



STAIRCASE
PRODUCTS

13

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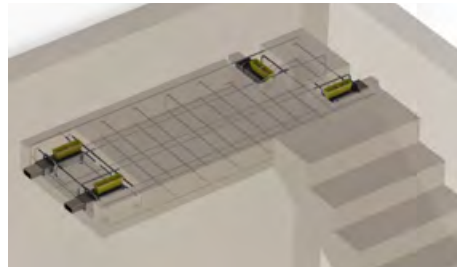
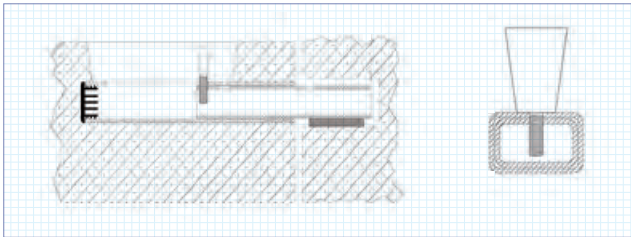
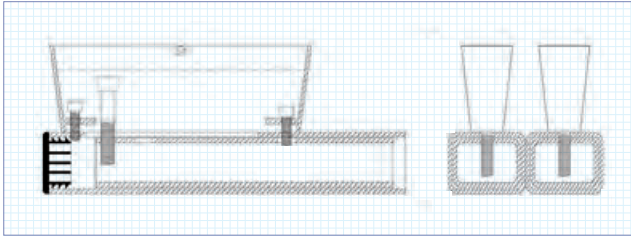
CVS 40 / 60 / 100 STAIRCASE CONNECTORS

The CVS 40 / 60 / 100 staircase products are used for connecting precast staircases to concrete shear walls, through the use of a bearing that rests within the shear wall.

The former for the cast in part is re-usable. The former is secured by two screws and can be removed once the concrete has cured.

The inner bearing part of the connector slides into the pocket in the shear wall on the construction site.

CVS bearers are produced under ISO 9001.



REINFORCEMENT ARRANGEMENT

Bar No 1 Front Shear Bar

Bar No 2 Back shear bar

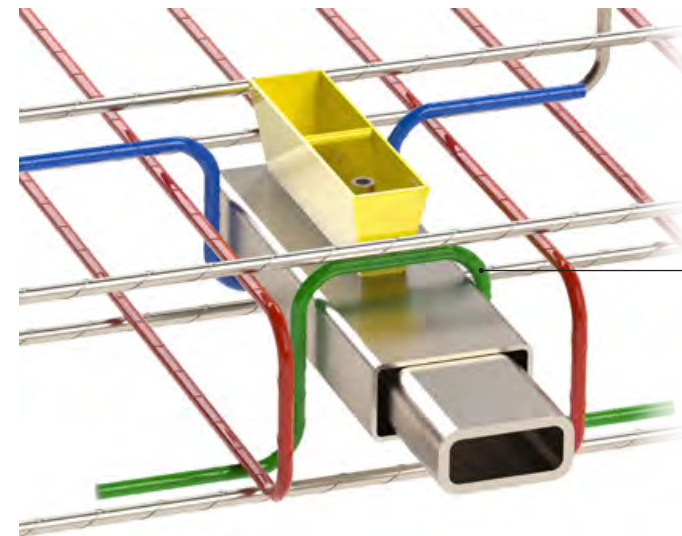
Bar No 3 Edge U Bar

- Anchorage of shear bars may be bent either perpendicular or aligned to CVS.
- Shear bar may be vertical or at an angle as shown.
- Shear bars may be doubled up in some cases.

The maximum gap between the concrete stair and wall elements to achieve the full design capacity is 40mm. If this is increased to 50mm, the capacities reduce by 5kN.

CVS Stair connector System - element thickness, extra reinforcement and distance for fixing

Type	CVS 40				CVS 60				CVS 100							
Design capacity VSD	kN				40				60				100			
maximum gap between concrete parts for full design capacity for all types is 4cm/ increasing the gap to 5cm =>reduced design capacity 35kN, 55kN/95kN																
Concrete	C 30/37	C 35/45	C 30/37	C 35/45	C 30/37	C 35/45	C 30/37	C 35/45	C 30/37	C 35/45	C 40/50	C 30/37	C 35/45	C 30/37	C 35/45	
thickness of concrete part	mm		150		175		200		175		200		200		250	
Front shear bar (1) with bent ends																
No of units	2		2		1		1		1		2		2		1	
Diameter - ds	mm		12		16		16		12		10		16		20	
Lb,net	mm		≥ 60		≥ 85		≥ 110		≥ 85		≥ 110		≥ 110		≥ 160	
La≥5xds	mm		≥ 60		≥ 80		≥ 70		≥ 60		≥ 60		≥ 80		≥ 100	
Design capacity - VRd,fs	kN		38.8		43.9		36.6		41.5		41.5		40.3		54.9	
Back shear rebar (2) with bent ends																
No of units	1		1		1		1		1		1		2		2	
Diameter - ds	mm		16		12		12		12		16		16		12	
Lb,net	mm		100		100		100		100		100		100		110	
La≥5xds	mm		70		60		60		60		80		80		60	
Design capacity - VRd,bs	kN		37.7		36.6		32.3		36.6		32.3		36.6		43.1	
Edge U bar (3)																
No of units	>=4															
Diameter - ds	mm															
distance e	mm															
horizontal leg Lb,net	mm															



NOTE:
Correct position of reinforcement rebars 1 and 2. Ensure close proximity of the rebars to CVS Staircase Connector.

Reinforcement bar 1 must be in contact with staircase connector

Connector With Typical Additional Reinforcement



To reduce the noise transmission, an insulating pad can be inserted into the wall pocket underneath the bearing part.

