



ACC Weathering Membrane

Product Manual

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PRODUCT DATA SHEET



WF501C-BU

ACC Weathering Membrane

Product Introduction

WF501C-BU is a weathering membrane with high solar reflectance, excellent UV resistance, strong acid and alkali corrosion resistance and long-lasting waterproofing properties. It is designed for outdoor use, even under harsh environment, providing service life of more than 25 years with good thermal insulation properties.

Product Properties

- Good thermal insulation and energy saving performance. The solar reflectance of ACC is as high as 87% and is not easily attenuated. Field study had proven that the roof surface temperature was lowered by 25°C during summer time. Indoor temperature was reduced by 6°C, and the air conditioning energy consumption was cut down by about 25%-40%. The solar reflection index (SRI) performance exceeded the requirements of American and European cool roof standards.
- The performance remains stable after 10,000 hours of accelerated weathering test. It is designed to provide servicing life up to 25 years.
- Excellent corrosion resistance. It is highly resistance against strong acid and alkali corrosion ranging from pH2 to pH12, oxidative corrosion in high humidity and heat environment, and high concentration salt spray corrosion. The service life is more than 15 years in ultra-high corrosive marine environment.
- Good water repellence and easy-to-clean function. Oil, water and other dust impurities can be easily washed off, keeping the roof clean and maintain long-lasting insulative property.

- The facing material is made of high-strength PET non-woven fabric combined with pure aluminum foil and ACC (anti corrosion coating), giving it the high tensile and tear resistance properties. The base material is made of high-performance butyl rubber, which is resistant to high temperatures (80°C) and low temperatures (-30°C). Excellent adhesion performance for various surfaces such as cement, metal and others. It is also suitable to apply onto difficult areas such as joints, ventilation fans, roof ridges, gutters, sky windows, pipes, lighting panels, reinforcement screws and other waterproof leak points.
- Easy & quick installation with minimal maintenance, reducing overall construction cost.

V-fix ACC Roof

V-fix ACC roof has the following advantages :

- Reduce heat transmittance
- Lower building roof temperature
- Lower the indoor temperature and improve thermal comfort
- Reduce air conditioning energy consumption and CO₂ emissions to help achieve the “double carbon” goal;
- Helps to lower the surrounding temperature in the city center and combatting against urban heat island effect
- Reduce the thermal stress of roof system materials and extend their service life



Certification/ Standards

- GB/T 17488-2016
- GB/T 16422.2-2014
- JG/T 235-2014

Scope of use

Anti-corrosion, waterproof and heat insulation for building roofs, photovoltaic roofs, pipelines, granary storage tanks, telecommunications base stations and other construction structures.

Product Information

Material Composition	ACC coating, aluminum foil, non-woven fabric, butyl adhesive
Thickness	0.8–1.0 mm
Package	Individually wrapped with LDPE liner
Color	Silver
Service life	25 years
Storage conditions	Store in a dry environment, protect from direct sunlight

Technical Specification

Tensile strength	MD	440 N/50mm	(GB 23441-2009)
	CD	400 N/50mm	
Elongation	MD	≥25%	(GB 23441-2009)
	CD	≥20%	
Nail shank tear strength		>150 N	(GB 23441-2009)
Tensile retention rate after heat aging	MD	90 %	(GB 23441-2009)
	CD	90 %	
Peel strength	Membrane to Membrane	1.5 N/mm	(GB 23441-2009)
	Membrane to aluminum plate	2.5 N/mm	
Butyl holding power (23±2°C)		60 min	(GB 23441-2009)
Impermeability		0.30 MPa, 2h, No leakage	(GB 23441-2009)
Heat resistance		0	(GB 23441-2009)
Sliding not exceeding 2mm at 70°C			



Low temperature flexibility			
(-20°C, No cracks)		No cracks	(GB 23441-2009)
Thermal stability appearance			
No bulging, wrinkles, sliding, or bleeding		No bulging, wrinkles, sliding, or bleeding	(GB 23441-2009)
Thermal Dimension Stability	MD	0%	
	CD	0%	
Accelerated weathering aging		No	
10000h, No powdering, No delamination			
Resistance to acid and alkali corrosion		No discoloration, bulging, blistering, or powdering	(GB/T 17748-2016)
PH2.0-13.0 solution, 168h			
Condensation/humidity corrosion resistance			
47±1°C, Relative humidity (96±2) %, 720h		Level 1	(GB/T 1740-2007)
Salt spray resistance			
1,440h		Level 1	(GB/T 17748-2016)
Water repellence		Water droplet contact angle>90 degrees	(GB 23441-2009)
Cool roof index	V-fix ACC	Standard	
1) Solar reflectance (TSR) 1 st Year	87%	65%	Energy Star Standard
2) Solar reflectance (TSR) 3 years later	85%	50%	
3) Solar reflectance 3,000h (TSR)	83%		
4) Solar reflectance 6,000h (TSR)	70%		
5) Solar reflectance 10,000h (TSR)	65%		
6) Solar reflectance index (SRI) 1 st Year	100	82	LEED Standard
7) Solar reflectance index (SRI) 3 years later	96	64	
8) Solar reflectance index (SRI) 3,000h	92		
9) Solar reflectance index (SRI) 6,000h	68		
10) Solar reflectance index (SRI) 10,000h	63		



