NGS
NASRA GEOSYN

50
YEAR DESIGN LIFE

PRODUCT TECHNICAL DATA SHEET

AquaCell EXO Passive Irrigation System

AQUACELL EXO · CAPILLARY SUB-IRRIGATION

>95%	No pumps	85–250 mm depths	Store + Irrigate
VOID RATIO	VERTICAL LOAD	CELL SIZE	FUNCTIONS

The NGS AquaCell EXO Passive Irrigation System turns stored stormwater into landscape irrigation — without pumps or energy. Runoff is held in a geomembrane-lined AquaCell EXO reservoir; a capillary wick layer draws water upward into the growing media, sub-irrigating planting on demand as the soil dries. **Typical build-up (top→base):** planting & topsoil · filter geotextile · capillary wick · AquaCell EXO cells · HDPE geomembrane liner · compacted subgrade.

TECHNICAL DATA

SYSTEM COMPONENTS		
Geo-cellular reservoir		**AquaCell EXO (85–250 mm)**
Base liner		**Impermeable HDPE geomembrane**
Capillary wick		**Low-elastic capillary media**
Separation / filter		**Non-woven geotextile**
Growing media		**Project-specific substrate**
CELL PROPERTIES		
Volumetric void ratio		**>95%**
Cell vertical strength	kN/m²	**up to 883**
Material		**Polypropylene (PP)**
Intrinsic permeability (k)		**≥ 1.0 × 10⁻⁵ m/s**
Service temperature		**−30 °C to +120 °C**
Standard		**BS 7533-13:2009**

KEY BENEFITS

- **Passive sub-surface irrigation** — no pumps, no energy, no in-building tanks
- Cuts landscape irrigation demand by reusing stored stormwater
- Combines stormwater detention & irrigation in one system
- Drought resilience and a healthier root zone for urban greening
- Supports Vision 2030 / Saudi Green Initiative water-efficiency goals

APPLICATIONS

Streetscapes and medians, tree pits, parks and plazas, podium gardens, green roofs, and large-scale urban greening / afforestation.

STANDARDS & TESTING

Structural load-bearing capacity tested to BS 7533-13:2009; design-life expectancy based on creep-test data per CIRIA guidelines.

BS 7533-13 · ISO 9001 · ISO 14001 · ISO 45001 · Intertek / SGS tested

PERFORMANCE & INSTALLATION

50 years (lightly loaded areas); typically 25 years under prolonged HGV loading, depending on pavement design. All calculations are based on site-specific load cases, pavement construction, soil cover and ground conditions; suitability must be approved for each project.

Frost-, hydrophobe-, acid- and hydrocarbon-resistant; inert; impervious to bacterial and fungal growth. 100% recyclable.