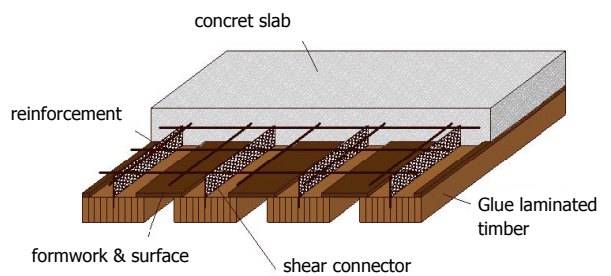
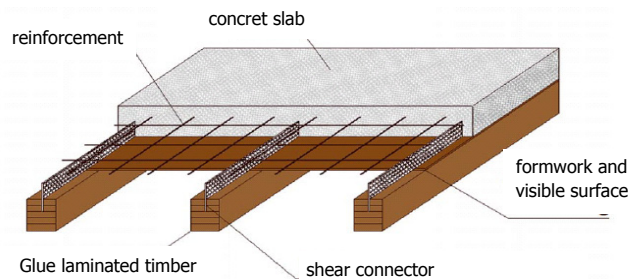
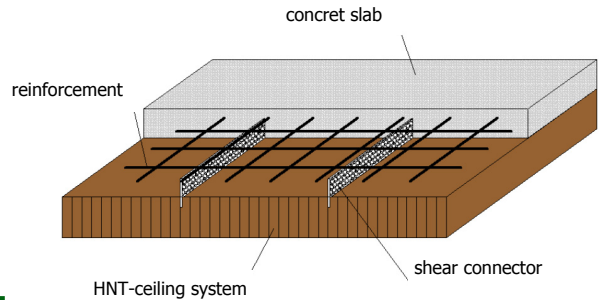
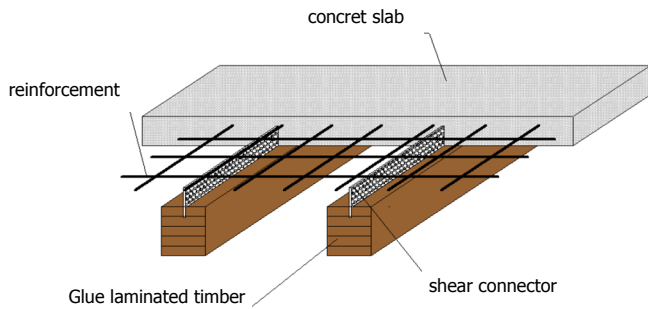


## Wood-concret-combound system

The wood-concret-combound system from Hasslacher Norica Timber is characterized by numerous structural and static benefits. The compound of wood and concrete connects the advantages of each building material.



- optimal use of specific material properties  
Timber: tension, concrete: compression, connector: shear
- High capacity and high rigidity of the ceiling
- Low deformation of the ceilings because of high bending stiffness and over self-weight at the same time
- Excellent physical properties in terms of: vibrations, natural frequency, fire, smoke leakage, airborne and impact sound insulation.
- Stiffening effect by concrete slab
- economic:  
High degree of prefabrication and short time for assembling
- High security in failure by ductile behavior of the ceiling system
- lower self-weight compared to common slabs made of concrete
- economic span length from 5 m to 15 m

### sound insulation tests at the Technical University of Graz

Trittschallmessung L <sub>n</sub> gemäß ONORM EN ISO 140-6, Bewertung gemäß ONORM EN ISO 717-2 (Labormessung); gültig ab 01.02.2005									
Projekt Nr.: B99.266.002.313a-c		Bezeichnung: HBV Element ohne Fonostop Duo		TU Graz					
Antragsteller: Hasslacher Holding		Prüfzustand: im Labor		LABOR FÜR BAUPHYSIK					
Messdatum: 26.08.2009		Prüfobjekt: Betonplatte		Bauwerke mit und ohne Schallschutz					
160mm Holz Brettsplendecke (4cm breite Lamellen senkrecht) GL24		MP		BAUSTRUKTUREN - ZENTRUM TU - GRAZ					
PE Folie		Bewehrung							
80mm Stahlbeton C30/37		PUR-Massivholzplatte							
Prüfl.	3,81 m <sup>2</sup>	Äo (m <sup>2</sup> )	10	ER Volumen	126,4 m <sup>3</sup>	Lufttemp.	25	Luftf.	60
SR Volumen									
Freiquantität	Trittschallp.	Freemittelwert	korrig. Pegel	Nachhallzeit	Norm-TS-Pegel	Bezugsp.	Abd.		
Fz	L <sub>n</sub>	ER	L <sub>n</sub> -FG	T [s]	Ln [dB]	[dB]	[dB]		
50	58,7	26,4	32,3	0,70	63,3		20,0		
63	55,9	30,3	25,6	0,78	60,1				
80	63,6	22,5	41,1	0,86	67,3				
100	60,9	21,4	35,5	1,44	62,3	62	82,0	0,0	
125	62,7	17,7	45,0	1,82	63,2	62	82,0	0,0	
160	68,1	18,4	49,7	2,17	67,8	62	82,0	0,0	
200	72,6	21,8	50,8	3,28	74,5	60	80,0	0,0	
250	74,0	18,8	57,2	3,04	72,3	62	82,0	0,0	
315	73,7	18,2	55,5	3,55	71,2	62	82,0	0,0	
400	73,0	20,1	52,9	3,42	70,7	61	81,0	0,0	
500	76,6	17,3	59,3	3,28	74,5	60	80,0	0,0	
630	77,1	16,5	60,6	3,03	75,3	59	79,0	0,0	
800	77,5	14,9	62,6	2,88	76,0	58	78,0	0,0	
1000	76,3	14,7	61,6	2,71	75,1	57	77,0	0,0	
1250	76,4	14,7	61,7	2,54	75,4	54	74,0	1,4	
1600	76,1	14,7	61,4	2,53	75,2	51	71,0	4,1	
2000	74,6	14,5	60,1	2,43	73,8	48	68,0	5,7	
2500	74,1	14,2	59,9	2,21	73,7	45	65,0	8,7	
3150	70,0	12,9	57,1	1,85	70,4	42	62,0	8,4	
4000	66,3	12,0	54,3	1,70	67,1				
5000	62,0	10,8	51,2	1,64	62,9				

Maximale ungünstigste Abweichung:				8,7 dB bei 2500 Hz	28,3
Vorhandener bewerteter Norm-Trittschallpegel:				L <sub>n,w</sub> (C) = -80,0 (-11) [dB]	1,8
Vorhandener bewerteter Norm-Trittschallpegel:				L <sub>n,w</sub> (C) = 79,3 (-9,4) [dB]	2,0