Supplementary provisions for **CERTIFICATION OF DOORS AND WINDOWS**

1. GENERAL INFORMATION

The present supplementary provisions for the product certification of doors and windows apply as an addition to Dancert's General terms and conditions for the certification, inspection and approval (hereinafter referred to as "General terms and conditions"), see the General terms and conditions, point 0.3.

In connection with certificates issued in accordance with the present supplementary provisions, we refer to the accreditation DANAK PROD Reg. no. 7002, see the General terms and conditions, point 8.

In addition, the trademark DVC owned by Dancert can be used to designate the certificate.

2. PURPOSE

The purpose of the certification of doors and windows is to ensure that doors and windows suit the purpose and fulfil the requirements as to product quality of the consumers.

The regulation (EU) no. 305/2011 on construction products determines that the producer must create a declaration of performance for construction products, which are subject to a harmonised standard, where the declaration states the performance of the construction product with respect to the key features determined in the harmonised standard.

The present supplementary provisions supplement the harmonised standards for windows and doors, EN 14351-1 and EN 14351-2 (which have not come into force yet), without repeating the evaluation with respect to the key features determined in the harmonised standards.

Certified doors and windows must fulfil requirements in accordance with the following main areas:

a) Durability
Windows and doors must be durable with respect to the influences they are exposed to during usual use within the building envelope. They must be designed and executed in such a manner that a durability of many years can be expected during usual use under Danish weather conditions.

NOTE: Under normal circumstances, a useful life of 30 years is expected for doors and windows.

b) Function
Doors and windows must be easy and safe to operate, clean and maintain.

c) Visual quality
Windows and doors must represent good Danish craftsmanship traditions visually and in general.

d) Resilience and project feasibility
Windows and doors must be packaged and protected in such a manner that they can withstand the influences they are expected to be exposed to at the construction site. They must also be able to withstand the influences they are expected to be exposed to during mounting.

3. CERTIFICATION SYSTEM

The certification system is comprised of:

- Certification audit
- Inspection of doors and windows from a sample of 10 items selected by Dancert
- Evaluation of products and production control with respect to certification requirements
- Decision about certification
- Monitoring audits on a regular basis
- Audit tests of items selected during the audit on a regular basis
- Renewal of certificates every 3 years.

Attachment C states the scope and frequency of the audits.

4. CERTIFICATION BASIS

The certification is carried out in line with the general terms and conditions of Dancert for certification, inspection and approval with reference to the requirements stated in the present supplementary provisions.

5. TRANSITIONAL PROVISIONS

The present supplementary provisions are introduced with a transitional period until 31 December 2020. Up to the end of the transitional period, valid certificates issued by Dancert with reference to the Technical Provisions of the Danish Window Industry can be converted into certificates with reference to the present provisions. Until the end of the transitional period, such certificates can be maintained based on the company's demonstration of the fulfilment of the relevant requirements in a technical requirement specification, which must be approved by Dancert.

Subsequent to the end of the transitional period, all the requirements stated in the present provisions must be fulfilled.

Certificates under the present supplementary provisions will be issued with 1 July 2019 as the earliest date of validity.

6. REQUIREMENTS FOR CERTIFIED PRODUCTS

6.1 DURABILITY

Windows and doors must be designed and executed in such a manner that a durability of many years can be expected during usual use under Danish weather conditions.

6.1.1 CONSTRUCTION

Windows and doors must be designed in such a manner that a durability of many

years can be expected during usual use under Danish weather conditions. They must be designed in such a manner that water is channelled off without leading to detrimental collection of humidity.

