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**ASSESSMENT DIRECTIVE
FOR THE
KOMO® ATTEST(ATION)-WITH-PRODUCT CERTIFICATE
FOR
PLYWOOD**

Adopted by the Board of Experts of SKH dated 20-5-2016

Accepted by the KOMO commission of quality and verification of the KOMO foundation
d.d. 09-12-2016

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GENERAL INFORMATION CONCERNING THIS PUBLICATION

This assessment directive was declared binding by the certification body SKH on 09-12-2016 in accordance with the Regulations for Certification and shall apply to the issuing of a KOMO® “Plywood” attest(ation)-with-product certificate as from 09-12-2016.

This assessment directive replaces assessment directive AD 1705 “Plywood” dated 2005-05-01 with its amendment of 31-12-2014 .

In case of doubt the Dutch version is **valid** and shall be consulted.

Publisher:



reliability with added value

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In case a European harmonised technical specification is applicable to a construction product, the quality declarations of a construction product based on this Assessment Directive may not be used to replace the CE marking of that construction product and / or replace the corresponding obligatory declaration of performance.

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1 INTRODUCTION

1.1 General

This assessment directive (AD) includes the requirements that are used in the handling of an application for, or the maintenance of, a KOMO® “Plywood” attest(ation)-with-product certificate. Furthermore, the accredited certification and attestation bodies with a KOMO® license, lay down additional requirements, in the sense of general procedure requirements of certification and attestation, as laid down in the certification and/or attestation regulations of the relevant body.

The technical area covered by this AD is E3, timber products. Requirements derived from public law legislation are listed in Chapter 3.

This assessment directive supersedes AD 1705 dated 2005-05-01 with its amendment of 31-12-2014. Existing product certificates issued on the basis of this superseded AD version keep their validity until 09-12-2017

1.2 Area of application

This assessment directive and the quality declarations relate to plywood for use in construction (structural or non-structural) and plywood for use in other applications e.g. civil engineering as well as the timber, furniture and packing industries.

1.3 Relation to the European Construction Product Regulation (CPR, EU 305/2011)

To a part of the plywood product that falls within the field of application of “permanent application in buildings and bridges”, the Harmonised European Standard EN 13986 applies¹.

¹ EN 13986 does not apply in cases of plywood in non-constructural applications

1.4 Requirements for assessment bodies.

1.4.1 Assessments (results) in relation to the determination of essential characteristics

In relation to the essential characteristics, as described in Annex ZA of the harmonised European standard, the relevant values will be taken from the Declaration of Performance of the producer.

1.4.2 Assessments (results) in relation to other characteristics

In relation to other characteristics of the product, the applicant (producer/supplier), as part of the external quality control, shall supply reports of assessment institutes (e.g. test institutes or laboratories) to confirm compliance with this Assessment Directive. It shall be apparent that the reports have been elaborated by an institute that complies with the relevant accreditation standard and that the accreditation scope includes the corresponding tests. Relevant accreditation standards are:

- NEN-EN-ISO/IEC 17020 inspection bodies
- NEN-EN-ISO/IEC 17021-1 bodies providing audit + certification of management systems
- NEN-EN-ISO/IEC 17025 testing and calibration Laboratories
- NEN-EN-ISO/IEC 17065 bodies certifying products, processes and services

An assessment institute shall be deemed to meet these criteria when an accreditation certificate can be presented for the corresponding field, issued by the Dutch Accreditation Council (RvA) or an accreditation body with which the Dutch Accreditation Council has concluded an agreement of mutual acceptance. If no accreditation certificate can be presented, the certification institute will determine if the accreditation criteria are met.

1.5 Quality declaration

The KOMO® Attest(ation)-with-product certificate is issued on the basis of the KOMO procedures that are relevant for this Assessment Directive.

Statements in this quality declaration are based on chapters 3, 4, 5 and 6

An model declaration that applies to this Assessment Directive is published on the website of the KOMO foundation (www.komo.nl). The Quality Declaration that will be issued shall comply with this example.

2 PROCEDURE FOR OBTAINING AN ATTEST(ATION)-WITH- PRODUCT CERTIFICATE

2.1 Start

The applicant for the attest(ation)-with-product certificate provides the necessary information for the drawing up 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 Admittance inspection

2.2.1 Admittance inspection for the KOMO® Attest(ation) part

In relation to the KOMO® attest(ation) part of the Quality declaration, the certification institute implements an inspection. The Admittance inspection includes:

- Verify if the declared values of the essential characteristics (as mentioned in the declaration of performance of the applicant) are at least equivalent with the relevant requisites as prescribed in chapter 3 of this Assessment Directive.
- The certification institute assesses to what extend the other product characteristics (related to the Dutch building regulations) are equivalent, as a minimum, to the relevant conditions described in chapter 3 of this assessment Directive.
- Determine the performance in the application.

