External wall - awrhhi01b-03

external wall, timber frame construction, ventilated, with dry lining, with cladding, gypsum plasterboard

Performance rating

Fire protection performance	**REI from inside**	60
	REI from outside	60

maximum ceiling height = 3 m; maximum load $E_{d,fi}$ = 19,2 kN/m
Classified by HFA

Thermal performance	**U**	0.18 W/(m²K)
	Diffusion	suitable

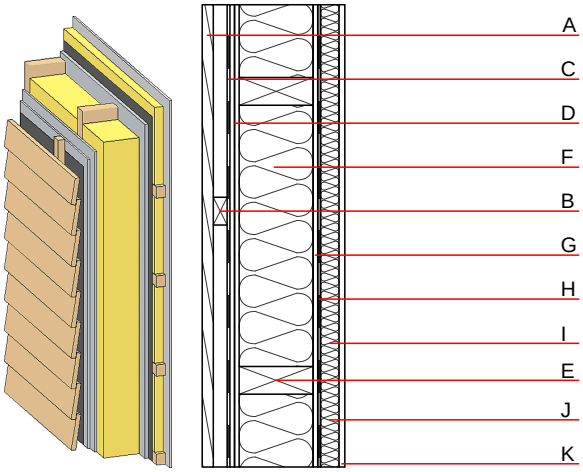
Calculated by HFA

Acoustic performance	**R_w ($C;C_{tr}$)**	52(-2;-8) dB
	$L_{n,w}$ (C_I)	

Battens for the ventilation space screwed onto the structural timber together with vertical battens for the dry lining screwed directly onto the ledger beams will result in Rw(C;Ctr)=45(-1;-5) dB
Assessed by MA39

Mass per unit area	**m**	58.40 kg/m²

Calculation based on GF



Note: e=625

Register of building materials used for this application, cross-section (from outside to inside, dimensions in mm)

	Thickness	Building material	Thermal performance				Reaction to fire
			λ	μ min – max	ρ	c	EN
A	24.0	larch wood external wall cladding	0.120	50	450	1.600	D
B	30.0	spruce wood battens offset (30/50; 30/80) - ventilation	0.120	50	450	1.600	D
C		wind barrier			1000		
D	20.0	gypsum fibre board (2x10 mm)	0.320	21	1000	1.100	A2
E	200.0	construction timber (60/..; e=*)	0.120	50	450	1.600	D
F	200.0	mineral wool [040; ≥16; <1000°C]	0.040	1	16	1.030	A1
G	12.5	gypsum fibre board	0.320	21	1000	1.100	A2
H		vapour barrier sd≥ 2m			1000		
I	40.0	spruce wood cross battens (a=400) or battens offset)	0.120	50	450	1.600	D
J	40.0	mineral wool [040; ≥16; <1000°C]	0.040	1	16	1.030	A1
K	12.5	gypsum fibre board or	0.320	21	1000	1.100	A2
K	12.5	gypsum plaster board type DF	0.250	10	800	1.050	A2

Sustainability rating (per m²)

Database ecoinvent

$OI3_{Kon}$	27.7

Calculated by HFA

Details of sustainability rating

Database ecoinvent

Lifecycle (Phases)	GWP [kg CO_2-e.]	AP [kg SO_2-e.]	EP [kg PO_4-e.]	ODP [kg R11-e.]	POCP [kg Ethen-e.]	
A1 - A3		0.118	0.055	2,64E-6	0.022	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	95.176	443.240	538.417	440.776	10.862	451.639