



## *Spectrum of Successful Steel Design-Build Projects* *Forging success: Structural steel in a design-build environment*

By Larry Flynn

### **Project 1: Nexus condominium tower and parking structure, San Diego**

Seemingly overnight, downtown San Diego's quiet, industrial East Village has transformed into a bustling urban multi-story residential, mixed-use neighborhood in conjunction with the opening of Petco Park, the San Diego Padres' Major League Baseball park, in 2004. Competition is fierce among residential developers in the area who are anxious to complete projects as quickly as possible.

Speed of construction was a critical consideration for the developers of the 76-unit Nexus condominium tower, the first multi-story residential project constructed in San Diego since the 1980s. The speed and efficiency offered by the design-build steel team of eSteel, Albuquerque, NM, reduced the design, fabrication and erection time

of the framing system for the tower to a minimum, allowing the prime contractor, Dallas-based Centex Construction (now Balfour Beatty Construction), to complete construction and developer Centex Homes to open the project in late 2006.

The eSteel team, comprised of the Albuquerque, NM-based structural engineering firm Chavez-Grieves Consulting Engineers Inc., steel fabricator AmFab Inc., and steel detailer dtl's Inc., consulted with the rest of the project team, including architecture firm KMA Architects, San Diego, on a number of framing solutions before selecting a buckling restraint braced frame system (BRBF). In all, 2,000 tons of structural steel was used on the project, which included eight floors of steel-framed above-grade residential and mixed-use space and three floors of below-grade steel-framed parking.

Because this was the first time the BRBF structural system had been used in San Diego, the design team worked with the American Institute of Steel Construction (AISC) and the city in an extensive review process to gain approval for the system, which acts as a large shock absorber versus a typical braced frame, which resists loads rigidly. The system works with a steel strap or band inside a tube that is grouted solid, says Chavez-Grieves VP Scott Heatly, P.E.

Inefficiencies that exist in the design and construction of a typical project that uses 2-D drawings were drastically reduced with the steel package. The eSteel team used 3-D modeling and interoperable Building Information Modeling (BIM) software so that design, detailing and fabrication information could be exchanged between the team members, reducing duplication in the creation of models and shop