

## Schöck Isokorb® Type CPA



### Schöck Isokorb® Type CPA

For parapet connections bearing moment, shear and axial forces in a vertical or horizontal orientation

CPA

Products

## Assembly Section Details

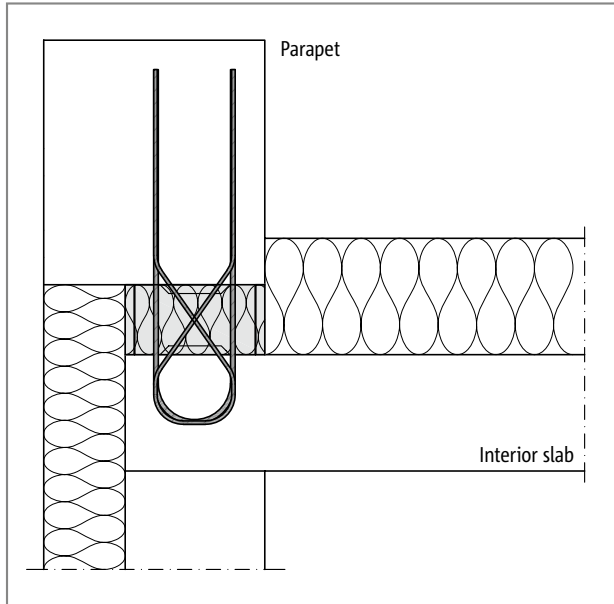


Fig. 1: Schöck Isokorb® Type CPA parapet connection with vertical orientation

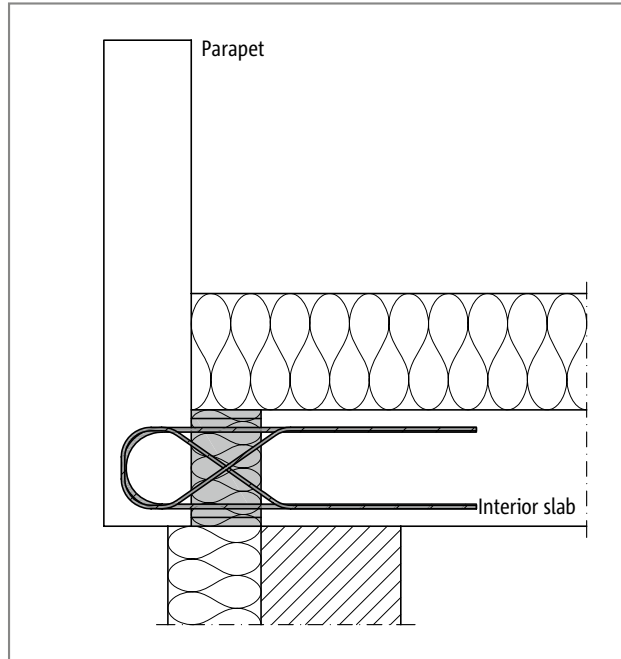


Fig. 2: Schöck Isokorb® Type CPA parapet connection with horizontal orientation

## Element Arrangement

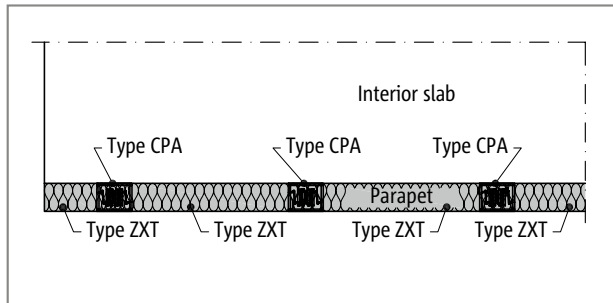


Fig. 3: Schöck Isokorb® Type CPA vertical orientation: plan view of parapet connection

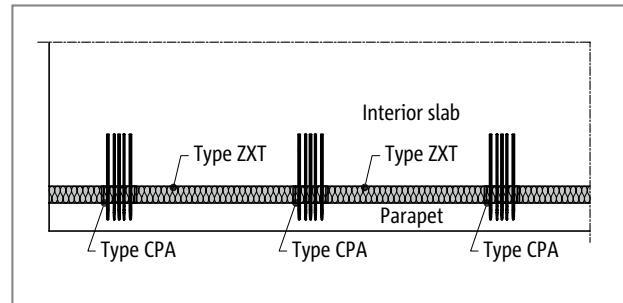


Fig. 4: Schöck Isokorb® Type CPA horizontal orientation: plan view of parapet connection

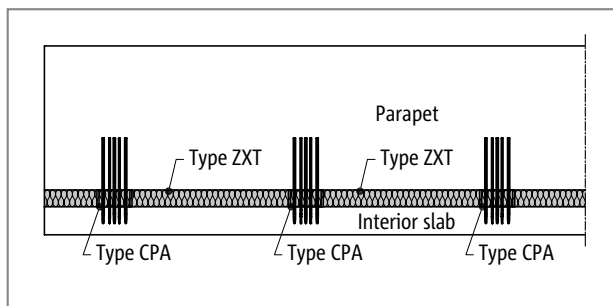


Fig. 5: Schöck Isokorb® Type CPA vertical orientation: section view of parapet connection

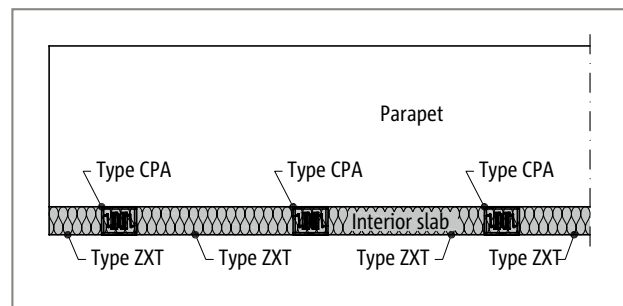


Fig. 6: Schöck Isokorb® Type CPA horizontal orientation: section view of parapet connection

### Position of Schöck Isokorb®

For optimal thermal performance the Schöck Isokorb® should be aligned with the insulation layer.

