Engineering design in wood

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Contents

Technical Committee Engineering Design in Wood (O86, S347) xii

Subcommittee on Design Principles xiv

Subcommittee on Material Evaluation xv

Subcommittee on System Design xvii

Subcommittee on Fastenings xviii

Preface xix

1 Scope 1

2 Reference publications 1

3 Definitions, symbols and spacing dimensions 4
  3.1 Definitions 4
  3.2 Symbols 10
  3.3 Spacing dimensions 12

4 Objective and design requirements 13
  4.1 Objective 13
  4.2 Limit states 13
  4.3 Design requirements 13
    4.3.1 Structural adequacy 13
    4.3.2 New or special systems of design and construction 13
    4.3.3 Structural integrity 13
    4.3.4 Basis of design 13
    4.3.5 Quality of work 13
    4.3.6 Design drawings 13

5 General design 14
  5.1 Ultimate and serviceability limit states 14
    5.1.1 Method of analysis 14
    5.1.2 Ultimate limit states 14
    5.1.3 Serviceability limit states 14
    5.1.4 Resistance factors 14
  5.2 Specified loads, load effects, and load combinations 14
    5.2.1 Buildings 14
    5.2.2 Other structures 15
    5.2.3 Specified loads 15
    5.2.4 Load combinations 16
  5.3 Conditions and factors affecting resistance 17
    5.3.1 General 17
    5.3.2 Load duration factor, \( K_D \) 17
    5.3.3 Service condition factor, \( K_S \) 18
    5.3.4 Preservative and fire-retardant treatment factor, \( K_T \) 18
    5.3.5 System factor, \( K_H \) 18
    5.3.6 Size factor, \( K_Z \) 18
    5.3.7 Lateral stability factor, \( K_L \) 18
5.3.8 Reduction in cross-section 19
5.4 Serviceability requirements 19
5.4.1 Modulus of elasticity 19
5.4.2 Elastic deflection 19
5.4.3 Permanent deformation 19
5.4.4 Ponding 19
5.4.5 Vibration 20
5.4.6 Building movements due to moisture content change 20
5.5 Lateral brace force for wood truss compression webs 20
5.6 Fire resistance 20

6 Sawn lumber 20
6.1 Scope 20
6.2 Materials 20
6.2.1 Identification of lumber 20
6.2.2 Lumber grades and categories 21
6.2.3 Finger-joined lumber 22
6.2.4 Remanufactured lumber 23
6.2.5 Mixed grades 23
6.3 Specified strengths 23
6.3.1 Visually stress-graded lumber 23
6.3.2 Machine stress-rated and machine evaluated lumber 23
6.4 Modification factors 28
6.4.1 Load duration factor, $K_D$ 28
6.4.2 Service condition factor, $K_S$ 28
6.4.3 Treatment factor, $K_T$ 29
6.4.4 System factor, $K_H$ 29
6.4.5 Size factor, $K_Z$ 29
6.5 Strength and resistance 31
6.5.1 General 31
6.5.2 Sizes 32
6.5.3 Continuity 32
6.5.4 Bending moment resistance 32
6.5.5 Shear resistance 33
6.5.6 Compressive resistance parallel to grain 35
6.5.7 Compressive resistance perpendicular to grain 38
6.5.8 Compressive resistance at an angle to grain 39
6.5.9 Tensile resistance parallel to grain 40
6.5.10 Resistance to combined bending and axial load 40
6.5.11 Decking 41
6.5.12 Preserved wood foundations 42
6.5.13 Sawn lumber design for specific truss applications 42

7 Glued-laminated timber (glulam) 45
7.1 Scope 45
7.2 Materials 45
7.2.1 Stress grades 45
7.2.2 Appearance grades 45
7.3 Specified strengths 45
7.4 Modification factors 47
7.4.1 Load duration factor, $K_D$ 47
7.4.2 Service condition factor, $K_S$ 47
7.4.3 System factor, $K_H$ 47
7.4.4 Treatment factor, $K_T$ 47
7.5  Strength and resistance  48
7.5.1  Scope  48
7.5.2  Orientation  48
7.5.3  Vertically glued-laminated beams  48
7.5.4  Net section  48
7.5.5  Sizes  48
7.5.6  Bending moment resistance  48
7.5.7  Shear resistance  55
7.5.8  Compressive resistance parallel to grain  60
7.5.9  Compressive resistance perpendicular to grain (bearing)  61
7.5.10  Compressive resistance at an angle to grain  62
7.5.11  Tensile resistance parallel to grain  62
7.5.12  Resistance to combined bending and axial load  63

