



WHERE
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M  **M**
MAYR MELNHOF HOLZ

Manual **MM**crosslam

- **MMcrosslam**
 1. Technical data
 2. Range of products
 3. Surface qualities
- **Queries, prices and invoicing**
 1. Quotation checklist
 2. Invoicing sheet
- **Loading, product tolerances and installation instructions**
 1. Order of loading - elements in lying position
 2. Transport leaflet
 3. Element connection & allowances
 4. Installation instructions
- **Disclaimer, project approval and important notes**
 1. Approval of project plans
 2. Checklist complaints extern
 3. Informant notes
 4. Maintenance manual
 5. Disclaimer / liability exemption clause
 6. General Terms and Conditions

MMcrosslam
Cross-laminated timber (CLT)

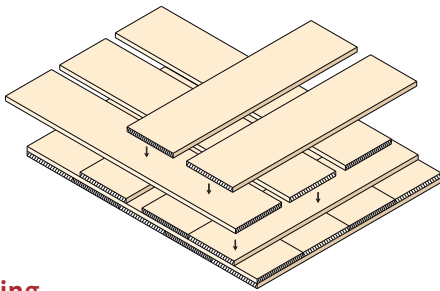
Technical data

MMcrosslam

MMcrosslam is a large-format solid wood board with a multi-layer, crosswise-oriented profile.

Structure and manufacture

Finger-jointed and planed lamellas are loosely laid next to each other and the flat surfaces of the layers glued at right angles to one another. The structure is made up of at least 3 layers and would typically have a symmetrical layout. The layers are pushed together laterally to dimension before applying pressure in order to obtain a gap-free surface. To avoid uncontrolled stress cracks, the narrow sides are not glued.



Gluing

Depending on the requests of our customers we offer Melamine resin-based adhesive (MUF) or polyurethane adhesive (PUR). Both types of adhesive are approved for the gluing of load-bearing timber components according to the EN 301 type 1 standard.

Usage classes

MMcrosslam has been approved for the usage classes 1 and 2 according to ETA – 09/0036.

Dimensions

Format PUR	up to max. 3.5 m x 16 m
Format MUF	up to max. 3.0 m x 16.5 m
Strengths	60 mm to 280 mm
Standard widths	2.40 m / 2.50 m / 2.65 m / 2.75 m 2.90 m / 3.00 m / 3.20 m / 3.50 m

Technical approval

European Technical Approval ETA-09/0036

Types of wood

Primarily spruce (*picea albies*) from domestic forests; other types of wood available on request.

Lamellas

Technically dried, quality graded mechanically and according to optical criteria as well as finger-jointed.

Strength classes of the lamellas

C24/L25 according to EN 338.

10% share of C16 / L 17 admissible (acc. to ETA-09/0036)

Weight

Approx. 480 kg/m³ for determining the transport weight

Wood moisture

12% (± 2%)

Dimensional stability

In longitudinal and crosswise slab level direction: 0.01% per % wood moisture change

At a right angle to the slab level: 0.20% per % wood moisture change

Heat conductivity

$\lambda = 0.10 \text{ W/mK}$

according to test report no. B12.162.008.450 TU Graz

Heat storage capacity

$c = 1.60 \text{ kJ/kgK}$

Diffusion resistance

$\mu = 60$ (at 12% wood moisture)

Air tightness

From 80 mm 3s WSI or NSI air-tight according to test report no. B11.162.001.100 TU Graz or short report no. 575/2016-BB HFA

Sound insulation

Excellent sound insulation due to solid construction method. The values depend on the relevant wall and/or ceiling structures – see tested sample wall structures at www.mm-holz.com or in technical documentation.

Reaction to fire

According to EN 13501: D, s2, d0

Fire resistance and charring rate

According to classification report by Holzforschung Austria, 1042/2012/04 and 1042/2012/01 for walls: 0.64 mm/min (medium charring rate for MUF gluing according to IBS Linz, 2009) for ceilings: 0.71 mm/min (medium charring rate for MUF gluing according to IBS Linz, 2009)

Range of available products



Description		Layers	Slab structure (NSI, ISI)*							Thickness	Standard widths	Length
MMcrosslam			[mm]							[mm]	[m]	[m]
60***	3s	3			20	20	20			60***	2.40 2.50 2.65 2.75 2.90 3.00 3.20** 3.50**	max. 16.50 (MUF) max. 16.00 (PUR)
80	3s	3			30	20	30			80		
90	3s	3			30	30	30			90		
100	3s	3			40	20	40			100		
120	3s	3			40	40	40			120		
100	5s	5		20	20	20	20	20		100		
120	5s	5		30	20	20	20	30		120		
140	5s	5		40	20	20	20	40		140		
160	5s	5		40	20	40	20	40		160		
180	5s	5		40	30	40	30	40		180		
200	5s	5		40	40	40	40	40		200		
200	7ss	7	30	30	20	40	20	30	30	200		
220	7s	7	40	20	40	20	40	20	40	220		
220	7ss	7	40	40	20	20	20	40	40	220		
240	7s	7	40	20	40	40	40	20	40	240		
240	7ss	7	40	40	20	40	20	40	40	240		
260	7ss	7	40	40	30	40	30	40	40	260		
280	7ss	7	40	40	40	40	40	40	40	280		

Values in bold letters indicate the main load-bearing direction of the slab. The main load-bearing direction may be in the longitudinal direction or cross direction of the slab.

* In case of WSI (living space quality), the slab structure may vary in individual cases.

** only PUR – polyurethane glue

***Identical production only possible in pairs

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Mayr-Melnhof Holz Gaishorn GmbH

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SURFACE QUALITIES



MM crosslam

Cross-laminated timber (CLT)

Non-visible quality (NSI)

Non-visible surfaces only apply functions in terms of load-bearing strength and building physics. No optical requirements are specified for these surfaces. Therefore subsequent panelling is recommended.

- The top lamellas are exclusively sorted according to the sorting criteria of the load-bearing strength C24 in line with EN 338.
- Colour variations of individual lamella (e.g. blue stains) as well as loose knots, bark ingrowths and resin pockets are possible.
- Isolated gaps in the outer layers, glue stains as well as isolated pressure points and markings may appear.
- Surface planed, not patched.



Industrial visible quality (ISI)

Cross-laminated timber board with industrial facing are suitable for industrial areas where the surface structure is meant to remain visible and the principal wants to maintain the natural appearance of wood. The surfaces structure is adjusted to the use in commercial and industrial building.

- In addition to the sorting criteria required for load-bearing properties, stricter optical criteria are applied to top lamellas.
- Selected top lamellas with healthy, firmly ingrown knots. A small number of loose knots is possible. Voids and small pitch pockets are admissible.
- Ground surface.



Living space quality (WSI)

For all surfaces meant to remain visible in residential building, with special requirements regarding a homogenous surface structure and lamella quality. This type of surface is especially applied in residential building, school and office buildings, if the principal wishes to have a homogenous appearance with wood as a natural material.

- Only raw material of the highest optical timber classes is used.
- The lamellas have a maximum strength of 20 mm in order to guarantee a minimum spreading of the gaps.
- The surface is ground. In order to prevent the formation of shrinkage cracks, joints are not glued additionally.



Important notes

Please note that cross-laminated timber is a natural product that might change in terms of its appearance (colour, surface, etc.).

Even the most careful selection of raw materials cannot completely exclude all quality variations. The appearance of the surface is determined by the board structure of the top layer. Gaps may

occur between the individual boards over time e.g. due to humidity fluctuations. Superficial dry cracks may also occur in individual cases. Necessary reworking of visible surfaces due to improper storage or transport damage may result in additional costs. The surface qualities refer to one side and can be combined in different manners. Front surfaces are usually manufactured in non-fair-faced quality.

Quality definitions

Criteria	Non-visible (NSI)	Industrial (ISI)	Living space (WSI)
Open gaps	up to 4 mm admissible	up to 4 mm admissible	up to 2 mm admissible
Surface design	Planed (rotation traces)	Ground	Ground
Mixture of wood types	Admissible	In individual cases	Not admissible
Firmly ingrown knots	Admissible	Admissible	Admissible
Black / loose knots	Admissible	Admissible in individual cases	Admissible in individual cases
Pitch pockets	Admissible	Up to 10 x 90 mm	Up to 5 x 50 mm
Ingrown bark	Admissible	In individual cases	Not admissible
Dry cracks	Admissible	Admissible	Admissible in individual cases
Wane	Admissible	Not admissible	Admissible in individual cases
Voids	No requirements	Admissible in individual cases Touch-up with other timber	Admissible in individual cases Touch-up with other timber
Insect infestation	2 mm holes admissible in individual cases	Not admissible	Not admissible
Discolouring (e.g. blueness)	Admissible	Not admissible	Not admissible
Compression wood, red stripes, box	Admissible	Admissible	Admissible in individual cases

QUOTATION CHECKLIST

Company address / invoicing address: _____	Construction project / commission designation: _____
_____	_____
Firm: _____	Executing company: _____
Street: _____	_____
Postcode: _____	Requested delivery date: _____
Contact partner: _____	<input type="checkbox"/> Ex works <input type="checkbox"/> Free to construction site*
Phone: _____	Delivery address: _____
	Street: _____
	Postcode: _____

*For delivery, the access road must be suitable for a 13,6 m articulated lorry.

