

Acoustically-Tested Mass Timber Assemblies

Following is a list of mass timber assemblies that have been acoustically tested as of March 22, 2021. Sources are noted at the end of this document. For free technical assistance on any questions related to the acoustical design of mass timber assemblies, or free technical assistance related to any aspect of the design, engineering or construction of a commercial or multi-family wood building in the U.S., email <u>help@woodworks.org</u> or contact the WoodWorks Regional Director nearest you: <u>http://www.woodworks.org/project-assistance</u>

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Disclaimer	



	Finish Floor	r if Applicable				
		iypsum Topping				
Acoustical Mat Product						
CLT Panel	Concrete/Gypsum Topping	Acoustical Mat Product Between CLT and Topping	Finish Floor	STC ¹	IIC1	Source
CLT 3-ply (3.5")	3" concrete	Maxxon Acousti-Mat [®] 3/4	None	53 ² ASTC	45 ² FIIC	72
	None 54 44 8					
			LVT on GenieMat RST05	53	44	89 90
	2" concrete	2" concrete Pliteq GenieMat™ FF25	Eng Wood on GenieMat RST05	53	46	91
			Carpet Tile	52	50	92
				-		
			None	57	45	103
			LVT	-	58	104
		Kinetics [®] RIM-33L-2-24 System with ¾" Plywood	2 layers of ¼" USG Fiberock [®] on Kinetics [®] Soundmatt	55	55	105
CLT 3-ply (4.125")	2"		LVT on 2 layers of ¼" USG Fiberock [®] on Kinetics [®] Soundmatt	-	59	106
	3" concrete		None	57	46	107
			LVT	-	55	108
		Kinetics [®] Ultra Quiet SR with synthetic roofing felt	2 layers of ¼" USG Fiberock [®] on Kinetics [®] Soundmatt	57	53	109
			LVT on 2 layers of ¼" USG Fiberock [®] on Kinetics [®] Soundmatt	-	50	110
	4" concrete	Kinetics [®] RIM-33L-2-24 System with ¾" Plywood	None	60	53	111

CLT Panel	Concrete/Gypsum Topping	Acoustical Mat Product Between CLT and Topping	Finish Floor	STC1	IIC ¹	Source
	1" Gyp-Crete®	Maxxon Acousti-Mat [®] 3/8 Premium	None	50	40	86
	i dyp-crete		LVT	51	43	87
				1	1	
			None	45 ⁶	39 ⁶	15
			LVT	48 ⁶	47 ⁶	16
		USG SAM N25 Ultra	LVT Plus	48 ⁶	49 ⁶	58
		USG SAMI NZS UITA	Eng Wood	47 ⁶	47 ⁶	59
			Carpet + Pad	45 ⁶	67 ⁶	60
	1	Ceramic Tile	50 ⁶	46 ⁶	61	
		None	45 ⁶	42 ⁶	15	
		Soprema® Insonomat 1-1/2" Levelrock®	LVT	48 ⁶	44 ⁶	16
			LVT Plus	48 ⁶	47 ⁶	58
CLT 5-ply			Eng Wood	47 ⁶	45 ⁶	59
(6.875″)			Carpet + Pad	45 ⁶	71 ⁶	60
(0.075)	1-1/2" Levelrock [®]		Ceramic Tile	50 ⁶	46 ⁶	61
	Brand 2500		None	45 ⁶	38 ⁶	15
			LVT	48 ⁶	47 ⁶	16
		USG SAM N75 Ultra	LVT Plus	48 ⁶	49 ⁶	58
			Eng Wood	47 ⁶	49 ⁶	59
			Carpet + Pad	45 ⁶	65 ⁶	60
			Ceramic Tile	50 ⁶	49 ⁶	61
			None	45 ⁶	40 ⁶	15
			LVT	48 ⁶	45 ⁶	16
		USG SAM N40 Ultra	LVT Plus	48 ⁶	47 ⁶	58
			Eng Wood	47 ⁶	47 ⁶	59
			Carpet + Pad	45 ⁶	67 ⁶	60
			Ceramic Tile	50 ⁶	47 ⁶	61

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CLT Panel	Concrete/Gypsum Topping	Acoustical Mat Product Between CLT and Topping	Finish Floor	STC ¹	IIC ¹	Source
	1-1/2" gypsum	0.35" (9mm) closed-cell foam	None	50	41	20
		None		49	28	
		0.35" (9mm) closed-cell foam		53	36	
		0.5" wood fiberboard		52	35	
		0.75" recycled fabric felt	None	59	42	20
		0.5" rubber nuggets on foil		53	46	
		0.315" (8 mm) shredded rubber mat		52	38	
		0.67" (17 mm) shredded rubber mat		54	44	
	1-1/2" concrete		None	54	36	
	1-1/2 concrete	0.39" (10 mm) Tar Boards	Eng Wood on 2 mm	53	47	
			closed cell foam			
			None	56	48	
		½" Insonomat	Eng Wood on 2 mm	55	51	68
			closed cell foam			
			None	54	39	
		0.35" (9 mm) Owens Corning QuietZone closed cell foam	Eng Wood on 2 mm	52	48	
			closed cell foam			
CLT 5-ply						
(6.875")			None	52	38	
			LVT	52	44	
			LVT on Armstrong S-	50	E 1	
			1837 Quiet Comfort	52	51	
	2" Gyp-Crete®	Maxxon Acousti-Mat [®] 3/8 Premium	Linoleum sheet flooring	51	48	22
			Linoleum sheet flooring			
			on Armstrong S-1837	51	53	
			Quiet Comfort			
			Carpet	50	66	
			LVT on GenieMat RST05	53	51	2
		Pliteq GenieMat™ FF25	Eng Wood on GenieMat	53	49	31
			RST02	53	49	51
	2" Levelrock [®]		None	51 ⁶	42 ⁶	62
	Brand 2500		LVT	51 ⁶	47 ⁶	63
	Brand 2500		LVT Plus	51 ⁶	51 ⁶	14
		USG SRB on USG SAM N25 Ultra	Eng Wood	50 ⁶	48 ⁶	64
			Carpet + Pad	50 ⁶	66 ⁶	65
			Ceramic Tile	52 ⁶	48 ⁶	66



CLT Panel	Concrete/Gypsum Topping	Acoustical Mat Product Between CLT and Topping	Finish Floor	STC ¹	IIC ¹	Source
			None	51 ⁶	40 ⁶	62
		USG SAM N25 Ultra on USG SAM N25	LVT	51 ⁶	47 ⁶	63
			LVT Plus	51 ⁶	48 ⁶	14
			Eng Wood	50 ⁶	49 ⁶	64
		USG SAM N25 Ultra on USG SAM N25	Carpet + Pad	50 ⁶	65 ⁶	65
			Ceramic Tile	52 ⁶	49 ⁶ 64	
		None	None	51 ⁶	44 ⁶	62
	2" Levelrock [®] Brand 2500		LVT	51 ⁶	49 ⁶	63
		USG SAM N25 on USG SAM N25 Ultra	LVT Plus	51 ⁶	50 ⁶	14
		USG SAIM NZS ON USG SAIM NZS UITRA	Eng Wood	50 ⁶	49 ⁶	64
			Carpet + Pad	50 ⁶	64 ⁶	65
			Ceramic Tile	52 ⁶	49 ⁶	66
			None	51 ⁶	42 ⁶	62
CLT 5-ply		USG SAM N25 Ultra	LVT	51 ⁶	46 ⁶	63
(6.875")			LVT Plus	51 ⁶	48 ⁶	14
			Eng Wood	50 ⁶	47 ⁶	64
			Carpet + Pad	50 ⁶	64 ⁶	65
			Ceramic Tile	52 ⁶	47 ⁶	66
	2" concrete	Rothoblaas Silent Floor EVO + 1.57" mineral wool + 4.7" EPS lightened screed + Rothoblaas Barrier 100	None	57 ⁹	50 ⁹	12
	2 concrete	Manuar Accusti Mate CDD aver Manuar Accusti Mate 2/4		52	46	76
		Maxxon Acousti-Mat [®] SBR over Maxxon Acousti-Mat [®] 3/4	LVT on Acousti-Top®	53	52	77
	2-3/8" concrete	Rothoblaas Barrier 100 + 1.18" mineral wool + 3.15" compact gravel fill w/cement + Rothoblaas Slient Floor ⁷	None	53 ⁹	62 ⁹	12
	3" concrete	2" Kinetics [®] Noise Control Roll-out Isolation Material	None	58	55	22



