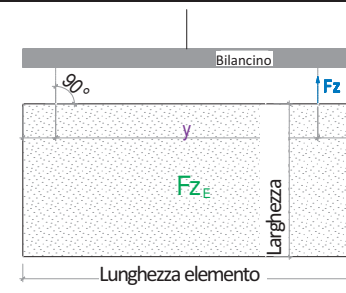
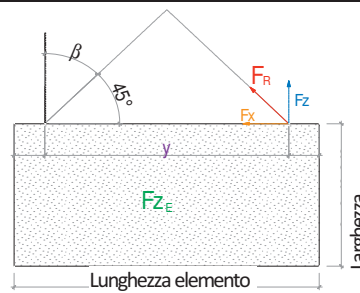


# Carichi di sollevamento di elementi per pareti esterne (finestre comprese)

## Valore caratteristico del carico dell'elemento $Fz-E$ [kN]

**Materiale:** legno per telai  $500 \text{ kg/m}^3$  (quota 15%), isolamento intercapedine in cellulosa  $60 \text{ kg/m}^3$ , isolamento supplementare in fibra di legno  $180 \text{ kg/m}^3$ , tavolato OSB/3 o pannello MDF  $10 \text{ kg/m}^2$ , facciata incl. listellatura  $16 \text{ kg/m}^2$ , rivestimento in interno in cartongesso incl listellatura  $20 \text{ kg/m}^2$ , chiusura ermetica all'aria e al vento, ognuna  $0.2 \text{ kg/m}^2$  (incollata con pellicola o sigillata).

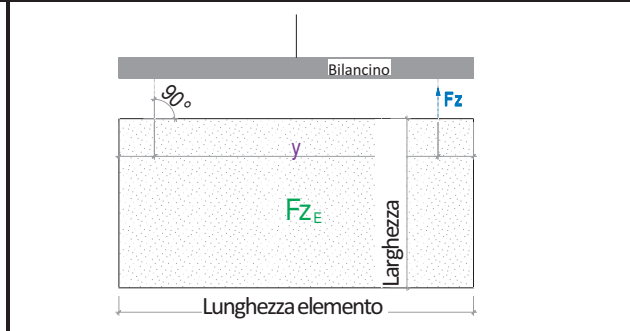
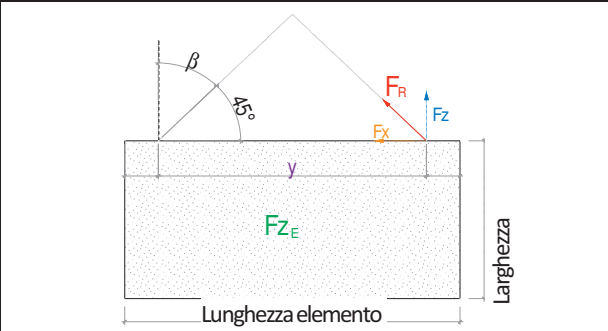


