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YV200+50+GUgips-Norge-u-verdi-KNAUF

Exterior wall

Thermal protection

U = 0,15 W/(m²K)

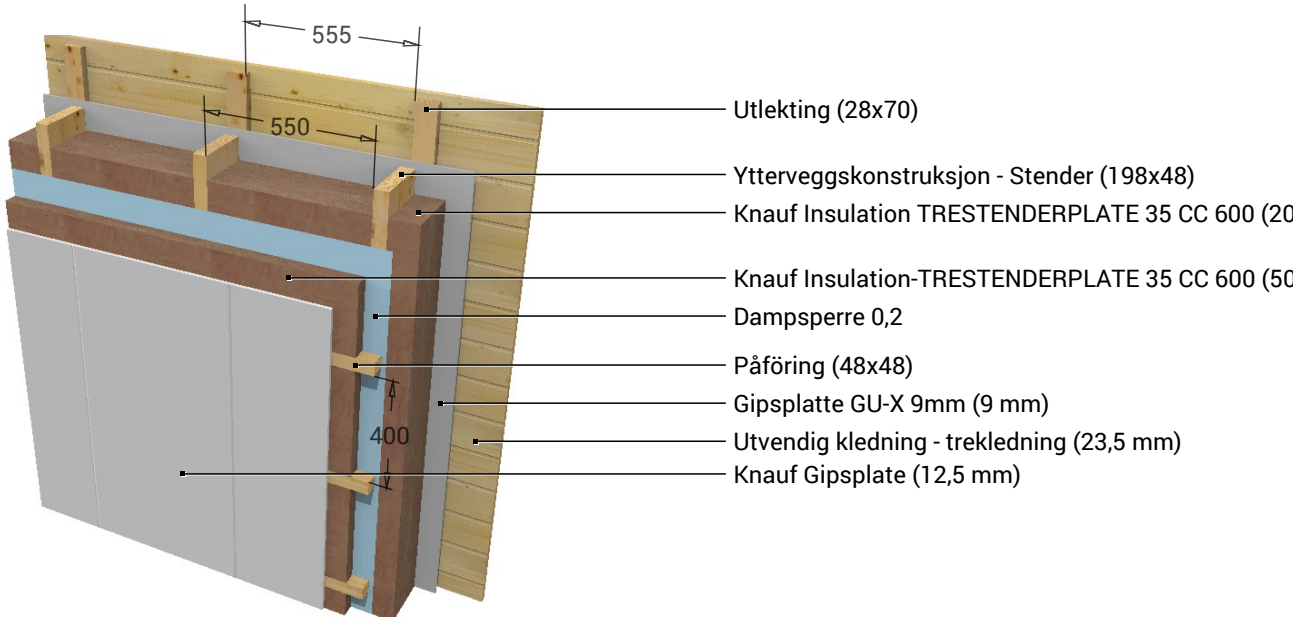
GEG 2020 Bestand*: U<0,24 W/(m²K)

excellent insufficient

Heat protection

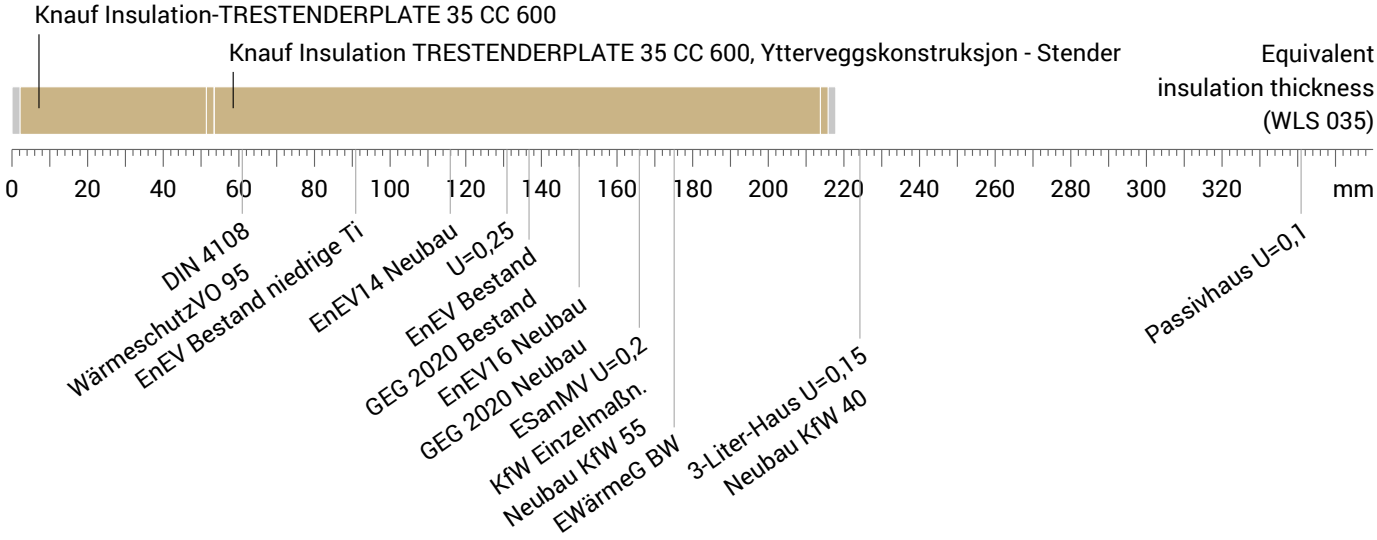
Temperature amplitude damping: 5,7
phase shift: 7,1 h
Thermal capacity inside: 14,5 kJ/m²K

