

DEE AND CHARLES WALL THEATRE



Jimmy Chan

Brad Bertrand

Kevin Vandersall

Ryan Withrow

PROJECT INFORMATION

_CLIENT: Dallas Center for the Performing Arts

_LOCATION: Dallas, TX

_AREA : 80,300 Square Feet

_HEIGHT: 132 Feet

_600 Seat multiform theatre

_Only Pritzker Prize winning architects were solicited for design services

_DATE OF COMPLETION: October 2009

_PROJECT COST: \$354 Million (AT&T Arts Center)

_CONSTRUCTION MATERIAL: Aluminum, Steel, Glass, Concrete



ARCHITECTS

_Office for Metropolitan Architecture
(OMA)

_Key Personnel : Joshua Prince-Ramus
(Partner in Charge) and Rem Koolhaas,
with Erez Ella, Vincent Bandy, Vanessa
Kassabian, Tim Archambault

_Founded in 1975 by Rem Koolhaus, Elia
Zenghelis, Madelon Vriesendorp, and
Zoe Zenghelis

_REX

_Key Personnel : Joshua Prince-Ramus
(Partner in Charge) and Rem Koolhaas,
with Erez Ella, Vincent Bandy, Vanessa
Kassabian, Tim Archambault

_Founded in 2008 by Joshua Prince-
Ramus and Sharon Ullman

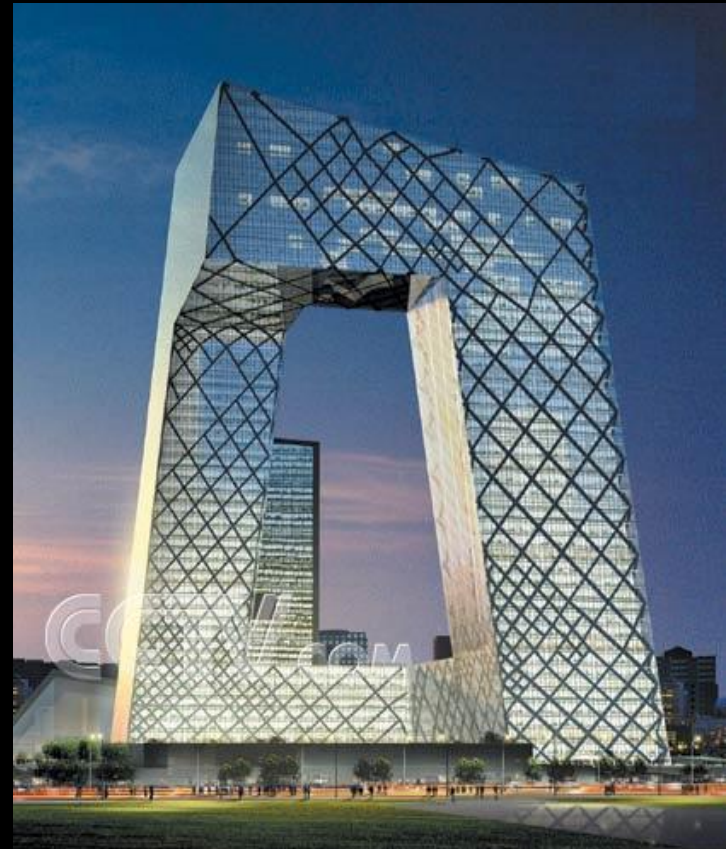


ARCHITECTS

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CCTV TOWER

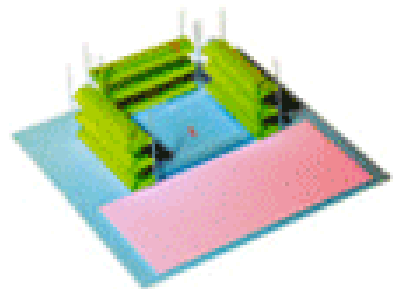


ARCHITECTURAL CONCEPT

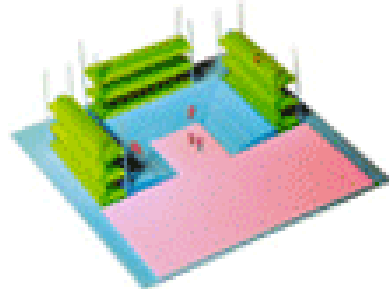
REM KOOLHAAS:

"By stacking all facilities necessary for the functioning of a theatre in a single vertical volume, we create a situation where the technologies of the stage define an infinite variety of theatre arrangements, from the completely open to the completely enclosed"