### Orientation of Schöck Isokorb®

- ▶ Ensure proper installation orientation as shown in the cross-section view on the design drawings and product labels.

#### **i** Note

- ▶ For insulation between the Schöck Isokorb® Type CPA elements, Schöck Isokorb® Type ZXT insulation spacers with fire protection plates are available.

## Concrete Cover

### Concrete cover (CC)

The concrete cover (CC) of the Schöck Isokorb® Type CPA varies depending on the width of the parapet wall for the vertical application or the thickness of the roof slab in the horizontal application. As stainless, ribbed steel is used exclusively for the reinforcement at the parapet connection there is limited risk of corrosion.

Schöck Isokorb® Type		CPA
Concrete cover with		CV [mm]
Isokorb® Width	[mm]	
	180	40
	190	45
	200	50
	210	55
	220	40
	230	45
	240	50
	250	55
	260	60
	270	65
	280	70
290	70	
300	65	

Schöck Isokorb® Type			CPA
Concrete cover with			CC [in]
Isokorb® Width	[in]	[mm]	
	7"	180	1 5/8"
	7 1/2"	190	1 3/4"
	7 7/8"	200	2"
	8 1/4"	210	2 1/8"
	8 5/8"	220	1 5/8"
	9"	230	1 3/4"
	9 1/2"	240	2"
	9 7/8"	250	2 1/8"
	10 1/4"	260	2 3/8"
	10 5/8"	270	2 1/2"
	11"	280	2 3/4"
	11 3/8"	290	2 3/4"
	11 3/4"	300	2 1/2"

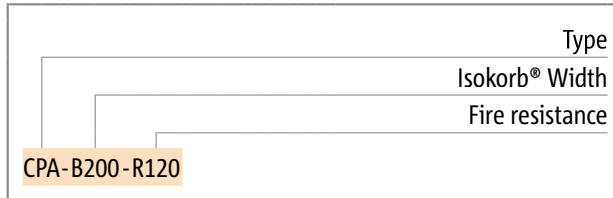
## Product Variants | Type Designation | Special Designs

### Schöck Isokorb® Type CPA variants

The Schöck Isokorb® Type CPA can be configured as follows:

- ▶ Isokorb® width:  
B = 180–300 mm [7"–11 3/4"]
- ▶ Fire resistance class:  
R120

### Type designation in design documents



### **i** Special designs

Please contact the design support department if you have connections that are not possible with the standard product variants shown in this technical information manual (contact [engineering-na@schoeck.com](mailto:engineering-na@schoeck.com)).

# Sign Convention

## Sign convention for structural system

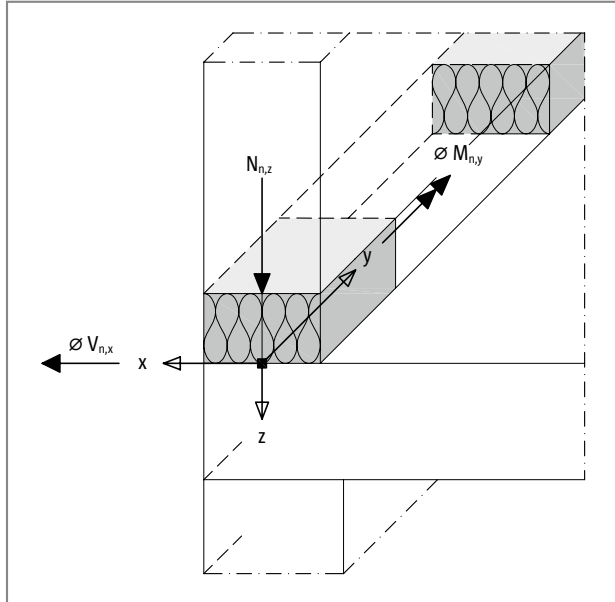


Fig. 7: Schöck Isokorb® Type CPA: Sign convention for structural system with a vertical connection at the parapet

