

THE MAGAZINE OF THE CONTINENTAL AUTOMATED BUILDINGS ASSOCIATION



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2006

Homes & Buildings



CABA Connected Home Roadmap

*A look at the seven unique consumer segments
emerging from the North American market*

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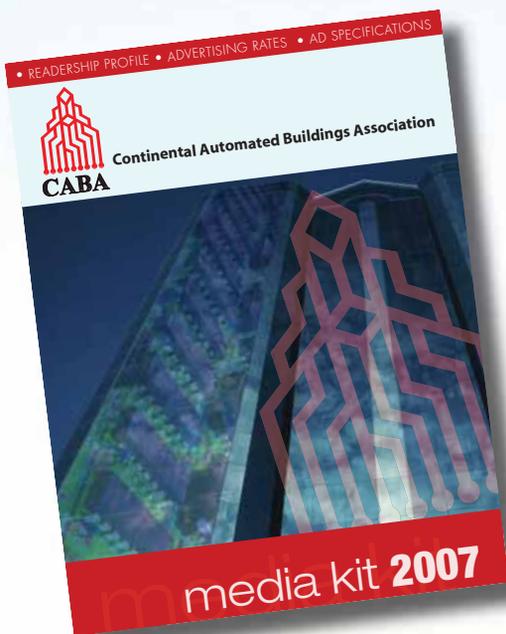
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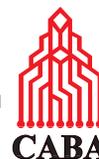
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CABA continues to move forward literally and physically. The organization, after being housed at the National Research Council for 17 years, has moved to a new location. We thank the NRC for its strong support of CABA.

As we reflect on 2006, it is with pride that we share some of the accomplishments that CABA has achieved for the industry. There was the CABA Board's development of Vision 2010, a strategic plan for the organization. The new vision is, "The knowledge-based forum for industry leaders who advance the use of technology and integrated systems in the global home and building industry."

With a new key focus on collaborative research, CABA was pleased to integrate the Internet Home Alliance (IHA) into the organization on July 1, 2006. The new IHA Research Council has not only added 25 major research reports to the CABA Research Library, but many new projects are now underway. Recent research findings were showcased at the CABA Connected@Home 2006 Conference in San Diego, CA. There are more details on the IHA-RC in other articles of this magazine and also at www.caba.org/iha.

CABA also continues to be very active in the large building sector. The first meeting of the Intelligent Buildings Roadmap Steering Committee occurred at CABA's Intelligent Buildings Leadership Forum in Dallas, TX. This major research project is scheduled to be complete March 15, 2007. Through the leadership of the CABA Intelligent & Integrated Buildings Council (IIBC) and the efforts of the Building Intelligence Quotient (BIQ) Consortium, the BIQ Tool will be online by year-end. The IIBC is also working with Reed Construction Data/RSMMeans to unveil a Life-Cycle Costs Analysis Tool at ASHRE/AHR Expo 2007.

As CABA and the industry "moves forward," we thank the many volunteers and companies that contributed to this successful year. We also wish you the very best this Holiday Season!

Ron Zimmer



CABA members benefit from timely competitive, intelligence on the integrated systems industry. CABA continues to grow and is near the 400-member threshold. Here is a sampling of our new members. The complete list is available on CABA's Web site at www.caba.org.

AT&T

AT&T is the largest telecommunications company in the United States and one of the largest in the world. AT&T serves millions of customers, including global, national, mid-size, regional and government customers. It delivers an unsurpassed portfolio of traditional and IP-based voice, broadband Internet, data transport, wireless and video services. It also offers online and print directory publishing and advertising.

Bell Aliant

Bell Aliant is one of North America's largest regional communications providers. Through its operating entities it serves customers in six Canadian provinces with innovative information, communication and technology services including voice, data, Internet, video and value-added business solutions. Through its xwave offices, Bell Aliant also provides IT professional services in Canada, the US and Ireland.

Eastman Kodak Company

Kodak is the world's foremost imaging innovator, providing leading products and services to the photographic, graphic communications and healthcare markets.

General Motors Corporation

GM, the world's largest automaker, has been the global industry sales leader for 75 years. Founded in 1908, GM today employs about 327,000 people around the world. With global headquarters in Detroit, GM manufactures its cars and trucks in 33 countries.

Hewlett-Packard Company

HP is a technology solutions provider to consumers, businesses and institutions globally. The company's offerings span IT infrastructure, global services, business and home computing, and imaging and printing.

National Association of Home Builders

NAHB is a trade association that helps promote the policies that make housing a national priority in the United States. Since 1942, NAHB has been serving its members, the housing industry, and the public at large.

Pulse~LINK, Inc.

Pulse~LINK, Inc. is a fabless semiconductor company offering CWave Ultra Wideband (UWB) technology for both wireless and wired high data rate (HDR) communications. Founded in 2000, Pulse~LINK is a pioneer in the development of UWB technology and now holds over 260 issued and pending UWB patents.

Sony

Sony manufactures audio, video, communications and information technology products for the global consumer and professional markets. With its music, pictures, game and online businesses, Sony has uniquely positioned itself as one of the world's leading consumer brands.

Sprint Nextel

Sprint Nextel offers a comprehensive range of wireless and wireline communications services bringing the freedom of mobility to consumers, businesses and government users. Sprint Nextel is widely recognized for developing, engineering and deploying innovative technologies, including two robust wireless networks; industry-leading mobile data services; instant national and international walkie-talkie capabilities; and an award-winning and global tier-1 Internet backbone.

Trammell Crow Company

Founded in 1948, Trammell Crow Company is one of the largest diversified commercial real estate services companies in the world. The company provides brokerage, project management, building management, and development and investment services to both investors in and users of commercial real estate.



CABA Research Briefs provide a condensed synopsis of specific research papers available in the organization's Information Series. The CABA Information Series provides industry intelligence to the homelarge building automation and integrated systems sector.

