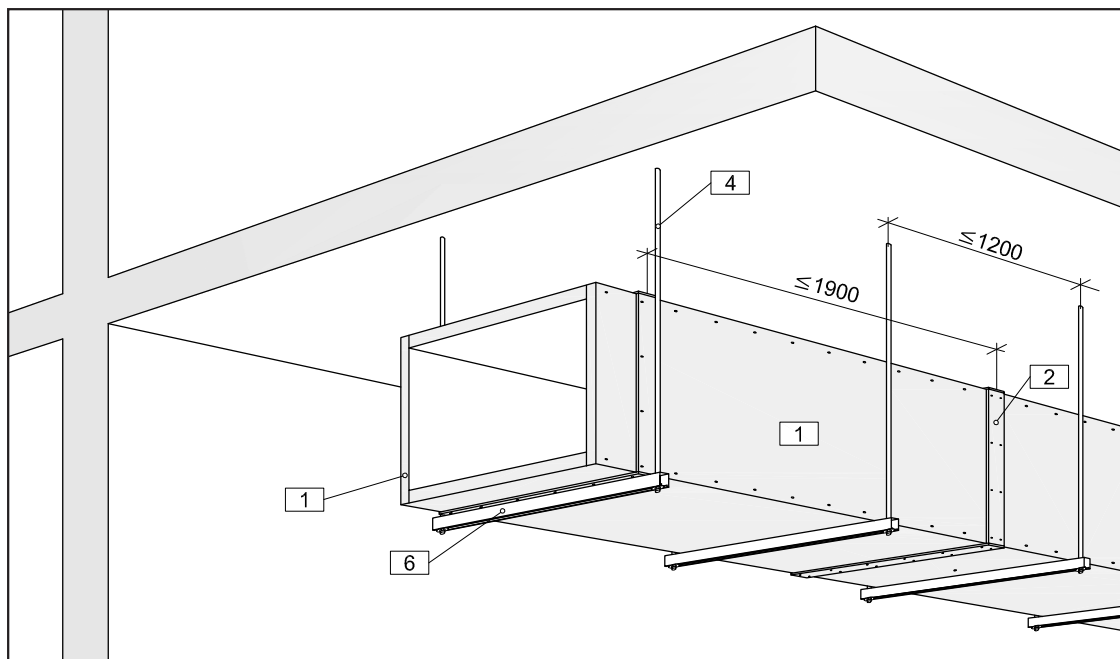


VENTILATION DUCT self-supporting EI 90-S



DESIGN DESCRIPTION

Single layer, 4-sided ventilation duct with a fire resistance of 90 min.

Made by butt jointing of fire protection boards **THERMAX SL**, $th = 45 \text{ mm}$, the connections are glued and screwed or stapled.

The board joints of the duct segments are covered with **THERMAX A** cover strips. The cover strips are glued and screwed or stapled.

Horizontal ventilation ducts are supported on traverses, which are suspended by threaded rods (tensile stress $\leq 6 \text{ N/mm}^2$ and shearing stress $\leq 10 \text{ N/mm}^2$). The attachment to solid floors are done with approved dowels with fire protection technical suitability certificate.

Each duct segment ($L \leq 1900 \text{ mm}$) shall be provided with min. one suspension (distance $\leq 1200 \text{ mm}$).

Threaded rods with a length over 1,50 m have to be protected using **THERMAX SL**.

At the penetration of solid building constructions $\geq 150 \text{ mm}$ with at least the same fire resistance as the ventilation duct, the remaining opening of $10 \leq E \leq 30 \text{ mm}$ has to be sealed with mineral wool (non combustible, melting point $\geq 1000^\circ\text{C}$) and covered on both sides with an L-shaped angle made of two composite **THERMAX SL** board strips. The L-angles are attached to the walls with metal dowels.

Vertical ventilation ducts are settled at each storey max. every 5 m on solid floors.

MATERIAL:

- Fire protection boards **THERMAX SL**
 $th = 45 \text{ mm}$
- Cover strip **THERMAX A**
 $th \geq 10 \text{ mm}$, $w \geq 100 \text{ mm}$
- Fire protection glue **THERMAX Brand-schutzkleber**

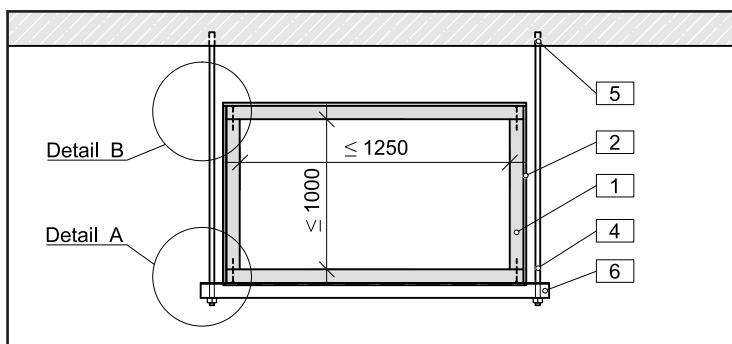
GENERAL INFORMATION:

- Classification: EI 90 (ve ho i → o) -S
- 4-sided ventilation ducts, self-supporting, made of **THERMAX SL** fire protection boards
- max. internal duct section:
 $\leq 1250 \times 1000 \text{ (W x H)}$
- Operating pressure: $\pm 500 \text{ Pa}$

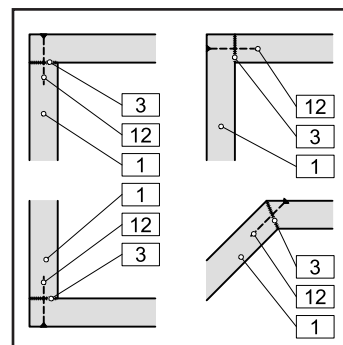
Further possible duct sections

- EI 90 (ve i → o) $\leq 1500 \times 800 \text{ mm}$
(WxH) internal section, with one stiffener
- Operating pressure: $\pm 300 \text{ Pa}$
as well as
- EI 90 (ho o → i) -S $\leq 1800 \times 1000 \text{ mm}$
(BxH) internal section, with one stiffener

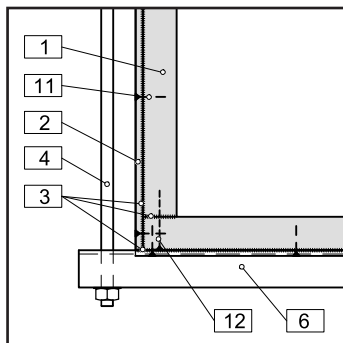
DESIGN DETAILS



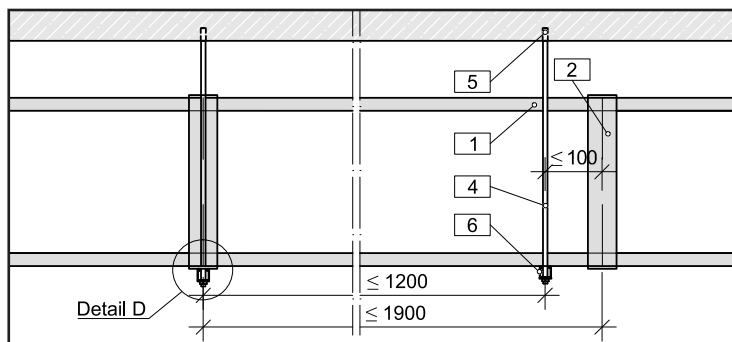
[1] Cross-section horizontal ventilation duct



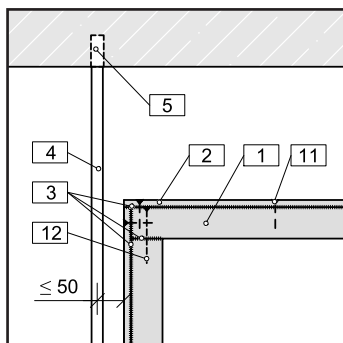
[2] Corner connection



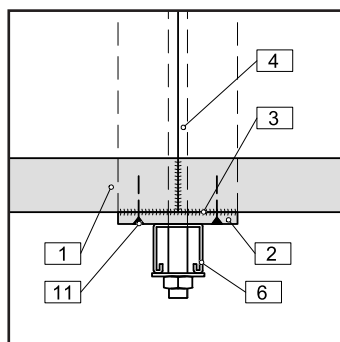
[3] Detail A: Corner design bottom



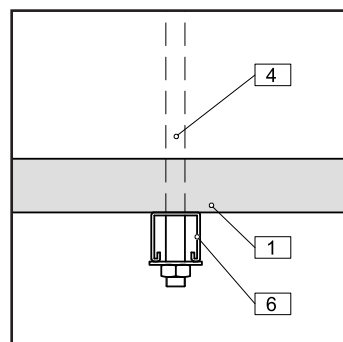
[4] Longitudinal section horizontal ventilation duct



