

Case Study

Banco Popular: “A Matter of Pride”

Project Client:

Banco Popular ó San Juan, Puerto Rico

The Project:

In May 2007, Jose Guterrez of SFC Arq. first contacted Sean Wander, V.P. of Business Development at Harmonic Environments. It was regarding a large scale, high profile indoor and outdoor waterfall project for Banco Popular (Puerto Rico's largest bank) in the fashionable Hato Ray business district of San Juan.

Upon meeting with the team, Sean was briefed on the history of the project. From the moment he arrived, Sean could feel the sense of passion and pride that this project gave rise to. Not just for Banco Popular - but for all the citizens of Puerto Rico.

“We were given the challenge of providing features so spectacular that this new Pavilion would be an inspiration, and surpass the design achievements of previous generations,” Sean said. “It was a matter of pride.”

Originally, the team in San Juan had a vision of 4 features, including an [outdoor concrete fountain](#) with a statue in the center, commissioned by a prominent local artist. The 3 indoor waterfall features were originally specified to be constructed in clear tempered glass.

However, all that was about to change.

Once the team in San Juan saw a video of another waterfall project that Harmonic Environments had fashioned a year earlier, they quickly shifted gears. The [video](#) was of the Mandara Spa, Atlantis Resort on Paradise Island in the Bahamas, which featured the exclusive Harmonic Cascade Waterfall. (trademark after the word Cascade or Waterfall)

Immediately, everyone realized that the Harmonic Cascade was the perfect design for the 3 indoor waterfalls that would adorn this space; a design that would foster the pride and dignity that everyone was passionately seeking.

The North Atrium of the bank would house two of the water features ó [twin, towering Harmonic Cascades at 25' high x 8' long](#). These features would flow into open pools equipped with special nozzles for enhanced sound and water flow.

The most prominent, and clearly the most challenging of the 4 features, was the one in the highly visible South Pavilion. It's a [stunning and majestic feature that soars 40' high](#)

[and nearly 200 feet across](#) in front of the exterior building glass. This waterfall is visible from anywhere on the main level, as well as from the winding spiral stairway that leads to the wide open second floor. Visitors typically stop dead in their tracks, marveling at the design and size of this imposing waterfall.

Project Challenges:

Every indoor waterfall project poses its own unique set of challenges. The challenges on this project were often related to the sheer size and scope of it.

There were 5 major challenges...

- 1. The Bank's Ceiling Beams:** Due to the unique shape of the bank's ceiling fixtures and beams, there were distinct spatial challenges to overcome. These related to the positioning and hanging of the coil panel, the weir header and the large upper distribution system.

It required a coordinated effort by the installation team to raise the header, and more importantly, to ensure that it was properly leveled to achieve maximum stability and water patterning. Having prepared for this well in advance, and having allocated sufficient time to achieve this end, this challenge was met successfully.

- 2. Water Movement:** As the project neared completion, Harmonic Environments' Project Manager, Larry McDonald recognized that the valve that controls the water flow did not permit enough flexibility for slower movement of the water. So he changed the specification and began searching for a new valve.

“It was a challenge to find the right valve,” said Luis Tapia Robelo, the construction project manager. “But he located it and solved the problem in one day.”

Larry's attention to detail and determination during the installation phase, proved to be the difference between a water feature that merely continues to work, versus one that performs flawlessly.

- 3. Maintenance:** Two big factors made the maintenance of these water features so challenging. One was the sheer size of the features. The other factor was access - especially to the upper distribution system, which needs to be kept clean for the water patterning to continue to flow in an even, uninterrupted manner.

This challenge was addressed in both the pre-design and post-construction phases by designing a singular, comprehensive program that addressed the unique challenges of a project this size. A detailed, customized maintenance manual for all parts and components was provided for the team. There were also

live onsite demonstrations to illustrate the proper techniques. And a training video was produced and distributed for future reference.

4. **Condensation:** The control of condensation is vital to the long term success of any indoor waterfall project. This is especially true when there is equipment in a remote location with a long piping run. As was the case with this project, there needs to be sufficient insulation that accompanies the piping to protect against harmful condensation.
5. **Clearances:** Proper clearances cannot be overstated. Surrounding materials need adequate space, so as to avoid being adversely affected by the water features. Nearby materials should also be impervious to water or properly waterproofed and/or marine treated. This is not because of any splash, leak or overspray, but rather because the public may splash the water - or spills may occur during refilling.

It should be noted that gypsum board requires more clearance than other building materials. This emphasis on clearances was stressed early in the design phase, so as to avoid any delays during construction.

Project Completion and Lessons Learned:

Two critical elements greatly minimized the risks to a project of this scope. The first was preparation - **uncompromised preparation** and anticipation of problems before they occurred. The second was working with a team in San Juan that was deeply **passionate, competent and committed** to creating extraordinary waterfalls that captivate and inspire everyone who comes into contact with them.

For the members of the team, these towering indoor waterfalls are something they will be showing their family and friends for years to come.

There are also lessons to take away from every job - lessons that will pay dividends down the road on future projects.

Members of the design and general contractor teams provided excellent suggestions that are worth noting. These include:

- Strict review of clearances for all key team members and trades - to ensure that site footprints coincide with the waterfall dimensions
- Continued emphasis on the importance of following maintenance procedures in the allotted time frames
- Provide additional notes related to condensation, and suggestions as to possible piping solutions, in coordination with the mechanical, electrical and plant (MEP) staff on site

- Provide additional notes on material specifications, so that the surrounding finishes don't present any challenges to future maintenance and preservation of the original aesthetic features
- Ensure that the valves specified provide the best possible control for the flow of the water.

Ultimately, it's the final product that's the true testimonial for the project. You can judge for yourself in the [photo series](#) that accompanies this case study.

And yet, some of the testimonials from team members in San Juan bear repeating, since they shed light on the actual process of preparing and building these waterfalls with the team from Harmonic Environments.

"The organization of the process, and your professionalism, is what separates you guys," says Luis Tapia Robelo, construction manager on the project. "I liked working with you, and I never felt that we weren't receiving attention from your team. You were there to clarify doubts and that's a nice feeling to have."

And this from Jose Gutierrez, project architect. "Things came in on time and everyone on site appreciated that. I would absolutely work with you again on other projects, and continue to recommend you for water feature projects on the island."

Just prior to our final onsite adjustments, Luis Pico Lacomba from Banco Popular had this to say. "The water features in the North Atrium, with the patterning we are matching in the large feature, were very much to the CEO's liking."

And one parting thought from Luis Tapia Robelo. "Working with Sean, Eric and Larry was a great experience! If we have another client, you can be sure that I'm going to mention you guys because you're a great team."

The feeling is mutual!

Project Leaders:

Harmonic Environments Vice President of Business Development | **Sean Wander**

Harmonic Environments Project Manager | **Larry McDonald**

Harmonic Environments Chief Installation Consultant | **Eric Fisher**

Architect of Record | **Segundo Cardona**, FAIA, of SCF Arq

Architect on the Project | **Jose Gutierrez** of SFC, Arq.

Construction Project Manager | **Luis Tapia Robelo** of Caribbean Project Management

Banco Popular President | **Jaime Nazario**

Banco Popular Representatives | **Luis Pico Lacomba and Jorge Gonzales Rios**

