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BASIS OF ASSESSMENT

FOR

“GLUED TIMBER

EXCLUSIVELY FOR INTERIOR APPLICATIONS”

Published by SKH

The Dutch version shall be consulted in case of doubt

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1. INTRODUCTION

1.1 General

The requirements set out in this basis of assessment are used by SKH for the processing of an application respectively maintenance of an SKH quality declaration “Glued and/or fingerjointed timber exclusively for interior applications".

Alongside the requirements laid down in this basis of assessment SKH lays down supplementary requirements as laid down in the production certification regulations of SKH.

The test methods are explicitly mentioned or indicated by a reference to the appendix , standard or other document referred to.

1.2 Area of application

This basis of assessment refers to glued (fingerjointed and/or glued) timber exclusively for interior applications.

2. PROCEDURE FOR OBTAINING AN AUTHORIZATION

2.1 Start

The applicant of the authorization indicates whether he supplies glued/fingerjointed timber exclusively for interior applications in accordance with the specifications laid down in chapter 4. He supplies the necessary information for the preparation of the technical specification.
He indicates which statements have to be included in the quality declaration and provides the evidence for these statements.

2.2 Pre-certification inspection

SKH assesses whether the statements to be included in the quality declaration comply with the requirements laid down in chapter 4.A report shall be made of the pre-certification inspection on the basis of which a quality declaration, whether or not under certain conditions, shall be issued.

2.3 Assessment of the quality system of the applicant

SKH inspects whether the quality system of the applicant do agree with chapter 9.

2.4 Issuing of the authorization

The SKH-quality declaration is issued in accordance with the production regulations of SKH when the pre-certification inspection (section 2.2) and the assessment of the quality system of the applicant (section 2.3) have been rounded off in a positive way.

2.5 External quality management

Once the SKH-quality declaration has been issued, SKH carries out inspections in accordance with chapter 10.

3. TERMS AND DEFINITIONS

For the meaning of the terms used in this basis of assessment reference is made to the documents laid down in chapter 11.

3.1 Fingerjointed timber (see also appendix 2)

3.1.1 Slot-base

That part of the face to be glued between two adjoining fingers of a component to be jointed.

3.1.2 Width of slot-base (b)

Dimension of the slot-base in the direction of the width.

3.1.3 Clearance

Distance in length direction between a tip of a finger and the opposite slot-base.

3.1.4 Direction of width

Direction perpendicular to the direction of the length and parallel to the face of the finger.

3.1.5 Thickness of the timber

Smallest value of the height of the finger.

3.1.6 Moisture content at time of production

Moisture content that shall be maintained during manufacturing.. In the case of timber with a thickness exceeding 52 mm a difference is made between the core and case moisture content; this in accordance with NEN 5461.

3.1.7 Flank angle

The tangent of the angle between a side of a finger and an edge face expressed in the formulae:

$$Tgx = \frac{s-2b}{2l}$$

in which: tgx is the flank angle
s is the pitch
b is the width of the slot-base
l is the length of the finger

3.1.8 Closed open time

The time that elapses from bringing into contact of both surfaces to be glued until the moment that pressure is applied.

3.1.9 Adhering face

Total of all surfaces of a component to be jointed to which glue shall be applied.

3.1.10 Direction of height

Direction perpendicular to the direction of the length and parallel to the faces of the edge.

3.1.11 Height of the finger (h)

Direction of the timber in the direction of the height.

3.1.12 Longitudinal pressure

Pressure in the length direction on the parts to be jointed during the manufacture of a joint.

3.1.13 Longitudinal joint

Glue joint by which two pieces of timber are mutually jointed in the direction of the

length. In this publication the term joint shall be used.

3.1.14 Direction of length

Direction parallel to the length axis of the timber.

3.1.15 Glue failure

Failure in the glue joint.

3.1.16 Open time

The time that elapses between the application of the glue and making contact with both surfaces to be glued..

3.1.17 Arris

Intersection of an edge face and the adhering face.

3.1.18 Edge of slot-base

Part of the adhering face between a finger and an edge.

3.1.19 Edge finger

Smallest incomplete finger visible in the rand face.

3.1.20 Edge face

Surface of the part to be jointed parallel to the direction of the length that is no finger face.

3.1.21 Relative clearance

Ratio between the clearance and the length of the finger.

3.1.22 Pitch(s)

Centre-to-centre distance of the fingers in a timber component.

3.1.23 Total width (B)

Width of the component to be jointed.

3.1.24 Weakening ratio

Width of bottom divided by the pitch.

