ROOF

SOLID TIMBER MANUAL 2.0

binderholz

Rigips
SAINT-GOBAIN

1st edition, May 2019

All information in this document reflects the latest state of development and has been prepared for you according to the best of knowledge and good faith. As we always strive to offer the best possible solutions for you, changes are reserved due to improvements in terms of application or production technology. Ensure yourself that you have the most recent edition of this document available. Printing errors cannot be ruled out.

This publication is targeted at trained specialists. Any illustrations of executing activities contained in it are not understood to be any processing instructions, unless expressly marked as such. Renderings and sectional views of the individual assemblies are not depicted on scale; they serve merely as illustration.

Our products and systems are aligned to each other. Their interaction has been confirmed by internal and external testing. All information is generally based on the exclusive use of our products. Unless described otherwise, the information does not permit any conclusions as to the combinability with third-party systems or exchangeability of individual parts by external products; to this end, no warranty or liability can be extended.

Please also note that our business relationships are exclusively subject to our general terms of sale, delivery and payment (GTC) in the current version. You can receive our GTC on request or find them online at www.binderholz.com and www.rigips.com.

We are looking forward to a good cooperation and wish you great success with all of our system solutions.

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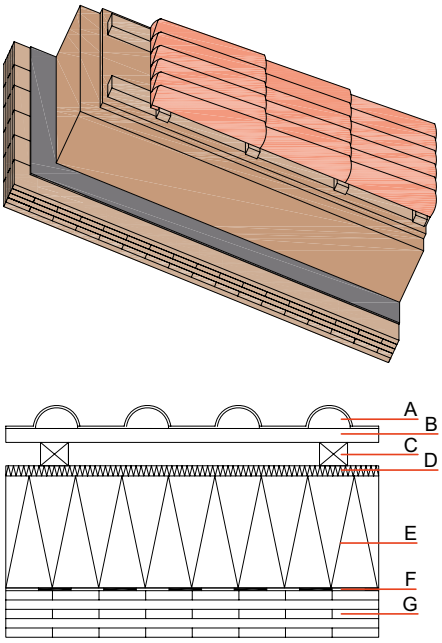


Building physical and ecological rating

	Fire protection	REI i → o	30
	max. width l = 4 m; max. load ($q_{fi,d}$) = 6.95 [kN/m²]		
	Heat insulation	U [W/m²K]	0.131
	Sound insulation	R_w [dB]	54
	Ecology	ΔOI3	53

Building material specifications for construction, layer structure | from the inside to the outside

	Thickness [mm]	Building material	Heat conductivity λ [W/(m · K)]	Gross density ρ [kg/m³]	Flammability class EN 13501-1
A	50	Concrete roofing tiles	—	2,100	A1
B	30	Wooden battens (30/50)	0.13	475	D
C	50	Wooden counter battens (min 50 mm)	0.13	475	D
D	22	Under-ceiling board, wood fibre insulation panel	0.05	250	E
E	240	Wood fibre insulation panel	0.04	110	E
F	—	Sealing sheet	—	—	E
G	100	CLT BBS, 5-layered	0.12	450	D
Total	**49.20 cm**			**136.18 kg/m²**	

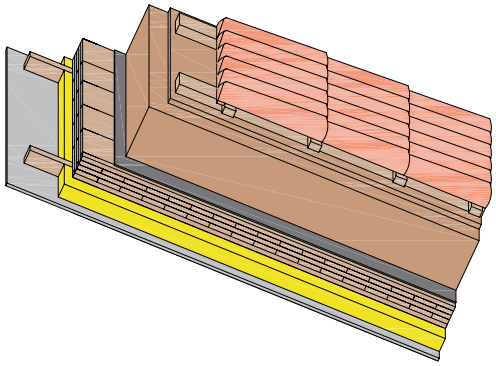
Ecological rating in detail | www.baubook.info/massivholzhandbuch

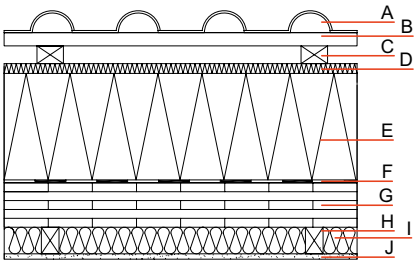
PENRT [MJ/m²]	**GWP100 total** [kg CO_2/m²]	**AP** [kg SO_2/m²]
909	-67.6	0.257

Classification by IBS – Institut für Brandschutztechnik und Sicherheitsforschung [Institute for Fire Protection Technology and Safety Research], A-4020 Linz
Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna
Rated by ift Rosenheim – Schallschutzzentrum [Sound Insulation Centre], D-83026 Rosenheim and respectively Holzforschung Austria, A-1030 Vienna
Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna

The assemblies shown were rated by accredited testing institutes on behalf of binderholz and Saint-Gobain Rigips Austria.

Steel roof – solid timber construction, rear ventilated: DA01 k





Building physical and ecological rating

	Fire protection	REI i → o	60
	max. width l = 4 m; max. load ($q_{fi,d}$) = 6.95 [kN/m²]		
	Heat insulation	U [W/m²K]	0.110
	Sound insulation	R_w [dB]	62
	Ecology	ΔOI3	59

Building material specifications for construction, layer structure | from the inside to the outside

	Thickness [mm]	Building material	Heat conductivity λ [W/(m · K)]	Gross density ρ [kg/m³]	Flammability class EN 13501-1
A	50	Concrete roofing tiles	—	2,100	A1
B	30	Wooden battens (30/50)	0.13	475	D
C	50	Wooden counter battens (min 50 mm)	0.13	475	D
D	22	Under-ceiling board, wood fibre insulation panel	0.05	250	E
E	240	Wood fibre insulation panel	0.04	110	E
F	—	Sealing sheet	—	—	E
G	100	CLT BBS, 5-layered	0.12	450	D
H	60	Wooden battens (60/60; e = 625) directly bolted on	0.13	475	D
I	50	Mineral wool, e.g. Isover ULTIMATE UKF-034 twin	0.034	21	A1
J	12.5	Rigips RF fire protection board*	0.25	800	A2
Total	**56.45 cm**			**149.96 kg/m²**	

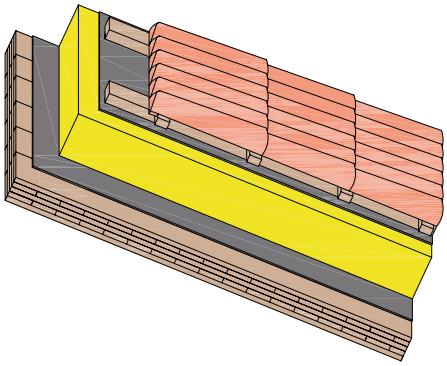
Ecological rating in detail | www.baubook.info/massivholzhandbuch

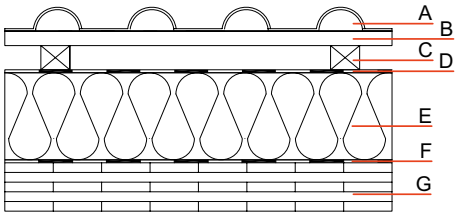
PENRT [MJ/m²]	**GWP100 total** [kg CO_2/m²]	**AP** [kg SO_2/m²]
993	-67.6	0.277

Rating by MFPA Leipzig – Gesellschaft für Materialforschung und Prüfungsanstalt für das Bauwesen [Society for Material Research and Testing Institute for the Construction Industry], D-04319 Leipzig
Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna
Rated by ift Rosenheim – Schallschutzzentrum [Sound Insulation Centre], D-83026 Rosenheim and respectively Holzforschung Austria, A-1030 Vienna
Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna

*Equal fire resistance and sound insulation when using Rigidur H gypsum fibre boards or Riduro wooden building slabs.
The assemblies shown were rated by accredited testing institutes on behalf of binderholz and Saint-Gobain Rigips Austria.

Steep roof – solid timber construction, visual surface quality, rear ventilated: DA02 k





Building physical and ecological rating

	Fire protection	REI i → o	30
	max. width l = 4 m; max. load ($q_{fi,d}$) = 6.95 [kN/m²]		
	Heat insulation	U [W/m²K]	0.130
	Sound insulation	R_w [dB]	52
	Ecology	ΔOI3	96

Building material specifications for construction, layer structure | from the inside to the outside

	Thickness [mm]	Building material	Heat conductivity λ [W/(m · K)]	Gross density ρ [kg/m³]	Flammability class EN 13501-1
A	50	Concrete roofing tiles	—	2,100	A1
B	30	Wooden battens (30/50)	0.13	475	D
C	50	Wooden counter battens (min 50 mm)	0.13	475	D
D	—	Sheathing membrane (laminated; sd ≤ 0.12 m)	—	—	E
E	220	Mineral wool above-rafter insulation system, e.g. Isover Integra Basic	0.034	110	A1
F	—	Sealing sheet	—	—	E
G	100	CLT BBS, 5-layered	0.12	450	D
Total	**45 cm**			**128.48 kg/m²**	

Ecological rating in detail | www.baubook.info/massivholzhandbuch

PENRT [MJ/m²]	**GWP100 total** [kg CO_2/m²]	**AP** [kg SO_2/m²]
967	4.87	0.471

Classification by IBS – Institut für Brandschutztechnik und Sicherheitsforschung [Institute for Fire Protection Technology and Safety Research], A-4020 Linz
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Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna

