

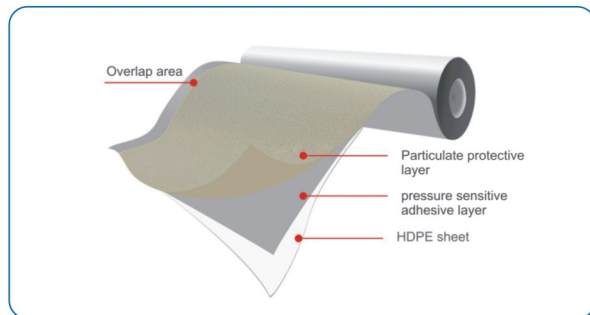
# AQUAPRUF E APF-C

PRE-APPLIED, HDPE, FULLY BONDED MEMBRANE (PLAIN FINISHED)



## DESCRIPTION

Aquaprufe APF-C pre-applied, fully bonded HDPE membrane (Plain Finished) is composed of one thick HDPE backing layer, self-adhesive polymer layer, trafficable protective coating layer and the release liner. The unique membranes realize firm bonding to poured concrete so that prevents water ingress or migration.



## MAIN APPLICATION

- Waterproofing of all below grade concrete structures.
- Protection of concrete foundations in contaminated and aggressive ground conditions.
- Waterproofing of cut and cover tunnels for MRT, Subway, Metro.
- Prevents coal gas, marsh gas, methane leakage in underground layers.

## PRODUCT FEATURE

- Forms a unique integral seal to concrete poured against it. This prevents lateral water migration and waterproofing performance is unaffected by ground settlement beneath slabs.
- Fully-bonded watertight seldge laps and detailing.
- Provides complete barrier to water, moisture and gas. physically isolates the structure from the surrounding ground.
- Zero permeance to moisture.
- Solar reflective, being white in colour thereby reduce temperature gain.
- Very easy and efficient to install, does not require primer or fillet.
- Easy to install on permanent formwork – allowing efficient use of confined sites.
- Self protecting–reinforcement can start immediately after installation.
- Unaffected by wet conditions-cannot activate prematurely.
- Being HDPE, highly chemically resistant, effective in all types of soils and waters - protects structure from chlorides, sulphates and aggressive ground conditions.

## INSTALLATION

### Substrate Preparation

**All Surfaces** - It is essential to create a sound and solid substrate to eliminate membrane movement during the concrete pour. Substrates must be regular and smooth with no gaps or voids greater than 12mm.

### Horizontal Concrete Blinding or PCC

The substrate must be smooth and uniform and shall be free of all unsound aggregate and sharp lumps. Curved or rounded substrates should be avoided. For installation of Aquaprufe APF C (plain finish), the surface does not need to be dry, but standing water must be removed.

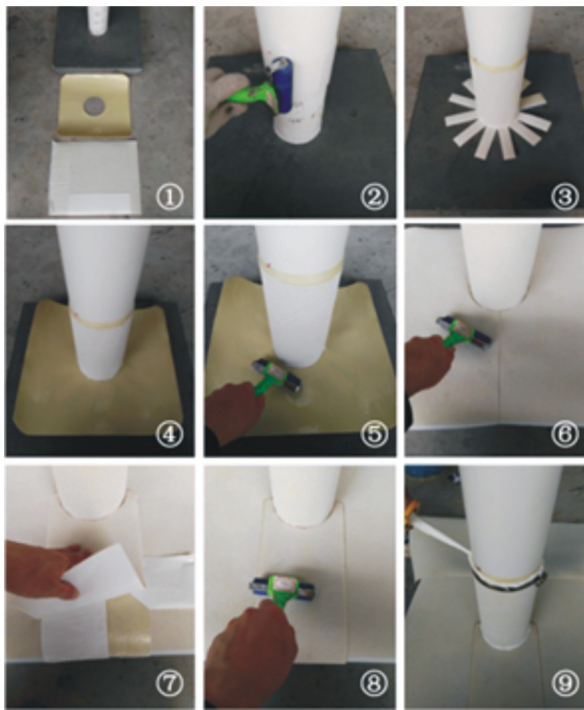
### Vertical Sheet Piling

Aquaprufe APF C (plain finish) can be used for blind side waterproofing after either using guniting, concrete, or plywood or other suitable material to provide uniform surface for membrane installation.

**Membrane Installation**

Aquaprufe APF C (plain finish), pre-applied fully bonded HDPE Membrane should be overlapped using steel roller to ensure complete bonding and to achieve continuity. It can be installed at temperatures of -5°C and above. When installing Aquaprufe APF-C (plain finish) waterproofing membrane in cold weather, care should be taken to pre-heat the bonding edge with appropriate means such as hot air gun or other similar means.

