

GEO STAFF

Specialist in fire protection and decorative gypsum products

TECHNICAL CATALOGUE

FIRE-PROTECTION

SMOKE EXTRACTION & VENTILATION
DUCTS - HORIZONTAL SYSTEM

**GLUE &
SCREW SYSTEM**

▶ NEXT



WHO ARE WE ?

Since 1982, GEOSTAFF has been specialising in fire-protective products for passive fire protection, designed to meet the highest building industry standards.

The passive fire protection consists of integrating fire-stop systems into constructions, which will limit the spread of fire and smoke. Passive fire protection means:

Protection of individuals, allowing the occupants to evacuate the building in complete safety,

Protection of property, containing the fire for as long as possible while awaiting the emergency services.

As a pioneer in the field, the Geostaff team is constantly innovating in order to push safety standards to the highest level. Tested in certified laboratories, our systems excel in the most drastic tests in line with the latest European standards.

As a European manufacturer of 100% natural GRG* products, GEOSTAFF offers the following product ranges:

GEOTEC® for the construction of ventilation and smoke extraction ducts, for the fire-protection of service ducts and shafts and the protection of epoxy bonded reinforcement systems on concrete slabs and beams. The GEOTEC® range allows you to build fire safe solutions up to 120 minutes.

GEOFLAM® for the construction of ventilation and smoke extraction ducts and the fire-protection of service ducts and shafts. The GEOFLAM® range allows you to build fire safe solutions up to 240 minutes.

GEODECO® decorative range manufactured for the decoration of hotel suspended ceilings, luxury homes and castles.

*GRG: Glass Reinforced Gypsum (GRG) uses a combination of plaster and fiberglass. Glass Reinforced Gypsum is a more resistant plaster that allows the realization of our fire-protective elements and guarantees the excellent resistance and strength of our boards.

THIS DOCUMENTATION FOCALISES ON THE INNOVATIVE GEOTEC® SOLUTIONS.

GEOTEC®

EI 30/60 S
EI 90/120 S
Glue & Screw assembly
Glue & Staple
Glue & Fiber reinforced gypsum

Geostaff offers, through the GEOTEC® and GEOFLAM® ranges, various models and dimensions of fire protective boards for the construction of ventilation and smoke extraction ducts; the fire-protection of service ducts; the protection of carbon fiber bonded beams as well as for the protection of cable trays.

Fire protective board GEOTEC®S

In order to meet all requirements for passive fire protection, Geostaff also produces pre-moulded fire-resistant elements for the protection of service ducts and shafts (for electrical cables, both combustible as non-combustible pipes and ducts : gas, medical fluids/gasses, air, combustibles...), for the protection of metal columns and fire-resistant inspection hatches.



Please download the GEOFLAM® documentation online or contact us at com@geostaff.fr for more informations on our solutions.

GEOFLAM®

EI 90/120S
EI 180 S
EI 240 S
Glue & Fiber reinforced gypsum



INTERNATIONAL COMPANY

Head office in France
Production plant in France
Research centre in Belgium
Logistic center in Paris & Nice
Worldwide references



KNOWLEDGE

35 years of experience
CE Marking
Declaration of Performance



SOLUTIONS

Certified solutions
EI 30/60 S, EI 90/120 S, EI 180 S, EI 240 S



Prefab C-Light pre-moulded element



GEOFLAM®DC pre-moulded element



Fire-resistant vertical inspection hatch

ICONS

-  **Reaction to fire**
A1 classification in accordance with fire resistance classification standard **EN 13501-1**.
-  **European Conformity**
Based on the European Assessment Document (EAD) n° **350142-00-1106**: "Fire-protective board, slab and mat products and kit".
-  **ETA 18/0343**
GEOTEC®S : European Technical Assessment **18/0343**.
-  **ETA 15/0654**
GEOFLAM®F : European Technical Assessment **15/0654**.
-  **ETA 15/0653**
GEOTEC®F-Light : European Technical Assessment **15/0653**.
-  **Indoor air emission**
Labelling of construction products Level of volatile pollutant emissions from the product A+ : Very low emissions.
-  **Ventilation**
Ventilation duct certificate according to the fire resistance test standard **EN 1366-1**.
-  **Smoke extraction**
Smoke extraction duct certificate according to the fire resistance test standard **EN 1366-8**.
-  **Fire protection services**
Service ducts and shafts certificate according to the fire resistance test standard **EN 1366-5**.
-  **Carbon protection reinforcement**
Protection of epoxy bonded reinforcement systems on concrete slabs and beams.
-  **Fire-resistant inspection hatches**
1 and 2 hours fire-protection **EN 13501-2**.
-  **Glue + Screw**
[Duct internal dimension ≤ 2500 x 1500 mm].
-  **Glue + Staple**
[Duct internal dimension ≤ 1250 x 1000 mm].
-  **Glue + Fiber reinforced gypsum**
[Duct internal dimension ≤ 2500 x 2000 mm].

-  **Geocol® Glue**
Powder-coated adhesive especially formulated for mounting GEOFLAM® and GEOTEC® boards.
-  **Paint application**
A water-based acrylic paint may be applied to GEOTEC®S products without compromising their fire-protection properties.
-  **Easy cutting**
The product can be cut using a circular saw or a sabre saw.
-  **Easy cutting**
The product can be cut using a handsaw.
-  **Water-repellent treatment**
It is possible to apply a water-repellent treatment that does not alter the A1 classification by addition of water-repellent (option).
-  **Environmentally friendly products**
100% natural gypsum-based products meeting environmental and health standards (FDS) and observing safety standards (FDES).
-  **Geostaff has been awarded the eco labels : EXCELL zone verte and Eco Bau.**
-  **Tailored dimensions**
Tailored dimensions are delivered according to your project needs.
-  **Duct palettizing**
Palletizing of the products by ducts is possible.
-  **Online calculation tool**
Calculate your material requirements for the construction of all your GEOSTAFF systems online.
-  **Transportation**
Product must be transported and stored on a flat and protected surface.
-  **Storage**
Product must be kept away from water.
-  **GRG**
Glass Reinforced Gypsum.
-  **Lightweight board**

PROTECTING YOU FROM FIRE IS WHAT WE DO

How can we fulfil our mission and protect you in case of a fire?

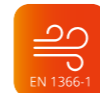

Our first objective is to introduce fire-stop solutions inside all types of buildings (private, public, industrial, etc.) that will limit the spread of fire and smoke. These solutions are defined by the installation of horizontal and vertical smoke extraction and ventilation ducts, the protection of technical

ducts, the fire protection of various electrical cable trays, but also the installation of fire-resistant access hatches. All our products are designed with the aim of making these solutions possible and are tested and classified in accordance with all the existing European standards.

Ventilation and smoke extraction ducts

The construction of a ventilation or smoke extraction system involves using a flow of air to flush the space to be cleared of smoke. This means clearing smoke on the one hand (smoke extraction duct or high-level ventilation) and bringing in fresh air on the other (ventilation duct or low-level ventilation).

Two cases are therefore possible:

-  Protecting the internal volume of a duct from fire, the common expression "external fire" using **ventilation ducts or introduction of air** (low-level ventilation).
 -  In the rooms that it crosses, protecting the entire length of ducting from an "internal" fire, using **smoke extraction ducts** (high-level ventilation).
- Please refer to the chapter "SMOKE EXTRACTION AND VENTILATION DUCTS" from page 29.**

Fire protection of service ducts and shafts

The service duct is defined as a usually accessible enclosed volume containing combustible or non-combustible service installations such as pipes or cables. The main purpose of the fire resistant protection of service ducts and shafts is to prevent fire from spreading from one room to another through these service installations or to protect these installations from fire and guarantee their functionality.

Protection to epoxy bonded reinforcement systems on concrete slabs and beams

The fire stability of reinforced concrete structures and substrates is obtained by restricting the temperature rise in the steelwork within the concrete.

GEOSTAFF® proposes validated solutions using GEOTEC®S to protect the carbon fibre reinforcements installed under the floor slab and concrete beam, depending on the desired levels of fire performance and the critical temperatures provided by the manufacturer.

Fire-resistant inspection hatches

GEOSTAFF fire-resistant inspection hatches can be installed both in our fire protective systems as standardized constructions to access inside the service ducts. They allow inspections and enable repairs.



Fire classification and tests standards

Geostaff products are tested and classified in accordance with all European standards in force.

Fire resistance classification standards

EN 13501-1

Fire classification of construction products and building elements - Part 1 : Classification using test data from reaction to fire tests.

EN 13501-3

Fire classification of products and construction elements - Part 3: Classification using fire resistance test data for the products and elements used in maintenance installations: fire-resistant ducts and fire dampers.

Fire resistance tests standards

EN 1366-1

Fire resistance tests for plant installations - Part 1: Ducts. To obtain a ventilation duct certificate, tests in accordance with EN 1366-1 (horizontal and/or vertical ducts type A and B, as defined in the standard) are required.

EN 1366-8

Fire resistance tests for service installations - Part 8: Smoke extraction ducts. To obtain a certificate for a smoke extraction duct, tests in accordance with EN 1366-1 and 8 (horizontal and/or vertical ducts type A, B and C, as defined in the standard) are required.

EN 13501-2

Fire classification of construction products and building elements - Part 2 : Classification using data from fire resistance tests, excluding ventilation services.

EN 13501-4

Fire classification of products and constructional elements - Part 4: Classification based on fire resistance test data for the components of smoke control systems.

EN 1366-5

Fire resistance tests for service installations - Part 5 : Service ducts and shafts.

Declaration of performance in accordance with CE product standard EN 12101-7 for factory-made duct sections : contact Geostaff for the possibilities.

SOLUTION	Fire-rated performance	Classification standards	Fire-resistant tests
Horizontal and vertical ventilation ducts	EI 30/60 - 90 /120 - 180 - 240 (S)	EN 13501-3	EN 1366-1
Horizontal and vertical smoke extraction ducts	EI 30/60 - 90/120 - 180 - 240 (S)	EN 13501-4	EN 1366-8
Service ducts and shafts	EI 30/60 - 90/120 - 180 - 240	EN 13501-2	EN 1366-5
Fire-resistant inspection hatches	EI 30/60 - 90/120	EN 13501-2	EN 1634-1
Protection of epoxy bonded reinforcement systems	30 - 60 - 90 -120 -180 min	-	-

CE Marking

To guarantee the performance of our fire protection systems, Geostaff decided, by means of a daily product inspection, to implement annual third party certification audits to obtain CE marking of fire-protective boards.

The different CE markings of our products have been made according to the European Assessment Document (EAD) n° 350142-00-1106 : "Fire-protective board, slab and mat products and kit". They were created within the framework of the European legislation and certify the conformity of our products with the declared performances.

The ETA numbers corresponding to Geostaff products are as follows:

GEOFLAM®F : European Technical Assessment ETA n° 15/0654

GEOFLAM®F-Light : European Technical Assessment ETA n° 15/0653

GEOTEC®S : European Technical Assessment ETA n° 18/0343

For all Geostaff products with the CE marking, the Declarations of Performance for these products are available on the www.geostaff.fr website.

Classification criteria

E: Integrity (flames and hot gases)	o → i: Direction of the "external" fire
I: Thermal insulation (temperature on the unexposed side < 140°C on average or 180°C at a point)	i → o: Direction of the "internal" fire
t: Duration of the classification expressed in minutes	i ↔ o: Arbitrary direction of the "internal" or "external" fire
S: Smoke leakage (leakage per unit surface area < 10 m³/hr.m² for ventilation, 5 m³/hr.m² for smoke extraction)	Multi: Indicates that the smoke extraction duct can extract smoke from several compartmentalised zones
ve: Vertical position of the duct being tested	Service pressure: Indicates the positive and negative pressures at which the duct was tested
ho: Horizontal position of the duct being tested	

Example of classification

EI 60 : HORIZONTAL & VERTICAL Fire rated ventilation duct with 30 mm GEOTEC®S fire-protective boards. (Dimension up to 2500 x 1500 mm)

E	I	t	ve	ho	i	↔	o	S
E	I	60	ve	ho	i	↔	o	S

EI 120 : HORIZONTAL & VERTICAL Fire rated multi-compartment smoke extraction duct with 45 mm GEOTEC®S fire-protective boards. (Dimension up to 2500 x 1500 mm)

E	I	t	S	ve	ho	Service pressure	Multi
E	I	120	S	ve	ho	-1500 Pa / +1500 Pa 500Pa	Multi

EI 120 : HORIZONTAL & VERTICAL Fire rated protection of service ducts and shafts with 45 mm GEOTEC®S fire-protective boards. (Dimension up to 2500 x 1500 mm)

E	I	t	ve	ho	i	↔	o
E	I	120	ve	ho	i	↔	o

Why choosing the Geostaff solution ?

By choosing Geostaff fire-protective products you can now have the solution that best fits your needs.

CERTIFIED SOLUTION

The Geostaff boards are made in France with respect of the highest European quality standards in addition to CE* certification under a DOP*.

Geostaff has tested the widest range of solutions with respect to large dimensions, complex shapes, extra standards pressure levels or wall penetrations. These solutions cover beyond the basic requirements for fire rated ventilation ducts (EN 1366-1), multi compartment smoke evacuation ducts (EN 1366-8) and the protection of services (EN 1366-5).

Geostaff products are meeting environmental and health standards ("Fiche de Déclaration Environnementale et Sanitaire": **FDES**) and are observing safety standards ("Fiche de Données de sécurité" : **FDS**).

Please visit our website to find our products safety standards : www.geostaff.fr

*CE : European Conformity

*DOP : Declaration Of Performance.

ONE SHOP STOP SOLUTION

The online calculation tool enables you to calculate your material requirements for all the Geostaff solutions. Besides generating a full Bill of Material (BoM) that allows the Geostaff partners to have a perfect view and control on the material costs, a technical drawing is provided for the various duct section.

Please visit our website and ask for your login to access our online calculation tool.

Also, Geostaff has an extended stock to meet short delivery times.

TAILORED AND FLEXIBLE SOLUTION

Geostaff uses Glass Reinforced Gypsum to mould the various board dimensions and accessories. The tailored boards allow a quick installation with a minimum of material waste.

Geostaff material is characterized by an easy manipulation. The boards can be cut both manually as mechanically. The plaster-based GEOCOL® glue is used on the joints both as glue and as a filler (maximally 1/3rd of the board thickness). It allows larger tolerances during installation hence minimizing material waste and maximizing installation speed.






The pre-molded accessories have a perfect fit and are easy to install.

Products are easily paintable and a water-repellent treatment is optional.

EXPERTISE AT YOUR SERVICE

Our engineers and specialists are at your service to search for the best certified solution for your project. In combination with our logistical team, we can deliver specific duct sections on separate pallets to prosper installation time. Please contact us for more details.

Our installation methods

EI 30 - 60 S EI 90 - 120 S		Glue + screw	GEOTEC®	Duct internal dimension ≤ 2500 x 1500 mm
EI 30 - 60 S EI 90 S		Glue + staple	GEOTEC®	Duct internal dimension ≤ 1250 x 1000 mm
EI 30 - 60 S EI 90 - 120 S		Glue + fiber reinforced gypsum	GEOTEC®	Duct internal dimension ≤ 2500 x 2000 mm
EI 180 S		Glue + fiber reinforced gypsum	GEOFLAM® FX	Duct internal dimension ≤ 2500 x 2000 mm
EI 90 - 120 S		Glue + fiber reinforced gypsum	GEOFLAM® F Light	Duct internal dimension ≤ 1250 x 1000 mm



Additional technical data

Airflow performance

Hot sealing: Classification S in accordance with standards EN 1366-1 and 1366-8

i.e. a leakage flowrate per unit surface area of $<10 \text{ m}^3/\text{hr.m}^2$ for ventilation ducts and $<5 \text{ m}^3/\text{hr.m}^2$ for smoke extraction ducts.