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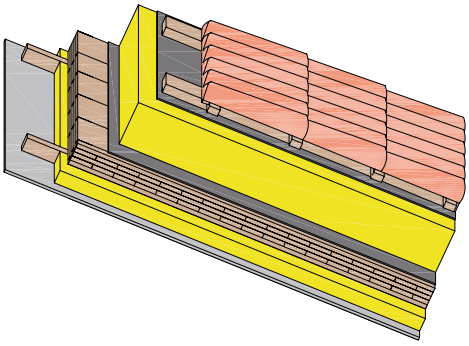
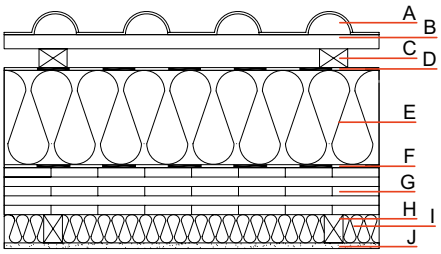
Steel roof – solid timber construction, rear ventilated: DA02 I





Building physical and ecological rating

	Fire protection	REI i → o	60
	max. width l = 4 m; max. load ($q_{fi,\ d}$) = 6.95 [kN/m²]		
	Heat insulation	U [W/m²K]	0.109
	Sound insulation	R_w [dB]	59
	Ecology	ΔOI3	101

Building material specifications for construction, layer structure | from the inside to the outside

	Thickness [mm]	Building material	Heat conductivity λ [W/(m · K)]	Gross density ρ [kg/m³]	Flammability class EN 13501-1
A	50	Concrete roofing tiles	—	2,100	A1
B	30	Wooden battens (30/50)	0.13	475	D
C	50	Wooden counter battens (min 50 mm)	0.13	475	D
D	—	Sheathing membrane (laminated; sd ≤ 0.12 m)	—	—	E
E	220	Mineral wool above-rafter insulation system, e.g. Isover Integra Basic	0.034	110	A1
F	—	Sealing sheet	—	—	E
G	100	CLT BBS, 5-layered	0.12	450	D
H	60	Wooden battens (60/60; e = 625) directly bolted on	0.13	475	D
I	50	Mineral wool, e.g. Isover ULTIMATE UKF-034 twin	0.034	21	A1
J	12.5	Rigips RF fire protection board*	0.25	800	A2
Total	**52.25 cm**			**142.26 kg/m²**	

Ecological rating in detail | www.baubook.info/massivholzhandbuch

PENRT [MJ/m²]	**GWP100 total** [kg CO_2/m²]	**AP** [kg SO_2/m²]
1,053	4.64	0.492

Rating by MFPA Leipzig – Gesellschaft für Materialforschung und Prüfungsanstalt für das Bauwesen [Society for Material Research and Testing Institute for the Construction Industry], D-04319 Leipzig
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Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna

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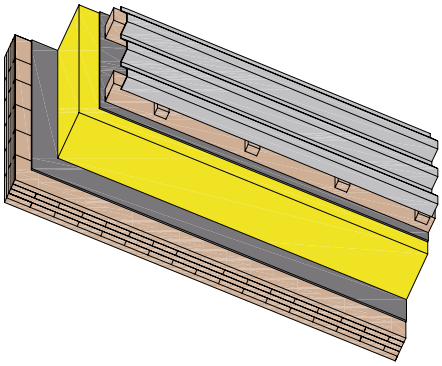
Steep roof – solid timber construction, visual surface quality, rear ventilated: DA04 k



Building physical and ecological rating

	Fire protection	REI i → o	30
	max. width l = 4 m; max. load ($q_{fi,d}$) = 6.95 [kN/m²]		
	Heat insulation	U [W/m²K]	0.130
	Sound insulation	R_w [dB]	45
	Ecology	ΔOI3	123

Building material specifications for construction, layer structure | from the inside to the outside

	Thickness [mm]	Building material	Heat conductivity λ [W/(m · K)]	Gross density ρ [kg/m³]	Flammability class EN 13501-1
A	20	Profiled sheeting	—	7,800	A1
B	30	Wooden battens (30/50)	0.13	475	D
C	80	Wooden counter battens	0.13	475	D
D	—	Sheathing membrane (laminated; sd ≤ 0.12 m)	—	—	E
E	220	Mineral wool above-rafter insulation system, e.g. Isover Integra Basic	0.034	110	A1
F	—	Sealing sheet	—	—	E
G	100	CLT BBS, 5-layered	0.12	450	D
Total	**45 cm**			**86.66 kg/m²**	

Ecological rating in detail | www.baubook.info/massivholzhandbuch

PENRT [MJ/m²]	**GWP100 total** [kg CO_2/m²]	**AP** [kg SO_2/m²]
1,265	18.3	0.584

Classification by IBS – Institut für Brandschutztechnik und Sicherheitsforschung [Institute for Fire Protection Technology and Safety Research], A-4020 Linz
Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna
Rated by ift Rosenheim – Schallschutzzentrum [Sound Insulation Centre], D-83026 Rosenheim and respectively Holzforschung Austria, A-1030 Vienna
Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna

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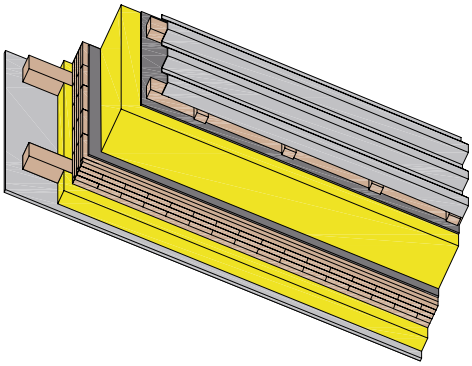
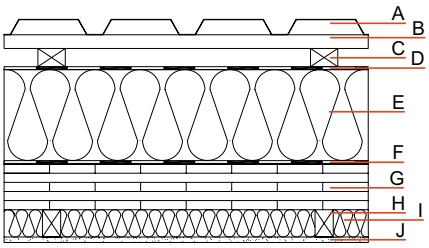
Steel roof – solid timber construction, rear ventilated: DA04 I





Building physical and ecological rating

	Fire protection	REI i → o	60
	max. width l = 4 m; max. load ($q_{fi,d}$) = 6.95 [kN/m²]		
	Heat insulation	U [W/m²K]	0.109
	Sound insulation	R_w [dB]	52
	Ecology	ΔOI3	129

Building material specifications for construction, layer structure | from the inside to the outside

	Thickness [mm]	Building material	Heat conductivity λ [W/(m · K)]	Gross density ρ [kg/m³]	Flammability class EN 13501-1
A	20	Profiled sheeting	—	7,800	A1
B	30	Wooden battens (30/50)	0.13	475	D
C	80	Wooden counter battens	0.13	475	D
D	—	Sheathing membrane (laminated; sd ≤ 0.12 m)	—	—	E
E	220	Mineral wool above-rafter insulation system, e.g. Isover Integra Basic	0.034	110	A1
F	—	Sealing sheet	—	—	E
G	100	CLT BBS, 5-layered	0.12	450	D
H	60	Wooden battens (60/60; e = 625) directly bolted on	0.13	475	D
I	50	Mineral wool, e.g. Isover ULTIMATE UKF-034 twin	0.034	21	A1
J	12.5	Rigips RF fire protection board*	0.25	800	A2
Total	**52.25 cm**			**100.44 kg/m²**	

Ecological rating in detail | www.baubook.info/massivholzhandbuch

PENRT [MJ/m²]	**GWP100 total** [kg CO_2/m²]	**AP** [kg SO_2/m²]
1,348	18.4	0.604

Rating by MFPA Leipzig – Gesellschaft für Materialforschung und Prüfungsanstalt für das Bauwesen [Society for Material Research and Testing Institute for the Construction Industry], D-04319 Leipzig
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Rated by ift Rosenheim – Schallschutzzentrum [Sound Insulation Centre], D-83026 Rosenheim and respectively Holzforschung Austria, A-1030 Vienna
Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna

*Equal fire resistance and sound insulation when using Rigidur H gypsum fibre boards or Riduro wooden building slabs.
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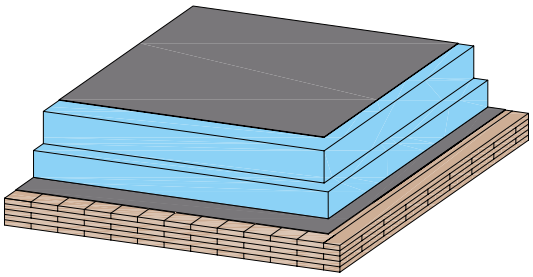
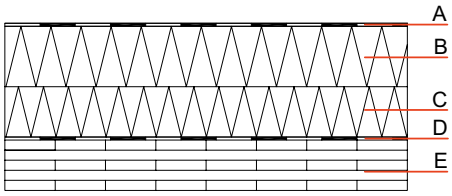
Flat roof – solid timber construction, visual quality: DA05 a





Building physical and ecological rating

	Fire protection	REI i → o	30
	max. width l = 4 m; max. load ($q_{fi,d}$) = 6.95 [kN/m²]		
	Heat insulation	U [W/m²K]	0.138
	Sound insulation	R_w [dB]	39
	Ecology	ΔOI3	65

