

PROJECT:

The New Los Angeles Federal Courthouse, Los Angeles

CLIENT:

GSA, Chicago

ARCHITECTS:

Perkins & Will

BM SERVICES:

Building Services (MEP) Engineering,
Specialist Structural Steel Design
& Landscape Architecture

VALUE:

\$350million

DESIGN BRIEF

To provide fully integrated engineering design services for the new Federal Courthouse in Los Angeles, California. The 1,000,000 ft² project is being financed and managed by the U.S. General Services Administration (GSA). Working with Perkins and Will, Battle McCarthy designed the LA Courthouse as a landmark self-sustainable building. The new courthouse also utilises specialist steel structures to create a unique structure that is designed to withstand temperature, gravity, wind, earthquakes and potential bomb blasts.

DESIGN INITIATIVES/ACTIONS UNDERTAKEN

Key design elements included:

- Building orientated and shaped to provide a solar power generator on south wall.
- Public spaces positioned on warm south side whilst the cooler north side is landscaped and utilised for cool air intake and pollution filtering.
- A buried labyrinth and vertical earth tube will provide free cooling for most of the year.
- Any additional cooling will be provided by desiccant systems implying no refrigeration on site.
- Large central atrium used to provide natural ventilation and daylight to courtrooms and public spaces.
- All courtrooms designed to be daylit from two sides - the day light will be controllable and glare free.
- A PLATINUM LEED rating is expected - executive orders 13101 and 13123 call for a minimum energy reduction of 35% and reductions in water consumption. These will be met as a minimum standard.
- Potable water demands reduced through on site water collection, storage and recycling.

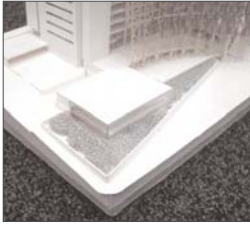
The primary structure comprises 11 tapered, vertical, steel trusses, which are fixed at the base and pinned at the connection with the roof plate. These propped cantilevers are stabilised laterally by a ring beam, which joins the trusses at roof level and by a secondary bracing system which consists of diagonal and horizontal tubes and a stainless steel mesh infill has been introduced at the rear chord of the main trusses.

The diagonal members of the bracing give the cone shape façade lateral stiffness to allow the glass wall to be a stand-alone structure, only depending on lateral support from the main building at roof level to distribute wind and earthquake loads. The bracing also provides support to the stainless steel mesh panels, which together create a system to protect occupants and the main building in the event of an external bomb blast.

