Parts catalogue

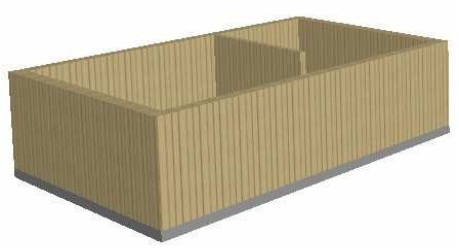
System **Thoma** *Holz100*

1. System Thoma Holz100

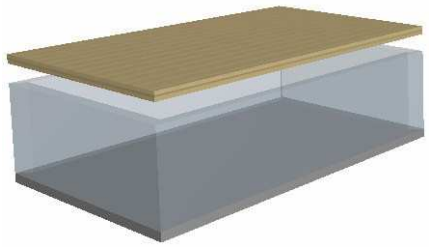
1. System Thoma Holz100

Description of the systems:
W Wall systems
DE Ceiling systems
DA Roof systems

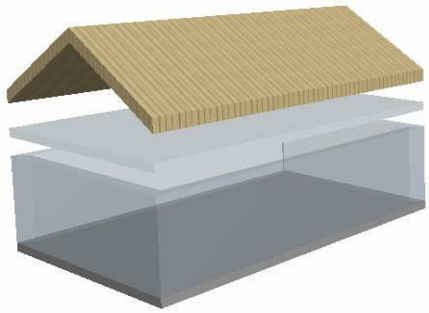
Thoma Holz100 – one system – a complete house



Holz100 Wall systems (W)
Holz100 Standard
Holz100 Thermal
Holz100 Soundproofing



Holz100 Ceiling systems (DE)



Holz100 Roof systems (DA)

assemble into an "inhabitable" bare shell.

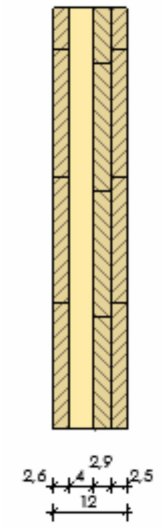
Assembly time for a single family house
(approx. 150m² living space)
1 day

1.1 Wall systems ***H100-W***

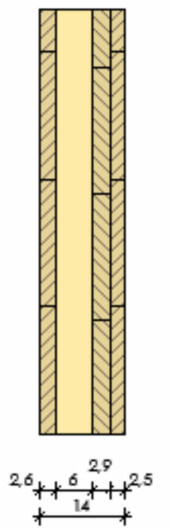
Holz100 Standard walls

Types of wood:
Part: spruce/ fir/ pine/ larch
Dowelling: hardwood

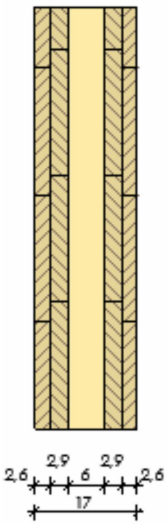
The Thoma Holz100 Standard parts consist of layers of wooden boards with a thickness of 20mm to 60mm, which are cross laminated (horizontally, vertically and diagonally) both outside and inside, and connected to a standing core or to a top and bottom belt of 40 or 80mm with beech wood dowels (approx. d = 20mm) which are set as a raster.
The external walls are fitted at the factory with one layer of house wrap which is securely placed between two layers of boards.
The mechanically compressed and dust-dry hardwood dowels are hydraulically pressed in, they get moist in the process by absorbing additional ambient humidity, and swell up to connect non-detachably to surrounding wood.
Synthetic resin glues or nails are not being used, so that the result is a solid wood wall (up to 3 x 8m in size, and up to 40cm thick), which contains nothing but pure wood.



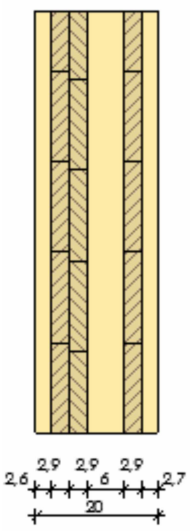
Standard Wall
H100-W12



Standard Wall
H100-W14



Standard Wall
H100-W17



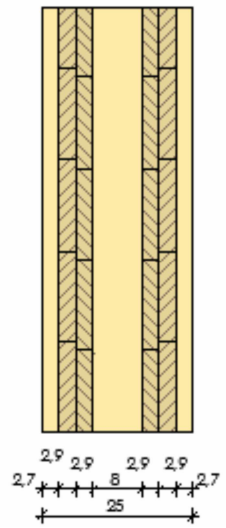
Standard Wall
H100-W20

Holz100 Thermal walls

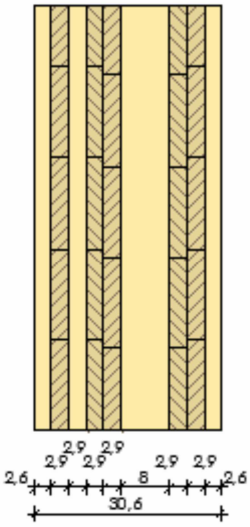
The Thoma Holz100 Thermal walls - similar to standard walls - consist of layers of wooden boards with a thickness of 20mm to 80mm. What's different are the grooves milled into individual layers of wood.
The grooves milled into the layers of wood (integrated structural insulation) function within the Holz100 wall laminate as macroscopic air cushions without circulation, and reduce the wall's thermal conductivity which results in a substantially improved thermal insulation.
At their full static load carrying capacity, the Holz100 Thermal walls show parameters otherwise reserved solely to insulation materials (lambda value of $Holz100_{Thermal}$ = 0.079 W/m^{2}K).
The Thermal walls are manufactured in the following thickness versions:

- 25.0cm type W25
- 30.6cm type W30
- 36.4cm type W36

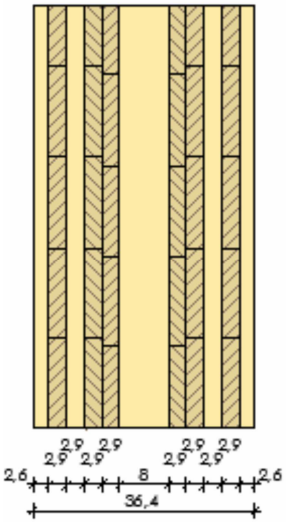
The Thoma Holz100 Thermal walls make it possible for external walls to have a very high energy standard with only a little additional thickness for insulation. Our research work combines excellent technical parameters with a background of building-specific physical properties, which not least minimise the building cost.



Thermal Wall
H100-W25



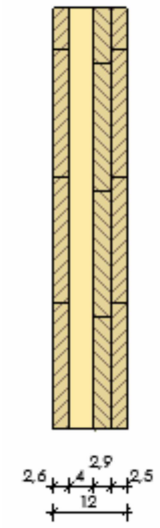
Thermal Wall
H100-W30



Thermal Wall
H100-W36

1) Inner wall systems

H100-W12



General data

Thickness of part	12.0cm
Functionality	inner wall, not supporting
Core layer	40mm
Surface layer	horizontal
Construction	4 layers
Layers, left to right:	h – K – d – h*
Area density	approx. 55kg/m^2

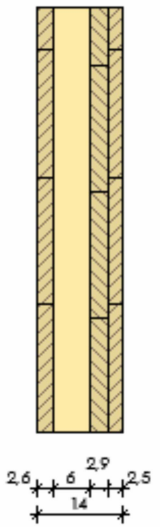
Building physics data

Bulk density	450kg/m^3
Thermal conductivity lambda value	not relevant

Fire protection

Burn-off according to certificate	0.9mm/min.

H100-W14



General data

Thickness of part	14.0cm
Functionality	inner wall, supporting
Core layer	60mm
Surface layer	horizontal
Construction	4 layers
Layers, left to right:	h – K – d – h
Area density	65 kg/m^2

Building physics data

Bulk density	450kg/m^3
Thermal conductivity lambda value	not relevant

Fire protection

Burn-off according to certificate	0.9mm/min.

Soundproofing
according to TU Graz Rw = 39dB

* h = horozontal, v = vertical, d = diagonal, K = core layer

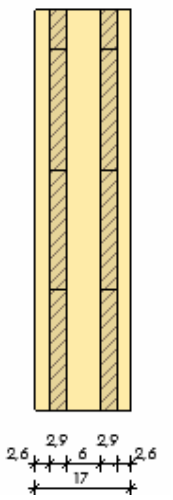
2) Outer wall systems

The surface layers of outer walls can be mounted horizontally (h) or vertically (v). For example for the H100-W17:

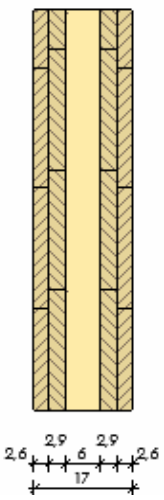
- H100-W17/v (for vertical surface layers)
- H100-W17/h (for horizontal surface layers)

H100-W17

H100-W17v



H100-W17h



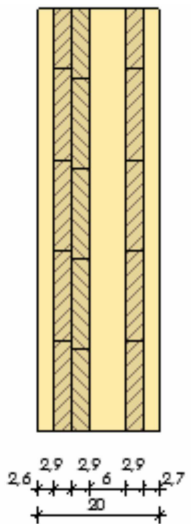
General data

Thickness of part	17.0cm
Functionality	outer wall
Core layer	60mm
Surface layer	horizontal or vertical
Construction	5 layers
Layers left to right	
H100-W17v	v – h – K – d – v
H100-W17h	h – v – K – d – h
Area density	74kg/m^2

Building physics data

Bulk density	450kg/m^3
Thermal conductivity lambda value according to Hotbox measurement, FH Wels	0.088 W/mK – standard wall
Fire protection according to IBS Linz	REI 60