2.2.2 Admittance inspection for the KOMO® product certificate part

In relation to the KOMO® attest(ation) part of the Quality declaration, the certification institute implements an inspection. The Admittance inspection includes:

- Verify the documents that were, or will be, submitted by the applicant to determine compliance with the requirements of this assessment directive.
- Request the Declaration of performance, elaborated by the applicant, and determine if the declared essential characteristics comply with the requisites of the assessment directive.
- Determine other product characteristics according to, and determine compliance with the assessment directive in case they do not concern the essential characteristics as described in the annex ZA of the relevant European Harmonised standard(s)

2.3 Assessment of the quality system

2.3.1 Assessment of the quality system for the KOMO® Attest(ation) part

Relating to the product characteristics (including the essential characteristics as described in the Declaration of performance elaborated in context of the European construction product directive), no assessment of the quality system will be done. However, in order to be able to issue the KOMO attest(ation), the certification institute does assess the presence and functionality of the procedure of complaints in relation to the attest(ation)

2.3.2 Assessment of the quality system for the KOMO® product certificate part

2.3.2.1 In relation to the essential characteristics

Relating to the product characteristics (including the essential characteristics as described in the Declaration of performance elaborated in context of the European construction product directive), no assessment of the quality system and/or sampling will be done. The quality control of the essential characteristics is part of the Factory Production Control (FPC), as described in the ZA annex of the relevant European harmonised standard.

2.3.2.2 In relation to the other product characteristics

The certification institute will assess the quality system In relation to the KOMO®-product certificate part relating to the other product characteristics:

The assessment includes:

- Qualification of the production process
- Qualification of the Quality system and the company's internal quality assessment schedule.
- Assessment of the presence and functionality of the other obligatory procedures

The certification institute shall determine if the quality system and the accompanying internal quality assessment schedule is according the requisites described in chapter 5, 6 and 7 of this assessment directive.

2.4 Issuing the KOMO® Attest(ation)-with-product certificate

The certification institute registers the results of the assessment in a file. The file must comply with the following requisites:

- Completeness: the file addresses all the requirements stated in the directive
- Traceability: the findings on which the pronouncements are based shall be recorded in a traceable manner.

The decision concerning issuing the KOMO® Attest(ation)-with-product certificate shall be taken by a qualified decision maker who was not part of the assessment process. Based on the admittance assessment the decision maker decides if the KOMO® Attest(ation)-with-product certificate can be issued, or if supplementary information and/or tests are required before issuing the KOMO® Attest(ation)-with-product certificate. The decision making process must be recorded and be traceable.

2.5 Validity of the KOMO® Attest(ation)-with-product certificate

The validity of the KOMO® Attest(ation)-with-product certificate is determined in the regulations of the certification institute. In case production stops (temporary), the Quality declaration will be suspended if a (temporary) stop of production occurs of more than one year, with the exception that stock of certified product is still being sold. When production restarts after more than 1 year suspension of the certificate, an extra inspection will be done to determine if the quality declaration can be maintained. The certificate will be terminated if the suspension period passes a 2 year period.

2.6 External Quality control

After issuing the KOMO® Attest(ation)-with-product certificate, the certification institute will practise inspections as described in chapter 8 of this assessment directive.

3 PERFORMANCE REQUIREMENTS BUILDING ACT, ADMISSION INSPECTION AND QUALITY DECLARATION. (plywood for use in buildings)

Building Act Entry (new buildings)

Considered parts of the Building Act	dep.	Art.	Sec.	Housing	Residential building	Other buildings	possible references
General strength of a construction (only for structural use)	2.1	2.2 2.3 2.4	1-2 1	X X X	X X X	X X X	NEN-EN 1990 (incl. National annex) NEN-EN 1991-1-1/3/4 (incl. nat. annex.) NEN-EN-1995-1-1 (incl. nat. annex) NEN-EN 13986
Restriction Development fire and smoke	2.9	2.67 2.68 2.69 2.72	1 1-3 1-2	X X X X	X X X X	X X X X	NEN-EN 13501-1 Ministerial regulation
Restriction presence harmful materials and ionizing radiation	3.9	3.63	1	X	X	X	Ministerial regulation

Remarks

1. In the Building Act Entry the Building Act requirements are stated. Certified plywood that complies with the requirements for new buildings also comply with the requirements for remodelling. Because of this, the requirements for remodelling have not been elaborated further.
2. According to the mentioned Building Act Entry, below the different Building Act paragraphs have been elaborated more in detail. Unless otherwise mentioned, all paragraphs apply to all three types of constructions (housing, residential buildings and other buildings).

3.1 Technical building regulations regarding safety

GENERAL STRENGTH OF THE BUILDING CONSTRUCTION, BUILDING ACT, SECTION 2.1 (FACULTATIVE)

3.1.1 Strength of building construction, Performance requirements, Building Act, articles 2.2, 2.3 and 2.4

Building constructions in which plywood is applied, have to comply with the performance requirements as stated in Building Act articles 2.2, 2.3, section 1-2, and article 2.4, section 1.

Limiting value

A construction does not collapse during the designed lifespan considering the fundamental and extraordinary load combinations as stated in NEN-EN 1990.

Method of determination

It will be determined if the declared (method of the calculation of the) performances of construction elements composed with plywood, are correct considering the different types of loads and load combinations, determined according table 1 of the mentioned Eurocodes and/or NEN standard. With this is verified for which applications the plywood is qualified.

Table 1

Type of construction	Loads according	Declarations determined according
Timber construction	NEN-EN 1990* & NEN-EN 1991-1-1/3/4*	NEN-EN 1995-1-1*

* including national annex

Admittance inspection / Attest(ation)

The certification institute is allowed to assess examples of applications to determine if the limiting values are in compliance in relation to the Dutch building regulations. The Declaration of performance, elaborated by the applicant, is used to determine if the declared strength properties comply with the principles as they are applied in the application examples. The attest(ation) states that the product complies with the requirement.

