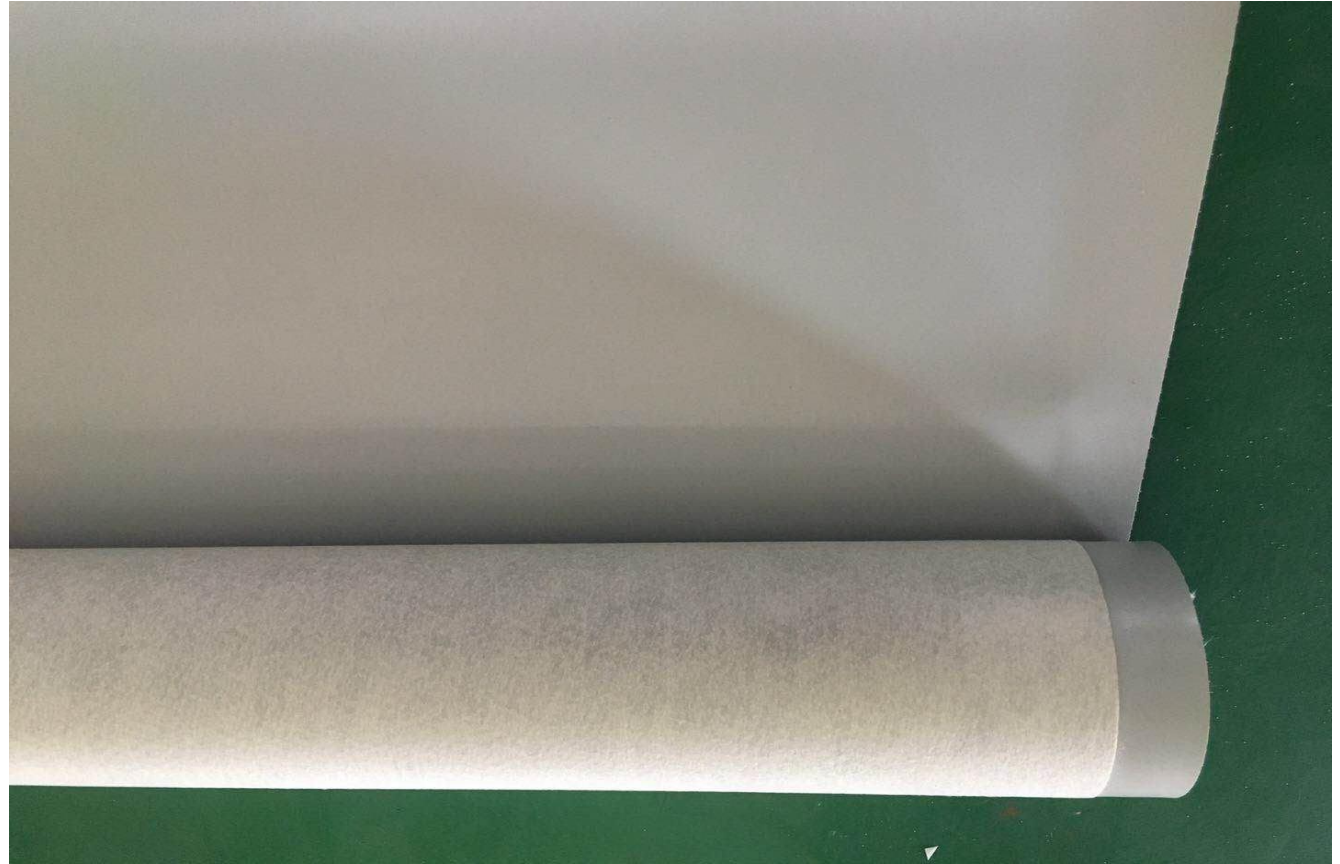
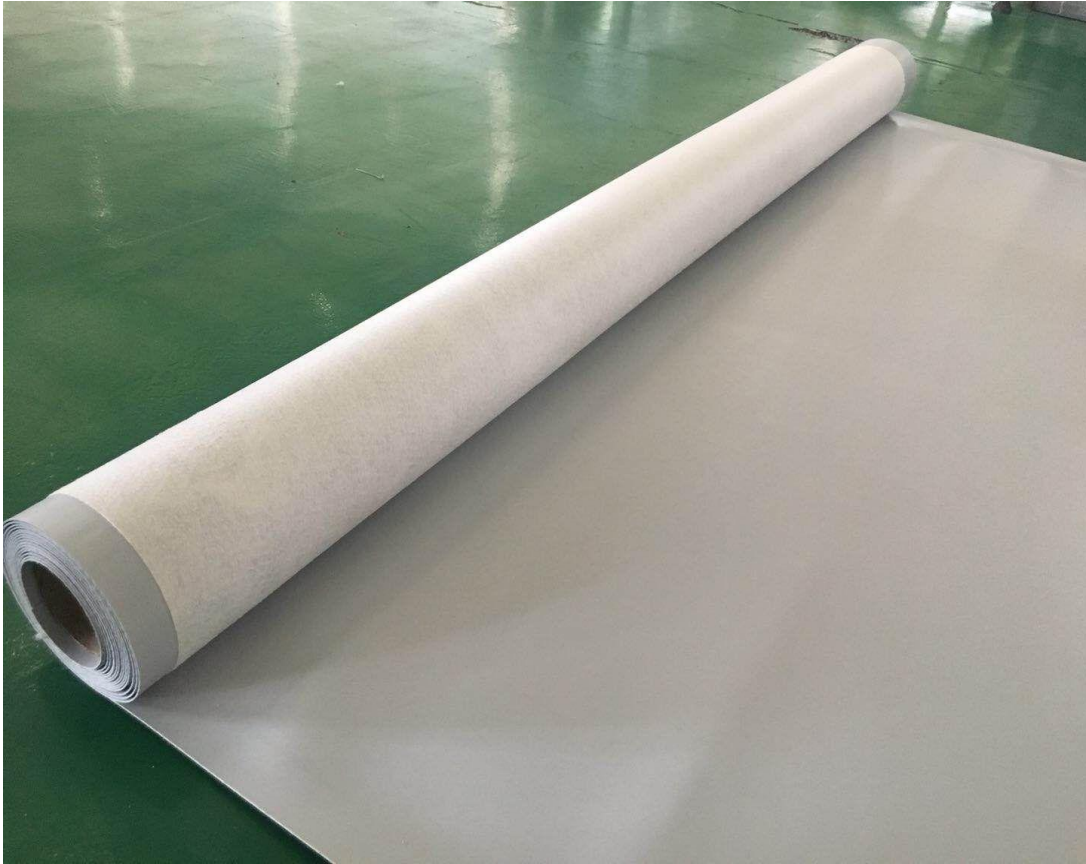


