

**geoconnect[®] shear load
connectors**
for structural joints

DESCRIPTION

geoconnect® shear load connectors are connecting devices that can transfer shear loads through structural joints between floor slabs, slabs, beams and walls.

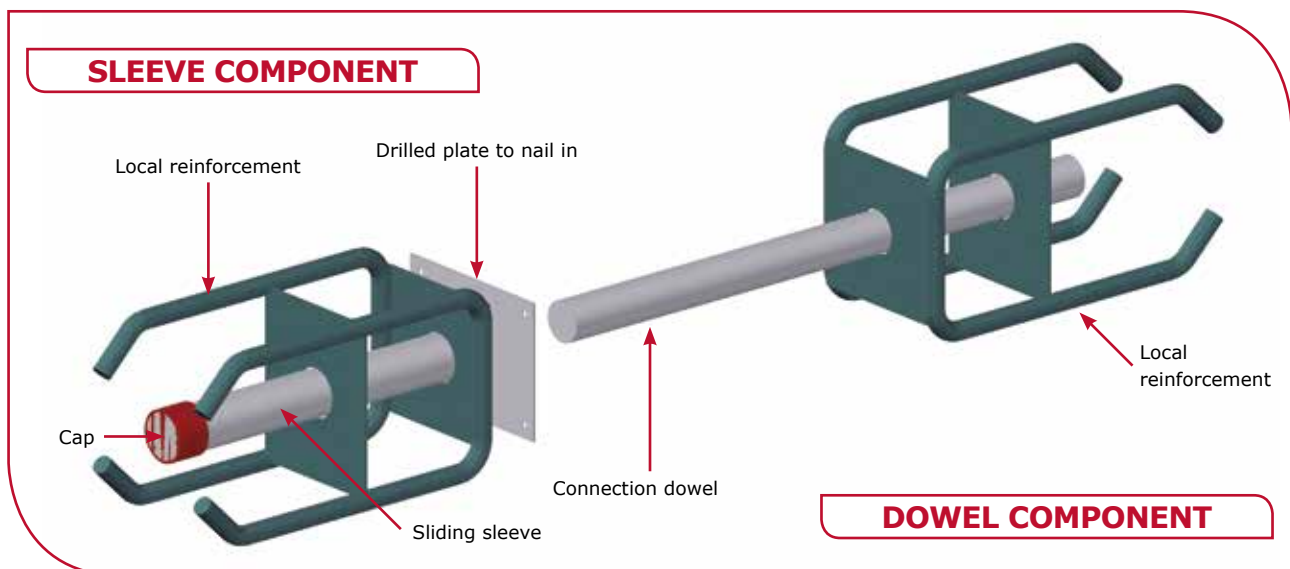
They are made up of two pieces to allow movement of the structural elements on both sides of the

joint. Each of the two pieces has a reinforced frame to avoid errors or improvisations in the work.

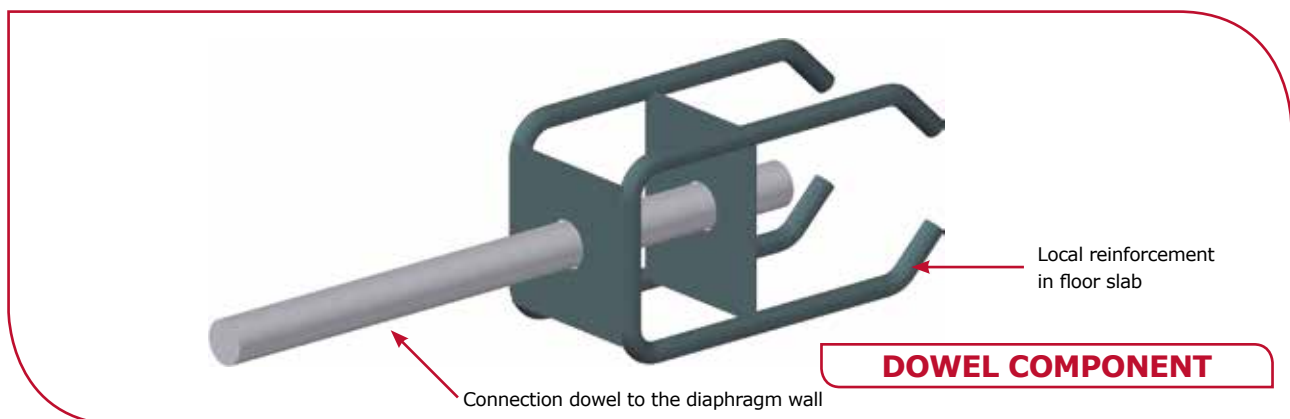
Their unique design, with only two components, facilitates their installation on site. Furthermore, the correct housing of the dowel is ensured, without any additional installation process.