excellent insufficient



Impact of each layer and comparison to reference values

For the following figure, the thermal resistances of the individual layers were converted in millimeters insulation. The scale refers to an insulation of thermal conductivity 0,035 W/mK.



Inside air :	20,0°C / 50%	Thickness:	32,3 cm
Outside air:	-5,0°C / 80%	Weight:	44 kg/m²
Surface temperature.:	18,9°C / -4,9°C	Heat capacity:	29 kJ/m²K

☑ GEG 2020 Bestand ☑ BEG Einzelmaßn. ☑ GEG 2020 Neubau ☑ DIN 4108

*Comparison of the U-value with den Höchstwerten aus GEG 2020 Anlage 7 (GEG 2020 Bestand); den techn. Mindestanforderungen für BEG Einzelmaßnahmen; 80% des U-Werts der Referenzausführung aus GEG 2020 Anlage 1 (GEG20 Neubau); den R-Werten aus DIN 4108-2 Tabelle 3

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YV200+50+GUgips-Norge-u-verdi-KNAUF, U=0,15 W/(m²K)

U-Value calculation according to DIN EN ISO 6946

#	Material	Dicke [cm]	λ [W/mK]	R [m²K/W]
	Thermal contact resistance inside (Rsi)			0,130
1	Knauf Gipsplate	1,25	0,210	0,060
2	Knauf Insulation-TRESTENDERPLATE 35 CC 600	5,00	0,035	1,429
	Påföring (Width: 4,8 cm)	4,80	0,130	0,369
3	Dampsperre 0,2	0,02	0,170	0,001
4	Knauf Insulation TRESTENDERPLATE 35 CC 600	20,00	0,035	5,714
	Ytterveggskonstruksjon - Stender (Width: 4,8 cm)	19,80	0,130	1,523
5	Gipsplatte GU-X 9mm	0,90	0,210	0,043
	Thermal contact resistance outside (Rse)			0,130

Thermal contact resistances have been taken from DIN 6946 Table 7.
Rsi: heat flow direction horizontally
Rse: heat flow direction horizontally, outside: Ventilation level

Upper limit of thermal resistance $R_{tot;upper}$ = 6,719 m²K/W.
Lower limit of thermal resistance $R_{tot;lower}$ = 6,222 m²K/W.
Check applicability: $R_{tot;upper}$ / $R_{tot;lower}$ = 1,080 (maximum allowed: 1,5)

The procedure may be used.

Thermal resistance R_{tot} = ($R_{tot;upper}$ + $R_{tot;lower}$)/2 = 6,470 m²K/W
Estimated maximum relative uncertainty according to section 6.7.2.5: 3,8%

Heat transfer coefficient U = 1/R_{tot} = **0,15 W/(m²K)**

This component includes several inhomogeneous layers of different overall width. For all the calculations it was assumed that the layer arrangement is repeated in width all 62,5 cm. This, however, is not true for at least layer 4 with a total width of 59,8 cm and can cause increased inaccuracy of the U-value.