

ICC 400-2017

Standard on the Design and Construction of Log Structures

American National Standard

International Code Council
500 New Jersey Avenue, NW, 6th Floor
Washington, D.C. 20001

Approved November 16, 2017

American National Standards Institute
1899 L Street, NW, 11th Floor
Washington, D.C. 20036



2017 ICC Standard on the Design and Construction of Log Structures
(ICC 400-2017)

First Printing: November, 2017

ISBN: 978-1-60983-782-2

COPYRIGHT © 2017
by
INTERNATIONAL CODE COUNCIL, INC.

ALL RIGHTS RESERVED. This 2017 *ICC Standard on the Design and Construction of Log Structures* (ICC 400-2017) is a copyrighted work owned by the International Code Council, Inc. Without advance written permission from the copyright owner, no part of this book may be reproduced, distributed or transmitted in any form or by any means, including, without limitation, electronic, optical or mechanical means (by way of example, and not limitation, photocopying or recording by or in an information storage retrieval system). For information on use rights and permissions, please contact: Publications, 4051 Flossmoor Road, Country Club Hills, IL 60478. Phone 1-888-ICC-SAFE (422-7233).

Trademarks: “International Code Council,” the “International Code Council” logo, “ICC,” the “ICC” logo, the 2017 *ICC Standard on the Design and Construction of Log Structures* (ICC 400-2017) and other names and trademarks appearing in this book are trademarks of the International Code Council, Inc. and/or its licensors (as applicable), and may not be used without permission.

PRINTED IN THE U.S.A.

American National Standard

Approval of an American National Standard requires verification by ANSI that the requirements for due process, consensus, and other criteria for approval have been met by the standards developer.

Consensus is established when in the judgement of the ANSI Board of Standards Review, substantial agreement has been reached by directly and materially affected interests. Substantial agreement means much more than a simple majority, but not necessarily unanimity. Consensus requires that all views and objections be considered, and that a concerted effort be made toward their resolution.

The use of American National Standards is completely voluntary; their existence does not in any respect preclude anyone, whether he or she has approved the standards or not, from manufacturing, marketing, purchasing, or using products, processes, or procedures not conforming to the standards.

The American National Standards Institute does not develop standards and will in no circumstances give an interpretation of any American National Standard. Moreover, no person shall have the right or authority to issue an interpretation of an American National Standard in the name of the American National Standards Institute. Requests for interpretations should be addressed to the secretariat or sponsor whose name appears on the title page of this standard.

CAUTION NOTICE: This American National Standard may be revised or withdrawn at anytime. The procedures of the American National Standards Institute require that action be taken periodically to reaffirm, revise, or withdraw this standard. Purchasers of American National Standards may receive current information on all standards by calling or writing the American National Standards Institute.

FOREWORD

Introduction

In 2003, upon direction from the ICC Board of Directors, the ICC Standards Council appointed a consensus committee to develop a standard to cover the design and construction of log structures.

Development

This is the third edition of the International Code Council® (ICC®) *Standard on the Design and Construction of Log Structures*. This standard was developed by the ICC Consensus Committee on Log Structures (IS-LOG) that operates under ANSI Approved ICC Consensus Procedures for the development of ICC standards. ICC is approved by ANSI as an Accredited Standards Developer.

The meetings of the IS-LOG Consensus Committee were open to the public and interested individuals and organizations from across the country participated. Views and objections were solicited through several public comment periods. All views and objections were considered by the consensus committee and an effort was made toward their resolution. A vote by the consensus committee approved this standard.

The requirements in ICC 400 are based on the intent to establish provisions consistent with the scope of the ICC family of codes and standards that adequately protect public health, safety and welfare; provisions that do not necessarily increase construction costs; provisions that do not restrict the use of new materials, products or methods of construction.

Adoption

ICC 400, *Standard on the Design and Construction of Log Structures* is available for adoption and use by jurisdictions internationally. Its use within a governmental jurisdiction is intended to be accomplished through adoption by reference in accordance with proceedings establishing the jurisdiction's law.

Formal Interpretations

Requests for Formal Interpretations on the provisions of ICC 400-2017 should be addressed to: ICC, Chicago District Office, 4051 Flossmoor Road, Country Club Hills, IL 60478.

Maintenance – Submittal of Proposals

All I-Standards are revised as required by ANSI. Proposals for revising this edition are welcome. Please visit the ICC website at www.iccsafe.org for the official "Call for Proposals" announcement. A proposal form and instructions can also be downloaded from www.iccsafe.org.

