Timber in a New Dimension

LAMINATED TIMBER
DERIX

LAMINATED TIMBER
POPPENSIEKER
DERIX

LAMINATED TIMBER DERIX and LAMINATED TIMBER POPPENSIEKER DERIX

Timber is a building material unlike any other: Its material properties and its life-cycle balance are outstanding. Timber as a natural construction material is ecologically sound and economically very cost-effective. This is the reason why the use of timber can be called visionary. Using timber helps us to safeguard the future for ourselves and coming generations.
As a leading manufacturer in the timber industry it is our aim to contribute to this common purpose. Now we would like to invite you to meet the Derix Group.

Our main field of business is structural engineering and the realisation of large timber constructions with glulam (glued laminated timber). In cooperation with our selected partners we undertake projects worldwide from conception to completion. It doesn't matter whether the projects are really challenging or rather conventional: Architects and engineers always appreciate our expertise and our problem-solving ability. You find our manufacturing plants situated in Germany (Niederkrüchten and Westerkappeln), and together with our branches in The UK, Uden (The Netherlands) and Wroclaw (Poland) we are looking forward to support our customers with advice and assistance.

The Derix Group is a modern and innovative family-owned company with about 150 employees and we pride ourselves of being a leader in the timber industry.

Production plant, Niederkrüchten

Production plant, Westerkappeln

»I have built the small house and my Dad the big one.«

Indoor-Playground Rieste

Address
Bullermeck-Alfsee
Spielscheunen und Freizeitanlagen GmbH
Barlager Straße 11
49597 Rieste / Germany

Constructor
Klabautermann
Indoor-Spielpark GmbH & Co. KG,
Bensersiel

Architects
Obben-Ihnken-Ofken, Esens

Calculations/Planning of Supporting Structure
Poppensieker & Derix GmbH & Co. KG,
Westerkappeln

Technical Specifications
- Span length 40 m
- Area 2,600 m²
- Curved gabled roof girders with a span length of 40 m

Wood is atmospheric

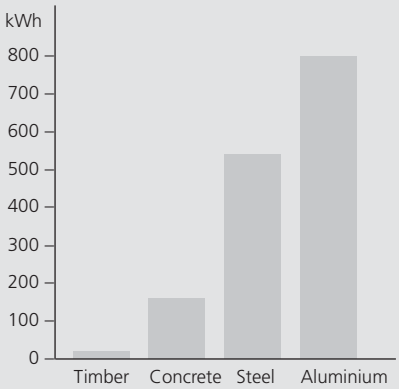
Making a building cosy and warm depends on the materials used. In this respect wood has enormous benefits. This is why wood is very often implemented in gymnastics, leisure halls or assembly rooms.

Ecology and Climate Protection

As climate change is one of the most important environmental topics nowadays, an effective management of energy use becomes more and more important. Thus, it is worth stating at this point that the decision to use timber is both responsible and economic for manufacturers as well as constructors.

Energy Costs

For the manufacture of m^3 building material you need:



Conservation of nature and natural resources

Timber is a nearly endless renewable natural resource. 90 % of the timber which is used in Europe has its origin in European forests. Due to sustainable agriculture and forestry, which means that the number of trees which are cut down is a lot smaller than the number of trees that are growing, the tree population in European forests is increasing annually. As environmentally aware manufacturers we have committed ourselves to use almost exclusively European timber in order to keep transport routes as short as possible.
Trees withdraw carbon dioxide from the air, absorb the carbon and produce oxygen. When considering the life-cycle-balance of wood, the use of timber as construction material clearly outperforms other building materials such as concrete or steel. As the use of wood as a raw material is CO_2 neutral, the use of timber as the building material of choice can be seen as an ecologically sound alternative. The eco-balance and life-cycle assessment of timber buildings are excellent and this is the reason why the use of timber as a building material can be seen as an active and substantial contribution to climate protection.

Saving of energy

More energy can be produced from the remnants of timber products than is required in order to produce timber products. This is the reason why it is justified to define timber as a plus-energy-product. Hence it follows that timber clearly outperforms any other comparable building material. To some extent this can be attributed to the fact that timber is a lightweight product with an extraordinary strength and stability. Further to that, the cellular structure of timber serves as a natural insulator by trapping air in its cell walls. Consequently, timber buildings need far less energy than steel and concrete buildings. As the moisture content in timber buildings is balanced naturally, the climate in timber buildings is also very healthy and comfortable.
As a result from these advantages it seems logical that timber is more and more employed as a very attractive and energy-efficient building material.

