Calculation of heat loss from a room

Building component	U-value [W/m²·K]	A [m2]	ΔT [K]	Φ_{TR} [W]	
Floor without floor heating	0,150	25,50	10	38	k
Internal wall foundation	0,190	25,50	10	48	k
External wall	0,190	31,10	32	189	k
Rebats	0,350	0,28	32	3	
Windows	0,800	0,90	32	23	
Doors					
Ceiling	0,000	0,00	0	0	
	Liniar loss [W/m·K]	Length [m]	ΔT [K]		
Joints at heavy external wall and window/door ψ_{sa}	0,03	3,80	32	4	
Joint at heavy external wall and foundation ψ_{f}	0,13	11,11	32	46	
Joint at foundation and door ψ_{fx}					
Transmission loss Φ_{TR} =				352	
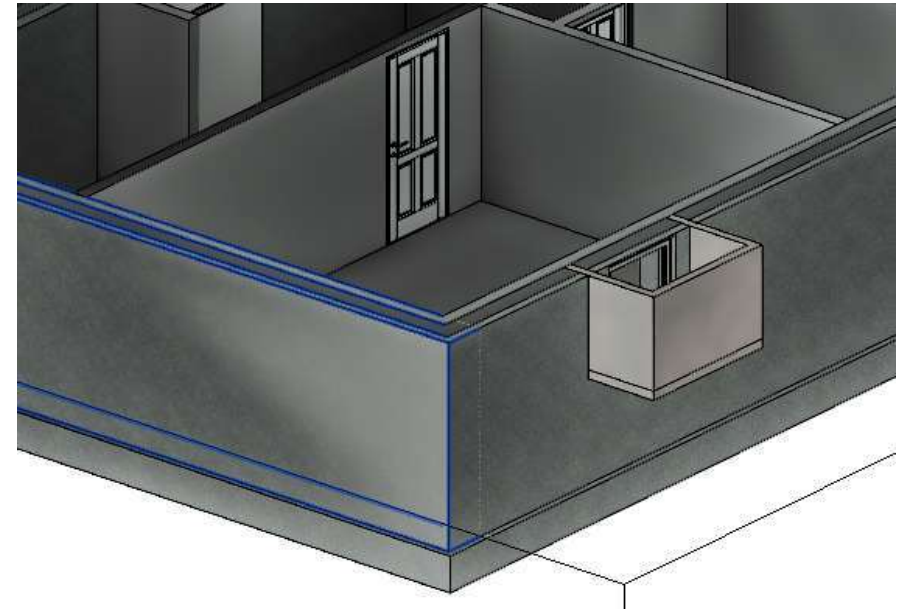
Natural ventilation		
Air flow	0,3	l/s·m²
Heated area	30,31	m²
Temperature difference	32	K
Ventilation loss Φ_{NV} =	352	W
Mechanical ventilation		
Air flow	0,3	l/s·m²
Temperature efficiency	85	%
Infiltration	0,1	l/s·m²
Heated area	30,31	m²
Temperature difference	32	K
Outdoor air temp. after aggregate	-7,2	°C
Ventilation loss Φ_{MV} =	170	W

window size: 1000x900
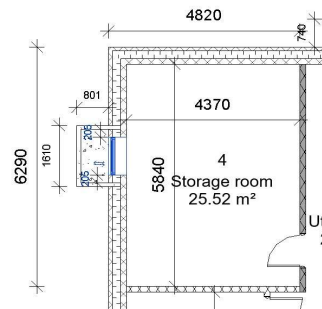
side rebate 0,216 m2
top rebate 0,060264 m2
sum 0,276264