3.1.25 Fingerjoint

Piece of timber that consists of two or more lengths of similar section, end-jointed by glued intermeshing wedge-shaped projections.

3.1.26 Finger length (l):

Distance measured in the direction of the length, between the face through the slot-base and the face though the top of the finger.

3.1.27 Face of finger

Longitudinal surface on which all fingers have been provided with an adhering face.

3.2 Glued timber

3.2.1 Moisture content at time of production

Moisture content to be maintained at the time of manufacture. Difference shall be made between case and core moisture content in the case of timber with a thickness exceeding 52 mm.

3.2.2 Closed open time

The time elapsing from the moment that both surfaces to be glued until the moment that the pressure is applied.

3.2.3 Internal quality control

The total of activities and decisions that can be carried out within a company in order to bring and to keep the product to the desired quality level.

3.2.4 Lamellae

A board whether or not provided with one or more joints in the direction of the length intended for application in glued timber.

3.2.5 Open time

The time that elapses between the application of the glue and the bringing into contact of both surfaces to be glued.

3.2.6 Pot life

The time during which a glue prepared by the user may be used.

3.2.7 Moisture gradient (applies only to timber with a thickness exceeding 40 mm)

The difference in moisture content of the surface (ca.10 mm under the timber surface) and the core (the interface of both diagonals).

4. PRODUCT REQUIREMENTS

4.1 Timber

It shall be demonstrated that at least 95% of the timber complies in respect of the quality requirements

Properties and defects that are allowed in a limited way:

- Width of growth rings
- Tight knots
- Pin knots
- Resin pockets
- Gum marks
- Gum holes (calcification stripes)
- Shot holes
- Pin and needle holes
- Dark streak
- Discolouration/decay caused by fungi
- Cross grain
- Growth disturbance
- Compression failure
- Reaction wood (compression wood and tension wood)
- Wavy grain
- Interlocked grain
- Slope of grain
- Brittle heart
- Sapwood

Properties and defects not allowed:

- Face shakes, wind shakes and checks
- Large borer holes
- Splay knots
- Loose knots
- Heart
- Collapse
- Bladder
- Spiral grain
- Wane

4.1.1 Moisture content

The moisture content shall be tuned to the application. The moisture content shall be 14 % $\pm$ 2 % for glued and/or fingerjointed timber for interior applications.
The maximum difference between two components to be glued shall be 4%.

4.2 Glue

The glue shall comply with the requirements laid down in BRL 2339.

4.3 Maximum permissible deviations in dimensions

Spring and twist in fingerjointed and glued timber shall not exceed 1,5 mm per running meter. The maximum deviation in dimensions of the timber shall not be more than +/- 0,5 mm.

4.4 Additional requirements for fingerjointed timber

4.4.1 Shape of the fingers

The shape of the fingers shall comply with the following requirements:
- the shape of the fingers shall be equal in both faces to be glued;
- the shape of the fingers shall be symmetrical. De symmetrical axis shall be parallel with the length direction of the timber;
- at least one and a half finger shall be present in the face to be glued per component to be jointed; this also applies after re-sawing;
- the faces to be glued shall be parallel to the direction of the height.

4.4.2 Dimensions of the fingers

- the dimensions of the fingers shall comply with the following requirements.
  In the direction of the length:
  - the length of the finger shall not exceed 60 mm;
  - the length of the finger shall be at least 7,5 mm.

  In the direction of the width:
  - the weakening ratio shall not be greater than $b/s \leq 0{,}25$, see section 3.1.24;
  - the flank angle shall not be greater than 1 : 7 for fingers with a length not exceeding 12 mm and 1 : 8 for fingers with a greater length;
  - slot-base bottoms may not be wider than 1/10 of the width of the joint wit a maximum of 5 mm.

  In respect of the clearance the following requirements apply:
  - a clearance is not allowed. At least 95% shall comply with this requirement provided that the durability of the fingerjoint always shall comply with the requirements laid down in section 4.4.4.

4.4.3 Defects

No defects such as pitch pockets, heavy slope of grain and knots with a diameter exceeding 5 mm shall be present in the vicinity of the joints. Larger knots are only permitted at a distance to the slot-base of the joint that is at least three times as big as the diameter of the knot.

4.4.4 Bending strength of fingerjoints

A minimum bending strength of 35 N/mm² per individual test piece determined in accordance with section 5.3.3. At a bending strength of < 35 N/mm² the percentage of wood failure shall be determined. Should the percentage of wood failure be > 75%, it is accepted that compliance with the above-mentioned requirement has been reached.