Weight and Transportation

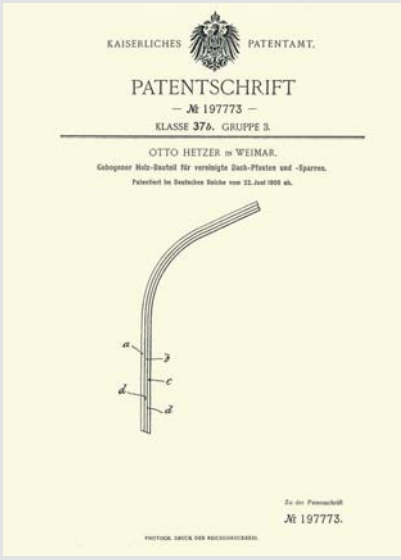
In comparison with concrete, timber has the following advantages:
- 20 % of the self-weight although the load-bearing capacity remains the same
- causes only 20 % of the freight charges
- Emissions are decreased and the climate is protected

The Product and its History

Over one hundred years of development has resulted in a product for the building industry of today.

History Details

In 1906 the patent Nr.: 197773 was granted to Otto Hetzer a master carpenter in Weimar, Germany from the former "Imperial Patent Office" in Germany. He received it for his invention of gluing together timber lamellas under pressure and securely connecting them, to achieve a very sustainable construction material in a bended form.
With this technology he was able to construct very sustainable buildings. In the past laminated timber beams were better known as "Hetzer-Beams". In 1910 at the Universal Exhibition in Brussels the "German Railway Hall" with a wide span was built as an outstanding example.
Because of higher stiffness than solid timber and low costing in comparison with concrete and steel, nearly 300 buildings with a span up to 45 m were built in the early beginning of the 20th century. On a licence basis the patent was used in Germany, Austria, Italy and Switzerland.
In the second decade of the 20th century Hetzer's patent was further developed to the "Glulam" (Glued laminated timber) product as we know it today.
Recent important improvements towards today were the introduction of finger-jointing, mechanical sorting and drying of the raw material, invention of new, faster glues and final working with CNC-processing-machines.


KAISERLICHES PATENTAMT.

PATENTSCHRIFT

— № 197773 —

KLASSE 37b. GRUPPE 3.

OTTO HETZER in WEIMAR.

Gebogener Holz-Dunkel für vereinigte Dach-Pfosten und -Sparren.

Patentirt im Deutschen Reiche vom 22. Juni 1906 ab.

№ 197773.

Patent, Otto Hetzer, 1906

The Product

Glulam is an industrially manufactured product used for load-bearing structures. It consists of at least three layers of dried softwood boards or board lamellas glued together with their fibres aligned parallel to each other. It is normally made of spruce as standard, but on request it can also be supplied in fir, pine larch or Douglas fir.
The current manufacturing process permits considerable variations in cross-sectional form, geometry and size of the structural elements. Regarding dimensions, there are nearly no limitations.
Glulam (also known as laminated timber beams or laminated timber) has outstanding material characteristics in comparison with other building materials. Because of its very low weight transportation is pretty economical, a high degree prefabrication is possible and saves erection time and costs. In addition to this its resistance against chemically aggressive climates and also the smooth surface, that avoids damaging deposits, are further advantages.
And last but not least its extraordinary fire resistance is another benefit. Although it burns, during a fire a layer of charcoal is formed on the surface of the wood which protects the inner core from the heat, reduces the oxygen contact and delays further burning. For practical use this means that without any surface protection and any additional provisions laminated timber constructions in the main have a fire resistance of 30 minutes.

Manufacturing Process

To get a rough overview we summarize the production process of glulam as follows:

Drying ► Grading ► Finger Jointing ► Gluing

Drying kiln

Sorting machine

Woodeye-Scanner

Drying of the raw material

The timber is kiln-dried to a moisture content of 10±2 % for maximum bond-strength and glulam stability.
The softwood boards are first carefully dried in modern drying kilns and then planed. By drying the lamellas individually before gluing it is possible to guarantee that the wood in glulam with even the largest of cross-sections has been dried to a standard wood moisture content of approx. 12 %. In addition, since the lamellas have already been dried before gluing, the amount of internal stress generated by later drying is considerably reduced and with it the propensity for cracking.

