



CATALOGUE
OF PRODUCTS
AND SERVICES





Be Better, Live Better.



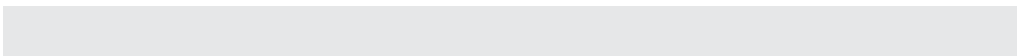
CONTENTS

ABOUT US	5
STEEL.....	6
TOTAL LOCK PANELS FOR ROOFS AND ENCLOSURES	8
TOTAL LOCK SINGLE-LAYER ROOFS	11
TOTAL LOCK 20–50 ROOF PANELS	13
TOTAL LOCK 18–45 ROOF PANELS	14
TOTAL LOCK 18B–45B ROOF PANELS.....	15
TOTAL LOCK COMPOSITE PANEL ROOFS	16
TOTAL LOCK 20–50 COMPOSITE PANEL ROOFING TRAYS.....	18
TOTAL LOCK 18–45 COMPOSITE PANEL ROOFING TRAYS.....	19
TOTAL LOCK 18B–45B COMPOSITE PANEL ROOFING TRAYS	20
INSULATION FOR ROOFS AND ENCLOSURES.....	21
INSULATION FOR SINGLE-LAYER ROOFS AND ENCLOSURES.....	22
REFLECTIVE BUBBLE INSULATION	24
REFLECTIVE CLOSED-CELL INSULATION.....	25
INSULATION FOR COMPOSITE PANEL ROOFS AND ENCLOSURES	26
FIBERGLASS INSULATION	28
MINERAL WOOL INSULATION	29
POLYURETHANE AND POLYISOCYANURATE INSULATION	30
POLYSTYRENE INSULATION.....	31
TRIM, FLASHING AND GUTTERS	32
TRIM AND FLASHING	35
RAKE TRIM AND GABLE TRIM.....	35
SIDEWALL FLASHING AND ENDWALL FLASHING	35





COPING FLASHING	35
EAVE or DRIP-EDGE TRIM.....	36
GUTTER APRON FLASHING	36
RIDGE CAP	36
GUTTERS	37
BOX GUTTER	37
'A' AND 'B' EDGE GUTTERS	37
HALF ROUND GUTTER	37
NATURAL LIGHTING: SKYLIGHTS AND LIGHT PANELS	38
POLYCARBONATE ROOFS.....	40
POLYCARBONATE SKYLIGHTS	41
DOMES	43





ABOUT US

With extensive experience in the roofing industry, **Cielo Vivo** creates architectural solutions for roofs and enclosures that provide high-quality, aesthetic finishes and a fully professional experience for our customers.

For the past years, we have installed:

- Over 500 projects
- Over 387,000 m² in roofs and enclosures

Our skilled and qualified workforce has successfully delivered high-demand projects for prestigious companies such as: Bridgestone, Corrugados del Guarco S. A., CoopeAgri El General R. L., Grupo Corporativo SARET, Durman, RECOPE, Universidad Nacional de Costa Rica, Lincoln School, Universidad Fidélitas, TEC – Tecnológico de Costa Rica, Universidad Católi-

ca, Universidad de Costa Rica, Grupo Nación, Multi Plaza, Vivo Plaza, GlaxoSmithKline, McDonald's, San José Indoor Club, Kimberly-Clark, BAC San José, Molinos de Costa Rica S. A., Walmart, Pipasa, Taco Bell, KFC, Dos Pinos, AM PM, Más x Menos, and Pastas Roma, among others.

Cielo Vivo's assets include our sheet metal shop, roll forming machinery and vehicle fleet.

We are highly experienced in complex projects under all-inclusive or turnkey contracts for roofs, enclosures and photovoltaic systems.

We serve customers in many sectors: industrial, commercial, residential, institutional, tourism, education, healthcare, restaurants, churches, warehouses, offices, hotels, and sports facilities.



The image features a central blue horizontal band with the word "STEEL" in white, uppercase letters. Above and below this band are decorative geometric patterns consisting of overlapping triangles in shades of blue and green, creating a modern, abstract design.

STEEL



STEEL

Our panels are made of steel that has been coated with a zinc, aluminum and magnesium alloy (among other elements). The coating is applied to both sides of the panel through a process called hot-dip galvanization.

The alloy is composed of 55% aluminum, 43.5% zinc and 1.5% silicon.

The combined properties of these elements provide superior resistance to atmospheric corrosion, such as the effects of high temperatures.

This material has excellent formability properties and provides high cathodic protection to perforated or cut areas.

The protective coating designation is at least Z50 or its average equivalent on both sides, and it meets



ASTM A653/A653M requirements.

Another important aspect of our steel roofs is that they are enamel-coated, offering additional advantages such as:

- Added protection against atmospheric conditions
- Increased panel lifespan
- Improved aesthetic and architectural appeal
- Better sunlight reflection for cooler roofs
- Greater salt spray corrosion resistance
- Increased high-temperature corrosion resistance

COATING PROPERTIES

RAL Color	9001–9003, 9016
ASTM	A755
Top	20 µm MP/SMP + 5 µm epoxy primer
Back	5 µm MP + 5 µm epoxy primer
Gloss	15–40
T-Bend	2T–3T
Hardness	F
Curing	+30 rubs
Impact	+100 lb/in
Kesternich	15 cycles

STEEL PROPERTIES

Grade	30–50
Yield Strength (Fy)	30–50 ksi (2100–3500 kg/cm ²)
ASTM	A653/A653M
24 Gauge	0.52 mm–0.55 mm
26 Gauge	0.42 mm–0.46 mm
27 Gauge	0.36 mm–0.40 mm
Galvanization	AZ50M–AZ60M, G60–G90





TOTAL LOCK PANELS
FOR ROOFS AND ENCLOSURES



TOTAL LOCK PANELS FOR ROOFS AND ENCLOSURES

Total Lock is an innovative system for the onsite processing of non-overlapped steel roofs and enclosures using cold roll forming technology. The steel sheets are formed into customized tray-shaped panels, which are then attached to the roof structure using clips. The standing seams are subsequently locked together using a hand or mechanical seamer.

PROPERTIES AND BENEFITS:

BETTER FIT FOR ARCHITECTURAL DESIGN

Features:

- Continuous panels
- Shaped according to contemporary architectural standards
- Greater spacing between supporting members (rafters) allowed
- Crimped seams allow for lower pitches (5% minimum)
- Straight and curved shapes to fit any design
- Suitable for curved roofs (radius starting at 8 meters)
- Thanks to their elegant and modern appearance, the panels can be used on either side, and, if desired, the ceiling may be omitted.

- In addition, common roofing additions and accessories may be installed (platforms, lifelines, walkways, etc.).

IMPROVED EFFICIENCY

The tray-shaped panels are custom formed onsite according to the customer's needs. This avoids overlapping and waste, resulting in better yield and savings for you.

Further, watertight roofs protect your property and increase its value.

- Exceptional coverage for large areas
- Continuous, non-overlapped lengths
- Complex supporting structure not required to hold panel weights
- Ideal for thermoacoustic roofs that require the use of insulation between two layers of cladding





ATTRACTIVE, CONTEMPORARY LOOK



- Custom-made panels
- Each panel extends from the roof ridge to the gutter without any length restrictions as they are formed (rolled) onsite
- Suitable for curved roofs (radius starting at 8 meters)
- Ideal cladding for walls and facades
- Baked enamel finish
- Thanks to their elegant and modern appearance, the panels can be used on either side, and, if desired, the ceiling may be omitted
- Excellent for all kinds of roofs and enclosures

ZERO-LEAK SYSTEM

- Panels are attached to the structure with a cutting-edge clip system that does not require drilling or

exposed fasteners, allowing for a leak-proof roof

- No overlapping, which prevents moisture buildup
- Panels are crimped together mechanically and sealed with butyl tape.
- Tray shape and sloped edges allow for greater runoff channeling

INSTALLATION:

Installation is highly efficient because the panels are formed onsite, avoiding damages caused by excessive handling and inventory management.

Panel perforations are avoided due to mechanical crimping and use of concealed fasteners, achieving watertightness and a sleek appearance.

VERSATILITY:

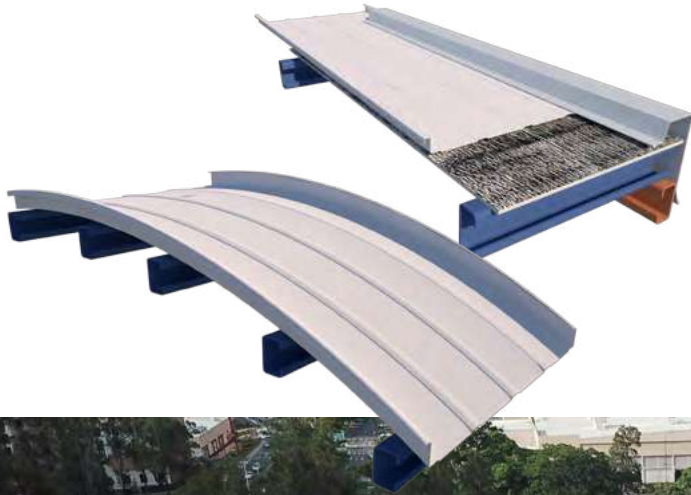
- Types of projects: Residential, industrial, commercial, institutional, etc.
- Uses: Roofs, walls, enclosures and facades
- Total Lock trays can fit a variety of architectural designs
- Thermal and acoustic insulation may be sandwiched between two panels
- Roofing additions and accessories may be installed (walkways, lifelines, skylights, equipment stands, hatches, monitors, blinds, etc.)
- Ideal for mounting photovoltaic roof systems





TOTAL LOCK
SINGLE-LAYER ROOFS

TOTAL LOCK SINGLE-LAYER ROOFS



These are typically used when thermal-acoustic insulation is not required.

Total Lock roof panels are available in different types:

- TL 20–50
- TL 18–45
- TL 18B–45B

Each type is different according to its spanning capability and hydraulic capacity.



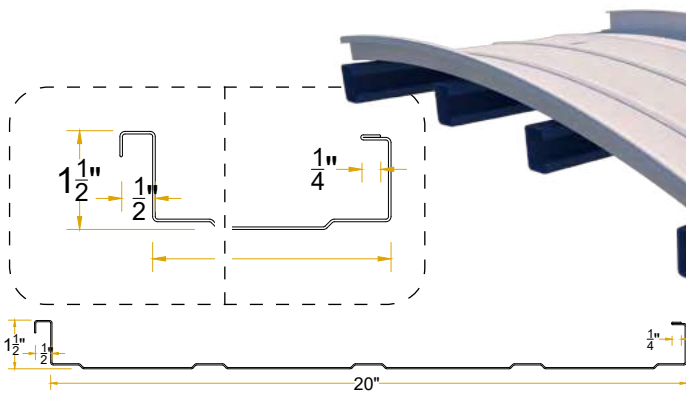
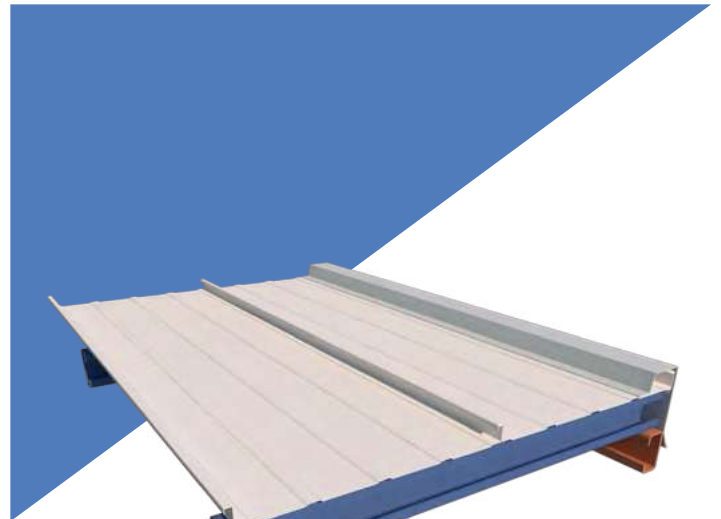


TOTAL LOCK 20–50 ROOF PANELS

TL 20–50 roof panels are affordable and highly adaptable.