Cold sealing: Class B in accordance with standard EN 1507

Class	$\text{m}^3.\text{s}^{-1}.\text{m}^{-2}$	$\text{m}^3.\text{h}^{-1}.\text{m}^{-2}$
A	$0.027 \times p^{0.65} \times 10^{-3}$	$0.0972 \times p^{0.65}$
B	$0.009 \times p^{0.65} \times 10^{-3}$	$0.0324 \times p^{0.65}$
C	$0.003 \times p^{0.65} \times 10^{-3}$	$0.0108 \times p^{0.65}$
D	$0.001 \times p^{0.65} \times 10^{-3}$	$0.0036 \times p^{0.65}$

Pressure drop

The GEOTEC® system also addresses the basic principles of air conditioning techniques with a roughness factor for untreated internal walls similar to that of steel ducts, i.e. $\epsilon = 0.05 \text{ mm}$ (for the smooth surface of the panel only).

Acoustic performance

Acoustic attenuation with lining

With the aim of restricting airborne noise propagated by the ducts and hence providing better acoustic performance, Geostaff proposes solutions for attaching a lining to the GEOTEC® ducts; the characteristics are listed in the table below:

Thickness GEOTEC® S	$R_w(C; C_{tr}) \text{ dB}$		
	1 BA13 + LdV 45 mm	2 BA13 + LdV 45 mm	3 BA13 + LdV 85 mm
30	49 (-3;-9)	53 (-2;-7)	57 (-1;-4)
45	50 (-2;-7)	54 (-1;-6)	60 (-1;-4)

Rw + C : Acoustic attenuation to indoor noise

Rw + Ctr : Acoustic attenuation to outdoor noise

BA13 : Standard plasterboard (13 mm thickness)

LdV : glass wool

dB : decibel

Seismic performance

To guarantee that the GEOTEC® system works properly in seismically active zones or in buildings subject to significant vibration such as airports, stations or even underground car-parks, GEOTEC® ducts have been validated in accordance with the S2 set of spectra at 5% damping as per standard CRT 91 C 112 00. Carried out by the SOPEMEA laboratory (RE 1E31169ME), these calculations showed the excellent resistance to seismic activity and vibration of the GEOTEC® system.

Performance under damp conditions

Where ventilation or smoke extraction ducts are constructed in rooms where the humidity is high, we propose that our products be treated with a water repellent. This treatment is applied to the bulk of the material, and does not alter the fire resistant properties of the products in any way.



SMOKE EXTRACTION & VENTILATION DUCTS

1. SYSTEM GENERAL OVERVIEW

2. HORIZONTAL SYSTEM

- 2.1 Assembly principle
- 2.2 Installation instructions
- 2.3 Alternative support principles
- 2.4 Alternative for the protection of the suspension system
- 2.5 Wall penetrations
- 2.6 Dilation joints
- 2.7 Protection of steel ducts
- 2.8 Various configurations

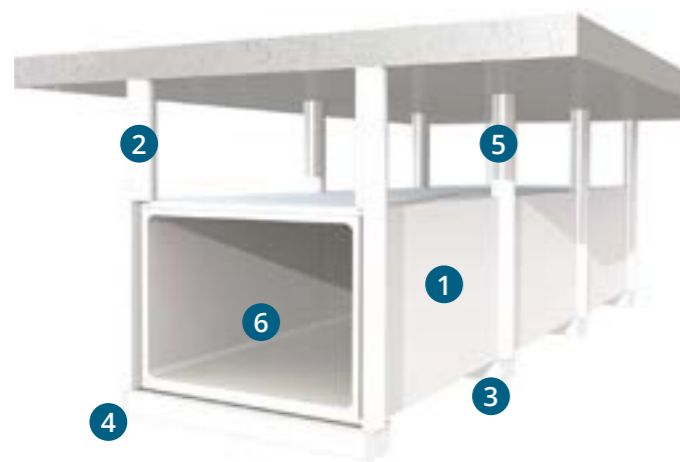
1. SYSTEM GENERAL OVERVIEW

Ducts are made by juxtaposing **GEOTEC®S** boards of length 1000 mm and of 30 or 45 mm thickness. These systems are available for fire classifications EI 30 S to EI 120 S (in accordance with standards EN 13501-3 and EN 13501-4). All boards are moulded to standard dimensions with rabbets to facilitate their assembly (30 mm : 2-sided; 45mm : 4-sided). Each 1000 mm long cuttable segment comprises four or more boards.

Certificates: fire resistance classification report						
	Tests in accordance with EN 1366-1 and 1366-8	Thickness (mm)	EI S	Internal cross-sections (mm)	Service pressure* (Pa)	EFFECTIS classification documents
	Horizontal and vertical ventilation ducts	30	30/60	0x0 to 2500x1500	± 500	Cert EFR-16-002202 Rev. 1
		45	90/120			
	Horizontal and vertical Smoke extraction ducts	30	30/60	0x0 to 2500x1500	-1500/+500	Cert. EFR-16-002203 Rev. 1
		45	90/120			

* Service pressure raised to -1500/+1500 Pa (according to Cert 18/10 Rev. I) E = Integrity / I = Thermal insulation / S = Smoke-tightness

Horizontal system



- 1 GEOTEC®S 30 or GEOTEC®S 45 fire-protective boards (EI 30/60 S and EI 90/120 S)
- 2 GEOTEC®A 1/2 shells
- 3 GEOTEC®A U-plaster element
- 4 21x41x21 steel U profile, Ø8 nut and washer
- 5 Ø8 anchor brass and threaded rod
- 6 GEOCOL® glue

To make your assemblies easier, Geostaff privileges the use of the Ø8 threaded rod and 41x21 steel U-profile. All screw heads can be hidden by glue for easthetic reasons.

Vertical system



- 1 GEOTEC®S 30 or GEOTEC®S 45 fire-protective boards (EI 30/60 S and EI 90/120 S)
- 2 GEOTEC®A reinforcement collar
- 3 GEOCOL® glue
- 4 VBA screws Ø 5 x 80 (EI 30/60 S) Ø 5 x 90 (EI 90/120 S)

* Other load-bearing methods in chapter : 3.3.Alternative support principles (from page 72).

2. HORIZONTAL SYSTEM

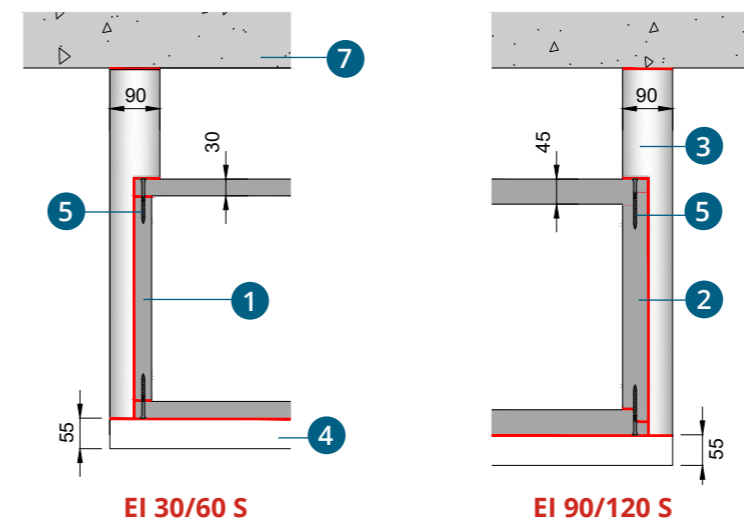
2.1. Assembly principle

The boards are assembled using VBA screws or staples. Screws are inserted without pilot holes. All joints are previously treated with **GEOCOL®** glue.

Horizontal ducts are formed from 1000 mm sections; the boards are mounted without offset on the horizontal and vertical joints. However, in order to facilitate the installation, the upper boards can be offset from the rest of the duct.

- + Any spaces of less than 10 mm between board junctions must be filled in over the entire thickness with **GEOCOL®** glue.
- + Eventual repairs can be treated by bonding and screwing an extra thickness of the board with an overlap equivalent to the thickness of the board.

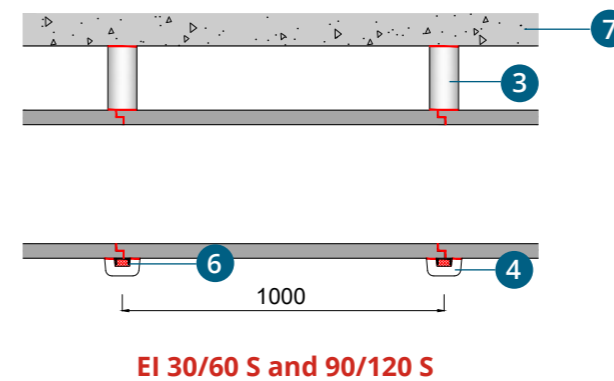
Cross-sectional view



- 1 GEOTEC®S 30 board
- 2 GEOTEC®S 45 board
- 3 GEOTEC®A 1/2 shell
- 4 GEOTEC®A U plaster element
- 5 VBA Screw Ø 5 x 80 (EI 30/60 S) Ø 5 x 90 (EI 90/120 S) or galvanized steel staples * 75 x 10 x 2 mm
- 6 Steel U-profile 21 x 41 x 21
- 7 Concrete slab

*staples : ≤ 1250 x 1000 mm (w x h) EI 30/60/90 S.

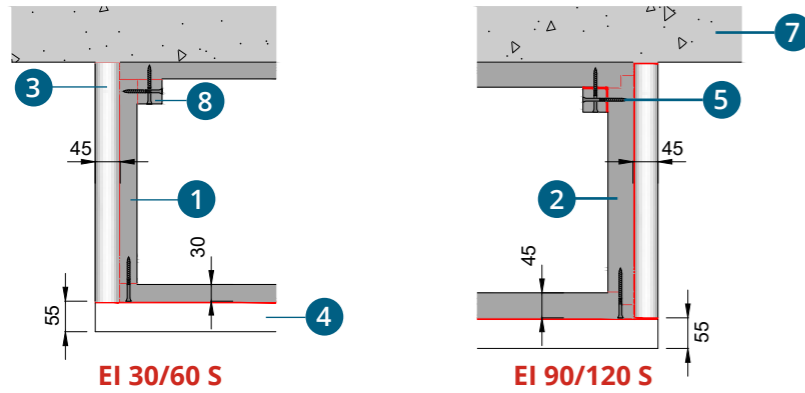
Longitudinal section view



When the duct is against the slab:

In the case of a horizontal duct adjoining the slab, a batten can be used to screw the boards together.

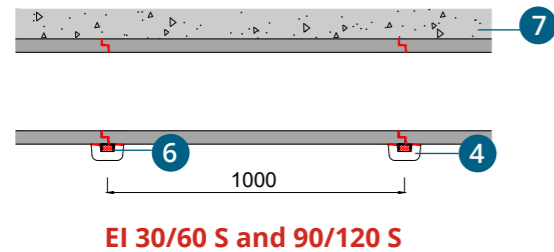
Cross-sectional view



- 1 GEOTEC® S 30 board
- 2 GEOTEC® S 45 board
- 3 GEOTEC®A 1/2 shell
- 4 GEOTEC®A U plaster element
- 5 VBA Screw
Ø 5 x 80 (EI 30/60 S)
Ø 5 x 90 (EI 90/120 S)
or galvanized steel staples
* 75 x 10 x 2 mm
- 6 Steel U-profile
21 x 41 x 21
- 7 Concrete slab
- 8 GEOTEC®A Batten

*staples :
≤ 1250 x 1000 mm (w x h) EI 30/60/90 S.

Longitudinal section view



2.2. Installation instructions

Internal Duct Width (W int)	Ventilation duct	Smoke extraction duct	Page
≤ 600 mm	Standard Installation.		35
600 < w ≤ 1000 mm	Solution 1: Using GEOTEC® A cover strip.		36
	Solution 2: Using GEOTEC® A Reinforcement collar.		38
1000 < w ≤ 1250 mm	Solution 1		40
	Using internal steel U-profile.	Using internal steel U-profile protected by GEOTEC® A U-plaster element.	40/42
1250 < w ≤ 2000 mm	Solution 2: Using internal protected Ø8 threaded rods.		44
	Using a second 21x41x21 steel U-profile + an additional Ø8 threaded rod.	Using a second 21x41x21 steel U-profile protected by GEOTEC® A U-plaster element and using an additional Ø8 threaded rod protected by GEOTEC® A Half shell	46
2000 < w ≤ 2500 mm	Using a second 24x41x21 steel U-profile + an additional Ø8 threaded rod. + Replace the steel U-profile placed under the lower board for a 41x41 Steel U-profile.	Using a second 21x41x21 steel U-profile protected by GEOTEC® A U-plaster element and using an additional Ø8 threaded rod protected by GEOTEC® A Half shell. + Replace the steel U-profile placed under the lower board for a 41x41 Steel U-profile.	49

Internal Duct Width (W int)	Ventilation duct	Smoke extraction duct	Page
Inner Perimeter > 4500 mm			
1000 < w ≤ 1250 mm	Use solution 1 or 2 above and replace Ø8 threaded rods for Ø10 threaded rods.		52
	Special configuration: Use a second 21x41x21 steel U-profile + an additional Ø8 threaded rod.	Special configuration: Use a second 21x41x21 steel U-profile protected by GEOTEC® A U-plaster element and use an additional Ø8 threaded rod protected by GEOTEC® A Half shell.	

Note:

In the case of a horizontal duct installed with multiple boards in its height ($h_{int} > 1100$ mm in EI 30/60 S or 1050 mm in EI 90/120 S), the horizontal joint between the boards has to be reinforced.

Two solutions may be considered according to the internal width of the duct and its level of pressure :

Solution 1 : Using cover strips

Regardless of the width of the duct, when the level of pressure $\leq \pm 500$ Pa, the horizontal joints are treated with internal or external cover strips staggered at 120 mm intervals along the length of the duct. For a level of pressure above ± 500 Pa then the cover strips should be installed both inside **and** outside the duct.



Solution 2 : Using internal reinforcement collars

Regardless of the level of pressure in the duct, when $w_{int} \leq 1000$ mm, the horizontal joint can be reinforced using a horizontal reinforcement collar every meter.



Standard installation principle

SCAN and watch
THE HORIZONTAL DUCT ASSEMBLY on video.



