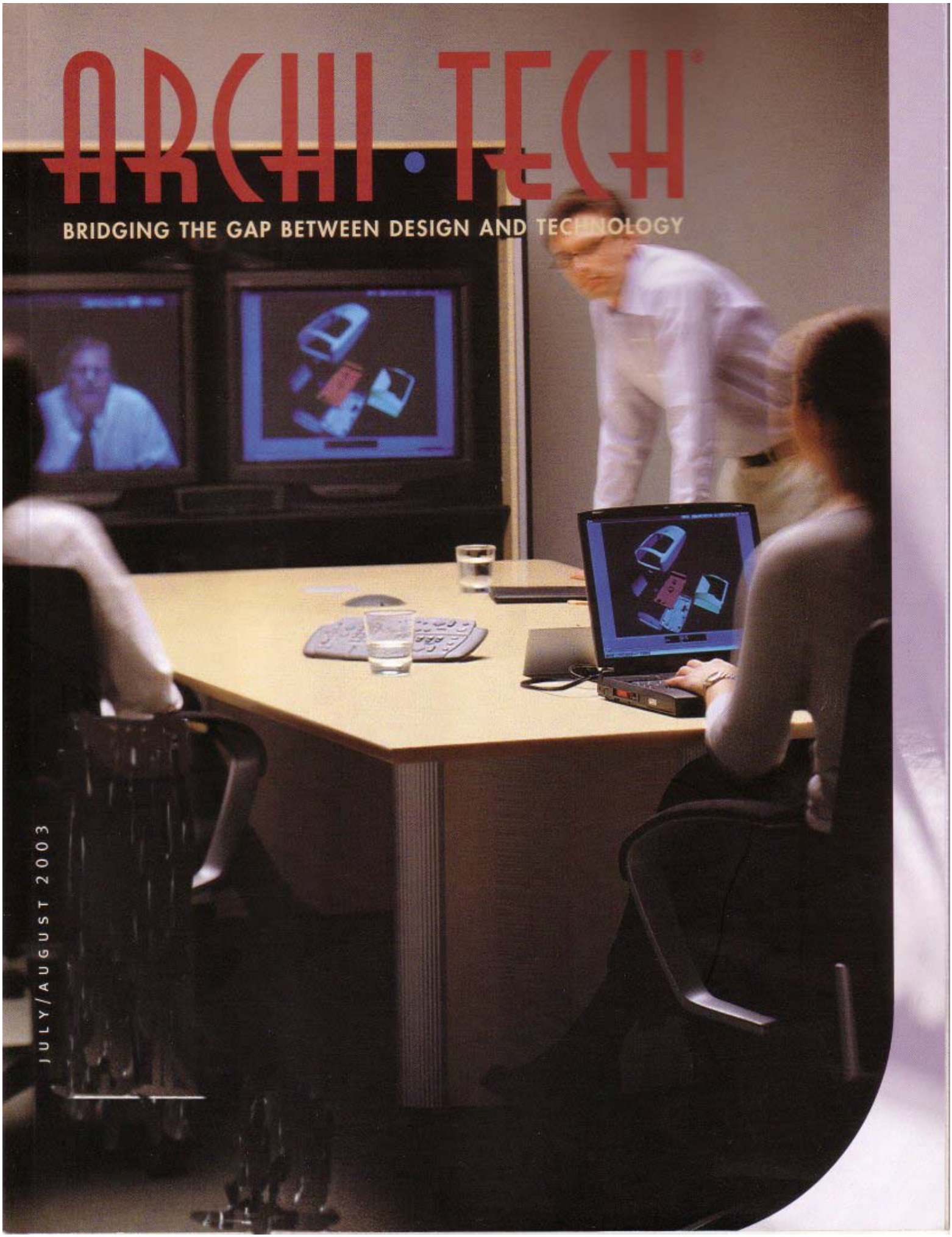
ARCHI•TECH

BRIDGING THE GAP BETWEEN DESIGN AND TECHNOLOGY



JULY/AUGUST 2003

Technology Design
PROJECT PLANNING

BY THE EDITORS

To design buildings with efficient, integrated control systems for CLA — Communications, Life Safety, and Automation — architects were urged to add technology consultants to their design teams by Chip Chapman, president of The Knowledge Group, at a seminar for AIA members in Columbus, Ohio. Owners today, he said, "just assume that the architects, the professions they are working with, know what's going on and are going to help them make the right decisions — that's the expectation."

"Quite frankly, for the firms using technology consultants now, it's a competitive advantage for them," he asserted.

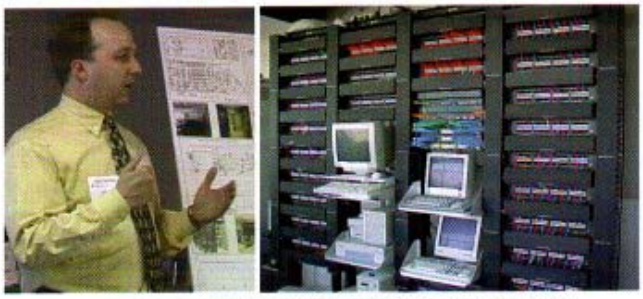
"When we look back in history and see the impact of mechanical, electrical, and plumbing systems, MEP, in the late 1800s and early 1900s, I think we're seeing a very similar pattern in the late 1900s and today of CLA systems." Calling it a "milestone in the history of building construction," Chapman predicted "we're going to see more and more of CLA being designed into the building prior to construction."

