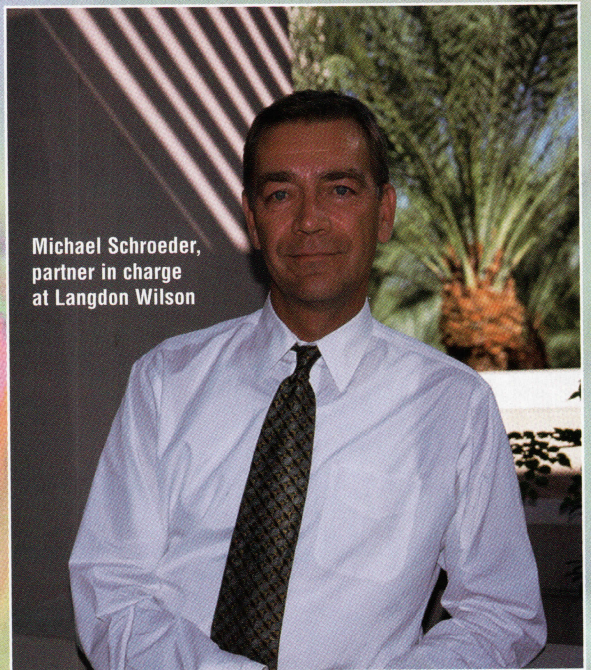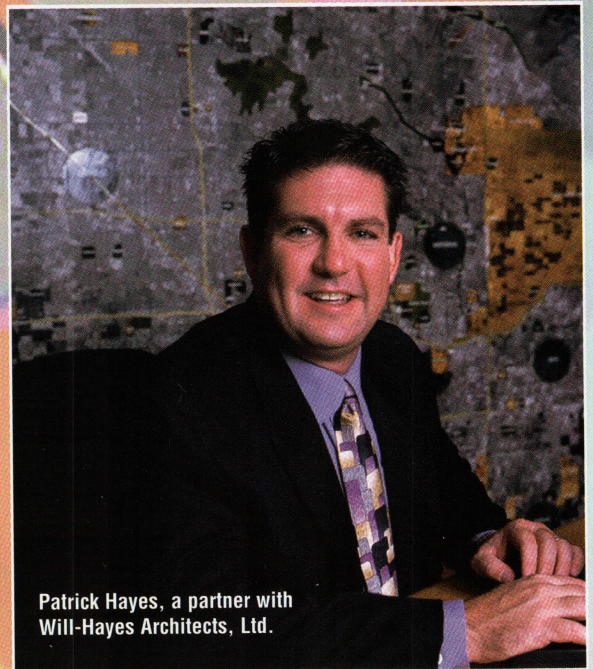by Cynthia Scanlon
photography by JohnMichael

Changing Lines

Technology altering elements of architecture

Michael Schroeder, partner in charge at Langdon Wilson

Patrick Hayes, a partner with Will-Hayes Architects, Ltd.

If you've taken a look around the Valley lately, you will notice that some of the architecture has taken on a more pronounced, even bold, design. Projects like the Burton Barr Central Library, the Phoenix Art Museum and Bank One Ballpark are just a few of the new projects that are giving the Phoenix area national and international recognition. But what is at the heart of today's architecture is really about the changing way in which buildings are being designed and the tools needed to accomplish those tasks.

Not everyone agrees on the best approach or even exactly where the future of architecture will lead, but most in the industry do agree architecture of the past is making way for architecture of the future and the training and skills needed to succeed will be based on working smarter, with technology as the new firm partner.

According to Michael Medici, president of SHG/SW, Inc., the industry has evolved to the point most clients have come to expect sophisticated technology in the form of computer-aided drawing and 3-D graphics. "With the push of a button, we can walk around a building and through it," he says.

Michael Rhodes, principal of Wyatt/Rhodes, Inc., says technology has opened up many more possibilities in

Central to today's architecture is a movement by the private sector to design offices promoting efficiency while cutting back on quality in materials.

architecture and has helped formulate the calculations required of every project almost automatically. "We still need to be aware of what the dimensions are, but we don't need to sit down and calculate every one of them now," he says. "With computerization, it's a fairly easy task to do that much more accurately. You can see a lot more of what the building is going to be like before its gets built."

Rhodes says while his company still does some hand-drafting, the final documents are all produced on CADD (computer-aided design and drafting). "And we're getting into 3-D," he says. "We just had 3-D on a building we were working on with a client and when they actually saw it, they were pleasantly surprised. I don't think they realized exactly what it looked like until they saw it 3-D."