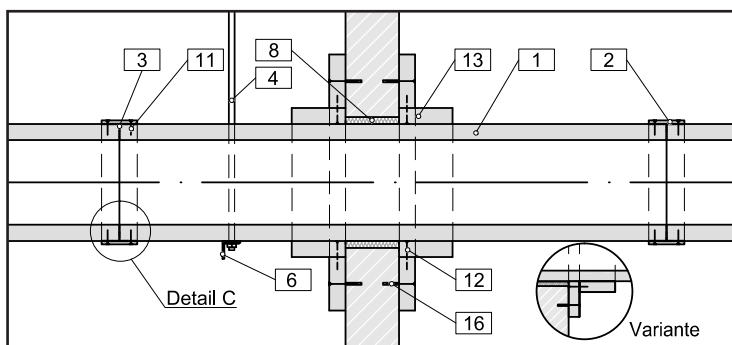
[5] Detail B: Corner design above



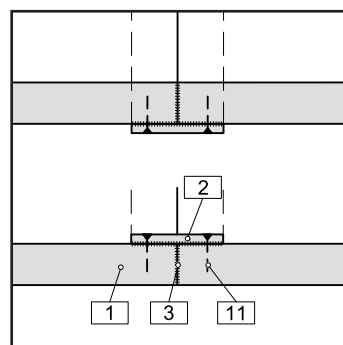
[6] Detail D: Suspension at butt joint



[7] Detail D: Suspension Var. 1



[8] Wall penetration



[9] Detail C: Cover strip horizontal, inside and outside

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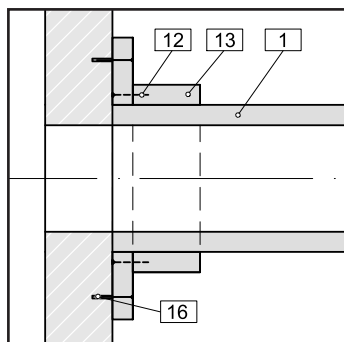
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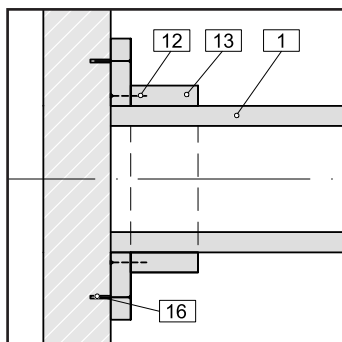
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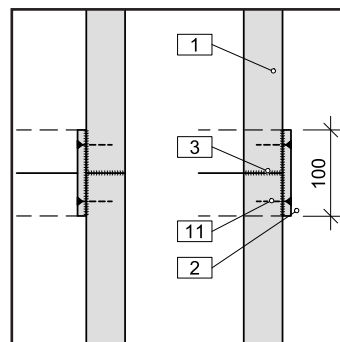
DESIGN DETAILS



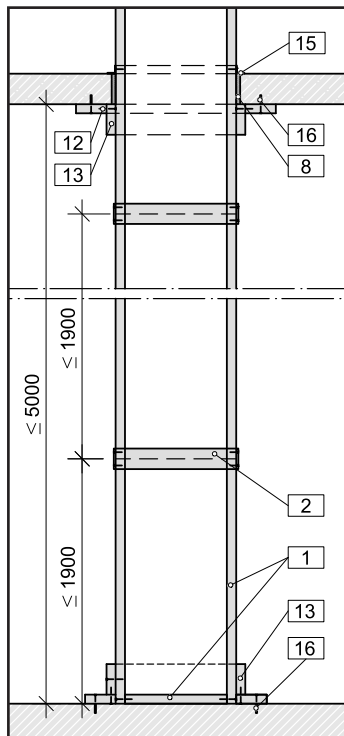
[10] Detail: Wall connection



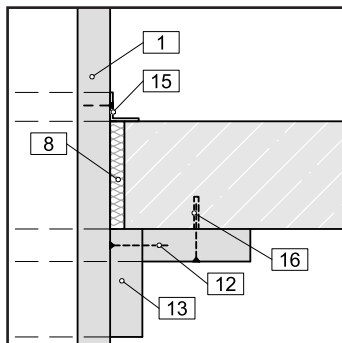
[11] Var. Wall connection



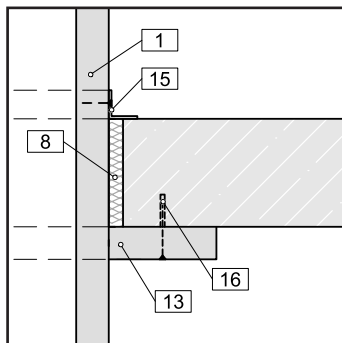
[12] Cover strip vertical, inside and outside



