

CLT SPECIFIER GUIDE

VERSION MARCH 2023



SMARTLAM

| NORTH AMERICA |

www.smartlam.com

WE ARE MASS TIMBER

SmartLam North America is proud to be the first manufacturer of cross-laminated timber (CLT) in the United States. Our expertise in engineering and design allows us to create quality CLT and glulam products that respond to today's need for sustainable building materials. With two state-of-the-art facilities; one located in Columbia Falls, Montana, the other in Dothan, Alabama, our combined production capacity exceeds 3.9 million ft³ (111,000 m³) of CLT per year with a glulam capacity in southern yellow pine of 10 million fbm (23,600 m³) annually. We procure all of our lumber from sawmills practicing certified sustainable forestry practices.

Our panel grades and thicknesses are composed of a combination of species, lumber strength, and lumber thicknesses to optimize structural performance and ensure the most cost-effective solution. Our nimble and creative engineering department offers proprietary panel recipes for specific building needs.

Talk to our team today about your next project.

SMARTLAM North America

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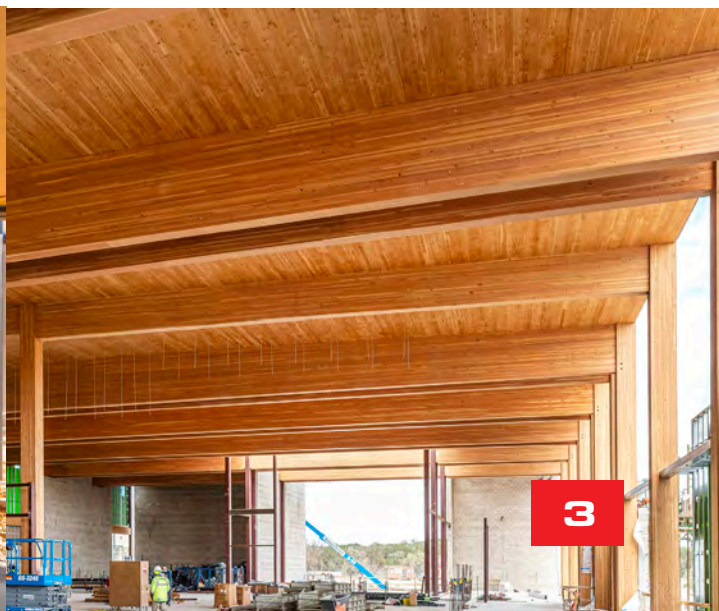
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This specifier guide is intended as a guide for preliminary design only. Information in the guide may be subject to change.



SMARTLAM SOLUTIONS

ARCHITECTURAL CLT

SmartLam CLT offers an innovative solution to traditional building materials such as masonry and concrete for floor, wall and roof systems. Our products are available in multiple stress grades and species.



Spruce-Pine-Fir (SPF) & Spruce-Pine-Fir South (SPF-S)



Hem-Fir (HF)



Douglas Fir-Larch (DF)



Southern Yellow Pine (SYP)

SPECIES CLASSES

Visually graded lumber has been assessed for the presence of defects and other characteristics based on the visual grade. The design properties of different species are specified in the National Design Specification (NDS) for Wood Construction.

Machine stress rated lumber is a type of machine-graded lumber. Lumber undergoes a non-destructive machine evaluation test followed by visual grading for aspects the machine cannot test.

Visually Graded

- V2 - SPF
- V3 - SYP
- V4 - SPF-S
- V5 - HF

Machine Stress Rated Lumber

- E4 - SYP
- E21 - SPF-S

MODULAR SYSTEMS

SmartLam has developed CLT modular systems for the construction of elevator shafts, stairwell enclosures, corridors, curtain walls and more.

ENGINEERING AND DESIGN

Our engineering and design team can provide services on all phases of the project including conceptual design, schematic design, design development, construction documents, deferred submittals, shop/fabrication drawings, and construction support services. We are equipped with tools, and have the expertise, to optimize engineering, detailing and the fabrication process.

CONSULTING

Our team of mass timber experts can assist you through every step of the project including code interpretation, assembly options, engineering services, drafting services and more. We are solution-driven and committed to satisfying your project requirements.

PRODUCT DEVELOPMENT & TESTING

SmartLam is committed to innovative product development and testing, and has developed solutions and supporting test data for the common building concerns related to fire, moisture, acoustic, ballistic, wind, seismic and others. Contact SmartLam for more information regarding our product testing and solutions.



NOT ALL CLT IS THE SAME



A WIDE ASSORTMENT OF LAYUPS & GRADES

Similar to other manufactured wood products, CLT is available in various grades and layups as defined by the APA PRG-320 Standard for Performance-Rated Cross-Laminated Timber. The CLT grade is dependent on the species and classification of wood used in the manufacturing process. Lumber used as laminations may be visually classified or stress rated and will have a direct impact on the overall mechanical properties and strength capacity of the CLT panel.

SmartLam sources North American wood fiber exclusively from regional sawmills, ensuring the highest quality products for our customers. In addition to APA certification, SmartLam CLT has also received SFI certification warranting the sustainability of our products.

To optimize performance for specific structural applications, layers in a CLT panel can be arranged using combinations of lamination thicknesses and orientations to create different layups. Depending on the layup, the mechanical properties of CLT panels can be optimized for one-way flatwise bending, two-way flatwise bending, edgewise bending or fire performance.



SMARTLAM CLT

SCOPE

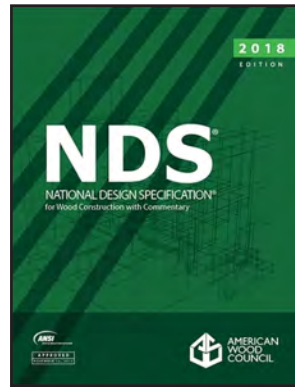
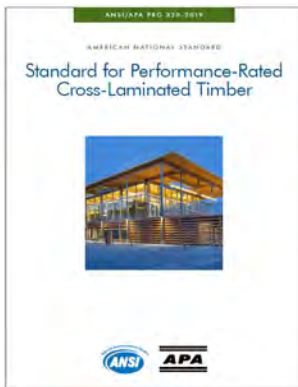
This specifier guide is intended to govern the materials and design of CLT used for:

- A. The support of roofing materials, snow loads and construction live loads.
- B. The support of flooring materials and live loads.
- C. The support of dead, live and snow loads on walls.
- D. Resistance of lateral loads for in-plane (shear walls and diaphragms) and out-of-plane (walls).

REFERENCE CODES, STANDARDS AND DOCUMENTS

Design concepts and loads used in this guide comply with the provisions of the following codes and standards:

- A. American National Standards Institute (ANSI)/APA PRG 320-19 Standard for Performance-Rated Cross-Laminated Timber.
- B. International Code Council (ICC) International Building Code (IBC), 2018 Edition.
- C. ANSI/American Wood Council (AWC) National Design Specification (NDS) for Wood Construction, 2018 Edition.
- D. American Society of Civil Engineers (ASCE)/Structural Engineering Institute (SEI) ASCE 7-16 Minimum Design Loads and Associated Criteria for Buildings and Other Structures.
- E. CLT Design Handbook, 2013 U.S. Edition.
- F. Other standards as referenced.



CERTIFIED LAYUPS

For most construction applications, SmartLam's APA PRG-320 certified layups are adequate to meet structural loading demands, serviceability requirements and fire ratings required in local jurisdictions. Additionally, certified layups are available in lamination thicknesses of 3, 4, 5, 6, 7, 8, and 9 and are available in both architectural and industrial appearance classifications.

CUSTOM LAYUPS

In some applications, certified layups are not adequate to meet design requirements. SmartLam has the manufacturing and design expertise to assist you with creating custom CLT layups for your project. Contact SmartLam today to design a custom layup based on your project specific requirements.



INDUSTRY DEFINITIONS

CROSS-LAMINATED TIMBER (CLT)

A prefabricated, engineered wood product made of at least three orthogonal layers of graded sawn lumber or structural composite lumber (SCL) that are laminated by gluing with structural adhesives.

CLT GRADE

A class of CLT panels determined by the combination of grades of laminations in the longitudinal and transverse layers.

EDGE

The narrow face of a panel that exposes the ends or narrow faces of the laminations.

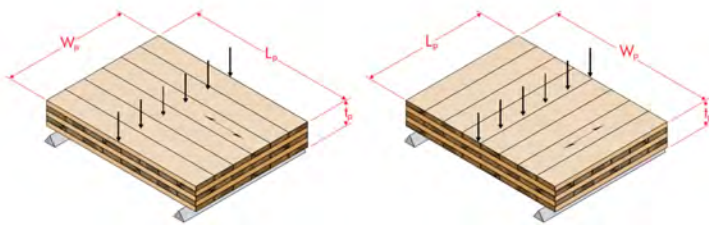
EDGEWISE BENDING

Bending of CLT under loads applied to the panel edge creating in-plane bending and edgewise shear, also known as in-plane shear or shear through-the thickness.

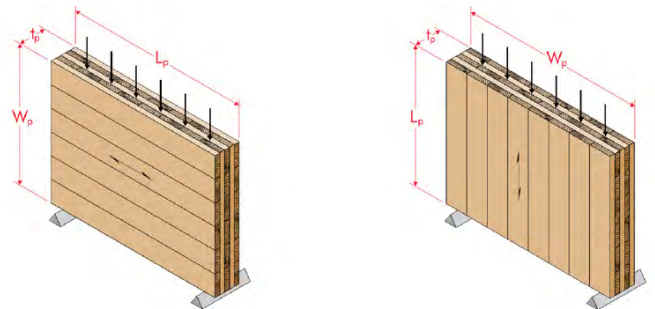
FLATWISE BENDING

Bending of CLT under transverse loads applied to the panel face creating out-of-plane bending and flatwise shear, also known as planar or rolling shear.

EDGEWISE BENDING IN THE MAJOR (LEFT) AND MINOR (RIGHT) CLT STRENGTH DIRECTIONS



FLATWISE BENDING IN THE MAJOR (LEFT) AND MINOR (RIGHT) CLT STRENGTH DIRECTIONS



LAMINATION

A piece of sawn lumber or structural composite lumber, including stress rated boards, remanufactured lumber, or end-joined lumber, which has been prepared and qualified for laminating.

LAYER

An arrangement of laminations laid out parallel to each other in one plane.

Longitudinal – a layer with the laminations oriented parallel to the major strength direction.

Transverse (Cross Layer) – a layer with the laminations oriented perpendicular to the major strength direction.

LAYUP

An arrangement of layers in a CLT panel determined by the grade(s), number, orientations, and thickness(es) of layers.

MAJOR STRENGTH DIRECTION

Direction parallel to the strength direction of the laminations in the outer layers of the CLT panel.

MINOR STRENGTH DIRECTION

Direction of the grain of the inner layers perpendicular to the major strength direction of the CLT panel.

SYMBOLS

LAMINATION MECHANICAL PROPERTIES

E_0	Modulus of elasticity of a lamination in the major strength direction
E_{90}	Modulus of elasticity of a lamination in the minor strength direction
F_{b0}	ASD bending stress of a lamination in the major strength direction
F_{b90}	ASD bending stress of a lamination in the minor strength direction
F_{c0}	ASD axial compressive stress of a lamination in the major strength direction
F_{c90}	ASD axial compressive stress of a lamination in the minor strength direction
F_{t0}	ASD axial tensile stress of a lamination in the major strength direction
F_{t90}	ASD axial tensile stress of a lamination in the minor strength direction
F_{v0}	ASD shear stress of a lamination in the major strength direction
F_{v90}	ASD shear stress of a lamination in the minor strength direction
F_{s0}	ASD planar (rolling) shear stress of a lamination in the major strength direction
F_{s90}	ASD planar (rolling) shear stress of a lamination in the minor strength direction
G	Specific gravity
F_{C1}	ASD compressive stress perpendicular to grain



CLT SECTION AND MECHANICAL PROPERTIES

$(F_b S)_{\text{eff},f,0}$	Effective ASD reference flatwise bending moment in the major strength direction
$(F_b S)_{\text{eff},f,90}$	Effective ASD reference flatwise bending moment in the minor strength direction
$(EI)_{\text{eff},f,0}$	Effective flatwise bending stiffness in the major strength direction
$(EI)_{\text{eff},f,90}$	Effective flatwise bending stiffness in the minor strength direction
$(EI)_{\text{app},f,0}$	Apparent flatwise bending stiffness in the major strength direction accounting for shear deformation
$(EI)_{\text{app},f,90}$	Apparent flatwise bending stiffness in the minor strength direction accounting for shear deformation
$(GA)_{\text{eff},f,0}$	Effective shear stiffness in flatwise bending in the major strength direction
$(GA)_{\text{eff},f,90}$	Effective shear stiffness in flatwise bending in the minor strength direction
$V_{s,0}$	ASD reference flatwise shear capacity in the major strength direction
$V_{s,90}$	ASD reference flatwise shear capacity in the minor strength direction

SMARTLAM CLT GRADES

SmartLam is APA PRG-320 certified to manufacture at our Columbia Falls, MT plant; V2M5, V2.7, V4M1, V5M1, V5M2, E21M1 and E21M2, and CLT grades V3, V3M7, V3.2, V3.3, E4M4, E4M5 and E4M6 at our Dothan plant in Alabama. For all of our western species grades, outermost laminations are permitted to be replaced by Douglas fir-Larch. Download our product reports PR-L319 and PR-L327 from www.smartlam.com to learn more about SmartLam CLT grades.

COLUMBIA FALLS, MT

V2M5

Lumber Species: Longitudinal Layers: Visually graded No. 1/No. 2 SPF
 Transverse Layers: Visually graded No. 1/No. 2 SPF
 Density (@ 12% MC): 28.1 lb/ft³
 Specific Gravity, G: 0.42
 F_{c,⊥}: 425 psi

Allowable Design Properties for V2M5 Lumber Laminations

Major Strength Direction						Minor Strength Direction					
F _{b,0} (psi)	E ₀ (10 ⁶ psi)	F _{t,0} (psi)	F _{c,0} (psi)	F _{v,0} (psi)	F _{s,0} (psi)	F _{b,90} (psi)	E ₉₀ (10 ⁶ psi)	F _{t,90} (psi)	F _{c,90} (psi)	F _{v,90} (psi)	F _{s,90} (psi)
875	1.4	450	1,150	135	45	875	1.4	450	1,150	135	45

V2.7

Lumber Species: Longitudinal Layers: Visually graded 2x lumber No. 1/No. 2 SPF
 Transverse Layers: Visually graded 1x lumber No. 3 SPF
 Density (@ 12% MC): 28.1 lb/ft³
 Specific Gravity, G: 0.42
 F_{c,⊥}: 425 psi

Allowable Design Properties for V2.7 Lumber Laminations

Major Strength Direction						Minor Strength Direction					
F _{b,0} (psi)	E ₀ (10 ⁶ psi)	F _{t,0} (psi)	F _{c,0} (psi)	F _{v,0} (psi)	F _{s,0} (psi)	F _{b,90} (psi)	E ₉₀ (10 ⁶ psi)	F _{t,90} (psi)	F _{c,90} (psi)	F _{v,90} (psi)	F _{s,90} (psi)
875	1.4	450	1,150	135	45	500	1.2	250	650	135	45

V4M1

Lumber Species: Longitudinal Layers: Visually graded No. 2 SPF-S
 Transverse Layers: Visually graded No. 2 SPF-S
 Density (@ 12% MC): 24.2 lb/ft³
 Specific Gravity, G: 0.36
 F_{c,⊥}: 335 psi

Allowable Design Properties for V4M1 Lumber Laminations

Major Strength Direction						Minor Strength Direction					
F _{b,0} (psi)	E ₀ (10 ⁶ psi)	F _{t,0} (psi)	F _{c,0} (psi)	F _{v,0} (psi)	F _{s,0} (psi)	F _{b,90} (psi)	E ₉₀ (10 ⁶ psi)	F _{t,90} (psi)	F _{c,90} (psi)	F _{v,90} (psi)	F _{s,90} (psi)
775	1.1	350	1,000	135	45	775	1.1	350	1,000	135	45

SMARTLAM CLT GRADES

COLUMBIA FALLS, MT

V5M1

Lumber Species: Longitudinal Layers: Visually graded No. 2 HF
 Transverse Layers: Visually graded No. 2 HF
 Density (@ 12% MC): 28.1 lb/ft³
 Specific Gravity, G: 0.42
 F_{c,⊥}: 405 psi

Allowable Design Properties for V5M1 Lumber Laminations

Major Strength Direction						Minor Strength Direction					
F _{b,0} (psi)	E ₀ (10 ⁶ psi)	F _{t,0} (psi)	F _{c,0} (psi)	F _{v,0} (psi)	F _{s,0} (psi)	F _{b,90} (psi)	E ₉₀ (10 ⁶ psi)	F _{t,90} (psi)	F _{c,90} (psi)	F _{v,90} (psi)	F _{s,90} (psi)
850	1.3	525	1,300	150	50	850	1.3	525	1,300	150	50

V5M2

Lumber Species: Longitudinal Layers: Visually graded select structural HF
 Transverse Layers: Visually graded select structural HF
 Density (@ 12% MC): 28.1 lb/ft³
 Specific Gravity, G: 0.42
 F_{c,⊥}: 405 psi

Allowable Design Properties for V5M2 Lumber Laminations

Major Strength Direction						Minor Strength Direction					
F _{b,0} (psi)	E ₀ (10 ⁶ psi)	F _{t,0} (psi)	F _{c,0} (psi)	F _{v,0} (psi)	F _{s,0} (psi)	F _{b,90} (psi)	E ₉₀ (10 ⁶ psi)	F _{t,90} (psi)	F _{c,90} (psi)	F _{v,90} (psi)	F _{s,90} (psi)
1,400	1.6	925	1,500	150	50	1,400	1.6	925	1,500	150	50

E21M1

Lumber Species: Longitudinal Layers: MSR 2100F-1.8E SPF-S
 Transverse Layers: Visually graded No. 3 SPF-S
 Density (@ 12% MC): 30.6 lb/ft³ - MSR SPF-S 28.1 lb/ft³ No. 3 SPF-S
 Specific Gravity, G: 0.46 - MSR SPF-S 0.36 - No. 3 SPF-S
 F_{c,⊥}: 555 psi - MSR SPF-S 335 psi - No. 3 SPF-S

Allowable Design Properties for E21M1 Lumber Laminations

Major Strength Direction						Minor Strength Direction					
F _{b,0} (psi)	E ₀ (10 ⁶ psi)	F _{t,0} (psi)	F _{c,0} (psi)	F _{v,0} (psi)	F _{s,0} (psi)	F _{b,90} (psi)	E ₉₀ (10 ⁶ psi)	F _{t,90} (psi)	F _{c,90} (psi)	F _{v,90} (psi)	F _{s,90} (psi)
2,100	1.8	1,575	1,875	150	50	450	1.0	200	575	135	45

E21M2 (Preliminary Properties)

Lumber Species: Longitudinal Layers: MSR 2100F-1.8E 2x lumber SPF-S
 Transverse Layers: Visually graded 1x lumber No. 3 SPF
 Density (@ 12% MC): 30.6 lb/ft³ - SPF-S 28.1 lb/ft³ - No. 3 SPF-S
 Specific Gravity, G: 0.46 - MSR SPF-S 0.42 - No. 3 SPF
 F_{c,⊥}: 555 psi - MSR SPF-S 425 psi - No. 3 SPF

Allowable Design Properties for E21M2 Lumber Laminations

Major Strength Direction						Minor Strength Direction					
F _{b,0} (psi)	E ₀ (10 ⁶ psi)	F _{t,0} (psi)	F _{c,0} (psi)	F _{v,0} (psi)	F _{s,0} (psi)	F _{b,90} (psi)	E ₉₀ (10 ⁶ psi)	F _{t,90} (psi)	F _{c,90} (psi)	F _{v,90} (psi)	F _{s,90} (psi)
2,100	1.8	1,575	1,875	150	50	500	1.2	250	650	135	45

SMARTLAM CLT GRADES

DOTHAN, AL

V3

Lumber Species	Longitudinal Layers: Visually graded No. 2 SYP Transverse Layers: Visually graded No. 3 SYP
Density (@ 12% MC)	36.3 lb/ft ³
Specific Gravity, G	0.55
F _{c⊥} :	565 psi

Allowable Design Properties for V3 Lumber Laminations

Major Strength Direction						Minor Strength Direction					
F _{b,0} (psi)	E ₀ (10 ⁶ psi)	F _{t,0} (psi)	F _{c,0} (psi)	F _{v,0} (psi)	F _{s,0} (psi)	F _{b,90} (psi)	E ₉₀ (10 ⁶ psi)	F _{t,90} (psi)	F _{c,90} (psi)	F _{v,90} (psi)	F _{s,90} (psi)
750	1.4	450	1,250	175	55	450	1.3	250	725	175	55

V3.2 (Preliminary Properties)

Lumber Species:	Longitudinal Layers: Visually graded 2x lumber No. 2 SYP Transverse Layers: Visually graded 5/4 lumber No. 3 SYP
Density (@ 12% MC):	36.3 lb/ft ³
Specific Gravity, G:	0.55
F _{c⊥} :	565 psi

Allowable Design Properties for V3.2 Lumber Laminations

Major Strength Direction						Minor Strength Direction					
F _{b,0} (psi)	E ₀ (10 ⁶ psi)	F _{t,0} (psi)	F _{c,0} (psi)	F _{v,0} (psi)	F _{s,0} (psi)	F _{b,90} (psi)	E ₉₀ (10 ⁶ psi)	F _{t,90} (psi)	F _{c,90} (psi)	F _{v,90} (psi)	F _{s,90} (psi)
750	1.4	450	1,250	175	55	450	1.3	250	725	175	55

V3.3 (Preliminary Properties)

Lumber Species:	Longitudinal Layers: Visually graded 5/4 lumber No. 2 SYP Transverse Layers: Visually graded 5/4 lumber No. 3 SYP
Density (@ 12% MC):	36.3 lb/ft ³
Specific Gravity, G:	0.55
F _{c⊥} :	565 psi

Allowable Design Properties for V3.3 Lumber Laminations

Major Strength Direction						Minor Strength Direction					
F _{b,0} (psi)	E ₀ (10 ⁶ psi)	F _{t,0} (psi)	F _{c,0} (psi)	F _{v,0} (psi)	F _{s,0} (psi)	F _{b,90} (psi)	E ₉₀ (10 ⁶ psi)	F _{t,90} (psi)	F _{c,90} (psi)	F _{v,90} (psi)	F _{s,90} (psi)
750	1.4	450	1,250	175	55	450	1.3	250	725	175	55



SMARTLAM CLT GRADES

DOTHAN, AL

E4M4

Lumber Species:	Longitudinal Layers: MSR	2400F-2.0E SYP
	Transverse Layers: MSR	2400F-2.0E SYP
Density (@ 12% MC):	37.5 lb/ft ³ MSR SYP	37.5 lb/ft ³ MSR SYP
Specific Gravity, G:	0.57 MSR SYP	0.57 MSR SYP
F _{c⊥} :	805 psi MSR SYP	805 psi MSR SYP

Allowable Design Properties for E4M4 Lumber Laminations

Major Strength Direction						Minor Strength Direction					
F _{b,0} (psi)	E ₀ (10 ⁶ psi)	F _{t,0} (psi)	F _{c,0} (psi)	F _{v,0} (psi)	F _{s,0} (psi)	F _{b,90} (psi)	E ₉₀ (10 ⁶ psi)	F _{t,90} (psi)	F _{c,90} (psi)	F _{v,90} (psi)	F _{s,90} (psi)
2,400	2.0	1,925	1,975	190	60	2400	2.0	1,925	1,975	190	60

Note: E4M4 can be produced with DF face. Reference Product Report for design properties.

E4M5/E4M5.1

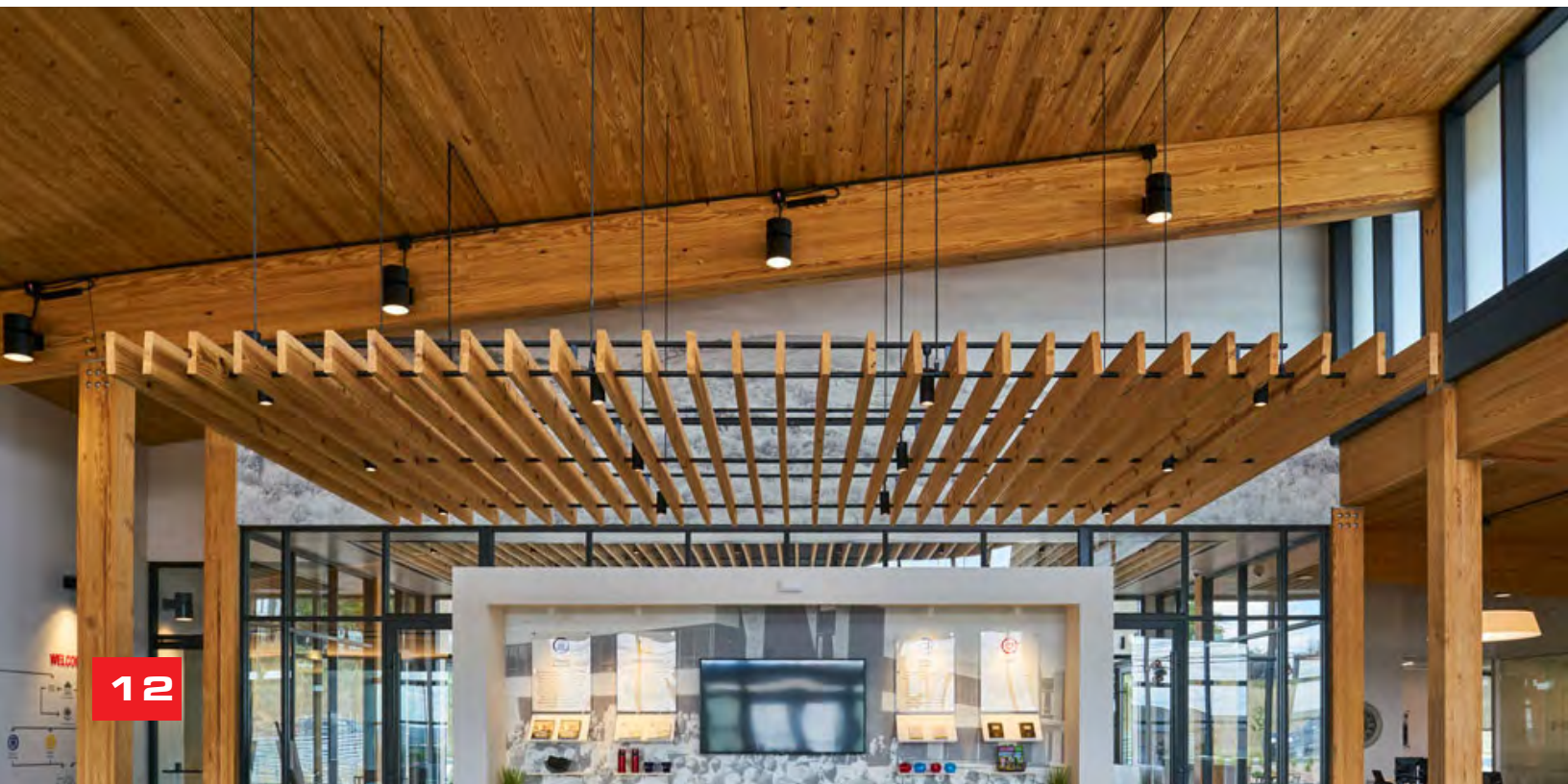
Lumber Species:	Longitudinal Layers: MSR	2400F-2.0E SYP
	Transverse Layers:	Visually graded No. 3 SYP (E4M5.1 - 5/4 lumber)
Density (@ 12% MC):	37.5 lb/ft ³ MSR SYP	36.3 lb/ft ³ No. 3 SYP
Specific Gravity, G:	0.57 MSR SYP	0.55 No. 3 SYP
F _{c⊥} :	805 psi MSR SP	565 psi No. 3 SYP

Allowable Design Properties for E4M5/E4M5.1 Lumber Laminations

Major Strength Direction						Minor Strength Direction					
F _{b,0} (psi)	E ₀ (10 ⁶ psi)	F _{t,0} (psi)	F _{c,0} (psi)	F _{v,0} (psi)	F _{s,0} (psi)	F _{b,90} (psi)	E ₉₀ (10 ⁶ psi)	F _{t,90} (psi)	F _{c,90} (psi)	F _{v,90} (psi)	F _{s,90} (psi)
2,400	2.0	1,925	1,975	190	60	450	1.3	250	725	175	55

E4M5 properties tables have not been included in this document. Please see Smartlam Product Report PR-L319.

Note: E4M5 can be produced with DF face. Reference Product Report for design properties.



CLT LAYUPS

As a wood panel product, CLT exhibits plate (2-way), flatwise bending behavior. By altering the layups, this bending performance can either be maximized to transfer loads around openings or to column supports, or be minimized for one-way span conditions. SmartLam offers two layup options; “alt” or alternating layups are manufactured with each layer oriented orthogonal to adjacent layers and are typically utilized on projects where plate, flatwise bending is required, while “maxx” layups are manufactured with more outside layers oriented in one direction to increase the strength and stiffness for one-way spans with high loads or stringent serviceability requirements. Each layup utilizes laminations of similar thickness. Smartlam offers layup combinations of 2" lumber with 1" lumber (Columbia Falls, MT), as well as 2" lumber with 5/4" (Dothan, AL). Please contact us to learn more.

Layup	Lamination Thickness (in) in CLT Layup									Total Thickness
	=	⊥	=	⊥	=	⊥	=	⊥	=	
3-alt	1 3/8	1 3/8	1 3/8							4 1/8
4-maxx	1 3/8	1 3/8 x 2	1 3/8							5 1/2
5-alt	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8					6 7/8
5-maxx	1 3/8 x 2	1 3/8	1 3/8 x 2							6 7/8
7-alt	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8			9 5/8
7-maxx	1 3/8 x 2	1 3/8	1 3/8	1 3/8	1 3/8 x 2					9 5/8
9-alt	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	12 3/8
9-maxx	1 3/8 x 2	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8 x 2			12 3/8

= Laminations oriented in the major strength direction

⊥ Laminations oriented in the minor strength direction

alt

maxx



3-alt



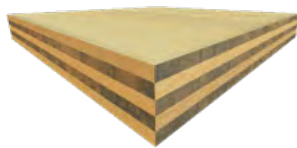
7-alt



4-maxx



7-maxx



5-alt



9-alt



5-maxx



9-maxx



ALLOWABLE DESIGN VALUES

Tabulated design values have been derived analytically based on the shear-analogy method and the CSA O86 as outlined in Appendix X3 of the PRG-320, and are intended for Allowable Stress Design (ASD) in accordance with the National Design Specification (NDS) for Wood Construction. Tables provided in this guide are for preliminary engineering and informational purposes only. Please reference our current product report for values that should be used for design. You can download SmartLam's product report at www.apawood.org/cross-laminated-timber or www.smartlam.com.

COLUMBIA FALLS, MT

V2M5 - SPF

Layup	Thickness (in)	Weight (psf)	Major Strength Direction				Minor Strength Direction			
			$F_b S_{eff,0}$ (lb-ft/ft)	$EI_{eff,0}$ (10^6 lb-ft-in ² /ft)	$GA_{eff,0}$ (10^6 lb-ft/ft)	$V_{s,0}$ (lb-ft/ft)	$F_b S_{eff,90}$ (lb-ft/ft)	$EI_{eff,90}$ (10^6 lb-ft-in ² /ft)	$GA_{eff,90}$ (10^6 lb-ft/ft)	$V_{s,90}$ (lb-ft/ft)
3-alt	4 1/8	10.0	2,030	95	0.52	1,490	275	3.6	0.52	495
4-maxx	5 1/2	13.0	3,300	205	0.62	1,980	1,100	29	1.1	990
5-alt	6 7/8	16.5	4,675	363	1.1	2,480	2,390	95	1.1	1,490
5-maxx	6 7/8	16.5	5,825	451	1.1	2,480	275	3.6	0.62	495
7-alt	9 5/8	23.0	8,275	900	1.6	3,475	5,500	363	1.6	2,480
7-maxx	9 5/8	23.0	10,650	1,157	1.6	3,475	2,390	95	1.1	1,490
9-alt	12 3/8	29.5	12,850	1,795	2.1	4,450	9,750	900	2.1	3,475
9-maxx	12 3/8	29.5	16,500	2,305	2.1	4,450	5,500	363	1.6	2,480

V2.7 - SPF

Layup	Thickness (in)	Weight (psf)	Major Strength Direction				Minor Strength Direction			
			$F_b S_{eff,0}$ (lb-ft/ft)	$EI_{eff,0}$ (10^6 lb-ft-in ² /ft)	$GA_{eff,0}$ (10^6 lb-ft/ft)	$V_{s,0}$ (lb-ft/ft)	$F_b S_{eff,90}$ (lb-ft/ft)	$EI_{eff,90}$ (10^6 lb-ft-in ² /ft)	$GA_{eff,90}$ (10^6 lb-ft/ft)	$V_{s,90}$ (lb-ft/ft)
3-alt	3 3/8	8.0	1,400	53	0.48	1,220	35	0.29	0.29	225
4-maxx	4	9.5	1,920	87	0.45	1,440	130	2.3	0.48	450
5-alt	5 3/8	13.0	3,225	196	0.97	1,935	495	18.7	0.58	945
7-alt	7 3/8	17.5	5,750	479	1.5	2,650	1,120	75	0.87	1,670
7-maxx	8 1/8	19.5	7,950	730	1.6	2,925	495	19	0.71	945
9-alt	9 3/8	22.5	8,950	948	1.9	3,375	1,970	188	1.2	2,390
9-maxx	10 1/8	24.0	11,975	1,371	2.1	3,650	1,120	75	1.0	1,670

V4M1 - SPF-S

Layup	Thickness (in)	Weight (psf)	Major Strength Direction				Minor Strength Direction			
			$F_b S_{eff,0}$ (lb-ft/ft)	$EI_{eff,0}$ (10^6 lb-ft-in ² /ft)	$GA_{eff,0}$ (10^6 lb-ft/ft)	$V_{s,0}$ (lb-ft/ft)	$F_b S_{eff,90}$ (lb-ft/ft)	$EI_{eff,90}$ (10^6 lb-ft-in ² /ft)	$GA_{eff,90}$ (10^6 lb-ft/ft)	$V_{s,90}$ (lb-ft/ft)
3-alt	4 1/8	10.0	1,800	74	0.41	1,490	245	2.9	0.41	495
4-maxx	5 1/2	13.0	2,925	161	0.49	1,980	975	23	0.85	990
5-alt	6 7/8	16.5	4,150	286	0.83	2,480	2,120	74	0.83	1,490
5-maxx	6 7/8	16.5	5,150	355	0.85	2,480	245	2.9	0.49	495
7-alt	9 5/8	23.0	7,325	707	1.2	3,475	4,875	286	1.2	2,480
7-maxx	9 5/8	23.0	9,425	909	1.2	3,475	2,120	74	0.89	1,490
9-alt	12 3/8	29.5	11,375	1,410	1.7	4,450	8,625	707	1.7	3,475
9-maxx	12 3/8	29.5	14,600	1,811	1.6	4,450	4,875	286	1.3	2,480

ALLOWABLE DESIGN VALUES

COLUMBIA FALLS, MT

V5M1 - HF

Layup	Thickness (in)	Weight (psf)	Major Strength Direction				Minor Strength Direction			
			$F_b S_{eff,0}$ (lbf-ft/ft)	$EI_{eff,0}$ (10^6 lbf-in ² /ft)	$GA_{eff,0}$ (10^6 lbf/ft)	$V_{s,0}$ (lbf/ft)	$F_b S_{eff,90}$ (lbf-ft/ft)	$EI_{eff,90}$ (10^6 lbf-in ² /ft)	$GA_{eff,90}$ (10^6 lbf/ft)	$V_{s,90}$ (lbf/ft)
3-alt	4 1/8	10.0	1,980	88	0.49	1,650	270	3.4	0.49	550
4-maxx	5 1/2	13.0	3,200	190	0.58	2,200	1,070	27	1.0	1,100
5-alt	6 7/8	16.5	4,550	337	0.98	2,750	2,325	88	0.98	1,650
5-maxx	6 7/8	16.5	5,650	419	1.0	2,750	270	3.4	0.58	550
7-alt	9 5/8	23.0	8,045	836	1.5	3,850	5,350	337	1.5	2,750
7-maxx	9 5/8	23.0	10,335	1,074	1.5	3,850	2,325	88	1.1	1,650
9-alt	12 3/8	29.5	12,475	1,667	2.0	4,950	9,465	836	2.0	3,850
9-maxx	12 3/8	29.5	16,020	2,140	1.9	4,950	5,350	337	1.5	2,750

V5M2 - HF

Layup	Thickness (in)	Weight (psf)	Major Strength Direction				Minor Strength Direction			
			$F_b S_{eff,0}$ (lbf-ft/ft)	$EI_{eff,0}$ (10^6 lbf-in ² /ft)	$GA_{eff,0}$ (10^6 lbf/ft)	$V_{s,0}$ (lbf/ft)	$F_b S_{eff,90}$ (lbf-ft/ft)	$EI_{eff,90}$ (10^6 lbf-in ² /ft)	$GA_{eff,90}$ (10^6 lbf/ft)	$V_{s,90}$ (lbf/ft)
3-alt	4 1/8	10.0	3,250	108	0.6	1,650	440	4.2	0.6	550
4-maxx	5 1/2	13.0	5,275	234	0.71	2,200	1,760	33	1.2	1,100
5-alt	6 7/8	16.5	7,500	415	1.2	2,750	3,825	108	1.2	1,650
5-maxx	6 7/8	16.5	9,300	516	1.2	2,750	440	4.2	0.71	550
7-alt	9 5/8	23.0	13,250	1,029	1.8	3,850	8,800	415	1.8	2,750
7-maxx	9 5/8	23.0	17,025	1,322	1.8	3,850	3,825	108	1.3	1,650
9-alt	12 3/8	29.5	20,545	2,051	2.4	4,950	15,585	1029	2.4	3,850
9-maxx	12 3/8	29.5	26,385	2,634	2.4	4,950	8,810	415	1.9	2,750

E21M1 - MSR SPF-S

Layup	Thickness (in)	Weight (psf)	Major Strength Direction				Minor Strength Direction			
			$F_b S_{eff,0}$ (lbf-ft/ft)	$EI_{eff,0}$ (10^6 lbf-in ² /ft)	$GA_{eff,0}$ (10^6 lbf/ft)	$V_{s,0}$ (lbf/ft)	$F_b S_{eff,90}$ (lbf-ft/ft)	$EI_{eff,90}$ (10^6 lbf-in ² /ft)	$GA_{eff,90}$ (10^6 lbf/ft)	$V_{s,90}$ (lbf/ft)
3-alt	4 1/8	10.0	4,875	122	0.39	1,490	140	2.6	0.63	550
4-maxx	5 1/2	13.0	7,900	263	0.45	1,980	565	21	1.2	1,100
5-alt	6 7/8	16.5	11,200	466	0.78	2,480	1,230	68	1.3	1,650
5-maxx	6 7/8	17.0	13,950	580	0.84	2,480	140	2.6	0.77	550
7-alt	9 5/8	23.0	19,750	1,150	1.2	3,475	2,850	261	1.9	2,750
7-maxx	9 5/8	23.5	25,500	1,486	1.2	3,475	1,230	68	1.4	1,650
9-alt	12 3/8	29.0	30,590	2,290	1.5	4,455	5,060	649	2.5	3,850
9-maxx	12 3/8	30.0	39,485	2,956	1.5	4,455	2,850	261	2.0	2,750

ALLOWABLE DESIGN VALUES

COLUMBIA FALLS, MT

E21M2 - SPF-S

Layup	Thickness (in)	Weight (psf)	Major Strength Direction				Minor Strength Direction			
			$F_b S_{eff,0}$ (lb-ft/ft)	$EI_{eff,0}$ (10^6 lb-ft-in ² /ft)	$GA_{eff,0}$ (10^6 lbf/ft)	$V_{s,0}$ (lbf/ft)	$F_b S_{eff,90}$ (lb-ft/ft)	$EI_{eff,90}$ (10^6 lb-ft-in ² /ft)	$GA_{eff,90}$ (10^6 lbf/ft)	$V_{s,90}$ (lbf/ft)
3-alt	3 $\frac{3}{8}$	8.5	3,375	69	0.50	1,220	35	0.29	0.37	250
4-maxx	4	10.0	4,625	112	0.46	1,440	130	2.3	0.60	500
5-alt	5 $\frac{3}{8}$	14.0	7,750	252	1.0	1,940	495	19	0.74	1,050
7-alt	7 $\frac{3}{8}$	19.0	13,775	615	1.5	2,650	1,130	75	1.1	1,850
7-maxx	8 $\frac{1}{8}$	21.0	19,075	938	1.7	2,925	495	19	0.90	1,050
9-alt	9 $\frac{3}{8}$	24.0	21,445	1,216	1.7	3,375	1,800	159	1.5	2,650
9-maxx	10 $\frac{1}{8}$	26.0	28,745	1,761	1.9	3,645	1,020	63	1.3	1,850

DOTHAN, AL

V3 - SYP

Layup	Thickness (in)	Weight (psf)	Major Strength Direction				Minor Strength Direction			
			$F_b S_{eff,0}$ (lb-ft/ft)	$EI_{eff,0}$ (10^6 lb-ft-in ² /ft)	$GA_{eff,0}$ (10^6 lbf/ft)	$V_{s,0}$ (lbf/ft)	$F_b S_{eff,90}$ (lb-ft/ft)	$EI_{eff,90}$ (10^6 lb-ft-in ² /ft)	$GA_{eff,90}$ (10^6 lbf/ft)	$V_{s,90}$ (lbf/ft)
3-alt	4 $\frac{1}{8}$	13.0	1,740	95	0.49	1,820	140	3.4	0.52	605
4-maxx	5 $\frac{1}{2}$	17.0	2,825	205	0.58	2,420	565	27	1.1	1,210
5-alt	6 $\frac{7}{8}$	21.0	4,000	363	0.98	3,025	1,230	88	1.0	1,820
5-maxx	6 $\frac{7}{8}$	21.0	4,980	451	1.0	3,025	140	3.4	0.62	605
7-alt	9 $\frac{5}{8}$	29.5	7,100	899	1.5	4,225	2,825	338	1.6	3,025
7-maxx	9 $\frac{5}{8}$	29.5	9,120	1,157	1.5	4,225	1,230	88	1.1	1,820
9-alt	12 $\frac{3}{8}$	38.0	11,000	1,793	2.0	5,450	5,025	837	2.1	4,225
9-maxx	12 $\frac{3}{8}$	38.0	14,130	2,304	2.0	5,450	2,835	338	1.6	3,025