Building material specifications for construction, layer structure | from the inside to the outside

	Thickness [mm]	**Building material**	**Heat conductivity** λ [W/(m · K)]	**Gross density** ρ [kg/m³]	**Flammability class** EN 13501-1
A	2.5	Fabric-reinforced plastic welded sheeting (> 1.7 kg/m²)	—	680	E
B	120	Expanded polystyrol (pitch insulation)	0.032	30	E
C	100	Expanded polystyrol	0.038	30	E
D	—	Sealing sheet (sd ≥ 220 m)	—	—	E
E	100	CLT BBS, 5-layered	0.12	450	D
Total	**32.25 cm**			**53.30 kg/m²**	

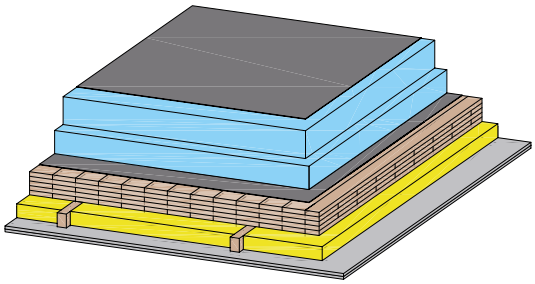
Ecological rating in detail | www.baubook.info/massivholzhandbuch

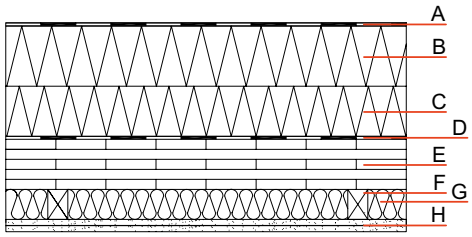
PENRT [MJ/m²]	**GWP100 total** [kg CO_2/m²]	**AP** [kg SO_2/m²]
1,159	-17	0.220

Classification by IBS – Institut für Brandschutztechnik und Sicherheitsforschung [Institute for Fire Protection Technology and Safety Research], A-4020 Linz
Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna
Rated by ift Rosenheim – Schallschutzzentrum [Sound Insulation Centre], D-83026 Rosenheim and respectively Holzforschung Austria, A-1030 Vienna
Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna

The assemblies shown were rated by accredited testing institutes on behalf of binderholz and Saint-Gobain Rigips Austria.

Flat roof – solid timber construction, suspended: DA05 c





Building physical and ecological rating

	Fire protection	REI i → o	90
	max. width l = 4 m; max. load ($q_{fi,d}$) = 6.95 [kN/m²]		
	Heat insulation	U [W/m²K]	0.114
	Sound insulation	R_w [dB]	43
	Ecology	ΔOI3	73

Building material specifications for construction, layer structure | from the inside to the outside

	Thickness [mm]	Building material	Heat conductivity λ [W/(m · K)]	Gross density ρ [kg/m³]	Flammability class EN 13501-1
A	2.5	Fabric-reinforced plastic welded sheeting (> 1.7 kg/m²)	—	680	E
B	120	Expanded polystyrol (pitch insulation)	0.032	30	E
C	100	Expanded polystyrol	0.038	30	E
D	—	Sealing sheet (sd ≥ 220 m)	—	—	E
E	100	CLT BBS, 5-layered	0.12	450	D
F	60	Wooden battens (60/60; e = 625) directly bolted on	0.13	475	D
G	50	Mineral wool, e.g. Isover ULTIMATE UKF-034 twin	0.034	21	A1
H	30	Rigips RF fire protection board* (2 x 15 mm)	0.25	800	A2
Total	**41.25 cm**			**81.09 kg/m²**	

Ecological rating in detail | www.baubook.info/massivholzhandbuch

PENRT [MJ/m²]	**GWP100 total** [kg CO_2/m²]	**AP** [kg SO_2/m²]
1,294	-15.1	0.246

Classification by IBS – Institut für Brandschutztechnik und Sicherheitsforschung [Institute for Fire Protection Technology and Safety Research], A-4020 Linz
Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna
Rated by ift Rosenheim – Schallschutzzentrum [Sound Insulation Centre], D-83026 Rosenheim and respectively Holzforschung Austria, A-1030 Vienna
Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna

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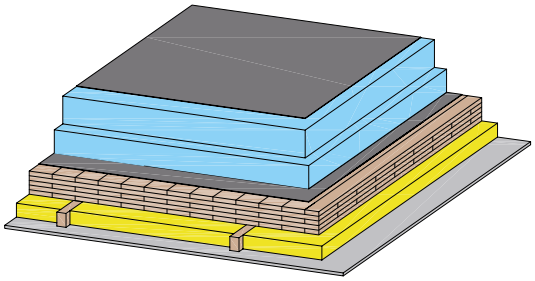
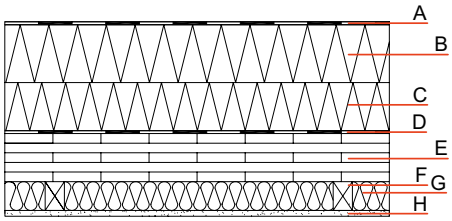
Flat roof – solid timber construction, suspended: DA05 f





Building physical and ecological rating

	Fire protection	REI i → o	60
	max. width l = 4 m; max. load ($q_{fi,d}$) = 6.95 [kN/m²]		
	Heat insulation	U [W/m²K]	0.115
	Sound insulation	R_w [dB]	43
	Ecology	ΔOI3	71

Building material specifications for construction, layer structure | from the inside to the outside

	Thickness [mm]	Building material	Heat conductivity λ [W/(m · K)]	Gross density ρ [kg/m³]	Flammability class EN 13501-1
A	2.5	Fabric-reinforced plastic welded sheeting (> 1.7 kg/m²)	—	680	E
B	120	Expanded polystyrol (pitch insulation)	0.032	30	E
C	100	Expanded polystyrol	0.038	30	E
D	—	Sealing sheet (sd ≥ 220 m)	—	—	E
E	100	CLT BBS, 5-layered	0.12	450	D
F	60	Wooden battens (60/60; e = 625) directly bolted on	0.13	475	D
G	50	Mineral wool, e.g. Isover ULTIMATE UKF-034 twin	0.034	21	A1
H	12.5	Rigips RF fire protection board*	0.25	800	A2
Total	**39.50 cm**			**67.09 kg/m²**	

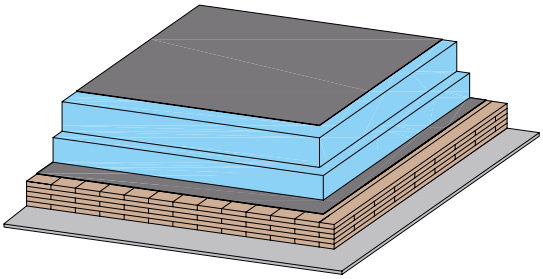
Ecological rating in detail | www.baubook.info/massivholzhandbuch

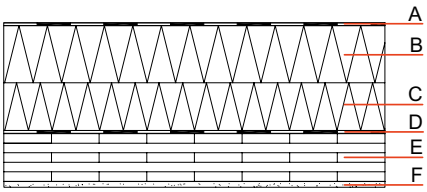
PENRT [MJ/m²]	**GWP100 total** [kg CO_2/m²]	**AP** [kg SO_2/m²]
1,245	-17.2	0.241

Rating by MFPA Leipzig – Gesellschaft für Materialforschung und Prüfungsanstalt für das Bauwesen [Society for Material Research and Testing Institute for the Construction Industry], D-04319 Leipzig
Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna
Rated by ift Rosenheim – Schallschutzzentrum [Sound Insulation Centre], D-83026 Rosenheim and respectively Holzforschung Austria, A-1030 Vienna
Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna

*Equal fire resistance and sound insulation when using Rigidur H gypsum fibre boards or Riduro wooden building slabs.
The assemblies shown were rated by accredited testing institutes on behalf of binderholz and Saint-Gobain Rigips Austria.

