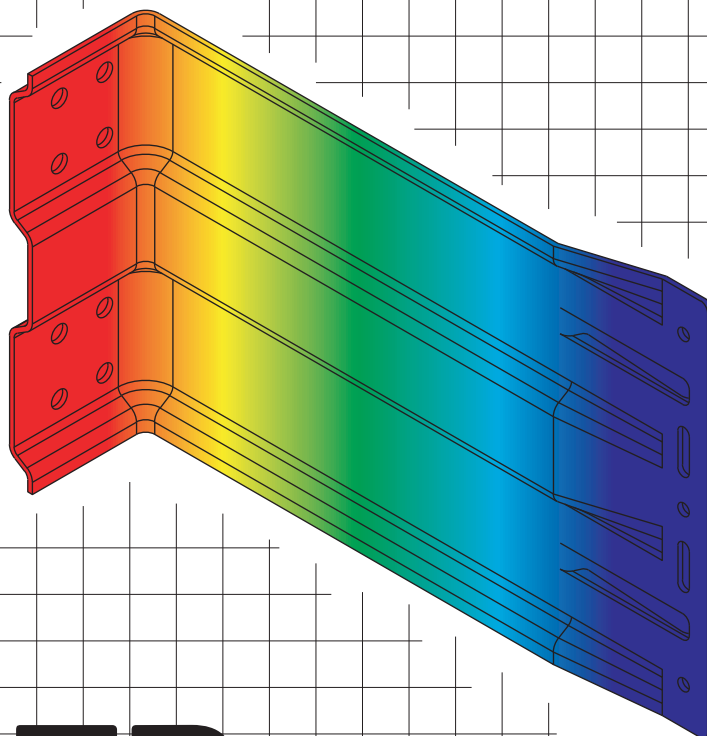


Q-VENT



QTB

STAINLESS STEEL

WALL BRACKETS

05 / 2024

In response to the latest energy codes, continuous exterior insulation on the outside of the primary structure is gaining popularity as a common and cost-effective approach. As a result, thermal bridging and the efficiency of cladding attachment systems are receiving increased attention.

The QTB stainless steel wall brackets are designed to meet the energy standards, structural and thermal requirements, as well as fire regulations.

Q-VENT designs and manufactures architectural rainscreen systems.

Find more at q-vent.com

ADVANTAGES & BENEFITS

The QTB stainless steel wall brackets offer energy efficiency, structural integrity and complying with fire regulations.

Material Quality: Made from 1.4404 (AISI 316L) stainless steel, they are non-combustible and highly corrosion-resistant, ideal for harsh environments.

Design: The special shape of the brackets ensures high structural capacity.

Lengths: Available in lengths from 3 1/8" [80 mm] to 12" [300 mm].

Installation Ease: The "helping hand" feature simplifies vertical profile installation and adjustment.

No Need for Thermo-pad: The bracket geometry and material eliminate the need of thermal pads.

Substrate Matching: Compatible with steel studs, bricks, concrete, CMU, and wood.

Material data sheet:

Stainless Steel 1.4404 (AISI 316L)
Thermal Conductivity at 20°C [68°F]:
15 W/mK [8.67 BTU/(hr·ft·°F)]

Mechanical properties:

EN 10088-4: 2009

Yield strength:

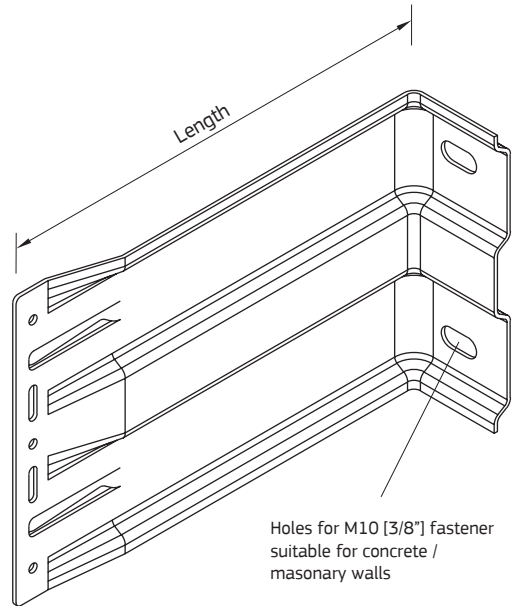
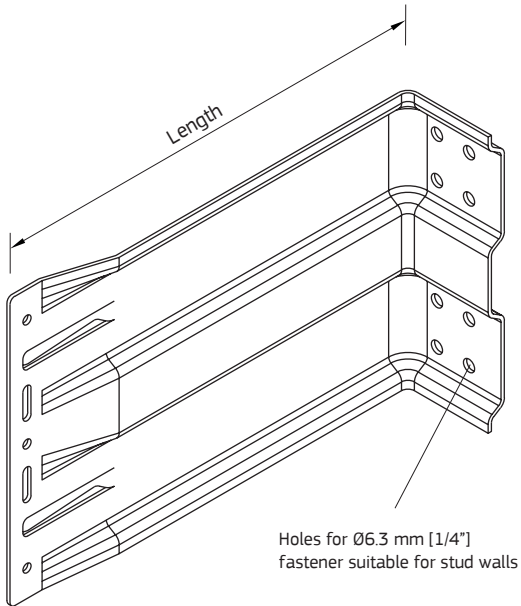
Rp_{0.2} (min) - 240 N/mm²
Rp₁ (min) - 270 N/mm²

Tensile strength:

Rm - 530-680 N/mm² Elongation

QTB WALL BRACKET

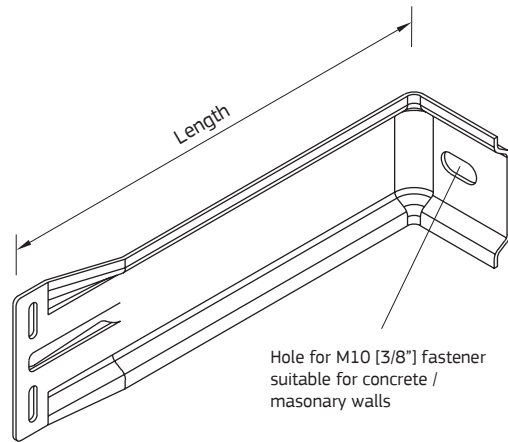
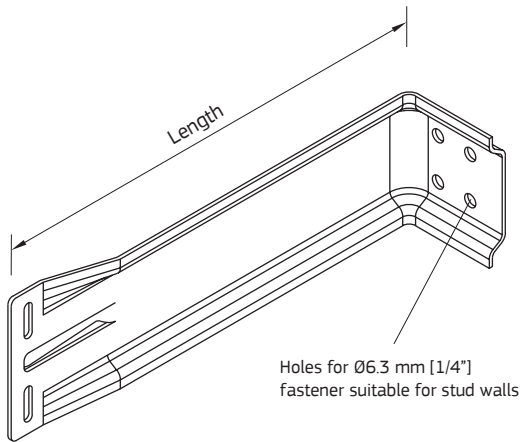
DOUBLE



LENGTH		Holes for Ø6.3 mm [1/4"]		Holes for M10 [3/8"]	
		Description	Article No.	Description	Article No.
80 mm	3 1/8"	QTB 80/160-63	02.4.80.160.63	QTB 80/160-10	02.4.80.160.10
100 mm	3 15/16"	QTB 100/160-63	02.4.100.160.63	QTB 100/160-10	02.4.100.160.10
125 mm	4 15/16"	QTB 125/160-63	02.4.125.160.63	QTB 125/160-10	02.4.125.160.10
150 mm	5 7/8"	QTB 150/160-63	02.4.150.160.63	QTB 150/160-10	02.4.150.160.10
175 mm	6 7/8"	QTB 175/160-63	02.4.175.160.63	QTB 175/160-10	02.4.175.160.10
200 mm	7 7/8"	QTB 200/160-63	02.4.200.160.63	QTB 200/160-10	02.4.200.160.10
225 mm	8 7/8"	QTB 225/160-63	02.4.225.160.63	QTB 225/160-10	02.4.225.160.10
250 mm	9 13/16"	QTB 250/160-63	02.4.250.160.63	QTB 250/160-10	02.4.250.160.10
275 mm	10 13/16"	QTB 275/160-63	02.4.275.160.63	QTB 275/160-10	02.4.275.160.10
300 mm	11 13/16"	QTB 300/160-63	02.4.300.160.63	QTB 300/160-10	02.4.300.160.10