COMPONENTS

1. **geoconnect®** SHEAR LOAD CONNECTORS FOR JOINTS BETWEEN FLOOR SLABS

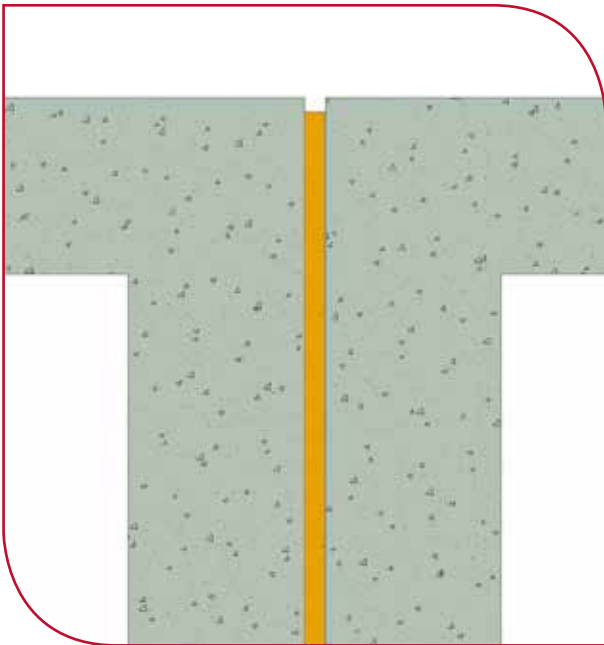


2. **geoconnect®** SHEAR LOAD CONNECTORS TO CONNECT TO DIAPHRAGM WALLS

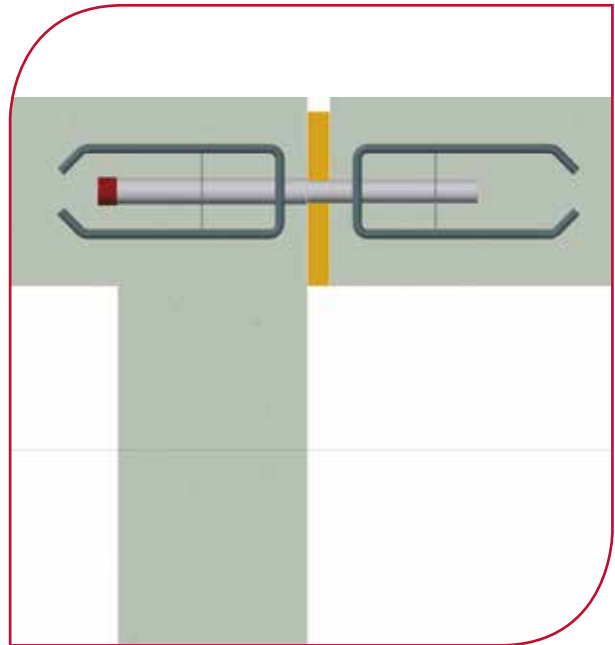


APPLICATIONS

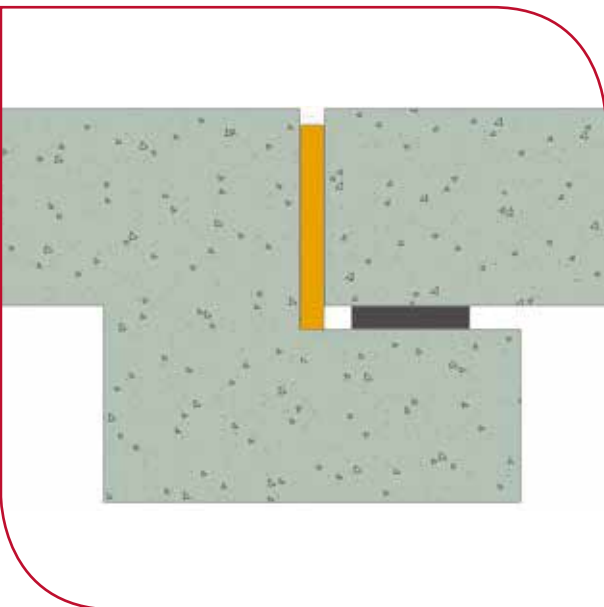
1. STRUCTURAL JOINTS BETWEEN FLOOR SLABS



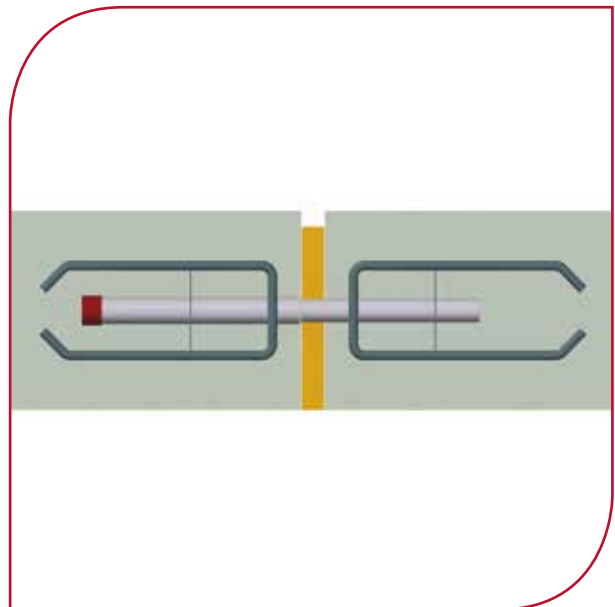
