Dachstuhl Walmdach bei verschiedener Dachneigung 25

Hauptdach

$\alpha_H = \tan^{-1}\frac{270}{680} = 21{,}656°$ $\quad l_{Sp,H} = \frac{680}{\cos 21{,}656°} = 731{,}6cm$

$t = \frac{14}{6} = 2{,}33cm \Rightarrow 2{,}5cm$ $\quad l_{S1,H} = \frac{90}{\cos 21{,}656°} = 96{,}8cm$

$O = 14 - 2{,}5 = 11{,}5cm$ $\quad l_{S2,H} = \frac{470}{\cos 21{,}656°} = 505{,}7cm$

$O_{V,H} = \frac{11{,}5}{\cos 21{,}656°} = 12{,}4cm$ $\quad x_F = \frac{14}{\tan 43{,}312°} = 14{,}9cm$

$H_{1,H} = 90 * \tan 21{,}656 - 12{,}4 = 23{,}3cm$

$\text{Aufmauerung}_H = 23{,}3 + 100 - 20 - 3 = 100{,}3cm$

$H_{2,H} = 470 * \tan 21{,}656 - 12{,}4 = 174{,}2cm = H_{2,W}$

$l_{Säule} = 174{,}2 + 100 - 20 - 12 = 242{,}2cm + \text{Zapfen}$

$t_{Zange} = \frac{20}{6} = 3{,}33cm \Rightarrow 3{,}5cm$

$l_{Zange} = 2 * \left(\frac{(12{,}4 + 3{,}5)}{\tan 21{,}656} + 210\right) = 500{,}1cm$

Walmdach

$\alpha_W = \tan^{-1}\frac{270}{450} = 30{,}964°$ $\quad l_{Sp,W} = \frac{450}{\cos 30{,}964°} = 524{,}8cm$

$O_{V,W} = \frac{11{,}5}{\cos 30{,}964°} = 13{,}4cm$ $\quad l_{S1,W} = \frac{90}{\cos 30{,}964°} = 105{,}0cm$

$H_{1,W} = 90 * \tan 30{,}964° - 13{,}4 = 40{,}6cm$

$\text{Aufmauerung}_W = 40{,}6 + 100 - 20 - 3 = 117{,}6cm$

$g_{2,W} = \frac{(174{,}2 + 13{,}4)}{\tan 30{,}964} = 312{,}7cm$ $\quad l_{S2,W} = \frac{312{,}7}{\cos 30{,}964°} = 364{,}6cm$

Gratgrund

$\gamma_H = \tan^{-1}\frac{680}{450} = 56{,}505°$ $\quad \gamma_W = \tan^{-1}\frac{450}{680} = 33{,}495°$

$g_G = \frac{680}{\sin 56{,}505°} = 815{,}4cm$

Gratprofil

Beispiel 25

$\alpha_G = \tan^{-1}\frac{270}{815{,}4} = 18{,}321°$ $\quad l_G = \frac{270}{\sin 18{,}321°} = 859{,}0cm$

$g_{1HG} = \frac{90}{\sin 56{,}505°} = 107{,}9cm$ $\quad l_{S1HG} = \frac{107{,}9}{\cos 18{,}321°} = 113{,}7cm$

$g_{1WG} = \frac{90}{\sin 33{,}495°} = 163{,}1cm$ $\quad l_{S1WG} = \frac{163{,}1}{\cos 18{,}321°} = 171{,}8cm$

$g_{2HG} = \frac{470}{\sin 56{,}505°} = 563{,}6cm$ $\quad l_{S2HG} = \frac{563{,}6}{\cos 18{,}321°} = 593{,}7cm$

$g_{2WG} = \frac{312{,}7}{\sin 33{,}495°} = 566{,}5cm$ $\quad l_{S2WG} = \frac{566{,}5}{\cos 18{,}321°} = 596{,}8cm$

$V_H = \frac{8}{\tan 56{,}505°} = 5{,}3cm$ $\quad ah_H = 5{,}3 * \sin 18{,}321° = 1{,}7cm$

$V_W = \frac{8}{\tan 33{,}495°} = 12{,}1cm$ $\quad ah_W = 12{,}1 * \sin 18{,}321° = 3{,}8cm$

Walmdachschifter

$x_{1GW} = \frac{8}{\sin 33{,}495°} = 14{,}5cm$ $\quad l_T = (680 - 14{,}5) * 2 + 10 = 1341cm$

$n = \frac{1341}{80} = 16{,}8 \Rightarrow 17$ Teilungen, 16 Schifter

$e = \frac{1341}{17} = 78{,}9cm$

$g_{Sch1W} = 78{,}9 * \tan 33{,}495° = 52{,}2cm$ $\quad l_{Sch1W} = \frac{52{,}2}{\cos 30{,}964°} = 60{,}9cm$

$l_{Sch2W} = 60{,}9 * 2 = 121{,}8cm$

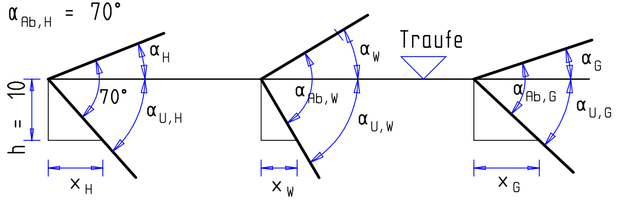
$V_{SchW} = 10 * \tan 33{,}495° = 6{,}6cm$

Saumabschnitt

Beispiel 25

HD - Profil WD - Profil Grat - Profil

$\alpha_{Ab,H} = 70°$



h = 10cm frei angenommen

$\alpha_{U,H} = 70° - 21{,}656° = 48{,}344°$

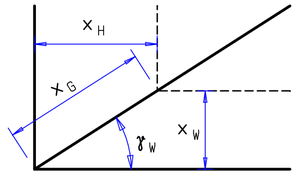
$x_H = \frac{10}{\tan 48{,}344°} = 8{,}90cm$

$x_W = \frac{8{,}9}{\tan 56{,}505} = 5{,}89cm$

$\alpha_{U,W} = \tan^{-1}\frac{10}{5{,}89} = \underline{59{,}515°}$

$\alpha_{Ab,W} = 59{,}515 + 30{,}964 = \underline{90{,}48°}$

Im Grundriss



$x_G = \frac{8{,}90}{\cos 33{,}495°} = 10{,}66cm$

$\alpha_{U,G} = \tan^{-1}\frac{10}{10{,}66} = \underline{43{,}15°}$

$\alpha_{Ab,G} = 43{,}15 + 88{,}321 = \underline{61{,}47°}$