- Bottom mortises must have an incline towards the exterior side.
- Hollow spaces including hollows between the frame and the casing and between timber and aluminium lining must be ventilated and drained.
- Hollow spaces/mortises under panes and fillings must be ventilated/drained towards the exterior side in accordance with the instructions of the pane producer and EN 12488.
- In timber elements, the cross-sectional area of drainage apertures must be at least 300 mm² per running meter of bottom mortise. In elements made of plastic and aluminium, the cross-sectional area of drainage apertures must be at least 200 mm² per running meter of bottom mortise. Drainage apertures can be round or elongated and must have a diameter of at least 8 mm. Drainage gaps must be at least 5 x 20 mm.
- All the edges of timber elements must be blunted to ensure that the paint adheres to the element.
- All surfaces turning upwards, which may be exposed to rainwater, must have an incline towards the exterior side.
- All edges of timber elements turning downwards, from which water can drip, must be furnished with a drip groove.

Note: Where an incline towards the exterior side is required, an incline of 5 ° is usually deemed sufficient.
Casing edges turning downwards do not need a drip groove, if the lower edge is supposed to be covered with a joint.

In the case of windows made of timber/aluminium, it must be ensured that rainwater cannot enter the joint between the timber and the aluminium at the upper casing and upper frame.

6.1.2 MATERIALS

6.1.2.1 Timber materials

Timber materials must be tightly packed and have a density that ensures durability. For timber types with a core and splinters, the core portion of the timber to be used in areas with a great deal of humidity must predominantly be heartwood.

The requirements for timber materials are listed in the following table:

Timber type	Density at timber humidity of 12 % [kg/m³]	Core portion in areas with a great deal of humidity [1]	Wideness of the age rings (mean value) [mm]	Other requirements
Pine	≥ 500	≥ 90 %	≤ 4	-
Box-jointed pine	≥ 480			-
Spruce	≥ 450	≥ 90 %		-
Larch	≥ 500	100 %		-
Hardwood	≥ 500	-	≤ 4.5	Class 2 acc. to EN 350-2
Wood fibre boards				"Symbol H" acc. to. EN 316 or EN 622-5

[1)] Areas outside of the sealing level in frames and glass mortises are deemed as being exposed to a great deal of humidity.

The company must determine rules for the sorting of timber materials in line with good craftsmanship practice so that knots, fissures, resin pockets, etc., do not result in a diminished durability or degrade the timber visually.

NOTE: Dancert maintains a list of generally used sorting rules, which are usually deemed to ensure the above considerations.

Glued laminated timber must fulfil the requirements in Attachment A of the present supplementary provisions.

Finger-jointed glued timber must fulfil the requirements in Attachment B of the present supplementary provisions.

6.1.2.2 Mounts

The mounts used must be manufactured of materials suitable for the production of windows and doors.

Mounts and screws must have corrosion protection, which can withstand weather influences effectively and hinder the development of galvanic corrosion.

NOTE: For windows and doors to be used in areas close to the waterfront, special measures must be taken to hinder corrosion.

Mounts must have sufficient strength during their useful life to withstand the strain to be expected during usual use. The strength of the mounts can be proven in acc. with EN 14608 and/or EN 14609. Mounts can be classified in acc. with EN 13115. The classification can be stated by code in acc. with the EN 13126 series.

6.1.2.3 Plastic materials

Plastic materials must be suitable for the manufacturing of windows and doors.

Plastic profiles must fulfil EN 12608-1 as well as the relevant requirements of “Plastic windows, Quality Assurance RAL-GZ 716/1, section1” (see www.gkfp.de/en).

6.1.2.4 Composite materials

Composite materials must be suitable for the manufacturing of windows and doors.

Composite materials must fulfil EN 13706-1, EN 13706-2 and EN 13706-3.

6.1.2.5 Aluminium materials

Aluminium materials must be suitable for the manufacturing of windows and doors.

The relevant materials data for the documentation of durability and strength must be available for aluminium profiles.

Aluminium profiles must fulfil the materials specifications stated in Eurocode 9. Alloys of the type EN AW-6060, EN AW-6063 or equivalent can be used. The hardening state must correspond to at least class T5.

Aluminium profiles must have a thickness of material of at least 1.8 mm, where mounts are installed. As an alternative, reinforcements can be added inside the profile.

6.1.2.6 Multi-pane insulating glass

Multi-pane insulating glass must be manufactured in acc. with the EN 1279 series and subjected to an independent certification system.

