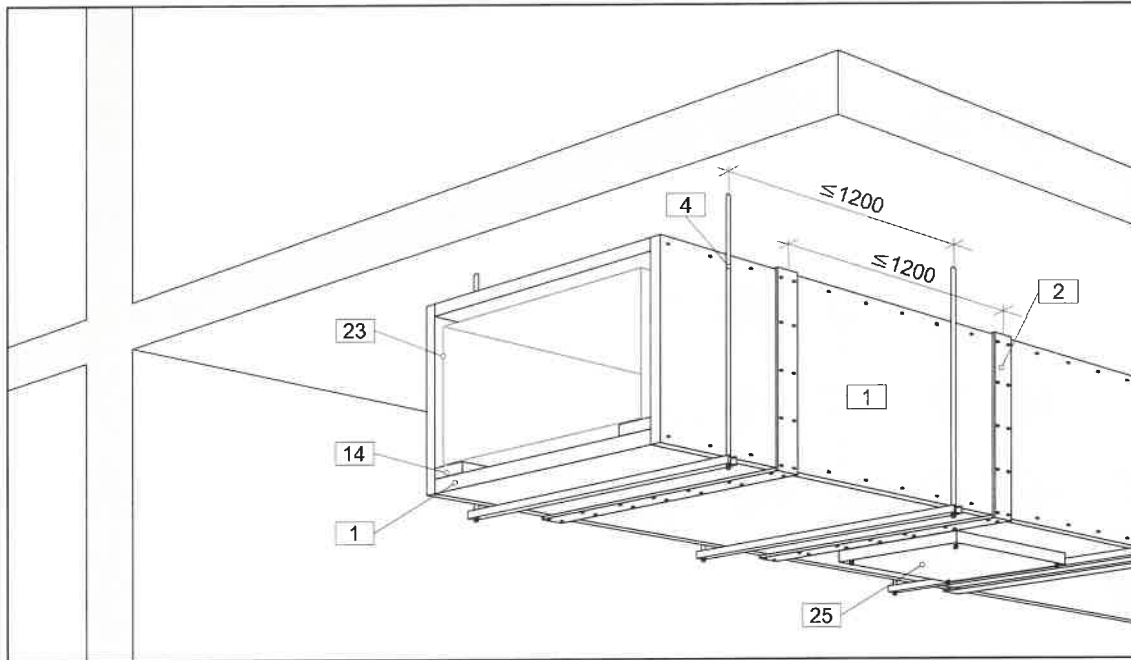


VENTILATION DUCT with internal sheet steel duct EI 90-S

Fire Protection



DESIGN DESCRIPTION

Single layer, 4-sided ventilation duct as fire protection lining of ventilation ducts made of sheet steel with a fire resistance of 90 min.

Made of fire protection boards **THERMAX SL**, 45 mm, butt jointed and glued. Connections are screwed or stapled.

The board joints of the duct segments should be covered with **THERMAX A** cover strips, 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.

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

The internal sheet steel duct in the ventilation duct is supported above the traverse on **THERMAX SL** inlay strips, $th \geq 45 \text{ mm}$, $l \geq 150 \text{ mm}$, $w \geq 50 \text{ mm}$. The distance between the inlay strip and the sheet steel flansch of $\geq 100 \text{ mm}$ must be maintained.

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

At the penetration of solid building constructions with at least the same fire resistance as the ventilation duct, the remaining opening of $10 \leq E \leq 40 \text{ mm}$ 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, $th \geq 45 \text{ mm}$, $w \geq 150 \text{ mm}$.

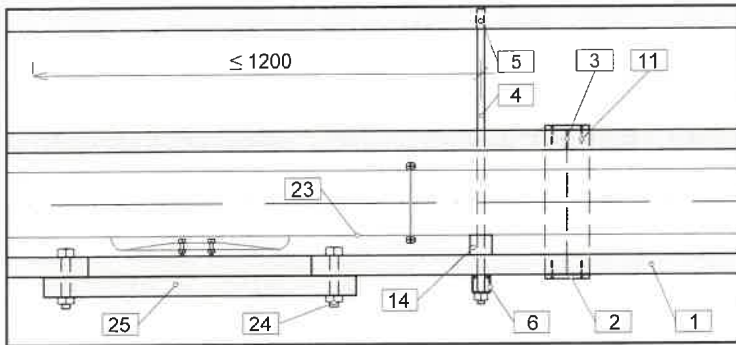
MATERIAL:

- 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 Brandschutzkleber**

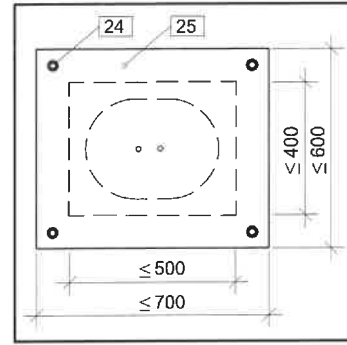
GENERAL INFORMATION:

- Classification: EI 90 (ve ho i ↔ o) -S
- 4-sided lining of sheet steel ventilation ducts made of **THERMAX SL**
- max. internal duct section: $\leq 1250 \times 1000 \text{ (W x H)}$ of the sheet steel duct
- Operating pressure: $\pm 500 \text{ Pa}$ (sheet steel duct without tightness requirement)
- Access opening $\leq 500 \times 400 \text{ mm}$ in the board lining

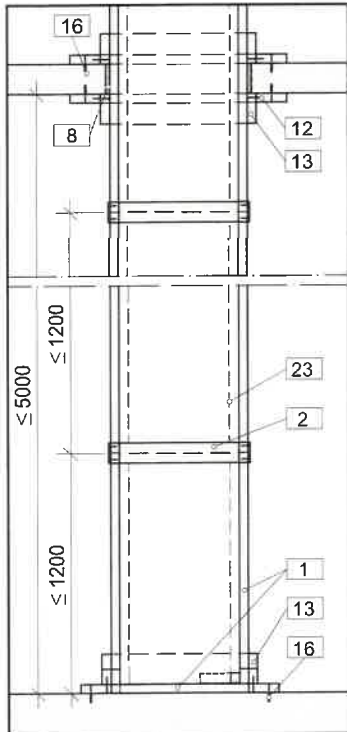
DESIGN DETAILS



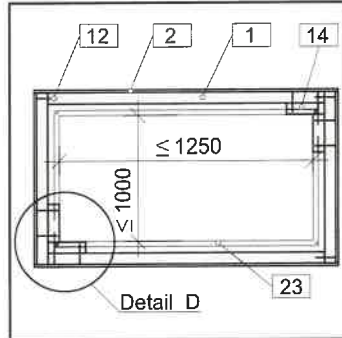
[11] Horizontal ventilation duct with access opening



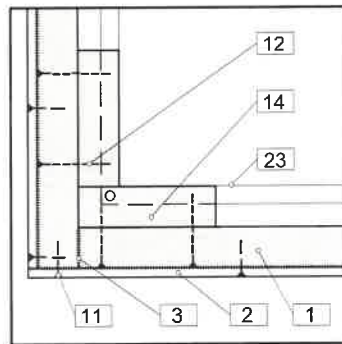
[12] Access opening



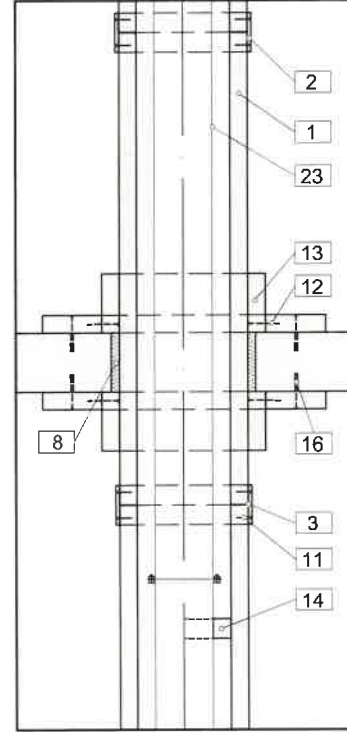
[13] Vertical ventilation duct



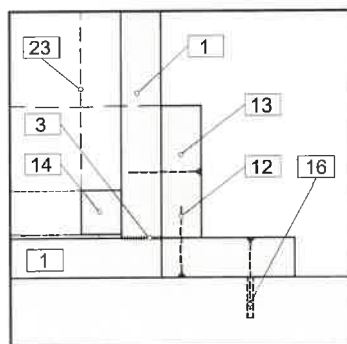
[14] Cross-section vertical ventilation duct



