

Stars of stage and screen

A Californian high school commissioned an extremely flexible performing arts centre that even uses LED screens in lieu of rigging and sets

Antelope High School, in the Roseville Joint Unified School District of California, has a new performing arts centre, completed in October 2019. The centre has an area in excess of 18,000ft² (1,672m²) and was completed at a cost of US\$17.5m (€15.1m). John Sergio Fisher & Associates was chosen as the architect, theatre consultant and acoustical consultant for the project.

The theatre is a uniquely flexible one that also becomes a multi-use space and is sometimes used as a church. Seating capacity ranges from none when used as a flat floor for dances, dining and meetings, to 241 with orchestra-level seating, 285 with parterre seating (with a larger flat play area), and a full capacity of 558. The latter includes 32 permanent chairs with two wheelchair positions above the parterre. The other accessible seating positions are at the cross aisle, which is level with the stage. The orchestra seating uses Nivo-Flex panels from London that move up and down pneumatically for either seating or flat floor configurations, and the parterre uses upholstered telescoping seating retracted to create a flat floor.

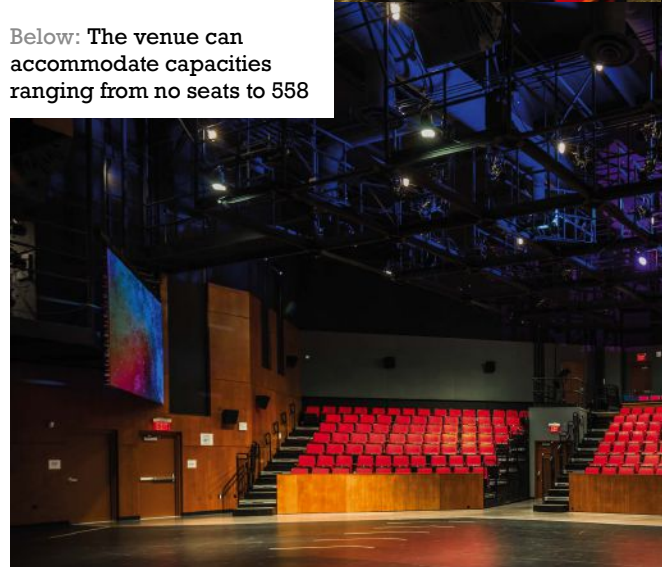
Screen test

In lieu of a rigging system, the theatre has a giant LED screen at the upstage wall that can be used to create the interior sets or exterior context. There are also two large LED screens above house right and house left.



Main: Antelope High School's new performing arts centre features giant LED screens, used for interior sets