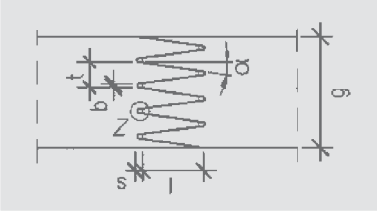
Grading of the raw material

The dried boards are sorted by machine according to strength and visual appearance. Grading is on the basis of DIN 4074, which already meets the requirements made by EN 14081 for national grading regulations. For the higher surface qualities the facing lamellas for the construction elements are also subject to other grading criteria not just the strength criteria, therefore we use a Woodeye-Scanner. Any sections of boards with growth defects discovered during grading which could reduce the strength of the timber or look unattractive, e.g. large knots, resin galls and ingrown bark can be cut out, subject to the strength class and surface quality class. The timbers are sorted into four strength classes based on amount of knots, bulk-density and bending E-Module.

► Planing ► CNC-Processing ► Coating

Finger Jointing

In order to produce highly efficient beams the individual lamellas can be chosen from different strength classes, to suit the load requirement of the beam.
The graded lamellas now go through the finger jointing machine. There appearance defects are cut off and the finger joints of the laminates are moulded and glued together under pressure to form an "endless" board. After that the lamellas are planed to the required thickness and cut to the necessary length. It is possible to produce individual cross-sections with heights of up to 3 m and lengths of up to 65 m.



Fingerjointing scheme

Gluing

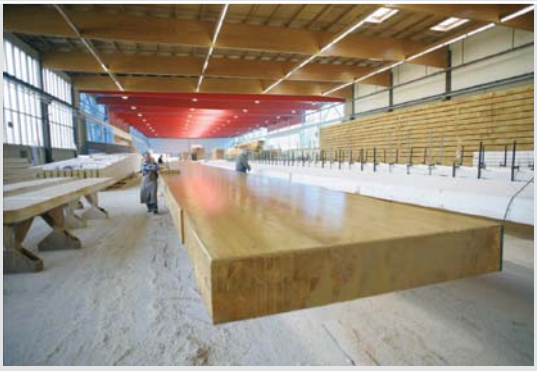
Adhesive mix is applied to the faces of the laminates and the glulam is placed into hydraulic jigs. There the shape is formed by several jigs side by side.
The glues used for glulam are high-performance glues. Since the glue joints are extremely thin (approx. 0.3 mm) they are hardly even noticeable, especially with the light coloured glues normally used. Measurements have confirmed that the formaldehyde emissions of the glues used are well within the limits of the forthcoming European EN 14080 standard on glulam (E1 class, i.e. formaldehyde emissions of less than 0.1 ppm in a pre-defined test). Standard glulam also easily meets the requirements of emissions class F0.

Gluing machine


Moulding press

Manufacturing Process / Range of application

Glulam beam after final CNC-processing



Coating of a glulam beam

Planing / CNC-Processing / Finishing

After gluing the beams are planed to get a smooth surface. We use the state of the art CNC-machines for machining the glulam members for metalwork, fixings and connections. Curved and big beams are machined on a 36 m long and 6 m wide frame, which can rotate through five axis and automatically choose the required tools. Works as drilling, milling, sawing etc. can be done in the factory to a very high degree of precision as the electronic CAM-working file is automatically generated out of the CAD-construction.
Final surface finishes and fitting of connectors such as steel parts fitted in the factory to simplify erection on site.

Transportation and Lifting

The transportation can be done by truck with length up to 65 m, by train, ship or a combination. We have great experience of European wide transportation.
Timber is well known to be easy to erect and handle. Fixings to glulam are easier and less complicated than to other structural materials.
Due to glulam's lightweight the transportation costs are much lower than those for steel and concrete. A structural steel beam is typically 100 % heavier and concrete beam 500 % heavier than an equivalent glulam beam. Glulam's low weight also allows savings to made on foundations and erection.

Range of application

Glulam can be used in nearly every possible building. Apart from its economical and ecological advantages a major reason for its use is its extraordinary fire resistance.

The main field of business of our company is structural timber engineering (CAD/CAM) and building of timber constructions for industrial halls, gyms, swimming pools, agricultural buildings as well as for private persons or municipal clients.

International References

To give you a short overview of our operating efficiency please find as examples the following international projects in glulam in which we have been involved.