V3.2 - SYP

Layup	Thickness (in)	Weight (psf)	Major Strength Direction				Minor Strength Direction			
			$F_b S_{eff,0}$ (lb-ft/ft)	$EI_{eff,0}$ (10^6 lb-ft-in ² /ft)	$GA_{eff,0}$ (10^6 lbf/ft)	$V_{s,0}$ (lbf/ft)	$F_b S_{eff,90}$ (lb-ft/ft)	$EI_{eff,90}$ (10^6 lb-ft-in ² /ft)	$GA_{eff,90}$ (10^6 lbf/ft)	$V_{s,90}$ (lbf/ft)
3-alt	3 $\frac{5}{8}$	11.0	1,380	66	0.49	1,600	55	0.87	0.36	385
4-maxx	4 $\frac{1}{2}$	14.0	2,030	120	0.51	1,980	230	7	0.66	770
5-alt	5 $\frac{7}{8}$	18.0	3,175	246	0.98	2,575	670	36	0.72	1,380
7-alt	8 $\frac{1}{8}$	25.0	5,650	604	1.5	3,575	1,530	143	1.1	2,370
7-maxx	8 $\frac{5}{8}$	26.5	7,575	860	1.6	3,800	670	36	0.84	1,380
9-alt	10 $\frac{3}{8}$	32.0	8,775	1,199	2.0	4,575	2,700	357	1.4	3,350
9-maxx	10 $\frac{7}{8}$	33.5	11,550	1,654	2.1	4,775	1,530	143	1.2	2,370

ALLOWABLE DESIGN VALUES

DOTHAN, AL

V3.3 - SYP

Layup	Thickness (in)	Weight (psf)	Major Strength Direction				Minor Strength Direction			
			$F_b S_{eff,0}$ (lbf-ft/ft)	$EI_{eff,0}$ (10^6 lbf-in ² /ft)	$GA_{eff,0}$ (10^6 lbf/ft)	$V_{s,0}$ (lbf/ft)	$F_b S_{eff,90}$ (lbf-ft/ft)	$EI_{eff,90}$ (10^6 lbf-in ² /ft)	$GA_{eff,90}$ (10^6 lbf/ft)	$V_{s,90}$ (lbf/ft)
3-alt	2 ⁵ / ₈	8.0	705	24	0.31	1,160	55	0.87	0.33	385
4-maxx	3 ¹ / ₂	11.0	1,140	53	0.37	1,540	230	7	0.68	770
5-alt	4 ³ / ₈	13.5	1,620	94	0.62	1,930	500	23	0.66	1,160
7-alt	6 ¹ / ₈	19.0	2,875	232	0.94	2,700	1,150	87	1.00	1,930
7-maxx	6 ¹ / ₈	19.0	3,700	298	0.94	2,700	500	23	0.71	1,160
9-alt	7 ⁷ / ₈	24.0	4,450	462	1.20	3,475	2,030	216	1.3	2,700
9-maxx	7 ⁷ / ₈	24.0	5,725	594	1.20	3,475	1,150	87	1.00	1,930

E4M4 - MSR SYP

Layup	Thickness (in)	Weight (psf)	Major Strength Direction				Minor Strength Direction			
			$F_b S_{eff,0}$ (lbf-ft/ft)	$EI_{eff,0}$ (10^6 lbf-in ² /ft)	$GA_{eff,0}$ (10^6 lbf/ft)	$V_{s,0}$ (lbf/ft)	$F_b S_{eff,90}$ (lbf-ft/ft)	$EI_{eff,90}$ (10^6 lbf-in ² /ft)	$GA_{eff,90}$ (10^6 lbf/ft)	$V_{s,90}$ (lbf/ft)
3-alt	4 ¹ / ₈	13.0	5,575	135	0.75	1,980	755	5.2	0.75	660
4-maxx	5 ¹ / ₂	17.5	9,050	293	0.88	2,650	3,025	42	1.5	1,320
5-alt	6 ⁷ / ₈	21.5	12,850	519	1.5	3,300	6,575	135	1.5	1,980
5-maxx	6 ⁷ / ₈	21.5	15,950	645	1.5	3,300	755	5.2	0.88	660
7-alt	9 ⁵ / ₈	30.0	22,700	1,286	2.2	4,625	15,100	519	2.3	3,300
7-maxx	9 ⁵ / ₈	30.5	29,200	1,653	2.2	4,625	6,575	135	1.6	1,980
9-alt	12 ³ / ₈	38.5	35,225	2,564	3.0	5,950	26,725	1,286	3.0	4,625
9-maxx	12 ³ / ₈	39.0	45,225	3,293	3.0	5,950	15,100	519	2.4	3,300



ALLOWABLE DESIGN VALUES

Applicable Adjustment Factors for CLT Design ¹		ASD Only	ASD and LRFD		
		Load Duration Factor	Wet Service Factor	Temperature Factor	Beam Stability Factor
$F_b(S_{eff})' = F_b(S_{eff})$	X	C_D	C_M	C_t	C_L
$V_s' = V_s$	X	-	C_M	C_t	-
$EI_{eff}' = EI_{eff}$	X	-	C_M	C_t	-

1. Reference NDS Table 10.3.1 for adjustment factors associated with other CLT properties.

Load Resistance Factor Design (LRFD)¹

	Conversion Factor, K_F	Resistance Factor, ϕ
$F_b(S_{eff})$	2.54	0.85
EI_{eff}	n/a	n/a
GA_{eff}	n/a	n/a
V_s	2.00	0.75

1. Reference NDS Table 10.3.1 for conversion and resistance factors associated with other CLT properties.



PANEL CHARACTERISTICS

MATERIAL

Maximum Finished Panel Dimensions¹:

Columbia Falls, MT: 10' 0" x 50' 6"

(V2M5, V2.7, V4M1, V5M1, V5M2, E21M1, E21M2)

Dothan, AL: 11' 1" x 51' 4"

(V3, V3.2, V3.3, V3M7, E4M4, E4M5, E4M6)

Lamination Thickness:

1 3/8", 7/8", 5/8"

Moisture Content:

12 +/- 3% at time of manufacturing

Glue Specification:

Finger joints and face bond: PURBOND polyurethane adhesive

Intended Use:

CLT panels are intended for dry use only.

Thermal Resistance

R = 1.25 (h x ft² x °F / Btu)

Shrinkage and Swelling^{2,3,4}

V2M5, V2.7, V4M1, V5M1, V5M2, E21M1, E21M2
(SPF, HF & SPF-S)

Length and width (longitudinal): 0.01% per % change in moisture content
Thickness (radial and tangential): 0.19% per % change in moisture content

V3, V3.2, V3.3, V3M7, E4M4, E4M5, E4M6
(SYP)

Length and width (longitudinal): 0.02% per % change in moisture content
Thickness (radial and tangential): 0.25% per % change in moisture content

NOTES

- Contact SmartLam for plant specific press parameters.
- Shrinkage or swelling due to changes in moisture content represent theoretical values from the NDS and APA Technical Note EWS Y260. Dimensional changes through the thickness are assumed to be the result of composite behavior based on grain orientation and is based on the average of radial and tangential effects.
- Dimensional changes in the longitudinal direction are assumed to be 5% of that in the tangential direction.
- Refer to SmartLam Technical Note ST1 for more information on this topic.

DIMENSIONAL TOLERANCES

Tolerances at the time of manufacturing are outlined in the APA PRG-320.

Panel Thickness: +/- 1/16" or 2% of the design thickness, whichever is greater

Length: +/- 1/4" of the specified length

Width: +/- 1/8" of the specified width

Squareness: Face tolerances shall not differ by more than 1/8"

Straightness: 1/16" along the length of the panel

No. of Laminations	Design Thickness (in)
3	4 1/8
4	5 1/2
5	6 7/8
7	9 5/8
9	12 3/8

APPEARANCE GRADE

	VISUAL		NON-VISUAL
	SYP	SPF/DF/HF	
INTENDED USE	One or both faces are exposed	One or both faces are exposed	Both faces are not exposed
FACE LAYER - V SERIES	#1*	#2&Btr Appearance Grade*	#2
FACE LAYER - E SERIES	MSR 2400 Square Edge	SPF MSR 2100 Square Edge	SYP MSR 2400, SPF MSR 2100
SANDED FACE	Yes	Yes	N/A
SHAKE AND CHECKS	Occasional	Occasional	As per NLGA #2, SPF #2&Btr
STAIN	Up to a max of 5% blue stain	Up to a max of 5% blue stain	Allowed, not limited
KNOTS	#1*	#2&Btr Appearance Grade*	
PITCH STREAKS	Limited	Limited	Limited
WANE ON FACE	None	None	Allowed
SIDE PRESSURE	Yes	Yes	Yes

*Voids over 3/4 inch are puttied.

CLT DESIGN & PERFORMANCE

STRUCTURAL DESIGN

The tables and design guidance provided in this guide are intended to be used for PRELIMINARY design. SmartLam has provided the information based on accepted engineering practices but does not certify the spans, loads, or design concepts for final design or construction. The specifying designer shall be responsible to ensure that the design meets all the requirements set forth in the local building code. The specifying designer shall also consider the loading sequence of CLT panels and investigate other loading conditions (gravity or lateral or combination thereof) independent of the design tables provided. The appropriate SmartLam CLT panel grade and layup shall be selected by the specifying designer to provide the strength and serviceability requirements outlined for the project.

LOAD/SPAN TABLES

Moment and shear design forces and deflection equations are shown on the loading diagrams prior to each section within this guide.

- CLT panels are **NOT** isotropic. Tables shall be used for the strength direction indicated.
- All tables and design guidance are based on Allowable Stress Design (ASD) and corresponding load combinations as provided in ASCE7.
- Tables assume dry service conditions.
- The following factors were used for calculations unless identified otherwise: $C_o = 1.0$, $C_t = 1.0$.
- Panels are assumed to be simply supported with pinned support conditions.
- All spans are to be considered center-to-center of supports.

FIRE RESISTANCE



SmartLam CLT, like other mass timber products, exhibits favorable structural performance in extraordinary events such as fires. When considering a building material for fire resistance, combustibility should not be the only factor considered. Fire ratings are typically based on time increments of 1 or 2 hours that allow occupants to safely exit the building or adequate time for rescue activities. Unlike

steel or concrete, mass timber burns at a predictable rate and chars when exposed to flame. This outer char layer forms a self-insulating barrier and helps to protect the wood below from flame and high temperatures. The underlying wood retains its structural properties and is capable of providing load carrying capacity. For this reason, CLT can perform equally or exceed the performance of steel and concrete construction in fires.

BLAST RESISTANCE

Due to CLT's high resilience under dynamic loading, it can effectively be used to resist blast loading.



In conjunction with the USDA Forest Products Lab, SmartLam has conducted a series of blast tests on a two-story CLT structure at Tyndall Air Force Base. The structure remained intact under significant explosive loading well beyond its design capacity. The results from the blast testing are leading to new design methodologies and opening new markets for mass timber.

FIELD CUTTING AND DRILLING

CLT is generally designed for structural applications where it will experience high stresses under design loads or to meet specific fire requirements. For this reason, field modifications such as cutting or drilling should only be made after approval from the project's design professional and SmartLam. If you are aware of penetrations or cuts that are not noted on the project plans or shop drawings, please notify SmartLam for appropriate coordination efforts and to ensure precision through CNC or jig cuts in the manufacturing plant.

PRELIM SIZING

GENERAL

Preliminary sizing tables in this guide are based on single spans and equal adjacent two span conditions. Tables were generated based on full, uniform loading conditions for the load combinations noted. Partial or patterned loading has not been considered. Composite action between a concrete topping and CLT panels was not considered for strength or deflection in the preparation of the tables. Floor vibration is neglected.

Post fire CLT design properties have been developed using provisions outlined in the National Design Specification (NDS) for Wood Construction Chapter 16 and American Wood Council's Technical Report No. 10 – Calculating the Fire Resistance of Wood Members and Assemblies. Contact SmartLam for more information regarding the derivation of post fire flatwise bending ASD reference design values.

LOADING AND LOAD COMBINATIONS

Tables account for CLT self weight. A reduction in self weight has been considered due to charring – post fire.

Load Combinations: D + L

CAPACITY ADJUSTMENT FACTORS AND DESIGN CONSTANTS

Load Duration Adjustment Factors, C_D

Live Load: 1.0
Other load duration factors may not be assumed

Shear Deformation Constants, K_s

Single Span: 11.5
Two Span: 15.6

Effective Char Depths

1-hour: 1.9 in
2-hour: 3.8 in
All CLT layups are composed with 1 $\frac{3}{8}$ " thick laminations

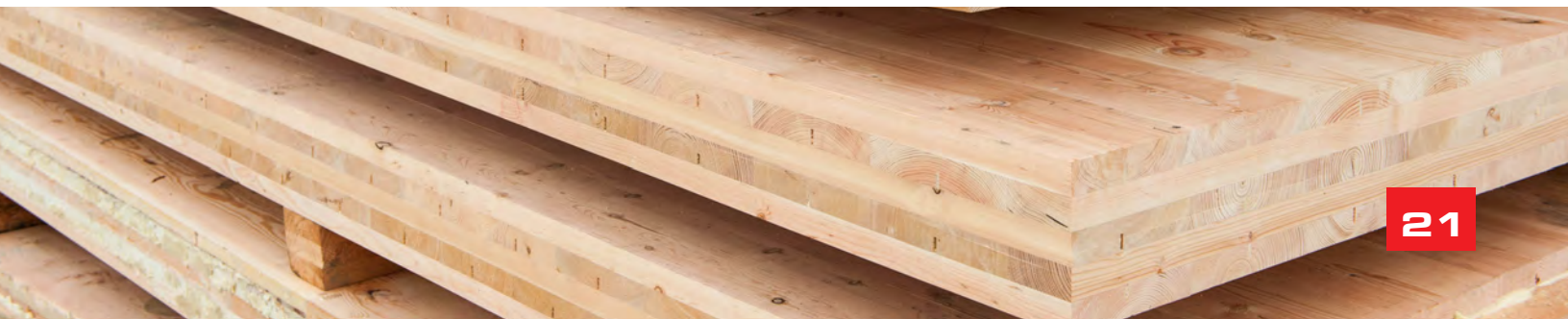
Fire Adjustment Factors

Bending Strength, K_b : 2.85
Shear Strength, K_v : 2.75

Tabulated creep deflection spans are based on a total load deflection limit of $L/240$ and time dependent deformation factor, $K_{cr} = 2.0$.

NOTES

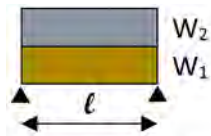
- A. Tabulated CLT layups are the minimum governed by bending strength, shear strength or deflection.
- B. Deflection limits
Live Load = $L/360$
Total Load and Creep = $L/240$
Deflection has not been considered for fire design.



PRELIM SIZING LOADING DIAGRAMS

LOADING DIAGRAMS, BENDING MOMENTS, SHEARS AND DEFLECTION

Simple Span Condition

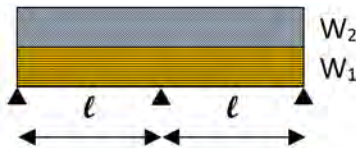


$$+M = \frac{1}{8} (W_1 + W_2) \ell^2$$

$$V = \frac{1}{2} (W_1 + W_2) \ell$$

$$\Delta = \frac{5 (W_1 + W_2) \ell^4}{384 EI}$$

Two Span Condition



$$+M = \frac{9}{128} (W_1 + W_2) \ell^2$$

$$-M = \frac{1}{8} (W_1 + W_2) \ell^2$$

$$V_{\text{interior}} = \frac{5}{8} (W_1 + W_2) \ell$$

$$V_{\text{exterior}} = \frac{3}{8} (W_1 + W_2) \ell$$

$$\Delta = \frac{(W_1 + W_2) \ell^4}{185 EI}$$

NOTES

ℓ = clear span length (center of support - ft)

W_1 = CLT panel self weight (psf)

W_2 = uniform Live Load (psf)

EI = apparent bending stiffness (including effects of shear deformation)



V2M5

MAJOR STRENGTH DIRECTION

Preliminary Sizing Chart

No. of Spans	Superimposed Dead Load	Live Load	Span (ft)							
			10	12	14	16	18	20	22	
1	10	20	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-maxx	
		40	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-alt	7-alt	
		65	3-alt	3-alt	4-maxx	5-alt	5-alt	7-alt	7-alt	
		80	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-alt	
		100	3-alt	4-maxx	5-alt	5-alt	5-maxx	7-alt	7-alt	
	15	20	3-alt	3-alt	3-alt	4-maxx	5-alt	5-alt	5-maxx	
		40	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	
		65	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-alt	
		80	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-alt	
		100	3-alt	4-maxx	5-alt	5-alt	7-alt	7-alt	7-maxx	
	20	20	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-alt	5-maxx	
		40	3-alt	3-alt	4-maxx	5-alt	5-alt	5-maxx	7-alt	
		65	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-alt	
		80	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-alt	
		100	3-alt	4-maxx	5-alt	5-alt	7-alt	7-alt	7-maxx	
	30	20	3-alt	3-alt	4-maxx	5-alt	5-alt	5-maxx	7-alt	
		40	3-alt	4-maxx	4-maxx	5-alt	5-alt	7-alt	7-alt	
		65	3-alt	4-maxx	5-alt	5-alt	7-alt	7-alt	7-alt	
		80	3-alt	4-maxx	5-alt	5-alt	7-alt	7-alt	7-maxx	
		100	3-alt	4-maxx	5-alt	5-maxx	7-alt	7-alt	7-maxx	
	35	20	3-alt	3-alt	4-maxx	5-alt	5-alt	5-maxx	7-alt	
		40	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-alt	
		65	3-alt	4-maxx	5-alt	5-alt	7-alt	7-alt	7-maxx	
		80	3-alt	4-maxx	5-alt	5-maxx	7-alt	7-alt	7-maxx	
		100	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-alt	9-alt	
	40	20	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-alt	
		40	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-alt	
		65	3-alt	4-maxx	5-alt	5-alt	7-alt	7-alt	7-maxx	
		80	3-alt	4-maxx	5-alt	5-maxx	7-alt	7-alt	7-maxx	
		100	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-maxx	9-alt	
	45	20	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-alt	
		40	3-alt	4-maxx	5-alt	5-alt	7-alt	7-alt	7-maxx	
		65	3-alt	4-maxx	5-alt	5-maxx	7-alt	7-alt	7-maxx	
		80	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-alt	9-alt	
		100	4-maxx	4-maxx	5-alt	7-alt	7-alt	7-maxx	9-alt	
	2	10	20	3-alt	3-alt	3-alt	3-alt	3-alt	3-alt	4-maxx
			40	3-alt	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt
			65	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-alt	5-maxx
			80	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt
			100	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-alt
15		20	3-alt	3-alt	3-alt	3-alt	3-alt	4-maxx	4-maxx	
		40	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-alt	
		65	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	
		80	3-alt	3-alt	4-maxx	5-alt	5-alt	5-maxx	7-alt	
		100	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-maxx	
20		20	3-alt	3-alt	3-alt	3-alt	3-alt	4-maxx	4-maxx	
		40	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-alt	
		65	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	
		80	3-alt	3-alt	4-maxx	5-alt	5-maxx	5-maxx	7-alt	
		100	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-maxx	
30		20	3-alt	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt	
		40	3-alt	3-alt	3-alt	4-maxx	5-alt	5-alt	5-maxx	
		65	3-alt	3-alt	4-maxx	5-alt	5-alt	5-maxx	7-alt	
		80	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-alt	
		100	3-alt	4-maxx	5-alt	5-maxx	7-alt	7-alt	7-maxx	
35		20	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-alt	
		40	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-alt	5-maxx	
		65	3-alt	3-alt	4-maxx	5-alt	5-maxx	5-maxx	7-alt	
		80	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-maxx	
		100	3-alt	4-maxx	5-alt	5-maxx	7-alt	7-alt	7-maxx	
40		20	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-alt	
		40	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	
		65	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-alt	
		80	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-maxx	
		100	3-alt	4-maxx	5-alt	5-maxx	7-alt	7-alt	7-maxx	
45		20	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-maxx	
		40	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	
		65	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-alt	
		80	3-alt	4-maxx	5-alt	5-alt	5-maxx	7-alt	7-maxx	
		100	3-alt	4-maxx	5-alt	5-maxx	7-alt	7-maxx	7-maxx	

LOADING KEY
 Lightweight Floor Finish or Roof
 1 1/2" Lt. Weight Concrete Topping
 3" Normal Weight Concrete Topping

LOADING KEY
 Residential (40 psf)
 Office w/ Allowance for Interior Partion Walls (65 psf)
 Assembly (100 psf)

FIRE RESISTANCE RATING
 0 Hour
 1 Hour
 2 Hour

DEFLECTION LIMITS
 - Live Load L/360
 - Total Load & Creep L/240
 - Deflection has not been considered for fire

E21M1

MAJOR STRENGTH DIRECTION

Preliminary Sizing Chart

No. of Spans	Superimposed Dead Load	Live Load	Span (ft)							
			10	12	14	16	18	20	22	
1	10	20	3-alt	3-alt	3-alt	3-alt	4-maxx	5-alt	5-alt	
		40	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-maxx	
		65	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	
		80	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	
	15	20	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-alt	
		40	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-alt	5-maxx	
		65	3-alt	3-alt	4-maxx	5-alt	5-alt	5-maxx	7-alt	
		80	3-alt	3-alt	4-maxx	5-alt	5-alt	7-alt	7-alt	
	20	20	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-maxx	
		40	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-alt	7-alt	
		65	3-alt	3-alt	4-maxx	5-alt	5-alt	5-maxx	7-alt	
		80	3-alt	4-maxx	4-maxx	5-alt	5-alt	7-alt	7-alt	
	30	20	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-alt	7-alt	
		40	3-alt	3-alt	4-maxx	5-alt	5-alt	5-maxx	7-alt	
		65	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-alt	
		80	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-alt	
	35	20	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	
		40	3-alt	3-alt	4-maxx	5-alt	5-alt	7-alt	7-alt	
		65	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-alt	
		80	3-alt	4-maxx	5-alt	5-alt	5-maxx	7-alt	7-alt	
	40	20	3-alt	3-alt	4-maxx	5-alt	5-alt	7-alt	7-maxx	
		40	3-alt	4-maxx	4-maxx	5-alt	5-alt	7-alt	7-alt	
		65	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-alt	
		80	3-alt	4-maxx	5-alt	5-alt	7-alt	7-alt	7-alt	
	45	20	3-alt	3-alt	4-maxx	5-alt	5-alt	7-alt	7-alt	
		40	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-alt	
		65	3-alt	4-maxx	5-alt	5-alt	7-alt	7-alt	7-alt	
		80	3-alt	4-maxx	5-alt	5-alt	7-alt	7-alt	7-maxx	
	2	10	20	3-alt	3-alt	3-alt	3-alt	3-alt	3-alt	4-maxx
			40	3-alt	3-alt	3-alt	3-alt	3-alt	4-maxx	4-maxx
			65	3-alt	3-alt	3-alt	3-alt	4-maxx	4-maxx	4-maxx
			80	3-alt	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt
		15	20	3-alt	3-alt	3-alt	3-alt	3-alt	3-alt	4-maxx
			40	3-alt	3-alt	3-alt	3-alt	3-alt	4-maxx	4-maxx
			65	3-alt	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt
			80	3-alt	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt
		20	20	3-alt	3-alt	3-alt	3-alt	3-alt	4-maxx	4-maxx
			40	3-alt	3-alt	3-alt	3-alt	3-alt	4-maxx	4-maxx
			65	3-alt	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt
			80	3-alt	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt
30		20	3-alt	3-alt	3-alt	3-alt	3-alt	4-maxx	4-maxx	
		40	3-alt	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt	
		65	3-alt	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt	
		80	3-alt	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt	
35		20	3-alt	3-alt	3-alt	3-alt	4-maxx	4-maxx	4-maxx	
		40	3-alt	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt	
		65	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-alt	
		80	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-alt	
40		20	3-alt	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt	
		40	3-alt	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt	
		65	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-alt	
		80	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-alt	
45		20	3-alt	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt	
		40	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-alt	
		65	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-alt	
		80	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-alt	
100		20	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-alt	5-maxx	
		40	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-alt	5-maxx	
		65	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-alt	5-maxx	
		80	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-alt	5-maxx	

LOADING KEY

- Lightweight Floor Finish or Roof
- 1 1/2" Lt. Weight Concrete Topping
- 3" Normal Weight Concrete Topping

LOADING KEY

- Residential (40 psf)
- Office w/ Allowance for Interior Partion Walls (65 psf)
- Assembly (100 psf)

FIRE RESISTANCE RATING

- 0 Hour
- 1 Hour
- 2 Hour

DEFLECTION LIMITS

- Live Load L/360
- Total Load & Creep L/240
- Deflection has not been considered for fire design

No. of Spans	Superimposed Dead Load	Live Load	Span (ft)							
			10	12	14	16	18	20	22	
1	10	20	3-alt	3-alt	3-alt	4-maxx	5-alt	5-alt	5-maxx	
		40	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	
		65	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-alt	
		80	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-maxx	
		100	3-alt	4-maxx	5-alt	5-maxx	7-alt	7-alt	7-maxx	
	15	20	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-alt	5-maxx	7-alt
		40	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-alt
		65	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-maxx	
		80	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-maxx	
		100	3-alt	4-maxx	5-alt	5-maxx	7-alt	7-maxx	7-maxx	
	20	20	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-alt	5-maxx	7-alt
		40	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-alt	7-alt	7-alt
		65	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-alt	
		80	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-maxx	
		100	3-alt	4-maxx	5-alt	5-maxx	7-alt	7-maxx	7-maxx	
	30	20	3-alt	3-alt	4-maxx	5-alt	5-alt	7-alt	7-alt	
		40	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-alt	
		65	3-alt	4-maxx	5-alt	5-alt	7-alt	7-alt	7-maxx	
		80	3-alt	4-maxx	5-alt	5-maxx	7-alt	7-alt	7-maxx	
		100	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-maxx	9-alt	
	35	20	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-alt	
		40	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-alt	
		65	3-alt	4-maxx	5-alt	5-maxx	7-alt	7-alt	7-maxx	
		80	3-alt	4-maxx	5-alt	5-maxx	7-alt	7-maxx	7-maxx	
		100	4-maxx	4-maxx	5-alt	7-alt	7-alt	7-maxx	9-alt	
	40	20	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-alt	
		40	3-alt	4-maxx	5-alt	5-alt	7-alt	7-alt	7-maxx	
		65	3-alt	4-maxx	5-alt	5-maxx	7-alt	7-alt	7-maxx	
		80	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-maxx	9-alt	
		100	4-maxx	5-alt	5-alt	7-alt	7-alt	7-maxx	9-alt	
	45	20	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-alt	
		40	3-alt	4-maxx	5-alt	5-alt	7-alt	7-alt	7-maxx	
		65	3-alt	4-maxx	5-alt	5-maxx	7-alt	7-alt	7-maxx	
		80	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-maxx	9-alt	
		100	4-maxx	5-alt	5-maxx	7-alt	7-alt	7-maxx	9-maxx	
	2	10	20	3-alt	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt
			40	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-maxx
			65	3-alt	3-alt	4-maxx	5-alt	5-alt	5-maxx	7-alt
			80	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-maxx
			100	3-alt	4-maxx	5-alt	5-maxx	7-alt	7-alt	7-maxx
		15	20	3-alt	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt
			40	3-alt	3-alt	3-alt	4-maxx	5-alt	5-alt	5-maxx
			65	3-alt	3-alt	4-maxx	5-alt	5-maxx	7-alt	7-alt
			80	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-maxx
			100	3-alt	4-maxx	5-alt	5-maxx	7-alt	7-maxx	7-maxx
20		20	3-alt	3-alt	3-alt	3-alt	4-maxx	5-alt	5-alt	
		40	3-alt	3-alt	4-maxx	4-maxx	4-maxx	5-alt	5-maxx	
		65	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-alt	
		80	3-alt	4-maxx	5-alt	5-alt	5-maxx	7-alt	7-maxx	
		100	3-alt	4-maxx	5-alt	5-maxx	7-alt	7-maxx	7-maxx	
30		20	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-maxx	
		40	3-alt	3-alt	4-maxx	4-maxx	4-maxx	5-alt	5-maxx	
		65	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-maxx	
		80	3-alt	4-maxx	5-alt	5-maxx	7-alt	7-alt	7-maxx	
		100	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-maxx	9-alt	
35		20	3-alt	3-alt	3-alt	4-maxx	5-alt	5-alt	5-maxx	
		40	3-alt	3-alt	4-maxx	5-alt	5-alt	5-maxx	7-alt	
		65	3-alt	4-maxx	5-alt	5-alt	5-maxx	7-alt	7-maxx	
		80	3-alt	4-maxx	5-alt	5-maxx	7-alt	7-maxx	7-maxx	
		100	4-maxx	4-maxx	5-alt	7-alt	7-alt	7-maxx	9-alt	
40		20	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-maxx	5-maxx	
		40	3-alt	3-alt	4-maxx	5-alt	5-maxx	7-alt	7-alt	
		65	3-alt	4-maxx	5-alt	5-maxx	7-alt	7-alt	7-maxx	
		80	3-alt	4-maxx	5-alt	5-maxx	7-alt	7-maxx	7-maxx	
		100	4-maxx	5-alt	5-alt	7-alt	7-alt	7-maxx	9-alt	
45		20	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	
		40	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-alt	
		65	3-alt	4-maxx	5-alt	5-maxx	7-alt	7-alt	7-maxx	
		80	3-alt	4-maxx	5-alt	5-maxx	7-alt	7-maxx	9-alt	
		100	4-maxx	5-alt	5-maxx	7-alt	7-alt	7-maxx	9-maxx	




LOADING KEY
 Light Green: Lightweight Floor Finish or Roof
 Medium Green: 1 1/2" Lt. Weight Concrete Topping
 Dark Green: 3" Normal Weight Concrete Topping




LOADING KEY
 Light Pink: Residential (40 psf)
 Medium Pink: Office w/ Allowance for Interior Partion Walls (65 psf)
 Dark Pink: Assembly (100 psf)




FIRE RESISTANCE RATING
 White: 0 Hour
 Light Gray: 1 Hour
 Dark Gray: 2 Hour

DEFLECTION LIMITS
 - Live Load L/360
 - Total Load & Creep L/240
 - Deflection has not been considered for fire design

No. of Spans	Superimposed Dead Load	Live Load	Span (ft)						
			10	12	14	16	18	20	22
1	10	20	3-alt	3-alt	3-alt	3-alt	4-maxx	5-alt	5-alt
		40	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-maxx
		65	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-alt	7-alt
		80	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt
	100	3-alt	3-alt	4-maxx	5-alt	5-alt	7-alt	7-alt	
	15	20	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-alt
		40	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-maxx
		65	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt
		80	3-alt	3-alt	4-maxx	5-alt	5-alt	5-maxx	7-alt
	100	3-alt	4-maxx	4-maxx	5-alt	5-alt	7-alt	7-alt	
	20	20	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-maxx
		40	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-alt	7-alt
		65	3-alt	3-alt	4-maxx	5-alt	5-alt	5-maxx	7-alt
		80	3-alt	3-alt	4-maxx	5-alt	5-alt	7-alt	7-alt
	100	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-alt	
	30	20	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-alt	7-alt
		40	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt
		65	3-alt	3-alt	4-maxx	5-alt	5-alt	7-alt	7-alt
		80	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-alt
	100	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-alt	
	35	20	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt
		40	3-alt	3-alt	4-maxx	5-alt	5-alt	5-maxx	7-alt
		65	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-alt
		80	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-alt
	100	3-alt	4-maxx	5-alt	5-maxx	7-alt	7-alt	7-alt	
	40	20	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt
		40	3-alt	3-alt	4-maxx	5-alt	5-alt	7-alt	7-alt
		65	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-alt
80		3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-alt	
100	3-alt	4-maxx	5-alt	5-alt	7-alt	7-alt	7-maxx		
45	20	3-alt	3-alt	4-maxx	5-alt	5-alt	5-maxx	7-alt	
	40	3-alt	4-maxx	4-maxx	5-alt	5-alt	7-alt	7-alt	
	65	3-alt	4-maxx	4-maxx	5-alt	5-maxx	7-alt	7-alt	
	80	3-alt	4-maxx	5-alt	5-alt	5-maxx	7-alt	7-alt	
100	3-alt	4-maxx	5-alt	5-alt	7-alt	7-alt	7-maxx		
2	10	20	3-alt	3-alt	3-alt	3-alt	3-alt	3-alt	4-maxx
		40	3-alt	3-alt	3-alt	3-alt	3-alt	3-alt	4-maxx
		65	3-alt	3-alt	3-alt	3-alt	3-alt	4-maxx	4-maxx
		80	3-alt	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt
	100	3-alt	3-alt	3-alt	3-alt	3-alt	4-maxx	4-maxx	
	15	20	3-alt	3-alt	3-alt	3-alt	3-alt	3-alt	4-maxx
		40	3-alt	3-alt	3-alt	3-alt	3-alt	4-maxx	4-maxx
		65	3-alt	3-alt	3-alt	3-alt	4-maxx	4-maxx	4-maxx
		80	3-alt	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt
	100	3-alt	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt	
	20	20	3-alt	3-alt	3-alt	3-alt	3-alt	4-maxx	4-maxx
		40	3-alt	3-alt	3-alt	3-alt	3-alt	4-maxx	4-maxx
		65	3-alt	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt
		80	3-alt	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt
	100	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-alt	
	30	20	3-alt	3-alt	3-alt	3-alt	3-alt	4-maxx	4-maxx
		40	3-alt	3-alt	3-alt	3-alt	3-alt	4-maxx	4-maxx
		65	3-alt	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt
		80	3-alt	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt
	100	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-alt	
	35	20	3-alt	3-alt	3-alt	3-alt	3-alt	4-maxx	4-maxx
		40	3-alt	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt
		65	3-alt	3-alt	3-alt	4-maxx	4-maxx	4-maxx	5-alt
		80	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-alt
	100	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-alt	
	40	20	3-alt	3-alt	3-alt	3-alt	3-alt	4-maxx	4-maxx
		40	3-alt	3-alt	3-alt	3-alt	3-alt	4-maxx	4-maxx
		65	3-alt	3-alt	3-alt	4-maxx	4-maxx	4-maxx	5-alt
80		3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-alt	
100	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-alt		
45	20	3-alt	3-alt	3-alt	3-alt	3-alt	4-maxx	4-maxx	
	40	3-alt	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt	
	65	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-alt	
	80	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-alt	
100	3-alt	3-alt	3-alt	4-maxx	4-maxx	5-alt	5-maxx		

LOADING KEY
 Lightweight Floor Finish or Roof
 1 1/2" Lt. Weight Concrete Topping
 3" Normal Weight Concrete Topping

LOADING KEY
 Residential (40 psf)
 Office w/ Allowance for Interior Partion Walls (65 psf)
 Assembly (100 psf)

FIRE RESISTANCE RATING
 0 Hour
 1 Hour
 2 Hour

DEFLECTION LIMITS
 - Live Load L/360
 - Total Load & Creep L/240
 - Deflection has not been considered for fire design

ROOF SPECIFICATIONS

Roof tables in this guide are based on single spans, equal adjacent two span conditions, and cantilevers with a backspan ratio of 2:1. Tables were generated based on full, uniform loading conditions for the load combinations noted. Partial loading has not been considered. The specifying designer shall follow the provisions of ASCE7 for partial snow loading on multiple spans, snow accumulation on overhangs, and drifting. The effects of wind uplift have not been considered for the spans provided.

LOADING AND LOAD COMBINATIONS

All tables assume the following superimposed Dead Load:

DL Contributions:	mechanical/electrical, ceiling, insulation, and roofing loads
Allowance for DL:	
Light Weight Assembly:	10 psf
Normal Weight Assembly:	20 psf
Load Combinations:	D + L _R
	D + S

CAPACITY ADJUSTMENT FACTORS AND DESIGN CONSTANTS

Load Duration Adjustment Factors, C_D

Roof Live Load:	1.25
Snow Load:	1.15

Shear Deformation Constants, K_s

Single Span:	11.5
Two Span:	15.6
Cantilever (between supports):	3.9
Cantilever (overhang):	4.8

Shear deformation constants for two span and cantilever conditions were derived as follows:

$K_s = 6/5 k_s/k_b$ where k_s and k_b are dependent upon loading, support conditions, and the location of analysis.