6.1.2.7 Weather strips

Weather strips between frames and casings must be manufactured from materials suitable for use in windows and doors.

The description and classification can be carried out in line with EN 12365-1.

It must be ensured that the installation and dimensioning of the weather strips are adjusted to the relevant construction and used in accordance with the supplier's instructions.

6.1.2.8 Joints

Glue must have a water resistance of at least class D4, see EN 204.

6.2 EXECUTION

6.2.1 JOINTS

6.2.1.1 General information

Joints must be executed in such a manner as to withstand the influences, the element is exposed to during usual use and in such a way that the joints remain sealed.

6.2.1.2 Joints in elements made of timber

Timber elements can be fastened by means of dowels or tenon/split joints. Glue is to be applied to all contact surfaces and used as per the supplier's instructions.

6.2.1.3 Joints in elements made of plastic and composite materials

Elements made of plastic or composite materials can be fastened by means of welding or in the case of blunt joints with fastening mounts.
Corner joints in plastic profiles must be carried out in line with the profile supplier's instructions and have the breaking strength required by the profile supplier. The breaking strength is determined in acc. with EN 514.

6.2.1.4 Joints in aluminium profiles

Aluminium profiles can be fastened in 45° bevelled joints or in 90° joints with fastening mounts.

6.2.2 SURFACE PROTECTION

A surface protection is to be carried out, which can ensure a durable protection of the underlying material.

6.2.2.1 Surface protection of timber elements

The surface treatment of timber elements must be carried out by means of an approved fungicide containing paint system. The overall system for basic and surface treatment must be able to hinder blue rot in the underlying material and hinder mould growth on the surface.

The documentation for basic and surface treatment can be carried out in line with the EN 152 and EN 927 series.

In the case of closed elements, the visible surfaces made of pine, spruce and larch must have a layer thickness of at least 80 µm dry film and have a covered, closed, smooth and filled surface in line with the specification "DLGU", see MBK (Danish

Professional Painting Treatment Directory). The other surfaces must be water repellent and have a covered and closed surface in line with MBK.

Elements made of hardwood must be treated with a fungicide containing surface treatment, resulting in a water repellent surface.

6.2.2.2 Surface protection of elements made of aluminium

On elements made of aluminium, the pre-treatment and painting must be carried out in line with the specification ”GSB AL 631”. The requirements of ”GSB AL 631” with regard to protection against filiform corrosion must be met. The surface protection must be carried out with a certificate from GSB or a different equivalent independent certification system.

On visible surfaces of profiles, the layer thickness in the case of wet painting must be at least 40 µm and at the most 70 µm dry film. In the case of a powder-finish, the layer thickness must be at least 50 µm and at the most 120 µm.

6.2.2.3 Surface protection of elements made of composite materials

On elements made of composite materials, the pre-treatment and painting on visible surfaces must result in a covered, closed, smooth and filled surface in line with the specification ”DLGU”, see MBK (Danish Professional Painting Treatment Directory). The layer thickness must be at least 60 µm. Other visible surfaces in the case of an opened element must have a covered and smooth surface, meeting the specification ”DG”, see MBK.

6.2.3 FASTENING OF PANES AND FILLINGS

Panes and fillings must be fastened by means of suitable methods, which ensure that the features of the panes and fillings are not changed substantially due to weather influences or the influences they are exposed to during use.

Mounting bands and joint materials, which are mounted between the pane and the frame/casing, must be dimensioned and adjusted to the relevant construction and used in accordance with the supplier’s instructions. The compatibility between the edge sealing of the pane and the applied joint materials must be ensured.

Multi-pane insulating glass must be wedged in line with EN 12488.

In the case of fillings with tracks, it must be ensured that water cannot enter behind the mounting band or joint materials.

7. FUNCTION

7.1 EDGES AND SURFACES IN GENERAL

All surfaces must be smooth and resilient so that they can be cleaned by means of the usual methods and detergents in residential housing.

All edges and corners must be blunted in order to minimise the risk of damage when touching.