CLT Panel	Concrete/Gypsum Topping	Acoustical Mat Product Between CLT and Topping	Finish Floor	STC ¹	WOOD PRO	Source
		Pliteq GenieMat™ FF16 (FF10 + FF06)		56	50	32
		Pliteq GenieMat™ FF20 (FF10 + FF10)	None	57	51	30
		Pliteq GenieMat™ FF23 (FF17 + FF06)	None	56	52	33
				57	50	2
CLT 5-ply (6.875")	4" concrete	Pliteq GenieMat™ FF25	Eng Wood on GenieMat™ RST02	56	55	29
		Pliteq GenieMat™ FF31 (FF25 + FF06)	N	58	53	34
			None	59	54	2
		Pliteq GenieMat™ FF50 (FF25 + FF25)	Eng Wood on GenieMat™ RST02	58	59	5
		Keene 3/" Outet Outl® 075	LVT	-	54 ⁶	122
	2" gypsum	Keene ¾" Quiet Qurl® 075	LVT on 1" Platform L2	-	60 ⁶	121
		Keene 3/8" Quiet Qurl® 040	Underlayment on 5mm KeedeRoll MT Premium	-	58 ⁶	124
		5 mm Keene Step Soft Underlayment on Keene ¾" Quiet Qurl [®] 075	LVT	-	56 ⁶	123
					•	
		Kinetics® RIM_22L_2_24 System with ¾" Rhuwood	None	61	46	112
			LVT	-	61	113
			2 layers of ¼" USG Fiberock [®] on Kinetics [®] Soundmatt	61	59	114
CLT 5-ply (6.0")	3" concrete		LVT on 2 layers of ¼" USG Fiberock® on Kinetics® Soundmatt	-	59	115
	5 concrete		None	59	46	116
			LVT	-	58	117
		Kinetics [®] Ultra Quiet SR with synthetic roofing felt	2 layers of ¼" USG Fiberock [®] on Kinetics [®] Soundmatt	61	58	118
			LVT on 2 layers of ¼" USG Fiberock® on Kinetics® Soundmatt	-	57	119
	4" concrete	Kinetics [®] RIM-33L-2-24 System with ¾" Plywood	None	61	52	120



CLT Panel	Concrete/Gypsum Topping	Acoustical Mat Product Between CLT and Topping	Finish Floor	STC ¹	IIC ¹	Source
		USG SAM N25 Ultra on USG SAM N25 Ultra		53 ⁶	40 ⁶	
	2" Levelrock [®]	USG SAM N25 on USG SAM N40 Ultra	Nana	53 ⁶	42 ⁶	74
	Brand 2500	USG SAM N1.0 Ultra	- None	53 ⁶	42 ⁶	- 74
		USG SAM N25 on USG SAM N75 Ultra		53 ⁶	43 ⁶	
			1" Gyp-Crete [®] on Maxxon Acousti-Mat [®] 3/8	52	50	128
CLT 5-ply (5.4")			Eng Wood on 1" Gyp- Crete [®] on Maxxon Acousti-Mat [®] 3/8	53	52	129
	2-1/4" concrete	None	1-1/2" Gyp-Crete [®] on Maxxon Acousti-Mat [®] SBR on Acousti-Mat [®] ³ ⁄ ₄ Premium	56	57	130
			Eng Wood on Maxxon Acousti-Top® on 1-1/2" Gyp-Crete® on Acousti- Mat® SBR on Acousti- Mat® ¾ Premium	57	61	131
					10	
		1" Regupol SonusWave	— None	56	49	3
		½" Insonomat		53	47	68
		AcoustiTECH Soprema Insonomat (under concrete) + Soprema Insonofloor (on topping)		-	49 ³	
		Regupol SonusWave (under concrete) + AcoustiTECH Soprema Insonofloor (on topping)	Eng Wood	-	53 ³	
		AcoustiTECH LEAD 6 + AcoustiTECH Sofix + 5/8" plywood + 1/2" plywood + Soprema Insonofloor		-	58 ³	4
CLT 5-ply (5.1875")	1-1/2" concrete	AcoustiTECH Sofix + 2 layers 5/8" OSB + AcoustiTECH Ceramic	Ceramic Tile	-	60 ³	
(5.1875")		AcoustiTECH LEAD 6 + AcoustiTECH Sofix + 2 layers 5/8" OSB + AcoustiTECH Ceramic	Ceramic Tile	-	63 ³	
		0.35" (9 mm) Owens Corning QuietZone closed cell foam		52	40	
			None	52	11	
		0.20" (10 mm) Tar Boards		52	41	68
			Eng Wood on 2 mm closed cell foam	50	46	



		-			WOOD PRODU	JCTS COUNCIL
			None	47	35	
	2" concrete	0.1 mm polyethylene sheeting on 10 mm Tar Boards	Laminate floor on 3 mm AcoustiTECH Premium Felt Membrane	42	45	68
		1" Regupol SonusWave		56	46	
	2-3/4" concrete	1" Regupol SonusWave (under concrete) + Fermacell 2E31 (on topping)	None	-	52	3
	2-3/4 concrete	1.25" Roxul ComfortBoard IS		57	45	5
		1.25" Roxul ComfortBoard IS (under concrete) + AcoustiTECH Premium (on topping)	LVT	-	51	
	2-3/4" cement	1/2" Insonomat	Nono	56	45	69
mortar	½" Insonomat on 10 mm Tar Boards	- None	58	47	68	

CLT Panel	Concrete/Gypsum Topping	Acoustical Mat Product Between CLT and Topping	Finish Floor	STC ¹	IIC ¹	Source
CLT 5-ply (5.1875")	2-3/4" concrete	Roxul ComfortBoard IS, 1.25" (under concrete) + Roberts Soft Stride (on topping)	LVT	-	51	3
CLT 7-ply (9.875")	1-1/2" concrete	0.35" (9 mm) closed-cell foam	None	56	44	20

Table 1 Notes:

- 1. All STC tests performed in accordance with ASTM E 90 unless otherwise noted below. All IIC tests performed in accordance with ASTM E 492 unless otherwise noted below. See end of document for sources and referenced test reports.
- 2. ASTC field tests performed in accordance with ASTM E 336. AIIC field tests performed in accordance with ASTM E 1007.
- 3. IIC tests not performed in accordance with a singular test standard. Test measurement method used a combination of ASTM E492 and ASTM 1007 per acoustical mat product manufacturer.
- 4. FSTC field test performed in accordance with ASTM E 336. AIIC field test not performed in accordance with ASTM E 1007 (inadequate number of measurements).
- 5. STC and IIC noted is a prediction based on the ISO 15712-1 prediction method as noted in the referenced test report.
- 6. STC and IIC noted is based on floor zone testing procedures that are modifications of ASTM E90 and E492 test and do not fully conform with these test standards per acoustical mat product manufacturer and as noted in the referenced test report.
- 7. Actual thickness of CLT in this test was 6.3" (160 mm)
- 8. Assemblies included in the 1st edition of the CLT Handbook are included herein due to their legacy use. However, the testing standards used for these assemblies are European and direct correlation to IBC-referenced ASTM standards is not currently available.
- 9. STC and IIC noted is a based on the ISO 12354 model as noted in the referenced manufacturer's literature



	Finish Floor if Applicable				
CLT Panel	Acoustical Product on CLT Panel	Finish Floor	STC ¹	IIC ¹	Source
CLT 3-ply (4.125")	None	None	38	22	88
				•	
	None		41	25	20
	2 layers 23/32" AdvanTech [®] on Pliteq GenieMat™ FF10	None	45	42	35
	2 layers 23/32" AdvanTech [®] on Pliteq GenieMat™ FF25		48	44	36
	23/32" AdvanTech [®] on ½" cement board on Pliteq GenieMat™ RST02 on ½" cement board on Pliteq GenieMat™ FF25	LVT	53	51	37
	$2x12 \text{ mm cement board on } \frac{1}{2}^{"} \text{ wood fiberboard}$	None	48	46	20
	5/8" plywood on ½" plywood on AcoustiTECH Sofix on AcoustiTECH 6 mm membrane	Eng Wood	-	55 ² AIIC	
CLT 5-ply (6.875")		Ceramic Tile on AcoustiTECH 3 mm membrane	-	55 ² AIIC	67
		LVT	-	56 ² AIIC	
	5/8" plywood on ½" plywood on AcoustiTECH Sofix	Eng Wood on InsonoFloor	55 ² ASTC	-	
	Fermacell E-32 on Honeycomb Fermacell filled with New granule	Eng Wood on AcoustiTECH VP	58 ² ASTC	58 ² AIIC	10
			-		
		None	50 ² FSTC	50 ² AIIC	
CLT 5-ply (6.38")	3/2" plywood on 3/2" MDF on 3 layers of 1" mineral fiber board	LVT	-	50 ² AIIC	75
		Carpet	-	65 ² AIIC	
			50 ² 505	472	
		None	52 ² FSTC	47 ² AIIC	75
CLT 5-ply (5.5")	3/2" plywood on 3/2" MDF on 3 layers of 1" mineral fiber board	LVT	-	48 ² AIIC	75
		Carpet	-	62 ² AIIC	
CLT 5-ply (5.4")	None	None	41	27	73

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Table 2 Continued: CLT Floor Assemblies without Concrete/Gypsum Topping, Ceiling Side Exposed