CABA Connected Home Roadmap

The Continental Automated Buildings Association (CABA) initiated the Connected Home Roadmap project in 2005 to stimulate the evolution of the connected home industry. The Roadmap is an assessment of the market today and of the probable short-term evolution of the connected home industry. It is intended to provide a framework to support stakeholders and players in this arena as they navigate the complex and shifting dynamics of this emerging market. The full executive summary of this report was published as a CABA Information Series and is available in CABA's Research Library at www.caba.org. The full report is available for sale in CABA's eStore. More information about the workshop is available at www.caba.org/smarthome.

Seven unique consumer segments emerge from the North American market. These segments are defined through a combination of factors including demographics, relationship with the home, attitudes towards technology, as well as current behavior and reaction to the concept of the connected home.

While all segments are present in each country, there is some variance in segment penetration across North America. The segmentation solution presents three segments that have a slight Canadian skew, one that skews moderately American, and three that have relatively equal representation in each marketplace.

Home Heroes

These overwhelmed young families require assistance to help manage their busy lives and households. They require products and services that are simple, straightforward and relatively inexpensive and are not necessarily looking for the "latest and greatest." For many, the children are the number one priority. To this end, technology based products and services focused on family safety and home management will be the first to capture their attention. Other technologies that appeal to this segment include family entertainment and communication systems.

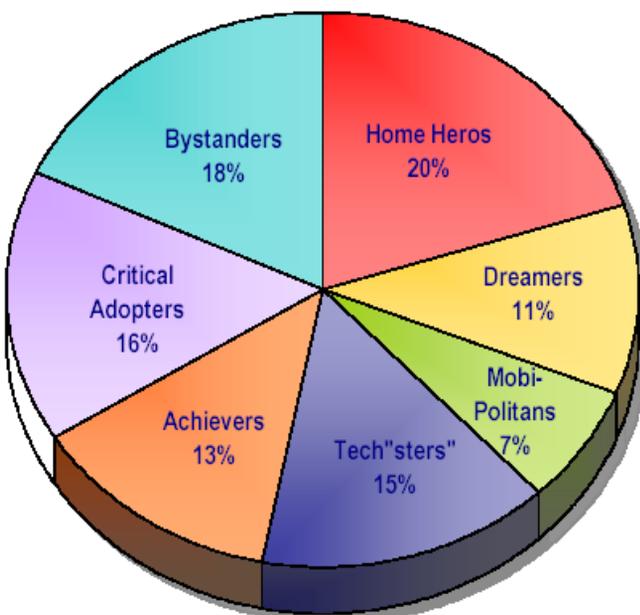
Dreamers

This segment, which demographically can be considered quite average, are somewhat overwhelmed by the work involved in maintaining their homes. They are very interested in and aware of the connected home, however they lack the income required to make the necessary technology purchases and/or investments. They recognize the benefits technology can offer and are unlikely to admit they can be confused or nervous about it. Their interests span nearly every sector including entertainment, communications, heating/cooling and automotive.

Mobi-Politans

These younger, urban dwellers have recently purchased their first home, which typically is an apartment or condominium. They view their homes as transitional in nature and as such are reluctant to invest much time or money into them (beyond any features that would have been part of the recent construction phase). They are quite comfortable with technology, and recognize the benefits technology can offer and are not resistant to change. They are particularly receptive to technologies that offer convenience, security and seamless home-office interface.

The Seven Segments



Tech“sters”

This segment is composed of younger consumers with slightly above-average incomes, many of whom have yet to purchase their first home. They have grown up with technology and frequently invest in personal gadgets that become badges to the outside world indicating they are “in the know.” Tech“sters” are motivated by fun and portability. Their current purchase behavior is strongly oriented towards personal, mobile entertainment and communications products. As these tech savvy consumers purchase their first homes, their interest in technology will almost certainly extend to showing-off the latest in built-in home systems to their new neighbors.

Achievers

These middle aged, established suburban families have the means to acquire virtually every home technology product or service that interests them. They have the highest income of any group in North America and tend to live in larger and newer homes. These homes are typically fully equipped, both with standard safety devices as well as newer amenities, such as programmable thermostats and central vacuum systems. They are comfortable with technology and embrace the possibilities it offers to make their lives easier. Achievers typically split their time between their careers and their families and are interested in communications-oriented products and services that enable them to connect remotely to the office or allow them to check

up on the family at home. These consumers strive to get the most from work and play, so they naturally tend to invest in home entertainment systems.

Critical Adopters

These older, empty nesters tend to be very settled in their single detached homes and have invested the resources necessary to make them their retreat from the world. They tend to be among the last to adopt technology and wait for technology to be established before making the purchase. Although they have embraced the Internet, products becoming obsolete, too many passwords, separate devices and the amount they need to learn can easily irritate them. This segment demands simple, solution oriented, streamlined technology based products and services.

Bystanders

This large segment tends to have lower levels of education and the lowest average household incomes. Although they tend to be older, they do not have a high level of homeownership and their homes tend to be older and smaller than the average. Bystanders tend to see only the challenges to adopting technology rather than the benefits it can offer - as a result, they are quite reluctant to adopt technology. They are comfortable with their homes as they are today and are unsure how they can benefit from connected home technologies.