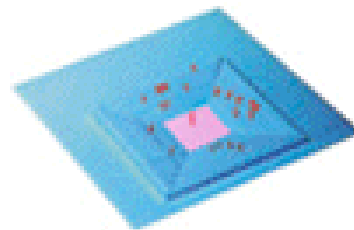
ARCHITECTURAL CONCEPT



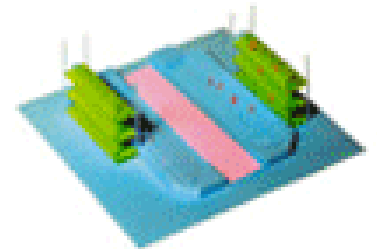
Proscenium



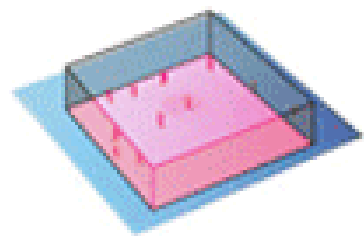
Thrust



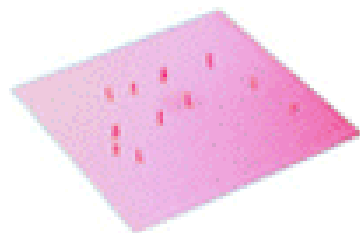
Arena



Traverse



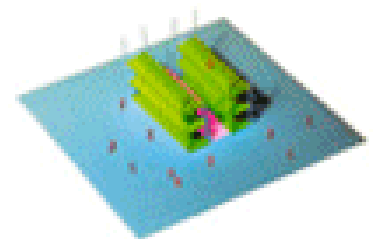
Studio Theater



Flat Floor



Bipolar



Sandwich

ARCHITECTURAL CONCEPT

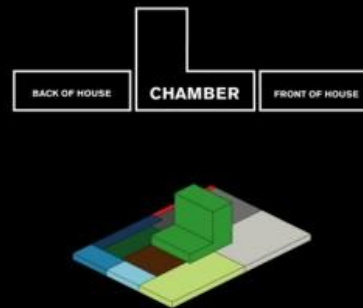
CONCEPT

_Rather than use the traditional front-of-house and back-of-house functions the Wylly Theatre has been built up to include below-house and above-house. This redefines the traditional theater in two ways.

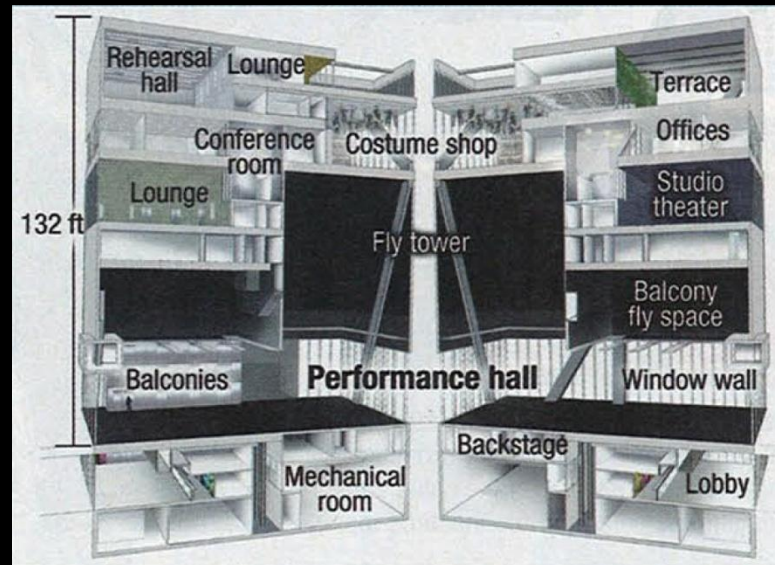
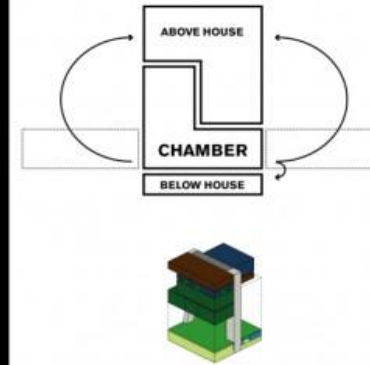
_First, it liberates the perimeter of the theater's chamber exposed on all sides,

_It can directly engage the city around it. This way it is no longer shielded by transitional and technical zones such as lobbies, ticket counters, and backstage facilities.

typically



what if?

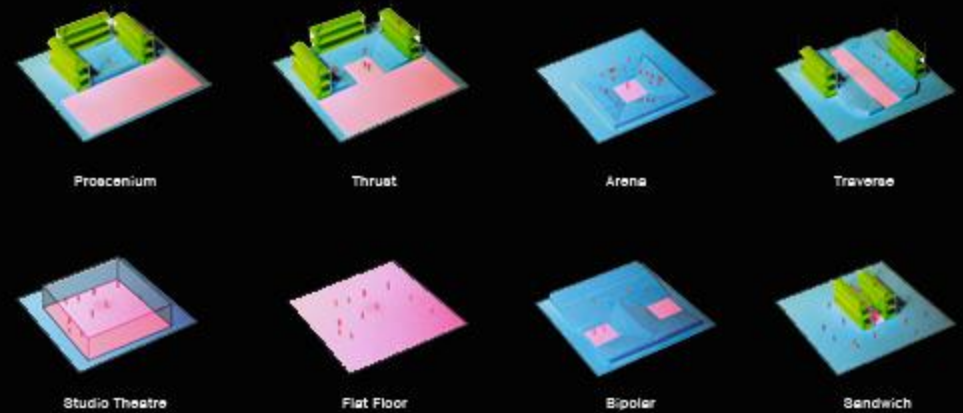


ARCHITECTURAL CONCEPT

_Can be blacked out for performances, using electric shades on tracks built into the glass

_The chamber is intentionally made of materials that are not precious in order to encourage alterations. The stage and auditorium surfaces can be cut, drilled, painted, welded, sawed, nailed, glued and stitched at limited cost

