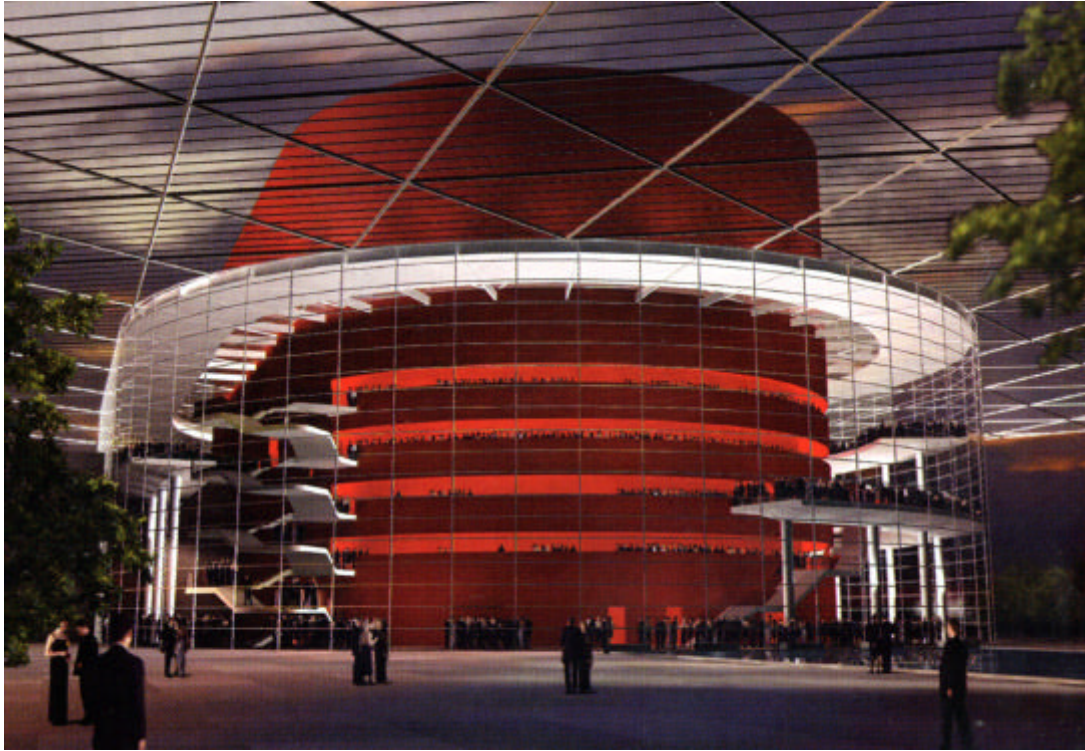


BATTLE McCARTHY®

Consulting Engineers & Landscape Architects



PROJECT:

Winspear Opera House, Dallas, Texas, U.S.

CLIENT:

Winspear Opera House

ARCHITECTS:

Foster and Partners

BM SERVICES:

Sustainable Masterplanning

VALUE:

Classified

DESIGN BRIEF

To design a new opera house for the cultural district of downtown Dallas based, promoting and utilising sustainable principles. To include a number of large performance spaces, rehearsal and support areas, and restaurants and bars.

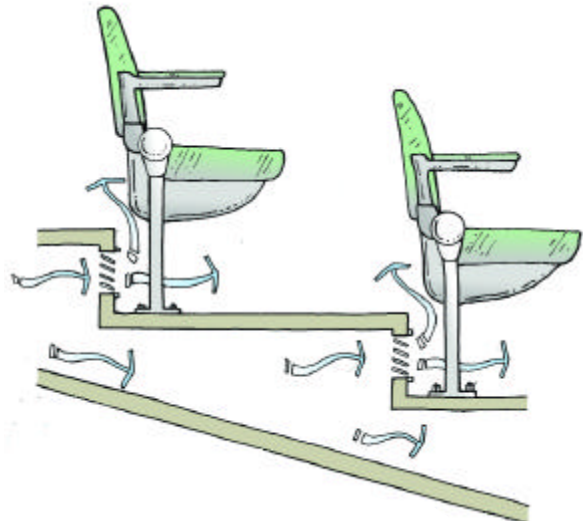
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DESIGN INITIATIVES/ACTIONS ONGOING

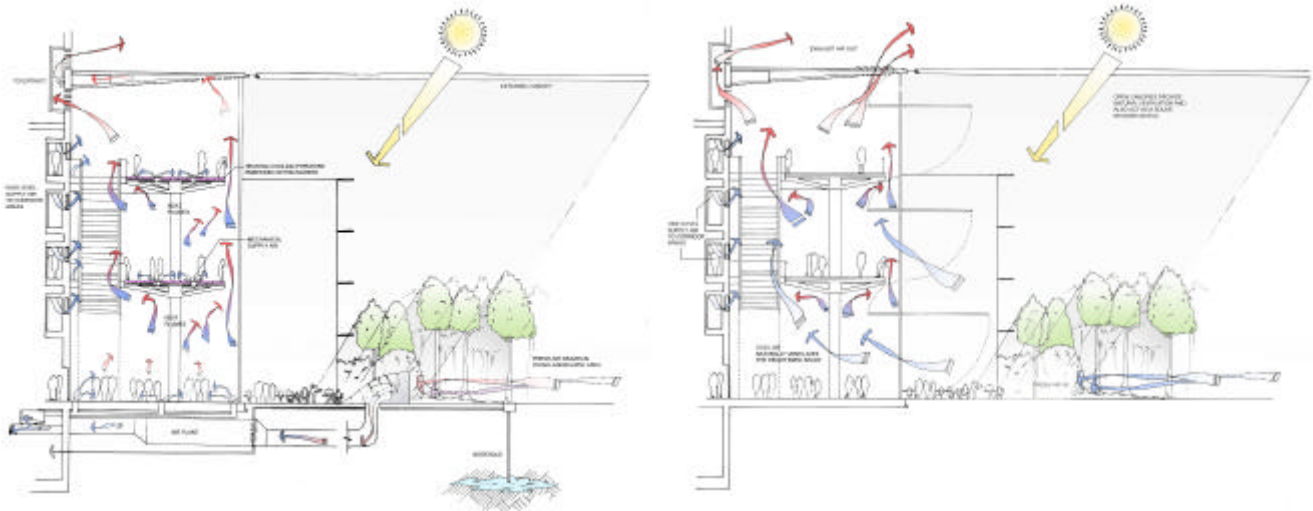
The new opera house will exploit the southern aspect of the site, Dallas' year-round sunny skies and a large landscaped piazza to light, heat and ventilate the building. Tree-shaded shallow pools and underground labyrinths will cool the ventilation air to offset cooling loads within the building.