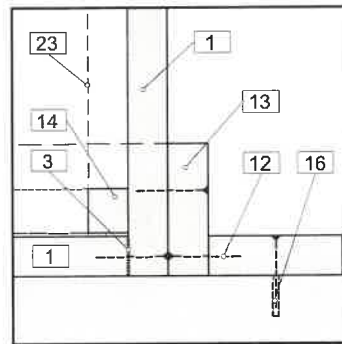
[15] Detail D: Corner design vertical



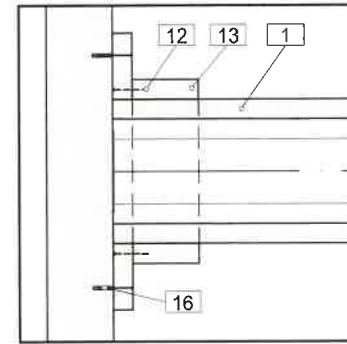
[16] Ceiling penetration



[17] Floor connection

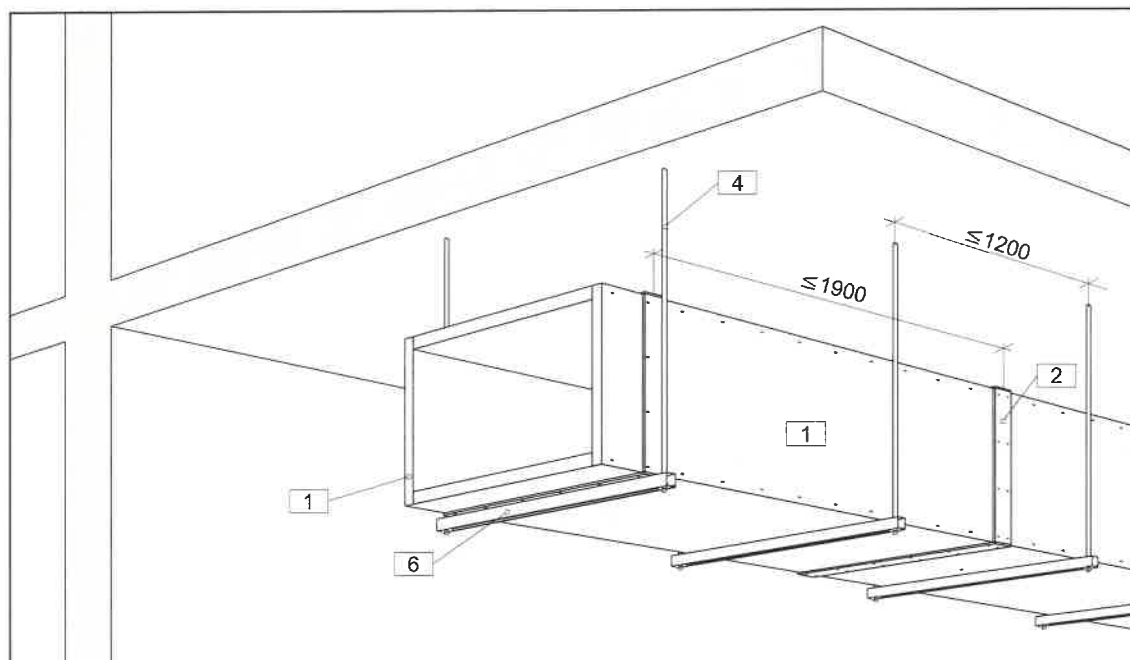


[18] Floor connection, Var. 1



[19] Wall connection

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

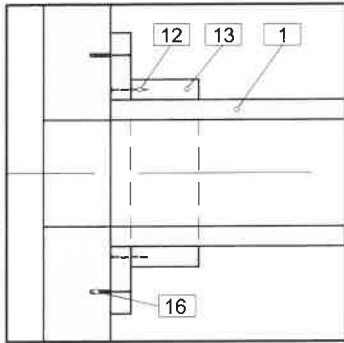
GENERAL INFORMATION:

- 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: $\pm 500 \text{ Pa}$

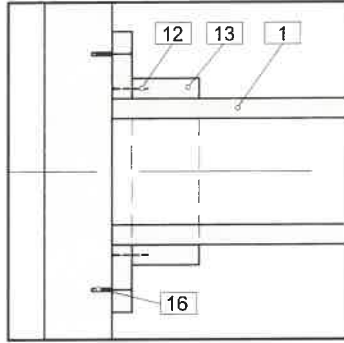
Further possible duct sections

- 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

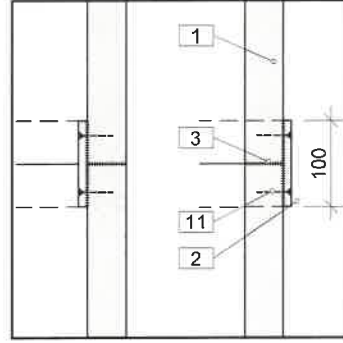
DESIGN DETAILS



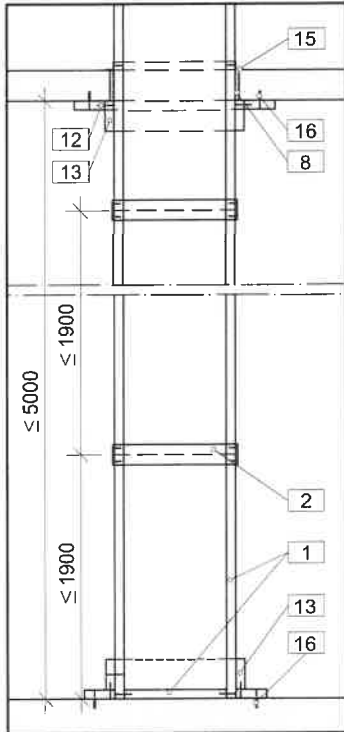
[10] Detail: Wall connection



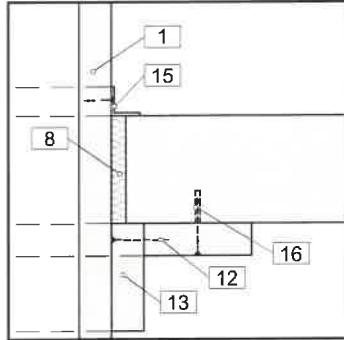
[11] Var. Wall connection



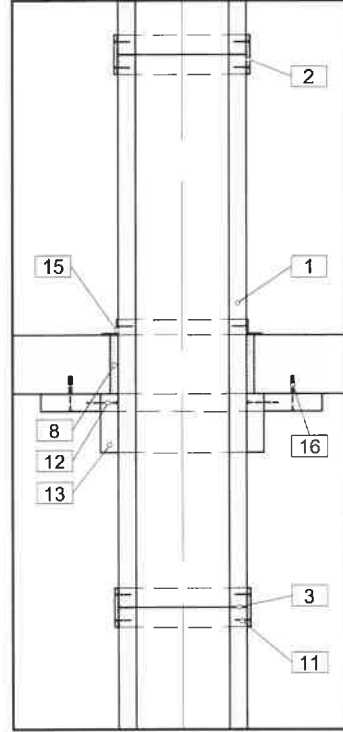
[12] Cover strip vertical, inside and outside



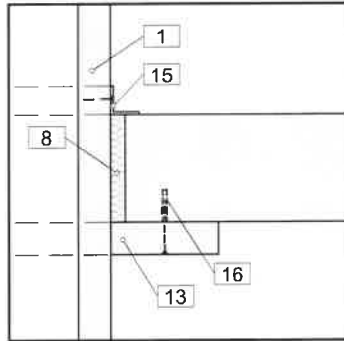
[13] Vertical ventilation duct



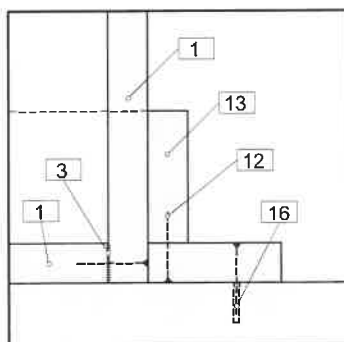
[14] Detail: Ceiling penetration



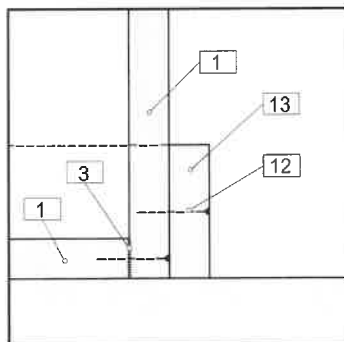
[16] Ceiling penetration



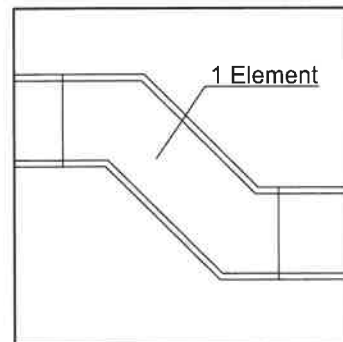
[15] Detail: Ceiling penetration, Var. 1



