GARRISON
FLOOD CONTROL

CASE STUDY

Mayim™
The Citadel Military College

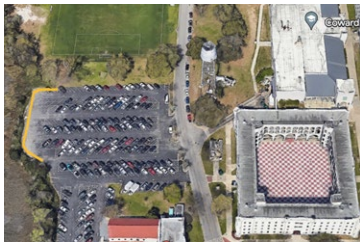
MAYIM
MODULAR FLOOD BARRIER

The Client:
The Citadel is an esteemed Military College that is nestled in Charleston, South Carolina located on the peninsula, an area historically vulnerable to king tides and storm surges.

The Citadel historically faces recurrent flooding issues, particularly affecting campus parking lots. These lots are positioned along the Ashley River waterfront area. The incessant water-logging has rendered parking areas unusable, causing considerable inconvenience, property and infrastructure damage and interruptions to day to day operations.

The Challenge:
One of the most significant challenges faced by The Citadel is the regular flooding of its parking lots due to tidal swings and storm surges. This not only restricts the availability of parking spaces but also heightens the risk of damage to infrastructure, property, grounds and vehicles. Due to the location of the college and location alongside the Ashley River, it was vital to find an effective and long lasting flood control system.

A vulnerability study completed in 2019 showed that 70% of properties in the city of Charleston are highly vulnerable and at risk of flooding (FloodStat). Therefore, The Citadel sought to find a protective solution that could be deployed in their parking lot locations for potential flood events.



Goal:
Our goal in providing a flood protection solution to The Citadel was to address the flood issues their parking lots face. Achieving this goal meant recommending a flood mitigation system that could withstand the unpredictable rise in water levels into their parking lots.

Additionally, our goal was to recommend a resilient and effective flood system that could be easily deployed by the facilities and operations teams at the college ahead of dangerous flood threats and emergencies, allowing the college to take a proactive approach to flood management. The system also needed to be able to remain outdoors for the flood season if it was deemed necessary.

A member of our team visited the site and thoroughly assessed the situation on the ground. By carefully analyzing the surrounding marshland, parking lot elevation, existing water marks from prior flooding and by discussing the situation with employees of The Citadel, we determined that our Mayim™ interlocking flood barriers were the best option to mitigate and prevent flooding.

Solution:

The flood control solution provided to The Citadel was Garrison's 30" tall Mayim™ Modular Interconnecting Flood Barrier, a proven solution to flood management, water containment, and water diversion.

This innovative flood mitigation system is characterized by a series of interlocking panels that create a solid barrier against all types of flooding. The Mayim™ (MB2) Flood Barrier incorporates a variety of features which enhance performance and improve deployability. Panels and sections seamlessly interconnect to create a robust and expansive line of defense against incoming flash floods or king tides.

Mayim's design incorporates high-strength, durable L-shaped panels with cross-ribbing that can withstand the force of rising water levels. Additionally, the portable barriers can be quickly assembled and disassembled, making them adaptable to various flood scenarios or emergency needs.

Some of the features of Mayim™ include:

Interconnecting Panels: The flood barriers are designed to interconnect by overlapping, providing a tight seal against water ingress and allows for a quicker deployment compared to other flood wall solutions.

EPDM Foam Seals: These seals are strategically positioned between panels and between the panels and the ground, enhancing the barrier's water resistance.

L-shaped Panels: The innovative design of these panels ensures that rising water ballasts the panels, improving the seal with the ground and prevents panels from being dislodged or tipped over.

The Mayim™ (MB2) Flood Barrier is not only effective, but also cost-efficient, making it an ideal choice for many facilities' flood control requirements.

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The college acquired both Straight Mayim™ MB2-S Panels and Curved Mayim™ MB2-OC Panels, allowing the system to be shaped to follow the corner turns in the parking lots, providing additional protection against water migrating around the panels during higher tide situations.

The implementation of the Mayim™ Barrier System brought immediate relief to the flooding concerns. The system effectively curtailed water ingress, reclaiming lost parking spaces and safeguarding the infrastructure and property grounds. Moreover, the feedback from stakeholders has been overwhelmingly positive, attesting to the barrier's efficiency in preventing flood damage and maintaining the functionality of the parking areas. The inclusion of sandbags at specific points further assisted the system's ability to ensure a tighter seal with the ground and to handle surface variation and softer ground in certain areas.

Summary:

As a result of frequent flooding in the Charleston, South Carolina area, The Citadel College experienced a significant impact to their parking lots, rendering areas of them unusable during times of heightened tides and concurrent flood events. The college sought out a comprehensive and robust flood protection solution that could be deployed quickly by minimal crew across their parking lot and help mitigate the future impact of flooding.

Our team of Flood Specialists considered the topography and layout of the parking lot and made sure to accommodate changing angles and turns at corners; ensuring maximum protection and a continuous line of flood defense.

The Mayim™ (MB2) Modular Flood Barrier was used for The Citadel's flood protection needs, providing up to 30 inches of protection height. The deployment of Mayim™ Flood Barriers checked all the boxes that The Citadel was looking for and was an economical choice. Moreover, the feedback from stakeholders has been overwhelmingly positive, attesting to the barrier's efficacy in preventing flood damage and maintaining the functionality of the parking areas.

Takeaways:

- Both Straight and Curved Mayim™ Flood Barrier panels easily and quickly interconnect to create a flexible flood barrier across a variety of unique layouts that are vulnerable to flooding.
- The Mayim™ (MB2) Flood Barriers provided to The Citadel can protect against flood water up to 30 inches in height.
- Charleston's frequent flood events make Mayim™ Flood Barriers an ideal and effective flood system due to rapid deployment.
- The continued use of the Mayim™ Barriers will foster a safer and more sustainable environment for The Citadel while preserving access to their parking areas.

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