Europe

Amsterdam Passenger Terminal, Amsterdam, The Netherlands
Navy Storage Halls, Den Helder, The Netherlands
Nucleair Magnetic Recource, University of Nijmegen, Nijmegen, The Netherlands
Production Hall Paper Mill, Hexham, Scotland
Sports Village, Stirling, Scotland
Concert Hall at Milton Road School, Cambridge, England
Winter Garden, Sheffield, England
Tennis centre, Letchworth, England
Swimmingpool, St. Albans, England
Cork Airport Building, Cork, Ireland
Agricultural Storage Hall, Wedrynia, Poland,
Swimmingpool, Wrozlaw, Poland
Sportshall, Lochow, Poland
Production Hall, Boswill, Switzerland
Bus Garage, Cannach, Luxembourg
School Buildings, Redange, Luxembourg
Production Plant, Radauti, Romania
Bus Centre, Almerin, Portugal

Worldwide

Storage Halls, Pennsylvania, USA
Airport Terminal, Ben Gurion Airport, Tel Aviv, Israel
Swimming Halls, Rahnana, Israel
Kyung-Ju University, Seoul, South Korea
Churches, Youngrak, Sangyongdong, Song Huyn, South-Korea
Princess Beach Hotel, Curacao Islands

These are only a few examples. Please contact us for further information and details of any of our buildings in your area.

Garage fire brigarde Wijchen, The Netherlands

Cork Airport Building, Ireland

»The wooden roof construction of our new elephant park is really impressive. And thanks to the natural building material, it has been possible to create a habitat for our elephants that comes as close to a natural habitat as possible. The atmosphere here is so peaceful and relaxed and the elephants feel so comfortable, that we were able to celebrate the birth of an elephant baby recently. Who could wish for more?«

Elephant Park at Cologne Zoo

Address
Kölner Zoo
Riehler Straße 173
50735 Cologne / Germany

Constructor
Zoologischer Garten, Cologne

Architects
Oxen + Römer + Partner, Hürth

Calculations/Planning of Supporting Structure
Ingenieurbüro für Holzbau
Stefan Schlechter, Albstadt

Technical Specifications
- Roof area 3,100 m²
- 7 columns bear the shield construction with a diameter of 20 - 25 m
- High precision and accuracy by CNC-processing
- Enormous bearing pressure of roof-construction

Wood is high-tech

With laminated timber, even bearing structures with a high complexity and outstanding architectural value are possible to produce cost effectively. This high-bearing structural material in combination with the implementation of modern CAD-, CAM- and CNC-techniques leads to unique possibilities in design and structure. Nevertheless, erection is done smoothly and fits perfectly.

Arched Beams and Constructions

When it comes to the design of extraordinary hall and roof constructions our clients appreciate our expertise. As laminated timber can be manufactured to an almost limitless variety of shapes and sizes, the potential of glulam as a structural material is limited only by the architect's imagination.

Car dealer, Rostock / Germany

Swimming pool, Minden / Germany

Span lengths

When laminated timber is used as a building material for supporting systems the design of the construction is nearly always impressive. It doesn't make any difference whether the construction consists of twisted or curved beams or if the structural members span large distances: Laminated timber beams seem to override the forces of gravity. Whereas early days of glulam construction, spans were limited to 45 m, today we are able to supply structural members with a span length up to 150 m.

Timber buildings

Architects appreciate that laminated timber offers an extraordinary artistic freedom without loosing the important requirements a building material needs to have. Thanks to our modern CNC-unit we are able to manufacture structural members with unrivalled precision and extraordinary accuracy. The use of modern technology allows us to conceptualise and create eye-catching designs and seemingly transparent constructions. Also composite constructions and the most complicated truss systems can be easily created, also in combination with steel.
Experience and expertise are of utmost importance when it comes to the design of complex construction projects. We have vast experience in the design and construction of sports halls, we know everything about the requirements, rules and regulations. Compared with other building materials, timber has many advantages to offer. First of all, the fire-resistance performance of timber constructions is excellent. Secondly, supporting systems in timber can be combined easily with any kind of roof-covering. Last but not least, the use of pre-fabricated structural members in timber guarantees a fast construction period. Further to that, timber halls are nearly maintenance free and economically very cost-effective.
When it comes to the realisation of your building project, please don't hesitate to ask for advice and assistance. We are looking forward to discuss the advantages of modern structural engineering.

