LBA

HIGH BOND NAIL

CE
ETA-22/0002

EXCELLENT PERFORMANCE

The new LBA nails have shear strength values among the highest on the market and make it possible to certify characteristic nail strengths that more closely approximate actual experimental strengths.

CERTIFIED ON CLT AND LVL

Tested according ASTM F1575 for the bending yield strength and ASTM D1761-20 for the withdrawal strength. Certified in CLT and LVL according to ETA-22/0002.

LBA BINDED

The nail is also available in a bound version with the same ETA certification and therefore the same high performance.

STAINLESS STEEL VERSION

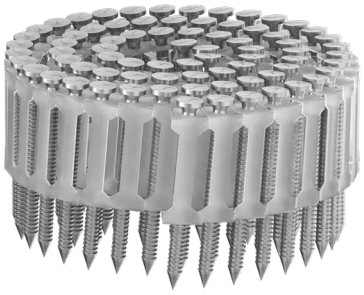
The nails are also available with the same certification from ETA in A4|AISI316 stainless steel for outdoor applications, with very high strength values.

CANADIAN DESIGN VALUES

USA, EU and more design values available online.

LBA 25 PLA

LBA 34 PLA



LBA COIL

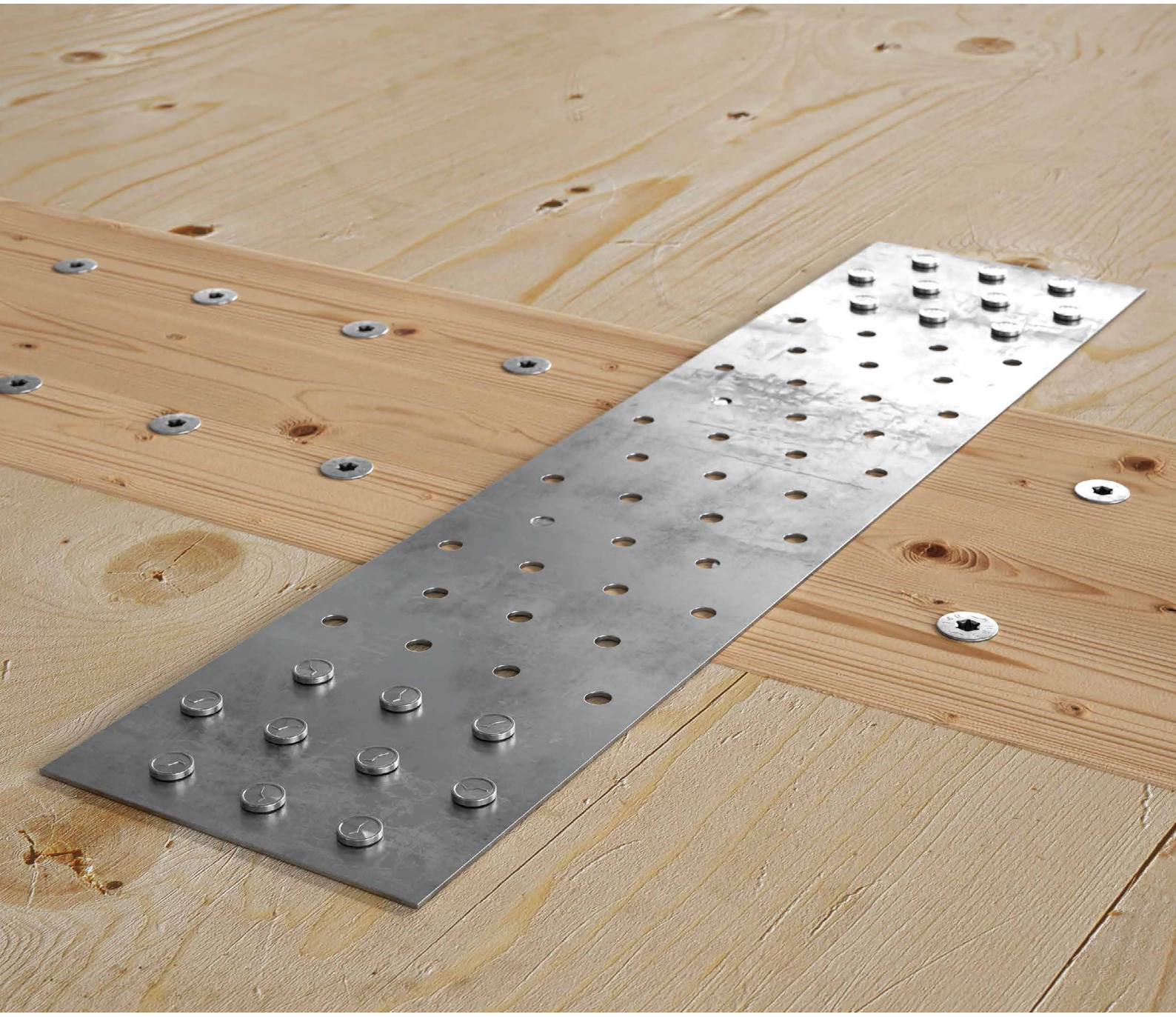
DIAMETER [mm]	3	4 – 6	12
LENGTH [mm]	25	40 – 100	200