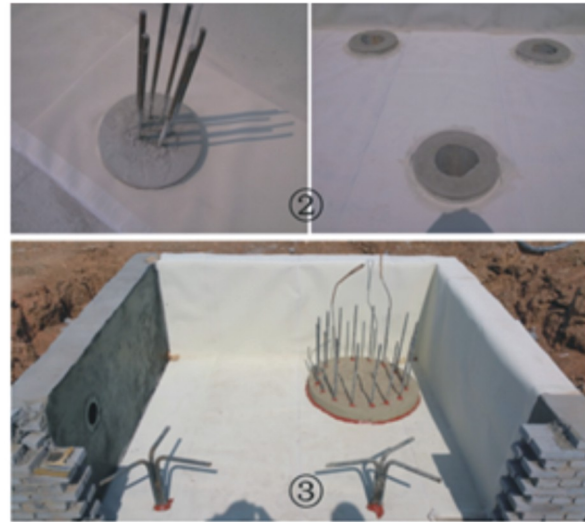
**Detailed Application**  
**Pile hole**



**Membrane Installation**

1. material preparation;
2. apply sealant tape at the pipe root ;
3. apply the membrane;
4. apply the membrane of plain finish;
5. bond the membrane together;
6. apply Aquaprufe APF-C;
7. apply seal tape at the joint;
8. apply the membrane at the sealed tape;
9. seal by metal hoop.

**Pile base**



1. brush capillary crystalline coating;
2. apply waterstop, then apply Aquaprufe APF-C;
3. apply sealed paste.

**Internal Corner**

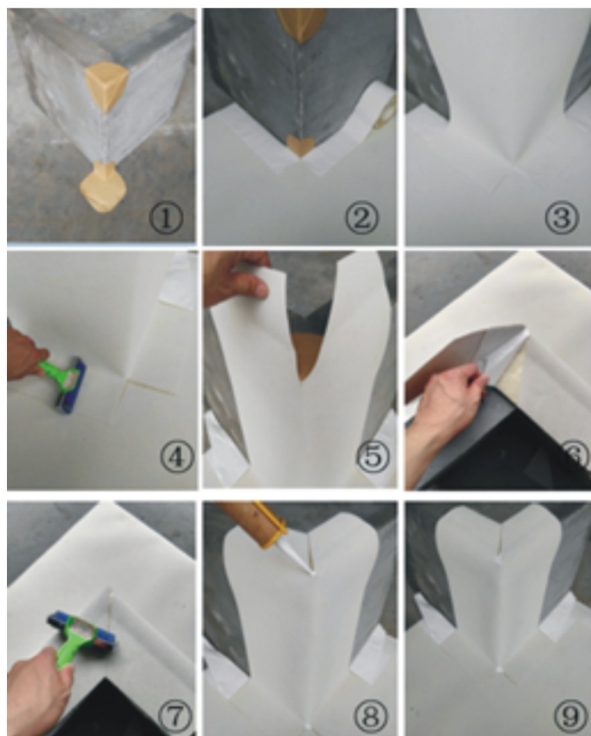


1. apply trihedral corner tape;
2. apply horizontal membrane;
3. apply overlap tape;
4. place membrane on vertical wall;
5. cut, tape and overlap in the internal corner;
6. cut line at the top;



7. fasten the vertical extending membrane;
8. apply sealed tape on sand surface;
9. apply sealed tape on sand surface;
10. press it firmly;
11. seal the top by sealed paste;
12. complete.

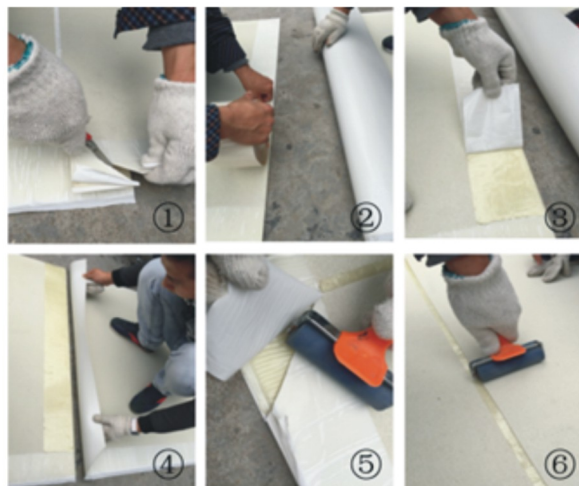
#### External Corner



1. apply corner tape at the external;
2. apply horizontal membrane;
3. apply sealed tape;
4. press the overlap position;
5. cut line at the top
6. apply sealed tape;
7. press it firmly;
8. seal the top by sealant paste;
9. complete.

#### Horizontal Substrate

(I) Place the membrane HDPE sheet side to the substrate with sand finish side up facing towards the concrete pour.