- Recommended for structures with shorter spacing between rafters
- Ideal for medium density thermal and/or acoustic insulation products
- Good hydraulic capacity
- Can accommodate photovoltaic systems and other equipment
- In 24 gauge, TL 20–50 roof panels are ideal for curved designs.

These roof panels are suitable for reflective insulation (see Insulation) wherever cooler spaces are desired.



SINGLE LAYER PANEL PROPERTIES	
	TL 20–50
Standing seam	38.1 mm
Width	495 mm–502 mm
Max. weight by m ² (26 gauge)	4.78 kg–4.84 kg
Max. weight by m ² (24 gauge)	5.18 kg–5.25 kg
Min. slope	7%
Max. spacing between rafters (27 gauge)	0.90 m
Max. spacing between rafters (26 gauge)	1.2 m
Max. spacing between rafters (24 gauge)	1.5 m

SINGLE LAYER CURVED PANEL PROPERTIES	
	TL 20–50
Standing seam	38.1 mm
Width	495 mm–502 mm
Insulation thickness	n/a
Sandwich panel total thickness	n/a
Max. weight (24 gauge)	5.18 kg–5.25 kg
Max. spacing between rafters	800 mm
Min. radius	8 m



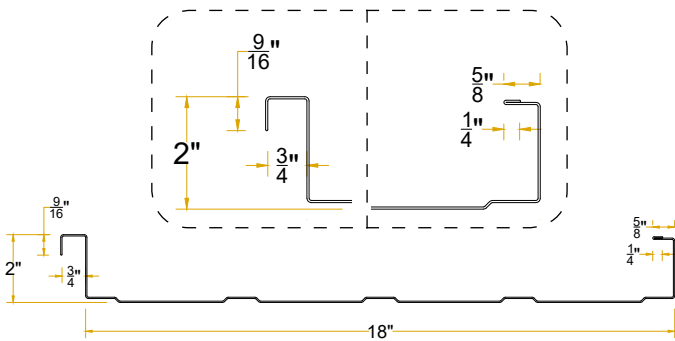
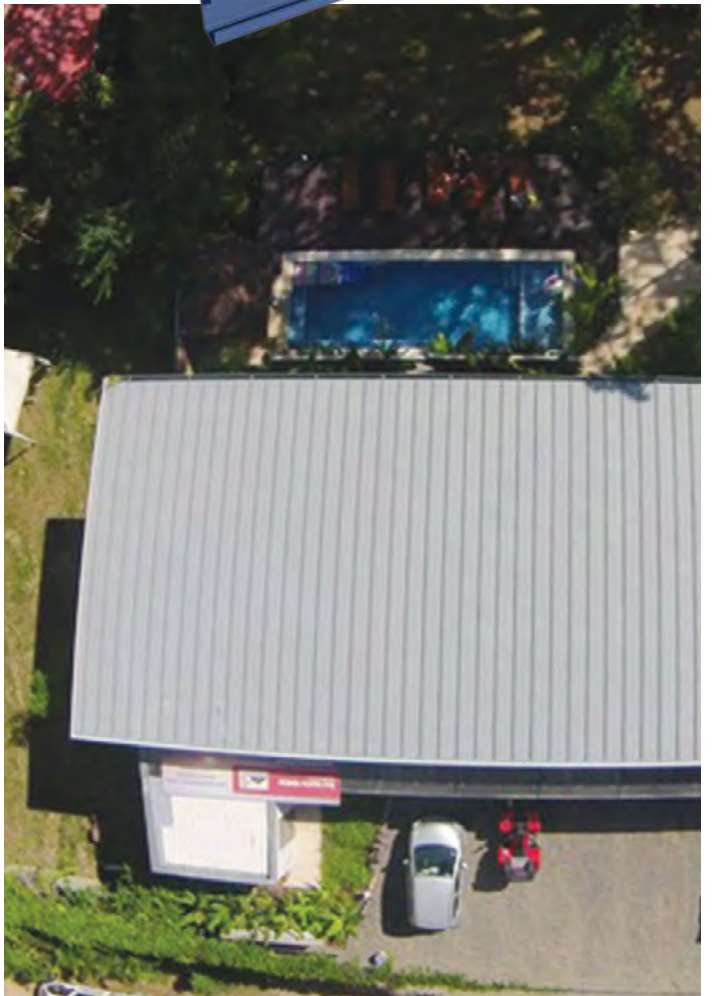


TOTAL LOCK 18-45 ROOF PANELS

TL 18-45 roof panels are affordable and have good adaptability.

- Recommended for structures with wide spacing between rafters and relatively frequent traffic
- Can accommodate photovoltaic systems and other equipment
- Ideal for roofs that do not require too much thermal and/or acoustic insulation
- Good hydraulic capacity

These roof panels are suitable for reflective insulation (see Insulation) wherever cooler spaces are desired.



SINGLE LAYER PANEL PROPERTIES	
	TL 18-45
Standing seam	50.8 mm
Width	445 mm-452 mm
Max. weight by m ² (26 gauge)	5.31 kg-5.39 kg
Max. weight by m ² (24 gauge)	5.75 kg-5.84 kg
Min. slope	6%
Max. spacing between rafters (27 gauge)	1 m
Max. spacing between rafters (26 gauge)	1.5 m
Max. spacing between rafters (24 gauge)	2 m



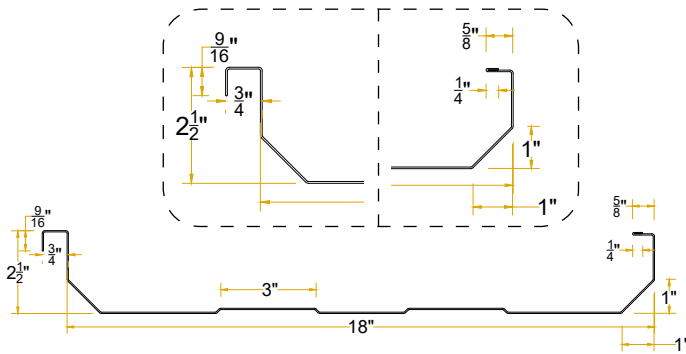
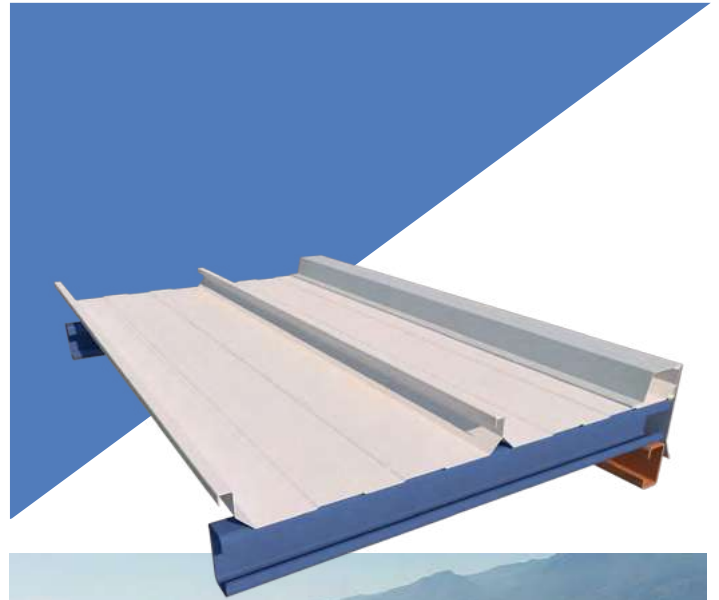


TOTAL LOCK 18B–45B ROOF PANELS

TL 18B–45B roof panels are suitable for large surfaces that sustain frequent traffic.

- Recommended for structures with wider spacing between rafters
- Great hydraulic capacity

These roof panels are suitable for reflective insulation (see Insulation) wherever cooler spaces are desired.



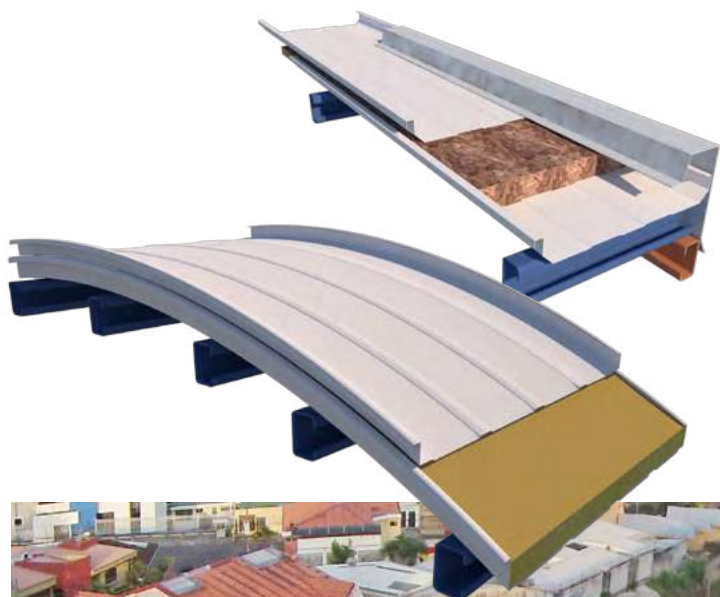
SINGLE LAYER PANEL PROPERTIES	
	TL 18B-45B
Standing seam	63.5 mm
Width	453 mm–460 mm
Max. weight by m ² (26 gauge)	5.21 kg–5.30 kg
Max. weight by m ² (24 gauge)	5.65 kg–5.74 kg
Min. slope	5%
Max. spacing between rafters (27 gauge)	1.1 m
Max. spacing between rafters (26 gauge)	2 m
Max. spacing between rafters (24 gauge)	3.5 m





TOTAL LOCK
COMPOSITE PANEL ROOFS

TOTAL LOCK COMPOSITE PANEL ROOFS



Composite panel roofing trays are widely used as they provide a roofing solution that incorporates thermal-acoustic insulation without sacrificing aesthetic appeal. They are frequently used as ceilings with exposed structures.

The most common types of insulation are polystyrene, polyisocyanurate, mineral wool (also known as rockwool) and fiberglass (see Insulation).

Composite panel (or sandwich-type) roofing trays allow for wider spacing between rafters and frequent traffic.