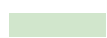
k_s = shear deflection constant

k_b = bending deflection constant

Tabulated creep deflection spans are based on a total load deflection limit of L/180 and time dependent deformation factor, K_{cr} = 2.0

SPAN TABLE NOTES

A. Shaded values correspond to spans governed by:

 allowable bending  shear stress

B. Gray shading  represents spans governed by:

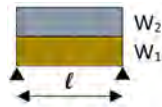
- 50 ft maximum panel length manufactured in Montana;
CLT grades V2M5, V4M1, V5M1, V5M2, E21M1, E21M2
50 ft – single span, 25 ft – two span, 16 ft – cantilever with 34 ft backspan
- 50 ft maximum panel length manufactured in Alabama;
CLT grade V3, V3.2, V3.3, E4M4, E4M5
50 ft – single span, 25 ft – two span, 16 ft – cantilever with 32 ft backspan

C. Deflection limits are based on total load

ROOF LOADING DIAGRAMS

LOADING DIAGRAMS, BENDING MOMENTS, SHEARS AND DEFLECTION

Simple Span Condition

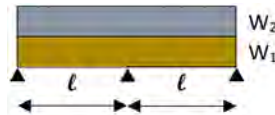


$$+M = \frac{1}{8} (W_1 + W_2) \ell^2$$

$$V = \frac{1}{2} (W_1 + W_2) \ell$$

$$\Delta = \frac{5 (W_1 + W_2) \ell^4}{384 EI}$$

Two Span Condition



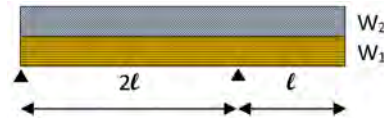
$$+M = \frac{9}{128} (W_1 + W_2) \ell^2$$

$$-M = \frac{1}{8} (W_1 + W_2) \ell^2$$

$$V_{\text{interior}} = \frac{5}{8} (W_1 + W_2) \ell$$

$$V_{\text{exterior}} = \frac{3}{8} (W_1 + W_2) \ell$$

$$\Delta = \frac{(W_1 + W_2) \ell^4}{185 EI}$$



Cantilever Condition

$$+M = \frac{9}{32} (W_1 + W_2) \ell^2$$

$$-M = \frac{1}{2} (W_1 + W_2) \ell^2$$

$$V_{\text{@cantilever}} = \frac{5}{4} (W_1 + W_2) \ell$$

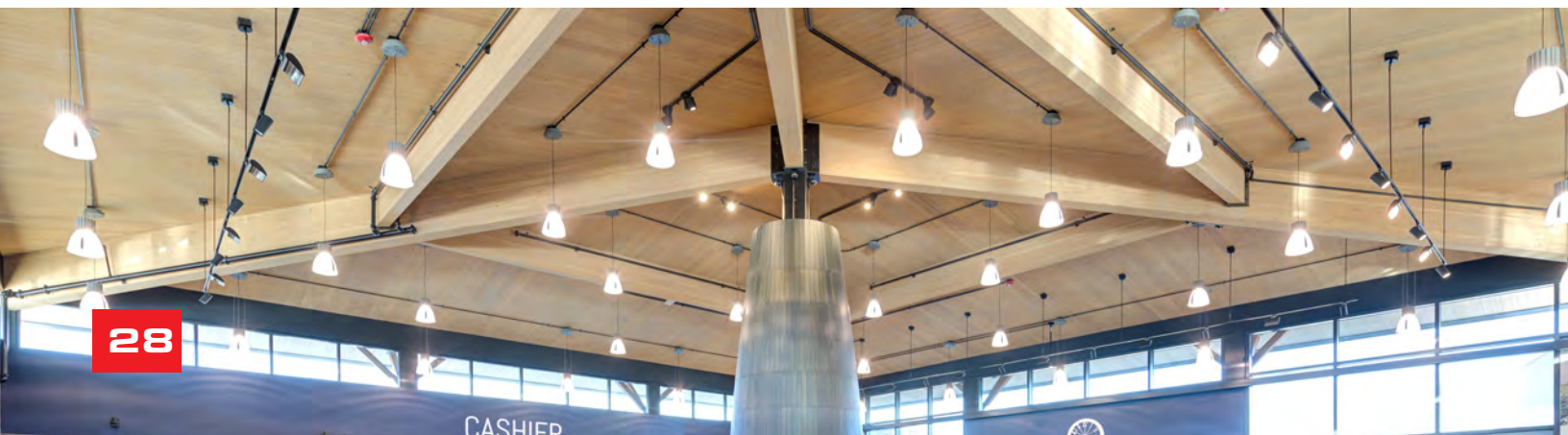
$$V_{\text{@interior}} = \frac{3}{4} (W_1 + W_2) \ell$$

$$\Delta_{\text{btwn supports}} = \frac{175 (W_1 + W_2) \ell^4}{2048 EI}$$

$$\Delta_{\text{overhang}} = \frac{(W_1 + W_2) \ell^4}{8 EI}$$

Notes

- ℓ = clear span length (center of support - ft)
- W_1 = CLT panel self weight (psf)
 - + 10 psf superimposed DL for light weight assembly
 - + 20 psf superimposed DL for normal weight assembly
- W_2 = uniform load as specified on tables (psf)
- EI = apparent bending stiffness (including effects of shear deformation)



Roof - Allowable Span Chart (FT)

V2M5 (Light Weight Assembly - 10 psf)

MAJOR STRENGTH DIRECTION

No. of Spans	CLT Layup	Total Load Deflection	Live Load 125%, psf	Snow Load 115%, psf				
1			20	20	40	60	80	100
	3-alt	L/240	17.0	17.0	14.5	13.0	12.0	11.5
		L/180	18.5	18.5	16.0	14.5	13.5	12.0
		Creep	16.0	16.0	14.5	13.5	12.5	12.0
	5-alt	L/240	25.5	25.5	22.5	20.5	19.0	18.0
		L/180	28.0	28.0	24.5	22.0	20.0	18.0
		Creep	24.0	24.0	22.0	20.5	19.5	18.0
	7-alt	L/240	33.0	33.0	29.5	27.0	25.0	23.5
		L/180	36.5	36.5	32.0	28.5	25.5	23.5
		Creep	30.5	30.5	28.5	27.0	25.5	23.5
	9-alt	L/240	40.0	40.0	36.0	33.5	31.0	29.0
		L/180	44.0	44.0	38.5	34.0	31.0	29.0
Creep		37.0	37.0	34.5	33.0	31.0	29.0	
4-maxx	L/240	21.5	21.5	18.5	17.0	15.5	14.5	
	L/180	23.5	23.5	20.5	18.5	17.0	15.5	
	Creep	20.5	20.5	18.5	17.0	16.0	15.5	
5-maxx	L/240	27.0	27.0	24.0	22.0	20.5	19.0	
	L/180	30.0	30.0	26.5	24.0	22.0	20.5	
	Creep	25.5	25.5	23.5	22.0	21.0	20.0	
7-maxx	L/240	35.5	35.5	32.0	29.5	27.5	26.0	
	L/180	39.5	39.5	35.5	32.0	29.0	27.0	
	Creep	33.5	33.5	31.0	29.0	27.5	26.5	
9-maxx	L/240	43.0	43.0	39.0	36.0	34.0	32.0	
	L/180	47.5	47.5	43.0	39.0	35.5	32.5	
	Creep	40.0	40.0	37.5	35.5	34.0	32.5	
2	3-alt	L/240	22.5	21.5	17.5	15.0	13.5	12.0
		L/180	22.5	21.5	17.5	15.0	13.5	12.0
		Creep	22.0	21.5	17.5	15.0	13.5	12.0
	5-alt	L/240			25.0	22.0	20.0	18.0
		L/180			25.0	22.0	20.0	18.0
		Creep			25.0	22.0	20.0	18.0
	7-alt	L/240						23.5
		L/180						23.5
		Creep						23.5
	9-alt	L/240						
		L/180						
		Creep						
4-maxx	L/240			21.5	19.0	17.0	15.5	
	L/180			21.5	19.0	17.0	15.5	
	Creep			21.5	19.0	17.0	15.5	
5-maxx	L/240				24.5	22.0	20.5	
	L/180				24.5	22.0	20.5	
	Creep				24.5	22.0	20.5	
7-maxx	L/240							
	L/180							
	Creep							
9-maxx	L/240							
	L/180							
	Creep							
CANTILEVER	3-alt	L/240	9.0	9.0	7.5	7.0	6.5	6.0
		L/180	10.0	10.0	8.5	7.5	6.5	6.0
		Creep	8.5	8.5	7.5	7.0	6.5	6.0
	5-alt	L/240	13.5	13.5	12.0	10.5	10.0	9.0
		L/180	15.0	15.0	12.5	11.0	10.0	9.0
		Creep	12.5	12.5	11.5	11.0	10.0	9.0
	7-alt	L/240			15.5	14.0	12.5	11.5
		L/180			16.0	14.0	12.5	11.5
		Creep	16.0	16.0	15.0	14.0	12.5	11.5
	9-alt	L/240					15.5	14.5
		L/180					15.5	14.5
		Creep					15.5	14.5
4-maxx	L/240	11.0	11.0	10.0	9.0	8.0	7.5	
	L/180	12.5	12.5	10.5	9.5	8.5	7.5	
	Creep	10.5	10.5	9.5	9.0	8.5	7.5	
5-maxx	L/240	14.5	14.5	12.5	11.5	10.5	10.0	
	L/180	16.0	16.0	14.0	12.0	11.0	10.0	
	Creep	13.5	13.5	12.5	11.5	11.0	10.0	
7-maxx	L/240				15.5	14.5	13.5	
	L/180				16.0	14.5	13.5	
	Creep				15.5	14.5	13.5	
9-maxx	L/240						16.0	
	L/180						16.0	
	Creep						16.0	

TABLE NOTES

- Governed by bending strength
- Governed by shear strength
- Governed by 50 ft max panel length
- Live Load Deflection Limits: L/600 & L/360
- Total Load Deflection Limit: L/240
- Creep Deflection Limit: L/240
- "NA": Floor panels do not meet the specified deflection criteria
- 50 ft – Single Span
- 25 ft – Two Equal Span
- 16 ft – Cantilever with 32 ft Backspan

Roof - Allowable Span Chart (FT)

V2M5 (Normal Weight Assembly - 20 psf)

MAJOR STRENGTH DIRECTION

No. of Spans	CLT Layup	Total Load Deflection	Live Load 125%, psf	Snow Load 115%, psf				
				20	40	60	80	100
1	3-alt	L/240	15.5	15.5	14.0	12.5	12.0	11.0
		L/180	17.5	17.5	15.5	14.0	13.0	11.5
		Creep	14.5	14.5	13.5	12.5	12.0	11.5
	5-alt	L/240	23.5	23.5	21.5	19.5	18.5	17.5
		L/180	26.0	26.0	23.5	21.0	19.0	17.5
		Creep	22.0	22.0	20.5	19.5	18.5	17.5
	7-alt	L/240	31.0	31.0	28.0	26.0	24.5	23.0
		L/180	34.0	34.0	30.0	27.0	24.5	23.0
		Creep	28.5	28.5	27.0	25.5	24.5	23.0
	9-alt	L/240	37.5	37.5	34.5	32.0	30.0	28.0
		L/180	41.5	41.0	36.0	32.5	30.0	28.0
		Creep	34.5	34.5	33.0	31.5	30.0	28.0
4-maxx	L/240	20.0	20.0	17.5	16.0	15.0	14.0	
	L/180	22.0	22.0	19.5	18.0	16.0	15.0	
	Creep	18.5	18.5	17.0	16.0	15.5	14.5	
5-maxx	L/240	25.5	25.5	23.0	21.0	19.5	18.5	
	L/180	28.0	28.0	25.5	23.5	21.0	19.5	
	Creep	23.5	23.5	22.0	21.0	20.0	19.0	
7-maxx	L/240	33.5	33.5	30.5	28.5	26.5	25.0	
	L/180	37.0	37.0	34.0	30.5	28.0	26.0	
	Creep	31.0	31.0	29.0	27.5	26.5	25.5	
9-maxx	L/240	41.0	41.0	37.5	35.0	33.0	31.5	
	L/180	45.5	45.5	41.0	37.0	34.0	31.5	
	Creep	37.5	37.5	35.5	34.0	32.5	31.5	
2	3-alt	L/240	20.0	19.0	16.0	14.0	13.0	11.5
		L/180	20.0	19.0	16.0	14.0	13.0	11.5
		Creep	20.0	19.0	16.0	14.0	13.0	11.5
	5-alt	L/240			23.5	21.0	19.0	17.5
		L/180			23.5	21.0	19.0	17.5
		Creep			23.5	21.0	19.0	17.5
	7-alt	L/240					24.5	23.0
		L/180					24.5	23.0
		Creep					24.5	23.0
	9-alt	L/240						
		L/180						
		Creep						
4-maxx	L/240	24.5	23.5	20.0	18.0	16.0	15.0	
	L/180	24.5	23.5	20.0	18.0	16.0	15.0	
	Creep	24.5	23.5	20.0	18.0	16.0	15.0	
5-maxx	L/240				23.5	21.0	19.5	
	L/180				23.5	21.0	19.5	
	Creep				23.5	21.0	19.5	
7-maxx	L/240							
	L/180							
	Creep							
9-maxx	L/240							
	L/180							
	Creep							
CANTILEVER	3-alt	L/240	8.0	8.0	7.5	6.5	6.0	5.5
		L/180	9.0	9.0	8.0	7.0	6.5	5.5
		Creep	7.5	7.5	7.0	6.5	6.0	5.5
	5-alt	L/240	12.5	12.5	11.0	10.5	9.5	8.5
		L/180	14.0	13.5	11.5	10.5	9.5	8.5
		Creep	11.5	11.5	11.0	10.0	9.5	8.5
	7-alt	L/240			15.0	13.5	12.0	11.5
		L/180			15.0	13.5	12.0	11.5
		Creep	15.0	15.0	14.0	13.5	12.0	11.5
	9-alt	L/240				16.0	15.0	14.0
		L/180				16.0	15.0	14.0
		Creep				16.0	15.0	14.0
4-maxx	L/240	10.5	10.5	9.5	8.5	8.0	7.5	
	L/180	11.5	11.5	10.0	9.0	8.0	7.5	
	Creep	9.5	9.5	9.0	8.5	8.0	7.5	
5-maxx	L/240	13.5	13.5	12.0	11.0	10.5	9.5	
	L/180	15.0	15.0	13.0	11.5	10.5	9.5	
	Creep	12.5	12.5	11.5	11.0	10.5	9.5	
7-maxx	L/240			16.0	15.0	14.0	13.0	
	L/180			15.5	15.0	14.0	13.0	
	Creep			15.5	14.5	14.0	13.0	
9-maxx	L/240						15.5	
	L/180						15.5	
	Creep						15.5	

TABLE NOTES

- Governed by bending strength
- Governed by shear strength
- Governed by 50 ft max panel length
- Live Load Deflection Limits: L/600 & L/360
- Total Load Deflection Limit: L/240
- Creep Deflection Limit: L/240
- "NA": Floor panels do not meet the specified deflection criteria
- 50 ft – Single Span
- 25 ft – Two Equal Span
- 16 ft – Cantilever with 32 ft Backspan

Roof - Allowable Span Chart (FT)

V4M1 (Light Weight Assembly - 10 psf)

MAJOR STRENGTH DIRECTION

No. of Spans	CLT Layup	Total Load Deflection	Live Load 125%, psf	Snow Load 115%, psf				
				20	20	40	60	80
1	3-alt	L/240	15.5	15.5	13.5	12.0	11.0	10.5
		L/180	17.0	17.0	15.0	13.5	12.5	11.5
		Creep	15.0	15.0	13.5	12.5	11.5	11.0
	5-alt	L/240	23.5	23.5	20.5	18.5	17.5	16.5
		L/180	25.5	25.5	22.5	20.5	18.5	17.0
		Creep	22.0	22.0	20.0	19.0	18.0	17.0
	7-alt	L/240	30.0	30.0	27.0	25.0	23.0	22.0
		L/180	33.5	33.5	30.0	26.5	24.0	22.5
		Creep	28.0	28.0	26.0	24.5	23.5	22.5
	9-alt	L/240	36.5	36.5	33.0	30.5	28.5	27.0
		L/180	40.5	40.5	36.0	32.0	29.5	27.0
		Creep	34.0	34.0	32.0	30.0	28.5	27.0
4-maxx	L/240	19.5	19.5	17.0	15.5	14.5	13.5	
	L/180	21.5	21.5	19.0	17.0	16.0	14.5	
	Creep	18.5	18.5	17.0	15.5	15.0	14.0	
5-maxx	L/240	25.0	25.0	22.0	20.0	18.5	17.5	
	L/180	27.5	27.5	24.5	22.5	20.5	19.0	
	Creep	23.5	23.5	21.5	20.5	19.0	18.0	
7-maxx	L/240	33.0	33.0	29.5	27.0	25.0	23.5	
	L/180	36.0	36.0	32.5	30.0	27.5	25.5	
	Creep	30.5	30.5	28.5	27.0	25.5	24.5	
9-maxx	L/240	40.0	40.0	36.0	33.0	31.0	29.5	
	L/180	44.0	44.0	39.5	36.5	33.5	31.0	
	Creep	37.0	37.0	34.5	32.5	31.0	30.0	
2	3-alt	L/240	21.0	20.0	16.5	14.0	12.5	11.5
		L/180	21.0	20.0	16.5	14.0	12.5	11.5
		Creep	20.0	20.0	16.5	14.0	12.5	11.5
	5-alt	L/240			23.5	21.0	18.5	17.0
		L/180			23.5	21.0	18.5	17.0
		Creep			23.5	21.0	18.5	17.0
	7-alt	L/240					24.0	22.5
		L/180					24.0	22.5
		Creep					24.0	22.5
	9-alt	L/240						
		L/180						
		Creep						
4-maxx	L/240		25.0	20.5	18.0	16.0	14.5	
	L/180		25.0	20.5	18.0	16.0	14.5	
	Creep	25.0	25.0	20.5	18.0	16.0	14.5	
5-maxx	L/240				23.0	21.0	19.0	
	L/180				23.0	21.0	19.0	
	Creep				23.0	21.0	19.0	
7-maxx	L/240							
	L/180							
	Creep							
9-maxx	L/240							
	L/180							
	Creep							
CANTILEVER	3-alt	L/240	8.0	8.0	7.0	6.5	6.0	5.5
		L/180	9.0	9.0	8.0	7.0	6.0	5.5
		Creep	8.0	8.0	7.0	6.5	6.0	5.5
	5-alt	L/240	12.5	12.5	11.0	10.0	9.0	8.5
		L/180	13.5	13.5	11.5	10.5	9.0	8.5
		Creep	11.5	11.5	10.5	10.0	9.0	8.5
	7-alt	L/240	16.0	16.0	14.0	13.0	12.0	11.0
		L/180			15.0	13.0	12.0	11.0
		Creep	15.0	15.0	14.0	13.0	12.0	11.0
	9-alt	L/240				16.0	14.5	13.5
		L/180				16.0	14.5	13.5
		Creep				16.0	14.5	13.5
4-maxx	L/240	10.5	10.5	9.0	8.0	7.5	7.0	
	L/180	11.5	11.5	10.0	9.0	8.0	7.0	
	Creep	10.0	10.0	9.0	8.0	7.5	7.0	
5-maxx	L/240	13.0	13.0	11.5	10.5	10.0	9.0	
	L/180	14.5	14.5	13.0	11.5	10.5	9.5	
	Creep	12.5	12.5	11.5	10.5	10.0	9.5	
7-maxx	L/240			15.5	14.0	13.0	12.5	
	L/180				15.0	13.5	12.5	
	Creep	16.0	16.0	15.0	14.0	13.5	12.5	
9-maxx	L/240						15.5	
	L/180						15.5	
	Creep						15.5	

TABLE NOTES

- Governed by bending strength
- Governed by shear strength
- Governed by 50 ft max panel length
- Live Load Deflection Limits: L/600 & L/360
- Total Load Deflection Limit: L/240
- Creep Deflection Limit: L/240
- "NA": Floor panels do not meet the specified deflection criteria
- 50 ft – Single Span
- 25 ft – Two Equal Span
- 16 ft – Cantilever with 32 ft Backspan

V4M1 (Normal Weight Assembly - 20 psf)

Roof - Allowable Span Chart (FT)

MAJOR STRENGTH DIRECTION

No. of Spans	CLT Layout	Total Load Deflection	Live Load 125%, psf	Snow Load 115%, psf				
				20	40	60	80	100
1	3-alt	L/240	14.5	14.5	12.5	11.5	11.0	10.0
		L/180	16.0	16.0	14.0	13.0	12.0	11.0
		Creep	13.5	13.5	12.5	11.5	11.0	10.5
	5-alt	L/240	21.5	21.5	19.5	18.0	17.0	16.0
		L/180	24.0	24.0	21.5	19.5	18.0	16.5
		Creep	20.0	20.0	19.0	18.0	17.0	16.0
	7-alt	L/240	28.5	28.5	26.0	24.0	22.5	21.5
		L/180	31.5	31.5	28.0	25.5	23.0	21.5
		Creep	26.0	26.0	24.5	23.5	22.5	21.5
	9-alt	L/240	34.5	34.5	32.0	29.5	28.0	26.0
		L/180	38.5	38.5	34.0	30.5	28.0	26.0
		Creep	32.0	32.0	30.0	28.5	27.5	26.0
4-maxx	L/240	18.0	18.0	16.0	15.0	14.0	13.0	
	L/180	20.0	20.0	18.0	16.5	15.0	14.0	
	Creep	17.0	17.0	15.5	15.0	14.0	13.5	
5-maxx	L/240	23.5	23.5	21.0	19.5	18.0	17.0	
	L/180	26.0	26.0	23.0	21.5	20.0	18.5	
	Creep	21.5	21.5	20.5	19.0	18.0	17.5	
7-maxx	L/240	31.0	31.0	28.0	26.0	24.5	23.0	
	L/180	34.0	34.0	31.0	29.0	26.5	24.5	
	Creep	28.5	28.5	27.0	25.5	24.5	23.5	
9-maxx	L/240	37.5	37.5	34.5	32.0	30.0	28.5	
	L/180	41.5	41.5	38.0	35.0	32.0	29.5	
	Creep	34.5	34.5	32.5	31.0	30.0	28.5	
2	3-alt	L/240	18.5	18.0	15.0	13.5	12.0	11.0
		L/180	18.5	18.0	15.0	13.5	12.0	11.0
		Creep		18.0	15.0	13.5	12.0	11.0
	5-alt	L/240			22.0	19.5	18.0	16.5
		L/180			22.0	19.5	18.0	16.5
		Creep			22.0	19.5	18.0	16.5
	7-alt	L/240					23.0	21.5
		L/180					23.0	21.5
		Creep					23.0	21.5
	9-alt	L/240						
		L/180						
		Creep						
4-maxx	L/240	23.0	22.5	19.0	17.0	15.0	14.0	
	L/180	23.0	22.5	19.0	17.0	15.0	14.0	
	Creep	23.0	22.5	19.0	17.0	15.0	14.0	
5-maxx	L/240			24.5	22.0	20.0	18.5	
	L/180			24.5	22.0	20.0	18.5	
	Creep			24.5	22.0	20.0	18.5	
7-maxx	L/240						24.5	
	L/180						24.5	
	Creep						24.5	
9-maxx	L/240							
	L/180							
	Creep							
CANTILEVER	3-alt	L/240	7.5	7.5	6.5	6.0	5.5	5.0
		L/180	8.5	8.5	7.5	6.5	6.0	5.5
		Creep	7.0	7.0	6.5	6.0	5.5	5.5
	5-alt	L/240	11.5	11.5	10.5	9.5	9.0	8.0
		L/180	12.5	12.5	11.0	9.5	9.0	8.0
		Creep	10.5	10.5	10.0	9.5	9.0	8.0
	7-alt	L/240	15.0	15.0	13.5	12.5	11.5	10.5
		L/180	16.5	16.0	14.0	12.5	11.5	10.5
		Creep	14.0	14.0	13.0	12.5	11.5	10.5
	9-alt	L/240				15.0	14.0	13.0
		L/180				15.0	14.0	13.0
		Creep			16.0	15.0	14.0	13.0
4-maxx	L/240	9.5	9.5	8.5	8.0	7.0	7.0	
	L/180	10.5	10.5	9.5	8.5	7.5	7.0	
	Creep	9.0	9.0	8.0	7.5	7.5	7.0	
5-maxx	L/240	12.5	12.5	11.0	10.0	9.5	9.0	
	L/180	13.5	13.5	12.0	11.0	10.0	9.0	
	Creep	11.5	11.5	10.5	10.0	9.5	9.0	
7-maxx	L/240			15.0	13.5	13.0	12.0	
	L/180			16.0	14.5	13.0	12.0	
	Creep	15.0	15.0	14.0	13.5	13.0	12.0	
9-maxx	L/240					16.0	14.5	
	L/180					16.0	14.5	
	Creep					15.5	14.5	

TABLE NOTES

- Governed by bending strength
- Governed by shear strength
- Governed by 50 ft max panel length
- Live Load Deflection Limits: L/600 & L/360
- Total Load Deflection Limit: L/240
- Creep Deflection Limit: L/240
- "NA": Floor panels do not meet the specified deflection criteria
- 50 ft – Single Span
- 25 ft – Two Equal Span
- 16 ft – Cantilever with 32 ft Backspan

Roof - Allowable Span Chart (FT)

V5M1 (Light Weight Assembly - 10 psf)

MAJOR STRENGTH DIRECTION

No. of Spans	CLT Layup	Total Load Deflection	Live Load 125%, psf	Snow Load 115%, psf				
				20	40	60	80	100
1	3-alt	L/240	16.5	16.5	14.5	13.0	12.0	11.0
		L/180	18.0	18.0	16.0	14.5	13.0	12.0
		Creep	16.0	16.0	14.5	13.0	12.5	11.5
	5-alt	L/240	24.5	24.5	22.0	20.0	18.5	17.5
		L/180	27.0	27.0	24.0	21.5	19.5	18.0
		Creep	23.5	23.5	21.5	20.0	19.0	18.0
	7-alt	L/240	32.0	32.0	28.5	26.5	24.5	23.0
		L/180	35.5	35.5	31.5	28.0	25.5	23.5
		Creep	30.0	30.0	28.0	26.0	25.0	23.5
	9-alt	L/240	39.0	39.0	35.0	32.5	30.5	28.5
		L/180	43.0	43.0	37.5	33.5	30.5	28.5
		Creep	36.0	36.0	33.5	32.0	30.5	28.5
4-maxx	L/240	21.0	21.0	18.0	16.5	15.0	14.5	
	L/180	23.0	23.0	20.0	18.0	16.5	15.0	
	Creep	20.0	20.0	18.0	16.5	15.5	15.0	
5-maxx	L/240	26.5	26.5	23.5	21.5	20.0	18.5	
	L/180	29.5	29.5	26.0	23.5	22.0	20.0	
	Creep	25.0	25.0	23.0	21.5	20.5	19.5	
7-maxx	L/240	35.0	35.0	31.0	28.5	26.5	25.0	
	L/180	38.5	38.5	34.5	31.5	29.0	26.5	
	Creep	32.5	32.5	30.0	28.5	27.0	26.0	
9-maxx	L/240	42.0	42.0	38.0	35.0	33.0	31.5	
	L/180	46.5	46.5	42.0	38.0	35.0	32.5	
	Creep	39.0	39.0	36.5	34.5	33.0	31.5	
2	3-alt	L/240	22.0	21.0	17.0	15.0	13.0	12.0
		L/180	22.0	21.0	17.0	15.0	13.0	12.0
		Creep	21.5	21.0	17.0	15.0	13.0	12.0
	5-alt	L/240			25.0	21.5	19.5	18.0
		L/180			25.0	21.5	19.5	18.0
		Creep			25.0	21.5	19.5	18.0
	7-alt	L/240						23.5
		L/180						23.5
		Creep						23.5
	9-alt	L/240						
		L/180						
		Creep						
4-maxx	L/240			21.5	18.5	16.5	15.0	
	L/180			21.5	18.5	16.5	15.0	
	Creep			21.5	18.5	16.5	15.0	
5-maxx	L/240				24.5	22.0	20.0	
	L/180				24.5	22.0	20.0	
	Creep				24.5	22.0	20.0	
7-maxx	L/240							
	L/180							
	Creep							
9-maxx	L/240							
	L/180							
	Creep							
CANTILEVER	3-alt	L/240	8.5	8.5	7.5	6.5	6.0	6.0
		L/180	9.5	9.5	8.5	7.5	6.5	6.0
		Creep	8.5	8.5	7.5	7.0	6.5	6.0
	5-alt	L/240	13.0	13.0	11.5	10.5	9.5	9.0
		L/180	14.5	14.5	12.5	10.5	9.5	9.0
		Creep	12.5	12.5	11.5	10.5	9.5	9.0
	7-alt	L/240			15.0	14.0	12.5	11.5
		L/180			15.5	14.0	12.5	11.5
		Creep	16.0	16.0	14.5	14.0	12.5	11.5
	9-alt	L/240					15.0	14.0
		L/180					15.0	14.0
		Creep					15.0	14.0
4-maxx	L/240	11.0	11.0	9.5	8.5	8.0	7.5	
	L/180	12.0	12.0	10.5	9.0	8.0	7.5	
	Creep	10.5	10.5	9.5	9.0	8.0	7.5	
5-maxx	L/240	14.0	14.0	12.5	11.0	10.5	10.0	
	L/180	15.5	15.5	13.5	12.0	11.0	10.0	
	Creep	13.0	13.0	12.0	11.5	10.5	10.0	
7-maxx	L/240				15.0	14.0	13.0	
	L/180				15.5	14.5	13.0	
	Creep			16.0	15.0	14.0	13.0	
9-maxx	L/240						16.0	
	L/180						16.0	
	Creep						16.0	

TABLE NOTES

- Governed by bending strength
- Governed by shear strength
- Governed by 50 ft max panel length
- Live Load Deflection Limits: L/600 & L/360
- Total Load Deflection Limit: L/240
- Creep Deflection Limit: L/240
- "NA": Floor panels do not meet the specified deflection criteria
- 50 ft – Single Span
- 25 ft – Two Equal Span
- 16 ft – Cantilever with 32 ft Backspan

Roof - Allowable Span Chart (FT)

V5M1 (Normal Weight Assembly - 20 psf)

MAJOR STRENGTH DIRECTION

No. of Spans	CLT Layup	Total Load Deflection	Live Load 125%, psf	Snow Load 115%, psf				
				20	40	60	80	100
1	3-alt	L/240	15.0	15.0	13.5	12.5	11.5	11.0
		L/180	17.0	17.0	15.0	13.5	12.5	11.5
		Creep	14.5	14.5	13.0	12.5	11.5	11.0
	5-alt	L/240	23.0	23.0	20.5	19.0	18.0	17.0
		L/180	25.5	25.5	23.0	20.5	18.5	17.5
		Creep	21.5	21.5	20.0	19.0	18.0	17.0
	7-alt	L/240	30.0	30.0	27.5	25.5	24.0	22.5
		L/180	33.5	33.5	29.5	26.5	24.5	22.5
		Creep	28.0	28.0	26.0	25.0	24.0	22.5
	9-alt	L/240	37.0	37.0	33.5	31.5	29.5	27.5
		L/180	40.5	40.5	35.5	32.0	29.5	27.5
		Creep	33.5	33.5	32.0	30.5	29.0	27.5
4-maxx	L/240	19.5	19.5	17.0	16.0	14.5	14.0	
	L/180	21.5	21.5	19.0	17.5	16.0	14.5	
	Creep	18.0	18.0	16.5	15.5	15.0	14.0	
5-maxx	L/240	25.0	25.0	22.5	20.5	19.0	18.0	
	L/180	27.5	27.5	24.5	22.5	21.0	19.5	
	Creep	23.0	23.0	21.5	20.5	19.5	18.5	
7-maxx	L/240	33.0	33.0	30.0	27.5	26.0	24.5	
	L/180	36.0	36.0	33.0	30.0	27.5	25.5	
	Creep	30.0	30.0	28.5	27.0	26.0	25.0	
9-maxx	L/240	40.0	40.0	36.5	34.0	32.0	30.5	
	L/180	44.0	44.0	40.5	36.5	33.5	31.0	
	Creep	36.5	36.5	34.5	33.0	31.5	30.5	
2	3-alt	L/240	19.5	19.0	16.0	14.0	12.5	11.5
		L/180	19.5	19.0	16.0	14.0	12.5	11.5
		Creep	19.5	19.0	16.0	14.0	12.5	11.5
	5-alt	L/240			23.0	20.5	18.5	17.5
		L/180			23.0	20.5	18.5	17.5
		Creep			23.0	20.5	18.5	17.5
	7-alt	L/240					24.5	22.5
		L/180					24.5	22.5
		Creep					24.5	22.5
	9-alt	L/240						
		L/180						
		Creep						
4-maxx	L/240	24.5	23.5	20.0	17.5	16.0	14.5	
	L/180	24.5	23.5	20.0	17.5	16.0	14.5	
	Creep	24.5	23.5	20.0	17.5	16.0	14.5	
5-maxx	L/240				23.0	21.0	19.5	
	L/180				23.0	21.0	19.5	
	Creep				23.0	21.0	19.5	
7-maxx	L/240							
	L/180							
	Creep							
9-maxx	L/240							
	L/180							
	Creep							
CANTILEVER	3-alt	L/240	8.0	8.0	7.0	6.5	6.0	5.5
		L/180	9.0	9.0	8.0	7.0	6.0	5.5
		Creep	7.5	7.5	7.0	6.5	6.0	5.5
	5-alt	L/240	12.0	12.0	11.0	10.0	9.0	8.5
		L/180	13.5	13.5	11.5	10.0	9.0	8.5
		Creep	11.5	11.5	10.5	10.0	9.0	8.5
	7-alt	L/240	16.0	16.0	14.5	13.0	12.0	11.0
		L/180			14.5	13.0	12.0	11.0
		Creep	14.5	14.5	14.0	13.0	12.0	11.0
	9-alt	L/240				16.0	14.5	13.5
		L/180				16.0	14.5	13.5
		Creep				16.0	14.5	13.5
4-maxx	L/240	10.0	10.0	9.0	8.5	7.5	7.0	
	L/180	11.0	11.0	10.0	8.5	8.0	7.0	
	Creep	9.5	9.5	9.0	8.0	8.0	7.0	
5-maxx	L/240	13.0	13.0	11.5	11.0	10.0	9.5	
	L/180	14.5	14.5	13.0	11.5	10.5	9.5	
	Creep	12.0	12.0	11.5	10.5	10.0	9.5	
7-maxx	L/240			15.5	14.5	13.5	12.5	
	L/180				15.0	13.5	12.5	
	Creep	16.0	16.0	15.0	14.0	13.5	12.5	
9-maxx	L/240						15.5	
	L/180						15.5	
	Creep						15.5	

TABLE NOTES

- Governed by bending strength
- Governed by shear strength
- Governed by 50 ft max panel length
- Live Load Deflection Limits: L/600 & L/360
- Total Load Deflection Limit: L/240
- Creep Deflection Limit: L/240
- "NA": Floor panels do not meet the specified deflection criteria
- 50 ft – Single Span
- 25 ft – Two Equal Span
- 16 ft – Cantilever with 32 ft Backspan

V5M2 (Light Weight Assembly - 10 psf)

Roof - Allowable Span Chart (FT)

MAJOR STRENGTH DIRECTION

No. of Spans	CLT Layout	Total Load Deflection	Live Load 125%, psf		Snow Load 115%, psf				
			20	20	40	60	80	100	
1	3-alt	L/240	17.5	17.5	15.5	14.0	13.0	12.0	
		L/180	19.5	19.5	17.0	15.5	14.0	13.5	
		Creep	17.0	17.0	15.5	14.0	13.5	12.5	
	5-alt	L/240	26.5	26.5	23.5	21.5	20.0	18.5	
		L/180	29.0	29.0	26.0	23.5	22.0	20.5	
		Creep	25.0	25.0	23.0	21.5	20.5	19.5	
	7-alt	L/240	34.5	34.5	31.0	28.5	26.5	25.0	
		L/180	38.0	38.0	34.0	31.5	29.0	27.5	
		Creep	32.0	32.0	30.0	28.0	26.5	25.5	
	9-alt	L/240	41.5	41.5	37.5	35.0	32.5	31.0	
		L/180	46.0	46.0	41.5	38.5	36.0	34.5	
		Creep	38.5	38.5	36.0	34.5	33.0	31.5	
4-maxx	L/240	22.5	22.5	19.5	17.5	16.5	15.5		
	L/180	24.5	24.5	21.5	19.5	18.0	17.0		
	Creep	21.5	21.5	19.5	18.0	17.0	16.0		
5-maxx	L/240	28.5	28.5	25.0	23.0	21.5	20.0		
	L/180	31.5	31.5	28.0	25.5	23.5	22.0		
	Creep	27.0	27.0	24.5	23.0	22.0	21.0		
7-maxx	L/240	37.5	37.5	33.5	30.5	28.5	27.0		
	L/180	41.0	41.0	37.0	34.0	32.0	30.0		
	Creep	35.0	35.0	32.5	30.5	29.0	28.0		
9-maxx	L/240	45.5	45.5	41.0	38.0	35.5	33.5		
	L/180	50.0	50.0	45.0	42.0	39.5	37.0		
	Creep	42.0	42.0	39.5	37.5	35.5	34.0		
2	3-alt	L/240	24.0	24.0	20.5	18.5	17.0	15.5	
		L/180			22.0	19.0	17.0	15.5	
		Creep	23.0	23.0	20.5	19.0	17.0	15.5	
	5-alt	L/240					25.0	23.0	
		L/180					25.0	23.0	
		Creep					25.0	23.0	
	7-alt	L/240							
		L/180							
		Creep							
	9-alt	L/240							
		L/180							
		Creep							
4-maxx	L/240				24.0	21.5	19.5		
	L/180				24.0	21.5	19.5		
	Creep				24.0	21.5	19.5		
5-maxx	L/240								
	L/180								
	Creep								
7-maxx	L/240								
	L/180								
	Creep								
9-maxx	L/240								
	L/180								
	Creep								
CANTILEVER	3-alt	L/240	9.5	9.5	8.0	7.0	6.5	6.0	
		L/180	10.5	10.5	9.0	8.0	7.5	7.0	
		Creep	9.0	9.0	8.0	7.5	7.0	6.5	
	5-alt	L/240	14.0	14.0	12.5	11.0	10.5	10.0	
		L/180	15.5	15.5	13.5	12.5	11.5	11.0	
		Creep	13.0	13.0	12.0	11.5	10.5	10.0	
	7-alt	L/240				15.0	14.0	13.0	
		L/180					15.5	14.5	
		Creep				15.0	14.0	13.5	
	9-alt	L/240							
		L/180							
		Creep							
4-maxx	L/240	12.0	12.0	10.5	9.5	8.5	8.0		
	L/180	13.0	13.0	11.5	10.5	9.5	9.0		
	Creep	11.0	11.0	10.0	9.5	9.0	8.5		
5-maxx	L/240	15.0	15.0	13.5	12.0	11.0	10.5		
	L/180			14.5	13.5	12.5	11.5		
	Creep	14.0	14.0	13.0	12.0	11.5	11.0		
7-maxx	L/240				16.0	15.0	14.5		
	L/180					15.5	16.0		
	Creep				16.0	15.5	14.5		
9-maxx	L/240								
	L/180								
	Creep								

TABLE NOTES

- Governed by bending strength
- Governed by shear strength
- Governed by 50 ft max panel length
- Live Load Deflection Limits: L/600 & L/360
- Total Load Deflection Limit: L/240
- Creep Deflection Limit: L/240
- "NA": Floor panels do not meet the specified deflection criteria
- 50 ft – Single Span
- 25 ft – Two Equal Span
- 16 ft – Cantilever with 32 ft Backspan

V5M2 (Normal Weight Assembly - 20 psf)

Roof - Allowable Span Chart (FT)

MAJOR STRENGTH DIRECTION

No. of Spans	CLT Layup	Total Load Deflection	Live Load 125%, psf	Snow Load 115%, psf					
				20	40	60	80	100	
1	3-alt	L/240	16.5	16.5	14.5	13.5	12.5	11.5	
		L/180	18.0	18.0	16.0	14.5	13.5	13.0	
		Creep	15.5	15.5	14.0	13.5	12.5	12.0	
	5-alt	L/240	25.0	25.0	22.5	20.5	19.0	18.0	
		L/180	27.5	27.5	24.5	22.5	21.5	20.0	
		Creep	23.0	23.0	21.5	20.5	19.5	18.5	
	7-alt	L/240	32.5	32.5	29.5	27.5	25.5	24.5	
		L/180	36.0	36.0	32.5	30.0	28.5	27.0	
		Creep	30.0	30.0	28.0	26.5	25.5	24.5	
	9-alt	L/240	39.5	39.5	36.0	33.5	32.0	30.5	
L/180		43.5	43.5	40.0	37.5	35.0	33.5		
Creep		36.0	36.0	34.5	33.0	31.5	30.5		
4-maxx	L/240	20.5	20.5	18.5	17.0	16.0	15.0		
	L/180	23.0	23.0	20.5	19.0	17.5	16.5		
	Creep	19.5	19.5	18.0	17.0	16.0	15.5		
5-maxx	L/240	26.5	26.5	24.0	22.0	20.5	19.5		
	L/180	29.5	29.5	26.5	24.5	23.0	21.5		
	Creep	24.5	24.5	23.0	22.0	21.0	20.0		
7-maxx	L/240	35.0	35.0	32.0	29.5	28.0	26.5		
	L/180	39.0	39.0	35.5	33.0	31.0	29.0		
	Creep	32.5	32.5	30.5	29.0	28.0	26.5		
9-maxx	L/240	43.0	43.0	39.5	36.5	34.5	33.0		
	L/180	47.5	47.5	43.5	40.5	38.0	36.5		
	Creep	39.5	39.5	37.5	35.5	34.0	33.0		
2	3-alt	L/240	22.0	22.0	19.5	18.0	16.0	15.0	
		L/180	24.5	24.0	20.5	18.0	16.0	15.0	
		Creep	20.5	20.5	19.0	18.0	16.0	15.0	
	5-alt	L/240						24.0	22.0
		L/180						24.0	22.0
		Creep						24.0	22.0
	7-alt	L/240							
		L/180							
Creep									
9-alt	L/240								
	L/180								
	Creep								
4-maxx	L/240			25.0	22.5	20.5	19.0		
	L/180			25.5	22.5	20.5	19.0		
	Creep			24.5	22.5	20.5	19.0		
5-maxx	L/240						25.0		
	L/180						25.0		
	Creep						25.0		
7-maxx	L/240								
	L/180								
	Creep								
9-maxx	L/240								
	L/180								
	Creep								
CANTILEVER	3-alt	L/240	8.5	8.5	7.5	7.0	6.5	6.0	
		L/180	9.5	9.5	8.5	7.5	7.0	6.5	
		Creep	8.0	8.0	7.5	7.0	6.5	6.0	
	5-alt	L/240	13.0	13.0	11.5	11.0	10.0	9.5	
		L/180	14.5	14.5	13.0	12.0	11.0	10.5	
		Creep	12.0	12.0	11.5	10.5	10.0	9.5	
	7-alt	L/240				15.5	14.5	13.5	13.0
		L/180					16.0	15.0	14.0
		Creep				16.0	16.0	15.0	14.0
	9-alt	L/240							
L/180									
Creep									
4-maxx	L/240	11.0	11.0	9.5	9.0	8.5	8.0		
	L/180	12.0	12.0	11.0	10.0	9.0	8.5		
	Creep	10.0	10.0	9.5	9.0	8.5	8.0		
5-maxx	L/240	14.0	14.0	12.5	11.5	11.0	10.5		
	L/180	15.5	15.5	14.0	13.0	12.0	11.5		
	Creep	13.0	13.0	12.0	11.5	11.0	10.5		
7-maxx	L/240					15.5	14.5	14.0	
	L/180								
	Creep					16.0	15.5	14.5	14.0
9-maxx	L/240								
	L/180								
	Creep								

TABLE NOTES

- Governed by bending strength
- Governed by shear strength
- Governed by 50 ft max panel length
- 50 ft – Single Span
- 25 ft – Two Equal Span
- 16 ft – Cantilever with 32 ft Backspan
- Live Load Deflection Limits: L/600 & L/360
- Total Load Deflection Limit: L/240
- Creep Deflection Limit: L/240
- "NA": Floor panels do not meet the specified deflection criteria

Roof - Allowable Span Chart (FT)

E21M1 (Light Weight Assembly - 10 psf)

MAJOR STRENGTH DIRECTION

No. of Spans	CLT Layup	Total Load Deflection	Live Load 125%, psf	Snow Load 115%, psf				
				20	40	60	80	100
1	3-alt	L/240	18.0	18.0	16.0	14.0	13.0	12.0
		L/180	20.0	20.0	17.5	16.0	14.5	13.5
		Creep	17.5	17.5	16.0	14.5	13.5	13.0
	5-alt	L/240	27.5	27.5	24.0	22.0	20.5	19.0
		L/180	30.0	30.0	26.5	24.5	22.5	21.0
		Creep	26.0	26.0	23.5	22.0	21.0	20.0
	7-alt	L/240	35.5	35.5	31.5	29.0	27.0	25.5
		L/180	39.0	39.0	35.0	32.0	30.0	28.5
		Creep	33.0	33.0	30.5	29.0	27.5	26.0
	9-alt	L/240	43.0	43.0	39.0	36.0	33.5	31.5
		L/180	47.5	47.5	43.0	39.5	37.0	35.0
		Creep	40.0	40.0	37.5	35.5	33.5	32.0
4-maxx	L/240	23.0	23.0	20.0	18.0	16.5	15.5	
	L/180	25.5	25.5	22.0	20.0	18.5	17.5	
	Creep	22.0	22.0	20.0	18.5	17.5	16.5	
5-maxx	L/240	29.5	29.5	26.0	23.5	22.0	20.5	
	L/180	32.5	32.5	28.5	26.0	24.5	23.0	
	Creep	27.5	27.5	25.5	23.5	22.5	21.5	
7-maxx	L/240	38.5	38.5	34.5	31.5	29.5	28.0	
	L/180	42.5	42.5	38.0	35.0	32.5	31.0	
	Creep	36.0	36.0	33.5	31.5	29.5	28.5	
9-maxx	L/240	46.5	46.5	42.0	39.0	36.5	34.5	
	L/180	51.5	51.5	46.5	43.0	40.5	38.0	
	Creep	43.0	43.0	40.5	38.0	36.5	35.0	
2	3-alt	L/240	24.5	24.5	21.5	19.5	18.0	16.5
		L/180			23.5	21.5	20.0	18.5
		Creep	23.5	23.5	21.5	20.0	18.5	17.5
	5-alt	L/240						
		L/180						
		Creep						
	7-alt	L/240						
		L/180						
		Creep						
	9-alt	L/240						
		L/180						
		Creep						
4-maxx	L/240				24.5	23.0	21.5	
	L/180						23.5	
	Creep				25.0	23.5	22.5	
5-maxx	L/240							
	L/180							
	Creep							
7-maxx	L/240							
	L/180							
	Creep							
9-maxx	L/240							
	L/180							
	Creep							
CANTILEVER	3-alt	L/240	9.5	9.5	8.5	7.5	7.0	6.5
		L/180	10.5	10.5	9.0	8.5	7.5	7.0
		Creep	9.0	9.0	8.5	7.5	7.0	6.5
	5-alt	L/240	14.5	14.5	12.5	11.5	10.5	10.0
		L/180	16.0	16.0	14.0	13.0	12.0	11.0
		Creep	13.5	13.5	12.5	11.5	11.0	10.5
	7-alt	L/240				15.5	14.5	13.5
		L/180					16.0	15.0
		Creep			16.0	15.0	14.5	14.0
	9-alt	L/240						
		L/180						
		Creep						
4-maxx	L/240	12.0	12.0	10.5	9.5	8.5	8.0	
	L/180	13.5	13.5	11.5	10.5	9.5	9.0	
	Creep	11.5	11.5	10.5	9.5	9.0	8.5	
5-maxx	L/240	15.5	15.5	13.5	12.5	11.5	11.0	
	L/180			15.0	14.0	13.0	12.0	
	Creep	14.5	14.5	13.5	12.5	12.0	11.0	
7-maxx	L/240					15.5	14.5	
	L/180						16.0	
	Creep					15.5	15.0	
9-maxx	L/240							
	L/180							
	Creep							