Straightness and Individuality

We also provide straight structural beams of excellent quality, custom-made and manufactured according to your requirements, on consignment upon request. It goes without saying that this service is available for orders of all sizes.

Made-to-measure

Each order is different and each consignment consists of different cross-sections. Thanks to our express line programme all beams are made-to-measure, in quick time and to excellent quality. With our modern production line we are in a position to manufacture straight members of laminated timber in any shape and size you can think of: Cut accurately to the nearest millimetre in lengths from 2.5 m to 18 m, in heights up to 1 m and widths up to 0.30 m.

Economic efficiency

Where non standard sections are required consignments can be manufactured and cut to the correct size freeing up site labour, and reducing costs and site wastage. All this combines to prove that our custom made glulam on consignment can be much more cost-effective.

Thanks to our new express-line unit with an integrated CNC-unit on demand you will receive structural beams that have been manufactured cost-efficiently and are ready for assembly on site.


191
191
Landgard
Hako
DETA

»All day long, I'm concerned with nature: I attend to all kinds of plants and flowers, and this hall is a natural environment as well. But if you think that this is a job where I can take it easy and watch the plants growing, you'll be wrong. Usually, we have a hectic rush over here. If this job had been quiet and relaxing, it wouldn't have been possible to achieve the requested results.«

ZONRW
Flower Auction Straelen

Address
Landgard Blumen & Pflanzen GmbH
Hans-Tenhaeff-Straße 44
47638 Straelen / Germany

Constructor
NBV + UGA Handels GmbH, Straelen

Architects
Arbeitsgemeinschaft für Tragwerksplanung
Dipl.-Ing. Heinz Tebartz sen., Kevelaer

Calculations/Planning of Supporting Structure
Ingenieurbüro Lohmann/Oymann, Xanten

Technical Specifications
- Area 81,000 m²
- Max. Span length 38 m
- Fire resistance F30/F60

Wood for good

Very often architectural requirements are not so important in industrial buildings. In addition to technical demands, resistance to fire and chemically aggressive climates, wide spans and a short erection time, laminated timber is very cost-effective, too. Optimized roof bearing structures in laminated timber are not only cheaper but also require less maintenance.

Technology and Machines

It is our objective to explore and enhance the potential of laminated timber as a building material. According to our philosophy high-tech equipment as well as innovative technology are the key elements to achieve this goal.

Rotating moulding press, Express-line

Tool kit, CNC processing machine

Technology

As it is our aim to manufacture a high-quality end-product, the source material we use is a crucial factor. This is why we use a highly-developed sorting machine that helps us to evaluate automatically each individual lamella by x-raying, bending and scanning. With the help of this special technology, we are able to sort and evaluate the material according to its optical and mechanical characteristics. This procedure enables us to adjust the source material according to the different statical demands of the beam required.
Our storage system is organised using full automation, this allows the raw material to be processed effectively and accurately. In order to facilitate and improve handling of the material, a bar code is put on each individual structural member. Hence it follows that each single peace of wood can be tracked on its way from raw material until it becomes a finished-product.
Our modern CNC-units allow us to process structural elements up to a length of 45 m and a width of 6 m, accurate to the millimetre and with high precision and repetitious accuracy. The CAD-programme transfers the relevant data directly and state of the art laser technology ensures the exact adjustment of each individual work piece. Further to that, an automatic steering device with five axis facilitates a three-dimensional processing of the work piece.

Teamwork

Thanks to ultra modern technology and equipment we are able to optimise the inherent material properties of laminated timber. In close cooperation with our suppliers we always strive to improve the production process so that it is possible to embrace the increasing requirements of today's building industry and further enhance the potential of laminated timber as a building material. Our highly motivated experts are excellently prepared to handle each new challenge and are able to guarantee that the production process goes off smoothly.

As a modern manufacturer we believe that high tech equipment and innovative technology are absolutely necessary in order to perform effectively in the business world of today. But the human being with his or her needs, requirements and talents will always be the centre of our attention.

Frontiers and Challenges

We pride ourselves of being a modern and innovative company that likes to turn challenging situations into promising opportunities. We like to exceed expectations and transgress boundaries. We always look forward to undertaking building projects on an international level, now matter how extraordinary or exceptional they seem to be.