Note: A blunting radius of 1.5 mm will usually be deemed sufficient in the case of timber elements.

7.2 MOUNTS

Mounts to be operated may not have sharp edges or burrs.

The operating strength for manually operated windows must be determined in line with EN 12046-1. The results must be expressed in line with EN 13115.

The operating strength for manually operated doors must be determined in line with EN 12046-2. The results must be expressed in line with EN 13115.

8. VISUAL QUALITY

Painted surfaces must fulfil the specification ”DLGU”, see the Danish Professional Painting Treatment Directory.

The company must develop its own specification to ensure that all elements obtain a visual expression corresponding with Danish craftsmanship traditions.

This specification must at least comprise failure requirements with respect to:

- Rounding radii for visible surfaces
- Clipped ends
- Rough and uneven surfaces around knots and other transverse fibres
- Chip pressure
- Nicks
- Stripes after notches in the iron
- Roller marks
- Dragging stripes/marks after chips
- Chipped off splinters

9. RESILIENCE AND PROJECT FEASIBILITY

9.1 PACKAGING AND PROTECTION

The company must determine how to package and protect windows and doors in such a manner that they can withstand the influences they are expected to be exposed to during transport, at the construction site and during assembly.

9.2 INSTRUCTIONS

Windows and doors must be accompanied by comprehensive instructions. The instructions must comprise transports, storage, mounting, operation and maintenance.

NOTE: The instructions may consist of one or several documents and be available on paper and/or digitally.

10. REQUIREMENTS FOR PRODUCTION CONTROL BY THE MANUFACTURER

10.1 GENERAL INFORMATION

The company must control and check its production in such a manner as to ensure that all certified products fulfil the certification requirements for the products, see chapter 6.

10.2 DOCUMENTATION REQUIREMENTS

The company must establish and maintain a documented system, which ensures that the requirements of these provisions and the general provisions of Dancert are met. The company's documented system must at least describe the following:

a) Responsibilities and authorisations in the company
b) Qualification and training of personnel
c) Received materials
d) The company's production control including the on-going internal testing and inspection
e) Maintenance and calibration of measurement and testing equipment
f) Treatment of deviating products
g) Treatment of complaints and remedying actions
h) Traceability of products
i) Storage, marking and delivery of the certified products.

10.3 INSPECTION AND TESTING

The company must carry out the inspection and testing in line with the below tables.

10.3.1 INSPECTION AND TESTING OF ELEMENTS MADE OF TIMBER AND OF TIMBER/ALUMINIUM

Feature/topic	Method	Requirements	Frequency
Timber quality	Visual and measurement	Acc. to diagram for permissible deviance	Every series
Timber humidity	Measurement	12 ± 2 %	1 x daily/changes
Timber treatment	Visual and measurement	Acc. to diagram for permissible deviance	2 x daily and when changing the dimensions
Core portion	Visual and measurement	As a minimum 60 % in the case of cladded timber elements and 90 % in the case of other timber elements outside of the sealing level at the casings and in glass mortises at frames.	1 x daily/changes
Joints	Visual and measurement	All joints must be sealed, fully glued and angled	1 x daily/changes
Paint	Dry matter	Acc. to the	1 x daily/changes

Feature/topic	Method	Requirements	Frequency
	measurement and/or wet film measurement	instructions from the paint supplier	
Mounting of weather strips	Visual and measurement	Acc. to diagram for permissible deviance	On-going
Mounting	Visual and measurement	Acc. to diagram for permissible deviance	On-going
Mounting of aluminium cladding	Visual and measurement	Acc. to diagram for permissible deviance	On-going
Pane mounting	Visual and measurement	Acc. to diagram for permissible deviance	On-going
Insertion of panes and fillings and function checking	Visual and measurement	Acc. to diagram for permissible deviance	On-going
Checking of finished products	Visual and measurement	Acc. to diagram for permissible deviance	Weekly