Flat roof – solid timber construction: DA05 g





Building physical and ecological rating

	Fire protection	REI i → o	30
	max. width l = 4 m; max. load ($q_{fi,d}$) = 6.95 [kN/m²]		
	Heat insulation	U [W/m²K]	0.137
	Sound insulation	R_w [dB]	39
	Ecology	ΔOI3	67

Building material specifications for construction, layer structure | from the inside to the outside

	Thickness [mm]	Building material	Heat conductivity λ [W/(m · K)]	Gross density ρ [kg/m³]	Flammability class EN 13501-1
A	2.5	Fabric-reinforced plastic welded sheeting (> 1.7 kg/m²)	—	680	E
B	120	Expanded polystyrol (pitch insulation)	0.032	30	E
C	100	Expanded polystyrol	0.038	30	E
D	—	Sealing sheet (sd ≥ 220 m)	—	—	E
E	100	CLT BBS, 5-layered	0.12	450	D
F	12.5	Rigips RF fire protection board*	0.25	800	A2
Total	**33.50 cm**			**63.30 kg/m²**	

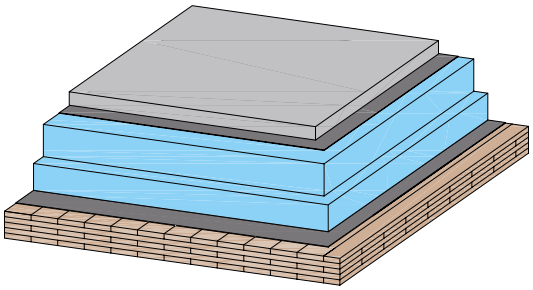
Ecological rating in detail | www.baubook.info/massivholzhandbuch

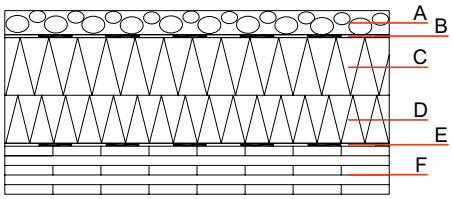
PENRT [MJ/m²]	**GWP100 total** [kg CO_2/m²]	**AP** [kg SO_2/m²]
1,194	-15.4	0.223

Classification by IBS – Institut für Brandschutztechnik und Sicherheitsforschung [Institute for Fire Protection Technology and Safety Research], A-4020 Linz
Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna
Rated by ift Rosenheim – Schallschutzzentrum [Sound Insulation Centre], D-83026 Rosenheim and respectively Holzforschung Austria, A-1030 Vienna
Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna

*Equal fire resistance and sound insulation when using Rigidur H gypsum fibre boards or Riduro wooden building slabs.
The assemblies shown were rated by accredited testing institutes on behalf of binderholz and Saint-Gobain Rigips Austria.

Flat roof – solid timber construction, visual quality: DA06 a





Building physical and ecological rating

	Fire protection	REI i → o	30
	max. width l = 4 m; max. load ($q_{fi,d}$) = 6.95 [kN/m²]		
	Heat insulation	U [W/m²K]	0.136
	Sound insulation	R_w [dB]	55
	Ecology	ΔOI3	85

Building material specifications for construction, layer structure | from the inside to the outside

	Thickness [mm]	**Building material**	**Heat conductivity** λ [W/(m · K)]	**Gross density** ρ [kg/m³]	**Flammability class** EN 13501-1
A	50	Gravel	0.7	1,500	A1
B	2.5	Fabric-reinforced plastic welded sheeting (> 1.7 kg/m²)	—	680	E
C	120	Expanded polystyrol (pitch insulation)	0.032	30	E
D	100	Expanded polystyrol	0.038	30	E
E	—	Sealing sheet (sd ≥ 220 m)	—	—	E
F	100	CLT BBS, 5-layered	0.12	450	D
Total	**37.25 cm**			**128.30 kg/m²**	

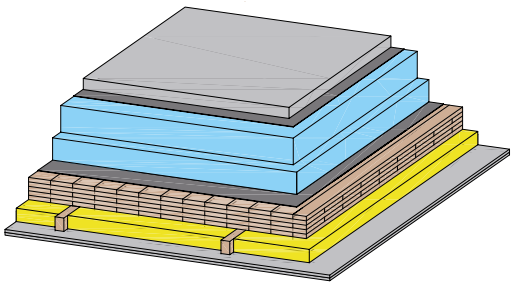
Ecological rating in detail | www.baubook.info/massivholzhandbuch

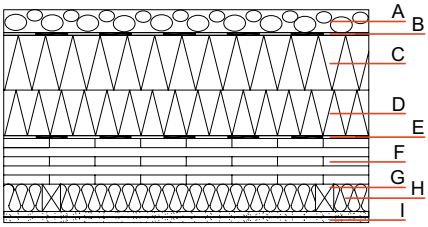
PENRT [MJ/m²]	**GWP100 total** [kg CO_2/m²]	**AP** [kg SO_2/m²]
1,356	9.61	0.283

Classification by IBS – Institut für Brandschutztechnik und Sicherheitsforschung [Institute for Fire Protection Technology and Safety Research], A-4020 Linz
Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna
Rated by ift Rosenheim – Schallschutzzentrum [Sound Insulation Centre], D-83026 Rosenheim and respectively Holzforschung Austria, A-1030 Vienna
Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna

The assemblies shown were rated by accredited testing institutes on behalf of binderholz and Saint-Gobain Rigips Austria.

Flat roof – solid timber construction, suspended: DA06 c





Building physical and ecological rating

	Fire protection	REI i → o	90
	max. width l = 4 m; max. load ($q_{fi,d}$) = 6.95 [kN/m²]		
	Heat insulation	U [W/m²K]	0.113
	Sound insulation	R_w [dB]	61
	Ecology	ΔOI3	93

Building material specifications for construction, layer structure | from the inside to the outside

	Thickness [mm]	Building material	Heat conductivity λ [W/(m · K)]	Gross density ρ [kg/m³]	Flammability class EN 13501-1
A	50	Gravel	0.7	1,500	A1
B	2.5	Fabric-reinforced plastic welded sheeting (> 1.7 kg/m²)	—	680	E
C	120	Expanded polystyrol (pitch insulation)	0.032	30	E
D	100	Expanded polystyrol	0.038	30	E
E	—	Sealing sheet (sd ≥ 220 m)	—	—	E
F	100	CLT BBS, 5-layered	0.12	450	D
G	60	Wooden battens (60/60; e = 625) directly bolted on	0.13	475	D
H	50	Mineral wool, e.g. Isover ULTIMATE UKF-034 twin	0.034	21	A1
I	30	Rigips RF fire protection board* (2 x 15 mm)	0.25	800	A2
Total	**46.25 cm**			**156.09 kg/m²**	

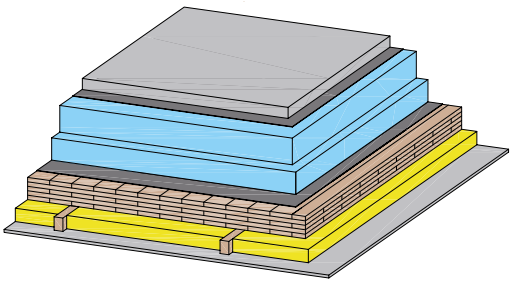
Ecological rating in detail | www.baubook.info/massivholzhandbuch

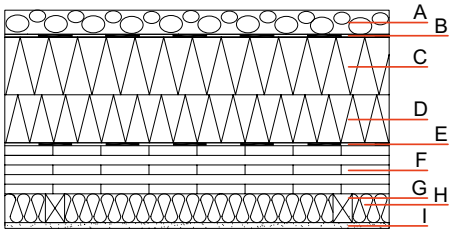
PENRT [MJ/m²]	**GWP100 total** [kg CO_2/m²]	**AP** [kg SO_2/m²]
1,490	11.6	0.310

Classification by IBS – Institut für Brandschutztechnik und Sicherheitsforschung [Institute for Fire Protection Technology and Safety Research], A-4020 Linz
Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna
Rated by ift Rosenheim – Schallschutzzentrum [Sound Insulation Centre], D-83026 Rosenheim and respectively Holzforschung Austria, A-1030 Vienna
Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna

*Equal fire resistance and sound insulation when using Rigidur H gypsum fibre boards or Riduro wooden building slabs.
The assemblies shown were rated by accredited testing institutes on behalf of binderholz and Saint-Gobain Rigips Austria.

Flat roof – solid timber construction, suspended: DA06 f





Building physical and ecological rating

	Fire protection	REI i → o	60
	max. width l = 4 m; max. load ($q_{fi,d}$) = 6.95 [kN/m²]		
	Heat insulation	U [W/m²K]	0.114
	Sound insulation	R_w [dB]	61
	Ecology	ΔOI3	90

Building material specifications for construction, layer structure | from the inside to the outside

	Thickness [mm]	**Building material**	**Heat conductivity** λ [W/(m · K)]	**Gross density** ρ [kg/m³]	**Flammability class** EN 13501-1
A	50	Gravel	0.7	1,500	A1
B	2.5	Fabric-reinforced plastic welded sheeting (> 1.7 kg/m²)	—	680	E
C	120	Expanded polystyrol (pitch insulation)	0.032	30	E
D	100	Expanded polystyrol	0.038	30	E
E	—	Sealing sheet (sd ≥ 220 m)	—	—	E
F	100	CLT BBS, 5-layered	0.12	450	D
G	60	Wooden battens (60/60; e = 625) directly bolted on	0.13	475	D
H	50	Mineral wool, e.g. Isover ULTIMATE UKF-034 twin	0.034	21	A1
I	12.5	Rigips RF fire protection board*	0.25	800	A2
Total	**44.50 cm**			**142.09 kg/m²**	

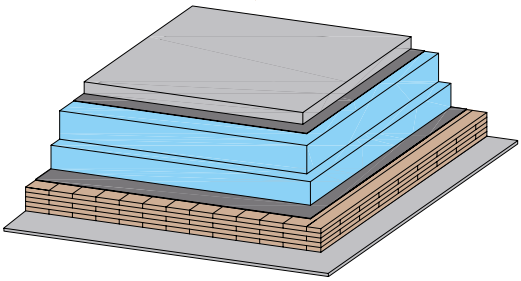
Ecological rating in detail | www.baubook.info/massivholzhandbuch

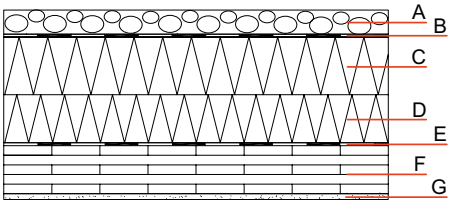
PENRT [MJ/m²]	**GWP100 total** [kg CO_2/m²]	**AP** [kg SO_2/m²]
1,441	9.39	0.304

Rating by MFPA Leipzig – Gesellschaft für Materialforschung und Prüfungsanstalt für das Bauwesen [Society for Material Research and Testing Institute for the Construction Industry], D-04319 Leipzig
Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna
Rated by ift Rosenheim – Schallschutzzentrum [Sound Insulation Centre], D-83026 Rosenheim and respectively Holzforschung Austria, A-1030 Vienna
Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna

*Equal fire resistance and sound insulation when using Rigidur H gypsum fibre boards or Riduro wooden building slabs.
The assemblies shown were rated by accredited testing institutes on behalf of binderholz and Saint-Gobain Rigips Austria.