4.5 Additional requirements for laminated timber

4.5.1 Thickness of lamellae

The thickness of lamellae being applied in the laminated timber for non-loadbearing applications shall not exceed 40 mm in timber with a width > 70 mm and not exceeding 35 mm in timber with a width $\leq$ 70 mm.

In respect of the change of direction of the growth rings the construction of the cross-section is insofar free, that as directive it shall be taken into consideration that the difference in the change of direction of the growth rings between adjacent lamellae shall be as small as possible and that the change of direction of the growth rings (as seen on the cross-sectional area) in relation to the glue line shall be, as much as

possible, be situated in turns.

4.5.2 Fingerjoints

Fingerjointed lamellae shall comply with section 4.4 of this publication.

4.5.3 Resistance to delamination of laminated timber

After the determination of the resistance to delamination according to section 5.4, taken over a week's production, an average of 5% open glue lines with a maximum of 10% per individual test piece, not caused by stresses in the timber, shall be allowed.

5. METHODS OF DETERMINATION

5.1 Moisture content

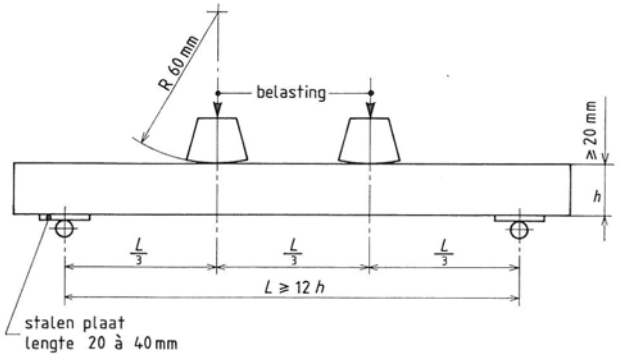
The control of the moisture content shall be executed by means of weighing and drying or with a calibrated electrical moisture meter, according to NEN-EN 13183-1 respectively NEN-EN 13183-2.

5.2 Shape and dimensions

Shape, dimensions and defects shall be assessed on the planed timber. The dimensions of the fingers and the fit of the adhering areas shall be checked by means of a calliper.

5.3 Bending strength of fingerjoints

The bending strength shall be determined by means of a 4-point bending test according to the following figure.



Explanation: belasting – load stalen plaat = steel plate lengte = length

The dimensions given in the figure could have a maximum deviation of 10%. The moisture content shall be between 12% and 16% during the test. The load shall be applied equally and at such a speed that collapsing takes place between 3 and 7 minutes after the start.

The collapsing under the load and the wood failure percentage shall be determined of each test piece.

The bending strength shall be calculated by means of the following formulae:

$$\sigma_B = \frac{3 \times F \times (l-l')}{2 \times b \times h^2}$$

Legend: σ_B is the bending strength in N/mm^2
F collapsing load in N

l	distance between the two supporting points in mm (L)
l'	distance between the two pressure points in mm (1/3 of *L*)
b	width of the timber in mm
h	thickness of the timber in mm

5.4 Resistance to delamination of glue joint

Test pieces are cut from the full cross-section of the gluedtimber with a length of 50 mm (parallel to the fibres). Glue leftovers shall be removed and surfaces shall be smooth to make an assessment of the glue lines possible. The test pieces shall furthermore be treated in accordance with the following cycle:

- 3 hours immersing in water of 20 ±2°C;
- 3 hours immersing in water of 60 ±2°C;
- 18 uur dompelen in water van 20 ±2°C;
- 72 hours drying in a normal climate of 20 ±2°C and 65% RV.

The test pieces shall be assessed for the percentage of open glue lines immediately after the drying period in the oven. The assessment shall take place on all faces of the test piece. The results shall be shown in percentage of open glue lines.

6. PRODUCTION REUIREMENTS

6.1 Storage of timber

Storage of timber shall be controlled in such a way that the given properties shall be maintained.

6.2 Storage of glue

During the storage of glue and materials belonging thereto measures shall be taken to apply the principle of "first in first out".

6.3 Manufacturing conditions

During the application of glue in the glue section no dust producing processes may take place, unless sufficient measures have been taken aiming at keeping the lamellae provided with glue free from dust.
The surface temperature of the timber during the gluing process may not be lower than 15° C. The limits allowed for the climate during gluing shall be 15° C and 25° C and 40 % and 80 % RH. The processing instructions of the suppliers shall be kept within these limits. Should the manufacturing circumstances be exceeded measures shall be taken of organisational nature in order to prevent the open and closed time of the glue applied from exceeding the limits.

6.4 Storage of materials

The layout of the company shall be such that during storage of materials the quality and the durability shall be maintained.