Countries

Although our production plants are located in Germany, customers all over Europe benefit from our expertise. As one of the leading manufacturers of laminated timber the Derix Group has customers in Italy, Spain, Poland, Romania, the Netherlands, France, Great Britain and Ireland. With our problem-solving ability we embrace each new challenge with fresh ideas, experience and expertise, and even international projects in countries as far away as Korea are carried out efficiently and effectively.
With regard to transportation we have several delivery options to offer: With a track system that begins at our production plants we are able to organise transport by rail efficiently. Further to that delivery can be carried out by truck as a special transport, by ship or as a combination of various means of transportation.

Solutions

We pride ourselves of being a modern and innovative company that relishes the challenge of making the impossible become possible. As we have committed ourselves to provide the best service in the industry, the requirements of our customers are always the main focus of our activities. So when it comes to your project from the beginning right up to its completion we are the right partner, and we are always able to provide advice and assistance no matter how extraordinary or exceptional the project seems to be.
We always try to build mutually satisfying long term business relationships with our customers. It is our aim that you as a customer are happy and content with the decision of having chosen the Derix Group as your partner for your project.

Terrestrial magnetic field simulator, Lehmbek / Germany

Heavy lorry transport with over-width

»I'm proud to work at Cork Airport. With all the airplanes, the technology and the people here at the airport I feel connected to the rest of the world. Nonetheless, I really like to live in Ireland because it keeps me grounded. The people in Ireland love nature, so this new terminal with timber as a natural building material is really appropriate.«

Cork Airport

Address
Cork Airport
Cork
Ireland

Constructor
AerRianta, Shannon Airport, Co. Clare, Ireland

Architects
Jacobs Engineering, Dublin

Calculations/Planning of Supporting structure
W.u.J. Derix GmbH & Co., Niederkrüchten

Technical Specifications
- Area ~15,000 m²
- Max. Span length ~45 m
- Fire Resistance F30b

Naturally Wood

A lot of buildings nowadays seem to be very impersonal and clinical because of their focussing on technical processes and economical requirements. Wood is able to balance this atmosphere.


MOTOROLA

Quality and Quality Control

We have committed ourselves to supply excellent quality. Hence it follows that our own quality standards are very high.

All waste from our production lines is used either to produce energy or is further processed again.

Documentation

It goes without saying that complete knowledge about the flow of materials is very important. Of course this refers not only to the supply of raw material, but applies also to the delivery of the manufactured material to our customers. In this regard we would like to emphasise that 100 % of the raw material we receive comes from sustainable forestry in Europe which are in surplus production, stable and well-managed. 95 % of the timber we receive are PEFC-certified. Right after the raw material arrives in our manufacturing plant, it is visually screened by our experienced employees. Then it is evaluated automatically so that any irregularities can be identified immediately corresponding to the supplier. Thus, quality evaluation is an integral part of our material planning process. As an authorised manufacturer of laminated timber we have respective certificates that demonstrate that our manufacturing process strictly adheres to the national standards and the European norms and regulations which have been established in the industry.
All glues and adhesives used in our manufacturing process have been approved and certified by an independent institute for material testing. It has been approved and acknowledged that our glues and adhesives serve as a protection against moisture, changes in temperature, and most acids and bases.

Inspections

In order to optimise our quality management, we make sure that the end-product is tested by random inspection regularly. Further to that, the gluing of the finger-joints is tested on a daily basis and we also check the quality of the lamination very closely. Our customers can rely on the fact that they receive excellent quality.
In Germany, manufacturers of laminated timber have to be able to demonstrate responsible manufacturing processes. So twice a year there are unannounced inspections by an independent certification institute. On the occasion of these unannounced inspections the manufacturing process and the record keeping procedures are inspected, the material is tested and samples are taken and submitted to the Federal Institute for Material Testing.

Certificates and Awards

Certificates

- CE-Conformity Marking
- Quality Mark Laminated Timber Construction
- KOMO-Certificate, The Netherlands
- ÖEN 386 Certification
- Eignungsbescheinigung für die maschinelle Schnittholzsortierung (certificate that demonstrates that the manufacturer is authorised to evaluate the material automatically), issued by Institut für Holzforschung, University of Munich – HFM
- Certificate A, issued by Otto-Graf-Institute (certificate according to DIN 1052), as a confirmation that the manufacturer is an authorized manufacturers of glulam

