

CIVIL ENGINEERING NEWS

STRUCTURES

Structure Key to 'Floating' Plateau of Grass in California

A work of art recently on exhibit at the Southern California Institute of Architecture, *Keep Off the Grass! Planar Landscape Phenomena*, took the form of a 20 by 50 ft (6 by 15 m) curvilinear plane of grass suspended by a series of cables from the ceiling. Produced by Griffin Enright Architects, of Los Angeles, the work's unique structural schematic was designed by the newly opened Los Angeles office of Gilsanz Murray Steficek.

"It was a constant play between the architectural design and the necessary structure," says Anders Carlson, of Gilsanz Murray Steficek. The architects, he says, "wanted it to look as if it were floating, and we wanted to get enough structure in there to stabilize it."

After numerous design iterations the team ended up with an undulating plateau of sod formed by scores of 20 ft (6 m) long steel pipes 0.75 in. (20 mm) in diameter clamped perpendicularly to 50 ft (15 m) long knife beams suspended by cables from a 24 ft (7 m) high ceiling. The beams are made of 12 in. (305 mm) deep vertical curvilinear sections of plywood connected with steel braces. Working on a shoestring budget of \$6,000, the team lacked the resources to support each pipe from above, so the beams were supported with cables at their peaks, and the pipes were clamped to the beams. Finally the pipes were covered with a steel mesh and sod.

Because the beams were so thin and were supported only from above, Carlson analyzed their tendency to buckle and devised a system of angled cables connecting each pipe to the bottom of the beam. In the end these cables served three functions: they created an independent load path between the pipes and the beams, provided stability against buckling, and created a diaphragm capable of resisting lateral movement.

Keep Off the Grass! was conceived by Griffin Enright as a statement on the



Keep Off the Grass! Planar Landscape Phenomena—a work of art recently on exhibit in Los Angeles at the Southern California Institute of Architecture—featured a 1,000 sq ft (93 m²) undulating "carpet" of sod suspended from the ceiling. Pipes resting on plywood knife beams were connected to the bottom of the beams with small cables to prevent buckling, insert.

relationship between humans and their lawns, or, as the architects describe it in a written statement, "that thin plane of suburban carpet." The suspended plateau was accompanied by a wall of text setting forth statistics on the resources used for lawn care and the pollution the endeavor creates. The architects placed pools of water below the grass to reflect the sod as it dried and decayed during the exhibit, which

ran from December 12, 2003, to February 1.

As Carlson sees it, the amount of effort that went into creating the installation should serve as a metaphor for the effort that goes into lawn care. "We used all of this fancy analysis to make something that you can put together yourself with stuff you buy down at the hardware store," he says.

—Greg Brouwer