

SEPTEMBER/OCTOBER 2005

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TRANSITIONAL SPACES

James Dyson's yellow ball
Seeking transit in Houston
Collapsible Seville
Retail: in the shade

An **IFA** PUBLICATION
Industrial Fabrics Association International

Air apparent

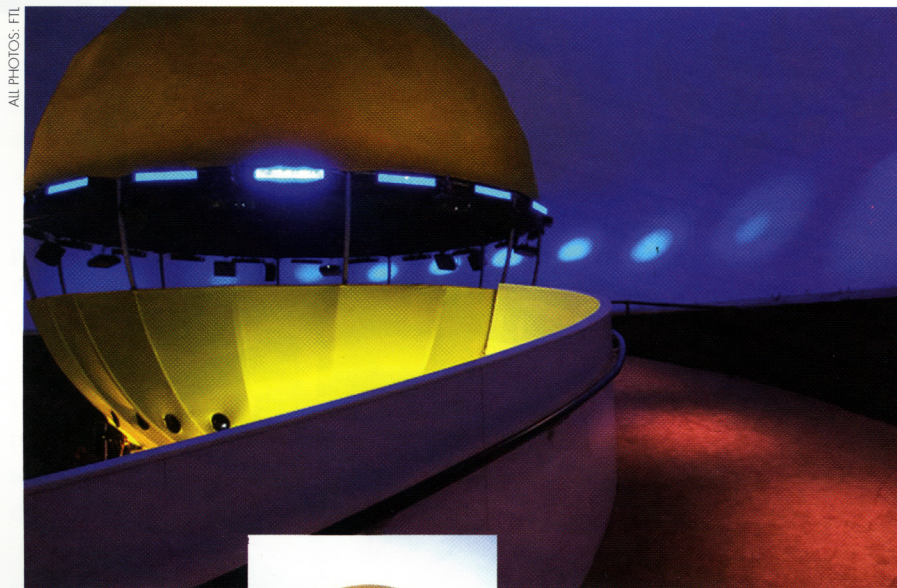
When British vacuum cleaner guru, James Dyson, wanted to promote his new, highly mobile vacuum, he chose a highly mobile fabric structure for its premiere

If you want to sell a ball, put it in a 10-story box and take it on the road. Oh, and make the box look like a ball.

That's the idea that promoters of the Dyson vacuum cleaner dreamed up to call attention to its zippy new product, the DC15, dubbed "The Ball."

The company founder, Englishman James Dyson, has an entrepreneurial bent: this is the man who, after all, not only designed a "revolutionary" new vacuum cleaner but continues to appear in commercials for his product. When he decided to introduce it on a nationwide tour, he hired New York-based event promoter Eventquest, whose principal, Mark Veeder, came up with the notion of an inflatable exhibit ball and turned to FTL Design Engineering Studio to design it. Founded 25 years ago by Nicholas Goldsmith and Todd Dalland, FTL specializes in lightweight and deployable fabric structures for performing arts pavilions, transit canopies, and traveling exhibitions for a wide range of clients.

Dramatic lighting shapes the inner sphere of the Dyson ball (below), sliced by the gradual ramp that leads visitors to the multi-media presentation on the new Dyson DC15 vacuum.



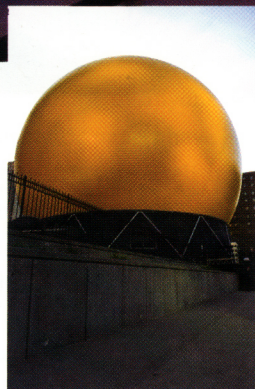
ALL PHOTOS: FTL

The charge to FTL's design team, led by architect Ashish Soni and engineer David Shih, and including Goldsmith the firm's principal in charge, was to implement this attention-getting pavilion. Because the product's groundbreaking design feature allows rotation, and is based on a ball, the designers chose the iconic ball shape. "Dyson's product has a big yellow ball" said Soni, the 31-year old project manager. "How do you make a big ball?" And on a tight timetable. Because FTL was commissioned in February, and the exhibit had to be up by March, "we had to look at an inflatable structure that would be easy to install."