Flat roof – solid timber construction: DA06 g





Building physical and ecological rating

	Fire protection	REI i → o	30
	max. width l = 4 m; max. load ($q_{fi,d}$) = 6.95 [kN/m²]		
	Heat insulation	U [W/m²K]	0.135
	Sound insulation	R_w [dB]	55
	Ecology	ΔOI3	87

Building material specifications for construction, layer structure | from the inside to the outside

	Thickness [mm]	Building material	Heat conductivity λ [W/(m · K)]	Gross density ρ [kg/m³]	Flammability class EN 13501-1
A	50	Gravel	0.7	1,500	A1
B	2.5	Fabric-reinforced plastic welded sheeting (> 1.7 kg/m²)	—	680	E
C	120	Expanded polystyrol (pitch insulation)	0.032	30	E
D	100	Expanded polystyrol	0.038	30	E
E	—	Sealing sheet (sd ≥ 220 m)	—	—	E
F	100	CLT BBS, 5-layered	0.12	450	D
G	12.5	Rigips RF fire protection board*	0.25	800	A2
Total	**38.50 cm**			**138.30 kg/m²**	

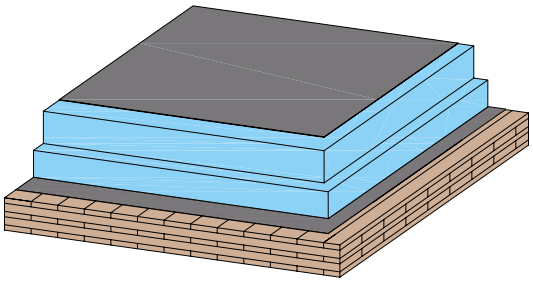
Ecological rating in detail | www.baubook.info/massivholzhandbuch

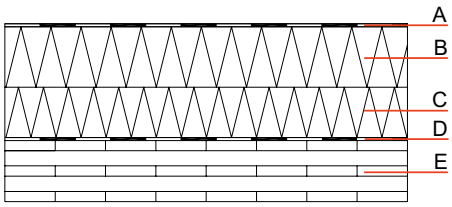
PENRT [MJ/m²]	**GWP100 total** [kg CO_2/m²]	**AP** [kg SO_2/m²]
1,391	11.2	0.287

Classification by IBS – Institut für Brandschutztechnik und Sicherheitsforschung [Institute for Fire Protection Technology and Safety Research], A-4020 Linz
Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna
Rated by ift Rosenheim – Schallschutzzentrum [Sound Insulation Centre], D-83026 Rosenheim and respectively Holzforschung Austria, A-1030 Vienna
Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna

*Equal fire resistance and sound insulation when using Rigidur H gypsum fibre boards or Riduro wooden building slabs.
The assemblies shown were rated by accredited testing institutes on behalf of binderholz and Saint-Gobain Rigips Austria.

Flat roof – solid timber construction, visual quality: DA07 a





Building physical and ecological rating

	Fire protection	REI i → o	60
	max. width l = 5 m; max. load ($q_{fi,d}$) = 5.50 [kN/m²]		
	Heat insulation	U [W/m²K]	0.135
	Sound insulation	R_w [dB]	39
	Ecology	ΔOI3	68

Building material specifications for construction, layer structure | from the inside to the outside

	Thickness [mm]	**Building material**	**Heat conductivity** λ [W/(m · K)]	**Gross density** ρ [kg/m³]	**Flammability class** EN 13501-1
A	2.5	Fabric-reinforced plastic welded sheeting (> 1.7 kg/m²)	—	680	E
B	120	Expanded polystyrol (pitch insulation)	0.032	30	E
C	100	Expanded polystyrol	0.038	30	E
D	—	Sealing sheet (sd ≥ 220 m)	—	—	E
E	120	CLT BBS, 5-layered	0.12	450	D
Total	**34.25 cm**			**62.30 kg/m²**	

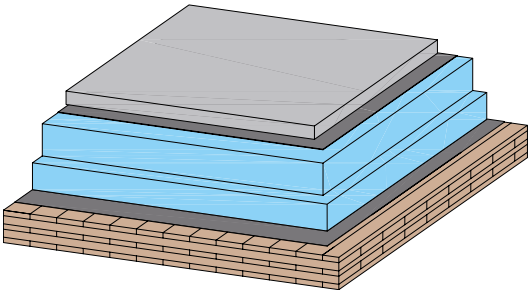
Ecological rating in detail | www.baubook.info/massivholzhandbuch

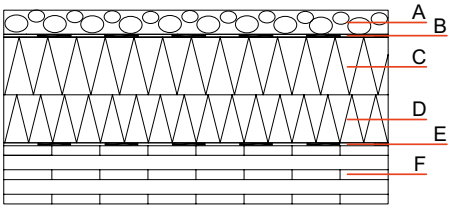
PENRT [MJ/m²]	**GWP100 total** [kg CO_2/m²]	**AP** [kg SO_2/m²]
1,227	-26.9	0.240

Classification by IBS – Institut für Brandschutztechnik und Sicherheitsforschung [Institute for Fire Protection Technology and Safety Research], A-4020 Linz
Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna
Rated by ift Rosenheim – Schallschutzzentrum [Sound Insulation Centre], D-83026 Rosenheim and respectively Holzforschung Austria, A-1030 Vienna
Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna

The assemblies shown were rated by accredited testing institutes on behalf of binderholz and Saint-Gobain Rigips Austria.

Flat roof – solid timber construction, visual quality: DA08 a





Building physical and ecological rating

	Fire protection	REI i → o	60
	max. width l = 5 m; max. load ($q_{fi,d}$) = 5.50 [kN/m²]		
	Heat insulation	U [W/m²K]	0.133
	Sound insulation	R_w [dB]	55
	Ecology	ΔOI3	88

Building material specifications for construction, layer structure | from the inside to the outside

	Thickness [mm]	Building material	Heat conductivity λ [W/(m · K)]	Gross density ρ [kg/m³]	Flammability class EN 13501-1
A	50	Gravel	0.7	1,500	A1
B	2.5	Fabric-reinforced plastic welded sheeting (> 1.7 kg/m²)	—	680	E
C	120	Expanded polystyrol (pitch insulation)	0.032	30	E
D	100	Expanded polystyrol	0.038	30	E
E	—	Sealing sheet (sd ≥ 220 m)	—	—	E
F	120	CLT BBS, 5-layered	0.12	450	D
Total	**39.25 cm**			**137.30 kg/m²**	

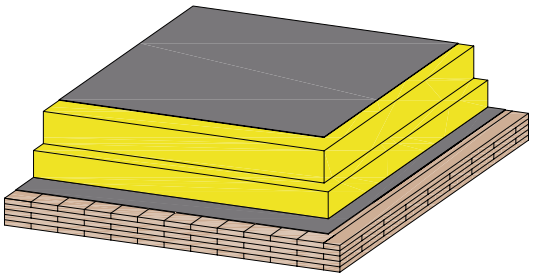
Ecological rating in detail | www.baubook.info/massivholzhandbuch

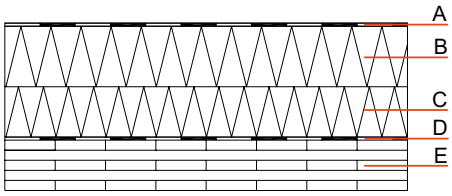
PENRT [MJ/m²]	**GWP100 total** [kg CO_2/m²]	**AP** [kg SO_2/m²]
1,423	-0.316	0.304

Classification by IBS – Institut für Brandschutztechnik und Sicherheitsforschung [Institute for Fire Protection Technology and Safety Research], A-4020 Linz
Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna
Rated by ift Rosenheim – Schallschutzzentrum [Sound Insulation Centre], D-83026 Rosenheim and respectively Holzforschung Austria, A-1030 Vienna
Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna

The assemblies shown were rated by accredited testing institutes on behalf of binderholz and Saint-Gobain Rigips Austria.

