

# Piazza Continuous Rigid Insulation Framing System

## Introduction

Recent changes in the IECC Energy Conservation Code and ASHRAE Standard 90.1 necessitate the installation of 1 to 4 inches of continuous rigid insulation layer on the outside surface of exterior metal stud walls. Existing building component systems lack sufficient accommodation for cladding assemblies, like cement board panels, siding, metal panels, EIFS, stucco, etc. since there is no viable means to attach to a stable substrate like plywood or gypsum sheathing over the thick rigid insulation layer other than long and unstable cantilevered screws.

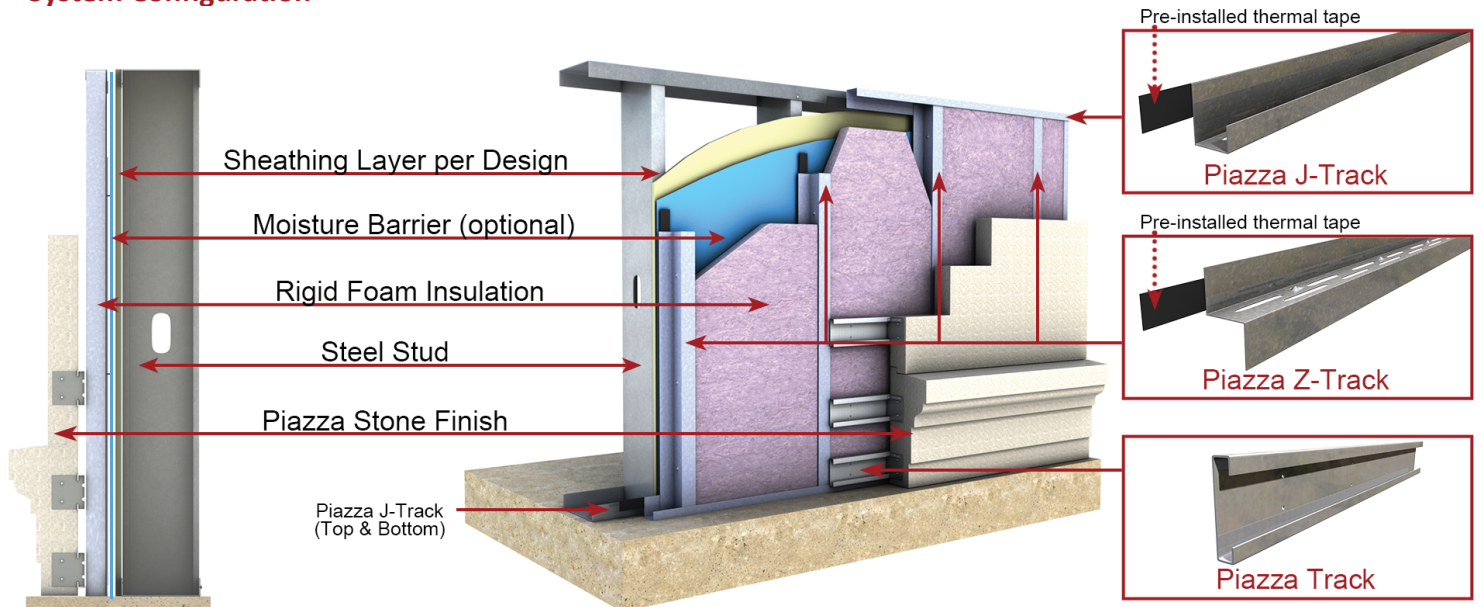
Over time, and lacking a product that addressed this need, Architects have either reduced or abandoned altogether the use of such cladding in their designs, waiting for the steel framing industry to provide a solution.

Piazza Stoneworks' Rigid Insulation Framing system is "The" solution. Piazza Continuous Rigid Insulation System is an engineered installer-friendly set of steel framing tracks and angles designed to be an integral part of the continuous rigid insulation, and at the same time provide a stable component for direct substrate attachment. Piazza parts include preinstalled thermal tape on each piece and slotted webs on the Z-Tracks to minimize thermal conductivity through the rigid insulation layer. Unique rigid insulation engagement to keep foam layers from sliding or popping out of place. Piazza parts include preinstalled thermal tape on each piece and slotted webs on the Z-Tracks and J-Tracks to minimize thermal conductivity through the rigid insulation layer.