_Support Spaces are either above or below theatre



DALLAS

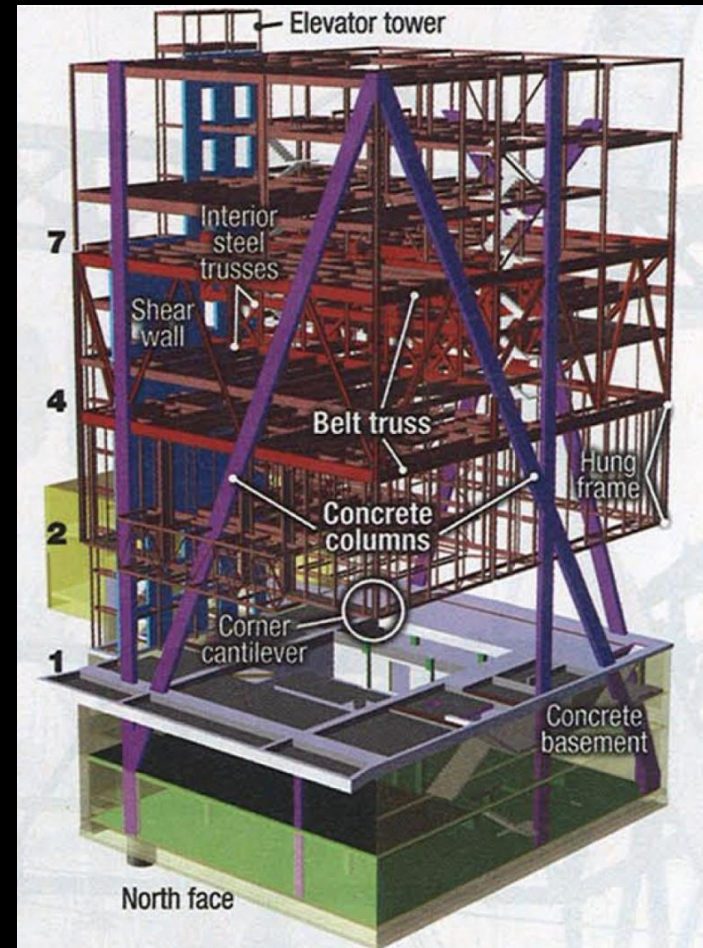
STRUCTURAL DESIGN

_The glass-enclosed theater is held up on three sides by 6 thin, angled concrete “super columns”. The fourth side is a concrete shear wall. Until those beams could be poured and set, six huge steel supports had to be erected to hold up the construction above.

_Once the concrete beams were in place, the steel supports were no longer needed which came down the last month of construction

_The structure had to be built from the top down due to the corner cantilevers that span up to 44 feet

_Floating Effect



STRUCTURAL DESIGN

- _ Floors 2 and 3 are supported by floors 4-7 which are wrapped in a 34 foot deep belt truss
- _ The belt trusses take both lateral and gravity loads
- _ Floors 8 and above rest on floors 4-7 and rely on the belt truss
- _ The beam-column acts as a truss member on the 4th-7th levels
- _ Columns are wrapped by steel belt trusses at the perimeter with steel floor plates with slabs on metal deck



STRUCTURAL DESIGN



STRUCTURAL DESIGN

Column Construction

_Concrete “Superlegs” are made of 8,000 psi concrete containing 21 no. 11 pieces of rebar

_The theatre utilizes only 6 columns to maximize ground-level transparency





STRUCTURAL DESIGN

Column Construction



STRUCTURAL DESIGN

Column Post Shores to prevent deflection after placement



STRUCTURAL DESIGN

Support Shoring and Scaffolding



STRUCTURAL DESIGN

T2 Truss being lifted over 92' Columns



STRUCTURAL DESIGN



STRUCTURAL DESIGN

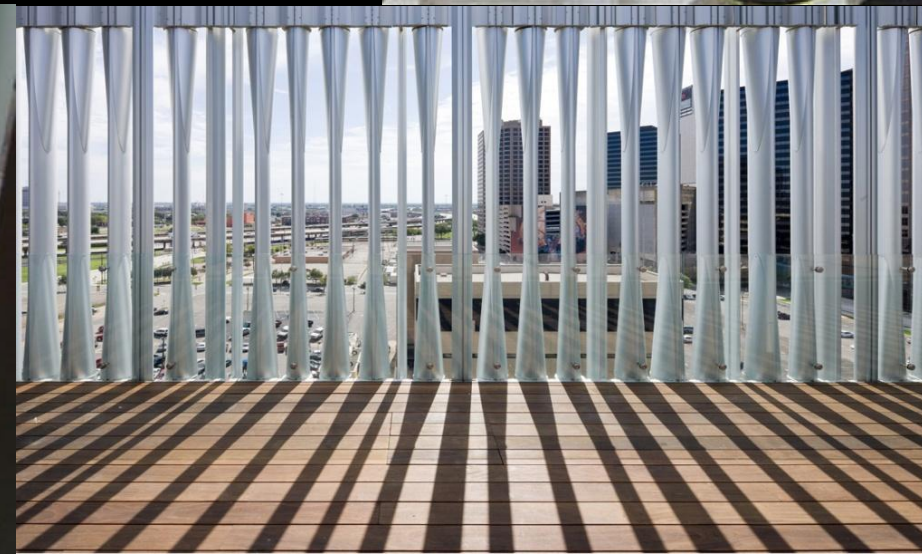
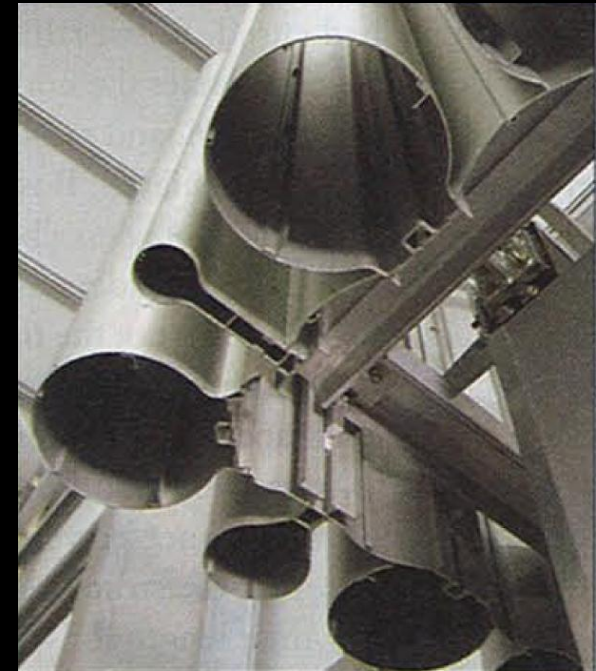
Temporary Bracing