Offer requested incl. lifting system? ☐ MM lifting system ☐ NO ☐ Other _____

What digital plan format is available? ☐ Construction component list ☐ PDF ☐ DXF/DWG ☐ SAT ☐ IFC

What components should MMcrosslam be offered in?

Component	Surface quality			Further information (Element strengths, wall and ceiling structures, etc.)
	NSI	ISI	WSI	
<input type="checkbox"/> Outer walls	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/> Inner walls	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/> Ceiling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/> Roof	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/> _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/> _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/> _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

NSI = non-visible quality | ISI = industrial visual quality | WSI = living space quality

Notes: _____

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INVOICING SHEET

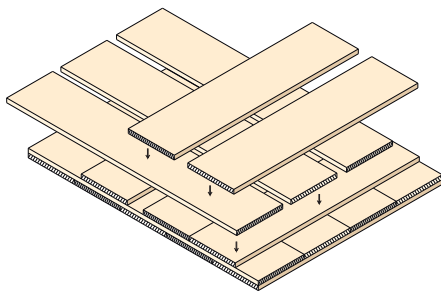


MM crosslam

Cross-laminated timber (CLT)

Structure and manufacture

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Gluing

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Manipulation

In order to guarantee the stability of the pre-cut elements during manipulation, individual openings may be partly cut but not cut through. The relevant manipulation supports must be removed at the construction site.

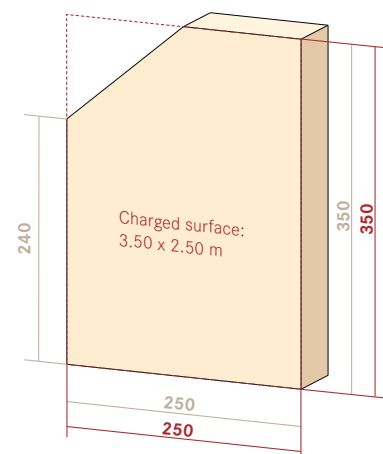
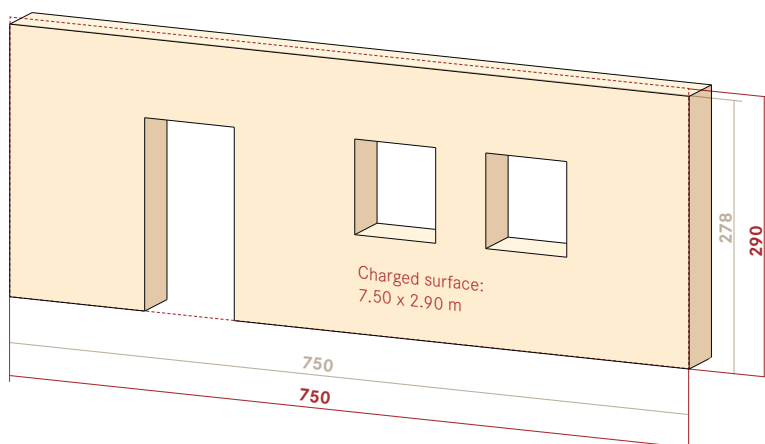
Dimensions

Maximum format PUR	3.5 m x 16.0 m
Maximum format MUF	3.0 m x 16.5 m
Minimum production width	2.4 m
Minimum production length	6.2 m
Thickness	60 mm to 280 mm

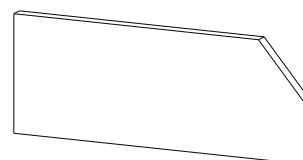
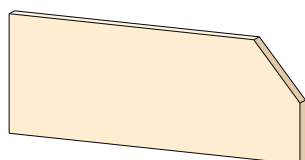
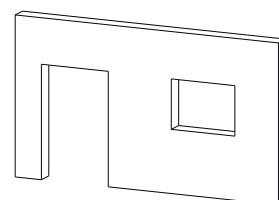
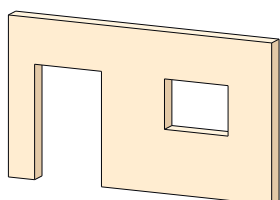
Charged widths

2.40 m / 2.50 m / 2.65 m / 2.75 m
2.90 m / 3.00 m / 3.20 m / 3.50 m

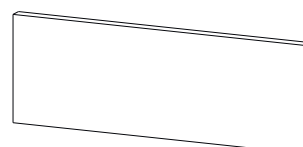
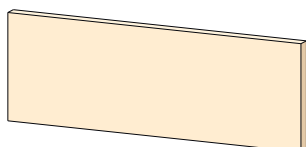
Wall calculation example



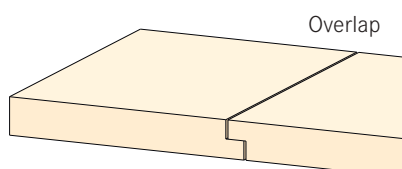
Wall cut



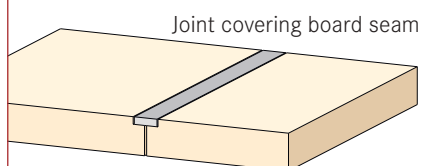
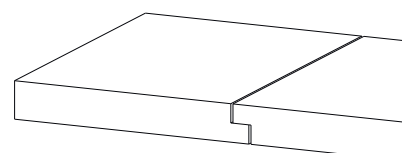
Rectangular format cut



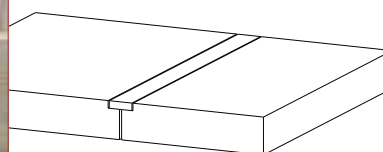
Connection seams



Overlap



Joint covering board seam



Installation channel milling



Socket drilling for electric installations



Mounting loops



Mounting loops with blind hole drilling and rod dowels



Requested order of loading – elements in lying position

Please enter the required data and your requested order of loading into the fields below. If anything is technically not feasible or due to reasons of freight safety, Mayr-Melnhof may change your requested order of loading. In case of missing or wrong information (e.g. wrong delivery address), you will be charged with any related additional costs. When no request specifications regarding the order to loading are made the truck will be

loaded at our own discretion. Transport costs include 2 hours for unloading the truck, according to the delivery date confirmed by Mayr-Melnhof Holz. Due to possible road traffic delays, deviations from the delivery time are possible. The tolerances for deliveries are +/- 2 hours up to 500 km from the loading site to the delivery address, and +/- 3 hours for any distances beyond this range.

Order confirmation number / name of building project

--

Delivery address (street, place)

Desired delivery date*

CW:
Date:
Time:

Contact

Name:
Phone:

Unloading method

☐ Individual element unloading by crane

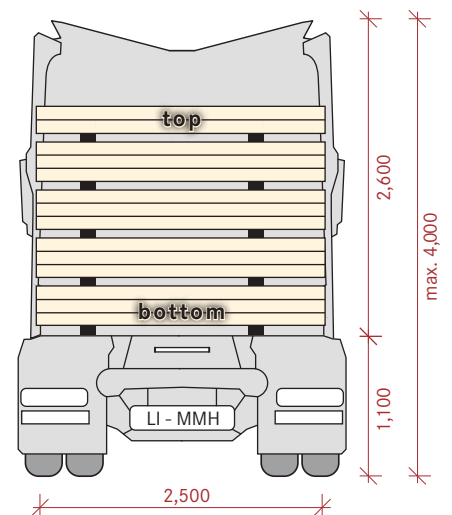
☐ Forklift with max. _____ tons/package

Notes

max. element size: 3.5 m x 16.5 m
max. truck load: 50 m ³ / 24 tons
Excess width: from 2,5 m
All access roads to the construction site must be accessible for a 40 ton, 18.50 m long articulated lorry.

Please enter the element
number acc. to the order
confirmation here.

Diagram illustrating a stack data structure. The stack is represented by a vertical column of boxes. The top of the stack is labeled "top" and the bottom is labeled "bottom". The stack contains elements 1, 2, 3, and 4, with an ellipsis indicating more elements below. The stack is shown to be full, with elements 32, 33, and 34 at the bottom, and an ellipsis indicating more elements above.



