U.S. LonMark Ambassador Views Education on Open Systems Paramount to Engaging, Evolving the Intelligent and Integrated Building Automation Industry

LonMark International presents the first of a series of interviews with members to discuss key issues that impact the building automation and control space. LonMark members are transforming the industry by employing innovative business models and pervasive technologies in new ways to better serve their customers.

By John Huston, Owner & CEO, Division 25 and Ron Bernstein, Chief LonMark International Ambassador

RB: Can you give us a summary of your history in the work world and in the industry?

JH: My entire career has been spent in the Building Automation Systems industry. Right out of college I started working for a couple of manufacturers, back when the DDC systems were really first starting to take hold. As the market evolved, I learned more and more about open systems, specifically LonWorks. I tried to convince the company to adopt it, and when they didn't feel the need to do that, I started looking around for opportunities with companies that really understood what open system were all about and that's when I discovered the consulting engineering world.

As I saw it, the best place to be in the open market was in a non-biased position. So I joined Teng & Associates, a consulting engineering firm based in Chicago, IL, where we solely concentrated on integrated automation systems for a wide variety of clients. After 16 years I wanted to apply my knowledge of control systems and how they are implemented to providing solutions in a much more flexible format. This is the reason I created Division 25; it allows me to take the high-level, integrated automation systems technology and bring it down to a flexible price point to a market that doesn't have the budget that is typically associated with the larger engineering firms. I would be able to focus more on the design, build, implementation, and integration of automated systems to a market that typically couldn't have afforded it in the past.

That's where my focus is: Be a technology partner for my clients, by not being locked into a single solution or manufacturer. I start by understanding what the client is trying to obtain and what their definition of open system is. It's on applying technology the way it needs to be applied to meet the expectations of the client without locking them into a particular solution.

RB: Talk a little bit about what Division 25 is as it relates to the CSI Master Format and how that fits into what you're doing.

JH: Division 25 was selected to underscore the concentration my company has on providing the professional services to develop, design, integrate, and implement integrated automation systems. The reason for the name--Division 25--is because back in 2004, the CSI Master Format extended from 16 to 50 divisions, the additional divisions added in recognition of the advancing technology of the construction industry. Division 25 was specifically introduced to provide the level of detail required to successfully implement integrated automation system based on user requirements.

RB: What do you see as the challenges in getting the Master Format Division 25 specifications not only understood but acknowledged and adopted in the general consulting engineering marketplace?

JH: The biggest issue is education. An integrated automation system is a complex animal; there are lots of things to know in order to implement these systems properly, and unfortunately the BAS design market hasn't required many extra demands over the last 30 years or so. When older systems were initially created,

they were proprietary and engineers got used to not designing very specific systems; they'd put out simple performance specs to avoid making it obvious which system was being designed, thus ending up with a very restrictive specification or design.

But the issue now is the technology has evolved significantly. Engineers should learn what the technologies are and how they can be properly integrated so they can do what they've been hired to do and that's providing expertise to their clients.

There are a lot of end users who still don't understand the ongoing benefits of open systems. They are not willing to pay for the design, and therefore the engineers aren't willing to make the investment in educating themselves on what the systems are and how they are applied. And, unfortunately, the ones that these clients are listing to about the technologies are those same engineers who aren't versed in the latest technologies.

RB: How does education play into your vision and your plans for not only what you're doing at Division 25, but also how it relates to your LonMark Ambassador role?

JH: Education is the key. It is the area in which the LonMark Ambassador role and Division 25 are very synergistic. In terms of Division 25, one of the services we provide is serving as a technology partner, and this inevitably leads to educating our clients on the options available to them and do so on whatever level they are most comfortable. Our role as a technology partner is to help fill the gaps where the client lacks expertise or simply doesn't want to maintain internally.

On the ambassador side of things, education is going to be one of the key drivers for getting the word out for what LonMark is all about and how the technology can be applied. By going to tradeshows, conferences, and other venues where these technologies and applications are discussed, LonMark ambassadors will be able to discuss the applications, solutions and business models not only an intelligent standpoint, but from experience. By discussing completed and ongoing projects--whether it's within the federal government, large corporations, or even down to single family homes--there are lots of ways to address how the LonWorks technology can be applied, and education is really going to be the driving force for all this.

The Ambassador role is not a sales role; we are there to clarify and make sure everyone understands what's available and what's required to meet their goals—whether that means implementing an application or just starting out by doing their due diligence as to what the technologies can do and how they can benefit.

Ron: As a new ambassador, how do you see this role unfolding for you and for LonMark?

JH: There are many synergies between the LonMark Ambassador program and the goals of Division 25. I know the technical as well as the business side of how this industry works so I think my expertise can help guide the activities of the program and make the most out of what the program is there for. I see the ambassador program as a natural extension of what we're doing at Division 25 where we are able to direct clients and potential end users to the right experts, whether it's a system integrator, manufacturer, or a solutions provider. There are lots of ways to get the word out, and there are lots of clients who can benefit from the knowledge the ambassador program can present.