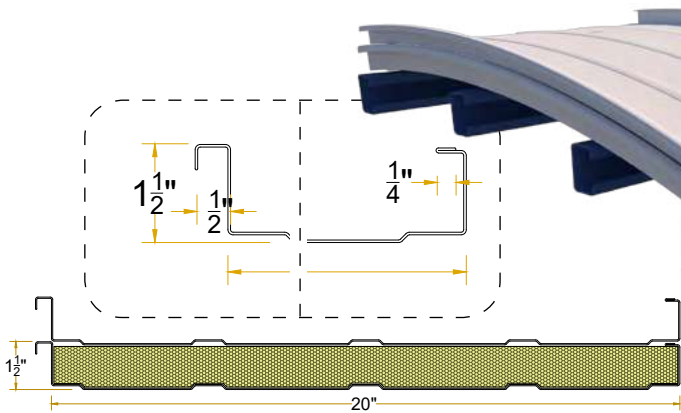
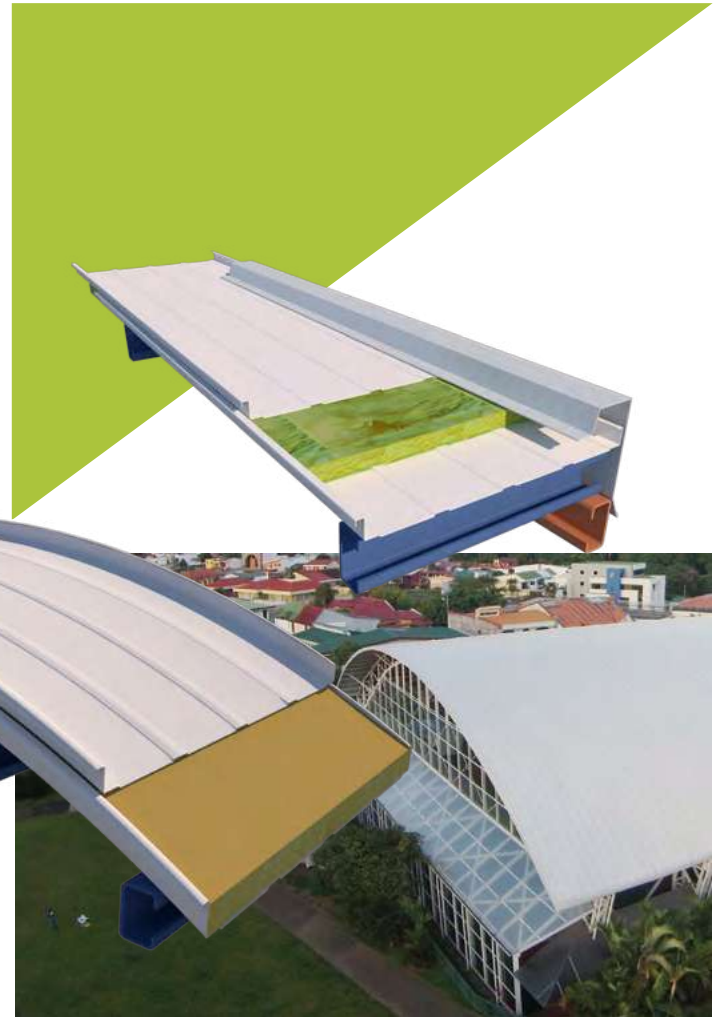


TOTAL LOCK 20-50 COMPOSITE PANEL ROOFING TRAYS

TL20-50 composite panel roofing trays are cost-effective and highly adaptable.

- Recommended for structures with wide spacing between rafters and frequent traffic
- Can accommodate photovoltaic systems and other equipment
- Good hydraulic capacity.

These roof panels are suitable for curved roofs as panel properties are maintained on both sides. The minimum insulation width required is 38 mm.



COMPOSITE PANEL PROPERTIES

	TL 20-50
Standing seam	38.1 mm
Width	495 mm-502 mm
Insulation thickness	38 mm-100 mm
Sandwich panel total thickness	76 mm-138 mm
Max. weight by m ² (26 gauge)	9.56 kg-9.68 kg
Max. weight by m ² (24 gauge)	10.36 kg-10.50 kg
Min. R-value (°F-ft ² -h/BTU)	5.14-14.38
Min. slope	5%
Max. spacing between rafters (27 gauge)	2.5 m
Max. spacing between rafters (26 gauge)	2.85 m
Max. spacing between rafters (24 gauge)	3.15 m

COMPOSITE CURVED PANEL PROPERTIES

	TL 20-50/20-50 Sandwich Panel
Standing seam	38.1 mm
Width	495 mm-502 mm
Insulation thickness	38 mm-100 mm
Sandwich panel total thickness	76 mm-138 mm
Max. weight (24 gauge)	0.36 kg-10.50 kg
Max. spacing between rafters	800 mm
Min. radius	8 m



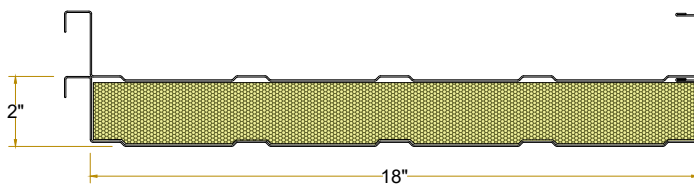
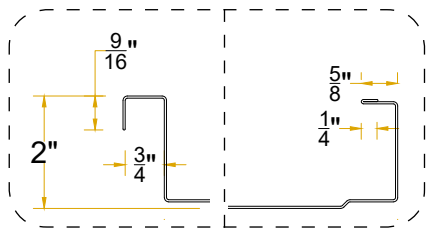
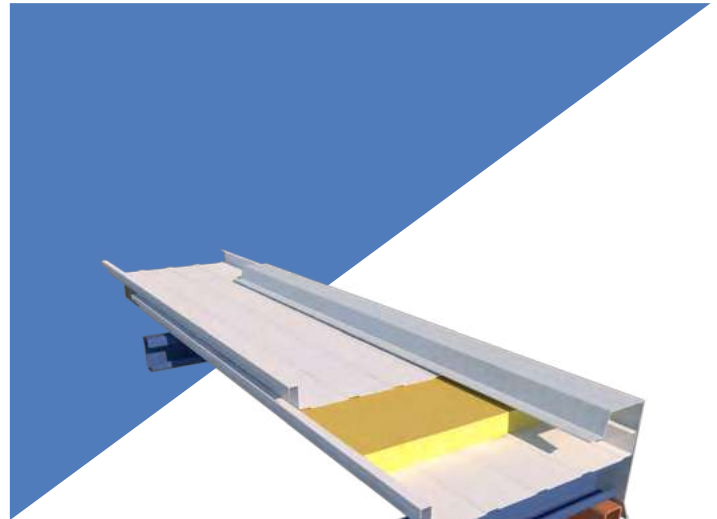


TOTAL LOCK 18-45 COMPOSITE PANEL ROOFING TRAYS

TL 18-45 composite panel roofing trays are recommended for roofs with wider spacing between rafters and frequent traffic.

- Can accommodate photovoltaic systems and other equipment
- Good hydraulic capacity, especially for long span roofs.

The minimum insulation width required is 50 mm.



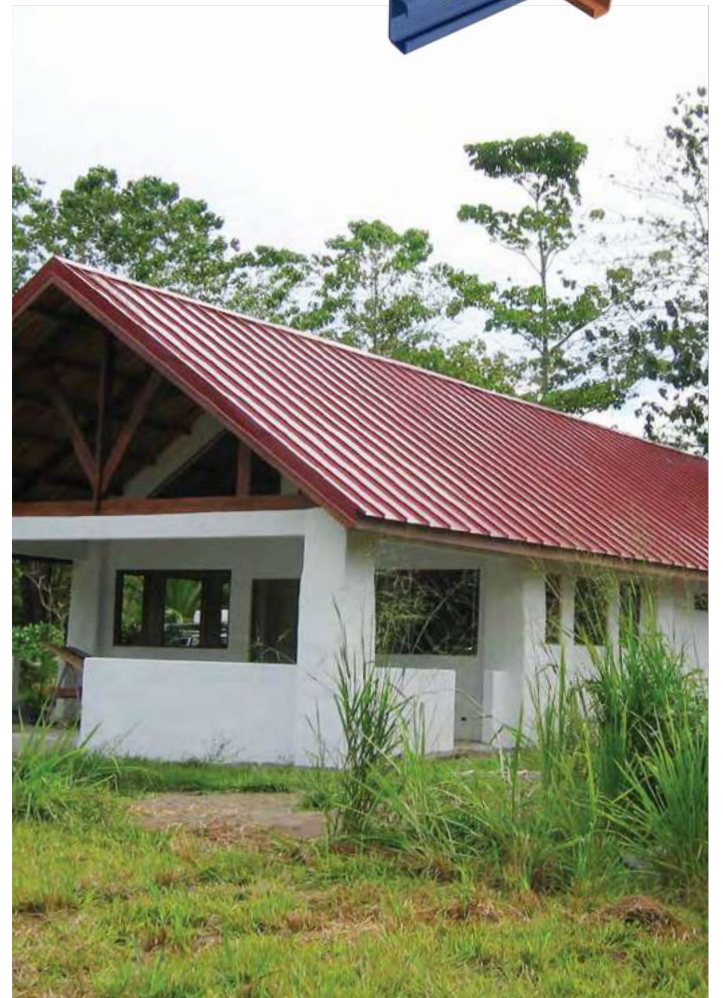
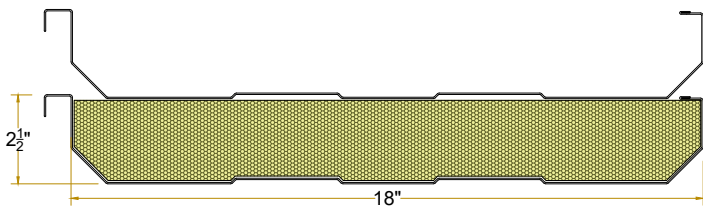
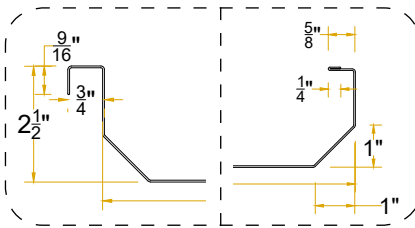
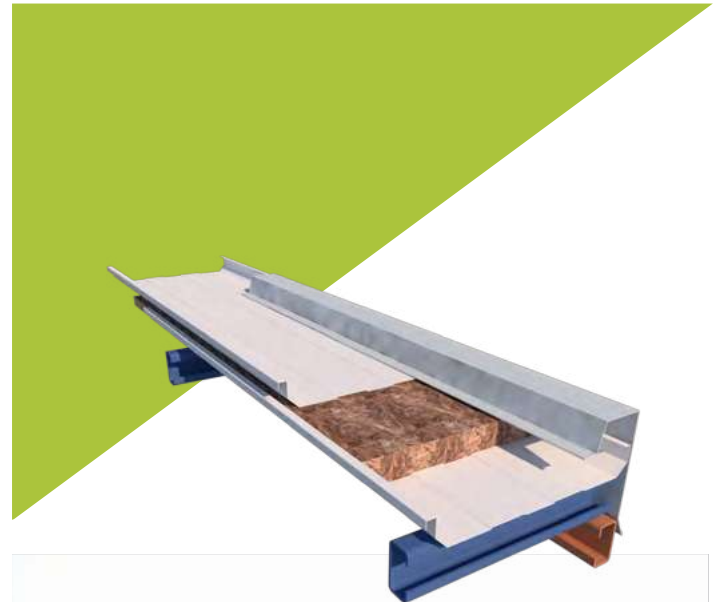
COMPOSITE PANEL PROPERTIES	
	TL 18-45
Standing seam	50.8 mm
Width	445 mm-452 mm
Insulation thickness	50 mm-100 mm
Sandwich panel total thickness	100 mm-150 mm
Max. weight by m ² (26 gauge)	10.62 kg-10.72 kg
Max. weight by m ² (24 gauge)	11.5 kg-11.68 kg
Min. R-value (°F-ft ² -h/BTU)	5.14-14.38
Min. slope	5%
Max. spacing between rafters (27 gauge)	2.85 m
Max. spacing between rafters (26 gauge)	3.15 m
Max. spacing between rafters (24 gauge)	3.66 m



TOTAL LOCK 18B-45B COMPOSITE PANEL ROOFING TRAYS

TL 18B-45B composite panel roofing trays support the widest spacing between rafters. With 63 mm standing seams, they also provide the highest hydraulic capacity and are ideal for large, long span surfaces.