QTB WALL BRACKET

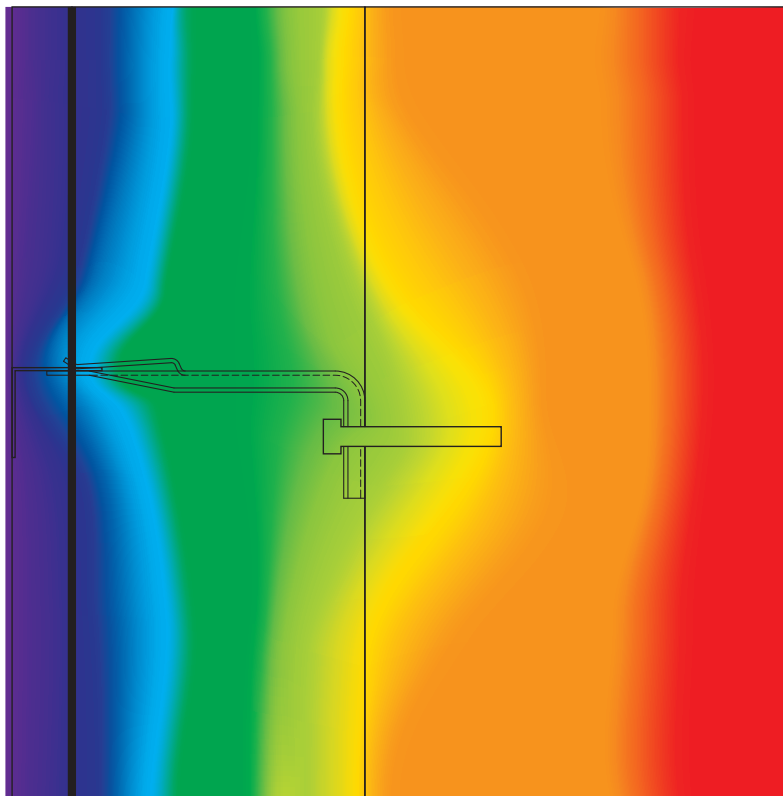
SINGLE



LENGTH		Holes for Ø6.3 mm [1/4"]		Hole for M10 [3/8"]	
		Description	Article No.	Description	Article No.
80 mm	3 1/8"	QTB 80/70-63	02.4.80.70.63	QTB 80/70-10	02.4.80.70.10
100 mm	3 15/16"	QTB 100/70-63	02.4.100.70.63	QTB 100/70-10	02.4.100.70.10
125 mm	4 15/16"	QTB 125/70-63	02.4.125.70.63	QTB 125/70-10	02.4.125.70.10
150 mm	5 7/8"	QTB 150/70-63	02.4.150.70.63	QTB 150/70-10	02.4.150.70.10
175 mm	6 7/8"	QTB 175/70-63	02.4.175.70.63	QTB 175/70-10	02.4.175.70.10
200 mm	7 7/8"	QTB 200/70-63	02.4.200.70.63	QTB 200/70-10	02.4.200.70.10
225 mm	8 7/8"	QTB 225/70-63	02.4.225.70.63	QTB 225/70-10	02.4.225.70.10
250 mm	9 13/16"	QTB 250/70-63	02.4.250.70.63	QTB 250/70-10	02.4.250.70.10
275 mm	10 13/16"	QTB 275/70-63	02.4.275.70.63	QTB 275/70-10	02.4.275.70.10
300 mm	11 13/16"	QTB 300/70-63	02.4.300.70.63	QTB 300/70-10	02.4.300.70.10

THERMAL BRIDGING & PIE

We measure the impact of thermal bridges using Percent Insulation Effectiveness (PIE). PIE shows how much cladding attachments reduce insulation effectiveness by creating thermal bridges in the facade. This is important for evaluating and improving the thermal efficiency of cladding systems.