Date, signature, seal

* the delivery date confirmed by Mayr-Melnhof Holz applies

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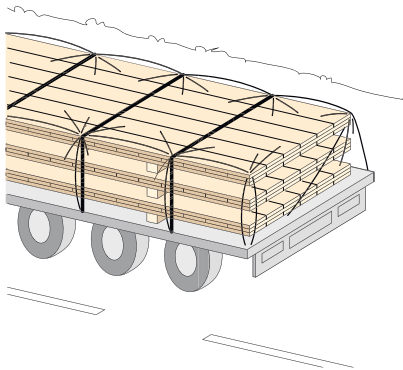
Mayr-Melnhof Holz Gaishorn GmbH

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VAT no.: ATU 46117508 • FN 79227 k • Leoben Provincial Court • HEADQUARTERS: Gaishorn

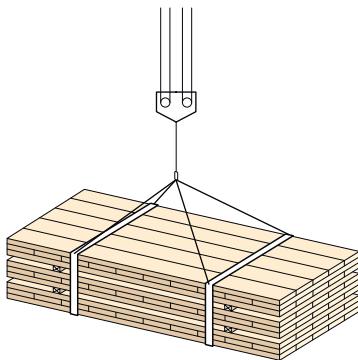
Transport leaflet

Transport and delivery



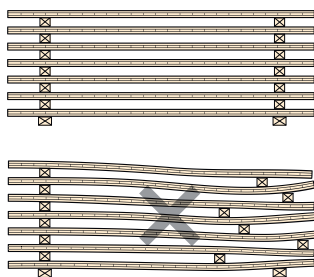
- The load sequence has to be agreed with the manufacturer
- The components have to be protected against moisture and dirt during transport
- Trouble-free access and departure options for the truck have to be ensured
- Provided that the elements are stored on the building site, the ground has to be stable enough and dry

Attachment and lifting



- The crane has to be exclusively operated by trained operators
- Safety regulations must be observed
- Correctly sized lifting gears and slings have to be used in accordance with assembly instructions
- Check attachment point and slings for damage before starting any work

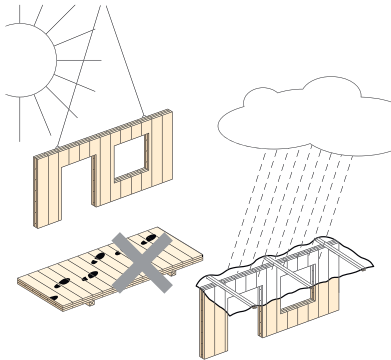
Storing on the building site



- Lay a beam underneath to protect the material
- In case of horizontal stacking of components arrange the spacers on top of each other
- Store the components non tilting and stable
- Remove packaging foil to avoid condensation
- Protect components against rain, spraywater and rising damp by keeping enough distance to the ground and using covering sheets
- Arrange extra spacers in case of longer storage to avoid creep deformation

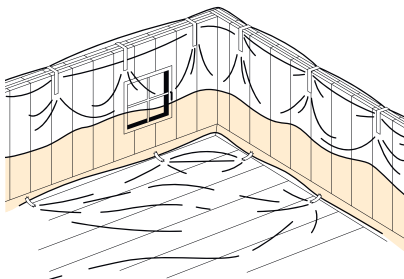
Image & text – source: Brettsperrholz – Merkblatt Juni 2013, Studiengemeinschaft Holzleimbau e.V., page #5

Components during mounting



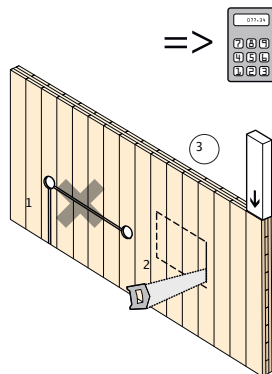
- The mounting has to be done in accordance with assembly instructions
- Avoid detrimental rising of moisture level
- Cover components until completion of the weather protection
- Avoid soiling of the surface - if necessary protect components with an appropriate cover or similar

Protection when installed



- Covers help to avoid soiling of the visible surface
- Make sure that there is enough ventilation to avoid discoloration in case of moisture development in the state of construction (for example due to screed work or plastering)
- Dry wet components prompt but gentle

On-site changes



- Recesses see number 1, Openings see number 2 and additional load see number 3
- The creation of recesses and opening at the building site has to be coordinated with the construction management due to impacts on the structural behavior
- The absorption of additional loads has to be statically verified

Image & text – source: Brettsperrholz – Merkblatt Juni 2013, Studiengemeinschaft Holzleimbau e.V., page #5

ELEMENT CONNECTION & ALLOWANCES



MM crosslam

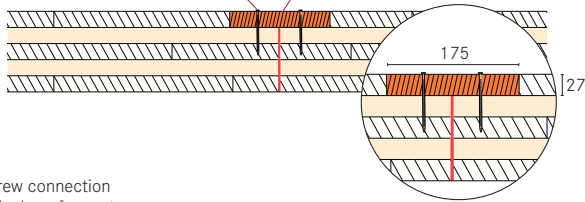
Cross-laminated timber (CLT)

Element connection

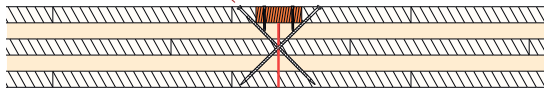
Joint board rebate

Screw connection
according to structural
requirements

Rebated board made of 3-layer
board (e.g. Strips made of
3-layer-boards or plywood)



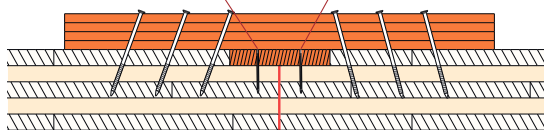
Screw connection
with shear force stress.



Design 1 (wall/ceiling)

1. Assembly aid or
screwed on flush

2. Fully threaded screws
for securing purposes

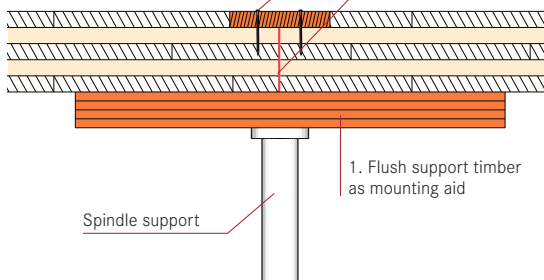


Closed joint

Design 2 (ceiling)

2. Fully threaded screws
for securing purposes

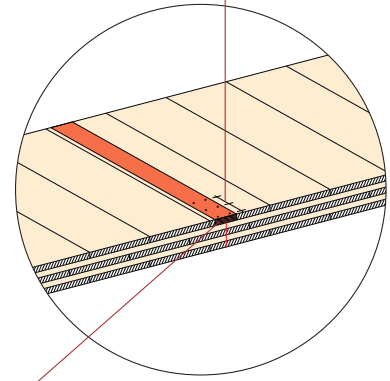
Joint flush with
surface and closed



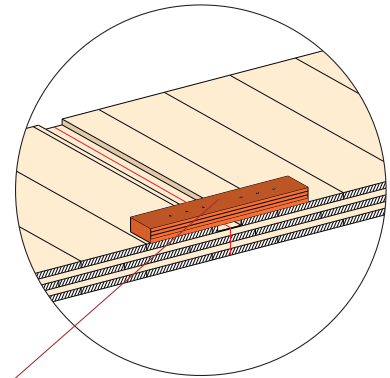
Spindle support

1. Flush support timber
as mounting aid

Distance according to
structural requirements



Joint board



Assembly aid
e.g. squared lumber

Mounting instructions for producing a flush surface:

Design 1:

Screwing on the mounting aid e.g.: squared timber with partially threaded screws.

Fully threaded screws for securing the elements.

Design 2:

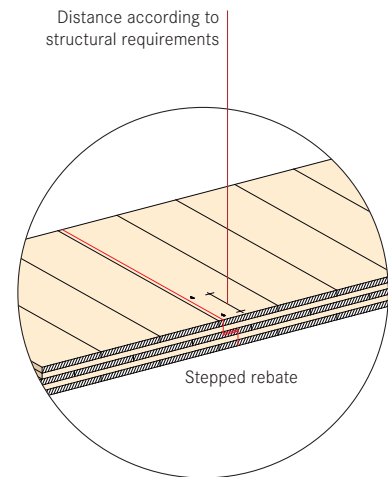
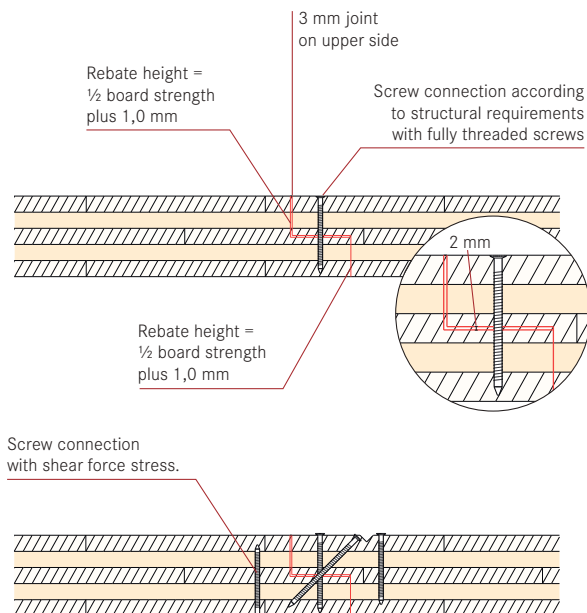
Fit support timber flush from below with suitable spindle support.

Fully threaded screws for securing purposes; element connections according to structural requirements.

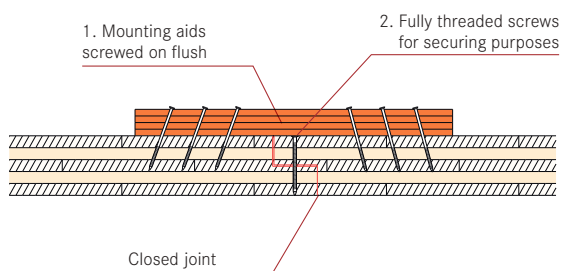
The images on this page are merely symbolic.