PVC&TPO Waterproofing Sheet



PVC Waterproofing Sheet

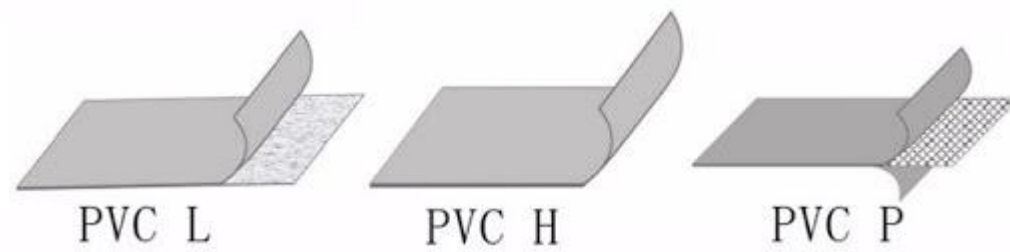


PVC Waterproofing Sheet

PVC Waterproofing Sheet

Types

- **Fleece Backing (L)**
- **Homogeneous (H)**
- **Fiber Reinforced (P)**



PVC Structure

Solvents are added to change the properties of PVC Sheet

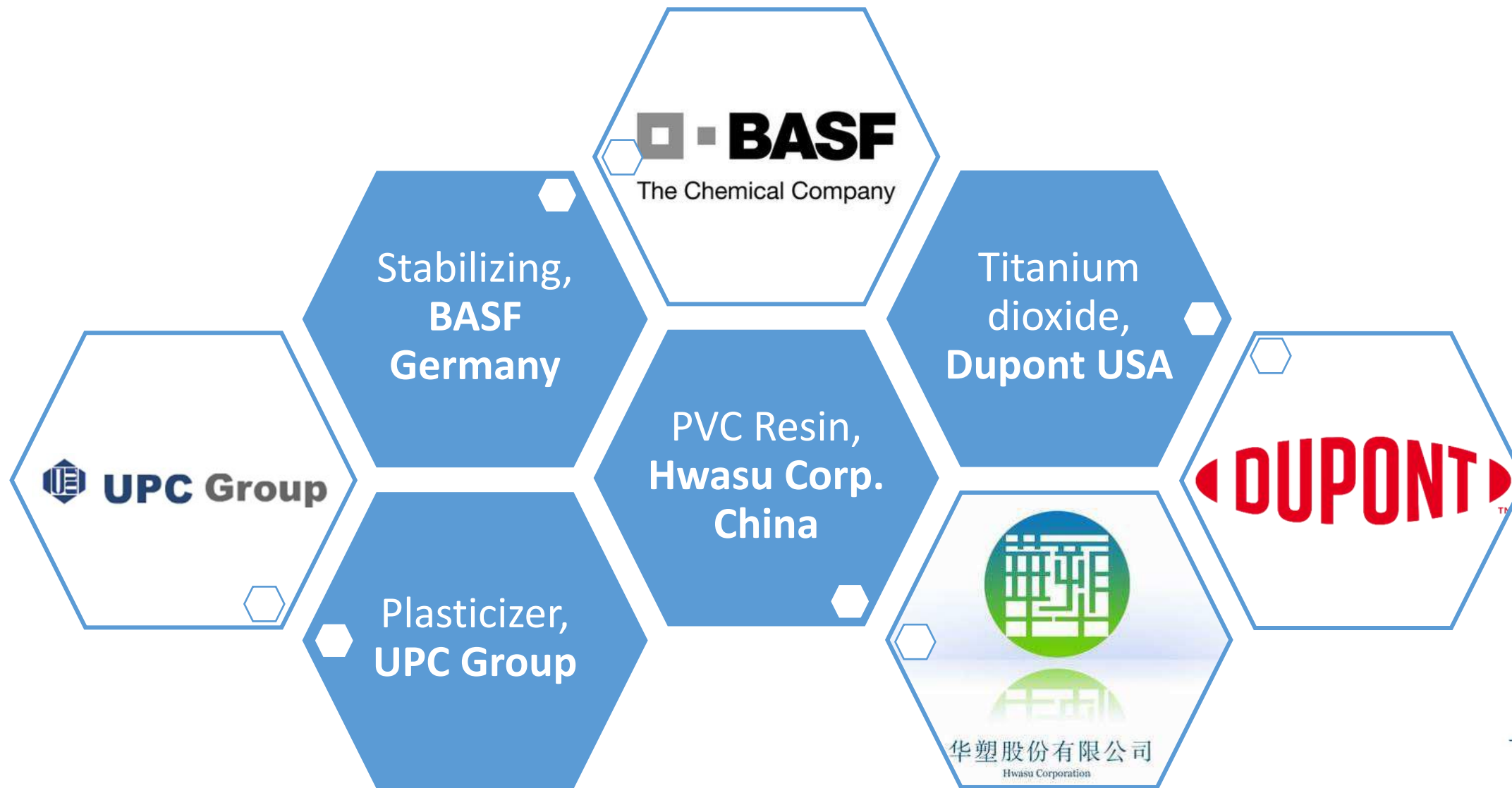
Perfect
Combination

PVC Resin

PVC waterproofing sheet

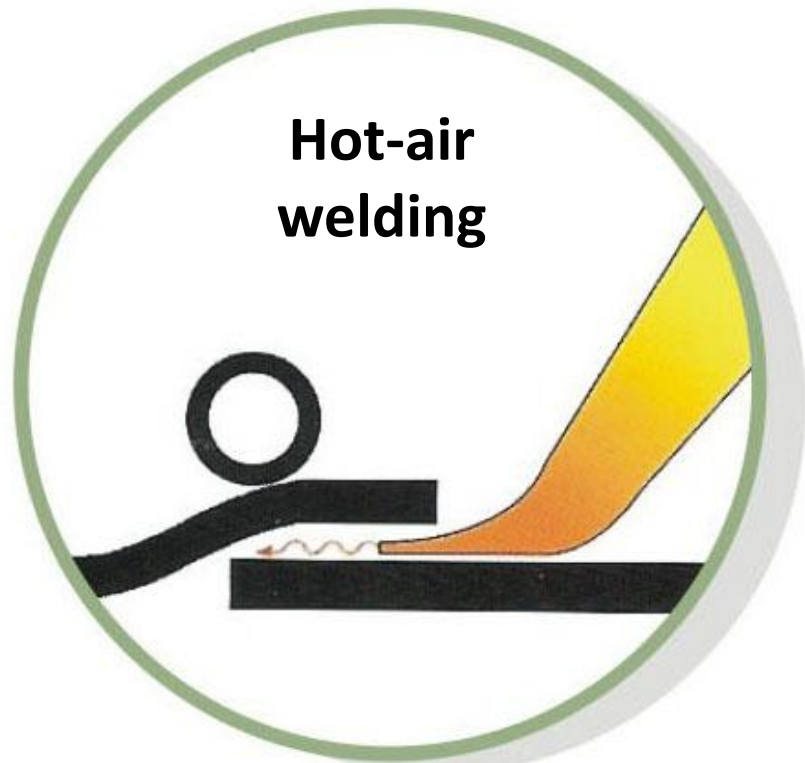
Some kind of Solvents

PVC Main Raw Material Suppliers



PVC Waterproofing Sheet Features

1. Hot-air welding--PVC sheet is very easy to be welded



PVC Waterproofing Sheet Features

2. Excellent Weatherability and Durability



PVC Waterproofing Sheet Features

3. Green Environmental Friendly, No Harmful



PVC Waterproofing Sheet Features

4. UV Stable--Light Color to reflect UV



PVC Waterproofing Sheet Features

5. Root Resistance--Available to Green Roof/Land



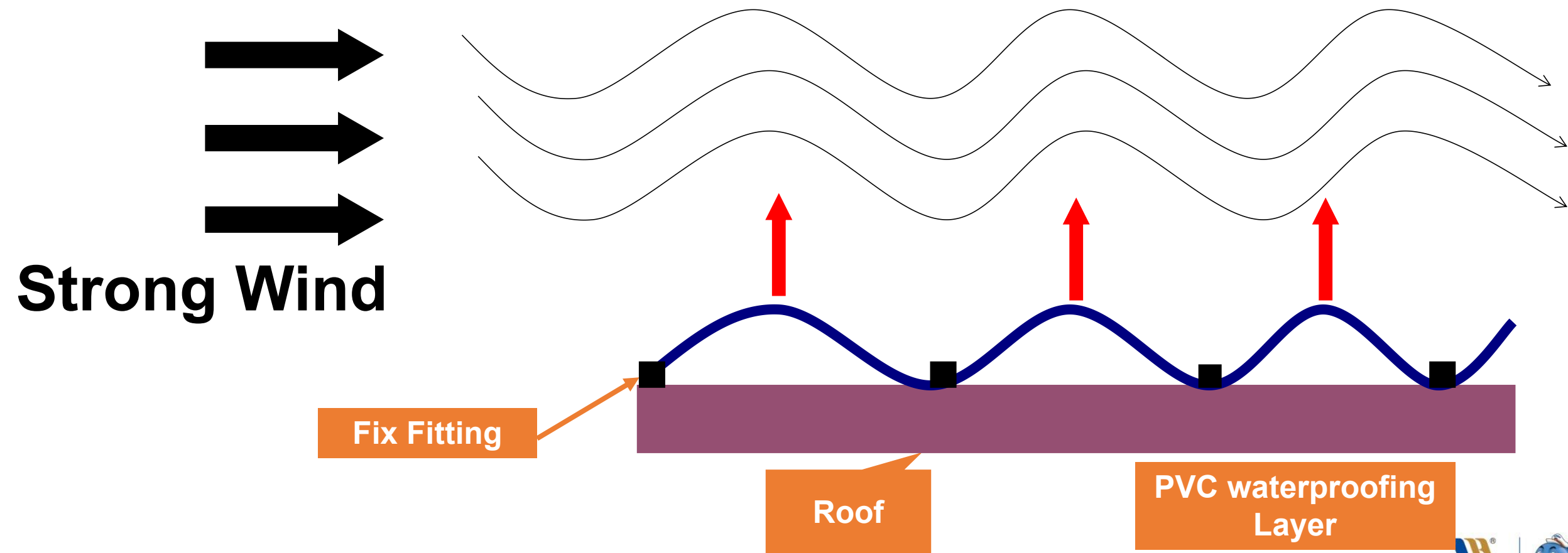
PVC Waterproofing Sheet Features

6. Extinguish without fire--Safe



PVC Waterproofing Sheet Features

7. Excellent feature of Wind Uplift Resistance--FM Approval



PVC Waterproofing Sheet Spec.

Thickness (mm)	Width (mm)	Length(mm)
1.2	2000	15/20/25
1.5	2000	15/20/25
1.8	2000	15/20/25
2.0	2000	15/20/25