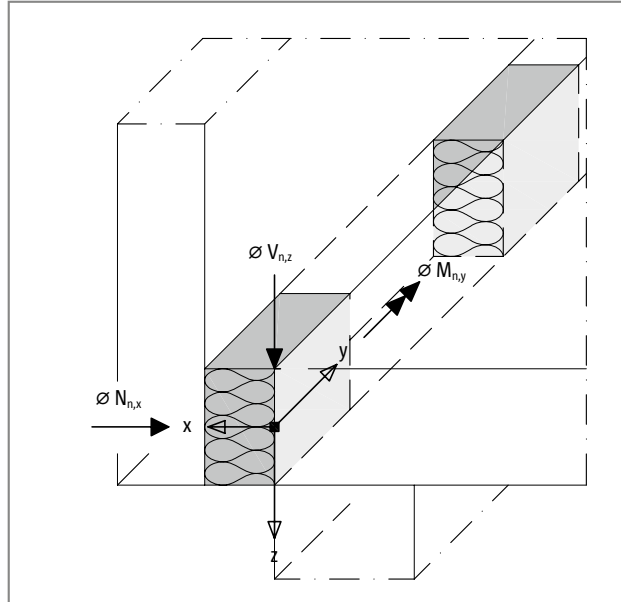


Fig. 8: Schöck Isokorb® Type CPA: Sign convention for structural system with a horizontal connection at the parapet

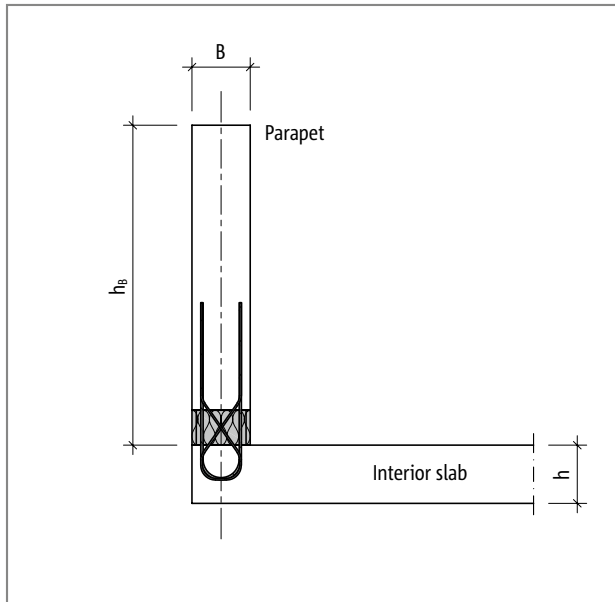


Fig. 9: Schöck Isokorb® Type CPA: vertical connection parapet height  $h_A$

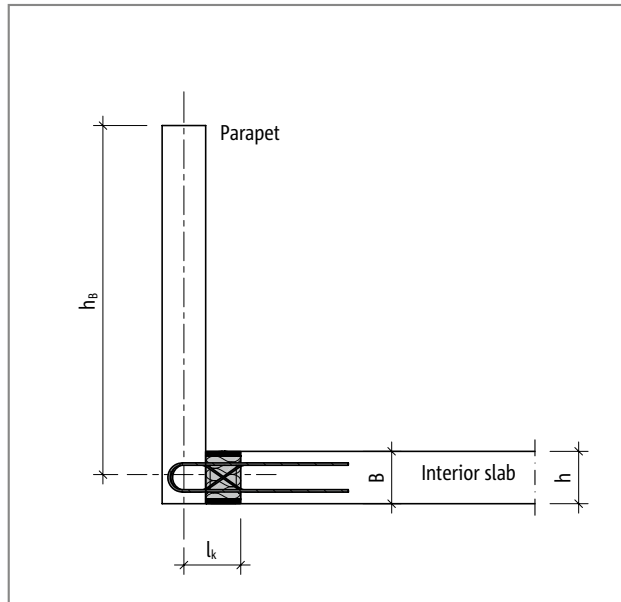


Fig. 10: Schöck Isokorb® Type CPA: horizontal connection parapet height  $h_B$

## Expansion Joint Spacing

### Maximum expansion joint spacing

Expansion joints may be required along the length of the exterior parapet structure due to temperature changes that are isolated from the interior structure. To protect from temperature cracking, the limit of continuous parapet length is a distance 'e' between the outermost Schöck Isokorb® elements. A continuous parapet should extend beyond the Schöck Isokorb® with the expansion joint occurring between Isokorb® units.

Schöck Expansion Joint Spacer boards can be used to build the expansion joints, and Schöck Dorn® (dowels) can be used for transmission of shear forces through the joint.

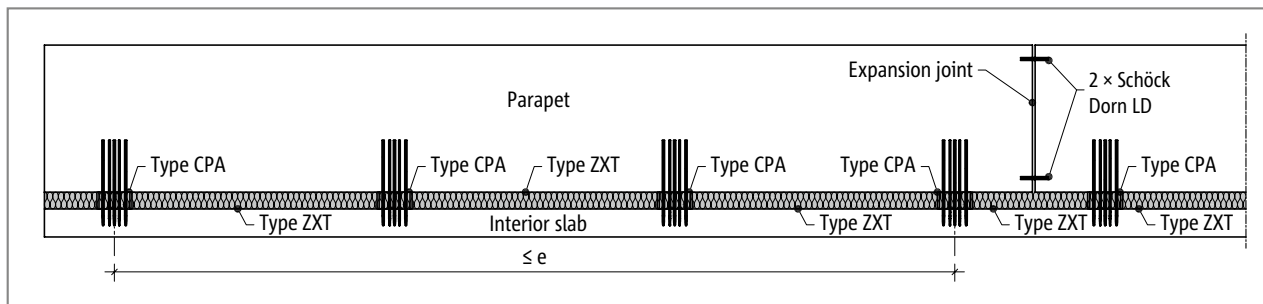


Fig. 11: Schöck Isokorb® Type CPA: Expansion joint spacing requirements

Schöck Isokorb® Type		CPA
Joint Spacing		e [m]
Insulation Thickness [mm]	120	23.0

Schöck Isokorb® Type		CPA
Joint Spacing		e [ft in]
Insulation Thickness [in]	4 3/4"	75'-5 1/2"

### **i** Notes

- ▶ The maximum expansion joint spacing must be verified by the Engineer of Record (EOR).
- ▶ The joint must be free to contract or expand in the longitudinal direction. Schöck Dorn LD in stainless steel A4 would be a suitable dowel connector for the expansion joint with the Schöck expansion joint former board or equivalent.
- ▶ The Schöck expansion joint former board is available from Schöck North America.

