Wavin
Brochure

AquaCell

Stormwater Management System

wavin
An Orbia Building & Infrastructure business.

AquaCell

Our next-generation AquaCell helps control and alleviate rainwater flooding, infiltrating it into groundwater reserves or storing it for reuse. Manufactured from 100% recycled polypropylene resin, our AquaCell is an environmentally friendly solution for water management.

Climate-resilient cities

Climate change is a reality in our world today. Urbanization alters surface hydrology, affecting infiltration, evaporation, and surface runoff.

The latter causing waterlogging and flooding in low-lying areas or locations with heavy rainfall accumulation, wreaking havoc on local infrastructure and putting its inhabitants at risk.

With AquaCell, Wavin® has once again taken on these global challenges with tried, tested,
and versatile answers to the effective management of water resources.

The system is made of 100% recycled polypropylene geocellular units that can be used as below ground storage tanks and can mitigate rainwater runoff by reusing/infiltrating it into the subsoil. It provides a comprehensive solution for controlled water management that reduces risks to urban infrastructures and their populations.

Solution for Sustainable Projects

Environmental Product Declarations (EPDs) are available, making AquaCell ideal for projects seeking water water efficiency or LEED certifications. AquaCell has the environment in mind every step of the way, beginning with its manufacturing process with highly resistant and durable 100% recycled raw material. It significantly reduces the water footprint and the dependence on potable water networks, does not pollute the subsoil and is environmentally friendly during storage and installation, thereby reducing CO_2 emissions.

Hydraulic function

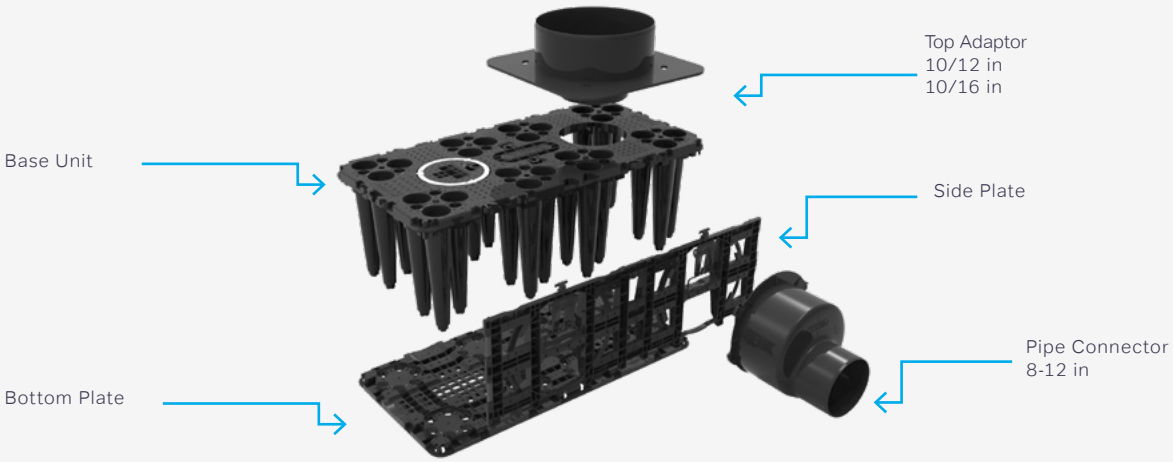
AquaCell is a geocellular unit used to build subsurface rainwater detention, retention, infiltration and storage tanks. It's the optimal solution for faster installation and full access to inspection and cleaning activities.

Void rate

95%

73 Gallons/
9.74 CF

- Water storage for reuse
- Infiltration to recharge groundwater
- Temporary storage to prevent flooding



Product Features

Lightweight
100% plastic

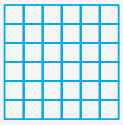
Long
service life

100% recycled
material

High vertical
and horizontal
loading capacity

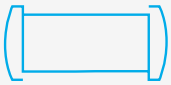
No tools needed
for connection

Large storage
capacity



Safe and stable
installations

Modular
system



Compatible with most
pipe sizes & types

Application

AquaCell is a highly versatile solution that users can tailor to new and existing residential, commercial, industrial and infrastructure projects.