Installation Procedure

1 Metal roof

1.1 Project inspection

Before installation, a detailed inspection of the roof is required to confirm the condition of the roof and prepare accordingly. The inspection includes the following:

- 1.1.1 Inspect roof metal panels. Whether partial panels replacement or reinforcement is required;
- 1.1.2 Whether there are other waterproof materials on the roof and need to be removed;
- 1.1.3 Whether the screws need to be replaced;
- 1.1.4 Inspect the Gutters, whether sediment and other debris need to be removed or are there cracks and perforations;
- 1.1.5 Whether there is water leakage at the roof ridge, skylight, ventilation and other areas

1.2 Safety measures

- 1.2.1 Mark areas where metal panels are corroded or loosen to ensure the safety of workers on the roof;
- 1.2.2 For roofs with shorter parapets or no parapets, sufficient anchor bolts should be fixed onto the purlins and steel cables should be installed as suspension cable for safety belts.
- 1.2.3 Workers must comply with safety regulations during installation.



Anchor bolts and safety cables



1.3 Roof repair and reinforcement

1.3.1 Loose metal panels need to be fixed with screws.

1.3.2 Panels with severe corrosion need to be covered with new panels;

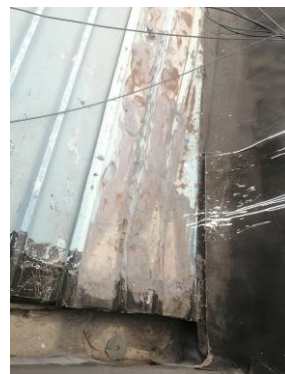
1.3.3 Replace the deformed metal panels with new panels.



1



2



3

1.4 Roof Cleaning

1.4.1 Only remove the loose aged waterproof materials and leave the intact membranes.



Shovel away the aged membrane



Clean aged paint with a sander

1.4.2 Use a grinder or steel brush to remove rust on the metal panel.





1.4.3 Use a broom and mop to clean the roof, and blower to remove the dust.

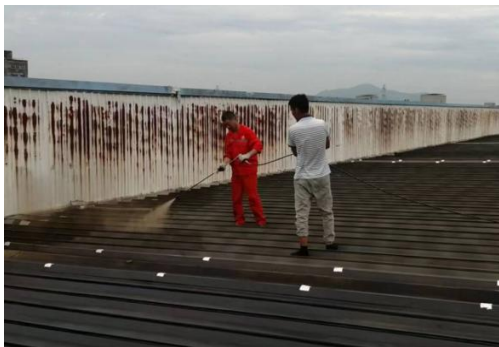


Roof cleaning



Blower to remove the dust

1.4.4 Spray primer or other paint onto the roof surface and let dry.



1.4.5 Inspect the roof in detail, all cracks or holes and rivets need to be sealed with paint and covered with ACC tape.



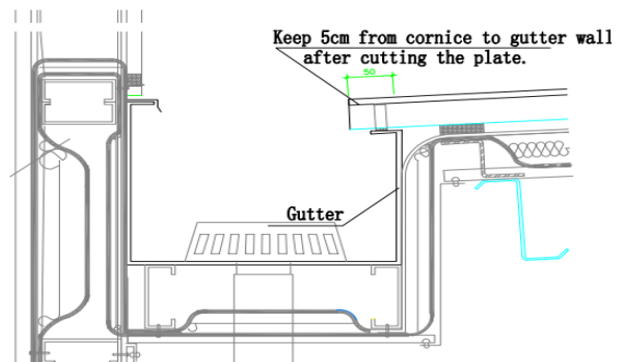


1.5 Gutter Maintenance

1.5.1 Metal panel longer than 5cm from cornice to gutter wall need to be trimmed off .



Cutting panel



Keep 5cm metal panel to cover the gutter

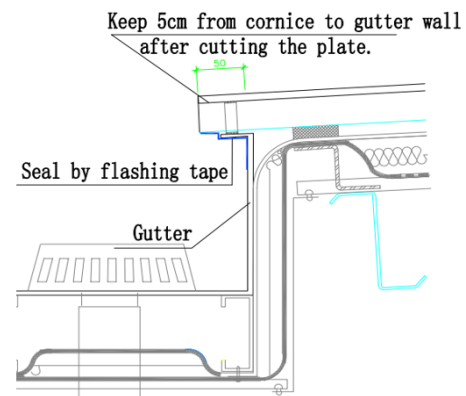
1.5.2 Remove the loose aged waterproof materials or soil impurities from the gutter, thereafter apply a layer of base primer. Make sure the inner walls of the gutter are clean and dry.



1.5.3 After cleaning and drying the gutter base surface, apply acrylic paint around the rainwater bucket, gutter plate overlaps, damaged areas of the gutter, and severely rusted areas. After the paint dries, use small pieces of ACC tape to patch these areas. At the cornice, 10 cm of flashing tape can be used to seal the bottom surface of the metal plate down to the gutter wall.



Treatment around rainwater bucket



ACC extensible sealing tape

Seam sealing



1.5.4 The overflow openings of cornices and gutters should be treated with an additional layer.



1.5.5 Gutter membrane Installation. Measure the size of gutter and cut the flashing membrane accordingly. Use a blade to cut-off a strip of the release film from the middle of the membrane. First, align the corners correctly and lay the membrane starting from the bottom of the gutter, and then roll it along the gutter wall to the top.



