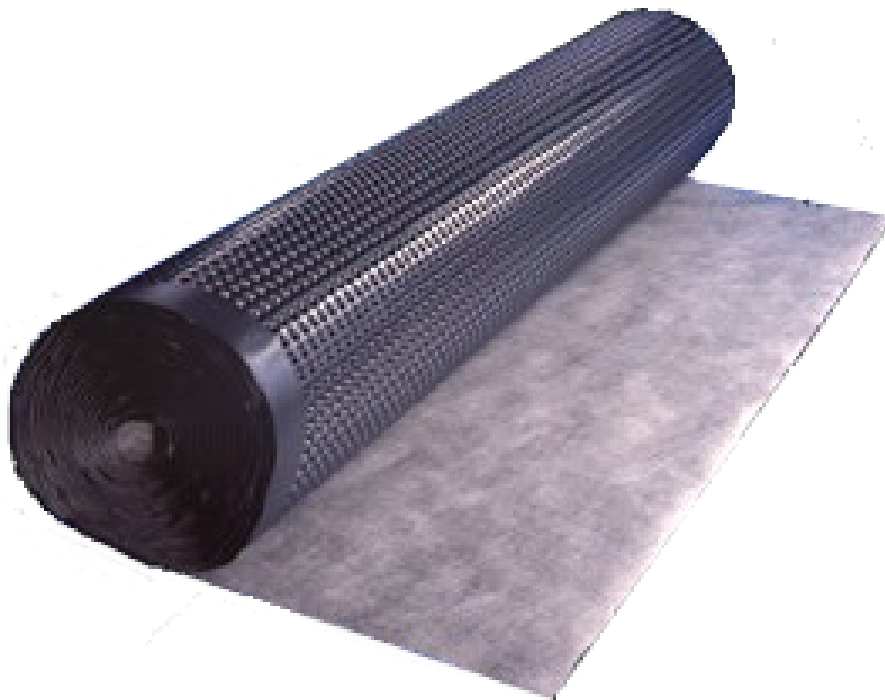


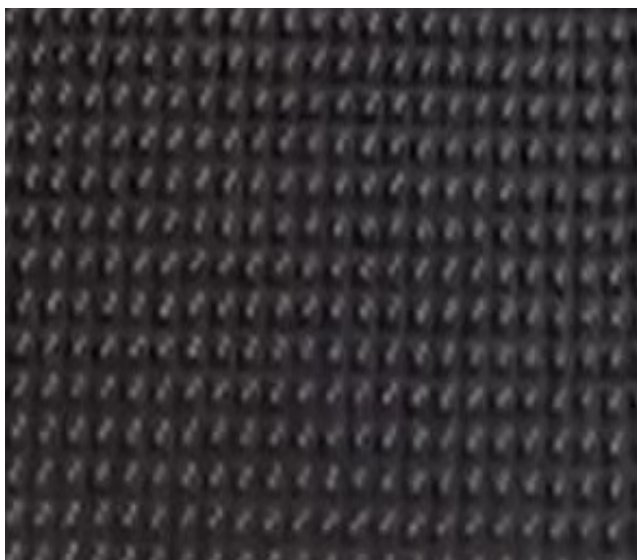
INSTALLATION OPERATION & MAINTENANCE MANUAL

HI-DRAIN (HDPE)



PRODUCT DESCRIPTION

HI-DrainHDPE is a highly effective high protection and drainage system designed as a special solution for horizontal and vertical surface drainage on all pressure-resistant surfaces. It consists of a heat-formed multiple-cusped synthetic sheet with a thickness of 0.75 mm. The smooth back side allows for a uniform and extensive load distribution on the waterproofing. This double-layer system protects the waterproofing below it from mechanical damage and damaging thermal stresses. It has a pressure resistance when installed. HI-Drain HDPE is suitable for flood management on pedestrian areas, lining planters and vegetated areas. The optimal high-performance geotextile boasts very high initial strength with minimum deformation under increasing working load.



COMPOSITION

HI-Drain HDPE is composed of high-density polyethylene (HDPE). HDPE is a durable and versatile material that is widely used in various construction and environmental applications. The composition of this drainage layer primarily consists of HDPE, making it an environmentally friendly and sustainable choice. HDPE offers excellent physical properties, such as high tensile strength, impact resistance, and flexibility, ensuring the longevity and performance of the drainage layers. Additionally, HDPE is chemically inert, meaning it is resistant to chemical degradation and does not release harmful substances into the environment. This composition ensures that it can withstand exposure to moisture, UV radiation, and other environmental factors.

KEY FEATURES

HI-Drain HDPE features high-quality, durable materials that offers secure protection when backfilling.

