



Your house building dream.



QUALITY ASSOCIATION OF GERMAN
PREFABRICATED BUILDING MANUFACTURERS

The Association of German Prefabricated Building Manufacturers.

BDF in Bad Honnef represents more than 40 manufacturers of prefabricated, timber buildings, and thus 90 percent of the prefabrication industry in Germany. BDF is thus the first contact for anyone interested in a modern approach to timber building. Our focus is on strict quality policies for premium class, prefabricated buildings, which all of the association's members must agree to. The BDF mark represents premium quality in house building.

A building manufacturer who is a member of BDF is a safe option for home builders who can agree terms, from the price to the move-in date with the manufacturer.

Some 10,000 prefabricated houses are built in Germany every year. Thus, one in eight detached or semi-detached houses erected in Germany is prefabricated.

Information on the subject of prefabricated building is available on the internet: www.bdf-ev.de

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One-Stop Shopping

The Qualitätsgemeinschaft Deutscher Fertigbau [QDF/Quality Association of German Prefabricated Building Manufacturers] is an association of leading German manufacturers of prefabricated timber houses. Their standards set the bar far higher than the law requires. For material quality, building execution, environment protection and last but not least for customer service. All QDF manufacturers are also members of the Bundesverband Deutscher Fertigbau [Associ-

ation of German Prefabricated Building Manufacturers], the leading professional organisation for timber house building.

Building on excellent service.

Design your dream house. Our QDF members will make it come true. The home builder can rely on a competent partner, instead of wasting time organising various labourers. Before building work starts, the manufacturer will help you find a suitable site, handle planning permission, talk to insur-

ance companies, and even help you with a home loan.

Maximum Quality.

Pre-fabricated houses with the QDF stamp are safe, state-of-art and a lasting investment. This is achieved by strict quality controls at the works and on site. The contract precisely defines the manufacturer's obligations to avoid unpleasant surprises.



» Build on quality and excellent service.
Watch for the QDF seal! «





Choose your individual style of living.

Your pre-fabricated house – planned by an architect.

Plan your individual dream home. In cooperation with experienced architects, QDF members will advise you on the position and cut of the building site, design the floor plan, façade and roof style. You decide on individual room design and can add luxury features –

such as bay windows or a conservatory. Unlimited versatility thanks to variable building techniques. Interior customisation options are virtually unlimited. The result is a tailor-made house, built to match your personal style.

Pre-fabricated houses can easily accommodate the most extravagant design requirements.

Tried and trusted serial models for a low budget.

Of course, the manufacturers offer a large selection of serial-built house models. Their architecture is tried and trusted, and thanks to favourable conditions, they are affordable on a low budget. No matter which variant you decide on: wood as a classy building material guarantees the architectural versatility and comfortable living you have always wanted.

» Individual interior layout, to match your requirements. We build dream houses to suit your style! «



Interior atmosphere with feel-good factor.

Healthy living

Wood means natural and healthy living. Enjoy the pleasantly warm impression of sturdy beams and classical floor boarding. Cosy living that is hard to pin down to facts and figures, but that makes you feel at home.

Wood regulates the interior atmosphere.

In a natural way: the building material moderates humidity changes and acts as a buffer between moist and extremely dry air. Controlled fresh air supply and ventilation are standard features in pre-fabricated building. They filter dust and pollen out of the interior atmosphere – perfect for allergy sufferers.

Dry materials from controlled production.

There is no such thing as a damp wall in a house built by a QDF member. The building elements comprise dry materials and are produced to avoid moisture escaping into your living accommodation at any time. Technical drying has another benefit: houses built to QDF standards use building elements that are guaranteed free of chemical wood preservatives.

» Wood creates a cosy living atmosphere – this is guaranteed by high-quality materials. We use only premium quality materials for your house! «





Reliability in home building.

Your new home. Guaranteed.
People who build pre-fabricated homes are always on the safe side. As a home builder, you can rely on QDF members. As single-source supplier, your contract partner is always there when you need him, and will take care of everything.

When would you like to move in?
If required, you can tell us your removal date when you sign the contract. A fixed price guarantee gives you more security; your budget rests on solid foundations. Unpleasant surcharges are ruled out.

Delivery first, payment after delivery. Trust is good, checking up is better. You pay in instalments in line with building progress. This helps you ensure that your home is handed over in perfect condition.

