

# ROOF PANELS

FAST . ECONOMICAL . VERSATILE



Produktionshalle Kieselinger  
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**WIEHAG**  
TIMBER CONSTRUCTION



REFERENCE: GEWO Feinmechanik GmbH, Hörlkofen. Architect: Michael Jaksch. 3,320 m<sup>2</sup> of cold store flat roof, fully insulated 220 mm ceiling claddings with acoustic trapezoidal panel.



# WIEHAG ROOF PANELS

## FAST . ECONOMICAL . VERSATILE

A leader in modern timber construction, WIEHAG combines 160 years experience with innovation to offer our clients single source solutions from consultancy, design, engineering and production, through to logistics and installation. Speed, economy and versatility paired with quality and safety form the basis of our success. Especially in industrial and commercial building construction, building owners profit from WIEHAG's cost-effective solutions and very short construction periods.



### High degree of prefabrication

- Up to 97 per cent prefabrication
- High-tech production facilities mean economical, high-quality products, with low waste



### Short production and installation times

- 6,800 m<sup>2</sup> of finished roof can be installed in a week
- The light weight of WIEHAG's roof panels & just in time delivery means transport costs are reduced



### Versatility & quality

- Choice of different ceiling claddings and finishes
- High insulation rating, high-quality EDPM roofing membrane used
- Element joints insulated - Z-joint
- Standardised connections and details
- Excellent thermal and acoustic properties



# WIEHAG ROOF PANELS ADVANTAGES OF TIMBER

## High heat insulation value – passive house standard

- U-value of  $< 0.15 \text{ W/m}^2\text{K}$
- Insulating materials with thermal conductivity group from 032 to 038
- U-value calculations provided for each solution

## Best soundproofing – solid insulation

- Panel thickness starting from 160 mm
- Sound insulation value from  $R_w 48 \text{ dB}$  to  $R_w 65 \text{ dB}$

## High moisture protection – an added advantage

- Annual re-drying potential over  $500 \text{ g/m}^2$   
(Fraunhofer Institut recommendation min.  $250 \text{ g/m}^2$  per year)

## Best fire protection values

Due to its precisely calculable fire properties and predictable fire behaviour, wood offers excellent fire protection values that exceed most fire safety requirements.

## Fire resistance classes

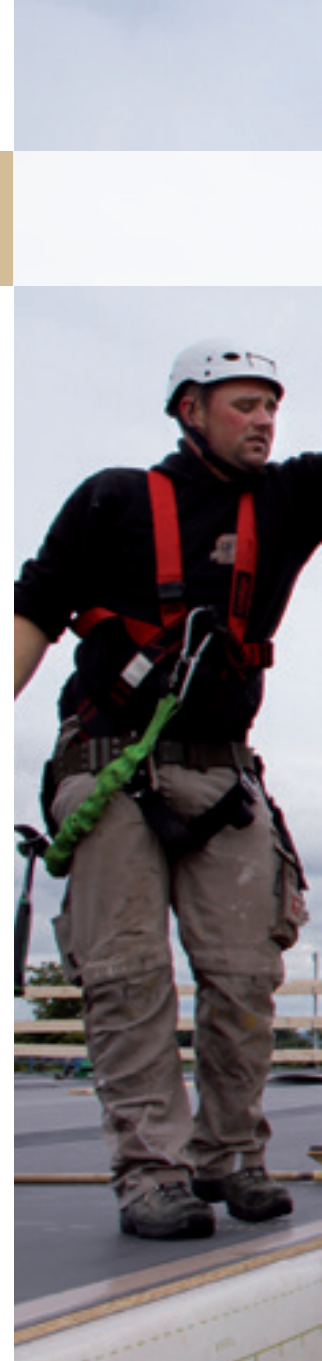
- REI 30 Flame retardant, even from an insulation thickness of 200 mm
- REI 60 Highly flame retardant
- REI 90 Fire resistant