8  Cross-laminated timber (CLT)  64

9  Structural panels  64
9.1  Scope  64
9.2  Materials  64
9.2.1  Plywood  64
9.2.2  OSB  64
9.2.3  Adhesives for stress joints  64
9.3  Specified capacities  64
9.3.1  Plywood  64
9.3.2  OSB  64
9.4  Modification factors  71
9.4.1  Load duration factor, \( K_D \)  71
9.4.2  Service condition factor, \( K_S \)  71
9.4.3  Treatment factor, \( K_T \)  71
9.4.4  Stress joint factor, \( X_J \)  71
9.4.5  Factor \( K_f \) for preserved wood foundations  72
9.5  Resistance of structural panels  73
9.5.1  Stress orientation  73
9.5.2  Bending as a panel  73
9.5.3  Bending on edge  73
9.5.4  Planar shear  73
9.5.5  Shear-through-thickness of structural panel  74
9.5.6  Compression parallel to panel edge  74
9.5.7  Tension parallel to panel edge  75
9.5.8  Compressive resistance perpendicular to face (bearing)  75

10  Composite building components  75
10.1  Scope  75
10.2  Materials  75
10.2.1  General  75
10.2.2  Adhesives for structural components  76
10.2.3  Lumber  76
10.2.4  Glulam  76
10.3  Stress joint factor, \( X_J \)  76
10.3.1  Joint requirements  76
10.3.2  Scarf joints  76
10.3.3  Butt joints  76
10.4  Construction requirements for stress joints  76
10.4.1  Types of stress joints  76
10.4.2 Adhesives for stress joints 76
10.4.3 Scarf joints 76
10.4.4 Butt joints 77
10.5 Plywood and OSB web beams 77
10.5.1 General 77
10.5.2 Effective stiffness 78
10.5.3 Bending resistance 78
10.5.4 Web shear-through-thickness 79
10.5.5 Flange-web shear 80
10.5.6 Deflection 80
10.5.7 Lateral stability of panel web beams 83
10.5.8 Stiffeners 83
10.5.9 Web stabilizers 83
10.6 Stressed skin panels 83
10.6.1 General 83
10.6.2 Effective stiffness 83
10.6.3 Bending resistance 84

11 Lateral-load-resisting systems 86
11.1 Scope 86
11.2 Materials 87
11.2.1 General 87
11.2.2 Additional materials 87
11.3 Design of shearwalls and diaphragms 87
11.3.1 General 87
11.3.2 Resistance to overturning 87
11.3.3 Shearwalls with segments 88
11.3.4 Shearwalls with multiple layers 89
11.3.5 Concrete or masonry wall anchorage 89
11.3.6 Shearwall anchorage 89
11.4 Modification factors 90
11.4.1 Fastener spacing factor, \( J_s \) 90
11.4.2 Fastener row factor for blocked diaphragms, \( J_f \) 90
11.4.3 Strength adjustment factor for unblocked diaphragms, \( J_{ud} \) 90
11.4.4 Strength adjustment factor for unblocked shearwalls, \( J_{us} \) 91
11.4.5 Hold-down effect factor for shearwall segments, \( J_{hd} \) 92
11.5 Strength and resistance 93
11.5.1 Shear resistance of shearwalls 93
11.5.2 Shear resistance of diaphragms 97
11.5.3 Shearwalls and diaphragms using plywood or OSB 98
11.5.4 Shearwalls using gypsum wallboard 100
11.5.5 Shearwalls and diaphragms using diagonal lumber sheathing 101
11.5.6 Moment resistance of shearwalls and diaphragms 102
11.6 Detailing 103
11.6.1 General 103
11.6.2 Connections to shearwalls and diaphragms 103
11.7 Deflection of shearwalls and diaphragms 103
11.7.1 Deflection of shearwalls 103
11.7.2 Deflection of wood diaphragms 104
11.8 Seismic design considerations for shearwalls and diaphragms 104
11.8.1 General 104
11.8.2 Shearwall hold-downs and shear transfer connections 105
11.8.3 Over-capacity of wood-based seismic force resisting system (SFRS) 105
11.8.4 Wood diaphragms supported on wood shearwalls 105
11.8.5 Wood diaphragms in buildings with SFRSs other than wood shearwalls 106
11.8.6 Design of force transfer elements 106
11.8.7 Structures in low seismic zones 107
11.8.8 Seismic design requirements for shearwalls using gypsum wallboard 107
11.8.9 Load bearing walls constructed with gypsum wallboard only 107