		Lunghezza elemento [m]																										
		5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0							
Standard di isolamento (valore U) $\approx 0.19 \text{ W/m}^2\text{K}$ (quota legno 15%)	0.50 $\text{kN/m}^2$		max. y [m] <sup>1</sup>	7.0									6.0															
				Peso elemento [ $\text{kN/m}^2$ ]	Larghezza elemento [m]	2.6	Fz-E	6.5	7.8	9.1	10.4	11.7	13.0	14.3	15.6	16.9	18.2	Fz-E	6.5	7.8	9.1	10.4	11.7	13.0	14.3	15.6	16.9	18.2
							Fz	3.3	3.9	4.6	5.2	5.9	6.5	7.2	7.8	8.5	9.1	Fz	3.3	3.9	4.6	5.2	5.9	6.5	7.2	7.8	8.5	9.1
							Fx	3.3	3.9	4.6	3.1	5.9	6.5	7.2	7.8	8.5	9.1	Fx	3.3	3.9	4.6	3.1	5.9	6.5	7.2	7.8	8.5	9.1
						2.8	Fz-E	7.0	8.4	9.8	11.2	12.6	14.0	15.4	16.8	18.2	19.6	Fz-E	7.0	8.4	9.8	11.2	12.6	14.0	15.4	16.8	18.2	19.6
							Fz	3.5	4.2	4.9	5.6	6.3	7.0	7.7	8.4	9.1	9.8	Fz	3.5	4.2	4.9	5.6	6.3	7.0	7.7	8.4	9.1	9.8
	Fx	3.5	4.2				4.9	3.3	6.3	7.0	7.7	8.4	9.1	9.8	Fx	3.5	4.2	4.9	3.3	6.3	7.0	7.7	8.4	9.1	9.8			
	0.43 $\text{kN/m}^2$		max. y [m] <sup>1</sup>	9.0									9.0															
				2.6	Fz-E	6.5	7.8	9.1	10.4	11.7	13.0	14.3	15.6	16.9	18.2	Fz-E	6.5	7.8	9.1	10.4	11.7	13.0	14.3	15.6	16.9	18.2		
					Fz	3.3	3.9	4.6	5.2	5.9	6.5	7.2	7.8	8.5	9.1	Fz	3.3	3.9	4.6	5.2	5.9	6.5	7.2	7.8	8.5	9.1		
					Fx	3.3	3.9	4.6	3.1	5.9	6.5	7.2	7.8	8.5	9.1	Fx	3.3	3.9	4.6	3.1	5.9	6.5	7.2	7.8	8.5	9.1		
				2.8	Fz-E	7.0	8.4	9.8	11.2	12.6	14.0	15.4	16.8	18.2	19.6	Fz-E	7.0	8.4	9.8	11.2	12.6	14.0	15.4	16.8	18.2	19.6		
Fz					3.5	4.2	4.9	5.6	6.3	7.0	7.7	8.4	9.1	9.8	Fz	3.5	4.2	4.9	5.6	6.3	7.0	7.7	8.4	9.1	9.8			
Fx	3.5	4.2	4.9		3.3	6.3	7.0	7.7	8.4	9.1	9.8	Fx	3.5	4.2	4.9	3.3	6.3	7.0	7.7	8.4	9.1	9.8						
Standard di isolamento (valore U) $\approx 0.11 \text{ W/m}^2\text{K}$ (quota legno 15%)	0.86 $\text{kN/m}^2$		max. y [m] <sup>1</sup>	5.0									8.0															
				2.6	Fz-E	11.2	13.5	15.7	17.9	20.2	22.4	24.6	26.9	29.1	31.4	Fz-E	11.2	13.5	15.7	17.9	20.2	22.4	24.6	26.9	29.1	31.4		
					Fz	5.6	6.8	7.9	9.0	10.1	11.2	12.3	13.5	14.6	15.7	Fz	5.6	6.8	7.9	9.0	10.1	11.2	12.3	13.5	14.6	15.7		
					Fx	5.6	6.8	7.9	5.2	10.1	11.2	12.3	13.5	14.6	15.7	Fx	5.6	6.8	7.9	5.2	10.1	11.2	12.3	13.5	14.6	15.7		
				2.8	Fz-E	12.1	14.5	16.9	19.3	21.7	24.1	26.5	28.9	31.4	33.8	Fz-E	12.1	14.5	16.9	19.3	21.7	24.1	26.5	28.9	31.4	33.8		
					Fz	6.1	7.3	8.5	9.7	10.9	12.1	13.3	14.5	15.7	16.9	Fz	6.1	7.3	8.5	9.7	10.9	12.1	13.3	14.5	15.7	16.9		
	Fx	6.1	7.3		8.5	5.7	10.9	12.1	13.3	14.5	15.7	16.9	Fx	6.1	7.3	8.5	5.7	10.9	12.1	13.3	14.5	15.7	16.9					
	0.8 $\text{kN/m}^2$		max. y [m] <sup>1</sup>	8.0									8.0															
				2.6	Fz-E	11.2	13.5	15.7	17.9	20.2	22.4	24.6	26.9	29.1	31.4	Fz-E	11.2	13.5	15.7	17.9	20.2	22.4	24.6	26.9	29.1	31.4		
					Fz	5.6	6.8	7.9	9.0	10.1	11.2	12.3	13.5	14.6	15.7	Fz	5.6	6.8	7.9	9.0	10.1	11.2	12.3	13.5	14.6	15.7		
					Fx	5.6	6.8	7.9	5.2	10.1	11.2	12.3	13.5	14.6	15.7	Fx	5.6	6.8	7.9	5.2	10.1	11.2	12.3	13.5	14.6	15.7		
				2.8	Fz-E	12.1	14.5	16.9	19.3	21.7	24.1	26.5	28.9	31.4	33.8	Fz-E	12.1	14.5	16.9	19.3	21.7	24.1	26.5	28.9	31.4	33.8		
Fz					6.1	7.3	8.5	9.7	10.9	12.1	13.3	14.5	15.7	16.9	Fz	6.1	7.3	8.5	9.7	10.9	12.1	13.3	14.5	15.7	16.9			
Fx	6.1	7.3	8.5		5.7	10.9	12.1	13.3	14.5	15.7	16.9	Fx	6.1	7.3	8.5	5.7	10.9	12.1	13.3	14.5	15.7	16.9						
Riferimento: legno massiccio	1.00 $\text{kN/m}^2$		max. y [m] <sup>1</sup>	10.0									12.0															
				2.6	Fz-E	9.5	11.4	13.3	15.2	17.1	19.0	20.9	22.8	24.7	26.6	Fz-E	9.5	11.4	13.3	15.2	17.1	19.0	20.9	22.8	24.7	26.6		
					Fz	4.8	5.7	6.7	7.6	8.6	9.5	10.5	11.4	12.4	13.3	Fz	4.8	5.7	6.7	7.6	8.6	9.5	10.5	11.4	12.4	13.3		
					Fx	4.8	5.7	6.7	4.4	8.6	9.5	10.5	11.4	12.4	13.3	Fx	4.8	5.7	6.7	4.4	8.6	9.5	10.5	11.4	12.4	13.3		
				2.8	Fz-E	10.3	12.3	14.4	16.4	18.4	20.5	22.5	24.6	26.6	28.7	Fz-E	10.3	12.3	14.4	16.4	18.4	20.5	22.5	24.6	26.6	28.7		
					Fz	5.2	6.2	7.2	8.2	9.2	10.3	11.3	12.3	13.3	14.4	Fz	5.2	6.2	7.2	8.2	9.2	10.3	11.3	12.3	13.3	14.4		
	Fx	5.2	6.2		7.2	4.8	9.2	10.3	11.3	12.3	13.3	14.4	Fx	5.2	6.2	7.2	4.8	9.2	10.3	11.3	12.3	13.3	14.4					