Flat roof – solid timber construction, visual quality: DA09 a





Building physical and ecological rating

	Fire protection	REI i → o	30
	max. width l = 4 m; max. load ($q_{fi,d}$) = 6.95 [kN/m²]		
	Heat insulation	U [W/m²K]	0.151
	Sound insulation	R_w [dB]	48
	Ecology	ΔOI3	122

Building material specifications for construction, layer structure | from the inside to the outside

	Thickness [mm]	**Building material**	**Heat conductivity** λ [W/(m · K)]	**Gross density** ρ [kg/m³]	**Flammability class** EN 13501-1
A	2.5	Fabric-reinforced plastic welded sheeting (> 1.7 kg/m²)	—	680	E
B	120	Mineral wool flat roof insulation (pitch insulation), e.g. Isover Metac FLP 1 Duratec	0.039	150	A1
C	100	Mineral wool flat roof insulation, e.g. Isover Metac FLP 1 Duratec	0.039	150	A1
D	—	Sealing sheet (sd ≥ 220 m)	—	—	E
E	100	CLT BBS, 5-layered	0.12	450	D
Total	**32.25 cm**			**79.70 kg/m²**	

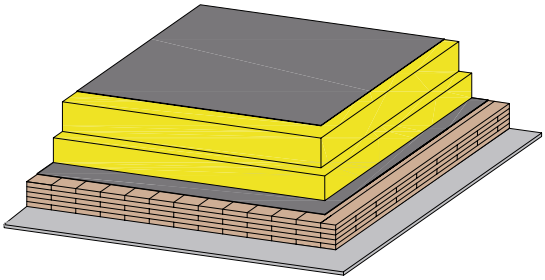
Ecological rating in detail | www.baubook.info/massivholzhandbuch

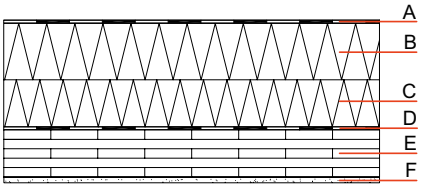
PENRT [MJ/m²]	**GWP100 total** [kg CO_2/m²]	**AP** [kg SO_2/m²]
1,212	19.3	0.587

Classification by IBS – Institut für Brandschutztechnik und Sicherheitsforschung [Institute for Fire Protection Technology and Safety Research], A-4020 Linz
Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna
Rated by ift Rosenheim – Schallschutzzentrum [Sound Insulation Centre], D-83026 Rosenheim and respectively Holzforschung Austria, A-1030 Vienna
Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna

The assemblies shown were rated by accredited testing institutes on behalf of binderholz and Saint-Gobain Rigips Austria.

Flat roof – solid timber construction: DA09 b





Building physical and ecological rating

	Fire protection	REI i → o	30
	max. width l = 4 m; max. load ($q_{fi,\ d}$) = 6.95 [kN/m²]		
	Heat insulation	U [W/m²K]	0.150
	Sound insulation	R_w [dB]	48
	Ecology	ΔOI3	124

Building material specifications for construction, layer structure | from the inside to the outside

	Thickness [mm]	Building material	Heat conductivity λ [W/(m · K)]	Gross density ρ [kg/m³]	Flammability class EN 13501-1
A	2.5	Fabric-reinforced plastic welded sheeting (> 1.7 kg/m²)	—	680	E
B	120	Mineral wool flat roof insulation (pitch insulation), e.g. Isover Metac FLP 1 Duratec	0.039	150	A1
C	100	Mineral wool flat roof insulation, e.g. Isover Metac FLP 1 Duratec	0.039	150	A1
D	—	Sealing sheet (sd ≥ 220 m)	—	—	E
E	100	CLT BBS, 5-layered	0.12	450	D
F	12.5	Rigips RF fire protection board*	0.25	800	A2
Total	**33.50 cm**			**89.70 kg/m²**	

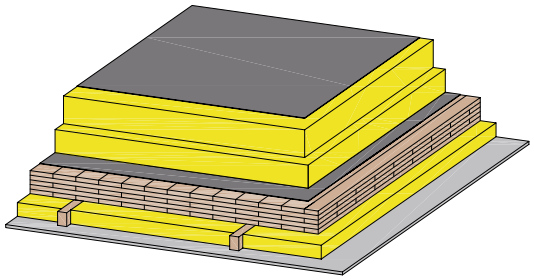
Ecological rating in detail | www.baubook.info/massivholzhandbuch

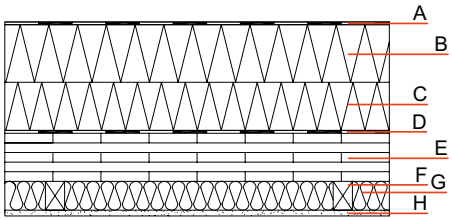
PENRT [MJ/m²]	**GWP100 total** [kg CO_2/m²]	**AP** [kg SO_2/m²]
1,247	20.9	0.591

Classification by IBS – Institut für Brandschutztechnik und Sicherheitsforschung [Institute for Fire Protection Technology and Safety Research], A-4020 Linz
Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna
Rated by ift Rosenheim – Schallschutzzentrum [Sound Insulation Centre], D-83026 Rosenheim and respectively Holzforschung Austria, A-1030 Vienna
Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna

*Equal fire resistance and sound insulation when using Rigidur H gypsum fibre boards or Riduro wooden building slabs.
The assemblies shown were rated by accredited testing institutes on behalf of binderholz and Saint-Gobain Rigips Austria.

Flat roof – solid timber construction, suspended: DA09 c





Building physical and ecological rating

	Fire protection	REI i → o	60
	max. width l = 4 m; max. load ($q_{fi,d}$) = 6.95 [kN/m²]		
	Heat insulation	U [W/m²K]	0.124
	Sound insulation	R_w [dB]	54
	Ecology	ΔOI3	128

Building material specifications for construction, layer structure | from the inside to the outside

	Thickness [mm]	**Building material**	**Heat conductivity** λ [W/(m · K)]	**Gross density** ρ [kg/m³]	**Flammability class** EN 13501-1
A	2.5	Fabric-reinforced plastic welded sheeting (> 1.7 kg/m²)	—	680	E
B	120	Mineral wool flat roof insulation (pitch insulation), e.g. Isover Metac FLP 1 Duratec	0.039	150	A1
C	100	Mineral wool flat roof insulation, e.g. Isover Metac FLP 1 Duratec	0.039	150	A1
D	—	Sealing sheet (sd ≥ 220 m)	—	—	E
E	100	CLT BBS, 5-layered	0.12	450	D
F	60	Wooden battens (60/60; e = 625) directly bolted on	0.13	475	D
G	50	Mineral wool, e.g. Isover ULTIMATE UKF-034 twin	0.034	21	A1
H	12.5	Rigips RF fire protection board*	0.25	800	A2
Total	**39.50 cm**			**93.49 kg/m²**	

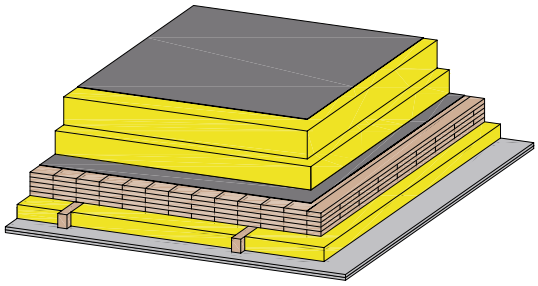
Ecological rating in detail | www.baubook.info/massivholzhandbuch

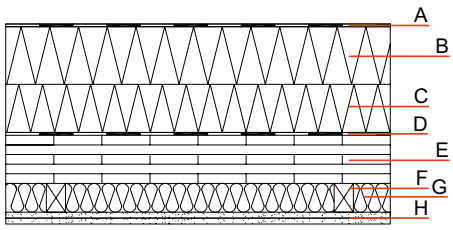
PENRT [MJ/m²]	**GWP100 total** [kg CO_2/m²]	**AP** [kg SO_2/m²]
1,297	19.1	0.608

Rating by MFPA Leipzig – Gesellschaft für Materialforschung und Prüfungsanstalt für das Bauwesen [Society for Material Research and Testing Institute for the Construction Industry], D-04319 Leipzig
Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna
Rated by ift Rosenheim – Schallschutzzentrum [Sound Insulation Centre], D-83026 Rosenheim and respectively Holzforschung Austria, A-1030 Vienna
Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna

*Equal fire resistance and sound insulation when using Rigidur H gypsum fibre boards or Riduro wooden building slabs.
The assemblies shown were rated by accredited testing institutes on behalf of binderholz and Saint-Gobain Rigips Austria.