Other Specification can be discussed between Supplier and Buyer

PVC Waterproofing Sheet Spec.

No.	Item		Index				
			H	L	P	G	GL
1	Tensile Strength	Max Tensile/(N/cm)≥	-	120	250	-	120
		Tensile Strength/MPa≥	-	-	15	-	-
		Elongation at broken/%≥	200	150	-	200	100
2	Low temperature flexibility		25°C, no crack				
3	Water tightness		0.3MPa, 2h impermeable				
4	Impact Resistance		0.5kg·m, impermeable				
5	Joint pee strength/ (N/mm) ≥		4.0, or membrane broken		3.0		
6	Trapezoidal tear strength /N ≥		-	150	250	-	220



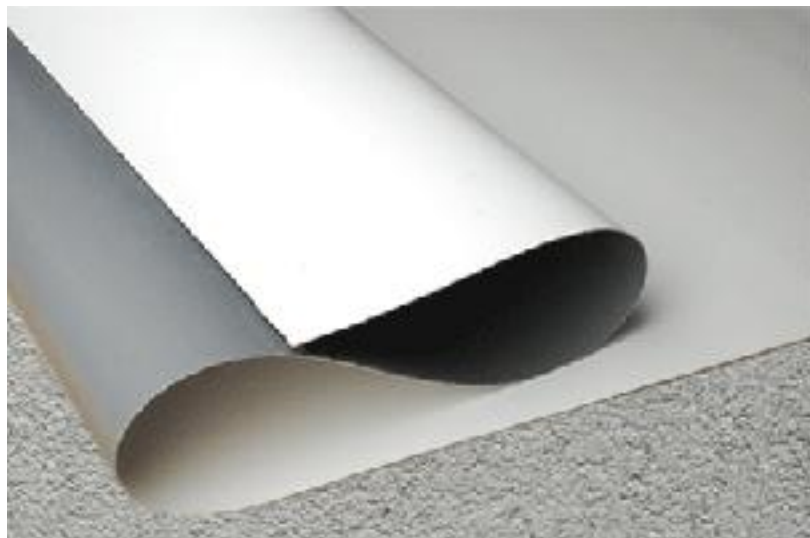
PVC Waterproofing Sheet Spec.

No.	Item		Index				
			H	L	P	G	GL
7	Thermal aging (115°C)	Maximum tensile retention /% \geq	-	85	85	-	85
		Elongation retention at maximum tension /% \geq	-	80	80	-	-
8	Chemical resistance	Maximum tensile retention /% \geq	-	85	85	-	85
		Elongation retention at maximum tension /% \geq	-	80	80	-	-
9	Artificial climate accelerates aging (1500h)	Maximum tensile retention /% \geq	-	85	85	-	85
		Elongation retention at maximum tension /% \geq	-	80	80	-	-

The artificial climate accelerates aging time of Joaboa Tech is 4000 hs.



TPO Waterproofing Sheet



TPO Waterproofing Sheet

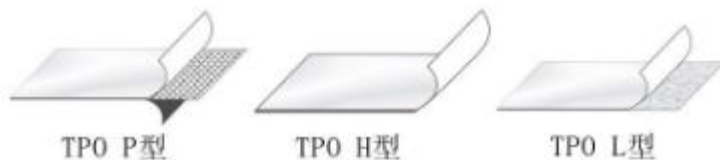
TPO Waterproofing Sheet

Types

➤ Homogeneous (H)

➤ Fiber Reinforced (P)

➤ Fleece Backing (L)