12  Connections  108
12.1  Scope  108
12.2  General requirements  108
12.2.1  All connections  108
12.2.2  Split ring and shear plate connectors, bolts, and lag screws  110
12.3  Split ring and shear plate connectors  117
12.3.1  General  117
12.3.2  Service condition factors  118
12.3.3  Distance factors  119
12.3.4  Lumber thickness  123
12.3.5  Connections using lag screws with connectors  124
12.3.6  Lateral resistance  125
12.4  Bolts and dowels  126
12.4.1  General  126
12.4.2  Material  126
12.4.3  Placement of fasteners in connections  127
12.4.4  Lateral resistance  129
12.4.5  Axial resistance  136
12.4.6  Combined lateral and axial resistance  136
12.5  Drift pins  136
12.5.1  General  136
12.5.2  Prebored holes  136
12.5.3  Drift pin points  136
12.5.4  Drift pin length  136
12.5.5  Size and placement of drift pins in connections  136
12.5.6  Lateral resistance  136
12.6  Lag screws  137
12.6.1  General  137
12.6.2  Placement of lag screws in connections  138
12.6.3  Penetration length of lag screws  140
12.6.4  Side members  140
12.6.5  Withdrawal resistance  140
12.6.6  Lateral resistance  141
12.7  Timber rivets  143
12.7.1  General  143
12.7.2  Lateral resistance  147
12.7.3  Withdrawal resistance  148
12.8  Truss plates  160
12.8.1  General  160
12.8.2  Design  161
12.8.3  Factored resistance of truss plates  163
12.8.4  Lateral slip resistance  165
12.9  Nails and spikes  166
12.9.1  General  166
12.9.2  Connection configuration  166
12.9.3  Connection design  168
12.9.4  Lateral resistance  168
12.9.5  Withdrawal resistance  171
12.10 Joist hangers 171
12.10.1 General 171
12.10.2 Design 172
12.10.3 Factored resistance of joist hangers 172
12.11 Wood screws 173
12.11.1 General 173
12.11.2 Connection configuration 173
12.11.3 Connection design 174
12.11.4 Lateral resistance 174
12.11.5 Withdrawal resistance 176

13 Timber piling 177
13.1 Scope 177
13.2 Materials 177
13.2.1 Preservative treatment 177
13.2.2 Untreated piling 177
13.3 Specified strengths 177
13.4 Modification factors 178
13.5 Strength and resistance 178
13.5.1 General 178
13.5.2 Piles as compression members 178
13.5.3 Effective length 178
13.5.4 Embedded portion 178
13.5.5 Unembedded portion 178

14 Pole-type construction 179
14.1 Scope 179
14.1.1 Round poles 179
14.1.2 Sawn timbers 179
14.2 Materials 179
14.2.1 Preservative treatment 179
14.2.2 Short poles 179
14.3 Specified strengths 180
14.4 Modification factors 180
14.5 Strength and resistance 180
14.5.1 General 180
14.5.2 Poles as compression members 180
14.5.3 Poles as bending members 180

15 Proprietary structural wood products — Design 181
15.1 Scope 181
15.2 Prefabricated wood I-joists 181
15.2.1 General 181
15.2.2 Modification factors 181
15.2.3 Strength and resistance 181
15.2.4 Serviceability limit states 183
15.2.5 Connections for prefabricated wood I-joists 183
15.3 Structural composite lumber products 183
15.3.1 General 183
15.3.2 Modification factors 183
15.3.3 Strength and resistance 184
15.3.4 Serviceability limit states 188
15.3.5 Connections for structural composite lumber 188
16 Proprietary structural products — Materials and evaluation 188
16.1 Scope 188
16.2 Prefabricated wood I-joists 188
16.2.1 General 188
16.2.2 Materials 189
16.2.3 Specified strengths and modulus of elasticity 189
16.2.4 Adjusted resistance and strength 192
16.2.5 Serviceability limit states 193
16.3 Structural composite lumber products 193
16.3.1 General 193
16.3.2 Adhesives and binder systems 194
16.3.3 Specified strengths and modulus of elasticity 194
16.3.4 Modification factors 195
16.3.5 Serviceability limit states 195
16.3.6 Connections for structural composite lumber 196
16.4 Truss plates 196
16.4.1 General 196
16.4.2 Strength resistance of truss plates 196
16.4.3 Lateral slip resistance 197
16.5 Joist hangers 198
16.5.1 General 198
16.5.2 Testing 198
16.5.3 Ultimate resistance of joist hangers 198
16.5.4 Corrected ultimate load of joist hangers 199