- _4 steel corner columns largest is a W14 x 398
- _2 intermediate columns made from 24" diameter pipe
- _6 concrete column 12" HSS wind braces
- _Shear wall wind braced with diagonals added to elevator framing
- _McCarthy coordinated 5 different structural engineers for the work



ALUMINUM RAIN SCREEN EXTERIOR CLADDING

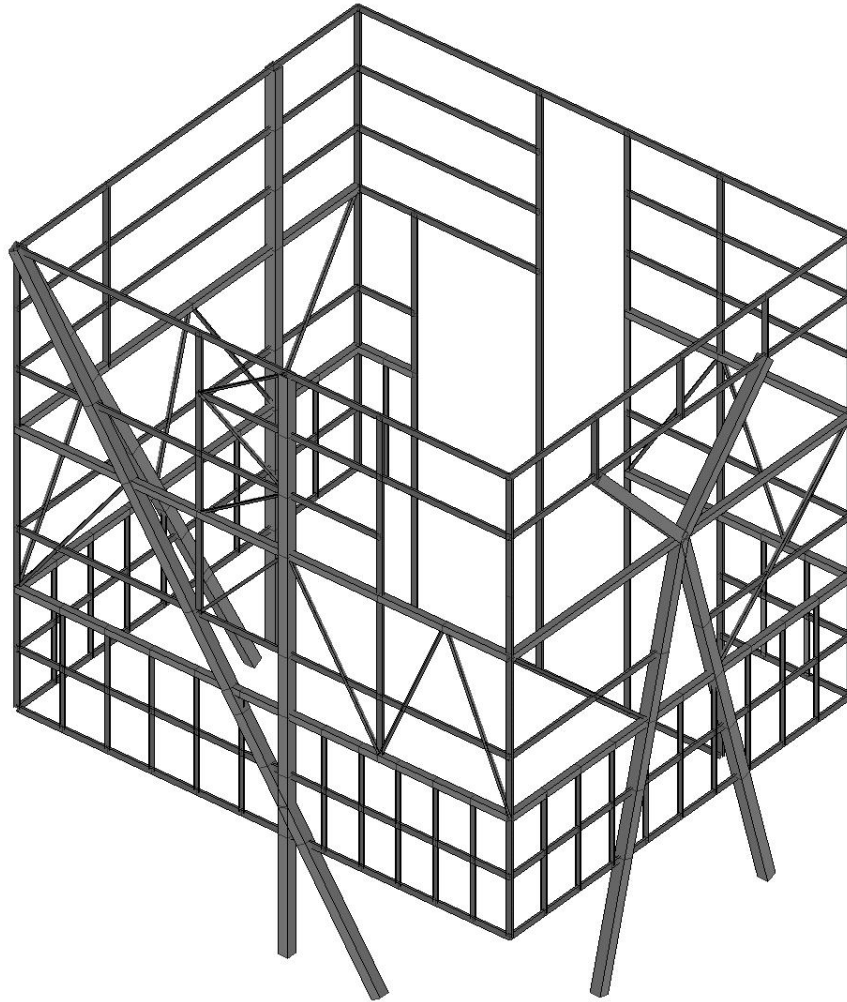
- _Designed by Front, Inc.
- _Composed of 6 types of Aluminum
- _The vertical aluminum tubes are reminiscent of the corrugated metal shed of Wily's predecessor, the Dallas Theater Center.