TABLE NOTES

 Governed by bending strength

- Live Load Deflection Limits: L/600 & L/360

- Total Load Deflection Limit: L/240

- Creep Deflection Limit: L/240

- "NA": Floor panels do not meet the specified deflection criteria

 Governed by shear strength

 Governed by 50 ft max panel length

50 ft – Single Span

25 ft – Two Equal Span

16 ft – Cantilever with 32 ft Backspan

Roof - Allowable Span Chart (FT)

E21M1 (Normal Weight Assembly - 20 psf)

MAJOR STRENGTH DIRECTION

No. of Spans	CLT Layup	Total Load Deflection	Live Load 125%, psf	Snow Load 115%, psf									
				20	40	60	80	100					
1	3-alt	L/240	17.0	17.0	15.0	13.5	12.5	12.0					
		L/180	18.5	18.5	16.5	15.0	14.0	13.0					
		Creep	16.0	16.0	14.5	13.5	13.0	12.0					
	5-alt	L/240	25.5	25.5	23.0	21.0	19.5	18.5					
		L/180	28.0	28.0	25.5	23.5	22.0	20.5					
		Creep	23.5	23.5	22.0	21.0	20.0	19.0					
	7-alt	L/240	33.5	33.5	30.5	28.0	26.5	25.0					
		L/180	37.0	37.0	33.5	31.0	29.0	27.5					
		Creep	30.5	30.5	29.0	27.5	26.0	25.0					
	9-alt	L/240	40.5	40.5	37.0	34.5	32.5	31.0					
L/180		45.0	45.0	41.0	38.5	36.0	34.5						
Creep		37.5	37.5	35.5	33.5	32.0	31.0						
4-maxx	L/240	21.5	21.5	19.0	17.5	16.0	15.0						
	L/180	23.5	23.5	21.0	19.5	18.0	17.0						
	Creep	20.0	20.0	18.5	17.5	16.5	15.5						
5-maxx	L/240	27.5	27.5	24.5	22.5	21.0	20.0						
	L/180	30.5	30.5	27.5	25.0	23.5	22.0						
	Creep	25.5	25.5	23.5	22.5	21.5	20.5						
7-maxx	L/240	36.0	36.0	33.0	30.5	28.5	27.0						
	L/180	40.0	40.0	36.5	33.5	31.5	30.0						
	Creep	33.5	33.5	31.5	29.5	28.5	27.5						
9-maxx	L/240	44.0	44.0	40.5	37.5	35.5	33.5						
	L/180	48.5	48.5	44.5	41.5	39.0	37.0						
	Creep	40.5	40.5	38.0	36.5	35.0	33.5						
2	3-alt	L/240	23.0	23.0	20.5	18.5	17.0	16.0					
		L/180	25.0	25.0	22.5	20.5	19.0	18.0					
		Creep	21.5	21.5	20.0	18.5	17.5	16.5					
	5-alt	L/240											
		L/180											
		Creep											
	7-alt	L/240											
		L/180											
		Creep											
	9-alt	L/240											
L/180													
Creep													
4-maxx	L/240								23.5	22.0	20.5		
	L/180				24.5	23.0							
	Creep	25.0	23.5	22.5	21.5								
5-maxx	L/240												
	L/180												
	Creep												
7-maxx	L/240												
	L/180												
	Creep												
9-maxx	L/240												
	L/180												
	Creep												
CANTILEVER	3-alt							L/240	9.0	9.0	8.0	7.0	6.5
		L/180	10.0	10.0	8.5	8.0	7.5	7.0					
		Creep	8.5	8.5	7.5	7.0	6.5	6.5					
	5-alt	L/240	13.5	13.5	12.0	11.0	10.5	9.5					
		L/180	15.0	15.0	13.5	12.5	11.5	11.0					
		Creep	12.5	12.5	11.5	11.0	10.5	10.0					
	7-alt	L/240					16.0	15.0	14.0	13.0			
		L/180							15.5	14.5			
		Creep	16.0	16.0	15.0	14.5	14.0	13.0					
	9-alt	L/240											
L/180													
Creep													
4-maxx	L/240	11.0							11.0	10.0	9.0	8.5	8.0
	L/180	12.5							12.5	11.0	10.0	9.5	9.0
	Creep	10.5							10.5	9.5	9.0	8.5	8.0
5-maxx	L/240	14.5							14.5	13.0	12.0	11.0	10.5
	L/180	16.0							16.0	14.5	13.0	12.5	11.5
	Creep	13.5							13.5	12.5	12.0	11.0	10.5
7-maxx	L/240								16.0	15.0	14.0		
	L/180							15.5	15.0				
	Creep			15.5	15.0	14.5							
9-maxx	L/240												
	L/180												
	Creep												

TABLE NOTES

- Governed by bending strength
- Governed by shear strength
- Governed by 50 ft max panel length
- Live Load Deflection Limits: L/600 & L/360
- Total Load Deflection Limit: L/240
- Creep Deflection Limit: L/240
- "NA": Floor panels do not meet the specified deflection criteria
- 50 ft – Single Span
- 25 ft – Two Equal Span
- 16 ft – Cantilever with 32 ft Backspan

Roof - Allowable Span Chart (FT)

V3 (Light Weight Assembly - 10 psf)

MAJOR STRENGTH DIRECTION

No. of Spans	CLT Layup	Total Load Deflection	Live Load 125%, psf	Snow Load 115%, psf				
				20	40	60	80	100
1	3-alt	L/240	20	20	40	60	80	100
		L/180	16.5	16.5	14.5	13.0	12.0	11.0
		Creep	18.0	18.0	15.5	13.5	12.0	11.0
	5-alt	L/240	24.5	24.5	22.0	20.0	18.0	16.5
		L/180	27.0	26.5	22.5	20.0	18.0	16.5
		Creep	23.0	23.0	21.0	20.0	18.0	16.5
	7-alt	L/240	31.5	31.5	28.5	25.5	23.0	21.5
		L/180	34.5	33.0	28.5	25.5	23.0	21.5
		Creep	29.0	29.0	27.5	25.5	23.0	21.5
	9-alt	L/240	38.0	38.0	33.5	30.5	28.0	26.0
		L/180	40.0	38.5	33.5	30.5	28.0	26.0
		Creep	35.0	35.0	33.0	30.5	28.0	26.0
	4-maxx	L/240	20.5	20.5	18.0	16.5	15.5	14.0
		L/180	23.0	23.0	19.5	17.0	15.5	14.0
		Creep	19.5	19.5	18.0	16.5	15.5	14.0
	5-maxx	L/240	26.5	26.5	23.5	21.5	20.0	18.5
		L/180	29.0	29.0	25.0	22.0	20.0	18.5
		Creep	24.5	24.5	23.0	21.5	20.0	18.5
7-maxx	L/240	34.5	34.5	31.0	28.5	26.0	24.5	
	L/180	38.0	37.5	32.0	29.0	26.0	24.5	
	Creep	31.5	31.5	29.5	28.0	26.0	24.5	
9-maxx	L/240	41.5	41.5	37.5	34.5	31.5	29.5	
	L/180	45.5	43.5	38.0	34.5	31.5	29.5	
	Creep	38.0	38.0	36.0	34.0	31.5	29.5	
2	3-alt	L/240	20.0	19.0	15.5	13.5	12.0	11.0
		L/180	20.0	19.0	15.5	13.5	12.0	11.0
		Creep	20.0	19.0	15.5	13.5	12.0	11.0
	5-alt	L/240			22.5	20.0	18.0	16.5
		L/180			22.5	20.0	18.0	16.5
		Creep			22.5	20.0	18.0	16.5
	7-alt	L/240					23.0	21.5
		L/180					23.0	21.5
		Creep					23.0	21.5
	9-alt	L/240						
		L/180						
		Creep						
4-maxx	L/240	24.5	23.5	19.5	17.0	15.5	14.0	
	L/180	24.5	23.5	19.5	17.0	15.5	14.0	
	Creep	24.5	23.5	19.5	17.0	15.5	14.0	
5-maxx	L/240			25.0	22.0	20.0	18.5	
	L/180			25.0	22.0	20.0	18.5	
	Creep			25.0	22.0	20.0	18.5	
7-maxx	L/240						24.5	
	L/180						24.5	
	Creep						24.5	
9-maxx	L/240							
	L/180							
	Creep							
CANTILEVER	3-alt	L/240	8.5	8.5	7.5	6.5	6.0	5.5
		L/180	9.5	9.5	7.5	6.5	6.0	5.5
		Creep	8.0	8.0	7.5	6.5	6.0	5.5
	5-alt	L/240	13.0	13.0	11.0	10.0	9.0	8.0
		L/180	14.0	13.0	11.0	10.0	9.0	8.0
		Creep	12.0	12.0	11.0	10.0	9.0	8.0
	7-alt	L/240			14.0	12.5	11.5	10.5
		L/180			14.0	12.5	11.5	10.5
		Creep	15.5	15.5	14.0	12.5	11.5	10.5
	9-alt	L/240				15.0	14.0	13.0
		L/180				15.0	14.0	13.0
		Creep				15.0	14.0	13.0
	4-maxx	L/240	11.0	11.0	9.5	8.5	7.5	7.0
		L/180	12.0	11.5	9.5	8.5	7.5	7.0
		Creep	10.0	10.0	9.5	8.5	7.5	7.0
	5-maxx	L/240	14.0	14.0	12.5	11.0	10.0	9.0
		L/180	15.5	14.5	12.5	11.0	10.0	9.0
		Creep	13.0	13.0	12.0	11.0	10.0	9.0
7-maxx	L/240			16.0	14.5	13.0	12.0	
	L/180			16.0	14.5	13.0	12.0	
	Creep			15.5	14.5	13.0	12.0	
9-maxx	L/240					15.5	14.5	
	L/180					15.5	14.5	
	Creep					15.5	14.5	

TABLE NOTES

- Governed by bending strength
- Governed by shear strength
- Governed by 50 ft max panel length
- Live Load Deflection Limits: L/600 & L/360
- Total Load Deflection Limit: L/240
- Creep Deflection Limit: L/240
- "NA": Floor panels do not meet the specified deflection criteria

50 ft – Single Span
 25 ft – Two Equal Span
 16 ft – Cantilever with 32 ft Backspan

V3

(Normal Weight Assembly - 20 psf)

Roof - Allowable Span Chart (FT)

MAJOR STRENGTH DIRECTION

No. of Spans	CLT Layup	Total Load Deflection	Live Load 125%, psf	Snow Load 115%, psf					
1			20	20	40	60	80	100	
	3-alt	L/240		15.5	15.5	13.5	12.5	11.5	10.5
		L/180		17.0	17.0	14.5	13.0	11.5	10.5
		Creep		14.0	14.0	13.0	12.5	11.5	10.5
	5-alt	L/240		23.0	23.0	21.0	19.0	17.0	16.0
		L/180		25.5	24.5	21.0	19.0	17.0	16.0
		Creep		21.0	21.0	20.0	19.0	17.0	16.0
	7-alt	L/240		30.0	30.0	27.0	24.0	22.0	20.5
		L/180		31.5	30.5	27.0	24.0	22.0	20.5
		Creep		27.5	27.5	26.0	24.0	22.0	20.5
9-alt	L/240		36.0	36.0	32.0	29.0	27.0	25.0	
	L/180		37.5	36.0	32.0	29.0	27.0	25.0	
	Creep		33.0	33.0	31.5	29.0	27.0	25.0	
4-maxx	L/240		19.5	19.5	17.5	16.0	14.5	13.5	
	L/180		21.5	21.0	18.0	16.0	14.5	13.5	
	Creep		18.0	18.0	16.5	15.5	14.5	13.5	
5-maxx	L/240		24.5	24.5	22.5	20.5	19.0	18.0	
	L/180		27.5	27.0	23.5	21.0	19.0	18.0	
	Creep		23.0	23.0	21.5	20.5	19.0	18.0	
7-maxx	L/240		32.5	32.5	29.5	27.5	25.0	23.5	
	L/180		36.0	34.5	30.5	27.5	25.0	23.5	
	Creep		29.5	29.5	28.0	27.0	25.0	23.5	
9-maxx	L/240		39.5	39.5	36.0	33.0	30.5	28.5	
	L/180		42.5	40.5	36.0	33.0	30.5	28.5	
	Creep		36.0	36.0	34.0	32.5	30.5	28.5	
2	3-alt	L/240	18.0	17.0	14.5	13.0	11.5	10.5	
		L/180	18.0	17.0	14.5	13.0	11.5	10.5	
		Creep	18.0	17.0	14.5	13.0	11.5	10.5	
	5-alt	L/240		24.5	21.0	19.0	17.0	16.0	
		L/180		24.5	21.0	19.0	17.0	16.0	
		Creep		24.5	21.0	19.0	17.0	16.0	
	7-alt	L/240				24.0	22.0	20.5	
		L/180				24.0	22.0	20.5	
		Creep				24.0	22.0	20.5	
	9-alt	L/240						25.0	
L/180							25.0		
Creep							25.0		
4-maxx	L/240	22.0	21.0	18.0	16.0	14.5	13.5		
	L/180	22.0	21.0	18.0	16.0	14.5	13.5		
	Creep	22.0	21.0	18.0	16.0	14.5	13.5		
5-maxx	L/240			23.5	21.0	19.0	18.0		
	L/180			23.5	21.0	19.0	18.0		
	Creep			23.5	21.0	19.0	18.0		
7-maxx	L/240					25.0	23.5		
	L/180					25.0	23.5		
	Creep					25.0	23.5		
9-maxx	L/240								
	L/180								
	Creep								
CANTILEVER	3-alt	L/240	8.0	8.0	7.0	6.5	5.5	5.0	
		L/180	9.0	8.5	7.0	6.5	5.5	5.0	
		Creep	7.5	7.5	7.0	6.5	5.5	5.0	
	5-alt	L/240	12.0	12.0	10.5	9.5	8.5	8.0	
		L/180	12.5	12.0	10.5	9.5	8.5	8.0	
		Creep	11.0	11.0	10.5	9.5	8.5	8.0	
	7-alt	L/240	15.5	15.0	13.5	12.0	11.0	10.0	
		L/180	15.5	15.0	13.5	12.0	11.0	10.0	
		Creep	14.5	14.5	13.5	12.0	11.0	10.0	
	9-alt	L/240			16.0	14.5	13.5	12.5	
L/180				16.0	14.5	13.5	12.5		
Creep				16.0	14.5	13.5	12.5		
4-maxx	L/240	10.0	10.0	9.0	8.0	7.0	6.5		
	L/180	11.0	10.5	9.0	8.0	7.0	6.5		
	Creep	9.5	9.5	8.5	8.0	7.0	6.5		
5-maxx	L/240	13.0	13.0	11.5	10.5	9.5	9.0		
	L/180	14.0	13.5	11.5	10.5	9.5	9.0		
	Creep	12.0	12.0	11.5	10.5	9.5	9.0		
7-maxx	L/240			15.0	13.5	12.5	11.5		
	L/180			15.0	13.5	12.5	11.5		
	Creep	15.5	15.5	15.0	13.5	12.5	11.5		
9-maxx	L/240					15.0	14.0		
	L/180					15.0	14.0		
	Creep					15.0	14.0		

TABLE NOTES

- Governed by bending strength
- Governed by shear strength
- Governed by 50 ft max panel length
- Live Load Deflection Limits: L/600 & L/360
- Total Load Deflection Limit: L/240
- Creep Deflection Limit: L/240
- "NA": Floor panels do not meet the specified deflection criteria
- 50 ft – Single Span
- 25 ft – Two Equal Span
- 16 ft – Cantilever with 32 ft Backspan

Roof - Allowable Span Chart (FT)

E4M4 (Light Weight Assembly - 10 psf)

MAJOR STRENGTH DIRECTION

No. of Spans	CLT Layout	Total Load Deflection	Live Load 125%, psf	Snow Load 115%, psf						
				20	40	60	80	100		
1	3-alt	L/240	18.5	18.5	16.0	14.5	13.5	12.5		
		L/180	20.5	20.5	18.0	16.0	15.0	14.0		
		Creep	17.5	17.5	16.0	15.0	14.0	13.0		
	5-alt	L/240	27.5	27.5	24.5	22.5	21.0	19.5		
		L/180	30.5	30.5	27.0	25.0	23.0	22.0		
		Creep	25.5	25.5	24.0	22.5	21.0	20.0		
	7-alt	L/240	35.5	35.5	32.0	29.5	27.5	26.0		
		L/180	39.0	39.0	35.5	32.5	30.5	29.0		
		Creep	32.5	32.5	30.5	29.0	27.5	26.5		
	9-alt	L/240	42.5	42.5	39.0	36.0	34.0	32.5		
		L/180	47.0	47.0	43.0	40.0	38.0	36.0		
		Creep	39.0	39.0	37.0	35.0	33.5	32.5		
	4-maxx	L/240	23.0	23.0	20.5	18.5	17.0	16.0		
		L/180	25.5	25.5	22.5	20.5	19.0	18.0		
		Creep	22.0	22.0	20.0	18.5	17.5	16.5		
	5-maxx	L/240	29.5	29.5	26.5	24.0	22.5	21.0		
		L/180	32.5	32.5	29.0	26.5	25.0	23.5		
		Creep	27.5	27.5	25.5	24.0	23.0	22.0		
7-maxx	L/240	38.5	38.5	34.5	32.0	30.0	28.5			
	L/180	42.5	42.5	38.5	35.5	33.5	31.5			
	Creep	35.5	35.5	33.0	31.5	30.0	29.0			
9-maxx	L/240	46.0	46.0	42.0	39.5	37.0	35.0			
	L/180	51.0	51.0	46.5	43.5	41.0	39.0			
	Creep	42.5	42.5	40.0	38.0	36.5	35.0			
2	3-alt	L/240	25.0	25.0	22.0	20.0	18.5	17.5		
		L/180			24.0	22.0	20.5	19.0		
		Creep	24.0	24.0	21.5	20.0	19.0	18.0		
	5-alt	L/240								
		L/180								
		Creep								
	7-alt	L/240								
		L/180								
		Creep								
	9-alt	L/240								
L/180										
Creep										
4-maxx	L/240									25.0
	L/180					24.5				
	Creep				24.0	23.0				
5-maxx	L/240									
	L/180									
	Creep									
7-maxx	L/240									
	L/180									
	Creep									
9-maxx	L/240									
	L/180									
	Creep									
CANTILEVER	3-alt	L/240	9.5	9.5	8.5	7.5	7.0	6.5		
		L/180	11.0	11.0	9.5	8.5	8.0	7.5		
		Creep	9.0	9.0	8.5	8.0	7.5	7.0		
	5-alt	L/240	14.5	14.5	13.0	12.0	11.0	10.5		
		L/180	16.0	16.0	14.5	13.0	12.0	11.5		
		Creep	13.5	13.5	12.5	12.0	11.0	10.5		
	7-alt	L/240				15.5	14.5	14.0		
		L/180					16.0	15.5		
		Creep			16.0	15.5	14.5	14.0		
	9-alt	L/240								
		L/180								
		Creep								
	4-maxx	L/240	12.0	12.0	10.5	9.5	9.0	8.5		
		L/180	13.5	13.5	12.0	11.0	10.0	9.5		
		Creep	11.5	11.5	10.5	10.0	9.0	8.5		
	5-maxx	L/240	15.5	15.5	14.0	12.5	12.0	11.0		
		L/180			15.5	14.0	13.0	12.5		
		Creep	14.5	14.5	13.5	12.5	12.0	11.5		
7-maxx	L/240					16.0	15.0			
	L/180									
	Creep					16.0	15.0			
9-maxx	L/240									
	L/180									
	Creep									

TABLE NOTES

- Governed by bending strength
- Governed by shear strength
- Governed by 50 ft max panel length
- Live Load Deflection Limits: L/600 & L/360
- Total Load Deflection Limit: L/240
- Creep Deflection Limit: L/240
- "NA": Floor panels do not meet the specified deflection criteria
- 50 ft – Single Span
- 25 ft – Two Equal Span
- 16 ft – Cantilever with 32 ft Backspan

Roof - Allowable Span Chart (FT)

E4M4 (Normal Weight Assembly - 20 psf)

MAJOR STRENGTH DIRECTION

No. of Spans	CLT Layup	Total Load Deflection	Live Load 125%, psf	Snow Load 115%, psf											
				20	40	60	80	100							
1	3-alt	L/240	17.0	17.0	15.5	14.0	13.0	12.5							
		L/180	19.0	19.0	17.0	15.5	14.5	13.5							
		Creep	16.0	16.0	15.0	14.0	13.0	12.5							
	5-alt	L/240	26.0	26.0	23.5	21.5	20.0	19.0							
		L/180	28.5	28.5	26.0	24.0	22.5	21.0							
		Creep	24.0	24.0	22.5	21.0	20.0	19.5							
	7-alt	L/240	33.5	33.5	30.5	28.5	27.0	25.5							
		L/180	37.0	37.0	34.0	31.5	30.0	28.5							
		Creep	30.5	30.5	29.0	27.5	26.5	25.5							
	9-alt	L/240	40.5	40.5	37.5	35.0	33.0	31.5							
		L/180	45.0	45.0	41.5	39.0	37.0	35.0							
		Creep	37.0	37.0	35.0	33.5	32.5	31.5							
4-maxx	L/240	21.5	21.5	19.5	18.0	16.5	15.5								
	L/180	24.0	24.0	21.5	20.0	18.5	17.5								
	Creep	20.0	20.0	18.5	17.5	16.5	16.0								
5-maxx	L/240	28.0	28.0	25.0	23.5	22.0	20.5								
	L/180	30.5	30.5	28.0	26.0	24.0	23.0								
	Creep	25.5	25.5	24.0	23.0	22.0	21.0								
7-maxx	L/240	36.5	36.5	33.5	31.0	29.0	27.5								
	L/180	40.0	40.0	37.0	34.5	32.5	30.5								
	Creep	33.0	33.0	31.5	30.0	29.0	27.5								
9-maxx	L/240	44.0	44.0	40.5	38.0	36.0	34.5								
	L/180	48.5	48.5	45.0	42.0	40.0	38.0								
	Creep	40.0	40.0	38.0	36.5	35.0	34.0								
2	3-alt	L/240	23.0	23.0	21.0	19.0	18.0	17.0							
		L/180			23.0	21.0	19.5	18.5							
		Creep	21.5	21.5	20.0	19.0	18.0	17.0							
	5-alt	L/240													
		L/180													
		Creep													
	7-alt	L/240													
		L/180													
		Creep													
	9-alt	L/240													
		L/180													
		Creep													
4-maxx	L/240									24.0	22.5	21.5			
	L/180										25.0	24.0			
	Creep									24.0	23.0	22.0			
5-maxx	L/240														
	L/180														
	Creep														
7-maxx	L/240														
	L/180														
	Creep														
9-maxx	L/240														
	L/180														
	Creep														
CANTILEVER	3-alt							L/240	9.0	9.0	8.0	7.5	7.0	6.5	
								L/180	10.0	10.0	9.0	8.0	7.5	7.0	
								Creep	8.5	8.5	8.0	7.5	7.0	6.5	
	5-alt	L/240	13.5	13.5	12.5	11.5	10.5	10.0							
		L/180	15.0	15.0	13.5	12.5	12.0	11.0							
		Creep	12.5	12.5	12.0	11.0	10.5	10.0							
	7-alt	L/240					16.0	15.0	14.0	13.5					
		L/180							15.5	15.0	15.0				
		Creep					16.0	16.0	15.5	14.5	14.0	13.5			
	9-alt	L/240													
		L/180													
		Creep													
4-maxx	L/240	11.5							11.5	10.0	9.5	8.5	8.0		
	L/180	12.5							12.5	11.5	10.5	9.5	9.0		
	Creep	10.5							10.5	10.0	9.0	8.5	8.5		
5-maxx	L/240	14.5							14.5	13.5	12.5	11.5	11.0		
	L/180	16.0							16.0	14.5	13.5	12.5	12.0		
	Creep	13.5							13.5	12.5	12.0	11.5	11.0		
7-maxx	L/240									15.5	14.5				
	L/180											16.0			
	Creep											15.0	14.5		
9-maxx	L/240														
	L/180														
	Creep														

TABLE NOTES

- Governed by bending strength
- Governed by shear strength
- Governed by 50 ft max panel length
- Live Load Deflection Limits: L/600 & L/360
- Total Load Deflection Limit: L/240
- Creep Deflection Limit: L/240
- "NA": Floor panels do not meet the specified deflection criteria
- 50 ft – Single Span
- 25 ft – Two Equal Span
- 16 ft – Cantilever with 32 ft Backspan

FLOOR SPECIFICATIONS

Non-composite floor tables in this guide are based on single spans, equal adjacent two span conditions, and cantilevers with a backspan ratio of 2:1. Tables were generated based on full, uniform loading conditions for the load combinations noted. Partial or patterned loading has not been considered. The specifying designer shall follow the provisions of ASCE7 for partial live loading on multiple spans. Composite action between the concrete topping and CLT floor panels was not considered for strength or deflection calculations in the preparation of the span tables.

LOADING AND LOAD COMBINATIONS

Tables assume the following superimposed dead Load:

DL Contributions:	mechanical/electrical, ceiling, and floor finish
Allowance for DL	
Finished Floor:	10 psf
Lightweight Topping:	20 psf (1 ½" gypcrete or LW concrete)
Heavy Topping:	45 psf (3" NW concrete)
Load Combinations:	D + L

CAPACITY ADJUSTMENT FACTORS AND DESIGN CONSTANTS

Load Duration Adjustment Factors, C_D

Live Load: 1.0

Shear Deformation Constants, K_s

Single Span: 11.5

Two Span: 15.6

Cantilever (between supports): 3.9

Cantilever (overhang): 4.8

Reference roof specifications for shear deformation constant derivation.

Tabulated creep deflection spans are based on a total load deflection limit of $L/240$ and time dependent deformation factor, $K_{cr} = 2.0$.

SPAN TABLE NOTES

A. Shaded values correspond to spans governed by:

 allowable bending  shear stress

B. Gray shading  represents spans governed by:

- 50 ft maximum panel length manufactured in Montana;
CLT grades V2M5, V4M1, V5M1, V5M2, E21M1, E21M2
50 ft – single span, 25 ft – two span, 16 ft – cantilever with 34 ft backspan.
- 50 ft maximum panel length manufactured in Alabama;
CLT grades V3, V3.2, V3.3, E4M4, E4M5
50 ft – single span, 25 ft – two span, 16 ft – cantilever with 32 ft backspan.

C. Deflection limits $L/600$ and $L/360$ are based on live load. $L/240$ is based on total load.

D. "NA" represents floor panels that do not meet the specified deflection criteria.

FLOOR SPECIFICATIONS

VIBRATION

In addition to floor panel deflection, vibration may be an important serviceability design consideration for your project. Many factors are associated with the analysis and design for CLT floor vibrations including the dynamic effects of supporting framework, occupational use of a structure, connection interfaces and dampening effects of the floor assembly. The tables provided in this guide are based on analysis methods outlined in AISC Design Guide 11 “Vibrations of Steel-Framed Structural Systems Due to Human Activity” and are intended for preliminary design based on the specific assumptions as noted. **CLT spans controlled by vibration neglect the dynamic effects of supporting beams.** CLT is assumed to be well supported and rotational fixity arising from gravity loads applied by the structure above or mechanical fasteners has been ignored. Contact SmartLam for further information regarding the analysis methods used and with specific requirements for your project.

Floor excitation is based on footsteps of normal walking with an average frequency of 2 Hz applied to a 1ft strip of CLT. Only vertical accelerations have been considered. Increases in floor stiffness due to composite action created through friction between concrete toppings and CLT are neglected. Tabulated vibration controlled spans are the minimum of vibrational effects, bending or shear strength.

Governing Equations

Fundamental Natural Frequency, f_n
$$f_n = \frac{1}{2\pi} \cdot \sqrt{\frac{K}{M_E}}$$

Peak Acceleration (for $f_n \leq 9$ Hz), a_p
Where $P_o = 65$ lb driving force
$$a_p = \frac{P_o \cdot e^{-0.35 f_n}}{2 \cdot \beta \cdot M_E}$$

Equation Constants¹

	Equivalent Spring Stiffness, K $EI/L^3 \times$	Equivalent mass, M_E $mL \times$	Relative Amplitude $mL^4/EI \times$
Simple Span	48	0.4928	1
Two Span	96	0.9856	1
Cantilever	9	0.735	7.861

1. Derived from Bolton and Caprani, “Structural Dynamics”.

Assumed Loading and Damping

	Residential	Office 15 psf Partition Load	Office Collaborative	Assembly	Storage Light	Library Stack Room
Superimposed DL ¹	6	2	2	2	2	2
LL ²	6	6	8	0	12.5	15
Damping Ratio, β^3	0.03	0.025	0.025	0.02	0.03	0.03

- A. DL includes allowance for mechanical, electrical, plumbing and partition walls.
- B. LL for Storage and Library Stack Room are equal to 10% of strength design loads.
- C. Derived from AISC Design Guide 11 Table 4-2 noting that damping is cumulative:

Structural System	0.01
Ceiling and Ductwork	0.01
Electronic Office	0.005
Partitions	0.01

Design Verification

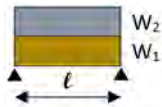
CLT spans are limited to $f_n = 9$ Hz or a peak acceleration = 0.5% g for $f_n < 9$ Hz

The specifying designer shall consider the vibrational effects around unsupported openings and at other span conditions to ensure serviceability requirements are met for the project. Floor panel layout shall also be considered to reduce vibrational effects.

FLOOR LOADING DIAGRAMS

LOADING DIAGRAMS, BENDING MOMENTS, SHEARS AND DEFLECTION

Simple Span Condition




$$+M = \frac{1}{8} (W_1 + W_2) \ell^2$$

$$V = \frac{1}{2} (W_1 + W_2) \ell$$

$$\Delta = \frac{5 (W_1 + W_2) \ell^4}{384 EI}$$

Two Span Condition



$$+M = \frac{9}{128} (W_1 + W_2) \ell^2$$

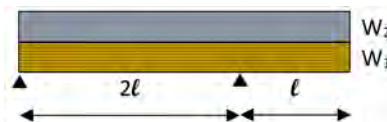
$$-M = \frac{1}{8} (W_1 + W_2) \ell^2$$

$$V_{\text{interior}} = \frac{5}{8} (W_1 + W_2) \ell$$

$$V_{\text{exterior}} = \frac{3}{8} (W_1 + W_2) \ell$$

$$\Delta = \frac{(W_1 + W_2) \ell^4}{185 EI}$$

Cantilever Condition



$$+M = \frac{9}{32} (W_1 + W_2) \ell^2$$

$$-M = \frac{1}{2} (W_1 + W_2) \ell^2$$

$$V_{\text{@cantilever}} = \frac{5}{4} (W_1 + W_2) \ell$$

$$V_{\text{@interior}} = \frac{3}{4} (W_1 + W_2) \ell$$

$$\Delta_{\text{btwn supports}} = \frac{175 (W_1 + W_2) \ell^4}{2048 EI}$$

$$\Delta_{\text{overhang}} = \frac{(W_1 + W_2) \ell^4}{8 EI}$$

NOTES

ℓ = clear span length (center of support - ft)

W_1 = CLT panel self weight (psf)

+ 10 psf superimposed DL for finished floors

+ 20 psf superimposed DL for lightweight toppings

+ 45 psf superimposed DL for heavy toppings

W_2 = uniform load as specified on tables (psf)

EI = apparent bending stiffness (including effects of shear deformation)

No. of Spans	CLT Layout	Deflection Limit	Residential - 40	Office (15 psf Partition Load) - 65	Office (Collaborative) - 80	Assembly (Retail) - 100	Storage (Light) - 125	Library Stack Room - 150
1	3-ait	L/600	12.0	10.0	9.5	8.5	8.0	7.5
		L/360	14.5	12.5	11.5	10.5	9.5	9.0
		L/240	14.5	13.0	12.0	11.5	10.5	9.5
		Vibration	12.5	13.5	12.5	11.5	10.5	9.5
		Creep	13.0	12.0	11.5	11.0	10.0	9.5
	5-ait	L/600	19.5	16.5	15.0	14.0	13.0	12.0
		L/360	23.0	19.5	18.0	17.0	15.5	14.5
		L/240	22.5	20.0	18.5	17.0	15.5	14.5
		Vibration	16.5	17.0	17.0	17.0	15.5	14.5
		Creep	20.0	18.5	17.5	16.5	15.5	14.5
	7-ait	L/600	26.5	22.0	20.5	19.0	17.5	16.5
		L/360	30.0	25.5	24.0	22.0	20.0	19.0
		L/240	29.5	25.5	24.0	22.0	20.0	19.0
		Vibration	19.5	20.5	20.0	21.5	19.5	19.0
		Creep	26.0	24.0	23.0	22.0	20.0	19.0
	9-ait	L/600	33.5	28.0	26.0	24.0	22.0	20.5
		L/360	35.5	31.0	29.0	27.0	24.5	23.0
		L/240	35.5	31.0	29.0	27.0	24.5	23.0
		Vibration	22.5	23.0	22.5	24.0	22.0	21.5
		Creep	31.5	29.5	28.0	27.0	24.5	23.0
	4-maxx	L/600	16.0	13.0	12.0	11.0	10.5	9.5
		L/360	19.0	16.0	15.0	13.5	12.5	11.5
		L/240	18.5	16.5	15.5	14.5	13.0	12.0
		Vibration	14.5	15.5	15.0	14.5	13.0	12.0
Creep		16.5	15.0	14.5	14.0	13.0	12.0	
5-maxx	L/600	21.0	17.5	16.0	15.0	14.0	13.0	
	L/360	25.0	21.0	19.5	18.0	16.5	15.5	
	L/240	24.0	21.5	20.5	19.0	17.5	16.0	
	Vibration	17.5	18.0	18.0	19.0	17.0	16.0	
	Creep	21.5	19.5	19.0	18.0	17.0	16.0	
7-maxx	L/600	28.5	24.0	22.5	20.5	19.0	17.5	
	L/360	34.0	29.0	27.0	25.0	23.0	21.5	
	L/240	32.0	29.0	27.0	25.0	23.0	21.5	
	Vibration	21.0	21.5	21.0	23.0	20.5	20.0	
	Creep	28.0	26.0	25.0	24.0	22.5	21.5	
9-maxx	L/600	36.0	30.5	28.0	26.0	24.0	22.5	
	L/360	40.5	35.5	33.0	30.5	28.0	26.0	
	L/240	39.0	35.5	33.0	30.5	28.0	26.0	
	Vibration	23.5	24.5	24.0	25.5	23.5	23.0	
	Creep	34.0	31.5	30.5	29.5	28.0	26.0	
2	3-ait	L/600	16.0	13.5	12.5	11.5	10.5	9.5
		L/360	16.0	13.5	12.5	11.5	10.5	9.5
		L/240	16.0	13.5	12.5	11.5	10.5	9.5
		Vibration	12.5	13.0	12.5	11.5	10.5	9.5
		Creep	16.0	13.5	12.5	11.5	10.5	9.5
	5-ait	L/600	23.5	20.0	18.5	17.0	15.5	14.5
		L/360	23.5	20.0	18.5	17.0	15.5	14.5
		L/240	23.5	20.0	18.5	17.0	15.5	14.5
		Vibration	16.5	17.0	16.5	17.0	15.5	14.5
		Creep	23.5	20.0	18.5	17.0	15.5	14.5
	7-ait	L/600			24.0	22.0	20.0	19.0
		L/360			24.0	22.0	20.0	19.0
		L/240			24.0	22.0	20.0	19.0
		Vibration	19.5	20.0	20.0	21.5	19.0	19.0
		Creep			24.0	22.0	20.0	19.0
	9-ait	L/600					24.5	23.0
		L/360					24.5	23.0
		L/240					24.5	23.0
		Vibration	22.0	22.5	22.5	24.0	21.5	21.5
		Creep					24.5	23.0
	4-maxx	L/600	20.0	17.0	16.0	14.5	13.0	12.0
		L/360	20.0	17.0	16.0	14.5	13.0	12.0
		L/240	20.0	17.0	16.0	14.5	13.0	12.0
		Vibration	14.5	15.5	15.0	14.5	13.0	12.0
Creep		20.0	17.0	16.0	14.5	13.0	12.0	
5-maxx	L/600		22.5	20.5	19.0	17.5	16.0	
	L/360		22.5	20.5	19.0	17.5	16.0	
	L/240		22.5	20.5	19.0	17.5	16.0	
	Vibration	17.5	18.0	17.5	19.0	17.0	16.0	
	Creep		22.5	20.5	19.0	17.5	16.0	
7-maxx	L/600				25.0	23.0	21.5	
	L/360				25.0	23.0	21.5	
	L/240				25.0	23.0	21.5	
	Vibration	20.5	21.5	21.0	22.5	20.5	20.0	
	Creep				25.0	23.0	21.5	
9-maxx	L/600							
	L/360							
	L/240							
	Vibration	23.5	24.0	23.5	25.0	23.0	22.5	
	Creep							
CANTILEVER	3-ait	L/600	6.5	5.5	5.0	4.5	4.0	4.0
		L/360	7.5	6.5	6.0	5.5	5.0	4.5
		L/240	7.5	6.5	6.0	5.5	5.0	4.5
		Vibration	7.5	6.5	6.0	5.5	5.0	4.5
		Creep	7.0	6.0	6.0	5.5	5.0	4.5
	5-ait	L/600	10.0	8.5	8.0	7.5	6.5	6.0
		L/360	11.5	10.0	9.0	8.5	7.5	7.0
		L/240	11.5	10.0	9.0	8.5	7.5	7.0
		Vibration	9.5	10.0	9.0	8.5	7.5	7.0
		Creep	10.5	9.5	9.0	8.5	7.5	7.0
	7-ait	L/600	14.0	11.5	11.0	10.0	9.0	8.5
		L/360	15.0	12.5	12.0	11.0	10.0	9.5
		L/240	15.0	12.5	12.0	11.0	10.0	9.5
		Vibration	11.5	12.0	12.0	11.0	10.0	9.5
		Creep	13.5	12.5	12.0	11.0	10.0	9.5
	9-ait	L/600		15.0	13.5	12.5	11.5	11.0
		L/360		15.5	14.5	13.5	12.0	11.5
		L/240		15.5	14.5	13.5	12.0	11.5
		Vibration	13.0	13.5	13.5	13.5	12.0	11.5
		Creep		15.5	14.5	13.5	12.0	11.5
	4-maxx	L/600	8.5	7.0	6.5	6.0	5.5	5.0
		L/360	10.0	8.5	7.5	7.0	6.5	6.0
		L/240	10.0	8.5	8.0	7.0	6.5	6.0
		Vibration	8.5	8.5	8.0	7.0	6.5	6.0
Creep		8.5	8.0	7.5	7.0	6.5	6.0	
5-maxx	L/600	11.0	9.0	8.5	8.0	7.0	6.5	
	L/360	13.0	11.0	10.0	9.5	8.5	8.0	
	L/240	12.5	11.0	10.0	9.5	8.5	8.0	
	Vibration	10.5	10.5	10.0	9.5	8.5	8.0	
	Creep	11.0	10.5	10.0	9.5	8.5	8.0	
7-maxx	L/600	15.0	12.5	11.5	11.0	10.0	9.5	
	L/360		14.5	13.5	12.5	11.5	10.5	
	L/240		14.5	13.5	12.5	11.5	10.5	
	Vibration	12.5	12.5	12.5	12.5	11.5	10.5	
	Creep	15.0	13.5	13.0	12.5	11.5	10.5	
9-maxx	L/600		16.0	15.0	13.5	12.5	11.5	
	L/360				15.0	14.0	13.0	
	L/240				15.0	14.0	13.0	
	Vibration	14.0	14.5	14.0	15.0	13.5	13.0	
	Creep			16.0	15.0	14.0	13.0	