TPO Waterproofing Sheet

□ Application Method

- Mechanical Fastening
- Full adhered
- Loose Laid

TPO Structure

**Polypropylene(PP)combined with
Ethylene-propylene Rubber(EPR)**

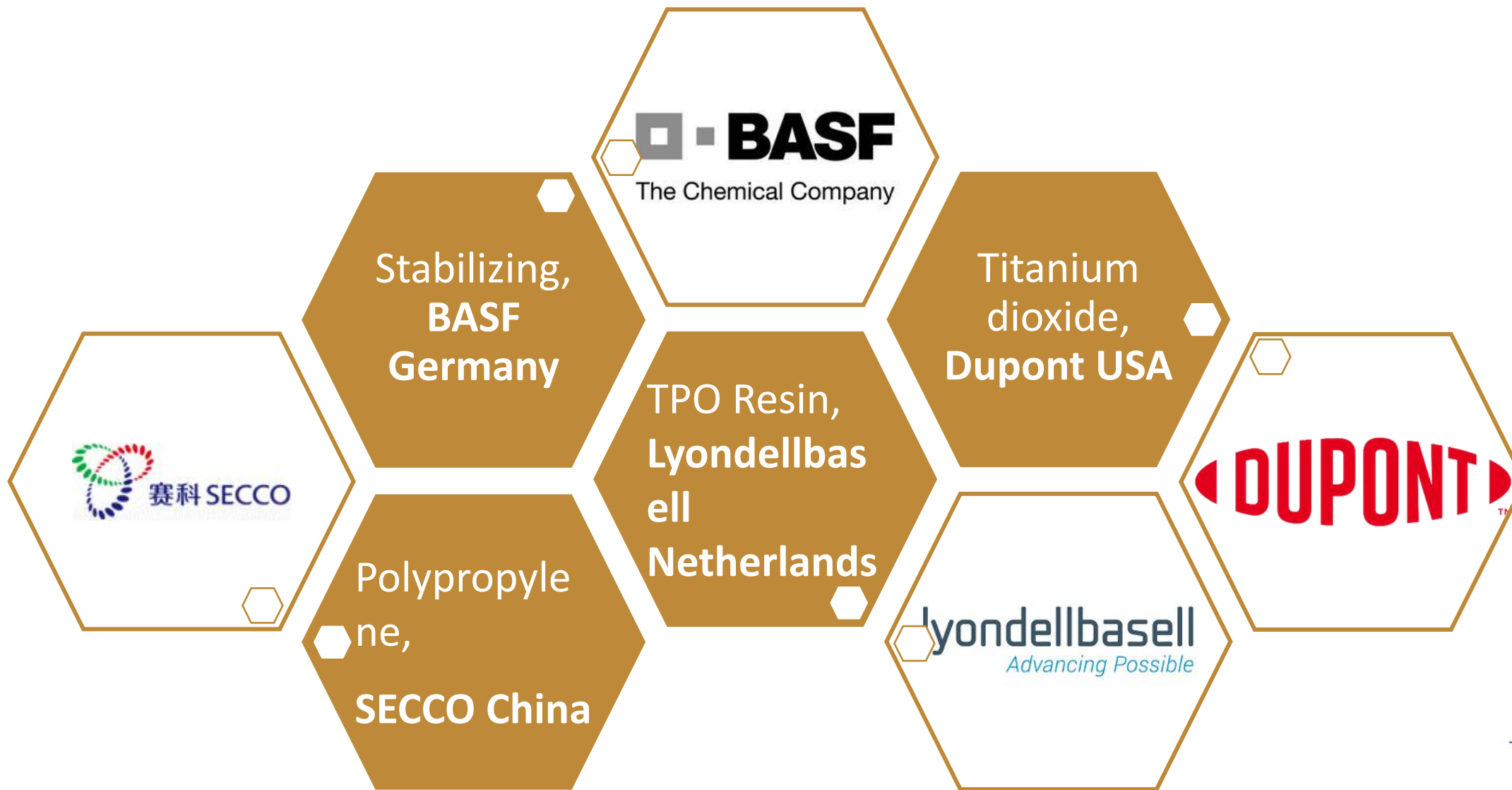
Perfect
combination

PP

TPO Waterproofing Sheet

EPR

TPO Main Raw Material Suppliers



TPO Waterproofing Sheet Spec.

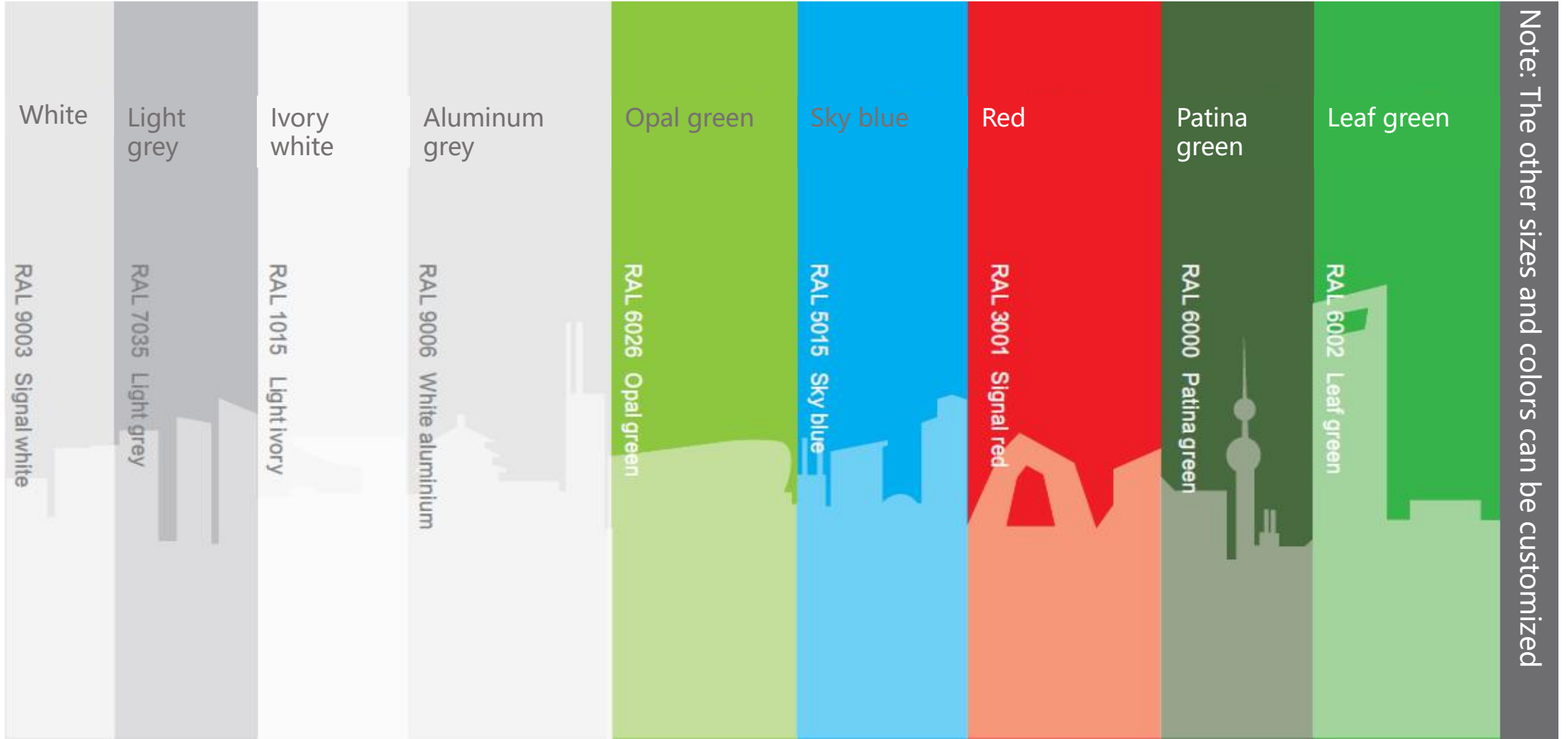
No.	Item		Index			
			H	L	P	PL
1	Tensile property	Maximum tension /(N/cm) \geq	—	200	250	250
		Elongation at maximum tension /% \geq	—	—	15	15
		Elongation break /% \geq	500	250	—	—
2	Low temperature flexibility		- 40°C, no crack			
3	Impermeability		0.3MPa, 2h impermeable			
4	Impact resistance		0.5kg·m, impermeable			
5	Joint peel strength/ (N/mm) \geq		4.0, or membrane broken	3		
6	Trapezoidal tear strength /N \geq		—	250	450	450

TPO Waterproofing Sheet Spec.