RB: You are championing the new LonMark Consulting Engineering Committee. Tell us about your vision for this group and who you anticipate participating?

JH: As the Chairman for LMA, I was one of the key promoters responsible for creating the consulting engineering committee task group to identify issues specific to this community, such as the need for

education. We are tasked with understanding what the issues are and developing ways to address and alleviate the problems that are within that community.

There's the technical and business side of this equation, and for the last 16 years, I've been working hand in hand with a lot of those issues. I know firsthand that the engineer is motivated by the client's needs, and this simple fact led to the effort of opening the LonMark membership up to end users in order to get them involved in creating the applications. This will appeal to the consulting engineering community and get them involved in LonMark's efforts. A task group that specifically concentrates on the consulting engineer community is a huge opportunity for LonMark to provide education programs and develop partnerships with existing end users to assert the benefits of open systems.

RB: So in that regard, where do you see the end user community working with the consulting engineering community to develop what they need, what type of division--campuses, enterprises, facilities--do you see a better interplay between the two entities?

John: To tell you the truth, getting the end user and the consulting engineering community to work together is the driving force. If the client doesn't ask for it, the engineer is not going to provide it in most cases.

When we first started marketing open solutions in my last role, we had a shot gun approach. Simply by showing clients what could be achieved and saved because of open systems was all the ammunition we thought we needed. Being located in Chicago we had thousands of buildings at our doorstep, but we had zero success because of the existing relationships between the companies and their proprietary supplier. We discovered it was way too much effort to individually educate these end users on the benefits so we opted for the second approach and that was to get a rifle out and just work with what we called 'champions of the effort'. These are the end users who understood open systems, knew what they wanted to achieve with their control system, but also knew they didn't have the expertise on their own and were looking for help. In this approach, the engineers and end users work hand in hand to create a solution, so identifying those champions will eventually lead to more to the consulting engineers developing business models that revolve around open systems.

One of the largest opportunities I see right now is regarding the GSA and their recently awarded Fast 50 Smart Buildings contract to IBM to develop and install advanced smart building technology in 50 of the federal government's highest energy-consuming buildings. This should provide considerable momentum in the area of smart, connected, high performance, intelligent buildings, and many of the buildings already incorporate LonWorks technology. Since everybody looks to the GSA--the largest property manager in the world--for what they're doing and the standards they're developing, this could be a huge opportunity to explain the details and complexity of the systems that are being integrated, why they work, and what benefits these systems are providing.

RB: Finding strong end users such as the GSA that have the pull and weight to sway not only the vendor market, but also the consulting engineering market sounds like an approach that would make a lot of sense. Who is motivated in the end user market for adopting a more efficient and open platform?

JH: I've seen motivation come from all levels within a corporation. We've had many discussions over the years about how to target those that 'get it', what classification of personnel gets it the most, and honestly, there is no one classification. It turns out to be an individual who has educated himself above and beyond what others have done, and has determined there is a better way to do manage the system. This could be anyone from a facility engineer to a building owner, to a director within the government, to a department head, to an energy

manager. With every project I've done as a consulting engineer, I can identify the one individual within the client's organization that made that happen. It's all across the board.

When you look at the individual and who it is, then you also have to look at the type of organization it is. The real estate market can be challenging as they tend to flip their facilities quicker and therefore the payback is difficult to justify when you use traditional methods to value the system, which today is often purely based on energy savings. But at the same time, there are those within the real estate market that absolutely recognize the intelligent building has more value by providing an enhanced occupant experience.

Just like it's not any one individual; it's no longer any one classification of facility now because this technology has been applied to everything from a single family home to an entire city.

RB: How would you see the end user and the consulting engineering community coming together? Is it to rally around some concept such as smart grid, demand response, or cloud computing? Where do you see the convergence happening?

JH: Convergence is happening around the enterprise. All the subjects you mentioned are enterprise-based, and the enterprise affords a lot of opportunity and high value when integrating applications into one concise, consolidated system that's easy to maintain. As enterprise applications continue to evolve, education is really going to be paramount to grow a community that understands not only the technologies or the control systems but how to integrate them together and take advantage of the evolving standards that are being applied for the greater good. Educating end users on the enterprise concept is a no-brainer as everyone from commercial electronics to the application developers are talking about it.

LonMark fits in very nicely with the enterprise. There are so many ways of getting real-time building automation information data onto the enterprise, and once it's there, the control system gets even better. Simple processes such as analytics, energy monitoring, alarming, or alerting are becoming the first steps to an intelligent facility, after which these systems can grow exponentially. In a nutshell, I think the enterprise will drive a lot of the integration over the next five years.

RB: What do you see as the role for standards like LonMark and ISO? Where do you see that going when it goes up to the enterprise level? From the needs standpoint, what is needed? What is not available from an integration standard?