## System Components



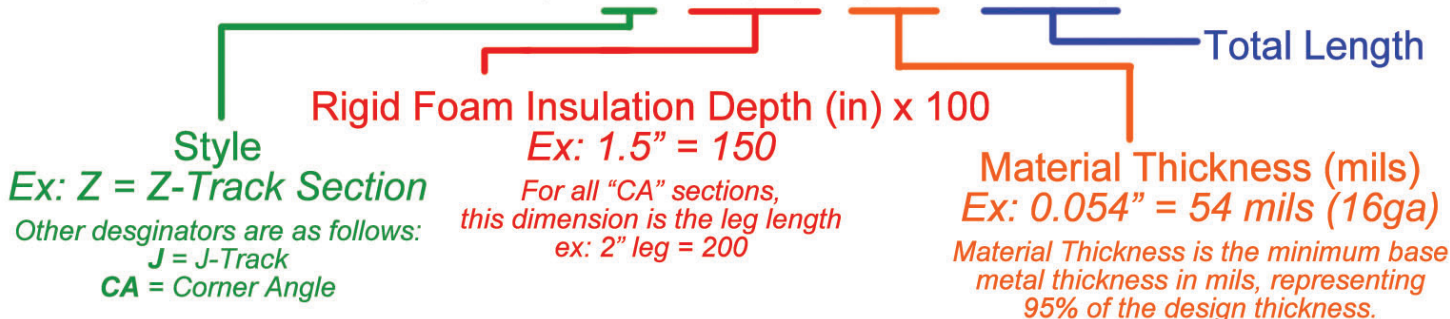
## System Configuration



Manufactured exclusively by The Steel Network, Inc. (TSN). [www.steelnetwork.com](http://www.steelnetwork.com)

**Nomenclature**

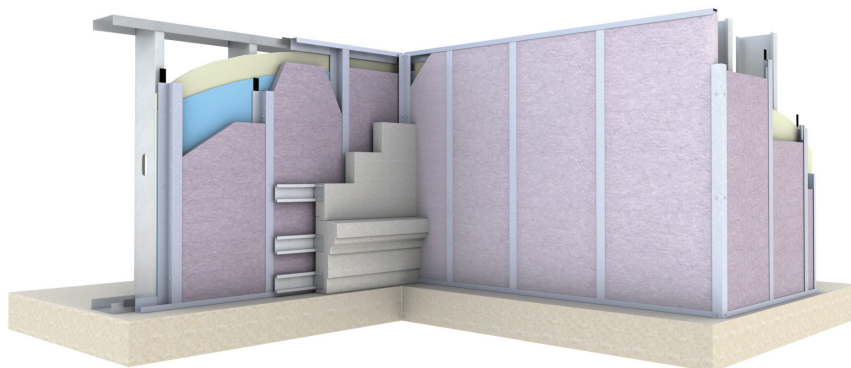
# Piazza Z-200-54-12ft



## Thermal Resistances & Thermal Transmittances of Wall Assemblies

### Introduction

This catalog provides thermal performance data (R- and U-values) of the Piazza Rigid Insulation Framing System produced by the Steel Network Inc. The Piazza Insulation System is used in exterior wall assemblies to support rigid foam insulation with thicknesses ranging from 1.0 inch to 4.0 inch. In addition, the Piazza Insulation System provides viable means to attach the cladding assemblies, like cement board, siding, metal panels, to a stable substrate instead of using long and unstable cantilevered screws to the sheathing layer. This summary allows designers to have fast and straightforward access to information with sufficient accuracy to reduce uncertainty in the thermal performance of building envelope components. Thermal modelling for this project was completed using a 3D finite element analysis heat transfer software package by SolidWorks ; SW Thermal Solver and follows ASHRAE/IES Standard 90.1 requirements.