10.3.2 INSPECTION AND TESTING OF PLASTIC ELEMENTS

Feature/topic	Method	Requirements	Frequency
Cutting	Visual and measurement	Acc. to diagram for permissible deviance	1 x daily/changes
Milling and drilling	Visual and measurement	Acc. to diagram for permissible deviance	On-going
Cutting and fastening of reinforcements	Visual and measurement	Acc. to diagram for permissible deviance and supplier instructions	On-going
Welding	Temperature measurement at welding mirrors	Acc. to suppler instructions	1 x daily/changes
Welding	Pressure/bending test in line with the method stated in EN 514.	Acc. to suppler instructions	Weekly
Corner treatment	Visual and measurement	Acc. to diagram for permissible deviance	On-going
Fastening of posts and glazing bars	Visual and measurement	Acc. to diagram for permissible deviance	On-going
Mounting of weather strips	Visual and measurement	Acc. to diagram for permissible deviance	On-going
Mounting	Visual and measurement	Acc. to diagram for permissible deviance	On-going
Insertion of panes and fillings and function checking	Visual and measurement	Acc. to diagram for permissible deviance	On-going

Feature/topic	Method	Requirements	Frequency
Checking of finished products	Visual and measurement	Acc. to diagram for permissible deviance	Weekly

10.3.3 INSPECTION AND TESTING OF ELEMENTS MADE OF ALUMINIUM AND COMPOSITE MATERIALS

Feature/topic	Method	Requirements	Frequency
Cutting	Visual and measurement	Acc. to diagram for permissible deviance	Every series
Milling and punching	Visual and measurement	Acc. to diagram for permissible deviance	On-going
Cutting and fastening of reinforcements	Visual and measurement	Acc. to diagram for permissible deviance and supplier instructions	On-going
Surface treatment of composite profiles	Visual and measurement	Acc. to diagram for permissible deviance and supplier instructions	On-going
Joints	Visual and measurement	Acc. to diagram for permissible deviance and supplier instructions	On-going
Corner treatment	Visual and measurement	Acc. to diagram for permissible deviance	On-going
Fastening of posts and glazing bars	Visual and measurement	Acc. to diagram for permissible deviance	On-going
Mounting of weather strips	Visual and measurement	Acc. to diagram for permissible deviance	On-going
Mounting	Visual and measurement	Acc. to diagram for permissible deviance	On-going
Insertion of panes and fillings and function checking	Visual and measurement	Acc. to diagram for permissible deviance	On-going
Checking of finished products	Visual and measurement	Acc. to diagram for permissible deviance	Weekly

10.3.4 PERMISSIBLE DEVIANCES

The company must determine rules for permissible measurement deviances, etc., for timber elements to ensure a good craftsmanship standard. The company rules must be summarised in a diagram for permissible deviances, which must comprise rules for the following:

- Surfaces and edges
- Clipped ends
- Rough and uneven surfaces around knots and other transverse fibres
- Chip pressure

- Nicks
- Stripes after notches in the iron
- Roller marks
- Dragging stripes/marks after chips
- Chipped off splinters
- Permissible dimension deviances for profile cross sections
- Permissible dimension deviances for external frame and casing measurements

NOTE: Dancert maintains a list of generally used rules for permissible deviances, which are usually deemed to ensure the above considerations.

10.4 TRACEABILITY

The company must have an effective system, which ensures that all certified products can be traced back to production registrations and the basis for the approval of the product for delivery.

10.5 ACCOMANYING DOCUMENTATION

All deliveries must include an accompanying document as proof that the delivery has been certified. The documents must be paginated consecutively and be accompanied by a document for each address, where the products are to be used. The document must contain the following information:

- Product designation
- Production date
- Delivery address/utilisation address
- Name of the certified company
- Production site/plant (as stated in the certificate)
- Reference to the certificate number at Dancert
- Dancert's logo

9.6 MARKING OF PRODUCTS

Every element subject to the certification system must be equipped with a label showing the logo of Dancert and the certificate no. The label must also include information about the manufacturer's name, phone no. and/or web address and the production time.

The label may not refer to certifications other than those issued by Dancert.