## Edge distances

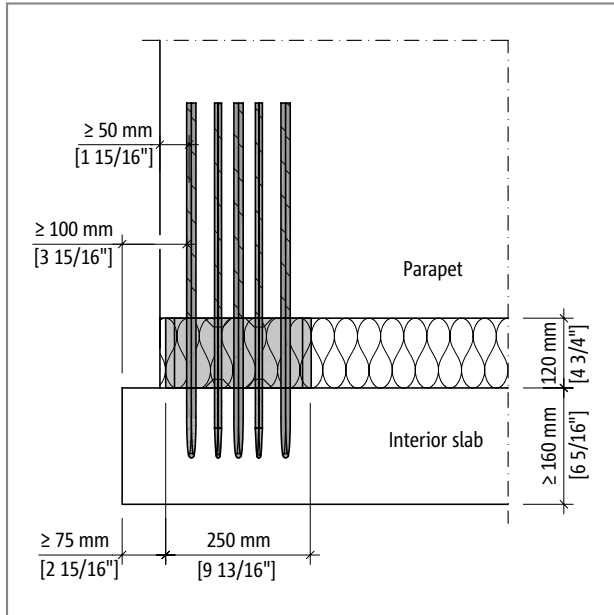


Fig. 12: Schöck Isokorb® Type CPA vertical connection: edge distance section view

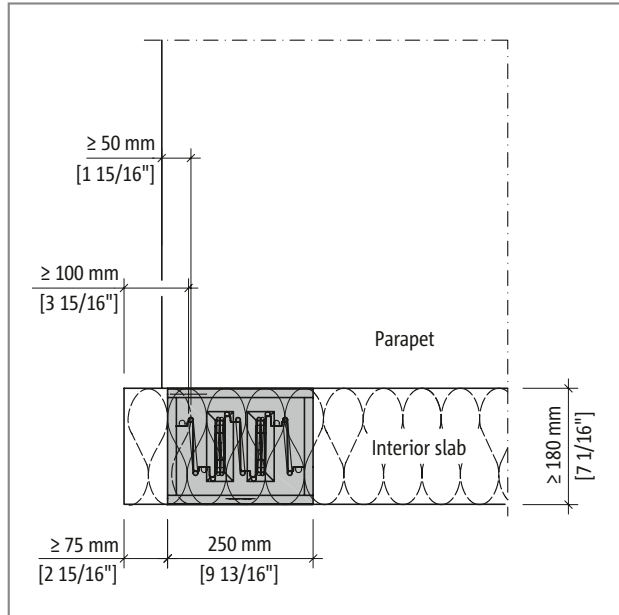


Fig. 13: Schöck Isokorb® Type CPA horizontal connection: edge distance section view

### **i** Edge distances

The Schöck Isokorb® Type CPA layout must maintain the following conditions:

- ▶ The distance of the connection stirrup from the parapet edge or parapet expansion joint must be at least:  $e_R \geq 50 \text{ mm}$  [2"].
- ▶ The distance of the insulation from the edge of the floor slab must be at least:  $e_R \geq 75 \text{ mm}$  [3"].
- ▶ The distance of the connection stirrup from the edge of the floor slab must be at least:  $e_R \geq 100 \text{ mm}$  [4"].
- ▶ Note that the required distances to the floor slab edge and to the parapet edge are not necessarily the same.



