

TIME TO ACT



TO ENSURE A LIFE WITH A FUTURE.

- Energy efficient planning
- Ecological construction
- Future-proof renovation
- Strategies for adapting to climate change
- Sustainability of decisions

 **VARIOTEC**

"Be the change you want to see
in the world"

Mahatma Gandhi

Real energy efficiency needs more

The terms energy saving regulations, low-energy housing, energy performance certificates are popular at the moment. The marketing strategies of the entire construction industry are based on saving energy and climate protection. And the developments in energy costs over recent months and years have contributed towards this trend. It is a pity that both the consumer and many of the industry members are being conned by these words into thinking that they are state of the art. The reality is very different.

The most efficient available energy saving technology that is well-developed and reliable and also affordable is playing in a very different league. In terms of top technology, the passive house standard was reached twenty years ago. Back then, the market was not ready for these products - the costs for energy and heat were so low that implementing energy saving measures not have been profitable. But what about today? Suddenly we are feeling the effects of these shortfalls, and putting the blame on the world markets, the big concerns, the new industrial regions in Asia and other things - but it was all predictable. The dynamics of climatic change, the rapidly increasing energy hunger of the planet, the limited fossil resources all become hidden faults in all sectors of our economy, but also for every one of us as well.

Technology leader in the premiere league

The principle of sustainability and the demand for efficiency that results from it have had a considerable influence on the structure and development of VARIOTEC. At times when climate protection did not play a major role in the public perception, VARIOTEC set course for energy efficiency in all sectors of development.

Today VARIOTEC are the innovation and technology leaders and are the first to be able to provide all building envelope components, in the form of a system which uses various materials and combinations, necessary for building zero energy houses or making renovations to bring buildings up to passive house standards.



Play with us in the premiere energy efficiency league

The foundation for the increased growth of VARIOTEC over the last few years, is, alongside the high scientific and technological standards, their proximity to the market and the players: architects, planners, trade and craftsmen. Today this is still one of the most important factors of success and ensures a lively partnership with customers throughout Europe.

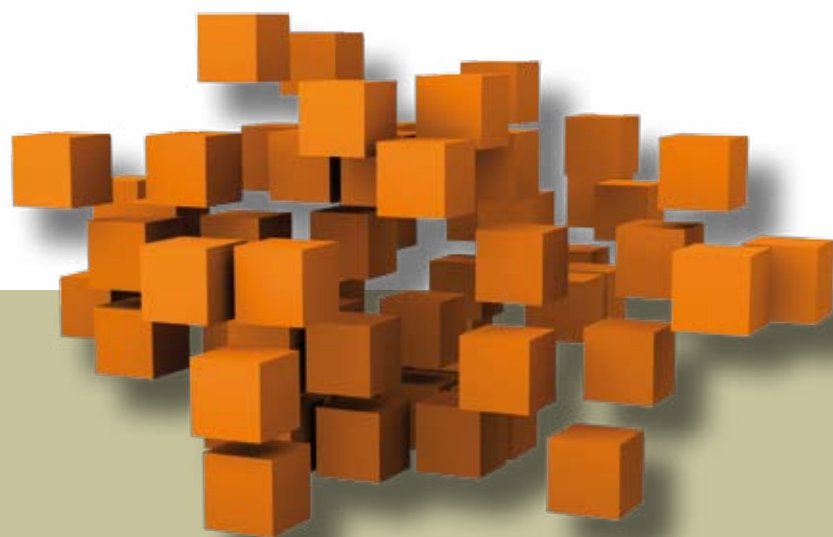
People buy from people

Even the greatest product in the world can't sell itself, it needs differentiation, information and marketing.

But this isn't everything needed for success. "People buy from people", is the slogan here. This is why our partners play such a very important role in our shared success. The best products and the best partners supported by perfect marketing means that we are on to a market winner.

Coming together is a beginning; keeping together is progress; working together is success.

Henry Ford



An overview of VARIOTEC

klimaschutzinstitut.de

VARIOTEC operates their own climate protection institute in order to combine their research and development activities.

Real partnership

Real energy efficiency, at the highest level, requires a lot of expertise and dedication. In order to really make a partnership come to life, we offer comprehensive planning and training concepts for architects, building physicists, and planners, but also for trade, our industry partners and for dedicated craftsmen.

Performance spectrum in keywords

Energy saving techniques in new constructions and renovated objects, vacuum insulation panels and VIP/QASA components, thermal insulation composite systems, passive cooling systems, PCM elements, passive-house certified windows and doors, passive house systems for roofs and walls, external, special and functional doors, sandwich elements in all materials and performance classes, design plywood, all-inclusive door component systems, marketing and merchandising concepts, physical construction planning and calculation software, design centre for doors.

