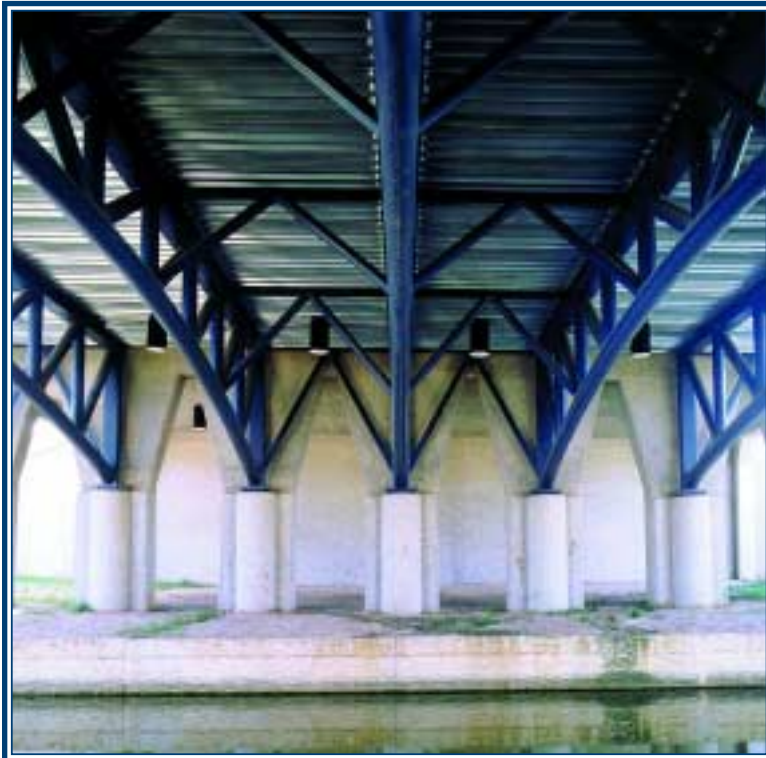
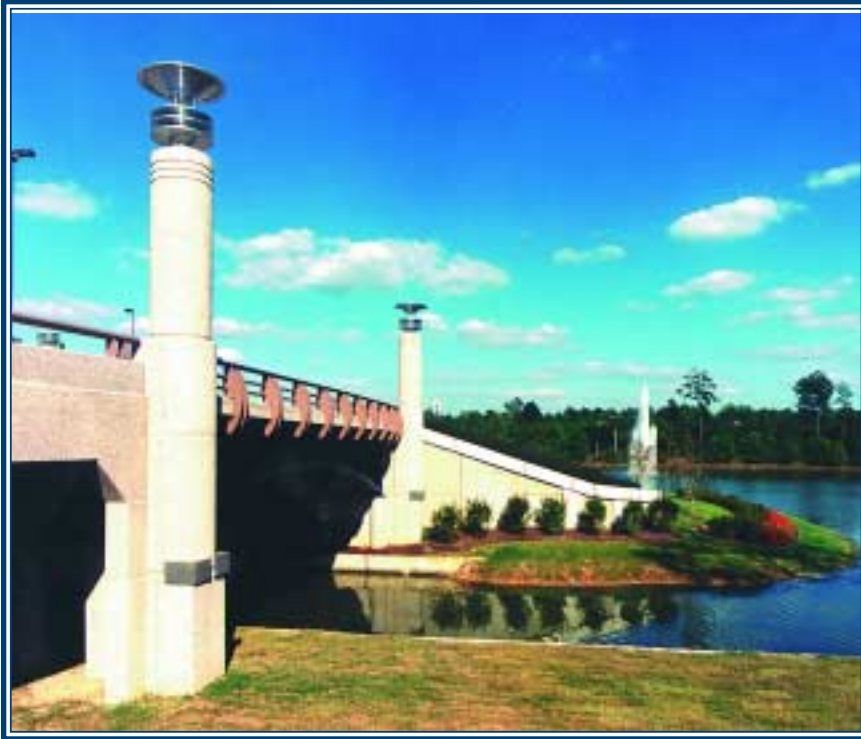




# 1996 MERIT BRIDGE AWARD: SHORT SPAN THE WOODLANDS WATER CROSSING AT MALL RING ROAD



**P**ART OF A SERIES OF BRIDGES SPANNING A FUTURE RIVERWALK ENTERTAINMENT AND SHOPPING CORRIDOR, The Woodlands Waterway Bridge at Mall Ring Road provides easy access to the newly constructed Woodlands Mall in The Woodlands, TX. The bridge consists of a steel pipe arched truss beam with a reinforced concrete deck, which spans 55' over a scenic walkway and a channel. The structure also includes a reinforced concrete slab that spans 30' over a future tramway. The overall width of the bridge is 49.5' for the slab span and 50' for the truss beam span.

Because the required vertical clearance was difficult to achieve with conventional beams and slab span, an innovative framing system consisting of a fixed end span and a simple span was developed. The fixed end span unit integrates the cast-in-place, conventionally reinforced deep abutment, bent and 18" slab. The simple span consists of seven pipe arched truss beams with a cast-in-place reinforced concrete slab across the beams.

To keep the truss lines clean, welded joint connections were used for the chords of the truss. Traffic load fatigue criteria were satisfied using a full penetration groove weld. Fabrication and painting of the beam trusses were completed in the shop and delivered to the site in three units for additional field welding or bolting during the erection process, thus speeding up the construction.

Special aesthetic features include custom light fixtures, architectural treatments for the steel railing and underbridge lighting, and the use of river gravel in the concrete mix. In addition, the concrete surfaces received a medium sandblast to achieve a warm color and texture. The steel pipe truss beams also improved aesthetics by creating a light, almost lacy, structure.

## **ProjectData**

**Steel wt./sq. ft. of deck:  
22.5 lbs.**

**Cost: \$640,000**

**Steel tonnage:  
61,349 lbs.**

## **Judges Comments:**

***“The use of tubular  
trusses is an  
elegant and  
beautiful solution”***

## **Project Team**

**Designer:  
Howard Needles Tammen  
& Bergendoff Corp.,  
Houston**

**Architectural Consultant:  
Ford, Powell & Carson,  
Inc.  
San Antonio**

**G.C. & Erector:  
C.C. Carlton  
Construction Co.  
Houston**

**Fabricator:  
Trinity Industries, Inc.  
Structural Steel Division  
Houston**

**Owner:  
The Woodlands  
Corporation**