No.	Item		Index			
			H	L	P	PL
7	Thermal aging (115°C)	Maximum tensile retention /% \geq	—	90	90	90
		Elongation retention at maximum tension /% \geq	—	—	90	90
8	Chemical resistance	Maximum tensile retention /% \geq	—	90	90	90
		Elongation retention at maximum tension /% \geq	—	—	90	90
9	Artificial climate accerlates aging	Maximum tensile retention /% \geq	—	90	90	90
		Elongation retention at maximum tension /% \geq	—	—	90	90

The exposed radiate time should be less than 2500hs according to the national standard. It is 8000hs for Joaboa Tech TPO waterproofing membrane.

Plenty of color



Note: The other sizes and colors can be customized

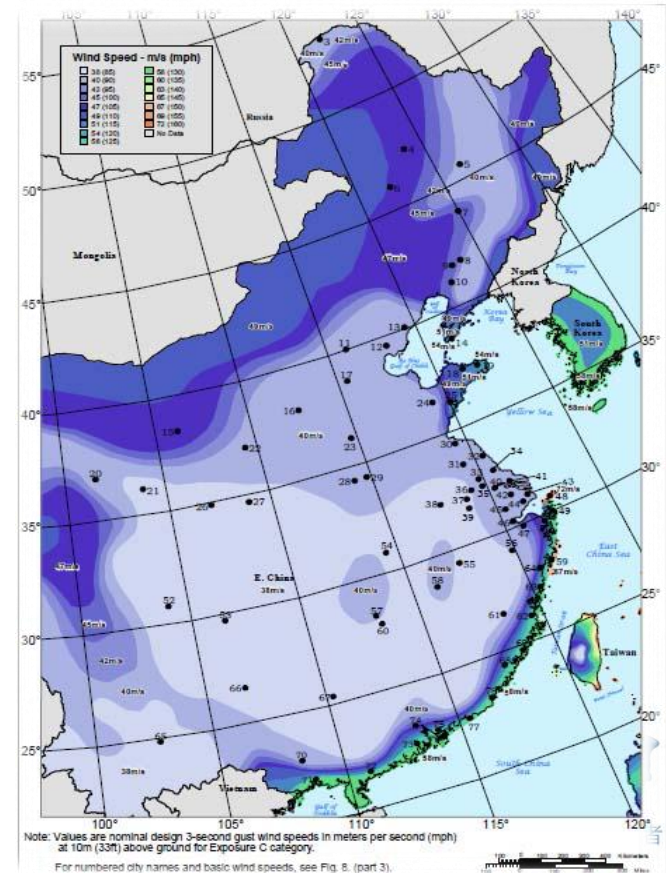
Single-ply roof certificate— FM certificate

At present, the wind uplift resistant ability of single-ply roof system is tested by FM method for laboratory verification. FM regulations are as follows:

The design wind load is not over than 1/2 of the wind uplift resistance test grade, and the corresponding relationship between the design wind load calculated in accordance with GB50009 *Code for Load of Building Structures* and the wind uplift resistance test has not been clearly concluded in China at present.

Therefore, Joboa Tech also uses American ASCE/SCE7 *Minimum Design Loads for Buildings and Other Structures* to calculate wind Loads.

Standard	Membrane width (m)	Distance between fastener (mm)
FM1-60	2.0	300
FM1-90	2.0	150
FM1-120	1.5	150
The highest can reach the standard of FM1-210		



PVC Certificate

- FM Approval



PVC/TPO application method

Application method

➤ Mechanical Fastened

Normally used for type P (inner fiber reinforced)

➤ Fully adhered

Normally used for type L (Fleece backing)

➤ Loose Laid with ballast

Normally used for type L and H (Homogenous), but seldom used

表 5.5.2 防水卷材及相应施工方法

防水卷材	型号	机械固定法	满粘法	空铺压顶法
聚氯乙烯防水卷材	H	×	×	○
	L	×	●	●
	P	●	×	○
	G	×	×	○
	GL	×	●	●
热塑性聚烯烃防水卷材	H	×	○	○
	L	×	●	●
	P	●	○	○
三元乙丙橡胶防水卷材	无增强	○	●	●
	内增强	●	○	○
弹性体改性沥青防水卷材	PYG	●	×	×
塑性体改性沥青防水卷材	PYG	●	×	×

注：●——宜选，○——可选，×——不选。

PVC/TPO application method

Comparison of application method

	Mechanical fasten	Fully adhesion
Advantages	Fast construction speed	Strong wind uplift resistance
	High construction consumption performance	Less heat loss
weakness	More heat loss	Slow construction speed
	Weak wind uplift resistance	High construction cost

