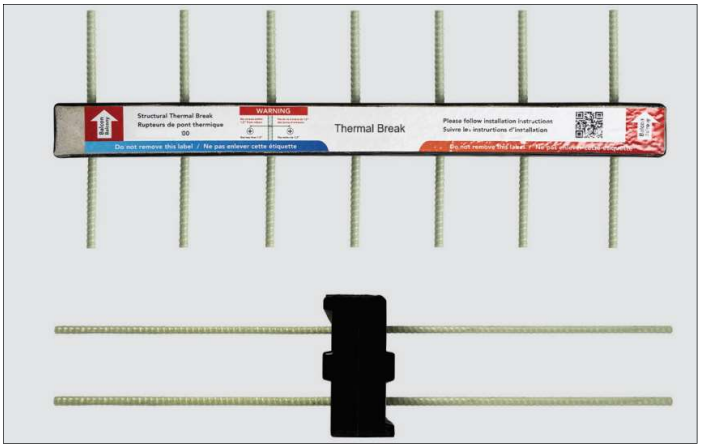
Thermal Break

Reduce heat transfer through balcony penetrations from outdoor concrete balconies to indoor living spaces

The Thermal Break product combines the use of high-density foam with low conductivity concrete to break the transfer of heat to cold. This combination reduces energy demand by up to 15% without compromising structural integrity of the balcony.

In conventional building construction, a concrete balcony is an extension of the inside floor. The outside slab passes cold or heat through the concrete into the interior living space resulting in energy loss and uncomfortable living conditions.



75% Insulating Foam, 25% Low Conductivity Concrete

Due to the bolstering effect that the Thermal Break has on the balcony connection, the likelihood of condensation and mold growth is reduced. This improves the overall quality of the living space and create a healthier environment.

Full structural and thermal performance reports available.

SureBuilT
Concrete Forms & Accessories

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708-493-9569
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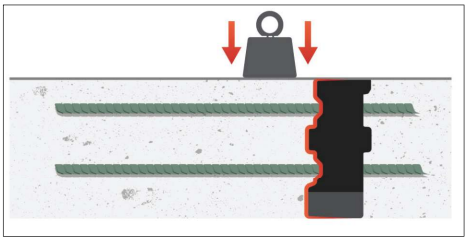
Thermal Break w/Maximum Strength Deformed GFRP Reinforcement Bar			
Part No.	**Description**	**Height of slab (in)**	*** Length (ft)**
SBTBMS633	Balcony Thermal Break w/GFRP Rebar	6	3.3
SBTBMS733	Balcony Thermal Break w/GFRP Rebar	7	3.3

**Standard length is 3.3 feet. Also available in lengths of 6.6 feet, 9.9 feet, 13.2 feet...*
Part No. = "SBTBMST" followed by height in inches (6, 7, 8,...) and length in 3.3 feet increments, as shown in the table.

Note: *If required height is different from manufactured height, a non-conductive strip will be added to increase the next smallest height up to the required height. For example, requirement of 7" would be fulfilled with 6-3/8" Thermal Break + 5/8" thick strip underneath.*

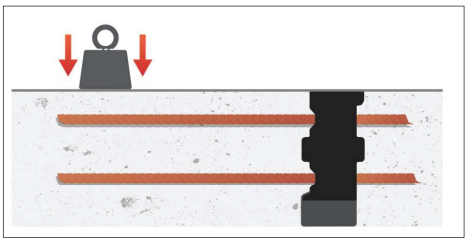
Engineered Structural Integrity

Designed for concrete-to-concrete balcony connections, the Thermal Break includes features that provide the required strength and stiffness.



Flexural Strength

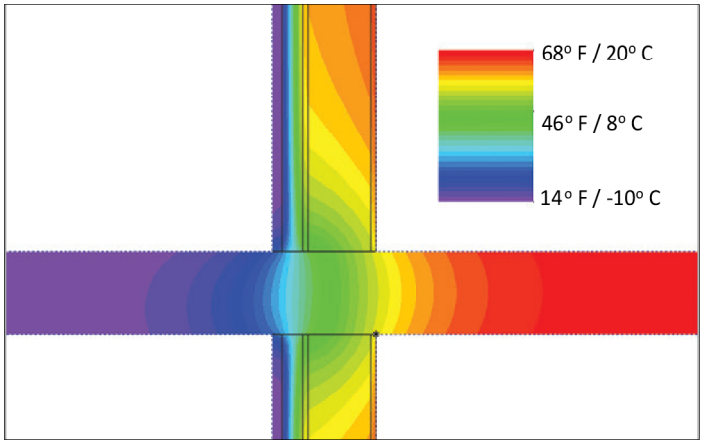
The combination of high-strength GFRP Rebars in tension and ultra-high performance concrete blocks in compression provides the necessary flexural strength.