Element connection

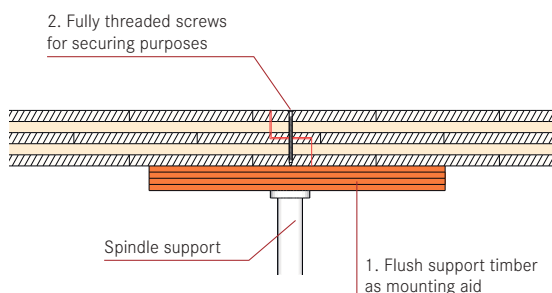
Stepped rebate



Design 1 (wall/ceiling)



Design 2 (ceiling)



Mounting instructions for producing a flush surface:

Design 1:

Screwing on the mounting aid e.g.: squared timber with partially threaded screws.

Fully threaded screws for securing the elements.

Design 2:

Fit support timber flush from below with suitable spindle support. Fully threaded screws for securing purposes; element connections according to structural requirements.

The images on this page are merely symbolic.

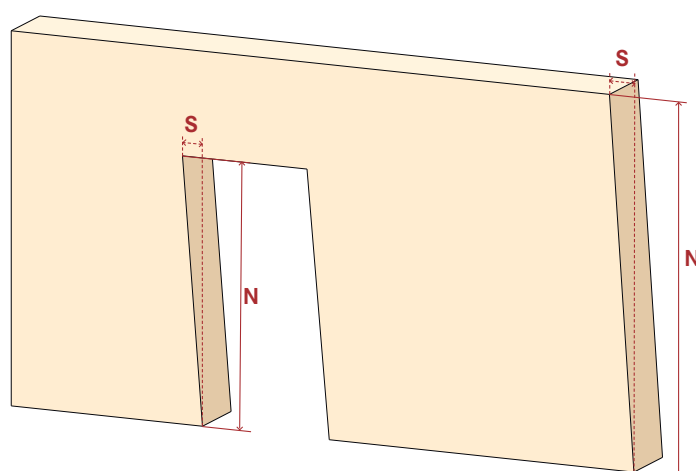
Allowances and board cutting

Permissible deviations for walls, floors, ceilings and roof elements

Line	Boards	Measured moisture reference value	Permissible deviations in mm For nominal measures in m				
			up to 0,121	over 0.121 up to 0.400	over 0.400	up to 1.00	
1	Width, height (edge length) and openings	12 %	–	–	–	± 2	± 0.2 % of the nominal measure max. ± 5
2	Thickness		± 2	+ 3 – 2	+ 4 – 2	–	–

Permissible deviations of length and width for MMcrosslam

The limit deviations of the offset dimension are listed in line 1 of the above table.



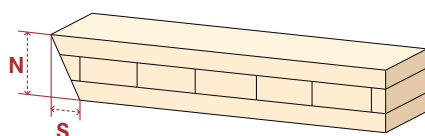
Legend

S = offset dimension

N = nominal dimension

Angle deviations in thickness for MMcrosslam

The limit deviations of the offset dimension are listed in line 1 of the above table.

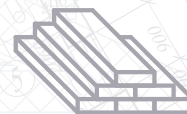


Legend

S = offset dimension

N = nominal dimension

INSTALLATION INSTRUCTIONS



MM crosslam

Cross-laminated timber (CLT)

MMcrosslam

Installation instructions

The installation instructions for the correct usage of the cross-laminated timber elements are structured in two parts:

The **first part** – General Installation Instructions – includes basic facts that must be taken into account. The individual points are based on the Austrian Construction Worker Protection Decree that is always given priority in case of any contradictions or doubts.

The **second part** – Special Installation Instructions – covers installation rules and regulations for cross-laminated timber elements.

Foreword

The relevant accident prevention regulations must be observed by all employees. In case of doubts or contradictions, the accident prevention regulations apply as amended.

The basis of the installation instructions for building with pre-fabricated elements given below is provided by the Austrian Construction Worker Protection Decree (as amended), especially section 10 §§ 85 and 86.

In addition, any legal requirements in other countries must be observed and followed by the customer.

Unless otherwise explicitly stated, Mayr-Melnhof Holz Gaishorn GmbH is the designated manufacturer.

Part I - General information

1. Members of staff

1.1. Qualification

Work such as planning, management and implementation of the installation of cross-laminated timber elements may only be performed by persons having the relevant and sufficient qualification in this area. A suitable supervisor (technical site supervisor, foreman etc.) is responsible for supervising the installation work.

1.2. Qualification of staff

Installation work may only be performed by persons who are familiar with this type of work, physically able and skilled as well as properly instructed (see clause 1.3).

1.3. Instructions and training

Employees performing installation work must be instructed prior to starting their first work about any risks they might be exposed to in performing their assignments as well as actions to prevent them. These instructions must be given repeatedly on a regular basis. The basis for these instructions is formed by accident prevention regulations and our installation instructions.

1.4. Personal protection equipment

Employees are obligated to use their personal protection equipment, such as helmet, protective gloves, safety belts, protective goggles etc. that are necessary for working with pre-fabricated parts.

1.5. Reporting defects

If any employee finds that a facility, work process or work equipment is not absolutely safe to use, s/he must report it immediately, unless s/he is able to eliminate the defect personally and properly.

2. Traffic routes and workplaces

2.1. General information

Workplaces and their accesses as well as other traffic routes must be designed properly to allow safe working conditions. There must be sufficient protection against falling items (e.g. By using covers, scaffolding flooring, catch grid, etc.).

Installation work must not be performed simultaneously at two places one above the other, unless the lower situated workplaces and traffic routes are protected against falling, sliding or rolling items (see clause 2.1, first paragraph). During installation work, screws, nails and other small items must be kept safe and protected from falling.

Risk areas where persons cannot be protected from falling, sliding or rolling items must not be entered. They must be marked properly and closed off or guarded by members of staff who must not perform any other work at the same time.

In general, fall protection is required for all workplaces and traffic routes. Installing suitable falling protection is mandatory from a fall height of 2.0 m. The responsible supervisor must ensure the correct installation on site.

Special caution is required for any existing electric overhead wires and the necessary safety clearance must be kept.

Nominal voltage	Safety clearance of live parts without protection against direct contact
Up to 1,000 V	1.0 m
> 1 to 110 kV	3.0 m
> 110 to 220 kV	4.0 m
> 220 to 380 kV	5.0 m
Not known	5.0 m

Table 1: Safety clearances in relation to the nominal voltage during construction work and other, non-electric work close to live parts.

Part I -

General information

2.2. Traffic routes

Traffic routes for accessing workplaces during installation work must be safe to walk.

Steps to the workplaces must be designed as staircases or footbridges.

If footbridges are used as traffic routes, they must be at least 0.5m wide.

Ladders are only allowed, if

- the relevant height difference is not more than 5.00m,
- if this type of access is only used for short-term work,
- if placed on scaffolding that does not connect more than two scaffolding layers and if they are not positioned higher than 5.0m above a sufficiently wide and load-bearing surface.

Traffic routes near the outer edges of ceilings or roofs must be protected with lateral protection facilities or closed off with a minimum distance of 2.0m to these edges.

2.3. Workplaces

If special safety measures are required during installation, or if the installation requires knowledge about special technical safety information, trained staff must prepare written installation instructions and drawings. In these instructions and drawings, the required work platforms, fall protection, protection facilities and fastening devices for personal protection equipment (safety harness) must be determined for the performance of the installation work.

Work platforms on consoles, rungs, profiles of girder masts are allowed, if the employee is secured with suitable fastening equipment (e.g. with safety harness).

When all the special conditions listed below are applicable, suitable elements for loosening and fastening lifting accessories as well as for fixing building elements may be used as access points and work platforms without the requirement of fall protection:

- If the installation of fall protection is more dangerous than the actual work to be performed.
- If providing fall protection is technically not feasible.
- In case of favourable weather conditions.

- If the workers have been well instructed, are experienced and physically able.
- If the building components are anchored and sufficiently wide (20cm) or equipped with suitable hand grips.

The workplaces must be sufficiently illuminated. In darkness, escape routes must be secured with independently supplied emergency lighting.

2.4. Openings

In case of openings for staircases, in walls and floors, building edges, recesses and covers that are not safe to walk, all of them located in working or traffic areas, suitable facilities must be provided that prevent persons from accessing, tripping into or falling into these openings.

3. Delivery

Pre-fabricated parts must be checked before installation as regards the number of items, positions and possible damage, especially with regard to their load-bearing capacity (e.g. cracks, non-typical deformations, visible damage, etc.).

In case of damage in the area of lifting accessories or damage to elements that might have an influence on load-bearing capacity, unloading may only start after an approval given by the site supervisor.

The transport routes at the construction site must be sufficiently stable and safe to drive.

4. Manipulation

4.1. Hoisting equipment

As regards the selection of locations for hoisting equipment at installation sites, it must be ensured that the ground is sufficiently stable and that the available supports can be used. The stability of the ground may be reduced e.g. in filled work spaces and cavities.

Part I -

General information

4.2. Selection of the suspension gear

Elements (walls, ceilings etc.) must always be placed and mounted with a suitable counterweight.

4.3. Slings pre-fabricated components

Loads may only be attached by persons who have been especially instructed for this type of work by the site supervisor or the person responsible at the construction site.

