Plastic underground stormwater storage

"CROSS-WAVE"

Sekisui techno molding co ltd
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1. Introduction
SEKISUI TECHNO MOLDING CO., LTD
Corporate Profile
Overview

- Name: SEKISUI TECHNO MOLDING CO., LTD.
- Date founded: Aug, 1962
- Capital: 200 million JPY
- President: Mikiya Idehara
- Number of Employees: 481 (in the year ended March 2015)
- Net Sales: 15,517 million JPY (Consolidated; For the ending March 2014)
Foreign group factory

◇ Japan

◇ India

◇ Indonesia
Light weight, high strength and good design can be achieved by material, molding and die technologies.

We offer a line-up of high quality and variety of products.

It contributes to preventive measures against flooding of cities and guerrilla rainstorm as well as effective utilization of rain water.
2. Necessity of plastic underground storage.
Records of heavy rain in Japan

50mm/h over

1.4 times

1976~1985 Ave. 174 times

2010~2019 Ave. 251 times

Literature: Japan Meteorological Agency
Mechanism of urban development

Urban Flood Management

Penetrate

Rain

Reduse
Necessity of plastic underground storage.

1) It’s need to urban flood control measure by heavy rain frequently.

2) Compared to concrete, Environmental-friendly, Low cost.
Compared to concrete (1,000 m³) – 1 CWH in Japan

CO₂ decrease (90% over) … track decrease

Concrete: 168 unit
Crosswave: 8 unit

CO₂: 12t → 0.9t (90% decrease)
3. What is the CROSS-WAVE?
CrossWave
1m × 1m
Waveform

0.18~0.22m
There are following patterns according to the purpose.

- **Storage type**
  - Geomembrane
  - Geotextile

- **Infiltration type**
  - Geotextile
Construct process

1. Digging
2. Foundation
3. Install Geotextile
4. Install Geomembrane
5. Stack CROSS-WAVE
6. Setting Spacers
7. Wrapping
8. Finished
Please see the video at the following website.

【URL】https://sekisui-cw.co.jp/method/index.html
**High porosity**

1) 95% of space can be maintained by intersecting it at 90 degrees and piling it up

2) Reduce the amount of digging and can make a big volume of storage in compact space
**Fast installation**

- Construction is quick due to simply stack.

<table>
<thead>
<tr>
<th>Concrete</th>
<th>10 days</th>
</tr>
</thead>
<tbody>
<tr>
<td>CrossWave</td>
<td>5 days</td>
</tr>
<tr>
<td></td>
<td>1/2</td>
</tr>
</tbody>
</table>
**Heavy load**

- T25 vertical loading and 4m depth.

**Vertical stress**

**Horizontal stress**

Covering 2.2 m
Share No. 1 In Japan

Porosity 95%

Number of construction 10,000 pieces
Construction case

parking

Playground

Park
### Example (1) Development guidelines (Funabashi city in Japan)

<table>
<thead>
<tr>
<th>Development area (m³)</th>
<th>Regulated storage (m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.03 ≤ A &lt; 0.5</td>
<td>600A</td>
</tr>
<tr>
<td>0.5 ≤ A &lt; 1.0</td>
<td>800A</td>
</tr>
<tr>
<td>1.0 ≤ A</td>
<td>1300A</td>
</tr>
</tbody>
</table>

**Example**

1300 m³ (guideline) × 2.0 ha (site area) = 2,600 m³ (Responsibility volume)
Thank you for your attention.