6.5 Additional production requirements for fingerjointed timber

The manufacture of fingerjoints shall take place in factories that dispose of the special layout and professional staff. All independently working members of staff shall have sufficient knowledge and experience

6.5.1 Apparatus required

6.5.1.1 Apparatus for the production

All operations of the timber shall take place with suitable machines, in which case the machines that produce chips and develop dust or emit substances harmful for the health, are connected to a well-functioning extract installation. Suitable tools shall be available to bring into the correct shape of the components under pressure and for the transport.

6.5.1.2 Apparatus for the internal quality control

The producer shall dispose of the following apparatus:

- electric moisture meter with hammer electrodes to determine the moisture content of the timber. The moisture meter shall have setting possibilities for temperature correction and timber species;
- immersion baths and drying-oven for the determination of the resistance to delamination;
- 4-point bending apparatus for the determination of the bending strength of the fingerjointed timber;
- calliper;
- tape;
- thermo-hygrograph;
- apparatus to measure the press temperature in case of joining by means of a hot press;
- stopwatch;
- drying oven
- scale;
- loupe , enlarging at least 10x.

6.5.2 Operating procedure

6.5.2.1 Milling

The milling of timber shall be as short as possible, in any case within 24 hours, before gluing takes place. The timber shall, during the pressing process, be fixed in such a way that movement in width and height direction shall not be greater than the nominal planning differences. The fixation pressure when milling shall therefore be equal to the one during the gluing process, this in connection with possible twisting of the timber.

6.5.2.2 Application of the glue

Before gluing shall be checked whether the moisture content of the timber complies with the requirements according to section 4.1.3. The adhering areas shall, after milling, be free from dust and attached dirt. The glue shall as a rule be applied by machine and even on the adhering areas in a quantity, that assures a good fixation.

6.5.2.3 Pressing of the joint

In the case of softwoods the minimum pressure (p) in the length direction shall be adjusted to the finger length in accordance with the following graph.

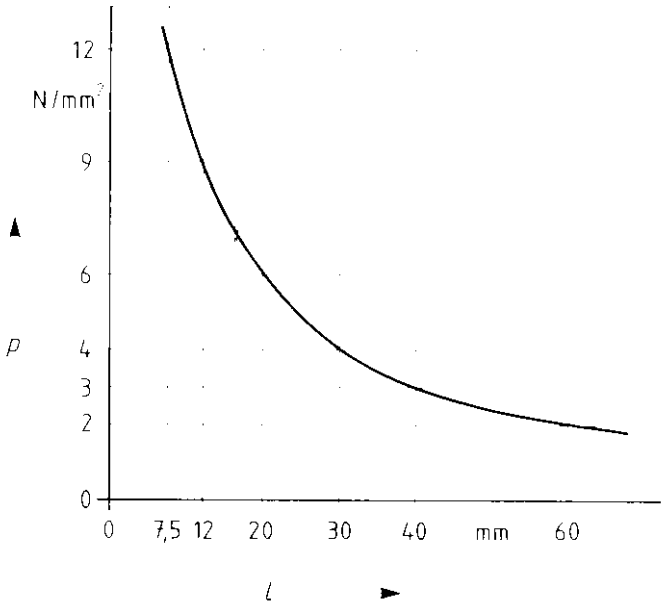


Figure 1 Pressure to be applied in the case of softwoods.

In the case of hardwoods the adhering areas shall be moved into each other by longitudinal pressure which shall be as high as possible; checking shall not take place.

When the total width of the joint is smaller than 100 mm and the fingers are longer than 25 mm a sidelong pressure on the edge fingers shall be applied of 1 à 2 N/mm.

6.5.2.4 Hardening of the glue

In cases where the hardening of the glue is accelerated by heating the pressure shall be maintained until the glue has hardened. In that case measures shall be taken to prevent a strong drying out of the timber.
In all other cases the pressure shall be maintained for at least 2 seconds. The joints may not be exposed as long as 60% of the final strength has not been reached. Transport, storage and processing of the jointed timber shall be executed with extra care as long as the joint is not fully hardened.

6.6 Additional production requirements for glued timber

6.6.1 Planing or sanding of the lamellae

The processing of the lamellae shall be done on both sides in such a way that both faces to be glued are fully planed and/or sandpapered.
The planed and/or sanded faces shall be parallel to each other.
The difference between the smallest and the largest thickness of a lamellae may not be more than 0,2 mm. The maximum depth of machine cutting allowed is 0,025 mm.
In case of sanding,, measures shall be taken in order to remove all sanding dust before the following operation e.g. by means of air pressure or brushes.