Shading of the foyer's large glass facade will be used to moderate solar heat loads whilst allowing for optimal natural daylighting and views across the city.

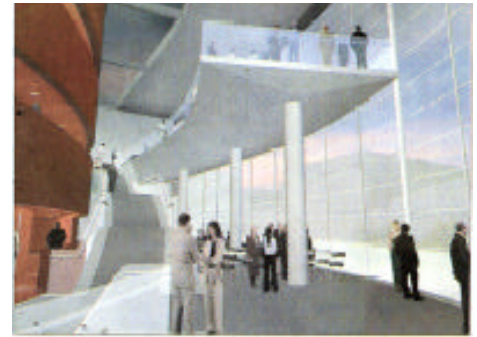
The mechanical ventilation systems will condition the foyer and auditorium in tandem to minimise energy use whilst maintaining high internal comfort conditions. Night-time ventilation will be utilised to purge the building fabric and the underground labyrinths of heat.



Underseat ventilation plenum



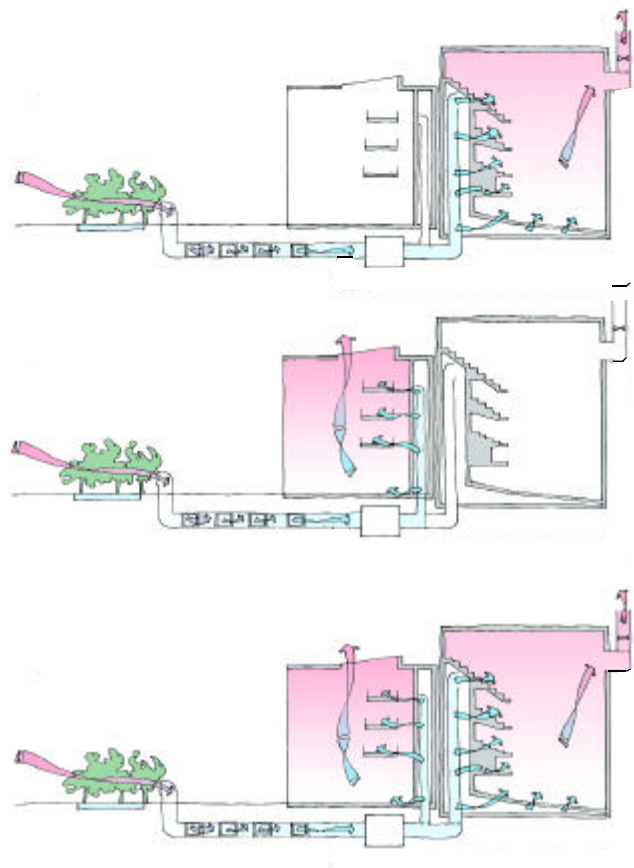
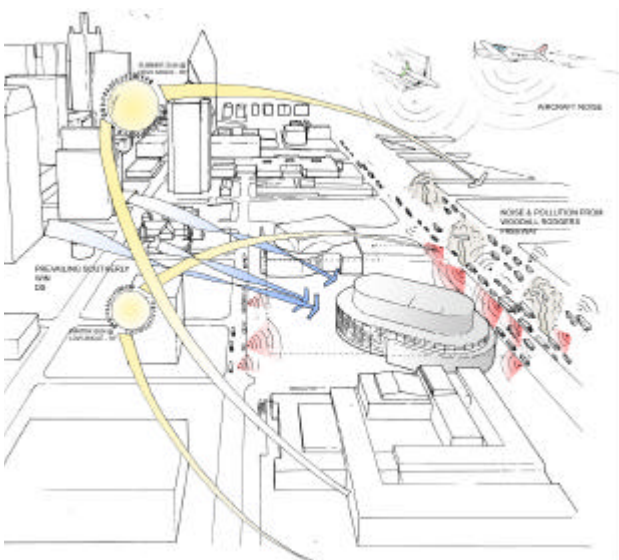
The foyer ventilation strategy



The proposed scheme for the theatre interior and foyer

The climatic extremes of the Dallas climate have informed the system choices and the stormy humid summers will impact plant specification and facade detailing.

The foyer will be conditioned by perimeter floor diffusers and the auditorium by underseat plenums. Within the performance space ventilation draughts and noise must be kept to a minimum and special entrance configurations will be used to seal the auditorium from light and noise penetration.



The foyer and auditorium ventilation strategy: performance mode, interval mode and night-time mode