The project's physical characteristics are impressive. The pavilion is 24m high and 30.5m in diameter with an interior volume of 1,400 cu. m. But it's actually very light ("if you take away the supports, it will fly,"

says Mr. Shih.) The surface is special order custom-dyed Seaman's PVC vinyl with a self cleaning Tedlar® finish that keeps the surface shiny. The fabric skin weighs 813.7g/sq. m and is cut, for aesthetic purposes, in a single piece to help maintain a perfect circle. The designers looked at two possibilities for the exterior—either a single fabric skin or a quilted version but chose the single skin because it would provide the smooth surface the client wanted.

To maintain the perfectly round shape, a pump system runs 24 hours a day to keep up a steady stream of air pressure to replace air that leaks out when people go in and out of the structure. Mechanical equipment—including HVAC—is hidden between the exterior and interior skins of the inner and outer ball. The support structure is a steel compression ring.



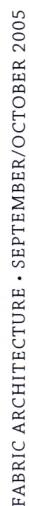
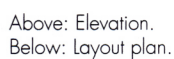
DURABLE

FIRE RESISTANT

MAINTAINABLE

AFFORDABLE

SUSTAINABLE



The interior “ball within a ball” treats visitors to a multimedia presentation about Dyson and its products projected onto the inner surface of the smaller ball. The display also features microscopes that allow visitors to see enlarged versions of just what kind of creepy critters (the infamous dust mite) the machine is capable of pulling out of their carpets.

FTL faced a number of challenges in making the structure, not the least of which was keeping it anchored to the ground. The air filled-steel supported pavilion has 3,905.6kg/sq. m of force trying to lift it up. So it’s necessary to tie it down and use ballast—whatever is available, from sand and gravel to water—to keep it in place.*

FTL’s designers had only two months from design to installation on a budget of just over US\$3 million to produce the pavilion. Materials were manufactured and assembled in Ontario, Canada, and the design team gave it a test run in a factory parking lot before loading the parts onto two trailers to be shipped to its first site, the plaza at Lincoln Center for the Performing Arts in New York City.

Over its history, the firm has used industrial fabric to produce both temporary and permanent structures for eco-resorts, music pavilions, and other projects such as this one. The firm’s work includes an AIA-award winning fabric structure in Jacksonville, Florida for outdoor symphony concerts, and an air-supported fabric-roofed structure for “Basketball City” at Chelsea Piers in New York. Both use the same fabric as the Dyson ball.

The Dyson Pavilion awaits further traveling orders. Vivid and iconic, albeit short lived, the structure when viewed from a distance looks like a cross between the sun and the moon, or a monstrous jack-o-lantern. It’s unmistakably a big yellow-orange ball.

Branding doesn’t get any better than this.

Joanna Baymiller is Fabric Architecture’s contributing editor from New York.

