საქართველოს სტანდარტი

ხე-ტყის სტრუქტურები - წებოვანი ლამინირებული ხე-ტყის მასალა - ლამინატის თვისებებიდან წებოვანი ლამინირებული ხე-ტყის მასალის მახასიათებლების გადანაწილება

საქართველოს სტანდარტებისა და მეტროლოგიის ეროვნული სააგენტო თბილისი

სსტ ისო/ტრ 19623:2019/2020

საინფორმაციო მონაცემები

- 1 **შემუშავებულია** საქართველოს სტანდარტების და მეტროლოგიის ეროვნული სააგენტოს სტანდარტების დეპარტამენტის მიერ
- 2 დამტკიცებულია და შემოღებულია სამოქმედოდ საქართველოს სტანდარტების და მეტროლოგიის ეროვნული სააგენტოს 2020 წლის 30 აპრილის № 50 განკარგულებით
- 3 მიღებულია გარეკანის თარგმნის მეთოდით სტანდარტიზაციის საერთაშორისო ორგანიზაციის სტანდარტი ისო/ტრ 19623:2019 " ხე-ტყის სტრუქტურები წებოვანი ლამინირებული ხე-ტყის მასალა ლამინატის თვისებებიდან წებოვანი ლამინირებული ხე-ტყის მახასიათებლების გადანაწილება"
 - 4 პირველად
- **5 რეგისტრირებულია** საქართველოს სტანდარტების და მეტროლოგიის ეროვნული სააგენტოს რეესტრში: 2020 წლის 30 აპრილი №268-1.3-017120

დაუშვებელია წინამდებარე სტანდარტის სრული ან ნაწილობრივი კვლავწარმოება, ტირაჟირება და გავრცელება სსიპ საქართველოს სტანდარტებისა და მეტროლოგიის ეროვნული სააგენტოს ნებართვის გარეშე

TECHNICAL REPORT

ISO/TR 19623

First edition 2019-06

Timber structures — Glued laminated timber — Assignment of glued laminated timber characteristic values from laminate properties

Structures en bois — Bois lamellé-collé — Valeurs caractéristiques du bois lamellé-collé sur la base des propriétés des lamelles





COPYRIGHT PROTECTED DOCUMENT

© ISO 2019

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office CP 401 • Ch. de Blandonnet 8 CH-1214 Vernier, Geneva Phone: +41 22 749 01 11 Fax: +41 22 749 09 47 Email: copyright@iso.org Website: www.iso.org

Published in Switzerland

| Contents | | | | | | |
|----------|------------|--|----|--|--|--|
| Fore | word | | v | | | |
| Intr | oductio | n | vi | | | |
| 1 | Scop | e | 1 | | | |
| 2 | Norn | native references | 1 | | | |
| 3 | | Terms and definitions | | | | |
| | | | | | | |
| 4 | | pean methodologies | | | | |
| | 4.1 | General 4.1.1 Timber | | | | |
| | | 4.1.2 Related material properties | | | | |
| | 4.2 | Verification from classification of standardised beam lay-ups and lamination | Д | | | |
| | 1.2 | properties of glued laminated timber | 2 | | | |
| | | 4.2.1 Properties of the boards | | | | |
| | | 4.2.2 Strength of finger joints | | | | |
| | | 4.2.3 Beam lay-up and strength class | 4 | | | |
| | 4.3 | Classification, verification according to method B from cross sectional layup and | | | | |
| | | properties of boards and finger joints | | | | |
| | | 4.3.1 Properties of the boards | | | | |
| | | 4.3.2 Strength of finger joints | | | | |
| | 4.4 | Verifications from full scale tests with glulam | | | | |
| | 4.4 | 4.4.1 Properties of the boards | | | | |
| | | 4.4.2 Strength of finger joints | | | | |
| | | 4.4.3 Strength, stiffness and density properties of glulam derived from testing | | | | |
| | 4.5 | Resawn glulam | | | | |
| 5 | US m | ethodologies | 9 | | | |
| | 5.1 | General | | | | |
| | 5.2 | ASTM D3737 | | | | |
| | | 5.2.1 General | | | | |
| | | 5.2.2 I_K/I_G analysis | | | | |
| | 5.3 | Tension laminations | | | | |
| | 5.4 | Volume factor | | | | |
| | 5.5 | Other glulam properties | | | | |
| | 5.6 5.7 | ANSI A190.1Performance-based standard | | | | |
| | | | | | | |
| 6 | Aust | ralian/New Zealand methodologies | 17 | | | |
| | 6.1 | Direct method | | | | |
| | | 6.1.1 Tension tests of bonded lamination pairs | | | | |
| | | 6.1.2 Major axis bending strength of glulam assemblies | | | | |
| | | 6.1.4 Comparison of glulam assembly bending strength between EN 14080 and | 19 | | | |
| | | Formula (27) values | 19 | | | |
| | | 6.1.5 Depth and volume effects | | | | |
| | | 6.1.6 Minor axis properties in bending also known as vertical glulam | | | | |
| | | 6.1.7 Tension strength | | | | |
| | | 6.1.8 Shear strength | | | | |
| | | 6.1.9 Framework of AS/NZS 1328 | | | | |
| | 6.2 | AS/NZS 1328 | | | | |
| | | 6.2.1 Standard lamination requirements | | | | |
| | | 6.2.2 Custom lamination requirements 6.2.3 Standard glulam and glued structural timber | | | | |
| | | 6.2.3 Standard glulam and glued structural timber | | | | |
| | 6.3 | AS/NZS 1328:2017, Appendix B | | | | |
| | 0.0 | / | | | | |

| | | 6.3.1 Determination of glulam major axis bending strength by computation | 25 |
|-------|--------|--|----|
| | | | |
| | | 6.3.2 Beam bending stiffness (<i>EI</i>) _c | 26 |
| | | 6.3.4 Computer-based Monte Carlo method for bending strength | 27 |
| | 6.4 | Direct tension and curvature stresses in bending | 28 |
| | 6.5 | AS/NZS GL grades versus EN 14080 GLh grade bending strength values | 28 |
| 7 | Cana | dian methodologies | |
| | 7.1 | General | 29 |
| | 7.2 | Laminating lumber | 29 |
| | 7.3 | Manufacturing | 30 |
| | 7.4 | Layup development | 30 |
| | | 7.4.1 Mechanics-based model | 30 |
| | | 7.4.2 New layup confirmation by full-scale testing | |
| | | 7.4.3 Data analysis | 31 |
| | 7.5 | Acceptance of new layup combinations | 31 |
| Ribli | ogranh | NV | 32 |

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 165, *Timber structures*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

This document was prepared in response to the growing interest in development of the strength and stiffness of structural glued laminated timber (glulam) from the characteristic values of lumber laminations.

Since its first introduction in 1890s, glulam has been used in timber construction for over 125 years with excellent track record of performance. Many countries around the world, which have experience in glulam construction, have various glulam production capabilities that are supported by methodologies or analytical models for development of glulam strength and stiffness from the characteristic values of lumber laminations. This document reviews methodologies from Europe, the USA, Australia/New Zealand, and Canada that have successfully demonstrated their acceptance through years of practice and end uses.

This document does not cover all methodologies around the world and is not intended to exclude other methodologies that can demonstrate their capabilities of correlating the analytical results with the actual product performance. This document will be updated with those additional methodologies when their documentation becomes available in the future.

This document promotes the understanding of the differences between methodologies as a first step toward an international harmonization in the process of assigning glulam characteristic values from laminate properties.