PVC&TPO Application Method

Mechanical Fastening--Machine and Tools for Application



hand hold welding machine



automatic welding machine



Electric drill



Churn drill



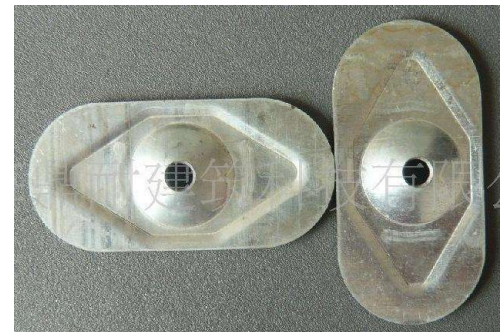
Glue Gun



Roller



Self Tapping Screw



Zinc Foiled Aluminium Gaskets



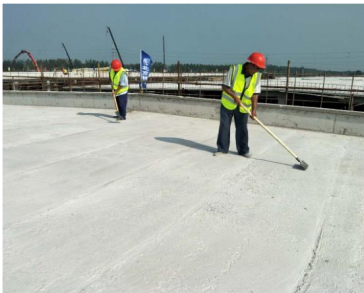
U trim strip



Sealant

PVC&TPO Application Method

Mechanical Fastened



1. Clean Substrate



3. Pave Insulation Panel



5. Fixed TPO sheet



7. Strengthen detailed parts



9. Seal Waterproofing sheet



2. Pave Vapor Barrier



4. Pre-apply TPO Waterproofing



6. Welding overlaps



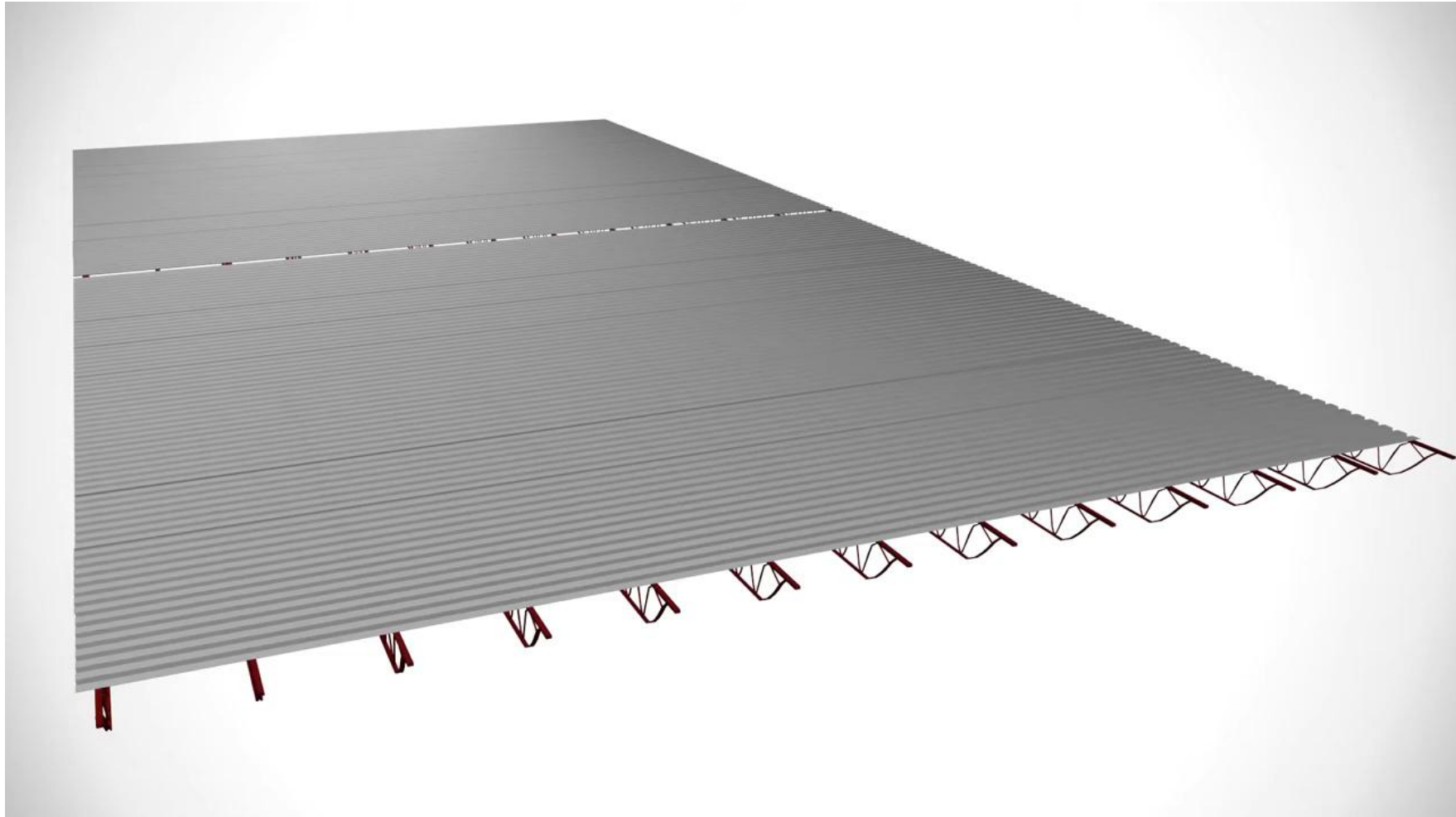
8. Seal the edge



10. Acceptance

PVC&TPO Application Method

Mechanical Fastened



PVC&TPO Application Method

Mechanical Fastened

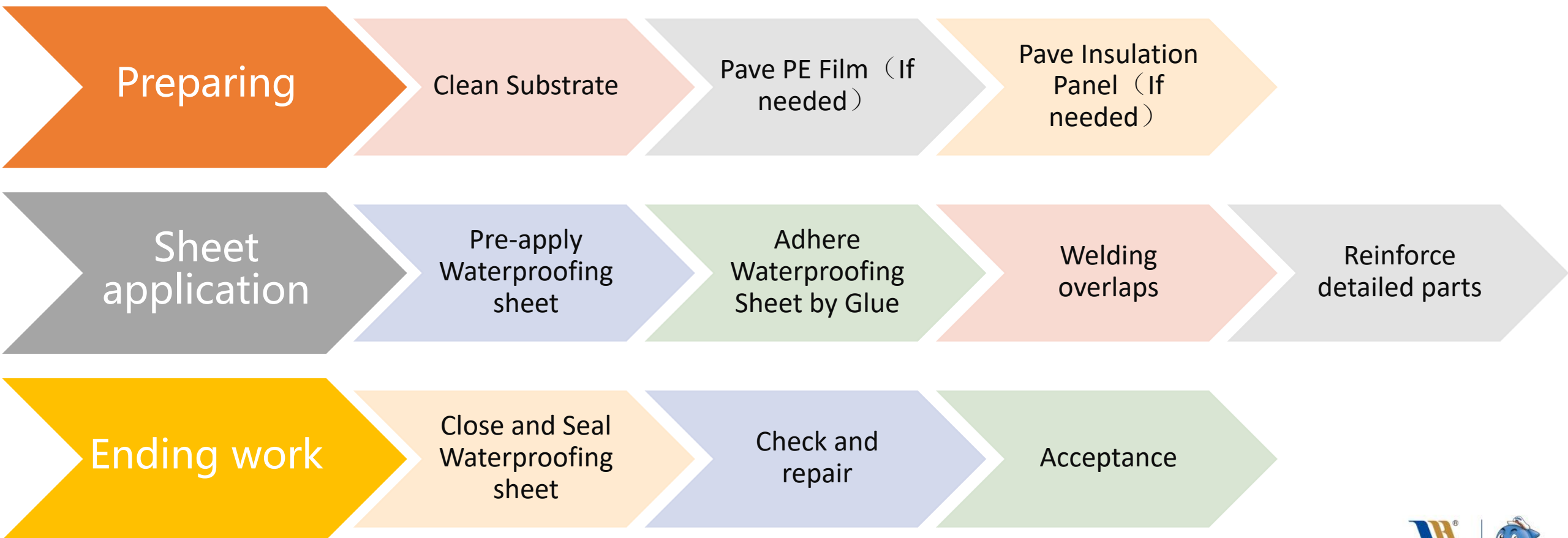
The fasteners should be fastened with the structure layer.

The distance between fasteners should be calculated according to wind uplift resistant test and local environment, and should be less than 600mm.

The 800mm area around the waterproofing membrane should be fully adhered, and the edges should be fixed with metal U-trip and screws, and seal with silicon sealant

