

Truss Design:

- The truss is composed of a triangular prism that connects High Strength Steel pipes which are diagonal braces to 3 I-beams that are the vertices of the triangle. These 3 beams run the length of the truss.
- The truss is arched to best support the roof and has an arch-type loading pattern, using the most efficient design possible per the request of the architect.
- The middle truss is the main support for the 56,000 pound jumbo-tron.
- The middle truss has a span of 300 feet.
- The trusses are connected via prefabricated roof joists that pass the load on to them.

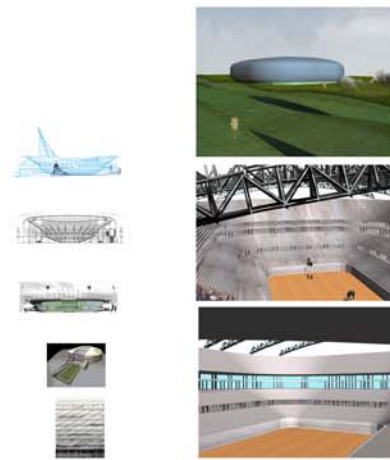
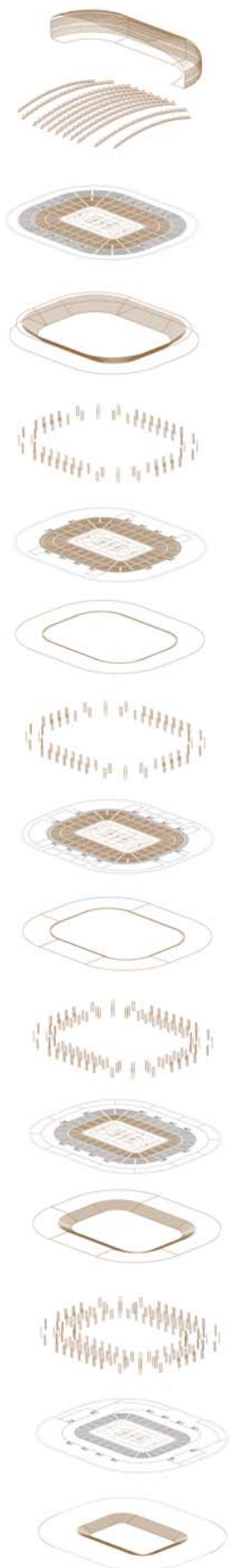
Sitting Area Design:

- The sitting area was designed using a braced frame in the circumferential direction and a moment resistant frame in the direction towards the field.
- The roof truss loads are transferred to the two main columns of the seating area.
- For the seating area, I-beams are employed with rakers that are supporting pre-cast pre-stressed slabs of concrete.

Foundation Design:

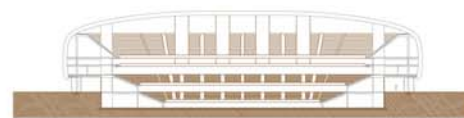
- A foundation system of isolated, square, spread footings are going to be employed that will range from 7 1/2' to 12 1/2'.
- The playing field will have a concrete floor.

CAPSTONE DESIGN



Level 1
Level 2
Level 3

NEW UNITED CENTER ARENA



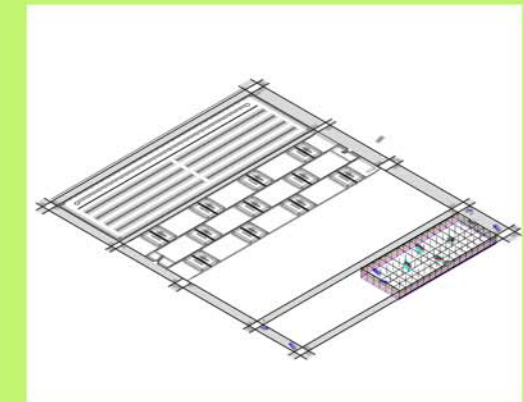
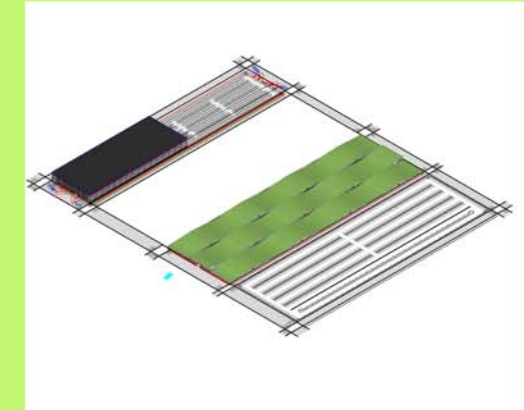
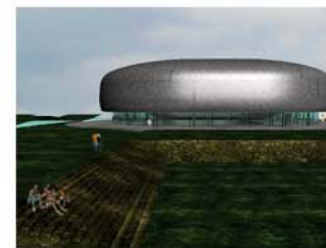
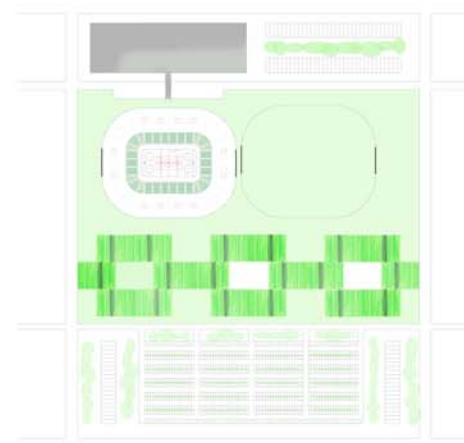
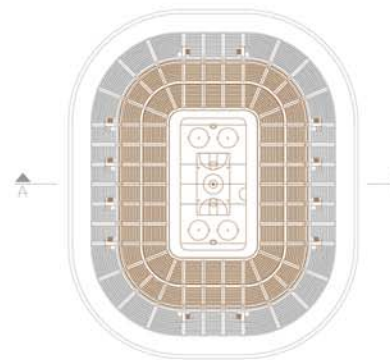
SECTION B-B'



SECTION A-A'

CONCEPT
The working concept for this building will maintain an honest approach that relates to motion and movement as it pertains to the possible and actual activities within the proposed center. What this means for the overall design is that the structure and consequential rhythm and regularity will be conveyed and functions such as circulation and crowd movement will be addressed in creative ways.

OVERALL BUILDING
Total Area: 900,000 sq. ft.
Height: 138 ft.
Arena Diameter: 1700 ft.



Above ground parking: 3 Level with 504 parking spots on each level.
VIP parking on the fourth floor has 200 parking spots.

Underground parking: 4 Level underground with a total of 5696 parking spots.

General Information: For normal parking the Length is 18 feet, and width is 9 feet. The heights for each clearance on the levels are 12 feet. If there are beams on each side then we add about a foot on each side. For handicap parking we have to have a parking spot with about 2 feet in width bigger than normal parking, and on each side have to have about another normal car parking space free where no one can park next to them.

Since the fourth floor for the above ground is parking there is a bridge going from that floor straight into the Arena so VIP ticket holders can go straight into the arena from the parking lot. Also there is a special ramp for the VIP parking floor to enter and exit through.

There are elevators on each parking structure, all located in designated spots for easy access. Also fire escape ladders are also located in designated spots for easy exits.

The parking to the south of the arena has a wave like design, where cars can park when the wave is at its peak. A total of about 462 cars can be parked there.

The last parking space was not utilized so we decided to convert that into a park and contribute to the green house project.