Flat roof – solid timber construction, suspended: DA09 d





Building physical and ecological rating

	Fire protection	REI i → o	90
	max. width l = 4 m; max. load ($q_{fi,d}$) = 6.95 [kN/m²]		
	Heat insulation	U [W/m²K]	0.123
	Sound insulation	R_w [dB]	54
	Ecology	ΔOI3	130

Building material specifications for construction, layer structure | from the inside to the outside

	Thickness [mm]	Building material	Heat conductivity λ [W/(m · K)]	Gross density ρ [kg/m³]	Flammability class EN 13501-1
A	2.5	Fabric-reinforced plastic welded sheeting (> 1.7 kg/m²)	—	680	E
B	120	Mineral wool flat roof insulation (pitch insulation), e.g. Isover Metac FLP 1 Duratec	0.039	150	A1
C	100	Mineral wool flat roof insulation, e.g. Isover Metac FLP 1 Duratec	0.039	150	A1
D	—	Sealing sheet (sd ≥ 220 m)	—	—	E
E	100	CLT BBS, 5-layered	0.12	450	D
F	60	Wooden battens (60/60; e = 625) directly bolted on	0.13	475	D
G	50	Mineral wool, e.g. Isover ULTIMATE UKF-034 twin	0.034	21	A1
H	30	Rigips RF fire protection board* (2 x 15 mm)	0.25	800	A2
Total	**41.25 cm**			**107.49 kg/m²**	

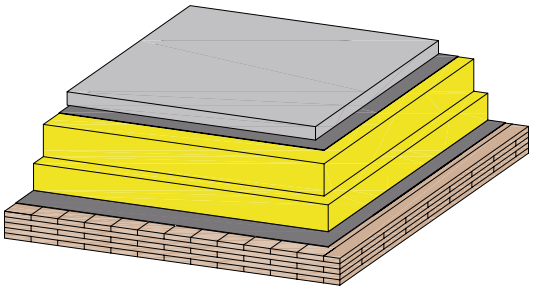
Ecological rating in detail | www.baubook.info/massivholzhandbuch

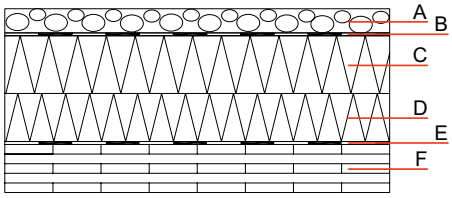
PENRT [MJ/m²]	**GWP100 total** [kg CO_2/m²]	**AP** [kg SO_2/m²]
1,346	21.3	0.614

Classification by IBS – Institut für Brandschutztechnik und Sicherheitsforschung [Institute for Fire Protection Technology and Safety Research], A-4020 Linz
Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna
Rated by ift Rosenheim – Schallschutzzentrum [Sound Insulation Centre], D-83026 Rosenheim and respectively Holzforschung Austria, A-1030 Vienna
Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna

*Equal fire resistance and sound insulation when using Rigidur H gypsum fibre boards or Riduro wooden building slabs.
The assemblies shown were rated by accredited testing institutes on behalf of binderholz and Saint-Gobain Rigips Austria.

Flat roof – solid timber construction, visual quality: DA10 a





Building physical and ecological rating

	Fire protection	REI i → o	30
	max. width l = 4 m; max. load ($q_{fi,d}$) = 6.95 [kN/m²]		
	Heat insulation	U [W/m²K]	0.149
	Sound insulation	R_w [dB]	56
	Ecology	ΔOI3	141

Building material specifications for construction, layer structure | from the inside to the outside

	Thickness [mm]	**Building material**	**Heat conductivity** λ [W/(m · K)]	**Gross density** ρ [kg/m³]	**Flammability class** EN 13501-1
A	50	Gravel	0.7	1,500	A1
B	2.5	Fabric-reinforced plastic welded sheeting (> 1.7 kg/m²)	—	680	E
C	120	Mineral wool flat roof insulation (pitch insulation), e.g. Isover Metac FLP 1 Duratec	0.039	150	A1
D	100	Mineral wool flat roof insulation, e.g. Isover Metac FLP 1 Duratec	0.039	150	A1
E	—	Sealing sheet (sd ≥ 220 m)	—	—	E
F	100	CLT BBS, 5-layered	0.12	450	D
Total	**37.25 cm**			**154.70 kg/m²**	

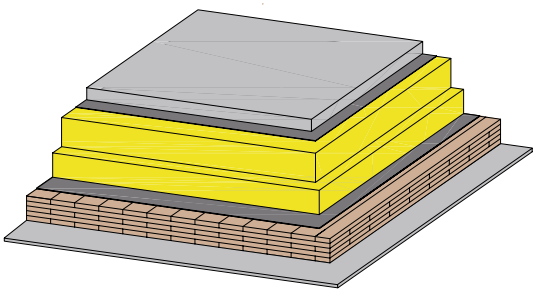
Ecological rating in detail | www.baubook.info/massivholzhandbuch

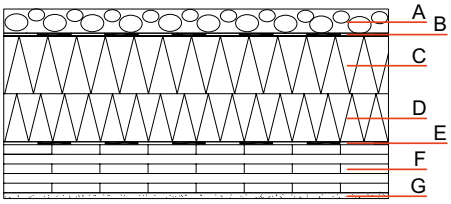
PENRT [MJ/m²]	**GWP100 total** [kg CO_2/m²]	**AP** [kg SO_2/m²]
1,408	45.9	0.651

Classification by IBS – Institut für Brandschutztechnik und Sicherheitsforschung [Institute for Fire Protection Technology and Safety Research], A-4020 Linz
Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna
Rated by ift Rosenheim – Schallschutzzentrum [Sound Insulation Centre], D-83026 Rosenheim and respectively Holzforschung Austria, A-1030 Vienna
Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna

The assemblies shown were rated by accredited testing institutes on behalf of binderholz and Saint-Gobain Rigips Austria.

Flat roof – solid timber construction: DA10 b





Building physical and ecological rating

	Fire protection	REI i → o	30
	max. width l = 4 m; max. load ($q_{fi,d}$) = 6.95 [kN/m²]		
	Heat insulation	U [W/m²K]	0.148
	Sound insulation	R_w [dB]	56
	Ecology	ΔOI3	143

Building material specifications for construction, layer structure | from the inside to the outside

	Thickness [mm]	**Building material**	**Heat conductivity** λ [W/(m · K)]	**Gross density** ρ [kg/m³]	**Flammability class** EN 13501-1
A	50	Gravel	0.7	1,500	A1
B	2.5	Fabric-reinforced plastic welded sheeting (> 1.7 kg/m²)	—	680	E
C	120	Mineral wool flat roof insulation (pitch insulation), e.g. Isover Metac FLP 1 Duratec	0.039	150	A1
D	100	Mineral wool flat roof insulation, e.g. Isover Metac FLP 1 Duratec	0.039	150	A1
E	—	Sealing sheet (sd ≥ 220 m)	—	—	E
F	100	CLT BBS, 5-layered	0.12	450	D
G	12.5	Rigips RF fire protection board*	0.25	800	A2
Total	**38.50 cm**			**164.70 kg/m²**	

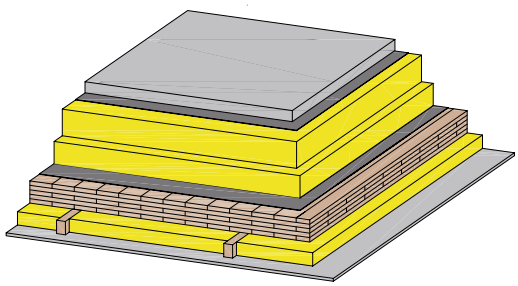
Ecological rating in detail | www.baubook.info/massivholzhandbuch

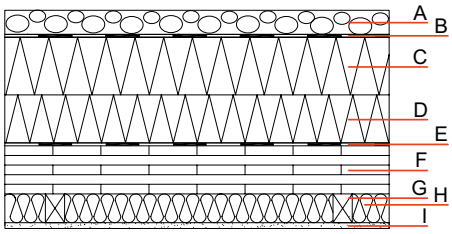
PENRT [MJ/m²]	**GWP100 total** [kg CO_2/m²]	**AP** [kg SO_2/m²]
1,443	47.5	0.655

Classification by IBS – Institut für Brandschutztechnik und Sicherheitsforschung [Institute for Fire Protection Technology and Safety Research], A-4020 Linz
Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna
Rated by ift Rosenheim – Schallschutzzentrum [Sound Insulation Centre], D-83026 Rosenheim and respectively Holzforschung Austria, A-1030 Vienna
Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna

*Equal fire resistance and sound insulation when using Rigidur H gypsum fibre boards or Riduro wooden building slabs.
The assemblies shown were rated by accredited testing institutes on behalf of binderholz and Saint-Gobain Rigips Austria.

Flat roof – solid timber construction, suspended: DA10 c





Building physical and ecological rating

	Fire protection	REI i → o	60
	max. width l = 4 m; max. load ($q_{fi,d}$) = 6.95 [kN/m²]		
	Heat insulation	U [W/m²K]	0.123
	Sound insulation	R_w [dB]	62
	Ecology	ΔOI3	147

Building material specifications for construction, layer structure | from the inside to the outside

	Thickness [mm]	**Building material**	**Heat conductivity** λ [W/(m · K)]	**Gross density** ρ [kg/m³]	**Flammability class** EN 13501-1
A	50	Gravel	0.7	1,500	A1
B	2.5	Fabric-reinforced plastic welded sheeting (> 1.7 kg/m²)	—	680	E
C	120	Mineral wool flat roof insulation (pitch insulation), e.g. Isover Metac FLP 1 Duratec	0.039	150	A1
D	100	Mineral wool flat roof insulation, e.g. Isover Metac FLP 1 Duratec	0.039	150	A1
E	—	Sealing sheet (sd ≥ 220 m)	—	—	E
F	100	CLT BBS, 5-layered	0.12	450	D
G	60	Wooden battens (60/60; e = 625) directly bolted on	0.13	475	D
H	50	Mineral wool, e.g. Isover ULTIMATE UKF-034 twin	0.034	21	A1
I	12.5	Rigips RF fire protection board*	0.25	800	A2
Total	**44.50 cm**			**168.49 kg/m²**	