CLT Panel	Acoustical Product on CLT Panel	Finish Floor	STC ¹	IIC ¹	Source
	None		39	22	
CLT 5-ply (5.1875")	Regupol SonoDeck	None	44	38	3
	Fermacell 2E31		48	41	
	Fermacell 2E32 + AcoustiTECH Soprema Insonofloor		-	43 ³	
	Fermacell 2E32 + Fermacell 12.5 + AcoustiTECH Soprema Insonofloor		-	44 ³	
	Fermacell Honeycomb w/filling + Fermacell 2E32 + AcoustiTECH Soprema	Eng Wood		49 ³	
	Insonofloor		-		4
CLT 5-ply (5.1875")	Fermacell Honeycomb w/filling + Fermacell 2E32 + Fermacell 12.5 + AcoustiTECH			50 ³	
сег э-ріу (э.1875)	Soprema Insonofloor			_	50
	AcoustiTECH Sofix + 5/8" plywood + ½" plywood + Soprema Insonofloor		-	51 ³	
	AcoustiTECH Sofix + 2 layers 5/8" OSB + AcoustiTECH Ceramic		-	54 ³	
	AcoustiTECH LEAD 6 + AcoustiTECH Sofix + 2 layers 5/8" OSB + AcoustiTECH	Ceramic Tile		58 ³	4
	Ceramic		-	201	
CLT 7-ply (8.75")	½" plywood on 5/8" plywood on AcoustiTECH Sofix on AcoustiTECH Lead 6	5/8" Wood	56 ² ASTC	53 ² AIIC	125
CLT 7-ply (9.875")	None	None	44	30	20

Table 2 Notes:

- 1. All STC tests performed in accordance with ASTM E 90 unless otherwise noted below. All IIC tests performed in accordance with ASTM E 492 unless otherwise noted below. See end of document for sources and referenced test reports.
- 2. ASTC field tests performed in accordance with ASTM E 336. AIIC field tests performed in accordance with ASTM E 1007.
- 3. IIC tests not performed in accordance with a singular test standard. Test measurement method used a combination of ASTM E492 and ASTM 1007 per acoustical mat product manufacturer.
- 4. FSTC field test performed in accordance with ASTM E 336. AIIC field test not performed in accordance with ASTM E 1007 (inadequate number of measurements).
- 5. STC and IIC noted is a prediction based on the ISO 15712-1 prediction method as noted in the referenced test report.

Table 3: CLT Floor Assemblies without Concrete/Gypsum Topping, with Wood Sleepers, Ceiling Side



Exposed

S	inish Floor if Applicable				
CLT Panel	Sleeper + Acoustical Product on CLT Panel	Finish Floor	STC ¹	IIC ¹	Source
	AcoustiTECH Soprema Acoustiboard Strips + wood rafts w/batts + 5/8" OSB + Soprema Insonomat + 1-1/2" concrete	None	-	56 ³	
	AcoustiTECH Soprema Acoustiboard Strips + wood rafts w/batts + 5/8" OSB + Soprema Insonomat + 1-1/2" concrete + Soprema Insonofloor	Eng Wood	-	61 ³	
	AcoustiTECH Soprema Acoustiboard Strips + wood rafts w/batts + 5/8" OSB + Regupol SonusWave + 1-1/2" concrete	None	-	57 ³	
	AcoustiTECH Soprema Acoustiboard Strips + wood rafts w/batts + 5/8" OSB + Regupol SonusWave + 1-1/2" concrete + Soprema Insonofloor	Eng Wood	-	63 ³	- 4
	AcoustiTECH Soprema Acoustiboard Strips + wood rafts w/sand + 5/8" OSB + Soprema Insonomat + 1-1/2" concrete	None	-	57 ³	4
	AcoustiTECH Soprema Acoustiboard Strips + wood rafts w/sand + 5/8" OSB + Soprema Insonomat + 1-1/2" concrete + Soprema Insonofloor	Eng Wood	-	61 ³	
CLT 5-ply (5.1875")	AcoustiTECH Soprema Acoustiboard Strips + wood rafts w/sand + 5/8" OSB + Regupol SonusWave + 1-1/2" concrete	None	-	58 ³	
	AcoustiTECH Soprema Acoustiboard Strips + wood rafts w/sand + 5/8" OSB + Regupol SonusWave + 1-1/2" concrete + Soprema Insonofloor	Eng Wood	-	64 ³	
	Wood rafts w/batts + OSB + Regupol SonusWave (0.67") + 1-1/2" concrete + Roberts Soft Stride	LVT	-	58	
	Wood rafts w/sand + OSB		52	47	
	Wood rafts w/sand + OSB + Fermacell 2E31		59	53	
	Wood rafts w/sand + OSB + regupol SonoDeck		56	50	3
	Wood rafts w/sand + OSB + 1-1/2" concrete	None	64	53	
	Wood rafts (no sand or batts) + OSB + Regupol SonuWave (0.67") + 1-1/2" concrete		59	54	
	Wood rafts w/batts + OSB + Regupol SonuWave (0.67") + 1-1/2" concrete		60	54	
	Wood rafts w/sand + OSB + Regupol SonusWave (0.67") + 1-1/2" concrete		66	60	

Table 3 Continued: CLT Floor Assemblies without Concrete/Gypsum Topping, with Wood Sleepers, Ceiling Side Exposed



Table 3 Notes:

- 1. All STC tests performed in accordance with ASTM E 90 unless otherwise noted below. All IIC tests performed in accordance with ASTM E 492 unless otherwise noted below. See end of document for sources and referenced test reports.
- 2. ASTC field tests performed in accordance with ASTM E 336. AIIC field tests performed in accordance with ASTM E 1007.
- 3. IIC tests not performed in accordance with a singular test standard. Test measurement method used a combination of ASTM E492 and ASTM 1007 per acoustical mat product manufacturer.
- 4. FSTC field test performed in accordance with ASTM E 336. AIIC field test not performed in accordance with ASTM E 1007 (inadequate number of measurements).
- 5. STC and IIC noted is a prediction based on the ISO 15712-1 prediction method as noted in the referenced test report



	Finish Floor if Applicable							
Concr	Concrete/Gypsum Topping							
Acous	tical Mat Product ——							
Mass Timber Floor Panel								
Mass Timber Floor Panel	Concrete/Gypsum Topping	Acoustical Product Between Mass Timber and Topping	Finish Floor	STC ¹	IIC ¹	Source		
2x4 NLT + ¾" plywood	None	None	None	29	-	21		
		l						
		None ³ 4" USG concrete structural panels on 362S137 steel studs @ 16"	None	<u>34</u> 54	33 45	55 27		
	None	o.c. on Kinetics [®] RIM-L-2-16 System 2 layers of ³ / ⁴ " USG concrete structural panels on T125 cold formed	-	56	45	101		
		steel track at @ 16" o.c. on Kinetics® KIP22L2 Isolators @ 16" o.c. with 2" fiberglass insulation loose between track channels	LVT	55	53	101		
	-				<u> </u>			
			None	47 ² ASTC	-	9		
	2" Gyp-Crete®	Maxxon Acousti-Mat [®] ¾ Premium	LVT on Acousti- Top®	-	47 ² AIIC	28		
2x6 NLT + ½"			<u> </u>		I			
plywood			None	56	48	23		
F /	2-1/2" concrete	Kinetics [®] Ultra Quiet SR	Engineered Hardwood	56	52	24		
			LVT	55	57	25		
		None	None	51	36	8		
		Pliteq GenieMat™ FF06	None	51	44	7		
	4" concrete		Carpet	51	58	49		
		Pliteq GenieMat™ FF25	None	54	50	50		
		Pliteq GenieMat [™] FF50		56	52	51		
	Pliteq GenieMat™ FF75			56	53	52		

able 4 Continued	: NLT, GLT, MPP 8	k T&G Decking Floor Assemblies, Ceiling Side Exposed					
Mass Timber Floor Panel	Concrete/Gypsum Topping	Acoustical Product Between Mass Timber and Topping	Finish Floor	STC ¹	IIC ¹	Source	
2x6 NLT + 5/8"			None	46 ² ASTC	27 ² AIIC	126	
plywood	1" Gyp-Crete®	Global IFS TecCrete Raised Access Floor System @ 16" deep	LVT	48 ² ASTC	36 ² AIIC		
piywood			Carpet	46 ² ASTC	45 ² AIIC		
2.0 NIT + 3/"					[
2x8 NLT + ¾″ plywood	None	None	None	31	-	21	
2x10 NLT + ¾"							
plywood	None	None	None	36	-	21	
/							
		None		53	-		
2x12 NLT	1-1/2" concrete	0.35" (9mm) closed-cell foam	None	56	-	21	
		½" wood fiberboard		58	-		
	Nana	None	None	41		21	
	None	None	None	41	-	21	
2x12 NLT + ¾"		Pliteq GenieMat [™] FF06		56	45	17	
plywood	1-1/2" concrete	Pliteq GenieMat™ FF10	None	57	47	18	
		Pliteq GenieMat™ FF25		60	51	19	
	Γ						
		None		35	20		
	None	Fermacell 2E31	None	47	37	3	
		Wood rafts w/sand + OSB		51	47		
		Wood rafts w/sand + OSB + Regupol SonusWave (0.67") + concrete + Roberts Soft Stride	LVT	-	62		
GLT 3.5″	1-1/2" concrete	Wood rafts w/sand + OSB + Regupol SonusWave (0.67") + concrete	None	65	59	3	
	2-3/4" concrete	Regupol SonusWave (1.0")	None	54	45	3	
	2-3/4" cement		None	51	42		
	2-3/4" cement mortar	½" Insonomat	Carpet tiles	51	42 51	68	
	mortai		carpet tiles	52	71		

Table 4 Continued: NLT, GLT, MPP & T&G Decking Floor Assemblies, Ceiling Side Exposed

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Table 4 Continued: NLT, GLT, MPP & T&G Decking Floor Assemblies, Ceiling Side Exposed