No. of Spans	CLT Layout	Deflection Limit	Residential - 40	Office (15 psf Partition Load) - 65	Office (Collaborative) - 80	Assembly (Retail) - 100	Storage (Light) - 125	Library Stack Room - 150
1	3-alt	L/600	12.0	10.0	9.5	8.5	8.0	7.5
		L/360	14.5	12.5	11.5	10.5	9.5	9.0
		L/240	14.0	12.5	12.0	11.0	10.0	9.0
		Vibration	11.0	11.5	11.5	11.0	10.0	9.0
	Creep	12.0	11.5	11.0	10.5	9.5	9.0	
	5-alt	L/600	19.5	16.5	15.0	14.0	13.0	12.0
		L/360	22.0	19.0	17.5	16.5	15.0	14.0
		L/240	21.5	19.0	17.5	16.5	15.0	14.0
		Vibration	15.0	15.5	15.0	16.0	14.5	14.0
	Creep	18.5	17.5	16.5	16.0	15.0	14.0	
	7-alt	L/600	26.5	22.0	20.5	19.0	17.5	16.5
		L/360	28.0	24.5	23.0	21.5	19.5	18.5
		L/240	28.0	24.5	23.0	21.5	19.5	18.5
		Vibration	18.0	18.5	18.5	19.0	18.0	17.5
	Creep	24.5	23.0	22.0	21.0	19.5	18.5	
	9-alt	L/600	33.5	28.0	26.0	24.0	22.0	20.5
		L/360	33.5	29.5	28.0	26.0	24.0	22.5
		L/240	33.5	29.5	28.0	26.0	24.0	22.5
		Vibration	20.5	21.0	21.0	22.0	20.5	20.0
	Creep	29.5	28.0	27.0	26.0	24.0	22.5	
	4-maxx	L/600	16.0	13.0	12.0	11.0	10.5	9.5
		L/360	19.0	16.0	15.0	13.5	12.5	11.5
		L/240	17.5	16.0	15.0	14.0	12.5	12.0
		Vibration	13.0	13.5	13.5	14.0	12.5	12.0
	Creep	15.5	14.5	14.0	13.0	12.5	12.0	
	5-maxx	L/600	21.0	17.5	16.0	15.0	14.0	13.0
		L/360	24.5	21.0	19.5	18.0	16.5	15.5
		L/240	23.0	20.5	19.5	18.0	16.5	15.5
		Vibration	15.5	16.0	16.0	17.0	15.5	15.5
	Creep	20.0	18.5	18.0	17.0	16.5	15.5	
	7-maxx	L/600	28.5	24.0	22.5	20.5	19.0	17.5
		L/360	32.0	28.0	26.0	24.0	22.5	21.0
		L/240	30.5	28.0	26.0	24.0	22.5	21.0
		Vibration	19.0	19.5	19.5	20.5	19.0	18.5
	Creep	26.5	24.5	24.0	23.0	22.0	21.0	
	9-maxx	L/600	36.0	30.5	28.0	26.0	24.0	22.5
L/360		38.0	33.5	31.5	29.5	27.5	25.5	
L/240		37.5	33.5	31.5	29.5	27.5	25.5	
Vibration		22.0	22.5	22.0	23.0	21.5	21.5	
Creep	32.0	30.5	29.5	28.5	27.0	25.5		
2	3-alt	L/600	15.0	13.0	12.0	11.0	10.0	9.0
		L/360	15.0	13.0	12.0	11.0	10.0	9.0
		L/240	15.0	13.0	12.0	11.0	10.0	9.0
		Vibration	11.0	11.5	11.0	11.0	10.0	9.0
	Creep	15.0	13.0	12.0	11.0	10.0	9.0	
	5-alt	L/600	22.0	19.0	17.5	16.5	15.0	14.0
		L/360	22.0	19.0	17.5	16.5	15.0	14.0
		L/240	22.0	19.0	17.5	16.5	15.0	14.0
		Vibration	15.0	15.0	15.0	16.0	14.5	14.0
	Creep	22.0	19.0	17.5	16.5	15.0	14.0	
	7-alt	L/600	24.5	23.0	21.5	21.5	19.5	18.5
		L/360	24.5	23.0	21.5	21.5	19.5	18.5
		L/240	24.5	23.0	21.5	21.5	19.5	18.5
		Vibration	18.0	18.5	18.0	19.0	17.5	17.5
	Creep	24.5	23.0	23.0	21.5	19.5	18.5	
	9-alt	L/600					24.0	22.5
		L/360					24.0	22.5
		L/240					24.0	22.5
		Vibration	20.5	21.0	20.5	21.5	20.0	20.0
	Creep					24.0	22.5	
	4-maxx	L/600	19.0	16.0	15.0	14.0	12.5	12.0
		L/360	19.0	16.0	15.0	14.0	12.5	12.0
		L/240	19.0	16.0	15.0	14.0	12.5	12.0
		Vibration	13.0	13.5	13.0	14.0	12.5	12.0
	Creep	19.0	16.0	15.0	14.0	12.5	12.0	
	5-maxx	L/600	24.5	21.0	20.0	18.0	16.5	15.5
		L/360	24.5	21.0	20.0	18.0	16.5	15.5
		L/240	24.5	21.0	20.0	18.0	16.5	15.5
		Vibration	15.5	16.0	16.0	17.0	15.5	15.0
	Creep	24.5	21.0	20.0	18.0	16.5	15.5	
	7-maxx	L/600				24.0	22.5	21.0
		L/360				24.0	22.5	21.0
		L/240				24.0	22.5	21.0
		Vibration	19.0	19.5	19.0	20.0	18.5	18.5
	Creep				24.0	22.5	21.0	
	9-maxx	L/600						
L/360								
L/240								
Vibration		21.5	22.0	22.0	23.0	21.5	21.0	
Creep								
CANTILEVER	3-alt	L/600	6.5	5.5	5.0	4.5	4.0	4.0
		L/360	7.5	6.5	6.0	5.5	5.0	4.5
		L/240	7.5	6.5	6.0	5.5	5.0	4.5
		Vibration	6.5	6.5	6.0	5.5	5.0	4.5
	Creep	6.5	6.0	5.5	5.5	5.0	4.5	
	5-alt	L/600	10.0	8.5	8.0	7.5	6.5	6.0
		L/360	11.0	9.5	8.5	8.0	7.5	7.0
		L/240	11.0	9.5	8.5	8.0	7.5	7.0
		Vibration	9.0	9.0	8.5	8.0	7.5	7.0
	Creep	9.5	9.0	8.5	8.0	7.5	7.0	
	7-alt	L/600	14.0	11.5	11.0	10.0	9.0	8.5
		L/360	14.0	12.0	11.5	10.5	9.5	9.0
		L/240	14.0	12.0	11.5	10.5	9.5	9.0
		Vibration	10.5	11.0	11.0	10.5	9.5	9.0
	Creep	13.0	12.0	11.5	10.5	9.5	9.0	
	9-alt	L/600		14.5	13.5	12.5	11.5	11.0
		L/360		14.5	14.0	13.0	12.0	11.0
		L/240		14.5	14.0	13.0	12.0	11.0
		Vibration	12.0	12.5	12.5	13.0	12.0	11.0
	Creep	15.5	14.5	14.0	13.0	12.0	11.0	
	4-maxx	L/600	8.5	7.0	6.5	6.0	5.5	5.0
		L/360	9.5	8.0	7.5	7.0	6.0	6.0
		L/240	9.5	8.0	7.5	7.0	6.0	6.0
		Vibration	7.5	8.0	7.5	7.0	6.0	6.0
	Creep	8.0	7.5	7.0	7.0	6.0	6.0	
	5-maxx	L/600	11.0	9.0	8.5	8.0	7.0	6.5
		L/360	12.0	10.5	10.0	9.0	8.0	7.5
		L/240	12.0	10.5	10.0	9.0	8.0	7.5
		Vibration	9.5	9.5	9.5	9.0	8.0	7.5
	Creep	10.5	9.5	9.5	9.0	8.0	7.5	
	7-maxx	L/600	15.0	12.5	11.5	11.0	10.0	9.5
		L/360	16.0	14.0	13.0	12.0	11.0	10.5
		L/240	16.0	14.0	13.0	12.0	11.0	10.5
		Vibration	11.5	11.5	11.5	12.0	11.0	10.5
	Creep	14.0	13.0	12.5	12.0	11.0	10.5	
	9-maxx	L/600		16.0	15.0	13.5	12.5	11.5
L/360				15.5	14.5	13.5	12.5	
L/240				15.5	14.5	13.5	12.5	
Vibration		13.0	13.0	13.0	13.5	13.0	12.5	
Creep		16.0	15.5	14.5	13.5	12.5		

No. of Spans	CLT Layout	Deflection Limit	Residential - 40	Office (15 psf Partition Load) - 65	Office (Collaborative) - 80	Assembly (Retail) - 100	Storage (Light) - 125	Library Stack Room - 150
1	3-alt	L/600	12.0	10.0	9.5	8.5	8.0	7.5
		L/360	13.0	11.5	10.5	10.0	9.0	8.5
		L/240	12.5	11.5	10.5	10.0	9.0	8.5
		Vibration	9.5	10.0	10.0	10.0	9.0	8.5
		Creep	10.5	10.0	9.5	9.5	9.0	8.5
	5-alt	L/600	19.0	16.5	15.0	14.0	13.0	12.0
		L/360	19.0	17.0	16.0	15.0	14.0	13.0
		L/240	19.0	17.0	16.0	15.0	14.0	13.0
		Vibration	13.5	13.5	13.5	14.0	13.0	13.0
		Creep	16.5	15.5	15.0	14.5	14.0	13.0
	7-alt	L/600	24.5	22.0	20.5	19.0	17.5	16.5
		L/360	24.5	22.0	21.0	19.5	18.5	17.0
		L/240	24.5	22.0	21.0	19.5	18.5	17.0
		Vibration	16.0	16.5	16.5	17.0	16.0	16.0
		Creep	21.5	20.5	20.0	19.5	18.5	17.0
	9-alt	L/600	29.5	27.0	25.5	24.0	22.0	20.5
		L/360	29.5	27.0	25.5	24.0	22.5	21.0
		L/240	29.5	27.0	25.5	24.0	22.5	21.0
		Vibration	19.0	19.0	19.0	19.5	18.5	18.5
		Creep	26.5	25.5	25.0	24.0	22.5	21.0
	4-maxx	L/600	16.0	13.0	12.0	11.0	10.5	9.5
		L/360	16.0	14.5	13.5	12.5	12.0	11.0
		L/240	16.0	14.5	13.5	12.5	12.0	11.0
		Vibration	11.5	11.5	11.5	12.0	11.5	11.0
Creep		13.5	12.5	12.5	12.0	11.5	11.0	
5-maxx	L/600	21.0	17.5	16.0	15.0	14.0	13.0	
	L/360	21.0	19.0	18.0	16.5	15.5	14.5	
	L/240	20.5	19.0	18.0	16.5	15.5	14.5	
	Vibration	14.0	14.0	14.0	14.5	14.0	13.5	
	Creep	17.5	16.5	16.0	15.5	15.0	14.5	
7-maxx	L/600	28.0	24.0	22.5	20.5	19.0	17.5	
	L/360	28.0	25.0	23.5	22.5	21.0	19.5	
	L/240	28.0	25.0	23.5	22.5	21.0	19.5	
	Vibration	17.0	17.5	17.5	18.0	17.0	17.0	
	Creep	23.5	22.5	21.5	21.0	20.5	19.5	
9-maxx	L/600	33.5	30.5	28.0	26.0	24.0	22.5	
	L/360	33.5	30.5	29.0	27.5	25.5	24.0	
	L/240	33.5	30.5	29.0	27.5	25.5	24.0	
	Vibration	20.0	20.0	20.0	20.5	20.0	19.5	
	Creep	29.0	27.5	27.0	26.0	25.0	24.0	
2	3-alt	L/600	13.0	11.5	10.5	10.0	9.0	8.5
		L/360	13.0	11.5	10.5	10.0	9.0	8.5
		L/240	13.0	11.5	10.5	10.0	9.0	8.5
		Vibration	9.5	9.5	9.5	10.0	9.0	8.5
		Creep	13.0	11.5	10.5	10.0	9.0	8.5
	5-alt	L/600	19.0	17.0	16.0	15.0	14.0	13.0
		L/360	19.0	17.0	16.0	15.0	14.0	13.0
		L/240	19.0	17.0	16.0	15.0	14.0	13.0
		Vibration	13.0	13.5	13.0	13.5	13.0	13.0
		Creep	19.0	17.0	16.0	15.0	14.0	13.0
	7-alt	L/600	24.5	22.0	21.0	19.5	18.5	17.0
		L/360	24.5	22.0	21.0	19.5	18.5	17.0
		L/240	24.5	22.0	21.0	19.5	18.5	17.0
		Vibration	16.0	16.5	16.0	16.5	16.0	15.5
		Creep	24.5	22.0	21.0	19.5	18.5	17.0
	9-alt	L/600				24.0	22.5	21.0
		L/360				24.0	22.5	21.0
		L/240				24.0	22.5	21.0
		Vibration				18.5	18.5	18.0
		Creep	18.5	19.0	18.5	24.0	22.5	21.0
	4-maxx	L/600	16.0	14.5	13.5	12.5	12.0	11.0
		L/360	16.0	14.5	13.5	12.5	12.0	11.0
		L/240	16.0	14.5	13.5	12.5	12.0	11.0
		Vibration	11.5	11.5	11.5	12.0	11.0	11.0
Creep		16.0	14.5	13.5	12.5	12.0	11.0	
5-maxx	L/600	21.0	19.0	18.0	16.5	15.5	14.5	
	L/360	21.0	19.0	18.0	16.5	15.5	14.5	
	L/240	21.0	19.0	18.0	16.5	15.5	14.5	
	Vibration	14.0	14.0	14.0	14.5	13.5	13.5	
	Creep	21.0	19.0	18.0	16.5	15.5	14.5	
7-maxx	L/600				25.0	22.5	21.0	
	L/360				25.0	22.5	21.0	
	L/240				25.0	22.5	21.0	
	Vibration				17.0	17.0	17.0	
	Creep	17.0	17.0	17.0	22.5	21.0	19.5	
9-maxx	L/600							24.0
	L/360							24.0
	L/240							24.0
	Vibration							19.0
	Creep	19.5	20.0	19.5	20.5	19.5	19.0	24.0
CANTILEVER	3-alt	L/600	6.5	5.5	5.0	4.5	4.0	4.0
		L/360	6.5	5.5	5.0	5.0	4.5	4.0
		L/240	6.5	5.5	5.0	5.0	4.5	4.0
		Vibration	5.5	5.5	5.0	5.0	4.5	4.0
		Creep	5.5	5.0	5.0	5.0	4.5	4.0
	5-alt	L/600	9.5	8.5	8.0	7.5	6.5	6.0
		L/360	9.5	8.5	8.0	7.5	7.0	6.5
		L/240	9.5	8.5	8.0	7.5	7.0	6.5
		Vibration	8.0	8.0	8.0	7.5	7.0	6.5
		Creep	8.5	8.0	8.0	7.5	7.0	6.5
	7-alt	L/600	12.0	11.0	10.5	9.5	9.0	8.5
		L/360	12.0	11.0	10.5	9.5	9.0	8.5
		L/240	12.0	11.0	10.5	9.5	9.0	8.5
		Vibration	9.5	9.5	9.5	9.5	9.0	8.5
		Creep	11.5	11.0	10.5	9.5	9.0	8.5
	9-alt	L/600	14.5	13.5	12.5	12.0	11.0	10.5
		L/360	14.5	13.5	12.5	12.0	11.0	10.5
		L/240	14.5	13.5	12.5	12.0	11.0	10.5
		Vibration	11.0	11.0	11.0	11.5	11.0	10.5
		Creep	14.0	13.5	12.5	12.0	11.0	10.5
	4-maxx	L/600	8.0	7.0	6.5	6.0	5.5	5.0
		L/360	8.0	7.0	6.5	6.0	6.0	5.5
		L/240	8.0	7.0	6.5	6.0	6.0	5.5
		Vibration	6.5	7.0	6.5	6.0	6.0	5.5
Creep		7.0	6.5	6.5	6.0	6.0	5.5	
5-maxx	L/600	10.5	9.0	8.5	8.0	7.0	6.5	
	L/360	10.5	9.5	9.0	8.0	7.5	7.0	
	L/240	10.5	9.5	9.0	8.0	7.5	7.0	
	Vibration	8.0	8.5	8.5	8.0	7.5	7.0	
	Creep	9.0	8.5	8.5	8.0	7.5	7.0	
7-maxx	L/600	14.0	12.5	11.5	11.0	10.0	9.5	
	L/360	14.0	12.5	11.5	11.0	10.5	9.5	
	L/240	14.0	12.5	11.5	11.0	10.5	9.5	
	Vibration	10.0	10.5	10.0	10.5	10.0	9.5	
	Creep	12.5	11.5	11.5	11.0	10.5	9.5	
9-maxx	L/600			15.0	14.5	13.5	12.5	11.5
	L/360			15.0	14.5	13.5	12.5	12.0
	L/240			15.0	14.5	13.5	12.5	12.0
	Vibration			11.5	12.0	12.0	11.5	11.5
	Creep	11.5	14.5	14.0	14.0	13.5	12.5	12.0

No. of Spans	CLT Layout	Deflection Limit	Residential - 40	Office (15 psf Partition Load) - 65	Office (Collaborative) - 80	Assembly (Retail) - 100	Storage (Light) - 125	Library Stack Room - 150
1	3-alt	L/600	11.0	9.5	8.5	8.0	7.0	6.5
		L/360	13.5	11.0	10.5	9.5	9.0	8.0
		L/240	13.5	12.0	11.0	10.5	9.5	9.0
		Vibration	12.0	12.5	12.0	10.5	9.5	9.0
	Creep	12.0	11.0	10.5	10.0	9.5	9.0	
	5-alt	L/600	18.0	15.0	14.0	12.5	11.5	11.0
		L/360	21.5	18.0	16.5	15.5	14.0	13.0
		L/240	20.5	18.5	17.5	16.0	14.5	13.5
		Vibration	15.5	16.0	16.0	16.0	14.5	13.5
	Creep	18.0	17.0	16.0	15.5	14.5	13.5	
	7-alt	L/600	24.0	20.5	19.0	17.5	16.0	15.0
		L/360	28.0	24.0	22.5	20.5	19.0	17.5
		L/240	27.0	24.0	22.5	20.5	19.0	17.5
		Vibration	18.5	19.0	18.5	20.0	18.0	17.5
	Creep	23.5	22.0	21.0	20.0	19.0	17.5	
	9-alt	L/600	30.5	25.5	24.0	22.0	20.5	19.0
		L/360	33.5	29.5	27.5	25.5	23.5	21.5
		L/240	33.0	29.5	27.5	25.5	23.5	21.5
		Vibration	21.0	21.5	21.0	22.5	20.5	20.5
	Creep	29.0	27.0	26.0	25.0	23.5	21.5	
	4-maxx	L/600	14.5	12.0	11.0	10.0	9.5	8.5
		L/360	17.5	14.5	13.5	12.5	11.5	10.5
		L/240	17.0	15.0	14.5	13.5	12.5	11.5
		Vibration	14.0	14.5	14.0	13.5	12.5	11.5
Creep	15.5	14.0	13.5	12.5	12.0	11.5		
5-maxx	L/600	19.0	16.0	15.0	13.5	12.5	11.5	
	L/360	23.0	19.5	18.0	16.5	15.0	14.0	
	L/240	22.0	19.5	18.5	17.5	16.0	15.0	
	Vibration	16.5	17.0	16.5	18.0	16.0	15.0	
Creep	19.5	18.0	17.0	16.5	15.5	15.0		
7-maxx	L/600	26.0	22.0	20.5	19.0	17.5	16.0	
	L/360	31.5	26.5	24.5	22.5	21.0	19.5	
	L/240	29.5	26.5	25.0	23.5	21.5	20.0	
	Vibration	19.5	20.0	20.0	21.5	19.0	19.0	
Creep	25.5	24.0	23.0	22.0	21.0	20.0		
9-maxx	L/600	33.0	28.0	26.0	24.0	22.0	20.5	
	L/360	38.0	33.0	31.0	28.5	26.5	24.5	
	L/240	36.0	32.5	31.0	28.5	26.5	24.5	
	Vibration	22.0	23.0	22.5	24.0	22.0	21.5	
Creep	31.0	29.0	28.0	27.0	25.5	24.5		
2	3-alt	L/600	15.0	12.5	12.0	10.5	9.5	9.0
		L/360	15.0	13.0	12.0	10.5	9.5	9.0
		L/240	15.0	13.0	12.0	10.5	9.5	9.0
		Vibration	11.5	12.5	12.0	10.5	9.5	9.0
	Creep	15.0	13.0	12.0	10.5	9.5	9.0	
	5-alt	L/600	22.0	19.0	17.5	16.0	14.5	13.5
		L/360	22.0	19.0	17.5	16.0	14.5	13.5
		L/240	22.0	19.0	17.5	16.0	14.5	13.5
		Vibration	15.5	16.0	15.5	16.0	14.5	13.5
	Creep	22.0	19.0	17.5	16.0	14.5	13.5	
	7-alt	L/600	24.0	20.5	19.0	17.5	16.0	15.0
		L/360	24.0	20.5	19.0	17.5	16.0	15.0
		L/240	24.0	20.5	19.0	17.5	16.0	15.0
		Vibration	18.0	19.0	18.5	20.0	18.0	17.5
	Creep	24.0	20.5	19.0	17.5	16.0	15.0	
	9-alt	L/600	20.5	21.5	21.0	22.5	20.5	21.5
		L/360	20.5	21.5	21.0	22.5	20.5	21.5
		L/240	20.5	21.5	21.0	22.5	20.5	21.5
		Vibration	20.5	21.5	21.0	22.5	20.5	21.5
	Creep	20.5	21.5	21.0	22.5	20.5	21.5	
	4-maxx	L/600	19.0	16.0	15.0	13.5	12.5	11.5
		L/360	19.0	16.0	15.0	13.5	12.5	11.5
		L/240	19.0	16.0	15.0	13.5	12.5	11.5
		Vibration	13.5	14.5	14.0	13.5	12.5	11.5
Creep	19.0	16.0	15.0	13.5	12.5	11.5		
5-maxx	L/600	24.5	21.0	19.5	18.0	16.0	15.0	
	L/360	24.5	21.0	19.5	18.0	16.0	15.0	
	L/240	24.5	21.0	19.5	18.0	16.0	15.0	
	Vibration	16.0	17.0	16.5	18.0	16.0	15.0	
Creep	24.5	21.0	19.5	18.0	16.0	15.0		
7-maxx	L/600	19.5	20.0	19.5	21.0	19.0	20.0	
	L/360	19.5	20.0	19.5	21.0	19.0	20.0	
	L/240	19.5	20.0	19.5	21.0	19.0	20.0	
	Vibration	19.5	20.0	19.5	21.0	19.0	18.5	
Creep	19.5	20.0	19.5	21.0	19.0	20.0		
9-maxx	L/600	22.0	22.5	22.0	23.5	21.5	24.5	
	L/360	22.0	22.5	22.0	23.5	21.5	24.5	
	L/240	22.0	22.5	22.0	23.5	21.5	24.5	
	Vibration	22.0	22.5	22.0	23.5	21.5	21.0	
Creep	22.0	22.5	22.0	23.5	21.5	24.5		
CANTILEVER	3-alt	L/600	6.0	5.0	4.5	4.0	N/A	N/A
		L/360	7.0	6.0	5.5	5.0	4.5	4.0
		L/240	7.0	6.0	6.0	5.0	4.5	4.5
		Vibration	7.0	6.5	6.0	5.0	4.5	4.5
	Creep	6.5	5.5	5.5	5.0	4.5	4.5	
	5-alt	L/600	9.5	8.0	7.0	6.5	6.0	5.5
		L/360	11.0	9.5	8.5	8.0	7.0	6.5
		L/240	11.0	9.5	8.5	8.0	7.0	6.5
		Vibration	9.0	9.5	8.5	8.0	7.0	6.5
	Creep	9.5	9.0	8.5	8.0	7.0	6.5	
	7-alt	L/600	12.5	10.5	10.0	9.0	8.5	7.5
		L/360	14.0	12.0	11.0	10.0	9.5	8.5
		L/240	14.0	12.0	11.0	10.0	9.5	8.5
		Vibration	11.0	11.0	11.0	10.0	9.5	8.5
	Creep	12.5	11.5	11.0	10.0	9.5	8.5	
	9-alt	L/600	16.0	13.5	12.5	11.5	10.5	10.0
		L/360	14.5	13.5	13.5	12.5	11.5	10.5
		L/240	14.5	13.5	13.5	12.5	11.5	10.5
		Vibration	12.5	12.5	12.5	12.5	11.5	10.5
	Creep	15.0	14.0	13.5	12.5	11.5	10.5	
	4-maxx	L/600	7.5	6.5	6.0	5.5	5.0	4.5
		L/360	9.0	7.5	7.0	6.5	6.0	5.5
		L/240	9.0	8.0	7.5	6.5	6.0	5.5
		Vibration	8.0	8.0	7.5	6.5	6.0	5.5
Creep	8.0	7.5	7.0	6.5	6.0	5.5		
5-maxx	L/600	10.0	8.5	7.5	7.0	6.5	6.0	
	L/360	12.0	10.0	9.5	8.5	8.0	7.5	
	L/240	11.5	10.5	9.5	9.0	8.0	7.5	
	Vibration	9.5	10.0	9.5	9.0	8.0	7.5	
Creep	10.5	9.5	9.0	8.5	8.0	7.5		
7-maxx	L/600	14.0	11.5	10.0	9.0	8.5	8.5	
	L/360	16.0	13.5	12.5	11.5	10.5	10.0	
	L/240	15.5	13.5	12.5	11.5	10.5	10.0	
	Vibration	11.5	12.0	11.5	11.5	10.5	10.0	
Creep	13.5	12.5	12.0	11.5	10.5	10.0		
9-maxx	L/600	13.0	14.5	13.5	12.5	11.5	10.5	
	L/360	13.0	14.5	13.5	12.5	11.5	10.5	
	L/240	13.0	14.5	13.5	12.5	11.5	10.5	
	Vibration	13.0	13.5	13.0	14.0	13.0	12.0	
Creep	13.0	15.5	15.0	14.0	13.0	12.0		

No. of Spans	CLT Layout	Deflection Limit	Residential - 40	Office (15 psf Partition Load) - 65	Office (Collaborative) - 80	Assembly (Retail) - 100	Storage (Light) - 125	Library Stack Room - 150	
1	3-alt	L/600	11.0	9.5	8.5	8.0	7.0	6.5	
		L/360	13.5	11.0	10.5	9.5	9.0	8.0	
		L/240	12.5	11.5	11.0	10.0	9.5	8.5	
		Vibration	10.5	10.5	10.5	10.5	9.5	8.5	
	5-alt	L/600	18.0	15.0	14.0	12.5	11.5	11.0	
		L/360	20.5	18.0	16.5	15.5	14.0	13.0	
		L/240	19.5	17.5	16.5	15.5	14.0	13.0	
		Vibration	14.0	14.5	14.0	15.0	14.0	13.0	
	7-alt	L/600	24.0	20.5	19.0	17.5	16.0	15.0	
		L/360	26.5	23.0	21.5	20.0	18.5	17.0	
		L/240	26.0	23.0	21.5	20.0	18.5	17.0	
		Vibration	17.0	17.5	17.0	18.0	16.5	16.5	
	9-alt	L/600	30.5	25.5	24.0	22.0	20.5	19.0	
		L/360	31.5	28.0	26.5	24.5	22.5	21.0	
		L/240	31.5	28.0	26.5	24.5	22.5	21.0	
		Vibration	19.5	20.0	19.5	20.5	19.0	19.0	
	4-maxx	L/600	14.5	12.0	11.0	10.0	9.5	8.5	
		L/360	17.5	14.5	13.5	12.5	11.5	10.5	
		L/240	16.0	14.5	14.0	13.0	12.0	11.0	
		Vibration	12.5	12.5	12.5	13.0	12.0	11.0	
	5-maxx	L/600	19.0	16.0	15.0	13.5	12.5	11.5	
		L/360	23.0	19.5	18.0	16.5	15.0	14.0	
		L/240	21.0	19.0	18.0	17.0	15.5	14.5	
		Vibration	14.5	15.0	15.0	16.0	14.5	14.5	
	7-maxx	L/600	26.0	22.0	20.5	19.0	17.5	16.0	
		L/360	30.0	26.0	24.5	22.5	21.0	19.5	
		L/240	28.0	25.5	24.5	22.5	21.0	19.5	
		Vibration	18.0	18.5	18.0	19.0	17.5	17.5	
	9-maxx	L/600	33.0	28.0	26.0	24.0	22.0	20.5	
		L/360	36.0	31.5	30.0	27.5	25.5	24.0	
		L/240	34.5	31.5	30.0	27.5	25.5	24.0	
		Vibration	20.5	21.0	20.5	21.5	20.5	20.0	
	2	3-alt	L/600	14.0	12.0	11.0	10.5	9.5	8.5
			L/360	14.0	12.0	11.0	10.5	9.5	8.5
			L/240	14.0	12.0	11.0	10.5	9.5	8.5
			Vibration	10.5	10.5	10.5	10.5	9.5	8.5
5-alt		L/600	20.5	18.0	16.5	15.5	14.0	13.0	
		L/360	20.5	18.0	16.5	15.5	14.0	13.0	
		L/240	20.5	18.0	16.5	15.5	14.0	13.0	
		Vibration	14.0	14.0	14.0	15.0	13.5	13.0	
7-alt		L/600	20.5	18.0	16.5	15.5	14.0	13.0	
		L/360	23.0	20.0	18.5	17.0	15.5	14.5	
		L/240	23.0	20.0	18.5	17.0	15.5	14.5	
		Vibration	14.5	15.0	15.0	15.5	14.5	14.0	
9-alt		L/600	23.0	20.0	18.5	17.0	15.5	14.5	
		L/360	23.0	20.0	18.5	17.0	15.5	14.5	
		L/240	23.0	20.0	18.5	17.0	15.5	14.5	
		Vibration	17.5	18.0	18.0	19.0	17.5	17.0	
4-maxx		L/600	17.5	15.0	14.0	13.0	12.0	11.0	
		L/360	17.5	15.0	14.0	13.0	12.0	11.0	
		L/240	17.5	15.0	14.0	13.0	12.0	11.0	
		Vibration	12.0	12.5	12.5	13.0	12.0	11.0	
5-maxx		L/600	23.0	20.0	18.5	17.0	15.5	14.5	
		L/360	23.0	20.0	18.5	17.0	15.5	14.5	
		L/240	23.0	20.0	18.5	17.0	15.5	14.5	
		Vibration	14.5	15.0	15.0	15.5	14.5	14.0	
7-maxx		L/600	23.0	20.0	18.5	17.0	15.5	14.5	
		L/360	24.5	22.5	21.5	20.0	18.5	17.0	
		L/240	24.5	22.5	21.5	20.0	18.5	17.0	
		Vibration	17.5	18.0	18.0	19.0	17.5	17.0	
9-maxx		L/600	24.5	22.5	21.5	20.0	18.5	17.0	
		L/360	24.5	22.5	21.5	20.0	18.5	17.0	
		L/240	24.5	22.5	21.5	20.0	18.5	17.0	
		Vibration	20.0	20.5	20.5	21.5	20.0	19.5	
CANTILEVER		3-alt	L/600	6.0	5.0	4.5	4.0	N/A	N/A
			L/360	7.0	6.0	5.5	5.0	4.5	4.0
			L/240	6.5	6.0	5.5	5.0	4.5	4.0
			Vibration	6.0	6.0	5.5	5.0	4.5	4.0
	5-alt	L/600	9.5	8.0	7.0	6.5	6.0	5.5	
		L/360	10.0	9.0	8.0	7.5	7.0	6.5	
		L/240	10.0	9.0	8.0	7.5	7.0	6.5	
		Vibration	8.0	8.5	8.0	7.5	7.0	6.5	
	7-alt	L/600	12.5	10.5	10.0	9.0	8.5	7.5	
		L/360	13.0	11.5	10.5	10.0	9.0	8.5	
		L/240	13.0	11.5	10.5	10.0	9.0	8.5	
		Vibration	10.0	10.0	10.0	10.0	9.0	8.5	
	9-alt	L/600	11.5	10.5	10.0	9.0	8.5	7.5	
		L/360	15.5	13.5	12.5	11.5	10.5	10.0	
		L/240	15.5	14.0	13.0	12.0	11.0	10.5	
		Vibration	11.5	11.5	11.5	12.0	11.0	10.5	
	4-maxx	L/600	7.5	6.5	6.0	5.5	5.0	4.5	
		L/360	8.5	7.5	7.0	6.5	6.0	5.5	
		L/240	8.5	7.5	7.0	6.5	6.0	5.5	
		Vibration	7.0	7.0	7.0	6.5	6.0	5.5	
	5-maxx	L/600	10.0	8.5	7.5	7.0	6.5	6.0	
		L/360	11.5	10.0	9.0	8.5	7.5	7.0	
		L/240	11.0	10.0	9.0	8.5	7.5	7.0	
		Vibration	8.5	9.0	8.5	8.5	7.5	7.0	
	7-maxx	L/600	14.0	11.5	10.5	10.0	9.0	8.5	
		L/360	15.0	13.0	12.0	11.0	10.5	9.5	
		L/240	15.0	13.0	12.0	11.0	10.5	9.5	
		Vibration	10.5	11.0	10.5	11.0	10.5	9.5	
	9-maxx	L/600	12.5	12.0	11.5	11.0	10.5	9.5	
		L/360	14.5	14.5	13.5	12.5	11.5	10.5	
		L/240	15.5	15.5	15.0	13.5	12.5	12.0	
		Vibration	12.0	12.5	12.0	13.0	12.0	12.0	
		L/600	15.5	14.5	14.0	13.5	12.5	12.0	
		L/360							
		L/240							
		Vibration							

No. of Spans	CLT Layout	Deflection Limit	Residential - 40	Office (15 psf Partition Load) - 65	Office (Collaborative) - 80	Assembly (Retail) - 100	Storage (Light) - 125	Library Stack Room - 150
1	3-alt	L/600	11.0	9.5	8.5	8.0	7.0	6.5
		L/360	12.0	10.5	10.0	9.5	8.5	8.0
		L/240	11.5	10.5	10.0	9.5	8.5	8.0
		Vibration	9.0	9.0	9.0	9.5	8.5	8.0
		Creep	9.5	9.0	9.0	8.5	8.0	8.0
	5-alt	L/600	18.0	15.0	14.0	12.5	11.5	11.0
		L/360	18.0	16.0	15.0	14.0	13.0	12.5
		L/240	17.5	16.0	15.0	14.0	13.0	12.5
		Vibration	12.5	12.5	12.5	13.0	12.5	12.0
		Creep	15.0	14.0	14.0	13.5	13.0	12.5
	7-alt	L/600	23.0	20.5	19.0	17.5	16.0	15.0
		L/360	23.0	20.5	19.5	18.5	17.0	16.0
		L/240	23.0	20.5	19.5	18.5	17.0	16.0
		Vibration	15.0	15.5	15.5	16.0	15.0	15.0
		Creep	19.5	19.0	18.5	17.5	17.0	16.0
	9-alt	L/600	28.0	25.5	24.0	22.0	20.5	19.0
		L/360	28.0	25.5	24.0	22.5	21.0	20.0
		L/240	28.0	25.5	24.0	22.5	21.0	20.0
		Vibration	17.5	18.0	18.0	18.5	17.5	17.5
		Creep	24.5	23.5	22.5	22.0	21.0	20.0
	4-maxx	L/600	14.5	12.0	11.0	10.0	9.5	8.5
		L/360	15.0	13.5	13.0	12.0	11.0	10.5
		L/240	14.5	13.5	13.0	12.0	11.0	10.5
		Vibration	11.0	11.0	11.0	11.5	10.5	10.5
Creep		12.5	11.5	11.5	11.0	10.5	10.0	
5-maxx	L/600	19.0	16.0	15.0	13.5	12.5	11.5	
	L/360	20.0	18.0	17.0	15.5	14.5	13.5	
	L/240	19.0	17.5	17.0	15.5	14.5	13.5	
	Vibration	13.0	13.5	13.0	13.5	13.0	13.0	
	Creep	16.0	15.0	15.0	14.5	13.5	13.0	
7-maxx	L/600	26.0	22.0	20.5	19.0	17.5	16.0	
	L/360	26.0	23.5	22.5	21.0	19.5	18.5	
	L/240	25.5	23.5	22.5	21.0	19.5	18.5	
	Vibration	16.0	16.5	16.0	17.0	16.0	16.0	
	Creep	21.5	20.5	20.0	19.0	18.5	18.0	
9-maxx	L/600	31.5	28.0	26.0	24.0	22.0	20.5	
	L/360	31.5	28.5	27.0	25.5	24.0	22.5	
	L/240	31.5	28.5	27.0	25.5	24.0	22.5	
	Vibration	18.5	19.0	18.5	19.5	18.5	18.5	
	Creep	26.5	25.0	24.5	24.0	23.0	22.5	
2	3-alt	L/600	12.0	10.5	10.0	9.5	8.5	8.0
		L/360	12.0	10.5	10.0	9.5	8.5	8.0
		L/240	12.0	10.5	10.0	9.5	8.5	8.0
		Vibration	9.0	9.0	9.0	9.5	8.5	8.0
		Creep	12.0	10.5	10.0	9.5	8.5	8.0
	5-alt	L/600	18.0	16.0	15.0	14.0	13.0	12.5
		L/360	18.0	16.0	15.0	14.0	13.0	12.5
		L/240	18.0	16.0	15.0	14.0	13.0	12.5
		Vibration	12.0	12.5	12.5	13.0	12.0	12.0
		Creep	18.0	16.0	15.0	14.0	13.0	12.5
	7-alt	L/600	23.0	20.5	19.5	18.5	17.0	16.0
		L/360	23.0	20.5	19.5	18.5	17.0	16.0
		L/240	23.0	20.5	19.5	18.5	17.0	16.0
		Vibration	15.0	15.0	15.0	15.5	15.0	14.5
		Creep	23.0	20.5	19.5	18.5	17.0	16.0
	9-alt	L/600			24.0	22.5	21.0	20.0
		L/360			24.0	22.5	21.0	20.0
		L/240			24.0	22.5	21.0	20.0
		Vibration	17.5	17.5	17.5	18.0	17.0	17.0
		Creep			24.0	22.5	21.0	20.0
	4-maxx	L/600	15.0	13.5	13.0	12.0	11.0	10.5
		L/360	15.0	13.5	13.0	12.0	11.0	10.5
		L/240	15.0	13.5	13.0	12.0	11.0	10.5
		Vibration	10.5	11.0	10.5	11.0	10.5	10.5
Creep		15.0	13.5	13.0	12.0	11.0	10.5	
5-maxx	L/600	20.0	18.0	17.0	15.5	14.5	13.5	
	L/360	20.0	18.0	17.0	15.5	14.5	13.5	
	L/240	20.0	18.0	17.0	15.5	14.5	13.5	
	Vibration	13.0	13.0	13.0	13.5	12.5	12.5	
	Creep	20.0	18.0	17.0	15.5	14.5	13.5	
7-maxx	L/600		23.5	22.5	21.0	19.5	18.5	
	L/360		23.5	22.5	21.0	19.5	18.5	
	L/240		23.5	22.5	21.0	19.5	18.5	
	Vibration	16.0	16.0	16.0	16.5	15.5	15.5	
	Creep		23.5	22.5	21.0	19.5	18.5	
9-maxx	L/600					24.0	22.5	
	L/360					24.0	22.5	
	L/240					24.0	22.5	
	Vibration	18.0	18.5	18.5	19.0	18.0	18.0	
	Creep					24.0	22.5	
CANTILEVER	3-alt	L/600	6.0	5.0	4.5	4.0	N/A	N/A
		L/360	6.0	5.0	5.0	4.5	4.0	4.0
		L/240	6.0	5.0	5.0	4.5	4.0	4.0
		Vibration	N/A	N/A	N/A	N/A	N/A	N/A
		Creep	5.0	4.5	4.5	4.5	4.0	4.0
	5-alt	L/600	9.0	8.0	7.0	6.5	6.0	5.5
		L/360	9.0	8.0	7.5	7.0	6.5	6.0
		L/240	9.0	8.0	7.5	7.0	6.5	6.0
		Vibration	7.5	7.5	7.5	7.0	6.5	6.0
		Creep	8.0	7.5	7.0	7.0	6.5	6.0
	7-alt	L/600	11.5	10.0	9.5	9.0	8.5	7.5
		L/360	11.5	10.0	9.5	9.0	8.5	8.0
		L/240	11.5	10.0	9.5	9.0	8.5	8.0
		Vibration	9.0	9.0	9.0	9.0	8.5	8.0
		Creep	10.5	10.0	9.5	9.0	8.5	8.0
	9-alt	L/600	14.0	12.5	12.0	11.0	10.5	10.0
		L/360	14.0	12.5	12.0	11.0	10.5	10.0
		L/240	14.0	12.5	12.0	11.0	10.5	10.0
		Vibration	10.5	10.5	10.5	11.0	10.5	10.0
		Creep	13.0	12.0	12.0	11.0	10.5	10.0
	4-maxx	L/600	7.5	6.5	6.0	5.5	5.0	4.5
		L/360	7.5	6.5	6.5	6.0	5.5	5.0
		L/240	7.5	6.5	6.5	6.0	5.5	5.0
		Vibration	6.5	6.5	6.5	6.0	5.5	5.0
Creep		6.5	6.0	6.0	5.5	5.5	5.0	
5-maxx	L/600	10.0	8.5	7.5	7.0	6.5	6.0	
	L/360	10.0	9.0	8.5	7.5	7.0	6.5	
	L/240	10.0	9.0	8.5	7.5	7.0	6.5	
	Vibration	7.5	8.0	7.5	7.5	7.0	6.5	
	Creep	8.5	8.0	7.5	7.5	7.0	6.5	
7-maxx	L/600	13.0	11.5	10.5	10.0	9.0	8.5	
	L/360	13.0	11.5	11.0	10.5	9.5	9.0	
	L/240	13.0	11.5	11.0	10.5	9.5	9.0	
	Vibration	9.5	9.5	9.5	10.0	9.5	9.0	
	Creep	11.0	10.5	10.5	10.0	9.5	9.0	
9-maxx	L/600	15.5	14.0	13.5	12.5	11.5	10.5	
	L/360	15.5	14.0	13.5	12.5	12.0	11.0	
	L/240	15.5	14.0	13.5	12.5	12.0	11.0	
	Vibration	11.0	11.0	11.0	11.5	11.0	10.5	
	Creep	14.0	13.0	13.0	12.5	12.0	11.0	