6.6.2 Application of the glue

The time between planing or sanding and the application of glue shall be as short as possible; the time depends on the processing conditions such as temperature and relative humidity, but also on the timber species to be glued. The maximum allowable is in the case of resinous softwoods 24 hours. In the case of hardwoods the time between planning or sanding and the application of glue may not exceed 120 minutes.
Checks shall be carried out before gluing whether the moisture content of the timber

complies with the requirements laid down in section 4.2. The adhering faces shall stay free from dust and attached dirt.
The glue application shall than takes place in accordance with the instructions of the glue supplier.
The glue shall usually be applied by machine and even on the adhering faces.

6.6.3 Pressing of the lamellae

The pressing of the lamellae shall be done in such a way that the indicated closed open time of the glue applied is not exceeded nor too little.
The pressure (mechanical, hydraulic or pneumatic) shall be applied evenly and shall be kept constant during the whole pressing time and in such a way that the surplus glue can be pushed aside equally, thus avoiding inadmissibly thick glue lines. Within the framework of this basis of assessment an inadmissible thick glue line is defined as > 0,1 mm.
In case of softwoods a pressure of at least 0,4 N/mm^2 shall be kept in case of a lamella thickness of about 25 mm and at least ca. 25 mm and at least 0,6 N/mm^2 in case of a lamella thickness of 25 – 40 mm. The pressure shall be at least 1,0 N/mm^2 for the laminating of hardwoods.
The pressure and pressing time is also dependent on the manufacturing circumstances and shall be recorded.

6.6.4 Hardening of the glue

The required hardening circumstances during the hardening process, depending on the type of glue, shall be known and shall be maintained during the actions described above.

6.7 Transport and storage of the laminated timber

The laminated timber shall following on the manufacturing process be stored at least 7 hours under the processing conditions laid down in section 6.3.
Until the transfer to the buyer the fingerjointed and/or glued timber shall be maintained, stored and transported in such a way that the timber shall not be damaged and that no inadmissible moisture movement takes place.

7. INTERNAL CONTROLS

There shall be an Internal Quality Control Plan in the factory, whereby at least the following controls take place.

7.1 Timber quality

Preceding the processing of the glue joint shall be controlled whether the quality of the timber complies.

7.2 Registration of temperature and relative humidity

Temperature and relative humidity of the air shall be continuously registered when applying the glue, making the joint, hardening and storage.

7.3 Moisture content

Before manufacturing the joint shall be checked whether the timber complies with the requirements concerning the moisture content during production in accordance with section 4.1.3. This control shall be carried out with a calibrated moisture meter or by means of the oven-dry method. The values measured shall be corrected for timber species and temperature of the timber.

7.4 Glue

At least the following shall be checked before and during the manufacturing of the glue

joint:
- mixing of glue and hardener;
- pot life;
- quantity applied;
- open time;
- open closed time;
- pressure;
- pressing time;
- quantity of glue squeezed out.

7.5 Additional internal controls for fingerjointed timber

7.5.1 Control of the joint

The joints shall be checked at random according to section 4.4.

7.5.2 Sampling

Regularly distributed over the production during the week 10 test samples shall be taken at random out of the production per production line and per timber species. The test pieces shall be cut to size in accordance with section 5.3.3.

7.5.3 Appearance and dimensions

The test pieces taken in accordance with section 5.3.3 shall be checked for appearance and dimensions.

7.5.4 Bending strength of fingerjoints

The bending strength shall be determined in accordance with section 5.3.3.

7.6 Additional internal controls for laminated timber

7.6.1 Sampling

Regularly distributed over the production during the week 10 test samples shall be taken at random out of the production per production line and per timber species.

7.6.2 Resistance to delamination

The resistance to delamination shall be determined in accordance with section 5.4.

8. GENERAL CONDITIONS

8.1 Expertise of employees

The quality of glued timber for interior applications does not only depend on the quality of the materials, the suitability of the machinery, installations and tools, but also on the expertise of employees producing the product. The company where glued timber for interior applications is manufactured shall dispose of professional employees.

At least one of the persons responsible for the production shall dispose of::
- knowledge of the Dutch, English or German language;
- work instructions shall also be available in the Dutch, English or German language and in the native tongue;
- knowledge of the materials being prescribed, applied and processed;
- knowledge of the storage of semi-manufactured products, of the preparation of the production, the processes and actions and their sequence, as well as the machinery, tools and other installations to be used in order to finish the product to be supplied.