- 1**

 - Mark out every 1000 mm
 - Drill Ø10 holes
 - Install Ø8 brass anchors
 - Screw up the Ø8 threaded rods
- 2**

 - Install steel U-profiles every 1000 mm
- 3**

 - Install the lower board
- 4**

 - Glue the board edgings
 - Screw the side boards with VBA screws every 120 mm or use staples
- 5**

 - Glue the board rabbets
 - Install the upper board
 - Screw with VBA screws every 120 mm or use staples
- 6**

 - Glue and install the protective plaster U-profiles against the underside of the lower board
- 7**

 - Glue and install the 1/2 shells to protect the threaded rods
- 8**

 - Repeat from step 3
 - Glue and fit together with the previous section

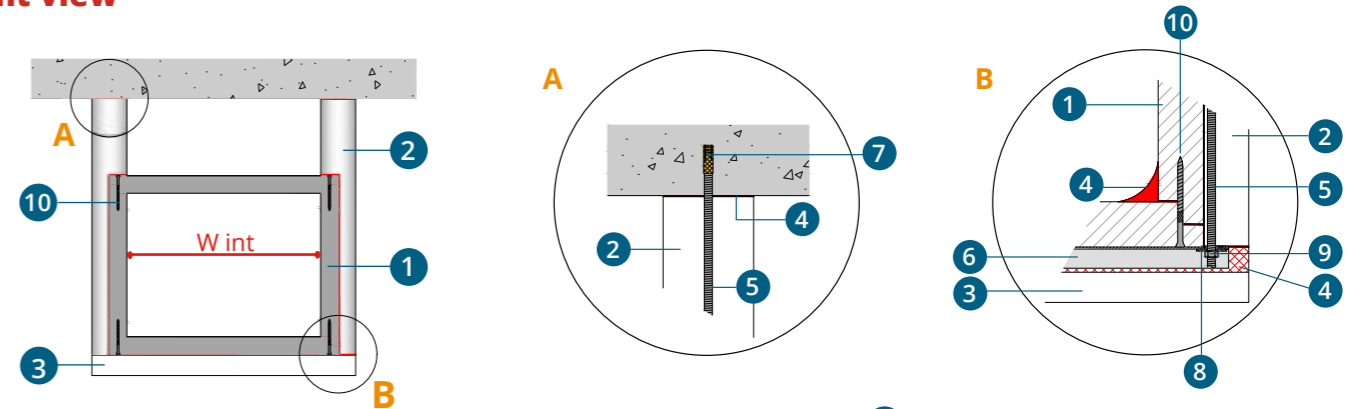
W int ≤ 600 mm

Standard installation principle: see page 34.

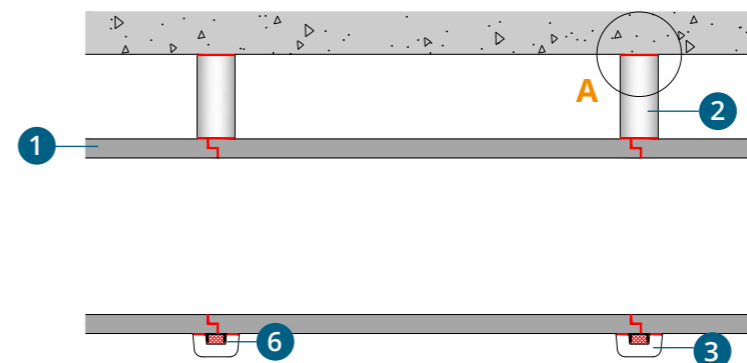


W int ≤ 600 mm EI 30 / 60 (S) and EI 90 / 120 (S)

Front view



Side view



- 1 GEOTEC® S board
- 2 GEOTEC® A 1/2 shell
- 3 GEOTEC® A U-plaster element
- 4 Geocol® Glue
- 5 Threaded rod Ø8
- 6 Steel U profile 41 x 21
- 7 Brass anchor Ø8
- 8 Galvanized washers Ø8
- 9 Galvanized nuts Ø8
- 10 VBA Screws
Ø 5 x 80 (EI 30/60)
Ø 5 x 90 (EI 90/120)
or galvanized steel staples*
75 x 10 x 2 mm

*staples :
≤ 1250 x 1000 mm (w x h) EI 30/60/90 S.

600 < W int ≤ 1000 mm

In this configuration, install a reinforcement every meter where the sections meet to support the upper board of the duct. Two solutions may be used: using **cover strips** or using **internal reinforcement collars**.

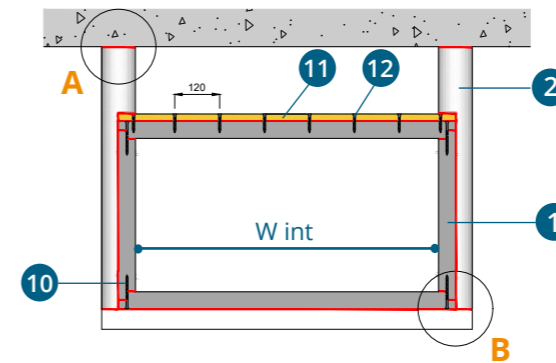
Solution 1 : using GEOTEC® A Cover strip

GEOTEC® A Cover strip are placed inside or outside the duct to cover the joints. This installation principle is accepted for internal ducts dimensions 600 < W int ≤ 1000 mm for EI 60 S (1 hour fire-resistant) and for internal dimensions 600 < W int ≤ 800 mm for EI 120 S (2 hours fire-resistant).

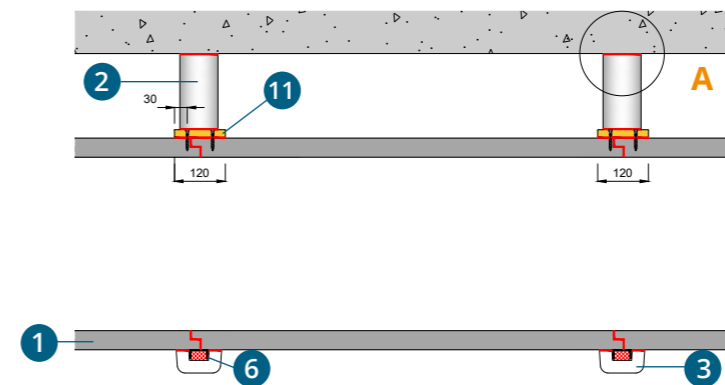


600 < W int ≤ 1000 mm - EI 30 / 60 (S)
600 < W int ≤ 800 mm - EI 90 / 120 (S)

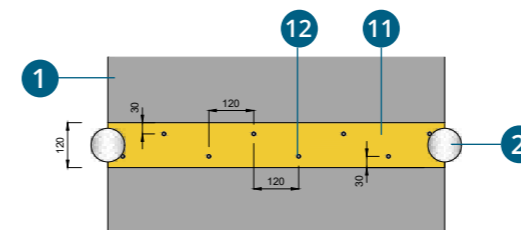
Front view



Side view



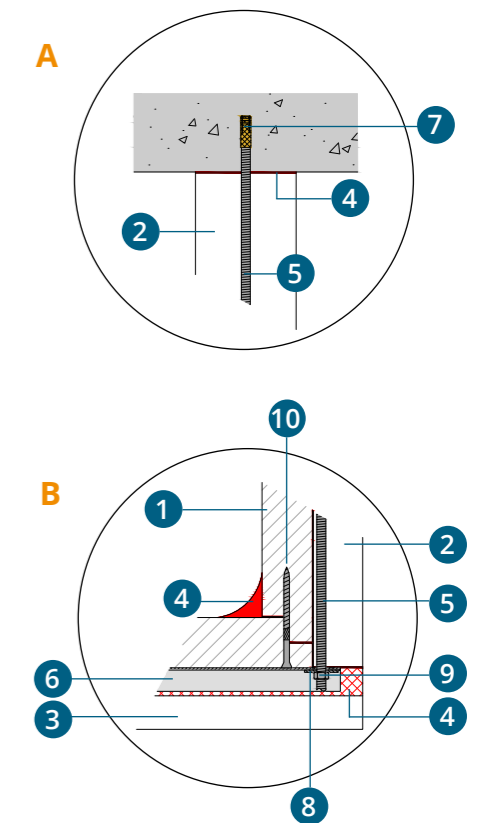
Top view



If duct inner perimeter > 4500 mm, two solutions:

A) replace Threaded rod Ø8, Brass anchor Ø8, Galvanized washers Ø8, Galvanized nuts Ø8 for Ø10.

B) Add a third Ø8 threaded rod inside the duct which has to be protected with a GEOTEC® A 1/2 shell to support the installation.



- 1 GEOTEC® S board
- 2 GEOTEC® A 1/2 shell
- 3 GEOTEC® A U-plaster element
- 4 Geocol® Glue
- 5 Threaded rod Ø8
- 6 Steel U profile 41 x 21
- 7 Brass anchor Ø8
- 8 Galvanized washers Ø8
- 9 Galvanized nuts Ø8
- 10 VBA Screws
 Ø 5 x 80 (EI 30/60)
 Ø 5 x 90 (EI 90/120)
 or galvanized steel staples*
 75 x 10 x 2 mm
- 11 GEOTEC® A Cover strips
- 12 VBA Screws Ø 5 x 50

*staples :
 ≤ 1250 x 1000 mm (w x h) EI 30/60/90 S.

600 < W int ≤ 1000 mm

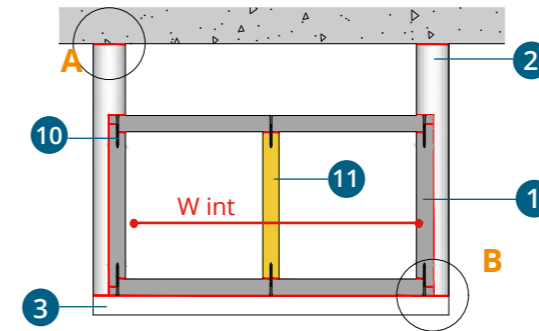
Solution 2 : using internal reinforcement collars (thickness identical to that of the board)

GEOTEC® A Reinforcement collars are placed inside the duct to support the upper board of the duct.

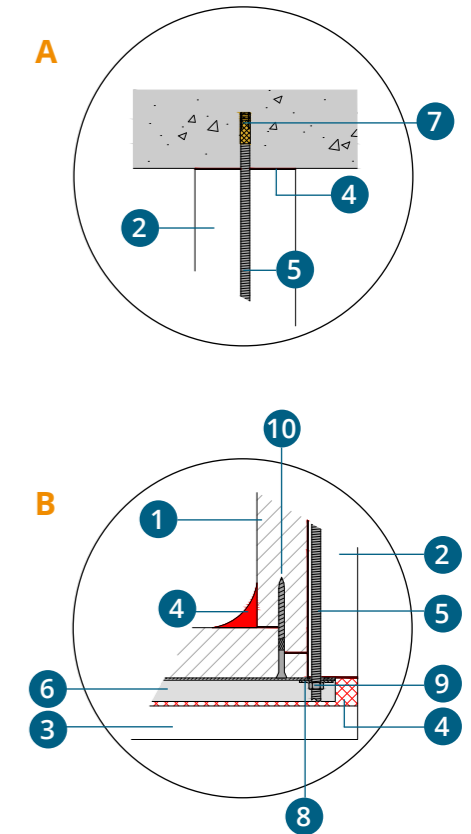
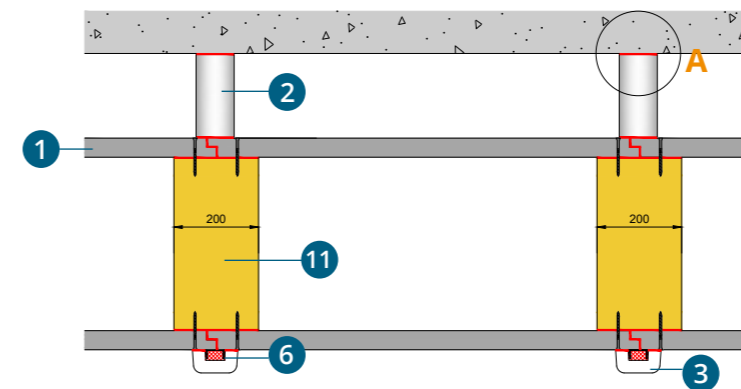


600 < W int ≤ 1000 mm
EI 30 / 60 (S) - EI 90 / 120 (S)

Front view



Side view



- 1 GEOTEC® S board
- 2 GEOTEC® A 1/2 shell
- 3 GEOTEC® A U-plaster element
- 4 Geocol® Glue
- 5 Threaded rod Ø8
- 6 Steel U profile 41 x 21
- 7 Brass anchor Ø8
- 8 Galvanized washers Ø8
- 9 Galvanized nuts Ø8
- 10 VBA Screws
Ø 5 x 80 (EI 30/60)
Ø 5 x 90 (EI 90/120)
or galvanized steel staples*
75 x 10 x 2 mm
- 11 GEOTEC® A Reinforcement collar

*staples :
≤ 1250 x 1000 mm (w x h) EI 30/60/90 S.

If duct inner perimeter > 4500 mm, two solutions:

A) replace Threaded rod Ø8, Brass anchor Ø8, Galvanized washers Ø8, Galvanized nuts Ø8 for Ø10.

B) Add a third Ø8 threaded rod inside the duct which has to be protected with a GEOTEC® A 1/2 shell to support the installation.

See on pages 52 / 54

1000 < W int ≤ 1250 mm

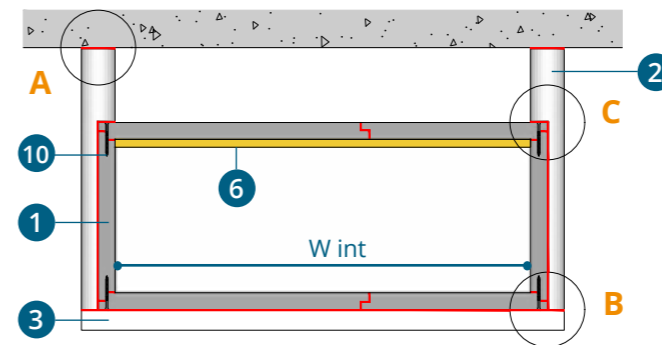
Solution 1 : Using internal steel U-profile

1. For a ventilation duct: In this configuration, a second 21x41x21 steel U-profile must be installed inside the duct to support the upper boards.

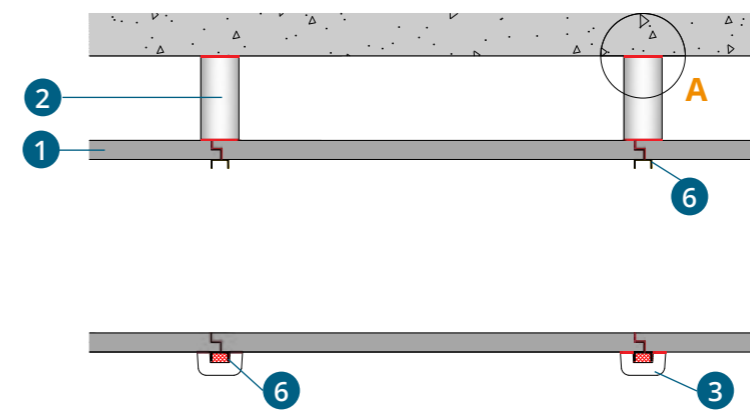


1000 < W int ≤ 1250 mm
EI 30 / 60 (S) and EI 90 / 120 (S)

Front view



Side view

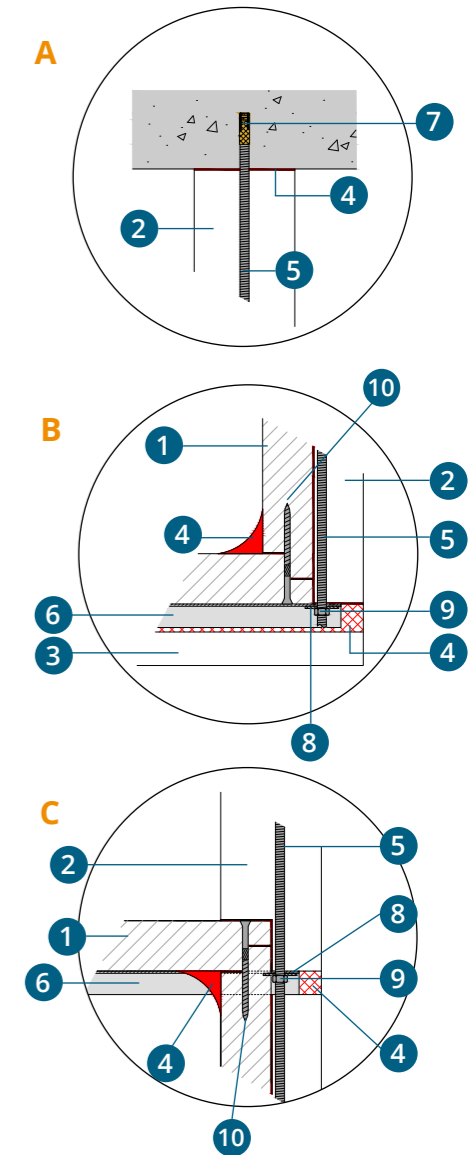


If duct inner perimeter > 4500 mm, two solutions:

A) replace Threaded rod Ø8, Brass anchor Ø8, Galvanized washers Ø8, Galvanized nuts Ø8 for Ø10.