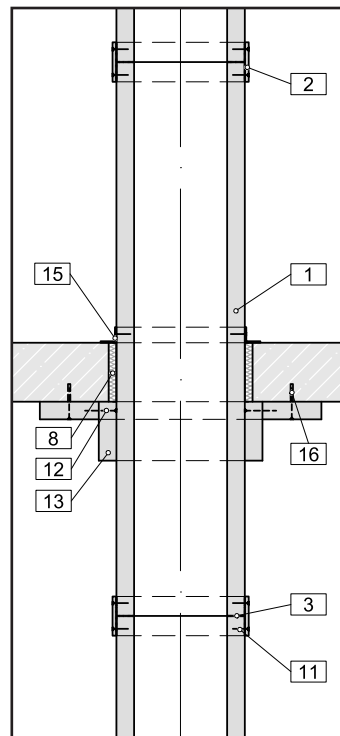
[13] Vertical ventilation duct



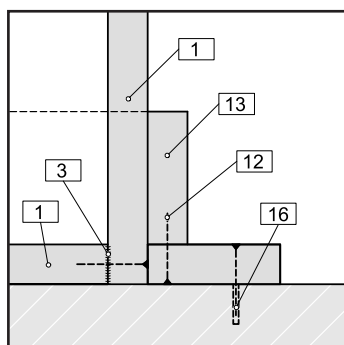
[14] Detail: Ceiling penetration



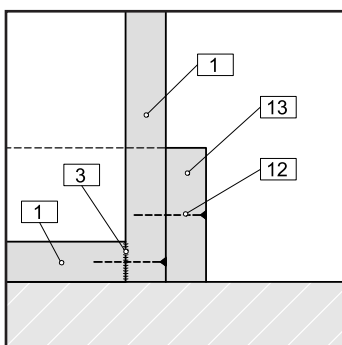
[15] Detail: Ceiling penetration, Var. 1



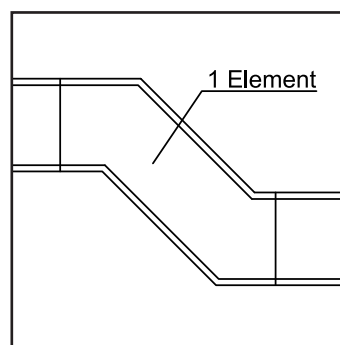
[16] Ceiling penetration



[17] Detail: Floor connection



[18] Detail: Floor connection, Var. 1



[19] Principal design

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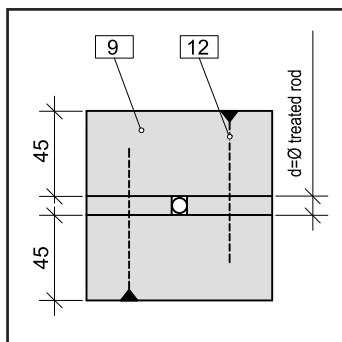
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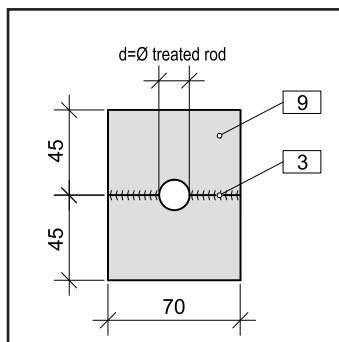
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DESIGN DETAILS



[20] Threaded rod protection



[21]: Threaded rod protection, Var. 1

MATERIAL LIST

- | | |
|--|---|
| <p>1 THERMAX SL
fire protection board th = 45 mm</p> <p>2 Cover strip
THERMAX A
th ≥ 10 mm, w ≥ 100 mm
glued and screwed or stapled</p> <p>3 THERMAX Brandschutzkleber
fire protection glue</p> <p>4 Threaded rod ≥ M8 with
nut and washer tensile
stress ≤ 6 N/mm² and
shearing stress ≤ 10 N/mm²
acc. to static calculation</p> <p>5 Metal dowel/steel expansion
dowel ≥ 8 mm (with fire protection
technical suitability approval)
acc. to static calculation</p> <p>6 Mounting rails/traverse as
suspension device,
distance ≤ 1200 mm, e.g.
Würth Varifix C ≥ 41/41/2,5 mm
or Hilti ≥ MQ41
or statically equivalent</p> <p>8 Mineral wool A1,
melting point ≥ 1000°C,
density ≥ 50 kg/m³,
gap 10 mm ≤ E ≤ 30 mm</p> | <p>9 THERMAX SL
threaded rod protection at
height of hangers > 1500 mm</p> <p>11 Steel wire staples or
drywall-/chipboardscrews for
cover strips 38/10/1 mm,
distance ≤ 100 mm
or 4 x 40 mm,
distance ≤ 200 mm</p> <p>12 Steel wire staples or
drywall-/chipboardscrews
80/11,2/1,2 mm,
distance ≤ 100 mm
or 5 x 80 mm,
distance ≤ 200 mm</p> <p>13 THERMAX SL
board strips th = 45 mm,
w ≥ 100 mm</p> <p>15 Steel angle ≥ 40 x 40 x 4 mm
at ceiling penetration with
drywall screws 4 x 40 mm
(distance ≤ 100 mm)</p> <p>16 Steel expansion dowel ≥ M6,
distance ≤ 250 mm
(with fire protection technical
suitability approval)</p> |
|--|---|