## Product Dimensioning

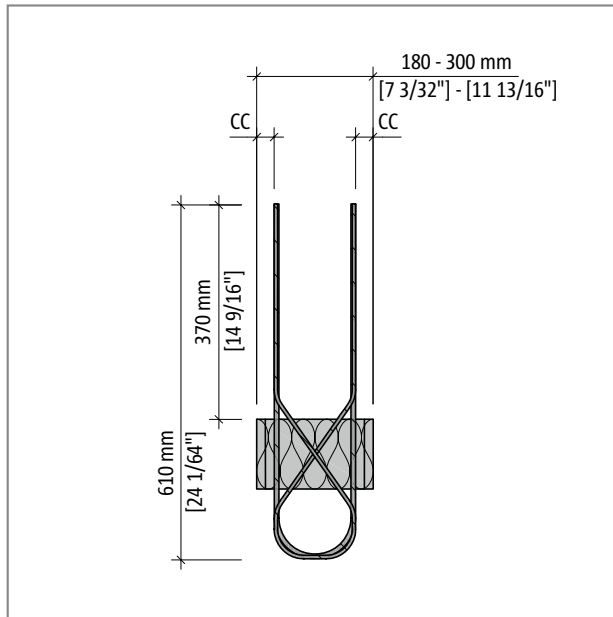


Fig. 14: Schöck Isokorb® Type CPA: side cross-section view

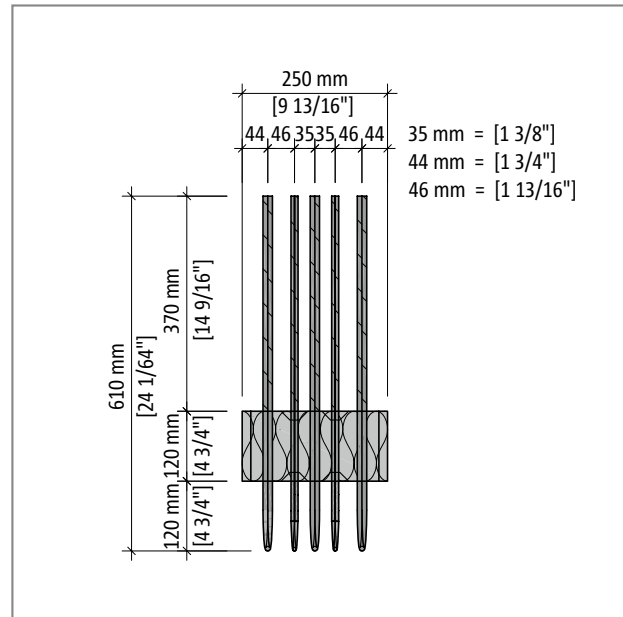


Fig. 15: Schöck Isokorb® Type CPA: front cross-section view

### **i** Product information

- ▶ Minimum width of parapet  $b_{\min} = 180 \text{ mm}$  [7"] note that minimum roof slab height  $h_{\min} = 180 \text{ mm}$  [7"]
- ▶ Download further product plans and cross-sections at [www.schoeck.com/en-us/cad-bim](http://www.schoeck.com/en-us/cad-bim)

### Schöck Isokorb® length and configuration

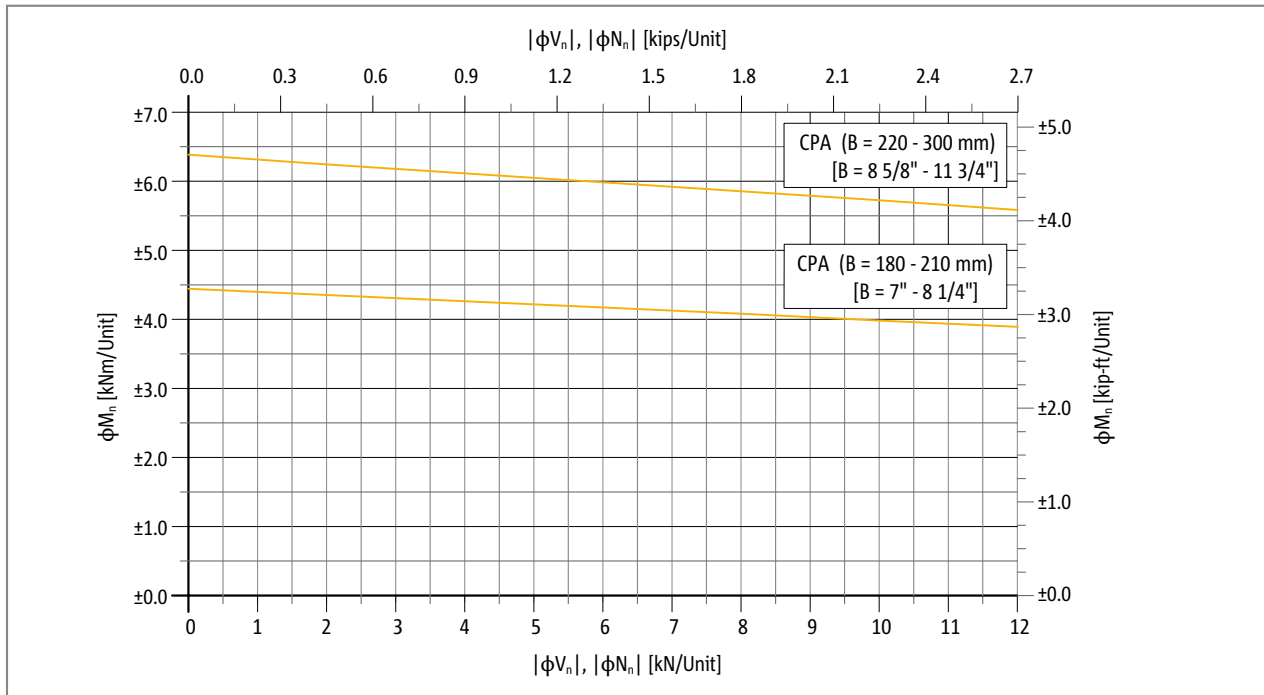
Schöck Isokorb® Type	CPA [mm]	CPA [in]
Isokorb® length	250	9 7/8"
Tension/Compression Bars	2 × 3 Ø 8	–
Shear Resistance Bars	2 Ø 6 + 2 Ø 6	–

### **i** Notes

- ▶ The Schöck Isokorb® consists of metric components.
- ▶ Reinforcement bars Ø6 correspond to 1/4" diameter, approximately
- ▶ Reinforcement bars Ø8 correspond to 5/16" diameter, approximately