## Safety – tested and certified

- DIN, EN, ÖNORM, ISO 9001
- PEFC approval, wood from sustainable forestry
- ÜZ approval external monitoring in Germany by the Materials Testing Institute (MPA), Stuttgart
- ÜA approval external monitoring in Austria by Holzforschung Austria

## Building material advantages – naturally convincing

- Resource-conserving, renewable raw material
- $\text{CO}_2$  neutral - wood binds carbon
- High strength and load-bearing capacity, reserves even in the event of fire
- Resistant to exposure of chemical substances (chlorine, salt air, etc.)
- Durability





REFERENCE: Berglandmilch Geinberg, 6,800 m<sup>2</sup> of finished roof installed each week

## Ecology

### Wood is a climate protector

A renewable raw material from domestic, sustainable, forestry, wood binds carbon and thus lowers CO<sub>2</sub> emissions: (1 tonne of CO<sub>2</sub> is stored in 1 m<sup>3</sup> of wood). The timber off cuts & sawdust are used to generate energy, and last but not least, wood creates a healthy living environment.



WIEHAG uses wood from sustainable forestry (PEFC approval).



WIEHAG holds all the certificates for high quality assurance.

# WIEHAG ROOF PANELS STANDARD

## BENEFITS OF WIEHAG ROOF PANELS

### Use of the high-quality EPDM roofing membrane

EPDM roof membrane is the ideal material for the sealing of flat roofs, back-ventilated facades and even garden ponds:

- **Up to 500 per cent stretch**, remains highly elastic even at temperatures from  $-40\text{ °C}$  to  $+120\text{ °C}$
- **Decades of service**  
according to the Süddeutsche Kunststoffzentrum (SKZ) Würzburg, more than 50 years
- **Ageing and ozone-resistant**  
without additional surface protection
- **UV and IR-stable** and resistant to a large number of chemical substances

As EPDM contains no volatile additives, these films do not become brittle or crack due to UV radiation.

### WIEHAG offers a **10-year material guarantee!**

By using the 2.65 m wide, seamless EPDM roofing membrane, the number of sheet seams is reduced by 50 per cent compared with other applications and panels, and this enables WIEHAG to offer a 10 year material guarantee.

## TECHNICAL SPECIFICATIONS

**FORMATS:** Length: Standard 16 m, with up to 22.5 m possible; Width: between 2.5 m & 3.8 m  
**THICKNESS:** Depth depends on structural analysis and specification (acoustic & thermal insulation etc).

### MATERIALS:

**Roof membrane:** EPDM roofing membrane without volatile additives, penetration-free fixing with factory applied full-surface adhesion.

**Material thickness:** 1.52 mm, resistant to sparks and radiant heat, hard roofing according to DIN4102 Part 7 and DIN EN13501-5.

**Boarding:** OSB (oriented strand board), bulk density approx.  $650\text{ kg/m}^3$ , U-value 30/50,  $\pm 0.13\text{ W/m}^2\text{K}$

**Frame:** Structural timber, technically dried 15% moisture content ( $\pm 3\%$ ), planed solid Spruce/fir with defined dimensional accuracy.

**Insulation:** Mineral wool (WLG 038) water-repellent finish, melting point approx.  $1,000\text{ °C}$ , Euro Class A1.

**Membrane:** Breathable polyamide foil vapour barrier in WIEHAG custom width, Sd value 0.2 - 5.0 m without joint – excellent air tightness & performance.

**Ceiling Claddings / Soffit:** variable (see page 9)

### PROPERTIES:

**Thermal insulation:** Total U-value of  $0.19\text{ W/m}^2\text{K}$  (with an insulation material thickness of 200 mm, wood content 9.6%), thermal conductivity 0.38.