Mass Timber Floor Panel	Concrete/Gypsum Topping	Acoustical Product Between Mass Timber and Topping	Finish Floor	STC ¹	IIC ¹	Source
	1-1/2" Gyp-Crete®	Maxxon Acousti-Mat [®] ¾ Premium	LVT on Acousti- Top®	53	44	95
MPP 5"						
IVIPP 5			None	57	47	93
	2" concrete	Maxxon Acousti-Mat [®] SBR over Maxxon Acousti-Mat [®] 3/4	LVT on Acousti- Top®	57	51	94
	1	1	L	1		-
		None	None	29	24	2
	None	Wood flooring on 5/8" plywood on 1" Kinetics RIM Isolation Material	Hardwood	49 ² ASTC	48 ² FIIC	11
	1-1/2" gypsum	Wood flooring on ¾" sleepers on gypsum on 2 layers ½" OSB on 1" Kinetics [®] RIM L-1-16	Hardwood	50 ⁴ FSTC	45 ⁴ FIIC	57
			None	53	-	
T&G Decking	2" gypsum	Pliteq GenieMat™ FF42 (FF17 + FF25) on ½" cement board	LVT on Pliteq GenieMat™ RST05	-	52	46
	3" LW concrete	Concrete on 6 mil poly vapor barrier on ½" plywood on 2" Kinetics [®] Model RIM Isolation Material on ½" plywood on 3" T&G	None	62 ² NNIC	54 ² FIIC	26
					-	
		None		40	34	2
		Pliteq GenieMat™ FF42		54	51	2
	4" concrete	Pliteq GenieMat [™] FF42 on ½" cement board on 1" T&G on 3" T&G	None	54	52	47
		½" plywood on 2" Kinetics [®] RIM system on 1" T&G on 3" T&G		53	40	48
			Tile	47 ² FSTC	-	
		Maxxon Acousti-Mat [®] ¾	Eng Wood	-	52 ² FIIC	
	1-1/2" Gyp-Crete®		LVT	-	46 ² FIIC	1
Wood Subfloor		Maxxon Acousti-Mat [®] ¾ + Acousti-Mat [®] SBR	Cementitious Overlayment	52 ² FSTC	51 ² FIIC	
					·	
	2" concrete	Maxxon Acousti-Mat [®] ¾ Premium	None	-	47 ² AIIC	1
		1				

Table 4 Continued: NLT, GLT, MPP & T&G Decking Floor Assemblies, Ceiling Side Exposed



Table 4 Notes:

- 1. All STC tests performed in accordance with ASTM E 90 unless otherwise noted below. All IIC tests performed in accordance with ASTM E 492 unless otherwise noted below. See end of document for sources and referenced test reports.
- 2. ASTC field tests performed in accordance with ASTM E 336. AIIC field tests performed in accordance with ASTM E 1007.
- 3. IIC tests not performed in accordance with a singular test standard. Test measurement method used a combination of ASTM E492 and ASTM 1007 per acoustical mat product manufacturer.
- 4. FSTC field test performed in accordance with ASTM E 336. AIIC field test not performed in accordance with ASTM E 1007 (inadequate number of measurements).
- 5. STC and IIC noted is a prediction based on the ISO 15712-1 prediction method as noted in the referenced test report.



	Top Side Products			
Timber Base	Top Side Products Underside Products	STC ¹	IIC ¹	Source
CLT 5-ply (5.1875")	9 mm Laminate floor on 3 mm AxcoustiTECH Premium Felt Membrane on 1-1/2" concrete on 10 MM Tar Boards 0.c. 6" below CLT. 3-5/8" batt insulation in c	s @ 4'-0" 75	66	68
	A" tall sound isolation clips, 4" batt insulatio cavity, metal hat channels at 16" o.c. attache sound isolation clips, 2 layers of ½" gypsumNone8" tall sound isolation clips, 8" batt insulatio cavity, metal hat channels at 16" o.c. attache sound isolation clips, 2 layers of ½" gypsum	ed to 64 ⁸ board 7 n in 63 ⁸	59 ⁸ 62 ⁸	
	¼" laminated flooring, 5 mm Phaltex low-density wood fiberboard	62 ⁸	63 ⁸	
CLT 5-ply (5.75")	¼" laminated flooring, 10 mm Phaltex low-density wood fiberboard	63 ⁸	64 ⁸	6
	2 layers of 7/8" particle board, 1-5/8"x1-5/8" wood sleepers at 16" o.c., 1-5/8" mineral wool insulation between wood sleepers, Regupol underlayment4" tall sound isolation clips, 4" batt insulatio cavity, metal hat channels at 16" o.c. attache sound isolation clips, 2 layers of ½" gypsum	ed to 67 ⁸	62 ⁸	
	2 layers ½" gypsum board, 20 mm dry topping (Fermacell or cement fiberboard)	63 ⁸	63 ⁸	
	Floorboard, 1-5/8"x1-5/8" wood sleepers at 16" o.c., 2 layers Thermisorel 20 mm low-density wood fiberboard between sleepers	64 ⁸	65 ⁸	

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	ble 5 Continued: Mass Timber Floor Assemblies with Ceiling Side Concealed				DUCTS COUNCIL
Timber Base	Top Side Products	Underside Products	STC ¹	IIC ¹	Source
CLT 5-ply (5.75")	5/8" OSB, Roberts flooring underlayment, 1-5/8"x1-5/8" wood sleepers at 16" o.c., 2 layers Thermisorel 20 mm low- density wood fiberboard between sleepers, Roberts flooring underlayment	8" tall sound isolation clips, 8" batt insulation in cavity, metal hat channels at 16" o.c. attached to sound isolation clips, 2 layers of ½" gypsum board	62 ⁸	62 ⁸	6
CLT 5-ply (6.3")	2.36" (60mm) concrete, Rothoblaas Barrier 100, 1.18" (30mm) mineral wool insulation, 3.15" (80mm) compact gravel fill with cement, Rothoblaas Silent Floor	Resilient plasterboard connectors, metal structure for plasterboard (channels), 0.4" (10mm) air space, 2" (50mm) low-density mineral insulation, 0.5" plasterboard panel	59	44	12
					1
		2 layers ½" type X gypsum	42	25	
	None	2 layers ½" type X gypsum + 2x2 wood furring @ 24" o.c.	50	36	20
CLT 5-ply		2 layers ½" type X gypsum hung on metal grillage 5.9" (150 mm) below CLT	68	56	
		2 layers ½" type X gypsum directly attached to CLT and additional acoustic hung ceiling, 5/8" type X gypsum hung on metal grillage 5.9" (150 mm) below CLT	67	55	
		Pliteq GenieClip [™] LB on 48"x48" grid, 6" airspace, R- 13 fiberglass batt insulation, 1-1/2" light gauge steel channels, 5/8" furring channel, 5/8" type X gypsum board	58	45	39
(6.875")		Pliteq GenieClip™ RST on 24"x48" grid, 1-1/2" airspace, R-8 fiberglass batt insulation, 7/8" furring channel, 5/8" type C gypsum board	53	45	41
-		3-1/2" z-channels @ 16" o.c. direct applied to CLT + 3-5/8" cavity batt insulation + 5/8" furring channels @ 16" o.c. + 1 layer 5/8" type X gypsum	62	48	68
	10 mm laminated or eng. Wood flooring, 3 mm resilient underlayment (Isonobois or sim.)	4" tall sound isolation clips, 4" batt insulation in	50 ⁸ + FSTC	50 ⁸ + FIIC	
	Hardwood flooring, ¾" plywood, 10mm underlayment (IsonoMat or sim.)	cavity, metal hat channels at 16" o.c. attached to sound isolation clips, ½" type C gypsum board, ½" type X gypsum board	53 ⁸ + FSTC	53 ⁸ + FIIC	6
	Ceramic tile, ½" plywood, ¾" plywood, 10mm underlayment (IsonoMat or sim.)		53 ⁸ + FSTC	53 ⁸ + FIIC	