Conventional solution for double columns



Solution with **geoconnect®** shear load connectors:
The double column is eliminated

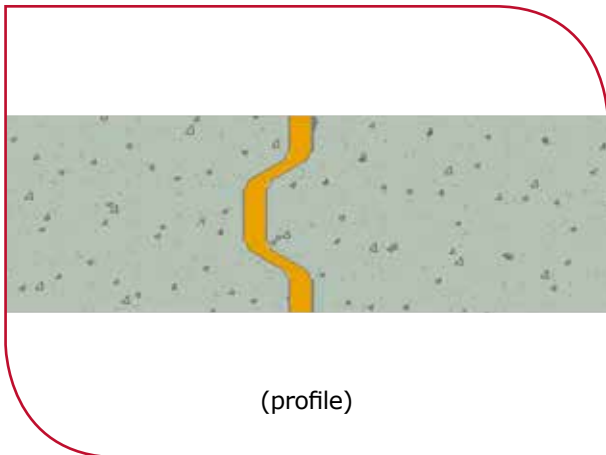


Corbel support conventional solution

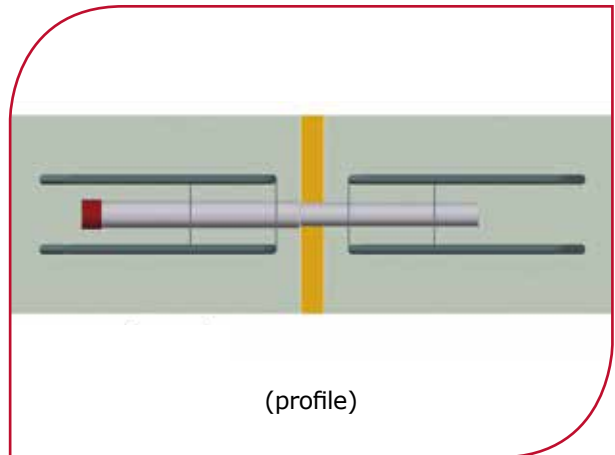


Solution with **geoconnect®** shear load connectors:
The auxiliary support is eliminated