No. of Spans	CLT Layup	Deflection Limit	Residential - 40	Office (15 psf Partition Load) - 65	Office (Collaborative) - 80	Assembly (Retail) - 100	Storage (Light) - 125	Library Stack Room - 150
1	3-alt	L/600	12.0	10.0	9.0	8.5	7.5	7.0
		L/360	14.5	12.0	11.0	10.0	9.5	9.0
		L/240	14.5	12.5	12.0	11.0	10.0	9.5
		Vibration Creep	12.5	13.0	12.5	11.0	10.0	9.5
	5-alt	L/600	19.0	16.0	14.5	13.5	12.5	11.5
		L/360	22.5	19.0	17.5	16.5	15.0	14.0
		L/240	22.0	19.5	18.0	16.5	15.5	14.0
		Vibration Creep	16.0	17.0	16.5	16.5	15.5	14.0
	7-alt	L/600	25.5	21.5	20.0	18.5	17.0	16.0
		L/360	29.5	25.5	23.5	21.5	20.0	18.5
		L/240	28.5	25.5	23.5	21.5	20.0	18.5
		Vibration Creep	19.5	20.0	19.5	21.0	19.0	18.5
	9-alt	L/600	32.5	27.5	25.5	23.5	21.5	20.0
		L/360	35.0	30.5	28.5	26.5	24.5	22.5
		L/240	35.0	30.5	28.5	26.5	24.5	22.5
		Vibration Creep	22.0	22.5	22.0	23.5	21.5	21.0
	4-maxx	L/600	15.5	13.0	12.0	11.0	10.0	9.5
		L/360	18.5	15.5	14.5	13.5	12.0	11.5
		L/240	18.0	16.0	15.0	14.0	13.0	12.0
		Vibration Creep	14.5	15.0	14.5	14.0	13.0	12.0
	5-maxx	L/600	20.5	17.0	16.0	14.5	13.5	12.5
		L/360	24.0	20.5	19.0	17.5	16.0	15.0
		L/240	23.5	21.0	20.0	18.5	17.0	16.0
		Vibration Creep	17.0	18.0	17.5	18.5	16.5	16.0
7-maxx	L/600	28.0	23.5	22.0	20.0	18.5	17.5	
	L/360	33.5	28.0	26.0	24.0	22.5	21.0	
	L/240	31.0	28.0	26.5	24.5	22.5	21.0	
	Vibration Creep	20.5	21.0	21.0	22.5	20.0	19.5	
9-maxx	L/600	35.0	29.5	27.5	25.5	23.5	22.0	
	L/360	40.0	35.0	32.5	30.0	27.5	26.0	
	L/240	38.0	34.5	32.5	30.0	27.5	26.0	
	Vibration Creep	23.0	24.0	23.5	25.0	23.0	22.5	
2	3-alt	L/600	16.0	13.5	12.5	11.0	10.0	9.5
		L/360	16.0	13.5	12.5	11.0	10.0	9.5
		L/240	16.0	13.5	12.5	11.0	10.0	9.5
		Vibration Creep	12.0	13.0	12.5	11.0	10.0	9.5
	5-alt	L/600	23.0	19.5	18.0	16.5	15.5	14.0
		L/360	23.0	19.5	18.0	16.5	15.5	14.0
		L/240	23.0	19.5	18.0	16.5	15.5	14.0
		Vibration Creep	16.0	16.5	16.5	16.5	15.5	14.0
	7-alt	L/600			23.5	21.5	20.0	18.5
		L/360			23.5	21.5	20.0	18.5
		L/240			23.5	21.5	20.0	18.5
		Vibration Creep	19.0	19.5	19.5	21.0	18.5	18.5
	9-alt	L/600					24.5	22.5
		L/360					24.5	22.5
		L/240					24.5	22.5
		Vibration Creep	21.5	22.5	22.0	23.5	21.5	21.0
	4-maxx	L/600	20.0	17.0	15.5	14.0	13.0	12.0
		L/360	20.0	17.0	15.5	14.0	13.0	12.0
		L/240	20.0	17.0	15.5	14.0	13.0	12.0
		Vibration Creep	14.5	15.0	14.5	14.0	13.0	12.0
	5-maxx	L/600	22.0	20.5	18.5	17.0	16.0	16.0
		L/360	22.0	20.5	18.5	17.0	16.0	16.0
		L/240	22.0	20.5	18.5	17.0	16.0	16.0
		Vibration Creep	17.0	17.5	17.0	18.5	16.5	16.0
7-maxx	L/600			24.5	22.5	21.0	21.0	
	L/360			24.5	22.5	21.0	21.0	
	L/240			24.5	22.5	21.0	21.0	
	Vibration Creep	20.0	21.0	20.5	22.0	20.0	19.5	
9-maxx	L/600					24.5	22.5	
	L/360					24.5	22.5	
	L/240					24.5	22.5	
	Vibration Creep	23.0	23.5	23.0	24.5	22.5	22.0	
CANTILEVER	3-alt	L/600	6.0	5.0	4.5	4.5	4.0	N/A
		L/360	7.5	6.0	6.0	5.5	5.0	4.5
		L/240	7.5	6.5	6.0	5.5	5.0	4.5
		Vibration Creep	7.0	6.5	6.0	5.5	5.0	4.5
	5-alt	L/600	10.0	8.5	7.5	7.0	6.5	6.0
		L/360	11.5	9.5	9.0	8.0	7.5	7.0
		L/240	11.5	9.5	9.0	8.0	7.5	7.0
		Vibration Creep	9.5	9.5	9.0	8.0	7.5	7.0
	7-alt	L/600	13.5	11.5	10.5	9.5	9.0	8.5
		L/360	14.5	12.5	11.5	10.5	10.0	9.0
		L/240	14.5	12.5	11.5	10.5	10.0	9.0
		Vibration Creep	11.5	11.5	11.5	10.5	10.0	9.0
	9-alt	L/600		14.5	13.5	12.5	11.5	10.5
		L/360		15.0	14.0	13.0	12.0	11.0
		L/240		15.0	14.0	13.0	12.0	11.0
		Vibration Creep	13.0	13.5	13.0	13.0	12.0	11.0
	4-maxx	L/600	8.0	6.5	6.0	5.5	5.0	5.0
		L/360	9.5	8.0	7.5	7.0	6.5	6.0
		L/240	9.5	8.5	7.5	7.0	6.5	6.0
		Vibration Creep	8.5	8.5	7.5	7.0	6.5	6.0
	5-maxx	L/600	10.5	9.0	8.0	7.5	7.0	6.5
		L/360	13.0	10.5	10.0	9.0	8.5	8.0
		L/240	12.5	11.0	10.0	9.0	8.5	8.0
		Vibration Creep	10.0	10.5	10.0	9.0	8.5	8.0
7-maxx	L/600	14.5	12.5	11.5	10.5	9.5	9.0	
	L/360		14.5	13.5	12.0	11.0	10.5	
	L/240		14.5	13.5	12.0	11.0	10.5	
	Vibration Creep	12.0	12.5	12.5	12.0	11.0	10.5	
9-maxx	L/600		15.5	14.5	13.5	12.0	11.5	
	L/360			16.0	15.0	13.5	13.0	
	L/240			16.0	15.0	13.5	13.0	
	Vibration Creep	13.5	14.0	14.0	14.5	13.5	13.0	

No. of Spans	CLT Layout	Deflection Limit	Residential - 40	Office (15 psf Partition Load) - 65	Office (Collaborative) - 80	Assembly (Retail) - 100	Storage (Light) - 125	Library Stack Room - 150
1	3-alt	L/600	12.0	10.0	9.0	8.5	7.5	7.0
		L/360	14.5	12.0	11.0	10.0	9.5	9.0
		L/240	13.5	12.0	11.5	11.0	10.0	9.0
		Vibration	11.0	11.0	11.0	11.0	10.0	9.0
		Creep	12.0	11.0	10.5	10.0	9.5	9.0
	5-alt	L/600	19.0	16.0	14.5	13.5	12.5	11.5
		L/360	21.5	18.5	17.5	16.0	15.0	13.5
		L/240	20.5	18.5	17.5	16.0	15.0	13.5
		Vibration	14.5	15.0	15.0	15.5	14.5	13.5
		Creep	18.0	17.0	16.0	15.5	14.5	13.5
	7-alt	L/600	25.5	21.5	20.0	18.5	17.0	16.0
		L/360	27.5	24.0	22.5	21.0	19.5	18.0
		L/240	27.5	24.0	22.5	21.0	19.5	18.0
		Vibration	17.5	18.0	18.0	19.0	17.5	17.0
		Creep	23.5	22.0	21.5	20.5	19.5	18.0
	9-alt	L/600	32.5	27.5	25.5	23.5	21.5	20.0
		L/360	33.0	29.5	27.5	25.5	23.5	22.0
		L/240	33.0	29.5	27.5	25.5	23.5	22.0
		Vibration	20.5	21.0	20.5	21.5	20.0	20.0
		Creep	29.0	27.0	26.5	25.5	23.5	22.0
	4-maxx	L/600	15.5	13.0	12.0	11.0	10.0	9.5
		L/360	18.5	15.5	14.5	13.5	12.0	11.5
		L/240	17.0	15.5	14.5	13.5	12.5	11.5
		Vibration	13.0	13.0	13.0	13.5	12.5	11.5
		Creep	15.0	14.0	13.5	13.0	12.0	11.5
	5-maxx	L/600	20.5	17.0	16.0	14.5	13.5	12.5
		L/360	24.0	20.5	19.0	17.5	16.0	15.0
		L/240	22.5	20.0	19.0	18.0	16.5	15.5
Vibration		15.5	16.0	15.5	16.5	15.0	15.0	
Creep		19.5	18.0	17.5	16.5	16.0	15.0	
7-maxx	L/600	28.0	23.5	22.0	20.0	18.5	17.5	
	L/360	31.5	27.5	25.5	24.0	22.0	20.5	
	L/240	30.0	27.0	25.5	24.0	22.0	20.5	
	Vibration	19.0	19.0	19.0	20.0	18.5	18.5	
	Creep	25.5	24.0	23.5	22.5	21.5	20.5	
9-maxx	L/600	35.0	29.5	27.5	25.5	23.5	22.0	
	L/360	37.5	33.0	31.0	29.0	27.0	25.0	
	L/240	36.5	33.0	31.0	29.0	27.0	25.0	
	Vibration	21.5	22.0	21.5	22.5	21.0	21.0	
	Creep	31.5	29.5	28.5	27.5	26.5	25.0	
2	3-alt	L/600	15.0	12.5	12.0	11.0	10.0	9.0
		L/360	15.0	12.5	12.0	11.0	10.0	9.0
		L/240	15.0	12.5	12.0	11.0	10.0	9.0
		Vibration	11.0	11.0	11.0	11.0	10.0	9.0
		Creep	15.0	12.5	12.0	11.0	10.0	9.0
	5-alt	L/600	21.5	18.5	17.5	16.0	15.0	13.5
		L/360	21.5	18.5	17.5	16.0	15.0	13.5
		L/240	21.5	18.5	17.5	16.0	15.0	13.5
		Vibration	14.5	15.0	14.5	15.5	14.0	13.5
		Creep	21.5	18.5	17.5	16.0	15.0	13.5
	7-alt	L/600	24.0	22.5	22.5	21.0	19.5	18.0
		L/360	24.0	24.0	22.5	21.0	19.5	18.0
		L/240	24.0	22.5	22.5	21.0	19.5	18.0
		Vibration	17.5	18.0	17.5	18.5	17.5	17.0
		Creep	24.0	24.0	22.5	21.0	19.5	18.0
	9-alt	L/600					23.5	22.0
		L/360					23.5	22.0
		L/240					23.5	22.0
		Vibration	20.0	20.5	20.5	21.0	20.0	19.5
		Creep					23.5	22.0
	4-maxx	L/600	18.5	16.0	15.0	13.5	12.5	11.5
		L/360	18.5	16.0	15.0	13.5	12.5	11.5
		L/240	18.5	16.0	15.0	13.5	12.5	11.5
		Vibration	12.5	13.0	13.0	13.5	12.5	11.5
		Creep	18.5	16.0	15.0	13.5	12.5	11.5
	5-maxx	L/600	24.0	21.0	19.5	18.0	16.5	15.5
		L/360	24.0	21.0	19.5	18.0	16.5	15.5
		L/240	24.0	21.0	19.5	18.0	16.5	15.5
Vibration		15.0	15.5	15.5	16.5	15.0	15.0	
Creep		24.0	21.0	19.5	18.0	16.5	15.5	
7-maxx	L/600					24.0	20.5	
	L/360					24.0	20.5	
	L/240					24.0	20.5	
	Vibration	18.5	19.0	19.0	20.0	18.5	18.0	
	Creep				24.0	22.0	20.5	
9-maxx	L/600						25.0	
	L/360						25.0	
	L/240						25.0	
	Vibration	21.0	21.5	21.5	22.5	21.0	20.5	
	Creep						25.0	
CANTILEVER	3-alt	L/600	6.0	5.0	4.5	4.5	4.0	N/A
		L/360	7.5	6.0	6.0	5.5	5.0	4.5
		L/240	7.0	6.0	6.0	5.5	5.0	4.5
		Vibration	6.5	6.0	6.0	5.5	5.0	4.5
		Creep	6.0	5.5	5.5	5.0	5.0	4.5
	5-alt	L/600	10.0	8.5	7.5	7.0	6.5	6.0
		L/360	10.5	9.0	8.5	8.0	7.5	6.5
		L/240	10.5	9.0	8.5	8.0	7.5	6.5
		Vibration	8.5	9.0	8.5	8.0	7.5	6.5
		Creep	9.5	9.0	8.5	8.0	7.5	6.5
	7-alt	L/600	13.5	11.5	10.5	9.5	9.0	8.5
		L/360	13.5	12.0	11.0	10.5	9.5	9.0
		L/240	13.5	12.0	11.0	10.5	9.5	9.0
		Vibration	10.5	10.5	10.5	10.5	9.5	9.0
		Creep	12.5	11.5	11.0	10.5	9.5	9.0
	9-alt	L/600	16.5	14.5	13.5	12.5	11.5	10.5
		L/360	16.5	14.5	13.5	12.5	11.5	11.0
		L/240	16.5	14.5	13.5	12.5	11.5	11.0
		Vibration	12.0	12.0	12.0	12.5	11.5	11.0
		Creep	15.0	14.5	13.5	12.5	11.5	11.0
	4-maxx	L/600	8.0	6.5	6.0	5.5	5.0	5.0
		L/360	9.0	8.0	7.5	6.5	6.0	5.5
		L/240	9.0	8.0	7.5	6.5	6.0	5.5
		Vibration	7.5	8.0	7.5	6.5	6.0	5.5
		Creep	8.0	7.5	7.0	6.5	6.0	5.5
	5-maxx	L/600	10.5	9.0	8.0	7.5	7.0	6.5
		L/360	12.0	10.5	9.5	9.0	8.0	7.5
		L/240	11.5	10.5	9.5	9.0	8.0	7.5
Vibration		9.0	9.5	9.0	9.0	8.0	7.5	
Creep		10.0	9.5	9.0	8.5	8.0	7.5	
7-maxx	L/600	14.5	12.5	11.5	10.5	9.5	9.0	
	L/360	15.5	13.5	12.5	12.0	11.0	10.0	
	L/240	15.5	13.5	12.5	12.0	11.0	10.0	
	Vibration	11.0	11.5	11.0	12.0	11.0	10.0	
	Creep	13.5	12.5	12.0	11.5	11.0	10.0	
9-maxx	L/600		15.5	14.5	13.5	12.0	11.5	
	L/360			15.5	14.5	13.5	12.5	
	L/240			15.5	14.5	13.5	12.5	
	Vibration	12.5	13.0	13.0	13.5	12.5	12.5	
	Creep		15.5	15.0	14.5	13.5	12.5	

No. of Spans	CLT Layup	Deflection Limit	Residential - 40	Office (15 psf Partition Load) - 65	Office (Collaborative) - 80	Assembly (Retail) - 100	Storage (Light) - 125	Library Stack Room - 150
1	3-alt	L/600	12.0	10.0	9.0	8.5	7.5	7.0
		L/360	12.5	11.0	10.5	10.0	9.0	8.5
		L/240	12.0	11.0	10.5	10.0	9.0	8.5
		Vibration	9.5	9.5	9.5	10.0	9.0	8.5
		Creep	10.0	9.5	9.5	9.0	8.5	8.5
	5-alt	L/600	18.5	16.0	14.5	13.5	12.5	11.5
		L/360	18.5	16.5	16.0	15.0	13.5	13.0
		L/240	18.5	16.5	16.0	15.0	13.5	13.0
		Vibration	13.0	13.0	13.0	13.5	13.0	12.5
		Creep	16.0	15.0	14.5	14.0	13.5	13.0
	7-alt	L/600	24.0	21.5	20.0	18.5	17.0	16.0
		L/360	24.0	21.5	20.5	19.5	18.0	17.0
		L/240	24.0	21.5	20.5	19.5	18.0	17.0
		Vibration	16.0	16.0	16.0	16.5	16.0	15.5
		Creep	21.0	20.0	19.5	19.0	18.0	17.0
	9-alt	L/600	29.5	26.5	25.0	23.5	21.5	20.0
		L/360	29.5	26.5	25.0	23.5	22.0	21.0
		L/240	29.5	26.5	25.0	23.5	22.0	21.0
		Vibration	18.5	18.5	18.5	19.0	18.5	18.0
		Creep	26.0	25.0	24.0	23.5	22.0	21.0
	4-maxx	L/600	15.5	13.0	12.0	11.0	10.0	9.5
		L/360	16.0	14.0	13.5	12.5	11.5	11.0
		L/240	15.5	14.0	13.5	12.5	11.5	11.0
		Vibration	11.5	11.5	11.5	12.0	11.0	11.0
		Creep	13.0	12.5	12.0	11.5	11.0	10.5
	5-maxx	L/600	20.5	17.0	16.0	14.5	13.5	12.5
		L/360	21.0	18.5	17.5	16.5	15.5	14.5
		L/240	20.0	18.5	17.5	16.5	15.5	14.5
Vibration		13.5	14.0	14.0	14.5	13.5	13.5	
Creep		17.0	16.0	15.5	15.0	14.5	14.0	
7-maxx	L/600	27.5	23.5	22.0	20.0	18.5	17.5	
	L/360	27.5	24.5	23.5	22.0	20.5	19.0	
	L/240	27.0	24.5	23.5	22.0	20.5	19.0	
	Vibration	17.0	17.0	17.0	17.5	16.5	16.5	
	Creep	23.0	21.5	21.0	20.5	20.0	19.0	
9-maxx	L/600	33.0	29.5	27.5	25.5	23.5	22.0	
	L/360	33.0	30.0	28.5	27.0	25.0	23.5	
	L/240	33.0	30.0	28.5	27.0	25.0	23.5	
	Vibration	19.5	20.0	19.5	20.5	19.5	19.0	
	Creep	28.0	27.0	26.0	25.5	24.5	23.5	
2	3-alt	L/600	12.5	11.0	10.5	10.0	9.0	8.5
		L/360	12.5	11.0	10.5	10.0	9.0	8.5
		L/240	12.5	11.0	10.5	10.0	9.0	8.5
		Vibration	9.5	9.5	9.5	10.0	9.0	8.5
		Creep	12.5	11.0	10.5	10.0	9.0	8.5
	5-alt	L/600	18.5	16.5	16.0	15.0	13.5	13.0
		L/360	18.5	16.5	16.0	15.0	13.5	13.0
		L/240	18.5	16.5	16.0	15.0	13.5	13.0
		Vibration	13.0	13.0	13.0	13.5	12.5	12.5
		Creep	18.5	16.5	16.0	15.0	13.5	13.0
	7-alt	L/600	24.0	21.5	20.5	19.5	18.0	17.0
		L/360	24.0	21.5	20.5	19.5	18.0	17.0
		L/240	24.0	21.5	20.5	19.5	18.0	17.0
		Vibration	15.5	16.0	16.0	16.5	15.5	15.5
		Creep	24.0	21.5	20.5	19.5	18.0	17.0
	9-alt	L/600	25.0	23.5	23.5	22.0	21.0	21.0
		L/360	25.0	23.5	23.5	22.0	21.0	21.0
		L/240	25.0	23.5	23.5	22.0	21.0	21.0
		Vibration	18.0	18.5	18.5	19.0	18.0	18.0
		Creep	25.0	23.5	23.5	22.0	21.0	21.0
	4-maxx	L/600	16.0	14.0	13.5	12.5	11.5	11.0
		L/360	16.0	14.0	13.5	12.5	11.5	11.0
		L/240	16.0	14.0	13.5	12.5	11.5	11.0
		Vibration	11.0	11.5	11.0	11.5	11.0	11.0
		Creep	16.0	14.0	13.5	12.5	11.5	11.0
	5-maxx	L/600	21.0	18.5	17.5	16.5	15.5	14.5
		L/360	21.0	18.5	17.5	16.5	15.5	14.5
		L/240	21.0	18.5	17.5	16.5	15.5	14.5
Vibration		13.5	13.5	13.5	14.0	13.5	13.0	
Creep		21.0	18.5	17.5	16.5	15.5	14.5	
7-maxx	L/600	24.5	23.5	23.5	22.0	20.5	19.0	
	L/360	24.5	23.5	23.5	22.0	20.5	19.0	
	L/240	24.5	23.5	23.5	22.0	20.5	19.0	
	Vibration	16.5	17.0	16.5	17.5	16.5	16.5	
	Creep	24.5	23.5	23.5	22.0	20.5	19.0	
9-maxx	L/600	25.0	23.5	23.5	22.0	21.0	21.0	
	L/360	25.0	23.5	23.5	22.0	21.0	21.0	
	L/240	25.0	23.5	23.5	22.0	21.0	21.0	
	Vibration	19.0	19.5	19.5	20.0	19.0	19.0	
	Creep	25.0	23.5	23.5	22.0	21.0	21.0	
CANTILEVER	3-alt	L/600	6.0	5.0	4.5	4.5	4.0	N/A
		L/360	6.0	5.5	5.0	5.0	4.5	4.0
		L/240	6.0	5.5	5.0	5.0	4.5	4.0
		Vibration	5.5	5.5	5.0	5.0	4.5	N/A
		Creep	5.5	5.0	5.0	4.5	4.5	4.0
	5-alt	L/600	9.0	8.0	7.5	7.0	6.5	6.0
		L/360	9.0	8.0	8.0	7.5	6.5	6.5
		L/240	9.0	8.0	8.0	7.5	6.5	6.5
		Vibration	7.5	7.5	7.5	7.5	6.5	6.5
		Creep	8.5	8.0	7.5	7.5	6.5	6.5
	7-alt	L/600	12.0	10.5	10.0	9.5	9.0	8.5
		L/360	12.0	10.5	10.0	9.5	9.0	8.5
		L/240	12.0	10.5	10.0	9.5	9.0	8.5
		Vibration	9.5	9.5	9.5	9.5	9.0	8.5
		Creep	11.0	10.5	10.0	9.5	9.0	8.5
	9-alt	L/600	14.5	13.0	12.5	11.5	11.0	10.5
		L/360	14.5	13.0	12.5	11.5	11.0	10.5
		L/240	14.5	13.0	12.5	11.5	11.0	10.5
		Vibration	11.0	11.0	11.0	11.5	11.0	10.5
		Creep	13.5	13.0	12.5	11.5	11.0	10.5
	4-maxx	L/600	8.0	6.5	6.0	5.5	5.0	5.0
		L/360	8.0	7.0	6.5	6.0	5.5	5.5
		L/240	8.0	7.0	6.5	6.0	5.5	5.5
		Vibration	6.5	6.5	6.5	6.0	5.5	5.5
		Creep	7.0	6.5	6.0	6.0	5.5	5.5
	5-maxx	L/600	10.5	9.0	8.0	7.5	7.0	6.5
		L/360	10.5	9.0	8.5	8.0	7.5	7.0
		L/240	10.5	9.0	8.5	8.0	7.5	7.0
Vibration		8.0	8.0	8.0	8.0	7.5	7.0	
Creep		9.0	8.5	8.0	8.0	7.5	7.0	
7-maxx	L/600	13.5	12.0	11.5	10.5	9.5	9.0	
	L/360	13.5	12.0	11.5	11.0	10.0	9.5	
	L/240	13.5	12.0	11.5	11.0	10.0	9.5	
	Vibration	10.0	10.0	10.0	10.5	10.0	9.5	
	Creep	12.0	11.5	11.0	10.5	10.0	9.5	
9-maxx	L/600	15.0	15.0	14.0	13.5	12.0	11.5	
	L/360	15.0	15.0	14.0	13.5	12.0	11.5	
	L/240	15.0	15.0	14.0	13.5	12.0	11.5	
	Vibration	11.5	11.5	11.5	12.0	11.5	11.5	
	Creep	15.0	14.0	13.5	13.5	12.5	11.5	

No. of Spans	CLT Layout	Deflection Limit	Residential - 40	Office (15 psf Partition Load) - 65	Office (Collaborative) - 80	Assembly (Retail) - 100	Storage (Light) - 125	Library Stack Room - 150
1	3-alt	L/600	13.0	10.5	10.0	9.0	8.5	8.0
		L/360	15.5	13.0	12.0	11.0	10.0	9.5
		L/240	15.5	13.5	13.0	12.0	11.0	10.5
		Vibration	13.0	13.5	13.5	14.5	12.5	12.0
	5-alt	Creep	14.0	12.5	12.0	11.5	10.5	10.0
		L/600	20.5	17.0	16.0	14.5	13.5	12.5
		L/360	24.0	20.5	19.0	17.5	16.0	15.0
		L/240	23.5	21.0	20.0	18.5	17.5	16.5
	7-alt	Vibration	17.0	18.0	17.5	19.0	16.5	16.5
		Creep	21.0	19.0	18.5	17.5	16.5	16.0
		L/600	27.5	23.5	21.5	20.0	18.5	17.0
		L/360	33.0	28.0	26.0	24.0	22.0	20.5
	9-alt	L/240	31.0	28.0	26.5	25.0	23.5	22.5
		Vibration	20.5	21.0	20.5	22.5	20.0	19.5
		Creep	27.0	25.0	24.0	23.0	22.0	21.0
		L/600	35.0	29.5	27.5	25.0	23.5	22.0
	4-maxx	L/360	41.5	35.0	32.5	30.0	28.0	26.0
		L/240	37.5	34.5	32.5	31.0	29.5	28.0
		Vibration	23.0	24.0	23.5	25.0	23.0	22.5
		Creep	33.0	30.5	29.5	28.5	27.0	26.0
	5-maxx	L/600	16.5	14.0	13.0	12.0	11.0	10.0
		L/360	20.0	16.5	15.5	14.5	13.0	12.5
		L/240	19.5	17.5	16.5	15.5	14.5	13.5
		Vibration	15.0	16.0	15.5	17.5	15.0	14.5
7-maxx	Creep	17.5	16.0	15.0	14.5	13.5	13.0	
	L/600	22.0	18.5	17.0	15.5	14.5	13.5	
	L/360	26.0	22.0	20.5	19.0	17.5	16.5	
	L/240	25.0	22.5	21.5	20.0	19.0	18.0	
9-maxx	Vibration	18.0	19.0	18.5	20.0	17.5	17.5	
	Creep	22.5	20.5	19.5	18.5	17.5	17.0	
	L/600	30.0	25.5	23.5	21.5	20.0	18.5	
	L/360	36.0	30.0	28.0	26.0	24.0	22.5	
9-maxx	L/240	33.5	30.0	28.5	27.0	25.5	24.0	
	Vibration	21.5	22.5	22.0	23.5	21.0	21.0	
	Creep	29.5	27.5	26.0	25.0	24.0	23.0	
	L/600	38.0	32.0	29.5	27.5	25.0	23.5	
9-maxx	L/360	45.0	38.0	35.5	33.0	30.5	28.5	
	L/240	41.0	37.0	35.5	33.5	32.0	30.0	
	Vibration	24.5	25.0	25.0	26.5	24.0	24.0	
	Creep	35.5	33.5	32.0	31.0	29.5	28.0	
2	3-alt	L/600	17.5	14.5	13.5	12.5	11.5	10.5
		L/360	20.5	17.0	16.0	14.5	13.0	12.0
		L/240	20.5	17.0	16.0	14.5	13.0	12.0
		Vibration	13.0	13.5	13.0	14.5	12.5	12.0
	5-alt	Creep	18.5	17.0	16.0	14.5	13.0	12.0
		L/600		23.0	21.5	20.0	18.5	17.0
		L/360			23.5	21.5	19.5	18.0
		L/240			23.5	21.5	19.5	18.0
	7-alt	Vibration	17.0	17.5	17.5	19.0	16.5	16.0
		Creep			23.5	21.5	19.5	18.0
		L/600					25.0	23.5
		L/360						
	9-alt	L/240						
		Vibration	20.0	21.0	20.5	22.0	20.0	19.5
		Creep						24.0
		L/600						
	4-maxx	L/360	22.5	19.0	17.5	16.0	15.0	14.0
		L/240		21.5	20.0	18.5	16.5	15.5
		Vibration		21.5	20.0	18.5	16.5	15.5
		Creep	15.0	16.0	15.5	17.5	14.5	14.5
	5-maxx	Creep	23.5	21.5	20.0	18.5	16.5	15.5
		L/600		25.0	23.0	21.5	19.5	18.5
		L/360					24.0	22.0
		L/240					24.0	22.0
7-maxx	Vibration	18.0	18.5	18.0	20.0	17.5	17.0	
	Creep				24.0	22.0	20.5	
	L/600							
	L/360							
9-maxx	L/240	21.5	22.0	21.5	23.5	21.0	20.5	
	Vibration							
	Creep							
	L/600							
9-maxx	L/360							
	L/240							
	Vibration	24.5	25.0	24.5		24.0	23.5	
	Creep							
CANTILEVER	3-alt	L/600	6.5	5.5	5.0	4.5	4.5	4.0
		L/360	8.0	6.5	6.0	5.5	5.0	5.0
		L/240	8.0	7.0	6.5	6.0	5.5	5.5
		Vibration	7.5	8.0	8.0	7.0	6.5	6.0
	5-alt	Creep	7.0	6.5	6.0	6.0	5.5	5.0
		L/600	10.5	9.0	8.5	7.5	7.0	6.5
		L/360	13.0	11.0	10.0	9.0	8.5	8.0
		L/240	12.5	11.0	10.5	10.0	9.0	8.5
	7-alt	Vibration	10.0	10.5	10.5	10.5	9.5	9.0
		Creep	11.0	10.0	9.5	9.0	8.5	8.0
		L/600	14.5	12.0	11.5	10.5	9.5	9.0
		L/360		14.5	13.5	12.5	11.5	11.0
	9-alt	L/240		14.5	14.0	13.0	12.5	11.5
		Vibration	12.0	12.5	12.0	13.0	12.0	11.5
		Creep	14.5	13.0	12.5	12.0	11.5	11.0
		L/600		15.5	14.5	13.5	12.0	11.5
	4-maxx	L/360						
		L/240	13.5	14.0	14.0	14.5	15.5	14.5
		Vibration		16.0	15.5	15.0	14.5	13.5
		Creep						13.5
	5-maxx	L/600	8.5	7.0	6.5	6.0	5.5	5.0
		L/360	10.5	9.0	8.0	7.5	7.0	6.5
		L/240	10.5	9.0	8.5	8.0	7.5	7.0
		Vibration	9.0	9.5	9.0	9.0	8.0	7.5
7-maxx	Creep	9.0	8.5	8.0	7.5	7.0	6.5	
	L/600	11.5	9.5	9.0	8.0	7.0	7.0	
	L/360	14.0	11.5	10.5	10.0	9.0	8.5	
	L/240	13.5	12.0	11.0	10.5	10.0	9.5	
9-maxx	Vibration	10.5	11.0	11.0	12.0	10.5	10.0	
	Creep	12.0	11.0	10.5	10.0	9.5	9.0	
	L/600	16.0	13.5	12.5	11.5	10.5	9.5	
	L/360		16.0	15.0	13.5	12.5	12.0	
9-maxx	L/240		16.0	15.0	14.5	13.5	12.5	
	Vibration	13.0	13.0	13.0	14.0	12.5	12.5	
	Creep	15.5	14.5	14.0	13.0	12.5	12.0	
	L/600				15.5	14.5	13.0	
9-maxx	L/360						15.0	
	L/240						16.0	
	Vibration	14.5	15.0	14.5	15.5	14.5	14.0	
	Creep					15.5	15.0	

No. of Spans	CLT Layup	Deflection Limit	Residential - 40	Office (15 psf Partition Load) - 65	Office (Collaborative) - 80	Assembly (Retail) - 100	Storage (Light) - 125	Library Stack Room - 150
1	3-alt	L/600	13.0	10.5	10.0	9.0	8.5	8.0
		L/360	15.5	13.0	12.0	11.0	10.0	9.5
		L/240	14.5	13.0	12.5	11.5	11.0	10.5
		Vibration	11.5	12.0	11.5	12.5	11.5	11.0
	5-alt	L/600	20.5	17.0	16.0	14.5	13.5	12.5
		L/360	24.0	20.5	19.0	17.5	16.0	15.0
		L/240	22.5	20.0	19.0	18.0	17.0	16.0
		Vibration	15.5	16.0	15.5	16.5	15.0	15.0
	7-alt	L/600	27.5	23.5	21.5	20.0	18.5	17.0
		L/360	33.0	28.0	26.0	24.0	22.0	20.5
		L/240	29.5	27.0	25.5	24.5	23.0	22.0
		Vibration	18.5	19.0	19.0	20.0	18.5	18.0
9-alt	L/600	35.0	29.5	27.5	25.0	23.5	22.0	
	L/360	41.5	35.0	32.5	30.0	28.0	26.0	
	L/240	36.0	33.0	32.0	30.5	28.5	27.5	
	Vibration	21.5	22.0	21.5	22.5	21.0	21.0	
4-maxx	L/600	16.5	14.0	13.0	12.0	11.0	10.0	
	L/360	20.0	16.5	15.5	14.5	13.0	12.5	
	L/240	18.5	16.5	16.0	15.0	14.0	13.5	
	Vibration	13.5	14.0	14.0	15.0	13.5	13.0	
5-maxx	L/600	22.0	18.5	17.0	15.5	14.5	13.5	
	L/360	26.0	22.0	20.5	19.0	17.5	16.5	
	L/240	24.0	21.5	20.5	19.5	18.5	17.5	
	Vibration	16.5	16.5	16.5	17.5	16.0	16.0	
7-maxx	L/600	30.0	25.5	23.5	21.5	20.0	18.5	
	L/360	36.0	30.0	28.0	26.0	24.0	22.5	
	L/240	32.0	29.0	28.0	26.5	25.0	23.5	
	Vibration	20.0	20.5	20.0	21.0	19.5	19.5	
9-maxx	L/600	38.0	32.0	29.5	27.5	25.0	23.5	
	L/360	45.0	38.0	35.5	33.0	30.5	28.5	
	L/240	39.5	36.0	34.5	33.0	31.0	29.5	
	Vibration	23.0	23.5	23.0	24.0	22.5	22.0	
2	3-alt	L/600	17.5	14.5	13.5	12.5	11.5	10.5
		L/360	19.0	16.5	15.0	14.0	12.5	12.0
		L/240	19.0	16.5	15.0	14.0	12.5	12.0
		Vibration	11.5	12.0	11.5	12.5	11.0	11.0
	5-alt	L/600	23.0	21.5	20.0	18.5	17.0	17.0
		L/360	24.0	24.0	22.5	20.5	19.0	17.5
		L/240	24.0	24.0	22.5	20.5	19.0	17.5
		Vibration	15.5	15.5	15.5	16.5	15.0	15.0
	7-alt	L/600	24.0	24.0	22.5	20.5	19.0	17.5
		L/360	24.0	24.0	22.5	20.5	19.0	17.5
		L/240	24.0	24.0	22.5	20.5	19.0	17.5
		Vibration	18.5	19.0	18.5	19.5	18.5	18.0
9-alt	L/600	25.0	25.0	23.5	21.5	20.0	18.5	
	L/360	25.0	25.0	23.5	21.5	20.0	18.5	
	L/240	25.0	25.0	23.5	21.5	20.0	18.5	
	Vibration	21.0	21.5	21.5	22.5	21.0	20.5	
4-maxx	L/600	22.5	19.0	17.5	16.0	15.0	14.0	
	L/360	24.0	20.5	19.0	17.5	16.0	15.0	
	L/240	24.0	20.5	19.0	17.5	16.0	15.0	
	Vibration	13.5	14.0	13.5	14.5	13.0	13.0	
5-maxx	L/600	22.0	20.5	19.0	17.5	16.0	15.0	
	L/360	22.0	20.5	19.0	17.5	16.0	15.0	
	L/240	22.0	20.5	19.0	17.5	16.0	15.0	
	Vibration	16.0	16.5	16.5	17.5	16.0	15.5	
7-maxx	L/600	25.0	23.0	21.5	20.0	19.5	18.5	
	L/360	25.0	23.0	21.5	20.0	19.5	18.5	
	L/240	25.0	23.0	21.5	20.0	19.5	18.5	
	Vibration	19.5	20.0	20.0	21.0	19.5	19.0	
9-maxx	L/600	25.0	23.0	21.5	20.0	19.5	18.5	
	L/360	25.0	23.0	21.5	20.0	19.5	18.5	
	L/240	25.0	23.0	21.5	20.0	19.5	18.5	
	Vibration	22.5	23.0	22.5	24.0	22.0	22.0	
CANTILEVER	3-alt	L/600	6.5	5.5	5.0	4.5	4.5	4.0
		L/360	8.0	6.5	6.0	5.5	5.5	5.0
		L/240	7.5	7.0	6.5	6.0	5.5	5.5
		Vibration	6.5	7.0	7.0	7.0	6.0	6.0
	5-alt	L/600	10.5	9.0	8.5	7.5	7.0	6.5
		L/360	13.0	11.0	10.0	9.0	8.5	8.0
		L/240	11.5	10.5	10.0	9.5	9.0	8.5
		Vibration	9.0	9.5	9.0	10.0	9.0	8.5
	7-alt	L/600	14.5	12.0	11.5	10.5	9.5	9.0
		L/360	15.5	14.5	13.5	12.5	11.5	11.0
		L/240	15.5	14.0	13.5	13.0	12.0	11.5
		Vibration	11.0	11.5	11.0	11.5	11.0	10.5
9-alt	L/600	13.5	12.5	12.0	11.5	11.0	10.5	
	L/360	15.5	15.5	14.5	13.5	12.0	11.5	
	L/240	15.5	15.5	14.5	13.5	12.0	11.5	
	Vibration	12.5	13.0	13.0	13.5	12.5	12.5	
4-maxx	L/600	8.5	7.0	6.5	6.0	5.5	5.0	
	L/360	10.5	9.0	8.5	7.5	7.0	6.5	
	L/240	9.5	8.5	8.5	8.0	7.5	7.0	
	Vibration	8.0	8.0	8.0	8.5	8.0	7.5	
5-maxx	L/600	8.5	8.0	7.5	7.0	7.0	6.5	
	L/360	11.5	9.5	9.0	8.0	7.5	7.0	
	L/240	14.0	11.5	10.5	10.0	9.0	8.5	
	Vibration	12.5	11.5	11.0	10.5	9.5	9.0	
7-maxx	L/600	9.5	10.0	9.5	9.5	9.5	9.5	
	L/360	11.0	10.0	10.0	10.5	9.5	9.5	
	L/240	11.0	10.0	10.0	10.5	9.5	9.5	
	Vibration	16.0	13.5	12.5	11.5	10.5	9.5	
9-maxx	L/600	11.5	10.5	10.0	9.5	9.0	8.5	
	L/360	14.5	13.5	13.0	12.5	12.0	11.5	
	L/240	14.5	13.5	13.0	12.5	12.0	11.5	
	Vibration	11.5	12.0	12.0	12.5	12.0	11.5	

No. of Spans	CLT Layup	Deflection Limit	Residential - 40	Office (15 psf Partition Load) - 65	Office (Collaborative) - 80	Assembly (Retail) - 100	Storage (Light) - 125	Library Stack Room - 150
1	3-alt	L/600	13.0	10.5	10.0	9.0	8.5	8.0
		L/360	15.5	13.0	12.0	11.0	10.0	9.5
		L/240	13.0	12.0	11.5	11.0	10.5	10.0
		Vibration Creep	10.0	10.0	10.0	10.5	10.0	10.0
	5-alt	L/600	20.5	17.0	16.0	14.5	13.5	12.5
		L/360	24.0	20.5	19.0	17.5	16.0	15.0
		L/240	20.0	18.5	17.0	17.0	16.0	15.5
		Vibration Creep	13.5	14.0	14.0	14.5	13.5	13.5
7-alt	L/600	27.5	23.5	21.5	20.0	18.5	17.0	
	L/360	31.0	28.0	26.0	24.0	22.0	20.5	
	L/240	27.0	25.0	24.0	23.0	22.0	21.0	
	Vibration Creep	17.0	17.0	17.0	17.5	16.5	16.5	
9-alt	L/600	35.0	29.5	27.5	25.0	23.5	22.0	
	L/360	37.5	34.0	32.5	30.0	28.0	26.0	
	L/240	33.0	31.0	30.0	28.5	27.5	26.0	
	Vibration Creep	19.5	20.0	19.5	20.5	19.5	19.0	
4-maxx	L/600	16.5	14.0	13.0	12.0	11.0	10.0	
	L/360	20.0	16.5	15.5	14.5	13.0	12.5	
	L/240	16.5	15.5	14.5	14.0	13.5	12.5	
	Vibration Creep	12.0	12.0	12.0	12.5	12.0	11.5	
5-maxx	L/600	22.0	18.5	17.0	15.5	14.5	13.5	
	L/360	26.0	22.0	20.5	19.0	17.5	16.5	
	L/240	21.5	20.0	19.5	18.5	17.5	16.5	
	Vibration Creep	14.5	14.5	14.5	15.0	14.5	14.0	
7-maxx	L/600	30.0	25.5	23.5	21.5	20.0	18.5	
	L/360	35.5	30.0	28.0	26.0	24.0	22.5	
	L/240	29.0	27.0	26.0	25.0	23.5	22.5	
	Vibration Creep	18.0	18.0	18.0	18.5	17.5	17.5	
9-maxx	L/600	38.0	32.0	29.5	27.5	25.0	23.5	
	L/360	42.5	38.0	35.5	33.0	30.5	28.5	
	L/240	36.0	33.5	32.5	31.0	29.5	28.5	
	Vibration Creep	20.5	21.0	21.0	21.5	20.5	20.5	
2	3-alt	L/600	16.5	14.5	13.5	12.5	11.5	10.5
		L/360	16.5	14.5	13.5	12.5	12.0	11.0
		L/240	16.5	14.5	13.5	12.5	12.0	11.0
		Vibration Creep	10.0	10.0	10.0	10.5	10.0	9.5
	5-alt	L/600	24.0	21.5	20.5	19.0	17.5	16.5
		L/360	24.0	21.5	20.5	19.0	17.5	16.5
		L/240	24.0	21.5	20.5	19.0	17.5	16.5
		Vibration Creep	13.5	14.0	13.5	14.0	13.5	13.5
7-alt	L/600				25.0	23.0	22.0	
	L/360				25.0	23.0	22.0	
	L/240				25.0	23.0	22.0	
	Vibration Creep	16.5	17.0	16.5	17.5	16.5	16.5	
9-alt	L/600							
	L/360							
	L/240							
	Vibration Creep	19.0	19.5	19.5	20.0	19.0	19.0	
4-maxx	L/600	20.5	18.5	17.0	16.0	15.0	14.0	
	L/360	20.5	18.5	17.0	16.0	15.0	14.0	
	L/240	20.5	18.5	17.0	16.0	15.0	14.0	
	Vibration Creep	12.0	12.0	12.0	12.5	11.5	11.5	
5-maxx	L/600		24.0	22.5	21.0	19.5	18.5	
	L/360		24.0	22.5	21.0	19.5	18.5	
	L/240		24.0	22.5	21.0	19.5	18.5	
	Vibration Creep	14.5	14.5	14.5	15.0	14.0	14.0	
7-maxx	L/600						24.5	
	L/360						24.5	
	L/240						24.5	
	Vibration Creep	17.5	18.0	17.5	18.5	17.5	17.0	
9-maxx	L/600							
	L/360							
	L/240							
	Vibration Creep	20.5	20.5	20.5	21.0	20.0	20.0	
CANTILEVER	3-alt	L/600	6.5	5.5	5.0	4.5	4.5	4.0
		L/360	8.0	6.5	6.0	5.5	5.5	5.0
		L/240	7.0	6.0	6.0	5.5	5.5	5.0
		Vibration Creep	6.0	6.0	6.0	6.0	6.0	5.5
	5-alt	L/600	10.5	9.0	8.5	7.5	7.0	6.5
		L/360	12.0	10.5	10.0	9.0	8.5	8.0
		L/240	10.5	10.0	9.5	9.0	8.5	8.0
		Vibration Creep	8.0	8.0	8.0	8.5	8.0	8.0
7-alt	L/600	14.5	12.0	11.5	10.5	9.5	9.0	
	L/360	15.5	14.0	13.0	12.5	11.5	11.0	
	L/240	14.0	13.0	12.5	12.0	11.5	11.0	
	Vibration Creep	10.0	10.0	10.0	10.5	10.0	9.5	
9-alt	L/600		15.5	14.5	13.5	12.0	11.5	
	L/360			16.0	15.0	14.0	13.5	
	L/240			16.0	15.0	14.0	13.5	
	Vibration Creep	11.5	11.5	11.5	12.0	11.5	11.5	
4-maxx	L/600	8.5	7.0	6.5	6.0	5.5	5.0	
	L/360	10.0	9.0	8.0	7.5	7.0	6.5	
	L/240	8.5	8.0	7.5	7.5	7.0	6.5	
	Vibration Creep	7.0	7.0	7.0	7.5	7.0	7.0	
5-maxx	L/600	11.5	9.5	9.0	8.0	7.5	7.0	
	L/360	13.5	11.5	10.5	10.0	9.0	8.5	
	L/240	11.5	10.5	10.0	9.5	9.0	8.5	
	Vibration Creep	8.5	8.5	8.5	9.0	8.5	8.5	
7-maxx	L/600	16.0	13.5	12.5	11.5	10.5	9.5	
	L/360		16.0	15.0	13.5	12.5	12.0	
	L/240	15.5	14.5	14.0	13.0	12.5	12.0	
	Vibration Creep	10.5	10.5	10.5	11.0	10.5	10.5	
9-maxx	L/600			15.5	14.5	13.0	12.5	
	L/360					16.0	15.0	
	L/240					15.5	15.0	
	Vibration Creep	12.0	12.5	12.5	12.5	12.0	12.0	