John: Standards are a necessity to make not only integration feasible, but to create a business model that makes sense. You can have a lot of disparate systems, but if there's not a clean way to integrate them then it's not going to happen. And how these systems are going to be integrated is driven the manufacturer's decision to adopt standards. What the standards organizations are competing against is a building automation industry that has been very happy to be proprietary for the last 30 years. Getting out of that mode is really going to be the determining factor as to whether or not the standard is adopted.

As a consulting engineer, I have to work with reality, not what are you going to provide five years down the road, so we need to design systems that meet exactly what our clients are anticipating/expecting to receive. For right now, unfortunately, there's a lot of promotion for things that are out there as to being open, but the reality is they're not. Today we use a variety of applications that use a USB connection with absolutely no problem; we plug them in and it works. Well, a lot of systems are promoting that same plug-and-play compatibility, when in reality, they are locking their systems down into a single vendor. It's not until the end user makes a sizable commitment that they realize what has happened.

RB: So in reference to that, do you see a need for an enterprise interface for applications that are separate from the protocols of the proprietary systems down below it?

JH: It's absolutely required. There are a couple of solutions on the market now that offer bits and pieces, but they're kind of developing the standard as they develop the product. I'd like to see it the other way around; the market should develop standards that everybody has a say in, and then develop their products to meet the standard.

Now, there is a barrier to that approach which is going to be hard to overcome: everybody has a system right now, and they have a way they've elected through their business model to implement that system. If you get input from their manufacturers, their input is based on maximizing the use of what they've already done and minimizing the costs of developing a new product to meet the new standards. Unfortunately, manufacturer input is probably going to be more self-serving than open minded, which therefore means we need industry experts that are non-biased--as much as possible--to develop real concepts and get them implemented in a way that isn't done just to benefit a specific manufacturer or product line.

RB: Turning to another issue, what is your take on where cloud computing and cloud services fit in within a BMS system?

John: Cloud computing is big and it's growing every day. It offers a lot of benefits from a cost and maintenance standpoint by providing high-level services for a low up front cost. You also get a lot of maintenance benefits because cloud computing eliminates the need to go to every site and upgrade software packages. Over time, that becomes a pretty hefty maintenance, not only costs, but the manpower of doing that.

With cloud computing, you take all that away. Much of the cost of having your own computer center has been replaced by a bank of servers in the cloud that are constantly maintained, in a secure area, designed to be robust and eliminate redundancy. But on the other side, there are clients that have a very high security concern with using cloud computing. These include higher end users such as federal buildings and large corporations that have thousands of buildings around the country, many of whom will not allow their applications or processes to run outside the private WAN.

I think that as security issues are addressed, cloud computer will become more and more attractive. The pure value of cloud computing is evident, and the fact it is a nice way of getting a highly sustainable system to a mass market that doesn't have to be burdened with the cost of maintaining the network themselves, is a huge selling point. Cloud computing won't be right for everyone, but for those who it is right for, it will continue to expand as they get more comfortable with it.

RB: Do you see a cost, reliability or security issue?

John: I see cloud computing addressing a lot of the issues that have been sore spots for the BA environment for many years, and that is the cost to maintain, update and upgrade a network system. I do see it as being a positive influence for cloud computing, but the security side is a major concern and there are new hackers out there every day and they're getting more and more powerful. There are some clients that I don't think will ever allow their data leave their own private network.

Ron: One of the complaints I hear in the industry in general is the lack of new talent and focus for the younger generation coming in to the building automation marketplace. What do you have for advice for people entering this market, where can they go for more education and resources? How do you see the new generation of facility engineers coming in and learning?

John: Education. If you want to stay on top of technology, regardless of what it is, you need to get involved with the right organizations and the right talent that basically keeps your education current. There are universities that are starting to or are already offering a controls class within their curriculum. Some of the engineers I've worked with in the past went through the controls curriculum, and they were some of the strongest designers and implementers. Become involved with standards organizations like LonMark; this not only helps you drive where the standards are going but it helps you understand the viewpoint of other stakeholders. It's a time commitment and desire to do things the right way, and this technology advances so quickly with new products and concepts coming out that you really need to stay current.

A strong role for the Ambassadors is to reach out to the universities that are already offering a controls track and help them expand upon it with real-world experiences. Universities are good at teaching theory, but some of the curriculums miss the mark on the reality side of things. I think there's real value from getting LonMark programs into the curriculum at universities and trade schools.

RB: Where do you see LonMark as an organization going in regards to education? What kinds of educational programs being of value to the general market?

JH: There needs to be a better strategy of identifying all the elements necessary to successfully develop, design, integrate, and implement automation systems, but realize that it does not have to be ingested all at once. Things need to be broken down into structured segments, like a college curriculum. You start out with the basics and work into what your specialty is going to be. Same is true for building automation systems.

RB: Any last comments?

John: I'm excited to see where things are going. I think starting my own company, Division 25, has come at the perfect time because it allows me to have the flexibility to work with clients of all sizes, from those that are still trying to get their feet wet and understand things, to those who have thousands of facilities across the country and are looking to refine and maximize the efficiencies of not only the energy used, but the operation and the overall management of the facility.