H100-W20



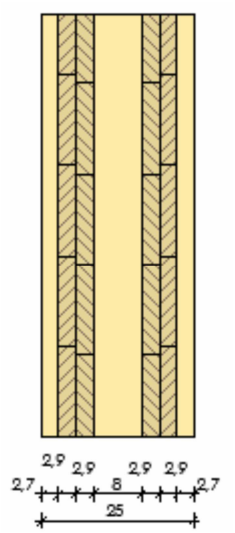
General data

Thickness of part	20.0cm
Functionality	outer wall
Core layer	60mm
Surface layer	horizontal or vertical
Construction	5 layers
Layers, left to right:	v – h – d – K – d – v
Area density	90kg/m^2

Building physics data

Bulk density	450kg/m^3
Thermal conductivity lambda value according to Hotbox measurement, FH Wels	0.088 W/mK – standard wall
Fire protection	
Burn-off rate according to certificate	0.9mm/min.
Soundproofing according to TU Graz	Rw = 41dB

H100-W25



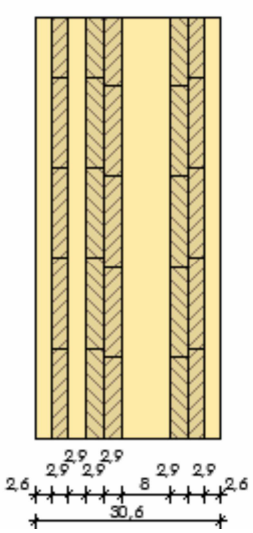
General data

Thickness of part	25.0cm
Functionality	outer wall
Core layer	80mm
Surface layer	horizontal or vertical
Construction	7 layers
Layers, left to right:	v – h – d – K – d – h – v
Area density	109kg/m^2

Building physics data

Bulk density	435kg/m^3
Thermal conductivity lambda value according to Hotbox measurement, FH Wels	0.079 W/mK – standard wall
Fire protection Burn-off rate	0.9mm/min.

H100-W30



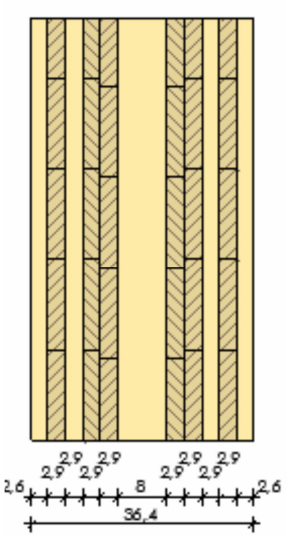
General data

Thickness of part	30.6cm
Functionality	outer wall
Core layer	80mm
Surface layer	horizontal or vertical
Construction	9 layers
Layers, left to right:	v – h – v – h – d – K – d – h – v
Area density	134kg/m^2

Building physics data

Bulk density	435kg/m^3
Thermal conductivity lambda value according to Hotbox measurement, FH Wels	0.079 W/mK – standard wall
Fire protection Burn-off rate according to certificate	0.9mm/min.

H100-W36



General data

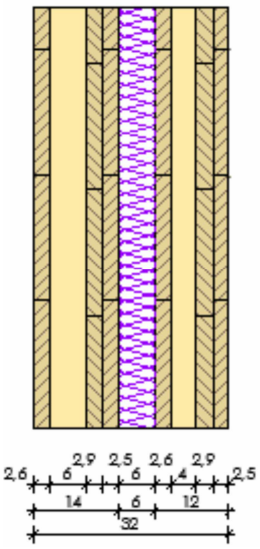
Thickness of part	36.4cm
Functionality	outer wall
Core layer	80mm
Surface layer	horizontal or vertical
Construction	11 layers
Layers left to right:	v – h – v – h – d – k – d – h – v – h – v
Area density	159kg/m^2

Building physics data

Bulk density	435kg/m^3
Thermal conductivity lambda value according to Hotbox measurement, FH Wels	0.079 W/mK – standard wall
Fire protection according to TU Graz	REI 120

3) Soundproofing systems

H100-W$_{schall}$* 32



General data

Thickness of part	32.0cm
Functionality	partition wall
Layers	3
Construction	14cm H100 I 6cm HW I 12cm H100
Isolation by	6cm soft wood fibre plate
Area density	123kg/m^2

Building physics data

Bulk density Holz100	435kg/m^3
Thermal conductivity lambda value	not relevant
Fire protection burn-off rate acc. to certificate	analogical to individual wall types
Soundproofing according to TU Graz	Rw = 54dB

* soundproofing

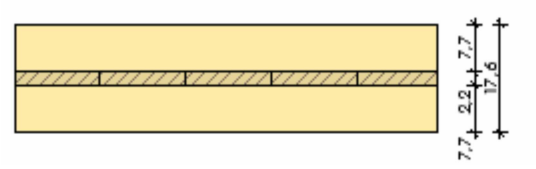
1.2 Ceiling systems ***H100-DE***

Thoma Holz100 ceilings and roof parts consist of 70-80mm walers and wooden board layers in between.

Fitting direction: single-axis towards walers
Type of wood: spruce I fir I pine I larch