B) Add a third Ø8 threaded rod inside the duct which has to be protected with a GEOTEC® A 1/2 shell to support the installation.

See on pages 52 / 54



- 1 GEOTEC® S board
- 2 GEOTEC® A 1/2 shell
- 3 GEOTEC® A U-plaster element
- 4 Geocol® Glue
- 5 Threaded rod Ø8
- 6 Steel U profile 41 x 21
- 7 Brass anchor Ø8
- 8 Galvanized washers Ø8
- 9 Galvanized nuts Ø8
- 10 VBA Screws
 Ø 5 x 80 (EI 30/60)
 Ø 5 x 90 (EI 90/120)
 or galvanized steel staples*
 75 x 10 x 2 mm

*staples :
 ≤ 1250 x 1000 mm (w x h) EI 30/60/90 S.

1000 < W int ≤ 1250 mm

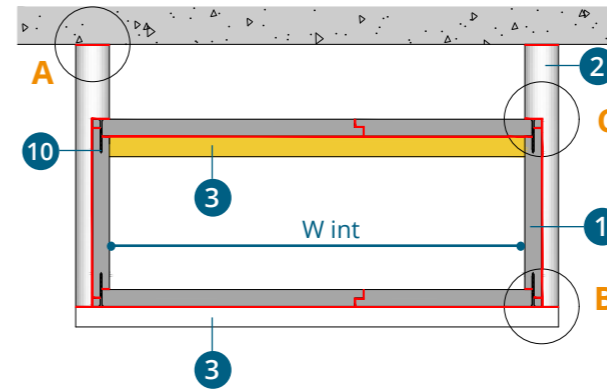
2. For a smoke extraction duct:

In this configuration, a **second 21x41x21 steel U-profile** must be installed inside the duct to support the upper boards and **protected by GEOTEC® A U plaster element**.

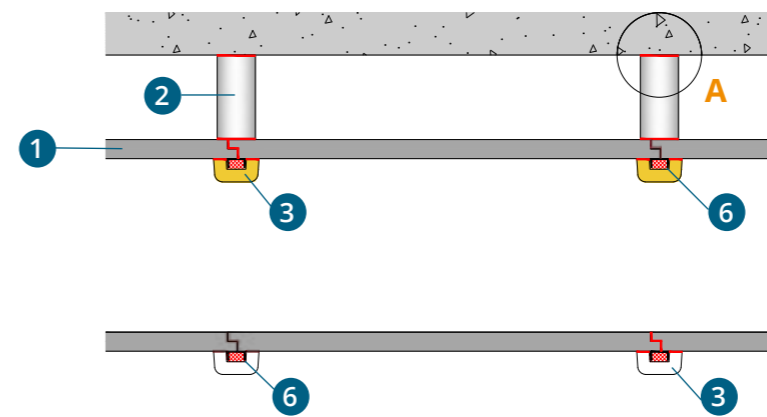


1000 < W int ≤ 1250 mm
EI 30 / 60 (S) and EI 90 / 120 (S)

Front view



Side view

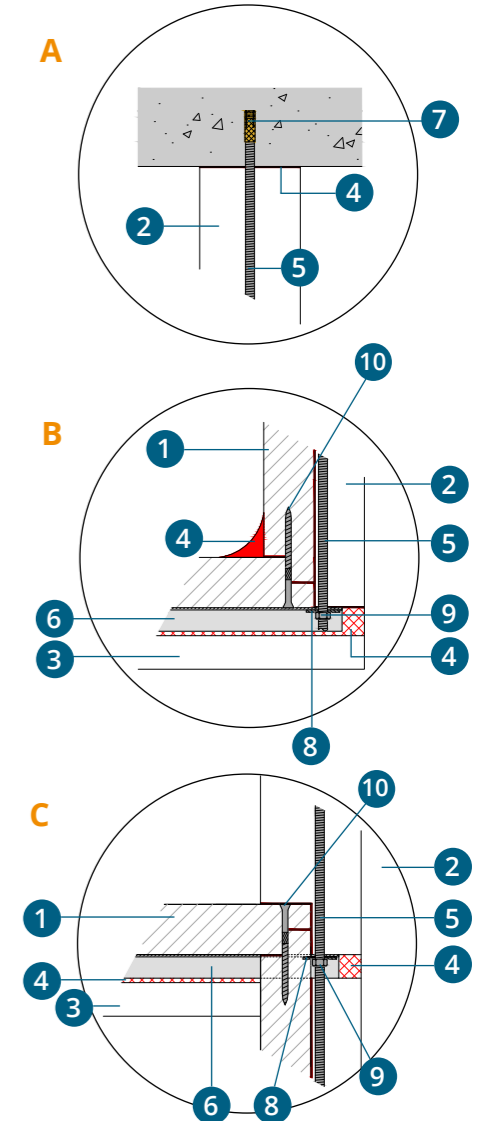


If duct inner perimeter > 4500 mm, two solutions:

A) replace Threaded rod Ø8, Brass anchor Ø8, Galvanized washers Ø8, Galvanized nuts Ø8 for Ø10.

B) Add a third Ø8 threaded rod inside the duct which has to be protected with a GEOTEC® A 1/2 shell to support the installation.

See on pages 52 / 54



- 1 GEOTEC® S board
- 2 GEOTEC® A 1/2 shell
- 3 GEOTEC® A U-plaster element
- 4 Geocol® Glue
- 5 Threaded rod Ø8
- 6 Steel U profile 41 x 21
- 7 Brass anchor Ø8
- 8 Galvanized washers Ø8
- 9 Galvanized nuts Ø8
- 10 VBA Screws
 Ø 5 x 80 (EI 30/60)
 Ø 5 x 90 (EI 90/120)
 or galvanized steel staples*
 75 x 10 x 2 mm

*staples :
 ≤ 1250 x 1000 mm (w x h) EI 30/60/90 S.

1000 < W int ≤ 1250 mm

Solution 2 : Using internal protected threaded rods.

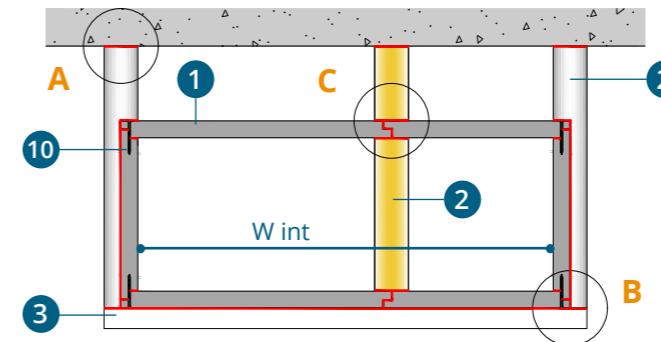
This solution can be used for both ventilation and smoke extraction ducts.

In this configuration, a **third Ø8 threaded rod** must be installed at mid-width of the duct to support the upper board of the duct. This threaded rod will be protected using **GEOTEC® A Half shells** whether it is a ventilation or a smoke extraction duct.

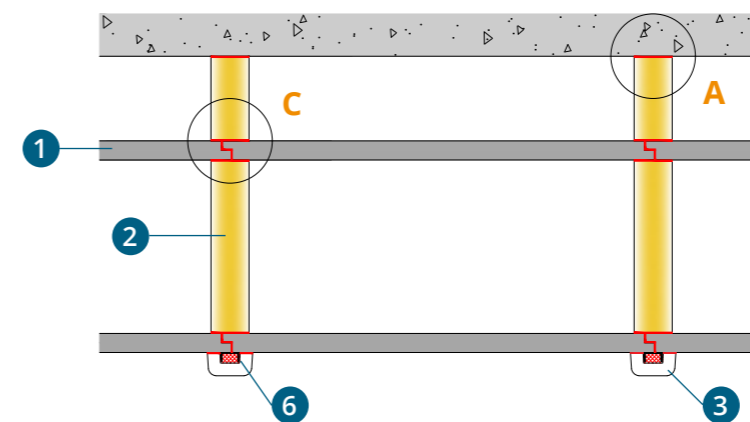


1000 < W int ≤ 1250 mm
EI 30 / 60 (S) and EI 90 / 120 (S)

Front view



Side view

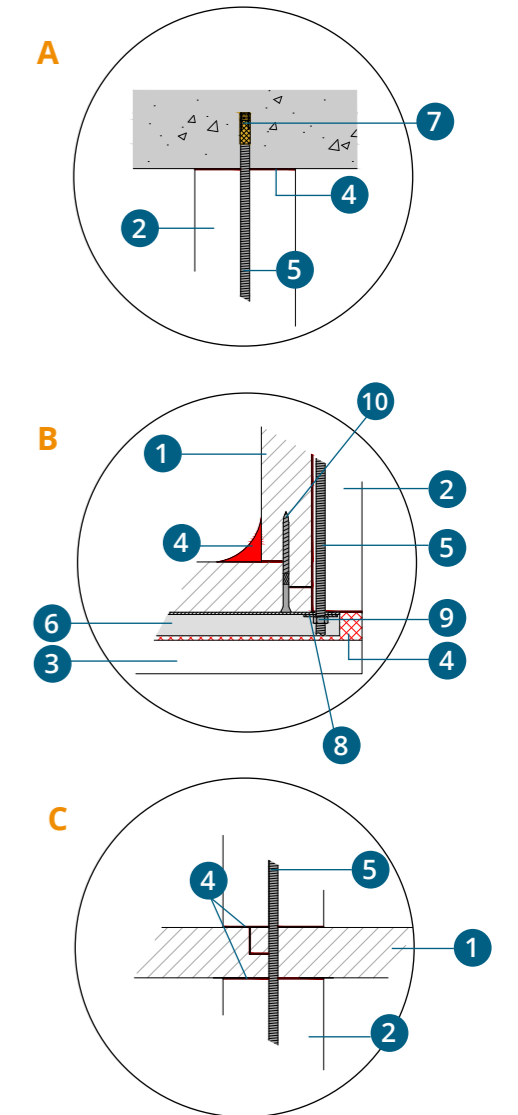


If duct inner perimeter > 4500 mm, two solutions:

A) replace Threaded rod Ø8, Brass anchor Ø8, Galvanized washers Ø8, Galvanized nuts Ø8 for Ø10.

B) Add a third Ø8 threaded rod inside the duct which has to be protected with a GEOTEC® A 1/2 shell to support the installation.

See on pages 52 / 54



- 1 GEOTEC® S board
- 2 GEOTEC® A 1/2 shell
- 3 GEOTEC® A U-plaster element
- 4 Geocol® Glue
- 5 Threaded rod Ø8
- 6 Steel U profile 41 x 21
- 7 Brass anchor Ø8
- 8 Galvanized washers Ø8
- 9 Galvanized nuts Ø8
- 10 VBA Screws
 Ø 5 x 80 (EI 30/60)
 Ø 5 x 90 (EI 90/120)
 or galvanized steel staples*
 75 x 10 x 2 mm

*staples :
 ≤ 1250 x 1000 mm (w x h) EI 30/60/90 S.

1250 < W int ≤ 2000 mm

In the case of horizontal ducts with an internal width of 1250 < W int ≤ 2000 mm, the installation principle varies according to the type of duct:

1. For a ventilation duct: In this configuration, a second 21x41x21 steel U-profile as well as an additional Ø 8 threaded rod must be installed inside to support the upper boards of the duct.

2. For a smoke extraction duct: In this configuration, a second 21x41x21 steel U-profile as well as an additional Ø 8 threaded rod must be installed inside to support the upper boards of the duct. Also, Threaded rods and steel U-profiles must be protected using GEOTEC® A half shells and U-plaster elements.

Ventilation duct



1250 < W int ≤ 2000 mm
EI 30 / 60 (S) and EI 90 / 120 (S)

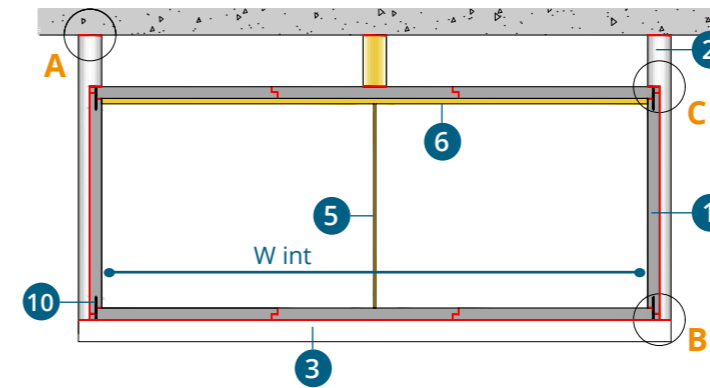
Smoke extraction duct



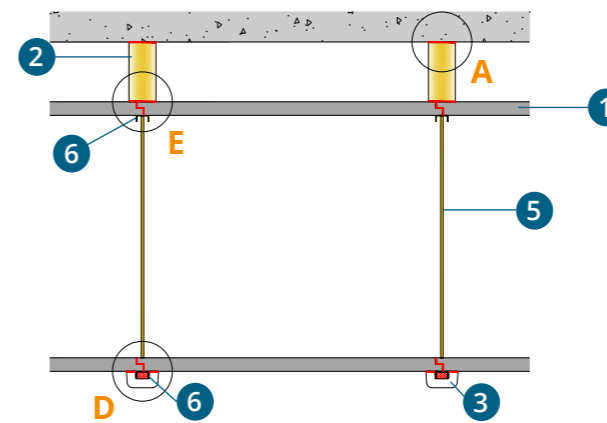
1250 < W int ≤ 2000 mm
EI 30 / 60 (S) and EI 90 / 120 (S)