PROJECT DATA

Client: Dyson Vacuum

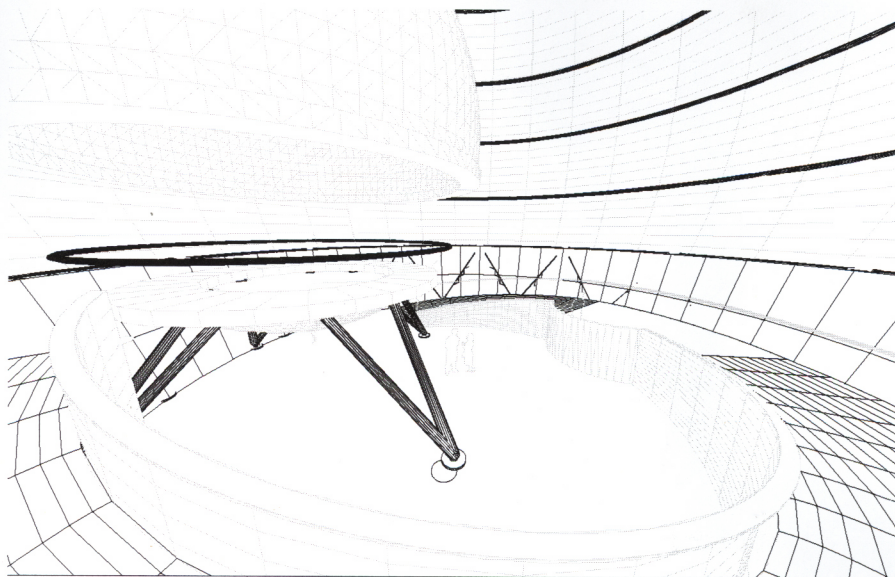
Exhibit design & concept: Eventquest

Architect: FTL Design Engineering Studio

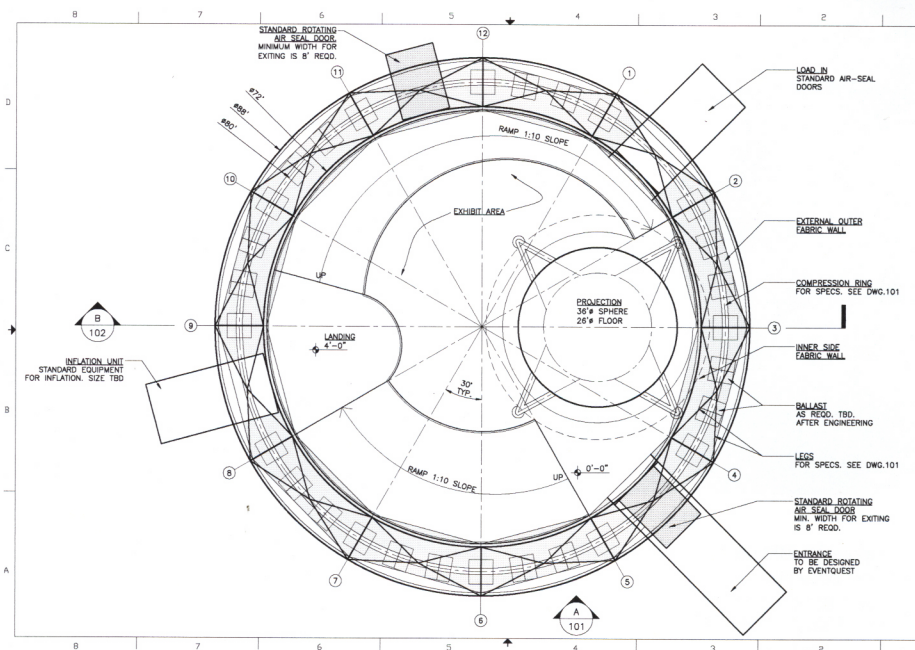
Fabrication: IFS Consulting, Jeff Gallagher

Fabric: Seaman Corp. Shelter-rite 8424, custom color

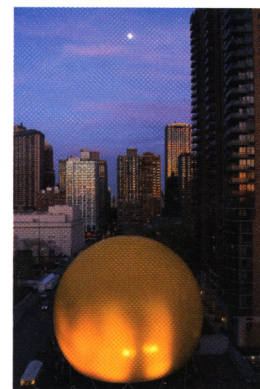
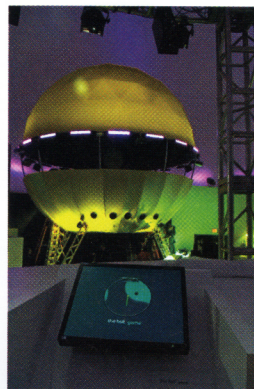
*See “Detail” on pg. 52 for ballast base design.



