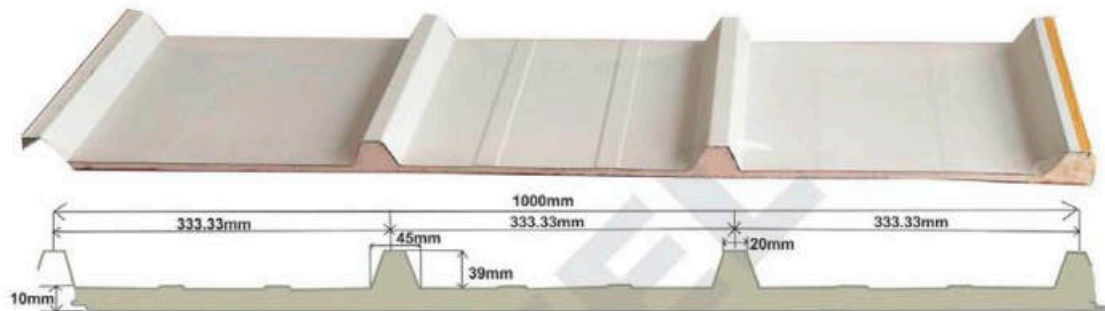


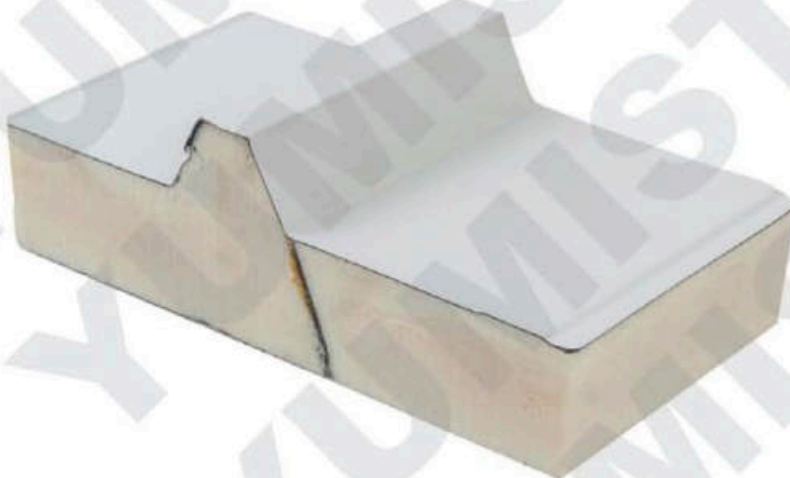
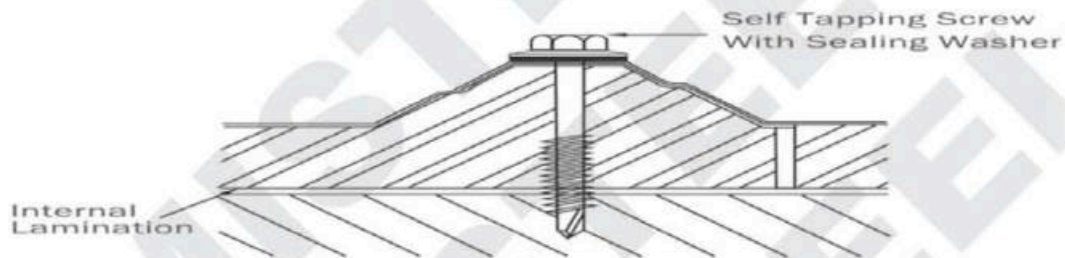
10mm thick PU insulated panels catalog

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1. Panel type introduction



Overlap joint



This insulated sandwich panel provides excellent thermal resistance as well as good sounds insulation. It is lightweight yet it provides excellent mechanical properties due to its rigid structure of PU Foam. Besides the above-mentioned features, PU Foam enhance construction speed as well as saving on site storage cost and labour cost. PU Foam directly eliminates the need for insulation laying process hence faster and economic solution for roof solution.

Our insulated roofing sandwich panel available in two interior skins which either in PU Foam (paper), aluminum foil or PU Metal (metal sheet). PU Metal gives an elegant interior appearance therefore reduces the necessity of roof ceiling.