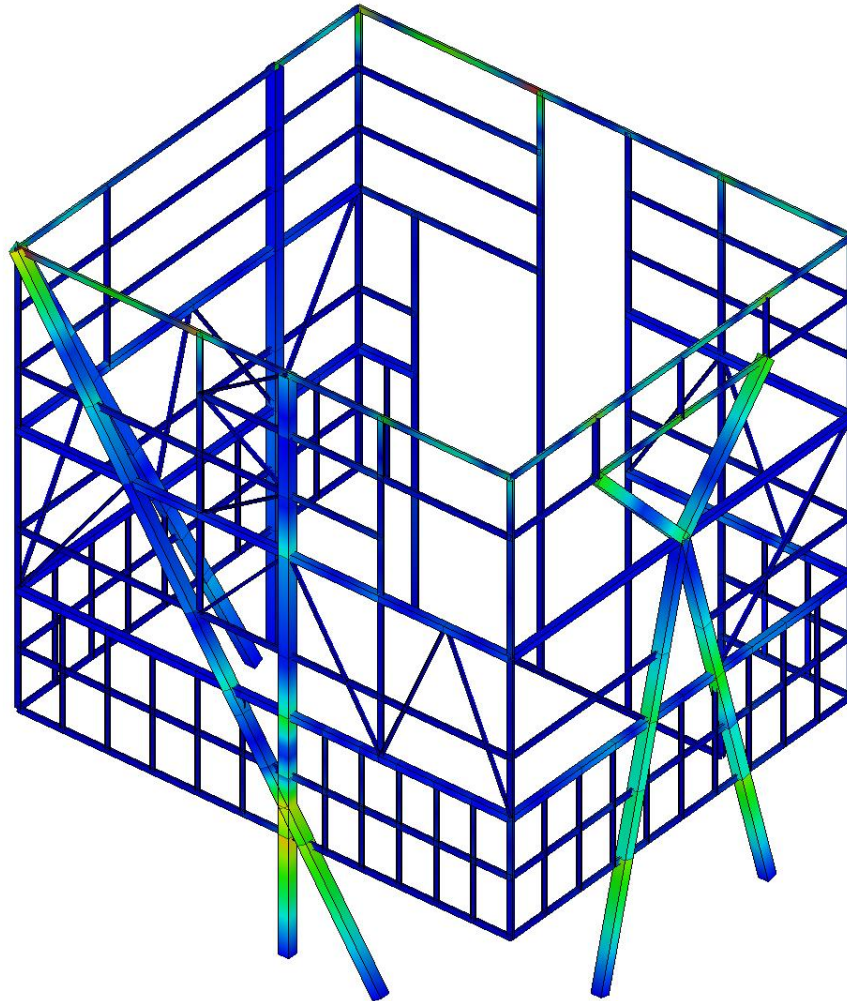
STRUCTURAL LOADS

Model



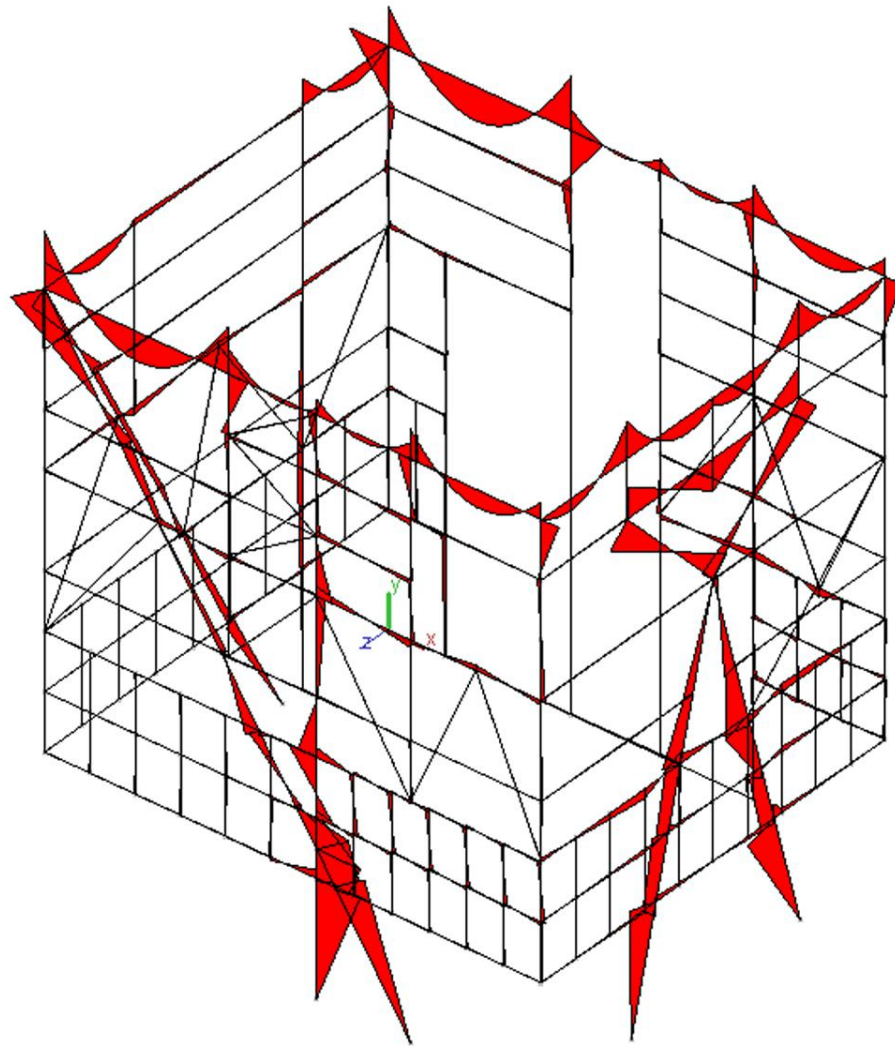
STRUCTURAL LOADS

Bending