**RESTRICTION OF THE DEVELOPMENT OF FIRE AND SMOKE, BUILDING ACT
SECTION 2.9****3.1.2 Indoors surface; Building Act article 2.67**

The side of a construction part that is adjacent to the indoor atmosphere shall comply with the performance requirements as stated in Building Act article 2.67, section 1.

Limiting value

The classes should comply at least with fire class D and smoke class s2.

Admittance inspection / Attest(ation)

The certification institute verifies, by using the declaration of performance elaborated by the applicant, if the declared fire and smoke production class of the plywood complies with the requirements stated in the Dutch building regulation for building sidings, elaborated of plywood, adjacent to an interior environment. The Attest(ation) states that the product complies with the requirement.

3.1.3 Outdoor surface; Building Act article 2.68

The side of a construction part that is adjacent to the outdoor atmosphere shall comply with the performance requirements as stated in Building Act article 2.68, sections 1-3.

Limiting value

The classes should comply at least with fire class D.

Admittance inspection / Attest(ation)

The certification institute verifies, by using the declaration of performance elaborated by the applicant, if the declared fire and smoke production class of the plywood complies with the requirements stated in the Dutch building regulation for building sidings, elaborated with plywood, adjacent to an exterior environment. The Attest(ation) states that the product complies with the requirement.

3.1.4 Surface passable on foot; Building Act article 2.69

The top side of a floor meant for bearing people, stairs or slope that are adjacent to an indoor atmosphere shall comply with the performance requirements as stated in Building Act article 2.69, sections 1-2.

Limiting value

The classes should comply at least with fire class D_{fl} and smoke class s1_{fl}.

Admittance inspection / Attest(ation)

The certification institute verifies, by using the declaration of performance elaborated by the applicant, if the declared fire and smoke production class of the plywood complies with the requirements stated in the Dutch building regulation for the top side of a floor meant for bearing people, stairs or slope that are adjacent to an indoor atmosphere, elaborated with plywood. The Attest(ation) states that the product complies with the requirement.

3.1.5 Construction part, Building Act article 2.72

Construction parts shall comply with the performance requirements of Building Act article 2.72 in relation to the restriction of propagation of fire and smoke.

Limiting value

Limiting values can be given by Ministerial regulations.

Determination method

Limiting values are determined according to the determination method indicated by ministerial regulations.

Admittance inspection / Attest(ation)

The Attest(ation) does not state anything on this subject (yet).

This article has been included for informative purposes because of the obligation of the supplier, under the terms of the Dutch Civil Code, to care and report.

3.2 Technical building regulations regarding health

RESTRICTION OF THE PRESENCE OF HARMFUL SUBSTANCES AND IONISING RADIATION, BUILDING ACT SECTION 3.9 (FACULTATIVE)

3.2.1 Materials; Building Act article 3.63

Materials from which toxic or harmful substances can be emitted or from which ionising radiation can originate shall comply with the performance requirements as stated in Building Act article 3.63, section 1.

Limiting value

Limiting values can be given by Ministerial regulations.

Determination method

Limiting values are determined according to the determination method indicated by ministerial regulations.

Admittance inspection / Attest(ation)

The Attest(ation) does not state anything on this subject (yet).

This article has been included for informative purposes because of the obligation of the supplier, under the terms of the Dutch Civil Code, to care and report.

4 PRODUCT REQUIREMENTS

4.1 Formaldehyde emission

Limiting value

The plywood shall comply with a formaldehyde emission of class E1 determined as described in the European harmonized standard EN 13986 + relevant and up to date annexes of the standard.

(Initial) inspection / Product certificate

The certification institute verifies, by using the declaration of performance elaborated by the applicant, if the declared Formaldehyde emission complies with the requirements in this Assessment Directive. The product certificate states that the product complies with the requirement.

4.2 Panel thickness and dimensional deviations

Performance requirement

The plywood should comply with the stated thickness and the maximum stated dimensional deviations as set down in EN 315.

Determination method

Assessments are performed to establish whether the stated thickness and dimensional deviations comply with those set down in EN 315.

(Initial) inspection / Product certificate

The product certificate states the thickness(es).

4.3 Composition

Performance requirement

The composition of the plywood in principle is veneer sheets applied crosswise to one another with the thicknesses stated in Tables 3, 4 and 5. The sheet must have a mirrored composition at all times. Any deviations are permitted only in consultation with and with the approval of the certification body.

Determination method

Assessments are performed to establish whether the stated composition complies.

Admittance inspection / Product certificate

The product certificate states the number of veneer sheets of the plywood. If the composition deviates and/or in the event of a composite plywood (see Section 4.7), then this should be stated in the product certificate.

4.4 Primer or pre-varnish coating (when applicable)

Performance requirement

A primer or pre-varnish coating applied to the plywood should comply with the requirements as described in the AD 0806 and underlying standards and publications.

Determination method

As described in the AD 0806, a primer coating is tested in accordance with the requirements described in the AD 0814 and a pre-varnish coating in accordance with the requirements described in the AD 0817.