- BMP (Best Management Practice & LID (Low Impact Development)
- Airports
- Educational Institutions
- Hospitals
- Shopping Malls
- Horizontal and Vertical Structures
- Public Infrastructure
- Industrial Parks and Plants
- Urban Centers

Note: (Other structures requiring cisterns/tanks for rainwater management may be included In the design. AquaCell's flexibility makes it possible to build underground tanks in different geometric configurations, recovering the ground surface thanks to its positive loading capacity.)

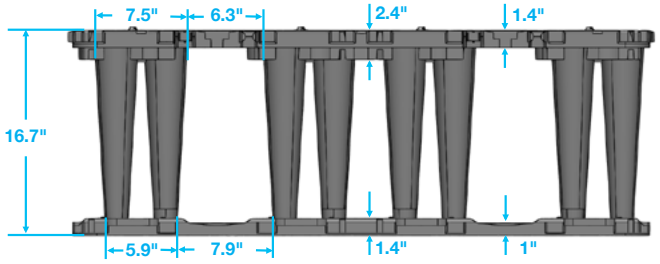
Support

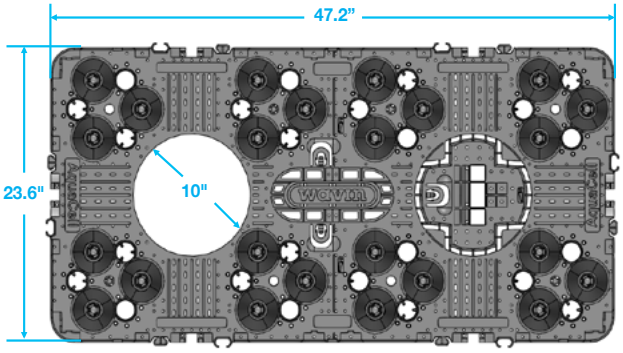
On-site training for installers and engineers

On site consulting services available

Maintenance Training

AquaCell Technical Specifications



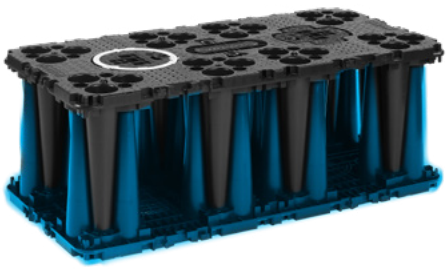


Mechanical resistance (versions)

Interlocking two base units can create an extra strong version of the system.

Standard Configuration

Extra Strong Configuration



Designed to support AASHTO load standards H-20 and H-25.

Storage capacity

Regular Configuration	
Gross Volume / (without bottom plate)	10.25 cf
Net volume / (without bottom plate)	9.74 cf
Void Ratio / (varies by layer/side plates added)	94% - 96%

Extra strong Configuration	
Gross Volume	11.70 ft³
Net Volume	10.84 ft³
Void Ratio / (without bottom plate)	92.7%

Weight, pipe connections and number of layers

Base Unit Weight (lbs)	24
Pipes NPS (in)	6 - 8 - 12
Vertical Access (in)	10
Maximum number of layers (with a minimum cover depth of 30 cm for landscaped areas)	8 layers

Performance and installation

Installation speed[1]	1413 ft³/ hour/ per person
Coupling mechanism	Manual – Push fit
Bedding material (base)	Sand, Stone or other approved backfill (Compacted and leveled material)
Minimum depth (base)	4 in
Percent Compaction (SP)[2]	90% - 95% - 98%

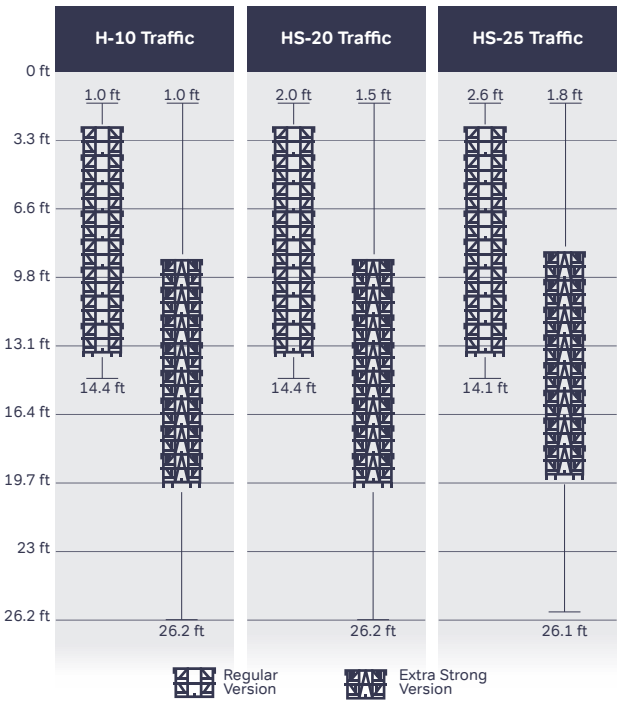
Note: (1) Measured performance for cell assembly, obtained with material supplies and trained personnel on-site. Based on tank size (20' L x 10' W x 4' H)
(2) Percent compaction varies according to the type of loads (no traffic, light traffic and heavy traffic, respectively).