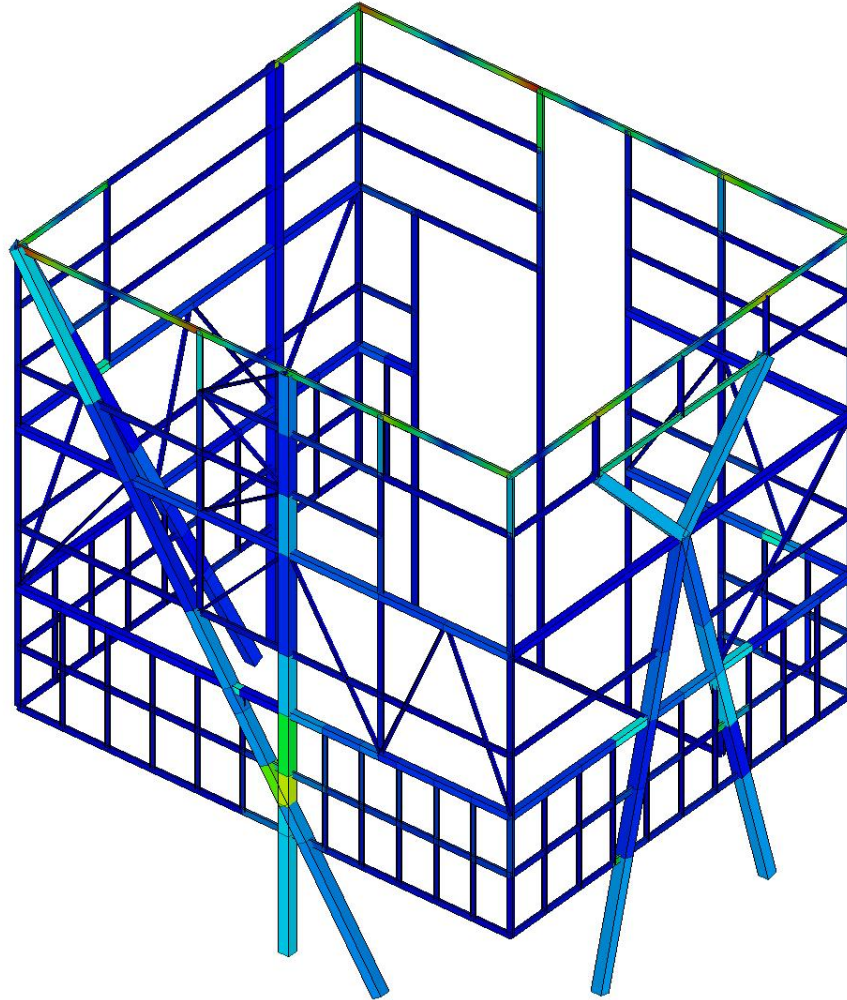
STRUCTURAL LOADS

Bending



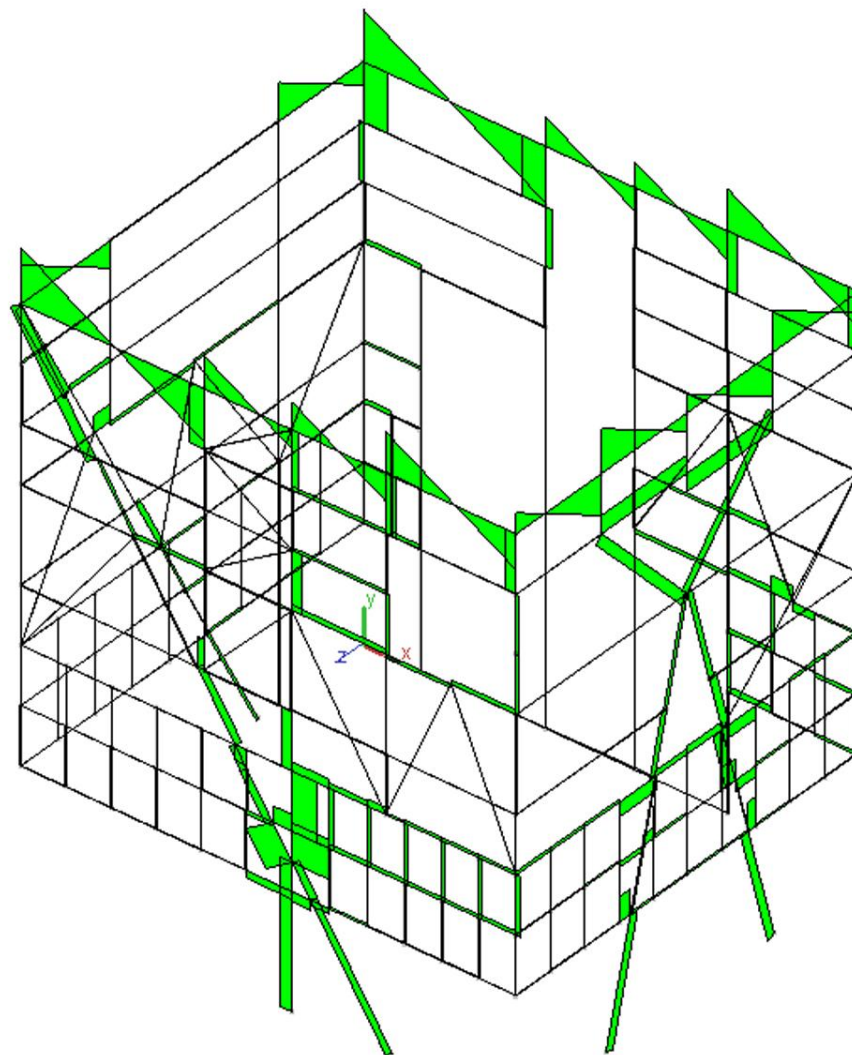
STRUCTURAL LOADS

Shear



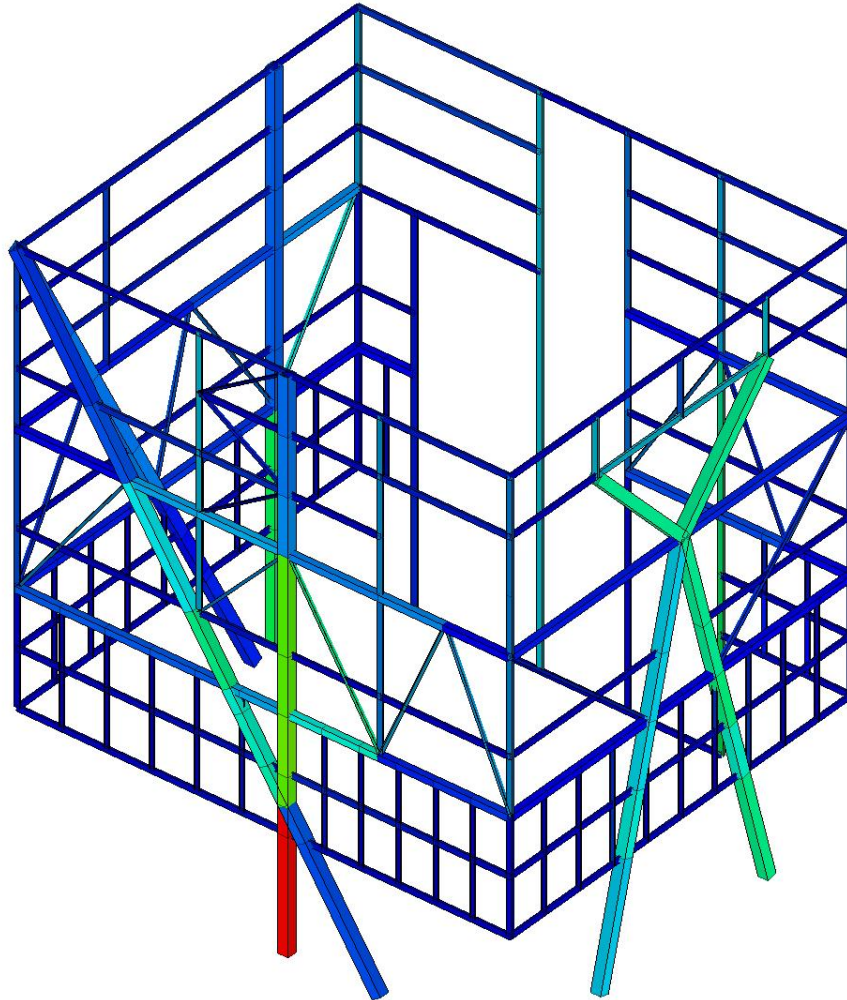