Specifications

Panel effective width:	1000mm
Panel rib height:	39mm
Panel rib distance:	333.33mm
Panel thickness:	10 mm
Other available thickness:	30/35/40/50/75/100/150/200
Panel length:	Customized
Size tolerance:	Length: ± 5mm/Width: ± 5mm/Thickness: ± 3mm
Core material:	Rigid Polyurethane/polyisocyanurate (Density range: 35~45KG/M ³)
Top surface sheets:	Color steel sheets/Aluminum alloy metal sheets
Bottom surface sheets:	Color steel sheets/Aluminum alloy metal sheets/PVC membrane/Aluminum foils
Minimum roof pitch:	3° without end lap

2. Panel material introduction

2.1 Steel sheets on surface:



We are cooperating with Bluescope, Bao steel, Shougang group, Guanzhou steel, and Yiehphui steel. All these steel brands are top brands in China, which can make sure you can have good quality sandwich panels. Normally steel standards are China GB/T 12754 2019 Q235, Q345, Q355. Other special steel standards, please indicated, when making inquiry.

The following are material certificates for your reference:

 宝山钢铁股份有限公司 BAOSHAN IRON & STEEL CO., LTD.		产品质量证明书 INSPECTION CERTIFICATE				上海市宝山区富锦路885号 邮编 201900 No.885 Fujin ROAD, BAOSHAN DISTRICT 201900 SHANGHAI, P. R. CHINA TEL: (021)26649104 FAX: (021)26648886																					
制造厂: 总部 Manufacturer: CORE BASE																											
订货单位 CUSTOMER	北京宝钢北方贸易有限公司			产品名称 PRODUCT	彩色涂层钢板																						
采购单位 PURCHASER	上海宝钢运输有限公司 (代北方公司)			代号 CUSTOMER'S NO.	000158	证书号 CERTIFICATE NO.	005A01905190000200																				
标准 SPECIFICATION	Q/BQB 440-2014 TDC518-AZ 2/18 50/50 A PE A PW A PF A 普通聚酯-海蓝 PE			客户订单编号 CUSTOMER ORDER NO.																							
				签发日期 DATE OF ISSUE	2019/05/20																						
				许可证号 LICENSE NO.	合同号 MILL'S NO.																						
					09F0000634																						
序号 NO.	钢卷号/捆包号 COIL/PACK NO.	炉号 HEAT NO.	规格及重量 MATERIAL DESCRIPTION		化学成分 CHEMICAL COMPOSITION % (熔体分析) HEAT ANALYSIS								拉伸试验 TENSILE TEST (G.L. L.3)			硬度 HARDNESS		涂层重量 COATING MASS					涂层性能 COAT PROPERTY				
			厚度 THICK	长度 LENGTH	卷数 NO.	重量 WGT	C	Si	Mn	P	S	Ti	屈服 Y.S.	抗拉 T.S.	伸长 EL	厚度 THICK	两面 BOTH	上面 TOP	下面 BOT	"01" 厚度	"02" 附着	"03" 除锈	"04" 弯曲	"05" 冲击			
1	17370647103	17370603	0.50	1250	COIL	4780	37	30	20	12	0	0	347	370	30	106	53	53	20	0K	33	0K	0K				
2	17370647803	17370603	0.50	1200	COIL	4945	37	30	20	12	0	0	342	370	31	107	54	53	20	0K	33	0K	0K				
3	17370647804	17370603	0.50	1200	COIL	4945	37	30	20	12	0	0	342	370	31	107	54	53	20	0K	33	0K	0K				
4	17370648201	27432208	0.50	1200	COIL	4260	40	28	22	20	0	0	345	370	34	111	50	55	20	0K	33	0K	0K				
5	17370648202	27432208	0.50	1200	COIL	4260	40	28	22	20	0	0	345	370	34	111	50	55	20	0K	33	0K	0K				
6	17370648205	27432208	0.50	1200	COIL	4185	40	28	22	20	0	0	345	370	34	111	50	55	20	0K	33	0K	0K				
合计 Total		6	27585																								
备注 REMARKS																											
注释 NOTES								Y.S=YIELD STRENGTH T.S=TENSILE STRENGTH EL=ELONGATION G.L=GAUGE LENGTH L1=5.65SQRT(F0) L2=50MM L3=80MM "01" COAT THICKNESS (μm) "02" PENCIL HARDNESS "03" BRIGHTNESS "04" COAT BENDING "05" REVERSE IMPACT(J)																			
会签者 SURVEYOR TO								本产品已按上述要求进行制造和检验,其结果符合要求,特此证明。 WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HEREIN HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE ABOVE MATERIAL SPECIFICATION.								质量负责人 王小平 QUALITY MANAGER											