H100-DE17

Cross-section

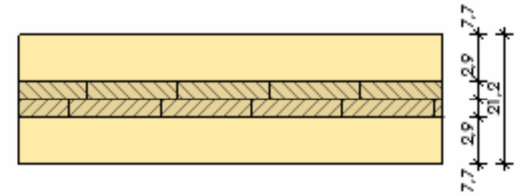


General data

Thickness of part 17.6cm
Layers 3
Top and bottom waler 7.7cm

H100-DE21

Cross-section

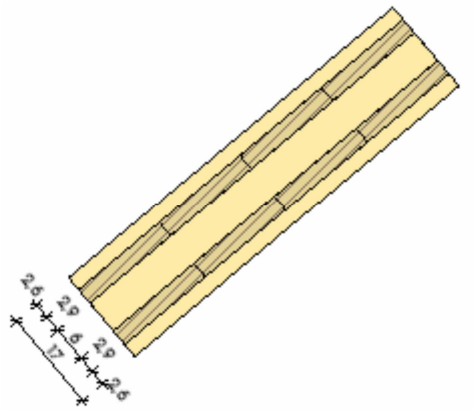


General data

Thickness of part 21.2cm
Layers 4
Top and bottom waler 7.7cm

1.3 Thoma Holz100 Roof systems ***H100-DA***

H100-DA17

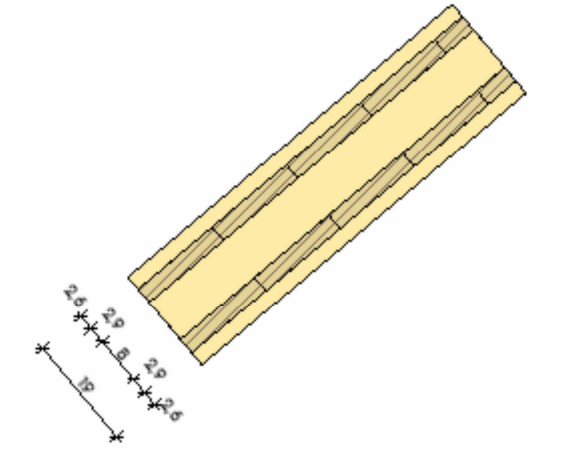


General data

Part thickness	17.0
Layers	5
Core layer	6.0cm

Usage: usual span widths and small snow loads

H100-DA19

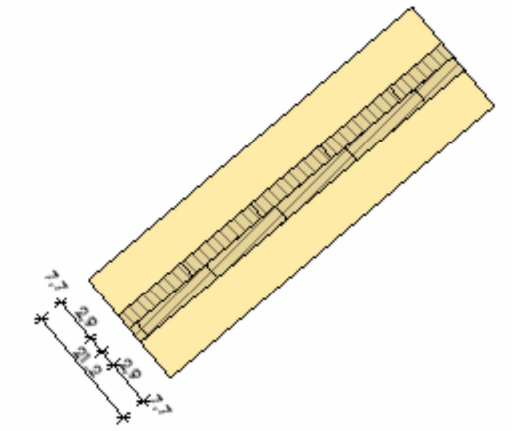


General data

Part thickness	19.0
Layers	5
Core layer	8.0cm

Usage: usual span widths and increased snow loads

H100-DA21



General data

Part thickness	21.2
Layers	4
Top and bottom waler	7.7cm

Usage: large span widths or large snow loads

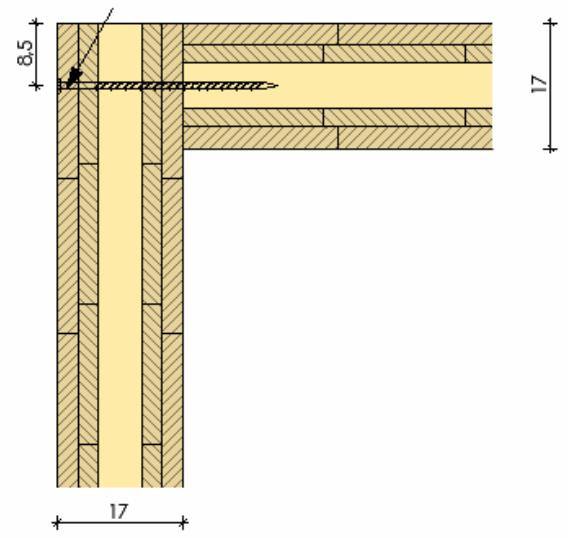
2. Details

2.1 Standard connections

1) Corner connection

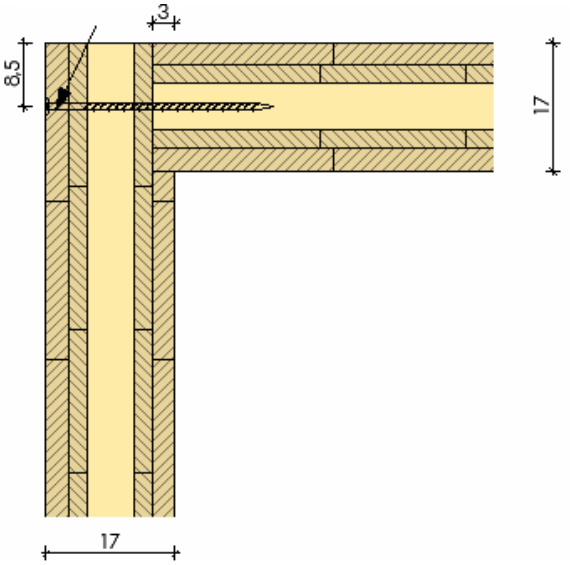
Version: unrebated

Screw fitting with
Torx 8 x 300, e = approx. 40cm
or 10 x 300



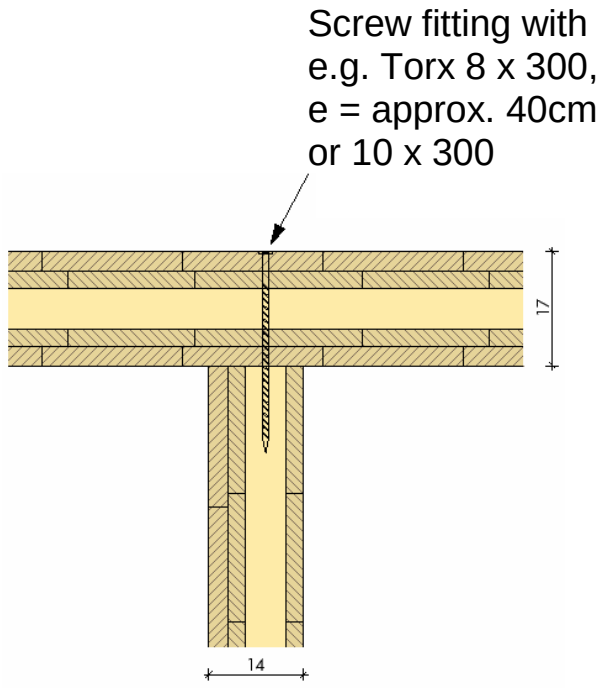
Version: rebated

Screw fitting with
Torx 8 x 300, e = approx. 40cm
or 10 x 300

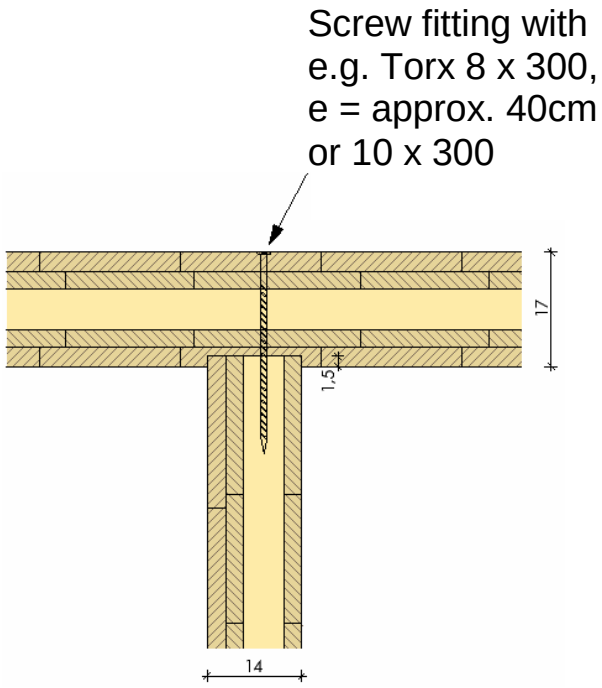


2) Joining of partition walls

Version: unrebated



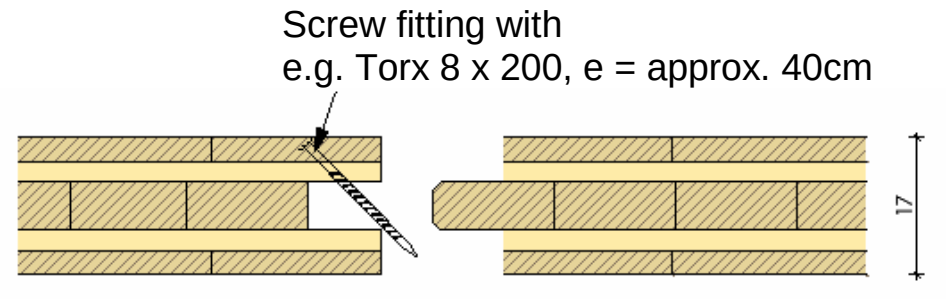
Version: rebated



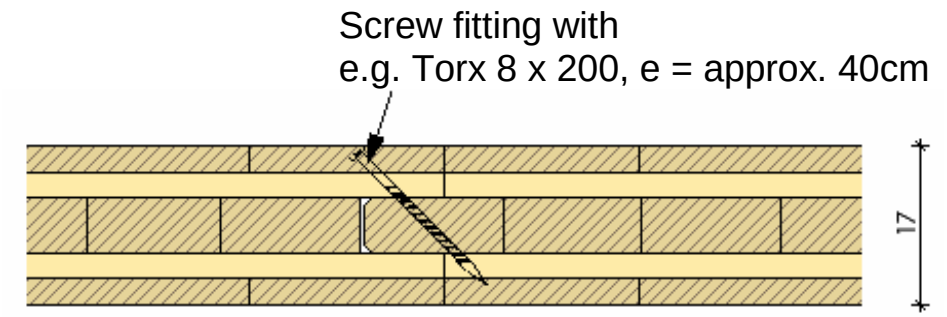
3) Joining walls edge-to-edge

horizontal section

connection open

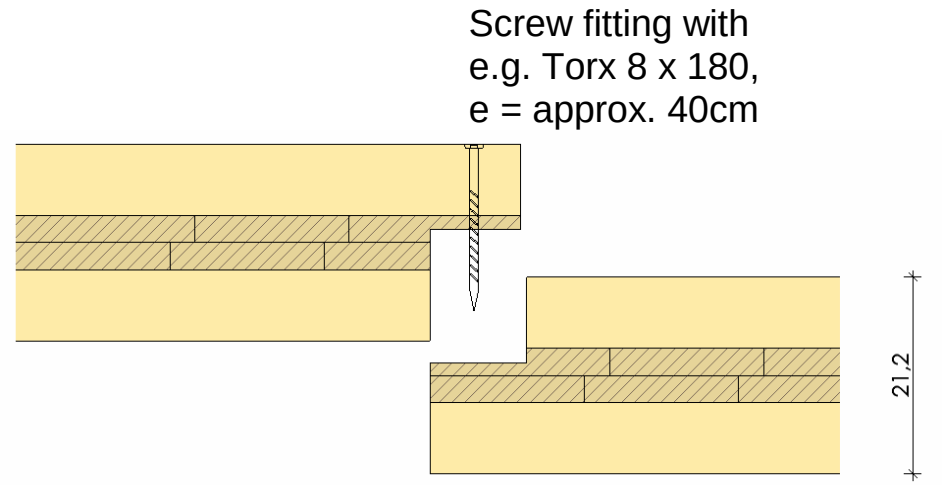


connection closed

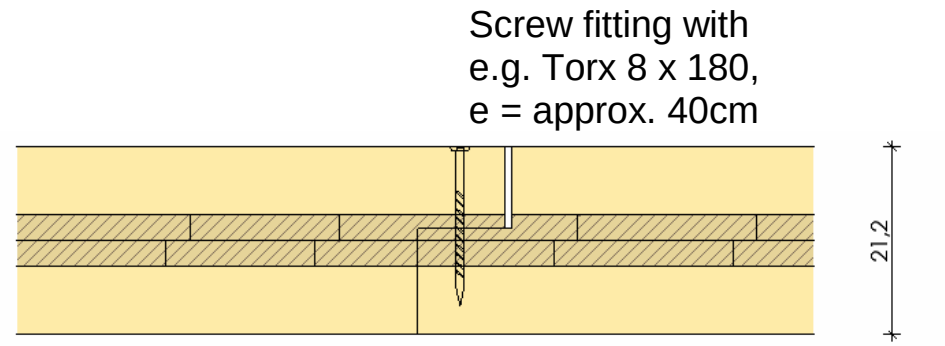


4) Joining ceilings edge-to-edge

connection open



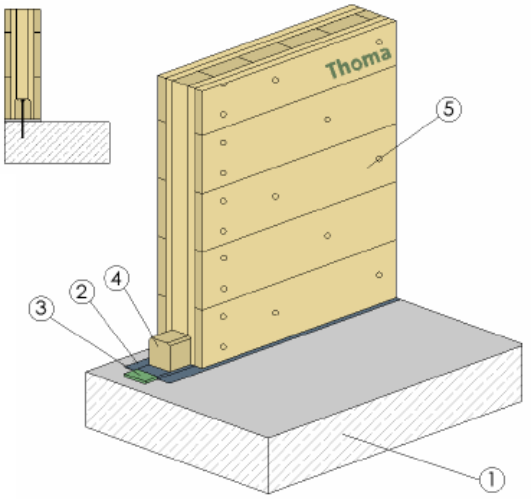
connection closed



2.2 Other connections

1) External walls to concrete

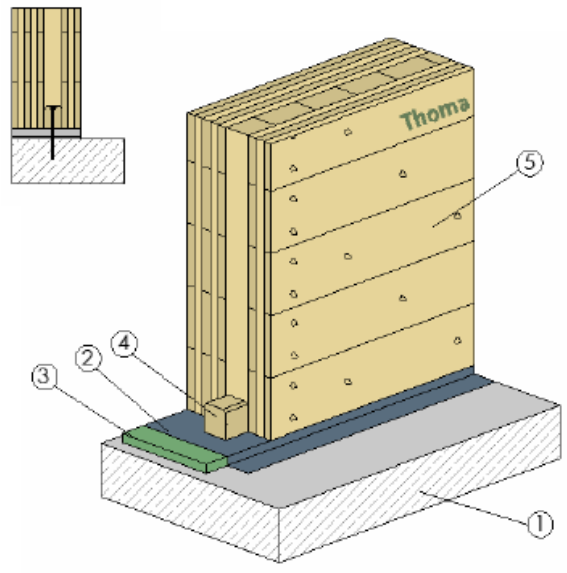
Thoma external wall H100-W17



Description of layers

1 floor plate | foundation
2 insulation against rising damp
3 mortar bed
precisely levelled, supporting blocks
4 Holz100 mounting joist (larch) anchoring via heavy duty anchor to the floor plate – dissipation of vertical forces, secured in position by screwing the Holz100 wall to the mounting joist from the outside
5 The Thoma Holz100 wall system, supporting according to static and building-physics requirements