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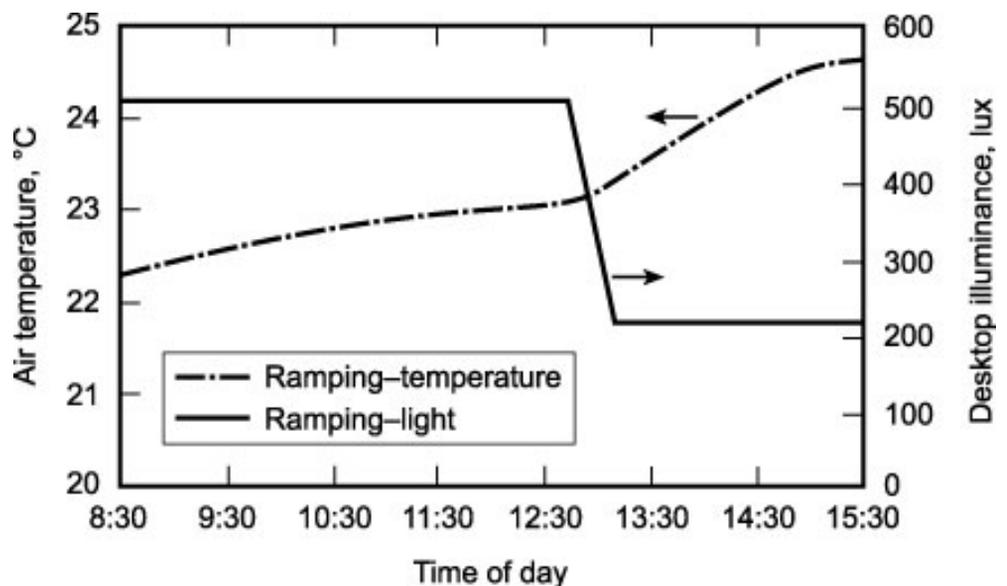
STUDY LOOKS AT MAINTAINING AN ACCEPTABLE INDOOR ENVIRONMENT DURING ELECTRICAL LOAD REDUCTION

When total customer demand for electricity exceeds available supply, brownouts or blackouts may occur, with substantial social and economic consequences. In most parts of North America the greatest risk is on hot summer afternoons, when the demand for cooling is at its highest in both homes and commercial buildings, and when the demand for electricity for lighting and appliances in commercial buildings has yet to subside.

Utilities typically have good models that can forecast the risk of problems several hours in advance, and they can then take steps to deliver additional power from standby generators, to purchase power from other utilities, often at a high cost premium, or to reduce demand.

One way to reduce demand is through load shedding, which refers to a situation where a major user of electricity cuts down its usage during periods of short supply. There is growing interest in getting commercial buildings involved in load shedding when prompted to do so by their electrical utility. For example, lighting can be dimmed and, in the cooling season, the thermostat temperature can be increased to reduce the amount of air-conditioning required. However, this will degrade the indoor environment relative to prevailing operational guidelines.

National Research Council of Canada researchers at the Institute for Research in Construction (NRC-IRC) have reviewed the literature on the effects of steady changes (ramps) in temperature and illuminance from electric lighting on occupants. The research results culled from this review suggest that temperature changes typically associated with load shedding (approximately 1.5°C over 2 – 3 hours) are unlikely to be detected by occupants, and if they are, would likely be considered acceptable under the circumstances. Studies of rapid changes in illuminance (in the





Twin houses at the Canadian Centre for Housing Technology (CCHT)

order of 10 – 100 lx/s) imply that the light level can decline by approximately 20 per cent without being detected. With slower rates of change (1 lx/s or less), greater reductions in illuminance may remain undetected, and acceptable.

However, previous studies have focused on whether ramps are detectable and acceptable, and little is known about their effects on occupant mood, satisfaction and task performance. Furthermore, previous studies examined ramps in temperature and lighting independently, rather than in combination.

To address these shortcomings, NRC-IRC researchers conducted a controlled laboratory study in which 62 participants spent a day in a full-scale office laboratory, completing questionnaires and standard office tasks. One group of participants was exposed to ramping typical of a load shed in the afternoon: workstation illuminance was reduced by 0.15 lx/s, and the temperature increased by $\sim 1.5^{\circ}\text{C}$ over a 2.5-hour period; another group experienced no ramping.

Analysis showed that people did not generally detect the changes in the indoor environment induced by load shedding, and that there were both positive and negative effects on their satisfaction and performance. On balance, NRC-IRC findings indicate that load shedding typical of current suggested practice is a reasonable response to peak power emergencies. While indoor environment conditions may drift from recommended practice, this is unlikely to create substantial hardship for occupants.

Nevertheless, previous NRC-IRC laboratory research on lighting has shown that people who experience luminous conditions closer to their own preferred levels experience a bonus in terms of mood, satisfaction, comfort and motivation. Therefore, plans to use load shedding to save energy dollars when there is not a threat of blackout should be carefully considered until more is known about the effects on occupants in real workplaces.

For more information about this research, contact Dr. Guy Newsham at 613.993.9607, fax 613.954.3733, or e-mail

guy.newsham@nrc-cnrc.gc.ca. You can also visit the project Web site at http://irc.nrc-cnrc.gc.ca/ie/lighting/office/demand_e.html.

This research was conducted in collaboration with:

Public Works and Government Services Canada (PWGSC) and Natural Resources Canada (NRCan) as part of a Program on Energy Research and Development (PERD) project, and with a new advisory board on PERD's building controls research projects, with participation from: Energy Ottawa, Canadian Electricity Association, BC Hydro, Hydro-Québec, Société immobilière du Québec, Canlyte, Encelium, International Facility Management Association, Siemens, Honeywell, Institut de recherche Robert-Sauvé en santé et en sécurité du travail, NRCan, PWGSC, Building Owners and Managers Association, and Bosch.

Load-shedding strategies in houses

Similar load-shedding strategies can be contemplated for residential buildings. In recent studies performed at the Canadian Centre for Housing Technology (CCHT), researchers found that various thermostat set-forward strategies can be used to delay the operation of the central air conditioner until after the utility's peak load has occurred. For example, increasing the temperature of the thermostat by 3°C was shown to effectively delay the use of the air conditioner for up to seven hours, while the temperature of the house gradually floated upwards.

Using this strategy during the electric utility's peak load periods could shed about 2 kW from the peak demand of each centrally air-conditioned house on a hot summer afternoon, when summer utility peaks typically occur.