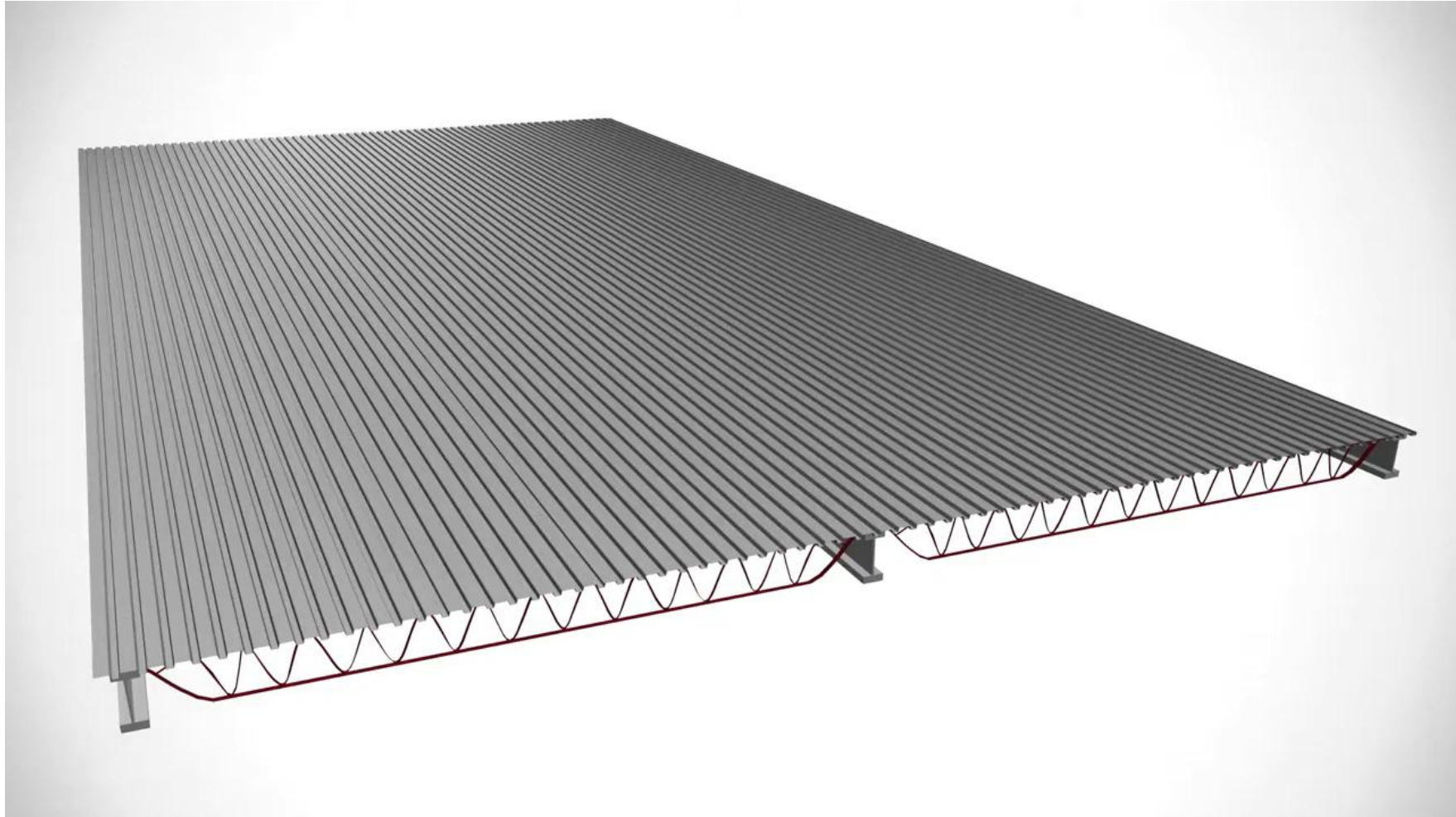
PVC&TPO Application Method

Full Adhered--Steps



PVC&TPO Application Method

Fully adhered



PVC&TPO Application Method

- Full Adhered



PVC&TPO Application Method

- Full Adhered

PVC Waterproofing Sheet Installation Guidance Video

Weld the overlaps

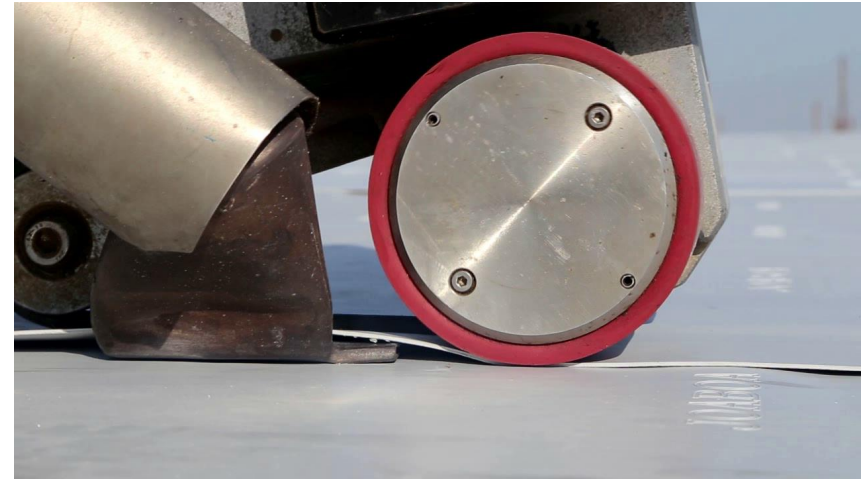


- ❑ Wipe the overlaps with xylene.
- ❑ For immediate welding, use clean water.

Weld the overlap

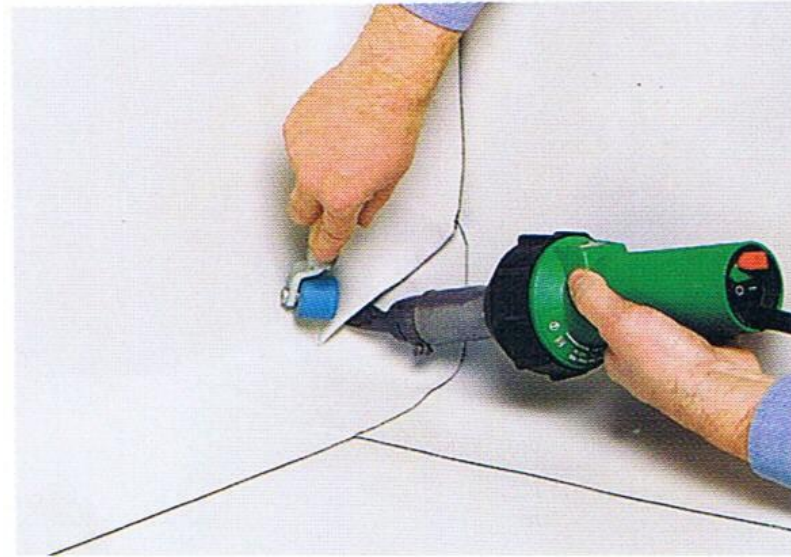


- Weld the side overlaps with automatic crawl welding machine.
- Make trials before welding to avoid missing or false welding.



Weld the overlap

- ❑ Weld with handle welding gun
- ❑ Mainly used for some details and the parts where the welding machine can't treat.



Weld the overlap

- ❑ Weld the end overlap with hand welding gun.
- ❑ Check the welding: check the welding seam immediately after cooling.
Cut a 2cm width test strip to check the seam.



Weld the overlap



- Check the welding seam with a probe.



Weld the overlap

- Check the strength of welding seam on site.



Parapet wall



- Up-turn the PVC to the design height.
- Apply the up-turn area with fully-adhered.
- Brush the specific bonding glue separately on the up-turn parapet wall and the upper surface of PVC waterproofing membrane.