1. FOR A VENTILATION DUCT

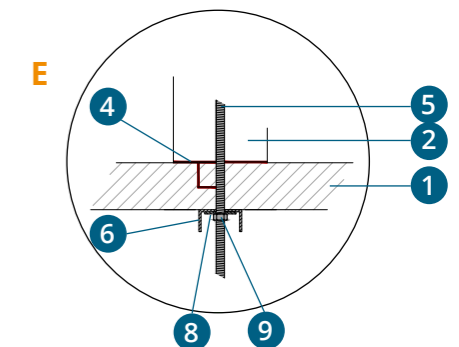
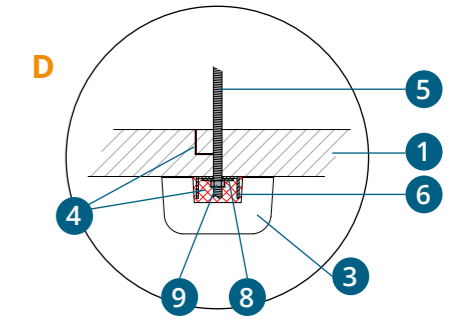
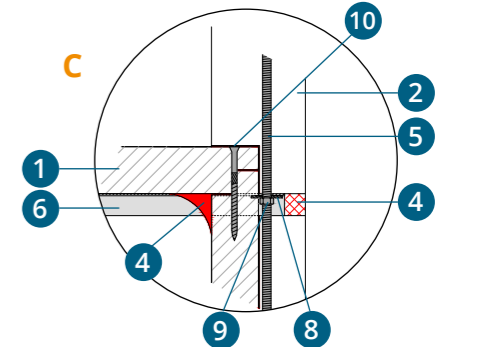
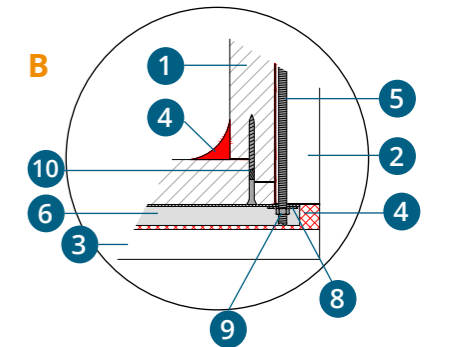
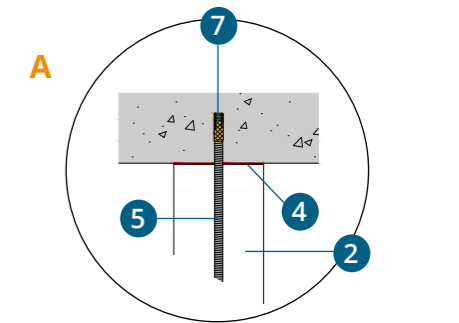
Front view



Side view



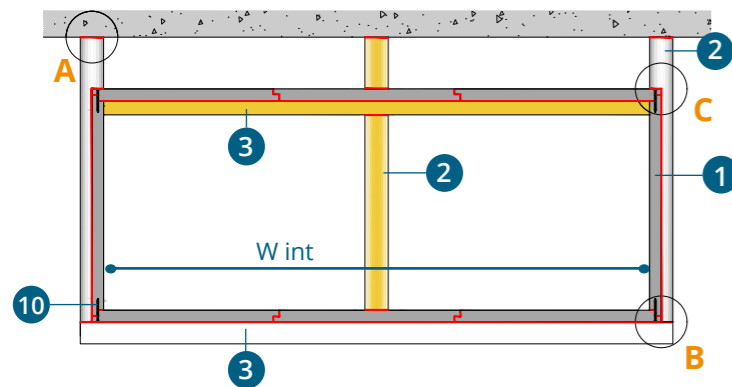
- 1 GEOTEC® S board
- 2 GEOTEC® A 1/2 shell
- 3 GEOTEC® A U-plaster element
- 4 Geocol® Glue
- 5 Threaded rod Ø8
- 6 Steel U profile 41x21
- 7 Brass anchor Ø8
- 8 Galvanized washers Ø8
- 9 Galvanized nuts Ø8
- 10 VBA Screws
Ø 5 x 80 (EI 30/60)
Ø 5 x 90 (EI 90/120)



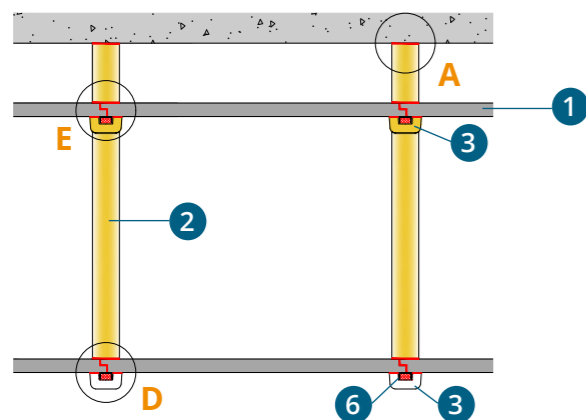
1250 < W int ≤ 2000 mm

2. FOR A SMOKE EXTRACTION DUCT

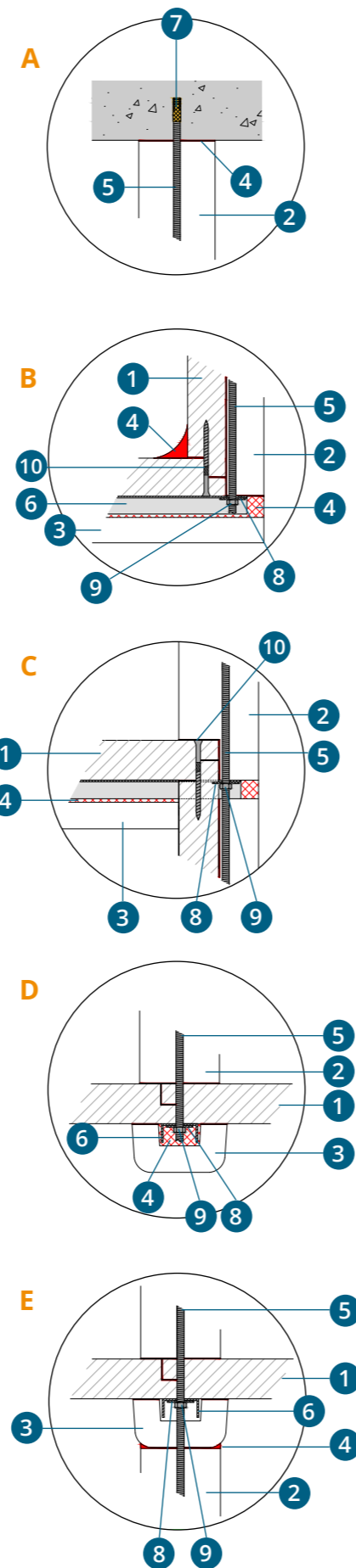
Front view



Side view



- 1 GEOTEC® S board
- 2 GEOTEC® A 1/2 shell
- 3 GEOTEC® A U-plaster element
- 4 Geocol® Glue
- 5 Threaded rod Ø8
- 6 Steel U profile 41x21
- 7 Brass anchor Ø8
- 8 Galvanized washers Ø8
- 9 Galvanized nuts Ø8
- 10 VBA Screws
Ø 5 x 80 (EI 30/60)
Ø 5 x 90 (EI 90/120)



2000 < W int ≤ 2500 mm

In the case of horizontal ducts with an internal width of 2000 < w ≤ 2500 mm, the installation principle varies according to the type of duct :

1. For a ventilation duct: In this configuration, a second 21x41x21 steel U-profile as well as an additional Ø 8 threaded rod must be installed inside to support the upper boards of the duct. Also, the steel U-profile placed under the lower board of the duct will be here a 41x41 steel U-profile instead of a 21x41 (usually used for internal width ≤ 2000 mm).

2. For a smoke extraction duct: In this configuration, a second 21x41x21 steel U-profile as well as an additional Ø 8 threaded rod must be installed inside to support the upper boards of the duct and be protected by the GEOTEC® A Half shells and U-plaster elements. Also, the steel U-profile placed under the lower board of the duct will be here a 41x41 steel U-profile instead of a 21x41 (usually used for internal width ≤ 2000 mm).

Ventilation duct



2000 < W int ≤ 2500 mm
EI 30 / 60 (S) and EI 90 / 120 (S)

Smoke extraction duct

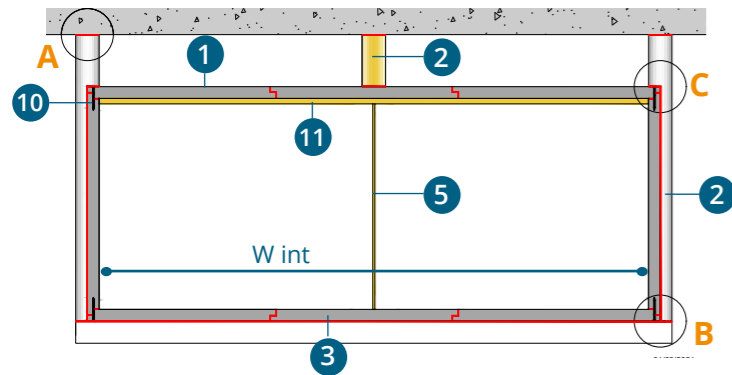


2000 < W int ≤ 2500 mm
EI 30 / 60 (S) and EI 90 / 120 (S)

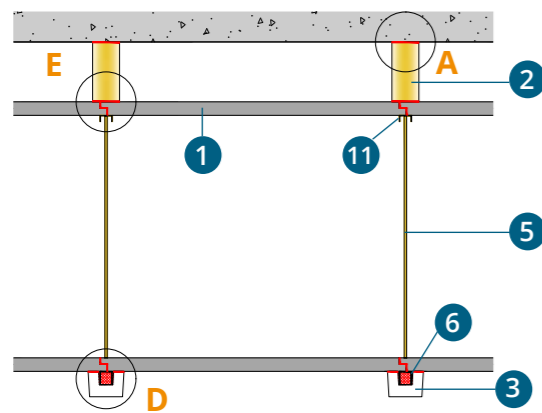
2000 < W int ≤ 2500 mm

1. FOR A VENTILATION DUCT

Front view



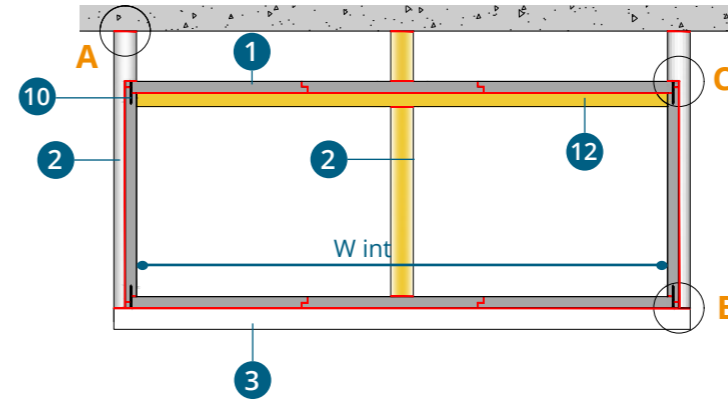
Side view



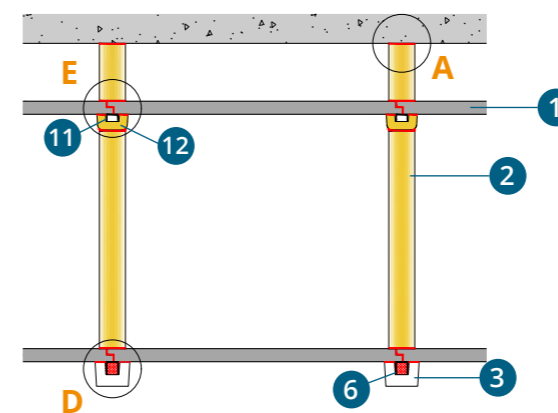
- 1 GEOTEC® S board
- 2 GEOTEC® A 1/2 shell
- 3 GEOTEC® A U-plaster element for steel U profile 41x41
- 4 Geocol® Glue
- 5 Threaded rod Ø8
- 6 Steel U profile 41 x 41
- 7 Brass anchor Ø8
- 8 Galvanized washers Ø8
- 9 Galvanized nuts Ø8
- 10 VBA Screws
Ø 5 x 80 (EI 30/60)
Ø 5 x 90 (EI 90/120)
- 11 Steel U profile 41x21

2. FOR A SMOKE EXTRACTION DUCT

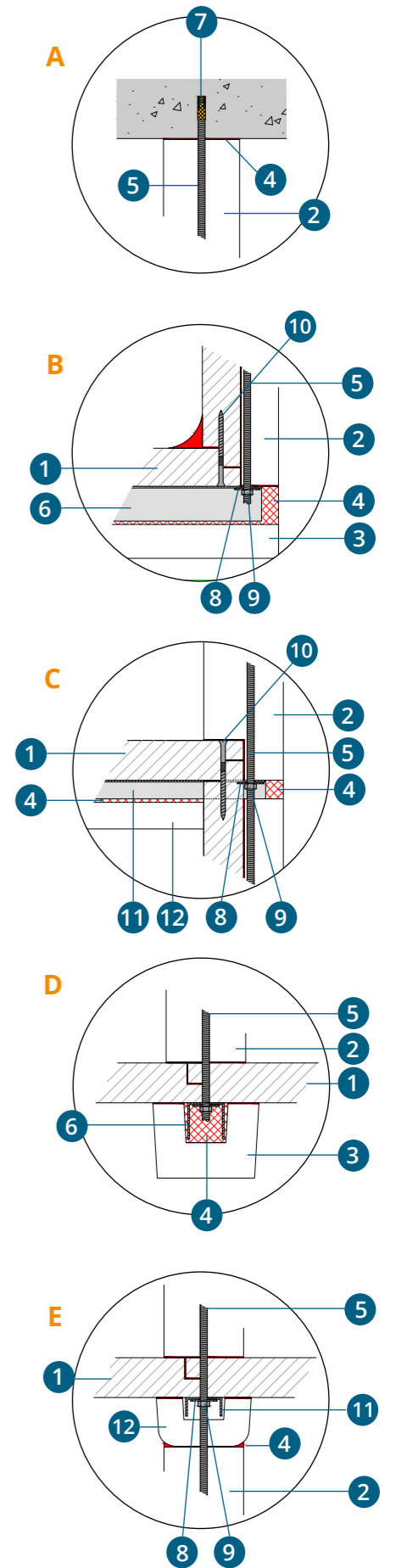
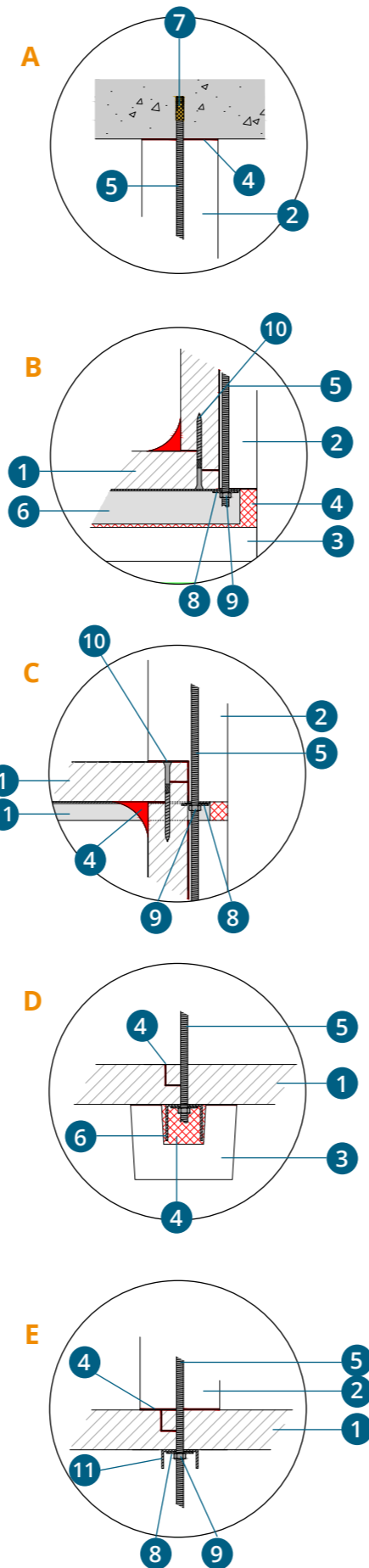
Front view



Side view



- 1 GEOTEC® S board
- 2 GEOTEC® A 1/2 shell
- 3 GEOTEC® A U-plaster element for steel U profile 41x41
- 4 Geocol® Glue
- 5 Threaded rod Ø8
- 6 Steel U profile 41 x 41
- 7 Brass anchor Ø8
- 8 Galvanized washers Ø8
- 9 Galvanized nuts Ø8
- 10 VBA Screws
Ø 5 x 80 (EI 30/60)
Ø 5 x 90 (EI 90/120)
- 11 Steel U profile 41x21
- 12 GEOTEC® A U-plaster element for steel U profile 41x21



Inner perimeter > 4500 mm

1000 < W int ≤ 1250 mm

In the case of horizontal ducts with an internal width of $1000 < W_{int} \leq 1250$ mm and inner perimeter > 4500 mm, for instance a duct of internal width 1250 x 1050 mm, **two possibilities can be considered** :

1. To realize the ventilation or smoke extraction duct using the solutions described previously for inner perimeter ≤ 4500 mm (solution 1 page 40 to 43 and solution 2 page 44 to 45) **with Ø 10 threaded rod instead of Ø 8 threaded rod.**

2. To realize the ventilation or smoke extraction duct using the **special configuration such as below** :

Special configuration

1. For a ventilation duct: In this configuration, a **second 21x41x21 steel U-profile** as well as an **additional Ø 8 threaded rod** must be installed inside to support the upper boards of the duct.