Timber Base	Top Side Products	Underside Products	STC ¹	IIC ¹	Source
	3/4" Gyp-Crete [®] , Maxxon Acousti-Mat [®] 1/8	2 layers 5/8" type X gypsum direct applied to CLT + 1	59	51	80
	LVT, 3/4" Gyp-Crete [®] , Maxxon Acousti-Mat [®] 1/8	layer 5/8" type X gypsum hung on wire grid and Armstrong WAVE Isolator Clips to create 6" plenum	59	54	81
	Vinyl plank on Pliteq GenieMat™ RST05	Pliteq GenieClip™ LB on 48"x48" grid, 6" airspace, R- 13 fiberglass batt insulation, 1-1/2" light gauge steel channels, 5/8" furring channel, 5/8" type X gypsum board	58	58	40
	½" engineered wood on Pliteq GenieMat™ RST02	Pliteq GenieClip™ RST on 24"x48" grid, 1-1/2" airspace, R-8 fiberglass batt insulation, 7/8" furring	54	50	42
	Porcelain tile on Pliteq GenieMat™ RST12	channel, 5/8" type C gypsum board	55	51	43
		2 layers ½" type X gypsum	48 ⁵	38 ⁵	20
	2x12 mm cement board on ½" wood fiberboard	2 layers ½" type X gypsum + 2x2 wood furring @ 24" o.c.	54 ⁵	47 ⁵	
CLT 5-ply (6.875")		2 layers ½" type X gypsum hung on metal grillage 5.9" (150 mm) below CLT	69	63	
(0.070)		2 layers ½" type X gypsum direct applied to CLT + 1 layer 5/8" type X gypsum hung on metal grillage 5.9" (150 mm) below CLT	68 ⁵	60 ⁵	
	1" Gyp-Crete [®] , Maxxon Acousti-Mat [®] 3/8 Premium		52	46	82
	LVT, 1" Gyp-Crete [®] , Maxxon Acousti-Mat [®] 3/8 Premium	2 layers 5/8" type X gypsum	52	48	83
	1" Gyp-Crete [®] , Maxxon Acousti-Mat [®] 3/8 Premium	2 layers 5/8" type X gypsum direct applied to CLT + 1 layer 5/8" type X gypsum hung on wire grid and	63	60	84
	LVT, 1" Gyp-Crete [®] , Maxxon Acousti-Mat [®] 3/8 Premium	Armstrong WAVE Isolator Clips to create 6" plenum. R-13 batt insulation in plenum	63	63	85
		2 layers ½" type X gypsum	50⁵	41 ⁵	
	1-1/2" gypsum concrete on 0.35" (9 mm) closed-cell foam	2 layers ½" type X gypsum + 2x2 wood furring @ 24" o.c.	58⁵	49 ⁵	20
		2 layers ½" type X gypsum hung on metal grillage 5.9" (150 mm) below CLT	72	63	

Timber Base	Top Side Products	Underside Products	STC ¹	IIC ¹	Source
	1-1/2" gypsum concrete on 0.35" (9 mm) closed-cell foam	2 layers ½" type X gypsum direct applied to CLT + 1 later 5/8" type X gypsum hung on metal grillage 5.9" (150 mm) below CLT	73 ⁵	63 ⁵	
		2 layers ½" type X gypsum	49 ⁵	32 ⁵	
		2 layers ½" type X gypsum + 2x2 wood furring @ 24" o.c.	56⁵	41 ⁵	
	1-1/2" concrete	2 layers ½" type X gypsum hung on metal grillage 5.9" (150 mm) below CLT	75⁵	60 ⁵	
		2 layers ½" type X gypsum direct applied to CLT + 1 later 5/8" type X gypsum hung on metal grillage 5.9" (150 mm) below CLT	74 ⁵	60 ⁵	20
		2 layers ½" type X gypsum	53 ⁵	40 ⁵	
	1-1/2" concrete on 0.35" (9 mm) closed-cell foam	2 layers ½" type X gypsum + 2x2 wood furring @ 24" o.c.	59 ⁵	50 ⁵	-
		2 layers ½" type X gypsum hung on metal grillage 5.9" (150 mm) below CLT	76 ⁵	66 ⁵	
CLT 5-ply (6.875")	1-1/2" concrete on 0.35" (9 mm) closed-cell foam	2 layers ½" type X gypsum direct applied to CLT + 1 later 5/8" type X gypsum hung on metal grillage 5.9" (150 mm) below CLT	74 ⁵	64 ⁵	
	1-1/2" concrete on 0.35" (9 mm) Owens Corning QuietZone closed-cell foam	3-1/2" z-channels @ 16" o.c. direct applied to CLT + 3-5/8" cavity batt insulation + 5/8" furring channels @ 16" o.c. + 1 layer 5/8" type X gypsum	70	56	
		2 layers 5/8" type C gypsum hung on 7/8" furring channels @ 16" o.c. hung on 1-1/2" channels @ 4'-0" o.c. 2-1/2" below CLT. 3-5/8" batt insulation in cavity	72	65	
		2 layers 5/8" type C gypsum hung on ½" resilient channels @ 16" o.c. on 7/8" furring channels @ 16" o.c. hung on 1-1/2" channels @ 4'-0" o.c. 2" below CLT. 3-5/8" batt insulation in cavity	73	66	68
		1 layer 5/8" type C gypsum hung on ½" resilient channels @ 16" o.c. on 7/8" furring channels @ 16" o.c. hung on 1-1/2" channels @ 4'-0" o.c. 2" below CLT. 3-5/8" batt insulation in cavity	72	62	
		2 layers ½" type X gypsum	53⁵	38 ⁵	20
	1-1/2" concrete on ½" wood fiberboard	2 layers ½" type X gypsum + 2x2 wood furring @ 24" o.c.	59 ⁵	47 ⁵	20

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Timber Base	Top Side Products	Underside Products	STC ¹	IIC ¹	Source
		2 layers ½" type X gypsum hung on metal grillage 5.9" (150 mm) below CLT	76 ⁵	64 ⁵	
	1-1/2" concrete on $\frac{1}{2}$ " wood fiberboard	2 layers ½" type X gypsum direct applied to CLT + 1 later 5/8" type X gypsum hung on metal grillage 5.9" (150 mm) below CLT	73 ⁵	63 ⁵	20
	Eng wood floor on AcoustiTECH VP on 1-1/2" concrete on ½" wood fiberboard	2 layers ½" type X gypsum hung on metal grillage 3.9" (100 mm) below CLT. 3-1/2" cavity batt insulation	55 ² ASTC	57 ² AIIC	69
	1-1/2" concrete on 0.75" recycled fabric felt	2 layers ½" type X gypsum	59 ⁵	46 ⁵	20
		2 layers ½" type X gypsum + 2x2 wood furring @ 24" o.c.	63 ⁵	45 ⁵	20
	1-1/2" concrete on 0.75" recycled fabric felt	2 layers ½" type X gypsum hung on metal grillage 5.9" (150 mm) below CLT	77 ⁵	615	
		2 layers ½" type X gypsum direct applied to CLT + 1 later 5/8" type X gypsum hung on metal grillage 5.9" (150 mm) below CLT	75⁵	60 ⁵	
CLT 5-ply	1-1/2" concrete on ½" rubber nuggets on foil	2 layers ½" type X gypsum	53 ⁵	44 ⁵	
(6.875")		2 layers ½" type X gypsum + 2x2 wood furring @ 24" o.c.	59 ⁵	49 ⁵	
		2 layers ½" type X gypsum hung on metal grillage 5.9" (150 mm) below CLT	73 ⁵	65⁵	
		2 layers ½" type X gypsum direct applied to CLT + 1 later 5/8" type X gypsum hung on metal grillage 5.9" (150 mm) below CLT	70 ⁵	63 ⁵	20
	1-1/2" concrete on 0.31" (8 mm) shredded rubber mat	2 layers ½" type X gypsum	52 ⁵	38 ⁵	
		2 layers ½" type X gypsum + 2x2 wood furring @ 24" o.c.	58 ⁵	48 ⁵	
	1-1/2" concrete on 0.31" (8 mm) shredded rubber mat	2 layers ½" type X gypsum hung on metal grillage 5.9" (150 mm) below CLT	76⁵	66 ⁵	
		2 layers ½" type X gypsum direct applied to CLT + 1 later 5/8" type X gypsum hung on metal grillage 5.9" (150 mm) below CLT	74 ⁵	64 ⁵	
	1-1/2" concrete on 0.67" (17 mm) shredded rubber mat	2 layers ½" type X gypsum	54 ⁵	43 ⁵	
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Timber Base	Top Side Products	Underside Products	STC ¹	IIC ¹	Source
		2 layers ½" type X gypsum + 2x2 wood furring @ 24" o.c.	60 ⁵	51 ⁵	
	1-1/2" concrete on 0.67" (17 mm) shredded rubber mat	2 layers ½" type X gypsum hung on metal grillage 5.9" (150 mm) below CLT	76 ⁵	67 ⁵	20
		2 layers ½" type X gypsum direct applied to CLT + 1 layer 5/8" type X gypsum hung on metal grillage 5.9" (150 mm) below CLT	73 ⁵	65 ⁵	
	Eng wood on acoustic membrane on 1-1/2" concrete on ½" wood fiber board	3-1/2" z-channels @ 24" o.c. direct applied to CLT + 3-1/2" cavity batt insulation + 7/8" furring channels @ 16" o.c. + 1 layer 5/8" type X gypsum	58 ² ASTC	54 ² AIIC	71
	1-1/2" concrete on 0.39" (10 mm) Tar Boards	3-1/2" z-channels @ 16" o.c. direct applied to CLT + 3-5/8" cavity batt insulation + 5/8" furring channels @ 16" o.c. + 1 layer 5/8" type X gypsum	69	54	68
CLT 5-ply (6.875")	Eng Wood on 2 mm closed cell foam on 1-1/2" concrete on 0.39" (10 mm) Tar Boards		69	58	00
	2 layers 23/32" AdvanTech [®] on Pliteq GenieMat™ FF25	Pliteq GenieClip™ LB on 48"x48" grid, R-13 fiberglass batt insulation, 1-1/2" light gauge steel channels, 5/8" furring channel, 5/8" type X gypsum board	61	55	38
	¹ ½" engineered wood on Pliteq GenieMat™ RST02 on 2" gypsum on Pliteq GenieMat™ FF25 2″ gypsum on Pliteq GenieMat™ FF25	Pliteq GenieClip™ RST on 24"x48" grid, 1-1/2" airspace, R-8 fiberglass batt insulation, 7/8" furring	59	52	44
		channel, 5/8" type C gypsum board	60	52	45
	Carpet on 1.57" (40 mm) concrete	1 layer 5/8" type X gypsum direct applied to CLT + 1- 1/2" furring channels + ¾" resilient channels @ 16" o.c. + 2 layers 5/8" type X gypsum	55 ² ASTC	53 ² AIIC	70
	2" concrete on Maxxon Acousti-Mat [®] SBR on Maxxon Acousti-Mat [®] 3/4	2 layers 5/8" type X gypsum direct applied to CLT	59	52	78
	LVT on Acousti-Top [®] on 2" concrete on Maxxon Acousti- Mat [®] SBR on Maxxon Acousti-Mat [®] 3/4	2 layers 5/8" type X gypsum direct applied to CLT	58	55	79