MATERIAL

Zn ELECTRO PLATED	electrogalvanized carbon steel	DRY C2 T2
A4 AISI 316	A4 | AISI316 austenitic stainless steel (CRC III)	WET C5 T5

FIELDS OF USE

- timber based panels
- fibreboard and MDF panels
- solid timber
- glulam (Glued Laminated Timber)
- CLT, LVL



CAPACITY DESIGN

The strength values are much closer to the actual experimental strengths, so capacity design can be performed more reliably.

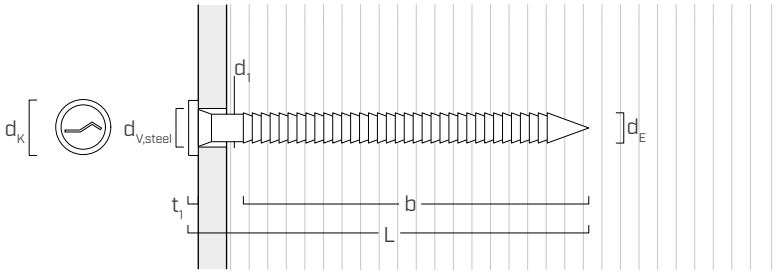
WKR

Values also tested, certified and calculated for fastening standard Rothoblaas plates. Using the nailer speeds up and facilitates installation.

Use with NINO angle brackets allows for some of the most versatile applications: even for beam-to-beam joints.

LBA achieves the highest performance together with the WKR angle brackets with the specific strength values on CLT.

GEOMETRY AND MECHANICAL CHARACTERISTICS



				LBA		LBAI
Nominal diameter	**d_1**		**[mm]**	**4**	**6**	**4**
Head diameter	d_K		[mm]	8,00	12,00	8,00
External diameter	d_E		[mm]	4,40	6,60	4,40
Head thickness	t_1		[mm]	1,50	2,00	1,50
Hole diameter on steel plate	$d_{V,steel}$		[mm]	5,0 - 5,5	7,0 - 7,5	5,0 - 5,5
Pre-drilling hole diameter(1)	d_V		[mm]	3,0	4,5	3,0
Bending yield strength	F_{yb}		[MPa]	645	585	740
Basic withdrawal resistance per millimeter of threaded shank (tip included)	Y_w	G=0.35	[N/mm]	19	28	20
		G=0.42	[N/mm]	22	33	23
		G=0.49	[N/mm]	25	37	26
		G=0.55	[N/mm]	27	40	28

(1) Pre-drilling valid for softwood.

NOTES and **GENERAL PRINCIPLES** on page 10.

CODES AND DIMENSIONS

LOOSE NAILS

LBA

Zn ELECTRO PLATED

d_1 [mm] *[in]*	CODE	L [mm]	b [mm]	pcs
4 *0.16*	**LBA440**	40	30	250
	LBA450	50	40	250
	LBA460	60	50	250
	LBA475	75	65	250
	LBA4100	100	85	250
6 *0.24*	**LBA660**	60	50	250
	LBA680	80	70	250
	LBA6100	100	85	250

LBAI A4 | AISI316

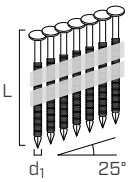
A4 AISI 316

d_1 [mm] *[in]*	CODE	L [mm]	b [mm]	pcs
4 *0.16*	**LBAI450**	50	40	250

STRIP-BOUND NAILS

LBA 25 PLA - plastic stick binding 25°

Zn ELECTRO PLATED

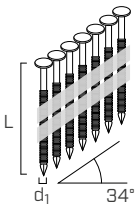


d_1 [mm] *[in]*	CODE	L [mm]	b [mm]	pcs
4 *0.16*	**LBA25PLA440**	40	30	2000
	LBA25PLA450	50	40	2000
	LBA25PLA460	60	50	2000

Compatible with Anker 25° nailgun HH3522.