#### (II) Roll end overlap

1. cut a triangle sheet from multi-layer overlap;
2. apply sealed tape on the end edge;
3. release the film of the tape;
4. overlap;
5. press the close-up firmly;
6. press the lap.



#### (III) Selvedge overlap

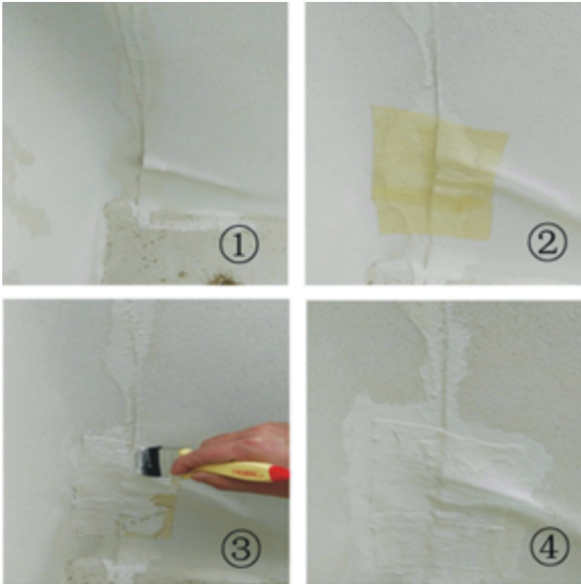
1. release the liner and overlap;
2. press it hard.

#### Vertical Substrate



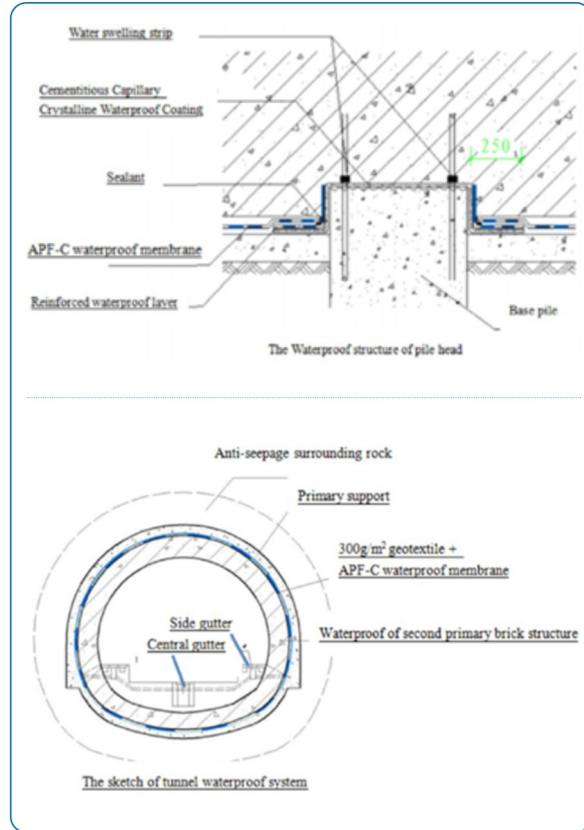
1. apply the first membrane and fasten by concrete nails;
2. apply the sealed tape;
3. apply the second membrane;
4. release the liner and press it;
5. close up the membrane by trim stripe;
6. seal by the sealed paste.

**Repairing**

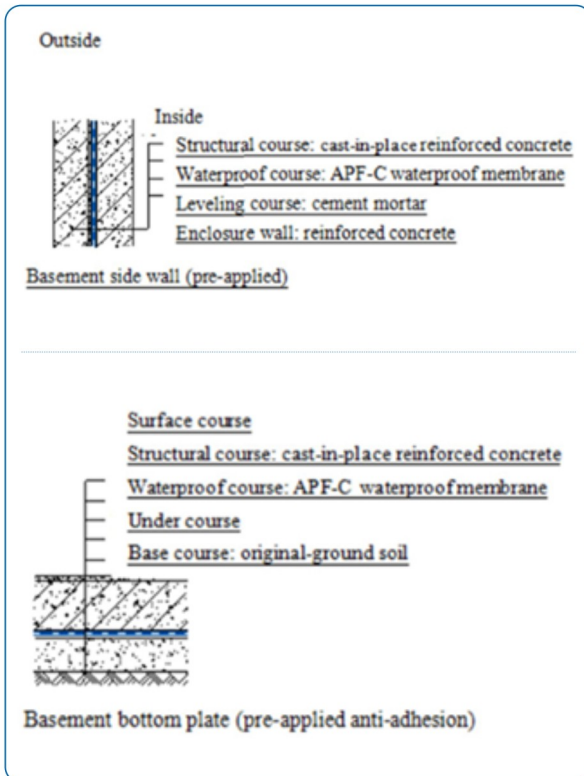


**Membrane Installation**

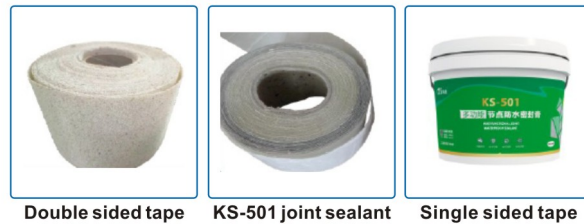
1. repairing treatment;
2. apply the sealed tape;
3. brush the sealant paste around the tape;
4. complete.