Installation depth by load[3]

Minimum/ (Maximum Cover Depth)	Regular	Extra strong
H-10 Traffic Loading	12 in. / 14.4 ft.	12 in. / 26.2 ft.
HS-20 Traffic Loading	24 in / 14.4 ft.	18 in. / 26.2 ft
HS-25 Traffic Loading	32 in / 14.1 ft.	22 in. / 26.1 ft.

Note: (3) Each project must conduct a stress analysis to ensure the system's stability based on the acting loads, soil type and water table involved. Wavin recommends a minimum cover of 12 inches over the top of the tank. For details on use in the regular or extra strong versions, or if you need further information, contact your Designated Technical Marketing Consultant

Maximum Installation Depth



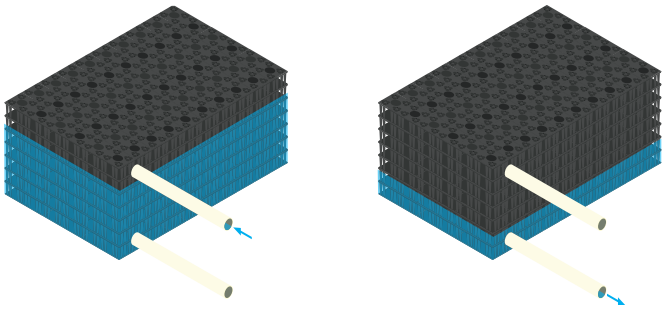
Hydraulic function

AquaCell modular solution can be tailored to three types of applications.

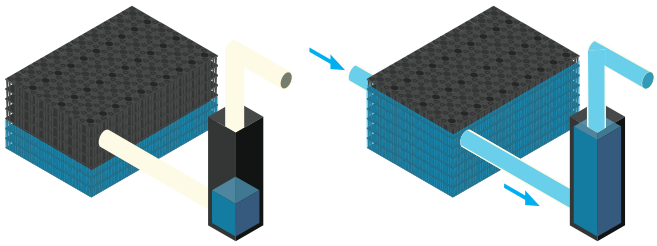
- **Retention and detention:** a volume of rainwater is temporarily stored for gradual release to the public sewer network or receiving medium. Tank wrapped with Non-Woven Geotextile + Geomembrane + Non-Woven Geotextile.
- **Reuse:** rainwater is temporarily stored in the tank and extracted through a pumping system for another purpose. Tank wrapped with Non-Woven Geotextile + Geomembrane + Non-Woven Geotextile.
- **Infiltration[4]:** temporary storage in the tank and gradual rainwater infiltration into the soil. Tank wrapped with Non-Woven Geotextile

Note: (4) Soil characteristics should be assessed to ensure this application is feasible.
Variables such as rainfall intensity, tributary areas, runoff coefficient and soil typology are used to design any of these applications.
Other data may be required depending on the specifics of each project.

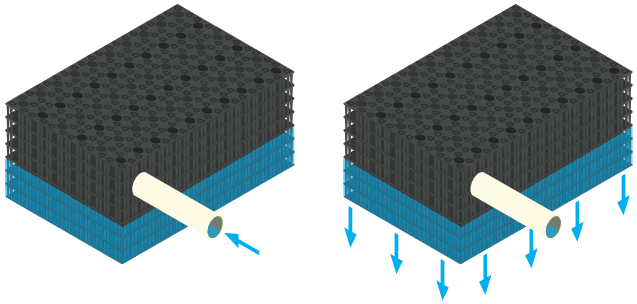
Retention and Detention System



Reuse System



Infiltration System



System Benefits

Environmental:

- Ideal for rainwater reuse.
- Reduces the water footprint.
- Does not contaminate the subsoil.
- Does not alter water characteristics.
- Low installation impact.