1.5.6 Cover the rainwater bucket with membrane. Use a blade to cut off the membrane around the drain outlet, and use sealant to treat the junction between the drain outlet and the membrane as well as the rainwater bucket screw. Finally, seal the screw again with a small piece of membrane.



Cut off the membrane around the drain outlet



Sealing the screw



1.5.7 Brush the acrylic paint to the joints of the membrane inside the gutter and around the rainwater bucket again.



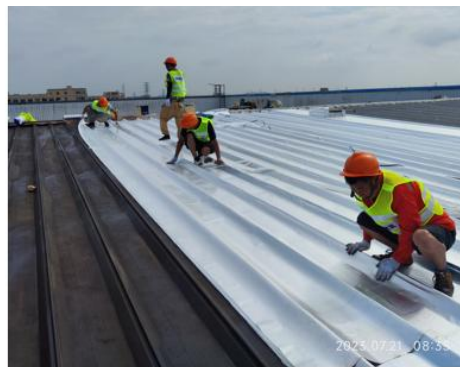
Treatment of joints in the gutter



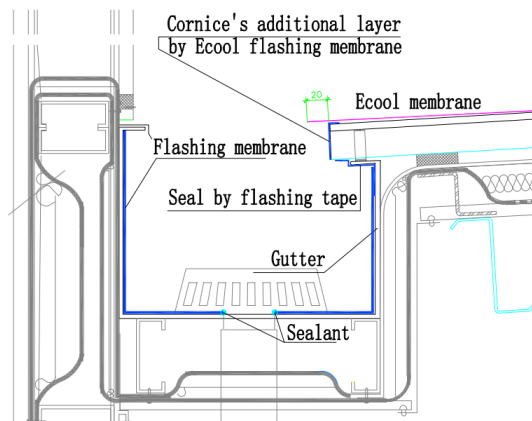
Treatment around the rainwater bucket

1.6 Whole roof installation

1.6.1 Install the membrane from cornice to ridge in horizontal or vertical direction. The long side overlap shall not lesser than 8cm and short side overlap shall not lesser than 10cm. The overlap must be in the direction of water flow. Membrane and metal panel must be firmly attached.

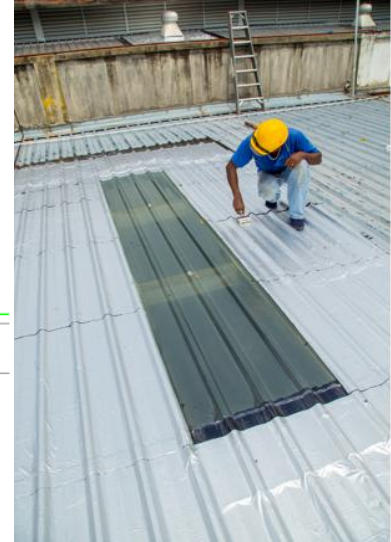
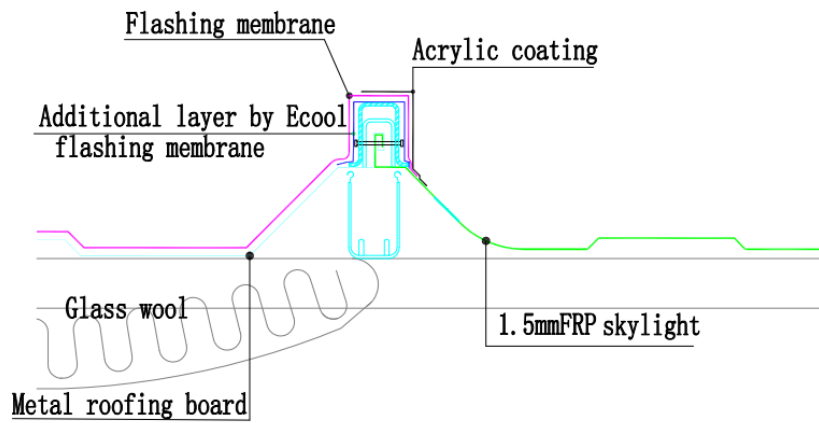


1.6.2 Provide an additional overlap of 2cm between the roof surface membrane and gutter membrane at the cornice area.





1.6.3 Paste 10cm of additional layer over the joints between skylight panel and metal panel, then install the membrane around the skylight and finally brush it with acrylic paint.