**Moisture protection against humidity:** drying potential  $500\text{ g/m}^2$  per year

**Fire protection:** REI 30 (under full load!)

**Sound insulation:** Rw 48 dB

**Improved building air tightness** owing to certified solutions for joints and penetration, which save energy costs. With a panel thickness of 235 mm, the U-value including joint is only  $0.19\text{ W/m}^2\text{K}$ . With 310 mm only  $0.14\text{ W/m}^2\text{K}$ . Moisture protection begins during installation





**WIEHAG PRE-FABRICATED ROOFING PANELS**  
 Certified panel joint  
 High-quality insulation  
 Proven air tightness

**ROOF MEMBRANE**  
 1.52 mm  
 EPDM roofing  
 membrane

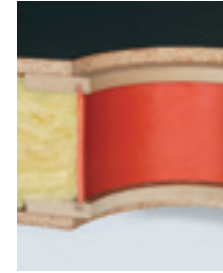
**OSB**  
 Oriented Strand  
 Board or unfinished  
 chipboard

**TIMBER**  
 Structural timber,  
 technically dried  
 to 15% moisture  
 content (± 3%)

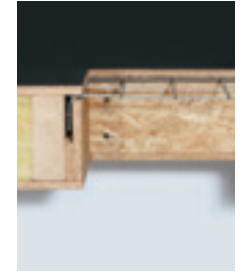
**HIGH-QUALITY INSULATION**  
 Mineral wool,  
 water-repellent finish

**MEMBRANE**  
 breathable polyamide  
 foil; WIEHAG custom width

**WIEHAG DETAILS**



WIEHAG pipe route certified



WIEHAG Roof lights rough opening with pre-installed fall arrest



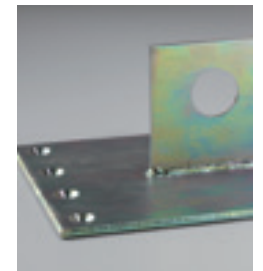
WIEHAG Roof Drainage System



WIEHAG Secupoint



PV bracket



Snow guard bracket

# HIGH-QUALITY MATERIALS

## TAILORED VERSATILITY FOR OPTIMUM SOLUTIONS

The choice of the right material is crucial for the function and the appearance of the building.

WIEHAG uses high quality, proven materials:

**Roof sealing:** Foil roof, high-quality EPDM roofing sheet

or alternatively metal roof/sliding arch roof

**Timber:** Structural timber or glued laminated timber

**Insulation:** Mineral wool, alternative insulating materials possible  
(e.g. cellulose, rock wool, etc.)

**Ceiling Claddings:** OSB, WIEHAG acoustic panels, gypsum fibreboard, sheet with trapezoidal corrugations, living boards, flat-edge boarding, perforated materials. (colour coatings possible)

For a particularly sophisticated look, we recommend our WIEHAG 3-layer solid wood boards.