The weights of the pre-fabricated components must be gathered from the bill of lading or drawing or marking on the components or obtained from the site supervisor/technical supervisor. Pre-fabricated parts may only be attached for hosting, if they have been marked and if their weights are known.

In addition, the following must be taken into account:

- Never hinge two load hooks into one lifting sling. Only use load hooks with load hook safety catches.
- The user instructions by the manufacturer of the load-handling equipment must be strictly followed.
- Parts that cannot be attached safely may not be attached at all or only after appropriate instructions by the site supervisor/technical supervisor.
- Slings ropes may not be damaged or have any buckles.
- Slings ropes must not be moved directly above the crane hook.
- Slings gear must be free from any damage and may only be used for the one-off installation process at the construction site.
- Large and long pre-fabricated parts must be moved using tag lines during manipulation when there is a risk that they might strike any objects or become stuck during lifting.

Unless otherwise provided, any attachment of required mounting aids (CE-certified transport anchors as well as one-way lifting slings) is performed by the manufacturer. The position/situation and also the number are visible in the production drawings and can therefore be reviewed by the customer. On special instructions given by the customer, these mounting aids can also be left out. The customer or any other suitable person s/he may authorise will be responsible for unloading, placing and installing the elements.

5. Unloading

During unloading, special attention must be paid to securing the pre-fabricated components that remain on the vehicle (e.g. avoid any one-sided unloading that might tip the vehicle). Diagonal pulling must be avoided during unloading. Vehicles must be stabilised, if necessary.

6. Storage

6.1. General information

Material and devices must be stored in such a way that no employees are put at risk in the event that these items might fall, slide, tip or roll off.

Pre-fabricated parts must be stored, transported and installed in such a way that their positions cannot change in an unintended way.

Stored products must be protected from external influences to prevent any exposure to dangerous chemical or physical changes.

The maximum storage height must be limited to ensure absolute stability. Only light-weight materials may be stacked higher than 2.00 m.

Stacks may only be placed on firm, even ground or on sufficiently strong supports, stacked stably and correctly. Building and dismantling stacks as well as moving stacks must be performed from safe working positions. No stored products may be drawn out and no material may be taken from lower layers of a stack.

Part I - General information

6.2. Horizontal storage

If pre-fabricated components are stored horizontally on top of each other, suitable, stable and slip-proof intermediate bearings must be used that must be arranged vertically lying one above the other. If parts with different shapes and sizes are stored, the order of stacking must follow the reverse order of any later installation work, so that no re-stacking will be required.

6.3. Vertical storage

Vertically stored pre-fabricated parts (upright storage on the narrow side of the element) must be secured against tipping. This requires that they are fixed in at least two points of their contact surface, and in addition in at least one point above their centre of gravity. In case of storey-high elements with extraordinary lengths ($l:b > 2$), additional securing measures are necessary.

6.4. Inclined storage

Anti-skid protection must be provided at the lower support points in case of any inclined storage of pre-fabricated parts. If A-supports are used it must be ensured that the loads of the reclined pre-fabricated parts are evenly distributed over both sides and that no overloading may occur. If differently designed parts are stored, the later order to extraction for installation must be taken into account to avoid any re-stacking.

6.5. Storage at and on buildings

If pre-fabricated parts are stored at or on already existing building components, their load-bearing capacity must be checked in advance. Overloading must be avoided. If necessary, building components must be reinforced with additional supports. Pre-fabricated parts may never be leaned against building structures that are not sufficiently stable yet due to their unfinished state of installation.

7. Assembly and installation

7.1. General information

During any mounting or installation work, the load-bearing capacity and stability of the building must be guaranteed for each individual mounting state.

7.2. Auxiliary constructions required for installation

The customer is responsible for the installation of auxiliary constructions needed for mounting pre-fabricated components. When auxiliary constructions are used, the stability of the building and the individual elements must be guaranteed. If necessary, a technically competent person must perform a stability test. Supports that must be placed on unpaved ground must be positioned on immovable supports such as square timber or timber needles. Brick stacks or similar stacks are not admissible.

7.3. Ensuring stability

In order to ensure the load-bearing capacity and stability of the building and the pre-fabricated parts, also during individual mounting states, the customer must provide the necessary proof of stability and sufficient load-bearing capacity (also in the mounted state). He may provide it personally (if authorised) or commission an authorised structural engineer.

For this proof of stability and sufficient load-bearing capacity, various failure mechanisms must be calculated individually.

Part I - General information

8. Additional information from the manufacturer

Information required for mounting and installation will be provided and documented by the manufacturer as follows:

The weight of pre-fabricated parts

The weight (incl. Geometry) of the **MMcrosslam** elements is already indicated to the customer in the production drawings as also in the element designation (adhesive label) required according to the CE-certification. These labels are attached directly during loading.

Storage of pre-fabricated components

In order to preserve the supplied quality of **MMcrosslam**, the customer must ensure proper storage at a storage site provided by him/her. The manufacturer recommends spacer timber and tarpaulin for short-term, roofless storage. In addition, the notes in clause #6 Storage must be followed.

Transporting and mandatory transport position of pre-fabricated components

In general, unless otherwise suggested by the customer in the loading instructions, the manufacturer suggests a cost-effective transport as well as a stable transport position of the individual elements. The loading instructions and the production drawings will be submitted to the customer by the manufacturer in advance. The loaded material must be secured against falling, tipping, sliding etc. Before loading, the manufacturer performs a visual check of the pre-fabricated elements, in order to minimise risk in terms of safety to the greatest extent possible.

The customer or any suitable supervisor s/he may authorise will be exclusively responsible for the below points:

- Measures for preparing workplaces and access points to these workplaces (see point 2);
- Measures protecting persons from falling during mounting/ installation (see point 2);
- Measures against falling items (see points 2); and
- Checking of the pre-fabricated parts for visible damage, deformation and cracks that might compromise safety (see point 3).



Part 2 -

Special notes (depending on the relevant building)

9. Installation instructions for cross-laminated timber elements

9.1. Mounting of wall-type pre-fabricated parts (predominantly vertical state of installation)

- Clean and check supports.
- Ensure even supports - levelling.
- Ensure that the entire contact surface of the elements is used.
- After putting down a component, the crane ropes must be kept under tension until the component is stable and cannot tip over.
- Check the alignment - align the component.
- Use any available mounting fixture.
- Connect the building components and then unhook the component.
- Always ensure that no residual cross section may fall out when they are removed.
- Wall openings must be protected against falling.

9.2. Mounting of ceiling-type pre-fabricated parts (predominantly horizontal state of installation)

- Clean and check support areas
- Provide even supports - levelling.
- Ensure that the entire support area of the elements is used.
- Align the building component after it has been put down.
- Use any available mounting fixture.
- Connect the pre-fabricated part with the building, and then unhook the pre-fabricated part.
- Lifting slings must be removed or protected against tripping.
- Ceiling penetrations and edge zones must be protected against falling.



Approval of project plans

I herewith declare that I have carefully reviewed the plans for the building project / building stage _____ applicable as of (date) _____, number of pages _____ incl. all included information, and that I have compared this information with the ordered elements. I herewith grant my approval for the production of the construction project as ordered. With my signature, Mayr-Melnhof Holz Holding AG is relieved from its liability.

In case of any postponement of the delivery date by the customer, the material will be stored at the risk of the customer.

Date, signature and seal

CHECKLIST COMPLAINTS EXTERN

(filled out by customer to register a complaint)

IMPORTANT: 1. Complaints have to be photographed showing a tape measure and appropriate documentation (min. 2x per complaint)
2. Complaints are non admissable after one week of delivery date.

AB no. / project titel: _____

delivery date: _____ delivery document or invoice no.: _____

mounting date: _____ date, place of inspection: _____

AB no. / project titel: _____

measurement of wood moisture at mounting: ☐ NO ☐ YES _____ %

measurement of wood moisture at inspection: ☐ NO ☐ YES _____ %

measurement of air moisture at inspection: ☐ NO ☐ YES _____ %

element no. from AB: _____

complaint: _____

pictures incl. number: _____

description: _____

element no. from AB: _____

complaint: _____

pictures incl. number: _____

description: _____

element no. from AB: _____

complaint: _____

pictures incl. number: _____

description: _____

Appendix: ☐ loading of trucks ☐ 3D overview of elements showing identification of defective elements
☐ element drawings of each element, incl. mark of complaint ☐ assembly plan of customers host

WHERE
IDEAS
CAN
GROW.

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Maintenance manual

MMcrosslam is a large-format solid wood board with a multi-layer, crosswise-oriented profile.

Product certification

MMcrosslam is produced according to the European Technical Approval ETA-09/0036 and features a CE Conformity Declaration with the number 1359-CPR-0641.

Dimensions & pricing

Format PUR gluing up to a max. of 3,5 m x 16 m | Format MUF gluing up to a max. of 3,0 m x 16,5 m | Strengths from 60 mm to 280 mm | Standard widths: 2,40 m / 2,50 m / 2,65 m / 2,75 m / 2,90 m / 3,00 m / 3,20 m / 3,50 m.

Pricing is based on the indicated standard widths and a minimum length of 6,2m according to the latest updated pricing sheet. The smallest circumscribed rectangle will be charged. In any case, the minimum length charged will be 6,2m and the minimum width 2,4 m. Elements in living space (WSI) and industrial facing (ISI) qualities are available up to a max. width of 3,15 m.