The minimum insulation width required is 50 mm.



COMPOSITE PANEL PROPERTIES

	TL 18B-45B
Standing seam	63.5 mm
Width	453 mm-460 mm
Insulation thickness	50 mm-100 mm
Sandwich panel total thickness	127 mm-163 mm
Max. weight by m ² (26 gauge)	10.42 kg-10.60 kg
Max. weight by m ² (24 gauge)	11.3 kg-11.48 kg
Min. R-value (°F·ft ² ·h/BTU)	5.14-14.38
Min. slope	5%
Max. spacing between rafters (27 gauge)	2.85 m
Max. spacing between rafters (26 gauge)	3.15 m
Max. spacing between rafters (24 gauge)	3.66 m



INSULATION FOR ROOFS AND ENCLOSURES

Insulating materials are highly resistant to the passage of heat and, therefore, reduce heat transfer to the other side. As such, they provide protection from cold and heat.

Thermal insulation contributes to energy efficiency, i.e., reducing energy consumption without sacrificing comfort. To make this possible, roofing and enclosure systems are fundamental components of the overall design.

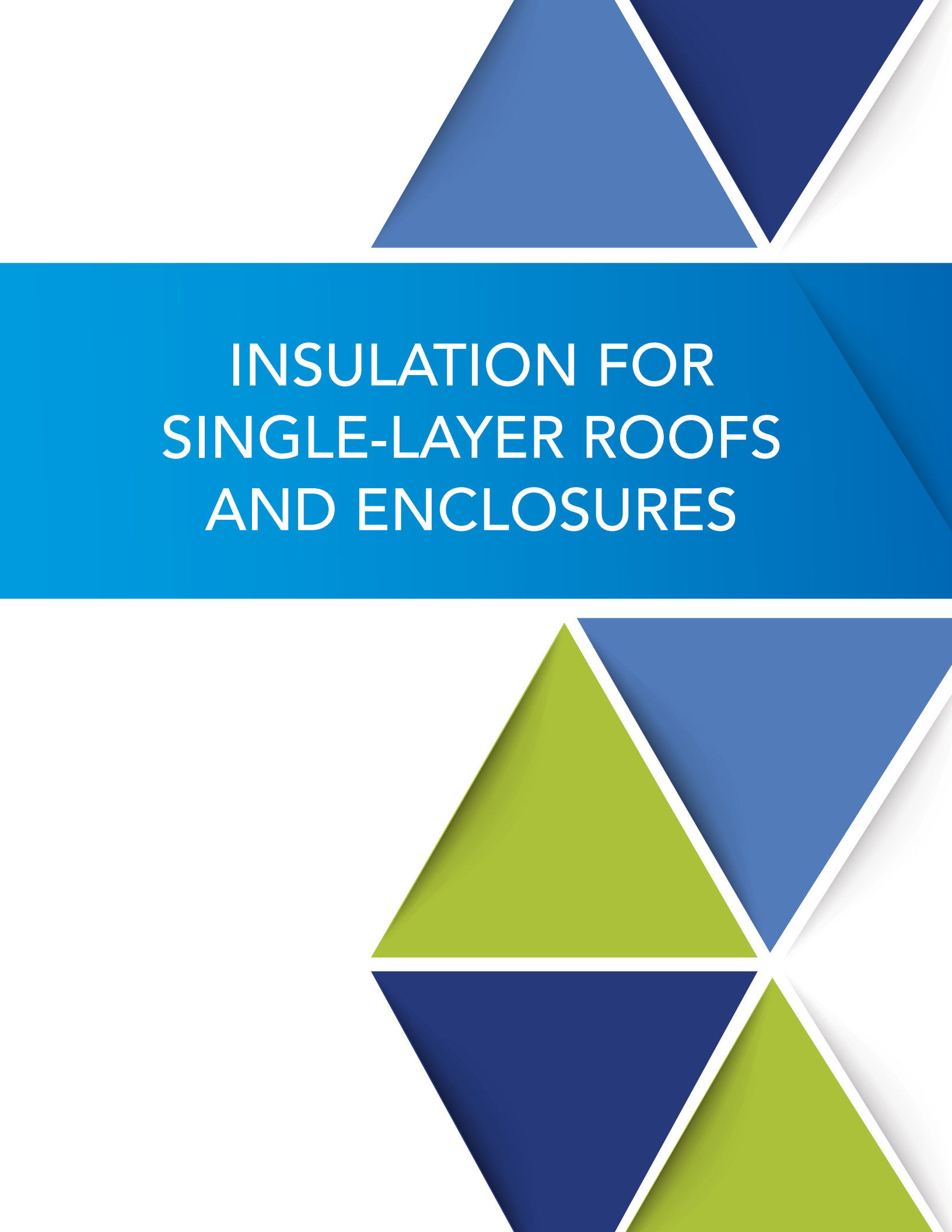
It is a fact that buildings interact with their environment. The two main factors that affect the energy performance of a building are the weather and the building's design.

Cielo Vivo provides adaptable roofing solutions that work seamlessly with the thermal and acoustic insulation products available on the market.

It is often possible to find insulation options for both single-layer and composite panel roofs.

Thanks to our knowledge and experience with this type of solutions, the experts at Cielo Vivo can advise customers on the insulation options that are better suited to their needs and to the needs of the project itself.



The background features a decorative geometric pattern of triangles. At the top, there are two triangles pointing downwards, one in a medium blue and one in a dark blue. A horizontal blue band with white text is positioned in the middle. Below this band, there are four triangles meeting at a central point: a green triangle pointing up, a dark blue triangle pointing down, a medium blue triangle pointing left, and a green triangle pointing right. All triangles have a white border.

INSULATION FOR SINGLE-LAYER ROOFS AND ENCLOSURES

INSULATION FOR SINGLE-LAYER ROOFS AND ENCLOSURES

Single-layer roof panels work best with reflective insulation. This type of insulation is flexible, lightweight and thin, and it usually comes in rolls, making it easy to transport and store.

Despite its thinness, reflective thermal insulation has a low conductivity coefficient and offers good heat resistance.

As the insulation disrupts thermal bridges, heat is not transferred outdoors in the winter or indoors in the summer, providing for remarkable energy savings in heating and air conditioning.

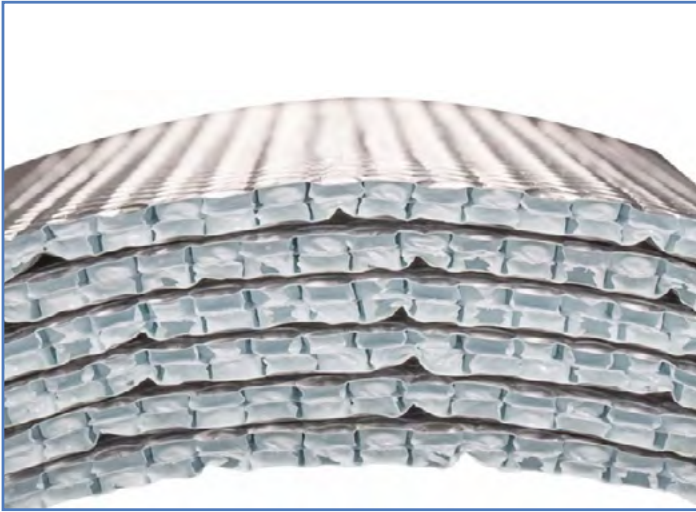
Reflective insulation is very resistant to moisture and water, and to all their correlated problems such as mold or bacteria.

It also contributes acoustic insulation properties against aircraft and impact noises. Further, it is very durable, it does not lose its insulation properties with time, and it does not require frequent maintenance.

The main types of reflective insulation Cielo Vivo works with are bubble and closed cell.



REFLECTIVE BUBBLE INSULATION



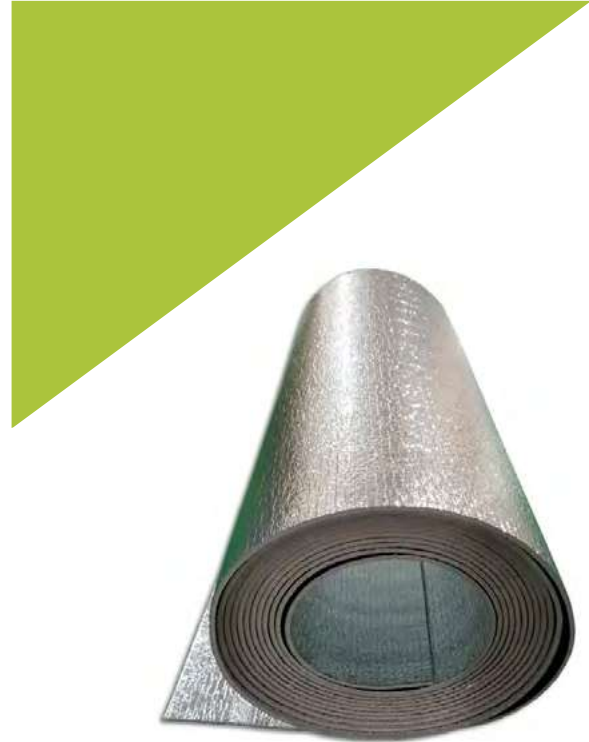
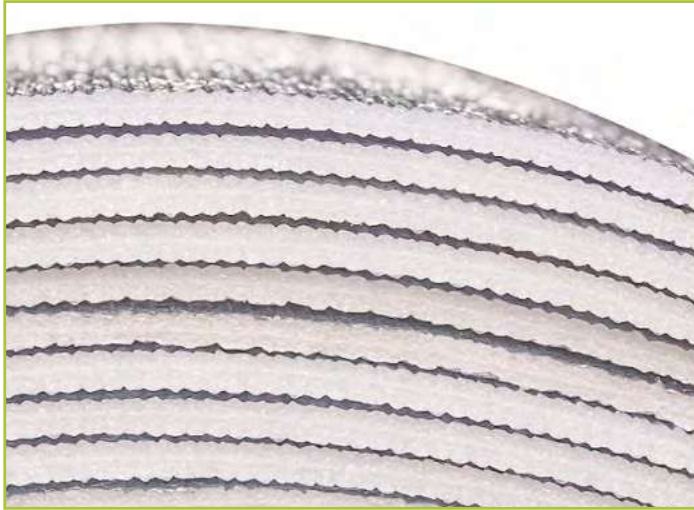
Consists of a layer of polyethylene bubbles or foam sandwiched between two layers of aluminum foil.

BUBBLE INSULATION TECHNICAL SPECIFICATIONS

	4 mm - POLYETHYLENE AIR BUBBLES + TWO LAYERS OF ALUMINUM POLYESTER	8 mm - POLYETHYLENE AIR BUBBLES + TWO LAYERS OF ALUMINUM POLYESTER	STANDARD
Thickness	4 mm–5 mm	8 mm–10 mm	
Dimensions	1.22 m W x 38.1 m L	1.27 m W x 20 m L	
Effective width	1.17 m	1.17 m	
Average weight per m ²	0.149 g/m ²	0.229 g/m ²	
Water vapor permeability	Complies with		ASTM E96/CGSB-51.33-M89
Mold resistance	Does not promote mold/mildew growth		ASTM C1338
Delamination resistance	Complies with		ASTM C1224
R-value	R 14.7 Heat flow down	R 15.2 Heat flow down	ASTM C1224
	R 6.1 Heat flow up	R 6.6 Heat flow up	ASTM C1224
	R 8.0 Horizontal heat flow	R 8.5 Horizontal heat flow	ASTM C1224
Temperature range	-32.9 °C to 381.6 °C		ASTM C411
Fire rating	Class 1 / Class A		ASTM E84
Emittance	0.06		ASTM C1371



REFLECTIVE CLOSED-CELL INSULATION



Consists of a variable-width layer of closed microcell polyethylene foam sandwiched between two layers of aluminum foil or one layer of film and one layer of aluminum foil.