# Strength Capacity

## Product capacity diagram



## Interaction Table

Schöck Isokorb® Type		CPA (B = 180–210)	CPA (B = 220–300)
Design Values with		Concrete Strength ≥ 27.5 MPa	
		φM <sub>n</sub> [kNm/Unit]	
φV <sub>n</sub>  ,  φN <sub>n</sub>   [kN/Unit]	12.1	±3.89	±5.58
	10.0	±3.98	±5.72
	8.0	±4.08	±5.85
	6.0	±4.17	±5.98
	4.0	±4.26	±6.11
	2.0	±4.35	±6.24
	0.0	±4.44	±6.38

## Strength Capacity

Schöck Isokorb® Type		CPA (B = 7" - 8 1/4")	CPA (B = 8 5/8" - 11 3/4")
Design Values with		Concrete Strength $\geq 4,000$ psi	
		$\phi M_n$ [kip-ft/Unit]	
$\phi V_n$  ,   $\phi N_n$   [kips/Unit]	2.72	$\pm 2.87$	$\pm 4.12$
	2.25	$\pm 2.94$	$\pm 4.22$
	1.80	$\pm 3.01$	$\pm 4.31$
	1.35	$\pm 3.08$	$\pm 4.41$
	0.90	$\pm 3.14$	$\pm 4.51$
	0.45	$\pm 3.21$	$\pm 4.60$
	0.0	$\pm 3.27$	$\pm 4.71$

### **i** Notes

- ▶ If any concrete on the interior or exterior of the Schöck Isokorb® is less than 27.5 MPa [4,000 psi] contact Schöck Design Department.
- ▶ The Engineer of Record (EOR) must confirm strength of the slabs attached to the Schöck Isokorb®.
- ▶ The values shown in the design capacity tables are ultimate (factored) values.
- ▶ For SI: 1 inch = 25.4 mm, 1 lbf = 4.448 N, 1 psi = 0.006897 MPa.  
US customary units: 1 mm = 0.03937 inches, 1 N = 0.2248 lbf, 1 MPa = 145.0 psi.

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## On Site Reinforcement

At the table below are suggestions for cast-in-place connective reinforcement for 100 % section strength with minimum concrete strength of 27.5 MPa [4,000 psi]. The existing slab reinforcement can be taken into account for the required reinforcement of connections with Schöck Isokorb®.

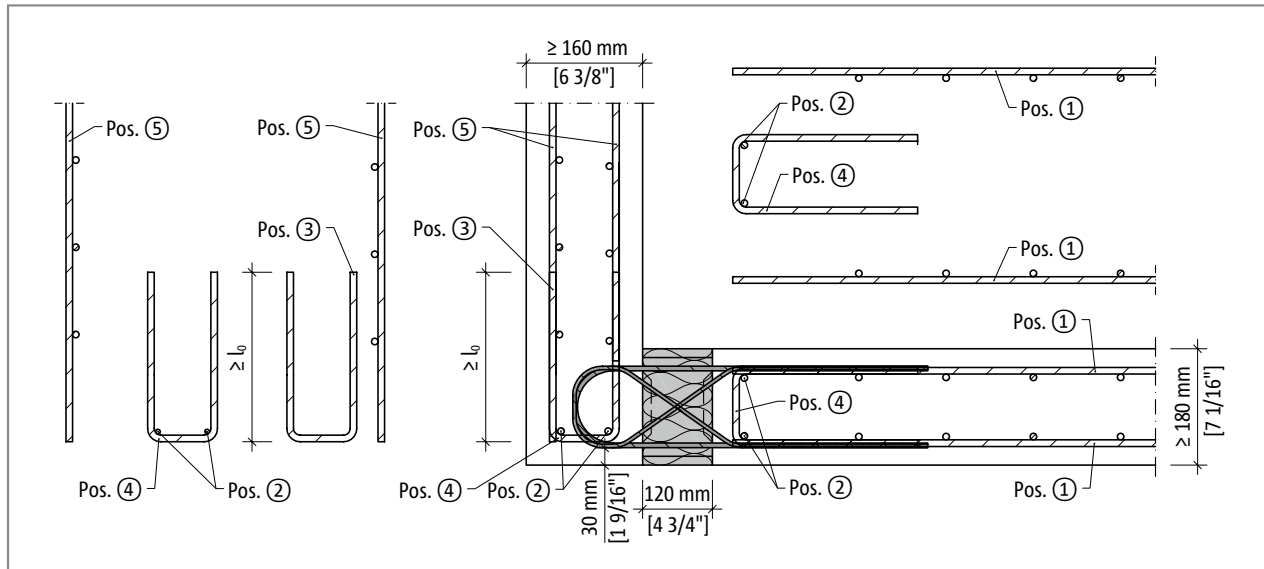


Fig. 16: Schöck Isokorb® Type CPA horizontal connection: on-site reinforcement

Schöck Isokorb® Type		CPA
On Site Reinforcement	Location	Concrete Strength $\geq 27.5$ MPa (4,000 psi)
<b>Übergreifungsbewehrung</b>		
Pos. 1	Roof Slab Side	201 mm <sup>2</sup> /Unit [0.311 in <sup>2</sup> /Unit]
Splice Length $l_b$		340 mm [13 3/8"]
<b>Longitudinal Bars Parallel to Insulation</b>		
Pos. 2	Roof Slab Side and Parapet Side	4 × #3
<b>Pos. 3 Connecting Edge Bars</b>		
Pos. 3	Parapet Side	3 × #3
<b>Constructive Edge Reinforcement</b>		
Pos. 4	Roof Slab Side and Parapet Side	#3 @ 250 mm [#3 @ 10"]
<b>Parapet Reinforcement</b>		
Pos. 5	Parapet Side	214 mm <sup>2</sup> /Unit [0.332 in <sup>2</sup> /Unit]
Pos. 5 Recommendation		3 × #3
Splice Length $l_b$		580 mm [22 7/8"]