The label must be attached in such a manner that it is visible after the element has been mounted.

Elements produced by order can - if they are delivered with Multi-pane insulating glass labelled with a production code - be expected to fulfil the requirement for marking of the production time.

The logo of Dancert can be retrieved at http://www.Dancert.com/logo/.

ATTACHMENT A: Requirements for glued laminated timber

1. MATERIALS

1.1 TIMBER MATERIALS

Glued laminated timber must be manufactured from materials, which are suitable for the purpose and fulfil the failure requirements listed in the section “Materials”.

1.2 GLUE

The glue must fulfil the instructions from the supplier of the lamination plant and fulfil the below points 1.2.1 and 1.2.2.

1.2.1 THERMOPLASTIC GLUE

Thermoplastic glue must meet class D4, see EN 204 (tested in line with EN 205) and the requirements for stability and strength at 80 °C, see EN 14257.

1.2.2 GLUE SUBJECTED TO THERMOHARDENING

Glue subjected to thermohardening must meet class C4, see EN 12765 (tested in line with EN 205).

2. REQUIREMENTS FOR THE FINISHED PRODUCT

2.1 STRUCTURE

The basic principles for the structure of laminated items are listed in EN 13307-1, Annex A.

2.1.1 STRENGTH OF GLUED JOINTS

The displacement breaking stress of the glued joints must be at least 6 N/mm² (mean value).

When glued joints are split, the timber fraction must be at least 90 %.

3. REQUIREMENTS FOR PRODUCTION CONTROL BY THE MANUFACTURER

3.1 PRODUCTION PREMISES

The production premises must have a controlled interior climate with control of the temperature and the humidity. The air temperature must be at least 15 ºC. The humidity must be approx. 55-65 % RF.

3.2 LAMINATION PLANT

The lamination process must be carried out at a plant, which is suitable for the purpose.

3.3 INSPECTION AND TESTING

The company must carry out the inspection and testing in line with the below table.

Feature/topic	Method	Requirements	Frequency
Timber quality	Visual and measurement	Acc. to diagram for permissible deviance	Every series
Density	Measurement	Acc. to diagram for permissible deviance	Every series
Timber humidity	Measurement	12 ± 2 % in raw timber	2 x daily/changes
Room climate	Measurement	Temperature at least 15 º, humidity 55-65 % relative humidity	2 x daily/changes
Treatment	Visual and measurement	Acc. to diagram for permissible deviance	2 x daily and when changing the dimensions
Core portion	Visual and measurement	As a minimum 60 % in the case of cladded timber elements and 90 % in the case of other timber elements outside of the sealing level at the casings and in glass mortises at frames.	1 x daily/changes
Timber humidity	Measurement	12 ± 2 % in finished slats	2 x daily/changes
Glue dosage	Measurement	Instructions from the glue supplier	1 x daily/changes
Pressing duration	Measurement	Instructions from the glue supplier	2 x daily/changes
Temperature	Measurement	Instructions from the glue supplier	2 x daily/changes
Pressure	Measurement	Instructions from the glue supplier	2 x daily/changes
Splitting tensile test of 3 items	Measurement	At least 90 % timber fraction	2 x daily/changes
Displacement test	Measurement	At least 6 N/mm^2	2 x daily/changes

Feature/topic	Method	Requirements	Frequency
of 3 items		per item	
Wet test of 3 items	As required in EN 14080:2013 Annex C	As stated in table 9 in EN 14080:2013, section 5.5.5.2.2.	Weekly
Simplified wet test of 3 items	Submersion in water: • 20 °C warm water for 3 hours • 60 °C warm water for 3 hours • 20 °C warm water for 18 hours • Acclimatisation for 3 days at 20° and 50 % RF	As stated in table 9 in EN 14080:2013, section 5.5.5.2.2.	Weekly

3.4 TESTING METHODS

3.4.1 STRENGTH OF GLUED JOINTS

The strength of the glued joints is tested by testing the displacement strength or by splitting the glued joints.