Annexes
A (informative) — Additional information and alternative procedures 200
B (informative) — Fire resistance of large cross-section wood elements 235

Tables
5.2.3.2 — Importance factors for determining S, W, or E loads 15
5.2.4.1 — Load combinations for ultimate limit states 16
5.2.4.2 — Load combinations for serviceability limit states 16
5.3.2.2 — Load duration factor, \( K_D \) 17
6.2.1.2 — Species combinations 21
6.2.1.3 — Lumber species equivalents 21
6.2.2.1 — Visual grades and their dimensions 22
6.3.1A — Specified strengths and modulus of elasticity for structural joist and plank, structural light framing, and stud grade categories of lumber, MPa 24
6.3.1B — Specified strengths and modulus of elasticity for light framing grades, MPa, applicable to sizes 38 by 38 mm to 89 by 89 mm 24
6.3.1C — Specified strengths and modulus of elasticity for beam and stringer grades, MPa 25
6.3.1D — Specified strengths and modulus of elasticity for post and timber grades, MPa 26
6.3.2 — Specified strengths and modulus of elasticity for machine stress-rated grades 38 mm wide by all depths, MPa 27
6.3.3 — Specified strengths and modulus of elasticity for machine evaluated lumber grades 38 mm wide by all depths, MPa 28
6.4.2 — Service condition factors, \( K_S \) 30
6.4.3 — Treatment factor, \( K_T \) 30
6.4.4 — System factor, \( K_H \) 31
6.4.5 — Size factor, \( K_{ Zo } \) for visually stress-graded lumber 31
6.5.3.2 — Values of \( K_{N\sqrt{d}} \) 35
6.5.7.5 — Size factor for bearing, \( K_{Zcp} \) 39
6.5.7.6 — Length of bearing factor, \( K_b \) 39
6.5.11.4 — Laying patterns and deflection formulas for decking 42
6.5.13.5 — Bending capacity modification factor, $K_M$, for specific truss applications 44
7.2.1 — Glued-laminated timber stress grades 45
7.3 — Specified strengths and modulus of elasticity for glued-laminated timber, MPa 46
7.4.2 — Service condition factor, $K_s$ 47
7.5.6.4.3 — Effective length, $L_e$, for bending members 49
7.5.6.6.1 — Size factor, $K_{tp}$, for tension perpendicular to grain* 52
7.5.6.6.3 — Values of constants for determination of radial stress in double-tapered curved members 53
7.5.7.5A — Shear load coefficient, $C_V$, for simple span beams 57
7.5.7.5B — Shear load coefficient, $C_V$, for distributed loads 58
7.5.7.5C — Shear load coefficient, $C_V$, for cantilevered beams 58
7.5.7.5D — Shear load coefficient, $C_V$, for 2-span continuous beams 58
7.5.7.5E — Shear load coefficient, $C_V$, for tapered beams — Uniformly distributed loads 59
7.5.7.5F — Shear load coefficient, $C_V$, for moving loads 60
9.3A — Specified strength, stiffness, and rigidity capacities for standard constructions of regular grades of unsanded Douglas fir plywood (DFP) 65
9.3B — Specified strength, stiffness, and rigidity capacities for standard constructions of regular grades of unsanded Canadian softwood plywood (CSP) 67
9.3C — Specified strength, stiffness, and rigidity capacities for construction sheathing OSB 69
9.4.2 — Service condition factor, $K_s$ 71
9.4.4.1 — Stress joint factor, $X_J$, for scarf joints 72
9.4.4.2 — Stress joint factor, $X_J$, for butt joints 72
11.4.2 — Fastener row factor, $J_f$, for blocked diaphragms 90
11.4.3 — Strength adjustment factor, $I_{udr}$, for unblocked diaphragms 90
11.4.4 — Strength adjustment factor, $I_{usr}$, for unblocked shearwalls 91
11.5.4 — Specified shear strength, $v_d$, for gypsum wallboard shearwalls, kN/m 101
11.8.1 — Seismic design factors for shearwalls 105
11.8.8 — Maximum percentage of total seismic shear forces resisted by gypsum wallboard in a storey 107
12.2.1.5 — Service condition factor, $K_{sf}$, for connections 110
12.2.2.3.4A — Modification factor, $J_G$, for timber connector and lag screw connections with wood side plates 112
12.2.2.3.4B — Modification factor, $J_G$, for timber connector and lag screw connections with steel side plates 113
12.2.2.4.1 — Minimum washer sizes for bolted, lag screw, and timber connector connections 115
12.3.1A — Timber connector dimensions, mm 118
12.3.1B — Timber connector groove dimensions, mm 118
12.3.3A — Values of $J_C$ for timber connector edge distance 119
12.3.3B — Values of $J_C$ for timber connector end distance 120
12.3.3C — Timber connector spacing, mm, for values of $J_C$ between 0.75 and 1.0 121
12.3.4 — Thickness factor for timber connector, $J_T$ 123
12.3.5 — Penetration factor, $J_p$, for split rings and shear plates used with lag screws 124
12.3.6A — Lateral strength resistance parallel to grain, $p_u$, of timber connector unit, kN 125
12.3.6B — Lateral strength resistance perpendicular to grain, $q_u$, of timber connector unit, kN 126
12.3.6C — Maximum factored strength resistance per shear plate unit, kN 126
12.7.1.7 — Minimum end and edge distances for timber rivet connections 145
12.7.2.3 — Values of $p_w$, kN, parallel to grain for timber rivet joints 40 mm rivets — Spacing: $S_p = 25$ mm; $S_Q = 25$ mm 149
12.7.2.5A — Values of $q_w$, kN, perpendicular to grain for timber rivet joints — Spacing: $S_p = 25$ mm 158
12.7.2.5B — Values of factor $C_t$ 160
12.8.3.1 — Moment factor for heel joints of pitched trusses, $J_H$ 164
12.9.2.1 — Minimum spacings for nails and spikes 166
12.11.1 — Diameter and minimum yield strength of wood screws 173
12.11.2.1 — Lead hole diameter requirements  173
13.3 — Specified strengths and modulus of elasticity for round timber piles, MPa  179
16.2.3.2 — Reliability normalization factor, $K_r$ (applicable to prefabricated wood I-joists and structural composite lumber products only)  190
16.4.1.2 — Minimum properties of steels used for truss plates  196