CLOSED CELL INSULATION TECHNICAL SPECIFICATIONS					
	5 mm - CLOSED-CELL POLYETHYLENE FOAM + SINGLE ALUMINUM POLYESTER LAYER	10 mm - CLOSED-CELL POLYETHYLENE FOAM + SINGLE ALUMINUM POLYESTER LAYER	5 mm - CLOSED-CELL POLYETHYLENE FOAM + DOUBLE ALUMINUM POLYESTER LAYERS	10 mm - CLOSED-CELL POLYETHYLENE FOAM + DOUBLE ALUMINUM POLYESTER LAYERS	NORMA
Thickness	5 +/- 0.35 mm	10 +/- 0.7 mm	5 +/- 0.35 mm	10 +/- 0.7 mm	
Dimensions	1.22 m W x 20 m L	1.27 m W x 20 m L	1.22 m W x 20 m L	1.27 m W x 20 m L	
Effective width	1.17 m	1.22 m	1.17 m	1.22 m	
Average weight per m ²	0.214 kg/m ²	0.374 kg/m ²	0.374 kg/m ²	0.414 kg/m ²	
Water permeability	Waterproof				UEAtc
Water vapor permeability	0.033 g/m ² -h-kPa 0.05 perms (gr/ft ² -h-inHg)				ASTM E96 / IRAM 1735
Mold resistance	Does not promote mold/mildew growth				ASTM C1338
Corrosion resistance	Complies with				ASTM C1224
Crack resistance	Complies with				ASTM C1224
Delamination resistance	Complies with				ASTM C1224
Moisture resistance	Complies with				ASTM C1258*
R-value	R 9.56 (°F-ft ² -h/BTU)		*A: 15.67 B: 21.12 (°F-ft ² -h/BTU)		ASTM C-236
Temperature range			-20 °C-80 °C	*A: 16.55 B: 31.01 (°F-ft ² -h/BTU)	ASTM C1224
Fire rating	0				ASTM E84-99
Smoke development rating	15				ASTM E84-99
Emittance	0.3				ASTM C1371-98

*TEMPERATURE RANGE -20 °C-80 °C (ASTM C1224)





INSULATION FOR
COMPOSITE PANEL ROOFS
AND ENCLOSURES

INSULATION FOR COMPOSITE PANEL ROOFS AND ENCLOSURES

For composite panel roofs, there are several thermal and acoustic insulation options available on the market that can be fitted between two roofing panels.

A particular condition of this solution is that the thickness of the insulation material must not be less than the height of the standing seam, as the air gaps reduce the insulation capabilities of the panel.

The type of insulation used in these panels is known as bulk insulation.

Conventional bulk insulation materials can break up

the path of conductive heat flow (e.g., 25% of the total heat flowing into a building), slowing down or resisting the transmission of heat from one side of the material to the other.

Bulk insulation materials are generally evaluated in terms of their heat transfer (or thermal) resistance by assigning them a rating known as R-value.

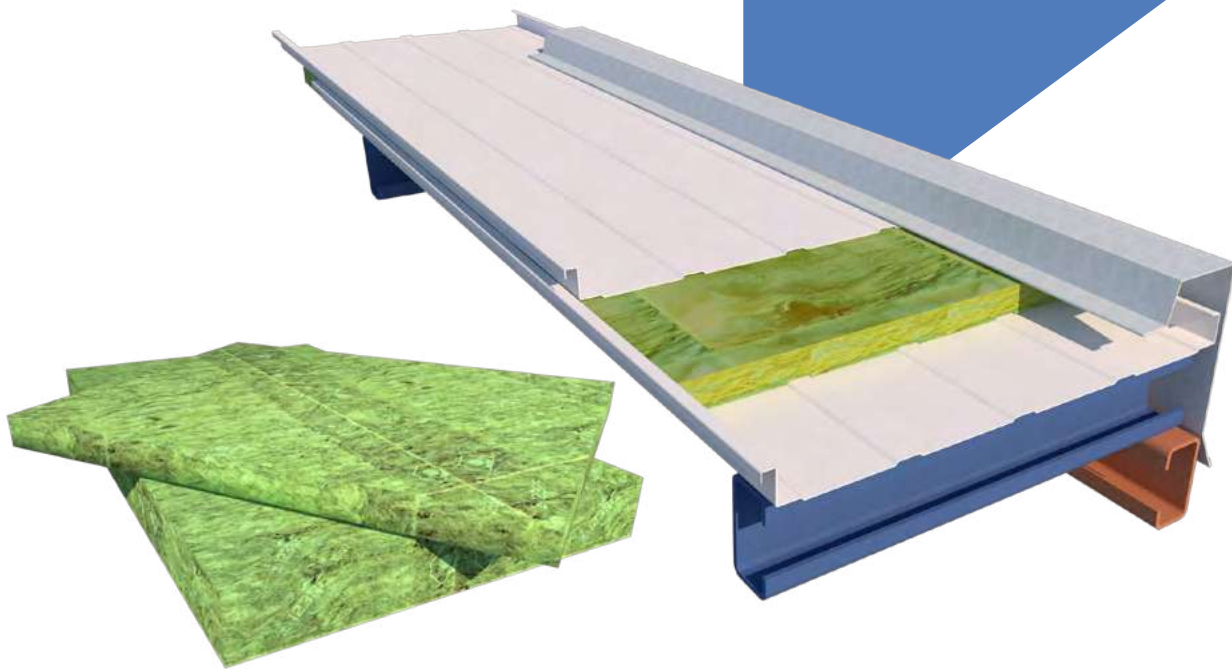
Below are the most common types of bulk insulation we use at Cielo Vivo.





FIBERGLASS INSULATION

Fiberglass insulation is composed of extremely fine glass fibers. It commonly comes in batts, rolls, and as a loose-fill product. It is also available as rigid boards.



ACOUSTIC PERFORMANCE IN OCTAVE BAND FREQUENCIES

3 1/2" unfaced insulation*	Typical mounting	125	250	500	1000	2000	4000	NRC***
	Type-A**	0.34	0.85	1.09	0.97	0.97	1.12	0.95

*Material exposed to sound.

**Type-A mounting: Material installed near a solid partition, such as a brick wall.

***NRC=Noise Reduction Coefficient. Typical expected value according to comparable product ratings.

	UNFACED	PAPER-FACED	FOIL-FACED
DIMENSIONS	15.24 m (600") L x 1.22 m (48") W x 3.5" and 2.5" thick	15.24 m (600") L x 1.22 m (48") W x 3.5" and 2.5" thick	15.24 m (600") L x 1.22 m (48") W x 3.5" and 2.5" thick
THERMAL RESISTANCE (°F-ft²-h/BTU)	R 11(3.5") R 8 (2.5")	R 11	R 11
NOISE REDUCTION COEFFICIENT (NRC)	0.85 (2.5") 1.05 (3.5") Type-A mounting	0,8 Type-A mounting	0,8 Type-A mounting
SURFACE BURNING CHARACTERISTICS	ASTM E84 – FS/SD 25/50		
PACKAGING	Compression-packaged rolls in poly bags		





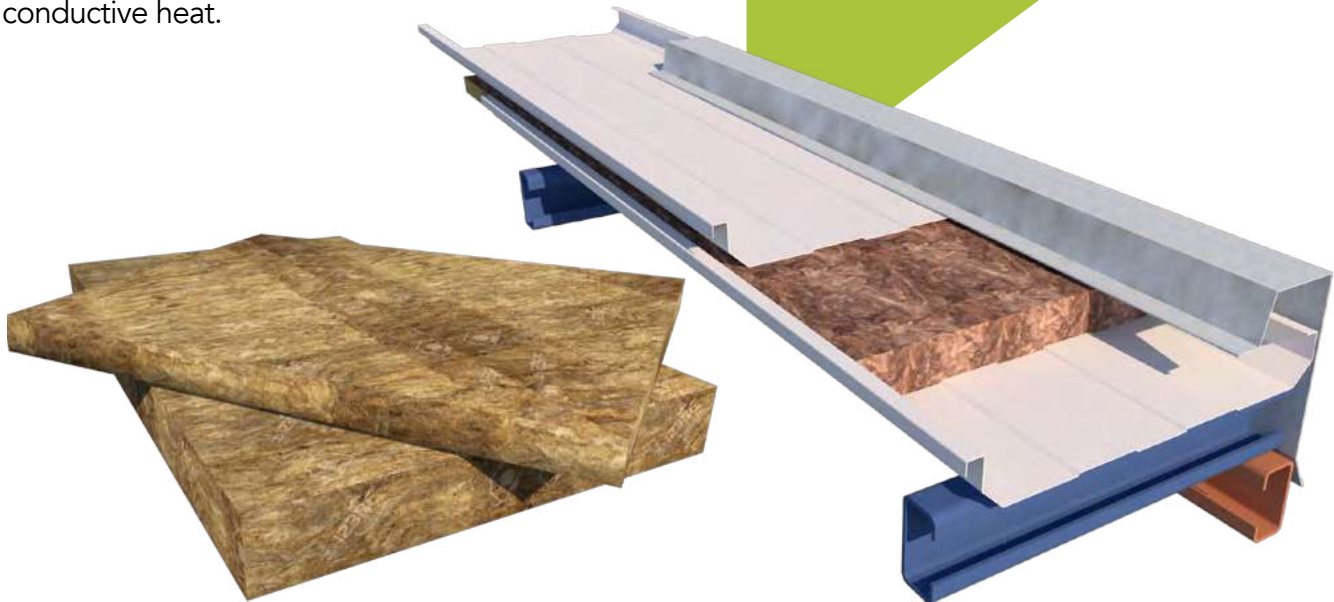
MINERAL WOOL INSULATION

Mineral wool insulation is composed primarily of natural rock.

As such, it is considered a sustainable material and it can also be recycled.

During the production process of the insulation mats, fibers are compressed, and air is trapped between them.

Trapped air reduces the material's ability to transfer conductive heat.