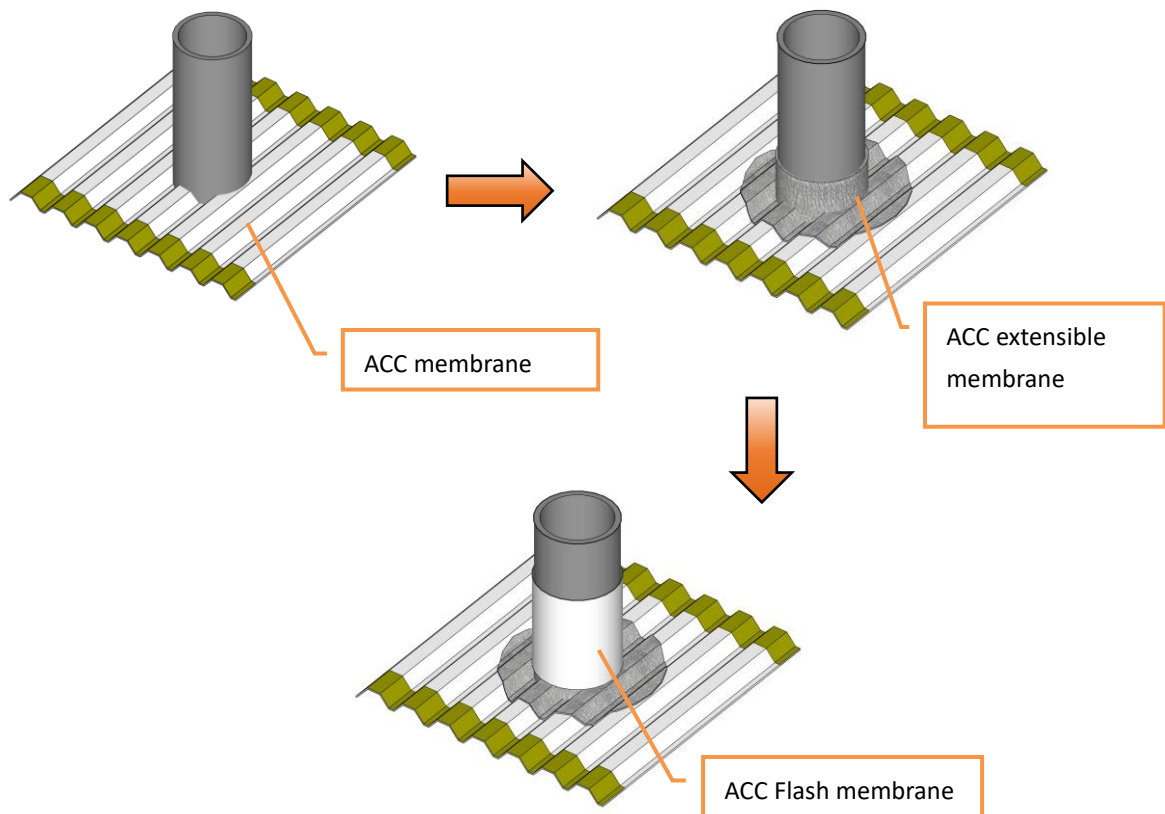


1.6.4 Ventilator base installation. First, apply a base layer of membrane over the joints between ventilator and metal panel; Second, paste ACC extensible membrane from top to bottom to avoid water inflow; Third, install the ACC membrane around the base. Finally, brush with acrylic paint.

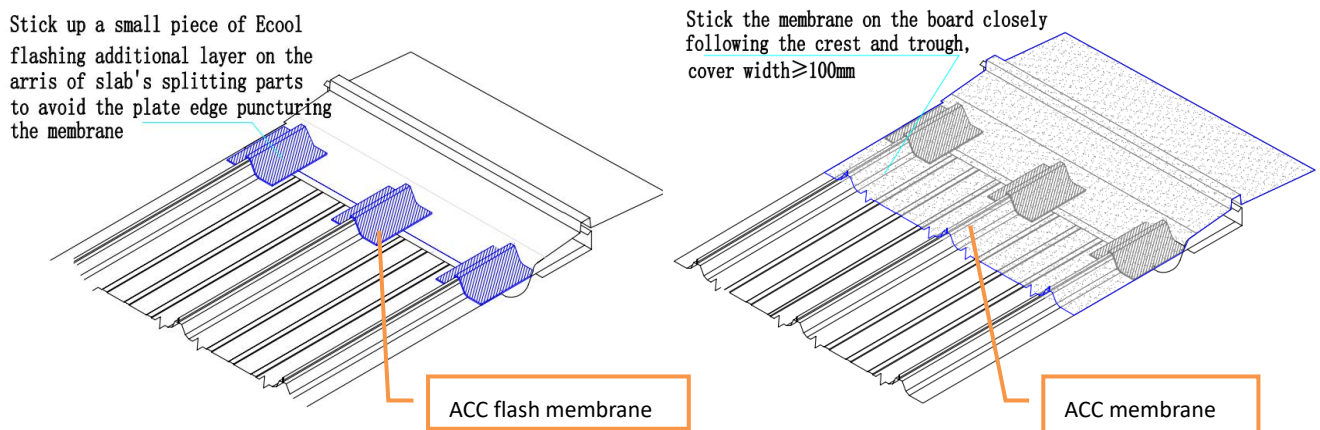


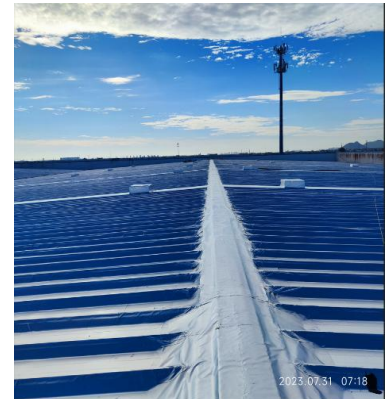


1.6.5 Penetration pipe installation. First, the ACC membrane is laid under the base of the pipe, and the root of the pipe is paved with the ACC extensible sealing tape, and then the flashing membrane is used to pave the pipe (not less than 25cm from the base).