OSB ceiling claddings white – Reference: Bernecker + Rainer Eggelsberg canteen



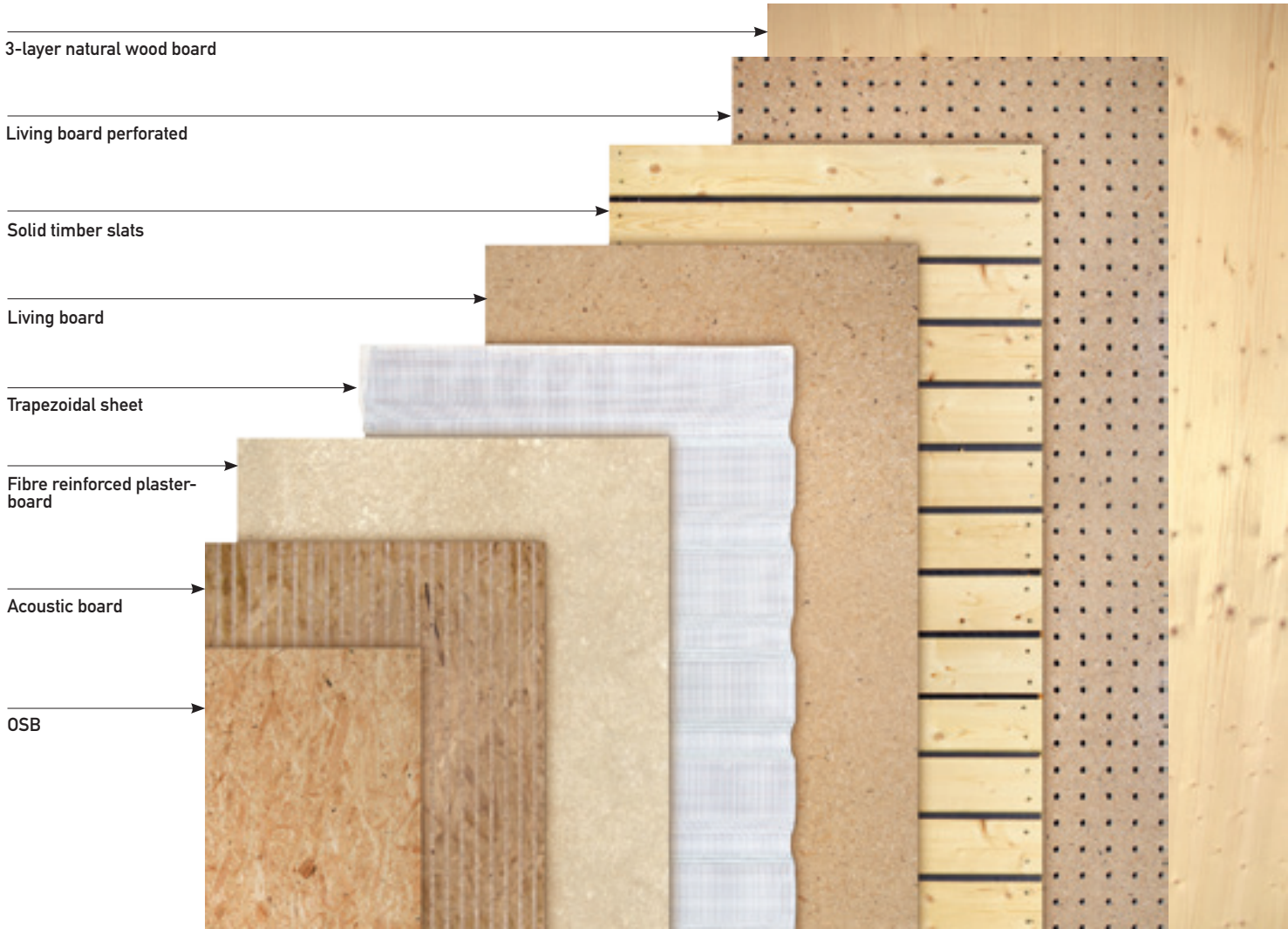
Caption:



# ROOF PANEL CEILING CLADDINGS



Trapezoidal ceiling cladding – Reference: ELMAG





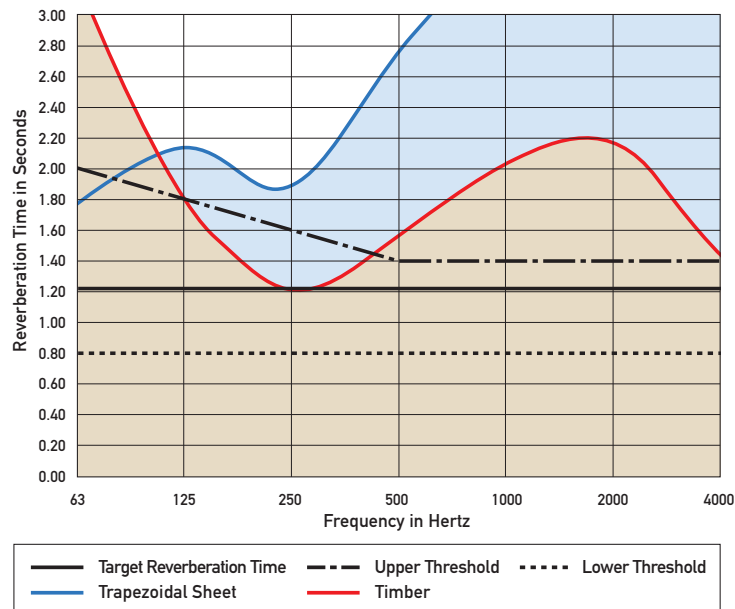
REFERENCE: Burgkirchen Multi-Purpose Hall with acoustic ceiling claddings, Architect: Riepl-Riepl.