**DETAIL DRAWINGS**



**COMPLETE SYSTEM**



**COMPLETE SYSTEM**

Dry conditions below +40°C. Store indoors or under cover on pallets. Do not double stack pallet.

**PHYSICAL PROPERTIES**

Implemented Standard: GB/T23457-2009

| No. | ITEMS                           |                      | REQUIREMENT                                       |
|-----|---------------------------------|----------------------|---|
| 1   | Tensile properties              | Pull strength N/50mm | Longitudinal                                      |
|     |                                 |                      | Transverse  |
|     | Membrane elongation at break, % | Longitudinal         |   |
|     |                                 | Transverse           |   |
| 2   | Shaft tear strength             | Longitudinal         |   |
|     |                                 | Transverse           |   |
| 3   | Impact performance              |                      | Diameter (10 ± 0.1) mm, no leakage                |
| 4   | Static load                     |                      | 20kg, no leakage                                  |
| 5   | Heat resistance                 |                      | 70°C, No displacement, flowing and dripping in 2h |
| 6   | Low temperature bending         |                      | -25 °C, No crack                                  |
| 7   | Anti-water channeling           |                      | 0.6MPa No water channeling                        |
| 8   | Peel Adhesion to Concrete       |                      | (23+2) °C ≥2.0 MPa                                |

CE standard: EN 13967:2012(APF-C 1.2mm thickness)

| No. | ITEMS                                 | REQUIREMENT  |
|-----|---------------------------------------|--|
| 1   | Membrane thickness mm                 | ≥1.2   |
| 2   | Resistance to static loading          | 20kg no leakage  |
| 3   | Tear resistance Transverse N          | ≥500   |
| 4   | Tear resistance Longitudinal N        | ≥200   |
| 5   | Water tightness                       | No water penetration through to the upper filter paper |
| 6   | Tensile strength N/mm <sup>2</sup> MD | ≥15  |
| 7   | Tensile strength N/mm <sup>2</sup> CD | ≥15  |
| 8   | Elongation at break (%) MD            | ≥400   |
| 9   | Elongation at break (%) CD            | ≥400   |

CE standard: EN 13967:2012(APF-C 1.5mm thickness)

| No. | ITEMS                                 | REQUIREMENT  |
|-----|---------------------------------------|--|
| 1   | Membrane thickness mm                 | ≥1.5   |
| 2   | Resistance to static loading          | 20kg no leakage  |
| 3   | Tear resistance Transverse N          | ≥500   |
| 4   | Tear resistance Longitudinal N        | ≥200   |
| 5   | Water tightness                       | No water penetration through to the upper filter paper |
| 6   | Tensile strength N/mm <sup>2</sup> MD | ≥15  |
| 7   | Tensile strength N/mm <sup>2</sup> CD | ≥15  |
| 8   | Elongation at break (%) MD            | ≥400   |
| 9   | Elongation at break (%) CD            | ≥400   |



**ASTM**

Remark: the ASTM data is only for reference

| No. | ITEMS   | MEAN VALUE                  | MEAN VALUE                |
|-----|---|-----------------------------|---------------------------|
| 1   | Tensile strength, Mpa                                 | 25                          | ASTM D412, modified       |
| 2   | Elongation at break, %                                | 500                         | ASTM D412, modified       |
| 3   | Peel Adhesion to concrete, N/mm                       | 1.0                         | ASTM D903, modified       |
| 4   | Puncture resistance, N                                | 1000                        | ASTM E154                 |
| 5   | Hydrostatic pressure resistance                       | 0.7MPa, 1h No water leakage | ASTM D5385-1993, modified |
| 6   | Water vapor transmission<br>ng/(m <sup>2</sup> ·S·Pa) | 0.40                        | ASTM E 96/E 96M 6         |



**KESHUN WATERPROOF TECHNOLOGY CO., LTD**

Address: No.38-1, Hongqi Zhong Road, Ronggui ,Shunde district , Foshan , Guangdong Province, China

Tel:+86 -757 -2863-7166 Fax:+86-757-2661-4480

E-mail: sales@keshun.com.cn Website: <https://cks.keshun.com.cn>

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