1.6.6 Ridge installation. First use a small piece of waterproof membrane to cover the intersection between the roof panel crest and the ridge cover, then use a large piece of membrane to cover the entire roof ridge and extend it to the left and right sides by at least 10cm.





1.6.7 External gutter edge sealing. After membrane installation, seal the membrane edge with sealant.



Before sealing

Sealing the gaps

After sealing

1.7 Inspection & Repair

- If there is damage found on roofing membrane, it must be repaired. If the overlap of membrane is in counter flow direction, an additional layer of 10cm width membrane is required to cover the overlap. If there are wrinkles, it is easy to form a water inlet channel, and a patch need to be applied to seal the inlet.
- If the roofing membrane is not firmly attached with panel and forms air pocket, it is required to slit the affected area for air to escape, and then cover the damaged area with additional layer of membrane.
- Check the overlap of membrane. If overlap is too narrow and it will affect the bonding effect, ACC flashing tape needs to be used for repair.
- If there is any delamination opening found at the membrane edges, it must be re-sealed with flashing membranes.



2 Concrete roof Installation

2.1 Project Inspection

- If the outer protective layer of the waterproof membrane is aged and damaged, such as the cement protective layer cracked, falling off and loose etc.;
- If the concrete has been repaired with TPO, SBS or paint, but it has been damaged;
- If there are a lot of potholes and unevenness on the roof;
- If water leak from joint area such as parapets, skylights, and ventilator.

2.2 Safety measures

Before installation, ensure the safety of construction workers on the roof

- Carefully check the damage of the parapet wall and mark it.
- Check the roof structure. Some cement foam boards condition need to be checked. Some have structural damage due to water leakage and need to be marked;
- For roofs with shorter parapets or no parapets, number of anchor bolts should be fixed on the stable point and steel cables should be installed as suspension cable for safety belt.

2.3 Roof cleaning

2.3.1 If the outermost layer is shale surface SBS waterproof membrane, the aged and loose membrane need to be shoveled away and cleaned.



Shoveling away aged SBS
membrane



Remove loose shale
gravel



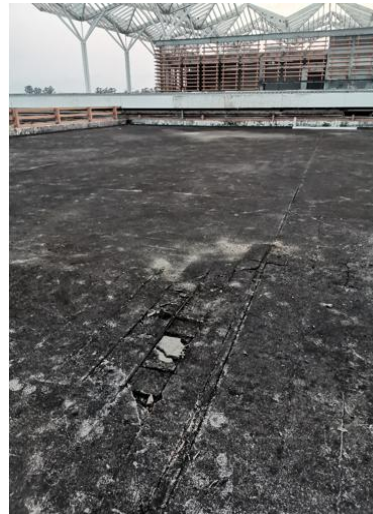
Peel off aged parapet
veneer



2.3.2 If the protective layer is cement or bricks, it is necessary to clean up the loose cement blocks or bricks and weeds.



Clean up weeds and loose bricks from the



Remove loose cement blocks

2.4 Roof repair

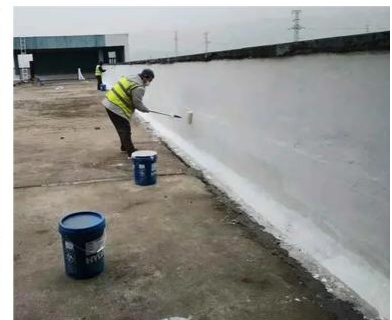
- Use mortar to fill the uneven cement surface;
- Remove the aged SBS waterproof membrane and fill it with mortar.
- For brick roofs, loose or damaged bricks need to be reinforced with mortar.



Filling with cement mortar



Repairing roof tiles



Repair parapet



2.5 Roof cleaning and curing

After repairing has dried, clean the roof again. Then spray asphalt primer or apply polyurethane paint. If there is thickness requirement, the application need to be divided into 2-3 times. After first layer is dry, the next one can be applied .



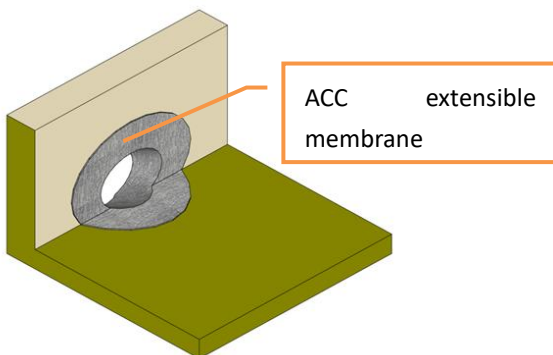
Spray asphalt primer



Apply polyurethane paint

2.6 Nodes Installation

Apply additional layer to drain outlets and roof inner corners with ACC flashing membrane.