For more information about thermostat set-forwards and set-backs, go to http://www.ccht-cctr.gc.ca/setback_e.html.



Home Sweet Home: When Integration Becomes a Reality

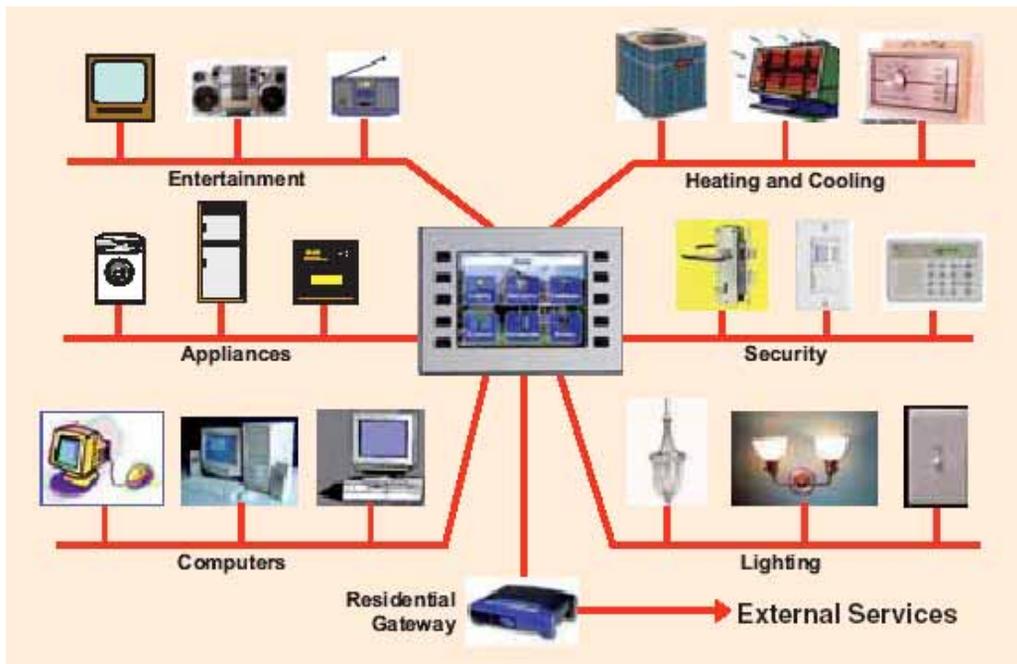


Figure 1

Manufacturers of appliances and consumer electronics are constantly seeking new products that can command higher margins in a very competitive market. These manufacturers are investigating product opportunities in home systems that enable new consumer features by interconnecting appliances, sensors and control panels.

The home system industry has been developing since the mid-1980s. Until then, hobbyists had been jury-rigging remote controls for various home applications such as lighting and entertainment. This industry is now emerging as a major market segment for appliances and consumer electronics makers. The business objective of home systems is to offer consumers new products and services to enjoy at home.

The hallmark of this industry segment is the transition from stand-alone appliances to systems made possible by a home network. The home network enables the communications of commands, control, data, audio and video among devices via wires or wirelessly.

About a billion dollars has been invested in creating networking technologies and components for home systems.

Sleeping soundly at night

Our homes are replete with devices that improve the operation of the house and make life more convenient, productive and safer. These devices range from large appliances in the kitchen and utility room, to entertainment products and an endless array of small appliances throughout the house. In addition, we have sensors and control devices for lighting, heating, cooling and security. Each device or group of devices is independent of the other.

Consider your routine before retiring at night:

- Adjust the thermostat for comfort and conservation;
- Make sure the range, oven, and coffee maker are off;
- Turn off most lights;
- Shut off the TV, radio and stereo
- Secure the door locks;
- Set the alarm clock for wake up

It certainly would be convenient to have a single good night switch that initiated the same routine. A few high-end home systems on the market offer similar features. The manufacturers accomplish this integration usually with a proprietary network and proprietary interfaces to the device under control. A mass market will develop only when appliances and components can be interconnected and can interoperate with low-cost technology.

In the future, as we buy products for our house, we will connect them to our home network, as illustrated in Figure 1. Here we see an example of a home network organized into sections, each supporting a cluster of related appliances:

- Entertainment: TV and radio;
- Environment comfort: heating and cooling;
- Lighting;
- Kitchen appliances;
- Computers;
- Home security and access control.

All these clusters of appliances may be operated from a control panel shown in the middle of Figure 1. The control panel connects to the Internet via a Residential Gateway. The Residential Gateway brings in cable television, DSL (data services via telephone lines), satellite video and audio, and enables Internet access.

With a home network installed and then connected to the Internet, we will be able to buy services from companies that might provide us with music, video and games. Appliance companies might check that our kitchen appliances are working properly and will be able to find problems early before the appliance breaks.

At the click of a button

A home network provides an electronic pathway among appliances, sensors, controllers and user interfaces. Figure 2 shows how kitchen appliances connect to a home network. Each appliance is fitted with an electronic module called a network interface that connects it to the home network. This slide shows the network interface that is actually a small electronic circuit inside the refrigerator.

Home appliances are operated with a variety of buttons, knobs and keys on each appliance. Furthermore, control methods and panel layouts are usually different for each appliance. With a home system, for example, we might control our house from special switches on the wall; one switch might turn on all the lights, while another switch turns on music. We might manage the house from control panels installed on the wall near the entrance to each room, or we might use a portable computer or mobile telephone to control appliances – no matter where we are or what we're doing at the time. It's no longer a utopian idea that just before leaving work to go home, for example, a quick call to the house might start getting dinner ready and/or make the indoor temperature comfortable for our arrival home.

