

# VENICE FLOOD WARNING SYSTEM

## Integrating Sound and Emergency Notification

A Community Case Study - August 2012

DESIGNATED "THE INSTALLATION OF THE MONTH"  
BY INSTALLATION EUROPE MAGAZINE, JANUARY 2012

### About Venice

Venice, Italy is one of the most unique cities in the world. Built on 118 islands separated by canals on northeast Italy's Adriatic Coast, Venice's beautiful setting makes it a top tourist destination.

While approximately 270,000 people live in Venice, an estimated 20 million visitors flock there each year. Its brick and stone buildings have foundations situated on wood piles in the water, which lie atop compressed clay beneath the floor of the Venetian Lagoon. The city's water level fluctuates based on tides and weather conditions. Even slight increases can prevent boats from using bridges with limited clearance, which causes major disruption for commuters and businesses.



### The Sound System

Venice's Tidal Forecasting and Signaling Centre needed a powerful sound system to alert citizens in advance about an incoming high tide, meanwhile informing them about the water level forecast. The previous flood warning system was deteriorating, the siren from its electromechanical horns had an unpleasant "air attack" sound and diffused only an alert status. The hard mission was to cover all of Venice with a sound warning system.

Design consultant Umberto Nicolao and his team at C.V.R. (Consorzio Venezia Ricerche) had to



install loudspeakers where nothing could block the signal. Since most of the city's tallest buildings are churches, they became the ideal locations. "The design of the Venice warning system took us considerable time to find the best acoustical diffusion sites," said Nicolao. "It's difficult to imagine the huge number of photos we took from the bell towers of all the Venice churches we visited!"

They selected 15 different bell towers atop churches in central Venice and 15 more locations on nearby islands. Getting loudspeakers to the top of these centuries-old churches presented another challenge, since they lack elevators.

## Sound System (CONTINUED)

For products and technical support, Nicolao worked with Ennio Prase of Prase Engineering S.p.A. to make sure the sound system would achieve the best results possible. This required compact, lightweight acoustical sound systems that were extremely efficient with powerful SPL. Unfortunately, most horns and sirens intended for a similar purpose mainly radiate in the horizontal plane according to Nicolao, which wouldn't help with this application.

The team turned to Community Professional Loudspeakers, which custom designed the R.5-V2200 loudspeaker to provide the power, frequency response and dispersion required. Verona-based S.T.A.S. installed 104 R.5-V2200 models. They also used 18 of Community's RSH-462 Exponential FocusedArray™ horn systems in the island locations.

For amplification, the team chose Duran Audio's AXYS IndustryAmp PB400. This four-channel power amplifier is used in distributed audio installations. The amplifiers take their signal from a prodyTel S-Cluster output box, which streams audio content. It connects by wireless internet to the tidal center's control room, which generates the appropriate alert signal when necessary.

The new warning system limits disruption in this bustling city when the water level is expected to rise 2.9 ft / 90cm or more above the mean sea level. The four different levels get communicated by easily recognizable acoustical signals specifically synthesized starting from simple flute sounds.

"Now they have a wider coverage warning system that gives notifications with a flute-derived sound, which directly relates to the expected level of the next high water," said Nicolao.



## Equipment Highlights

- 104 Community custom R.5-V2200 loudspeakers
- 18 Community R-Series RSH-462 loudspeakers
- Duran Audio AXYS IndustryAmp PB400 amplifiers
- prodyTel S-Cluster audio streaming systems

## The Loudspeakers

The high intelligibility, versatile performance and weather-resistant construction of the Community R-Series makes these loudspeakers ideal for emergency notification and alerting systems. The R-Series offers exceptional voice clarity and sound projection capability, while tight pattern control allows the sound to travel only where it is directed, and away from neighboring areas.



**R.5-V2200**  
(custom model)



**RSH-462**

Download our R-Series Application Guide, R-Series Emergency Notification Brochure, and All-Weather/All-Purpose Product Catalog from [www.communitypro.com](http://www.communitypro.com).

*Community has been a leading supplier of professional loudspeaker systems since 1968. Headquartered in Chester, Pennsylvania, Community distributes its products to over fifty countries on six continents.*

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