ASTM C518 TEST METHOD

Density	Thermal conductivity (k) @ 75 °F (24 °C) BTU·in/ft ² ·h·°F	R-value per inch of thickness*
2.5 pcf	0.27	3.7
4.0 pcf	0.23	4.3

*R = thickness divided by "k"

ACOUSTIC BEHAVIOR

FREQUENCY COEFFICIENTS PER ASTM C423

DENSITY	THICKNESS	FREQUENCY COEFFICIENTS PER ASTM C423						NRC
		125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	
2.5 pcf	2"	0.34	0.61	1.07	1.09	1.07	1.1	0.95
	3"	0.51	0.99	1.18	1.03	0.99	0.96	1.05
	4"	0.83	1.19	1.27	1.12	1.12	1.13	1.20
	6"	1.37	1.32	1.23	1.16	1.12	1.12	1.20



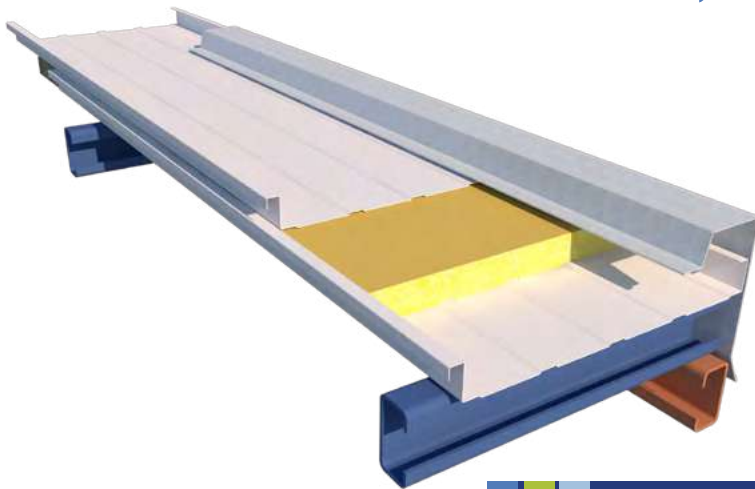
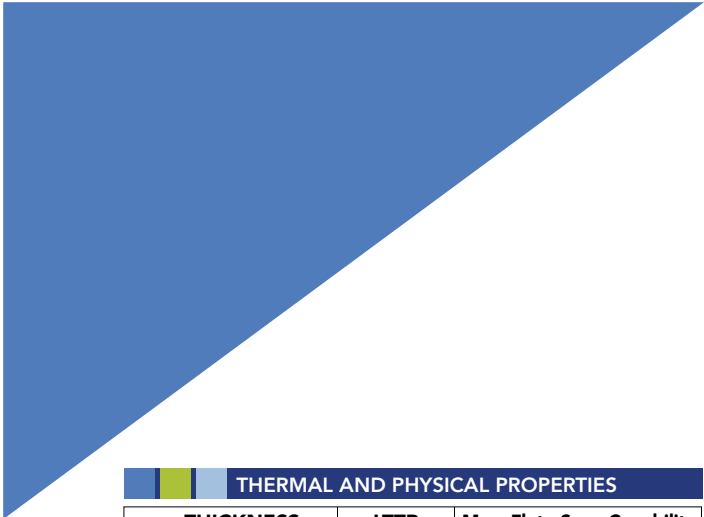


POLYURETHANE AND POLYISOCYANURATE INSULATION

The main properties of these types of insulation include high thermal resistance —allowing for thinner insulating panels—, rigidity and lightness, which facilitate handling and installation.

Rigid polyurethane foam (PUR) is an excellent thermal insulator with low thermal conductivity, light weight, high durability and optimal chemical and organic stability.

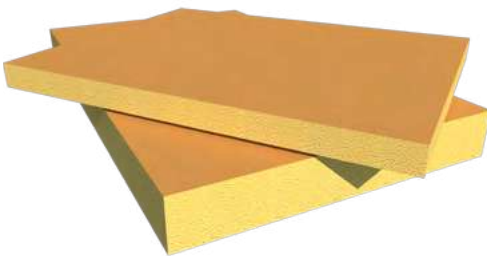
Rigid polyisocyanurate (PIR) is a variant of PUR foam with similar appearance and mechanical and thermal properties but offering greater fire and temperature resistance.



THERMAL AND PHYSICAL PROPERTIES

THICKNESS		LTRR	Max. Flute-Span Capability	
in	mm	(R-Value**)	in	mm
1.0	25.4	5.7	2 5/8	66.7
1.5	38.1	8.6	4 3/8	111
2.0	51	11.4	4 3/8	111
2.5	64	14.4	4 3/8	111
3.0	76	17.4	4 3/8	111
3.5	89	20.5	4 3/8	111
4.0	102	23.6	4 3/8	111
4.5	114	26.8	4 3/8	111

*Long Term Thermal Resistance (LTRR) values provide a 15-year time weighted average in accordance with CAN/ULC S770.
Note: Physical and thermal properties shown are based on data obtained under controlled laboratory conditions and are subject to normal manufacturing tolerances.



TYPICAL PHYSICAL PROPERTIES

PROPERTY	VALUE	MÉTODO DE PRUEBA
Water absorption, % by volume – 2 hrs. (under 1" [25.4 mm] of water)	1.5 max.	ASTM C209
Dimensional stability change, 7 days @ 158 °F (70 °C), 97% RH • Length + Width	<2%	ASTM D2126
Compressive strength – psi (kPa)	25 (172) nom. Grade 3 20 (138) nom. Grade 2	ASTM D1621
Tensile strength – psf (kPa)	≥ 500 (23.9)	ASTM C209
Moisture vapor transmission	<1.5 perm (85.8 ng/Pa s m2)	ASTM E96 (Procedure A)
Flame spread index ^{1,2}	<75	ASTM E84
Service temperature	-100–200 °F (-73.3–93.3 °C)	

¹Foam core only.

²These numerical ratings are not intended to reflect hazards presented by these or any other material under actual fire conditions.





POLYSTYRENE INSULATION


Polystyrene is a plastic derivative that is made from various petroleum-based products.

Expanded polystyrene (EPS) is marketed as an insulation material in the form of EPS rigid foam. It is one of the most common materials used in roofing because in addition to having good thermo-acoustic properties, it is affordable and easy to transport and install, creating significant saving for composite panel roofing projects.



BOARD THICKNESS		R-VALUE		
mm	in	Dens. 12 kg/m ³	Dens. 15 kg/m ³	Dens. 20 kg/m ³
25	1"	3.59	3.84	4.06
32	1.25"	4.6	4.91	5.19
38	1.5"	5.46	5.83	6.16
50	2"	7.19	7.67	8.11
63	2.5"	9.06	9.67	10.22
75	3"	10.78	11.51	12.17
95	3.5"	13.66	14.58	15.41
100	4"	14.38	15.35	16.22
125	5"	17.97	19.18	20.28
150	6"	21.56	23.02	24.34
175	7"	25.16	26.86	28.39
200	8"	28.75	30.69	32.45
Fire resistance	Complies with: DIN 4102 Class B1, ASTM E84 and IBC 2009 Section 2603, NBC 3.1.14.2.1 and CAN/ULC-S126			
Flame spread index	10, according to ASTM E84			
Smoke spread index	Between 15 and 40, depending on thickness, according to ASTM E84			
Temperature range	-100 °C–75 °C, ASTM C1258, up to 85 °C for short periods			
Production standard	According to ASTM C578			
Water absorption	After being submerged for 1 month, less than 4% by volume			
Mold resistance	Resistant			



The image features a central blue horizontal band with white text. Above and below this band are decorative geometric patterns consisting of overlapping triangles in shades of blue and green, all with white outlines. The top pattern uses two shades of blue, while the bottom pattern uses a mix of blue and green.

TRIM, FLASHING AND GUTTERS

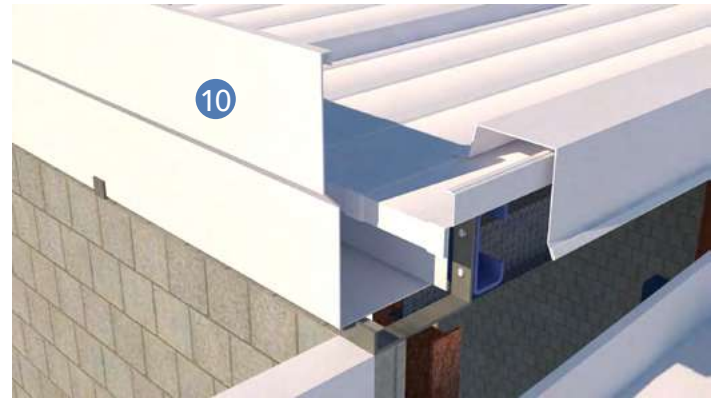
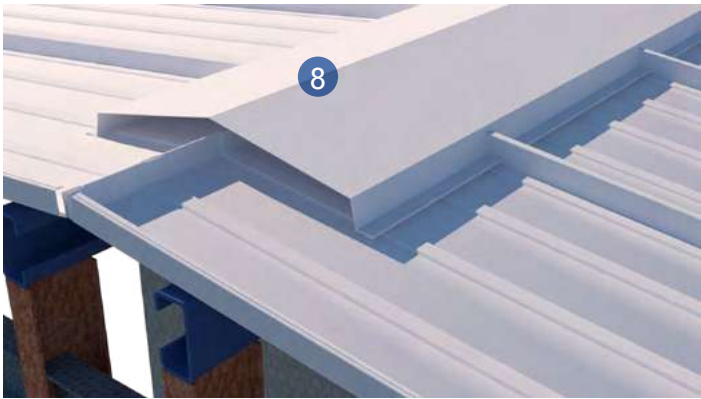
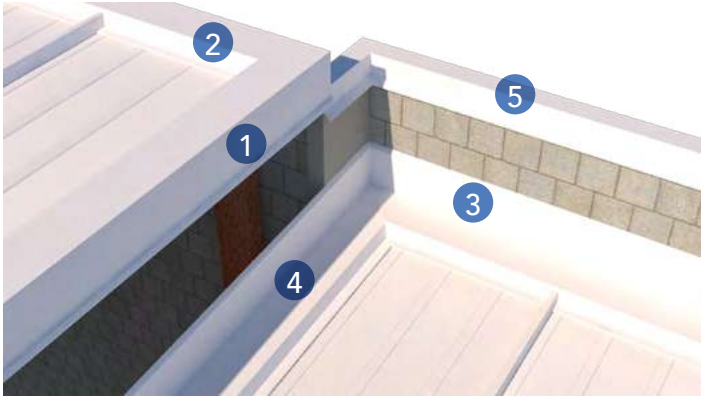


TRIM, FLASHING AND GUTTERS

Steel roofs and enclosures in every building require the addition of various finishing elements with different functions: ventilation ducts, rainwater collection and management systems, waterproofing, etc.

Each individual roof has its own distinctive features, and at Cielo Vivo, we manufacture custom-made trim and flashing to ensure our roofs are both waterproof and aesthetically pleasing.





1. Rake trim
2. Gable trim
3. Endwall flashing
4. Sidewall flashing
5. Coping flashing
6. Eave trim
7. Gutter apron flashing
8. Ridge cap
9. Box gutter
10. 'A' and 'B' edge gutters
11. Half round gutter





TRIM AND FLASHING

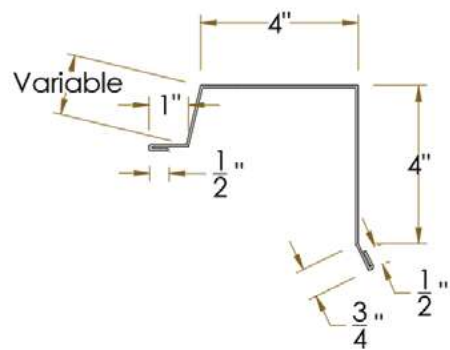
Generally, trim and flashing are pieces made of bent sheet metal that are used to cover the top of parapets or any other exposed elements of a building.

Trim and flashing are made onsite, and they are overlapped, welded or caulked to the structure to prevent the passage of moisture.

Below are the most common types of trim and flashing.

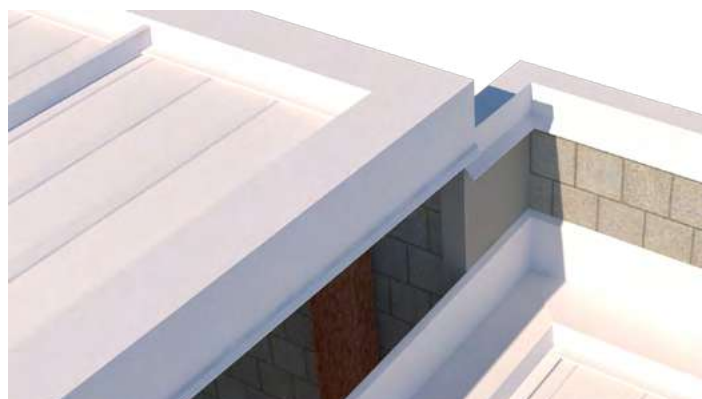
1-2. RAKE TRIM AND GABLE TRIM

These types of trim are finishing pieces of flashing used along the edges of the roof panels.