2. STRUCTURAL JOINTS BETWEEN WALLS

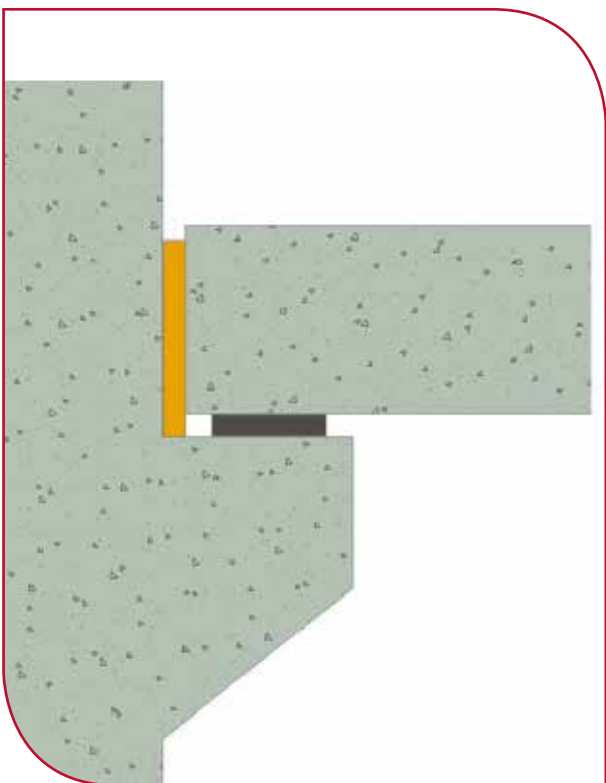


Conventional keyed joint solution

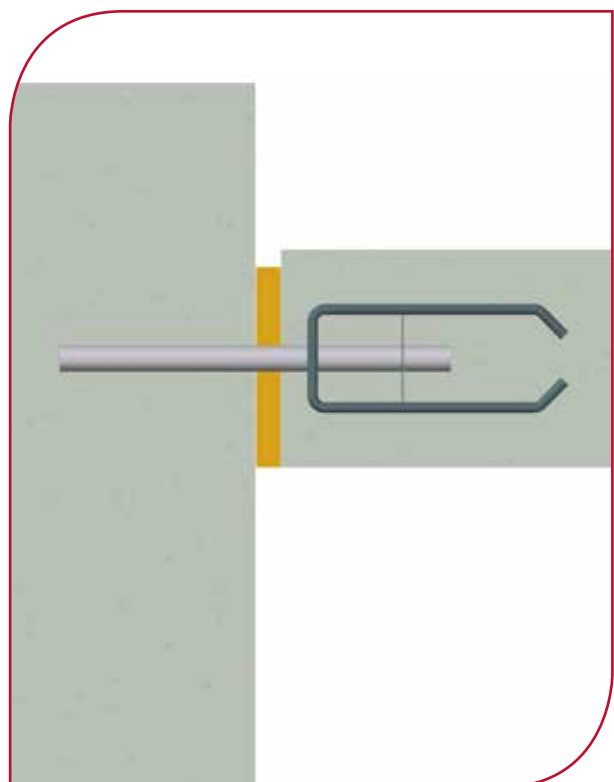


Solution with **geoconnect**[®] shear load connectors:
Straight joint

3. CONNECTION BETWEEN FLOOR SLAB AND WALL



Conventional corbel support solution



Solution with **geoconnect**[®] shear load connectors:
The auxiliary bracket is eliminated

SPECIFICATIONS

Structural shear load connectors should have, in addition to the necessary mechanical features, a high resistance to corrosion since they are housed in exposed joints that are subject to the elements and it is not possible to carry out maintenance work to restore their protection.

geoconnect® shear load connectors are manufactured in two different qualities of steel:

- **geoconnect®** shear load connectors in galvanised steel ("G" series), for connections of floor slabs to diaphragm walls (with no apparent dilation joint).
- **geoconnect®** shear load connectors in stainless steel ("I" series), for connections of floor slabs to diaphragm walls, with a visible dilation joint.