Key Features:

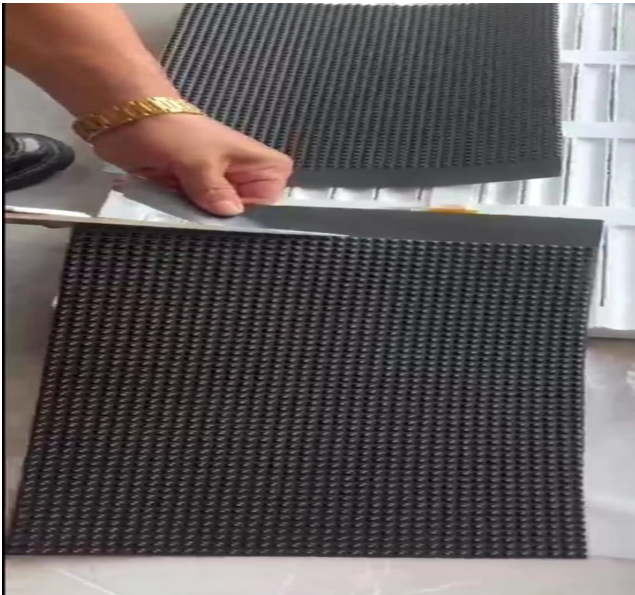
- Made from high density polyethylene (“HDPE”)
- High compression strength
- Protects vertical surfaces from damage whilst allowing free drainage of water
- Used as lining for waterproofing
- Used on the horizontal plane for effective drainage of block paving
- layer separates soil from the membrane whilst giving protection to the membrane
- Creates an air gap between the structure and the earthworks
- Lightweight and simple to use, easy to fix
- Supplied in sizes : 80cm x 60m roll.

PRODUCT INSTALLATION

The HI-Drain HDPE dimpled membrane fabric is a high-quality solution that allows water to efficiently pass through the fabric while effectively retaining soil particles in place. The dimpled plastic roll serves as a reliable drainage and waterproof membrane protection system for most commercial projects.

, it plays a crucial role in preventing soil particles from obstructing the drainage sheet. Moreover, it creates an essential air gap that ensures reliable ventilation. This design feature enables the inflow and efficient transport of water from the surrounding soil, enhancing the overall drainage performance of the system.

Horizontal



1- The first step to cutting off the excess side tape of the mat roll



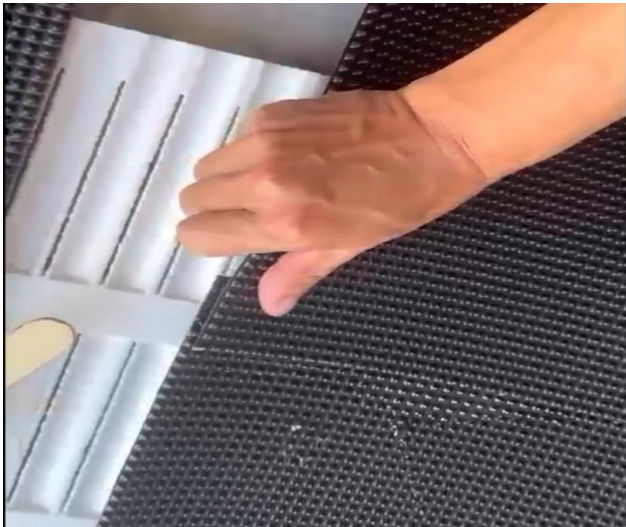
2- Glue is poured on the back of the edge of the mat using a brush



3- Use the brush to distribute the glue to the selected area, Put the Glue along the length of the mat roll with an area of 2-3 cm



4-Repeat the previous process on the smooth edge of the side strip of the mat from the front side, using a brush along the length of the mat roll with an area of 2-3 cm



5-Place the side of the cut edge of the mat roll over the other side of the smooth strip of the edge of the other mat roll as shown in the picture above



6-Wait for two hours until it dries completely. It can be stuck well with adhesive tape, or it can be stuck with adhesive tape the next day



7-During installation on a horizontal surface, it is recommended to place the HI-Drain HD membrane with the underside facing up to place the tape for connection, and to ensure a watertight seal, each sheet should be securely closed with side protection tape when installing the system

Vertical



When installing onto a vertical surface, can be fixed with watertight seal tape from backside. Always ensure each sheet is overlapped by at least 1cm to ensure a watertight seal. The HI-Drain HD is designed to be installed with the geotextile fabric facing towards the soil backfill or shingle. This configuration allows water to pass through the drain mat downward through the air gap surrounding the cups, which ensures a consistent flow rate of water and prevents overwhelming volumes of water. To maintain a constant air gap and prevent clogging of the drainage channel

beneath, it is important to ensure proper installation. Additionally, it is recommended to construct an effective drain, at the bottom of the surface to facilitate water dissipation. This system effectively prevents waterlogging, subsidence, and rising damp. When installing the HI-Drain HD on a vertical plane, individual sheets can be securely fixed using anti leak tape. This ensures a seamless and watertight membrane, enhancing the overall performance of the system

