

# RSA MOVABLE BARRIER FLOODWALL SYSTEM

## – EXECUTIVE SUMMARY

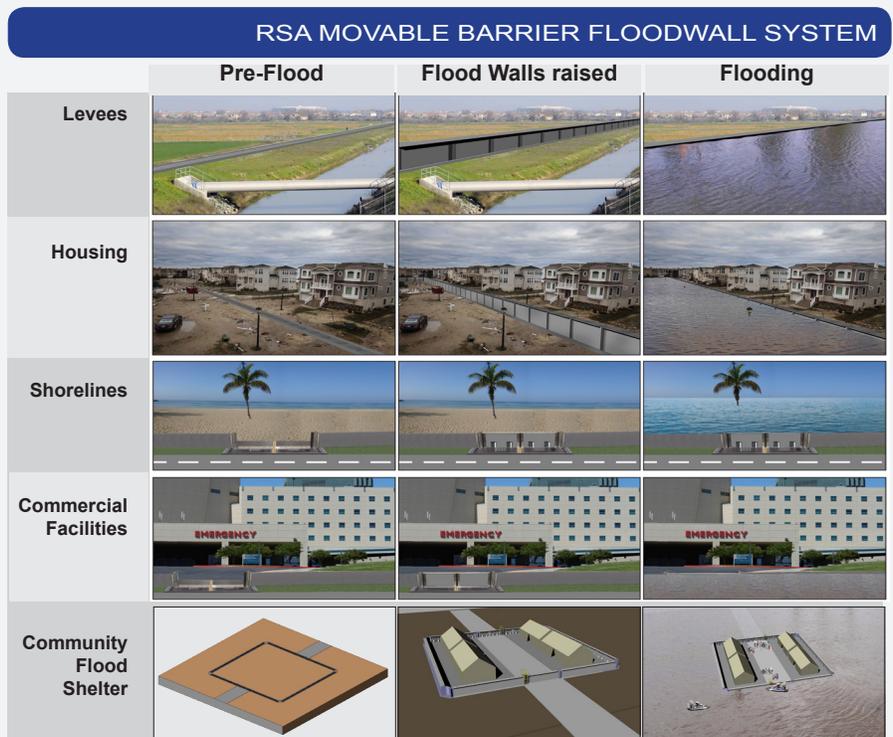
My name is Rick Adler and I am an infrastructure inventor who has developed a concrete Movable Barrier Floodwall System (“MBFS”) which can be retrofit or installed OEM during the rebuilding or after the tragic flooding from Hurricanes.

Currently our system has been analyzed to sustain against 12’ of flooding from a Category 5 hurricane. To maintain the high aesthetic of the City both inland and along the coast the MBFS is a retractable concrete floodwall mounted underground inside a concrete U channel. The system has means to remotely and quickly raise all the flood wall panels out of the ground for ingress and egress until the time when severe flooding occurs. With long applications the intelligent use of the system manipulating selected sections of the flood wall panels can custom channelize the flooding waters. This would be based on GIS/USGS/NOAA hydraulic mapping and the instant weather report.

The system is basically an invisible cantilever when stowed and when raised maintains a portion of the flood panel underground to sustain against the intense hurricane forces. Our engineers have analyzed and designed both the flood wall and foundation to the FEMA 55 criteria document. This includes: hydrostatic (standing water), hydrodynamic (moving water), wave action, wind loading at 157 mph (Category 5 Hurricane) and impact loading (1,000lb. element striking the floodwall at 90 degrees at 15.5fps (10 mph).

RSA Protective Technologies ([www.rsaprotect.com](http://www.rsaprotect.com)), my company partners with an experienced geotechnical firm to analyze the soil and hydraulic conditions for each section of the flood wall’s contour line. They will determine and produce any requirements to add sheet pile, batter or straight piles, rock anchors or other concrete pile cap constructs to maintain a stable structure.

Applications of the same system can be used for retractable flood protection behind sea walls along the coast, as a levee extension without raising the elevation of the existing levee, placed around commercial property and private homes and as a community flood shelter.



RSA's team of civil, structural, mechanical, electrical and controls engineers will customize the design of each system based on a thorough survey and soil sampling and will prepare the entire fabrication, assembly, installation, commissioning and long-term operations and maintenance program for each site. We will work closely to supervise local geotechnical, civil, construction and fabrication firms to advise and oversee each step of the system to completion.

Once the plan has been approved custom concrete molds and standard underground concrete forms will be delivered to the site where the flood wall panels will be cast. After excavation and shoring the site, typical forms will be set and 6,000 psi concrete poured for the foundation. Strategically placed threaded inserts placed in the forming of both the flood wall panels and foundations allows for quick and accurate mounting of the various gasket seals, stainless steel contact surfaces, roller bearings and redundant swing out legs that maintains the flood wall in the up position.

Operations range from a fully automated system which rises through controls signals from water level sensors to manually pulling up each flood wall panel with a crane that locks itself in place. The invention has been designed to not require uprights between flood wall panels as each act individually with vertical water sealing gaskets between. The continuous flood wall contour line can turn corners, accommodate changes in elevation and handle underground utility pass throughs. After the flood event the area is cleaned and then each panel is lowered back into its foundation waiting to be used again. A drive over top allows for heavy vehicle traffic over the system. We estimate the system will last for over 100 years with little maintenance required.

To maintain a leak proof system during the flood event a drain sparger pipe mounted along the bottom of the foundation is connected to a pump and plumbing scheme which collects water that enters the foundation from both the flood and protected sides (to avoid ponding on the dry side) and discharges the collected water back into the flood zone.

In reference to long term viability in marine environments a well-designed concrete mix, correctly placed with due consideration to achieving sufficient cover to the ferrous reinforcing steel, is perfectly capable of resisting the effects of seawater. However, in some circumstances the environment is very aggressive and additional protective measures are necessary to maintain the integrity of the concrete and thus prevent the reinforcement from corroding in the long term. These may be in the form of coatings, specialist admixtures, use of stainless steel in vulnerable areas, implementation of a cathodic protection system or a combination of these items. Each situation must be assessed on its own merits.

The relatively inexpensive cost of concrete makes this invention, which is 97% concrete viable for both small runs and miles of applications. Currently our design ranges from 3' to 20' of exposed flood protection height.

RSA has been involved with large scale infrastructure projects since 2003. Working with Buck Revell, retired Deputy Associate Director of the FBI who secured a contract with the DoD (TSWG) to test the Adler Blast Wall. A surface mounted steel jacketed, concrete filled blast wall tested by the largest charge ever by the DoD sustained a 1,000lb. TNT bomb blast at 6ft. stand-off. The results were no secondary fragmentation, the center panel canted back about 20 degrees and reduced the overpressures by around 90 percent.

A year later RSA secured a contract from the Department of Energy to design, fabricate and test an anti-ram wall against a 65,000lb. truck striking the surface mounted 4' tall wall at 50 mph. The truck's measured penetration was negative three feet. Then a year later the GSA requested we develop a shallow mount security bollard system. Our first project was for the Federal Reserve Bank in Houston. This is our major product line. We have designed and fabricated over 40,000 units for U.S. Embassies and Consulates, the Headquarters of the U.N. in NYC, stadiums, Fortune 50 HQs, reservoirs and other high-risk facilities.

After Hurricane Sandy RSA was contracted by the MTA in NYC, the New York City Economic Development Corporation and ConEd to develop, test and have installed a series of flood control devices.

Please view the link below to videos of RSA's Federally and State funded infrastructure inventions  
<https://vimeo.com/126352343>

Sincerely,

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