GALVANISED STEEL **geoconnect®** SHEAR LOAD CONNECTORS (**geoconnect®-G SERIES**)

These shear load connectors are manufactured with steel that is subjected to a hot galvanisation process which provides very effective protection against corrosion.

The protective cover is produced by submerging the steel connector in a molten zinc bath. The zinc layer that forms on the steel protects it two ways: barrier protection and galvanised protection (also called cathodic protection). It is this latter type of protection that provides the greatest effectiveness. In the presence of humidity, the zinc acts like an anode and the

zinc as a cathode, so that the zinc corrodes in a sacrificial action and prevents the steel rusting.

In the event that the galvanised layer is damaged or shows any type of irregularity, the zinc forms an insoluble salt with the exposed steel, which cleans up the imperfection and continues protecting it against any corrosion.

Galvanised steel **geoconnect®** shear load connectors are manufactured with steel type 42CD4 (42 CrMo4) steel which is a steel improved by chrome and molybdenum.

STAINLESS STEEL **geoconnect®** SHEAR LOAD CONNECTORS (**geoconnect®-I SERIES**)

The use of stainless steel is the general solution to the corrosion problem in steel components in buildings.

Stainless steels are alloys that incorporate chrome as the main element, in a proportion of no less than 12%. This element forms a compound on the metallic surface that detains the corrosion phenomenon.

There are different types of corrosion (corrosion under pressure, crevice corrosion, by pitting or galvanic corrosion). Resistance to corrosion in its different types can be improved with other alloy

elements, such as nickel and molybdenum.

Stainless steel **geoconnect®** shear load connectors are manufactured with high resistance EN 1.4462 steel and with improved anti-corrosion features according to EN 10088-3.

In connection with the resistance to corrosion, this steel has better characteristics than the types AISI 316. The higher content of Cr in relation to austenitic steel types improves the resistance to corrosion and the N and Cr content makes it particularly resistant to crevice and pitting corrosion.

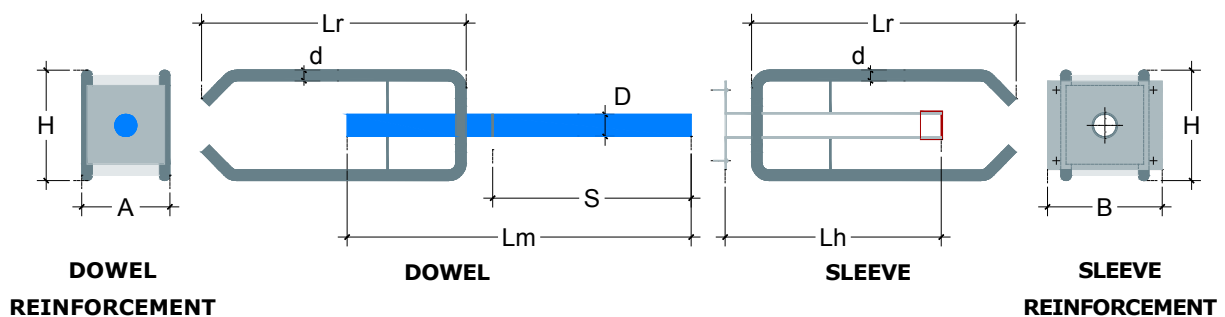
SIZES

geoconnect® shear load connectors are manufactured in five different diameters to allow accurate selection in accordance with the load conditions and geometry of the structural elements they connect.

Each type of shear load connector has a sleeve and locally incorporated reinforcements, with the

geometry in proportion to its diameter to optimise its structural performance.

The table below shows the standard types of **geoconnect®**, shear load connectors, as well as their geometric features and the sizes of the compatible structural elements.