# FIRST-CLASS SOUNDPROOFING

A variety of installation configurations to meet your project's soundproofing needs and requirements.



**WIEHAG offers optimal solutions from concert halls to sports halls**

- **WIEHAG slotted acoustic panel**  
Sound absorption coefficient  $a_w = 0.45$ , fire protection REI 30
- **WIEHAG perforated acoustic panel**  
Sound absorption coefficient  $a_w = 0.67$ , fire protection REI 30
- **WIEHAG perforated trapezoidal sheet**  
Sound absorption coefficient  $a_w = 0.90$ , fire protection REI 30
- **Flat-edge boarding**  
Sound absorption coefficient  $a_w = 0.58$ , fire protection REI 60

Reverberation times can be reduced using optimally configured technical solutions.

e.g. through perforations in different positions:  
32 spacing, up to 15 mm perforation diameter  
64 spacing, up to 20 mm perforation diameter



# WIEHAG REFERENCES & CORE COMPETENCIES

## INDUSTRIAL, PRODUCTION AND LOGISTICS FACILITIES



### ÖBB Rail Service Center Vienna-Matzleinsdorf (A)

Architect: Zechner & Zechner ZT GmbH

#### Technical specifications:

18,090 m<sup>2</sup> of roof panels. Roof construction consists of 29 sliding arch roofs. The engineering statics of the two-field truss were designed such that the roof bearing system functions as a single-field truss in the event of a train derailment. Natural lighting is achieved between top and bottom chord by forming the primary bearing system as a truss.



### Sägewerk Burgbacher production shop, St. Georgen (D)

Architect: Schneider Architekten BDA

#### Technical specifications:

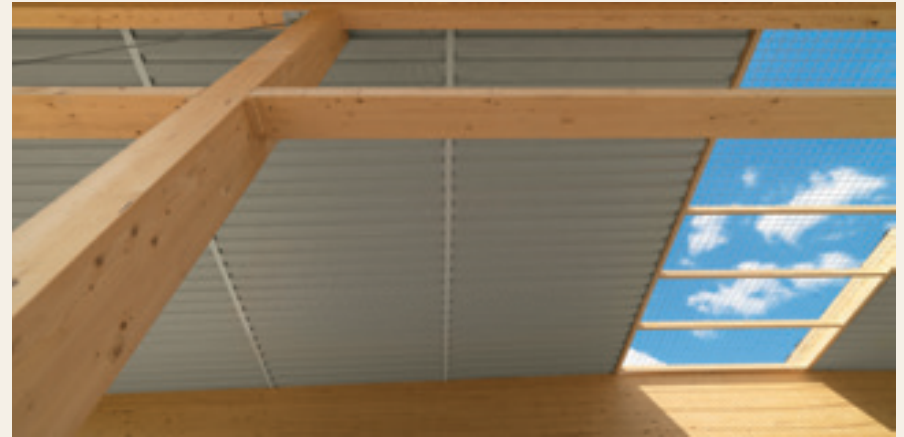
2,750 m<sup>2</sup> of roof panels plus 2,550 m<sup>2</sup> of wall panels. Outer panelling with DWD panels, facing layer of Siberian larch & acoustic panels (slotted OSB). Complete installation of the acoustic roof panels and wall panels took only 8 days.