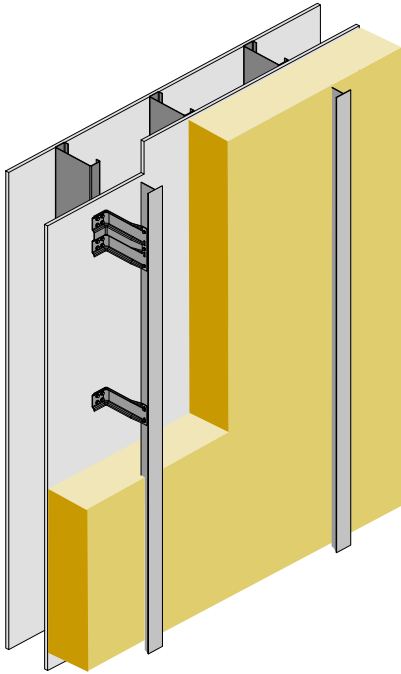
THERMAL PERFORMANCE OF QTB WALL BRACKETS

Q-VENT performed 3D thermal simulation of attachment system using QTB stainless steel brackets for several wall assemblies.



WALL ASSEMBLY 1

Uninsulated 6"x1 5/8" [152x42 mm] steel studs,
18 ga [1.1 mm] at 16" [406 mm] O.C., no batt



QTB stainless steel brackets - 160 mm Dead load bracket, and 70 mm Wind load brackets.

1/4" dia. [Ø6.3 mm] stainless steel fasteners for brackets-to-wall attachment

Continuous aluminium vertical profile T 80x60x2 mm, AW-6063, 1 1/8" [30 mm] penetration depth into the insulation.

Configuration 1

Vertical profiles spacing: 16" [406 mm] O.C.
Wall brackets spacing: 26" [660 mm] O.C.
(1) Dead load bracket followed by
(4) Wind load brackets

Configuration 2

Vertical profiles spacing: 32" [813 mm] O.C.
Wall brackets spacing: 36" [914 mm] O.C.
(1) Dead load bracket followed by
(3) Wind load brackets

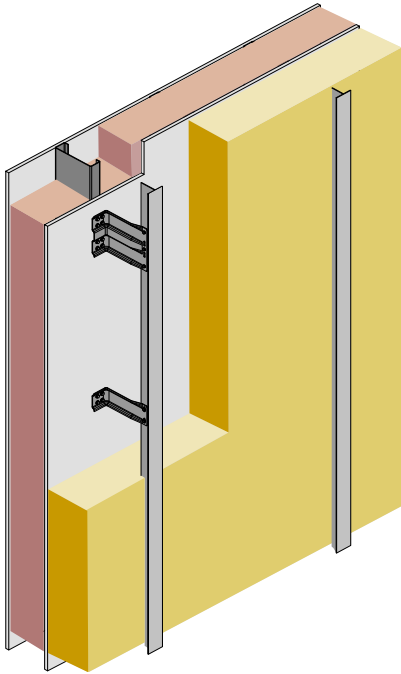
QTB Configuration	QTB / Exterior insulation length	QTB R-value (assembly with bracket)		Nominal Rn-value* (assembly without brackets)		PIE**
		[ft ² hr °F/BTU]	[m ² K/W]	[ft ² hr °F/BTU]	[m ² K/W]	
Configuration 1: (1) DL + (4) WL	4" (100 mm)	15.9	2.81	20.0	3.52	80%
	5" (125 mm)	19.0	3.34	24.2	4.26	78%
	6" (150 mm)	22.1	3.89	28.4	4.99	78%
	7" (175 mm)	25.1	4.43	32.6	5.77	77%
Configuration 2: (1) DL + (3) WL	4" (100 mm)	18.0	3.17	20.0	3.52	90%
	5" (125 mm)	21.7	3.82	24.2	4.26	90%
	6" (150 mm)	25.4	4.47	28.4	4.99	90%
	7" (175 mm)	29.0	5.11	32.6	5.75	89%

*Rn - the nominal R-value of the wall assembly under ideal conditions (without wall brackets)

** Percent Insulation Effectiveness (PIE) is a measure of how much QTB brackets have reduced the insulation effectiveness by creating thermal bridges in the facade. PIE = (QTB R-value / Nominal R-value) *100 [%]

WALL ASSEMBLY 2

Insulated 6"x1 5/8" [152x42 mm] steel studs,
18 ga [1.1 mm] at 16" [406 mm] O.C. with R-19 batt



QTB stainless steel brackets - 160 mm Dead load bracket, and 70 mm Wind load brackets.