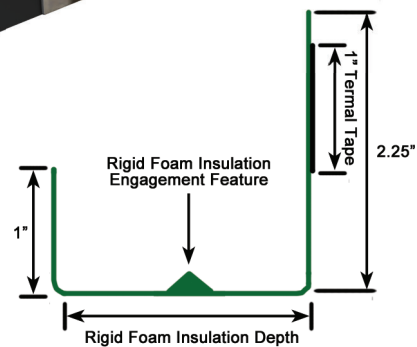
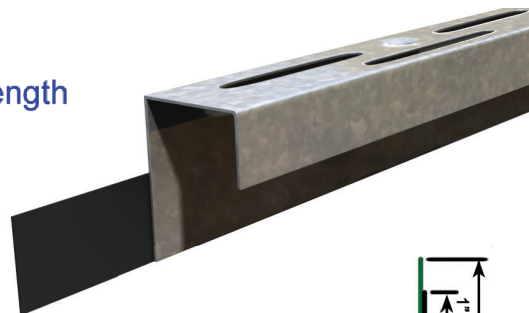
Assembly # <sup>1</sup>	Steel Stud Size	Exterior Rigid Insulation Thickness	Stud Cavity Insulation (min.)	Piazza Z-Track Size	Nominal Resistance R <sub>o</sub>	Transmittance U <sub>o</sub>
					m <sup>2</sup> .K/W (hr-ft <sup>2</sup> .°F/Btu)	W/m <sup>2</sup> K (Btu/ft <sup>2</sup> .hr.°F)
<b>6" Steel Stud Walls</b>						
1	600S162-43	1.5"	R-19 Batt	Z-150-54-12ft	3.54 (R-20.1)	0.28 (0.05)
2	600S162-43	2"	R-19 Batt	Z-200-54-12ft	3.63 (R-20.6)	0.28 (0.05)
3	600S162-43	3"	R-19 Batt	Z-300-54-12ft	3.80 (R-21.6)	0.26 (0.05)
4	600S162-43	4"	R-19 Batt	Z-400-54-12ft	3.96 (R-22.5)	0.25 (0.04)
5	800S162-43	2"	R-25 Batt	Z-200-54-12ft	3.99 (R-22.7)	0.25 (0.04)
6	800S162-43	3"	R-25 Batt	Z-300-54-12ft	4.16 (R-23.6)	0.24 (0.04)
7	800S162-43	4"	R-25 Batt	Z-400-54-12ft	4.33 (R-24.6)	0.23 (0.04)

**Table Notes:**

<sup>1</sup> Details of input and output data for each assembly are provided in Section 5 of the full report "Thermal Analysis of Piazza Stone Works Wall System" by the Steel Network, Inc.

# Piazza J-Track Product Profile

## Piazza J-150-54-12ft



### Material Properties

**Metal:** ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi(450MPa) minimum tensile strength, with ASTM A653/A653M G90 (Z275) hot dipped galvanized coating. Available in 33mil minimum thickness (20 gauge, 0.0346" design thickness) or 54mil minimum thickness (16 gauge, 0.0566" design thickness).

**Thermal Tape:** Thickness 1/16", Density 15 lbs/ft<sup>3</sup> (ASTM D-1667), Thermal Conductivity k-factor 0.3 (ASTM C-518)

Piazza J-Track Product Profile								
Section	Leg Length	Rigid Foam Insulation Depth	Return Lip	Gauge	Design Thickness	Min Steel Thickness	Inside Bend Radius	Unit Weight
	(in)	(in)	(in)	(ga)	(in)	(in)	(R)	(lbs/ft)
J-150-54-12ft	2.25	1.5	1.0	16	0.0566	0.0538	0.0849	0.89
J-200-54-12ft		2.0						0.99
J-300-54-12ft		3.0						1.17
J-400-54-12ft		4.0						1.35

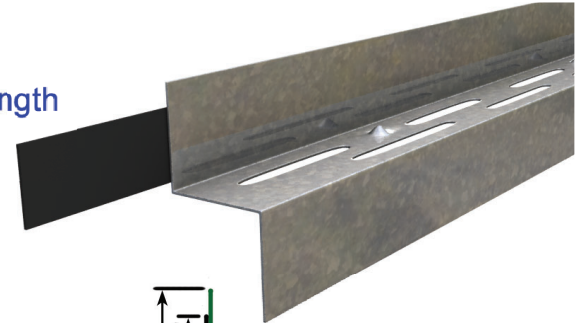
Piazza J-Track Section Properties		
Section	M <sub>xa</sub>	M <sub>ya</sub>
	(kips-in)	(kips-in)
J-150-54-12ft	0.32	0.80
J-200-54-12ft	0.37	1.37
J-300-54-12ft	0.45	2.96
J-400-54-12ft	0.47	4.66

**Table Notes:**

- M<sub>xa</sub> is the ASD moment capacity in the gravity load direction based on 24" o.c. fastening to stud max.
- M<sub>ya</sub> is the ASD moment capacity in the wind load direction based on 24" o.c. fastening to stud max.
- Attach track with minimum (1) #10-16 self-drilling screws to each stud. (2) screws may be required for high design wind pressures (higher than 30 psf service level)
- Refer to project specification and/or architectural sections for wall assembly details related to fire and acoustical performance as well as water resistance.