Full range retailer for energy efficiency

VARIOTEC offers universal technology and design concepts with certified products and planning security. As a full range retailer, VARIOTEC forms the centre of a network for trade, industry and craftsmen, with well-known names from related branches of industry. The vacuum zero energy house is an example of this comprehensive cooperation. Companies from the following sectors have all participated: wooden element construction, thermal insulation composite systems, concrete pre-fabricated parts, fastening systems/sealing compounds, air and heat recovery systems, photovoltaic and passive cooling systems.



Patented products

VARIOTEC holds numerous patents and utility patents in the energy efficient construction, building and renovating sector. With doors, windows, roofs, wall and facade system designed to meet the varying requirements of European countries with regard to

- fire and smoke protection,
- noise and heat insulation,
- penetration prevention and break-in protection,
- statics and element-based pre-fabrication as well as
- vacuum insulation technology.

Whether it be global warming, resource shortages or demographic change: The mega trends of sustainability will have a dramatic influence on our lives in this century. The increasing extreme weather conditions, increasing cost of raw materials, or the shortages of highly-qualified young workers have already started to make themselves felt today.

Source: BMU



Methods for combating climate change

"The most important source of energy for the future, is saving it in the present."

The use of alternative energy sources is currently at the forefront of discussions about climate change. The technologies propagandised here are, for the most part, not efficient enough at our latitude. Besides which, there is a fundamental doubt as to whether it will be possible to introduce turnaround measures in the time we have left. Georg Erdmann, Professor for energy systems at the Berlin Technical University and President of the International Association for Energy Economics (IAEE) in Cleveland, has called for "Economic rationality" for the benefit of climate protection.

Taking the costs for reducing a single tonne of CO₂ as a yardstick, the partially over exaggerated demands of the EEC are economic nonsense. Erdmann calls for the costs for the reduction of a single tonne of CO₂ to be a maximum of € 50. This value can be achieved using thermal insulation. If photovoltaic methods are used, the costs currently lie at € 600 per tonne.

klimaschutzinstitut.de

One big problem doesn't need a single big solution, it needs lots of little solutions

In the past, VARIOTEC has increased their cooperation with leading scientists and institutes. This dedication has been characterised by the practical application of the results from the very beginning, and it still is. Numerous research tasks and pilot projects based on these activities bear witness to the success of the approach taken by VARIOTEC.

A large part of the innovative solutions revolve around energy efficiency and energy saving. VARIOTEC founded the climate protection institute to bundle this dedication and to promote more efficient cooperation with other institutes. Alongside the scientific work and the development of marketable products, the climate protection institute also acts as ambassador promoting the ethical and moral principles of VARIOTEC.



Tasks of the climate protection institute

Actions taken against climate change: Climate protection and climatic adaptation strategies, training offers and public relations work, processing of research and development tasks.

■ **Climate change is reality.**

The changes taking place in our climate are fact. Human activities are responsible for at least 70% of these changes.

■ **The necessary CO₂ reductions are more or less impossible to implement.**

Limiting global warming to just 3° C requires the CO₂ emissions to be reduced by 80% by 2100.

■ **Waiting any longer will make achieving this goal impossible.**

Waiting means that this goal will either become impossible or impossibly expensive. Uncertainty does not justify waiting.

■ **The costs for reducing CO₂ are, in the long term, considerably less expensive than trying to combat the damages caused as a consequence.**

Economic damages in Europe are estimated to be in excess of 1,000 billion € p. a. by 2020. (McKinsey 2007).

■ **Moral and ethical challenge**

Climate change is not just a scientific question, it is also a moral and ethical issue (20-25 million environmental refugees by 2002, UNEP 2003).

■ **Developing products to protect from extreme weather conditions/natural disasters**

Floods, storms, droughts, water shortages, epidemics all require new approaches in planning and execution.

More information about the contribution made by VARIOTEC to protecting the climate can be found under www.klimaschutzinstitut.de



Holistic system solutions

- **Full service when planning energy efficient projects**
VARIOTEC supports partners in all sectors, from the conception of constructions components right down to secure structural connections.
- **Our special services**
These cover isotherm, humidity, energy and statics calculations, as well as consulting and planning services for new buildings and for the renovation in accordance with passive house criteria, or setting CO₂-neutral goals.
- **Technology marketing**
VARIOTEC supports and promotes their planning partners at housing projects, property developers and individual projects as well as exports.

Education and training

- VARIOTEC puts particular emphasis on differentiated seminar concepts for architects and planners, trade, industry partners and craftsmen.
- Innovative solutions and the consolidated transfer of competences ensure that the level of knowledge about the VARIOTEC innovation days extends beyond the industry. VARIOTEC supplies research results, documentation and trend-setting system solutions for master, technical and engineering training.