品质证明书
INSPECTION CERTIFICATE

客户名称 CLIENT	山东万事达钢铁有限公司			证书编号 CERTIFICATE NO.	DH17J08		证书签发日期 ISSUE DATE	2018/07/30																																																																																																																																																																																																					
产品名称 COMMODITY	PREPAINTED HOT DIP ZNMG-ZN COATED STEEL IN COIL 镀ZnMg合金彩涂板卷			订单号 ORDER ITEM NO.	L2H437011		发货日期 DELIVERY DATE	2018/07/29																																																																																																																																																																																																					
	产品规格 PRODUCT SPECIFICATION			PREPAINTED HOT DIP ZNMG-ZN COATED STEEL IN COIL 镀ZnMg合金彩涂板卷																																																																																																																																																																																																									
			产品规格 SPECIFICATION						Z55M 375UM WITH SEPARATE ADHM UNDER COY 1 WITH ZINELLE TEST 2000H. Z55M 375UM WITH SEPARATE ADHM UNDER COY 1 WITH ZINELLE TEST 2000H. Z55M 375UM WITH SEPARATE ADHM UNDER COY 1 WITH ZINELLE TEST 2000H.																																																																																																																																																																																																				
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序号 NO.	规格 SPECIFICATION	厚度 THICKNESS	宽度 WIDTH	长度 LENGTH	重量 WEIGHT	屈服强度 YIELD STRENGTH		抗拉强度 TENSILE STRENGTH		C	Si	Mn	P	S	Al	Cu	Ni	Co	Cr	Nb	Ti	N	O																																																																																																																																																																																						
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序号	规格	厚度	宽度	长度	重量	屈服强度	抗拉强度	C	Si	Mn	P	S	Al	Cu	Ni	Co	Cr	Nb	Ti	N	O																																																																																																																																																																																								
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TOTAL WEIGHT:					17,190.00	304	410	0.018	0.030	0.030	0.010	0.010	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030																																																																																																																																																																																							
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CERTIFIED TO ISO9001:2015		品质证明书 INSPECTION CERTIFICATE										We hereby certify that the material described herein has been manufactured and tested with satisfactory results in accordance with the requirements of the above material specification.																																																																																																																																																																																																	

GUANZHOU 冠洲		山东冠洲股份有限公司 SHANDONG GUANZHOU CO.LTD			产品质量证明书 INSPECTION CERTIFICATE					地址: 山东省聊城市冠县振兴东路389号 ADDRESS: NO.389 - Zhongxing East Road Guanzhou, Liaocheng, Shandong Tel: (0086)0635-5299586 Fax: (0086)0635-5299979									
供货单位 CUSTOMER	冠县冠洲金属材料有限公司				产品名称 PRODUCT	彩色涂层钢板 Prepainted Steel Coil					证书编号 CERTIFICATE NO.								
收货单位 PURCHASER	山东宏鑫源钢板有限公司				合同号 CONTRACT NO.	20190506014					2019051003								
标准 SPECIFICATION	GB/T 12754-2006				发货日期 DATE OF DELIVERY	2019-05-16					2019.05.27								
牌号 COLL. NO.	规格 GRADE	规格重量 MATERIAL DESCRIPTION		颜色 COLOR	化学成分 (%) CHEMICAL COMPOSITION					涂层重量 COATING MASS		力学性能 TENSILE TEST			镀锌性能 COAT THROUGH				
		规格 SIZE (mm)	重量 WEIGHT (t)		C	Si	Mn	P	S	g/m²	屈服 Y.P.	抗拉 T.S.	伸长率 E.L.	涂层厚度 COATING THICKNESS	光泽 Gloss	镀锌等级 ZINC RICHNESS	附着力 ADHESION	反向冲击 IMPACT	
JS461905150021A003A	A	0.5*1070	3.758	白铝灰	40	3	17	9	6	60	340	407	31	19/6	41	3T	3H	9J	
JS461905150033A008A	A	0.5*1070	3.652	白铝灰	40	3	22	19	9	60	332	390	32	19/6	41	3T	3H	9J	
JS461905140021C025A	A	0.5*1070	4.942	白铝灰	50	2	22	20	12	60	350	415	30	19/6	41	3T	3H	9J	
JS461905150042A010A	A	0.5*1070	4.894	白铝灰	50	3	20	18	7	60	349	415	30	18/6	41	3T	3H	9J	
JS461905140011C021A	A	0.5*1070	4.91	白铝灰	40	1	20	19	10	60	333	392	32	19/6	41	3T	3H	9J	
JS461905140012C022A	A	0.5*1070	4.65	白铝灰	40	1	20	19	10	60	333	392	32	19/6	41	3T	3H	9J	
合计		共 (张): 6 件		总计重 (TOTAL MASS):		26.806 吨 (TON)													
检验者 SURVEYOR TO	我们特此证明已按上述要求进行制造和检验, 结果符合规范, 特此证明 WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HEREIN HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE ABOVE MATERIAL SPECIFICATION													质量负责人: 梁晓东 QUALITY MANAGER Liang Xiao-dong					