Making networks work together

While dozens of home network communications schemes have been developed, many of these networks will not work together. This poses challenges for manufacturers who want to sell and benefit from economies of scale. It is better to use the same network design and to develop different appliance designs. This is why ISO and IEC created working group WG 1, Home Electronic Systems (HES) of ISO/IEC

JTC 1/SC 25, Interconnection of information technology equipment.

The WG 1, Home Electronic Systems comprises a set of standards that span a variety of topics related to home systems:

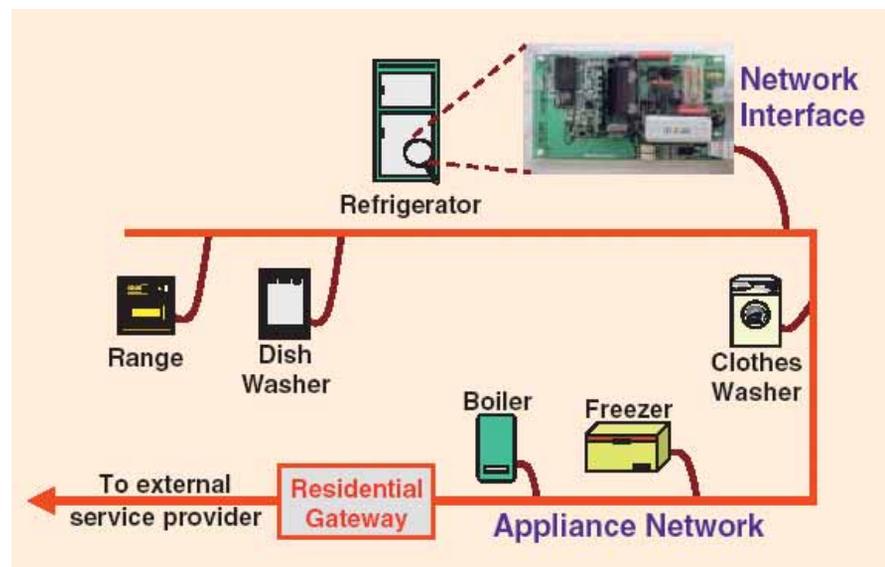
HES architecture

One of the first projects of the HES working group was the creation of generic home network architecture. This specification was completed and published more than five years ago as a series of technical reports (ISO/IEC TR 14543, Home Electronic System architecture.) The architecture document is being expanded to include communications protocol standards from various groups in Asia, Europe, and North America.

Networked appliance safety

ISO/IEC TR 14762, Guidelines for functional safety, we published at the request of the IEC Advisory Committee on Safety (ACOS). Issues of safety become challenging when appliances may be controlled from outside the house via a pathway that may include a remote computer, a telephone, the Internet, a residential gateway, a home network, and an appliance interface. A failure at any point could impair appliance safety and endanger users.

Figure 2



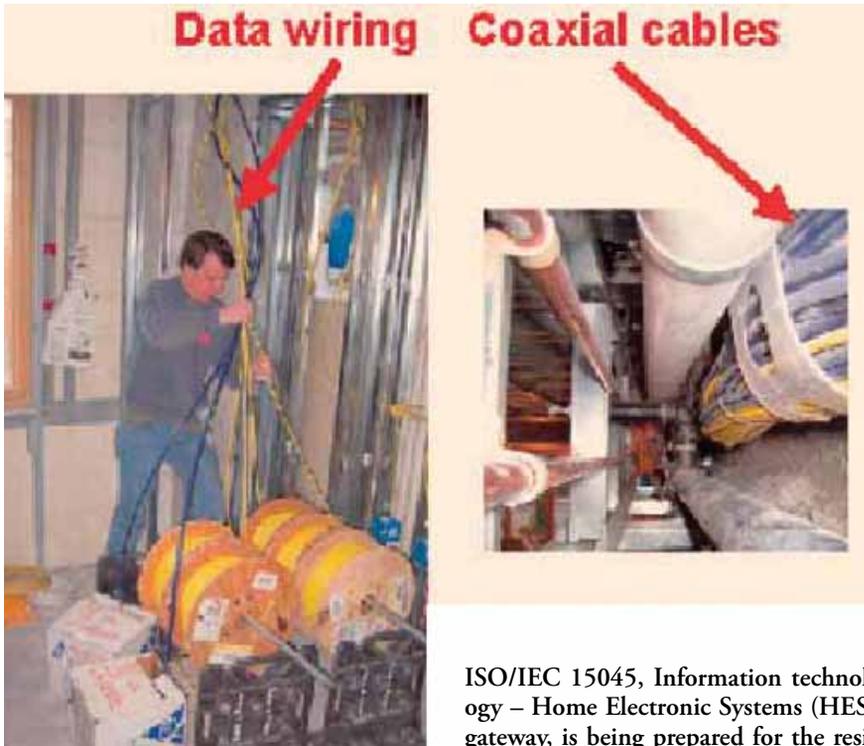


Figure 3

Integrated cabling for home networks

More than half of new homes in some countries are being wired with home networks, initially to support broadband Internet access from multiple locations in the house. Home systems applications can share this wiring. A joint project team composed of WG 1 and WG 3, Customer premises cabling, were formed to develop ISO/IEC 15018, Generic cabling systems for homes, and to establish standards for home wiring. This generic cabling supports applications ranging from home control to data to audio and video.

Figure 3 contains photographs from a recent installation of structured wiring in a new apartment building. The yellow wires carry computer and appliance data. The blue wires are coaxial cables for TV distribution.

The residential gateway

The growth and pervasiveness of the Internet have created opportunities for new home services enabled by connecting a home network to outside service providers via the Internet. This network connection is made possible by the residential gateway. The multi-part standard under the general title,

ISO/IEC 15045, Information technology – Home Electronic Systems (HES) gateway, is being prepared for the residential gateway, informally known as the HomeGate.