SIZES OF THE **geoconnect® SHEAR LOAD CONNECTORS** (in mm)

Reference	Dowel			Sleeve		Local reinforcements				
	Diameter	Length	Projection	Length	Diameter	Length	High	Width		Compatible edge
	D	Lm	S	Lh	d	Lr	H	A	B	
H-20	20	320	190	210	10	260	110	85	120	≥ 180
H-22	22	350	205	225	10	260	110	85	120	≥ 180
H-25	25	390	225	245	12	300	125	100	130	≥ 200
H-30	30	450	255	275	12	300	125	100	130	≥ 200
H-40	40	580	320	340	16	350	140	120	150	≥ 250

CARRYING CAPACITY

The carrying capacity of **geoconnect®** shear load connectors has been obtained through the modelling of their mechanical performance, following the EOTA (European Organisation for Technical Approvals) criteria contained in the ETAG

30 Draft Standard Dowel for Structural Joints. The values obtained have been verified by trials carried out at the Higher Polytechnic School of the University of Zaragoza (Spain).



55 houses in Vallecas (Spain)



316 houses El Cañaveral, Madrid (Spain)



Palace of Justice, La Rioja (Spain)

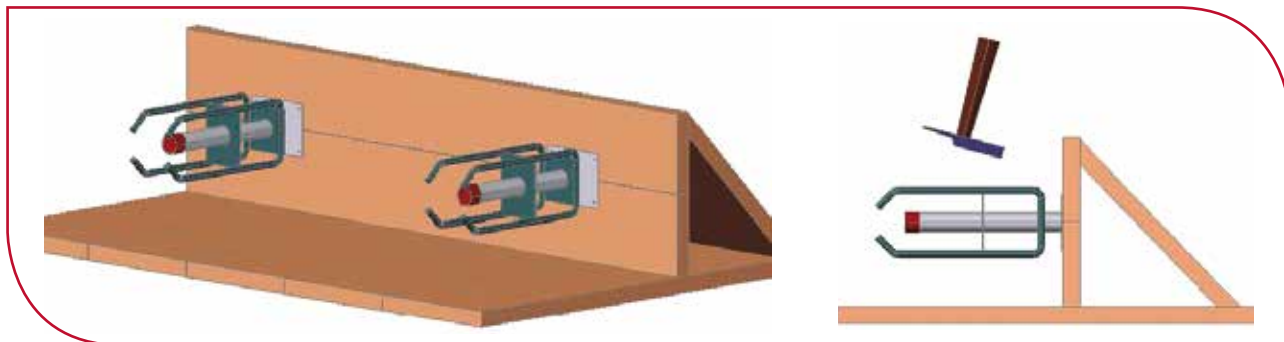


Logistics Centre Pepsi-Cola (Saudi Arabia)