2. For a smoke extraction duct: In this configuration, a **second 21x41x21 steel U-profile** as well as an **additional Ø 8 threaded rod** must be installed inside to support the upper boards of the duct. Also, Threaded rods and steel U-profiles must be **protected using GEOTEC® A half shells and U-plaster elements**.

Ventilation duct EN1366-1



1000 < W int ≤ 1250 mm + Inner perimeter > 4500 mm
EI 30 / 60 (S) and EI 90 / 120 (S)

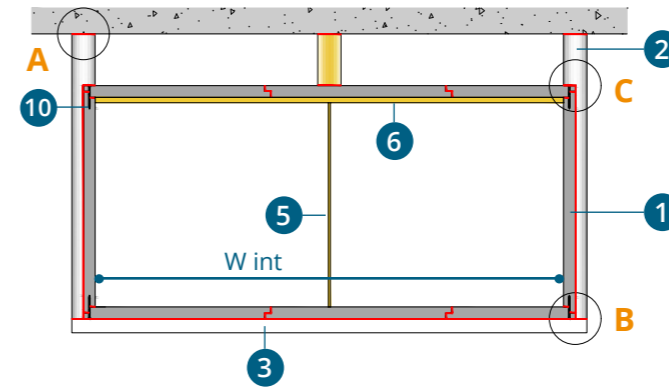
Smoke extraction duct EN1366-8



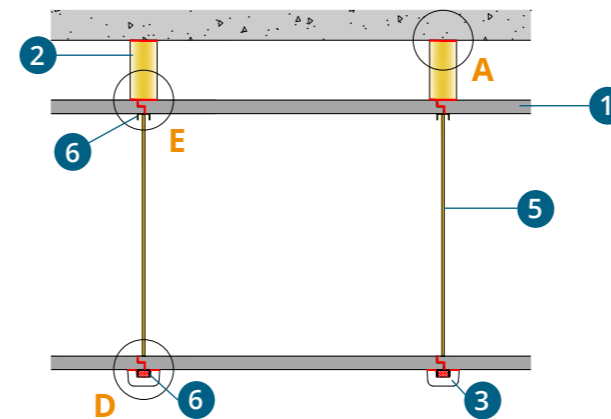
1000 < W int ≤ 1250 mm + Inner perimeter > 4500 mm
EI 30 / 60 (S) and EI 90 / 120 (S)

1. FOR A VENTILATION DUCT

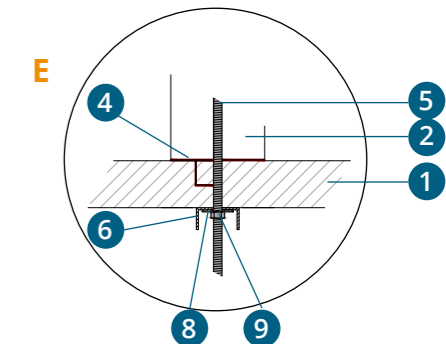
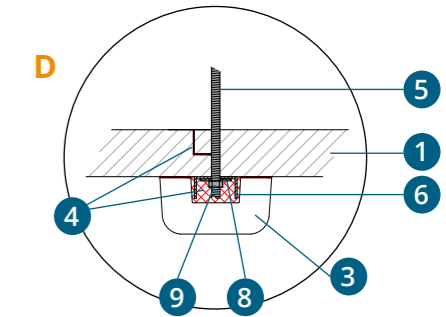
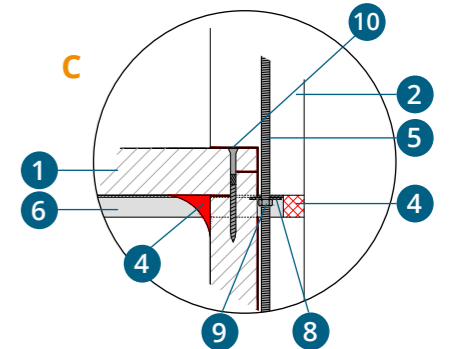
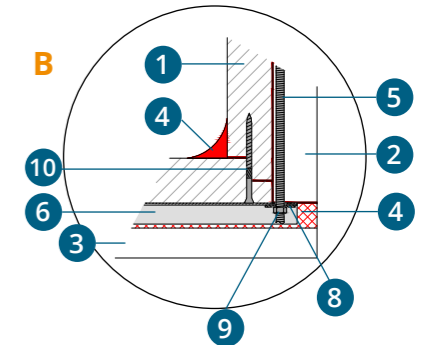
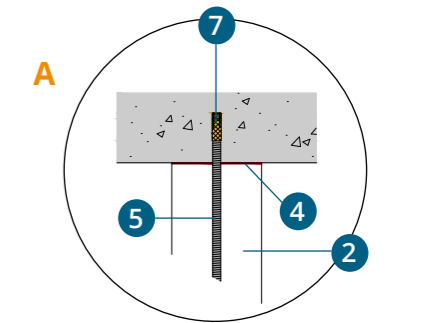
Front view



Side view



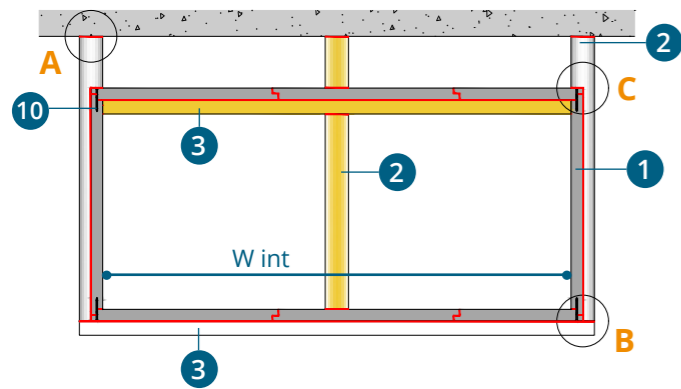
- 1 GEOTEC® S board
- 2 GEOTEC® A 1/2 shell
- 3 GEOTEC® A U-plaster element
- 4 Geocol® Glue
- 5 Threaded rod Ø8
- 6 Steel U profile 41x21
- 7 Brass anchor Ø8
- 8 Galvanized washers Ø8
- 9 Galvanized nuts Ø8
- 10 VBA Screws
Ø 5 x 80 (EI 30/60)
Ø 5 x 90 (EI 90/120)



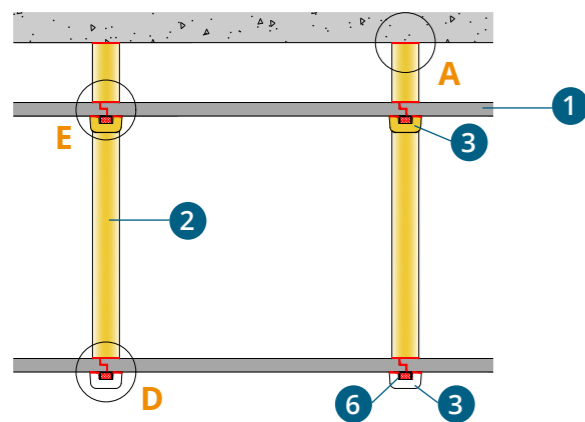
1000 < W int ≤ 1250 mm

2. FOR A SMOKE EXTRACTION DUCT

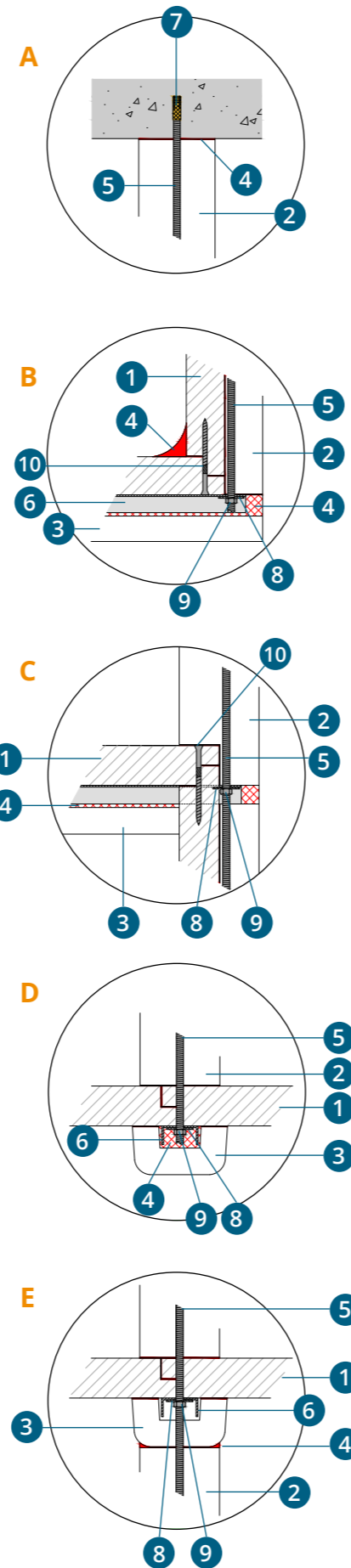
Front view



Side view



- 1 GEOTEC® S board
- 2 GEOTEC® A 1/2 shell
- 3 GEOTEC® A U-plaster element
- 4 Geocol® Glue
- 5 Threaded rod Ø8
- 6 Steel U profile 41x21
- 7 Brass anchor Ø8
- 8 Galvanized washers Ø8
- 9 Galvanized nuts Ø8
- 10 VBA Screws
Ø 5 x 80 (EI 30/60)
Ø 5 x 90 (EI 90/120)



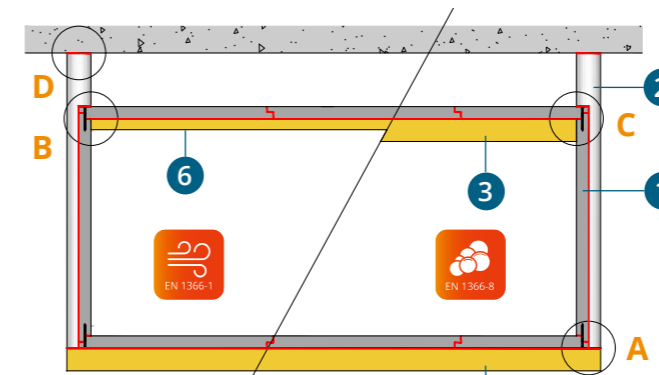
2.3. Alternative support principles

In response to the difficulties experienced on construction sites, Geostaff offers alternative solutions to support the ducts.

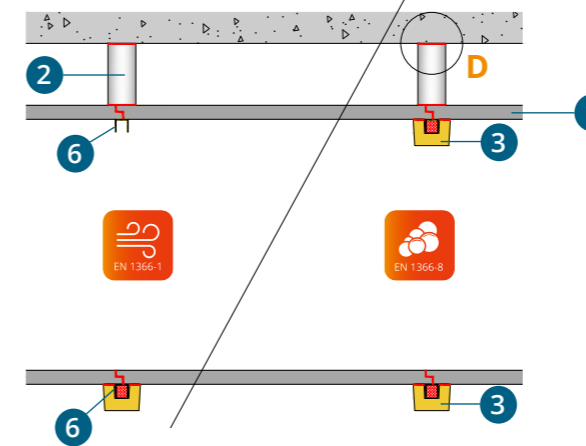
A) Suppression of the inner rod Ø8 for large ducts

In the case of ducts with an internal width of 1250 < w ≤ 2500 mm, it is possible to remove the 3rd internal rod by replacing the external rods with rods of Ø10 and by using appropriate **steel U-profiles** (upper and lower) according to the supplier's certification.