STRUCTURAL LOADS

Shear



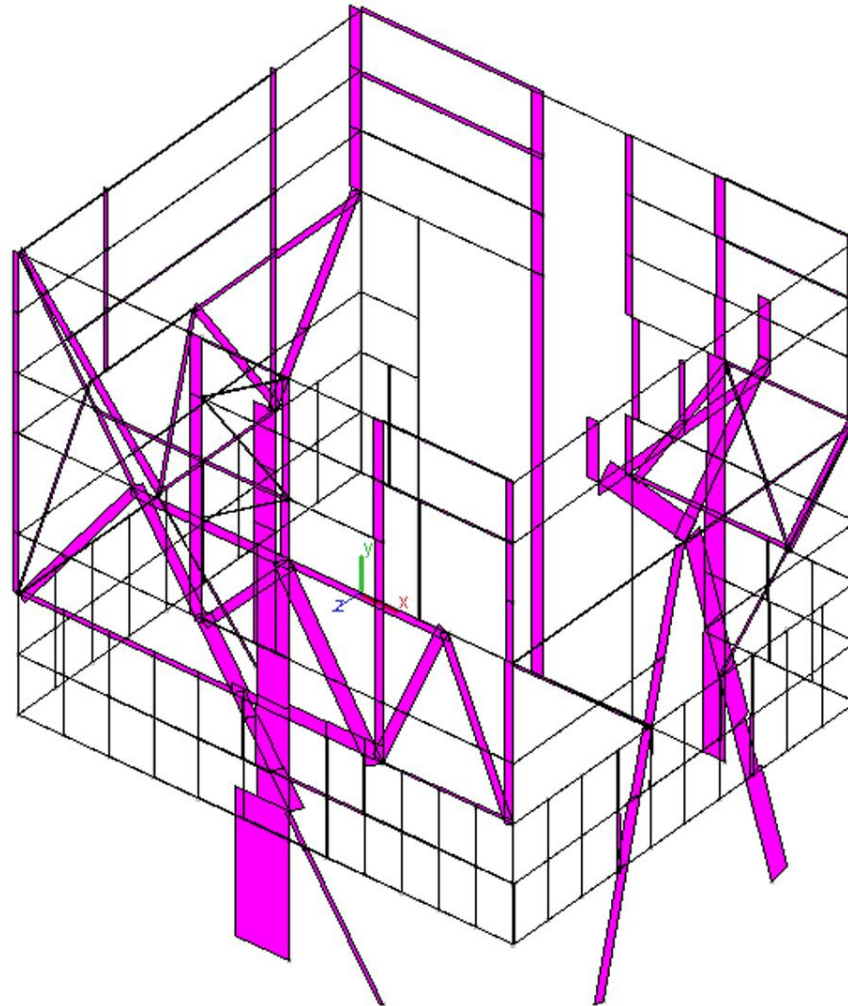
STRUCTURAL LOADS

Axial



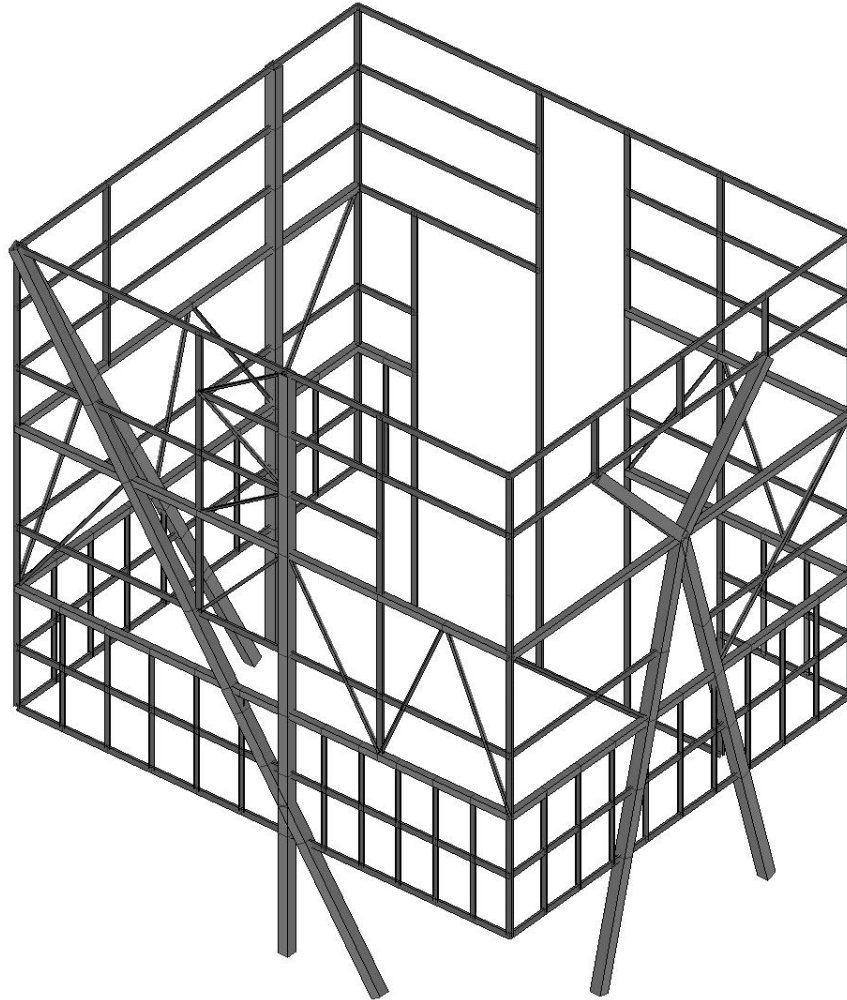
STRUCTURAL LOADS