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Timber Base	Top Side Products	Underside Products	STC ¹	IIC ¹	Source
CLT 7-ply	None			29	
(9.875")	1-1/2" concrete on ½" wood fiberboard	2 layers ½" type X gypsum	56	44	20
T&G Decking	4" concrete on Pliteq GenieMat™ FF06	Pliteq GenieClip [™] RST, R-8 fiberglass batt insulation, 7/8" furring channel, 2 layers of 5/8" type C gypsum board	58	60	56
2x6 NLT + ½" plywood	4" concrete on Pliteq GenieMat™ FF06	Pliteq GenieClip™ RST on 24"x48" grid, 1-1/2" airspace, R-8 fiberglass batt insulation, 7/8" furring channel, 5/8" type C gypsum board	60	59	53
		Resilient channels, 5/8" type C gypsum board	55	49	54
	-	-			
	LVT on Acousti-Top [®] on 1-1/2" Gyp-Crete [®] on Maxxon Acousti-Mat [®] ¾ Premium	2 layers 5/8" type X gypsum	54	46	96
	1-1/2" Gyp-Crete [®] on Maxxon Acousti-Mat [®] ¾ Premium		61	52	97
	LVT on 1-1/2" Gyp-Crete [®] on Maxxon Acousti-Mat [®] ¾ Premium	2 layers 5/8" type X gypsum direct applied to MPP + 1	63	55	98
MPP 5"	LVT on Acousti-Top [®] on 1-1/2" Gyp-Crete [®] on Maxxon Acousti-Mat [®] ¾ Premium	layer 5/8" type X gypsum hung on dropped ceiling 6" below MPP	62	54	99
	Eng wood on 1-1/2" Gyp-Crete® on Maxxon Acousti-Mat® ¾ Premium		62	55	100
	Bamboo plywood on 30% glass filled nylon on Pliteq GenieMat™ RST 10	9" cavity with 5-1/2" batt insulation + 1 layer $\frac{1}{2}$ " OSB	55 ² NNIC	51 ² FIIC	127

Table 5 Notes:

- 1. All STC tests performed in accordance with ASTM E 90 unless otherwise noted below. All IIC tests performed in accordance with ASTM E 492 unless otherwise noted below. See end of document for sources and referenced test reports.
- 2. ASTC field tests performed in accordance with ASTM E 336. AIIC field tests performed in accordance with ASTM E 1007.
- 3. IIC tests not performed in accordance with a singular test standard. Test measurement method used a combination of ASTM E492 and ASTM 1007 per acoustical mat product manufacturer.
- 4. FSTC field test performed in accordance with ASTM E 336. AIIC field test not performed in accordance with ASTM E 1007 (inadequate number of measurements).
- 5. STC and IIC noted is a prediction based on the ISO 15712-1 prediction method as noted in the referenced test report
- 6. STC and IIC noted is based on floor zone testing procedures that are modifications of ASTM E90 and E492 test and do not fully conform with these test standards per acoustical mat product manufacturer and as noted in the referenced test report.
- 7. Actual thickness of CLT in this test was 6.3" (160 mm)
- 8. Assemblies included in the 1st edition of the CLT Handbook are included herein due to their legacy use. However, the testing standards used for these assemblies are European and direct correlation to IBC-referenced ASTM standards is not currently available.



Table 6: Single CLT Wall

	Left Side Finish	CLT Wall Panel		
CLT Wall Panel	Left Side Finish	Right Side Finish	STC1	Source
	None	None	33	
		None	38	
	2 layers ½" type X gypsum	2 layers ½" type X gypsum	38	
		None	40 ⁵	
	2 layers ½" type X gypsum + 2x2 studs @ 16" o.c.	2 layers ½" type X gypsum	44 ⁵	
CLT 3-ply		2 layers ½" type X gypsum + 2x2 studs @ 16" o.c.	39 ⁵	
(3.07")		None	45	20
	2 layers ½" type X gypsum + 2x2 studs @ 24" o.c.	2 layers ½" type X gypsum	47	
	2 layers /2 type × gypsum + 2x2 studs @ 24 O.C.	2 layers ½" type X gypsum + 2x2 studs @ 16" o.c.	50	20
		2 layers ½" type X gypsum + 2x2 studs @ 24" o.c.	51	
		None	43 ⁵	
	2 layers ½" type X gypsum + 2x3 studs @ 24" o.c.	2 layers ½" type X gypsum	44 ⁵	
		2 layers ½" type X gypsum + 2x2 studs @ 16" o.c.	49 ⁵	

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CLT Wall	Left Side Finish	Right Side Finish	STC ¹	
Panel				
		2 layers ½" type X gypsum + 2x2 studs @ 24" o.c.	52 ⁵	
	2 layers ½" type X gypsum + 2x3 studs @ 24" o.c.	2 layers ½" type X gypsum + resilient channels @ 24" o.c. + 2x2 studs @ 16" o.c.	>605	
		2 layers ½" type X gypsum + 2x3 studs @ 24" o.c.	50 ⁵	
		None	53⁵	
		2 layers ½" type X gypsum	56⁵	
	2 layers ½" type X gypsum + resilient channels @ 24" o.c. + 2x2	2 layers ½" type X gypsum + 2x2 studs @ 16" o.c.	53⁵	
	studs @ 16" o.c.	2 layers ½" type X gypsum + 2x2 studs @ 24" o.c.	60 ⁵	
CLT 3-ply (3.07")		2 layers ½" type X gypsum + resilient channels @ 24" o.c. + 2x2 studs @ 16" o.c.	>605	20
(0.00)		None	53⁵	
		2 layers ½" type X gypsum	54 ⁵	
		2 layers ½" type X gypsum + 2x2 studs @ 16" o.c.	57 ⁵	
	2 layers ½" type X gypsum + 2x3 studs @ 24" o.c. + ½" air gap	2 layers ½" type X gypsum + 2x2 studs @ 24" o.c.	>605	
	Z layers /2 type x gypsull + 2x5 studs @ 24 O.C. + /2 all gap	2 layers ½" type X gypsum + resilient channels @ 24" o.c. + 2x2 studs @ 16" o.c.	>605	
		2 layers ½" type X gypsum + 2x3 studs @ 24" o.c.	60 ⁵	
		$2 \text{ layers } \frac{1}{2} \frac{1}{2$	>605	
		·		
CLT 3-ply (3.75-4.5″)	5/8" gypsum board + 2x3 studs @ 16" o.c. + mineral wool in stud cavity	5/8" gypsum board + 2x3 studs @ 16" o.c. + mineral wool in stud cavity	58 ⁸	6
CLT 3-ply	5/8" gypsum board + 2x3 studs @ 16" o.c. + mineral wool in stud	None	47 ⁸ FSTC	
(4.125")	cavity + $\frac{1}{2}$ " air gap between CLT and stud wall	5/8" gypsum board + 2x3 studs @ 16" o.c. + mineral wool in stud cavity + ½" air gap between CLT and stud wall	50 ⁸ FSTC	- 6
		·		
CLT 5-ply (6.875")	None	None	38	20

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CLT Wall Panel	Left Side Finish	Right Side Finish	STC ¹	Source
		5/8" gypsum board + 2x4 + insulation	49	13
		2 layers ½" type X gypsum	43	
		2 layers ½" type X gypsum + 2x2 studs @ 16" o.c.	45	
		2 layers ½" type X gypsum + 2x2 studs @ 24" o.c.	50	
	None	2 layers ½" type X gypsum + 2x3 studs @ 24" o.c.	49	20
	None	2 layers ½" type X gypsum + resilient channels @ 24" o.c. + 2x2 studs @ 16" o.c.	58	
		2 layers ½" type X gypsum + 2x3 studs @ 24" o.c. + ½" air gap	59	
		2 layers 5/8" type X gypsum + 1-3/8" z-channels	53	
		2 layers 5/8" type X gypsum directly attached to CLT + air gap + steel studs + ½" type C gypsum	62	68
	5/8" gypsum board + resilient channels	5/8" gypsum board + resilient channels + 2x4 + insulation	48	13
CLT 5-ply	2 layers ½" type X gypsum	2 layers ½" type X gypsum	42	
(6.875")		2 layers ½" type X gypsum	45	
	2 layers ½" type X gypsum + 2x2 studs @ 16" o.c.	2 layers ½" type X gypsum + 2x2 studs @ 16" o.c.	39	
		2 layers ½" type X gypsum	49 ⁵	
	2 layers ½" type X gypsum + 2x2 studs @ 24" o.c.	2 layers ½" type X gypsum + 2x2 studs @ 16" o.c.	46 ⁵	
		2 layers ½" type X gypsum + 2x2 studs @ 24" o.c.	56	20
		2 layers ½" type X gypsum	60 ⁵	
	2 layers ½" type X gypsum + resilient channels @ 24" o.c. + 2x2	2 layers ½" type X gypsum + 2x2 studs @ 24" o.c.	>605]
	studs @ 16" o.c.	2 layers ½" type X gypsum + resilient channels @ 24" o.c. + 2x2 studs @ 16" o.c.	>605	
		2 layers ½" type X gypsum + 2x2 studs @ 16" o.c.	55	
	2 layers ½" type X gypsum + 2x3 studs @ 24" o.c.	2 layers ½" type X gypsum	48 ⁵	