8.2 Layout of production and storage facilities

8.2.1 General

Companies manufacturing fingerjointed and/or glued timber for interior applications shall have at their disposal sufficient and for the manufacturing suitable production and storage facilities.
The company shall have:
- a working accommodation as well as covered storage for the benefit of raw materials and end products;
- such facilities for the production of fingerjointed and/or glued timber for interior applications that weather conditions have no negative influence on the production process. The layout of the factory shall be such that, when storing materials, the quality and the durability remain guaranteed and that no permanent change takes place;
- adequate machinery adapted for the size of the production.

The following requirements and indications for the product realization are dealt with:
- manufacturing conditions;
- the installations, equipment and control facilities required;
- the layout of the production room.

8.2.1.1 Manufacturing conditions

In the glue section may, at the time of the application of glue, no dust-producing activities take place, unless sufficient measures are taken directed to keep the lamellae with glue free from dust.
The surface temperature of the timber may, at the time of gluing, not be lower than 15° C. The limits allowed for the climate when carrying out the gluing process shall be 15° C and 25° C and 40 % and 80 % RH. The processing instructions stated by the glue supplier shall be kept within these limits.
Measures shall be taken of an organisational nature when the manufacturing conditions are gone below or are exceeded, in order not to exceed the open and closed time of the glue applied.

8.2.1.2 Installations and apparatus required

The system for internal quality control shall guard the calibration status of measuring equipment and machine settings. The definition of calibration status is the status of the measuring equipment or the reference material in respect of:
- the size and the periods for calibration;
- a possible restriction in use.

8.2.1.3 Machinery and tools

All processes of the timber shall be carried out with suitable machinery and tools. Chipping machines and machines developing dust shall be connected to a well-functioning exhaust installation.
In order to set the machines and tools accurately suitable appliances (setting tools) and control tools shall be present. Furthermore apparatus shall be present to control cutting tools and the positioning thereof (this in consultation with the supplier of the cutting tools).

8.2.1.4 Apparatus for control of semi-manufactured and end products

With reference to the control of semi-manufactured or end products suitable (measuring) apparatus shall be present.

With reference to the climate:

- apparatus for continuously measuring and register of temperature and relative humidity.

With reference to timber:
- apparatus for the determination of the moisture content of the timber with setting possibilities for temperature correction and timber species.

With reference to glue:
- apparatus to measure the mixing ratio;
- apparatus to measure the quantity of glue applied;
- when required apparatus for the determination of the viscosity (e.g. a DIN-cup);
- when required apparatus to measure press temperatures of a heated press;
- apparatus to measure the time.

With reference to the control of dimensions:
- measuring equipment such as e.g. a tape for the determination respectively control of dimensions with an accuracy not smaller than 1 mm, such as the length of laminated timber;
- measuring equipment for the determination respectively control of dimensions with an accuracy smaller than 1 mm (e.g. a calliper with an accuracy smaller than 0,05 mm);
- measuring equipment for the determination respectively control of the square, spring and twist (e.g. a square or a straight-edge).

With reference to the resistance to delamination:
- immersion baths;
- drying-oven;
- loupe, enlarging at least 10x.

With reference to the bending strength of fingerjoints:
- 4-points bending bench..

8.3 General indication for the layout of production facilities

When machines and apparatus are installed in the production room it shall be born in mind to manufacture the products in a logical way.
When required sufficient free room shall be available for interim storage and/or buffer stock.

8.4 Storage and transport

Production, internal transport, storage and transport to the buyers shall be done in such a way that the given properties shall be maintained. The transport shall take place in such a way that no damage or permanent change in shape can take place.

9. REQUIREMENTS REGARDING THE QUALITY SYSTEM OF THE APPLICANT

9.1 Internal quality management of the producer

Requirements have been formulated in the following sections; the quality system of the applicant shall, within the framework of a quality declaration, comply herewith.

9.1.1 Responsibility

The producer is responsible for the manufacturing process of the product and for the internal quality control.

9.1.2 Reporting changes

Any changes in the quality system, such as procedures, IQC-scheme, and way of production shall be reported in writing and in advance to SKH.

9.1.3 Internal quality control

The procedures to be followed within the framework of the quality system for inspection, testing and registration shall be laid down in an internal quality control scheme (IQC-scheme). This scheme shall comply with the requirements laid down in chapter 7.

9.2 Responsibility of management

9.2.1 General

The responsibility for the total quality policy lies with management. Management shall, as a result of this describe this policy and the quality objectives, as well as the relevant obligations. This shall be in agreement with other company objectives.