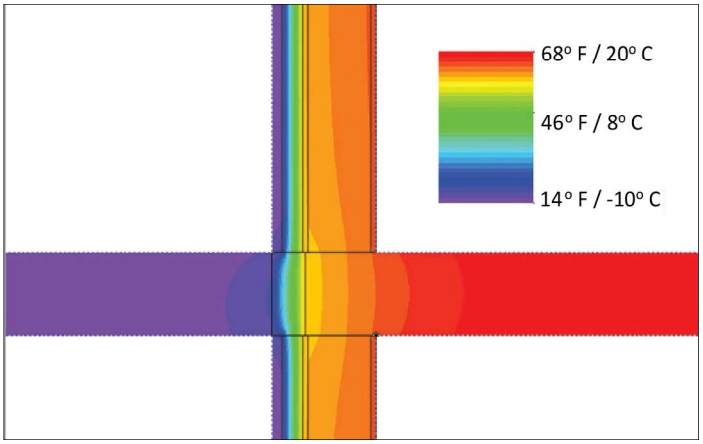
Shear Strength

The concrete protrusions on each side of the Thermal Break act as shear locks and transfer shear forces from the balcony to the Thermal Break to the internal slab.

Thermal Efficiency



Typical residential balcony without a thermal break.

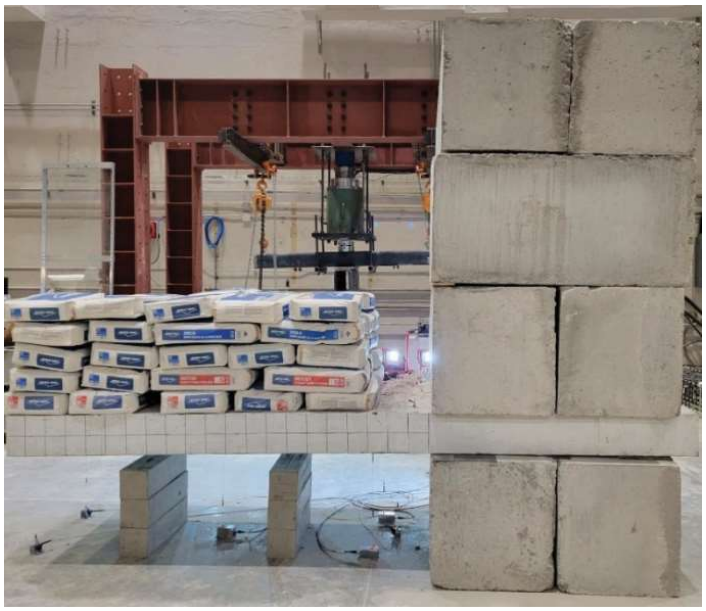


Typical residential balcony with Thermal Break.

Testing and Experimental Observations

During loading, two cracks were observed at the connection between the slab and thermal break (i.e., one at the support side and one at the cantilever side). Visual inspections during the test showed no other cracks along the length of the slab, and no visual movement at the support was observed during the test.

The width of the crack on the support side of the thermal break was visually larger than that on the balcony side. The measured crack width under the maximum load (50 mortar bags) was 0.78 mm and 0.31 mm at the support and balcony sides, respectively. Figure 13 shows the two cracks under 9.9 kPa distributed superimposed load.



Slab under 9.9 kPA distributed superimposed load

Made with Maximum Strength Deformed GFRP Reinforcement Bar

Maximum Strength Deformed GFRP Reinforcement Bar is the leading fiberglass rebar that is ICC approved and ISO certified. Maximum Strength Deformed GFRP Reinforcement Bar is used globally for bridge construction, ICF construction, buildings, and parking garages.

The integrated rib design along with the proprietary manufacturing formula gives Maximum Strength Deformed GFRP Reinforcment Bar strength that is 3X stronger than steel.

Fiberglass is also a low thermal conductor which supports its use as a thermal break.

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