The staircase connectors, made of material S355 are available in four different load groups. The product designation CVS 40 / 60 / 100 / 200 indicates the ultimate capacity per connector in kN.

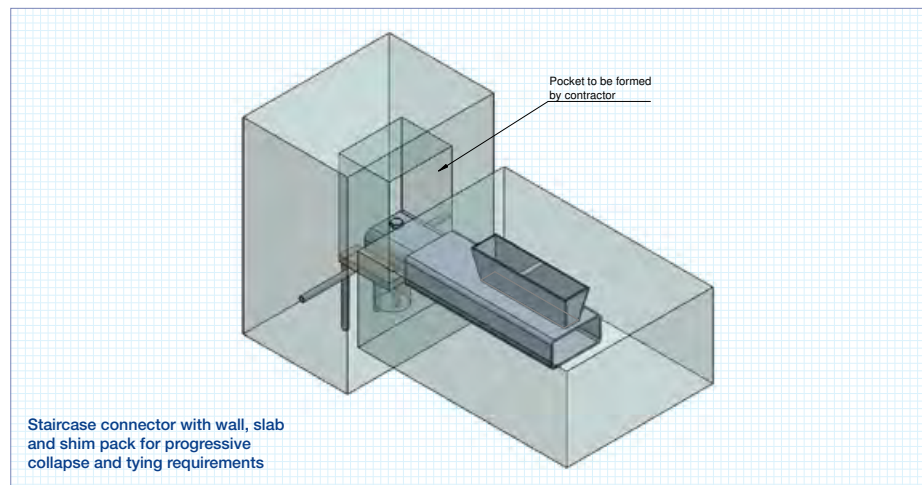
Additional reinforcement located at the rear of the cast in part is required to transfer loads from the connectors into precast unit (see above image and overleaf).

Calculations are available for the staircase connectors to provide proof for the steel components and the anchorage arrangement within the precast unit.

Connector load bearing capacities have also been verified by practical tests.

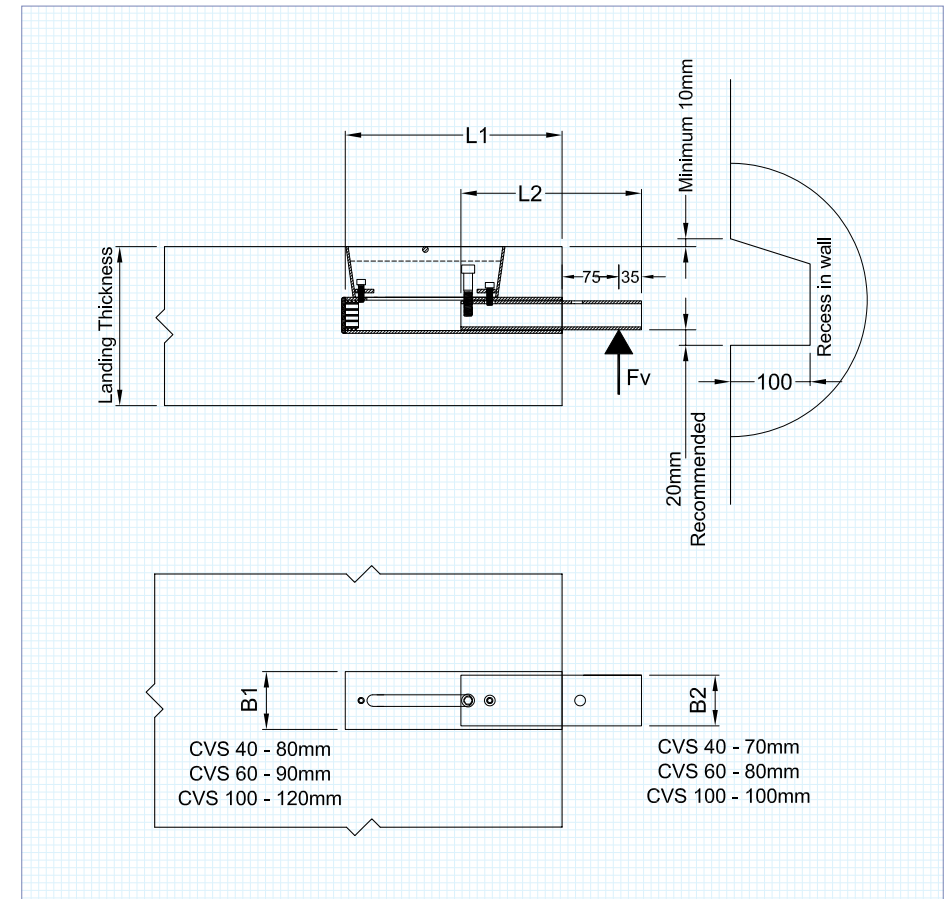
Available in black or galvanised finish.


Versions available to fulfill horizontal tying requirements CVS 40H, CVS 60H, CVS 100H



Staircase connector with wall, slab and shim pack for progressive collapse and tying requirements

For more information about progressive collapse staircases please contact CFS.



 *Fire protection under the CVS staircase connector in the joint must be considered by the designer or structural engineer. CFS recommends to use mineral wool or CFS fire stop.

*Designer can consider step and sound reduction. For schools, hospitals, hotels and offices it is recommended to consider (min 10mm) elastic joint between landing and wall.

STAIR FLIGHT BEARING ANGLE

Stair Flight Bearing Angle is used to support a staircase flight unit with a landing unit. Angles with welded studs are cast in to the staircase flight unit and can achieve 50-100kN ultimate capacity depending on the number of angles used.

CFS can manufacture stair bearing angles (BS EN 1090) according to your design for various types of structures and staircase types.

For more information please contact CFS.