Admittance inspection / Product certificate

The product certificate states that the primer coating complies with the requirements of the AD 0814, or that the pre-varnish coating complies with the requirements of the AD 0817.

4.5 Overlay

The plywood producer shall provide detailed information regarding the overlay to the certification body.

Bonding Quality**Performance requirement**

The bonding quality between wood and overlay should comply with the requirements as described in PS1-09.

Determination method

An assessment is performed to establish whether the adhesion of the overlay, determined according to PS1-09, is correct.

Admittance inspection / Product certificate

The product certificate gives the following information on the overlay:

- Type
- Colour
- Weight (g/m²)
- Composition of the overlay

4.6 Ability to paint

Ability to paint is only applicable in the case of plywood with a primer, pre-varnish coating or overlay.

Performance requirement

The certificate holder is obliged to provide information about the ability to paint her product so that the party performing the final finishing of the plywood can base the finishing on this information.

This information can also consist of a direct reference to the producer overlay, primer or pre-varnish coating and provides all relevant product information including brand name, producer's website and other detailed, product-specific information.

This information should always be publicly available in the English language.

Determination method

A assessment is performed to establish whether the certificate holder complies with the above-mentioned points.

Admittance inspection / Product certificate

The product certificate states the location of the above-mentioned information.

4.7 Composite plywood

As well as veneer, the inclusion of materials other than wood in the composition of plywood is allowed, in which case it is known as "composite plywood".

Performance requirement

- The thickness of the layer of non-wood material may not exceed the maximum permitted veneer thickness as stated in Tables 3, 4 and 5.
- A maximum of 50% of the volume of the end product may be made up of non-wood products.
- 1 (veneer) layer may contain no more than 1 material type.
- The face/ back veneer must be made of wood (not including overlays).
- The bonding quality between the wood and the non-wood material must be at least equal to the bonding quality between two veneer sheets or rupture must take place within the non-wood material.
- Specific applications for the composite plywood can give rise to the formulation of extra requirements for the product.

Determination method

A assessment is performed to establish whether the bonding quality between the wood and the non-wood material is correct, in accordance with EN 314-2. The other above-mentioned requirements are verified.

Admittance inspection / Product certificate

The product certificate states, and describes in detail, the non-wood material.

4.8 Surface finishing

4.8.1 Classification of plywood for the various applications

Table 2

Application	KOMO Class	Application examples / description
Exterior	1	Boat building, transparent finish and other weather exposed applications with superior aesthetic requirements.
Exterior	2	Façade & cladding and other weather exposed applications with high aesthetic requirements
Exterior	3	General use, façade & cladding and other weather exposed applications with average aesthetic requirements
Humid	4	Suitable for general humid / covered exterior applications (Hardwood)
Humid	5	Suitable for general humid / covered exterior applications (Softwood)
Interior	6	Interior, dry applications with high aesthetic requirements like decorative internal fitting, wall lining
Interior	7	Interior, dry applications with average aesthetic requirements

4.8.2 Surface finishing for exterior application

Table 3

	Class	1	2	3
Requirements				
Veneer wood species		Makoré, sapele, sipo, okoumé, Teak	Makoré, sapele, sipo, okoumé, Teak	Makoré, sapele, sipo, okoumé, birch, meranti, keruing and softwood ¹⁾
Face-side: Min. quality outer ply according to EN 635-2 (hardwood) & EN 635-3 (softwood)		E Joints not allowed	II Joints not allowed	II Joints not allowed
Back-side: Min. quality outer ply according to EN 635-2 (hardwood) & EN 635-3 (softwood) ⁴⁾		II ²⁾ Joints not allowed	II ²⁾ Joints not allowed	III ²⁾ Joints allowed (max. 4 per m.)
Face-side: in case the plywood is coated or overlaid by the plywood producer		II ²⁾ Joints not allowed	II ²⁾ Joints not allowed	II ²⁾ Joints allowed (max. 4 per m.)
Surface of face ply		Sanded (minimum 120 grit)	Sanded or smooth (minimum 120 grit)	Sanded or smooth (minimum 120 grit)
Min. thickness outer plies after sanding ⁵⁾		1.0 mm	0.8 mm	0.8 mm
Max. thickness outer plies after sanding ⁵⁾		1.5 mm	1.5 mm	1.5 mm
Max. thickness inner plies		3,0 mm	3.0 mm ³⁾	3.0 mm ³⁾
Gaps		See Table 6	See Table 6	See Table 6
Overlaps		See Table 7	See Table 7	See Table 7
Bonding quality *		class 3, EN 314-2 *	class 3, EN 314-2 *	class 3, EN 314-2 *
Other defects		No open defects under face ply	No open defects under face ply	Defects under face ply max 5mm wide and 150 mm long or max 15 mm diameter allowed on Back-side

1) Plywood of birch, meranti, keruing and softwood is allowed provided it has an overlay

2) If the plywood is to be used with two face sides (e.g. doors) the veneer quality requirements for the face side mentioned in the table above, apply to both sides of the plywood.

3) For panels up to and including 12 mm thick, one internal ply of up to 4 mm is allowed

4) Differences in the quality between the top veneers of the face-side and back-side of the plywood is only allowed if the backside is clearly and recognizably marked

5) The thickness of the top-veneer shall be uniform across the whole plywood panel.