AWARDS

The Architectural Review Future Project Prize MIPIM

2003



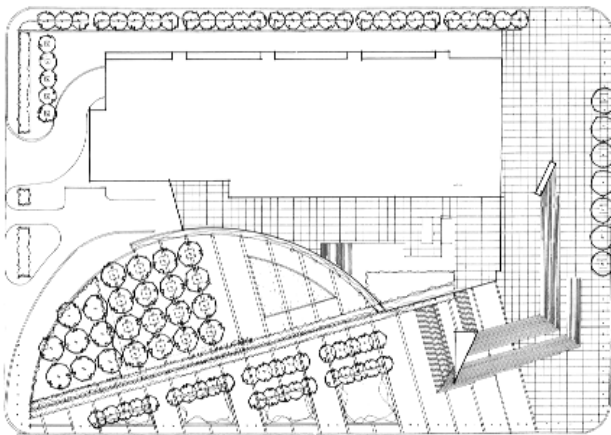
Crescent



Plan



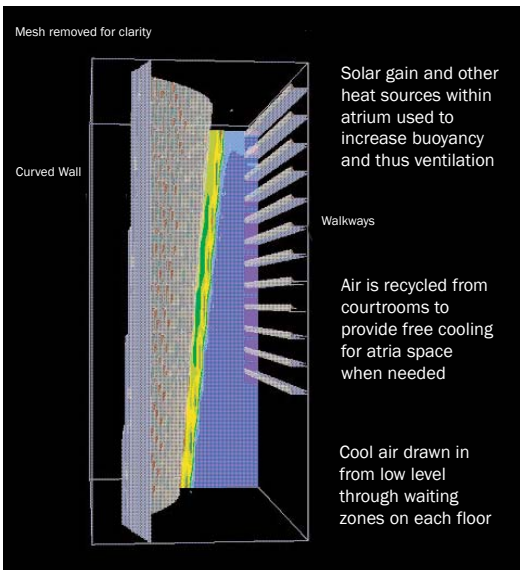
Northwest



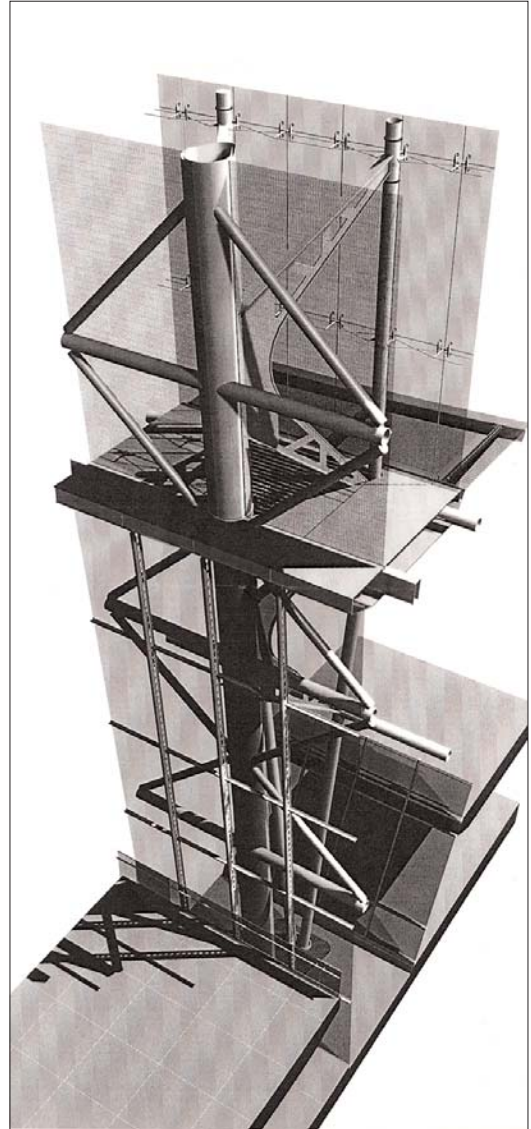
Landscape Plan

The concept landscape proposals took into account key concerns such as security, maintenance, drought tolerant planting and the visual quality of the landscape when observed from above. The structured landscape included:

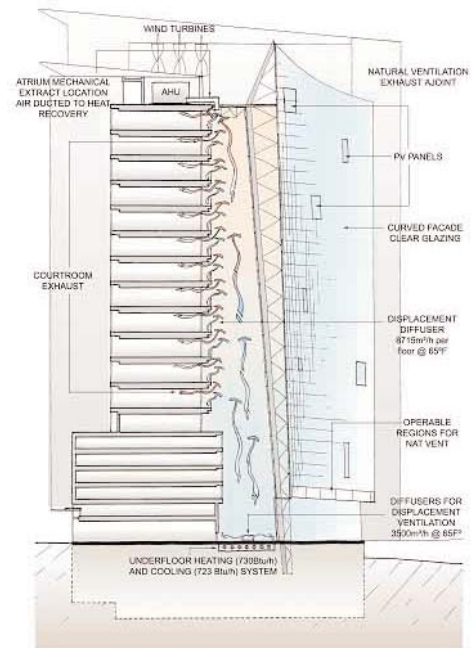
- Public plaza
- Streetscape
- Private Courtyard
- Atria
- Roofscape



CFD Analysis



Truss Detail at Lobby Level



Atrium Environmental Cross Section