Additional layer treatment to drain outlets

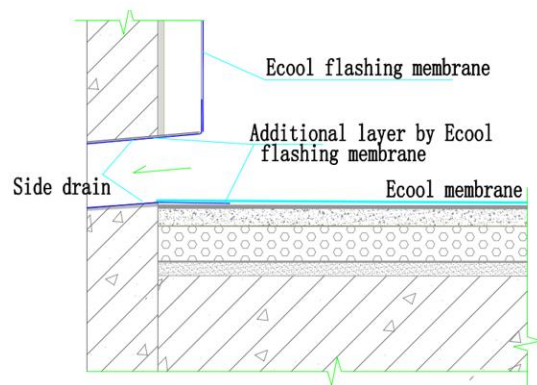
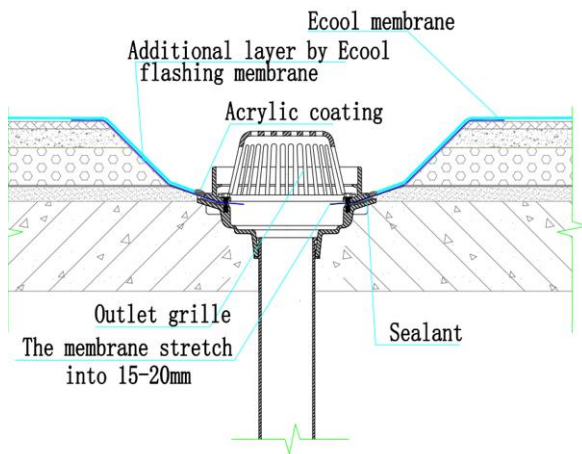


Additional layer to inner corners



2.7 Rainwater buckets and side outlets installation

Rainwater bucket and Side outlet: apply the ACC flashing membrane to the rainwater bucket inlet. Due to the irregular interface here, cut the membrane and fix it properly, and apply additional layer to cover the joints. Finally, apply acrylic paint around the rainwater bucket.





2.8 Whole roof area installation

Install the membrane from cornice to ridge in horizontal direction. The long side overlap not less than 8cm and short side overlap not less than 10cm. The overlap must be in the direction of water flow. Membrane and roof must be firmly attached.



Lay the first piece from the bottom



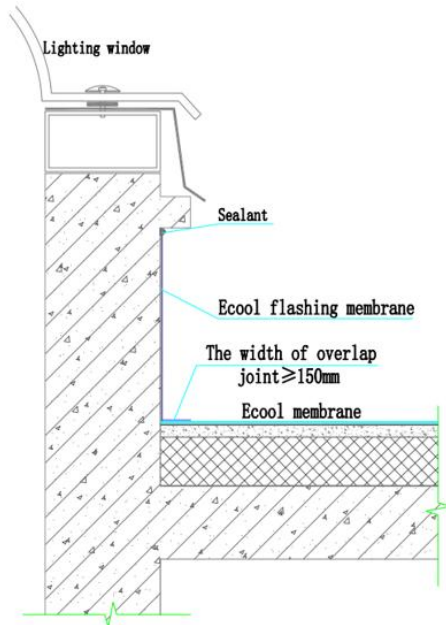
The upper roll covers the lower one

Ventilator base installation. Firstly, paste additional layer of membrane over the connection of ventilator and metal panel; Secondly, install the ACC membrane around the base; Thirdly, paste another layer from top to bottom and keep it minimum 15cm from ventilator foundation.

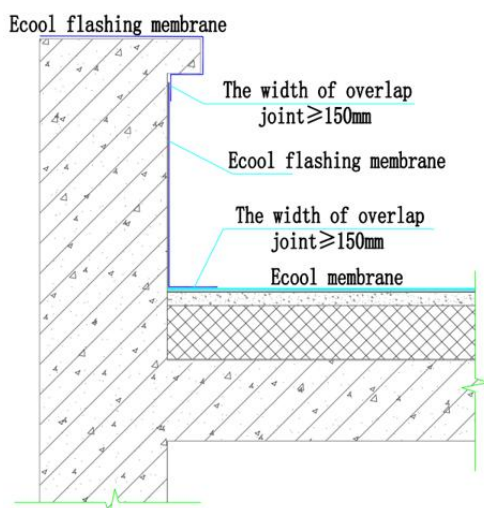




2.8.1 Skylight installation: Firstly, paste additional layer of flashing membrane over the connection of skylight and roof; Secondly, install the ACC membrane around the base of skylight; Thirdly, paste another flashing layer from top to bottom and keep it minimum 15cm from skylight foundation.

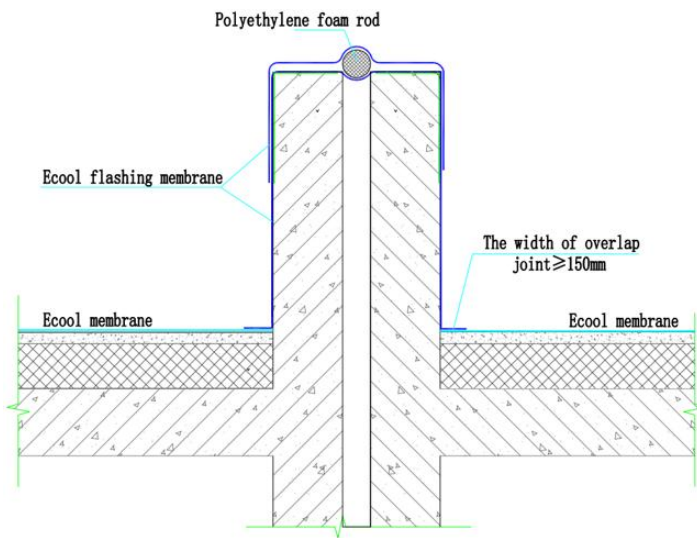


2.8.2 Parapet installation: Firstly, apply the ACC membrane to the wall joint. Secondly, apply a layer from top to bottom of the wall with a minimum 15cm overlap on the roof. Finally, apply another layer from the top surface to the first layer with minimum 15cm overlap.