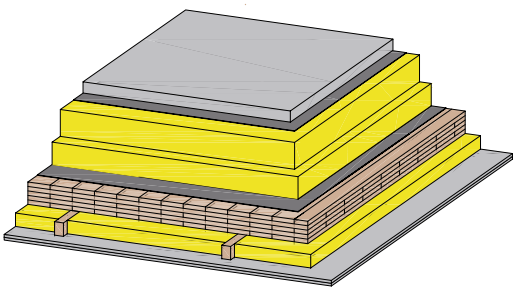
Ecological rating in detail | www.baubook.info/massivholzhandbuch

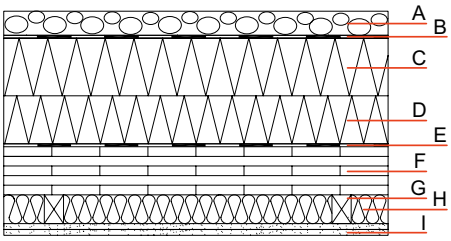
PENRT [MJ/m²]	**GWP100 total** [kg CO_2/m²]	**AP** [kg SO_2/m²]
1,494	45.7	0.672

Rating by MFPA Leipzig – Gesellschaft für Materialforschung und Prüfungsanstalt für das Bauwesen [Society for Material Research and Testing Institute for the Construction Industry], D-04319 Leipzig
Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna
Rated by ift Rosenheim – Schallschutzzentrum [Sound Insulation Centre], D-83026 Rosenheim and respectively Holzforschung Austria, A-1030 Vienna
Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna

*Equal fire resistance and sound insulation when using Rigidur H gypsum fibre boards or Riduro wooden building slabs.
The assemblies shown were rated by accredited testing institutes on behalf of binderholz and Saint-Gobain Rigips Austria.

Flat roof – solid timber construction, suspended: DA10 d





Building physical and ecological rating

	Fire protection	REI i → o	90
	max. width l = 4 m; max. load ($q_{fi,\,d}$) = 6.95 [kN/m²]		
	Heat insulation	U [W/m²K]	0.121
	Sound insulation	R_w [dB]	62
	Ecology	ΔOI3	150

Building material specifications for construction, layer structure | from the inside to the outside

	Thickness [mm]	Building material	Heat conductivity λ [W/(m · K)]	Gross density ρ [kg/m³]	Flammability class EN 13501-1
A	50	Gravel	0.7	1,500	A1
B	2.5	Fabric-reinforced plastic welded sheeting (> 1.7 kg/m²)	—	680	E
C	120	Mineral wool flat roof insulation (pitch insulation), e.g. Isover Metac FLP 1 Duratec	0.039	150	A1
D	100	Mineral wool flat roof insulation, e.g. Isover Metac FLP 1 Duratec	0.039	150	A1
E	—	Sealing sheet (sd ≥ 220 m)	—	—	E
F	100	CLT BBS, 5-layered	0.12	450	D
G	60	Wooden battens (60/60; e = 625) directly bolted on	0.13	475	D
H	50	Mineral wool, e.g. Isover ULTIMATE UKF-034 twin	0.034	21	A1
I	30	Rigips RF fire protection board* (2 x 15 mm)	0.25	800	A2
Total	**46.25 cm**			**182.49 kg/m²**	

Ecological rating in detail | www.baubook.info/massivholzhandbuch

PENRT [MJ/m²]	**GWP100 total** [kg CO_2/m²]	**AP** [kg SO_2/m²]
1,542	47.9	0.678

Classification by IBS – Institut für Brandschutztechnik und Sicherheitsforschung [Institute for Fire Protection Technology and Safety Research], A-4020 Linz
Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna
Rated by ift Rosenheim – Schallschutzzentrum [Sound Insulation Centre], D-83026 Rosenheim and respectively Holzforschung Austria, A-1030 Vienna
Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna

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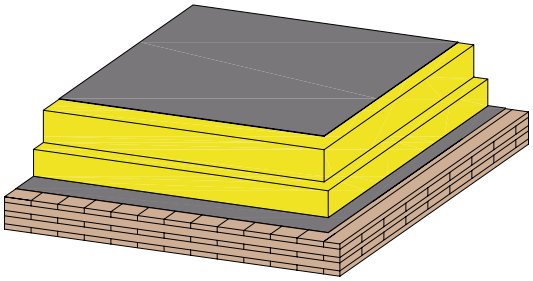
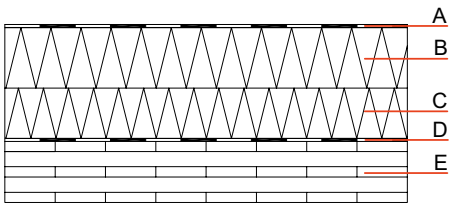
The assemblies shown were rated by accredited testing institutes on behalf of binderholz and Saint-Gobain Rigips Austria.

Flat roof – solid timber construction, visual quality: DA11 a





Building physical and ecological rating

	Fire protection	REI i → o	60
	max. width l = 5 m; max. load ($q_{fi,d}$) = 5.50 [kN/m²]		
	Heat insulation	U [W/m²K]	0.147
	Sound insulation	R_w [dB]	48
	Ecology	ΔOI3	125

Building material specifications for construction, layer structure | from the inside to the outside

	Thickness [mm]	**Building material**	**Heat conductivity** λ [W/(m · K)]	**Gross density** ρ [kg/m³]	**Flammability class** EN 13501-1
A	2.5	Fabric-reinforced plastic welded sheeting (> 1.7 kg/m²)	—	680	E
B	120	Mineral wool flat roof insulation (pitch insulation), e.g. Isover Metac FLP 1 Duratec	0.039	150	A1
C	100	Mineral wool flat roof insulation, e.g. Isover Metac FLP 1 Duratec	0.039	150	A1
D	—	Sealing sheet (sd ≥ 220 m)	—	—	E
E	120	CLT BBS, 5-layered	0.12	450	D
Total	**34.25 cm**			**88.70 kg/m²**	

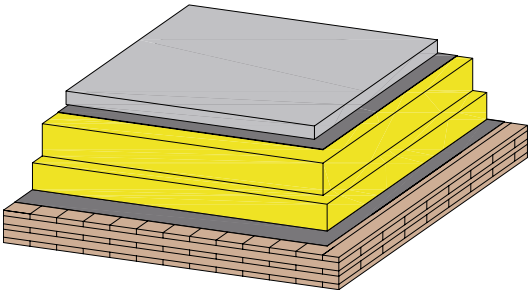
Ecological rating in detail | www.baubook.info/massivholzhandbuch

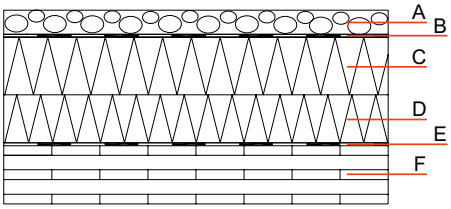
PENRT [MJ/m²]	**GWP100 total** [kg CO_2/m²]	**AP** [kg SO_2/m²]
1,279	9.39	0.608

Classification by IBS – Institut für Brandschutztechnik und Sicherheitsforschung [Institute for Fire Protection Technology and Safety Research], A-4020 Linz
Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna
Rated by ift Rosenheim – Schallschutzzentrum [Sound Insulation Centre], D-83026 Rosenheim and respectively Holzforschung Austria, A-1030 Vienna
Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna

The assemblies shown were rated by accredited testing institutes on behalf of binderholz and Saint-Gobain Rigips Austria.

Flat roof – solid timber construction, visual quality: DA12 a





Building physical and ecological rating

	Fire protection	REI i → o	60
	max. width l = 5 m; max. load ($q_{fi,d}$) = 5.50 [kN/m²]		
	Heat insulation	U [W/m²K]	0.146
	Sound insulation	R_w [dB]	56
	Ecology	ΔOI3	145

Building material specifications for construction, layer structure | from the inside to the outside

	Thickness [mm]	Building material	Heat conductivity λ [W/(m · K)]	Gross density ρ [kg/m³]	Flammability class EN 13501-1
A	50	Gravel	0.7	1,500	A1
B	2.5	Fabric-reinforced plastic welded sheeting (> 1.7 kg/m²)	—	680	E
C	120	Mineral wool flat roof insulation (pitch insulation), e.g. Isover Metac FLP 1 Duratec	0.039	150	A1
D	100	Mineral wool flat roof insulation, e.g. Isover Metac FLP 1 Duratec	0.039	150	A1
E	—	Sealing sheet (sd ≥ 220 m)	—	—	E
F	120	CLT BBS, 5-layered	0.12	450	D
Total	**39.25 cm**			**163.70 kg/m²**	

Ecological rating in detail | www.baubook.info/massivholzhandbuch

PENRT [MJ/m²]	**GWP100 total** [kg CO_2/m²]	**AP** [kg SO_2/m²]
1,475	36	0.672

Classification by IBS – Institut für Brandschutztechnik und Sicherheitsforschung [Institute for Fire Protection Technology and Safety Research], A-4020 Linz
Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna
Rated by ift Rosenheim – Schallschutzzentrum [Sound Insulation Centre], D-83026 Rosenheim and respectively Holzforschung Austria, A-1030 Vienna
Calculation by IBO – Österreichisches Institut für Bauen und Ökologie [Austrian Institute for Construction and Ecology], A-1090 Vienna

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