# Piazza Z-Track Product Profile

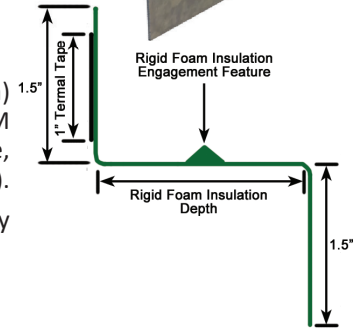
## Piazza Z-150-54-12ft



### Material Properties

ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi(450MPa) minimum tensile strength, with ASTM A653/A653M G90 (Z275) hot dipped galvanized coating. Available in 33mil minimum thickness (20 gauge, 0.0346" design thickness) or 54mil minimum thickness (16 gauge, 0.0566" design thickness).

**Thermal Tape:** Thickness 1/16", Density 15 lbs/ft<sup>3</sup> (ASTM D-1667), Thermal Conductivity k-factor 0.3 (ASTM C-518)



Piazza Z-Track Product Profile								
Section	Leg 1 Length	Leg 2 Length	Rigid Foam Insulation Depth	Gauge	Design Thickness	Min Steel Thickness	Inside Bend Radius	Unit Weight
	(in)	(in)	(in)	(ga)	(in)	(in)	(R)	(lbs/ft)
Z-150-54-12ft	1.5	1.5	1.5	16	0.0566	0.0538	0.0849	0.86
Z-200-54-12ft			2.0					0.95
Z-300-54-12ft			3.0					1.13
Z-400-54-12ft			4.0					1.32

Piazza Z-Track Section Properties		
Section	M <sub>xa</sub>	M <sub>ya</sub>
	(kips-in)	(kips-in)
Z-150-54-12ft	1.86	3.13
Z-200-54-12ft	1.86	4.22
Z-300-54-12ft	1.86	6.80
Z-400-54-12ft	1.86	9.64

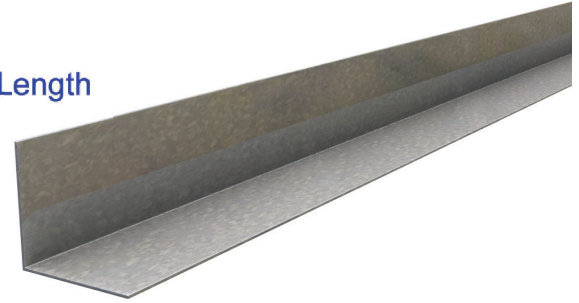
**Table Notes:**

- M<sub>xa</sub> is the ASD moment capacity in the gravity load direction based on 24" o.c. fastening to stud max.
- M<sub>ya</sub> is the ASD moment capacity in the wind load direction based on 24" o.c. fastening to stud max.
- Attach track with minimum one #10-16 self-drilling screws to each stud. (2) screws may be required for high design wind pressures (higher than 30 psf service level)
- Refer to project specification and/or architectural sections for wall assembly details related to fire and acoustical performance as well as water resistance.



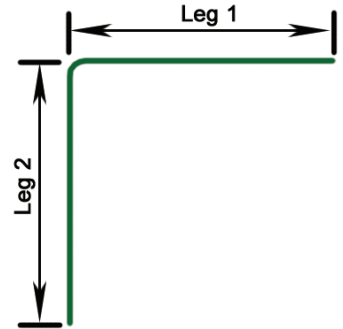
# Piazza Corner Angle Product Profile

## Piazza CA-150-54-12ft



### Material Properties

ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi(450MPa) minimum tensile strength, with ASTM A653/A653M G90 (Z275) hot dipped galvanized coating. Available in 33mil minimum thickness (20 gauge, 0.0346" design thickness) or 54mil minimum thickness (16 gauge, 0.0566" design thickness).



Piazza Corner Angle Product Profile						
Section	Leg Length	Gauge	Design Thickness	Min Steel Thickness	Inside Bend Radius	Unit Weight
	(in)	(ga)	(in)	(in)	(R)	(lbs/ft)
CA-200-54-12ft	2.0	16	0.0566	0.0538	0.0849	0.72

- Refer to project specification and/or architectural sections for wall assembly details related to fire and acoustical performance as well as water resistance.