Supplementary requirements class 1, 2 and 3: All inner plies are of the same durability class (according EN 350-2) as the outer ply and restricted to the mentioned wood species. Marks as a result from sanding are not allowed. The use of adhesive tape in the plywood is not allowed.

Note: The use of veneers that are produced from steamed round wood is preferred. Steaming of wood results in less tension in the veneers and reduces the chances of splits and tares, thus increasing the overall quality of the plywood and increasing the production efficiency.

* based on the Declaration of performance (DOP) of the plywood producer.

4.8.3 Surface finishing for use in Humid application

Table 4

	Class	4	5
Requirements			
Veneer wood species		Hardwood	Softwood
Face-side: Min. quality outer ply according to EN 635-2 (hardwood) & EN 635-3 (softwood)		II Joints not allowed	II Joints not allowed
Back-side: Min. quality outer ply according to EN 635-2 (hardwood) & EN 635-3 (softwood) ¹⁾		III ²⁾ Joints allowed (max. 4 per m.)	III ²⁾ Joints allowed (max. 4 per m.)
Surface of face ply		Sanded	Sanded
Min. thickness outer plies after sanding		0.8 mm	0.8 mm
Max. thickness outer plies after sanding		2 mm	3 mm
Max. thickness internal veneers		3.5 mm	4 mm
Gaps		See Table 6	See Table 6
Overlaps		See Table 7	See Table 7
Bonding quality *		class 2, EN 314-2 *	class 2, EN 314-2 *
Other defects		Defects under face ply max 5mm wide and 150 mm long or max 15 mm diameter	Defects under face ply max 5mm wide and 150 mm long or max 15 mm diameter allowed on Back-side

1) Differences in the quality between the top veneers of the face-side and back-side of the plywood is only allowed if the backside is clearly and recognizably marked

2) If the plywood is to be used with two face sides (e.g. doors) the veneer quality requirements for the face side mentioned in the table above, apply to both sides of the plywood

Note: The use of veneers that are produced from of steamed round wood is preferred. Steaming of wood results in less tension in the veneers and reduces the chances of splits and tares, thus increasing the overall quality of the plywood and increasing the production efficiency.

* based on the Declaration of performance (DOP) of the plywood producer.

4.8.4 Surface finishing for interior application

Table 5

	Class	6	7
Requirements			
Veneer wood species		No requirements	No requirements
Face-side: Min. quality outer ply according to EN 635-2 (hardwood) & EN 635-3 (softwood)		E Joints not allowed	II no joints allowed
Back-side: Min. quality outer ply according to EN 635-2 (hardwood) & EN 635-3 (softwood) ¹⁾		III ²⁾ Joints allowed (max 4 per meter)	III ²⁾ Joints allowed (max 4 per meter)
Surface of face ply		Sanded (minimum grit 120)	Sanded and smooth (minimum grit 120)
Thickness of veneers		No requirement	No requirement
Gaps		See Table 6	See Table 6
Overlaps		See Table 7	See Table 7
Bonding quality *		class 1, EN 314-2 *	class 1, EN 314-2 *
Other defects		No open defects under face ply	Defects under face ply max 5mm wide and 150 mm long or max 15 mm diameter allowed on Back-side

1) Differences in the quality between the top veneers of the face-side and back-side of the plywood is only allowed if the backside is clearly and recognizably marked

2) if the plywood is to be used with two face sides (e.g. doors) the veneer quality requirements for the face side mentioned in the table above, apply to both sides of the plywood

Note: The use of veneers that are produced from of steamed round wood is preferred. Steaming of wood results in less tension in the veneers and reduces the chances of splits and tares, thus increasing the overall quality of the plywood and increasing the production efficiency.

* based on the Declaration of performance (DOP) of the plywood producer.

4.9 Appearance and permitted defects

Performance requirement

The quality of the outer plies of the plywood should comply with the requirements of EN 635-2 for hardwood and EN 635-3 for softwood for the quality stated in the surface finish tables 3 to 5. For the other quality requirements, please refer to the requirements in Tables 3 to 5.

Determination method

An assessment is performed to establish whether the appearance and any defects at least comply with the requirements as described in EN 635-2 for hardwood and EN 635-3 for softwood and Tables 3, 4 and 5.

Admittance inspection / Product certificate

The product certificate states the class code in accordance with Table 2.

4.10 Gaps and open defects

Gaps and open defects: Any opening at any side (not the faces) of the plywood panel caused by any reason or circumstance.

Performance requirement

According to table 6

Determination method

Measuring the width and depth with calibrated measuring equipment

Admittance inspection / Product certificate

The product certificate states the class code in accordance with Table 2.

Table 6

	Classes						
	1	2	3	4	5	6	7
Gaps in core under face ply	Not allowed	Not allowed	Allowed as described below	Allowed as described below	Allowed as described below	Not allowed	Allowed as described below
Width							
≤ 2mm*	X	✓	✓	✓	✓	✓	✓
≤ 6 mm	X	X	✓ 150 mm**	✓ 150 mm**	✓ 150 mm**	✓ 150 mm**	✓ 150 mm**
≤ 15mm	X	X	✓ 120 mm**	✓ 120 mm**	✓ 120 mm**	✓ 120 mm**	✓ 120 mm**
≤ 25 mm	X	X	X	✓ 100 mm**	✓ 100 mm**	X	✓ 100 mm**
≤ 70 mm	X	X	X	✓ 40 mm**	✓ 40 mm**	X	✓ 40 mm**
≤ 150 mm	X	X	X	✓ 10 mm**	✓ 10 mm**	X	✓ 10 mm**

✓: Allowed

X: Not Allowed

- Stacked / aligned gaps in 2 or 3 consecutive layers are not allowed.