Thoma external wall H100-W30

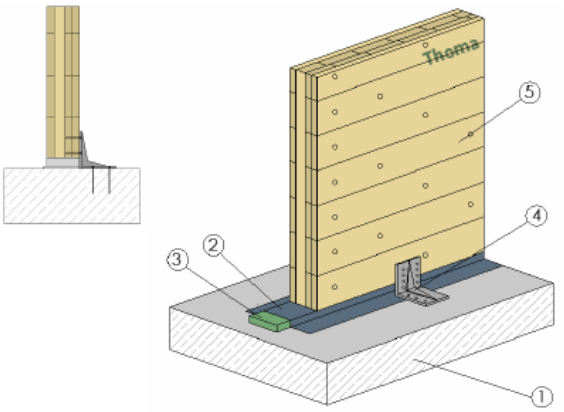


Description of layers

1 floor plate | foundation
2 insulation against rising damp
3 mortar bed
precisely levelled, supporting blocks
4 Holz100 mounting joist (larch) anchoring via heavy duty anchor to the floor plate – dissipation of vertical forces, secured in position
5 The Thoma Holz100 wall system, supporting according to static and building-physics requirements

2) Internal walls to concrete

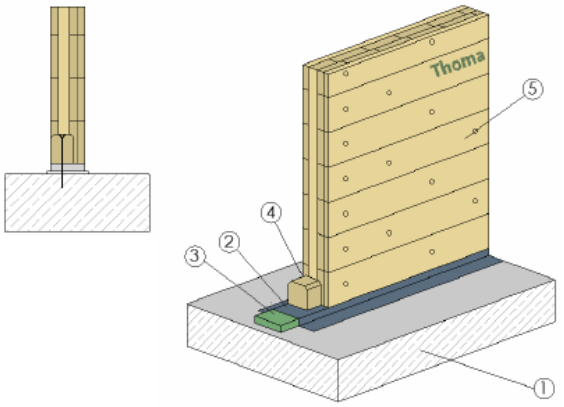
Version: with elbow connector



Description of layers

1 floor plate | foundation
2 insulation against rising damp
3 mortar bed
precisely levelled, supporting blocks
4 Connected via BMF elbow connector for securing in position
5 Thoma Holz100 Wall system

Version: with Thoma mounting joist

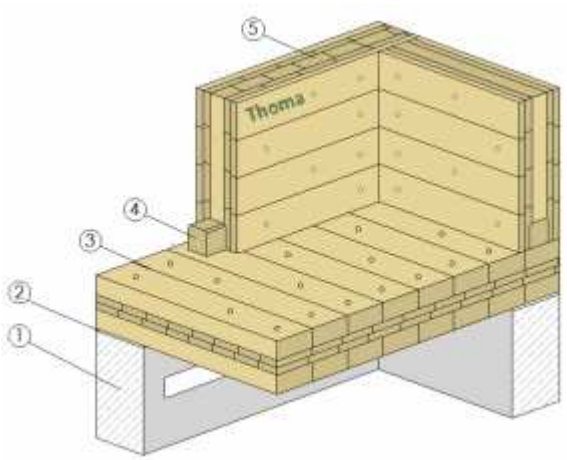


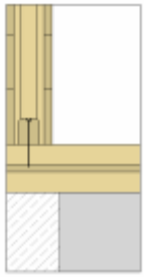
Description of layers

1 floor plate | foundation
2 insulation against rising damp
3 mortar bed
precisely levelled, supporting blocks
4 Holz100 mounting joist (larch) anchoring via heavy duty anchor to the floor plate – dissipation of vertical forces, secured in position
5 Thoma Holz100 Wall system

3) Joining to the H100 floor plate

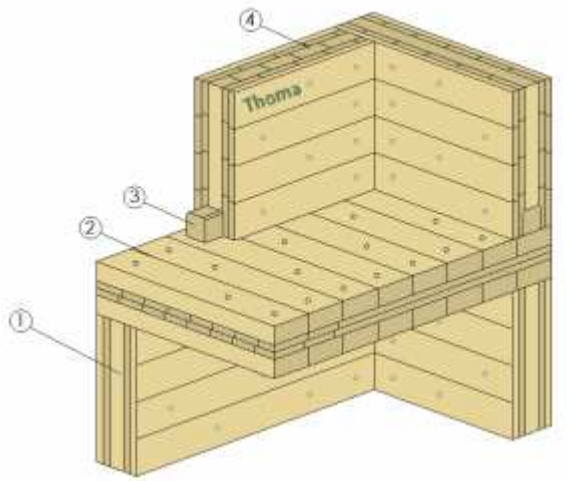
Version: crawl space with a Holz100 ceiling

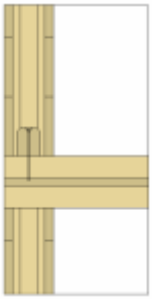




1 Crawl space with sufficient cross ventilation
2 Damp barrier layer insulating the Holz100 ceiling
3 Holz100 ceiling according to static requirements
4 Holz100 mounting joist fitted directly to the Holz100 ceiling
5 The Thoma Holz100 wall system, according to static and building-physics requirements

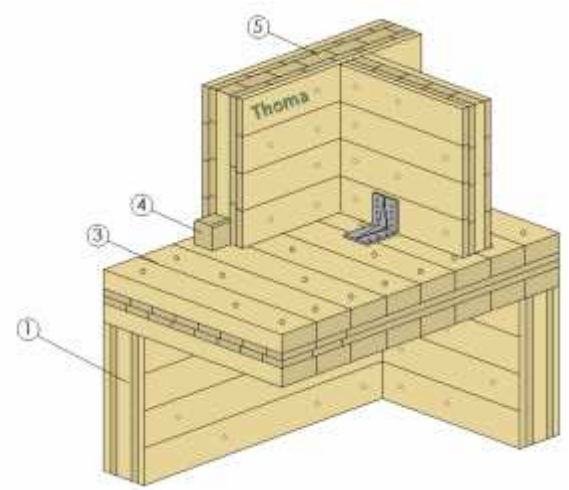
Joining an inserted ceiling, upper floor
External wall – corner

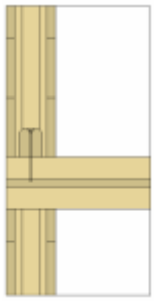




1 The Thoma Holz100 wall system, according to static and building-physics requirements
2 Holz100 ceiling according to static requirements
3 Holz100 mounting joist fitted directly to the Holz100 ceiling
4 The Thoma Holz100 wall system, according to static and building-physics requirements

Joining an inserted ceiling, upper floor
Joining to internal wall

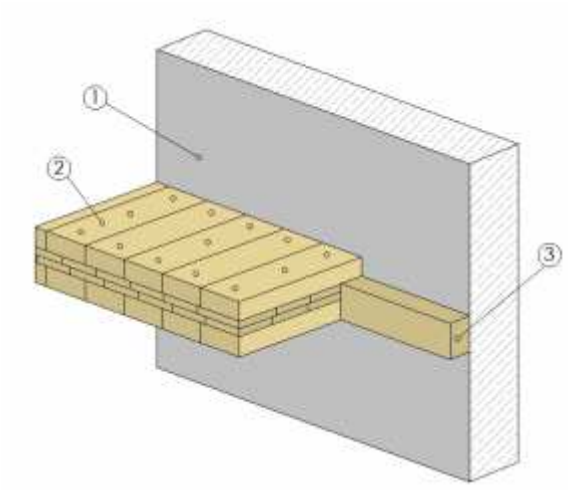


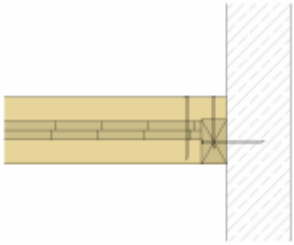


1 The Thoma Holz100 wall system, according to static and building-physics requirements
2 Holz100 ceiling according to static requirements
3 Holz100 mounting joist fitted directly to the Holz100 ceiling
4 The Thoma Holz100 wall system, according to static and building-physics requirements

4) Joining to an existing wall

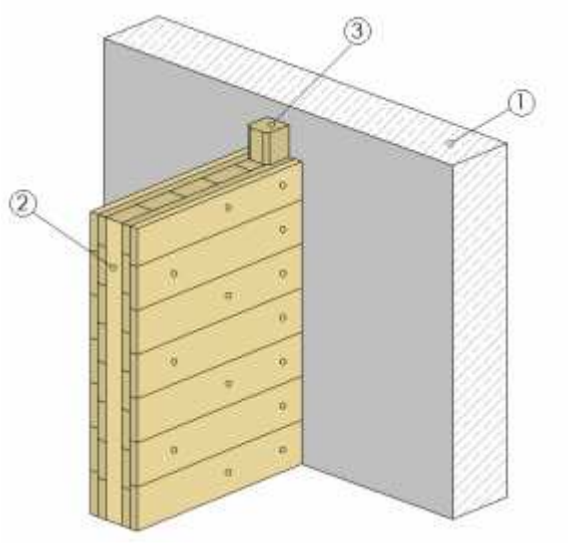
Joining the ceiling via edge beam





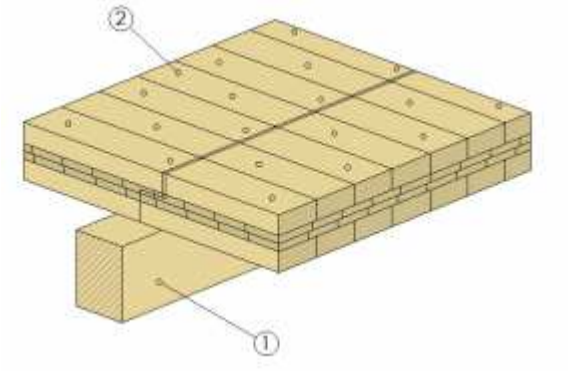
1 existing wall
2 Holz100 ceiling system
screw fitted to edge beam and additional support enforcement
3 edge beam
screw fitted to existing wall