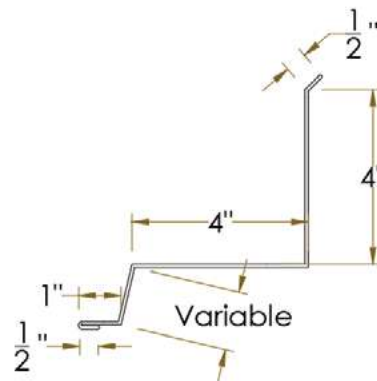
The variable measurement is:
1 1/2" for TL-20
2" for TL-18
2 1/2" for TL-18B

Rake Trim or Gable Trim



3-4. SIDEWALL FLASHING AND ENDWALL FLASHING

These types of flashing are applied when the roof butts up against an adjacent wall. Endwall flashing is used where the upward slope of the roof meets a wall, whereas sidewall flashing goes where the side of the roof meets a wall.

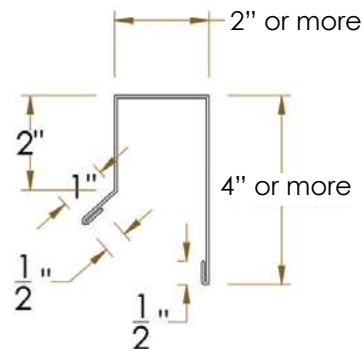


The variable measurement is:
1 1/2" for TL-20
2" for TL-18
2 1/2" for TL-18B

Sidewall Flashing and Endwall Flashing

5. COPING FLASHING

Coping flashing is a finishing protective cap applied on top of a wall or parapet to prevent water infiltration from above.



Measurements may vary according to requirements.

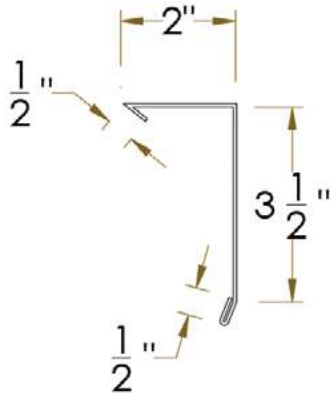
Coping Flashing





6. EAVE or DRIP-EDGE TRIM

Eave or drip-edge trim is a finishing flashing used to divert rainwater off the roof and away from the fascia.

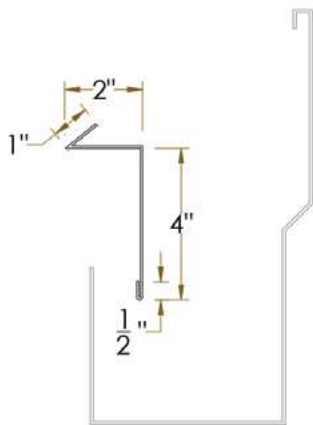


Eave or Drip-Edge Trim

7. GUTTER APRON FLASHING

Gutter apron flashing directs water runoff into the gutter system.

It provides protection from water damage, especially when large amounts of water need to be diverted.



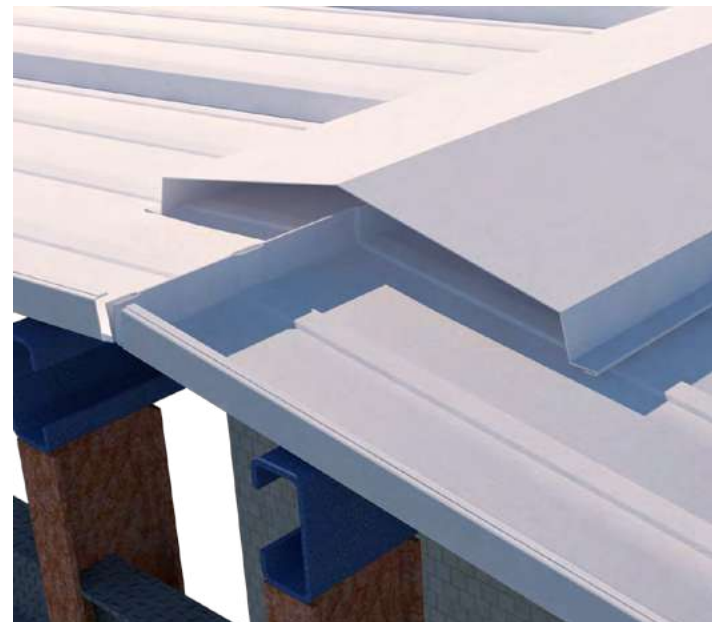
Gutter Apron Flashing

8. RIDGE CAP

A ridge cap is the trim placed along the roof's ridge, where two upward slopes meet up.



The variable measurement is:
1 1/2" for TL-20
2" for TL-18
2 1/2" for TL-18B



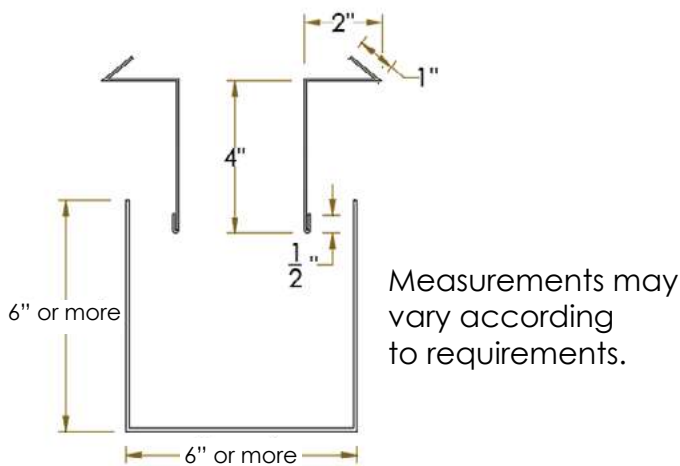


GUTTERS

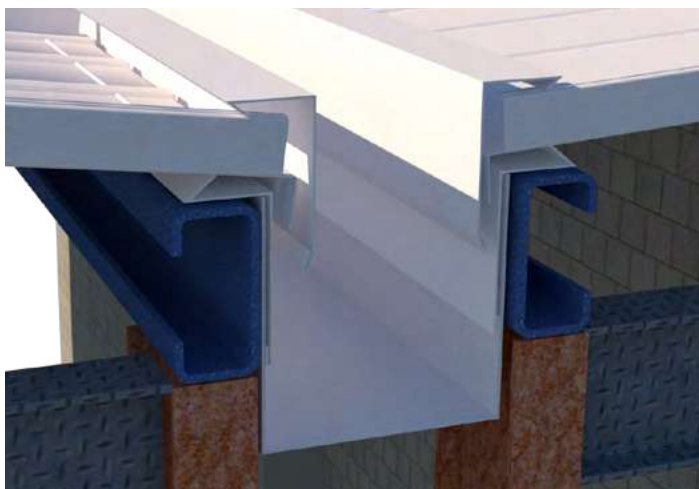
Gutters are finishing elements that allow for the controlled drainage of rainwater from the roof. Without a gutter system, rainwater will just cascade down the roof to the building foundations.

9. BOX GUTTER

Box gutters are placed where two downward roof slopes meet to guide rain and storm water off the roof and away from the building.

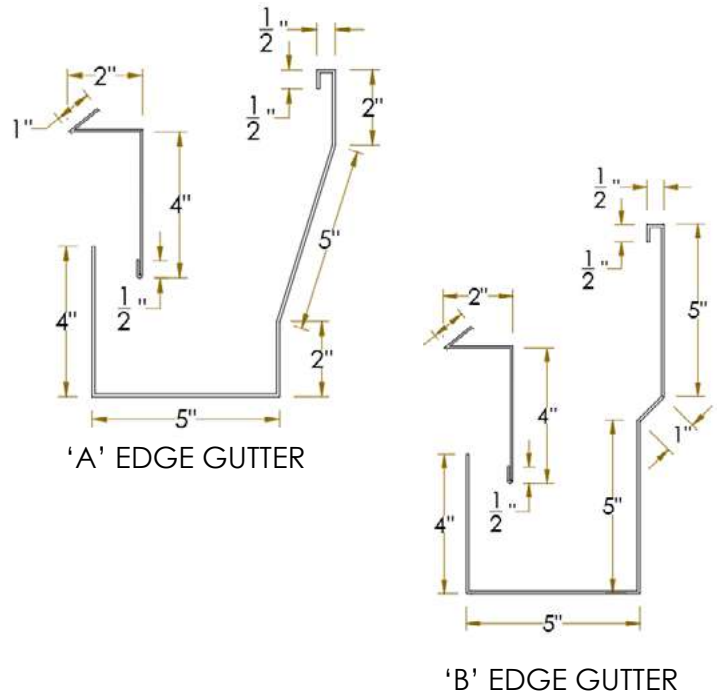


Box Gutter with double Gutter Apron Flashing



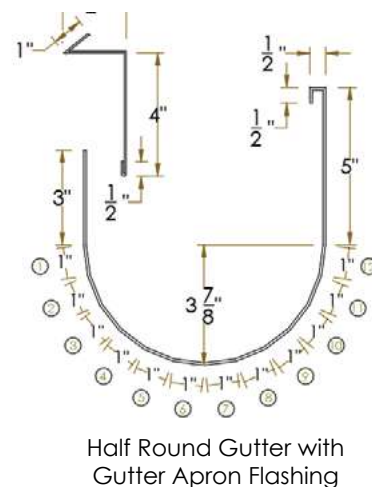
10. 'A' AND 'B' EDGE GUTTERS

These are the most common types of gutters. They are placed on all sides of a building along the roof edge.



11. HALF ROUND GUTTER

With their curved shape, these gutters provide an aesthetic finish to buildings with compatible architecture.





NATURAL LIGHTING: SKYLIGHTS AND LIGHT PANELS





NATURAL LIGHTING: SKYLIGHTS AND LIGHT PANELS

Using materials that allow the passage of light is a very popular way to create naturally lit spaces and, at the same time, protect the building and its occupants from environmental conditions.

There are many different types of materials available on the market to provide natural lighting, including

tempered glass, domes and polycarbonate panels. The latter are the most versatile due to their technical properties, so they can be installed in a variety of spaces and designs.

TECHNICAL PROPERTIES			
RIGIDITY AND THERMAL INSULATION 	LIGHTWEIGHT 	LIGHT TRANSMISSION 	LOW FLAMMABILITY
FLEXIBLE AND EASY TO INSTALL 	IMPACT RESISTANT 	ENVIRONMENTALLY FRIENDLY 	WEATHER RESISTANT / UV CONTROL

Polycarbonate panels offer several advantages that make them the ideal solution for lighting up and protecting indoor spaces:

- Impact resistant and practically unbreakable
- Transparent: up to 90% light transmission
- Weather and UV radiation resistant
- Blocks harmful UV rays
- Lightweight - less than half the weight of glass
- Good flame retardant properties
- Malleable and easy to install using common tools

Technical specifications vary according to panel thickness. Most common thicknesses are 8 mm, 10 mm and 16 mm.