The primary responsibility of the gateway, as shown in Figure 4, is to translate digital messages and data between the communications format outside the house and the format used by the home network. In addition to the translation feature of a communications gateway, HomeGate includes requirements for privacy, security, and safety via the incorporation of firewall features

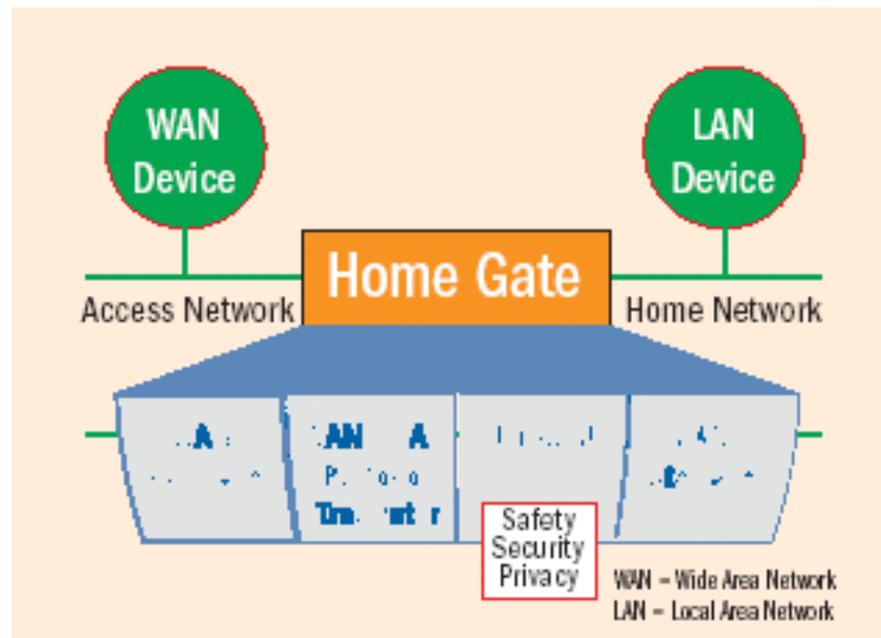
in hardware and software. A firewall limits what types of messages can flow into and out of the house to ensure privacy. Firewall provisions in the gateway enforce agreements between service providers and residents as to access rights and access times. As an example, if an occupant allows monthly meter readings, the firewall could preclude the utility from daily readings. Also, the gateway optionally may be configured to block commands that could place an appliance in an unsafe mode. For example, turning on a cook top from a remote location might be prohibited.

The HomeGate physical device may be one box or multiple boxes, possibly interconnected. A general-purpose gateway may include plug-in cards, illustrated in Figure 5. This would permit adaptation for various wide area networks. Options include signaling via cable TV, satellite, digital telephone techniques (DSL), broadband over power line, and wireless. On the house side, cards are shown for a choice of home networks. To promote interoperability, HomeGate will also accommodate optional interconnections among various local area network protocols.

Product interoperability

Rules for interoperability are essential because we are creating an integrated set of functions from devices that may be produced by multiple manufacturers.

Figure 4



The first and most important decision is what is the application and how will the various components and appliances cooperate to serve the user.

A multi-part standard, ISO/IEC 18012, Guidelines for product interoperability, is being developed with the goal of providing seamless applications among products designed for a variety of incompatible networks carrying incompatible commands and control signals. This standard overcomes these obstacles with models for common applications and representation of commands in an XML-based syntax that is independent of any particular communications protocol. Most of the application models to be incorporated into this standard have already been published as technical reports (ISO/IEC TR 15067).

Backbone and Component Networks

The Backbone and Component Network Interfaces, ISO/IEC 2-587, currently under development, is to interconnect a variety of disparate home networks, called Component Networks, via interfaces to a common network, known as a Backbone Network. The Backbone Network supports all classes of applications from command and control, up to streaming data for audio/video (A/V) using wired and non-wired media to carry the application signals from Component Networks. Figure 6

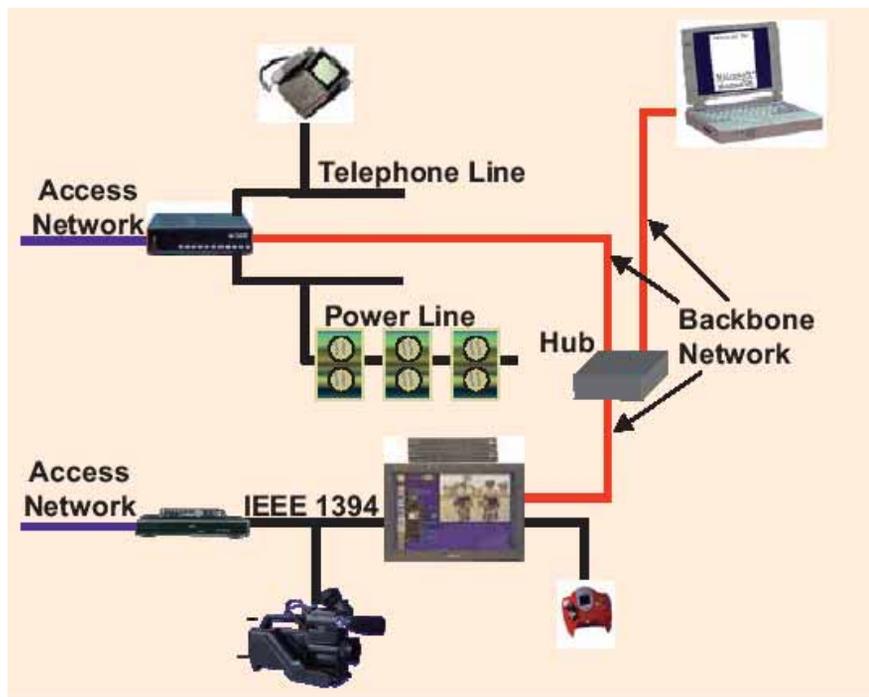


Figure 6

illustrates a possible application of this standard, including links to external service providers.

