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A Look at Libraries: The Robot's Grip

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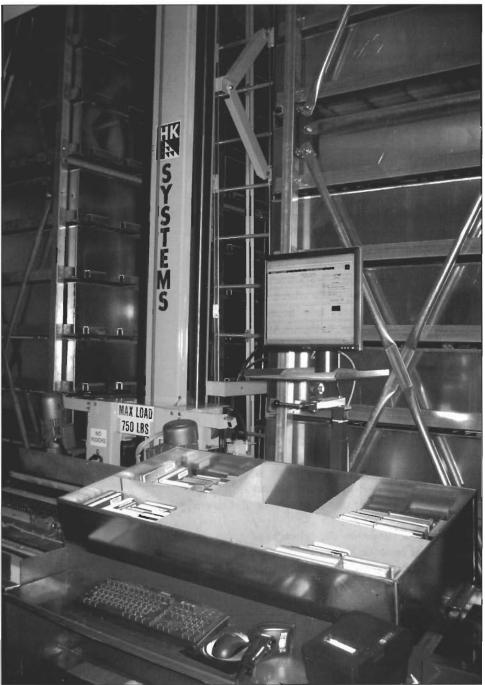
THE ROBOT'S GRIP

Santa Clara University Adopts High-Tech Library Storage

By Ronald Danielson

Santa Clara University's new Commons and Library shares many design characteristics with other recent library buildings, but one aspect of the new library is unique among AJCU institutions. When the Commons and Library opens in the fall of 2008, approximately 250,000 volumes of the library's collections will be on traditional shelving. The rest of the library's 800,000 volume collection will be stored in an Automated Retrieval System (ARS) and fetched in response to a request from a library patron submitted through our online catalog.

The ARS is a three story, 8,000 square foot component of the library, filled with six ranks of floor-to-ceiling racks which house nearly 12,000 two foot by four foot metal bins that hold the library materials. The request from the online catalog is passed to the ARS control computer, which determines in which bin the desired item is located and dispatches one of three mechanical cranes to fetch the bin and deliver it to a "picking station." A student employee then removes the item, updates the computer record with the item's new status, and delivers it to the circulation desk. When the item is returned, it doesn't have to go back in the same bin from which it was removed, but can be stored in any appropriately-sized bin, speeding the process of putting materials back into the ARS.

The decision to build the ARS was a compromise between anticipated
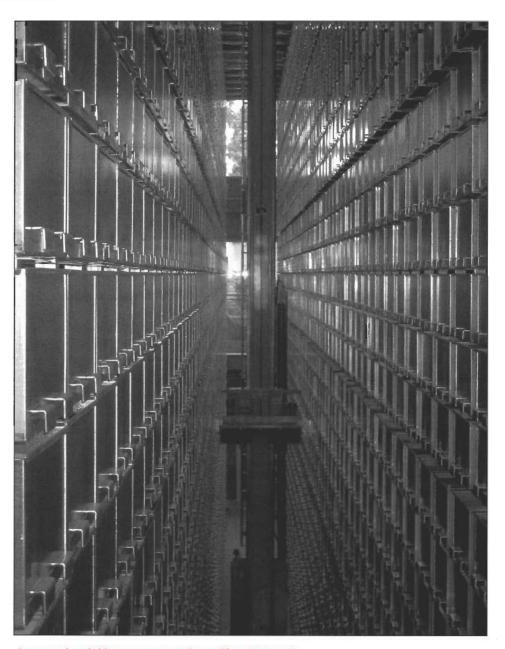

Crane and bin operation of the Santa Clara University library.

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needs and economic reality. In the current situation of extremely high construction costs and, for most of us, very limited real estate on campus, holding library materials on traditional shelving is a very expensive option, something that may come to be seen as a luxury. Construction estimates based on the new library's original program were 50 percent higher than initially planned. Santa Clara's design team evaluated a number of alternatives for reducing that cost, including dramatically limiting space for collection growth, widespread use of compact shelving, off-site remote storage, and the ARS. We decided the ARS was the best compromise between price and good customer service. It will save Santa Clara more than $15,000,000 compared to providing traditional shelving for a similar number of volumes.

The ARS provides a number of benefits: very dense, cost-effective storage for library materials (full capacity is more than 900,000 volume equivalents), relatively rapid response to retrieval requests (typically three to seven minutes), and very reliable storage (existing units report significantly fewer lost items in the retrieval system than on open shelves). An additional benefit is that the ARS will hold virtually the entire print collection during the construction period for the new building, which will be built on the site of the existing Orradre Library. The principal drawback, of course, is that materials in the ARS are not browsable in the traditional sense, although features of the online catalog permit some virtual browsing.

A critical issue is the choice of which items from the library's collection should go on open shelves and which should be stored in the ARS. The ARS is ideal for items that are infrequently used, so circulation history will be one factor considered. Santa Clara's subject specialist librarians will work closely with faculty in various departments to select the items that will be placed on open shelves. The decision, however, need not be permanent. Items in the

Crane and rack library system at Santa Clara University.

ARS that circulate frequently will become candidates for placement on open shelves, and those items on the open shelves that don't get used will be candidates to move to the ARS.

Our belief, supported by the experience at other libraries where similar systems have been used for more than 10 years, is that this combination will provide a high-quality experience for our students and faculty. Not everyone agrees. For a contrary viewpoint, see Professor Fred White's article in the *Chronicle of Higher Education*, "Libraries Lost: Storage Bins and Robotic Arms," Volume 52, Issue 6, Page B8). ■

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