<sup>1</sup> Distanza massima ammissibile ancoraggi y secondo prova di resistenza strutturale «inflexione» traversa superiore (MINERGIE 60/180 mm, MINERGIE-P 60/320 mm)

# Carichi di sollevamento di elementi per pareti interne

## Valore caratteristico del carico dell'elemento Fz-E [kN]



**Materiale:** legno per telai 500 kg/m<sup>3</sup> (quota 14%), isolamento intercapedine in fibra minerale 60 kg/m<sup>3</sup>, tavolato OSB/3 o pannello MDF 10 kg/m<sup>2</sup>, rivestimento in cartongesso 15 kg/m<sup>2</sup> o 18 kg/m<sup>2</sup> (12.5 o 15 mm).

			Lunghezza elemento [m]																						
			5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0			
	Peso elemento [kN/m <sup>2</sup> ]	Larghezza elemento [m]	max. y [m] <sup>1</sup>			4.0				3.0				6.0				7.0							
			2.6	Fz-E	6.0	7.2	8.4	9.6	10.8	12.0	13.2	14.4	15.6	16.8	Fz-E	6.0	7.2	8.4	9.6	10.8	12.0	13.2	14.4	15.6	16.8
				Fz	3.0	3.6	4.2	4.8	5.4	6.0	6.6	7.2	7.8	8.4	Fz	3.0	3.6	4.2	4.8	5.4	6.0	6.6	7.2	7.8	8.4
				Fx	3.0	3.6	4.2	4.8	5.4	6.0	6.6	7.2	7.8	8.4											
			2.8	Fz-E	6.5	7.8	9.1	10.4	11.6	12.9	14.2	15.5	16.8	18.1	Fz-E	6.5	7.8	9.1	10.4	11.6	12.9	14.2	15.5	16.8	18.1
				Fz	3.3	3.9	4.6	5.2	5.8	6.5	7.1	7.8	8.4	9.1	Fz	3.3	3.9	4.6	5.2	5.8	6.5	7.1	7.8	8.4	9.1
				Fx	3.3	3.9	4.6	5.2	5.8	6.5	7.1	7.8	8.4	9.1											
			3	Fz-E	6.9	8.3	9.7	11.1	12.5	13.8	15.2	16.6	18.0	19.4	Fz-E	6.9	8.3	9.7	11.1	12.5	13.8	15.2	16.6	18.0	19.4
				Fz	3.5	4.2	4.9	5.6	6.3	6.9	7.6	8.3	9.0	9.7	Fz	3.5	4.2	4.9	5.6	6.3	6.9	7.6	8.3	9.0	9.7
				Fx	3.5	4.2	4.9	5.6	6.3	6.9	7.6	8.3	9.0	9.7											
			3.2	Fz-E	7.4	8.9	10.4	11.8	13.3	14.8	16.2	17.7	19.2	20.7	Fz-E	7.4	8.9	10.4	11.8	13.3	14.8	16.2	17.7	19.2	20.7
				Fz	3.7	4.5	5.2	5.9	6.7	7.4	8.1	8.9	9.6	10.4	Fz	3.7	4.5	5.2	5.9	6.7	7.4	8.1	8.9	9.6	10.4
Fx	3.7	4.5		5.2	5.9	6.7	7.4	8.1	8.9	9.6	10.4														
	Peso elemento [kN/m <sup>2</sup> ]	Larghezza elemento [m]	max. y [m] <sup>1</sup>			3.0				5.0				6.0				7.0							
			2.6	Fz-E	7.8	9.4	11.0	12.5	14.1	15.6	17.2	18.8	20.3	21.9	Fz-E	7.8	9.4	11.0	12.5	14.1	15.6	17.2	18.8	20.3	21.9
				Fz	3.9	4.7	5.5	6.3	7.1	7.8	8.6	9.4	10.2	11.0	Fz	3.9	4.7	5.5	6.3	7.1	7.8	8.6	9.4	10.2	11.0
				Fx	3.9	4.7	5.5	6.3	7.1	7.8	8.6	9.4	10.2	11.0											