Gaps frequency per ply:

- 1 per meter of length for up to 25 mm thickness
- 2 per meter of length for 25mm and thicker

*: No frequency limit

** : Maximum depth

4.11 Overlaps

Overlaps: an area in any side of the plywood (not the faces) where the original veneer layer is overlapped by another veneer layer or piece of a (the same) veneer layer caused by any reason or circumstance.

Performance requirement

According to table 7

Determination method

Measuring the width with calibrated measuring equipment

Admittance inspection / Product certificate

The product certificate states the class code in accordance with Table 2.

Table 7

	Classes						
	1	2	3	4	5	6	7
Overlaps in core under face ply	Not allowed	Not allowed	Allowed as described below	Allowed as described below	Allowed as described below	Not allowed	Allowed as described below
Width							
≤ 5mm*	X	✓	✓	✓	✓	✓	✓
≤ 10 mm	X	X	✓	✓	✓	X	✓
≤ 25mm	X	X	X	✓	✓	X	✓

✓: Allowed

X: Not Allowed

- Stacked / aligned overlaps in 2 or 3 consecutive layers are not allowed.

Overlap frequency per ply:

1 per meter of length for up to 25 mm thickness

2 per meter of length for 25 mm and thicker

4.12 Further specifics and properties (optional)

Further specifics and/or properties of the plywood can be included in the product certificate.

This is only possible if these properties can be independently verified by means of a standard or publication.

It is not allowed to include characteristics that are indicated as essential in the EN 13986.

Performance requirement

The certificate holder establishes a value or description of a certain property and provides a reference to a standard or publication.

Limiting value

If applicable, the limiting value is stated by the certificate holder.

Determination method

An assessment is performed to establish whether the stated values or description of the properties are correctly based upon the standard or publication to which the certificate holder refers.

Admittance inspection / Product certificate

The product certificate describes the specifics and/or properties of the product with the associated values. The standard or publication used to establish the values is also stated.

5 PROCESSING / APPLICATION INSTRUCTIONS

The plywood producer is obliged to supply application instructions with the KOMO® certified plywood, or to refer to a document that is publicly available (e.g. on the producer's website). The processing instructions must cover at least the following points. The certificate holder determines the level of depth / detail of the instructions:

1. Transport, storage and protection of the plywood (during the construction phase also)
Any points that are important for:
2. Finishing / coating
3. Application / affixing
4. Detailing and application (e.g. prevention of capillary seams)
5. Processing operations (e.g. drilling through, sawing and milling)
6. Structural plywood (if applicable)

6 REQUIREMENTS REGARDING THE QUALITY SYSTEM

6.1 General

This chapter includes the requirements with which the producer's quality system must comply.

6.2 Responsibility

The responsibility for the manufacturing process of the product, and for internal quality monitoring and for the finished product lies with the producer.

6.3 Manager of the quality system

Within the organisational structure, an official must be appointed who is charged with and responsible for the management of the quality system

6.4 Quality system

6.4.1 Management of documents

The written procedures and work instructions for inspection and testing must be assessed for suitability and effectiveness and approved by authorised persons in the company before they are issued. Document management shall ensure that only valid documents are used during inspections and testing. The documents must be in Dutch, English or German, or be translated when the Certification Institute asks for this.

6.4.2 Inspection and testing

6.4.2.1 Internal quality control

The producer shall have an internal quality control in which at least the following components are included and laid down in writing:

- raw materials inspection upon arrival
- workplace instructions (including monitoring of the production process)
- inspection of the end product
- inspection of the measuring equipment
- complaint registration
- any specific aspects (describe clearly)

6.4.2.2 Registration

Records must be kept of the inspections and tests as described in the IQC scheme. Registered data must be kept for at least 10 years.

6.4.2.3 Calibration

Inspection, measuring and test equipment must be calibrated according to the requirements of the producer of the equipment. If these requirements are not available, the certificate holder should determine the calibrating scheme. Records must be kept of this calibration.

6.4.2.4 Supplies

Raw materials, semi-manufactured products, etc., in regard to which reference is made to another assessment directive, must meet the requirements of the relevant assessment directive. The goods received must be inspected according to the IQC scheme.

6.4.2.5 Laboratory

There must be a (separate), properly equipped area for carrying out laboratory activities and all the prescribed measuring and testing equipment must be present. If an external laboratory is used, it must be approved by the certification body. The samples used for inspection and testing must be clearly marked. Any testing sequence must be clearly recognisable. The certificate holder should have all equipment to be able to comply with the requirements of this assessment directive. For example:

- Viscosity meter
- pH meter
- Scale
- Tensile strength tester
- Thermometers, including a calibrated thermometer
- Thickness gauge
- Moisture meter

6.4.2.6 Non-conformities in products

Products or parts of products that are found during the production process not to comply with the requirements must be clearly recognisable as such. If necessary, corrective measures must be taken.