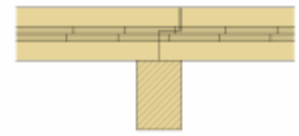
Joining the wall via mounting beam



1 existing wall
2 Holz100 Wall system
screw fitted to mounting beam
3 mounting beam
screw fitted to existing wall

5) Ceiling supported on bearers



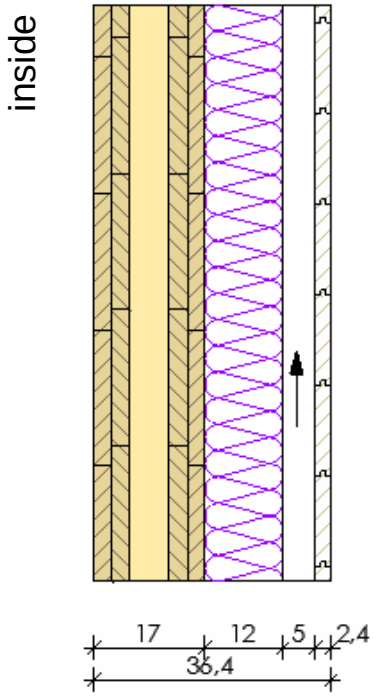


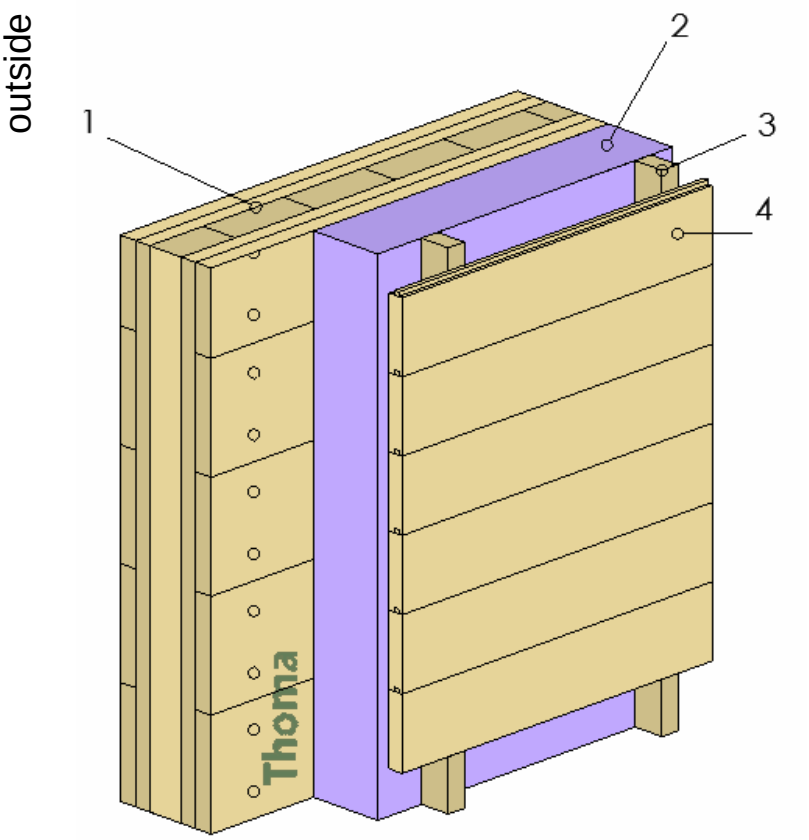
1. wooden bearer
2. Thoma H100 ceiling system

3. Constructions

3.1 External walls

Description	**Construction AW01**
Part	H100-W17





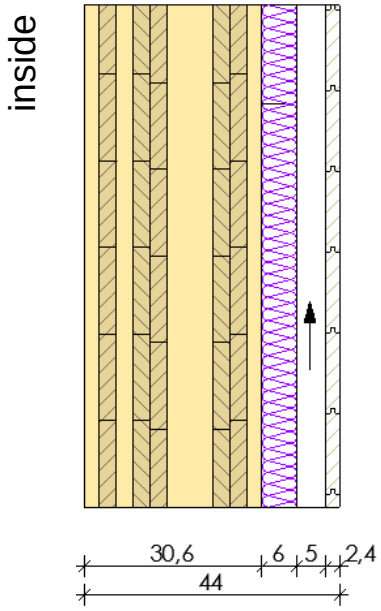
Layers

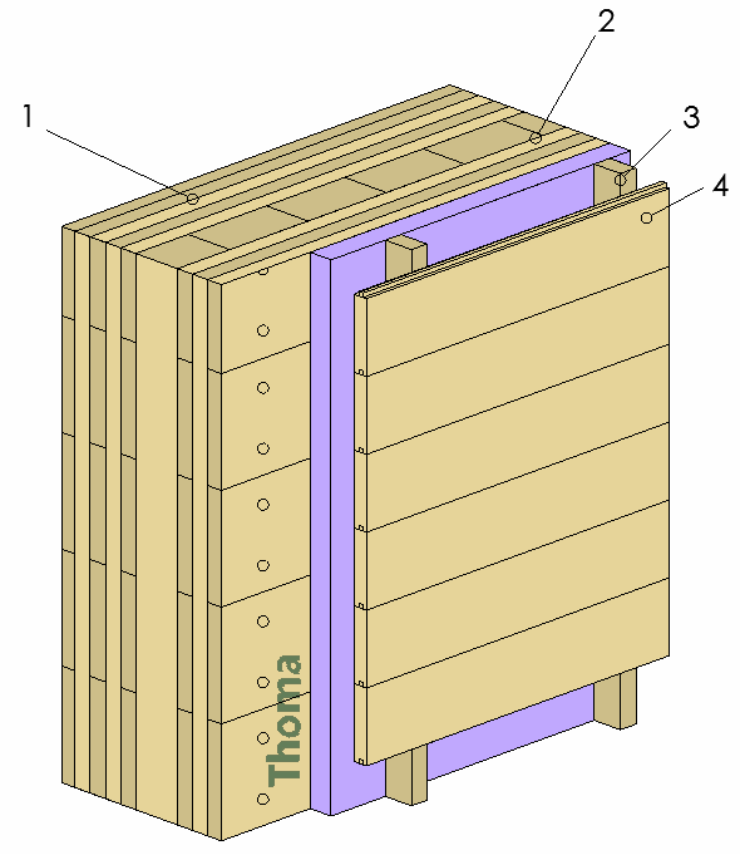
Item	Thickness (cm)	Description
01	17.0	Thoma H100-W17
02	12.0	soft wood fibre with tongue and groove
03	5.0	ventilation slats vertical
04	2.4	external formwork
	36.4	**Complete structure**

Technical construction parameters

Parameter		Unit
U-value	0.20	W/m^{2}K
fire protection from the inside	F60B	
area density	115	Kg/m^2

Description	**Construction AW02**
Part	H100-W30





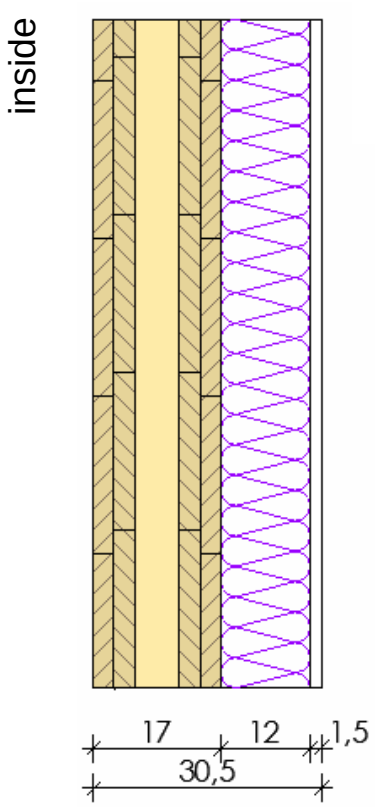
Layers

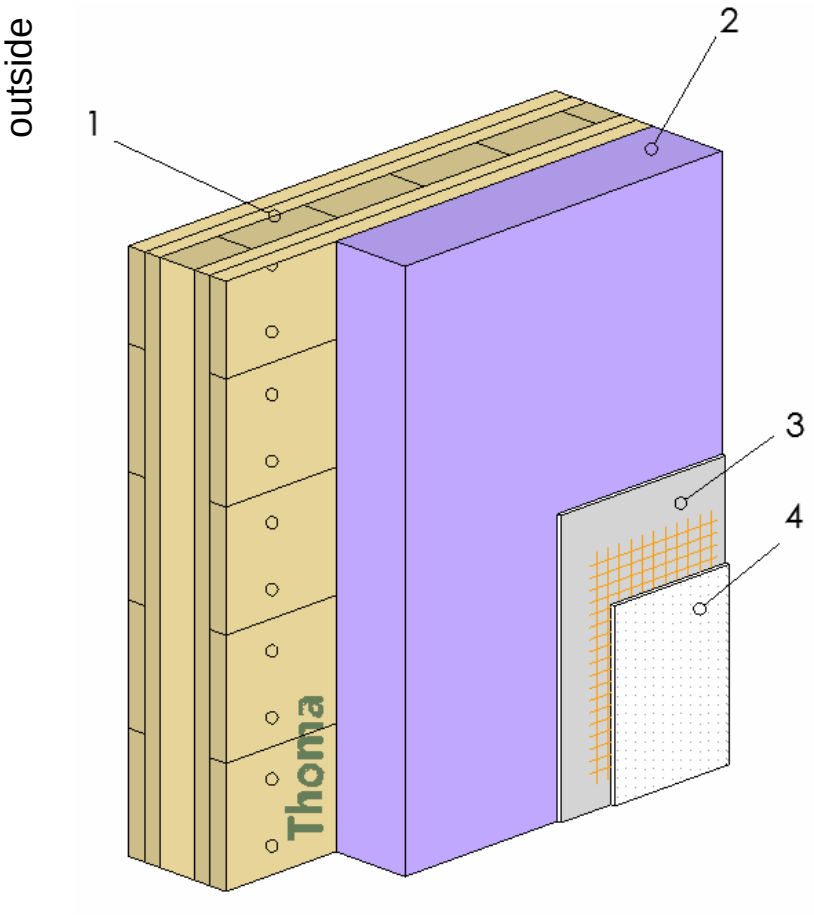
Item	Thickness (cm)	Description
01	30.6	Thoma H100-W30
02	6.0	soft wood fibre with tongue and groove
03	5.0	ventilation slats vertical
04	2.4	external formwork
	44.0	**Complete structure**