»» Protect your building project against unpleasant surprises!
We offer performance guarantees; fixed dates and fixed prices. ««



Natural building. With wood.

From our natural surroundings – for the environment.
Building a timber house is an important contribution to environment protection. This natural building material from the forest has an excellent energy balance. To build a pre-fabricated home, an average of 25 cubic metres of wood is used – most of this is domestic spruce.

State-of-art construction saves energy.
Timber houses are well-known for their excellent insulating properties. This building approach means considerable savings on heating. The future-orientated passive house completely does without an active heating system. And by the way: You may be eligible for a grant if you build an energy saving home.

Exemplary environmental protection at the works and on site.
Wood is biologically degradable. The manufacturer will separate the waste created by building your pre-fabricated home, and reuse wherever possible. QDF members do not use chemical wood preservatives. They prefer to protect this high-quality material by means of a dry building process and intelligent construction.

»» A wooden house not only means relief for the environment, it is also kind to your wallet when you consider the running costs! ««



Time is [more than] money.

Drive a hard bargain.

If you plan your dream home in an intelligent way right from the outset, you can be sure of an economical building project. A pre-fabricated home saves you money in your choice of site. The variable building approach is possible even on plots of land with a seemingly unfavourable shape.

Time is money.

Assembling a modern house skin takes 48 hours at the most, including closing the roof. This reduces costs for interim financing and saves you rent during the building period.

Do-it-yourself.

If you decide to together with the constructor, you can reduce your building costs even further. Depending on how much time you have, and your manual skills, you may be able to do some of the work, or even complete the whole interior as a do-it-yourself project.

Low consumption.

Keeping to budget doesn't mean feeling cold. The excellent insulation properties of a timber house, give owners pleasant temperatures and permanently low heating bills.

More living space.

Space gains. Pre-fabricated houses use intelligent constructions that allow for more efficient wall thicknesses. How it works? Simple: Insulation is fitted in the wall cavity, instead of wasting space. In comparison to traditional building techniques this gives you an extra room on a floor space of 100 square metres.

»» Don't cut corners. Quality pays – particularly in home building! ««



Shape your future.

This is intelligent building.

Your expectations vis a vis the perfect house will change in each phase of your life. You need a flexible home design to convert a child's room into a guest bedroom, and a party cellar into a gym. Thanks to planning with foresight, a pre-fabricated home by a QDF member will be adapted to match your needs.

Barrier free living.

Barrier free living links generations and gives everyone more breathing space. QDF members are pleased to offer senior citizens and young families, or home owners with physical challenges, a convenient solution for enhanced quality of living. Living on a single level, doors without thresholds, custom-built bathrooms and hallways give you more room for wheelchairs or prams.

Your pre-fabricated house is ready.

Future-proof technology integrated on demand. Intelligent bus technology systems control your heating, ventilation, lighting, alarm system and electronic devices from a central point. If required, your QDF member will prepare your home for something you wish to add later, a solar panel system for example.

»» Your modern pre-fabricated home is flexible in every phase of your life. Versatile living is possible – even on a small footprint! ««





Simply better building.

Pulling out all the stops.

The Quality Association of German Pre-fabrication sets the highest standards for your new home. Improved living quality is the result of independent auditing: far better than average insulation guarantees low heating costs. Optimised fire protection keeps insurance payments down. And noise protection by far exceeds statutory requirements.

The material

QDF members produce wooden materials for walls, ceilings and roofs from untreated natural wood. There is no need for chemicals, as constructive wood protection is the more intelligent solution. An extensive drying technique ensures durability and protects your investment. Aesthetics that will survive down the centuries.

Production at the works

Wooden panels for the walls and ceilings are produced at the factory shop. All QDF members are obliged to perform statutory auditing of their production facilities.

Assembly on site

The parts are stored in a dry place; protected against rain en route to the site, and assembled as fast as possible on site. A formal acceptance of the building helps you rest assured that everything is okay.

» Your new house is strictly monitored from the outset – this applies to the materials, production at the works, and assembly on site. «



Stop dreaming – and build!

Building can be so simple.

There has never been a better time to build a house than now. A home of your own is one of the most favourable building blocks in providing for your retirement. Home loan are at a historic low, and the state gives grants to home builders to cover part of the cost of building.

The easy way to your new home.

If you are interested in building, you need a competent and reliable

partner. Your QDF member will smooth the path into your new home: no red tape, and no unpleasant bills from labourers. No surprises with respect to deadlines and financing. And a single contact who is there when you want to talk.