Structural:

- On-site performance is superior to concrete and metal.
- Manual installation, no accessories required.
- The solution can be tailored to any geometric structure.
- It is ideal for areas with limited access and heavy rainfall.
- Access for inspection and cleaning activities.

Urban Development:

- Mitigates the effects of flooding.
- Ideal for sustainability certifications.
- Reduces dependence on potable water.
- Reduces saturation of drainage networks.
- Alternative source for non-potable uses.

Product Quality:

- Long service life.
- Lightweight and highly structurally resistant.
- Large storage capacity: stackable cells.
- Resistant to water and soil activities.

Wavin AquaCell vs other systems

Feature/ Method	Wavin AquaCell	Other Geocellular Storage	Arched Chamber Systems	CMP Pipe Systems	Reinforced Concrete Vaults	Above ground pond storage
100% recycled plastic	✓	–	✗	✗	✗	N/A
Reduces installation / construction times	✓	✓	–	✗	✗	✓
Push-fit connection	✓	✗	✗	✗	✗	N/A
Ergonomic handgrips to maximize worker safety	✓	✗	✗	✗	✗	N/A
No clips, pins, tools needed for unit installation	✓	✗	✓	✗	✗	N/A
Sand / native soil allowed for bedding	✓	✗	✗	✗	✗	✗
No embedment stone required	✓	✗	✗	✗	✓	N/A
Access for inspection and maintenance	✓	✓	✓	✓	✓	N/A
Stackable system optimizes transport & site storage	✓	✓	–	✗	✗	N/A
Optimizes excavation & backfill volumes	✓	✓	✓	✗	✗	✓
12 in. minimum cover for non-traffic installs	✓	–	✗	✓	✓	N/A
Multi-layer, stackable system	✓	✓	✗	✗	✓	N/A
Deep burial installation options available (> 10')	✓	✓	✗	✓	✓	N/A

Case Studies: AquaCell Installations in Latin America

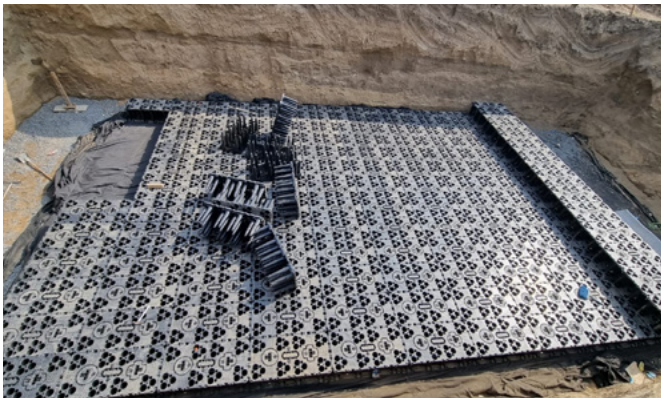
Attenuation tanks in the retail sector

Jamundí, Colombia
Application: Attenuation/Detention
Capacity: 207 m^3
Tank assembly time: 4 days
Year: 2023

Ecuador
Application: Attenuation/Detention and Reuse
Capacity: 10 m^3
Tank assembly time: 1 day
Year: 2023

Infiltration tanks in the industrial sector

Guatemala
Application: Infiltration
Capacity: 600 m^3 (4 tanks of 150 m^3)
Tank assembly time: 4 days
Year: 2023



México
Application: Attenuation/Detention
Capacity: 600 m^3 & 700 m^3
Tank assembly time: TBC
Year: 2023

Discover our broad portfolio at wavin.us

- Water management
- Heating and cooling
- Water and gas distribution
- Waste water drainage

Wavin is part of Orbia, a community of companies working together to tackle some of the world's most complex challenges. We are bound by a common purpose: To Advance Life Around the World.

Wavin 950 Winter Street, South Entrance 1st Floor, Waltham, MA 02451, United States | 5700 Côte de Liesse Montréal, QC H4T 1B1
Phone CAN 514-735-7585 / 1800-561-1169 | US 514-735-3632 / 1800-763-3632 | E-mail wavin.northamerica@wavin.com | wavin.us

WavinTechSupport@orbia.com