Technical construction parameters

Parameter		Unit
U-value	0.18	W/m^2K
fire protection from the inside	F90B	
area density	160	Kg/m^2

Description	**Construction AW03**
Part	H100-W17





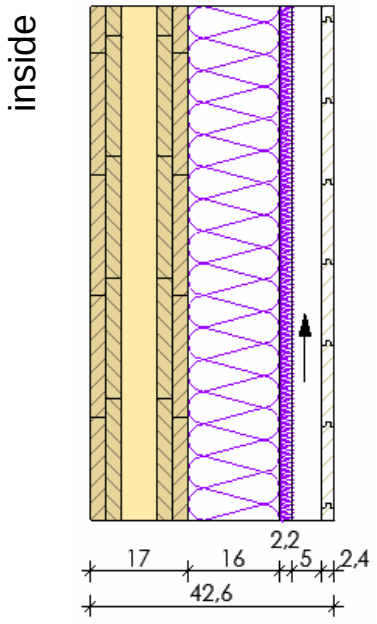
Layers

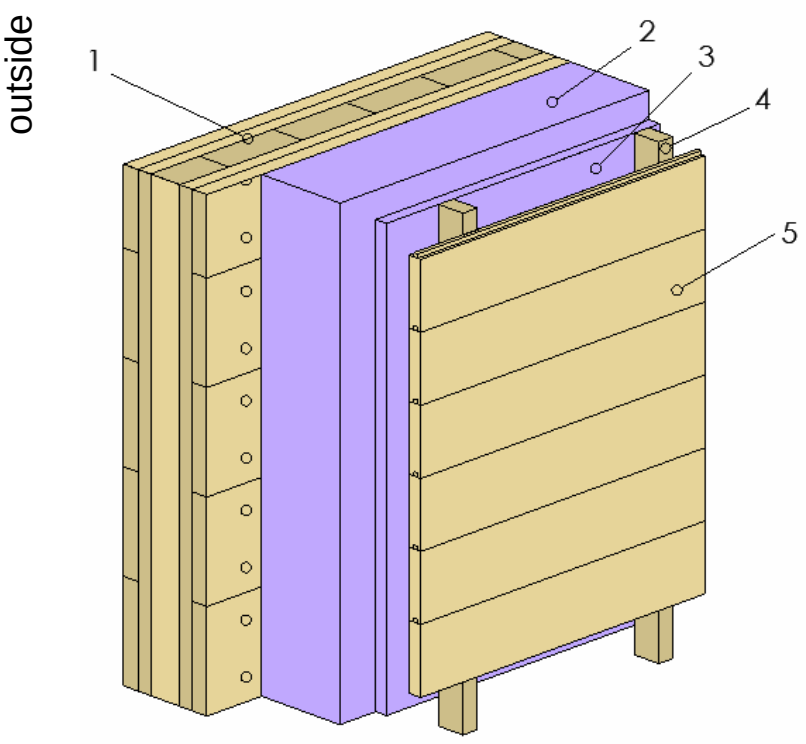
Item	Thickness (cm)	Description
01	17.0	Thoma H100-W17
02	12.0	soft wood fibre as plaster base
03	-	system plaster according to manufacturer's information
04	approx. 1.5	
	30.5	**Complete structure**

Technical construction parameters

Parameter		Unit
U-value	0.20	W/m^{2}K
fire protection from the inside	F60B	
area density	110	Kg/m^2

Description	**Construction AW04**
Part	H100-W17





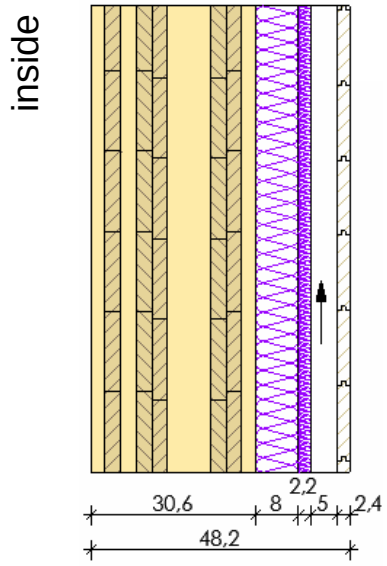
Layers

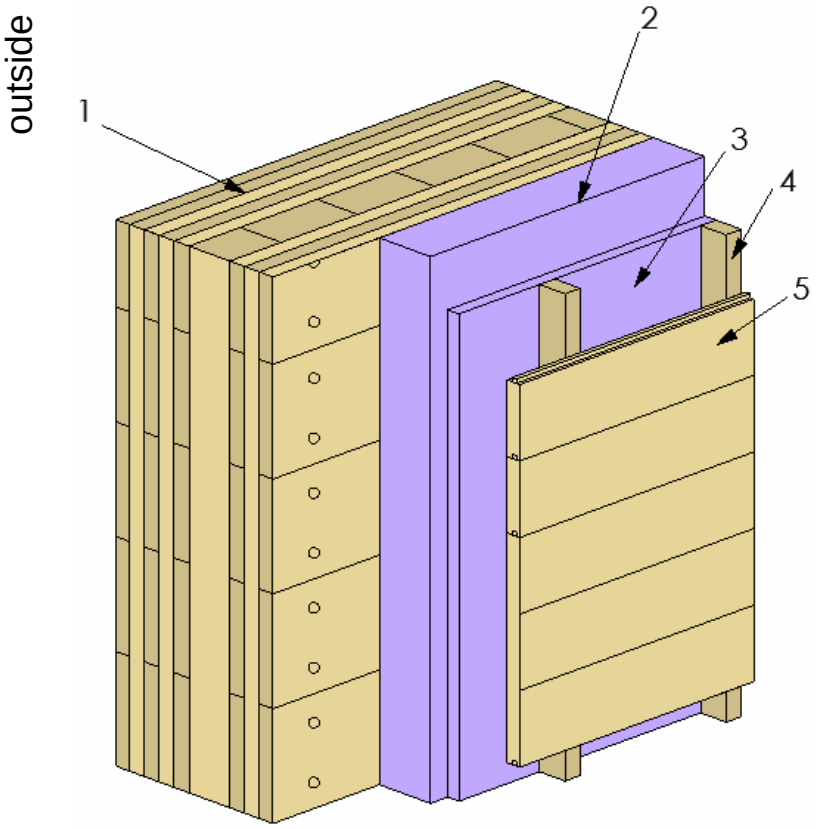
Item	Thickness (cm)	Description
01	17.0	Thoma H100-W17
02	16.0	soft wood fibre
03	2.2	soft wood fibre with tongue and groove
04	5.0	ventilation slats vertical
05	2.4	external formwork
	42.6	**Complete structure**

Technical construction parameters

Parameter		Unit
U-value	0.15	W/m^2K
fire protection from the inside	F60B	
area density	130	Kg/m^2

Description	**Construction AW05**
Part	H100-W30





Layers

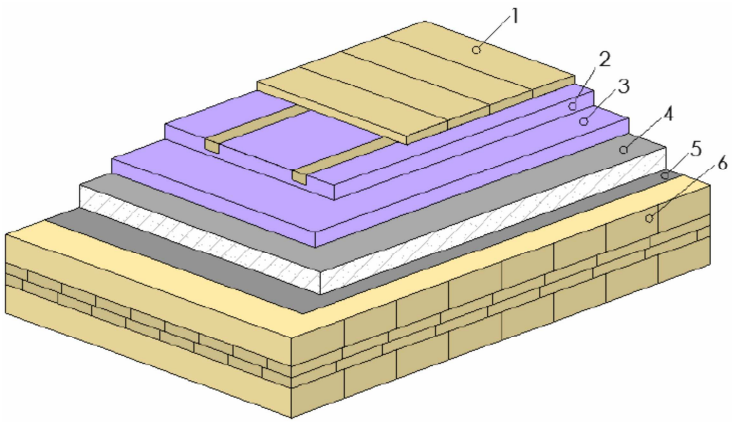
Item	Thickness (cm)	Description
01	30.6	Thoma H100-W30
02	8.0	soft wood fibre
03	2.2	soft wood fibre with tongue and groove
04	5.0	ventilation slats vertical
05	2.4	external formwork
	48.2	**Complete structure**

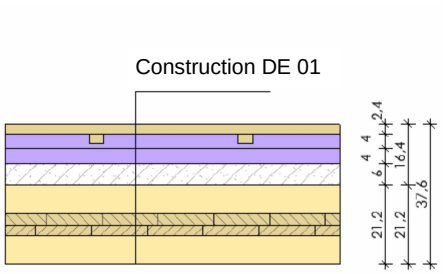
Technical construction parameters

Parameter		Unit
U-value	0.15	W/m^2K
fire protection from the inside	F90B	
area density	165	kg/m^2