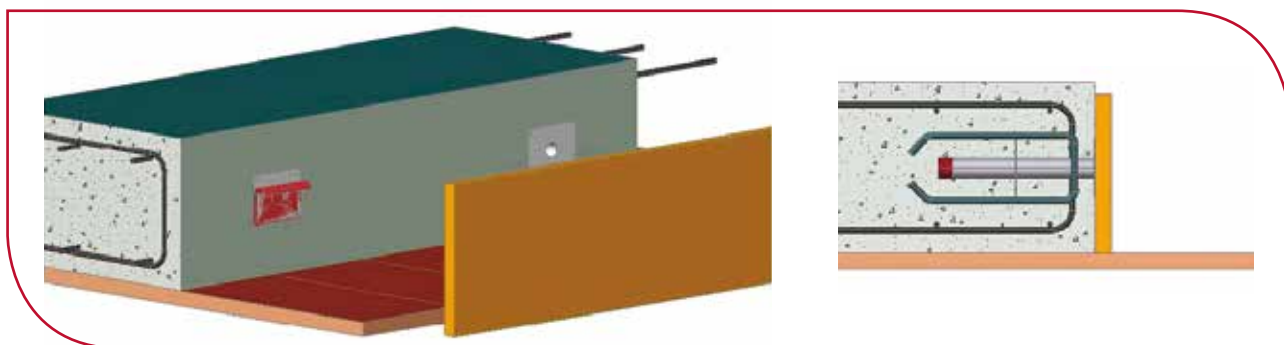
INSTALLATION

1. JOINTS BETWEEN FLOOR SLABS

FIRST STAGE



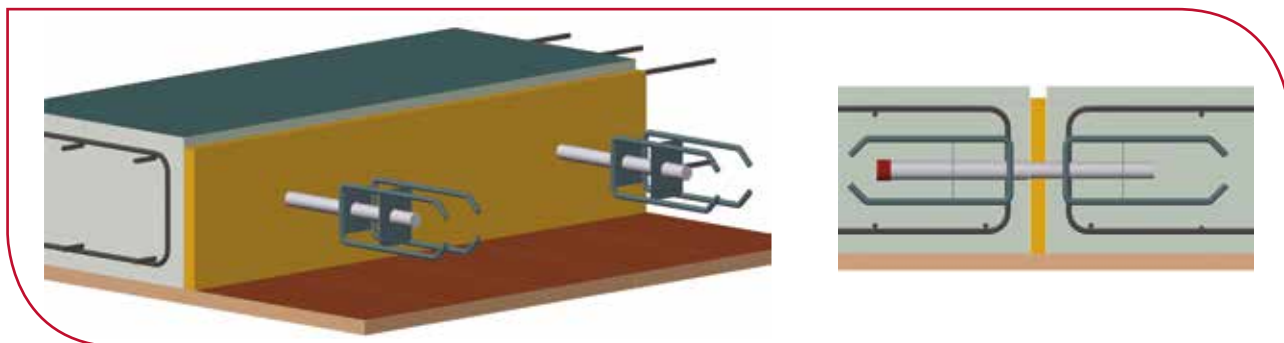
Fix the sleeve component to the formwork, without removing the protection sticker.



Position the reinforcements and pour the concrete to complete the first stage.

Remove the protection sticker and place the joint material.