See for yourself.

Plans and drawings can't hope to purvey a realistic portrait of your new home. QDF pre-fabricated homes show you the way: Show

houses are available at 600 locations throughout Germany – an invitation to see your dream today. Not just on paper, but in full scale, to touch and enter as you please. Come on in – your Quality Association of German Prefabricated Building Manufacturers member will be pleased to advise you.

For more information, surf to: www.bdf-ev.de

» Choose a reliable and competent partner! Your Quality Association of German Prefabricated Building Manufacturers partner will always be there when you need him. «



Saving energy is worthwhile

The world's energy requirements keep on increasing. Fuel consumption has increased by almost 60 percent in the past 25 years, in line with globalisation. And the craving for more energy is not growing constantly, but still accelerating. Whereas global oil consumption in 2003 was around 12.5 billion litres of oil per day, the figure rose to around 13.5 billion litres in 2005. Based on calculations by the International Energy Agency, IEA, our consumption will have risen to 18.4 billion litres a day by 2030.

Fuel prices keep on rising

Oil, gas and coal are the most important energy sources. The size of the reserves is a topic of controversial debate. The Federal Agency for Geo-Sciences and Raw Materials [BGR] estimates that the world's oil and gas reserves will not last much longer than the year 2050. And even if we don't use up all the oil, growing demand entails some serious risks: oil is becoming scarce, and thus more expensive. Consumers are starting to feel the pinch: heating oil prices went up by 33 percent between February 2005 and February 2006.

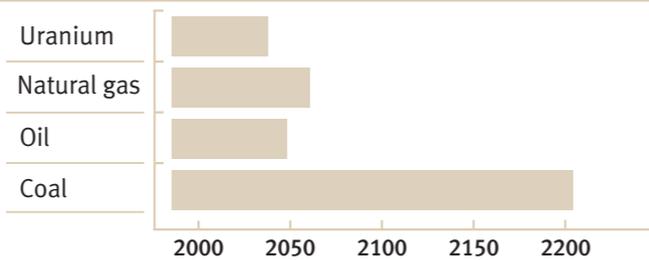
Climate protection is a political goal.

Combustion of fossil energy sources releases large quantities of carbon dioxide [CO₂] into the atmosphere, and is thus the biggest cause of the greenhouse effect and global warming. If we don't do anything about it, CO₂ emissions will rise to

approximately 20 billion tons per year by 2100 – about three times the current level – according to investigations by the international climate research committee IPCC. In this period, the earth's temperature could increase by up to 6 °C with catastrophic effects.

Renewable energy sources ensure a sustainable supply of power

Most conventional energy reserves will last just a few decades



Source: BGR



Sources: Arbeitsgemeinschaft Energiebilanzen [Energy Balance Working Group], www.ag-energiebilanzen.de · Bundesanstalt für Geowissenschaften und Rohstoffe [Federal Agency for Geo-Sciences and Raw Materials/BGR], www.bgr.bund.de · Bundesministerium für Umwelt [Federal Ministry of the Environment], www.bmu.de · Klimaschutz · Bundesverband Erneuerbare Energie BEE [Federal Association for Renewable Energies], www.bee-ev.de · Deutsche Bundesstiftung Umwelt DBU [German Federal Foundation for the Environment], www.dbu.de · International Energy Agency IEA, www.iea.org · Intergovernmental Panel on Climate Change IPCC, www.ipcc.ch

Thus, a considerable reduction of CO₂ emissions has become a foremost political goal in Germany, too. We need to increase the ratio of renewable energy sources compared to total energy consumption to 10 % by 2020. The introduction of an energy passport for buildings is just one political instrument for more energy efficiency, because this is one area in which substantial energy savings can be achieved.

Every house consumes energy – but the less the better.

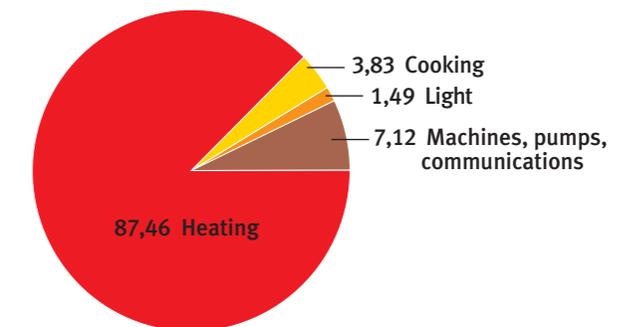
In Germany it is not industry or traffic that consumes the most energy, but private households.