9.2.2 Organisation

The responsibilities and competence of the employees involved in production, inspection and testing, the mutual relations and their place within the organisation (e.g. by means of an organisation chart) shall be described. They shall have suitable experience, respectively education.

9.2.3 Quality official

A representative of management shall be appointed, who irrespective of his other responsibilities has well-defined responsibilities and authority for the realization of the introduction and to keep the quality system up-to-date

9.2.4 Assessment of the quality system

The quality system that has been put up with the purpose to obtain a guarantee that products are produced with a constant quality shall be regularly evaluated by the quality official and, when required, to be adjusted in consultation with management. A written report of the assessment shall be present and available on request.

9.2.5 Maintenance of properties of the product

Production, internal transport and storage of fingerjointed and/or glued timber shall take place in such a way the properties provided are maintained.. The transport to the buyer shall take place in such a way that mo damage or permanent changes in shape can occur

9.3 Inspection and testing

9.3.1 Quality system

The quality system for the production process shall be laid down in written procedures for inspection and the execution of the tests such as laid down in the Internal Quality Control Plan.

9.3.2 Control of documents

The procedures for the inspection and testing laid down in writing shall be assessed and approved for suitability and efficiency by competent persons within the organisation before issuing them. The control over documents shall bring about that only valid documents are available during the inspection and testing.

9.3.3 Registration

A record shall be kept of the inspections and tests described in the Internal Quality Control Plan. A verification shall furthermore take place on the basis of inspections and tests previously carried out to verify whether the requirements laid down are complied

with.

9.3.4 Calibration

Inspection aids and testing equipment shall be calibrated regularly in accordance with a fixed calibration system. A record shall be kept of this.

9.3.5 Identification of test samples

Samples intended for inspection and testing shall be clearly identified. The sequence of testing shall, when required, also be recognizable

9.3.6 Products with shortcomings

Products with shortcomings shall be clearly marked. A procedure shall also be available for the handling of these products and an identifiable (separate) storage respectively a supplementary registration mark (e.g. in the case of faulty production assembly). Corrective measures shall , when required, be taken.

9.3.7 Supplies

Raw materials, semi-manufactured products and other products or processes shall be inspected in accordance with the Internal Quality Control Plan.

9.3.8 Laboratory

A well-equipped (separate) room and the prescribed measuring and testing equipment shall be available for the implementation of laboratory activities. If an external laboratory is used, this laboratory shall be approved by SKH.

9.3.9 Internal control

By way of addition to the inspections and tests carried out on the products supplied, the production process and the finished product, it shall be possible to demonstrate that all the required inspections have been performed. The manufacturer shall keep a suitable and accessible register of the inspections and tests carried out and it shall be kept up-to-date, so that it can be used to show that the specified requirements have been fulfilled.

9.3.10 External control

The manufacturer shall cooperate in the inspection operations carried out by SKH, by permitting access to the factory and, if requested, by providing all the relevant documents for examination. If necessary, samples shall be provided.

9.4 Dealing with complaints

The producer (holder of the quality declaration) shall be able to show that there is a proper complaints register and that complaints relating to the fingerjointed and/or glued timber are properly dealt with. An indication shall be given per complaint how the complaint was analysed and dealt with.

9.5 Internal quality control

The producer shall keep an internal quality control scheme. It shall include at least the following components in writing.:

- incoming inspections of raw materials;
- workplace instructions;
- inspections of the end product;
- the control of measuring apparatus;
- complaint registration.

9.6 Marking

The glued and/or fingerjointed timber exclusively for interior applications shall be clearly marked with:

- the SKH®-logo or word;
- number of the quality declaration;
- date of production;
- "EXCLUSIVELY SUITABLE FOR INTERIOR APPLICATIONS"

.

Location of mark: clearly visible on each length.

10. INSPECTION BY SKH

SKH inspects unannounced 4x per annum whether the products comply with the technical specifications, whether the products are in conformity with the specifications agreed upon with SKH and laid down by the producer and whether the internal quality control scheme of the producer comply with the requirements laid down in paragraph 9. If necessary, on the recommendation of the Board of Experts, the aforementioned frequency may be adjusted on the basis of the reasons presented.

The country of the applicant shall be safe in respect of inspections by SKH. The country shall not be visited when a negative travel advice has been given. The glued/fingerjointed timber shall in that case be inspected on arrival in the Netherlands.