Rhodes adds, "Once we get the plans and elevation, we can take a spin around

the building and see it from all angles and all aspects. It makes it a lot more understandable to everybody."

3-D animation is also playing a key role in Patrick Hayes' business. Hayes, partner with Will-Hayes Architects, Ltd., cites an example of sitting down with a client who wanted a perspective sketch of the structure he was considering building. He also had questions about interior finishes. "We sat down and in a matter of 30 minutes came up with a model," says Hayes. "We were able to change light fixtures in front of the guy and it knocked his socks off."

Hayes adds, "[The technology] is photo real. You fly through the doors into the lobby and look around. All my clients want this."
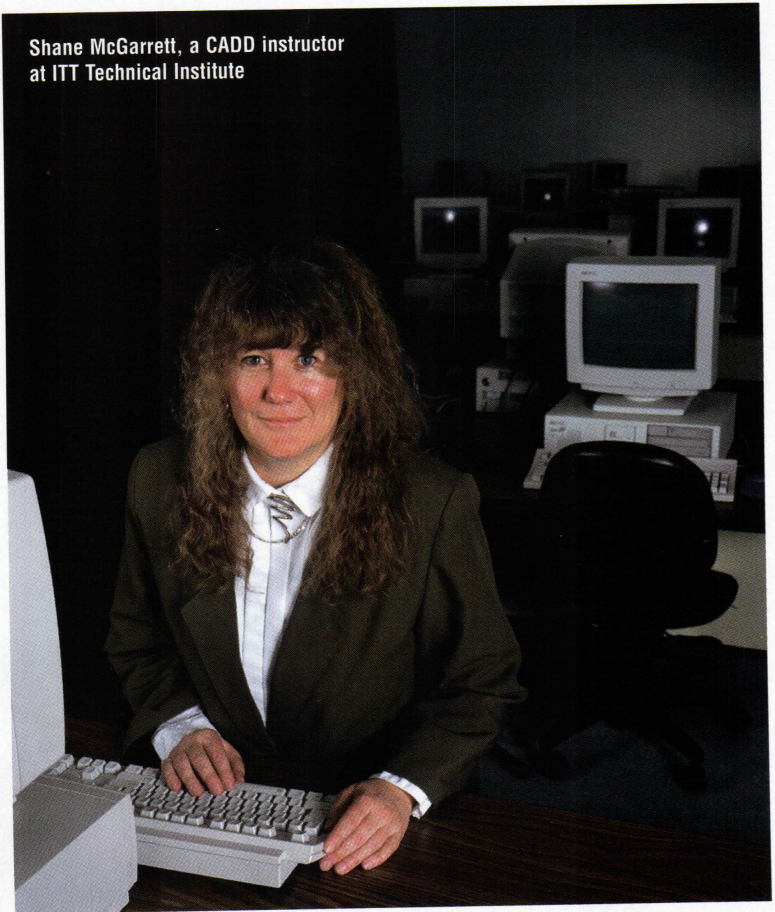
Not only has technology affected how architects are designing buildings, but it is affecting the actual way buildings are being put together and how people are being treated in those buildings. "There's a different thought process in how companies deal with their people because their people are going into bigger, open office areas," says Hayes.

As one example, Hayes has a client who has designed his office building in a U-shape with a central, open court-yard in the middle. "He wants his employees to feel free to walk out into the courtyard and sit down in a nice shaded area," says Hayes.

What makes the concept so unusual is that the building will be equipped with radio frequency so that employees can use their wireless technology while outside. "That's a very innovative concept."

Central to today's architecture, says Michael Schroeder,

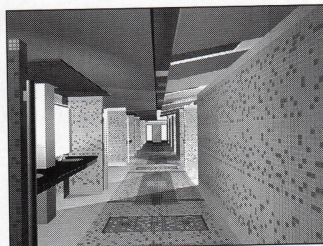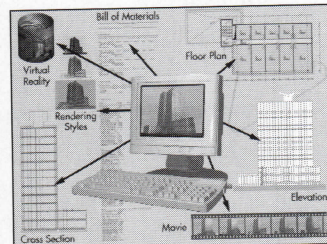Shane McGarrett, a CADD instructor at ITT Technical Institute

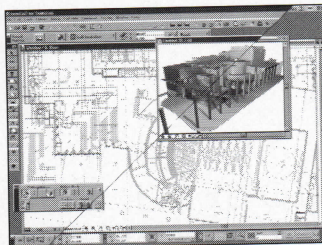partner in charge at Langdon Wilson, is a movement by the private sector to design offices that promote the efficient production of work while cutting back on some quality in materials. "The focus seems to be on economy rather than