Parapet wall



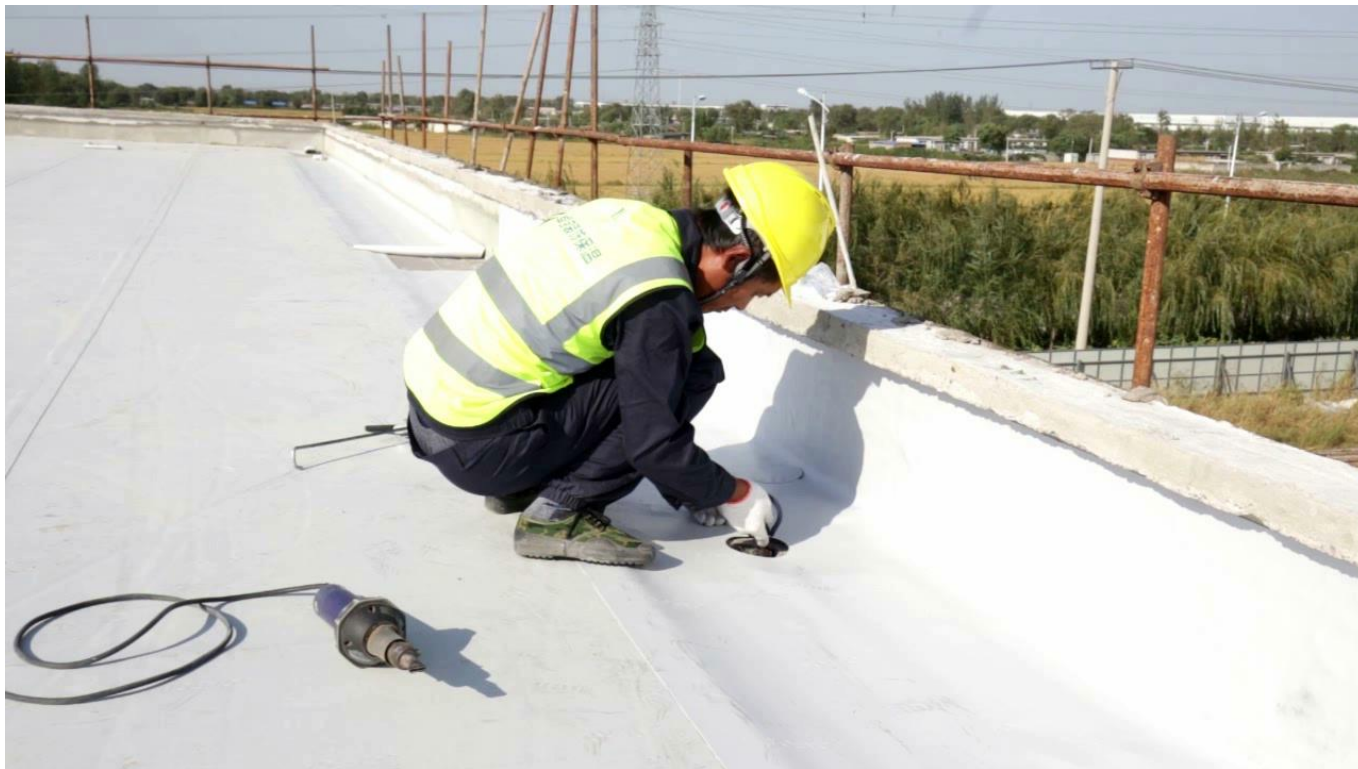
- Bond the membrane with parapet wall when the specific glue doesn't stick to hand.

Parapet wall



- Exhaust the air bubble with duster cloth after fully-adhered.

Treatment of waterdrop



- Apply the waterdrop after the up-turn parapet wall.

Fix the membrane



- Fix the membrane with U-trip by gas nail gun.
- The distance to the top of parapet wall is 3cm.

Fix the membrane



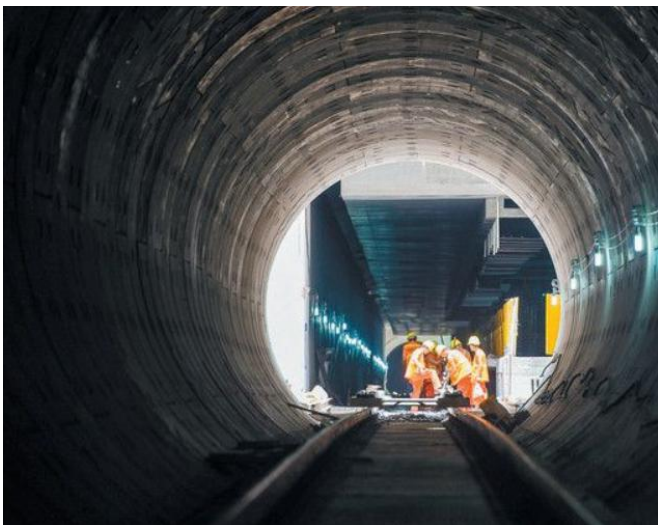
- Cut the exceeded membrane.

Seal the membrane



- Seal tightly with specific silicon anti-weatherability sealant.

PVC Landmark Project



Shenzhen Metro Line 7

Details:

Location	Shenzhen, China
Finishing time	2015
Length	29.962km
Material	FM Approved PVC Waterproofing Sheets
Construction area	Undercut tunnel

PVC Landmark Project



Faurecia's Auto Interior Decoration Factory Roofing Project

Details:

Location

Wuhan, China

Waterproofing Area

25,000 m²

Material

FM Approved PVC Waterproofing Sheets

Construction area

Roof

PVC Landmark Project



The workshop of Hunan Corun New Energy Co., Ltd

Details:

Location	Hunan, China
Waterproofing Area	10,000 m ²
Material	FM Approved PVC Waterproofing Sheets
Construction area	Roof

PVC Landmark Project



PVC Roofing Project of Aviation Industry of China Chengdu Aircraft Industrial (group)

Details:

Location	Chengdu, China
Waterproofing Area	8,000 m ²
Material	FM Approved PVC Waterproofing Sheets
Construction area	Roof

PVC Landmark Project



PVC Roofing Project for the Lab of Gansu Institute of Electrical Science

Details:

Location	Gansu, China
Waterproofing Area	5,000 m ²
Material	FM Approved PVC Waterproofing Sheets
Construction area	Roof

TPO Landmark Project



Zhongguancun Science & Technology Industrial Park in Ningxia

Details:

Location

Ningxia, China

Waterproofing Area

9,000 m²

Material

FM Approved TPO Roofing Sheets

Construction area

Roof

TPO Landmark Project

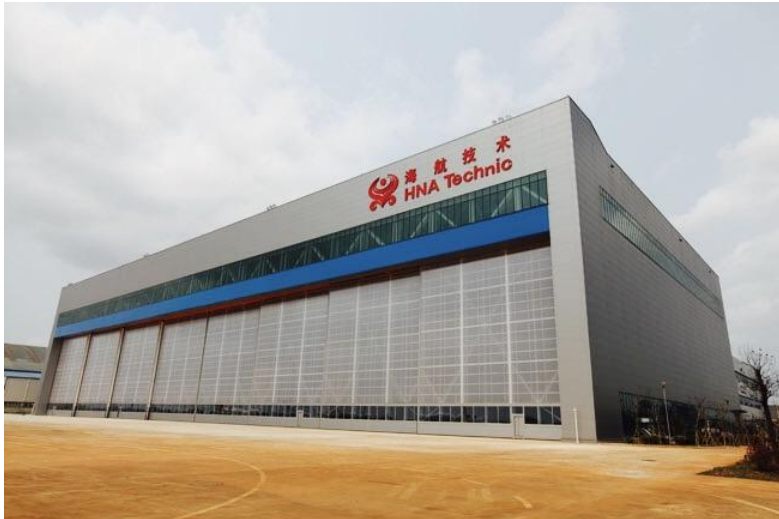


TPO Roofing Project for Paiting Workshop of Baic YunnanRuili Auto Co., Ltd

Details:

Location	Ruili, China
Waterproofing Area	17,000 m ²
Material	FM Approved TPO Roofing Sheets
Construction area	Roof

TPO Landmark Project



No.2 Hangar of Hainan Airlines in Hai Kou

Details:

Location

Haikou, China

Waterproofing Area

15,000 m²

Material

FM Approved TPO Roofing Sheets

Construction area

Roof

TPO Landmark Project



TPO Roof Project for the Factory of Nanjing Chenguang Group Co., Ltd Details:

Location	Nanjing China
Waterproofing Area	8,000 m ²
Material	FM Approved TPO Roofing Sheets
Construction area	Roof

TPO Landmark Project



PVC Roofing Project for the Lab of Gansu Institute of Electrical Science

Details:

Location

Gansu

Waterproofing Area

5,000 m²

Material

FM Approved TPO Roofing Sheets

Construction area

Roof

TPO Landmark Project



TPO Roof Project for the Lab of China Aerospace Science and Industry Corp.

Details:

Location

Beijing, China

Waterproofing Area

7,800 m²

Material

FM Approved TPO Roofing Sheets

Construction area

Roof



THANK YOU
Joaboa Tech, build the splendid
home with you together!