3.4.1.1 Testing the displacement strength

Testing the displacement strength can be performed in line with EN 14080. The mean value of the breaking stress of the glued joints must be at least 6 N/mm² for each test item.

3.4.1.2 Testing by splitting glued joints

Splitting of glued joints must be carried out at test items with a length of at least 40 mm.

3.4.2 WET TEST OF GLUED LAMINATED TIMBER

The wet test of glued laminated timber is carried out in line with EN 14080:2013 Annex C. The results are evaluated in line with EN 14080:2013, table 9.

ATTACHMENT B: Requirements for finger-jointed glued timber

1. MATERIALS

1.1 TIMBER MATERIALS

Finger-jointed glued timber must be manufactured from materials, which are suitable for the purpose and fulfil the failure requirements listed in the section “Materials”.

1.2 GLUE

The glue must fulfil the instructions from the supplier of the finger-jointing plant and fulfil the below points 1.2.1 and 1.2.2.

1.2.1 THERMOPLASTIC GLUE

Thermoplastic glue must meet class D4, see EN 204 (tested in line with EN 205) and the requirements for stability and strength at 80 °C, see EN 14257.

1.2.2 GLUE SUBJECTED TO THERMOHARDENING

Glue subjected to thermohardening must meet class C4, see EN 12765 (tested in line with EN 205).

2. REQUIREMENTS FOR FINGER-JOINTS

2.1 GENERAL INFORMATION

An example for the profile of finger-joints can be found in EN 14080, section 3.11.

2.2 MOISTURE STABILITY

Finger-joints must be stable with respect to moisture.

2.3 IMPERVIOUSNESS

Finger-joints must be impervious during testing with extraction liquid and the subsequent iodine test.

2.4 BREAKING STRENGTH

During bending up to the breaking point, the timber fraction must be at least 90 %. As an alternative, finger-joints must have a bending strength of at least 45 MPa.

3. REQUIREMENTS FOR PRODUCTION CONTROL BY THE MANUFACTURER

3.1 PRODUCTION PREMISES

The production premises must have a controlled interior climate with control of the temperature and the humidity. The air temperature must be at least 15 ºC. The humidity must be approx. 55-65 % RF.

3.2 FINGER-JOINTING PLANT

The finger-jointing process must be carried out at a plant, which is suitable for the purpose. The manufacturer's instructions must be followed.

3.3 INSPECTION AND TESTING

The company must carry out the inspection and testing in line with the below table.

Feature/topic	Method	Requirements	Frequency
Timber quality	Visual and measurement	Acc. to diagram for permissible deviance	Every series
Density	Measurement	Acc. to diagram for permissible deviance	Every series
Timber humidity	Measurement	12 ± 2 % in raw timber	2 x daily/changes
Room climate	Measurement	Temperature at least 15 º, humidity 55-65 % relative humidity	2 x daily/changes
Treatment	Visual and measurement	Acc. to diagram for permissible deviance	2 x daily and when changing the dimensions
Core portion	Visual and measurement	As a minimum 60 % in the case of cladded timber elements and 90 % in the case of other timber elements outside of the sealing level at the casings and in glass mortises at frames.	1 x daily/changes
Timber humidity	Measurement	12 ± 2 % in finished slats	2 x daily/changes
Glue dosage	Measurement	Instructions from	1 x daily/changes

		the glue supplier	
Pressing duration	Measurement	Instructions from the glue supplier	2 x daily/changes
Temperature	Measurement	Instructions from the glue supplier	2 x daily/changes
Pressure	Measurement	Instructions from the glue supplier	2 x daily/changes
The imperviousness of the finger-joint	Testing by adding extraction liquid	No colour penetration measured 2 mm under the surface after 5 minutes	2 x daily/during changes and when changing the dimensions
Filling the finger-joint with glue	Testing by adding iodine	The glued joint must show as a continuous (dark brown) line when looked at through a thread-counter with loupe and all tip widths must be filled with glue.	2 x daily/during changes and when changing the dimensions
Moisture stability	See point 3.4.2	No apertures in the finger-joint.	1 x weekly
Testing the breaking strength (bending test)	See point 3.4.1	As a minimum 90 % timber fraction or a bending stress of at least 45 N/mm² (45 MPa).	1 x weekly

3.4 TESTING METHODS

3.4.1 BENDING TEST

The bending test is executed in line with EN 408, section 9.2.