Below: The venue can accommodate capacities ranging from no seats to 558



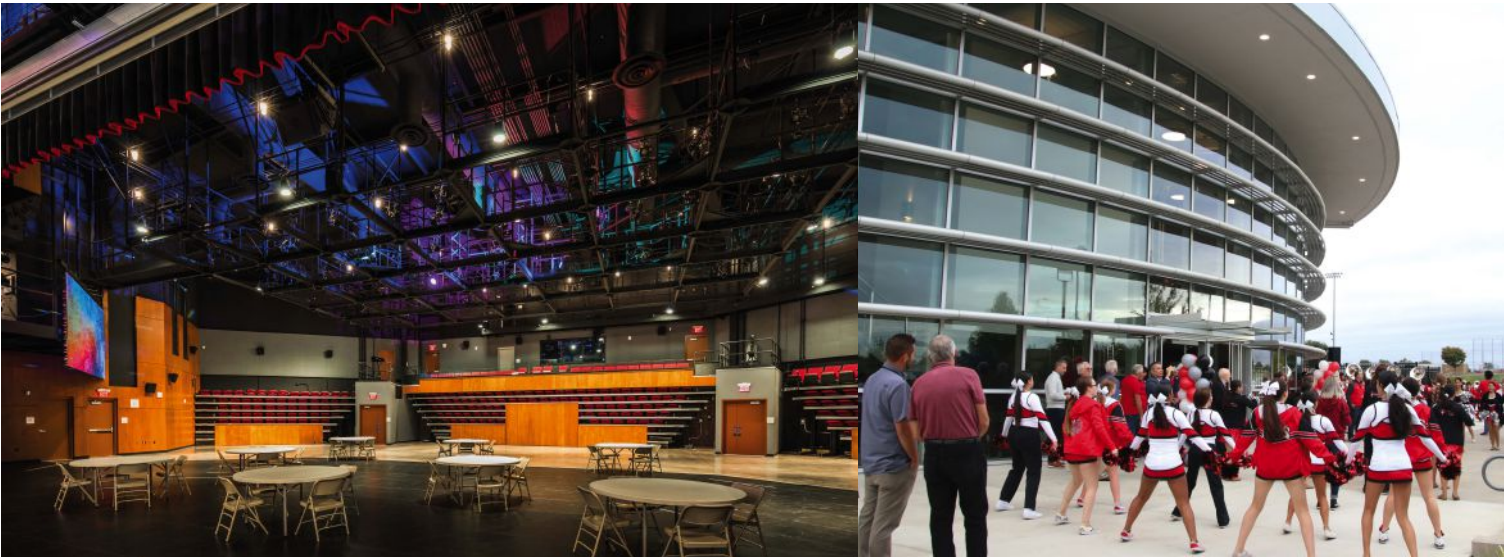


TECH TRENDS

Of the 120 performing arts centres John Sergio Fisher & Associates has designed that have been constructed around the world, the Antelope High School Performing Arts Center is the first project in which the school and stakeholders requested and utilised LED screens for sets in lieu of rigging systems or wheeled-in sets.

Is this a possible future trend – eliminating traditional rigging to decrease the volume (and therefore cost) of the stage, particularly as electronic media becomes more sophisticated and affordable?

“Holography has been around for many years, but because of cost, they have not been fully exploited,” expands John Fisher, president at the firm. “We have only used it once in a limited application. Creating greater flexibility for seating capacities and presentation uses has already become an increasing trend in this century, at least for our projects.”



Above: The parterre is based on a telescopic system, while the orchestra seating uses Nivo-Flex panels for retraction

Above right: The exterior was designed specifically to thrive in the local climate and to be in tune aesthetically with the rest of the campus

The theatrical lighting distribution system is very flexible, allowing fixtures to be placed anywhere on the tension grid, both over the stage and over the house. Because the theatre will be used for live drama or amplified sound, the acoustical reverberation time has been designed to be fixed at 1s RT60; there is no need for adjustable acoustics.

The stage floor is a sprung, with Masonite panels. The only draperies are black-out curtains for house left and house right fenestration – which were designed for when the audience chamber is in the dining, meeting or church mode – and the main drape at the proscenium opening, for drama and musical performances.

The mixing position is in the middle of the parterre, which along with the control room, controls the three speaker sets above the proscenium. There is one set at each side with

a sub-woofer each, and one speaker in the centre. The surround-sound system includes speakers on the tension grid and along the rear wall of the house. In addition to the two throughput XLRs, there is a line-level output and the mixed signal from all inputs is also provided.

Audio coverage

The Directivity Matched Transition (DMT) design matches the coverage angle of the woofer at the cross-over frequency with the horn pattern to ensure uniform response across the coverage area. Intrinsic Correction techniques are also employed to ensure smooth power response from the loudspeaker. The result of this is an extremely accurate loudspeaker that behaves well in a wide range of acoustic spaces with little or no equalisation.

In addition to the lobby with the box office and concession area, support spaces include a scene shop, office, large storage area, audience and performer restrooms and a warming kitchen to serve the flat floor when in dining mode.

The exterior reflects the materials, colours and curves of the existing campus. The building acts as an icon for the performing arts at the entry to the campus. It is a green building with sun-control devices on the south side, wrapping around to the east and west, and is constructed from concrete masonry units that provide heat in the winter and cool in the summer. The roof structure consists of steel trusses, beams and metal decking. Because of the building's flexibility, the facility is in constant use. ■