LBA 34 PLA - plastic stick binding 34°

Zn ELECTRO PLATED



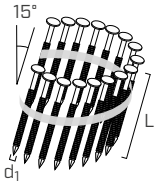
d_1 [mm] *[in]*	CODE	L [mm]	b [mm]	pcs
4 *0.16*	**LBA34PLA440**	40	30	2000
	LBA34PLA450	50	40	2000
	LBA34PLA460	60	50	2000

Compatible with 34° strip magazine nailgun ATEU0116 and gas nailgun HH12100700.

ROLL-BOUND NAILS

LBA COIL - 15° plastic roll binding

Zn ELECTRO PLATED



d_1 [mm] *[in]*	CODE	L [mm]	b [mm]	pcs
4 *0.16*	**LBACOIL440**	40	30	1600
	LBACOIL450	50	40	1600
	LBACOIL460	60	50	1600

Compatible with nailgun TJ100091.

NOTE: LBA, LBA 25 PLA, LBA 34 PLA and LBA COIL available in hot-dip galvanised version on request.

RELATED PRODUCTS

CODE	description	$d_{1\ NAIL}$ [mm]	L_{NAIL} [mm]	pcs
HH3731	palm nailer	4÷6	-	1
HH3522	Anker 25° nailgun	4	40 - 60	1
ATEU0116	strip magazine nailgun 34°	4	40 - 60	1
HH12100700	Anker 34° gas nailgun	4	40 - 60	1
TJ100091	Anker coil nailgun 15°	4	40 - 60	1

For more information about nailguns see "TOOLS FOR TIMBER CONSTRUCTION" catalogue.

HH3731

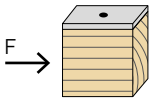
HH3522

ATEU0116

HH12100700

TJ100091

MINIMUM DISTANCES FOR NAILS SUBJECT TO SHEAR | STEEL-TO-TIMBER

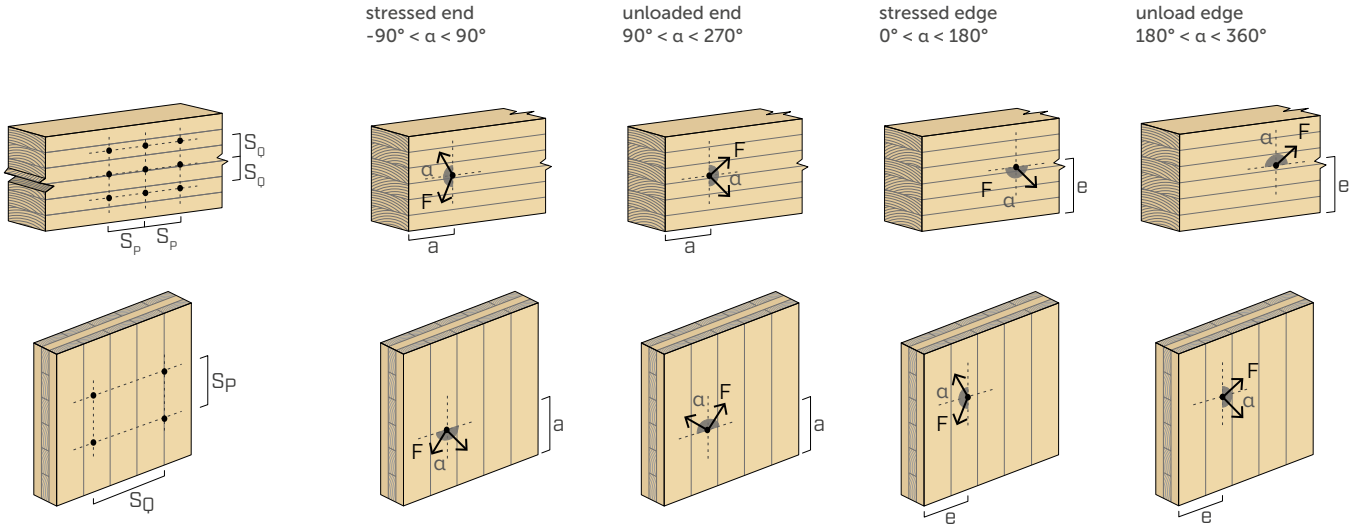


SPRUCE-PINE-FIR AND NORTHERN SPECIES

d_1	[mm] *[in]*	minimum spacing	4 *0.16*	6 *0.24*
S_P	[mm] *[in]*	**16·d**	64 *2 1/2*	96 *3 3/4*
S_Q	[mm] *[in]*	**8·d**	32 *1 1/4*	48 *1 7/8*
a	[mm] *[in]*	**12·d**	48 *1 7/8*	72 *2 13/16*
e	[mm] *[in]*	**4·d**	16 *5/8*	24 *15/16*