### **i** Notes

- ▶ Pos. 3 bars are critical to transfer the load from the parapet to the structural slab.
- ▶ All free edges must be stiffened using structural U-bars as per Engineer of Record (EOR) specifications.

## On Site Reinforcement

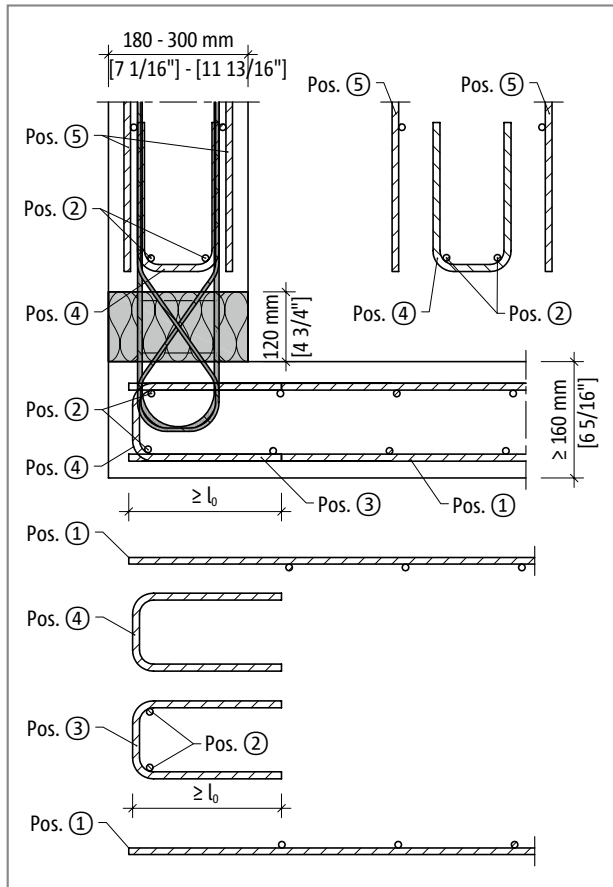


Fig. 17: Schöck Isokorb® Type CPA vertical connection: on-site reinforcement

Schöck Isokorb® Type		CPA
On Site Reinforcement	Location	Concrete Strength $\geq 27.5$ MPa (4,000 psi)
<b>Übergreifungsbewehrung</b>		
Pos. 1	Roof Slab Side	253 mm <sup>2</sup> /Unit [0.392 in <sup>2</sup> /Unit]
Pos. 1 Recommendation		2 × #4
Splice Length $l_b$		776 mm [30 1/2"]
<b>Longitudinal Bars Parallel to Insulation</b>		
Pos. 2	Roof Slab Side and Parapet Side	4 × #3
<b>Pos. 3 Connecting Edge Bars</b>		
Pos. 3	Roof Slab Side	2 × #4
<b>Constructive Edge Reinforcement</b>		
Pos. 4	Roof Slab Side and Parapet Side	#3 @ 250 mm [#3 @ 10"]
<b>Parapet Reinforcement</b>		
Pos. 5	Parapet Side	201 mm <sup>2</sup> /Unit [0.311 in <sup>2</sup> /Unit]
Splice Length $l_b$		340 mm [13 3/8"]

### **i** Notes

- ▶ Pos. 3 bars are critical to transfer the load from the parapet to the structural slab.
- ▶ All free edges must be stiffened using structural U-bars as per Engineer of Record (EOR) specifications.