"There's a lot of politics involved. We've got all these little empires — the facilities guys and safety and security guys and the IT (information technology) guys. Everybody's trying to protect their area, and they don't want anyone else to have control over it.

"But with the technology that's available today, you can still put in an integrated, converged backbone infrastructure, an integrated network, and have all these different applications on it — and keep them private and secure for each of the individual owners that want to use it, but save a ton of money.

"And that's really what it comes down to, saving money, but still having the functionality and flexibility. If they want to come back and make a change, they won't have to come back and open the ceilings, open the walls. They're not having to try and add space or scramble to find space. And that's really what we're talking about."

The Knowledge Group is an independent "technology audit and design firm" founded by Chapman four years ago as a spinoff from Integrated Building Systems (IBS), a "network integration" company started in 1992 that installs cabling infrastructure and networking equipment. He began the company to offer consulting resources for project planning: evaluating business needs, assessing technology options, and insuring adequate space for technology components.



TECHNOLOGY CONSULTANT CHIP CHAPMAN WITH INSTALLED EQUIPMENT RACKS

Chapman's talk included these remarks:

Fire, life safety, building automation, audio, video, lighting controls — you name it — it's all moving toward a common platform, and that's Internet Protocol (IP). It's a common language. In the past, we had a lot of different proprietary systems out there, each developed from the ground up. So "convergence" is the good news, but there's also bad news if we're not designing and thinking about it properly during the design stages of the process for a new building.

Where we've had a separation is how technology is handled in the planning process. I don't think the client expects you to make decisions about applications, about hardware, about those types of things. They do expect you to make smart decisions about infrastructure — space, power requirements, HVAC requirements — those types of things. That's what they're counting on.

If you lump technology together and think of it as all of one thing, that's a mistake. If you really focus on the infrastructure and support, you'll be much better off in the early design process.

In terms of technology planning, typically we're getting two to seven years' life out of hardware and that really depends. But cabling is expected to last ten, twenty years, even longer — the lifetime of the building. So planning for that infrastructure — making sure

we have flexibility in the pathways to support additions, changes — the design of the space, the pathways and everything, is critical.

What's ironic about cabling is it's the least expensive item when you look at the overall technology investment, but sixty to eighty percent of problems are traced to improper cabling infrastructure. Either poor design, wrong cable was put in to begin with, or it was improperly installed. Besides the cable itself — the jacks, the patch panels, those types of things — the other major issue is power. Not enough power, not conditioned power.

Those are the two big items over the past twenty years. Whenever we had problems, that's where the problems lay, almost always. So it's critical, not only to get the design right, but to be installed properly as well.

A lot of times, particularly if a developer is involved, there's no user to talk to, so they start making decisions or don't plan for the technology side. Well, in my experience, it will cost one and a half to as much as three times as much if we wait until afterwards to put technology in — to create pathways, rip into the ceilings, open walls, open up floors, whatever we have to do to retrofit a space versus planning for it on the front end.

What I've seen in the construction industry is that architects, general contractors, even the owners typically treat decisions about technology as FF&E (furniture, fixtures, and equipment). Decisions are made at the end; decisions are pushed off onto the owner. Or the mechanical/electrical engineering firm comes in and handles the major items — the telephone and the data — but may not have a full grasp of how they could save money by moving more toward a universal, open, integrated cabling system to support all the technologies, versus putting in proprietary cabling systems.

I know the belief is that space for technology is wasted. ("Put them in the janitor's closet," "Put them in the basement," "We'll find space for it" and deal with it after the fact.) But the truth is, more and more companies are investing more and more in technology. And if you're spending millions of dollars on technology and you don't have the infrastructure to support that, you're going to be very upset. So it's very critical in the future of design of the building process.

Now I understand that space is very expensive — we're spending $80 to $150 per square foot to build space. But when the architect says "I was only going to give you a little corner over here of shared space with the janitor and the slop sink with the electrical panels," I'm telling you that's not acceptable. It's not going to fly in the future. We're going to have to work together to educate the client — the developer or the owner — that there are issues, there are codes, there are standards that we need to address to give them adequate space.

If we don't do this, it's going to cost them more dollars. The decisions that are made early in the process cost a lot less money. If we wait to get involved during the procurement stage, after all the other decisions have already been made, a lot of times it's too late to make major changes or it's going to cost major dollars. How do we go in and retrofit a space in a brand new building to add technology? You know this story, but we need to share this story with clients.

Obviously, the emergence and convergence of these CLA systems means we're going to need more space — more space in our equipment rooms, more space in the ceilings, pathways, and entrance requirements. We need consultants and contractors who really understand how to design, how to take these processes into account, and how to build the proper infrastructure to support them.

As part of that future, new strategies, standards, and partnerships will have to be developed. Architects, engineers, and consultants will have to work together to educate the client so they understand the value and the need and so that they plan for technology as early in the project as possible. It's only going to get more complicated. The technology investment dollar per square foot is going to continue to rise. Owners are going to demand and expect help. We're not going to want to leave a gap in the service, as the service models are changing.

Change is hard — if it wasn't, they wouldn't have sold a bazillion books of "Who Moved My Cheese" — but it really goes both ways. Architects are going to bring new folks onto their teams, but the technology folks are going to have to learn more about the building process, the systems, and how you have to make those decisions. So there is learning going both ways. ●

A TRANSCRIPT OF CHIP CHAPMAN'S PRESENTATION WAS PREPARED FOR THIS ARTICLE BY JOHN FREES OF JOHN FREES & ASSOCIATES (WWW.JFREESPR.COM).

VIEWPOINT