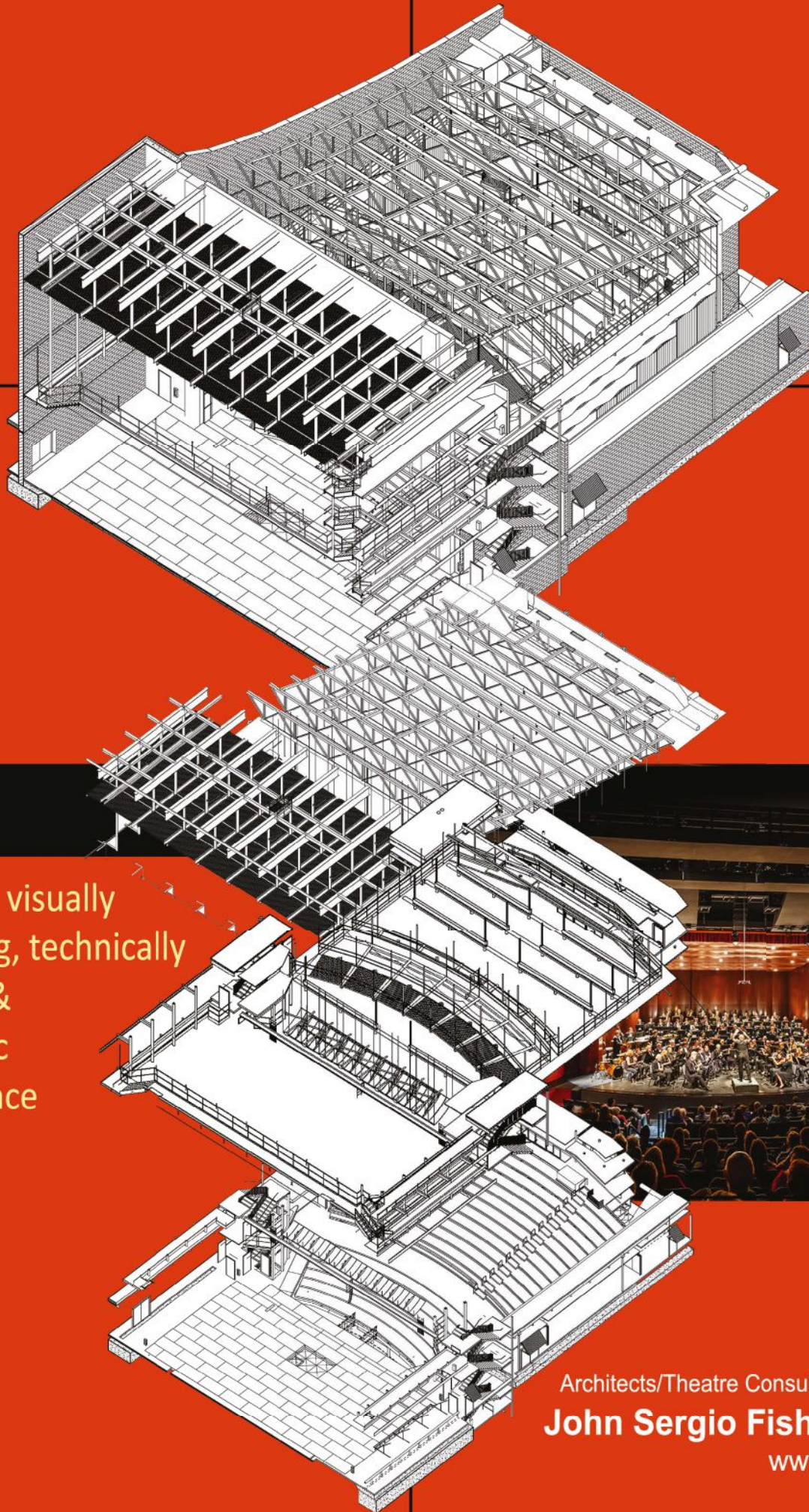
PANDEMIC-DRIVEN DESIGN

John Fisher shares that the COVID pandemic led to John Sergio Fisher & Associates designing a theatre where the requirement was for a 6ft (1.8m) separation in both directions around seats. However, that was to be returned to normal spacing when the pandemic is over.

Another requirement that has arisen is to make sure theatres are so well naturally ventilated so as to possibly prevent the transmission of viruses. The firm was asked to design an open-air music pavilion for Discovery Cube Orange County in Santa Ana, California, which would allow about 1,300 patrons to stand to listen to a concert, or seat about 1,000 on removable platforms and chairs. "The design includes a partial, butchered geodesic dome with a steel frame and translucent panels for that purpose," says Fisher. "Another possibility is to allow the domed pavilion to shelter an ocean aquarium specifically for sharks, with the tank encircled by a catwalk above. Although easier to accommodate in Southern California, will open pavilions possibly become a greater trend for yet unknown future pandemics, which we hope shall never occur?"

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Exterior image: JSFA. All other images: Ciro Coelho



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