[17] Detail: Floor connection



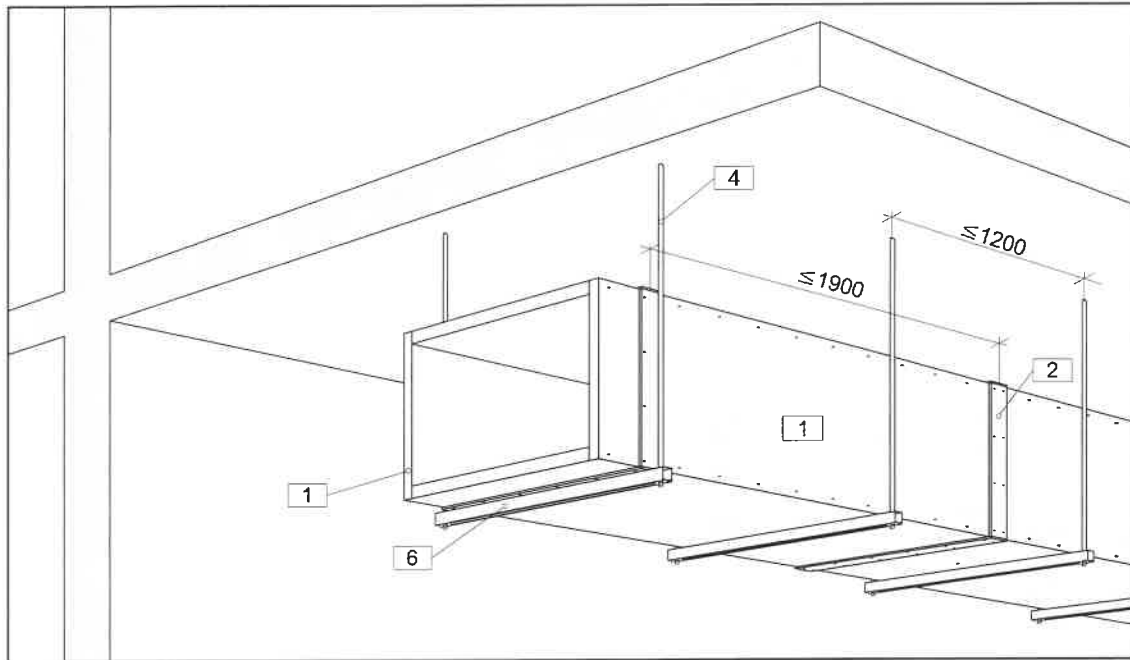
[18] Detail: Floor connection, Var. 1



[19] Principal design

SMOKE EXTRACTION DUCT self-supporting EI 90-S

Fire Protection



DESIGN DESCRIPTION

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

Made by butt jointing of fire protection boards **THERMAX SL**, $th = 45 \text{ mm}$, the joints 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 smoke extraction 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 smoke extraction 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 smoke extraction 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**

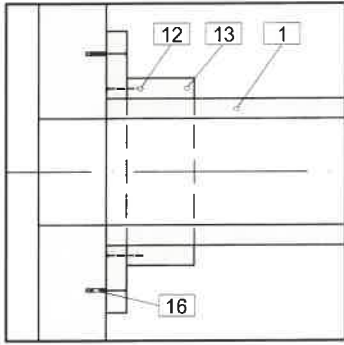
GENERAL INFORMATION:

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

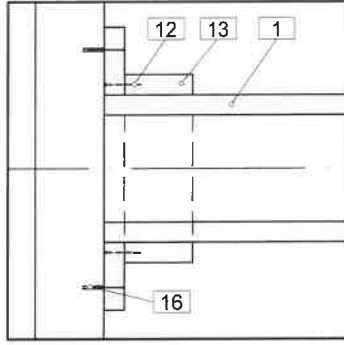
Further possible duct sections

- EI 90 (ve) S 500 multi $\leq 1500 \times 800 \text{ mm}$ (WxH) internal section, with one stiffener as well as
- EI 90 (ho) -S $\leq 1800 \times 1000 \text{ mm}$ (WxH) internal section, with one stiffener
- Operating pressure: $\pm 500 \text{ Pa}$

