CARTONAL®
Waterproofing Solutions

PRO-DRAIN System 5mm

PROTECTS THE WATERPROOF MEMBRANE & DRAINS THE WATER BUILD UP

Protection Boards

- Geo textile
- Pro-Drain board
- Waterproof membrane
- Brick or concrete wall
- Concrete slab
- Cartoscreed
- Pebbels
- Cut horizontal channel
- Excess water
- Surrounding Soil
- Drainage pipe
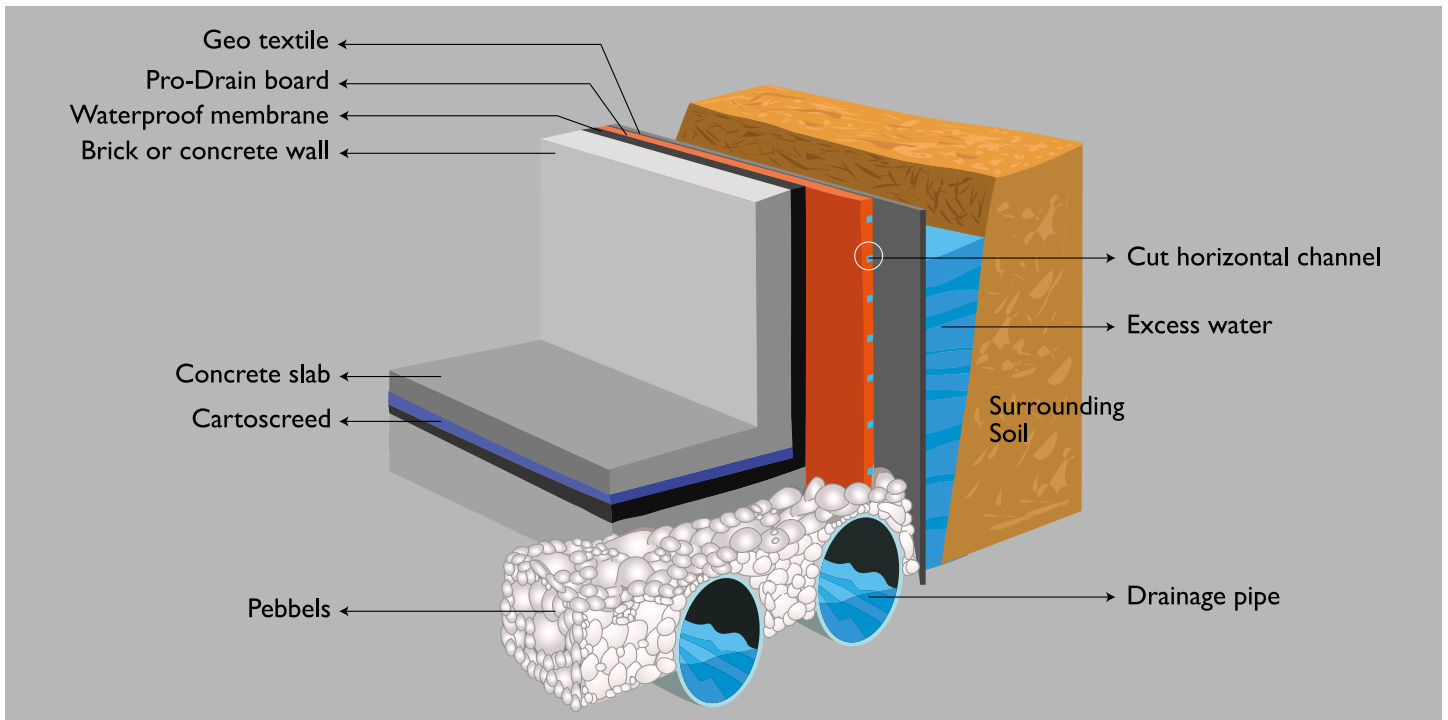
Specification

PRO-DRAIN is a 1m x 2m x 5mm polypropylene board comprising of 2 layers, one on top of the other spaced and joined together with ribs. The ribs are 5mm in height and run the full length of the board at 4mm intervals creating a set of adjacent 4x5mm vertical channels. 1mm horizontal channels are cut through the top layer of the board across the full width of the board perpendicular to the vertical channels every 22cm leaving the bottom layer intact. The horizontal channels are deep enough to allow water to pass through the board into the vertical channels and flow to the drainage outlet.