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CLT Wall Panel	Left Side Finish	Right Side Finish	STC ¹	Source
	2 layers ½" type X gypsum + 2x3 studs @ 24" o.c.	2 layers ½" type X gypsum + 2x2 studs @ 16" o.c.	51 ⁵	
	2 layers /2 type A gypsulli + 2AS studs @ 24 U.C.	2 layers ½" type X gypsum + 2x2 studs @ 24" o.c.	55	
		2 layers ½" type X gypsum + 2x3 studs @ 24" o.c.	54 ⁵	-
	2 layers ½" type X gypsum + 2x3 studs @ 24" o.c.	2 layers ½" type X gypsum + resilient channels @ 24" o.c. + 2x2 studs @ 16" o.c.	>605	
		2 layers ½" type X gypsum	59 ⁵	
		2 layers ½" type X gypsum + 2x2 studs @ 16" o.c.	59⁵	20
		2 layers ½" type X gypsum + 2x2 studs @ 24" o.c.	>605	<mark>>60⁵</mark>
CLT 5-ply (6.875")	2 layers ½" type X gypsum + 2x3 studs @ 24" o.c. + ½" air gap	2 layers ½" type X gypsum + 2x3 studs @ 24" o.c.	>605	
(0.0757)		2 layers ½" type X gypsum + resilient channels @ 24" o.c. + 2x2 studs @ 16" o.c.	>605	
		2 layers ½" type X gypsum + 2x3 studs @ 24" o.c. + ½" air gap	>605	
	2 layers 5/8" type X gypsum	2 layers 5/8" type X gypsum directly attached to CLT + air gap + steel studs + ½" type C gypsum	61	
		2 layers 5/8" type X gypsum + 3-5/8" steel studs + air gap	71	
		2 layers 5/8" type X gypsum + resilient channels + plywood strips	53	68
	2 layers 5/8" type X gypsum + 1-3/8" z-channels	2 layers 5/8" type X gypsum	53	
		2 layers 5/8" type X gypsum directly attached to CLT + air gap + steel studs + ½" type C gypsum	65	
		1	1	
CLT 5-ply (7.25")	5/8" gypsum board + 25 gauge RC-1 resilient channels @ 24" o.c.	5/8" gypsum board + 25 gauge RC-1 resilient channels @ 24" o.c.	46 ⁸ FSTC	6
CLT 7-ply (9.625")	2 layers 5/8" type X gypsum + 7/8" hat channels @ 16" o.c.	2 layers 5/8" type X gypsum + 3-1/2" steel studs @ 16" o.c. + cavity batt insulation + ¾" air gap	65 ² ASTC	71

Table 6 Notes:



- 1. All STC tests performed in accordance with ASTM E 90 unless otherwise noted below. All IIC tests performed in accordance with ASTM E 492 unless otherwise noted below. See end of document for sources and referenced test reports.
- 2. ASTC field tests performed in accordance with ASTM E 336. AIIC field tests performed in accordance with ASTM E 1007.
- 3. IIC tests not performed in accordance with a singular test standard. Test measurement method used a combination of ASTM E492 and ASTM 1007 per acoustical mat product manufacturer.
- 4. FSTC field test performed in accordance with ASTM E 336. AIIC field test not performed in accordance with ASTM E 1007 (inadequate number of measurements).
- 5. STC and IIC noted is a prediction based on the ISO 15712-1 prediction method as noted in the referenced test report
- 6. STC and IIC noted is based on floor zone testing procedures that are modifications of ASTM E90 and E492 test and do not fully conform with these test standards per acoustical mat product manufacturer and as noted in the referenced test report.
- 7. Actual thickness of CLT in this test was 6.3" (160 mm)
- 8. Assemblies included in the 1st edition of the CLT Handbook are included herein due to their legacy use. However, the testing standards used for these assemblies are European and direct correlation to IBC-referenced ASTM standards is not currently available.

Table 7: Single NLT Wall

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	Left Side Finish	Right Side Finish		
NLT Wall Panel	Left Side Finish	Right Side Finish	STC1	Source
		None	24	
		¾″ plywood	29	-
		∛⁄″ OSB	30	
	None	2x2 @ 16" o.c. wood furring + 1-1/2" fiberglass batts + 2- layers ½" type X gypsum	40	21
2x4 NLT		½" air gap + 2x3 @ 24" o.c. wood studs + 2-1/2" fiberglass batts + 2-layers ½" type X gypsum	52	21
		Plaster	34	
	¾" plywood	¾″ plywood	33	
	Plaster	Plaster	34	
		None	22	
2x6 NLT	None	¾″ plywood	31	- 21
	None	³₄" OSB	32	21
		Plaster	38	



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NLT Wall Panel	Left Side Finish	Right Side Finish	STC1	Source
	Alexe.	½" air gap + 2x3 @ 24" o.c. wood studs + 2-1/2" fiberglass batts + 2-layers ½" type X gypsum	60	
	None	¾" plywood + 2x2 @ 16" o.c. wood furring + 1-1/2" fiberglass batts + 2-layers ½" type X gypsum	44	
2x6 NLT	3// abuva a	2x2 @ 16" o.c. wood furring + 1-1/2" fiberglass batts + 2- layers ½" type X gypsum	45	21
	¾" plywood	¾" plywood + ½" air gap + 2x3 @ 24" o.c. wood studs + 2- 1/2" fiberglass batts + 2-layers ½" type X gypsum	62	
	Plaster	Plaster	36	
			1	-
		None	24	_
		³₄″ plywood	31	
		³¼" OSB 3	32	
		2x2 @ 16" o.c. wood furring + 1-1/2" fiberglass batts + 2- layers ½" type X gypsum	41	
	None	1/2" air gap + 2x3 @ 24" o.c. wood studs + 2-1/2" fiberglass batts + 2-layers 1/2" type X gypsum	55	
2x8 NLT		¾" plywood + 2x2 @ 16" o.c. wood furring + 1-1/2" fiberglass batts + 2-layers ½" type X gypsum	43	21
		¾" plywood + ½" air gap + 2x3 @ 24" o.c. wood studs + 2- 1/2" fiberglass batts + 2-layers ½" type X gypsum	59	
		Plaster	38	
		¾" plywood	35	
	¾″ plywood	2x2 @ 16" o.c. wood furring + 1-1/2" fiberglass batts + 2- layers ½" type X gypsum	45	
		½" air gap + 2x3 @ 24" o.c. wood studs + 2-1/2" fiberglass batts + 2-layers ½" type X gypsum	60	
		None	29	_
2x10 NLT	None	∛″ plywood	36	21
		∛⁄″ OSB	37	

NLT Wall	Left Side Finish	Right Side Finish	STC ¹	Source
Panel		¾" plywood + ½" air gap + 2x3 @ 24" o.c. wood studs + 2- 1/2" fiberglass batts + 2-layers ½" type X gypsum	64	
	None	¾" plywood + 2x2 @ 16" o.c. wood furring + 1-1/2" fiberglass batts + 2-layers ½" type X gypsum	47	
2-40 NH T		Plaster	39	21
2x10 NLT		2x2 @ 16" o.c. wood furring + 1-1/2" fiberglass batts + 2- layers ½" type X gypsum	46	21
	¾" plywood	1/2" air gap + 2x3 @ 24" o.c. wood studs + 2-1/2" fiberglass batts + 2-layers 1/2" type X gypsum	61	
		Plaster	41	
		None	39	
		¾″ plywood	41	-
		¾″ OSB	41	
	None	¾" plywood + ½" air gap + 2x3 @ 24" o.c. wood studs + 2- 1/2" fiberglass batts + 2-layers ½" type X gypsum	68	
2x12 NLT		¾" plywood + 2x2 @ 16" o.c. wood furring + 1-1/2" fiberglass batts + 2-layers ½" type X gypsum	48	21
		Plaster	42	
	3/" alwood	2x2 @ 16" o.c. wood furring + 1-1/2" fiberglass batts + 2- layers ½" type X gypsum	47	
	¾″ plywood	1/2" air gap + 2x3 @ 24" o.c. wood studs + 2-1/2" fiberglass batts + 2-layers 1/2" type X gypsum	63	

Table 7 Notes:

- 1. All STC tests performed in accordance with ASTM E 90 unless otherwise noted below. All IIC tests performed in accordance with ASTM E 492 unless otherwise noted below. See end of document for sources and referenced test reports.
- 2. ASTC field tests performed in accordance with ASTM E 336. AIIC field tests performed in accordance with ASTM E 1007.
- 3. IIC tests not performed in accordance with a singular test standard. Test measurement method used a combination of ASTM E492 and ASTM 1007 per acoustical mat product manufacturer.
- 4. FSTC field test performed in accordance with ASTM E 336. AIIC field test not performed in accordance with ASTM E 1007 (inadequate number of measurements).
- 5. STC and IIC noted is a prediction based on the ISO 15712-1 prediction method as noted in the referenced test report

Table 8: Double CLT Wall



	Left Side CLT + Finish	Right Side CLT + Finish		
Left Side CLT + Finish	Between CLT Panels	Right Side CLT + Finish	STC1	Source
CLT 3-ply (3") + 25 gauge RC-1 resilient channels @ 24" o.c. + 5/8" gypsum board	1" mineral wool	CLT 3-ply (3") + 25 gauge RC-1 resilient channels @ 24" o.c. + 5/8" gypsum board	47 ⁸ FSTC	6
CLT 3-ply (3.07")	1" insulation	CLT 3-ply (3.07")	47	20
CLT 3-ply (3.07") + 2 layers ½" type X gypsum	1" insulation	CLT 3-ply (3.07") CLT 3-ply (3.07") + 2 layers ½" type X gypsum	53 55	20
			49 ⁵	
CLT 3-ply (3.07") + 2x2 studs @ 16" o.c. + 2 layers ½" type X		CLT 3-ply (3.07") CLT 3-ply (3.07") + 2 layers ½" type X gypsum	49 ³ 53 ⁵	
gypsum	1" insulation	CLT 3-ply (3.07") + 2x2 studs @ 16" o.c. + 2 layers ½" type X gypsum	43 ⁵	20
		CLT 3-ply (3.07")	56	
		CLT 3-ply (3.07") + 2 layers ½" type X gypsum	59⁵	
CLT 3-ply (3.07") + 2x2 studs @ 24" o.c. + 2 layers ½" type X gypsum	1" insulation	CLT 3-ply (3.07") + 2x2 studs @ 16" o.c. + 2 layers ½" type X gypsum	52 ⁵	20
		CLT 3-ply (3.07") + 2x2 studs @ 24" o.c. + 2 layers ½" type X gypsum	>605	

Table 8 Continued: Double CLT Wall



Left Side CLT + Finish	Between CLT Panels	Right Side CLT + Finish	STC ¹	Source
	1" insulation	CLT 3-ply (3.07")	56⁵	20
CLT 3-ply (3.07") + 2x3 studs @ 24" o.c. + 2 layers ½" type X gypsum		CLT 3-ply (3.07") + 2 layers ½" type X gypsum	59 ⁵	
		CLT 3-ply (3.07") + 2x2 studs @ 16" o.c. + 2	55 ⁵	
		layers ½" type X gypsum		
		CLT 3-ply (3.07") + 2x2 studs @ 24" o.c. + 2	>605	
		layers ½" type X gypsum		
		CLT 3-ply (3.07") + 2x2 studs @ 16" o.c. +	>605	
		resilient channels @ 24" o.c. + 2 layers ½" type		
		X gypsum		
		CLT 3-ply (3.07") + 2x3 studs @ 24" o.c. + 2	C 0 ⁵	
		layers ½" type X gypsum	>605	
				1
	1" insulation	CLT 3-ply (3.07")	>60 ⁵	20
CLT 3-ply (3.07") + ½" air gap + 2x3 studs @ 24" o.c. + 2 layers ½" type X gypsum		CLT 3-ply (3.07") + 2 layers ½" type X gypsum	>605	
		CLT 3-ply (3.07") + 2x2 studs @ 16" o.c. + 2		
		layers ½" type X gypsum	>60 ⁵	
		CLT 3-ply (3.07") + 2x2 studs @ 24" o.c. + 2	>605	
		layers ½" type X gypsum		
		CLT 3-ply (3.07") + 2x2 studs @ 16" o.c. +		
		resilient channels @ $24''$ o.c. + 2 layers $\frac{1}{2}''$ type	>605	
		X gypsum		
		CLT 3-ply (3.07") + 2x3 studs @ 24" o.c. + 2	>605	
		layers ½" type X gypsum		
		CLT 3-ply $(3.07'') + \frac{1}{2}''$ air gap + 2x3 studs @ 24''	>605	
		o.c. + 2 layers ½" type X gypsum		
				1
	1" insulation	CLT 3-ply (3.07")	>60 ⁵	
CLT 3-ply (3.07") + 2x2 studs @ 16" o.c. + resilient channels @ 24" o.c. + 2 layers ½" type X gypsum		CLT 3-ply (3.07") + 2 layers ½" type X gypsum	>60 ⁵	
		CLT 3-ply (3.07") + 2x2 studs @ 16" o.c. + 2		
		layers $\frac{1}{2}$ " type X gypsum	57 ⁵	
		CLT 3-ply (3.07") + 2x2 studs @ 24" o.c. + 2		20
		layers ½" type X gypsum	>605	
		CLT 3-ply (3.07") + 2x2 studs @ 16" o.c. +	>605	
		resilient channels @ 24" o.c. + 2 layers ½" type		
		X gypsum		
CLT 3-ply (3.75-4.5")	1.18" mineral wool	CLT 3-ply (3.75-4.5")	48-50 ⁸	6
CLT 3-ply (3.75-4.5")	1.18" mineral wool	CLT 3-ply (3.75-4.5")	48-50 ⁸	6

Table 8 Continued: Double CLT Wall



	Left Side CLT + Finish	Between CLT Panels	Right Side CLT + Finish	STC ¹	Source
	1.18" mineral wool		55 ⁸	C	
	CLT 3-ply (3.75-4.5") + 5/8" gypsum board	2.36" mineral wool	CLT 3-ply (3.75-4.5") + 5/8" gypsum board	60 ⁸	Ö

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- 8. Assemblies included in the 1st edition of the CLT Handbook are included herein due to their legacy use. However, the testing standards used for these assemblies are European and direct correlation to IBC-referenced ASTM standards is not currently available.

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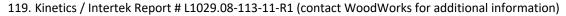
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Disclaimer



The information in this inventory, including, without limitation, references to information contained in other publications, test reports or made available by other sources (collectively "information") should not be used or relied upon for any application without competent professional examination and verification of its accuracy, suitability, code compliance and applicability by a licensed engineer, architect or other professional. Neither the Wood Products Council nor its employees, consultants, nor any other individuals or entities who contributed to the information make any warranty, representative or guarantee, expressed or implied, that the information is suitable for any general or particular use, that it is compliant with applicable law, codes or ordinances, or that it is free from infringement of any patent(s), nor do they assume any legal liability or responsibility for the use, application of and/or reference to the information. Anyone making use of the information in any manner assumes all liability arising from such use.

This inventory is intended to be a design aid in the selection of materials used in mass timber wall or floor/ceiling assemblies for the purpose of achieving acoustical performance. This inventory is not a guarantee that a given assembly performs to a certain acoustical level. In some instances, this inventory references specific product names (i.e., Maxxon Acousti-Mat[®] ¾). In other instances, generic product names are used (i.e., 2" gypsum topping). Also, in some situations, the products used in a tested assembly have changed names even though the product itself has remained unchanged. The referenced test reports and manufacturer's information should be consulted as the final source for the specific conditions, materials and installation processes used for all components referenced herein.

The designer is responsible for confirming that all materials used in an assembly meet code requirements for acoustics as well as other performance criteria such as fire resistance, structural loadings, and durability.

Most tested assemblies referenced in this inventory were tested by a third-party testing agency in a laboratory or in the field (i.e., an agency not affiliated with a product manufacturer). However, some assemblies were tested by the manufacturer of a product in the assembly.

Mass of products used in an assembly can influence the acoustical performance. In most cases, the relative thickness of materials used in a tested assembly are noted in this inventory. However, it is up to the designer to verify that the density of those materials tested (CLT panel, concrete topping, etc.) match what is proposed for the assembly being designed and constructed.

Most tested assemblies referenced in this inventory were tested in a laboratory in accordance with ASTM E90 and ASTM E492. However, as noted in each table's footnotes, some tests were conducted in the field in accordance with ASTM E336 and ASTM E1007 or other noted testing protocols. Field tests are based on the specific conditions present in a given environment and take into account other influencing factors such as flanking paths (this is one of the reasons that IBC 2015 Sections 1207.2 and 1207.3 permit lower STC and IIC values if field tested). As noted in ASTM E336 and ASTM E1007, even when using an exact assembly from a field test in a different building or a different area in the same building, results can vary: *"The results stated in this report represent only the specific construction and acoustical conditions present at the time of the test. Measurements performed in accordance with this test method on nominally identical constructions and acoustical conditions may produce different results."*

For free project assistance or for any questions related to the assemblies referenced in this inventory, contact help@woodworks.org.

For questions related to a specific product referenced herein, contact the appropriate product manufacturer:

Maxxon Corporation Beth Lee 763-478-9600 <u>beth@maxxon.com</u> <u>www.maxxon.com</u>

Pliteq Inc Matt Golden 202-714-0600 <u>mgolden@pliteq.com</u> <u>www.pliteq.com</u>

Regupol America Bill Devin 800-537-8737 <u>bmd@regupol.com</u> www.regupol.com/acoustics

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