2.2 PIR,PUR for core material:



We are cooperating with D.Basf, Huntsman,Wanhua for PIR,PUR material.
The delivery note from D.Basf,Huntsman:

BASF

Manual Picking Slip - Manual Picking Slip L20-19064
Form 5046_1001
Urgent Order Request & Special Release Form

Customer to fill in the box for use of the warehouse

Order request to extra production hour delivery to selected customer

Order processing during BAF system down

History of order before inventory status is updated and official delivery order can be generated

Company Address: 公司代码: BASF

BASF Warehouse Code: 仓库代码: 1304-3

Customer Name: 客户名称: Huntsman Polyurethanes Shanghai Co., Ltd

Order No.: 订单号: 1032238

Order Date: 订单日期: 2019/09/11

Order Status: 订单状态: 已发货

Order Type: 订单类型: 普通订单

Order Priority: 订单优先级: 普通

Order Remark: 订单备注: 客户指定日期发货

物料描述	物料代码	数量	单位	重量	体积	包装	备注
MDI	TK0109	25,000	KG	21,700.00	3,292.00	250KG/桶	

Customer to fill in the box for use of the warehouse

Order request to extra production hour delivery to selected customer

Order processing during BAF system down

History of order before inventory status is updated and official delivery order can be generated

Company Address: 公司代码: BASF

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Order Type: 订单类型: 普通订单

Order Priority: 订单优先级: 普通

Order Remark: 订单备注: 客户指定日期发货

Handwritten signature

Huntsman Polyurethanes Shanghai Co., Ltd
Man Po International Business Centre
5th Floor
660 Xin Hua Road
Shanghai 200052
Shanghai



装车单 DELIVERY NOTE

Vopak Shanghai Logistics
Lot C1, Shanghai Chemical Industry Park,
Shanghai

装车操作依据下述订单中所规定具体要求进行:
(We loaded by order of our principals mentioned in)

孚宝订单号: 1032238
(Vopak Order Number)
客户订单号/装运号: 72766064/2667156
(Customer Order Number)

拖车公司 (Name Carrier):	TCLU9003040	HUEF9013
拖头号/槽罐号:	(Prime Mover No./Truck Tank ID No.)	
产品 (Product):	Polymeric MDI	
槽罐 (Tank):	TK0109	
车辆自重 (Tare Weight) (KG):	18,980	车辆到达 (Truck Arrival): 11/09/19 03:15
总重 (Gross Weight) (KG):	43,980	空车过磅 (Weighing in): 11/09/19 03:36
产品净重 (Net Weight) (KG):	25,000	装车后过磅 (Weighing Out): 11/09/19 04:26
		车辆离开 (Truck Departure): 11/09/19 04:31

海关许可号:
(Custom Permit #)
封签号:
(Seal number)
注: 0193892.0193893.0193894.0193895
(Remarks)

客户或拖车公司以客户名义确认所收到的货物符合要求
Commodity received in good order and condition by customer or carrier for or on behalf of customer

孚宝公司以客户名义批准发货
Delivery approved for and on behalf of customer

拖车公司代表签名:
Signature Carrier Representative

孚宝公司代表签名:
Signature Vopak Representative

姓名 (Name): 张发伟
身份证号码 (ID No.): 360103198508100018

收货公司: 孚宝公司
收货人: 张发伟

Elastocool Good Solubility

PU System with Poor Solubility



2.3 The difference between PIR&PUR:

Content	Unit	PUR	PIR
Thermal Conductivity	W / m·k	≤0.020	0.018 (25°C)
Compressive strength	MPA	0.265	0.294
Water absorption rate%	%	≤0.5	<2
Dimensional stability %	%	≤1%	≤0.5
Flame retardancy		Self-extinguishing	Flame retardant
Fire performance		B3	B1-B2
Density kg/m ³	kg/m ³	0.038	0.035
Convective heat transfer			
Bond strength MPA	MPA	12.4MPA	