6.4.2.7 Handling complaints

The manufacturer (holder of the certificate) must demonstrably possess an operational complaints registration system concerning the product and its application to which the certificate applies. There must be a statement regarding every complaint describing how the complaint was analysed and dealt with and any appropriate corrective measures subsequently taken.

7 MARKING

Every sheet of the plywood product supplied under the attest(ation)-with-product certificate should be legibly marked with the following:

- The KOMO® word or logo, minimum size 5mm
- the number of the attest(ation)-with-product certificat
- production date / batch
- product class in accordance with Table 2
- If the plywood has been coated by the plywood producer, the letter “P” shall be added to the indication of product class (§4.4).
- If an overlay has been applied to the plywood by the plywood producer, the letter “O” shall be added to the indication of product class (§4.5).

If it is not possible to mark the sheet, for example due to the sheet being too thin, then in exceptional cases and in consultation with the certification body, it is possible to mark the product on the packet.

Comment

The certificate holder is obliged to ensure that every customer is in possession of, or has access to (website), a current and complete copy of the relevant KOMO® certificate, including all pages and any annexes.

8 REQUIREMENTS TO BE MADE OF EXTERNAL INSPECTION

8.1 External control for the KOMO® attest(ation) part

In relation to the attest(ation), once every 5 years or sooner if necessary, the certification institute re-assesses the performances of the product in its application, using the declaration of performance elaborated by the certificate holder. At the same time an assessment of the relevant registration of complaints is done.

8.2 External control for the KOMO® product certificate part

8.2.1 In relation to the essential characteristics

Relating to the product characteristics (as described in the Declaration of performance elaborated in context of the European construction product directive), no assessment of the quality system and/or sampling will be done. The quality control of the essential characteristics is part of the Factory Production Control (FPC), as described in the ZA annex of the relevant European harmonised standard.

8.2.2 In relation to the other product characteristics

Relating to the other product characteristics the certification body will assess, with or without prior notice and at least once a year, whether the technical specification has been continuously satisfied, whether production meets the specifications laid down by the manufacturer and agreed upon with the certification body, and whether the manufacturer's internal quality control scheme meets the requirements laid down in Chapter 6. The aforementioned frequency of the inspections can be adjusted on the recommendation of the Board of Experts.

Generally speaking, the applicant or certificate holder's country must be safe for the certification body's inspection visits. In case of a travel advisory issued by the Ministry of Foreign Affairs, the country will not be visited and the products will be inspected upon arrival in the Netherlands. In that case, the producer is obliged to notify the certification body, in good time and in writing, of the deliveries, including the time and location of receipt.

Periodic sampling

Once a year, a sample is drawn from the market and the properties of this product are verified by tests in accordance with the applicable standard by an independent laboratory (The tests will not include essential characteristics as described in the ZA annex of the relevant European harmonised standard).

Extra inspections or sampling

If independently acquired evidence indicates a non-compliant product relating to other product characteristics (not including essential characteristics as described in the ZA annex of the relevant European harmonised standard), the certification body has the authority to perform extra inspections at the production location or to draw extra samples for further investigation by an external laboratory. The costs of this shall be borne by the certificate holder. A written report of these inspections will be prepared. Examples of independently obtained evidence include the detection of a non-conformity during an inspection, the detection of a non-conformity in a product that has already been put on the market, and a formal complaint by third parties regarding the certificate holder or the product.

Batch inspection and arbitration

The KOMO® certificate system is based upon the assumption of faultless production. At the moment that the products leave the factory, the certificate holder should have done everything possible to deliver a fully compliant product. The quality and production systems should be arranged to achieve this. If, after delivery, a dispute should nevertheless arise between the certificate holder and the customer, the batch of plywood shall be assessed on the basis of a random test, whereby it is assumed that the other product characteristics ((not including essential characteristics as described in the ZA annex of the relevant European harmonised standard) are uniformly distributed throughout the entire batch. The testing procedure is based upon NPR-CEN/TS 12169, with the random sample size being a function of the batch size.

- A batch is defined as a quantity of bundles in which defects are uniformly distributed because they are of the same type and were produced in the same production period and on the same production line.
- Only unbroken bundles, the traceability of which can be clearly assigned to the producer, are assessed.

9 REQUIREMENTS REGARDING THE CERTIFICATION BODY

9.1 General

The certification body must comply with the requirements specified in ISO 17065 and have a license agreement with Foundation KOMO.

In addition, the body must be accredited by the Dutch Accreditation Council for the scope of this assessment directive, or have initiated the application procedure for this. The certification body must have a set of regulations, or an equivalent document, in which the general rules used for certification are specified.

In particular these are:

- The general rules for performing the admittance inspection, split up into:
 - The procedure for informing suppliers about the administrative processing of an application;
 - The procedure for implementing the inspection;
 - The procedure for deciding about acceptance based on the admittance inspection
- The general rules concerning the performance of inspections and the inspection aspects used;
- The measures to be taken by the certification body in the event of non-conformities;
- The rules for the termination of a certificate;
- The option of lodging an appeal against decisions or measures taken by the certification body.

9.2 Certification staff

General

The certification body must be accredited for the subject of this assessment directive by the Council for Accreditation. If this relates to a new certification field for the certification body, the subject shall be reported to the Council for Accreditation.