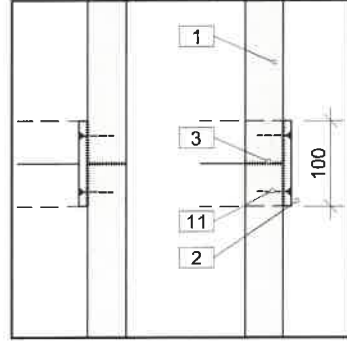
DESIGN DETAILS



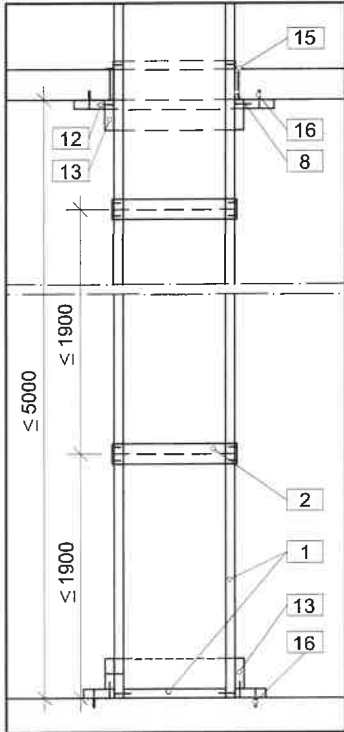
[10] Detail: Wall connection



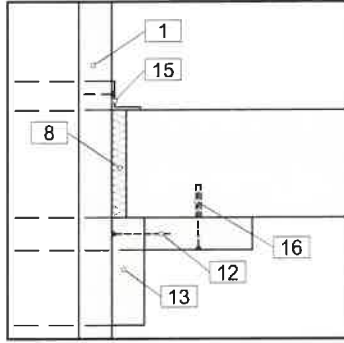
[11] Wall connection, Var. 1



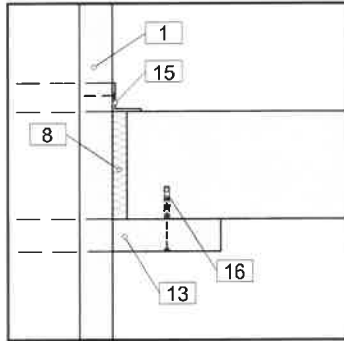
[12] Cover strip vertical, inside and outside



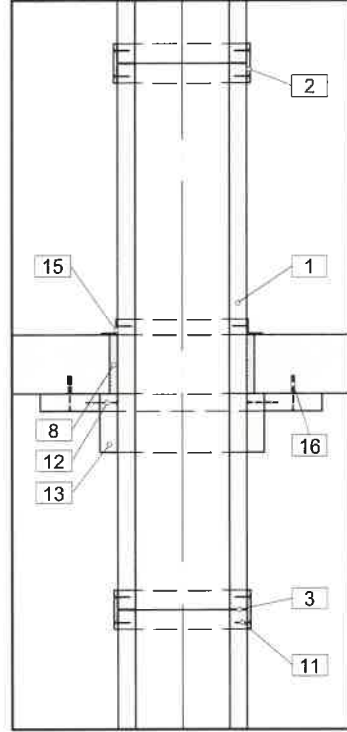
[13] Vertical smoke extraction duct



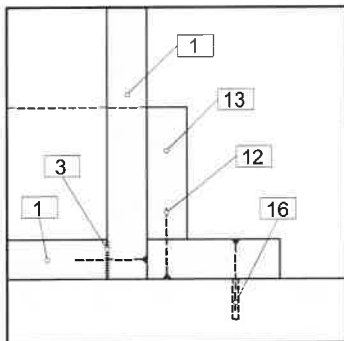
[14] Detail: Ceiling penetration



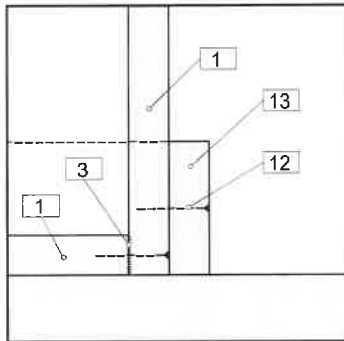
[15] Detail: Ceiling penetration, Var. 1



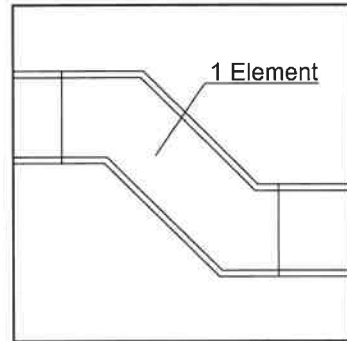
[16] Ceiling penetration



[17] Detail: Floor connection



[18] Detail: Floor connection, Var. 1



[19] Principal design