1. Input parameters

2. General statements

Single shear plane connection, exact verification acc. to DIN EN 1995, 8.2.2
Duration of load: short-term

3. Materials

3.1. Outer timber member 1
Service class 1, Fermacell 12.5 mm, $\rho_k = 1150$ kg/m³, $t = 12.5$ mm, $k_{mod} = 0.80$
Angle between force and the grain direction $\alpha = 0.0^\circ$

3.2. Outer timber member 2
Service class 1, solid coniferous timber, C24 (SI0), $\rho_k = 350$ kg/m³, $t = 200.0$ mm, $k_{mod} = 0.90$
Angle between force and the grain direction $\alpha = 0.0^\circ$

4. Fastener

Smooth nail, 2.8 x 42.5 mm, $d_k = 6.7$ mm, not predrilled
$F_{V,Rk}$ increased acc. to DIN EN 1995, 8.2.2(2)

5. Results acc. to DIN EN 1995:2010, Deutschland, $\gamma_1 = 1.30$, $\gamma_2 = 1.30$

5.1. Minimum spacings (DIN EN 1995:2010, Tab. 8.2) and strengths

<table>
<thead>
<tr>
<th>member</th>
<th>$a_1$</th>
<th>$a_2$</th>
<th>$a_{1-t}$</th>
<th>$a_{4-t}$</th>
<th>$a_{4-c}$</th>
<th>$f_{ld}$</th>
<th>$f_{md}$</th>
<th>$f_{cd}$</th>
<th>$f_{vd}$</th>
<th>$f_{h,a,d}$</th>
<th>$f_{h,a,k}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>out. t. m. 1</td>
<td>30.3</td>
<td>19.6</td>
<td>56.0</td>
<td>39.2</td>
<td>42.0</td>
<td>1.48</td>
<td>2.58</td>
<td>5.23</td>
<td>2.22</td>
<td>20.34</td>
<td>33.06</td>
</tr>
<tr>
<td>out. t. m. 2</td>
<td>28.0</td>
<td>14.0</td>
<td>42.0</td>
<td>28.0</td>
<td>28.0</td>
<td>9.69</td>
<td>16.62</td>
<td>14.54</td>
<td>1.38</td>
<td>14.59</td>
<td>21.07</td>
</tr>
</tbody>
</table>

Minimum widths one fastener row: outer timber member 1 = 78 mm, outer timber member 2 = 56 mm
Nail ends in outer timber member 2, penetration depth $t_{pen} = 30$ mm > 4 d = 11 mm, 1 shear plane
$F_{uk} = 600$ N/mm², $M_{uk} = 2617$ Nmm
decisive is Eq. (d), $\gamma_m = 1.30$, $F_{V,Rk} = 543.8$ N + $\Delta F_{V,Rk}$ (34.9 N) = 578.7 N, $F_{V,rd} = 377.7$ N
Per shear plane
$F_{Ax,Rk} = 139.7$ N, $F_{Ax,rd} = 91.2$ N withdrawal capacity