

# M&D Update

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Murray & Downs Office - Near Reservoir Street

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## Cutting Construction Costs Dollars & Sense

Gerry Hughes

Even with construction costs easing these last 12 months, the “real” cost of school construction continues to exceed scheduled increases in state funding. As a result, school districts continue

to look for new ways to stretch their construction dollars. The following is a summary of factors that can affect (in some cases, drastically) the cost of school construction.

### Location... Location... Location...

Finding and choosing an appropriate site for construction of a school can be a lengthy and arduous process. Site access, easements, utilities, topography, wetlands, and toxic

substances must all be carefully considered when choosing a suitable site. Site development, off-site development and utilities costs can account for up to 33% of the total cost of construction. While these

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costs are partially funded through the Additional Site Development Grant, it is the school district that typically must shoulder as much as 60% of these costs. Therefore, to minimize site development costs consider the following: minimize utility runs and grading requirements through careful spacing and orientation of buildings; incorporate economical, low-maintenance landscaping and “soft-surface” areas; minimize ‘hard-surface’ (paved) areas; and employ new technologies in storm water management.

### It's Not Nice to Fuel Mother Nature...

Just as buildings must be designed to accommodate the physical characteristics of the site, they should also be designed to work with and not against local ecological and meteorological conditions. How a building interacts with wind, rain, temperature, humidity and sunlight will affect the initial cost of construction as well as long-term building performance. The cost of incorporating features such as day-lighting, passive ventilation or solar orientation can be more than offset by a reduction in the initial size and cost of mechanical and electrical systems required, as well as a corresponding reduction in longer term operating expenses and maintenance costs.

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## Collaboration in Design Designing Solutions with the User in Mind

Peter Berchtold, Architect

Few architects design projects in isolation of their clients. Quite often, we coordinate large groups to facilitate a collaborative process in designing educational facilities. From students and faculty members to administrators and custodians, the collaborative design process, often made up of multiple design charrettes, encompasses varying voices and perspectives. In designing college campuses, a diverse group of users facilitates a more cost effective and satisfying project.

It is the process itself which enables users to better identify their needs and concerns. One of the most significant advantages of collaborative design is the end result where users feel a greater sense of ownership and authority over their own facility. While design professionals understand the language used to describe the nuances and technical aspects of a given design issue, users are able to offer their perspective of how a building or room should be *experienced*. Users, such as students and faculty members, present their visions in terms of “feeling” and we translate their vision into an architectural reality expressed in building form and layout.

» **Collaboration in Design, page 4**

## Wireless Technology New Network Solutions

Heath Harris, RCDD/MCP

In the past, a wired network was the only option for many offices because wireless technology was either too expensive or did not meet the requirements of the client. In the last several years however, wireless technologies have made great strides to become more cost effective and viable solutions. Although the “wired” world is still the standard because of its speed, reliability and cost, wireless technology is now showing it has a place in networking. Here’s a brief summary:



Silva Valley Elementary School

Photo By: Cathy Kelly

### Tidbit Sod vs. Seed...

**Issue:** As a budget solution we may be tempted to use hydroseeded lawn in lieu of sod. At the end of the job, the client, with a couple of bucks to spare, looks at the bare ground and begins visualizing what their project would look like with a full grown lawn. This is especially prevalent with a phased project or an addition. The request to price sod is issued and most of the time the decision is made to change to the sod.

**Suggestion:** If you need to, specify hydroseed but propose an add-alternate for sod. This will give you the advantage of competitively bidding the change and you may find it is a small cost and can be accepted “up front.”

- The first series of 802.11a wireless equipment is now being released.
- As with any new release, the new equipment has not yet reached its full potential of 54 Mb/s, but it is still the fastest and most affordable wireless solution available.
- The new 802.11a based equipment is not compatible with the *older 802.11b* equipment.
- Existing 802.11b wireless users should see the new 802.11g standard, since it will be interoperable with the 802.11b equipment.

What is 802.11? It is a *standards number*. All network technologies (wireless, cabled, infrared, etc.) are governed by the Institute of Electrical

» **Wireless Technology, page 4**

## Principal’s Perspective SCUP Conference Highlights

Charles Downs, President

The Society for College and University Planning (a.k.a. SCUP) had its 37th annual conference in San Diego this year. The July conference was well organized, informative and well attended by both academic institutions and the design industry nationwide. Several tours were organized to various local colleges and universities including Soka University’s new \$220 million facility designed in the style of a Tuscan hill town. Many workshops were conducted on the subjects of planning and design and I was able to attend a number of relevant presentations on learning centers, sustainable design, science facilities and campus centers. The expo hall, dominated mostly by a host of nationally recognized architectural firms’ exhibits, was not only exciting to see but also gave attendees a chance to discuss the projects with the firms’ representatives.

The issues of flexibility and technology seemed to be the common thread between the conference’s higher education focus and the K-12 arena. For example, the idea of creating teaching spaces that are flexible enough to accommodate program changes over time is a concept Murray & Downs incorporates into our projects. Specifically, we try to design all interior partitions as non-structural, allowing maximum space flexibility as programs and space configurations change. On the technology side, a great deal of discussion at the conference centered around the wireless debate. The institutions who had made the decision to go wireless were still provided secondary hard wire given current technology limitations with bandwidth and traffic issues.