Certification staff

Staff involved in the certification process must be demonstrably qualified for the performance of the required activities. The following qualification requirements apply in respect of education, training, expertise and experience:

Certification personnel	Education	Expertise/experience
Controller Execution Admittance inspection	<ul style="list-style-type: none"> • Intermediate Vocational Training level 	<ul style="list-style-type: none"> • Production and application of wood based panels or similar • Training of ISO 9001 auditor • Two year experience in timber industry or similar
Assessor	<ul style="list-style-type: none"> • Higher Vocational Education 	<ul style="list-style-type: none"> • Timber and/or building education or similar • Production and application of wood based panels or similar • Minimum of two year experience on management level within the timber industry or similar
Decision maker	<ul style="list-style-type: none"> • Higher Vocational Education 	<ul style="list-style-type: none"> • Management experience or similar • Certification or similar • Accreditation criteria or similar • Knowledge of relevant certification systematics.

9.3 Sanctions

The policy concerning sanctions (measures taken against certificate holders, by the certification institute, in case of non-conformities) shall be described in a separate, dedicated document or be included in the regulations of the certification institute as describe in paragraph 9.1 above.

9.4 Reports to the college of experts

The certification institute reports at least once a year concerning the certification activities. This report shall contain at least the following subjects:

- Mutations in the amount of certificates (new/terminated);
- The amount of executed inspections in relation to the prescribed frequency;
- Inspection results.
- Complaints received

10 LIST OF DOCUMENTS REFERRED TO

Bouwbesluit 2012 (Dutch Building Act)	Stb. 2011, 416, 676; Stb. 2012, 125, 256, 441, 643; Stb. 2013, 75, 244, 462; Stb. 2014, 51, 211, 232, 233; 333, 342, 358, 539; Stb 2015, 92, 249, 425 Stb. 2016, 383, 384 .en de Ministeriële Regelingen Stcrt. 2011, 23914; Stcrt. 2012, 13245 Stcrt. 2013, 5457, 16919; Stcrt. 2014, 4057, 34076, 37003; Stcrt. 2015, 17338, 45221; Stcrt. 2016, 33491, 71548
CPR	European construction product regulation EU 305/2011
NEN-EN 314-2:1993 NEN-EN 315: 2000 NEN-EN 350-2: 1994	Plywood. Bonding quality Part 2: Requirements Plywood. Tolerances for dimensions Durability of Wood and Wood-based Products – Natural Durability of Solid Wood: Guide to natural durability and treatability of selected wood species of importance in Europe
NEN-EN 635-2:1995	Plywood - Classification by surface appearance - Part 2: hardwood
NEN-EN 635-3:1995	Plywood - Classification by surface appearance – Part 3: softwood
NEN-EN 717-2: 1995/C1: 2002	Wood-based panels. Determination of formaldehyde release. Part 2: Formaldehyde release by the gas analysis method.
NEN-EN 1990+A1+A1/C2:2011 + NB: 2011	Eurocode: Basis of structural design, including national annex NB:2011
NEN-EN 1991-1-1+C1:2011 + NB:2011	Eurocode 1: Actions on structures - Part 1-1: General actions – Densities, self-weight, imposed loads for buildings, including national annex NB:2011
NEN-EN 1991-1-3+C1:2011+ NB: 2011	Eurocode 1: Actions on structures - Part 1-3: General actions – Snow loads including national annex NB:2011
NEN-EN 1991-1-4+A1+ C2:2011 + NB:2011	Eurocode 1: Actions on structures - Part 1-4: General actions - Wind actions including national annex NB:2011
NEN-EN 1995-1-1+C1+ A1:2011 + NB:2013.. A2:2014 NB:2013	Eurocode 5: Design of timber structures - Part 1-1: General - Common rules and rules for buildings, including amendment sheet C1:2012 and National Annex NB:2012
NEN-EN 13501-1:2007 + A1:2009	Fire classification of construction products and building elements – Part 1:
NEN-EN 13986: 2004+A1:2015	Wood-based panels for use in construction – Characteristics, evaluation of conformity and marking
NEN-EN-ISO 9001:2015 NEN-EN-ISO/IEC 17020:2012	Quality management systems – Requirements Conformity assessment -- Requirements for the operation of various types of bodies performing inspection
NEN-EN-ISO/IEC 17021-1:2015	Conformity assessment -- Requirements for bodies providing audit and certification of management systems -- Part 1: Requirements
NEN-EN-ISO/IEC 17025:2005/C1:2007	General requirements for the competence of testing and calibration laboratories
NEN-EN-ISO/IEC 17065:2012	Conformity assessment -- Requirements for bodies certifying products, processes and services
NPR-CEN/TS 12169: 2008	Criteria for the assessment of conformity of a lot of sawn timber
PS1-09: 2010	Structural Plywood (with typical APA trademarks)

AD 0806: 2005	Verfapplicatie op hout en plaatmaterialen voor de bouwsector (Application of paint onto wood and sheet materials for the construction sector)
AD 0814: 2016	Filmvormende coatings voor toepassing op hout (film forming primer coatings to be applied on wood)
AD 0817: 2008	Filmvormende voorlak- en aflaksystemen op hout (film forming pre-varnish coatings to be applied on wood)