			2.8	Fz-E	8.4	10.1	11.8	13.5	15.2	16.8	18.5	20.2	21.9	23.6	Fz-E	8.4	10.1	11.8	13.5	15.2	16.8	18.5	20.2	21.9	23.6
				Fz	4.2	5.1	5.9	6.8	7.6	8.4	9.3	10.1	11.0	11.8	Fz	4.2	5.1	5.9	6.8	7.6	8.4	9.3	10.1	11.0	11.8
				Fx	4.2	5.1	5.9	6.8	7.6	8.4	9.3	10.1	11.0	11.8											
			3	Fz-E	9.0	10.8	12.6	14.4	16.2	18.0	19.8	21.6	23.4	25.2	Fz-E	9.0	10.8	12.6	14.4	16.2	18.0	19.8	21.6	23.4	25.2
				Fz	4.5	5.4	6.3	7.2	8.1	9.0	9.9	10.8	11.7	12.6	Fz	4.5	5.4	6.3	7.2	8.1	9.0	9.9	10.8	11.7	12.6
				Fx	4.5	5.4	6.3	7.2	8.1	9.0	9.9	10.8	11.7	12.6											
			3.2	Fz-E	9.6	11.6	13.5	15.4	17.3	19.2	21.2	23.1	25.0	26.9	Fz-E	9.6	11.6	13.5	15.4	17.3	19.2	21.2	23.1	25.0	26.9
				Fz	4.8	5.8	6.8	7.7	8.7	9.6	10.6	11.6	12.5	13.5	Fz	4.8	5.8	6.8	7.7	8.7	9.6	10.6	11.6	12.5	13.5
Fx	4.8	5.8		6.8	7.7	8.7	9.6	10.6	11.6	12.5	13.5														
	Peso elemento [kN/m <sup>2</sup> ]	Larghezza elemento [m]	max. y [m] <sup>1</sup>			2.5				3.0				5.0				6.0				7.0			
			2.6	Fz-E	11.0	13.2	15.3	17.5	19.7	21.9	24.1	26.3	28.4	30.6	Fz-E	11.0	13.2	15.3	17.5	19.7	21.9	24.1	26.3	28.4	30.6
				Fz	5.5	6.6	7.7	8.8	9.9	11.0	12.1	13.2	14.2	15.3	Fz	5.5	6.6	7.7	8.8	9.9	11.0	12.1	13.2	14.2	15.3
				Fx	5.5	6.6	7.7	8.8	9.9	11.0	12.1	13.2	14.2	15.3											
			2.8	Fz-E	11.8	14.2	16.5	18.9	21.2	23.6	25.9	28.3	30.6	33.0	Fz-E	11.8	14.2	16.5	18.9	21.2	23.6	25.9	28.3	30.6	33.0
				Fz	5.9	7.1	8.3	9.5	10.6	11.8	13.0	14.2	15.3	16.5	Fz	5.9	7.1	8.3	9.5	10.6	11.8	13.0	14.2	15.3	16.5
				Fx	5.9	7.1	8.3	9.5	10.6	11.8	13.0	14.2	15.3	16.5											
			3	Fz-E	12.6	15.2	17.7	20.2	22.7	25.2	27.8	30.3	32.8	35.3	Fz-E	12.6	15.2	17.7	20.2	22.7	25.2	27.8	30.3	32.8	35.3
				Fz	6.3	7.6	8.9	10.1	11.4	12.6	13.9	15.2	16.4	17.7	Fz	6.3	7.6	8.9	10.1	11.4	12.6	13.9	15.2	16.4	17.7
				Fx	6.3	7.6	8.9	10.1	11.4	12.6	13.9	15.2	16.4	17.7											
			3.2	Fz-E	13.5	16.2	18.9	21.6	24.2	26.9	29.6	32.3	35.0	37.7	Fz-E	13.5	16.2	18.9	21.6	24.2	26.9	29.6	32.3	35.0	37.7
				Fz	6.8	8.1	9.5	10.8	12.1	13.5	14.8	16.2	17.5	18.9	Fz	6.8	8.1	9.5	10.8	12.1	13.5	14.8	16.2	17.5	18.9
Fx	6.8	8.1		9.5	10.8	12.1	13.5	14.8	16.2	17.5	18.9														

<sup>1</sup> Valore secondo prova di resistenza «inflexione» traversa superiore (60/100 mm)