No. of Spans	CLT Layout	Deflection Limit	Residential - 40	Office (15 psf Partition Load) - 65	Office (Collaborative) - 80	Assembly (Retail) - 100	Storage (Light) - 125	Library Stack Room - 150
1	3-alt	L/600	13.0	11.0	10.0	9.0	8.5	8.0
		L/360	16.0	13.0	12.0	11.0	10.5	9.5
		L/240	16.0	14.0	13.0	12.0	11.5	10.5
		Vibration	13.0	14.0	13.5	12.0	13.0	12.5
	5-alt	L/600	21.0	17.5	16.0	15.0	13.5	12.5
		L/360	25.0	21.0	19.5	18.0	16.5	15.5
		L/240	24.0	21.5	20.5	19.0	18.0	17.0
		Vibration	17.5	18.0	17.5	19.5	17.0	16.5
	7-alt	L/600	28.5	24.0	22.0	20.5	18.5	17.5
		L/360	34.0	28.5	26.5	24.5	22.5	21.0
		L/240	31.5	28.5	27.0	25.5	24.0	23.0
		Vibration	20.5	21.5	21.0	22.5	20.0	20.0
9-alt	L/600	35.5	30.0	28.0	25.5	23.5	22.0	
	L/360	43.0	36.0	33.5	31.0	28.5	26.5	
	L/240	39.0	35.0	33.5	31.5	30.0	28.5	
	Vibration	23.5	24.0	23.5	25.5	23.0	22.5	
4-maxx	L/600	17.0	14.0	13.0	12.0	11.0	10.0	
	L/360	20.5	17.0	16.0	14.5	13.5	12.5	
	L/240	20.0	17.5	16.5	15.5	14.5	13.5	
	Vibration	15.5	16.0	16.0	17.5	15.0	14.5	
5-maxx	L/600	22.5	19.0	17.5	16.0	14.5	13.5	
	L/360	27.0	22.5	21.0	19.5	18.0	16.5	
	L/240	26.0	23.0	22.0	20.5	19.0	18.0	
	Vibration	18.5	19.0	18.5	20.5	18.0	17.5	
7-maxx	L/600	31.0	26.0	24.0	22.0	20.0	19.0	
	L/360	37.0	31.0	29.0	26.5	24.5	23.0	
	L/240	34.5	31.0	29.5	28.0	26.0	24.5	
	Vibration	22.0	22.5	22.0	24.0	21.5	21.0	
9-maxx	L/600	39.0	32.5	30.0	27.5	25.5	23.5	
	L/360	46.5	39.0	36.5	33.5	31.0	29.0	
	L/240	42.0	38.0	36.5	34.5	32.5	30.5	
	Vibration	24.5	25.5	25.0	26.5	24.0	24.0	
2	3-alt	L/600	18.0	15.0	14.0	12.5	11.5	11.0
		L/360	21.5	18.0	16.5	15.5	14.0	13.0
		L/240	21.5	19.0	18.0	16.5	15.5	14.0
		Vibration	13.0	14.0	13.5	15.5	12.5	12.5
	5-alt	L/600	17.0	18.0	17.5	20.5	18.5	17.5
		L/360				24.5	22.5	21.0
		L/240					24.0	22.0
		Vibration				19.5	17.0	16.5
	7-alt	L/600				24.5	23.0	22.0
		L/360						24.0
		L/240						
		Vibration	20.5	21.0	20.5	22.5	20.0	19.5
9-alt	L/600							
	L/360							
	L/240							
	Vibration	23.0	23.5	23.5	25.0	22.5	22.0	
4-maxx	L/600	23.0	19.5	18.0	16.5	15.0	14.0	
	L/360		23.0	21.5	20.0	18.5	17.0	
	L/240		24.0	23.0	21.5	20.0	18.0	
	Vibration	15.0	16.0	15.5	17.5	15.0	14.5	
5-maxx	L/600	24.5	22.0	21.0	20.0	19.0	18.0	
	L/360			23.5	22.0	20.0	18.5	
	L/240					24.5	22.0	
	Vibration	18.0	19.0	18.5	20.0	17.5	17.0	
7-maxx	L/600					24.5	22.0	
	L/360							
	L/240							
	Vibration	21.5	22.0	22.0	23.5	21.0	20.5	
9-maxx	L/600							
	L/360							
	L/240							
	Vibration	24.0	25.0	24.5		23.5	23.5	
CANTILEVER	3-alt	L/600	7.0	5.5	5.0	4.5	4.5	4.0
		L/360	8.5	7.0	6.5	6.0	5.5	5.0
		L/240	8.5	7.5	7.0	6.5	6.0	5.5
		Vibration	8.0	8.0	8.0	9.0	7.5	7.0
	5-alt	L/600	7.5	6.5	6.5	6.0	5.5	5.5
		L/360	11.0	9.0	8.5	7.5	7.0	6.5
		L/240	13.0	11.0	10.0	9.5	8.5	8.0
		Vibration	12.5	11.5	10.5	10.0	9.5	9.0
	7-alt	L/600	10.0	10.5	10.5	11.5	10.0	10.0
		L/360	11.0	10.5	10.0	9.5	9.0	8.5
		L/240	15.0	12.5	11.5	10.5	9.5	9.0
		Vibration	12.0	12.5	12.5	13.5	12.0	11.5
9-alt	L/600	14.5	13.5	13.0	12.5	11.5	11.0	
	L/360		16.0	14.5	13.5	12.5	11.5	
	L/240				16.0	15.0	14.0	
	Vibration	14.0	14.0	14.0	15.0	13.5	13.5	
4-maxx	L/600			16.0	15.0	14.5	14.0	
	L/360	9.0	7.5	6.5	6.0	5.5	5.0	
	L/240	10.5	9.0	8.0	7.5	7.0	6.5	
	Vibration	9.0	9.5	8.5	8.0	7.5	7.0	
5-maxx	L/600	9.5	8.5	8.0	7.5	7.0	7.0	
	L/360	12.0	10.0	9.0	8.5	7.5	7.0	
	L/240	14.0	12.0	11.0	10.0	9.5	8.5	
	Vibration	13.5	12.0	11.5	11.0	10.0	9.5	
7-maxx	L/600	10.5	11.0	11.0	12.0	10.5	10.5	
	L/360	12.0	11.0	10.5	10.0	9.5	9.0	
	L/240	16.0	13.5	12.5	11.5	10.5	10.0	
	Vibration	13.0	13.5	13.0	14.0	12.5	12.0	
9-maxx	L/600	16.0	14.5	14.0	13.5	12.5	12.0	
	L/360			16.0	14.5	13.5	12.5	
	L/240					16.0	15.0	
	Vibration	14.5	15.0	14.5	15.5	14.0	14.0	

No. of Spans	CLT Layout	Deflection Limit	Residential - 40	Office (15 psf Partition Load) - 65	Office (Collaborative) - 80	Assembly (Retail) - 100	Storage (Light) - 125	Library Stack Room - 150
1	3-alt	L/600	13.0	11.0	10.0	9.0	8.5	8.0
		L/360	16.0	13.0	12.0	11.0	10.5	9.5
		L/240	15.0	13.5	12.5	12.0	11.0	10.5
		Vibration	11.5	12.0	12.0	13.0	11.5	11.0
	Creep	13.0	12.0	11.5	11.0	10.5	10.0	
	5-alt	L/600	21.0	17.5	16.0	15.0	13.5	12.5
		L/360	25.0	21.0	19.5	18.0	16.5	15.5
		L/240	23.0	20.5	19.5	18.5	17.5	16.5
		Vibration	15.5	16.0	16.0	17.0	15.5	15.0
	Creep	20.0	18.5	18.0	17.0	16.0	15.5	
	7-alt	L/600	28.5	24.0	22.0	20.5	18.5	17.5
		L/360	34.0	28.5	26.5	24.5	22.5	21.0
		L/240	30.5	27.5	26.5	25.0	23.5	22.5
		Vibration	19.0	19.5	19.0	20.0	18.5	18.5
	Creep	26.0	24.5	23.5	22.5	21.5	20.5	
	9-alt	L/600	35.5	30.0	28.0	25.5	23.5	22.0
		L/360	43.0	36.0	33.5	31.0	28.5	26.5
		L/240	37.0	34.0	32.5	31.0	29.0	28.0
		Vibration	21.5	22.0	22.0	23.0	21.5	21.0
	Creep	32.0	30.0	29.0	28.0	26.5	25.5	
	4-maxx	L/600	17.0	14.0	13.0	12.0	11.0	10.0
		L/360	20.5	17.0	16.0	14.5	13.5	12.5
		L/240	19.0	17.0	16.0	15.0	14.0	13.5
		Vibration	13.5	14.0	14.0	15.0	13.5	13.0
Creep	16.5	15.5	14.5	14.0	13.0	12.5		
5-maxx	L/600	22.5	19.0	17.5	16.0	14.5	13.5	
	L/360	27.0	22.5	21.0	19.5	18.0	16.5	
	L/240	24.5	22.5	21.0	20.0	19.0	18.0	
	Vibration	16.5	17.0	16.5	18.0	16.0	16.0	
Creep	21.5	20.0	19.0	18.5	17.5	16.5		
7-maxx	L/600	31.0	26.0	24.0	22.0	20.0	19.0	
	L/360	37.0	31.0	29.0	26.5	24.5	23.0	
	L/240	33.0	30.0	28.5	27.0	25.5	24.0	
	Vibration	20.0	20.5	20.0	21.5	19.5	19.5	
Creep	28.5	26.5	25.5	24.5	23.5	22.5		
9-maxx	L/600	39.0	32.5	30.0	27.5	25.5	23.5	
	L/360	46.5	39.0	36.5	33.5	31.0	29.0	
	L/240	40.5	37.0	35.5	33.5	31.5	30.0	
	Vibration	23.0	23.5	23.0	24.0	22.5	22.0	
Creep	34.5	32.5	31.5	30.0	29.0	27.5		
2	3-alt	L/600	18.0	15.0	14.0	12.5	11.5	11.0
		L/360	21.5	18.0	16.5	15.5	14.0	13.0
		L/240	20.5	18.0	17.0	16.0	15.0	13.0
		Vibration	11.5	12.0	11.5	12.5	11.5	11.0
	Creep	18.0	16.5	16.0	15.0	14.0	13.0	
	5-alt	L/600		23.5	22.0	20.5	18.5	17.5
		L/360				24.5	22.5	21.0
		L/240					23.5	21.0
		Vibration	15.5	16.0	15.5	16.5	15.0	15.0
	Creep		25.0	24.5	23.0	22.0	21.0	
	7-alt	L/600						24.0
		L/360						
		L/240						
		Vibration	18.5	19.0	19.0	20.0	18.5	18.0
	Creep							
	9-alt	L/600						
		L/360						
		L/240						
		Vibration	21.0	21.5	21.5	22.5	21.0	20.5
	Creep							
	4-maxx	L/600	23.0	19.5	18.0	16.5	15.0	14.0
		L/360		23.0	21.5	20.0	18.5	17.0
		L/240		23.0	22.0	20.5	19.5	17.0
		Vibration	13.5	14.0	13.5	14.5	13.0	13.0
Creep	22.5	21.0	20.0	19.0	18.0	17.0		
5-maxx	L/600			23.5	22.0	20.0	18.5	
	L/360					24.0	21.0	
	L/240					24.0	21.0	
	Vibration	16.0	16.5	16.5	17.5	16.0	15.5	
Creep				25.0	23.5	21.0		
7-maxx	L/600							
	L/360							
	L/240							
	Vibration	19.5	20.0	20.0	21.0	19.5	19.0	
Creep								
9-maxx	L/600							
	L/360							
	L/240							
	Vibration	22.5	23.0	22.5	23.5	22.0	21.5	
Creep								
CANTILEVER	3-alt	L/600	7.0	5.5	5.0	4.5	4.5	4.0
		L/360	8.5	7.0	6.5	6.0	5.5	5.0
		L/240	8.0	7.0	6.5	6.0	5.5	5.5
		Vibration	7.0	7.0	7.0	7.5	6.5	6.5
	Creep	7.0	6.5	6.0	5.5	5.5	5.0	
	5-alt	L/600	11.0	9.0	8.5	7.5	7.0	6.5
		L/360	13.0	11.0	10.0	9.5	8.5	8.0
		L/240	12.0	11.0	10.5	9.5	9.0	8.5
		Vibration	9.0	9.5	9.5	10.0	9.0	9.0
	Creep	10.5	9.5	9.5	9.0	8.5	8.0	
	7-alt	L/600	15.0	12.5	11.5	10.5	9.5	9.0
		L/360		15.0	14.0	13.0	12.0	11.0
		L/240	16.0	14.5	14.0	13.0	12.5	11.5
		Vibration	11.0	11.5	11.0	12.0	11.0	11.0
	Creep	13.5	13.0	12.5	12.5	11.5	11.0	
	9-alt	L/600		16.0	14.5	13.5	12.5	11.5
		L/360				16.0	15.0	14.0
		L/240					15.5	14.5
		Vibration	12.5	13.0	13.0	13.5	12.5	12.5
	Creep		15.5	15.0	14.5	14.0	13.5	
	4-maxx	L/600	9.0	7.5	6.5	6.0	5.5	5.0
		L/360	10.5	9.0	8.0	7.5	7.0	6.5
		L/240	10.0	9.0	8.5	8.0	7.5	7.0
		Vibration	8.0	8.5	8.0	8.5	8.0	7.5
Creep	8.5	8.0	7.5	7.0	7.0	6.5		
5-maxx	L/600	12.0	10.0	9.0	8.5	7.5	7.0	
	L/360	14.0	12.0	11.0	10.0	9.5	8.5	
	L/240	13.0	11.5	11.0	10.5	10.0	9.5	
	Vibration	9.5	10.0	10.0	10.5	9.5	9.5	
Creep	11.0	10.5	10.0	9.5	9.0	8.5		
7-maxx	L/600	16.0	13.5	12.5	11.5	10.5	10.0	
	L/360			15.0	14.0	13.0	12.0	
	L/240		16.0	15.0	14.0	13.5	12.5	
	Vibration	11.5	12.0	12.0	12.5	11.5	11.5	
Creep	15.0	14.0	13.5	13.0	12.5	11.5		
9-maxx	L/600			16.0	14.5	13.5	12.5	
	L/360					16.0	15.0	
	L/240					16.0	15.0	
	Vibration	13.5	13.5	13.5	14.0	13.0	13.0	
Creep				16.0	15.0	14.5		

No. of Spans	CLT Layout	Deflection Limit	Residential - 40	Office (15 psf Partition Load) - 65	Office (Collaborative) - 80	Assembly (Retail) - 100	Storage (Light) - 125	Library Stack Room - 150
1	3-alt	L/600	13.0	11.0	10.0	9.0	8.5	8.0
		L/360	16.0	13.0	12.0	11.0	10.5	9.5
		L/240	13.5	12.0	11.5	11.0	10.5	10.0
		Vibration Creep	10.0 11.0	10.5 10.5	10.0 10.5	10.0 10.5	10.0 9.5	10.0 9.0
	5-alt	L/600	21.0	17.5	16.0	15.0	13.5	12.5
		L/360	25.0	21.0	19.5	18.0	16.5	15.5
		L/240	20.5	19.0	18.5	17.5	16.5	16.0
		Vibration Creep	14.0 17.5	14.0 16.5	14.0 16.0	14.5 15.5	13.5 15.0	13.5 14.5
	7-alt	L/600	28.5	24.0	22.0	20.5	18.5	17.5
		L/360	34.0	28.5	26.5	24.5	22.5	21.0
		L/240	27.5	25.5	24.5	23.5	22.5	21.5
		Vibration Creep	17.0 23.0	17.0 22.0	17.0 21.5	17.5 20.5	17.0 20.0	16.5 19.5
	9-alt	L/600	35.5	30.0	28.0	25.5	23.5	22.0
		L/360	43.0	36.0	33.5	31.0	28.5	26.5
		L/240	34.0	31.5	30.5	29.0	28.0	26.5
		Vibration Creep	19.5 28.5	20.0 27.0	19.5 26.5	20.5 25.5	19.5 24.5	19.0 24.0
4-maxx	L/600	17.0	14.0	13.0	12.0	11.0	10.0	
	L/360	20.5	17.0	16.0	14.5	13.5	12.5	
	L/240	17.0	15.5	15.0	14.0	13.5	13.0	
	Vibration Creep	12.0 14.5	12.0 13.5	12.0 13.0	12.5 12.5	12.0 12.0	11.5 11.5	
5-maxx	L/600	22.5	19.0	17.5	16.0	14.5	13.5	
	L/360	27.0	22.5	21.0	19.5	18.0	16.5	
	L/240	22.5	20.5	19.5	19.0	18.0	17.0	
	Vibration Creep	14.5 18.5	15.0 17.5	14.5 17.0	15.5 16.5	14.5 16.0	14.5 15.5	
7-maxx	L/600	31.0	26.0	24.0	22.0	20.0	19.0	
	L/360	37.0	31.0	29.0	26.5	24.5	23.0	
	L/240	30.0	28.0	26.5	25.5	24.0	23.0	
	Vibration Creep	18.0 25.0	18.0 24.0	18.0 23.0	18.5 22.5	17.5 21.5	17.5 21.0	
9-maxx	L/600	39.0	32.5	30.0	27.5	25.5	23.5	
	L/360	46.5	39.0	36.5	33.5	31.0	29.0	
	L/240	37.0	34.5	33.0	31.5	30.0	29.0	
	Vibration Creep	20.5 30.5	21.0 29.5	20.5 28.5	21.5 27.5	20.5 26.5	20.0 26.0	
2	3-alt	L/600	18.0	15.0	14.0	12.5	11.5	11.0
		L/360	20.0	18.0	16.5	15.0	13.0	11.5
		L/240	18.0	16.5	16.0	15.0	13.0	11.5
		Vibration Creep	10.0 15.5	10.0 14.5	10.0 14.0	10.5 13.5	10.0 13.0	9.5 11.5
	5-alt	L/600		23.5	22.0	20.5	18.5	17.5
		L/360			25.0	23.5	21.0	18.5
		L/240			25.0	23.5	21.0	18.5
		Vibration Creep	13.5 23.5	14.0 22.5	13.5 22.0	14.5 21.0	13.5 20.5	13.5 18.5
	7-alt	L/600						24.0
		L/360						
		L/240						
		Vibration Creep	16.5	17.0	16.5	17.5	16.5	16.5
	9-alt	L/600						
		L/360						
		L/240						
		Vibration Creep	19.0	19.5	19.0	20.0	19.0	18.5
4-maxx	L/600	23.0	19.5	18.0	16.5	15.0	14.0	
	L/360	25.0	22.5	21.0	20.0	17.0	15.0	
	L/240	23.0	21.5	20.5	19.5	17.0	15.0	
	Vibration Creep	11.5 19.5	12.0 18.5	12.0 18.0	12.5 17.5	11.5 16.5	11.5 15.0	
5-maxx	L/600			23.5	22.0	20.0	18.5	
	L/360				24.0	21.0	18.5	
	L/240				24.0	21.0	18.5	
	Vibration Creep	14.5	14.5	14.5	15.0	14.0	14.0	
7-maxx	L/600				23.5	22.5	21.0	
	L/360						25.0	
	L/240						25.0	
	Vibration Creep	17.5	18.0	17.5	18.5	17.5	17.0	
9-maxx	L/600						25.0	
	L/360						25.0	
	L/240						25.0	
	Vibration Creep	20.0	20.5	20.0	21.0	20.0	19.5	
CANTILEVER	3-alt	L/600	7.0	5.5	5.0	4.5	4.5	4.0
		L/360	8.5	7.0	6.5	6.0	5.5	5.0
		L/240	7.0	6.5	6.0	5.5	5.5	5.0
		Vibration Creep	6.0 6.0	6.0 5.5	6.0 5.5	6.0 5.0	6.0 5.0	5.5 4.5
	5-alt	L/600	11.0	9.0	8.5	7.5	7.0	6.5
		L/360	13.0	11.0	10.0	9.5	8.5	8.0
		L/240	11.0	10.0	9.5	9.0	8.5	8.0
		Vibration Creep	8.0 9.0	8.5 8.5	8.0 8.5	8.5 8.0	8.0 7.5	8.0 7.5
	7-alt	L/600	15.0	12.5	11.5	10.5	9.5	9.0
		L/360		15.0	14.0	13.0	12.0	11.0
		L/240	14.5	13.5	13.0	12.5	11.5	11.0
		Vibration Creep	10.0 12.0	10.0 11.5	10.0 11.0	10.5 11.0	10.0 10.5	9.5 10.0
	9-alt	L/600				13.5	12.5	11.5
		L/360				16.0	15.0	14.0
		L/240				15.5	14.5	14.0
		Vibration Creep	11.5 15.0	11.5 14.0	11.5 14.0	12.0 13.5	11.5 13.0	11.5 12.5
4-maxx	L/600	9.0	7.5	6.5	6.0	5.5	5.0	
	L/360	10.5	9.0	8.0	7.5	7.0	6.5	
	L/240	9.0	8.0	7.5	7.0	7.0	6.5	
	Vibration Creep	7.0 7.5	7.0 7.0	7.0 7.0	7.5 6.5	7.0 6.0	7.0 6.0	
5-maxx	L/600	12.0	10.0	9.0	8.5	7.5	7.0	
	L/360	14.0	12.0	11.0	10.0	9.5	8.5	
	L/240	11.5	11.0	10.5	10.0	9.5	9.0	
	Vibration Creep	8.5 10.0	8.5 9.5	8.5 9.0	9.0 8.5	8.5 8.5	8.5 8.0	
7-maxx	L/600	16.0	13.5	12.5	11.5	10.5	10.0	
	L/360				15.0	14.0	13.0	
	L/240	16.0	14.5	14.0	13.5	12.5	12.0	
	Vibration Creep	10.5 13.0	10.5 12.5	10.5 12.0	11.0 11.5	10.5 11.5	10.5 11.0	
9-maxx	L/600			16.0	14.5	13.5	12.5	
	L/360					16.0	15.0	
	L/240					16.0	15.0	
	Vibration Creep	12.0 16.0	12.5 15.5	12.0 15.0	12.5 14.5	12.0 14.0	12.0 13.5	

No. of Spans	CLT Layup	Deflection Limit	Residential - 40	Office (15 psf Partition Load) - 65	Office (Collaborative) - 80	Assembly (Retail) - 100	Storage (Light) - 125	Library Stack Room - 150
1	3-alt	L/600	12.0	10.0	9.5	8.5	8.0	7.5
		L/360	14.5	12.5	11.5	10.5	9.5	8.5
		L/240	14.5	12.5	11.5	10.5	9.5	8.5
		Vibration	12.0	12.5	11.5	10.5	9.5	8.5
		Creep	13.0	11.5	11.0	10.5	9.5	8.5
	5-alt	L/600	19.5	16.0	15.0	14.0	12.5	12.0
		L/360	21.0	18.0	16.5	15.5	14.0	13.0
		L/240	21.0	18.0	16.5	15.5	14.0	13.0
		Vibration	16.0	16.5	16.0	15.5	14.0	13.0
		Creep	19.0	17.5	16.5	15.5	14.0	13.0
	7-alt	L/600	26.5	22.0	20.5	19.0	17.5	16.5
		L/360	26.5	23.0	21.5	20.0	18.5	17.0
		L/240	26.5	23.0	21.5	20.0	18.5	17.0
		Vibration	18.5	19.5	19.0	20.0	18.5	17.0
		Creep	24.5	23.0	21.5	20.0	18.5	17.0
	9-alt	L/600	31.5	27.5	26.0	24.0	22.0	20.5
		L/360	31.5	27.5	26.0	24.0	22.5	21.0
		L/240	31.5	27.5	26.0	24.0	22.5	21.0
		Vibration	21.0	21.5	21.5	22.5	21.0	20.5
		Creep	30.0	27.5	26.0	24.0	22.5	21.0
	4-maxx	L/600	16.0	13.0	12.0	11.0	10.5	9.5
		L/360	18.0	15.5	14.5	13.0	12.0	11.0
		L/240	18.0	15.5	14.5	13.0	12.0	11.0
		Vibration	14.0	14.5	14.5	13.0	12.0	11.0
Creep		16.0	15.0	14.0	13.0	12.0	11.0	
5-maxx	L/600	21.0	17.5	16.0	15.0	13.5	13.0	
	L/360	23.5	20.0	18.5	17.0	15.5	14.5	
	L/240	23.5	20.0	18.5	17.0	15.5	14.5	
	Vibration	16.5	17.5	17.0	17.0	15.5	14.5	
	Creep	20.5	19.0	18.5	17.0	15.5	14.5	
7-maxx	L/600	28.5	24.0	22.5	20.5	19.0	17.5	
	L/360	30.0	26.0	24.5	22.5	21.0	19.5	
	L/240	30.0	26.0	24.5	22.5	21.0	19.5	
	Vibration	20.0	20.5	20.0	21.5	19.5	19.5	
	Creep	27.0	25.0	24.0	22.5	21.0	19.5	
9-maxx	L/600	35.5	30.5	28.0	26.0	24.0	22.5	
	L/360	35.5	31.5	29.5	27.5	25.5	23.5	
	L/240	35.5	31.5	29.5	27.5	25.5	23.5	
	Vibration	22.5	23.0	22.5	24.0	22.0	22.0	
	Creep	32.5	30.5	29.5	27.5	25.5	23.5	
2	3-alt	L/600	14.5	12.5	11.5	10.5	9.5	8.5
		L/360	14.5	12.5	11.5	10.5	9.5	8.5
		L/240	14.5	12.5	11.5	10.5	9.5	8.5
		Vibration	12.0	12.5	11.5	10.5	9.5	8.5
		Creep	14.5	12.5	11.5	10.5	9.5	8.5
	5-alt	L/600	21.0	18.0	16.5	15.5	14.0	13.0
		L/360	21.0	18.0	16.5	15.5	14.0	13.0
		L/240	21.0	18.0	16.5	15.5	14.0	13.0
		Vibration	15.5	16.5	16.0	15.5	14.0	13.0
		Creep	21.0	18.0	16.5	15.5	14.0	13.0
	7-alt	L/600		23.0	21.5	20.0	18.5	17.0
		L/360		23.0	21.5	20.0	18.5	17.0
		L/240		23.0	21.5	20.0	18.5	17.0
		Vibration	18.5	19.0	20.0	20.0	18.0	17.0
		Creep		23.0	21.5	20.0	18.5	17.0
	9-alt	L/600				24.0	22.5	21.0
		L/360				24.0	22.5	21.0
		L/240				24.0	22.5	21.0
		Vibration	21.0	21.5	21.0	22.0	20.5	20.5
		Creep				24.0	22.5	21.0
	4-maxx	L/600	18.0	15.5	14.5	13.0	12.0	11.0
		L/360	18.0	15.5	14.5	13.0	12.0	11.0
		L/240	18.0	15.5	14.5	13.0	12.0	11.0
		Vibration	14.0	14.5	14.0	13.0	12.0	11.0
Creep		18.0	15.5	14.5	13.0	12.0	11.0	
5-maxx	L/600	23.5	20.0	18.5	17.0	15.5	14.5	
	L/360	23.5	20.0	18.5	17.0	15.5	14.5	
	L/240	23.5	20.0	18.5	17.0	15.5	14.5	
	Vibration	16.5	17.0	17.0	17.0	15.5	14.5	
	Creep	23.5	20.0	18.5	17.0	15.5	14.5	
7-maxx	L/600			24.5	22.5	21.0	19.5	
	L/360			24.5	22.5	21.0	19.5	
	L/240			24.5	22.5	21.0	19.5	
	Vibration	19.5	20.0	20.0	21.0	19.5	19.0	
	Creep			24.5	22.5	21.0	19.5	
9-maxx	L/600						23.5	
	L/360						23.5	
	L/240						23.5	
	Vibration	22.0	22.5	22.5	23.5	22.0	21.5	
	Creep						23.5	
CANTILEVER	3-alt	L/600	6.5	5.5	5.0	4.5	4.0	4.0
		L/360	7.0	6.0	5.5	5.0	4.5	4.0
		L/240	7.0	6.0	5.5	5.0	4.5	4.0
		Vibration	7.0	6.0	5.5	5.0	4.5	4.0
		Creep	6.5	6.0	5.5	5.0	4.5	4.0
	5-alt	L/600	10.0	8.5	8.0	7.0	6.5	6.0
		L/360	10.5	9.0	8.0	7.5	7.0	6.5
		L/240	10.5	9.0	8.0	7.5	7.0	6.5
		Vibration	9.5	9.0	8.0	7.5	7.0	6.5
		Creep	10.0	9.0	8.0	7.5	7.0	6.5
	7-alt	L/600	13.0	11.5	10.5	10.0	9.0	8.5
		L/360	13.0	11.5	10.5	10.0	9.0	8.5
		L/240	13.0	11.5	10.5	10.0	9.0	8.5
		Vibration	11.0	11.5	10.5	10.0	9.0	8.5
		Creep	13.0	11.5	10.5	10.0	9.0	8.5
	9-alt	L/600	15.5	13.5	13.0	12.0	11.0	10.5
		L/360	15.5	13.5	13.0	12.0	11.0	10.5
		L/240	15.5	13.5	13.0	12.0	11.0	10.5
		Vibration	12.5	13.0	12.5	12.0	11.0	10.5
		Creep	15.5	13.5	13.0	12.0	11.0	10.5
	4-maxx	L/600	8.0	7.0	6.5	6.0	5.5	5.0
		L/360	9.0	7.5	7.0	6.5	6.0	5.5
		L/240	9.0	7.5	7.0	6.5	6.0	5.5
		Vibration	8.5	7.5	7.0	6.5	6.0	5.5
Creep		8.5	7.5	7.0	6.5	6.0	5.5	
5-maxx	L/600	11.0	9.0	8.5	8.0	7.0	6.5	
	L/360	11.5	10.0	9.0	8.5	7.5	7.0	
	L/240	11.5	10.0	9.0	8.5	7.5	7.0	
	Vibration	10.0	10.0	9.0	8.5	7.5	7.0	
	Creep	11.0	10.0	9.0	8.5	7.5	7.0	
7-maxx	L/600	15.0	12.5	11.5	11.0	10.0	9.0	
	L/360	15.0	13.0	12.0	11.0	10.5	9.5	
	L/240	15.0	13.0	12.0	11.0	10.5	9.5	
	Vibration	11.5	12.0	12.0	11.0	10.5	9.5	
	Creep	14.0	13.0	12.0	11.0	10.5	9.5	
9-maxx	L/600		15.5	14.5	13.5	12.5	11.5	
	L/360		15.5	14.5	13.5	12.5	11.5	
	L/240		15.5	14.5	13.5	12.5	11.5	
	Vibration	13.0	13.5	13.5	13.5	12.5	11.5	
	Creep		15.5	14.5	13.5	12.5	11.5	

No. of Spans	CLT Layup	Deflection Limit	Residential - 40	Office (15 psf Partition Load) - 65	Office (Collaborative) - 80	Assembly (Retail) - 100	Storage (Light) - 125	Library Stack Room - 150
1	3-alt	L/600	12.0	10.0	9.5	8.5	8.0	7.5
		L/360	13.5	11.5	11.0	10.0	9.0	8.5
		L/240	13.5	11.5	11.0	10.0	9.0	8.5
		Vibration	11.0	11.0	11.0	10.0	9.0	8.5
		Creep	12.0	11.0	10.5	10.0	9.0	8.5
	5-alt	L/600	19.5	16.0	15.0	14.0	12.5	12.0
		L/360	19.5	17.0	16.0	15.0	13.5	12.5
		L/240	19.5	17.0	16.0	15.0	13.5	12.5
		Vibration	14.5	15.0	14.5	15.0	13.5	12.5
		Creep	18.0	17.0	16.0	15.0	13.5	12.5
	7-alt	L/600	25.0	22.0	20.5	19.0	17.5	16.5
		L/360	25.0	22.0	20.5	19.0	18.0	16.5
		L/240	25.0	22.0	20.5	19.0	18.0	16.5
		Vibration	17.5	18.0	17.5	18.5	17.0	16.5
		Creep	23.5	22.0	20.5	19.0	18.0	16.5
	9-alt	L/600	29.5	26.5	25.0	23.5	21.5	20.5
		L/360	29.5	26.5	25.0	23.5	21.5	20.5
		L/240	29.5	26.5	25.0	23.5	21.5	20.5
		Vibration	20.0	20.0	20.0	21.0	19.5	19.5
		Creep	28.5	26.5	25.0	23.5	21.5	20.5
	4-maxx	L/600	16.0	13.0	12.0	11.0	10.5	9.5
		L/360	17.0	14.5	13.5	12.5	11.5	10.5
		L/240	17.0	14.5	13.5	12.5	11.5	10.5
		Vibration	12.5	13.0	13.0	12.5	11.5	10.5
Creep		15.0	14.0	13.5	12.5	11.5	10.5	
5-maxx	L/600	21.0	17.5	16.0	15.0	13.5	13.0	
	L/360	22.0	19.0	18.0	16.5	15.0	14.0	
	L/240	22.0	19.0	18.0	16.5	15.0	14.0	
	Vibration	15.5	15.5	15.5	16.5	15.0	14.0	
	Creep	19.5	18.0	17.5	16.5	15.0	14.0	
7-maxx	L/600	28.5	24.0	22.5	20.5	19.0	17.5	
	L/360	28.5	25.0	23.5	22.0	20.0	19.0	
	L/240	28.5	25.0	23.5	22.0	20.0	19.0	
	Vibration	18.5	19.0	18.5	19.5	18.0	18.0	
	Creep	25.5	24.0	23.0	22.0	20.0	19.0	
9-maxx	L/600	33.5	30.0	28.0	26.0	24.0	22.5	
	L/360	33.5	30.0	28.5	26.5	24.5	23.0	
	L/240	33.5	30.0	28.5	26.5	24.5	23.0	
	Vibration	21.0	21.5	21.5	22.0	21.0	20.5	
	Creep	31.0	29.0	28.5	26.5	24.5	23.0	
2	3-alt	L/600	13.5	11.5	11.0	10.0	9.0	8.5
		L/360	13.5	11.5	11.0	10.0	9.0	8.5
		L/240	13.5	11.5	11.0	10.0	9.0	8.5
		Vibration	10.5	11.0	11.0	10.0	9.0	8.5
		Creep	13.5	11.5	11.0	10.0	9.0	8.5
	5-alt	L/600	19.5	17.0	16.0	15.0	13.5	12.5
		L/360	19.5	17.0	16.0	15.0	13.5	12.5
		L/240	19.5	17.0	16.0	15.0	13.5	12.5
		Vibration	14.5	14.5	14.5	15.0	13.5	12.5
		Creep	19.5	17.0	16.0	15.0	13.5	12.5
	7-alt	L/600	25.0	22.0	20.5	19.0	18.0	16.5
		L/360	25.0	22.0	20.5	19.0	18.0	16.5
		L/240	25.0	22.0	20.5	19.0	18.0	16.5
		Vibration	17.0	17.5	17.5	18.0	17.0	16.5
		Creep	25.0	22.0	20.5	19.0	18.0	16.5
	9-alt	L/600			25.0	23.5	21.5	20.5
		L/360			25.0	23.5	21.5	20.5
		L/240			25.0	23.5	21.5	20.5
		Vibration	19.5	20.0	20.0	20.5	19.5	19.0
		Creep			25.0	23.5	21.5	20.5
	4-maxx	L/600	17.0	14.5	13.5	12.5	11.5	10.5
		L/360	17.0	14.5	13.5	12.5	11.5	10.5
		L/240	17.0	14.5	13.5	12.5	11.5	10.5
		Vibration	12.5	13.0	12.5	12.5	11.5	10.5
Creep		17.0	14.5	13.5	12.5	11.5	10.5	
5-maxx	L/600	22.0	19.0	18.0	16.5	15.0	14.0	
	L/360	22.0	19.0	18.0	16.5	15.0	14.0	
	L/240	22.0	19.0	18.0	16.5	15.0	14.0	
	Vibration	15.0	15.5	15.5	16.0	15.0	14.0	
	Creep	22.0	19.0	18.0	16.5	15.0	14.0	
7-maxx	L/600	25.0	23.5	23.5	22.0	20.0	19.0	
	L/360	25.0	25.0	23.5	22.0	20.0	19.0	
	L/240	25.0	25.0	23.5	22.0	20.0	19.0	
	Vibration	18.0	18.5	18.5	19.5	18.0	18.0	
	Creep		25.0	23.5	22.0	20.0	19.0	
9-maxx	L/600					24.5	23.0	
	L/360					24.5	23.0	
	L/240					24.5	23.0	
	Vibration	20.5	21.0	21.0	22.0	20.5	20.5	
	Creep					24.5	23.0	
CANTILEVER	3-alt	L/600	6.5	5.5	5.0	4.5	4.0	4.0
		L/360	6.5	5.5	5.5	5.0	4.5	4.0
		L/240	6.5	5.5	5.5	5.0	4.5	4.0
		Vibration	6.5	5.5	5.5	5.0	4.5	4.0
		Creep	6.0	5.5	5.5	5.0	4.5	4.0
	5-alt	L/600	9.5	8.5	8.0	7.0	6.5	6.0
		L/360	9.5	8.5	8.0	7.5	6.5	6.0
		L/240	9.5	8.5	8.0	7.5	6.5	6.0
		Vibration	8.5	8.5	8.0	7.5	6.5	6.0
		Creep	9.5	8.5	8.0	7.5	6.5	6.0
	7-alt	L/600	12.5	11.0	10.0	9.5	9.0	8.0
		L/360	12.5	11.0	10.0	9.5	9.0	8.0
		L/240	12.5	11.0	10.0	9.5	9.0	8.0
		Vibration	10.0	10.5	10.0	9.5	9.0	8.0
		Creep	12.5	11.0	10.0	9.5	9.0	8.0
	9-alt	L/600	14.5	13.0	12.5	11.5	10.5	10.0
		L/360	14.5	13.0	12.5	11.5	10.5	10.0
		L/240	14.5	13.0	12.5	11.5	10.5	10.0
		Vibration	11.5	12.0	12.0	11.5	10.5	10.0
		Creep	14.5	13.0	12.5	11.5	10.5	10.0
	4-maxx	L/600	8.0	7.0	6.5	6.0	5.5	5.0
		L/360	8.5	7.0	6.5	6.0	5.5	5.0
		L/240	8.5	7.0	6.5	6.0	5.5	5.0
		Vibration	7.5	7.0	6.5	6.0	5.5	5.0
Creep		8.0	7.0	6.5	6.0	5.5	5.0	
5-maxx	L/600	11.0	9.0	8.5	8.0	7.0	6.5	
	L/360	11.0	9.5	9.0	8.0	7.5	7.0	
	L/240	11.0	9.5	9.0	8.0	7.5	7.0	
	Vibration	9.0	9.0	9.0	8.0	7.5	7.0	
	Creep	10.0	9.5	9.0	8.0	7.5	7.0	
7-maxx	L/600	14.0	12.5	11.5	11.0	10.0	9.0	
	L/360	14.0	12.5	11.5	11.0	10.0	9.5	
	L/240	14.0	12.5	11.5	11.0	10.0	9.5	
	Vibration	11.0	11.0	11.0	11.0	10.0	9.5	
	Creep	13.5	12.5	11.5	11.0	10.0	9.5	
9-maxx	L/600		15.0	14.0	13.0	12.0	11.5	
	L/360		15.0	14.0	13.0	12.0	11.5	
	L/240		15.0	14.0	13.0	12.0	11.5	
	Vibration	12.5	12.5	12.5	13.0	12.0	11.5	
	Creep	16.0	15.0	14.0	13.0	12.0	11.5	