Front view



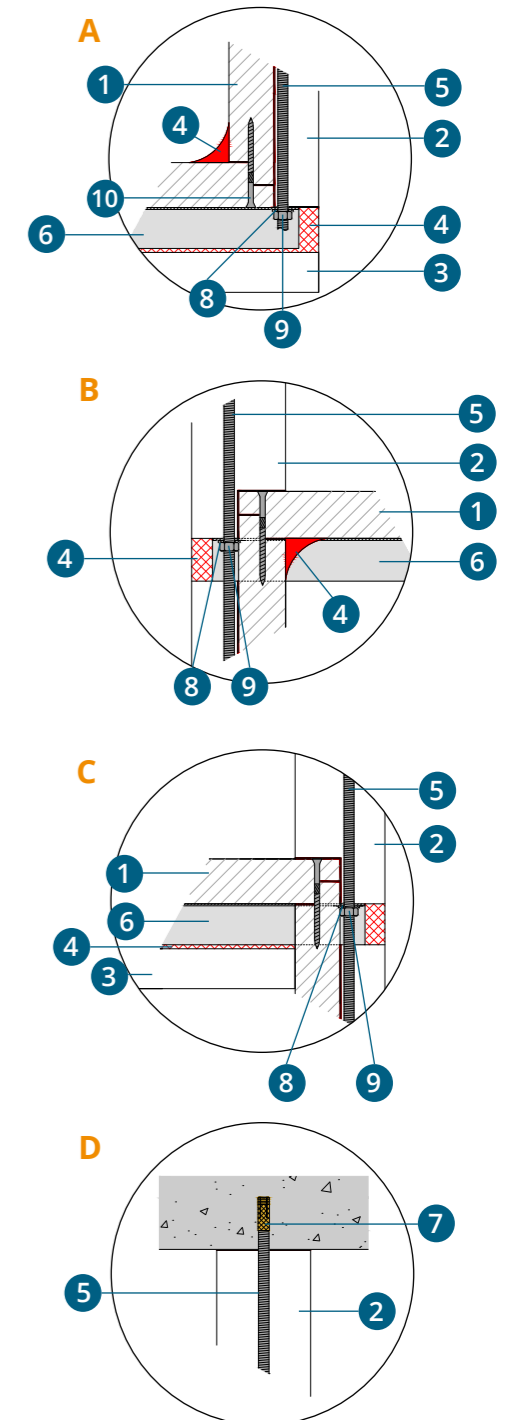
Side view



- 1 GEOTEC® S board
- 2 GEOTEC® A 1/2 shell
- 3 GEOTEC® A U-plaster element (appropriated according to supplier's certification)
- 4 Geocol® Glue
- 5 Threaded rod Ø10
- 6 Steel U profile (appropriated according to supplier's certification)
- 7 Brass anchor Ø10
- 8 Galvanized washers Ø10
- 9 Galvanized nuts Ø10
- 10 VBA Screws Ø 5 x 80 (EI 30/60) / Ø 5 x 90 (EI 90/120)

1250 < w ≤ 2500 mm
EI 30 / 60 (S) and EI 90 / 120 (S)

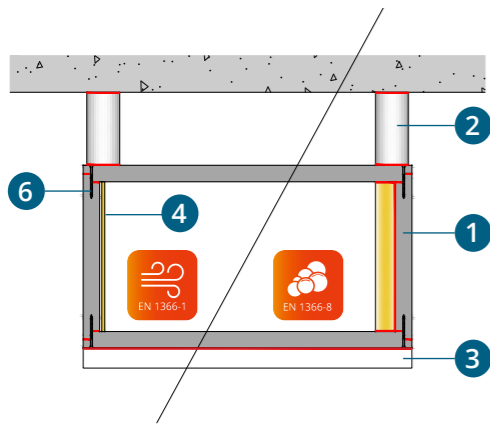
Extension 17/7 on EFR-16-002202
Extension 17/6 on EFR-16-002203



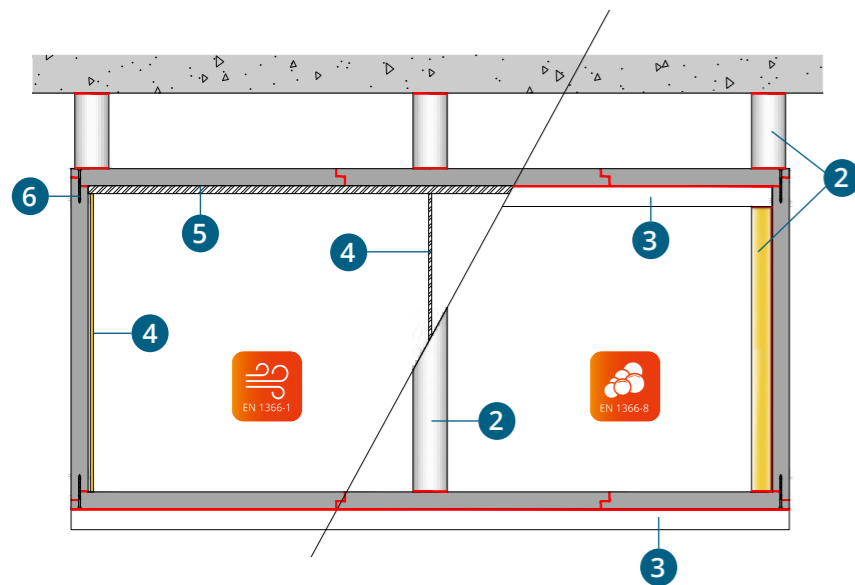
B) Decrease of the duct overall dimension

If it is necessary to reduce the overall dimensions, it is possible, by positioning the threaded rods inside the ducts, to reduce the external width of the ducts (10 cm).

Front view: small section



Side view: large section



0x0 mm to 2500x1500 mm EI 30 / 60 (S) and EI 90 / 120 (S)

Extension 17/7 on EFR-16-002202
Extension 17/6 on EFR-16-002203

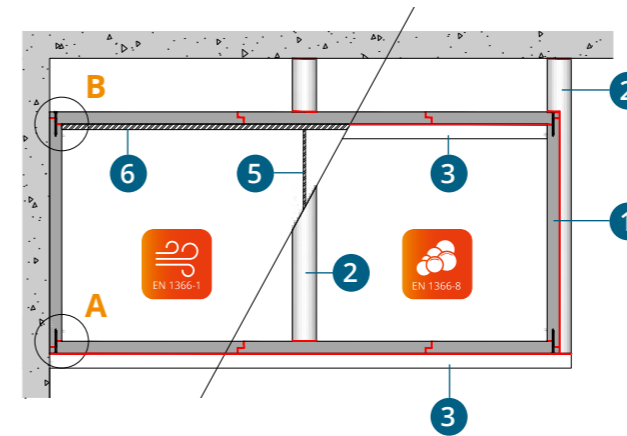
- 1 GEOTEC® S board
- 2 GEOTEC® A 1/2 shell
- 3 GEOTEC® A U-plaster element
- 4 Threaded rod
- 5 Steel U profile
- 6 VBA Screws
Ø 5 x 80 (EI 30/60 S)
Ø 5 x 90 (EI 90/120 S)

*staples :
≤ 1250 x 1000 mm (w x h) EI 30/60/90 S.

C) Duct adjoining a vertical wall

In this case, on the vertical wall side, **the lower and upper steel U-profiles** of the duct must be fixed to the wall by using **Ø 8 brass anchors**. On the free side, the support will be made in a standard way.

Front view

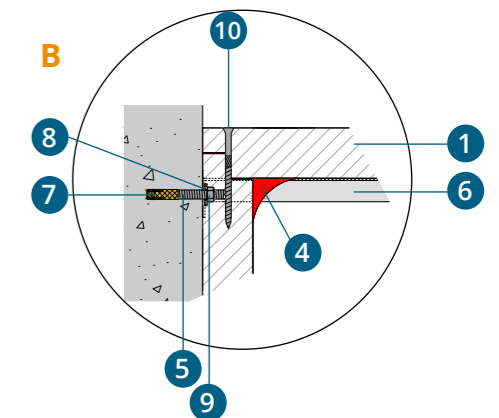
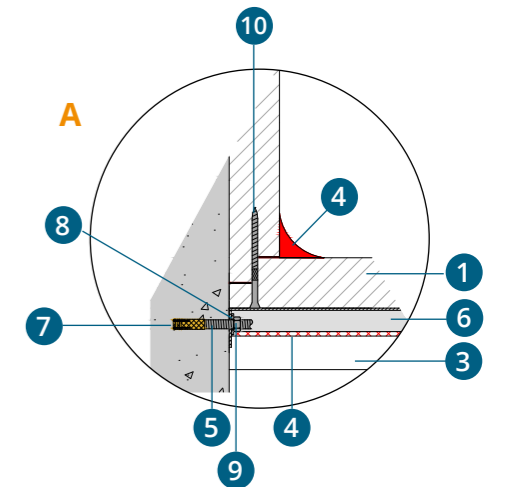


- 1 GEOTEC® S board
- 2 GEOTEC® A 1/2 shell
- 3 GEOTEC® A U-plaster element
- 4 Geocol® Glue
- 5 Threaded rod
- 6 Steel U profile
- 7 Brass anchor
- 8 Galvanized washers
- 9 Galvanized nuts
- 10 VBA Screws
Ø 5 x 80 (EI 30/60)
Ø 5 x 90 (EI 90/120)
or galvanized steel staples*
75 x 10 x 2 mm

*staples :
≤ 1250 x 1000 mm (w x h) EI 30/60/90 S.

0x0 mm to 2500x1500 mm EI 30 / 60 (S) and EI 90 / 120 (S)

Extension 17/7 on EFR-16-002202
Extension 17/6 on EFR-16-002203



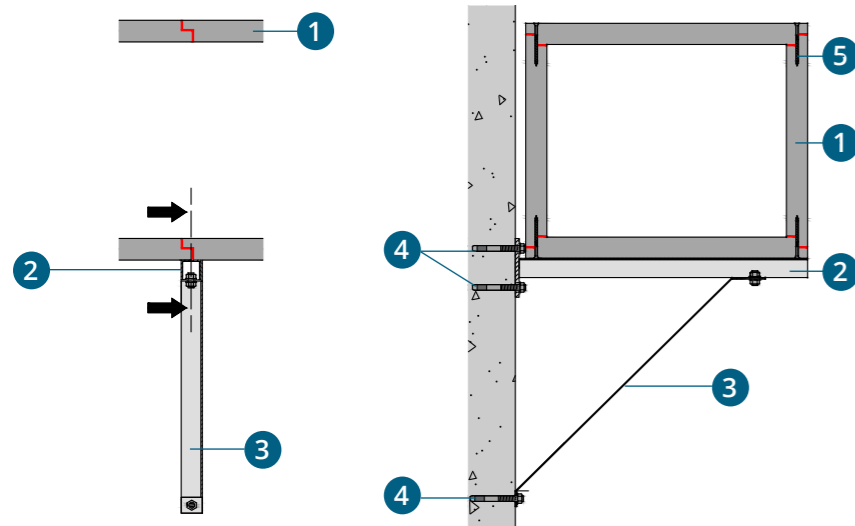
D) Installation of the duct on a bracket

When the duct is installed on a vertical wall, the support can be made by using **metal brackets**, with or without struts (appropriate according to the supplier's certification).
Metal brackets and strut must be thermally protected against fire using **GEOTEC® A U-plaster element**.

1- INSTALL THE BRACKETS AND THE SUPPORT STRUT.

Longitudinal view

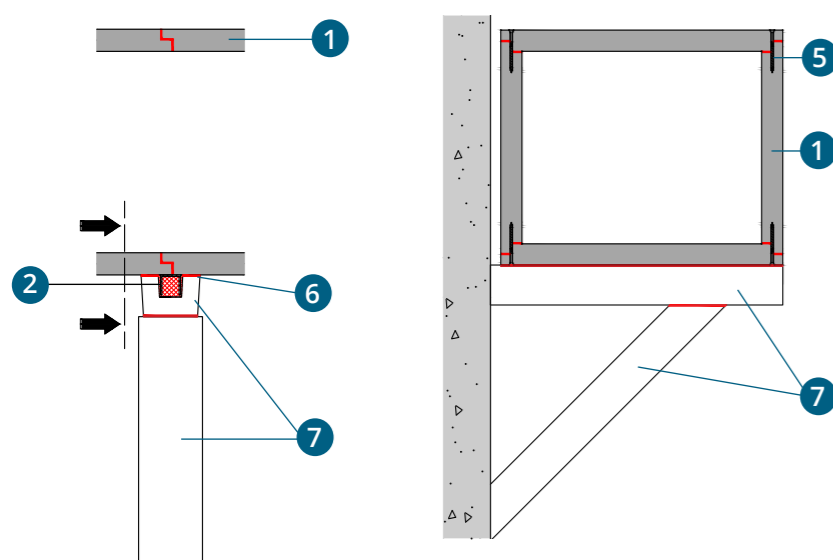
Cross-sectional view



2- PROTECT THE BRACKETS AND THE STRUT WITH GEOTEC® A U-PLASTERS ELEMENT.

Longitudinal view

Cross-sectional view



0x0 mm to 2500x1500 mm EI 30 / 60 (S) and EI 90 / 120 (S)

Extension 17/7 on EFR-16-002202
Extension 17/6 on EFR-16-002203

- 1 GEOTEC® S board
- 2 Metal bracket
- 3 Load strut
- 4 Expansion anchors
- 5 VBA Screws
Ø 5 x 80 (EI 30/60)
Ø 5 x 90 (EI 90/120)
or galvanized steel staples*
75 x 10 x 2 mm
- 6 Geocol® Glue
- 7 GEOTEC® A Uplaster element

*staples:
≤ 1250 x 1000 mm (w x h) EI 30/60/90 S.

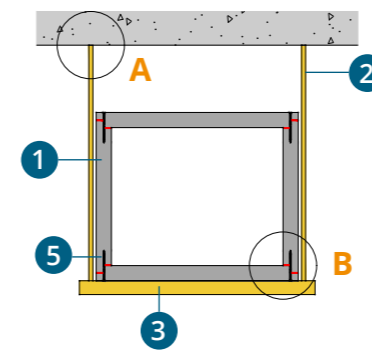
+ In the case of ventilation ducts with an internal **width (W int)** of ≤ 600 mm and an **inner perimeter (P int)** of ≤ 1900 mm, it is allowed to remove GEOTEC® A U-plaster element.

E) Non protection of the supports

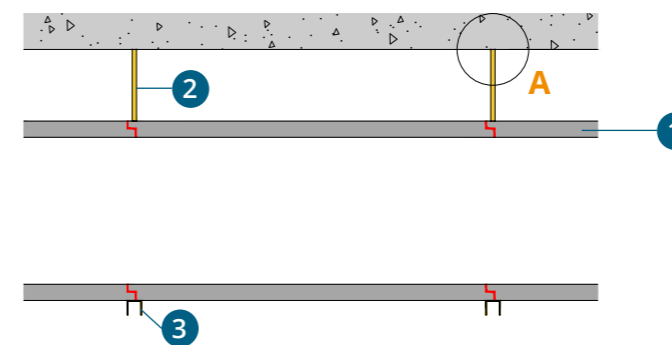
In the case of ventilation ducts with a **inner width (W int)** of ≤ 600 mm and a **inner perimeter (P int)** of ≤ 1900 mm, it is allowed to remove GEOTEC® A half-shells and GEOTEC® A U-plaster element.

For this purpose, the **steel U-profiles 41x21 must be replaced by 41x41** and the **Ø8 threaded rods must be replaced by Ø12 or Ø14 rods** (depending on the cross-section and the desired fire resistance). Attention, in this case, the anchors used are steel anchors.