They account for some 27.3 percent of total primary energy requirements. The lion's share of this, some 90 percent, is attributable to heating and water heating. House owners, and prospective builders, are starting to realise that a building's operating costs are becoming increasingly crucial: Saving energy is worthwhile.

An energy-efficient new building offers the best conditions for retaining independence of increasing fuel costs in a sustainable manner. Modern energy saving houses based on prefabricated wooden structures give home owners every technical option they could wish

for: highly efficient heat insulation, a customised heating system, and consistent use of renewable energy sources such as solar power, geothermal power or biomass. An energy saving house pays dividends your whole life.

What private households use energy for [in %]



Source: Solarwirtschaft.de/VDEW



Systematic insulation

Energy saving building means having a coordinated concept for insulating all parts of the building: exterior walls, windows, roofs, and the cellar ceiling. A pre-fabricated house takes a systematic approach into account for all of these components in the planning phase.

Wood as a building material that provides best-of-breed heat insulation

The lower the heat conductivity of a building material, the better its insulating properties will be.

Pre-fabricated houses are mainly made of wood, which insulates far better than stone or concrete. To achieve the same insulating characteristics as a 55 centimetre layer of wood, a full-brick wall would have to be three metres thick, according to the NRW Energy Agency. Pre-fabricated house walls actually save valuable space: the space savings amount to about 7 square metres for a floor space of 100 square metres, or the surface area of a small room, if you prefer.

Better than state-of-art

Pre-fabricated wooden building is a particularly innovative approach that is continually under development. As early as the 80s, pre-fabricated houses complied with energy

saving regulations that were not introduced until 20 years later. Today, the heat loss on the outer skin of the house must be at least 25 percent below the values permitted by energy saving regulations.

Protection against heat and cold – required layer thickness to achieve same effect [in cm]

Insulating material [WLG 040]	Thickness [cm]
Breeze blocks	51
Softwood	55
Porous	68
Vertically perforated bricks	246
Full bricks	344
Lime sand brick	421
Concrete	892

Source: Energy Agency North Rhine Westphalia

Multiple-layered wall constructions

Pre-fabricated houses use wall constructions consisting of multiple layers. The insulating materials are built into the wall cavity, and do not need to be applied to the outside, which is the case with conventional houses. This means that a pre-fabricated house wall will provide far better heat insulation, and thus more energy saving potential than a conventional brick-built of the same thickness. And this also means that the temperature inside

the house will be pleasant in summer. Every pre-fabricated house manufacturer has a special type of wall construction geared to their requirements.

Ecological insulating materials

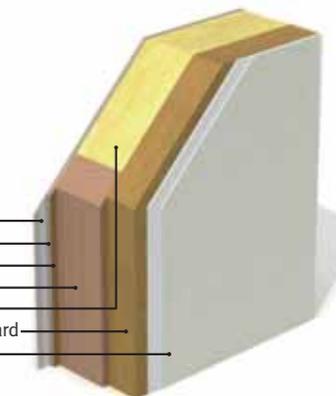
Rock wool is the most common insulating material today, simply because it is the cheapest. However, renewable raw materials like wood fibres, flax or sheep's wool are becoming increasingly popular as they guarantee a healthy indoor atmosphere.

Ecological insulating materials also have favourable characteristics with respect to building technology. And if an insulating material is listed by the Federal Ministry for Nutrition, Agriculture and Consumer Protection (Bundesministerium für Ernährung, Landwirtschaft und

Verbraucherschutz), you may be eligible for a grant. The development of insulation over time serves to underline the energy saving advantages that modern pre-fabricated wooden houses offer from the point of view of building physics.

Wall construction

Plaster board
Vapour barrier
Wooden boards
Timber work
Mineral insulation
Wood fibre insulating board
Plaster



Sources: Renewable Insulations Working Group [Arbeitsgemeinschaft für Dämmstoffe aus nachwachsenden Rohstoffen e.V.], www.adnr.info
Energy Agency NRW [Energieagentur NRW], www.ea-nrw.de · Agency for Renewable Raw Materials [Fachagentur Nachwachsende Rohstoffe e.V.], www.nachwachsende-rohstoffe.de · Information Service on Wood [Informationsdienst Holz], www.info-holz.de



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