11 LIST OF DOCUMENTS REFERRED TO

NEN 5461	Requirements for timber (KVH 2000); Sawn timber and round wood – General part
NEN-EN 13183-1	Moisture content of a piece of sawn timber – Part 1: Determination by oven-dry method
NEN-EN 13183-2	Moisture content of a piece of sawn timber – Part 2: Estimation by electrical resistance method
BRL 2339*	Adhesives for non-loadbearing applications published by SKH

* For the correct date of issue see "Overview of quality declarations in the building industry' as published by the Foundation for Building Quality (SBK) in Rijswijk, the Netherlands.

Appendix 1: Specimen of SKH quality declaration

SKH quality declaration

Glued timber exclusively for interior applications

Number: **«nummerverklaring»**
Issued: **«datum»**
Replaces: «Vervangt»

Producer	**Factory at**	**Importer**
«Naambedrijf» «Adres_email»		

Declaration of SKH

This quality declaration has been issued by SKH on the basis of BGS 08-08, "Glued timber exclusively for interior applications".

SKH declares that there is a legitimate confidence that the glued and/or fingerjointed timber exclusively for interior applications manufactured by the producer continuously complies with the technical specifications laid down in this quality declaration, provided that the timber has been provided with the SKH® mark depicted below in a manner indicated in this quality declaration.

For SKH Drs. H.J.O. van Doorn, director

Users of this quality declaration are advised to enquire at SKH whether this document is still valid.

This quality declaration consists of 26 pages.

The Dutch version shall be consulted in case of doubt.

1. PRODUCT SPECIFICATION

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2. SUGGESTIONS FOR THE USER

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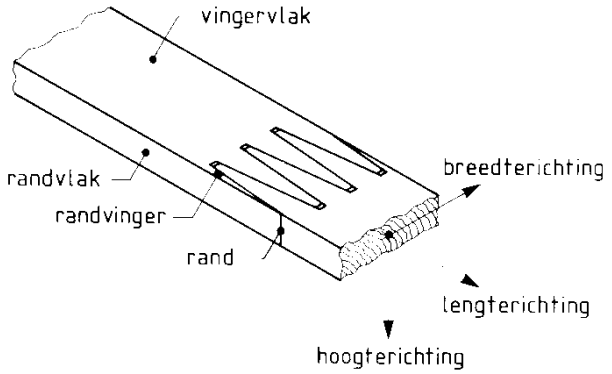
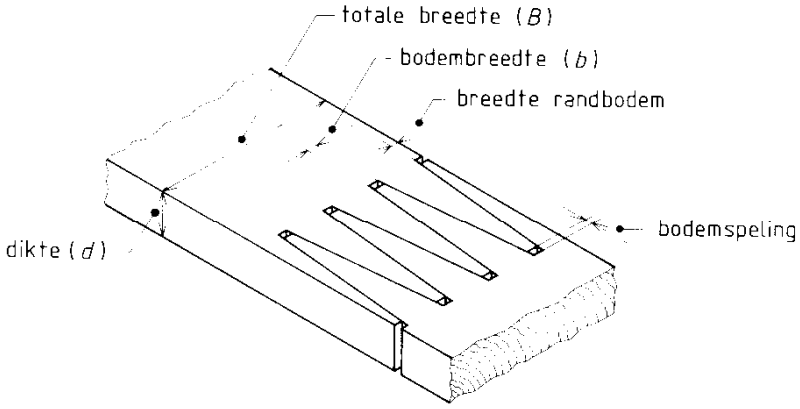
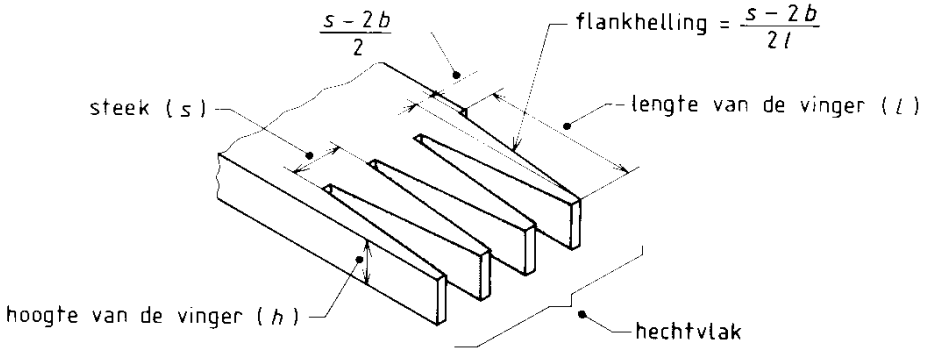
Appendix 2: Terms and definitions for fingerjoints



Figuur 1 – Vlakken en richtingen



Figuur 2 – Afmeting bodemzijde



Figuur 3 – Afmetingen van de vingers