Transferring technology

- License holders are bound contractually to VARIOTEC in the long term. They use the products and systems approved by the building authorities as well as the VARIOTEC brands and sales structures.
- The use of the semi-finished products and manufacturing concepts of VARIOTEC – whether directly or via a VARIOTEC trader – guarantee conformity in accordance with CE directives.
- For industrial and large scale processors, individual semi-or fully finished products can be made based on common technical developments. These are characterised by their unique design with the appropriate technical unique selling points.

Like the past, the future is shaped by impulses.

- Climate change
- Shortages of resources
- Economy
- Technology development
- Coincidence
- or VARIOTEC

Sales network

VARIOTEC partners can be found throughout Central, Southern and Eastern Europe and further abroad.

- VARIOTEC traders have warehouses containing the basic program
- Licensed partners for implementing complex technical tasks
- Industry partners for handling large projects
- Sales and assembly partners for secure physical construction projects

Nine trademarks and international quality certificates are linked to the VARIOTEC name. Partly non-replaceable products, systems and concepts ensure intensive and success binding to sales partners.

Partnership at a glance

- Comprehensive support for architects, planners, building physicists and energy consultants
- The overall conceptions ranging from project analysis right down to the realisation
- Support by scientific partners when planning new tasks
- Clearly structured trader and sale partnership network
- Intensive trade and craftsman marketing
- Technology utilization for the VARIOTEC network partners



Technology · Products · Solutions

- Products for protecting the climate
- Expertise for the entire planning and manufacturing chain
- Targeted cooperation for ground-breaking construction, building and renovation

Breaking through to new dimensions in sustainability

As a technology and innovation leader, VARIOTEC has solution competence and networks for even the most unusual of tasks.



Innovative building blocks for architects and planners

- High-tech vacuum insulation panels VIP integrated into sandwich elements with all technical/optical functions, QASAFlex for interior insulation, QASAMax as thermal insulation composite system facades
- Energy saving systems for facades, windows, doors, roof and wall construction
- Special solutions for renovation with factor 10

Concepts for external and special door manufacturers

- Heat insulation, cooling technology, noise, smoke and fire protection
- Security technology: Break-in and penetration prevention
- Bullet proofing, sealing and water-proofing
- Radiation safety, climatic and heat protection
- Insulation and sandwich elements
- Lightweight building boards for reducing the weight in transportation, vehicle and ship construction as well as special construction areas for machine and system construction
- Products and systems for trade fair construction and exhibitions

The "all-inclusive program" component building blocks for industry/trade

- Gone are the days of time-consuming and intricate accessory planning
- Gone are the risks and measurement agreements in manufacturing
- More time for finishing, value-added tasks and future-proofing
- Individual planning of special and specialised products
- Construction and design suggestions for doors, facades and windows

Service, services, specialities

- Innovative building blocks for architects and constructors for the individual manufacture of special and specialised products
- Planning and service sectors for door technology, design concepts, physical construction calculations
- Marketing concepts for trade, industry and craftsmen
- Trade fair and exhibition planning and service
- Strategic advertising and merchandising strategies

VARIOTEC cooperation partners:

Bayern Innovativ
Gesellschaft für Innovation und Wissenstransfer
Nürnberg

BAKA
Bundesarbeitskreis Altbausanierung
Berlin

BMWi
Bundesministerium für Wirtschaft und Technologie
Berlin

DIBt
Deutsches Institut für Bautechnik
Berlin

IBP
Fraunhofer Institut für Bauphysik
Stuttgart

FIW
Forschungsinstitut für Wärmeschutz
München

ZukunftBAU
Forschungsinitiative Zukunft Bau
Bonn

ISE
Fraunhofer Institut Solare Energiesysteme
Freiburg

WKI
Fraunhofer Wilhelm-Klauditz-Institut
Braunschweig

GSOH
Georg-Simon-Ohm-Hochschule – FH Nürnberg
Nürnberg

HST Stuttgart
Hochschule für Technik
Stuttgart

HTWK
Hochschule für Technik, Wirtschaft und Kultur
Leipzig

HS Rosenheim
Hochschule University of Applied Sciences
Rosenheim

ift
Institut für Fenstertechnik
Rosenheim

ihd
Institut für Holztechnologie
Dresden

HOLZ
Institut für Holzbiologie und Holztechnologie
Göttingen

TU Darmstadt
Technische Universität
Darmstadt

LGA/TÜV Rheinland
Landesgewerbeanstalt
Nürnberg

PHI
Passivhausinstitut
Darmstadt

TU München
Technische Universität
München

Uni Innsbruck
Universität
Innsbruck

Uni Karlsruhe
Universität (TH)
Karlsruhe

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

(Definition from the UN's World Commission on Environment and Development – Brundtland Commission, 1987)

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