GENERAL HEALTH & SAFETY WITH HDPE

When working with HDPE drainage layer, it's important to consider the following health and safety measures:

1. **Sharp Edges:** HDPE drainage layers may have sharp edges during the installation process. Take precautions to avoid cuts or abrasions by wearing appropriate gloves and handling the materials with care.
2. **Manual Handling:** HDPE drainage layers can be bulky and heavy, especially in larger sizes. Follow proper manual handling techniques, such as lifting with the legs and seeking assistance when needed, to avoid strains or injuries.
3. **Dust and Particulate:** During cutting or installation, HDPE materials may generate dust or small particulate matter. Use respiratory protection, such as dust masks, when working in enclosed or poorly ventilated areas to minimize inhalation of particles.
4. **Fire Safety:** HDPE is a combustible material and should be kept away from open flames or high heat sources. Ensure proper fire safety precautions are in place, especially when using equipment that generates sparks or heat.
5. **Compatibility with Adhesives and Sealants:** If using adhesives or sealants during installation, follow the manufacturer's instructions and handle them in accordance with their safety guidelines. Ensure proper ventilation and use suitable PPE to protect against potential chemical exposures.
6. **Compatibility with Other Roofing Materials:** When integrating HDPE drainage layers with other roofing components, such as waterproofing membranes or root barriers, ensure compatibility between the materials to avoid potential issues or compromises in performance.
7. **Site-Specific Safety Measures:** Each construction site may have unique safety requirements and hazards. Conduct a thorough site assessment to identify potential risks, implement appropriate safety measures, and adhere to site-specific safety protocols.

Always refer to the product-specific safety data sheets (SDS) and installation guidelines provided by the manufacturer for detailed information on handling, storage, and safety considerations related to the HDPE drainage layers being used. Additionally, comply with local health and safety regulations and guidelines to ensure a safe working environment.

HAZARDS IDENTIFICATION

Adverse physicochemical, human health and environmental effects : To our knowledge, this product does not present any particular risk, provided it is handled in accordance with good occupational hygiene and safety practice.

FIRST-AID MEASURES

Description of First Aid Measures

First-aid measures after inhalation	:Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact	:Wash skin with plenty of water.
First-aid measures after eye contact	:Rinse eyes with water as a precaution.

FIRE-FIGHTING MEASURES

Suitable Extinguishing Media: Sand, extinguishing powder, Carbon Dioxide or Dry Foam (Macrofoam).

Special Exposure Hazards: Not Known.

Special Protective Equipment: Wear NIOSH (National Institute for Occupational Safety and Health) approved positive pressure, self-contained breathing apparatus (SCBA) and full Impervious Personal Protective Clothing

ACCIDENTAL RELEASE MEASURES

Not usually required, However, if there are substantial amounts of dust or shavings present, it is advisable to use appropriate PPE as required.

In addition, please refer to the following sections for further guidance:

- Take precautions to avoid inhaling dust or vapors.
- Ensure adequate ventilation in the work area.
- Keep the product away from heat, hot surfaces, sparks, open flames, and other potential sources of ignition.
- No smoking should be permitted in the vicinity.

HANDLING AND STORAGE

Precautions for safe handling

Precautions for safe handling :Ensure good ventilation of the work station. Wear personal protective equipment.

Hygiene measures :Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

Conditions for safe storage

Storage conditions : Store in a well-ventilated place. Keep cool.

Incompatible materials : None known.

PERSONAL PROTECTIVE EQUIPMENT:

Eye protection: Where excessive dust may result, wear goggles.

Skin protection: Wear suitable protective clothing

Hand protection: Wear protective gloves.

Respiratory protection: Dust formation: dust mask. In case of insufficient ventilation, wear suitable respiratory equipment (EN 136/140/145)

TOXICOLOGICAL INFORMATION

The following toxicological assessment is based on a knowledge of the toxicity of the product's components:

Health Effects

On Eyes: On account of the fact of the physical nature direct contact with eyes is unlikely.

On Skin: On account of the fact of the physical nature direct contact with skin is unlikely if correct PPE is worn.

By Inhalation: In principle owing to the physical nature of this product, inhalation is not likely.

By Ingestion: Due to the physical state of this product, ingestion is unlikely.

ECOLOGICAL INFORMATION

Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.

Hazardous to the aquatic environment, short-term (acute) : Not classified

Hazardous to the aquatic environment, long-term(chronic) : Not classified

DISPOSAL CONSIDERATIONS

Dispose of this product at any approved solid waste disposal site. Disposal of the product should be in accordance with any local or national laws and regulations.