

Certificate

valid until 31.12.2019

 **Passivhaus
Institut**
Dr. Wolfgang Feist
Rheinstraße 44/46
D-64283 Darmstadt

**Low Energy
Component:**

**Halfen Balcony Connection
HIT-HP MVX & SP MVX
180 mm slab thickness**

**Hersteller: HALFEN GmbH
Liebigstraße 14 40764 Langenfeld**

The following criteria were used in awarding this certificate:

Efficiency Criterion

In two typical applications^{*)}, the construction is

$$\Delta U_{WB} < 0.025 \text{ W/(m}^2\text{K)}$$

Comfort Criterion

The inner surface must be warm enough to prevent mould as well as uncomfortable down-draught and radiation losses.

$$\theta_{i,min} > 17.00 \text{ } ^\circ\text{C}$$

The following thermal data were determined:

HALFEN HIT ISO-Element	minimum temperature of the inner surface $\theta_{Si,min}$ [°C]	thermal bridge coefficient Ψ [W/(mK)]
HIT-HP MVX-0404-18-100-35	18.33	0.20
HIT-HP MVX-0504-18-100-35	18.26	0.21
HIT-HP MVX-0506-18-100-35	18.03	0.25
HIT-HP MVX-0804-18-100-35	18.18	0.23
HIT-SP MVX-0504-18-100-35	18.58	0.16
HIT-SP MVX-0705-18-100-35	18.41	0.19
HIT-SP MVX-0804-18-100-35	18.50	0.17
HIT-SP MVX-0907-18-100-35	18.15	0.22
HIT-SP MVX-1006-18-100-35	18.26	0.21
HIT-SP MVX-1008-18-100-35	18.40	0.24
HIT-SP MVX-1107-18-100-35	18.11	0.24
HIT-SP MVX-1208-18-100-35	18.00	0.25


^{*)} The criterion was validated on both, a row house and a apartment dwelling.

The certificate includes types with minor statical performance. The thermal bridge coefficient can be approximated by linear interpolation.



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**Low Thermal Bridge
Construction:**

**Halfen Balcony Connection HIT-SP MVX
220 mm slab thickness**

**Hersteller: HALFEN GmbH
Liebigstraße 14 40764 Langenfeld**

The following criteria were used in awarding this certificate:

Efficiency Criterion

In two typical applications¹⁾, the construction is

$$\Delta U_{WB} < 0.025 \text{ W/(m}^2\text{K)}$$

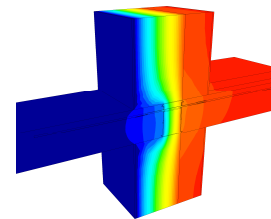
Comfort Criterion

The inner surface must be warm enough to prevent mould as well as uncomfortable down-draught and radiation losses.

$$\theta_{i,min} > 17.00 \text{ } ^\circ\text{C}$$

The following thermal data have been determined:

HALFEN HIT ISO-Element	minimum temperature of the $\theta_{i,min}$ [°C]	thermal bridge coefficient Ψ [W/(mK)]
HIT-SP MVX-0504-22-100-35	18.53	0.17
HIT-SP MVX-0705-22-100-35	18.36	0.20
HIT-SP MVX-0804-22-100-35	18.47	0.18




¹⁾ The criterion was validated on both, a row house and a apartment dwelling.

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**Low Energy
Component:**

**Halfen Balcony Connection
HIT-HP MVX & SP MVX
240 mm slab thickness**

**Hersteller: HALFEN GmbH
Liebigstraße 14 40764 Langenfeld**

The following criteria were used in awarding this certificate:

Efficiency Criterion

In two typical applications^{*)}, the construction is

$$\Delta U_{WB} < 0.025 \text{ W/(m}^2\text{K)}$$

Comfort Criterion

The inner surface must be warm enough to prevent mould as well as uncomfortable down-draught and radiation losses.

$$\theta_{i,min} > 17.00 \text{ } ^\circ\text{C}$$

The following thermal data were determined:

HALFEN HIT ISO-Element	minimum temperature of the inner surface $\theta_{Si,min}$ [°C]	thermal bridge coefficient Ψ [W/(mK)]
HIT-HP MVX-0404-24-100-35	18.25	0.22
HIT-HP MVX-0504-24-100-35	18.18	0.23
HIT-SP MVX-0504-24-100-35	18.45	0.17
HIT-SP MVX-0705-24-100-35	18.36	0.20
HIT-SP MVX-0804-24-100-35	18.48	0.18
HIT-SP MVX-0907-24-100-35	18.10	0.24
HIT-SP MVX-1006-24-100-35	18.21	0.23
HIT-SP MVX-1008-24-100-35	18.00	0.25
HIT-SP MVX-1107-24-100-35	18.05	0.25

^{*)} The criterion was validated on both, a row house and a apartment dwelling.

The certificate includes types with minor statical performance. The thermal bridge coefficient can be approximated by linear interpolation.