DOUGLAS FIR-LARCH, HEM-FIR, AND WESTERN RED CEDAR

d_1	[mm] *[in]*	minimum spacing	4 *0.16*	6 *0.24*
S_P	[mm] *[in]*	**20·d**	80 *3 1/8*	120 *4 3/4*
S_Q	[mm] *[in]*	**10·d**	40 *1 9/16*	60 *2 3/8*
a	[mm] *[in]*	**15·d**	60 *2 3/8*	90 *3 1/2*
e	[mm] *[in]*	**5·d**	20 *13/16*	30 *1 3/16*

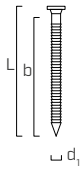
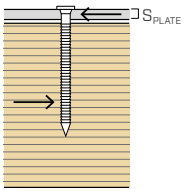


NOTES

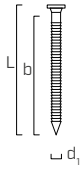
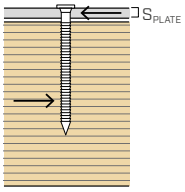
- Minimum distances as per CSA-O86 2019 Clause 12.9.2.1.

NOTES and **GENERAL PRINCIPLES** on page 10.

LBA Ø4-Ø6

geometry			SHEAR steel-to-timber				
							
d_1	L	b	steel plate thickness S_{PLATE}		factored lateral resistance N_r (1)			
					G=0.35	G=0.42	G=0.49	G=0.55
[mm] *[in]*	[mm]	[mm]	[mm]	*[in]*	[kN]	[kN]	[kN]	[kN]
4 *0.16*	40	30	3,2 - 12,7	*1/8 - 1/2*	1,05	1,24	1,42	1,57
	50	40			1,05	1,24	1,42	1,57
	60	50			1,05	1,24	1,42	1,57
	75	65			1,05	1,24	1,42	1,57
	100	85			1,05	1,24	1,42	1,57
6 *0.24*	60	50	3,2 - 12,7	*1/8 - 1/2*	2,24	2,63	3,01	3,33
	80	70			2,24	2,63	3,01	3,33
	100	85			2,24	2,63	3,01	3,33

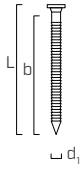
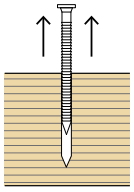
LBAI Ø4

geometry			SHEAR steel-to-timber				
							
d_1	L	b	steel plate thickness S_{PLATE}		factored lateral resistance N_r (1)			
					G=0.35	G=0.42	G=0.49	G=0.55
[mm] *[in]*	[mm]	[mm]	[mm]	*[in]*	[kN]	[kN]	[kN]	[kN]
4 *0.16*	50	40	3,2 - 12,7	*1/8 - 1/2*	1,13	1,33	1,52	1,68

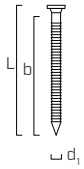
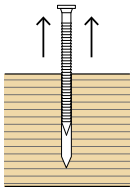
NOTES and GENERAL PRINCIPLES on page 10.

STRUCTURAL VALUES | WITHDRAWAL RESISTANCE

LBA Ø4-Ø6

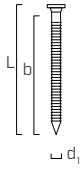
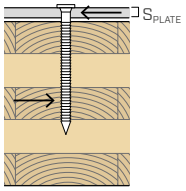
geometry			TENSION timber withdrawal			
						
			factored withdrawal resistance P_{rw}(2)			
d_1 [mm] *[in]*	L [mm]	b [mm]	G=0.35 [kN]	G=0.42 [kN]	G=0.49 [kN]	G=0.55 [kN]
4 *0.16*	40	30	0,34	0,40	0,45	0,49
	50	40	0,46	0,53	0,60	0,65
	60	50	0,57	0,66	0,75	0,81
	75	65	0,74	0,86	0,98	1,05
	100	85	0,97	1,12	1,28	1,38
6 *0.24*	60	50	0,84	0,99	1,11	1,20
	80	70	1,18	1,39	1,55	1,68
	100	85	1,43	1,68	1,89	2,04

LBAI Ø4

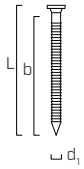
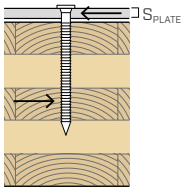
geometry			TENSION timber withdrawal			
						
			factored withdrawal resistance P_{rw}(2)			
d_1 [mm] *[in]*	L [mm]	b [mm]	G=0.35 [kN]	G=0.42 [kN]	G=0.49 [kN]	G=0.55 [kN]
4 *0.16*	50	40	0,48	0,55	0,62	0,67

NOTES and GENERAL PRINCIPLES on page 10.