The test includes 5 items, each with a length of approx. 60 cm with a finger-joint in the middle.

3.4.2 MOISTURE STABILITY

The moisture stability of finger-joints is determined for 3 sets of blocks, of which every 4 blocks are at approx. 50 mm, with the finger-joint placed in the middle.

The moisture stability is determined according to the following conditioning procedure:

- Submersion in water, 20 ºC: 3 hours
- Submersion in water, 60 ºC: 3 hours
- Submersion in water, 20 ºC: 18 hours
- Air drying at 20 ºC and 50 % RF: 72 hours.

The conditioning procedure is followed by visual inspection. The finger-joint may not show apertures.

ATTACHMENT C: Scope and frequency of the audit

1. CERTIFICATION AUDIT

During the certification audit, the following examinations are made:

a) Fulfilment of the requirements of the product
b) Fulfilment of the requirements of the production control
c) Marking and accompanying documentation
d) Traceability
e) Selection of items for type testing (only for PVC elements and glued laminated timber)

2. MONITORING AUDIT

Ordinary monitoring audits are performed twice a year.

If a company has demonstrated an effective production control over a period of two years, the audit frequency is reduced to once a year.

All requirements of the certification basis are examined once during a period of 3 years. The result of the company's in-house examination is checked by sample during each audit.

For PVC elements and glued laminated timber, items are selected for audit testing.

3. TYPE TESTING

3.1 SAMPLE SELECTION

Samples for type testing of frames made of PVC and glued laminated timber are selected in line with the below information.

The auditor marks the selected items and requests a laboratory test in line with the below information:

3.1.1 FRAMES MADE OF PVC

1 frame, manufactured by the company, is selected and monitored by Dancert. The frame size usually amounts to 0.8 m x 0.8 m and the profile width to 60-80 mm.

3.1.2 GLUED LAMINATED TIMBER

6 laminated items of each lamination line of the company are selected. The selected items must have a length of at least 0.8 m. The company's information about the glue type is noted (type D4 or C4).

3.2 LABORATORY TESTING

3.2.1 GENERAL INFORMATION

All tests are requested by Dancert as an accredited test. The laboratory is selected by

Dancert upon consultation with the company. The laboratory fees are settled between the laboratory and the company and are not the concern of Dancert.

3.2.2 FRAMES MADE OF PVC

The test is performed as a pressure/bending test, see EN 514.

The breaking load (F) should exceed or be equivalent to the breaking load stated by the profile supplier.

3.2.3 GLUED LAMINATED TIMBER

A delamination test is to be executed, see EN 14080:2013, Annex C.

The test results must meet the requirements of EN 14080:2013, section 5.5.5.2.2 - table 9.

3.3 EVALUATION OF THE TEST RESULTS

Dancert evaluates whether the requirements have been met based on the rest report.

If a test result does not meet the relevant requirements, it is deemed a deviation, see the general terms and conditions of Dancert.

A new type test is performed as part of the verification of the remedying actions of the company.

No certificate will be issued without a type test available, where the results meet the relevant requirements.

4. AUDIT TEST

4.1 PROCEDURE

The sample selection and the laboratory test are performed in the same manner as for type testing.

4.2 FREQUENCY

The audit test is performed once a year.

4.3 EVALUATION OF THE TEST RESULTS

Dancert evaluates whether the requirements have been met based on the rest report.

If a test result does not meet the relevant requirements, it is deemed a deviation, see the general terms and conditions of Dancert.

A new audit test is performed as part of the verification of the remedying actions of the company.

If the results of the new audit test do not meet the relevant requirements, the certificate can be retracted, see the general terms and conditions of Dancert.