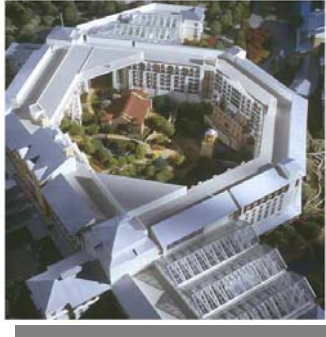




CONNECTION ENGINEERING

**Gaylord Opryland Texas
Grapevine, Texas**



- Fabricator:** Hirschfeld Steel Company, Inc.
- Completion Date:** 2004
- Building Use:** Hotel resort with 1,511 rooms, convention center, & meeting center.
- Building Size:** 5,700 tons
- Building Type:** Structural steel frame with compression ring and tension rods.

Project Description: Structural Solutions, Inc. performed connection design services for the exposed structural steel connections in the main auditorium areas. The exposed atrium structure serves to enclose the atrium and to support approximately four acres of skylights. Structural Solutions, Inc. was recognized for their efforts in the May 2003 issue of the American Institute of Steel Construction's Modern Steel Construction magazine which has a circulation of nearly 50,000 copies.

The structural system integrates the use of large hollow structural sections, cellular beams, tension rods and structural steel trusses. The center portion of the atrium is comprised of a compression ring using both horizontal and vertical truss elements. The ridges of the eight-sided octagon shaped structure are 36-inch diameter hollow structural steel section compression struts. The base of the suspended structure is a network of 4-inch diameter tension rods and turnbuckles. An illustrative example of the design activity that Structural Solutions, Inc. performed was the design of connections intersecting with the compressions struts. As a result of large loads and large diameter sections, web plastification of the section walls was critical. These connections were designed in such a manner as to transmit forces through the compressions struts without directly applying load to the section walls.