Axial



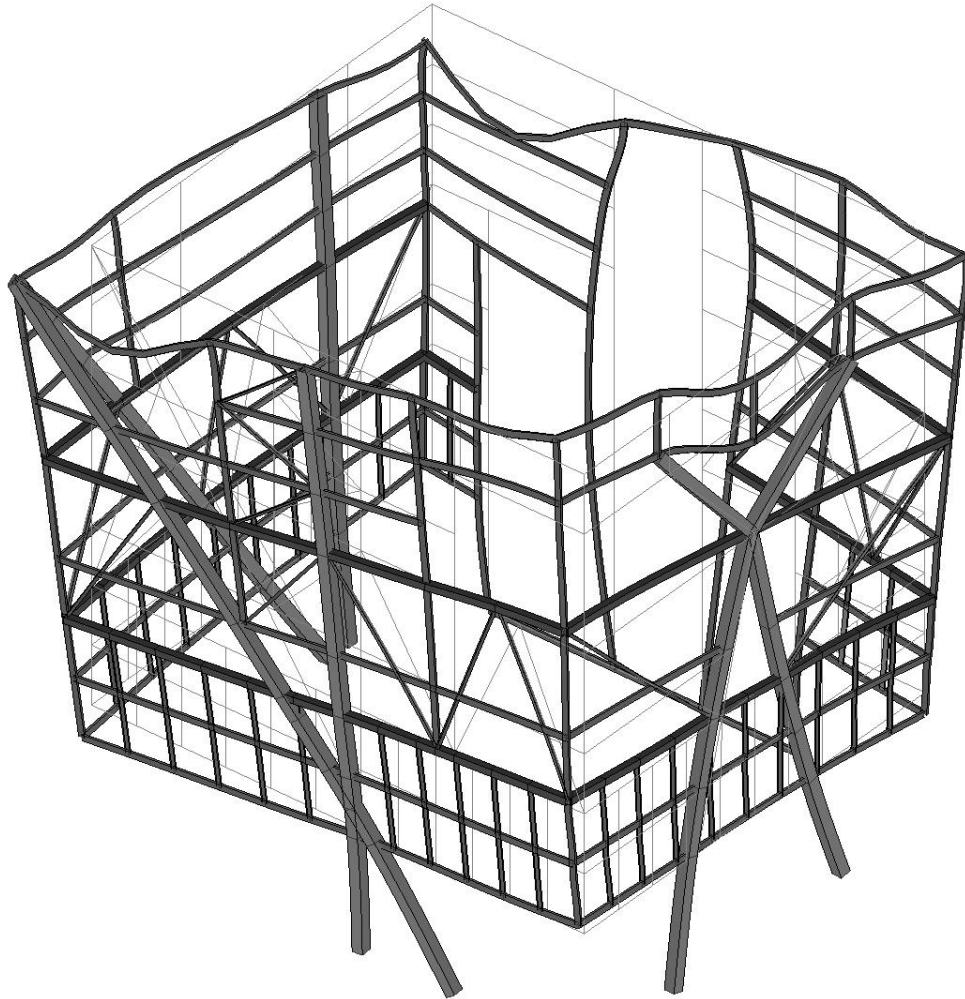
STRUCTURAL LOADS

Model



STRUCTURAL LOADS

Deflections



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