

ANSI O5.6.2010

American National Standard for Wood Poles and Wood Products

**SOLID SAWN-NATURALLY DURABLE HARDWOOD CROSSARMS &
BRACES – SPECIFICATIONS & DIMENSIONS**

Secretariat

Alliance for Telecommunications Industry Solutions

Approved October 13, 2010

American National Standards Institute, Inc.

Abstract

This standard consists of specifications covering solid sawn-naturally durable hardwood crossarms and braces.

FOREWORD

The information contained in this Foreword is not part of this American National Standard (ANS) and has not been processed in accordance with the American National Standards Institute's (ANSI's) requirements for an ANS. As such, this Foreword may contain material that has not been subjected to public review or a consensus process. In addition, it does not contain requirements necessary for conformance to the standard.

This standard was developed by Accredited Standards Committee O5 on Specifications for Wood Crossarms & Braces (ASC O5) under the sponsorship of the Alliance for Telecommunications Industry Solutions (ATIS). This Committee was organized in December 1924 and has produced revisions of this specification from time to time as required or deemed beneficial.

ANSI guidelines specify two categories of requirements: mandatory and recommendation. The mandatory requirements are designated by the word *shall* and recommendations by the word *should*. Where both a mandatory requirement and a recommendation are specified for the same criterion, the recommendation represents a goal currently identifiable as having distinct compatibility or performance advantages.

Suggestions for improvement of this standard will be welcome. They should be sent to ASC O5 Secretariat, c/o ATIS, 1200 G Street, NW, Suite 500, Washington, DC 20005.

This standard was processed and approved for submittal to ANSI by Accredited Standards Committee O5 on Specifications for Wood Crossarms & Braces. Committee approval of the standard does not necessarily imply that all Committee members voted for its approval.

At the time it processed and approved this standard, the ASC O5 membership was comprised of the following:

Nelson Bingel, Chairman
 Colin McCown, Vice Chairman
 Jean-Paul Emard, ATIS Secretariat
 Chad Underkoffler, ATIS Chief Editor
 J. R. Gonzalez, P.E., Technical Editor

A.W. Williams Inspection Co, Inc.	E.D. Williams Jr. E.D. Williams (Alt)
Alabama Power Company	Robert Patterson
American Inst. Of Timber Construction	Jeff Linville Ron Goff (Alt)
American Wood Protection Assn.	Colin McCown
Bell Lumber & Pole Company	Todd Brown
Brooks Manufacturing	Shannon Terrell Dwayne Carter (Alt)
ComEd Distribution Engineering	David D'Hooge
Cox Industries	James Healey Byron Altman (Alt)
East Otter Tail Telephone Co.	Allen Arvig
Edison Electric Institute	Gregory Obenchain
EDM International	Rob Nelson Andrew Steward

	(Alt)
Electric T&D	Randy Hopkins
Hughes Brothers, Inc.	Stephen Smith
Intec Services	Andrew Kudick
Laminated Wood Systems, Inc.	Robert Reisdorff
Langdale Forest Products Co	Jim Hickman C. Eric Hall (Alt)
McFarland Cascade	Les Lonning
McIntyre Associates, Inc.	Craig McIntyre
Minnesota Power	Reed Rosandich
Mississippi State University	H. Michael Barnes
Natural Rural Electric Coop. Assoc.	James Carter Nick Klein (Alt)
North American Wood Pole Council	H. Martin Rollins Carl Johnson (Alt).
Oregon State University	Jeffrey Morrell

ANSI O5.6.2010

Osmose Utility Services, Inc.	Nelson Bingel, III
Outside Plant Consulting Services, Inc.	Larry Slavin
PLS Poleyard	Bill Latunen
Qwest	Michael Fargano
Rural Utilities Services	H. Robert Lash
Southern California Edison	Arthur Peralta Brian Flynn (Alt)
Southern Pressure Treaters Assn.	Joseph Wheat Tom Greene (Alt)
State University of NY	Robert Meyer
T.R. Miller Mill Company	Ron Cauley
Telcordia Technologies	Trevor Bowmer

The Oeser Company	Tim Durbin
Timber Piling Council	Dean Matthews
Timber Products Inspection	Mike Dilbeck
University of Canterbury	David Carradine
University of New Brunswick	Y.H. Chui
Western Area Power Administration	Gerald Paulson Karen Rowe (Alt)
Western Red Cedar Pole Assn.	Steve Knecht
Western Wood Preservers Institute	Robert West
Wood Preservation Canada	Henry Walthert Craig Frohlich (Alt)