No. of Spans	CLT Layout	Deflection Limit	Residential - 40	Office (15 psf Partition Load) - 65	Office (Collaborative) - 80	Assembly (Retail) - 100	Storage (Light) - 125	Library Stack Room - 150
1	3-alt	L/600	11.5	10.0	9.5	8.5	8.0	7.5
		L/360	11.5	10.5	10.0	9.0	8.5	8.0
		L/240	11.5	10.5	10.0	9.0	8.5	8.0
		Vibration	9.5	9.5	9.5	9.0	8.5	8.0
		Creep	10.5	10.0	9.5	9.0	8.5	8.0
	5-alt	L/600	17.0	15.5	14.5	13.5	12.5	12.0
		L/360	17.0	15.5	14.5	13.5	12.5	12.0
		L/240	17.0	15.5	14.5	13.5	12.5	12.0
		Vibration	13.0	13.0	13.0	13.5	12.5	12.0
		Creep	16.0	15.0	14.5	13.5	12.5	12.0
	7-alt	L/600	22.0	20.0	19.0	18.0	16.5	15.5
		L/360	22.0	20.0	19.0	18.0	16.5	15.5
		L/240	22.0	20.0	19.0	18.0	16.5	15.5
		Vibration	16.0	16.0	16.0	16.5	15.5	15.5
		Creep	21.0	20.0	19.0	18.0	16.5	15.5
	9-alt	L/600	26.5	24.0	23.0	21.5	20.5	19.0
		L/360	26.5	24.0	23.0	21.5	20.5	19.0
		L/240	26.5	24.0	23.0	21.5	20.5	19.0
		Vibration	18.0	18.5	18.5	19.0	18.0	18.0
		Creep	25.5	24.0	23.0	21.5	20.5	19.0
	4-maxx	L/600	14.5	13.0	12.0	11.0	10.5	9.5
		L/360	14.5	13.0	12.5	11.5	10.5	10.0
		L/240	14.5	13.0	12.5	11.5	10.5	10.0
		Vibration	11.5	11.5	11.5	11.5	10.5	10.0
		Creep	13.0	12.5	12.0	11.5	10.5	10.0
	5-maxx	L/600	19.0	17.0	16.0	15.0	13.5	13.0
		L/360	19.0	17.0	16.5	15.0	14.0	13.5
		L/240	19.0	17.0	16.5	15.0	14.0	13.5
Vibration		13.5	14.0	14.0	14.5	13.5	13.5	
Creep		17.0	16.5	16.0	15.0	14.0	13.5	
7-maxx	L/600	25.0	22.5	21.5	20.0	19.0	17.5	
	L/360	25.0	22.5	21.5	20.0	19.0	18.0	
	L/240	25.0	22.5	21.5	20.0	19.0	18.0	
	Vibration	16.5	17.0	17.0	17.5	16.5	16.5	
	Creep	23.0	22.0	21.0	20.0	19.0	18.0	
9-maxx	L/600	30.0	27.5	26.0	24.5	23.0	22.0	
	L/360	30.0	27.5	26.0	24.5	23.0	22.0	
	L/240	30.0	27.5	26.0	24.5	23.0	22.0	
	Vibration	19.5	19.5	19.5	20.0	19.0	19.0	
	Creep	28.0	26.5	26.0	24.5	23.0	22.0	
2	3-alt	L/600	11.5	10.5	10.0	9.0	8.5	8.0
		L/360	11.5	10.5	10.0	9.0	8.5	8.0
		L/240	11.5	10.5	10.0	9.0	8.5	8.0
		Vibration	9.5	9.5	9.5	9.0	8.5	8.0
		Creep	11.5	10.5	10.0	9.0	8.5	8.0
	5-alt	L/600	17.0	15.5	14.5	13.5	12.5	12.0
		L/360	17.0	15.5	14.5	13.5	12.5	12.0
		L/240	17.0	15.5	14.5	13.5	12.5	12.0
		Vibration	13.0	13.0	13.0	13.5	12.5	12.0
		Creep	17.0	15.5	14.5	13.5	12.5	12.0
	7-alt	L/600	22.0	20.0	19.0	18.0	16.5	15.5
		L/360	22.0	20.0	19.0	18.0	16.5	15.5
		L/240	22.0	20.0	19.0	18.0	16.5	15.5
		Vibration	15.5	16.0	15.5	16.0	15.5	15.5
		Creep	22.0	20.0	19.0	18.0	16.5	15.5
	9-alt	L/600	24.0	23.0	21.5	20.5	19.0	19.0
		L/360	24.0	23.0	21.5	20.5	19.0	19.0
		L/240	24.0	23.0	21.5	20.5	19.0	19.0
		Vibration	18.0	18.0	18.0	18.5	18.0	17.5
		Creep	24.0	23.0	21.5	20.5	19.0	19.0
	4-maxx	L/600	14.5	13.0	12.5	11.5	10.5	10.0
		L/360	14.5	13.0	12.5	11.5	10.5	10.0
		L/240	14.5	13.0	12.5	11.5	10.5	10.0
		Vibration	11.0	11.5	11.0	11.5	10.5	10.0
		Creep	14.5	13.0	12.5	11.5	10.5	10.0
	5-maxx	L/600	19.0	17.0	16.5	15.0	14.0	13.5
		L/360	19.0	17.0	16.5	15.0	14.0	13.5
		L/240	19.0	17.0	16.5	15.0	14.0	13.5
Vibration		13.5	13.5	13.5	14.0	13.5	13.0	
Creep		19.0	17.0	16.5	15.0	14.0	13.5	
7-maxx	L/600	25.0	22.5	21.5	20.0	19.0	18.0	
	L/360	25.0	22.5	21.5	20.0	19.0	18.0	
	L/240	25.0	22.5	21.5	20.0	19.0	18.0	
	Vibration	16.5	16.5	16.5	17.0	16.5	16.0	
	Creep	25.0	22.5	21.5	20.0	19.0	18.0	
9-maxx	L/600				24.5	23.0	22.0	
	L/360				24.5	23.0	22.0	
	L/240				24.5	23.0	22.0	
	Vibration	19.0	19.0	19.0	19.5	19.0	18.5	
	Creep				24.5	23.0	22.0	
CANTILEVER	3-alt	L/600	5.5	5.0	5.0	4.5	4.0	4.0
		L/360	5.5	5.0	5.0	4.5	4.0	4.0
		L/240	5.5	5.0	5.0	4.5	4.0	4.0
		Vibration	5.5	5.0	5.0	4.5	4.0	4.0
		Creep	5.5	5.0	5.0	4.5	4.0	4.0
	5-alt	L/600	8.5	7.5	7.0	6.5	6.0	6.0
		L/360	8.5	7.5	7.0	6.5	6.0	6.0
		L/240	8.5	7.5	7.0	6.5	6.0	6.0
		Vibration	7.5	7.5	7.0	6.5	6.0	6.0
		Creep	8.5	7.5	7.0	6.5	6.0	6.0
	7-alt	L/600	11.0	10.0	9.5	9.0	8.0	7.5
		L/360	11.0	10.0	9.5	9.0	8.0	7.5
		L/240	11.0	10.0	9.5	9.0	8.0	7.5
		Vibration	9.5	9.5	9.5	9.0	8.0	7.5
		Creep	11.0	10.0	9.5	9.0	8.0	7.5
	9-alt	L/600	13.0	12.0	11.5	10.5	10.0	9.5
		L/360	13.0	12.0	11.5	10.5	10.0	9.5
		L/240	13.0	12.0	11.5	10.5	10.0	9.5
		Vibration	10.5	11.0	11.0	10.5	10.0	9.5
		Creep	13.0	12.0	11.5	10.5	10.0	9.5
	4-maxx	L/600	7.0	6.5	6.0	5.5	5.0	5.0
		L/360	7.0	6.5	6.0	5.5	5.0	5.0
		L/240	7.0	6.5	6.0	5.5	5.0	5.0
		Vibration	6.5	6.5	6.0	5.5	5.0	5.0
		Creep	7.0	6.5	6.0	5.5	5.0	5.0
	5-maxx	L/600	9.5	8.5	8.0	7.5	7.0	6.5
		L/360	9.5	8.5	8.0	7.5	7.0	6.5
		L/240	9.5	8.5	8.0	7.5	7.0	6.5
Vibration		8.0	8.0	8.0	7.5	7.0	6.5	
Creep		9.0	8.5	8.0	7.5	7.0	6.5	
7-maxx	L/600	12.5	11.0	10.5	10.0	9.5	9.0	
	L/360	12.5	11.0	10.5	10.0	9.5	9.0	
	L/240	12.5	11.0	10.5	10.0	9.5	9.0	
	Vibration	10.0	10.0	10.0	10.0	9.5	9.0	
	Creep	12.0	11.0	10.5	10.0	9.5	9.0	
9-maxx	L/600	15.0	13.5	13.0	12.0	11.5	11.0	
	L/360	15.0	13.5	13.0	12.0	11.5	11.0	
	L/240	15.0	13.5	13.0	12.0	11.5	11.0	
	Vibration	11.5	11.5	11.5	12.0	11.5	11.0	
	Creep	14.5	13.5	13.0	12.0	11.5	11.0	

No. of Spans	CLT Layout	Deflection Limit	Residential - 40	Office (15 psf Partition Load) - 65	Office (Collaborative) - 80	Assembly (Retail) - 100	Storage (Light) - 125	Library Stack Room - 150		
1	3-alt	L/600	13.5	11.5	10.5	9.5	9.0	8.5		
		L/360	16.5	14.0	13.0	12.0	11.0	10.0		
		L/240	16.0	14.5	13.5	12.5	12.0	11.0		
		Vibration Creep	13.0 14.5	14.0 13.0	13.5 12.5	15.0 12.0	13.0 11.0	12.5 10.5		
	5-alt	L/600	21.5	18.0	17.0	15.5	14.5	13.5		
		L/360	26.0	22.0	20.5	19.0	17.5	16.0		
		L/240	24.5	22.0	21.0	19.5	18.5	17.5		
		Vibration Creep	17.0 21.5	18.0 20.0	17.5 19.0	19.0 18.0	17.0 17.5	16.5 16.5		
	7-alt	L/600	29.5	25.0	23.0	21.0	19.5	18.0		
		L/360	35.5	30.0	27.5	25.5	23.5	22.0		
		L/240	32.0	29.0	27.5	26.0	24.5	23.5		
		Vibration Creep	20.5 27.5	21.0 26.0	20.5 25.0	22.0 24.0	20.0 23.0	19.5 22.0		
9-alt	L/600	37.5	31.5	29.0	27.0	24.5	23.0			
	L/360	44.5	37.5	35.0	32.5	30.0	28.0			
	L/240	39.0	35.5	34.0	32.5	30.5	29.0			
	Vibration Creep	23.0 33.5	23.5 31.5	23.0 30.5	24.5 29.5	22.5 28.0	22.5 27.0			
4-maxx	L/600	17.5	15.0	13.5	12.5	11.5	10.5			
	L/360	21.5	18.0	16.5	15.0	14.0	13.0			
	L/240	20.5	18.0	17.0	16.0	15.0	14.5			
	Vibration Creep	15.0 18.0	16.0 16.5	15.5 16.0	17.0 15.0	15.0 14.0	14.5 13.5			
5-maxx	L/600	23.5	19.5	18.0	17.0	15.5	14.5			
	L/360	28.0	23.5	22.0	20.0	18.5	17.5			
	L/240	26.5	23.5	22.5	21.0	20.0	19.0			
	Vibration Creep	18.0 23.0	19.0 21.5	18.5 20.5	20.0 19.5	18.0 18.5	17.5 18.0			
7-maxx	L/600	32.0	27.0	25.0	23.0	21.0	20.0			
	L/360	38.5	32.5	30.0	28.0	25.5	24.0			
	L/240	34.5	31.5	30.0	28.5	27.0	25.5			
	Vibration Creep	21.5 30.0	22.0 28.0	22.0 27.0	23.0 26.0	21.0 24.5	21.0 23.5			
9-maxx	L/600	40.5	34.0	31.5	29.0	27.0	25.0			
	L/360	48.5	41.0	38.0	35.0	32.5	30.5			
	L/240	42.0	38.5	37.0	35.0	33.0	31.5			
	Vibration Creep	24.0 36.0	25.0 34.0	24.5 33.0	25.5 31.5	24.0 30.5	23.5 29.5			
2	3-alt	L/600	18.5	15.5	14.5	13.5	12.0	11.5		
		L/360	22.0	18.5	17.5	16.0	15.0	14.0		
		L/240	22.0	19.5	18.5	17.5	16.0	15.0		
		Vibration Creep	13.0 19.5	13.5 18.0	13.5 17.0	15.0 16.0	12.5 15.5	12.5 14.5		
	5-alt	L/600						21.0	19.5	18.5
		L/360						23.0	23.5	22.0
		L/240						21.0	25.0	23.5
		Vibration Creep	17.0	17.5	17.5	18.5	24.5	16.5	16.5	
	7-alt	L/600						21.0	19.5	19.5
		L/360						21.0	21.0	21.0
		L/240						21.0	21.0	21.0
		Vibration Creep	20.0	20.5	20.5	21.5	21.5	21.5	21.5	
9-alt	L/600						23.0	22.5	22.0	
	L/360						23.0	24.0	24.0	
	L/240						23.0	24.0	24.0	
	Vibration Creep	22.5	23.0	23.0	24.0	24.0	24.0	24.0		
4-maxx	L/600	24.0	20.0	18.5	17.0	16.0	14.5			
	L/360	24.0	24.0	22.5	21.0	19.0	18.0			
	L/240	24.0	24.5	23.5	22.0	20.5	19.5			
	Vibration Creep	15.0 24.5	15.5 22.5	15.5 21.5	17.0 20.5	14.5 19.5	14.5 18.5			
5-maxx	L/600						23.0	21.0	19.5	
	L/360						23.0	21.0	23.5	
	L/240						23.0	21.0	23.5	
	Vibration Creep	18.0	18.5	18.5	20.0	17.5	17.5	24.0		
7-maxx	L/600						23.0	21.0	20.5	
	L/360						23.0	21.0	20.5	
	L/240						23.0	21.0	20.5	
	Vibration Creep	21.0	21.5	21.5	23.0	21.0	21.0			
9-maxx	L/600						24.0	23.5	23.0	
	L/360						24.0	23.5	23.0	
	L/240						24.0	23.5	23.0	
	Vibration Creep	24.0	24.5	24.0	25.0	23.0	23.0			
CANTILEVER	3-alt	L/600	7.0	6.0	5.5	5.0	4.5	4.0		
		L/360	8.5	7.0	6.5	6.0	5.5	5.0		
		L/240	8.5	7.5	7.0	6.5	6.0	6.0		
		Vibration Creep	8.0 7.5	8.0 7.0	8.0 6.5	9.0 6.0	7.5 6.0	7.5 5.5		
	5-alt	L/600	11.5	9.5	9.0	8.0	7.5	7.0		
		L/360	13.5	11.5	10.5	10.0	9.0	8.5		
		L/240	13.0	11.5	11.0	10.5	9.5	9.0		
		Vibration Creep	10.0 11.5	10.5 10.5	10.5 10.0	11.0 9.5	10.0 9.0	9.5 8.5		
	7-alt	L/600	15.5	13.0	12.0	11.0	10.0	9.5		
		L/360	15.5	15.5	14.5	13.5	12.5	11.5		
		L/240	15.5	15.5	14.5	14.0	13.0	12.5		
		Vibration Creep	12.0 14.5	12.5 13.5	12.0 13.0	13.0 12.5	12.0 12.5	11.5 11.5		
9-alt	L/600						14.0	13.0	12.0	
	L/360						14.0	15.5	14.5	
	L/240						14.0	16.0	15.5	
	Vibration Creep	13.5	14.0	13.5	14.5	13.5	13.5	14.0		
4-maxx	L/600	9.5	7.5	7.0	6.5	6.0	5.5			
	L/360	11.0	9.5	8.5	8.0	7.5	7.0			
	L/240	10.5	9.5	9.0	8.5	8.0	7.5			
	Vibration Creep	9.0 9.5	9.5 8.5	9.0 8.5	10.0 8.0	9.0 7.5	8.5 7.0			
5-maxx	L/600	12.5	10.5	9.5	9.0	8.0	7.5			
	L/360	15.0	12.5	11.5	10.5	10.0	9.0			
	L/240	14.0	12.5	12.0	11.0	10.5	10.0			
	Vibration Creep	10.5 12.0	11.0 11.5	11.0 11.0	12.0 10.5	10.5 10.0	10.5 9.5			
7-maxx	L/600						13.0	11.0	10.5	
	L/360						16.0	13.5	12.5	
	L/240						16.0	14.0	13.5	
	Vibration Creep	12.5 16.0	13.0 15.0	13.0 14.0	13.5 13.5	12.5 13.0	12.5 13.0			
9-maxx	L/600						15.5	14.0	13.0	
	L/360						15.5	16.0	16.0	
	L/240						15.5	16.0	16.0	
	Vibration Creep	14.5	14.5	14.5	15.0	14.0	14.0	15.5		

No. of Spans	CLT Layout	Deflection Limit	Residential - 40	Office (15 psf Partition Load) - 65	Office (Collaborative) - 80	Assembly (Retail) - 100	Storage (Light) - 125	Library Stack Room - 150
1	3-alt	L/600	13.5	11.5	10.5	9.5	9.0	8.5
		L/360	16.5	14.0	13.0	12.0	11.0	10.0
		L/240	15.5	14.0	13.0	12.5	11.5	11.0
	5-alt	Vibration	12.0	12.0	12.0	13.0	11.5	11.5
		Creep	13.5	12.5	12.0	11.5	11.0	10.5
		L/600	21.5	18.0	17.0	15.5	14.5	13.5
	7-alt	L/360	26.0	22.0	20.5	19.0	17.5	16.0
		L/240	23.5	21.0	20.0	19.0	18.0	17.0
		Vibration	15.5	16.0	16.0	17.0	15.5	15.5
	9-alt	Creep	20.0	19.0	18.0	17.5	16.5	16.0
L/600		29.5	25.0	23.0	21.0	19.5	18.0	
L/360		35.5	30.0	27.5	25.5	23.5	22.0	
4-maxx	L/240	30.5	28.0	27.0	25.5	24.0	23.0	
	Vibration	19.0	19.0	19.0	20.0	18.5	18.5	
	Creep	26.0	24.5	24.0	23.0	22.0	21.0	
5-maxx	L/600	37.5	31.5	29.0	27.0	24.5	23.0	
	L/360	44.5	37.5	35.0	32.5	30.0	28.0	
	L/240	37.5	34.5	33.0	31.5	30.0	28.5	
7-maxx	Vibration	21.5	22.0	21.5	22.5	21.5	21.0	
	Creep	32.0	30.0	29.5	28.5	27.0	26.0	
	L/600	17.5	15.0	13.5	12.5	11.5	10.5	
5-maxx	L/360	21.5	18.0	16.5	15.0	14.0	13.0	
	L/240	19.5	17.5	16.5	15.5	15.0	14.0	
	Vibration	14.0	14.0	14.0	15.0	13.5	13.5	
7-maxx	Creep	17.0	15.5	15.0	14.5	13.5	13.0	
	L/600	23.5	19.5	18.0	17.0	15.5	14.5	
	L/360	28.0	23.5	22.0	20.0	18.5	17.5	
9-maxx	L/240	25.0	23.0	22.0	20.5	19.5	18.5	
	Vibration	16.5	17.0	17.0	17.5	16.5	16.0	
	Creep	21.5	20.5	19.5	19.0	18.0	17.0	
4-maxx	L/600	32.0	27.0	25.0	23.0	21.0	20.0	
	L/360	38.5	32.5	30.0	28.0	25.5	24.0	
	L/240	33.5	30.5	29.0	27.5	26.0	25.0	
5-maxx	Vibration	20.0	20.5	20.0	21.0	19.5	19.5	
	Creep	28.5	27.0	26.0	25.0	24.0	23.0	
	L/600	40.5	34.0	31.5	29.0	27.0	25.0	
7-maxx	L/360	48.5	41.0	38.0	35.0	32.5	30.5	
	L/240	40.5	37.5	36.0	34.5	32.5	31.0	
	Vibration	22.5	23.0	23.0	24.0	22.5	22.5	
9-maxx	Creep	34.5	32.5	31.5	30.5	29.5	28.5	
	L/600	18.5	15.5	14.5	13.5	12.0	11.5	
	L/360	22.0	18.5	17.5	16.0	15.0	14.0	
3-alt	L/240	21.0	18.5	18.0	17.0	16.0	15.0	
	Vibration	11.5	12.0	12.0	12.5	11.5	11.0	
	Creep	18.0	17.0	16.0	15.5	14.5	14.0	
5-alt	L/600	25.0	25.0	23.0	21.0	19.5	18.5	
	L/360					23.5	22.0	
	L/240	15.5	16.0	15.5	16.5	24.5	23.0	
7-alt	Vibration					15.5	15.0	
	Creep			24.5	23.5	22.5	21.5	
	L/600							
9-alt	L/360							
	L/240							
	Vibration							
4-maxx	Creep	18.5	19.0	19.0	19.5	18.5	18.0	
	L/600							
	L/360							
5-maxx	L/240							
	Vibration							
	Creep	21.0	21.5	21.5	22.0	21.0	20.5	
7-maxx	L/600	24.0	20.0	18.5	17.0	16.0	14.5	
	L/360		24.0	22.5	21.0	19.0	18.0	
	L/240		24.0	22.5	21.5	20.0	19.0	
9-maxx	Vibration	13.5	14.0	13.5	14.5	13.5	13.0	
	Creep	23.0	21.5	20.5	19.5	18.5	18.0	
	L/600			25.0	23.0	21.0	19.5	
5-maxx	L/360						23.5	
	L/240						25.0	
	Vibration	16.5	17.0	16.5	17.5	16.0	16.0	
7-maxx	Creep					24.5	23.5	
	L/600							
	L/360							
9-maxx	L/240							
	Vibration	19.5	20.0	20.0	20.5	19.5	19.0	
	Creep							
4-maxx	L/600							
	L/360							
	L/240							
5-maxx	Vibration	22.5	22.5	22.5	23.5	22.0	22.0	
	Creep							
	L/600							
7-maxx	L/360	7.0	6.0	5.5	5.0	4.5	4.0	
	L/240	8.5	7.0	6.5	6.0	5.5	5.0	
	Vibration	8.0	7.0	7.0	6.5	6.0	5.5	
9-maxx	Creep	7.0	6.5	6.0	5.5	5.5	5.5	
	L/600	11.5	9.5	9.0	8.0	7.5	7.0	
	L/360	13.5	11.5	10.5	10.0	9.0	8.5	
5-alt	L/240	12.5	11.0	10.5	10.0	9.5	9.0	
	Vibration	9.0	9.5	9.5	10.0	9.0	9.0	
	Creep	10.5	10.0	9.5	9.0	8.5	8.5	
7-alt	L/600	15.5	13.0	12.0	11.0	10.0	9.5	
	L/360		15.5	14.5	13.5	12.5	11.5	
	L/240	16.0	15.0	14.0	13.5	12.5	12.0	
9-alt	Vibration	11.0	11.5	11.0	11.5	11.0	11.0	
	Creep	14.0	13.0	12.5	12.0	11.5	11.0	
	L/600			15.5	14.0	13.0	12.0	
5-alt	L/360					15.5	14.5	
	L/240					16.0	15.0	
	Vibration	12.5	13.0	13.0	13.5	12.5	12.5	
7-alt	Creep		16.0	15.5	15.0	14.5	14.0	
	L/600	9.5	7.5	7.0	6.5	6.0	5.5	
	L/360	11.0	9.5	8.5	8.0	7.5	7.0	
9-alt	L/240	10.0	9.0	8.5	8.0	7.5	7.5	
	Vibration	8.0	8.5	8.0	8.5	8.0	8.0	
	Creep	9.0	8.0	8.0	7.5	7.0	7.0	
5-maxx	L/600	12.5	10.5	9.5	9.0	8.0	7.5	
	L/360	15.0	12.5	11.5	10.5	10.0	9.0	
	L/240	13.5	12.0	11.5	11.0	10.0	9.5	
7-maxx	Vibration	10.0	10.0	10.0	10.5	9.5	9.5	
	Creep	11.5	10.5	10.5	10.5	9.5	9.0	
	L/600		14.0	13.0	12.0	11.0	10.5	
9-maxx	L/360			16.0	14.5	13.5	12.5	
	L/240			15.5	14.5	14.0	13.0	
	Vibration	11.5	12.0	12.0	12.5	11.5	11.5	
5-alt	Creep	15.0	14.0	13.5	13.0	12.5	12.0	
	L/600				15.5	14.0	13.0	
	L/360					15.5	14.0	
7-alt	L/240					16.0	15.0	
	Vibration					12.5	12.5	
	Creep					14.5	14.0	
9-alt	L/600	13.5	13.5	13.5	14.0	13.0	13.0	
	L/360					14.0	16.0	
	L/240					15.5	15.0	

Table with columns: No. of Spans, CLT Layout, Deflection Limit, Residential - 40, Office (15 psf Partition Load) - 65, Office (Collaborative) - 80, Assembly (Retail) - 100, Storage (Light) - 125, Library Stack Room - 150. Rows are categorized by floor level (1, 2, CANTILEVER) and span type (3-alt, 5-alt, 7-alt, 9-alt, 4-maxx, 5-maxx, 7-maxx, 9-maxx). Each span type includes sub-rows for L/600, L/360, L/240, and Vibration/Creep. Values represent allowable spans in feet.

LATERAL SPECIFICATIONS

Lateral tables in this guide have been analytically derived by SmartLam. Based on historic, empirical test data, the values calculated using industry accepted design concepts are conservative. SmartLam does not certify the design values provided for final design or construction and the specifying designer shall be responsible to ensure that the design meets all the requirements set forth in the local building code.

Allowable in-plane shear stresses and capacities have been derived using Section 3 NDS methodology to provide guidance for the preliminary design of CLT panels resisting in-plane shear forces. Tabulated values conservatively ignore capacity increases due to torsional force transfer at glued interfaces.

In-plane effective shear stiffnesses have been derived using equations in accordance with M. Flaig and H.J. Blaß's research: *Shear Strength and Shear Stiffness of CLT-Beams Loading in Plane*. The following parameters were used in calculations.

EFFECTIVE SHEAR STIFFNESS PARAMETERS

Assumed Glue Slip Modulus, K	5 N/mm ² (18,420 lb/in ³)
Width of Lamination, b	5.25 in
CLT Panel Size	8'6" x 40'0"

ADJUSTMENT FACTORS AND DESIGN CONSTANTS FOR ALLOWABLE PROPERTIES

Tabulated values are based on the following load duration and may be increased in accordance with the NDS up to 1.6

Load Duration Adjustment Factors, C_D

Normal Load Duration 1.0

NOTES

- Shear stress and shear capacity values represent Allowable Stress Design (ASD).
- Shear stress and shear capacity values are based on the gross cross section.
- Shear stiffness values are based on a panel width of 10 ft and lamination thickness of 5.25 in.

SHEAR STRESS TO SHEAR CAPACITY CONVERSION

$$V_{e,0} = (t_p \times 12 \text{ in/ft}) \times F_{v,e,0}$$

$$V_{e,90} = (t_p \times 12 \text{ in/ft}) \times F_{v,e,90}$$

EFFECTIVE SHEAR STIFFNESS EQUATIONS

Effective Shear Modulus
(shear deformation in crossing areas)

$$G_{eff, CA} = \frac{K \cdot b^2 \cdot n_{CA} \cdot m^2}{5 \cdot t_{gross} \cdot (m^2 + 1)}$$

Effective Shear Modulus
(of composite CLT panel)

$$G_{eff, CLT} = \left(\frac{1}{G_{lam}} + \frac{1}{G_{eff, CA}} \right)^{-1}$$

Where:

- K = Glue Slip Modulus
- b = Width of Lamination
- m = Number of Laminations Perpendicular to Shear Force
- n_{CA} = Number of Glue Lines (Crossing Areas)
- t_{gross} = Total Thickness of CLT Panel
- G_{lam} = Shear Stiffness of Laminations Perpendicular to Shear Force = E/16
- GA_{eff} = G_{effCLT} × t_p

IN-PLANE SHEAR PROPERTIES

ALLOWABLE IN-PLANE SHEAR STRESS¹

	V2M5		
CLT Layup	Thickness, t_p (in)	$F_{v,e,0}$ (psi)	$F_{v,e,90}$ (psi)
3-alt	4 1/8	30	60
4-maxx	5 1/2	45	45
5-alt	6 7/8	36	54
5-maxx	6 7/8	18	72
7-alt	9 5/8	39	51
7-maxx	9 5/8	26	64

	V4M1		
CLT Layup	Thickness, t_p (in)	$F_{v,e,0}$ (psi)	$F_{v,e,90}$ (psi)
3-alt	4 1/8	30	60
4-maxx	5 1/2	45	45
5-alt	6 7/8	36	54
5-maxx	6 7/8	18	72
7-alt	9 5/8	39	52
7-maxx	9 5/8	26	64

	E21M1		
CLT Layup	Thickness, t_p (in)	$F_{v,e,0}$ (psi)	$F_{v,e,90}$ (psi)
3-alt	4 1/8	33	60
4-maxx	5 1/2	50	45
5-alt	6 7/8	40	54
5-maxx	6 7/8	20	72
7-alt	9 5/8	43	51
7-maxx	9 5/8	28	64

COLUMBIA FALLS, MT

	V2.7		
CLT Layup	Thickness, t_p (in)	$F_{v,e,0}$ (psi)	$F_{v,e,90}$ (psi)
3-alt	3 3/8	17	73
4-maxx	4	28	62
5-alt	5 3/8	21	69
7-alt	7 3/8	23	67
7-maxx	8 1/8	14	76

	V5M1		V5M2		
CLT Layup	Thickness, t_p (in)	$F_{v,e,0}$ (psi)	$F_{v,e,90}$ (psi)	$F_{v,e,0}$ (psi)	$F_{v,e,90}$ (psi)
3-alt	4 1/8	33	67	33	67
4-maxx	5 1/2	50	50	50	50
5-alt	6 7/8	40	60	40	60
5-maxx	6 7/8	20	80	20	80
7-alt	9 5/8	43	57	43	57
7-maxx	9 5/8	29	71	29	71

	E21M2		
CLT Layup	Thickness, t_p (in)	$F_{v,e,0}$ (psi)	$F_{v,e,90}$ (psi)
3-alt	3 3/8	18	73
4-maxx	4	31	62
5-alt	5 3/8	23	69
7-alt	7 3/8	25	67
7-maxx	8 1/8	15	76

1. Tabulated values may be increased in accordance with the NDS Load Duration Factor up to 1.6.

ALLOWABLE IN-PLANE SHEAR CAPACITY¹

	V2M5		
CLT Layup	Thickness, t_p (in)	$V_{e,0}$ (lb/ft)	$V_{e,90}$ (lb/ft)
3-alt	4 1/8	1,485	2,970
4-maxx	5 1/2	2,970	2,970
5-alt	6 7/8	2,970	4,455
5-maxx	6 7/8	1,485	5,940
7-alt	9 5/8	4,455	5,940
7-maxx	9 5/8	2,970	7,425

	V2.7		
CLT Layup	Thickness, t_p (in)	$V_{e,0}$ (lb/ft)	$V_{e,90}$ (lb/ft)
3-alt	3 3/8	675	2,970
4-maxx	4	1,350	2,970
5-alt	5 3/8	1,350	4,455
7-alt	7 3/8	2,025	5,940
7-maxx	8 1/8	1,350	7,425

IN-PLANE SHEAR PROPERTIES

COLUMBIA FALLS, MT

ALLOWABLE IN-PLANE SHEAR CAPACITY¹

		V4M1	
CLT Layup	Thickness, t_p (in)	$V_{e,0}$ (lb/ft)	$V_{e,90}$ (lb/ft)
3-alt	4 1/8	1,485	2,970
4-maxx	5 1/2	2,970	2,970
5-alt	6 7/8	2,970	4,455
5-maxx	6 7/8	1,485	5,940
7-alt	9 5/8	4,455	5,940
7-maxx	9 5/8	2,970	7,425

		V5M1		V5M2	
CLT Layup	Thickness, t_p (in)	$V_{e,0}$ (lb/ft)	$V_{e,90}$ (lb/ft)	$V_{e,0}$ (lb/ft)	$V_{e,90}$ (lb/ft)
3-alt	4 1/8	1,650	3,300	1,650	3,300
4-maxx	5 1/2	3,300	3,300	3,300	3,300
5-alt	6 7/8	3,300	4,950	3,300	4,950
5-maxx	6 7/8	1,650	6,600	1,650	6,600
7-alt	9 5/8	4,950	6,600	4,950	6,600
7-maxx	9 5/8	3,300	8,250	3,300	8,250

		E21M1	
CLT Layup	Thickness, t_p (in)	$V_{e,0}$ (lb/ft)	$V_{e,90}$ (lb/ft)
3-alt	4 1/8	1,650	2,970
4-maxx	5 1/2	3,300	2,970
5-alt	6 7/8	3,300	4,455
5-maxx	6 7/8	1,650	5,940
7-alt	9 5/8	4,950	5,940
7-maxx	9 5/8	3,300	7,425

		E21M2	
CLT Layup	Thickness, t_p (in)	$V_{e,0}$ (lb/ft)	$V_{e,90}$ (lb/ft)
3-alt	3 3/8	750	2,970
4-maxx	4	1,500	2,970
5-alt	5 3/8	1,500	4,455
7-alt	7 3/8	2,250	5,940
7-maxx	8 1/8	1,500	7,425

1. Tabulated values may be increased in accordance with the NDS Load Duration Factor up to 1.6.

IN-PLANE EFFECTIVE SHEAR STIFFNESS

		V2M5	
CLT Layup	Thickness, t_p (in)	$GA_{eff,0}$ (10^6 lb/ft)	$GA_{eff,90}$ (10^6 lb/ft)
3-alt	4 1/8	1.6	1.6
4-maxx	5 1/2	2.2	2.2
5-alt	6 7/8	2.9	2.9
5-maxx	6 7/8	2.9	2.9
7-alt	9 5/8	4.2	4.2
7-maxx	9 5/8	4.2	4.2

		V2.7	
CLT Layup	Thickness, t_p (in)	$GA_{eff,0}$ (10^6 lb/ft)	$GA_{eff,90}$ (10^6 lb/ft)
3-alt	3 3/8	1.3	1.4
4-maxx	4	1.8	2.0
5-alt	5 3/8	2.4	2.6
7-alt	7 3/8	3.5	3.8
7-maxx	8 1/8	3.7	3.9

IN-PLANE SHEAR PROPERTIES

IN-PLANE EFFECTIVE SHEAR STIFFNESS

COLUMBIA FALLS, MT

CLT Layup	V4M1		
	Thickness, t_p (in)	$GA_{eff,0}$ (10^6 lb/ft)	$GA_{eff,90}$ (10^6 lb/ft)
3-alt	4 1/8	1.4	1.4
4-maxx	5 1/2	2.0	2.0
5-alt	6 7/8	2.6	2.6
5-maxx	6 7/8	2.6	2.6
7-alt	9 5/8	3.8	3.8
7-maxx	9 5/8	3.8	3.8

CLT Layup	V5M1				V5M2	
	Thickness, t_p (in)	$GA_{eff,0}$ (10^6 lb/ft)	$GA_{eff,90}$ (10^6 lb/ft)	$GA_{eff,0}$ (10^6 lb/ft)	$GA_{eff,90}$ (10^6 lb/ft)	
3-alt	4 1/8	1.5	1.5	1.6	1.6	
4-maxx	5 1/2	2.2	2.2	2.3	2.3	
5-alt	6 7/8	2.8	2.8	3.0	3.0	
5-maxx	6 7/8	2.8	2.8	3.0	3.0	
7-alt	9 5/8	4.1	4.1	4.5	4.5	
7-maxx	9 5/8	4.1	4.1	4.5	4.5	

CLT Layup	E21M1		
	Thickness, t_p (in)	$GA_{eff,0}$ (10^6 lb/ft)	$GA_{eff,90}$ (10^6 lb/ft)
3-alt	4 1/8	1.4	1.7
4-maxx	5 1/2	1.9	2.4
5-alt	6 7/8	2.5	3.2
5-maxx	6 7/8	2.5	3.2
7-alt	9 5/8	3.6	4.7
7-maxx	9 5/8	3.6	4.7

CLT Layup	E21M2		
	Thickness, t_p (in)	$GA_{eff,0}$ (10^6 lb/ft)	$GA_{eff,90}$ (10^6 lb/ft)
3-alt	3 3/8	1.2	1.6
4-maxx	4	1.6	2.2
5-alt	5 3/8	2.2	2.9
7-alt	7 3/8	3.2	4.2
7-maxx	8 1/8	3.3	4.4

ALLOWABLE IN-PLANE SHEAR STRESS¹

DOTHAN, AL

CLT Layup	V3		
	Thickness, t_p (in)	$F_{ve,0}$ (psi)	$F_{ve,90}$ (psi)
3-alt	4 1/8	39	78
4-maxx	5 1/2	58	58
5-alt	6 7/8	47	70
5-maxx	6 7/8	23	93
7-alt	9 5/8	50	67
7-maxx	9 5/8	33	83

CLT Layup	V3.2		
	Thickness, t_p (in)	$F_{ve,0}$ (psi)	$F_{ve,90}$ (psi)
3-alt	3 5/8	28	88
4-maxx	4 1/2	45	71
5-alt	5 7/8	35	82
7-alt	8 1/8	38	79
7-maxx	8 5/8	24	93

CLT Layup	V3.3		
	Thickness, t_p (in)	$F_{ve,0}$ (psi)	$F_{ve,90}$ (psi)
3-alt	2 5/8	39	122
4-maxx	3 1/2	58	92
5-alt	4 3/8	47	110
7-alt	6 1/8	50	105
7-maxx	6 1/8	33	131

CLT Layup	E4M4		
	Thickness, t_p (in)	$F_{ve,0}$ (psi)	$F_{ve,90}$ (psi)
3-alt	4 1/8	39	78
4-maxx	5 1/2	58	58
5-alt	6 7/8	47	70
5-maxx	6 7/8	23	93
7-alt	9 5/8	50	67
7-maxx	9 5/8	33	83

IN-PLANE SHEAR PROPERTIES

DOTHAN, AL

ALLOWABLE IN-PLANE SHEAR CAPACITY¹

	V3		
CLT Layup	Thickness, t_p (in)	$V_{e,0}$ (lb/ft)	$V_{e,90}$ (lb/ft)
3-alt	4 1/8	1,925	3,850
4-maxx	5 1/2	3,850	3,850
5-alt	6 7/8	3,850	5,775
5-maxx	6 7/8	1,925	7,700
7-alt	9 5/8	5,775	7,700
7-maxx	9 5/8	3,850	9,625

	V3.3		
CLT Layup	Thickness, t_p (in)	$V_{e,0}$ (lb/ft)	$V_{e,90}$ (lb/ft)
3-alt	2 5/8	1,225	3,850
4-maxx	3 1/2	2,450	3,850
5-alt	4 3/8	2,450	5,775
7-alt	6 1/8	3,675	7,700
7-maxx	6 1/8	2,450	9,625

	V3.2		
CLT Layup	Thickness, t_p (in)	$V_{e,0}$ (lb/ft)	$V_{e,90}$ (lb/ft)
3-alt	3 5/8	1,225	3,850
4-maxx	4 1/2	2,450	3,850
5-alt	5 7/8	2,450	5,775
7-alt	8 1/8	3,675	7,700
7-maxx	8 5/8	2,450	9,625

	E4M4		
CLT Layup	Thickness, t_p (in)	$V_{e,0}$ (lb/ft)	$V_{e,90}$ (lb/ft)
3-alt	4 1/8	1,925	3,850
4-maxx	5 1/2	3,850	3,850
5-alt	6 7/8	3,850	5,775
5-maxx	6 7/8	1,925	7,700
7-alt	9 5/8	5,775	7,700
7-maxx	9 5/8	3,850	9,625

1. Tabulated values may be increased in accordance with the NDS Load Duration Factor up to 1.6.

IN-PLANE EFFECTIVE SHEAR STIFFNESS

	V3		
CLT Layup	Thickness, t_p (in)	$GA_{eff,0}$ (10^6 lb/ft)	$GA_{eff,90}$ (10^6 lb/ft)
3-alt	4 1/8	1.5	1.6
4-maxx	5 1/2	2.2	2.2
5-alt	6 7/8	2.8	2.9
5-maxx	6 7/8	2.8	2.9
7-alt	9 5/8	4.1	4.2
7-maxx	9 5/8	4.1	4.2

	V3.3		
CLT Layup	Thickness, t_p (in)	$GA_{eff,0}$ (10^6 lb/ft)	$GA_{eff,90}$ (10^6 lb/ft)
3-alt	2 5/8	1.2	1.3
4-maxx	3 1/2	1.7	1.8
5-alt	4 3/8	2.3	2.4
7-alt	6 1/8	3.3	3.4
7-maxx	6 1/8	3.3	3.4

	V3.2		
CLT Layup	Thickness, t_p (in)	$GA_{eff,0}$ (10^6 lb/ft)	$GA_{eff,90}$ (10^6 lb/ft)
3-alt	3 5/8	1.4	1.5
4-maxx	4 1/2	2.0	2.1
5-alt	5 7/8	2.6	2.7
7-alt	8 1/8	3.8	3.9
7-maxx	8 5/8	3.9	4.0

	E4M4		
CLT Layup	Thickness, t_p (in)	$GA_{eff,0}$ (10^6 lb/ft)	$GA_{eff,90}$ (10^6 lb/ft)
3-alt	4 1/8	1.5	1.7
4-maxx	5 1/2	2.2	2.5
5-alt	6 7/8	2.8	3.3
5-maxx	6 7/8	2.8	3.3
7-alt	9 5/8	4.1	4.8
7-maxx	9 5/8	4.1	4.8



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