

### Foundation Drainage

How does a foundation drain system work? When Enkadrain is used as a foundation wall drain system it works in three basic ways — a filtration layer, drainage layer and protection layer.

#### Filtration Layer

Its first function is as a filtration layer. When a new structure is built, soil is excavated, and then foundation footings, walls and floor slabs are constructed. Excavated soil is then placed adjacent to the new walls or backfilled. This backfill soil often is not as well compacted as the insitu soil. It is easy to see how this loose backfill soil can quickly clog a traditional gravel drain layer and the perforated drainpipe when the heavy rains come. Many builders simply push fill dirt on top of the foundation drain along with other construction debris and hope it will “naturally compact”. With this approach, as time passes, the fill settles and creates low spots along the foundation wall. This ponding increases the concentration of water at the footing. Proper compaction of replaced soil will help minimize the excess water. It is also very important that the drain mat wrap around the perforated drainpipe to also protect it from clogging. A composite drain like Enkadrain filters loose soil particles out of the soil so that the drain way will properly drain for many years.

#### Drainage Layer

The second function is drainage. The entangled nylon or HDPE mesh that makes up the core of Enkadrain provides an open void space to quickly channel water to the collector drain at the footing. The collector drain must be properly sloped to daylight or connected to a stormwater system. Without a way for water to move quickly away from the foundation wall, hydrostatic pressure (the weight of water trying to level itself) builds up. Hydrostatic pressure can crack or buckle foundation walls, and if water proofing is not elastic, it can fail as well. Water under this kind of pressure seeks out any openings, fissures or cracks. If the wall is made of hollow concrete masonry units, water will fill the cavity until it reaches the level of the basement floor — then find its way to the floor. Concrete walls shrink as they are curing due to evaporation and this often causes vertical or diagonal cracks. Over time, these cracks can widen as the foundation settles and hydrostatic pressure builds — allowing water penetration. Proper drainage prevents pressure from ever building up on the foundation wall. This, combined with a well detailed water-proofing system, will keep below grade structures dry.

#### Protection Layer

A foundation drain system such as Enkadrain has a third function of protection. During the backfilling process, the drain mat acts as a protection layer to prevent construction equipment from damaging the waterproofing membrane. It also keeps sharp rock or debris in the soil from puncturing the waterproofing as well. When a drainage mat with a geotextile filter on both sides is used, it spreads the lateral soil loads on the construction side and protects the bituminous waterproof coating.