Technical Data

Size	1mx2m
Thickness	aprox. 5mm
Approximate weight	750 gm/sq.m
Compressive strength	$\geq$ 3.8Kg/sq.cm
Tear Resistance (ASTM D 1004)	15 Kg
Water absorbtion (ASTM 1004)	nil
Linear dimensional change due to accelerated ageing (ASTM D 104)	nil
Resistance to 60% NaOh (ASTM D 543)	not affected
Resistance to 30% NaOh (ASTM D 543)	not affected
Resistance to 30% H2 SO4 (ASTM D 543)	not affected
Resistance to 10% HCl (ASTM D 543)	not affected
IZOD impact resistance (ASTM D 256) at 20C	3Kg/cm/cm
IZOD impact resistance (ASTM D 256) at 7C	3Kg/cm/cm
Resistance to puncture (BS EN ISO 12236:2006)	$\geq$ 1700 newton
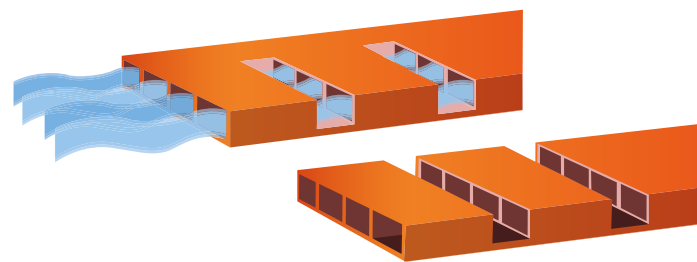
Sustainable Material

- LEEDS-Credit 4 - Material & Response "MR" - Post Industrial Material potential 1 Point.
- All CARTONAL products are made of inert plastic material. • Our products are 100% recyclable.
- Our electricity generation technology is rated EPA tier 2 and EU Stage 2 exhaust emission level.

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**COMPRESSIVE STRENGTH:** more than **20 tons/m²**

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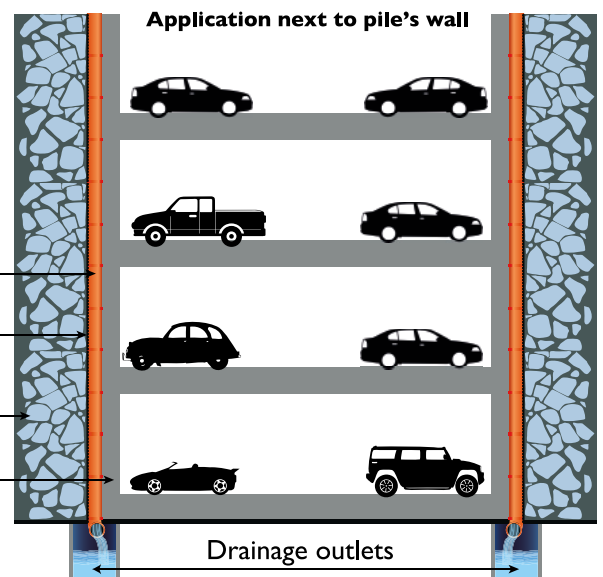## PROTECTS THE WATERPROOF MEMBRANE & DRAINS THE WATER BUILD UP

