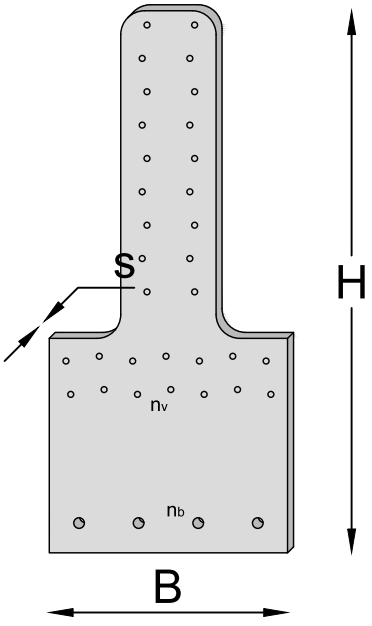
UNI EN 1090-3
execution class XC2

ALUHD40/SH18

Traction and shear plate for timber walls anchoring to AluBeam

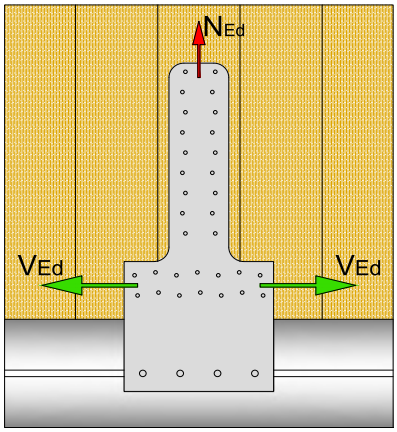
System components	Material
n.1 Plate ALUHD40/SH18	Aluminium EN AW-5754
n.1 guide with 4 threaded holes	Aluminium EN AW-6082
n.4 M8 self-drilling bolts	Steel class 8.8, hot dip galvanizing

Use in service class 1 and 2



Code	B [mm]	H [mm]	s [mm]	nb Φ9	nv Φ5
ALUHD40/SH18	200	455	5	4	32

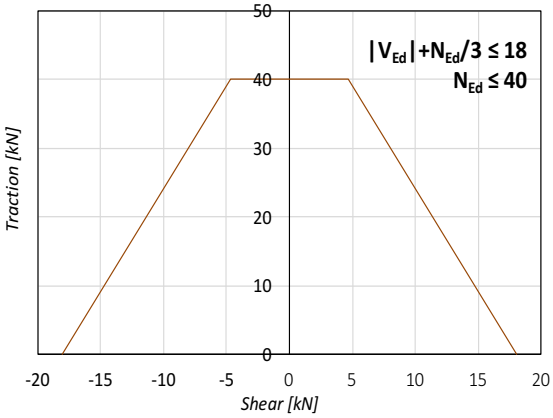
FORCES



DESIGN STRENGTH (METAL SIDE)

The design strength on the metal side for the Ultimate Limit State of ALUHD40/SH18, has been calculated following the assumptions below:

- Result of the design force through the geometrical gravity center of the holes for the wall fixing
- Material safety factors:
  - Aluminium ductile failure (EN 1999-1-1 §6.1.3) γM1= 1,10
  - Aluminium brittle failure (EN 1999-1-1 §6.1.3) γM2= 1,25
  - Bolts (EN 1993-1-8 §2.2) γM2= 1,25



The plate strength verification must be done following the disequation below:

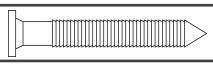
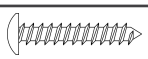
$$V_{Ed} + \frac{N_{Ed}}{3} \leq 18\ kN$$

$$N_{Ed} \leq 40\ kN$$

where:

- NEd is the traction force on the plate (ULS)
- VEd is the shear force on the plate (ULS)

TIMBER SIDE FIXING

		d [mm]
Anker nail		4
Timber bolts		4, 5

To calculate the strength of the fixing system of the timber side, the designer has to use Johansen formulas, basing on the one-shear-plane hypothesis (EN 1995-1-1, §8.2.3).

Advice for seismic verification: *in order to respect correctly the strengths hierarchy between ductile and brittle failure, our suggestion is to use a unitary safety factor (γM=1) for the strength calculation of the connectors between the plate and the timber wall, as suggested by EC5 (tab. 2.3 - accidental combination) and to verify that the design strength of the connection on the metal side results greater than the timber side one.*