



Cruise Ships

JaffeHolden performed acoustic and electro-acoustic design for Royal Caribbean Cruise Line's Voyager of the Seas and Explorer of the Seas. The ships—each of which measures 1,020 feet, weighs more than 140,000 gross tons (three times the size of the Titanic), and cost over \$700 million—are the largest and most expensive cruise vessels ever built.

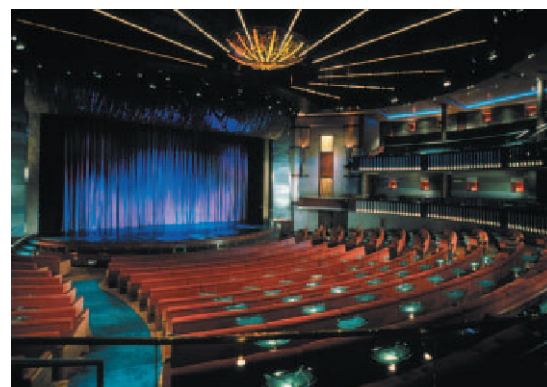
Entertainment is a key cruise experience, meaning that the acoustical performance of on-board theaters must be first-rate. For Voyager's 1,350-seat LaScala—three decks high and boasting a five-deck-high stagehouse and horseshoe-shaped balcony—JaffeHolden specified acoustic finishes that complement the JaffeHolden-designed sound systems used in the theater's amplified shows.

In cruise ship acoustical design, one of the biggest challenges involves the limited vocabulary of materials that can be used. Everything—including wood and fabrics—must be noncombustible and U.S. Coast Guard-approved. Especially heavy materials, such as concrete, are prohibited, as is spring-mounted equipment.

Another enormous challenge concerns how to squeeze everything in. LaScala's electro-acoustic system had to be large enough to supply adequate amplification yet compact enough to fit within the shell separating the theatrical space from the ship's steel structure.

Stringent space limitations likewise played a role in determining electro-acoustic design for the Voyager's Royal Promenade—a shop-lined "Main Street" overlooked by four decks of cabin bay windows. This hard-surfaced space is alive with sound, some of it emanating from speakers inserted between the cabin windows. These carefully sized units were custom designed, and the windows themselves are constructed of sound-isolating materials to insulate cabin occupants from the vibrant street scene below.

JaffeHolden's ongoing commissions with Royal Caribbean include the new, luxurious "Millennium" Class and 12 additional ships scheduled for launch over the next five years.



Scope of Work

Architectural Acoustics
Mechanical System Noise Control
Sound Isolation
Sound/Communication Systems Design

Design Team

Architects: Wilson Butler Lodge Inc.
Theatre Consultant: Fisher Dachs Associates

Consultant Team

Russell Cooper, Project Manager
Howard Rose and Byron Bishop,
Electro-Acoustic Designer

Client

Royal Caribbean Cruise Line