

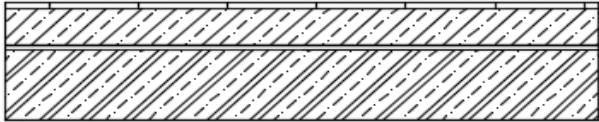
Outside composition

UNDERGROUND FLOOR SECTION

type	S7			
Requirements	Un[W/m2K]	no requirements		
	Rw[dB]	no requirements		
	Lw[dB]	no requirements		
Material	thickness[mm]	λ [W/m2K]	R [m2K/W]	γ [kg/m3] g [kN/m2]
Finishing of flooring	20			
Concrete leveling layer	100			
Thermal insulation	100			
Water proofing	20			
Reinforce concrete	150			
sum	390			

final check

Autocad detail

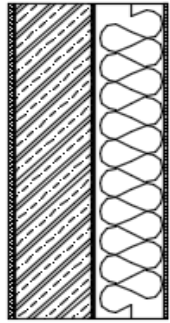
UNDERGROUND FLOOR SECTION-S7	t [mm]	
-FINISHING OF FLOORING	20	
-CONCRETE LEVELING LAYER	100	
-WATER PROOFING	20	
-REINFORCED CONCRETE	180	

Underground perimeter wall

Type	S2					
requirement	Un[W/m2K]	no requirements		hight of wall (mm)		3200
	Rw[dB]	no requirements				
	Lw[dB]	no requirements				
Material	thickness[mm]	λ [W/m2K]	R [m2K/W]	γ [kg/m3]	g [kN/m]	
Inner plaster	15					
Reinforced concrete wall	300			2500	24	
Waterproofing layer- asphalt	10					
XPS boards- protection of water proofing	150					
NOP foil						
sum	475					

final check

Autocad detail

PERIMETER WALL – UNDERGROUND LEVEL–S2	t[mm]	
<u>-INNER PLASTER</u>	15	
<u>-REINFORCED CONCRETE WALL</u>	300	
<u>-WATERPROOFING- ASPHALT</u>	10	
<u>-XPS BOARDS</u>	100	
<u>-NOP FOIL</u>		

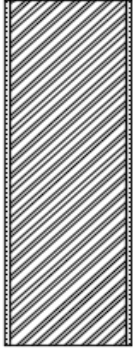
Perimeter wall

Type	S1					
requirements	Un[W/m2K]	0.25		height of wall	3200	
	Rw[dB]	41				
	Lw[dB]	no requirements				
Material	thickness[mm]	λ [W/m2K]	R [m2K/W]	γ [kg/m3]	γ [kg/m]	g [kN/m]
Inner plaster	15			2000	96	0.96
massonry heluz family 2in1grinded brick	440			850	1196.8	11.968
outer plaster	15			2000	96	0.96
Sum	450					13.89

final check

U 0.13
 U < Un OK

Autocad detail

PERIMETER WALL- S1	t [mm]	
-INNER PLASTER	15	
-MASONRY HELUZ FAMILY 44 2IN1 GRINDED BRICK 440mm	440	
-OUTER PLASTER	15	

flat roof

discription	S6					
requirement	Un[W/m2K]	0.16				
	Rw[dB]	no requirment				
	Lw[dB]	no requirment				
Material	thickness[mm]	λ [W/m2K]	R [m2K/W]	γ [kg/m3]	γ [kg/m2]	g [kN/m2]
gravel	50			1680	84	0.84
geotextilie	2					0.01
waterproofing asphalt	1.5					0.025
waterproofing asphalt	1.5					0.025
thermal insulation eps boards	240	0.04	6	120	28.8	0.288
vapor barrier	1.5					0.01
reinforced concrete slab	180	1.5	0.12	2500	450	4.5
plaster	3					
sum	465					5.70

1.20

final check

R transition 0.22
 R 6.34
 U 0.16
 U < Un **ok**

Autocad detail

FLAT ROOF-S6	t [mm]	
-GRAVEL	50	
-GEOTEXTILE	2,0	
-WATERPROOFING - ASPHALT	1,5	
-WATERPROOFING - ASPHALT	1,5	
-THERMAL INSULATION	210-350	
-VAPOUR BARRIER	1,5	
-REINFORCED CONCRETE SLAB	180	
-PLASTER	3	

Inside composition

floor structure between underground and 1st floor

discription	S4							
requirement	Un[W/m2K]	0.25						
	Rw[dB]	57						
	Lw[dB]	53						
Material	thinkness[mm]	λ [W/m2K]	R[m2K/W]	Rw'	Lw'	γ [kg/m3]	γ [kg/m2]	g [kN/m2]
surface crimac - carpet	5						5	0.05
glue layer								0.01
concrete layer	50	1.5	0.075			2500	125	1.25
suppration foil								0.01
acustic insulation	40	0.037	1.35			120	4.8	0.048
reinforced concrete	170	1.5	0.113			2500	425	4.25
thermal insulation	60	0.039	1.54			120	7.2	0.072
gypsum board	20	0.17	0.12			2000	40	0.4
sum	365							6.09