METHODS OF APPLICATION

On Vertical Surfaces

PRO-DRAIN is applied directly against the retaining wall or the rock wall and in front of the concrete-reinforcing steel bars. Concrete is poured with Pro-Drain boards in place. The side with the horizontal cut channel is placed facing the excavation wall with a 5cm to 10cm lap to the Pro-Drain board below (similar to roof tiles) allowing any seeping water to pass through the board. The vertical channels inside the board, formed by the ribs and two faces of the board, will carry the water down to the drainage outlet. The solid surface of the board facing the concrete structure saves the basement wall from water contamination and dampness.
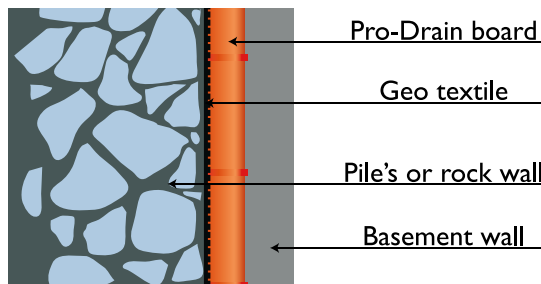
In some cases, when necessary, a geotextile can be used to prevent obstruction of the vertical channels by fine particles. In this situation, the geotextile is placed between the Pro-Drain and the excavation wall. (see picture of underground paking garage)

Application next to pile's wall

- Pro-Drain board
- Geo textile
- Pile's or rock wall
- Basement wall
- Drainage outlets

On Curved Surfaces

PRO-DRAIN board is applied directly below the excavation and on top of the concrete inner layer, with the cut channels facing the excavation. Any water seepage will fall on Pro-Drain and will be carried to the drainage outlets, maintaining the dryness of the concrete below.

- Top soil
- Geo textile
- Pro-Drain board
- Waterproof membrane
- Concrete lining
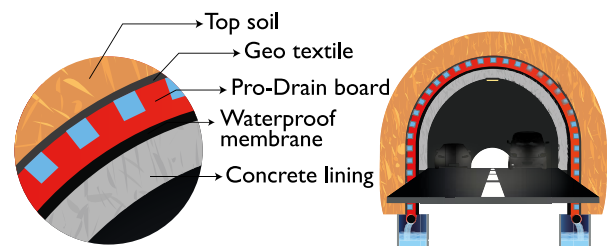
On Horizontal Surfaces

Pro-Drain replaces the protective screed on horizontal surfaces providing complete drainage and protection of the membrane. The Pro-Drain boards are laid butt joined with the drainage slit facing upward. If protection torch on membrane, one lightly torches the exposed area of the membrane and the Pro-Drain board sticks to the torch on membrane.

A geotextile is laid over the Pro-Drain (IF NECESSARY) to stop the fines going into the drainage slits.
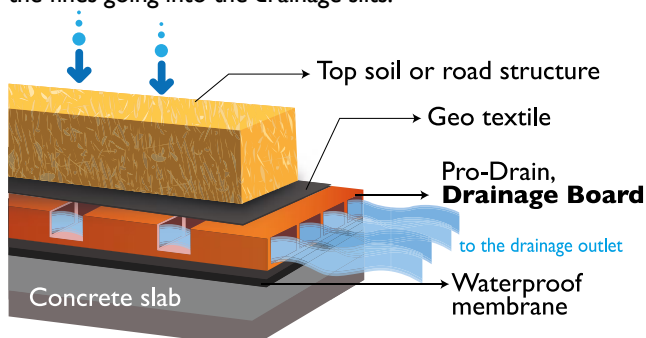
Other Applications

- Roof gardens application.
- Weeping tile application.
- Turf shock pad, Irrigation and drainage layer (see SID Board data sheet).
- Lining, protection, detection and drainage layer for landfill /mining applications.

- Top soil or road structure
- Geo textile
- Pro-Drain, **Drainage Board**
- to the drainage outlet
- Waterproof membrane
- Concrete slab

- Final concrete slab
- Pro-Drain, **Weeping Board**
- to the drainage outlet
- Waterproof membrane
- Concrete slab