» **Principal’s Perspective, page 3**

## Did you know ...?

- 1) There are sixteen product divisions identified in the project specifications to guide the contractor during the construction of a building. Division 9 is the largest of these divisions covering the finishes from carpet to ceiling grids!
- 2) There is a great jobsite superintendent on the Miller’s Hill School Expansion project. His name is Mike Wilson, Younger General Contractors. An existing bank of underground electrical conduits was discovered to be buried shallower than required by code, interfering with critical universal design slopes in site paving work. Through Mike’s initiative and dedication, he was able to figure out a way to move the underground conduits over instead of cutting and replacing them in a different location, saving the client about half of the expected change order amount. Thank you Mike!
- 3) A ton of recycled paper saves approximately 17 trees, and 7000 gallons of water during processing. Recycling one glass bottle saves enough energy to light a 100-watt bulb for 4 hours. □

## Principal's Perspective

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It was also interesting to see how some of Murray and Downs' community college design work was paralleling some of the thinking behind current and future trends in both learning and campus centers presented at the conference. Currently, data and power ports are commonly provided in the classroom environment for all students as well as in ancillary spaces. In the near future, the campus centers themselves are supporting the notion of a "learning campus" (as opposed to a "teaching campus") which incorporates a high level of computer access from small group rooms as well as other collaborative spaces such as cafeteria areas and cyber cafes.

In summary, I will be sure to share with our clients the current trends in educational facilities presented at this year's conference, and I look forward to attending again next year. □

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## Cutting Construction Costs

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### The Devil is in the Details...

A fascinating and often overlooked observation is the correlation between complexity and cost. Construction details typically involve the assembly of multiple components and various materials into a final building element. The more materials that are required to complete a particular element and the more man-hours that are needed to assemble those materials, the greater the cost of the final assembly. Well designed buildings and details will often convey an elegant simplicity. Conversely, the more complicated and difficult a building is to draw, the more expensive it will probably be to build. □

*" Well designed buildings and details will often convey an elegant simplicity. "*

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## Staff News

### Introducing our new staff member:

**Andra Straight** - Andra is our new Executive Administrative Assistant. She comes to us with an extensive administrative background that we know will be a great asset to the firm. Welcome Andra!

(Kelly, our former Executive Administrative Assistant, has accepted another position, that of *full-time mom*. We wish her the best!) □

## M&D Summer Construction Update

### Pioneer HS Phase I

With over 105,000 sf of area included in phase I, this first of three phases is scheduled to be completed for attendance in Fall 2003. Buildings currently under construction on the 55 acre site include: Gymnasium, Cafeteria, Theater, Administration, Library/Media Center, Science Labs and Classrooms. When Pioneer HS opens, it will become Woodland JUSD's second comprehensive high school.



### Union Mine HS Phase II

The 8,790 sf addition of separate Art and Music buildings to the UMHS campus is scheduled to be completed for the start of school this Fall 2002. The art building includes dedicated spaces for painting/drawing, 3-D design and reference materials, and also incorporates an outdoor kiln for ceramics. The music building includes a main practice room, individual practice rooms, a choir room, and office space.



### El Dorado Irrigation District Customer Services Building

The 28,000 sf two-story new customer services building will provide public conference space, fully integrated multimedia conference facilities, private offices, a board room, customer service functions, engineering facilities and a reference library. The economical building incorporates a pedestrian walk bridge connecting the second floor with existing EID facilities and a low water consumption Xeriscape landscaping design around the facility. Completion of construction is scheduled for Fall 2002.



## Collaboration in Design

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Actively designing in front of the users creates excitement and interest. Users are able to visualize and identify problems they did not originally even recognize. This exchange of ideas and information between users and architects can generate far more rewarding solutions. For example, in a recent



Rolling Hills Middle School

Photo By: Cathy Kelly

design charette for a local college district, we were able to redesign a food service area to better meet the needs of the students; they wanted to stay on campus and opted to change the food service area from a traditional kitchen concept to a food court concept where major food chains sell traditional fast food.

Considering the students were the ones most likely to use the food service area, their input in the design process led to a solution better suited for all users.

Because design charettes can consist of anywhere from 10 to 20 users in addition to the design professionals, and can last several hours per session, the problem of scheduling and organizing such an endeavor can be somewhat challenging. But the effort is well worth the rewards.

The success of a project should be gauged by how well the facility meets the needs and expectations of its end users. Through an open exchange of ideas during the design process, the architect has the ability to discuss and incorporate design elements into the building that truly address the users' needs, providing a collaborative design solution. □

## Wireless Technology

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and Electronics Engineers (IEEE) organization. This organization creates and approves "standards" (802.3 for Ethernet, 802.11 for wireless, etc.) that the network equipment (hubs, switches, network cards, etc.) must comply with, so that equipment from different vendors will be compatible. Therefore, 802.11a is the newest *wireless* standard to be released. This is a significant development because of the large number of companies and schools that are currently using or considering wireless as a network solution. A company or school with a sizeable investment in the older technology (802.11b) interested in upgrading should be aware that all of the new equipment (802.11a) will not work in their existing network environment. Organizations looking to deploy a new wireless infrastructure should look to the new standard for their network because of its enhanced capacity and capabilities.

When most of us envision our current networks, we see multiple cables running from our computers to the network. In the wireless world, these cables will be replaced with a small box housed in each building. This situation is practical for several reasons, such as with older buildings where there is no room for the cabling infrastructure, or in a campus environment where students or employees require access to resources without having to sit at a workstation. For example, students will have the ability to connect to the network while studying in an outside classroom environment. Wireless is currently most prominent at the college level but is filtering down into the K-12 market, with several schools in the central valley making large investments in wireless networks. □

### In The Next Issue

Cutting the Cost of Construction Part II

Featured Project EID - Customer Services Building

Storm Water Alert

November Bond Update



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