LBA Ø4-Ø6

geometry			SHEAR steel-to-CLT				
							
d_1	L	b	steel plate thickness S_{PLATE}		factored lateral resistance N_r (1)		
					E3 G=0.35	E1 and V2 G=0.42	E2 and V1 G=0.49
[mm] *[in]*	[mm]	[mm]	[mm]	*[in]*	[kN]	[kN]	[kN]
4 *0.16*	40	30	3,2 - 12,7	*1/8 - 1/2*	1,00	1,18	1,35
	50	40			1,00	1,18	1,35
	60	50			1,00	1,18	1,35
	75	65			1,00	1,18	1,35
	100	85			1,00	1,18	1,35
6 *0.24*	60	50	3,2 - 12.7	*1/8 - 1/2*	2,12	2,50	2,86
	80	70			2,12	2,50	2,86
	100	85			2,12	2,50	2,86

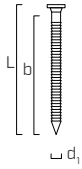
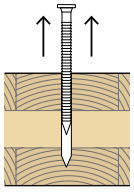
LBAI Ø4

geometry			SHEAR steel-to-CLT				
							
d_1	L	b	steel plate thickness S_{PLATE}		factored lateral resistance N_r (1)		
					E3 G=0.35	E1 and V2 G=0.42	E2 and V1 G=0.49
[mm] *[in]*	[mm]	[mm]	[mm]	*[in]*	[kN]	[kN]	[kN]
4 *0.16*	50	40	3,2 - 12,7	*1/8 - 1/2*	1,07	1,26	1,44

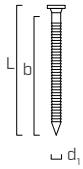
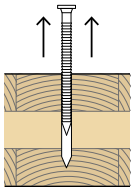
NOTES and GENERAL PRINCIPLES on page 10.

STRUCTURAL VALUES | WITHDRAWAL RESISTANCE

LBA Ø4-Ø6

geometry			TENSION CLT withdrawal			
						
d_1	L	b	factored withdrawal resistance P_{rw} (2) (3)			
			G=0.35	G=0.42	G=0.49	G=0.55
[mm] *[in]*	[mm]	[mm]	[kN]	[kN]	[kN]	[kN]
4 *0.16*	40	30	0,31	0,36	0,41	0,44
	50	40	0,41	0,48	0,54	0,58
	60	50	0,51	0,59	0,68	0,73
	75	65	0,67	0,77	0,88	0,95
	100	85	0,87	1,01	1,15	1,24
6 *0.24*	60	50	0,76	0,89	1,00	1,08
	80	70	1,06	1,25	1,40	1,51
	100	85	1,29	1,51	1,70	1,84

LBAI Ø4

geometry			TENSION CLT withdrawal			
						
d_1	L	b	factored withdrawal resistance P_{rw} (2) (3)			
			G=0.35	G=0.42	G=0.49	G=0.55
[mm] *[in]*	[mm]	[mm]	[kN]	[kN]	[kN]	[kN]
4 *0.16*	50	40	0,43	0,50	0,56	0,60

STRUCTURAL VALUES

GENERAL PRINCIPLES

- The embedment length considered for each nail is equal to the nail length minus the side plate thickness minus the head thickness (L - S_{PLATE} - t_1). Penetration length is according to CSA-O86 2019 Clause 12.9.2.2.
- The steel plate is assumed to be 300 W and 350 W with a minimum ultimate tensile strength, f_u, equal to 65.3 ksi (450 MPa).
- G is the mean relative density according to CSA-O86 2019 Table A.11. Most common wood species are assumed such as Northern species (G = 0.35), Spruce-Pine-Fir (G = 0.42), Douglas Fir (G = 0.49), and Southern Pine (G = 0.55).
- The calculated values apply to side grain installation and are valid regardless of the load-to-grain angle. Nails driven into the end grain are not considered to resist any loads in withdrawal.
- Dimensioning and verification of timber elements and steel plates must be carried out separately.

NOTES

(1) Lateral resistances are factored and according to CSA-O86 2019 Clause 12.9.3. Values apply to dry service conditions and are representative of a single nail. Resistance factors were assumed to be equal to 1.0.

(2) Factored withdrawal resistances are applicable to short-term loads only. The resistance values were calculated with the entire threaded portion of the nail, b in millimeters.

(3) The lateral resistance for CLT incorporates the J_X=0.9 factor.