirements and regulations. We therefore offer our customers the opportunity to individually adapt the sustainability of their school buildings to their own requirements and needs. Based on our system construction, you can choose from a variety of well thought-out sustainability measures:



Sustainability measures	Your selection	Sustainability measures	Your selection
Renewable energies and energy concepts		Man and Nature	
Energy concept according to GEOS		Educational garden	
Improved u-values		Green classroom	
Zero energy concept		Natural Recreation spaces	
Passivhaus standard		Maintenance and operation	
Photovoltaics		Remote maintenance	
Geothermal energy		Energy monitoring	
Solar thermal		Life cycle assessment	
DGNB Certification		Water balance	
DGNB		Rainwater retention	
BREEAM		Infiltration of rainwater	
LEED		Water-permeable surfaces	
BNB		Rainwater harvesting	
Passivhaus		Wood as a building material	
Indoor air quality and hygiene		Ventilated timber façade	
Natural materials with eco-certification		Wood-aluminium windows	
Documented indoor air measurements		Cellulose insulation indoors and outdoors	
Mechanical ventilation and exhaust		Green building envelope	
Flora and Fauna		Extensive Green Roofs	
Preservation of existing trees		Intensive Green Roofs	
Planting new trees		Green façades	
Nesting facilities and hiding places for birds and insects			
Wet and dry biotopes			



building excellence

GOLDBECK – the Company

GOLDBECK builds future-oriented real estate across Europe. We view buildings as products that we bring to life for our clients, as a one-stop turnkey provider – from the design and construction phases to the facilities management services during operation.

According to our motto – building excellence – we realize buildings fast, reliably, and cost-effectively, without sacrificing custom functionality. Extensive design expertise, industrially manufactured system components and leading technologies are keys to the success of our element-based construction with a system. Humanity, responsibility, and a passion for performance are the defining values of our family business. We embrace these values in our dealings with clients, business partners and employees. Entrepreneurial and service oriented GOLDBECKers based in our regional offices, enjoy good relations with local clients and supply chain partners. Our experience from over 10,000 projects, coupled with our innovative strength and commitment to driving digitalisation, ensures that our products perform optimally while in service – their future viability included.

GOLDBECK is a partner for medium-sized businesses and large companies, investors, project developers and public clients. Our range of services includes logistics and industrial halls, office and school buildings, multi-storey car parks and residential buildings. Construction in existing buildings and building-related services complete the spectrum. In the 2020/2021 financial year, the company completed more than 500 projects with a total output of around 4.1 billion euros. GOLDBECK currently employs more than 10,000 people at over 104 locations throughout Europe.

Regional Offices

It's good when a contact person is always close by. Our regional offices know the local conditions. GOLDBECK are there to support your project and answer your questions with one point of contact. It is best when all the threads come together and we can competently answer all your questions. Our branch network makes this possible.



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