Clearly, the marriage between art and technology has never been more evident than in architecture of the present.

creating a quality working environment," he says. "We have far less attention to detail. And there is much more pressure in the work place to create efficient, flexible working environments with far more people in less square footage."
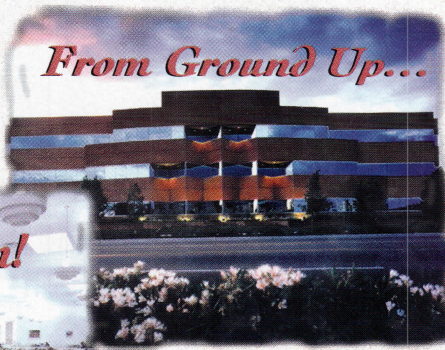
While design precepts may differ, what is clear to most in the present architectural arena is that technology is here to stay. And while computer technology may indeed be a boon to the industry, William Mims, managing principal at Taliesin Architects, cautions the speed and efficiency of technology may not always be a positive thing. "The computer and communication systems have made it possible to deliver services in a matter of seconds that used to take weeks," says Mims. "The increase in technology has shortened the time frame that is available to thoughtfully consider design issues, and we have to make decisions in an extremely compressed time frame."

Shane McGarrett, a CADD instructor at ITT Technical Institute with a degree in drafting design, agrees. "You can play with shapes [on AutoCAD] and create right there," she says. "It may only take a couple of hours to get a rough draft of something you thought of that morning. This has created an industry where things can happen very quickly."
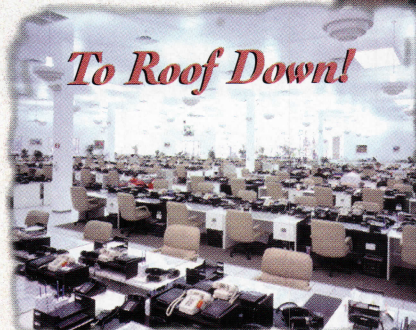
However, says Mims, this almost lightning-like efficiency may not always be as good as first thought. "We're always on the cutting edge of a dangerous situation where the project or

services will be delivered without adequate thought and consideration of design issues," says Mims. "Computers do not do the thinking for an architect or engineer. They cannot give you qualitative judgments. They will allow you to do things more accurately and faster, but they will not do the thinking for you. So if you think the computer is going to generate a solution to a design problem, then you're greatly mistaken. You'll just be adopting someone else's predetermined solution, which has no bearing on the design at hand."

All of this debate over technology vs. time vs. quality leads, of course, to the questions of education. How much? What kind? Where to train? Probably one of the best known institutions for architectural training, here in the Valley and perhaps the world, is the Frank Lloyd Wright School of Architecture, which is part of Taliesin Architects.

It was Frank Lloyd Wright's desire to pass on his visions and philosophies to younger people entering the field, and the school has trained students from all over the world. It is a wish that Taliesin Architects intends to continue fulfilling. "Taliesin Architects has a commitment to the education of young architects," says Mims. "I don't know of any other architectural firm in the world that essentially has its own school, but that's a major part of our commitment. We have to be extremely good business people in order to make enough money to afford to do that."