3.2 Inserted ceilings

Description	**Construction DE01**
Part	H100-DE21

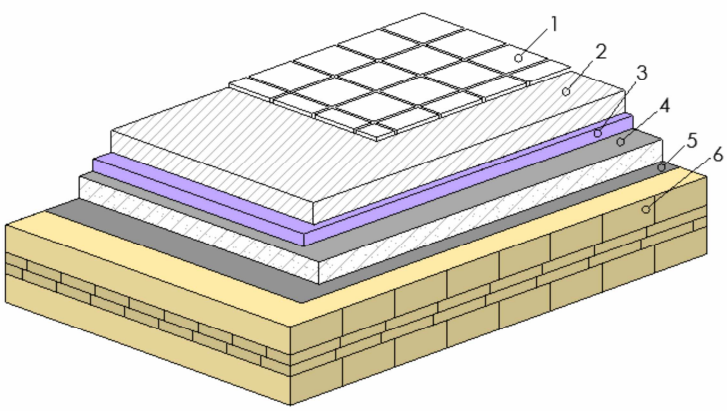


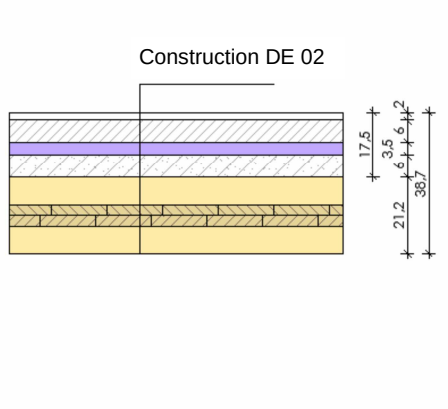


Layers top to bottom

Item	Thickness (cm)	Description
01	2.4	Thoma solid wood floorboards
02	4.0	interlocking soft wood fibre board
03	4.0	soft wood fibre
04	6.0	filler
05	-	trickle protection sheet
06	21.2	Thoma H100-DE21
	37.6	**Complete structure**

Description	**Construction DE02**
Part	H100-DE21

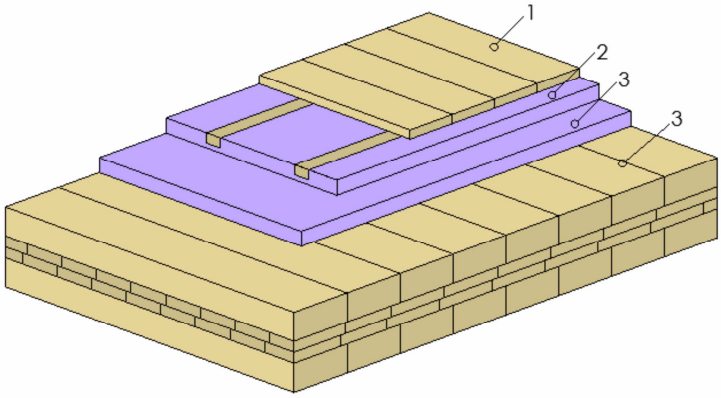


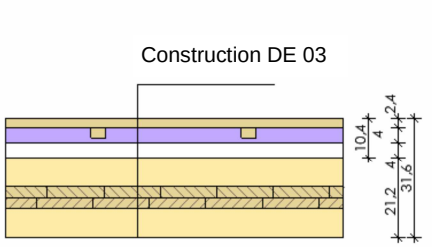


Layers top to bottom

Item	Thickness (cm)	Description
01	2.0	floor tiles
02	6.0	screed (or 7.0cm heated screed)
03	-	separating layer
04	3.0	impact sound insulation
05	8.0	filler
06	-	trickle protection sheet
07	21.2	Thoma H100-DE21
	40.2	**Complete structure**

Description	**Construction DE03**
Part	H100-DE21



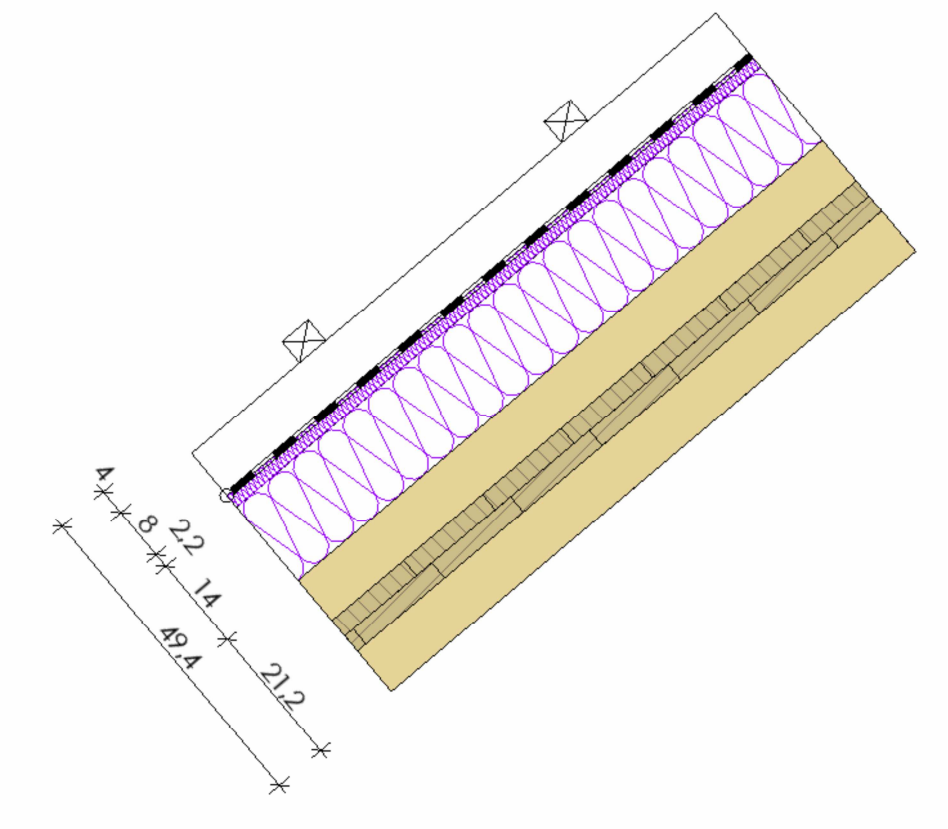


Layers top to bottom

Item	Thickness (cm)	Description
01	2.4	Thoma solid wood floorboards
02	4.0	interlocking soft wood fibre board
03	4.0	soft wood fibre
04	21.2	Thoma H100-DE21
	31.6	**Complete structure**

3.3 Pitched roof constructions

Description	**Construction DA01**
Part	H100-DA21



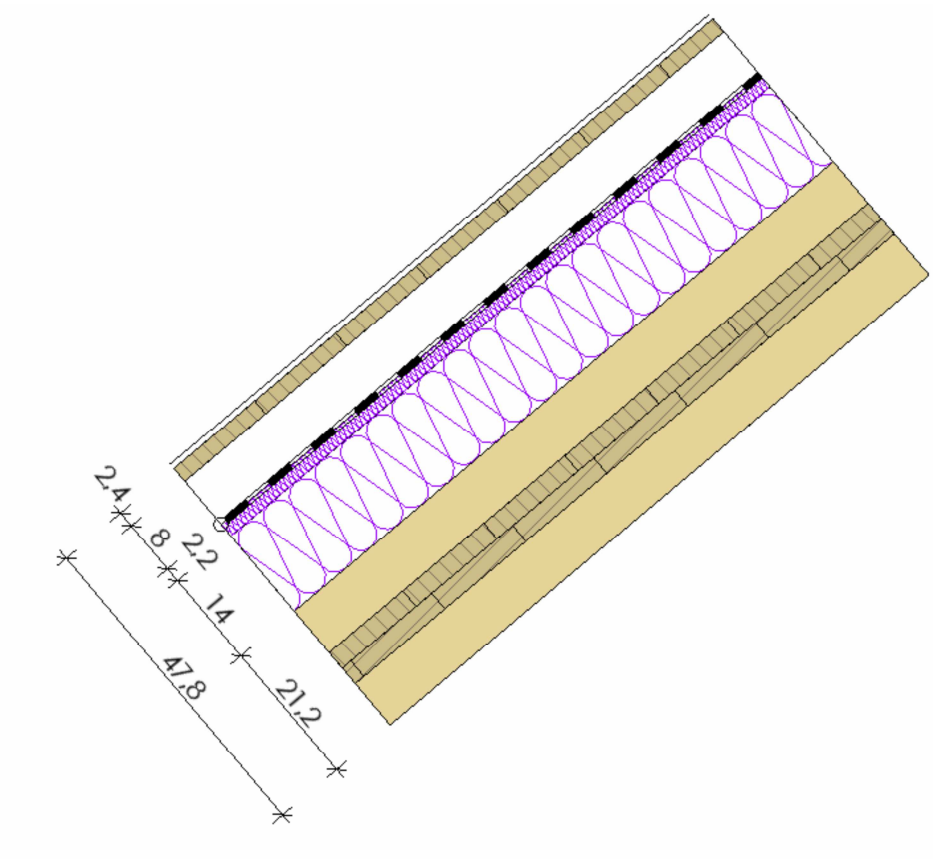
Layers top to bottom

Item	Thickness (cm)	Description
01	-	roof tiles
02	4.0	roof battens
03	8.0	counter battens
04	2.2	soft wood fibre – water-bearing layer
05	14.0	soft wood fibre
06	21.2	Thoma H100-DA21
	49.4	**Complete structure**