The ICC, its members and those participating in the development of ICC 400-2017 do not accept any liability resulting from compliance or noncompliance with the provisions of ICC 400-2017. The ICC does not have the power or authority to police or enforce compliance with the contents of this standard. Only the governmental body that enacts this standard into law has such authority.

International Code Council Consensus Committee on Log Structures (IS-LOG)

Consensus Committee SCOPE: The Consensus Committee (CC) on Log Structures (IS-LOG) shall have primary responsibility for minimum requirements to safeguard the public health, safety and general welfare through design, construction and installation requirements for log and heavy timber structures.

This standard was processed and approved for submittal to ANSI by the ICC Consensus Committee on Log Structures (IS-LOG). Committee approval of the standard does not necessarily imply that all committee members voted for its approval.

Representatives on the Consensus Committee are classified in one of three voting interest categories. The committee has been formed in order to achieve consensus as required by ANSI Essential Requirements. At the time it approved this standard, the IS-LOG Consensus Committee consisted of the following members:

General Interest (G) - User Interest (U) - Producer Interest (P)

Robert W. Chambers (U), River Falls, WI

David H. Conner (U), Timber Products Inspection, Inc., Conyers, GA

Robert G. Kenel (P), Rep: Great Lakes Log Crafters Association, R. G. Kenel Log Builders LLC, St. Charles, MI

William McKinney (G), Rep: New Hampshire Building Officials Association, City of Nashua, NH

FOREWORD

Paul Peebles (U), Perma-Chink Systems, Nashville, TN

Rob Pickett (P), Rep: Log & Timber Homes Council, RobPickett & Associates, LLC, Hartland, VT

Michael Santa, CBO (G), City of Concord, Concord, NH

Robert Savignac (P), Rep: International Log Builders' Association, Arbor Vitae Log Craft, Hudson, QC Canada

Francis "F.J." Spinelli (G), Hartsdale Fire District, Hartsdale, NY

Committee Secretary: **Edward L. Wirtschoreck**, L.A., Manager of Standards, International Code Council, Country Club Hills, IL

Voting Membership in Each Category

| Category | Number |
|--------------|--------|
| General—(G) | 3 |
| User—(U) | 3 |
| Producer—(P) | 3 |
| TOTAL | 9 |

Interest Categories

General Interest: Individuals assigned to the General Interest category are those who represent the interests of an entity, including an association of such entities, representing the general public, or entities that promulgate or enforce the provisions within the committee scope. These entities include consumers and government regulatory agencies.

User Interest: Individuals assigned to the User Interest category are those who represent the interests of an entity, including an association of such entities, which is subject to the provisions or voluntarily utilizes provisions within the committee scope. These entities include academia, applied research laboratory, building owner, design professional, government non-regulatory agency, insurance company, private inspection agency, and product certification/evaluation agency.

Producer Interest: Individuals assigned to the Producer Interest category are those who represent the interests of an entity, including an association of such entities, which produces, installs, or maintains a product, assembly, or system subject to the provisions within the committee scope. These entities include builder, contractor, distributor, labor, manufacturer, material association, standards promulgator, testing laboratory and utility.

NOTE—Multiple Interests: Individuals representing entities in more than one of the above interest categories, one of which is a Producer Interest, are assigned to the Producer Interest. Individuals representing entities in the General Interest and User Interest categories are assigned to the User Interest.

TABLE OF CONTENTS

CHAPTER 1 ADMINISTRATIVE PROVISIONS..... 1

Section

101 Administrative Provisions.....1

102 Applicability.....1

103 Provisions for Compliance.....1

104 Compliance Alternatives.....1

105 Conventions.....1

106 Inspections.....1

107 Foundations.....1

108 Design Loads.....1

109 Referenced Documents.....2

CHAPTER 2 DEFINITIONS 3

Section

201 General.....3

202 Defined Terms.....3

203 Symbols.....4

CHAPTER 3 GENERAL REQUIREMENTS..... 7

Section

301 General.....7

302 Materials.....7

303 Fire-resistance Ratings of Logs and
Log Assemblies.....46

304 Provisions for Settling in Log Structures..... 47

305 Thermal Env elope.....53

306 Infiltration.....56

CHAPTER 4 STRUCTURAL PROVISIONS..... 59

Section

401 General.....59

402 Prescriptive Provisions.....59

403 Engineered Provisions.....59

404 Connections.....60

405 Floor Systems.....61

406 Log Walls.....61

407 Roof Systems.....62

CHAPTER 5 REFERENCED STANDARDS 63