**Thalmeier Einrichtungen production shop, Dorfen (D)**

**Technical specifications:**

2,650 m<sup>2</sup> roof panels, OSB ceiling claddings, sliding arch roof, photovoltaic system installed on the roof, wall panels with larch exterior finish.



**Tischlerei Kieslinger production shop, Sigharting (A)**

**Technical specifications:**

1,530 m<sup>2</sup> of roof panels with outer face cladding of EPDM membrane, trapezoidal ceiling cladding in white, double-tapered glulam beams provide bearing system.

# WIEHAG REFERENCES & CORE COMPETENCIES

INDUSTRIAL, PRODUCTION AND LOGISTICS FACILITIES



© Bernecker + Rainer

## Bernecker + Rainer Industrie Elektronik GmbH, Eggelsberg (A)

Architect: Professor DI Wolfgang Kaufmann

### Technical specifications:

23,345 m<sup>2</sup> roof panels, industrial surface quality, sliding arch roof, 154 m 4-field gable frame; 2,213 m<sup>3</sup> structural timber, 189 frame girders, 15 double-tapered beams; two workshops, high-bay warehouse, canteen.



© Oliver Hehl

## GEWO Feinmechanik GmbH, Hörlkofen (D)

Architect: Michael Jaksch

### Technical specifications:

3,320 m<sup>2</sup> of roof panels supported off 18 double-tapered glulam trusses & purlins.





### **Berglandmilch Geinberg (A)**

Architect: Ingenieurbüro DI Arnold Bodner

#### **Technical specifications:**

5,875 m<sup>2</sup> roof panels, white OSB ceiling claddings;  
19 double-tapered beams, 40 frame girders,  
298 m<sup>3</sup> structural timber (pine).



### **Lagerhaus Geinberg (A)**

#### **Technical specifications:**

1,835 m<sup>2</sup> roof panels, OSB ceiling claddings; 18 frame  
girders, 54.20 m trimmer joists, 24 articulated timber  
columns, gable frame.



### **ELMAG Entwicklungs- und Handels-GmbH, Ried/Tumeltsham (A)**

#### **Technical specifications:**

2,215 m<sup>2</sup> roof panels, EPDM roof membrane,  
trapezoidal ceiling cladding.

© Werner L. Figg

# WIEHAG REFERENCES & CORE COMPETENCIES

## INDUSTRIAL, PRODUCTION AND LOGISTICS FACILITIES



**Leitz, Riedau (A)**

Technical specifications:  
3,818 m<sup>2</sup> roof area, EPDM roof membrane,  
trapezoidal ceiling cladding.



**Legnoform S.r.l., San Bonifacio (I)**

Architect: Ambrosi Marangoni

Technical specifications:  
2,200 m<sup>2</sup> industrial roof area, EPDM roof membrane,  
OSB ceiling cladding.



**Production shop for Josef Kellnberger Bau-  
und Möbelschreinerei, Künzing (D)**

Technical specifications:  
2,440 m<sup>2</sup> roof panels, 485 m<sup>2</sup> wall panels,  
EPDM roof membrane, OSB ceiling cladding.

# WIEHAG REFERENCES & CORE COMPETENCIES

## SPORTS AND LEISURE CENTRES



### Albert-Schultz-Eishalle Wien (A)

Home arena of the UPC Vienna Capitals ice hockey club

Architect: Berger+Parkkinen

#### Technical specifications:

5,120 m<sup>2</sup> roof panels, sliding arch roof, trapezoidal ceiling cladding.



### Speedskating Arena, Geisingen (D)

Architect: Centraplan

#### Technical specifications:

5,420 m<sup>2</sup> roof area consisting of 240 different roof panels, 134 attic and 130 ceiling panels, covered track with laminated board bearing system on 4 inside pillars for an unobstructed view, & installation of 4,000 m<sup>2</sup> of specially developed OSB acoustic panels. The low U-value of the construction panels permits all-year operation without heating or air conditioning.