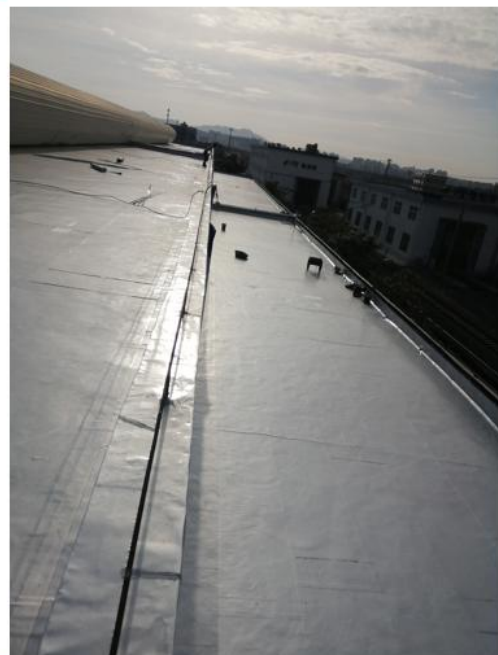
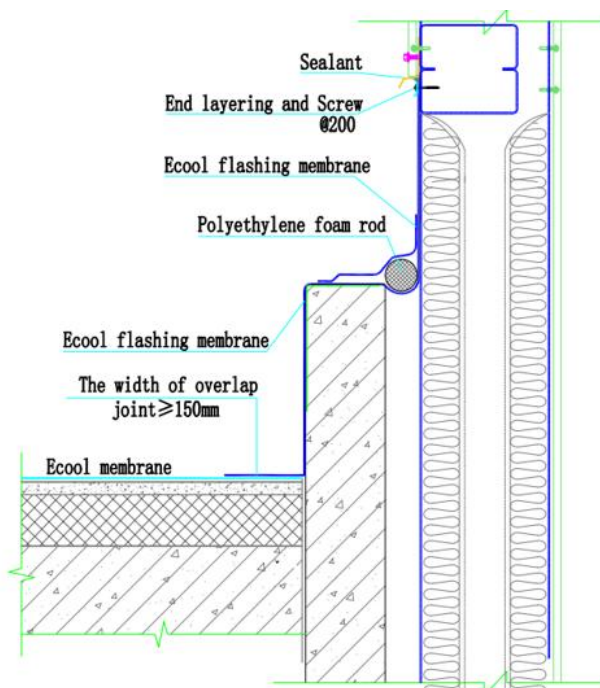




2.8.3 Expansion joint installation: Firstly, apply the ACC membrane to the both sides of expansion joint. Secondly, apply a layer on both sides from top to bottom of the joint with 15cm overlap. Thirdly, place a polyethylene foam rod at the wall seam. Finally, wrap the joint surface and extend it to both sides of joint with minimum 15cm overlap.