Indeed, many architects are concerned about the proper way to educate the comers in the field. It is a subject that has as many viewpoints and opinions as a
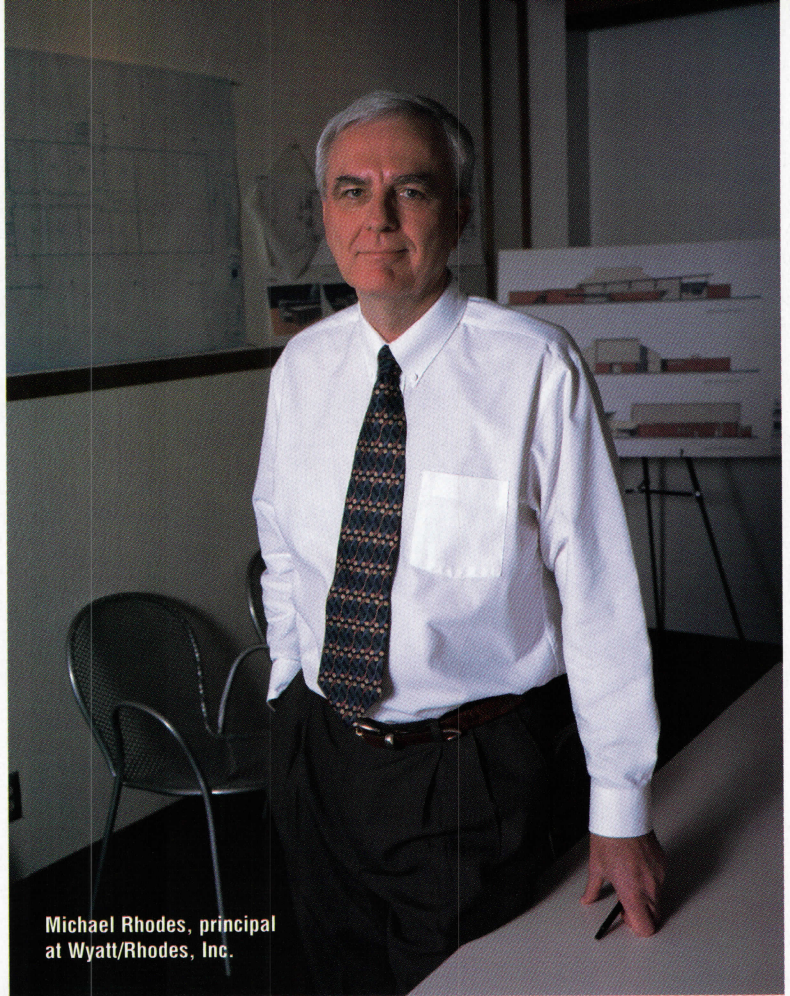
Michael Rhodes, principal at Wyatt/Rhodes, Inc.

building can have designs. According to Rhodes, those students without a sound background in architecture are very limited in what they can do in the field. He says students who are in school to mainly learn CADD are limited to putting lines on a computer that they don't basically understand. "They're just a draftsman and they have no idea what the architecture is," he says. "Architecture is a big field and there's lot to know. CADD is a very good tool, but that's all it is. If you don't put it in the right hands, it still doesn't get you much, so we prefer to have someone who is a graduate of a college of architecture."

Medici also wants any future job candidates who come to him to have an architectural degree. He doesn't hold much faith in those students trained solely in computer technology and CADD basics. "The computer doesn't help them see how the whole thing goes

While the debate over degrees goes on, there is no debate that a student needs good, sound basic design concepts in architecture.

together," he says, adding that being well-rounded in the liberal arts and having skills in math, the sciences, business, and art are also needed. "Writing and speaking are important factors in expressing ideas, too," he says. "If they can't express their ideas in written form or describe their idea well enough, they can't win."

But unlike some others, Hayes is not convinced that a degree in architecture will make someone any more successful in the field than one who simply has state-of-the-art training.

"There's the guy who goes to school and five years later he's coming out of architecture school with a degree," says Hayes.

"A lifetime has changed in five years in what we are doing."

ITT's McGarrett agrees. "Technology is changing faster than we can blink an

eye and new releases of software are coming out overnight," she says. "We can't teach it fast enough to stay up with state of the art."

She points out that students attending the ITT drafting program are put through a rigorous 18-month program that prepares them to work professionally in the architectural field. "When they leave, they have learned physics and calculus, and they have gone through all the different stages an architect would require from a drafter," she says. "These people are just short of being engineers, and they know the language. It's transformation that happens in a very short period of time."

Hayes says there is no question that a solid technological education is a must for anyone entering the architectural field today. "If the kids coming out of college are not keeping up with this technology, they are way behind the eight ball," he says. "You are not considered for any position in our office if you don't know how to operate a CADD."

While the debate over degrees goes on, Hayes says there is no debate that a student needs good, sound basic design concepts in architecture.

But as important is the ability to sit down and have a conversation with a client and then "translate that into a feeling you get in the information flow," he says.

This translates to a simple, but significant, point: all the technology in the world won't help someone who can't understand what a client's real needs are.

Clearly, the marriage between art and technology has never been more evident than in architecture of the present. But the future will require that marriage to be closer than ever.

As Hayes points out, students wanting to enter the architecture field without computer skills will be stopped short right at the beginning.

"The licensing exam for architecture is now given on CADD," he says. "If someone doesn't have computer skills, they can't even take the licensing exam."

So technology is here to stay. But McGarrett reminds us that there is still plenty of room for artistic expression. She illustrates to all who are thinking of moving into the field or even contemplating staying in the field that architecture is "still an established art."

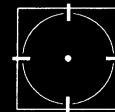Just ask, she says, "Is this the type of artist you want to be?"

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Cynthia Scanlon is a Tempe free-lance writer.