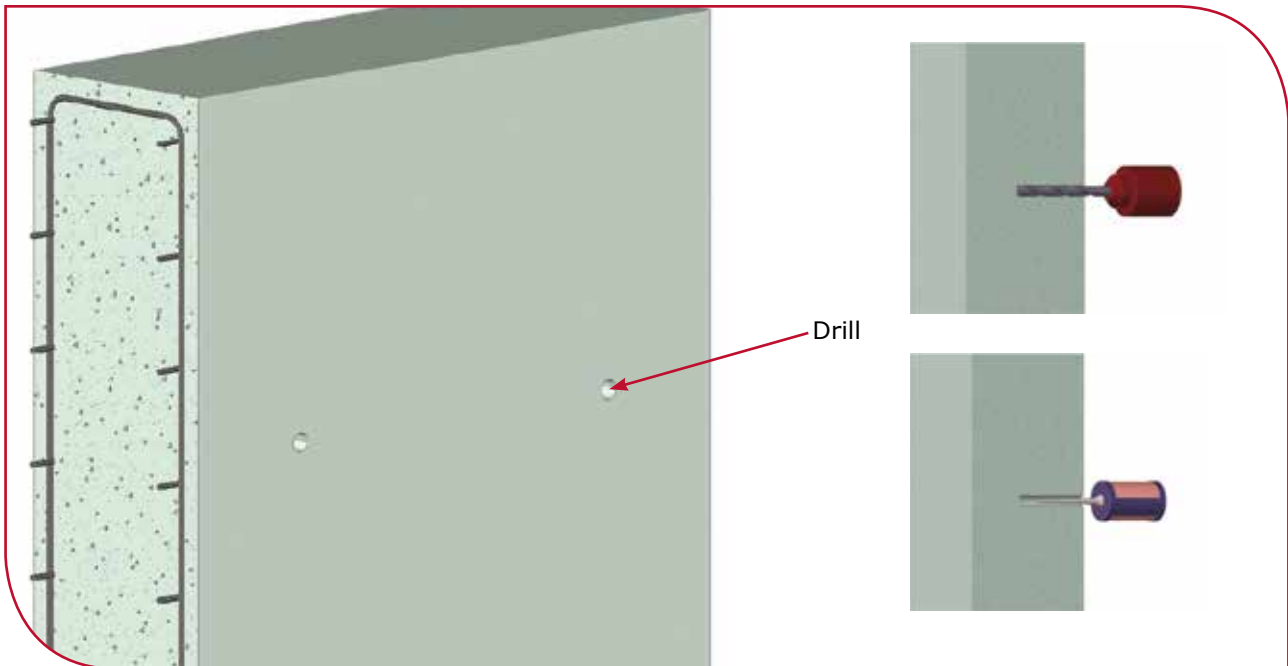
SECOND STAGE



Introduce the dowel in the sleeve until achieving a covering of the reinforcement of 3cm.

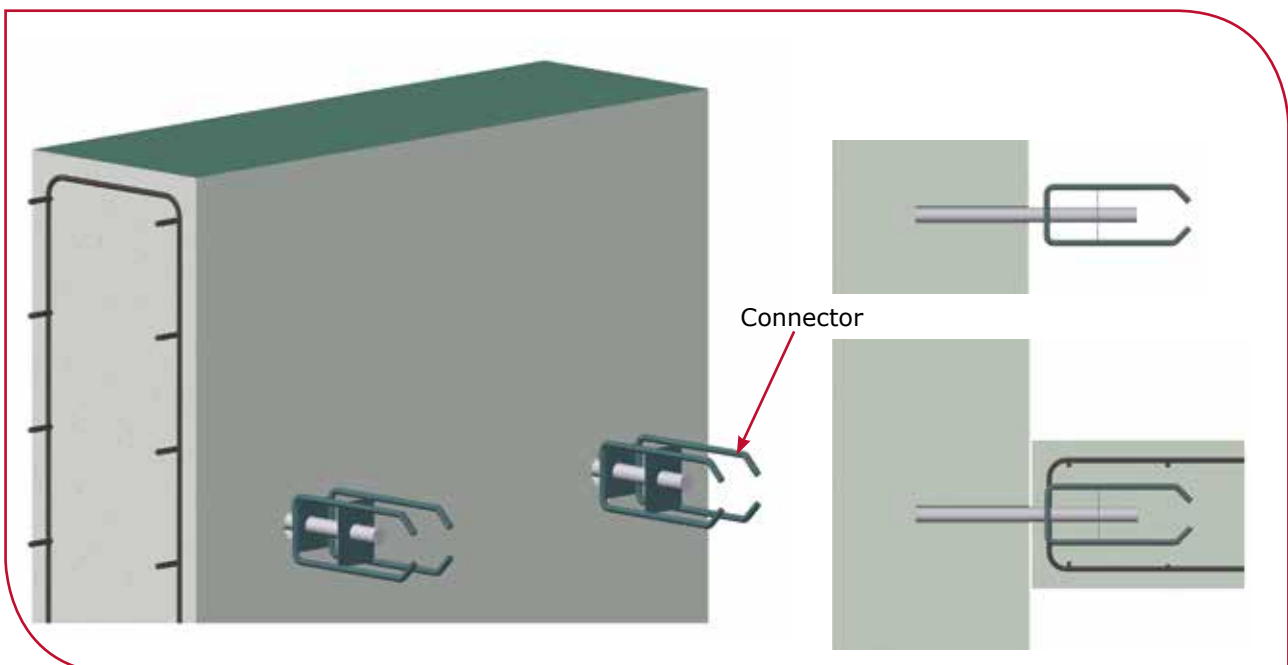
Position the reinforcement and pour the concrete to complete the second stage.

2. CONNECTION OF FLOOR SLABS TO DIAPHRAGM WALLS



Make 3 to 5 mm diameter drill holes in the diaphragm wall greater than the connector's diameter. Fill the

drill holes with resin.



Introduce the dowel into the drill holes until achieving a covering of the reinforcement of 3cm. Fasten the reinforcement of the connector to the

steel on the slab.

When the resin has hardened, pour the concrete of the slab.



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