Front view

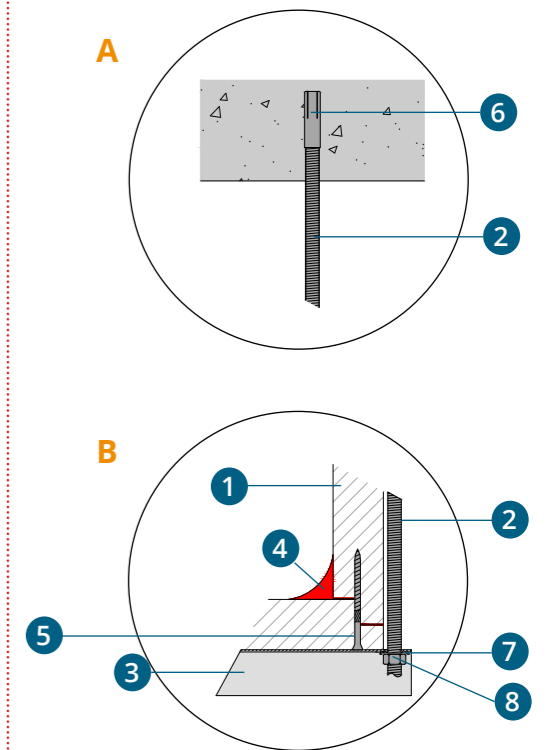


Side view



W int ≤ 600 mm & P int ≤ 1900 mm EI 30 / 60 (S) and EI 90 / 120 (S)

Extension 19/13 on EFR-16-002202

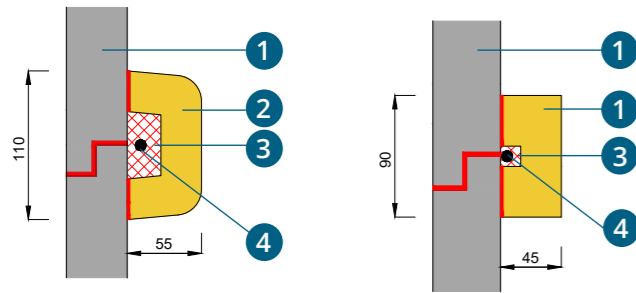


- 1 GEOTEC® S board
- 2 Threaded rod Ø12 or Ø14
- 3 Steel U profile 41x41
- 4 Geocol® Glue
- 5 VBA Screws
Ø 5 x 80 (EI 30/60)
Ø 5 x 90 (EI 90/120)
or galvanized steel staples* 75 x 10 x 2 mm
- 6 Steel anchor Ø12 or Ø14
- 7 Galvanized washers Ø12 or Ø14
- 8 Galvanized nuts Ø12 or Ø14

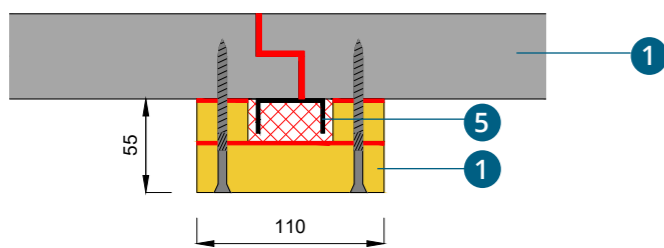
2.4. Alternatives for the protection of the suspension system

With the constant aim of making it easier to install GEOTEC® S ducts, extensions 18/8 and 18/9 of assessments EFR-16-002202 and EFR-16-002203 have been validated to offer an alternative to the protection of threaded rods and steel U-sections.

The **GEOTEC®A** 1/2 shells used to protect the threaded rods may therefore be replaced by a protection in the form of GEOTEC®S boards or GEOTEC®A U-plaster element normally used to protect the steel U-sections.



The **GEOTEC®A** U-plaster element used for protecting the steel U-sections may thus be replaced by a protection in the form of GEOTEC®S boards.



0x0 mm to 2500x1500 mm EI 30 / 60 (S) and EI 90 / 120 (S)

Extension 18/8 on EFR-16-002202
Extension 18/9 on EFR-16-002203

- 1 GEOTEC®S board
- 2 GEOTEC®A U-plaster element
- 3 Geocol® Glue
- 4 Threaded rod Ø8
- 5 Steel U profile

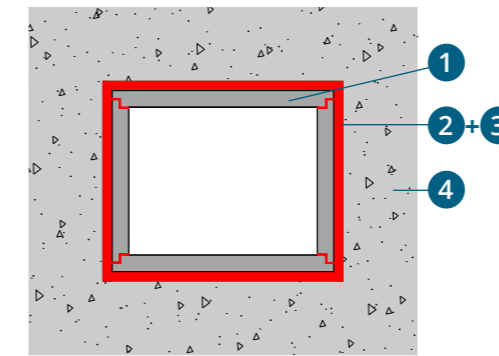
2.5. Wall penetrations

A) Solid wall

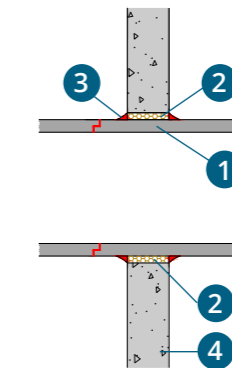
1. CONTINUOUS DUCT

Method of caulking horizontal ducts through vertical walls :

Top view



Side view



+ * Caulking may be carried out using fire-stop polyurethane foam or stone wool (26 kg/m³ minimum).

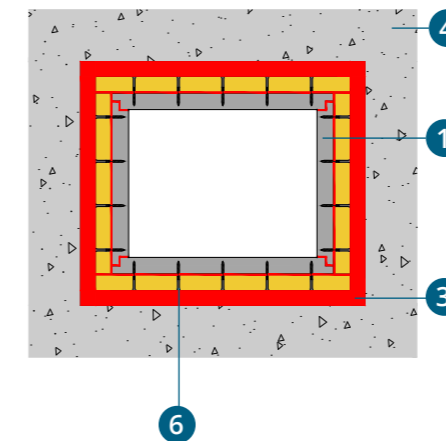
- 1 GEOTEC®S board
- 2 Caulking* (max 25 mm)
- 3 Geocol® Glue
- 4 Concrete wall
- 5 GEOTEC® A Batten
- 6 VBA Screws
Ø 5 x 80 (EI 30/60)
Ø 5 x 90 (EI 90/120)
or galvanized steel staples*
75 x 10 x 2 mm

*staples :
≤ 1250 x 1000 mm (w x h) EI 30/60/90 S.

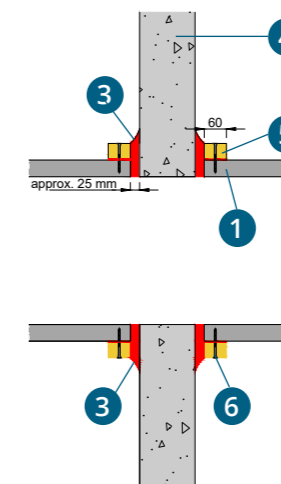
2. NON-TRAVERSING HORIZONTAL DUCT

Method of caulking a non-traversing horizontal duct :

Top view



Side view

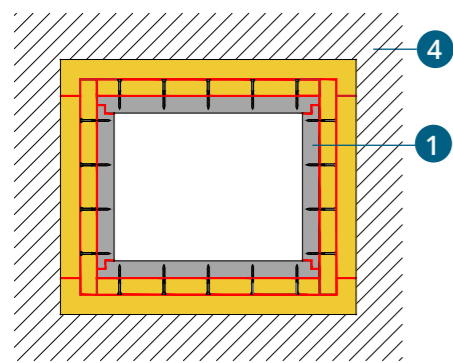


2.5. Wall penetrations

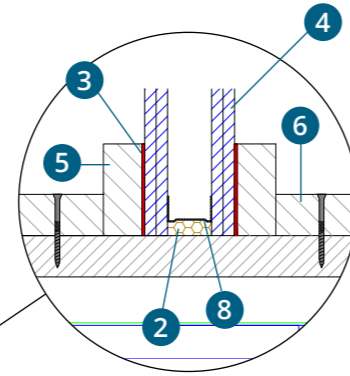
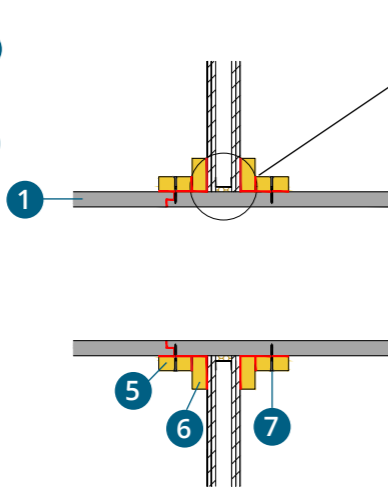
B) Flexible wall

THROUGHOUT OF LIGHTWEIGHT PLASTERBOARD PARTITION

Top view



Side view



- 1 GEOTEC®S board
- 2 Caulking* (max. 25 mm)
- 3 Geocol® Glue
- 4 Fire resistant lightweight partition
- 5 GEOTEC®A Batten (100 mm x thickness)
- 6 GEOTEC®A Batten (100 mm x thickness) (against the lightweight partition)
- 7 VBA Screws
Ø 5 x 80 (EI 30/60)
Ø 5 x 90 (EI 90/120)
or galvanized steel staples*
75 x 10 x 2 mm
- 8 Rail

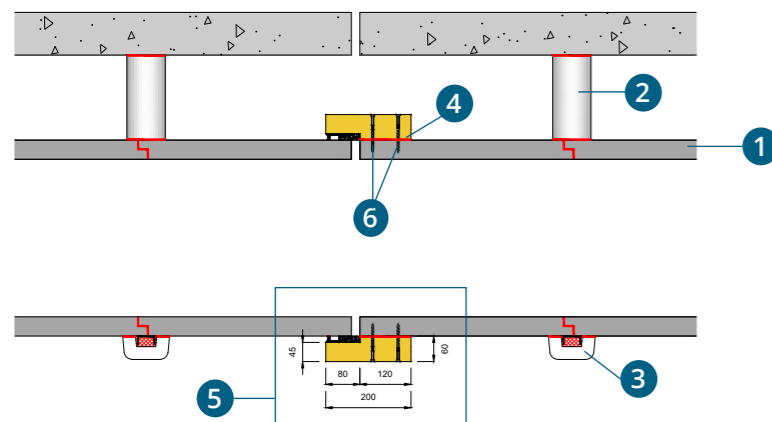
*staples :
≤ 1250 x 1000 mm (w x h) EI 30/60/90 S.

+ * Caulking may be carried out using fire-stop polyurethane foam or stone wool (26 kg/m³ minimum).

2.6. Dilation joints

Treatment of the crossing of an expansion joint

In the construction of a building, expansion joints must be envisaged in accordance with pre-established rules. It is therefore common for horizontal ducts to pass through expansion joints. It is then necessary to carry out a specific treatment.



- 1 GEOTEC®S board
- 2 GEOTEC®A 1/2 shell
- 3 GEOTEC®A U-plaster element
- 4 Geocol® Glue
- 5 GEOTEC® A Expansion joint element*
- 6 VBA Screws
Ø 5 x 80 (EI 30/60 S)
Ø 5 x 90 (EI 90/120 S)
or galvanized steel staples*
75 x 10 x 2 mm

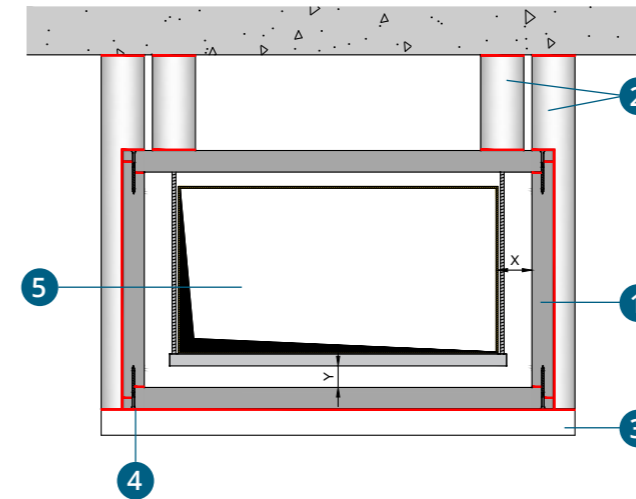
*staples :
≤ 1250 x 1000 mm (w x h) EI 30/60/90 S.

* Technical datasheet of
Expansion joint element page 24

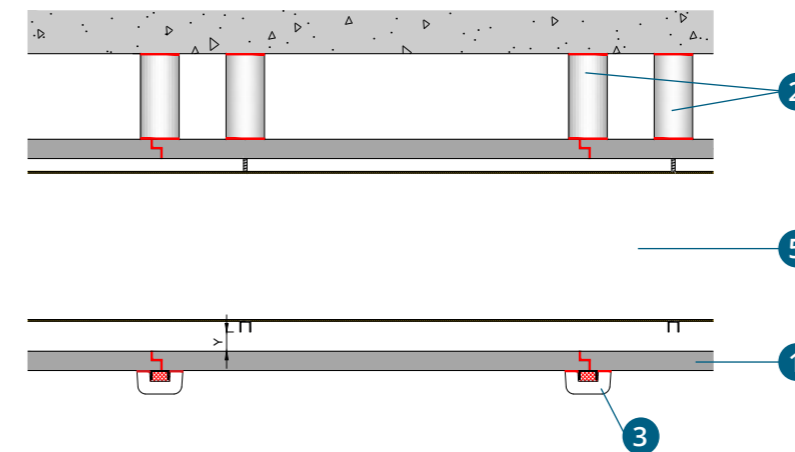
2.7. Protection of steel ducts

The GEOTEC® product range also allows the protection of existing steel ventilation ducts by directly applying GEOTEC®S boards around the duct. These existing ventilation ducts may be made of galvanized or stainless sheet steel and must have their own support system.

Front view



Side view



Dimensions max
2500x1500 mm
EI 30 / 60 (S) and EI 90 / 120 (S)

Extension 16/3 on EFR-16-002202
and EFR-16-002204

- 1 GEOTEC®S board
- 2 GEOTEC®A 1/2 shell + threaded rod
- 3 GEOTEC®A U-plaster element + Steel U-profile
- 4 VBA Screws
Ø 5 x 80 (EI 30/60 S)
Ø 5 x 90 (EI 90/120 S)
or galvanized steel staples*
75 x 10 x 2 mm
- 5 Steel ventilation duct (must have its own supporting system)

*staples :
≤ 1250 x 1000 mm (w x h) EI 30/60/90 S.

Dilatation margin:
x : in width
y : in height
A minimum gap (see x and y) of 19 mm/m must be maintained between the inner metal duct and the GEOTEC® ventilation duct.

2.8. Various configurations



Change of cross-section



Corner connection



Take-off point on horizontal duct



Sloping



Floor installation \leq 600 mm



Floor installation Large section

HEAD OFFICE

6 bis, rue Jacques Kellner • 95150 TAVERNY - FRANCE
Tel. +33 (0)1 30 26 37 00 • com@geostaff.fr

HEAD OFFICE

ZAC du Chêne Bocquet
6 bis, rue Jacques Kellner
95150 TAVERNY
Tel: +33(0)1 30 26 37 00
Fax: +33(0)1 39 95 96 23

Opening hours

Monday to Thursday:
9:00 - 12:30 / 13:30 - 18:00
Friday:
9:00 - 12:30 / 13:30 - 17:00

Contact us

com@geostaff.fr

GEOSTAFF FACTORY

Rue de St-Just
60130 Catillon-Fumechon

It may be possible to pick up some of our products from this address. Please contact us for further information.

SALES DEPARTMENT

Geostaff IDF
+33(0)1 30 26 37 00

Geostaff Grand Est
+33(0)7 76 08 75 54

Geostaff Grand Ouest
+33(0)7 77 41 87 65

Geostaff Déco PACA
+33(0)6 80 72 09 85

LOGISTICS DEPARTMENT

ZAC du Chêne Bocquet
6 bis, rue Jacques Kellner
95150 TAVERNY
Tel: +33(0)1 30 26 36 90

Opening hours

Open from Monday to Thursday: 6:30 - 17:00
Friday: 6:30 - 12:30

Contact us

com@geostaff.fr

For ease of collection in the South of France, there is a GEOSTAFF warehouse at ZAC LA GRAVE 06150 CARROS (Alpes-Maritimes).

Please contact us for further information.

UK & IRISH PARTNER

Fire Safe Products Limited
127 Duckmoor Road
Bristol BS3 2BJ
Tel: +44 (0)117 214 1969

Contact us

com@geostaff.fr

www.geostaff.fr