Home Electronic System Security

The proposed Home Electronic Systems (HES) security standard, ISO/IEC 24767, addresses security between an external network from a service provider and a home network, and security within

a home network. This standard defines the Secure Communication Middleware Protocol (SCMP) to support internal security services of home networks.

The Ultimate Goal – The Integrated Home

For home systems to function, the network and the connected appliances must all work together. Integration is the promise of a home network, but the reality is that each appliance operates separately and differently from each other appliance. The standards of SC 25/WG 1 should help manufacturers to ensure connectivity and interoperability among appliance and control devices to enable new home services. The ultimate goal of an integrated home system is the electronic equivalent of a staff of servants at our beck and call, all the time, at a price we can afford.

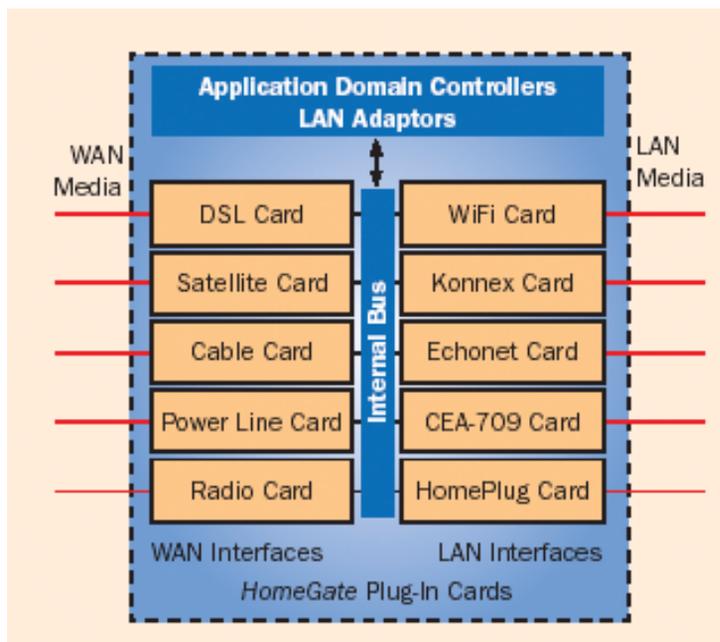
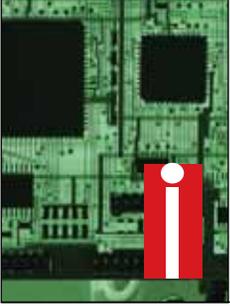


Figure 5

Dr. Kenneth Wacks has been a pioneer in establishing the home systems industry. He advises manufacturers and utilities worldwide on business opportunities, network alternatives, and product development in home and building systems. For further information, please contact Ken at 781.662.6211; fax 781.665.4311; kenn@alum.mit.edu; www.kenwacks.com.



CABA Unveils Intelligent Building Ranking Tool

CABA is pleased to unveil its intelligent building ranking tool: the Building Intelligence Quotient (BIQ).

The BIQ ranking tool has three functions. It serves as: i) a means to evaluate and measure the “value” of intelligent building performance; ii) a design guide for integration of building intelligence in new building projects; and iii) a building automation retrofit action plan tool.

“The Building Intelligence Quotient is designed to paint a clear picture of your building intelligence performance against best practices for design, installation and operation,” states Ronald J. Zimmer, CABA President & CEO. “It gives practical advice for improvements, offers resources for making the upgrades, and provides additional information on relevant strategies and technologies.”

The tool allows property owners and managers to rate a building’s intelligence and provides design guidance to ensure that all relevant issues are considered when making a choice of subsystems and their level of integration. Owners and developers with multiple properties can also use the BIQ tool to assess and compare the building intelligence systems in their portfolio.

In addition, as more and more buildings are BIQ verified, point scores will be aggregated in an anonymous database, enabling users to analyze how

their building intelligence design performs in relation both to the median and to buildings that are similar in terms, type and region.

Because the assessment is completely online, owners and managers have the ability to change input up to a year, with an option to extend. This allows users to keep their assessment up-to-date as the building intelligence changes through the project delivery stages as buildings are retrofitted.

Building intelligence results in higher building value, improved comfort, security, flexibility and reliability while reducing costs and increasing productivity. Lower costs and higher property and lease values can result in aggressive return on investments and clear justifications for making buildings more intelligent.

The modular assessment will initially generate a report that will provide benchmark rankings as well as recommendations for improvements in the following categories: communication systems; building automation; announcement, security and control systems; facility management applications; and building structure and systems.

The ranking tool is available at www.caba.org/biq.





CABA Integrates Operations of Internet Home Alliance

The Continental Automated Buildings Association (CABA) recently integrated the operations of the Internet Home Alliance.

The Internet Home Alliance is a cross-industry network of leading companies conducting collaborative research to advance the connected home market. Founded in 2000, the Alliance provides its members with the real-world testing opportunities required to bring their home technology products and services to market more quickly, successfully and cost-effectively.

Under the new arrangement, IHA's collaborative research program will continue under the CABA umbrella. CABA established the Internet Home Alliance Research Council, consisting of IHA and CABA members, which oversees a wide array of consumer research studies and real-world pilots.

The collaborative research projects enable participating companies to gain important insights into the connected home space and leverage those insights into viable new business opportunities. The new Research Council also undertakes a wider range of research projects encompassing larger commercial projects and multi-dwelling unit environments.

Key members from the Alliance forming the new IHA Research Council include AT&T, Cisco Systems, Inc., Direct Energy, General Motors, Hewlett-Packard Company, Microsoft Corporation, Panasonic of North America, SupportSoft Inc., Visonic Inc., and Whirlpool Corporation. New members include Bell Canada, Echelon Corp., Panduit Corp., Leviton Manufacturing Co. Inc., and Sprint Nextel.