POLYCARBONATE SPECIFICATIONS		
MAX. WIDTH	LENGTH	THICKNESS
2.1 m	Up to 11.8 mm	8 mm, 10 mm, 16 mm

Light transmission	8 mm	10mm	16 mm
Clear	74%	74%	77%
Bronze	21%	20%	18%
Opal	39%	34%	42%
Min. bending radius	1.2 m	1.5 m	2.8 m
U-value	2.8 W/m ² °K	2.5 W/m ² °K	1.9 W/m ² °K





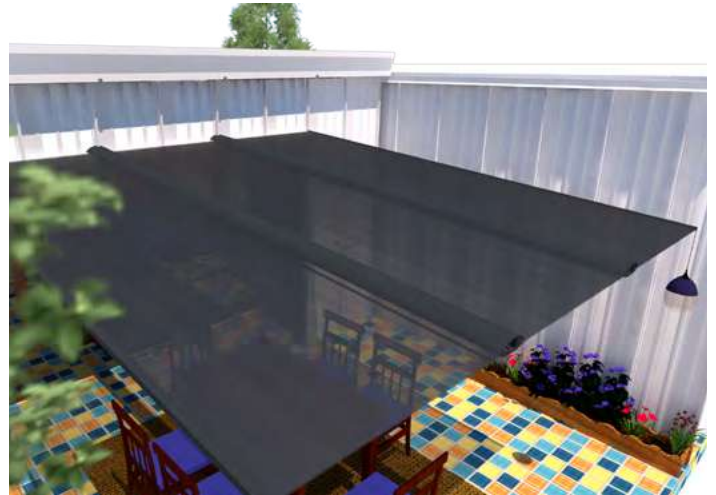
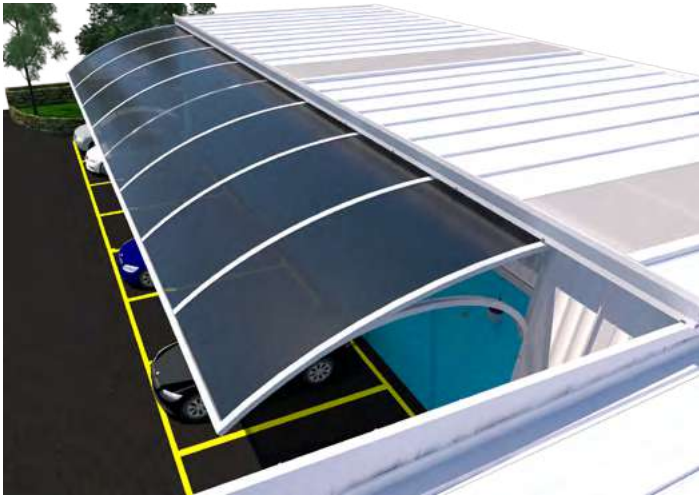
POLYCARBONATE ROOFS

This is a highly aesthetic architectural solution for the natural lighting of spaces.

It is commonly used in buildings such as:

- Architectural roofs
- Industrial roofs

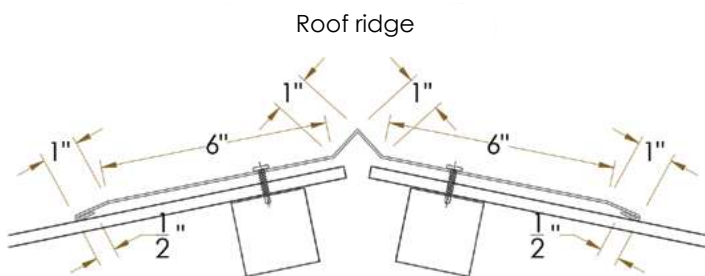
- Greenhouses
- Residential roofs: pergolas, canopies, patios, solariums, etc.
- Lightweight ceilings and awnings.



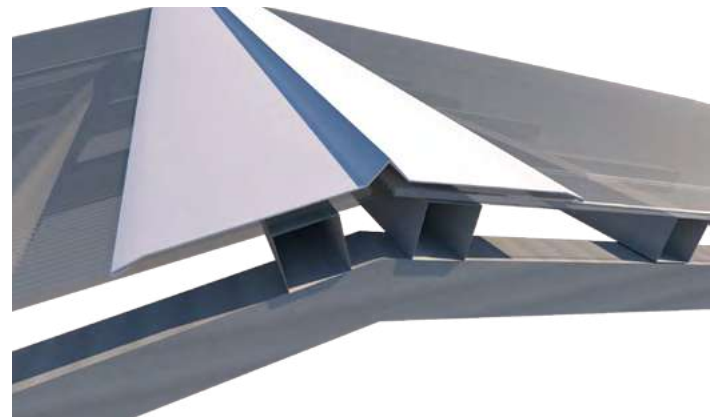
Polycarbonate roof installation details:



Cellular polycarbonate roof



Roof ridge





POLYCARBONATE SKYLIGHTS

Skylights are one of the most common roofing elements used to ensure the passage of natural light into a building.

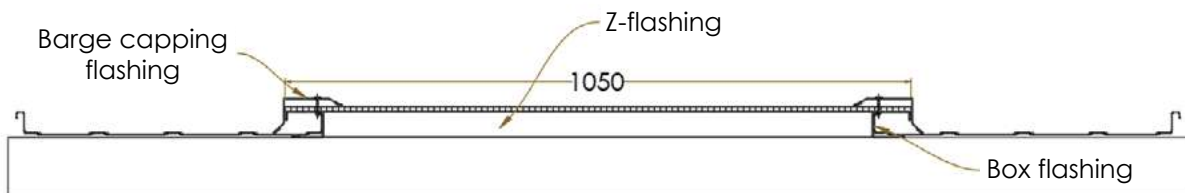
Cielo Vivo's skylight system is designed to provide natural lighting while keeping a neat architectural look and guaranteeing weathertightness.

Although skylights are a common solution for generating bright and open spaces, they can pose challenges. Proper installation will ensure watertightness and

minimize damages to the skylight itself by limiting the traffic of repairpersons needed to fix any water leaks. Skylights are usually installed from the roof ridge to the gutter to avoid leaks. They create indoor strips of light that brighten indoor spaces and make them pleasant.

Polycarbonate skylight installation details:
At Cielo Vivo, we have developed a skylight installation technique that includes functional and aesthetic details to create watertight, leak-free roofs.

Polycarbonate skylight installation:

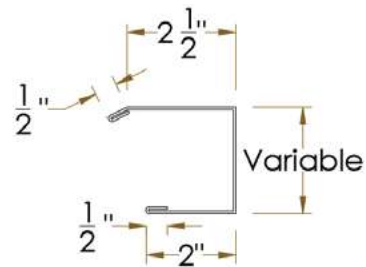
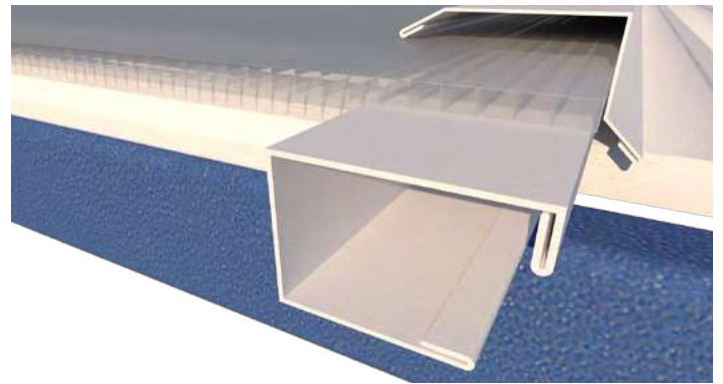
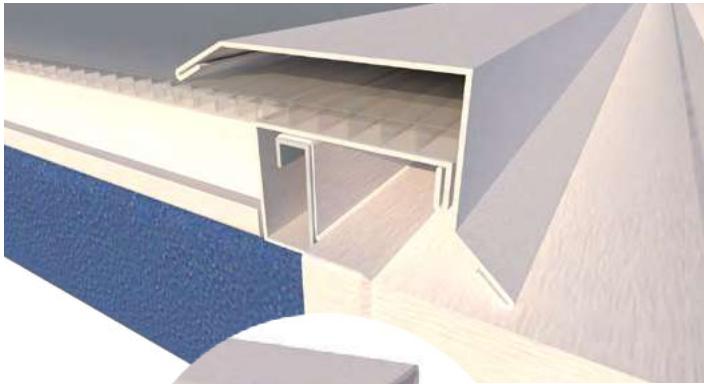


Multiwall polycarbonate skylight



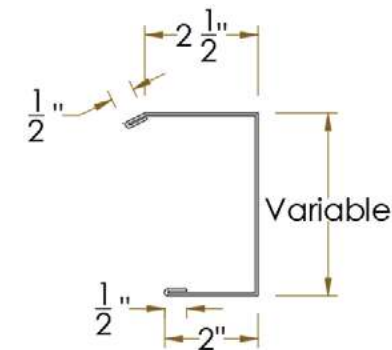


Skylight system trim and flashing:



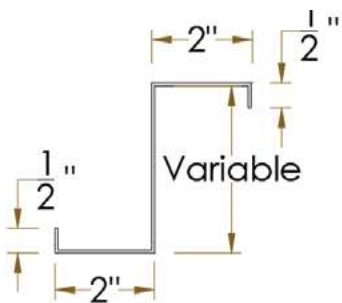
The variable measurement is:
 1 1/2" for TL-20
 2" for TL-18
 2 1/2" for TL-18B

Box flashing for skylight
 Total Lock Single-Layer Panel



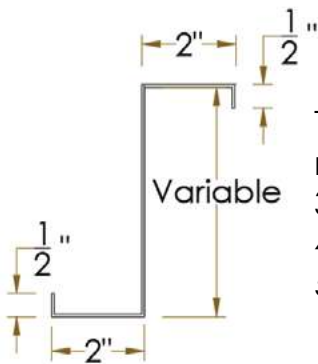
The variable measurement is:
 3" for TL-20
 4" for TL-18
 5" for TL-18B

Box flashing for skylight
 Total Lock Composite Panel



The variable measurement is:
 1 1/2" for TL-20
 2" for TL-18
 2 1/2" for TL-18B

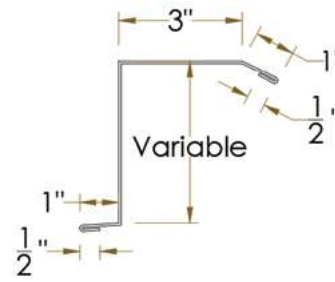
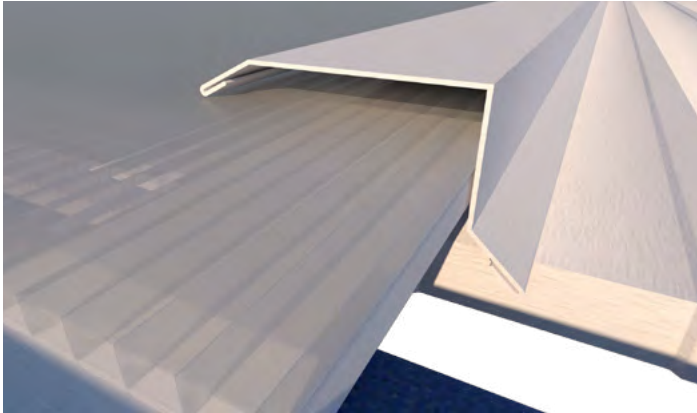
Z-flashing for skylight
 Total Lock Single-Layer Panel



The variable measurement is:
 3" for TL-20
 4" for TL-18
 5" for TL-18B

Z-flashing for skylight
 Total Lock Composite Panel





The variable measurement is:
 1 1/2" for TL-20
 2" for TL-18
 2 1/2" for TL-18B
 + polycarbonate sheet thickness

Barge capping flashing for skylight

DOMES

Domes are acrylic, polycarbonate or solid polycarbonate flexible panels that have been molded or thermoformed into various shapes and offer good weather resistance.

Although they are not a frequent customer choice, at Cielo Vivo we have experience installing domes that meet your aesthetic and functional needs.





Be Better, Live Better.



Be Better, Live Better.

COSTA RICA

+506 4000-1866 +506 7147-6004

www.cielovivo.co.cr | ventas@cielovivo.co.cr | [f](https://www.facebook.com/cielovivocr) cielovivocr