Awards

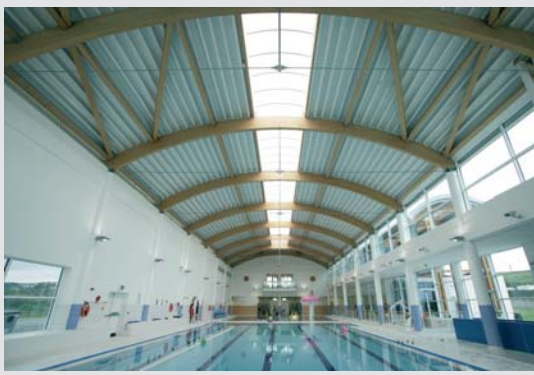
- Timber Construction Award 2000 North Rhine-Westphalia
- Timber Construction Award 2006 North Rhine-Westphalia (Tribute)
- Material Efficiency Award 2005 by Ministry for Economy and Technology

HFM
Holzforschung München

»This is really the first time in our lives that we are visiting an indoor pool. As everybody talked about this fantastic pool, we also wanted to enjoy the new indoor pool. And now we are having so much fun, we will definitely come back.«

Wood remains young

Wood is one of the oldest building materials of the world. But because of its sustainability and together with modern technologies and engineering wood becomes the building material of the future.



Indoor Pool Cork

Address
BV Leisure Centre Youghal, Ireland

Constructor
Aura Leisure Centres, Dublin

Architects
JODA Engineering Contractors, Ireland

General Contractor
Rohon Ltd., Ireland

Technical Specifications
- Suspended arched beams
- Max. Span length ~ 25 m

Scope of Delivery

Structural Laminated Timber and Straight Laminated Timber

Cork Airport, Ireland

Sports hall, Düsseldorf / Germany

Supporting Structures

Structural glulam with every kind of dimension in between:

- 8, 10 ... 30 cm width
- up to 260 cm height
- up to 65 m length
- Double pitched truss with straight bottom chord
- Double pitched truss with raised bottom chord
- Three-hinged frames
- Curved beams
- Multiple-span girders
- Fish bellied girders
- Purlin systems
- Columns

Express Programme

Cross-sections in between:

- 6 and 30 cm width
- 10 and 100 cm height
- 2.5 to 18 m length
- as well as custom products or shorter lengths

Stress Grades according to DIN 1052 (new)

- GL 24h/c (BS 11)
- GL 28h/c (BS 14)
- GL 32h/c (BS 16)

Surface-Qualities

- Architectural appearance
- Natural appearance
- Industrial appearance (upon request)

Laminated Timber Panels, Round Columns, Timber-Concrete Composite Constructions

Laminated Timber Panels

Designed as
- blunt
- notched
- spring not fixed
- single nut and fixed spring
- double nut and fixed spring

- Height 6 - 30 cm
- Width 12 -100 cm
- Length up to 18 m
- Stress Grade GL 24h/c (BS 11)
- 40 mm lamellas

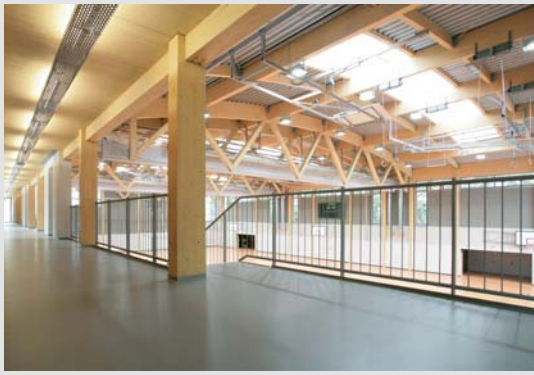
Timber-Concrete Composite Constructions

- Ceilings for residential and industrial buildings, office buildings
- Bridge-constructions
- Roof- and wall-constructions

Round Columns

- selected timber quality
- with a sanded surface
- Cross sections from 12 to 40 cm
- Lengths up to 12 m
- Stress Grade GL 24h/c (BS 11) and superior stress grades shall be supplied upon request

Sports hall, Düsseldorf / Germany



Gliding museum, Wasserkuppe / Germany
photo: Nicole Meisinger

For further information and technical details please refer to our free download material which is available on our website: **www.derix.de**

Please don't hesitate to contact us by mail, fax or phone.
We are looking forward to offer advice and assistance or provide a quotation.

LAMINATED TIMBER DERIX

LAMINATED TIMBER POPPENSIEKER DERIX

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