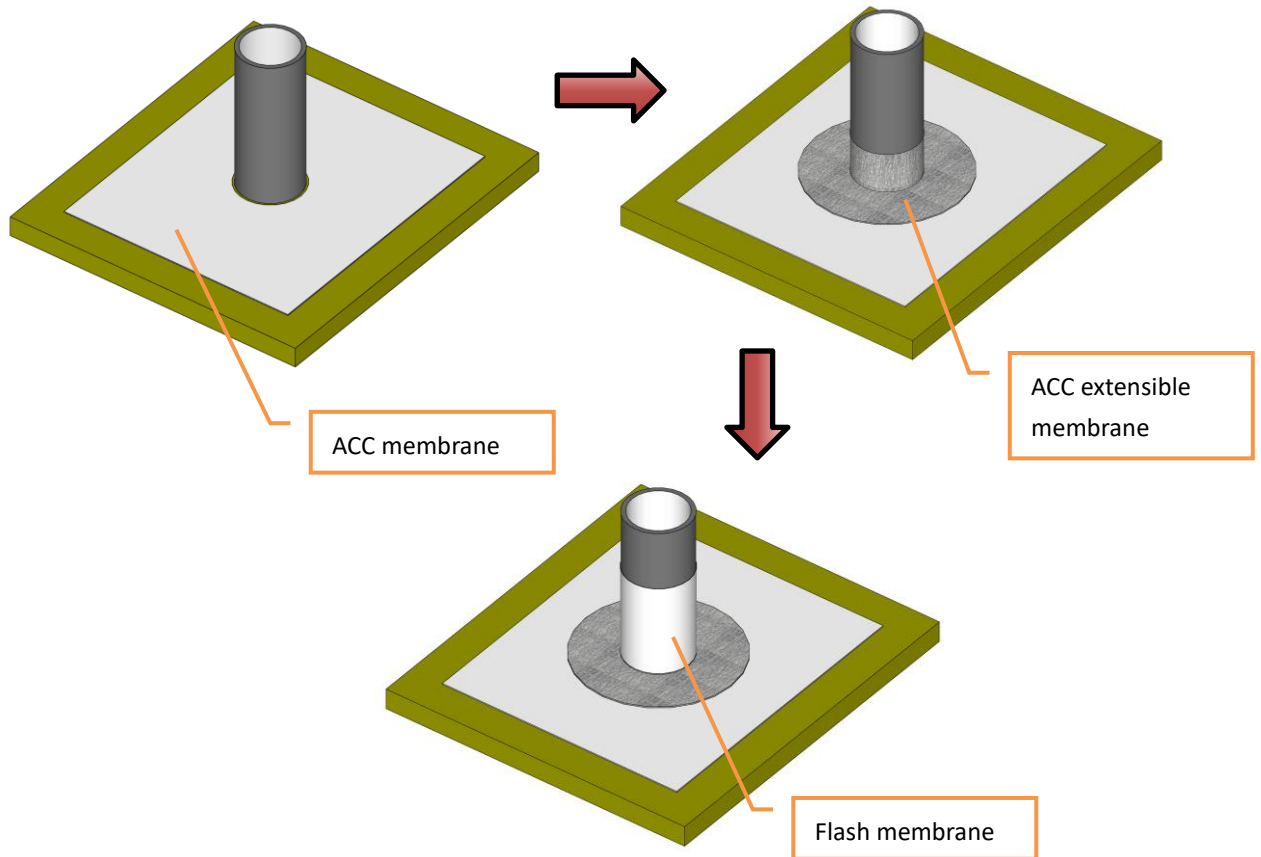


2.8.4 Low rise span installation: Firstly, apply ACC membrane to the wall corner. Secondly, cover the wall with ACC flashing membrane from top to bottom and extend along the wall to roof surface with minimum 15cm overlap. Leave enough elastic space for the membrane at the wall seam. Finally, place a polyethylene foam rod at the wall seam and cover it again with flashing membrane. The height of the membrane on the high wall should not be less than 300mm.





2.8.5 Penetration pipe installation. Firstly, the waterproofing membrane is laid under the base of the pipe, and the root of the pipe is paved with the ACC extendable sealing tape, and then the flashing membrane is used to pave the pipe (not less than 25cm from the roof).



2.8.6 Edge sealing: All flashing membrane on the nodes need to be sealed with high weather-resistant sealant.



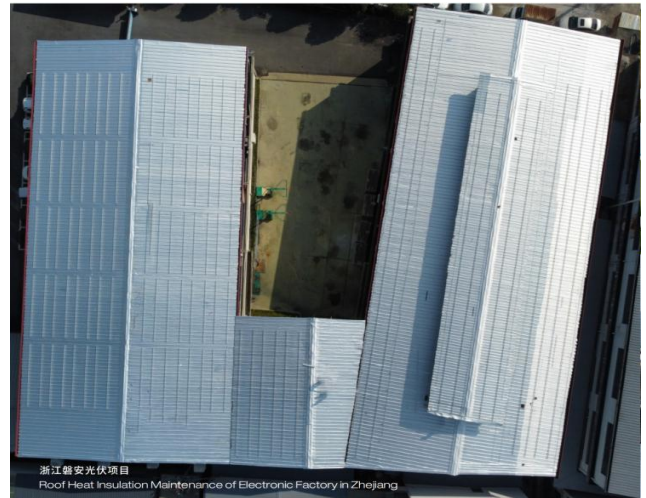


2.9 Inspection & Repair

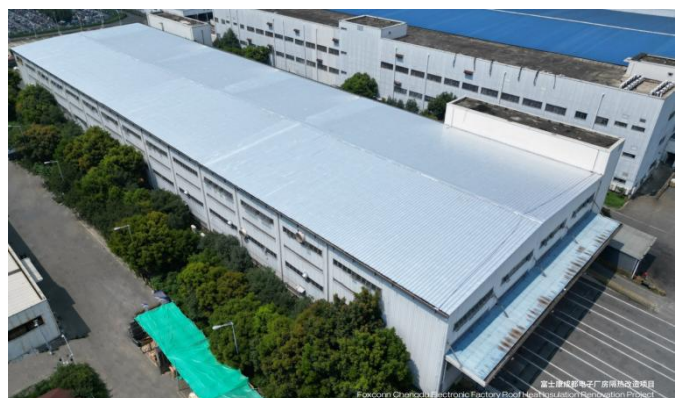
- If there is damage found on roofing membrane, it must be repaired. If the overlap of membrane is in counter flow direction, a 10cm additional layer required to cover the overlap. If there are wrinkles, it is easy to form a water inlet channel, and a patch need to be applied to seal the inlet.
- If the roofing membrane is not firmly attached with concrete and form air pocket, it is required to cut the membrane, then paste membrane in place, and then cover the damaged area with additional layer.
- Check the overlap of membrane. If overlap is too narrow and will affect the bonding effect, ACC flashing tape needs to be used for repair.
- If there is any delamination opening found at membrane edges, it must be re-sealed with flashing membranes.



Projects:



Projects:



Transportation and warehousing

Pallets are used for transportation and products are placed vertically to avoid stacking. Store in a cool, dry place and keep away from direct sunlight.

Product storage validity period

2 years