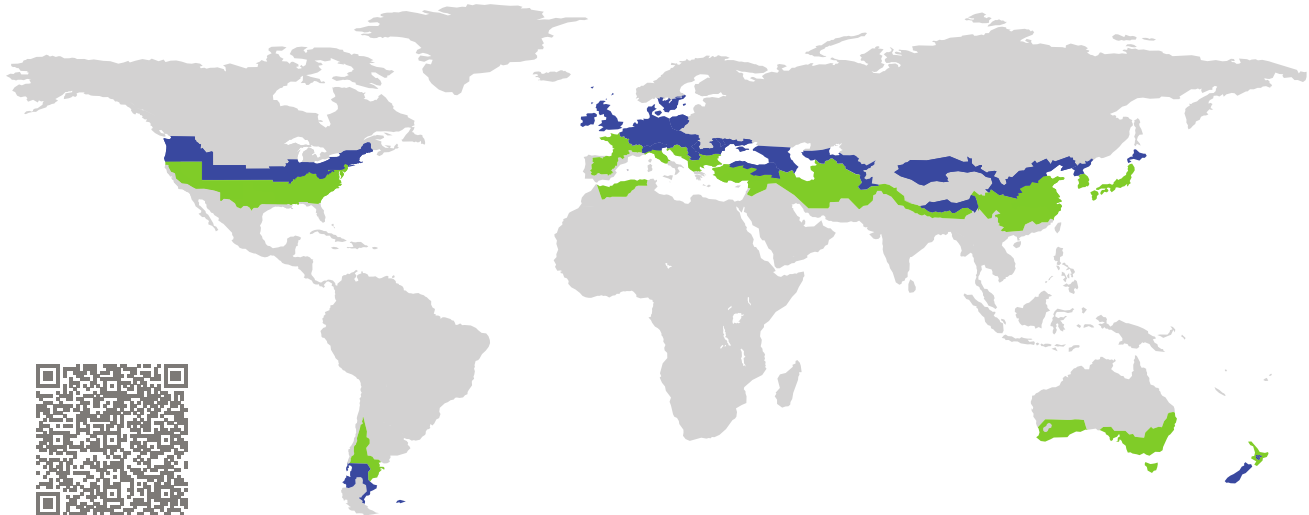


CERTIFICATE

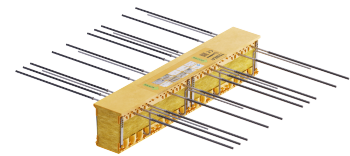
Certified Passive House Component

Component-ID 2388bc03 valid until 31st December 2025

Passive House Institute
Dr. Wolfgang Feist
64283 Darmstadt
Germany



Category: **Balcony connection**
Construction type: **Cantilevered**
Manufacturer: **Peikko Group Corporation,
Lahti,
Finland**
Product name: **TEBEA®**



This certificate was awarded based on the following criteria for the climate zone

Hygiene and comfort criterion

The minimum temperature factor of the interior surfaces is $f_{Rsi=0.25\text{ m}^2\text{ K/W}} \geq 0.86$

Energy criterion

The linear thermal bridge loss coefficient is $\Psi_{WB} \leq 0.25\text{ W/(m K)}$

Efficiency criterion

The heat losses depending on the possible load bearing do not exceed $Eff.t. \leq 10.00\text{ W/(kNmK)}$

cool, temperate climate



**CERTIFIED
COMPONENT**

Passive House Institute

Product	h [mm]	d [mm]	$\lambda_{C,min}$ [W/(mK)]	λ_{eq} [W/(mK)]	Ψ_{WB} [W/(mK)]	$m_{Rd,y}$ [kNm/m]	f_{Rsi} [-]	Eff.t. [W/(kNmK)]	Efficiency class
TEBEA® type CM5-V 160*	160	120	3.0	0.192	0.19000	-32.2	0.93	5.9	phB
TEBEA® type CM5-V 170	170	120	3.0	0.182	0.19200	-36.1	0.93	5.3	phB
TEBEA® type CM5-V 180	180	120	3.0	0.173	0.19400	-40.1	0.93	4.8	phB
TEBEA® type CM5-V 190	190	120	3.0	0.166	0.19600	-44.1	0.93	4.5	phB
TEBEA® type CM5-V 200*	200	120	3.0	0.159	0.19800	-48.1	0.93	4.1	phB
TEBEA® type CM5-V 210	210	120	2.6	0.158	0.19900	-52.2	0.93	3.8	phB
TEBEA® type CM5-V 220	220	120	2.6	0.151	0.20000	-56.3	0.93	3.6	phB
TEBEA® type CM5-V 230	230	120	2.6	0.146	0.20200	-60.5	0.93	3.3	phB
TEBEA® type CM5-V 240	240	120	2.6	0.142	0.20300	-64.7	0.93	3.1	phB
TEBEA® type CM5-V 250*	250	120	2.6	0.138	0.20400	-69.0	0.93	3.0	phA

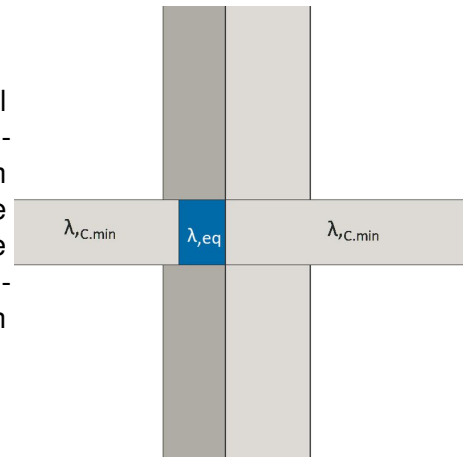
* validated through 3D-FEM-Simulation

Description

TEBEA® balcony connectors are thermal break elements to prevent thermal bridges. TEBEA® serves as a connection element for cantilevered reinforced concrete elements such as balconies or parapets. TEBEA® consists of load-bearing components such as tensile reinforcement, shear reinforcement, concrete compression elements and insulating components such as stone wool. The insulation thickness is 120 mm as standard. In addition to thermal insulation, stone wool also ensures non-flammability and positive sound insulation properties. TEBEA® has a modular structure and consists of different lengths such as 250 mm, 500 mm and 1000 mm. Due to the different variants, TEBEA® can be used for cast-in-situ concrete or precast slabs. Other applications such as hollow core slabs can also be connected with TEBEA®. Furthermore TEBEA® offers synergies with other Peikko products like in combination with DELTABEAM® or ATLANT® products at balconies.

$\lambda_{C,min}$	=	Min. conductivity reinf. concrete
λ_{eq}	=	Equivalent conductivity balcony connection
Ψ_{WB}	=	Linear thermal bridge coefficient
f_{Rsi}	=	Temperature-factor
Eff.t.	=	Efficiency-value
$m_{Rd,y}$	=	Design resistance

Using the equivalent thermal conductivity λ_{eq} , linear thermal bridge loss coefficients can be determined for other connection situations using 2D FEM simulations. The minimum thermal conductivity of the reinforced concrete $\lambda_{C.min}$ of the balcony is to be used for the cantilever slab and the false ceiling. The rectangular replacement geometry of the balcony connection element has the dimensions of height h and width d , as well as the thermal conductivity λ_{eq} .



Notice

The thermal bridge loss coefficients can be interpolated approximately linearly. Calculations and boundary conditions according to the criteria and algorithms "Certified Passive House Component – Balcony Connection, Version 2.1"