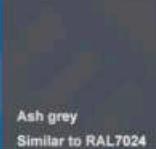



2.4 Aluminum foils specifications:

Size (W * THK) :	1.03 m * 0.065mm
Coating thickness :	> 1.2 g/m ²
Tensile strength :	> 130 ob/Mpa
Gloss :	< 85 °
Coating pencil hardness :	> 2H
Impact resistance :	> 50 kg.cm (5N.m)

Adhesive properties :	Bonded 180°, peel the coating and it does not separate
Substrate and coating :	Acid resistance, boiling water resistance, salt tolerance, alkali resistance, oil resistance and alcohol resistance
Surface treatment:	Orange peel embossing and Matte coating

3. Color available

3.1 Regular colors:

 White grey Similar to RAL9002	 Ivory white Similar to RAL9010	 Sea blue Similar to RAL5005	 Ash grey Similar to RAL7024	 Iron grey Similar to RAL7011	 Blush Similar to RAL3003	 Silver grey Similar to RAL9006
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The colors above are regular colors, price is same.

3.2 Special colors:

Any RAL colors are available. Or if you have color swatches, you can send us to make it customized.



4. Panel features

- ✓ Thermal Resistance;
- ✓ Excellent sounds insulation;
- ✓ Lightweight yet excellent mechanical properties;
- ✓ Better foot traffic;
- ✓ Less ponding occurs;
- ✓ Speed Construction.

5. Technical data

5.1 Thickness available chart:

Top surface steel thickness(mm)	0.25	0.28	0.30	0.35	0.40	0.48
Weight of panel(kg/m²) with bottom PVC membrane/Aluminum foils	2.46	2.82	2.93	3.46	4.20	4.76

5.2 Panel insulation properties

K value (Thermal conductivity)	0.022 w/m·k
R value (Thermal resistance)	1.06 m ² ·k/w

5.3 Span tables

Roof		Wall		Free
Internal Span(mm)	End Span(mm)	Internal Span(mm)	End Span(mm)	Cantilever
1550	1350	1800	1600	100

5.4 PU metal roof panel VS. Rainfall

Recommended maximum roof length/m					
Rainfall (mm/h)	Slope in degree				
	3°	5°	7°	10°	15°
150	53	64	85	107	147
200	41	53	64	81	109
250	33	42	51	65	87
300	28	32	42	53	71
400	9	11	11	13	16

5.5 Load tables

Fy=320Mpa		Allowable load (Kg / m ²)					
Panel thickness	Steel thickness	Single span			Double span		
		1	1.2	1.5	1	1.2	1.5
10 mm	0.50mm	91	75	65	81	66	57

5.6 Acoustic properties

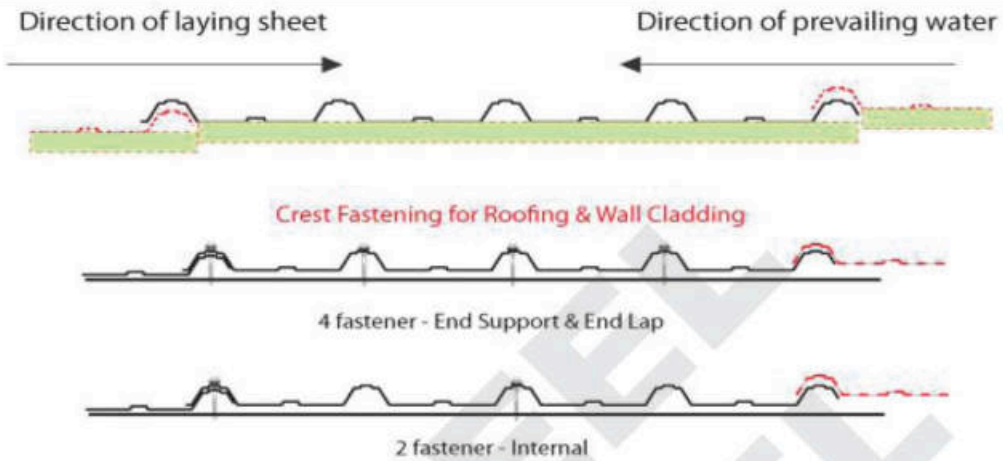
Acoustic resistance coefficient	
R _w [dB]	25
R _{A1} [dB]	23
R _{A2} [dB]	20
Acoustic absorption coefficient	
α _w	0.15

