

## External wall - awrhi02a-11

external wall, timber frame construction, ventilated, with dry lining, with cladding, other surface

### Performance rating

Fire protection performance	REI from inside	60
	REI from outside	30

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

Thermal performance	U	0.23 W/(m <sup>2</sup> K)
	Diffusion	suitable

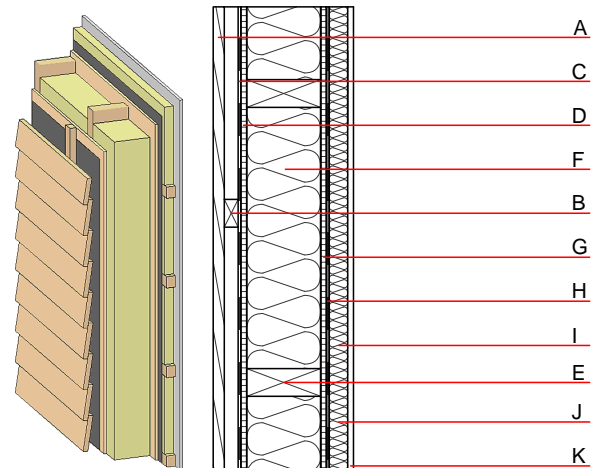
Calculated by HFA

Acoustic performance	$R_w$ (C;C <sub>tr</sub> )	50(-3;-10) dB
	$L_{n,w}$ (C <sub>i</sub> )	

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  $R_w$ (C;C<sub>tr</sub>)=43(-1;-5) dB  
 Assessed by MA39

Mass per unit area	m	45.40 kg/m <sup>2</sup>
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Calculation based on GF



Note: e=400

### 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 EN
			$\lambda$	$\mu$ min – max	$\rho$	c	
A	24.0	larch wood external wall cladding	0.155	150	600	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	16.0	particleboard	0.130	50 - 100	700	1.700	D
E	160.0	construction timber (60/..; e=*)	0.120	50	450	1.600	D
F	160.0	mineral wool [040; ≥16; <1000°C]	0.040	1	16	1.030	A1
G	16.0	particleboard	0.130	50 - 100	700	1.700	D
H		vapour barrier sd≥ 5m			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 plaster board type DF or	0.250	10	800	1.050	A2
K	12.5	gypsum fibre board	0.320	21	1000	1.100	A2

### Sustainability rating (per m<sup>2</sup>)

#### Database ecoinvent

OI3 <sub>Kon</sub>	26.7
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Calculated by HFA

## Details of sustainability rating

### Database ecoinvent

Lifecycle (Phases)	GWP [kg CO <sub>2</sub> -e.]	AP [kg SO <sub>2</sub> -e.]	EP [kg PO <sub>4</sub> -e.]	ODP [kg R11-e.]	POCP [kg Ethen-e.]	
A1 - A3		0.128	0.058	2,15E-6	0.031	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	102.988	768.440	871.428	480.352	53.916	534.268