1.84

airborn resistance check

Rw < Rw' - k	R	3.4164615
k = 3dB	U	0.29
52dB < 56 - 3 = 53dB	U < Un	ok

FLOOR SECTION UL TO GL-S4	t [mm]	
-SURFACE: CAERPET CERAMIC	5	
-GLUE LAYER		
-CONCRETE LEVELING LAYER	50	
-SEPARATION FOIL		
-ACCUSTIC INSULATION	40	
-REINFORCED CONCRETE SLAB	180	
-THERMAL INSULATION	60	
-GYPSUM BOARD	20	
-UNDERCEILING		

General floor section

types	S5							
requirements	Un[W/m2K]	1.45						
	Rw[dB]	52						
	Lw[dB]	58						
Material	thickness[mm]	λ [W/m2K]	R [m2K/W]	Rw'	Lw'	γ [kg/m3]	γ [kg/m2]	g [kN/m2]
surface layer -carpet -ceramic	20					1000	20	0.2
glue layer	5							0.01
Concrete Leveling layer	50	1.5	0.075			2500	125	1.25
Separation foil								0.01
Accustic insulation	40	0.037	1.08			120	4.8	0.048
Reinforced concrete	180	1.5	0.12			2500	450	4.5
Inner plaster	3					2000	6	0.06
sum	298							6.08

sum without RC

1.58

check of airborne resistance

$R_w < R_w' - k$

R 1.28

$k = 3\text{dB}$

U 0.78

$52\text{dB} \leq 55 - 3 = 52\text{dB}$

ok

$U < U_n$

ok

GENERAL FLOOR SECTION-S5	t [mm]	
-SURFACE: CARPET-CERAMIC	5	
-GLUE LAYER	5	
-CONCRETE LEVELING LAYER	50	
-SEPARATION FOIL		
-ACCUSTIC INSULATION	40	
-REINFORCED CONCRETE SLAB	180	
-PLASTER	3	

Partition 250mm

type	S11							
requirements	Un[W/m2K]	no requirements				massonry hight [mm]		3200
	Rw[dB]		42					
	Lw[dB]	no requirements						
Material	thickness[mm]	λ [W/m2K]	R [m2K/W]	Rw'	Lw'	γ [kg/m3]	γ [kg/m]	g [kN/m]
Inner plaster	15					2000	96	0.96
HELUZ AKU 25	250			47		850	680	6.8
	15					2000	96	0.96
sum	280							8.72

airborne resistance

$$R_w < R_w' - k$$

$$k = 3\text{dB}$$

$$42\text{dB} < 47 - 3 = 44\text{dB}$$

ok

Partition 115mm

type	S9							
requirements	Un[W/m2K]	no requirements				massonry hight [mm]		3200
	Rw[dB]		42					
	Lw[dB]	no requirements						
Material	thickness[mm]	λ [W/m2K]	R [m2K/W]	Rw'	Lw'	γ [kg/m3]	γ [kg/m]	g [kN/m]
Inner plaster	15					2000	96	0.96
HELUZ AKU 11,5	115			47		850	312.8	3.128
outer plaster - POROTHERM UNIVERSAL	15					2000	96	0.96
total	145							5.05

airborne resistance

$R_w < R_w' - k$

$k = 3\text{dB}$

$42\text{dB} < 47 - 3 = 44\text{dB}$

ok

PARTITION – S9	t[mm]	
-INNER PLASTER	15	
-MASSONRY HALUZ P11.5	115	
- INNER PLASTER	15	


Load bearing inner walls								
type	S10							
requirements	Un[W/m2K]	1.8				height		3200
	Rw[dB]	52						
	Lw[dB]	no requirements						
material	thickness[mm]	λ [W/m2K]	R [m2K/W]	Rw'	Lw'	γ [kg/m3]	γ [kg/m]	g [kN/m]
Inner plaster	15					2000	96	0.96
Massonry : heluz family 30 2in1 grinded brick	300	1.5	0.13			2500		
Inner plaster	15		0.45			40	#REF!	#REF!
						2000	96	0.96
Celkem	330							

airborne resistance

final check

R 0.58
 U 1.72
 U<Un ok

Autocad detail

LOAD BEARING INNER WALLS – S10	t [mm]	
<u>-INNER PLASTER</u>	15	
<u>-MASSONRY HELUZ FAMILY 30 2IN1 GRINDED BRICK</u>	300	
<u>-INNER PLASTER</u>	15	