5.7 Leakproof data

PIR / PUR sandwich panels Leakproof	
Air permeability:pressure	n = 0.8388, c=0.0116
Air permeability:suction	n = 1.1072, c=0.0074
Blowing rain resistance	A level- absolute leakproofness at 1200 Pa

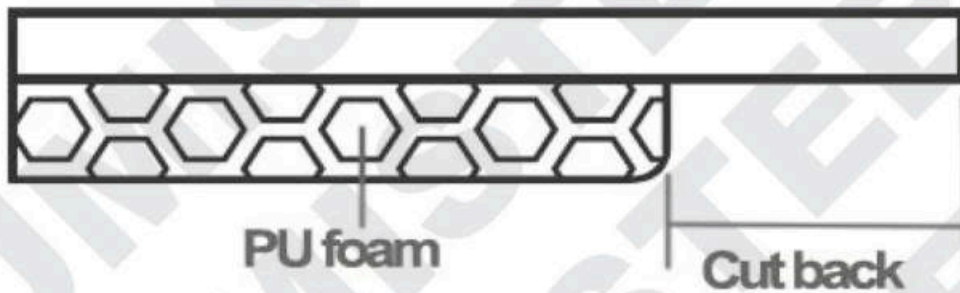
6. Installation

6.1 Fasteners & PU metal roof panel

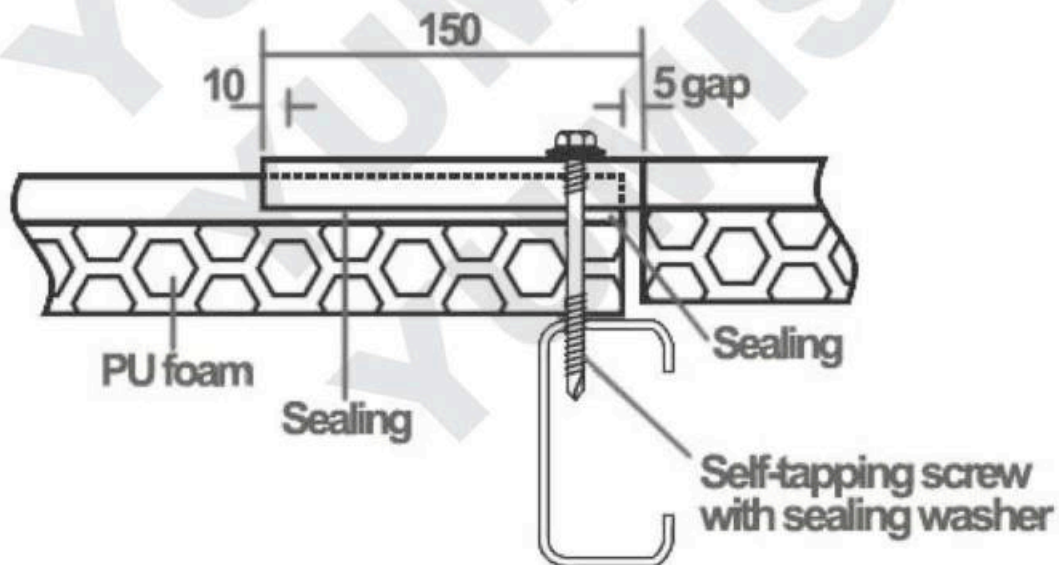


6.2 Panel end cut back

For installation of insulated metal roof, the following measures are recommended, cut back at end laps-150mm

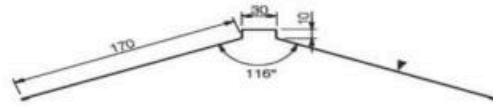


6.3 Panel end lap



6.4 Flashing & Trims for panel

Ridge capping



Interior ridge plate



Eaves profile

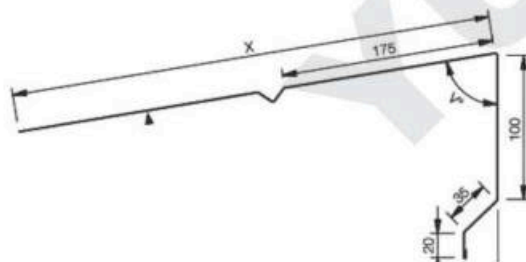
(1.2 mm galv)