4820
740
801
4370
6290
1610
205
205
5840
4
Storage room
25.52 m²
Util

Total heat loss - with natural ventilation $\Phi_{TR} + \Phi_{NV}$ = 704 W

Total heat loss - with mechanical ventilation $\Phi_{TR} + \Phi_{MV}$ = 522 W
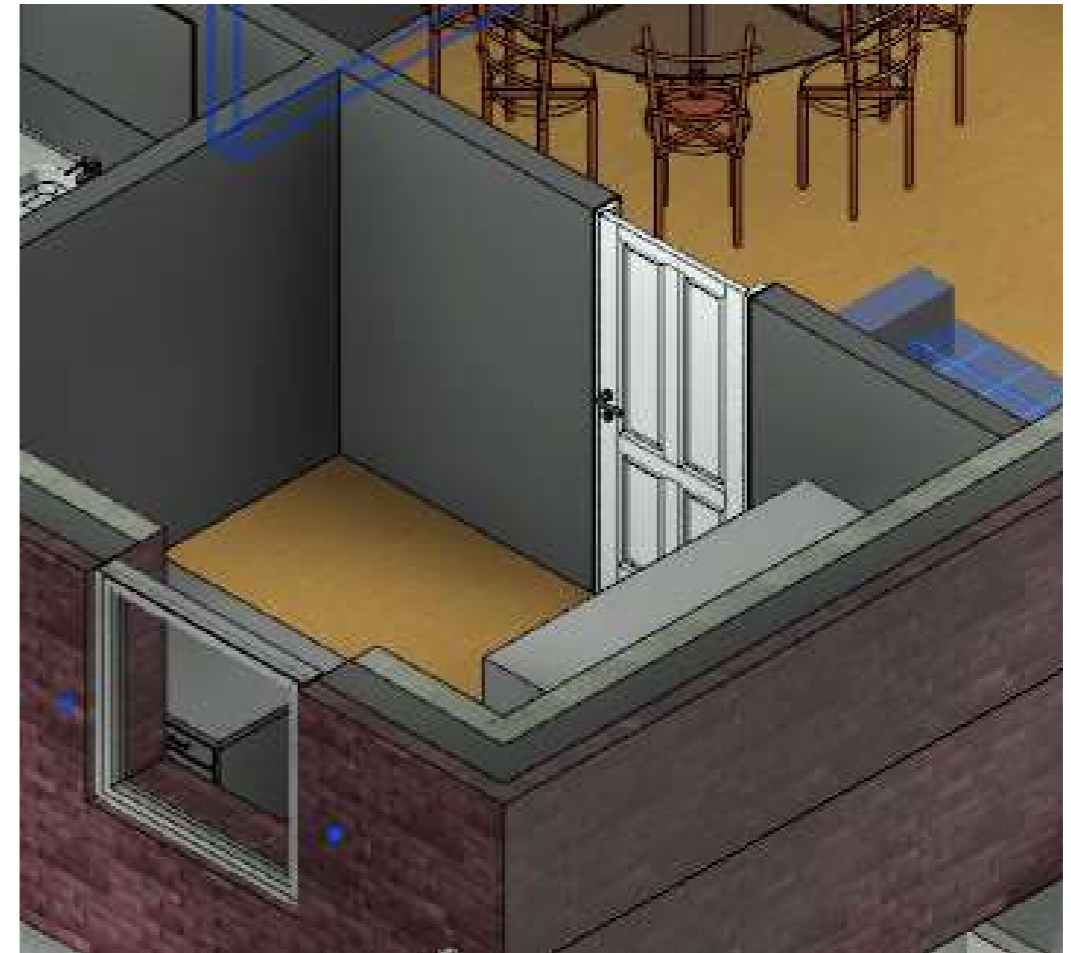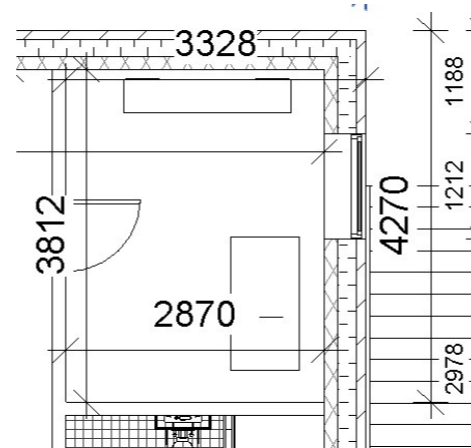
Calculation of heat loss from a room

Building component	U-value [W/m²·K]	A [m2]	ΔT [K]	Φ_{TR} [W]
Floor with floor heating	0,441	10,94	10	48
Internal wall foundation	0,180	10,94	10	20
External wall	0,152	20,99	32	102
Rebats	0,350	0,34	32	4
Windows	0,800	1,47	32	38
Doors				
Ceiling	0,227	10,94	0	0
	Liniar loss [W/m·K]	Length [m]	ΔT [K]	
Joints at heavy external wall and window/door ψ_{sa}	0,03	4,85	32	5
Joint at heavy external wall and foundation ψ_f	0,24	6,68	32	51
Joint at foundation and door ψ_{fx}				
Transmission loss Φ_{TR} =				267

Natural ventilation		
Air flow	0,3	l/s·m²
Heated area	14,21	m²
Temperature difference	32	K
Ventilation loss Φ_{NV} =	165	W

Mechanical ventilation		
Air flow	0,3	l/s·m²
Temperature efficiency	85	%
Infiltration	0,1	l/s·m²
Heated area	14,21	m²
Temperature difference	32	K
Outdoor air temp. after aggregate	-7,2	°C
Ventilation loss Φ_{MV} =	80	W

Total heat loss - with natural ventilation $\Phi_{TR} + \Phi_{NV}$ =   432 W

Total heat loss - with mechanical ventilation $\Phi_{TR} + \Phi_{MV}$ =   347 W

window size: 1212x1212

3328
3812
4270
2870
2978
1188
1212

side rebate   0,261792 m2
top rebate   0,077112 m2
sum   0,338904

Calculation of heat loss from a room

Building component	U-value [W/m²·K]	A [m2]	ΔT [K]	Φ_{TR} [W]
Floor without floor heating	0,441	10,53	0	0
Internal wall foundation	0,180	10,53	0	0
External wall	0,152	22,84	32	111
Rebats	0,350	0,68	32	8
Windows	0,800	2,94	32	75
Doors				
Ceiling	0,125	10,53	32	42
	Liniar loss [W/m·K]	Length [m]	ΔT [K]	
Joints at heavy external wall and window/door ψ_{sa}	0,03	9,70	32	9
Joint at heavy external wall and foundation ψ_f	0,24	0,00	32	0
Joint at foundation and door ψ_{fx}				
Transmission loss Φ_{TR} =				245

Natural ventilation		
Air flow	0,3	l/s·m²
Heated area	13,81	m²
Temperature difference	32	K
Ventilation loss Φ_{NV} =	160	W

Mechanical ventilation		
Air flow	0,3	l/s·m²
Temperature efficiency	85	%
Infiltration	0,1	l/s·m²
Heated area	13,81	m²
Temperature difference	32	K
Outdoor air temp. after aggregate	-7,2	°C
Ventilation loss Φ_{MV} =	78	W

window size: 1212x1212

4629

4171

2526

2984

side rebate   0,523584 m2
top rebate   0,154224 m2
sum   0,677808

Total heat loss - with natural ventilation $\Phi_{TR} + \Phi_{NV}$ =   406 W

Total heat loss - with mechanical ventilation $\Phi_{TR} + \Phi_{MV}$ =   323 W