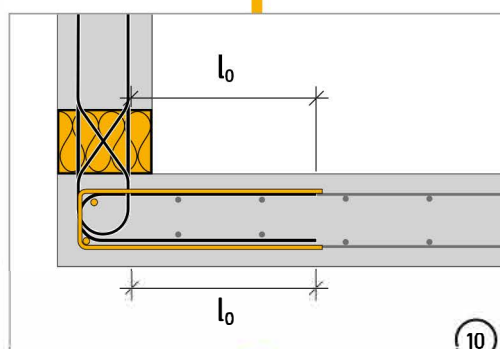
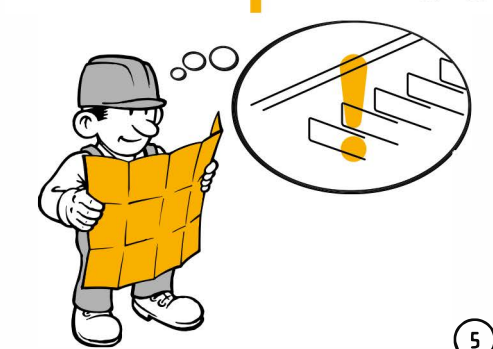
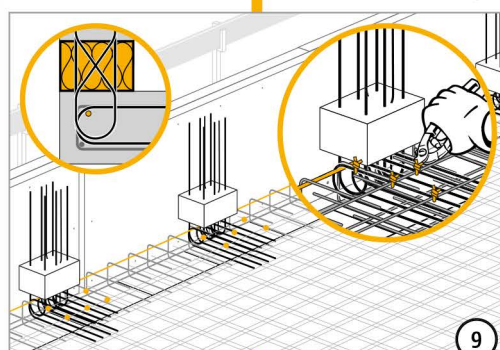
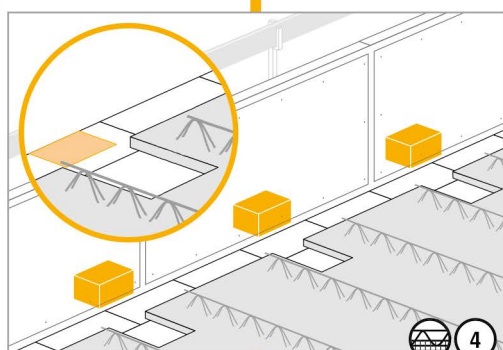
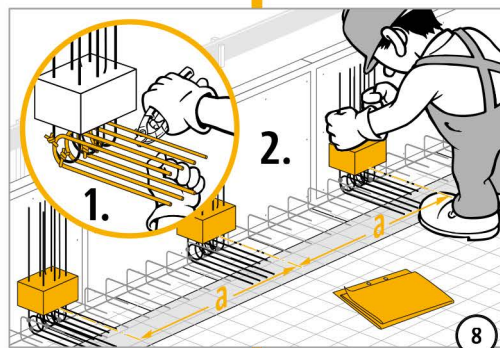
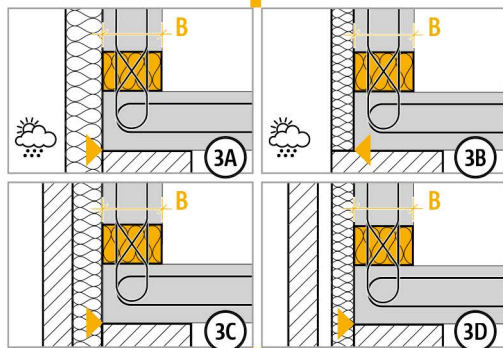
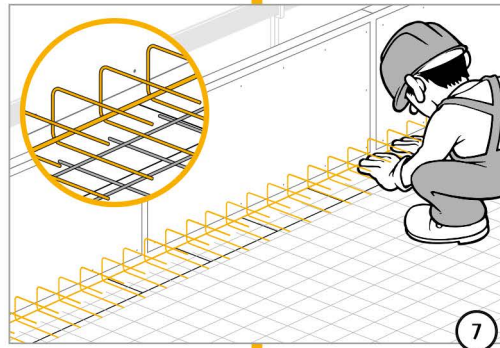
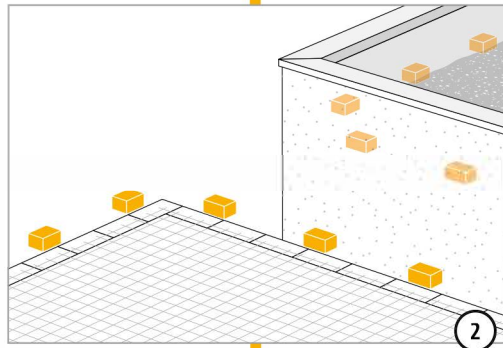
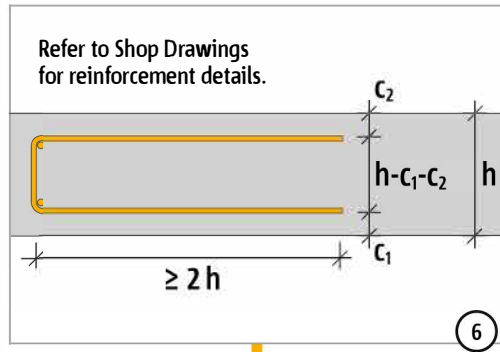
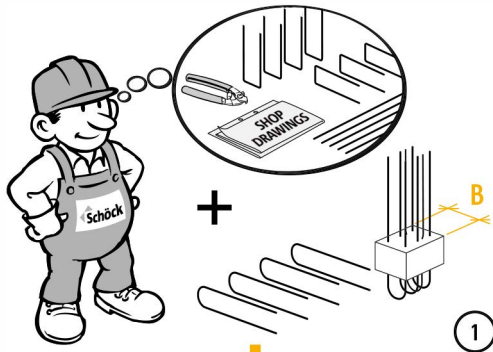
## Check List

- Have the factored member forces on the Schöck Isokorb® connection been determined at design level?
- Has the maximum permissible continuous parapet length between Isokorb® units been maintained?
- Have the requirements for on-site reinforcement of the Isokorb® connections been verified?
- Are the requirements with regard to fire protection confirmed?
- Has the maximum permissible expansion gap spacing been taken into consideration for the specific parapet configuration?

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# Installation instructions



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## Installation instructions

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