Figures
6.5.5.3.2 — Determination of length and depth of notch  34
7.5.6.6.3 — Double-tapered member  54
9.3 — Shear orientation in panel products  70
10.5.1 — Panel web beam dimensions, mm  78
10.5.5 — Shear modification factor, $X_v$  81
10.5.6 — Section shear coefficient, $X_s$  82
10.6.1 — Stressed skin panel dimensions  84
11.3.2 — Examples of hold-downs and anchorages  88
11.4.3 — Configurations of unblocked diaphragms  91
11.4.4 — Configurations for unblocked shearwalls  92
11.4.5.2 — Multi-storey shearwall force diagrams  96
11.5.3.3A — Shearwall configurations  99
11.5.3.3B — Diaphragm configurations  99
11.5.3.4 — Fastening for mid-panel shearwalls  99
12.2.1.4 — Shear depth  109
12.3.3A — End distance for member with sloping end cut  122
12.3.3B — End distance, edge distance, and spacing  123
12.4.2.2 — Thickness of wood member  127
12.4.3.1 — Placement of bolts and dowels in a connection loaded parallel to grain  128
12.4.3.2 — Placement of bolts and dowels in a connection loaded perpendicular to grain  129
12.4.4.1 — Potential failure modes  130
12.4.4.4 — Factor for member loaded surfaces, $K_{ls}$  134
12.5.5 — Placement of drift pins  137
12.6.2 — Placement of lag screws in connections  139
12.7.1.1 — Steel side plates for timber rivets  144
12.7.1.7 — End and edge distances for timber rivet connections  146
12.8.2.3 — Truss plate, load, and grain orientation  162
12.8.2.5 — End and edge distances for truss plates  163
12.9.2.1 — Nail spacings for wood-to-wood connections  167
12.9.2.2 — Penetration length and member thickness  168
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Design in Wood (O86, S347)

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## Subcommittee on Design Principles

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Preface


Three LSD editions were published in 1984, 1989, and 1994 with the CSA designation O86.1. Supplements to each of these editions were published in 1987, 1993, and 1998, respectively. Although the 2001 edition was also based on the LSD method, the O86 designation was reinstated.