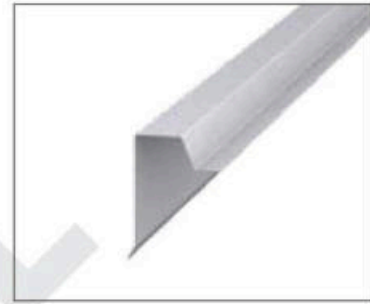
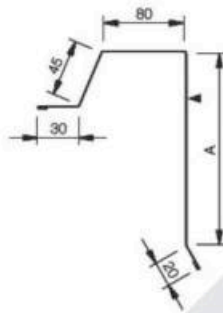
Front flashing



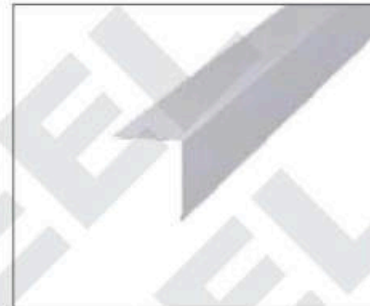
Sill flashing long side



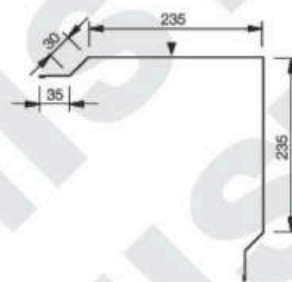
Gable flashing



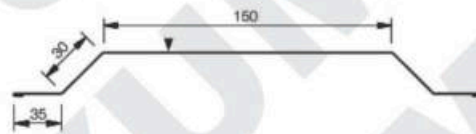
Angled gable flashing



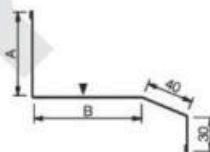
Corner flashing



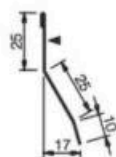
Pilaster



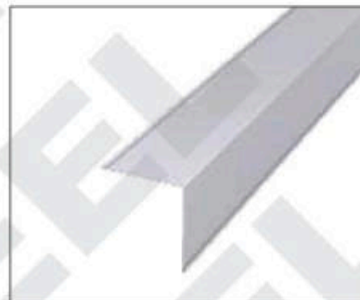
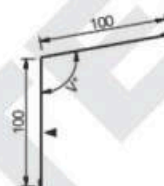
Base cover flashing exterior



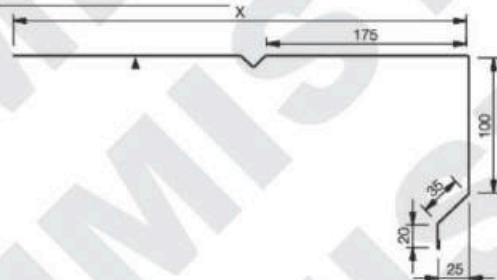
Base cover flashing interior



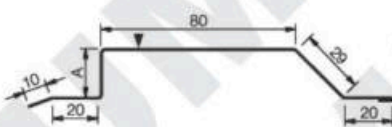
Sill flashing interior



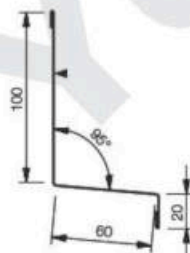
Sill flashing gable



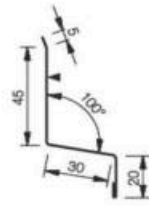
Case flashing



Drip flashing



Sill ledge



7. Application

This PU insulated panels are widely used in the construction of roofs and walls of factories, warehouses, freezing storage, workshops, poultry farms, supermarkets, exhibition halls, gymnasiums, schools, dormitories, mobile homes, residential houses and many other non-industrial facilities.

Some application reference:

Roof renovation:



Roof of industrial factory:





Wall of industrial factory:



Roof of Car showroom:



8. Panel packages

All our sandwich panels are packed in bundles, according to container height, so it's around 1 - 1.2 meters height for each bundle. And each bundle has sealing end to protect the panel end. If customers have container unloading questions, please feel free to discuss with us, we will do our best to put forward one container unloading solution for you.