1/4" dia. [Ø6.3 mm] stainless steel fasteners for brackets-to-wall attachment.

Continuous aluminium vertical profile T 80x60x2 mm, AW-6063, 1 1/8" [30 mm] penetration depth into the insulation.

Configuration 1

Vertical profiles spacing: 16" [406 mm] O.C.
Wall brackets spacing: 26" [660 mm] O.C.
(1) Dead load bracket followed by
(4) Wind load brackets

Configuration 2

Vertical profiles spacing: 32" [813 mm] O.C.
Wall brackets spacing: 36" [914 mm] O.C.
(1) Dead load bracket followed by
(3) Wind load brackets

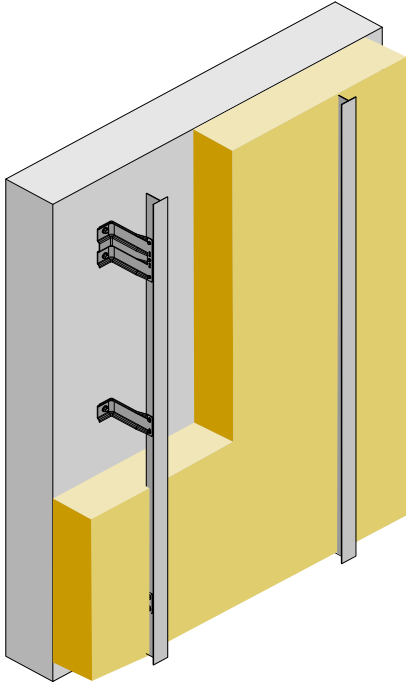
QTB Configuration	QTB / Exterior insulation length	QTB R-value (assembly with bracket)		Nominal Rn-value* (assembly without brackets)		PIE**
		[ft ² hr °F/BTU]	[m ² K/W]	[ft ² hr °F/BTU]	[m ² K/W]	
Configuration 1: (1) DL + (4) WL	4" (100 mm)	24.2	4.26	38.0	6.69	64%
	5" (125 mm)	27.3	4.81	42.2	7.43	65%
	6" (150 mm)	30.3	5.34	46.4	8.18	65%
	7" (175 mm)	33.3	5.86	50.6	8.92	66%
Configuration 2: (1) DL + (3) WL	4" (100 mm)	26.9	4.75	38.0	6.69	71%
	5" (125 mm)	30.6	5.40	42.2	7.43	73%
	6" (150 mm)	34.3	6.05	46.4	8.18	74%
	7" (175 mm)	38.0	6.69	50.6	8.92	75%

*Rn - the nominal R-value of the wall assembly under ideal conditions (without wall brackets)

** Percent Insulation Effectiveness (PIE) is a measure of how much QTB brackets have reduced the insulation effectiveness by creating thermal bridges in the facade. PIE = (QTB R-value / Nominal R-value) *100 [%]

WALL ASSEMBLY 3

6" [152mm] Concrete wall



QTB stainless steel brackets - 160 mm Dead load bracket, and 70 mm Wind load brackets.

3/8" dia. [M10] stainless steel fasteners for brackets-to-wall attachment.

Continuous aluminium vertical profile T 80x60x2 mm, AW-6063, 1 1/8" [30 mm] penetration depth into the insulation.