Technical construction parameters

Parameter		Unit
U-value	0.16	W/m^{2}K

Description	**Construction DA02**
Part	H100-DA21



Layers top to bottom

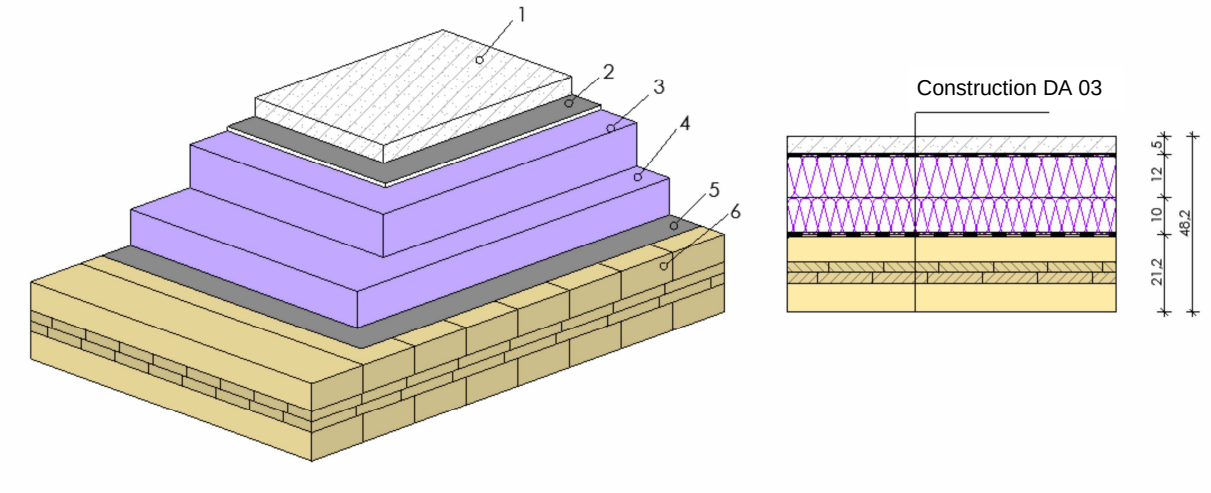
Item	Thickness (cm)	Description
01	-	sheet metal covering
02	2.4	rough shuttering
03	8.0	ventilation/ counter battens
04	2.2	soft wood fibre – water-bearing layer
05	14.0	soft wood fibre
06	21.2	Thoma H100-DA21
	47.8	**Complete structure**

Technical construction parameters

Parameter		Unit
U-value	0.16	W/m^{2}K

3.4 Flat roof constructions

Description	**Construction DA03**
Part	H100-DA21



Layers top to bottom

Item	Thickness (cm)	Description
1	5.0	gravel
2	0.3	roof waterproofing membrane
3	12.0	soft wood fibre pitch insulation
4	10.0	soft wood fibre panel
5	-	vapour barrier
6	21.2	Thoma H100-DE21
	48.5	**Complete structure**

Technical construction parameters

Parameter		Unit
U-value	0.17	W/m^{2}K

4. Installations

The planning of installations, both for electric wiring and water pipes plays an important role when constructing a solid wood house.
As a standard, the Holz100 parts are manufactured in high visual quality. Should it be required for a wall or a ceiling surface to keep its Holz100 look, grooves and openings for installations are milled into the wood by the manufacturer.

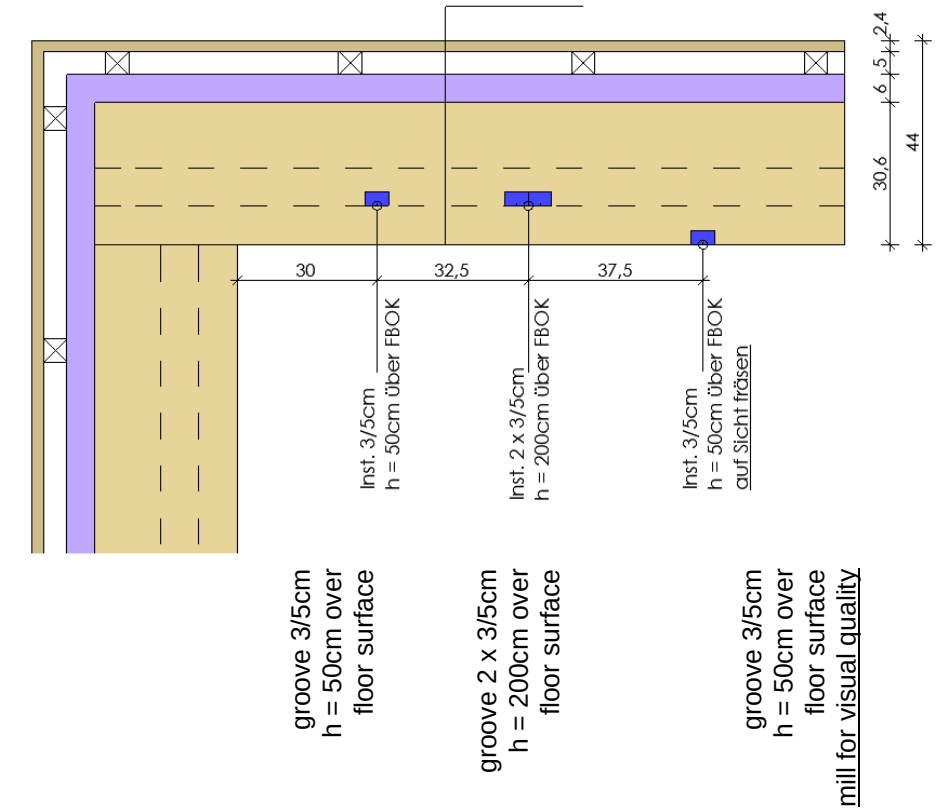
Planning:
Thoma has a Planning Department who draw the Holz100 working plans, and resulting from that also the work preparation plans for the Holz100 production.

We incorporate the Client's design into our planning.

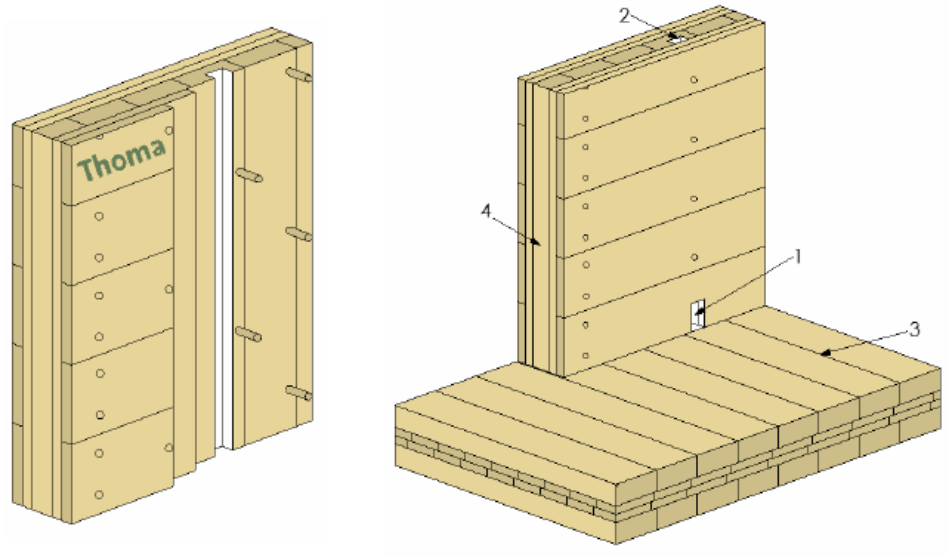
Should installations be drawn on the plan before it's handed in, we suggest the following plan layout:

Layout presentation:
As a standard, installation grooves are milled into the core layer of a Holz100 wall.

System construction according to
Thoma Holz100 AW 02

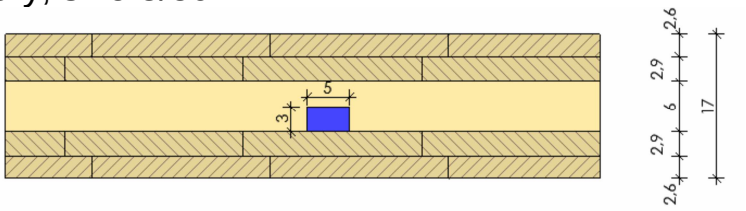


Installations - System overview

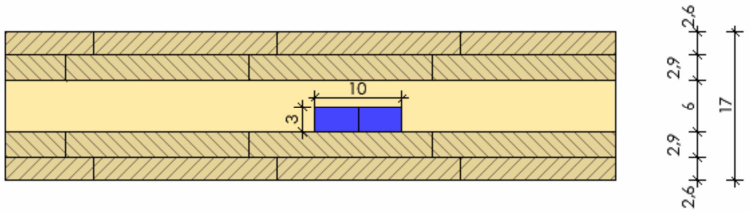


1) The planned installation duct is cut out by the manufacturer in the floor area.
2) Standard installation groove 3/5cm
3) Holz100 Ceiling system
Thoma Holz100 Wall system

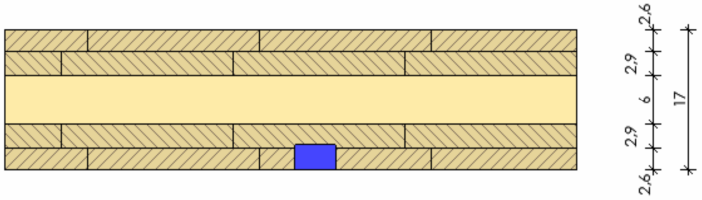
Standard installation
milled in at factory, size 3/5cm



Double installation
milled in at factory, size 3/10cm



Grooves milled for visual quality
can be done on site of assembly, any size within the surface layers



Summary table
NEW Symbol Types of parts

Walls

Old symbol	Thickness (cm)	New symbol
wall type A	12.0	H100-W12
wall type B	14.0	H100-W14
wall type C	17.0	H100-W17
wall type D1	20.0	H100-W20
wall type D2	25.0	H100-W25
wall type E	30.6	H100-W30
wall type F	36.4	H100-W36

Ceilings

Old symbol	Thickness (cm)	New symbol
ceiling type DE I	17.6	H100-DE17
ceiling type DE II	21.2	H100-DE21

Roof

Old symbol	Thickness (cm)	New symbol
roof panel type DA I	17.0	H100-DA17
roof panel type DA II	19.0	H100-DA19
roof panel type DA III	21.2	H100-DA21



Legal notice

Ing. Erwin Thoma Holz GmbH
Version September 2012