Surface quality

Please note that cross-laminated timber is a natural product that might change in terms of its appearance (colour, surface, etc.). Even the most careful selection of raw materials cannot completely exclude deviations in the wood structure. The appearance of the surface is determined by the board structure and orientation of the top layer. Gaps may occur between the individual boards over time e.g. due to humidity fluctuations. Superficial dry cracks may also occur in individual cases. Necessary reworking of visible surfaces due to improper storage or transport damage may result in additional costs. The surface qualities refer to one side and can be combined in different manners. Front surfaces are usually manufactured in non-fair-faced quality. Please note that **MMcrosslam** is a semi-finished product. Processing and treatment at the construction site is recommended.

Non-visible quality (NSI)

Non-visual surfaces only apply functions in terms of load-bearing strength and building physics. No optical requirements are specified for these surfaces. Therefore subsequent panelling is recommended. The top lamellas are exclusively sorted according to the sorting criteria of the loadbearing strength C24 in line with EN 338. Colour variations of individual lamella (e.g. blue stains) as well as loose knots, bark ingrowths and resin pockets are possible. Gaps in the outer layers, glue stains as well as pressure points and markings can appear. Surfaces are planed and not patched.

Industrial visible quality (ISI)

Cross-laminated timber boards with industrial facing are suitable for industrial areas where the surface structure is meant to remain visible and the building owner wants to maintain the natural appearance of wood. The surfaces structure is adjusted to the use in commercial and industrial building. In addition to the sorting requirements for load-bearing properties, stricter optical criteria are applied to top lamellas. Selected top lamellas with healthy, firmly ingrown knots are used. A small number of loose knots are possible. Voids and small pitch pockets are admissible. Surfaces are sanded. The maximum width in production is 3,15 m.

Living space quality (WSI)

For all surfaces meant to remain visible in residential building, with special requirements regarding a homogenous surface structure and lamella quality. This type of surface is especially applied in residential building, school and office buildings, if the building owner wishes to have a homogenous appearance with wood as a natural material. Only raw material of the highest optical timber classes is used. The lamellas have a maximum strength of 20 mm in order to guarantee a minimum spreading of the gaps. The surface is ground. In order to prevent the formation of shrinkage cracks, joints are not glued additionally. The maximum width in production is 3,15 m.

Form changes and stability of dimensions

Swelling and shrinking of **MMcrosslam** elements is reduced to a negligible minimum due to its crosswise structure. Form changes in longitudinal and diagonal directions of the boards amount to approx. 0,01% per % change in wood moisture. Form changes perpendicular to the board amount to approx. 0,20% per % of wood moisture change.

Custom joinery

The production of cut-outs and dimensional cuttings is partly performed with rotating milling tools. Unless expressly requested otherwise, this causes residual radii at the inner corners up to a max. of 4cm. Residual radii can only be cut out of elements with NIS surfaces. Processing at an angle to the direction of the fibre will cause slight tearing to the wooden fibre due to the rotating directions of the tools. In addition, all types of machining across the entire cross-section of the boards may cause slight tearing at the lower side of the boards.

Strength classes of the lamellas

MMcrosslam is produced with lamellas of the strength class C24/L25 according to EN 338. A 10% share of C16 / L 17 is admissible (acc. to ETA-09/0036)

Gluing

Depending on the requests of our customers we offer Melamine resin-based adhesive (MUF) or polyurethane adhesive (PUR). Both types of adhesive are approved for the gluing of load-bearing timber components.

Air tightness

MMcrosslam from 80 mm is air-tight for 3s according to short report no. 575/2016-BB HFA.

Usage classes

MM crosslam has been approved for the usage classes 1 and 2 according to ETA – 09/0036.

Planning of elements

The preparation of element plans and certifiable structural information are not included in the quotation but available for a surcharge. Available element plans must be sent in the formats dxf-, dwg-, sat or ifc and must feature data regarding board strength, dimensions and layering structure, orientation of layers, surface finishing and a complete depiction of the beams. The production plans we prepare must be reviewed and approved by an authorised expert. Information, technical advice, pre-measurements and all other data provided by Mayr-Melnhof are non-binding and issued with the exclusion of any type of liability and warranty to the extent permitted under applicable law. The same applies to negotiations in a pre-agreement stage.

Lead times and delivery periods

Lead times and delivery periods are part of the contract award negotiations. Later changes to plans or similar changes that lead to delays beyond the agreed deadlines will lead to delays in delivery dates. Any and all resulting costs must be borne by the client who also has to keep MM fully indemnified and harmless in this regard.

Loading and transport

It is an integral part of the confirmation of an order that the client will submit a loading sequence. According to these requests and in compliance with the legal requirements regarding load securing, the actual positioning of components on the means of transport will be carried out. In order to provide information in good time, exact loading plans will be submitted a number of days prior to delivery, pointing out the exact positions of the elements in the load. Lengths beyond 13,60m and widths beyond 2,50m are special transports requiring the appropriate road transport permits. The place of delivery must be even and have sufficient

load-bearing capacity for axle loads of at least 10t. Transport costs include 2 hours for unloading vehicles. Each additional hour started will be charged with EUR 60,-/hour. We aim to deliver strictly according to the agreed schedule. Due to the fact that traffic problems could happen, just in time deliveries have tolerances +/- 3hrs. So deviations of up to 3 hours do not represent grounds for complaints.

Storage at the construction site

Support timber must be used for storing MMcrosslam. If construction components are stored horizontally, intermediate support timber must be used between layers. The elements must be stored safely to prevent them from tipping. Plastic film must be removed to prevent the formation of condensate. The components must be protected from rain, spray water and ground moisture by providing sufficient ground clearance and tarpaulins. For longer storage, add sleepers to prevent creep deformation.

Manipulation and assembly

Assembly must be carried out according to the assembly instructions. Until completion of the building, the components must be stored with appropriate weather protection. Ensure sufficient exhaust ventilation and fresh air to prevent colouring caused by moisture due to contact with other construction materials (e.g. screed or rendering). Components that have become moist must be dried immediately, but carefully.

Payment terms and prices

The payment terms are subject to separate agreement. The currently valid price lists featuring all prices ex works shall apply. Prices do not include the preparation of element plans, structural calculations and other dimensioning data, small parts and ancillary parts.

I have read and agreed to the information given in IMPORTANT NOTES and MAINTENANCE MANUAL as specified in this document.

Place and Date

SIGNATURE of customer for confirmation

Disclaimer / liability exemption clause

Documents, especially drawings, calculations, product descriptions and technical data or models by Mayr-Melnhof Holz Holding AG are examples and non-binding reference values. They only become relevant in terms of type and characteristics, if they are referred to as binding in advance, expressly and in writing.

Information, technical advice, initial sizing and other data provided by Mayr-Melnhof of whatever kind is given on the basis of empirical values. They are, however, also non-binding and are provided excluding any and all liability or warranty to the extent permitted by law. This also applies during the pre-contractual stage in the course of contract negotiations.

General Terms and Conditions of Business and Delivery of the Mayr-Melnhof Holz Group

last amended 1/5/2016

I. General information

1. These General Terms and Conditions of Business and Delivery (hereinafter shortened to 'GTCBD') are an integral part of all the offers, deliveries and other contracts concluded by any of the contracting parties from the Mayr-Melnhof Holz Group (hereinafter briefly referred to as 'Mayr-Melnhof'). However, they shall only apply if the contracting partner is a business, a legal entity or a special fund under public law. Deliveries shall only be carried out in accordance with these GTCBD, which shall be interpreted according to prevailing practices in the trade, with which the customer is familiar and which can be furnished by Mayr-Melnhof at any time following a written request by the customer and are also available at www.mm-holz.com. Provisions that differ from these GTCBD shall only be binding for Mayr-Melnhof if they have been explicitly acknowledged by the latter in writing. This shall also apply if the ordering party refers to its own terms and conditions of trade ('battle-of-forms') or if such provisions are contained in invoices, order forms or delivery notes. Any individual agreements concluded with the contracting party in individual cases (including collateral agreements, supplements and amendments) shall take priority over these GTCBD in every case. The content of such agreements must be set forth in writing in the form of a contract or confirmation provided by Mayr-Melnhof.
2. These GTCBD shall also apply if Mayr-Melnhof unreservedly accepts the contracting party's order while being aware of the existence of deviating written or oral provisions drafted by the contracting party.
3. Documents, in particular drawings and descriptions of the products and technical details or models belonging to Mayr-Melnhof, merely constitute samples and are neither definitive as regards the nature and properties nor binding, unless such information is designated as binding beforehand, separately, explicitly and in writing. Any information, technical advice and other data of any nature whatsoever furnished by Mayr-Melnhof is only provided on the basis of empirical values. However, said information, technical advice and data are also non-binding and are provided without any liability or guarantee to the extent permitted under applicable law. This also applies, mutatis mutandis, to contract negotiations during the pre-contract phase.
4. If no written contract is made (for example, a contract concluded by word of mouth), these GTCBD shall apply in each case if the contracting party was already aware – or could have been aware – of them from preceding, regular business relations.
5. The contract is concluded on the condition that the contract will not be performed or will only be partially performed if, for reasons beyond the control of Mayr-Melnhof, Mayr-Melnhof's own suppliers do not carry out deliveries properly or only do so in part (this refers to the supply of advance services and raw materials to be supplied to Mayr-Melnhof). If the contractual goods are not available or only partially available, the contracting party shall be immediately informed.