Configuration 1

Vertical profiles spacing: 16" [406 mm] O.C.
 Wall brackets spacing: 26" [660 mm] O.C.
 (1) Dead load bracket followed by
 (4) Wind load brackets

Configuration 2

Vertical profiles spacing: 32" [813 mm] O.C.
 Wall brackets spacing: 36" [914 mm] O.C.
 (1) Dead load bracket followed by
 (3) Wind load brackets

QTB Configuration	QTB / Exterior insulation length	QTB R-value (assembly with bracket)		Nominal Rn-value* (assembly without brackets)		PIE**
		[ft ² hr °F/BTU]	[m ² K/W]	[ft ² hr °F/BTU]	[m ² K/W]	
Configuration 1: (1) DL + (4) WL	4" (100 mm)	15.2	2.68	20.1	3.54	76%
	5" (125 mm)	18.3	3.23	24.3	4.28	75%
	6" (150 mm)	21.4	3.77	28.5	5.02	75%
	7" (175 mm)	24.4	4.30	32.7	5.76	75%
Configuration 2: (1) DL + (3) WL	4" (100 mm)	17.7	3.12	20.1	3.54	88%
	5" (125 mm)	21.4	3.77	24.3	4.28	88%
	6" (150 mm)	25.1	4.42	28.5	5.02	88%
	7" (175 mm)	28.7	5.06	32.7	5.76	88%

*Rn - the nominal R-value of the wall assembly under ideal conditions (without wall brackets)

** Percent Insulation Effectiveness (PIE) is a measure of how much QTB brackets have reduced the insulation effectiveness by creating thermal bridges in the facade. PIE = (QTB R-value / Nominal R-value) *100 [%]

DEFINITIONS AND USEFUL INFORMATION

The R-value

(RSI-value if metric units are used) is the building industry term for thermal resistance per unit area (e.g. how good a material is at resisting heat flow). The higher the R-value, the better insulation properties.

The U-factor

Or U-value is the inverse of the thermal resistance. The U-value is a measure of how much heat is lost through a given thickness of a particular material or assembly.

Thermal conductivity

Property of a material that describes how easily the heat passes through this material. Thermal conductivity does not depend on the thickness of the material. Lower thermal conductivity means better thermal performance.

Energy codes & Regulations:

In the US, the International Energy Conservation Code (IECC) and ASHRAE Standard 90.1 are key for building energy efficiency, focusing on minimum efficiency and commercial building standards, respectively.

In Europe, the Energy Performance of Buildings Directive (EPBD) mandates efficiency improvements, with EN 15217 defining calculation methods for building energy performance.

These frameworks reflect the differing approaches to energy efficiency regulation in the U.S. and Europe, aiming to reduce energy consumption and enhance environmental sustainability.

MATERIAL THERMAL CONDUCTIVITY W/(M K)

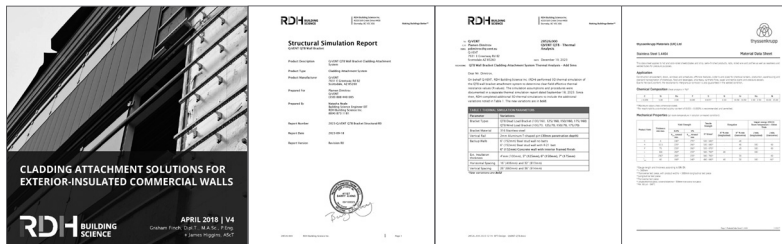
Aluminum allow AW-6063	160
Galvanised steel	62
Steel	54
Stainless steel 1.4404 (AISI 316L)	17
Exterior mineral wool insulation	0.034
Air at 0°C	0.024

PIE

Continuos Vertical Steel Z-Girt	20% - 45%
Continuos Horizontal Steel Z-Girt	30% - 55%
Aluminium Wall Bracket	40% - 75%
Galvanized Steel Clip	50% - 80%
Stainless Steel Wall Bracket	65% - 90%
Fiberglass Clip / FRP	70% - 95%

SOURCES:

The data is obtained from a 3D thermal simulation of the QT8 wall bracket attachment system conducted by RDH Building Science Inc.





qvsales@q-vent.eu



Q-VENT, EU
1A PROF. IVAN GEORGOV ST.
1220 SOFIA, BULGARIA

Q-VENT, USA
7631 E GREENWAY RD B2
AZ 85260 SCOTTSDALE, USA