

ADVANTAGES OF POLYMER CONCRETE DRAINAGE CHANNEL

The past years our society has changed considerably. We have moved from conventional banking to e-banking, from traditional paper maps to digital Google maps, from simple mobility to safe mobility, from conventional stores to modern shopping malls, from landline phone to mobile phones, from physical class rooms to virtual class room.

In the construction sector most of the real estate developers want to develop world class properties in India. They want to offer the best technology in their projects. However the drainage systems have not changed. We are using the same old technology of conventional on-site casting of concrete cement drain in many projects. These conventional drains do not match the modern amenities that builders are providing to their esteemed customers. In the search for modern, aesthetic and high-tech amenities for the projects, the developers should also focus on establishing the best designed and most efficient drainage systems.



ACO polymer concrete channels are the backbone of our high strength channel drainage system designed to provide an economical solution for the efficient drainage of surface water. The system is suitable for use in a wide range of applications including commercial and residential developments, landscaping and parking areas for all vehicle types. The wide range of design gratings provide an aesthetic and robust solution. The design ensures a quick and easy installation.

For several prestige projects all over India, ACO Systems and Solutions have supplied our polymer concrete drainage system to secure efficient surface water drainage in basements. For this application, the main technical advantages of the drainage system are:

Hydraulic Efficiency

ACO Drain Channels are precisely molded with a built-in slope and an ultra-smooth finish which encourages efficient hydraulic flow. This ensures greater discharge rates than equivalent sized cast-in-situ concrete drains.

Mechanical Properties

Polymer concrete has approximately four times the compressive strength of conventional concrete at the half the weight of an equivalent section. It is inherently resistant of a wide range of acids, alkalis, sulphate and detergents.

Easy Maintenance

The heart of the innovation is the V-profile. This channel profile not only improves the drainage capacity but also enhances the self-cleaning effect. Moreover, it is also available with all gradient types to increase the drainage volumes during extreme storms.

Water Tightness

ACO Drain Channels provide complete tightness of the channel body, right up to the top of the edge rails. There is no water absorption. The jointing is done by a tongue and groove arrangement.

The ACO drainage system is often compared to conventional on-site casting of cement concrete drainage channels. Due to the above listed technical advantages of polymer concrete, the pre-fabricated ACO drainage system is superior to the conventional on-site casted cement concrete channels.

The main differences between the two systems are listed below.

| ACO Polymer Concrete Drainage System | On-site Casted Cement Concrete Channels |
|---|---|
| Superior hydraulic efficiency due to V-profile of drainage channel | Wide construction resulting in poor hydraulic performance |
| Efficient design of drainage channel result in lower excavation costs. | Excavation requirement for conventional system is three times higher than for an ACO drainage system. |
| 100% water tight solution using polyurethane based sealing to join the tongue and grove locking arrangement. | Water absorption in cement concrete is 400 times higher than in polymer concrete. Additional water proofing is required to secure a water tight system. |
| As a result of the efficient design, the installation of polymer concrete drainage systems is quick and easy. | The time of construction of on-site cement concrete channels is more than the double of polymer concrete channels. |
| The efficiently constructed pre-fabricated channels and designed gratings ensure a highly aesthetic solution. | The deep and wide construction and often poorly manufactured gratings leave an unaesthetic impression. |
| The ACO gratings are lockable resulting in high security and no risk of vandalism or theft. | Not lockable gratings can result in dangerous traffic situation. Furthermore, the risk of theft is obvious. |
| The locking mechanism of ACO gratings ensures no noise pollution by vehicular movement. | Noise pollution due to the rattling of the not lockable gratings occurs. |
| The efficient design of the in-built slope of polymer concrete channels ensures optimal flow-rate and water velocity. | Concrete channels require a continuous slope to achieve sufficient flow-rate and water velocity. Poorly constructed concrete channels result in stagnant water and silt deposition. |
| The in-built slope of polymer concrete minimizes the depth of the drain resulting in lower excavation costs. For example: Initial depth: 100 mm. Final depth: 300 mm. | Concrete channels with continuous slope require more depth resulting in higher excavation costs. For example: Initial depth: 300 mm. Final depth: 760 mm. |



| MECHANICAL PROPERTIES | | |
|--------------------------|----------------------|----------------------|
| | Polymer Concrete | Cement Concrete |
| Bending tensile strength | 25 N/mm ² | 10 N/mm ² |
| Compressive strength | 95 N/mm ² | 68 N/mm ² |
| Water absorption | 0.01 mm | 4 mm |
| Surface roughness | 22 µm | 175 µm |