Any consideration already paid shall be reimbursed without delay. Any further claims asserted by the contracting party, in particular claims for compensation, are excluded provided this is legally admissible.

6. The dispatch of goods always takes place following receipt of the properly countersigned reply letter sent by the contracting party (e.g. returned and undersigned order confirmation). If the goods are sent in the absence of a countersigned reply letter and accepted by the contracting party without any reservations, the GTCBD shall be deemed to have been accepted by the contracting party.

II. Offer and order confirmation

1. Any offers or estimates prepared by Mayr-Melnhof are subject to confirmation and are not binding. If an order is placed following an offer made by Mayr-Melnhof, then the contract is formed only after the order has been confirmed by Mayr-Melnhof in writing.
2. Provided the intended purpose set down in writing is not altered, Mayr-Melnhof reserves the right to make minor changes to the scope of delivery described in the order. If production-related reasons should force Mayr-Melnhof to carry out more extensive changes, the contracting party shall agree to such changes provided they are not to the contracting party's commercial disadvantage: the contracting party bears the burden of proof regarding whether the changes are commercially disadvantageous.
3. Mayr-Melnhof reserves the right to pass on the order to another company within the Mayr-Melnhof Holz Group at any time and to have the order executed by said company.

III. Prices

1. All prices shall be understood to refer to net prices. Statutory value-added tax is shown separately in the invoice.
2. When calculating prices, reference shall be made to the information in the order confirmation. The unit prices shall apply to the agreed delivery schedule. However, in certain cases, price adjustments may be agreed if the costs incurred by Mayr-Melnhof within the period leading up to the delivery shall vary.

IV. Dispatch and transport

1. The Incoterms shall apply in the version indicated in the order confirmation sent by Mayr-Melnhof.
2. The place of delivery must be flat and sufficiently stable so as to allow a heavy goods vehicle with a 10 t axle load to pull up and drive away without any difficulties. Unloading shall be carried out promptly and correctly; the use of a crane requires a prior, written, separate agreement. Any waiting times and idle times will be invoiced separately by Mayr-Melnhof unless they are due to gross negligence on the part of Mayr-Melnhof. The same applies to any required expenses for warehousing goods, if unloading at the planned location should not be possible.

V. Delivery and warehousing

1. Partial deliveries are expressly declared to be admissible.
2. The time of delivery of the goods remains unchanged regardless of whether the contracting party delays the acceptance of the delivered goods. Any warehousing costs incurred due to a delay in accepting the goods shall be borne by the contracting party.
3. In the case of a 'call-off agreement', if any call-off request by the contracting party is not received by Mayr-Melnhof in time, Mayr-Melnhof shall be free to insist on the delivery and invoice the delivery at the end of the delivery period or to completely or partially withdraw from the contract as it deems fit. Any warehousing costs incurred shall be borne by the contracting party.
4. If the goods cannot be delivered following manufacture due to unforeseeable circumstances at the time the contract is concluded and Mayr-Melnhof is not responsible for such circumstances, the contracting party shall bear the risks from this moment onwards. Any warehousing costs incurred shall be borne by the contracting party.
5. Insignificant deviations in quantities customary in the trade (of up to 10 percent) upwards or downwards upon delivery are expressly permitted by Mayr-Melnhof.
6. If the delivery deadline cannot be met, Mayr-Melnhof reserves the right to deliver the goods at another acceptable alternative delivery date. This new delivery date will be set in consultation with the contracting party. If Mayr-Melnhof fails to adhere to this new delivery date, the contracting party shall be entitled to demand the delivery be carried out after setting a reasonable period of grace or, or otherwise to withdraw from the contract. Any further claims asserted by the contracting party in this respect are excluded provided this is legally admissible. Mayr-Melnhof is only bound by its delivery deadlines if the contracting party fulfils its contractual obligations (e.g. timely release of schedule, down payments, etc.).
7. In case of force majeure or if important changes to parts of the contract are or become necessary and such instances are beyond the control of Mayr-Melnhof or whenever circumstances arise that do not merely complicate deliveries on a temporary basis or render deliveries partially or completely impossible, Mayr-Melnhof shall be entitled to withdraw from the contract without any additional claims becoming available to the contracting party.

VI. Warranty and notifications of defects

1. The contracting party must examine the goods delivered immediately, in any case within 7 calendar days following receipt of the goods, for any defects and promptly notify Mayr-Melnhof in writing about any defects. If defects that already existed upon handover of the goods, and which could not have been discovered in the course of a proper examination following receipt of the goods (see VI. 1. 1. sentence 1), only emerge during the warranty period, Mayr-Melnhof must be notified in writing about such defects forthwith within the warranty period as soon as they are discovered, in any case before the goods are processed, transformed or resold. The warranty period generally lasts one year. The burden of proof in case of all circumstances justifying claims, in particular for the presence of a defect at the time the goods are handed over, the time the defect is detected and for notifying the defect in good time always lies with the contracting party. In case of defects, the contracting party is obliged to accept the

delivery in any case and to handle the goods with the usual degree of due care. Notifications of defects shall always be made in writing and include sufficient documentation in accordance with prevailing practices in industry and commerce (in particular, e.g. photographic documentation), and the receipt of this documentation must be confirmed by Mayr-Melnhof in writing. The defect shall be identified according to its nature and scope in a way that allows Mayr-Melnhof to clearly recognize the basis for the complaint. If these provisions are not adhered to, any claims (warranty, damages, error etc.) are considered invalid.

2. The contracting party shall submit any complaints concerning damage during transportation to the carrier promptly and in writing, in any case before the goods are processed, transformed or resold. In this case, the contracting party also bears the entire burden of proof in respect of any circumstances justifying claims, in particular for the defect or damage in question, the time the defect or damage is detected and for notifying the defects or damage in good time. In addition, clause VI. 1. shall apply accordingly.
3. Defects have no bearing on the agreed dates of payment.
4. Mayr-Melnhof is free to choose whether to rectify the defects by repairing them or making a new delivery after transporting the goods 'carriage paid' for the contracting party to the place of delivery. Mayr-Melnhof is entitled to make several rectifications. If even these rectifications should not satisfy both parties, the contracting party shall be entitled either to reduce the consideration payable provided the statutory preconditions are satisfied or to rescind the contract.
5. Any goods returned by the contracting party shall become the property of Mayr-Melnhof. Further claims such as reimbursement for work, materials, loss of earnings, compensation for non-performance etc. are excluded if this is legally admissible and occurs to the extent permitted under the law.
6. In any case, warranty claims are excluded in case of natural wear and tear and improper handling, excessive use and negligence on the part of the contracting party.

VII. Limitations and waivers of liability

1. Mayr-Melnhof shall only be liable for damages in case of premeditation and excessive, gross negligence. In case of slight negligence, Mayr-Melnhof shall only be liable for personal injury. The liability shall lapse 6 months after identification of the damage and the damaging party. The amount of liability shall be limited according to the liability insurance taken out by Mayr-Melnhof.

VIII. Delays and withdrawal

1. If the contracting party delays payment, Mayr-Melnhof shall be entitled to withdraw from the contract after granting a period of grace of at least one week. In case of delays in payment, Mayr-Melnhof shall be entitled to charge the contracting party – without prejudice to any further claims for compensation it may assert – the legal interest rate according to section 456 UGB (Austrian Commercial Code).
2. In case of a delay in accepting the goods on the part of the contracting party, Mayr-Melnhof shall be entitled to either:
 - a. insist upon performance of the contract and to delay fulfilment of its own obligations until the outstanding payments have been made by the contracting party, or
 - b. accept a reasonable extension of the delivery period or to notify its withdrawal from the contract after granting a rea-

sonable period of grace.

In case of delayed acceptance on the part of the contracting party, Mayr-Melnhof shall also be entitled to insist on fulfilment of the contract or to withdraw from the contract after having granted a reasonable period of grace and to use the relevant goods otherwise.

In any case of delayed acceptance, the contracting party shall be entitled to pay a contract penalty in the amount of ten percent of the relevant net purchase price, without prejudice to any higher claims for damages.

3. If the contracting party terminates the contract before it has been fully performed for whatever reason, Mayr-Melnhof reserves the right to assert claims against the contracting party for reimbursement of any expenses already incurred and any damage.
4. If the contracting party's financial circumstances deteriorate significantly or its creditworthiness is found to be wanting after the contract has been concluded or the insurance limit from the contracting party's current orders has been exhausted, Mayr-Melnhof shall be entitled to demand immediate payment of all outstanding payments and of any invoices not yet due and to completely or partially withdraw from any agreements in force and orders already placed.
5. If there exists a judicial right to mitigate claims and this right may be lawfully excluded, then this right is herewith excluded. The right to assert further claims for compensation, in particular in relation to warehousing, remains unaffected.