Changes in this edition include the following:

- Clause 8 been added for CLT in compression and out-of-plane bending applications;
- Clause 11.9 has been added for the design of CLT shearwalls and diaphragms for platform-type construction;
- Clause 12 has been modified to cover connections in CLT;
- Clause 12 has been modified to cover embedment resistance of nails, screws, lags, bolts, and dowels in mild and cold-formed steel as well as head pull-through resistance of screws in steel;
- Annex B, on fire resistance of large cross-section wood elements, has been modified to cover CLT;
- reduction in the concentrated loaded area on roof deck has been incorporated;
- requirements for anticipated building movement due to shrinkage and swelling have been added;
- requirements for lateral brace forces for wood truss compression webs have been included;
- revisions have been made to finger-jointed lumber grades;
- revisions have been made to the shear and bending moment resistance of glued-laminated timber;
- lateral-load-resisting provisions have been modified;
- design of diaphragms and shearwalls have been revised;
- lag screw requirements have been adjusted;
- reaction requirements for proprietary wood products have been added; and
- strength resistance of truss plates and ultimate load of joist hangers have changed;

This Standard was prepared by the Technical Committee on Engineering Design in Wood, under the jurisdiction of the Strategic Steering Committee on Buildings and Civil Infrastructure, and has been formally approved by the Technical Committee.

Notes:

(1) Use of the singular does not exclude the plural (and vice versa) when the sense allows.

(2) Although the intended primary application of this Standard is stated in its Scope, it is important to note that it remains the responsibility of the users of the Standard to judge its suitability for their particular purpose.

(3) This Standard was developed by consensus, which is defined by CSA Policy governing standardization — Code of good practice for standardization as “substantial agreement. Consensus implies much more than a simple majority, but not necessarily unanimity”. It is consistent with this definition that a member may be included in the Technical Committee list and yet not be in full agreement with all clauses of this Standard.

(4) To submit a request for interpretation of this Standard, please send the following information to inquiries@csagroup.org and include “Request for interpretation” in the subject line:
   (a) define the problem, making reference to the specific clause, and, where appropriate, include an illustrative sketch;
   (b) provide an explanation of circumstances surrounding the actual field condition; and
   (c) where possible, phrase the request in such a way that a specific “yes” or “no” answer will address the issue.

   Committee interpretations are processed in accordance with the CSA Directives and guidelines governing standardization and are available on the Current Standards Activities page at standardsactivities.csa.ca.
(5) This Standard is subject to review five years from the date of publication. Suggestions for its improvement will be referred to the appropriate committee. To submit a proposal for change, please send the following information to inquiries@csagroup.org and include “Proposal for change” in the subject line:
(a) Standard designation (number);
(b) relevant clause, table, and/or figure number;
(c) wording of the proposed change; and
(d) rationale for the change.
1 Scope

1.1 This Standard provides criteria for the structural design and appraisal of structures or structural elements made from wood or wood products, including graded lumber, glued-laminated timber, cross-laminated timber (CLT), unsanded plywood, oriented strandboard (OSB), composite building components, shearwalls and diaphragms, timber piling, pole-type construction, prefabricated wood I-joists, structural composite lumber products, preserved wood foundations, and their structural connections. This Standard employs the limit states design method.

1.2 In CSA Standards, “shall” is used to express a requirement, i.e., a provision that the user is obliged to satisfy in order to comply with the standard; “should” is used to express a recommendation or that which is advised but not required; “may” is used to express an option or that which is permissible within the limits of the standard.

Notes accompanying clauses do not include requirements or alternative requirements; the purpose of a note accompanying a clause is to separate from the text explanatory or informative material.

Notes to tables and figures are considered part of the table or figure and may be written as requirements.

Annexes are designated normative (mandatory) or informative (non-mandatory) to define their application.

2 Reference publications

This Standard refers to the following publications, and where such reference is made, it shall be to the edition listed below, including all amendments published thereto.

CSA Group
B111-1974 (withdrawn)
Wire nails, spikes and staples

G40.20-13/G40.21-13
General requirements for rolled or welded structural quality steel/Structural quality steel

CAN/CSA-O15-05 (R2009)
Wood utility poles and reinforcing stubs

CAN/CSA-O56-10
Round wood piles

CAN/CSA-O80 Series-08 (R2012)
Wood preservation

O112 Series-M1977 (withdrawn)
CSA Standards for wood adhesives

May 2016
(Replaces p. 1, May 2014)