PROJECT DESCRIPTION

The MIT Building Technology Group and Tsinghua University advised Tian Hong, a development firm, in the conceptual design of a residential development outside of Beijing named Hui Long Guan. MIT undertook the site planning and architectural design for two residential plots within the larger master plan for the Tian Hong Project. These included development parcels C02 and C06, consisting of 89,000 and 148,000 square meters respectively (Figure 1).

Tian Hong requested a design strategy with an emphasis on ecological, environmental, and economic sustainability. For the Beijing climate, with cold winters and hot summers, the primary design strategy was to reduce energy consumption in the buildings. The objective was to simultaneously decrease heat loss, maximize solar gain, and reduce the heating load in the winter months, while providing means to reduce energy use for cooling in the summer months.

In addition to adherence of environmental design principles, the design team was interested in demonstrating that designing for the community should be an integral aspect of the general scope of design. The intersection of Chinese cultural interests and appropriate sustainable principles prompted a design strategy that provided communal gathering and activity spaces wedded to both the built and natural environments.
DESIGN APPROACH

The C02 and C06 sites, located on the outskirts of Beijing, are part of a much larger, primarily residential development, Hui Long Guan, which is typical of modern urban development in Beijing and throughout China (Figures 2 and 3). A primary concern for an "environmental" approach was to provide a socially sustainable development in a high-density setting with a central design goal of achieving symbiotic and environmentally sensitive relationships between the individual dwelling and communal areas of the development. Many high-rise residential developments in the area neglect a sociological perspective characterized by community spaces with poorly articulated relationships between public and private space.

Beijing is an extremely active and rapidly changing city. Residential developments must address the sociological issues related to numbers of unrelated persons living in close proximity. The MIT group sought to accomplish this by providing public spaces of various scales and types for social interactions, as well as comfortable private living areas.

It is important to also describe several limitations that were imposed on the design by either local planning regulations or the developer. The first requirement was the winter sunlight code, discussed in earlier chapters. In addition, each unit must also have a south-facing entrance, a requisite with its basis in feng shui. And lastly, the palette of basic building materials was limited to KPI brick and concrete, with small amounts of steel.