$10M OR GREATER, BUT LESS THAN $25M

MERIT AWARD

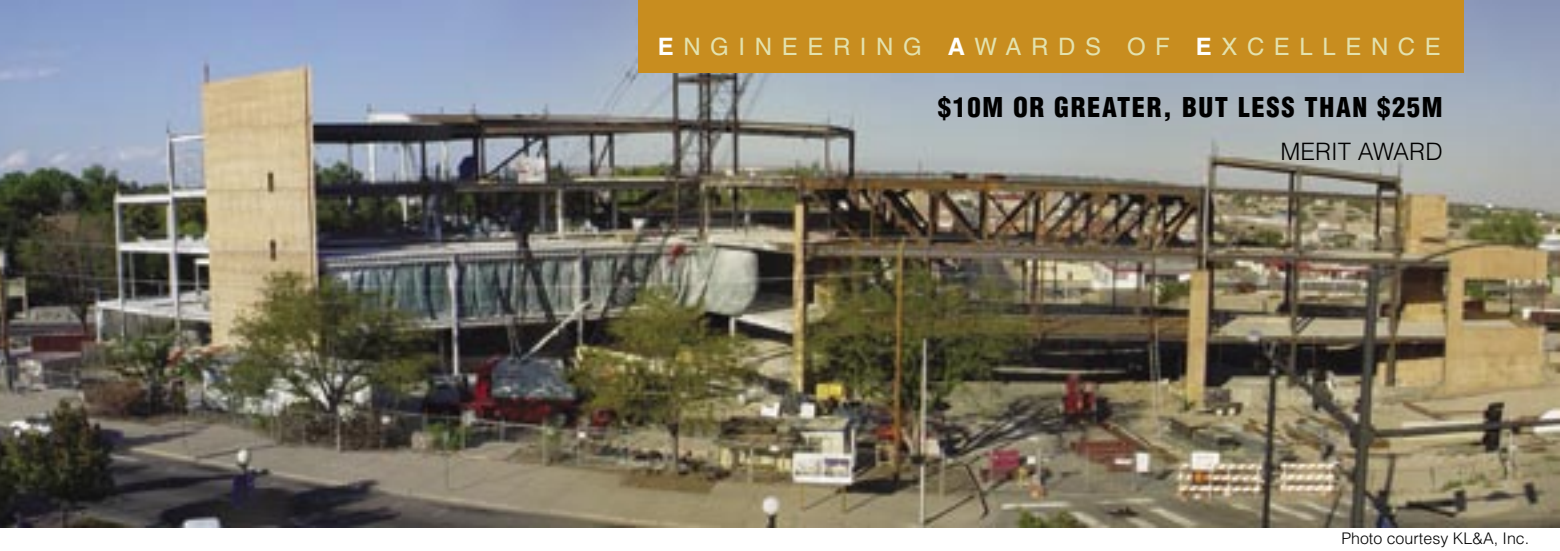

Photo courtesy KL&A, Inc.

Robert Hoag Rawlings Public Library

Pueblo, CO

Graphic courtesy Antoine Predock Architect.

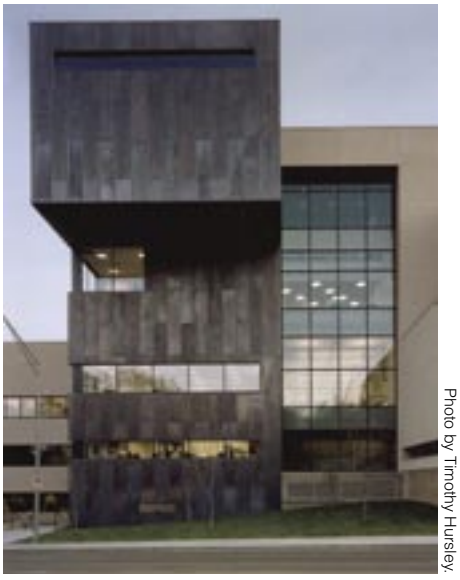

Photo by Timothy Hursley.

Pueblo's new Robert Hoag Rawlings Public Library serves as a meeting place, a gallery for art and permanent displays, and a location for special events. The 109,000 sq. ft structure uses bold architectural forms and the juxtaposition of architectural finishes—with conventional composite steel framing in most areas—to create interest and drama on a budget.

The first structural challenge was an overhead structure spanning approximately 98' and connecting two sides of the library on opposite sides of a street. This "skyway" included two levels of library stacks and administration spaces, as well as mechanical equipment behind tall, sloping parapets on the roof. The plan geometry of the skyway was trapezoidal in shape, with a glass-clad triangular hole through the middle, allowing light in and a view of traffic passing below. Four one-story tall trusses are located at the third floor level, with the second floor level suspended below. Directed spherical bearings were used to allow free movement due to rotations at the ends of the trusses and thermal movement.

The library's most prominent structural steel feature is a wedge-shaped trellis. It forms a point starting at the north side of the building that descends at 4˚ for 368', ending in a 45'-long cantilever that is only 2'-9" deep at its spring point. The trellis is made of built-up, wedge-shaped tube sections connected by channel sections and diagonal flat plate braces. At the north side of the building, the deep end of the wedge contains a gallery that cantilevers 16' beyond the face of the building. This was accomplished with a steel moment frame that allowed side windows in the gallery.

The main stair in the atrium lobby cantilevers 20' from the slab edge support. However, the landing at the end of the cantilever—typically a stiff element that resolves the forces between the structural stair runs—is 22' long. An HSS 16×16 member was used to connect the stair runs. A splice was required in this HSS member to make the stair compo-

Structural Engineer and Detailer
KL&A, Inc., Golden, CO,
NISD member

Engineering Software
AutoCAD
RISA-3D
RAM Structural System

Detailing Software
SDS/2

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Pueblo, CO

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Anderson Mason Dale Architects,
Denver, CO (executive)

Fabricator
Zimkor LLC, Littleton, CO,
AISC member

General Contractor
H.W. Houston Construction Co.,
Pueblo, CO

nents portable and constructible, but the architectural finishes did not allow for any plates or other protruding elements. A completely field bolted splice was devised that fit entirely within the shape of the HSS to meet these challenges.

The 54'-tall atrium glass wall was achieved with minimal structural support by providing horizontal tube-steel girts at the floor levels, with slender sag rods supporting the girts from above.

Perhaps as important as the building's structural elements was the project delivery approach, driven by the needs of the owner and contractor to meet a tight schedule. Structural engineering firm KL&A employed its own in-house steel detailing staff, using the 3D steel-detailing/modeling package SDS/2. Detailers were able to start work on the 3D model during the construction documents phase, which in turn resulted in the issue of complete shop drawings shortly after the final issue of structural construction documents, and before the final architectural package was released. ★