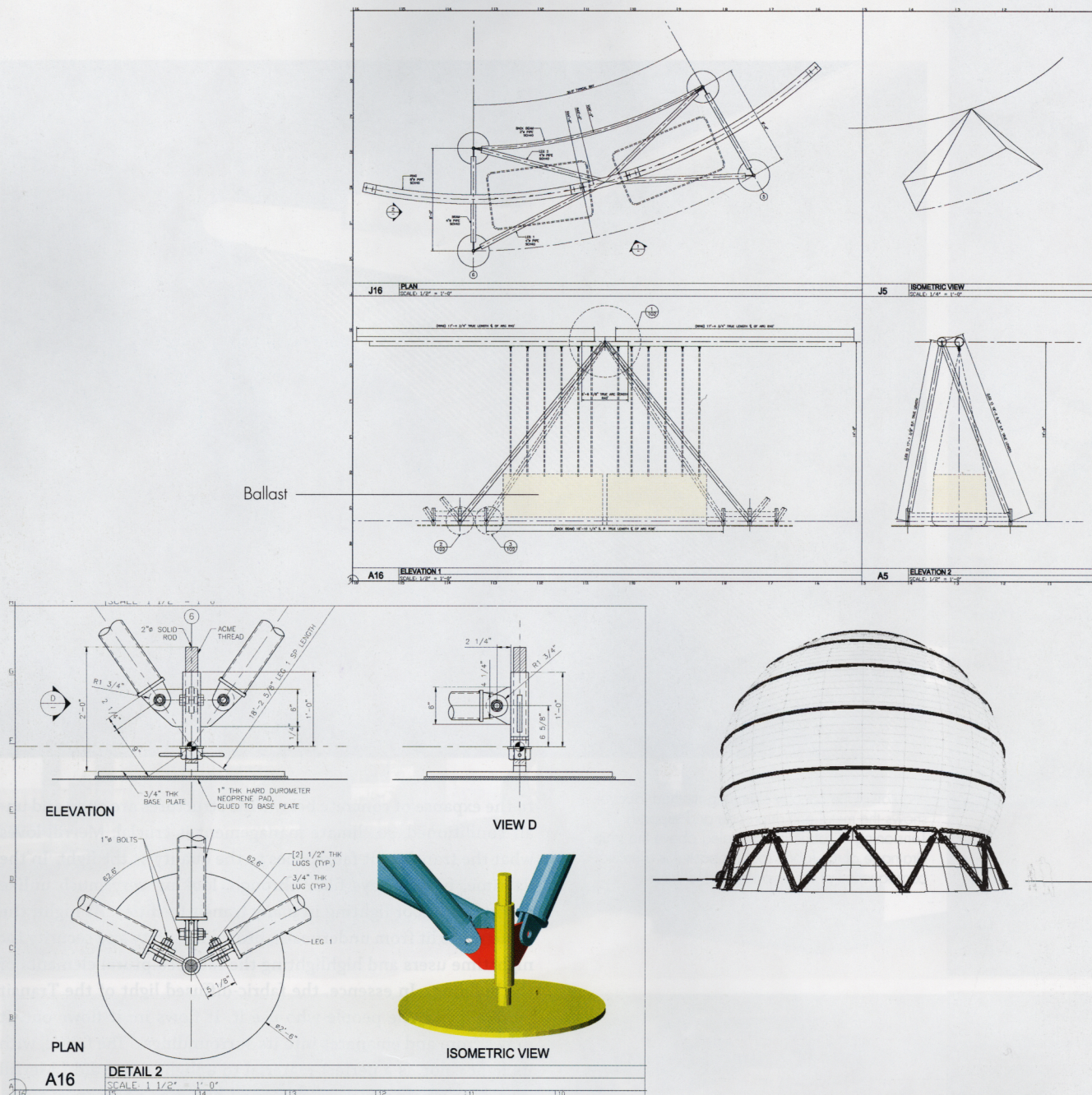
Interior perspective.



Interior plan.



Ballast



DETAIL

Concentric ballast base

CSI Section 133113
(Air-supported fabric structures)

Drawings by FTL Design Engineering Studio

Holding down an air-inflated dome with 3,905kg/sq. m of force wanting to lift it up can try the patience of the best of designers. How do you keep the building from flying away? Surround it with ballast. This concentric ring base support for the Dyson traveling exhibition dome (see page 44) allows weights to hold down the perimeter of the bottom edge of the dome fabric. The weights are hung from the top cord of the steel compression ring that, in turn, rests upon a curved truss.