TABLE OF CONTENTS

1	SCOPE & GENERAL REQUIREMENTS	4
1.1	SCOPE	4
1.2	GENERAL REQUIREMENTS.....	4
2	NORMATIVE REFERENCES	
3	DEFINITIONS	5
4	MARKING	8
4.2.1	<i>Species Designation</i>	8
4.2.2	<i>Example. (This information may be in some other form or order, if authorized by the purchaser.)</i>	9
5	STORAGE	9
6	QUALITY CONTROL	9
7	REJECTION	9
8	DESIGNATED FIBER STRENGTH	9
9	SPECIFICATIONS FOR CROSSARMS	13
9.1	OPTIONS & LIMITATIONS (REQUIREMENTS).....	13
9.2	MANUFACTURING REQUIREMENTS.....	13
10	LIMITATIONS	13
10.1	CHECKS.....	13
10.2	TENSION WOOD	14
10.3	CRACKS	14
10.4	ADVANCED DECAY (DOPE OR ROT)	14
10.5	DECAY	14
10.6	DENSITY	14
10.7	KNOTS	14
10.8	PITH CENTERS	14
10.9	SAPWOOD	14
10.10	SEASONING.....	14
10.11	SHAKES	14
10.12	SLOPE OF GRAIN	15
10.13	SPLITS.....	15
10.14	TORN GRAIN	15
10.15	WANE.....	15
10.16	WARP	15
10.17	WORM HOLES (PIN HOLES).....	15
11	SEASONING	15
A	TEST SETUP FOR EVALUATION OF CROSSARM BENDING MOR	17
B	ADJUSTING TEST RESULTS TO OBTAIN FIBER STRENGTH	20
C	BAULOGRAPHY	21
D	REQUIREMENTS FOR CONSIDERATION OF NATURALLY DURABLE HARDWOOD SPECIES INTO ANSI O5.6.3	
D.1	SCOPE	23
D.2	REQUIREMENTS	23
E	- MEASURING DENSITY	25

E.1 SCOPE	25
E.2. MASS, VOLUME & DENSITY	25
E.3 MEASURING THE MASS	25
E.4 MEASURING VOLUME	25
E.5 PROCEDURE FOR MEASURING DENSITY	26

TABLE OF FIGURES

FIGURE 1 FEATURES OBSERVED DURING GRADING	6
FIGURE 2 - CROSSARM SECTIONS.....	7
FIGURE 3 - RECOMMENDED DIMENSIONS FOR CROSSARMS WITH ARMS HAVING 2, 4, 6, AND 8 PIN HOLES	11
FIGURE 4 - SAMPLE OF SPECIFICATION PREPARED BY USER	12
FIGURE 5 - CROSSARM EDGES.....	12
FIGURE 6 - TEST SETUP FOR EVALUATION OF CROSSARM BENDING MOR.....	17
FIGURE 7 - COMMON SHAPES AND THEIR VOLUME FORMULAS	26

TABLE OF TABLES

TABLE 1- LIST OF APPROVED SPECIES.....	8
TABLE 2 - FIBER STRENGTH	9
TABLE 3 - FACTORS FOR DETERMINING FIBER STRENGTH VALUES.....	20
TABLE 4 - FACTORS FOR DETERMINING FIBER STRENGTH VALUES.....	20

American National Standard for Wood Poles and Wood Products –

Solid Sawn-Naturally Durable Hardwood Crossarms & Braces – Specifications & Dimensions

1 SCOPE & GENERAL REQUIREMENTS

1.1 Scope

This standard consists of specifications covering solid sawn-wood crossarms and braces manufactured from naturally durable hardwoods. The specifications are intended to cover communications crossarms, power crossarms, heavy-duty crossarms, and heavy-duty braces. Crossarms are intended primarily for use as beams. Heavy-duty crossarms may also be used as struts or columns in braced H-frames. Braces used may be tension-type, compression-type, or both.

Only crossarms and braces that meet the naturally durable hardwood species criteria established in this Standard will be allowed to be listed as an approved naturally durable hardwood cross arm or brace.

All naturally durable hardwood crossarms and braces listed in this Standard shall be tested in accordance with ASTM D2017 - 05 and have an Indicated Class of Resistance of "Resistant" for all applicable test fungi.

NOTE: This Standard does not purport to establish the durability or Indicated Class Resistance of any particular species listed herein. The users of this Standard shall review all pertinent data and make their own determination as to the appropriateness of the natural durability of a particular species for the user's application.

1.2 General Requirements

All naturally durable hardwoods for crossarms and braces shall originate from managed forests with sustainable forest management practices and shall be certified by an agency or third party acceptable to the end user as a sustainably managed forest. Examples of such certifying organizations include Programme for the Endorsement of Forest Certification™ (PEFC), formerly the Pan European Forest Certification; Sustainable Forestry Initiative® (SFI), Forest Stewardship Council® (FSC); Sistema Brasileiro de Certificação Florestal (CERFLOR); as well as others.

Complete detailed instructions shall be given to the supplier whenever the requirements of this Standard are modified to meet special conditions.

2 NORMATIVE REFERENCES

The following standards contain provisions which, through reference in this text, constitute provisions of this American National Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this American National Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.