IX. Payment and prohibition of setoff

1. 1. Unless otherwise stipulated in the order confirmation, the purchase price indicated in section III of these GTCBD is payable without deductions within the fourteen calendar days following the invoice date and, in the absence of any differing agreement, shall be effected by bank transfer.
2. In addition, Mayr-Melnhof shall be entitled to charge the contracting party any expenses incurred through non-performance of its contractual obligations and this includes, in particular, the costs of taking appropriate legal action (collection agency or legal representation).
Transfer fees and expenses (in particular from abroad) shall be borne exclusively by the contracting party. Incoming payments will be used first to cover any expenses and default interests, any claims asserted under this section, section X, and thereafter to pay off the purchase price.
3. The contracting party is not entitled to set off its own claims against the claim for payment of the purchase price unless setting off its own claims was agreed upon separately in writing with Mayr-Melnhof and said claims have either been acknowledged in writing by Mayr-Melnhof or legally established in a judgement. The contracting party may not exercise any rights of retention.

X. Reservation of title

1. 1. Mayr-Melnhof shall reserve the title to the goods supplied until all the payments deriving from the existing current account relationship between the contracting parties including any interests and costs, reminder charges and default interests and the associated claims have been received in full. Until full payment has been received for all claims the contracting party shall be liable for any breakage, theft, fire or other acts of God from the moment of transfer of risk. The contracting party undertakes to abstain from pledging the

goods or otherwise assigning them by way of security. Their resale as part of an ordinary business transaction is permitted.

2. If Mayr-Melnhof's title to the goods is threatened by third parties, Mayr-Melnhof shall be immediately notified about this.
3. If the goods are seized while the reservation of title is still in force, Mayr-Melnhof shall be notified immediately in writing; the contracting party shall bear the legal costs and costs of representation during any action required to recover the seized goods. If the goods already delivered are seized, Mayr-Melnhof shall be entitled to withdraw from the contract. In such cases Mayr-Melnhof shall be entitled to realize the purchase items after they have been recovered. The proceeds from realization shall be set off against the contracting party's debts after deducting a reasonable amount for the realization of the goods.
4. If an agreement has been reached with the contracting party regarding the payment of the purchase price owing by means of a check or a bill of exchange, the reservation of title shall extend until the moment the bill of exchange accepted by Mayr-Melnhof from the contracting party has actually been redeemed and does not expire when the bill of exchange or check is credited to Mayr-Melnhof.
5. The contracting party undertakes to handle the goods with care and to warehouse them until the entire purchase price indicated in section X.1. has been received by Mayr-Melnhof. In so doing, the contracting party shall exercise the due care of a prudent businessperson.
6. If the contracting party sells the goods subject to reservation of title, it shall assign all claims amounting to the final invoice amount (including value-added tax) to Mayr-Melnhof with immediate effect and regardless of whether the goods supplied have been processed or not before their resale. The contracting party remains entitled to collect this claim even after it has been assigned. The right of Mayr-Melnhof to collect this claim itself shall remain unaffected. However, Mayr-Melnhof undertakes not to collect the claim if the contracting party complies with its payment obligations from the proceeds collected, is not in default of payment and, in particular, has not lodged an application to initiate insolvency or reorganization proceedings and no cessation of payments exists. Nevertheless, if this is the case, Mayr-Melnhof, provided this is lawful, may ask the contracting party to disclose the identities of the claims assigned and their debtors, provide any information required and useful for collecting the claim, hand over any associated documentation and properly notify the debtor (third party) about the assignment of the claim.
7. If the goods are processed or mixed with other items not belonging to Mayr-Melnhof, Mayr-Melnhof shall acquire co-ownership rights to the new object in the proportion represented by the value of the goods with respect to the processed or mixed item at the time it is processed or mixed. The contracting party shall safeguard the resulting solely or jointly owned object on behalf of Mayr-Melnhof with the due care of a prudent businessperson.
8. Mayr-Melnhof, upon request, shall release the goods and the objects or claims taking their place as it sees fit if their value exceeds 50% of the secured claims and if this is mandatory under the law.

XI. Delivery schedules

1. The delivery schedule shall be deemed to have been observed

if the goods are ready for delivery at the factory and – if collection by the customer or the dispatch of the goods has been agreed upon – readiness for dispatch has been advised.

2. The delivery schedule set by Mayr-Melnhof (including fixed schedules, schedules for rectified or replaced goods etc.) will be suspended in case of events not attributable to Mayr-Melnhof, in particular force majeure, unforeseeable disruptions to operations, supply problems affecting its own suppliers or circumstances beyond the control of Mayr-Melnhof, in particular during carriage or dispatch of the goods. The delivery schedule shall be resumed once these events are no more.
3. Mayr-Melnhof is only obliged to adhere to delivery schedules if the contracting party complies with its contractual duties. In particular, this is conditional on compliance with payment conditions, the timely receipt of all documents to be furnished by the contracting party, any authorizations or approvals, the timely clarification and approval of plans and the provision of any other necessary cooperation. If the contracting party fails to fulfil its obligations on time, the legal consequences of a delay in accepting the goods shall take effect.
4. The foregoing provisions shall apply to any other performance schedules adopted by Mayr-Melnhof mutatis mutandis.

XII. Protection of intellectual property, confidentiality

1. Mayr-Melnhof shall retain property rights, copyright and any other industrial property rights pertaining to the illustrations, drawings, calculations, models and any other documents furnished by Mayr-Melnhof during the course of business; they may not be made available to third parties without the written consent of Mayr-Melnhof or used or exploited beyond the business relationships with Mayr-Melnhof.
2. Any documents of relevance for the foregoing rights shall be returned to Mayr-Melnhof upon request and whenever the contract is not formed or terminated, regardless of the reason, without delay together with any copies that have been made.
3. The contracting party undertakes to treat all the business or trade secrets related to the offer or the initiation or handling of the contract that it learns of with strict confidentiality and not to pass them on to third parties. This duty shall be imposed by the contracting party on all its employees, agents, advisors and any other persons and aids engaged by the contracting party in order to fulfil its obligations.

XIII. Concluding provisions

1. The contracting party undertakes to communicate any change in its address without delay to Mayr-Melnhof in writing. Written declarations may be validly sent to the last address provided by the contracting party.
2. Amendments and supplements to these GTCBD must be drafted in writing in order to be legally valid. The same applies to waiving the requirement of the written form.
3. If one or several provisions are or become invalid or impracticable, this shall not affect the validity of the remaining provisions. The contracting parties herewith agree to substitute a valid and practicable provision for the invalid or impracticable provision that comes closest to the economic purpose of the invalid or impracticable provision. This shall apply mutatis mutandis if it emerges that the present GTCBD turn out to have gaps.

4. For the purpose of these GTCBD, in addition to a letter sent by post, 'written' shall also be understood by the contracting parties to refer to a fax or an e-mail unless otherwise stipulated in these GTCBD.
5. The law of the country in which the seller company in the Mayr-Melnhof Holz Group has its registered office shall apply exclusively to all the contractual relationships between Mayr-Melnhof and the contracting party, to the exclusion of the provisions on the choice of the proper law for contracts under private international law. The application of the United Nations Convention on Contracts for the International Sale of Goods (UN Sales Convention) is excluded.
6. The exclusive jurisdiction of the materially competent court for A-8700 Leoben is herewith agreed as competent to decide on any and all disputes regarding deliveries and services directly or indirectly resulting from a contractual relationship of the contracting parties referred to herein, including any disputes on existence or non-existence. As regards supplies by Mayr-Melnhof Holz Paskov s.r.o. within the Czech Republic, the exclusive jurisdiction of the factually competent court for CZ-7394 is herewith agreed. As regards supplies by Mayr-Melnhof Holz Richen GmbH within the Federal Republic of Germany, the exclusive jurisdiction of the competent court for D-75031 Eppingen is herewith agreed.
7. If these GTCBD are also furnished in a foreign language, reference shall be made exclusively to the German version in case of questions regarding interpretation.
8. The following companies in the Mayr-Melnhof Holz Group are also governed by the provisions of these GTCBD and accordingly, the exclusive validity of these GTCBD in the relationship between the contracting party and following companies shall be deemed to have been agreed upon and confirmed:

Mayr-Melnhof Holz Holding AG, Turmgasse 67,
8700 Leoben, Austria

Mayr-Melnhof Holz Leoben GmbH, Turmgasse 67,
8700 Leoben, Austria

Mayr-Melnhof Holz Russland Beteiligung GmbH,
Turmgasse 67, 8700 Leoben, Austria

Mayr-Melnhof Pellets Paskov s.r.o., Staříč 544,
CZ-73943, Czech Republic

Mayr-Melnhof Holz Paskov s.r.o., Staříč 544,
CZ-73943, Czech Republic

Mayr-Melnhof Kaufmann Holding GmbH, Turmgasse 67,
8700 Leoben, Austria

Mayr-Melnhof Holz Gaishorn GmbH, Gaishorn am See 182,
8783 Gaishorn am See, Austria

Mayr-Melnhof Holz Reuthe GmbH, HNr. 67,
6870 Reuthe, Austria

Mayr-Melnhof Holz Richen GmbH, Römerstraße 20,
75031 Eppingen, Germany

9. If the Mayr-Melnhof Holz Group expands to incorporate further companies in addition to the aforementioned companies, Mayr-Melnhof shall communicate the names of these companies to the contracting party in writing. Thereafter, the application of these GTCBD to the relationship between these companies and the contracting party shall be deemed to have been confirmed and agreed upon.