# WIEHAG REFERENCES & CORE COMPETENCIES

## TRADE FAIR AND EXHIBITION HALLS



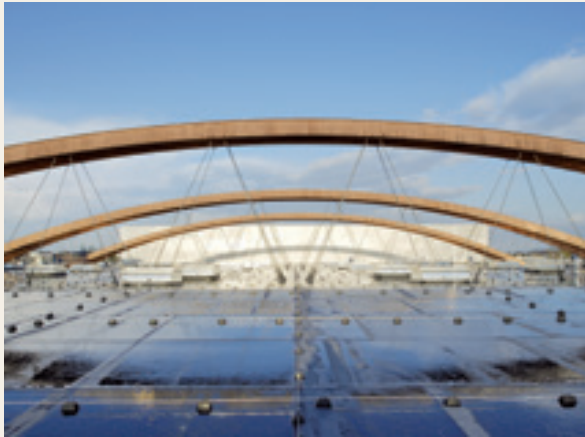
### Stadthalle Bielefeld (D)

Architect: Architektur gmp von Gerkan Marg und Partner

Modern event halls are designed to be multi-functional and elegant, as this hall demonstrates. The glazed end walls ensure a light-flooded room and complement WIEHAG's curved roof structure.

#### Technical specifications:

5,000 m<sup>2</sup> roof panels, 112 prefabricated 15 m panel roof sections, delivery complete with insulation and vapour barrier.



### **New Wels Exhibition Centre (A)**

**UA. Holzbaupreis 2007, SOLID Bautechpreis 2008**

Architect: AT4 Architekten ZT GmbH

#### **Technical specifications:**

14,400 m<sup>2</sup> roof panels, EPDM roofing membrane, perforated OSB panels, 90 m free-span bearing system, 5,500 m<sup>3</sup> structural timber (pine); high energy efficiency.



### **Burgkirchen Multipurpose Hall (A)**

Architect: AT4 Architekten ZT GmbH

#### **Technical specifications:**

1,950 m<sup>2</sup> roof panels, sliding arch roof, flat-edge boarding (combination of smooth perforated OSB panels and perforated BFU panels), special acoustic ceiling cladding prevents echo; high energy efficiency.



### **Rinderkompetenzzentrum Freistadt (A)**

Architect: TWO in a Box

#### **Technical specifications:**

226 m<sup>3</sup> structural timber, 26 double-tapered beams, 6 gable frames, 25 structural timber columns, 3 structural timber top chords.

# REFERENCES

SPEEDSKATING ARENA GEISINGEN • STADTHALLE BIELEFELD • MESSEZENTRUM WELS • MESSEHALLE GRAZ • EISSPORTZENTRUM WIEN • SPORHALLE INNZELL • VOEST KREMS • ÖBB • BANNER BATTERIEN • BERNECKER & RAINER • DOPPLER SCHIRME • FILL METALLBAU • ATOMIC • HARGASSNER • JOSKO • LUGSTEIN • ELMAG • MIBA SINTERMETALL • GINZINGER • LEITZ • SPEEDMASTER • TEAM 7 • SÄGEWERK BURGBACHER • THEATERHALLE LINZ09 • RINDERKOMPETENZZENTRUM FREISTADT • LOGISTIKZENTRUM LKW AUGUSTIN • SANDOZ • SALINE EBENSEE • MASCHINENRING WELS • GUSCHLBAUER • SCHREINEREI THALMEIER • TURNHALLE NORBERTINUM • SC MURPARK GRAZ • CITY CENTER BRAUNAU • BIPA • BILLA • EDEKA • EUROSPAR • HORNACH • INTERSPAR • LIDL • MAXIMARKT • PENNY MARKT • SPAR • GEWO FEINMECHANIK • TROTEC • GEBRÜDER WEISS • SPORHALLE TRAUNSTEIN U.V.M.

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