"CABA and IHA both have a critical role to play to help grow the home networking sector," said Ronald J. Zimmer, CABA President & CEO. "The integration of IHA's research program allows CABA to expand and improve research offerings to our industry. We plan to add IHA's research reports to our library to create the largest collection of integrated systems research focused on the home and building industry."

The IHA Council's research will continue to view the connected home as a series of three distinct, but related ecosystems:

family, career and entertainment. The family ecosystem is the domain of family care; the career ecosystem is the domain of work productivity away from the office; and the entertainment ecosystem is the domain of purposeful leisure.

"Both associations view this integration as complementary, creating efficiencies that will strengthen our ability to promote this exciting and growing industry segment," stated Jonathan Cowper, Associate Director of Customer Knowledge at AT&T and former President of the Internet Home Alliance.

As part of the new arrangement, Cowper has joined the CABA Board of Directors and chairs the new IHA Research Council.





What is HANA? What is HANA's mission?

HANA stands for the High-Definition Audio-Video Network Alliance. HANA includes members from the IT, content provider, service provider and consumer electronics industry segments. HANA's mission is to utilize existing standards and technologies to create a design guideline for secure high definition AV networks that will advance commercial deployment of products and services and will enhance the consumer HD entertainment experience.

When was HANA formed? What companies are members of HANA?

HANA was incorporated in October 2005. Founding members include Charter Communications, Mitsubishi Digital Electronics America, Inc., NBC Universal, Samsung and Sun Microsystems. ARM, Freescale Semiconductor and Pulse-LINK have joined at the Contributor level.

Why was HANA formed?

With the rapid growth of the HD market, the HD industry needs to address the HD requirements directly in order to realize the full potential of the HD market opportunity. Existing standards organizations and alliances have typically only included members from one or two of the industries most affected by the transition to HD. HANA's founding members include content owners and service providers, as well as CE and IT manufacturers and software developers. Thus HANA solutions will address the entire range of issues, including bandwidth capacity, quality of service, ease of use, content protection and time to market, ensuring that the high value 1-ID content that consumers want will be available everywhere in their homes.

How will consumers benefit from HANA?

HANA's focus is to deliver products that will simplify consumers' lives by eliminating the difficulties associated with connecting and controlling their entertainment devices. Consumers will be able to view, pause and record more than five 1-ID channels simultaneously with full quality of service. They will also be able to view, pause and record HD anywhere in the home with just one set top box. HANA will also enable consumers to share personal content between the IT and AV networks while protecting commercial HD content from piracy. Instead of multiple remotes, consumers will be able to control all AV devices and access content with just a single remote per room. Finally, consumers will be able to use just a single cable to connect devices rather than multiple cables between all devices.

How will content providers benefit from HANA?

By creating a secure home network environment that respects the rights of content owners, multichannel video service providers and broadcasters, HANA can give consumers access to more high-value HD content, with new flexibility and convenience in its legitimate use. In particular, the incorporation of Digital Rights Management and watermark verification of copyrighted content in the HANA architecture are key to ensuring that HD content can flow seamlessly across a wide range of consumer devices.

How will service providers benefit from HANA?

HANA enables new market opportunities for service providers. With protected HD content on the HANA network, HANA will allow service providers to take advantage of the retail channel faster and reduce CAPEX along with simple networking for customers.



How will CE manufacturers benefit from HANA?

CE manufacturers will be able to deliver new and exciting products and features to their consumers, while simultaneously simplifying the user experience. Just as importantly, a product that ships today will not become obsolete every time something new is introduced. New products will be required to adhere to the baseline standard guaranteeing interoperability with existing products.

How will IT benefit from HANA?

HANA will enable consumers to move their personal content from their PCs to their CE devices around the home. By developing a standards-based secure environment for the distribution of content, HANA can help improve the consumer experience, expand the community of networked media devices and create new market opportunities.

Why has HANA chosen to focus initially on IEEE 1394/FireWireTb9?

IEEE 1394, also known as FireWire, was developed specifically for the purpose of real-time distribution of multimedia content and has been included as a requirement by the FCC in devices and tuners as requested by CE and cable manufacturers. The FCC mandate ensures a large pool of interesting devices that HANA will be able to leverage. Consumers have a wider set of choices and benefit from the simple network connections and synchronization capabilities that 1394 provides.

What HANA products will be commercially available? When will they be available?

HANA compliant products will include enhanced HDTVs, AV HDDs, personal video recorders, set top cable boxes, next generation DVDs, home theaters and more. The first I-fANA compliant products are expected to be commercially available in the second half of 2006. HANA members will be demonstrating the benefits of HANA products at International CES 2007.

How does HANA relate to other industry groups?

HANA is developing liaisons with other standards bodies such as the Consumer Electronics Association (CEA), CableLabs, the Motion Picture Association of America (MPAA), the Advanced Television Systems Committee (ATSC) and the UWB Forum, and has formalized an agreement with the 1394 Trade Association (1394 TA).

HANA and Advanced Access Content System (AACS) are both addressing content protection. Although the two organizations are working on different aspects of content protection, their efforts are complementary to one another. HANA expects to refer to AACS specs as AACS licensed products come to market.

HANA members believe that a dedicated HD AV network will provide quality of service, ease of use, economy and content security that are appropriate for HD content and which complement the capabilities of traditional IT networks. HANA members are also members of other networking alliances including the Digital Living Network Alliance.

Will there be a compliance or certification program?

HANA plans to address compliance and certification testing in the second half of 2006. The alliance plans to work with a third party to conduct interoperability testing for HANA products. HANA also plans to host HANA developer conferences and participate in CEA and 1394 TA interoperability events.

What's next for HANA?

HANA will continue to enhance capabilities and performance while maintaining backwards compatibility and interoperability. Looking ahead, HANA will:

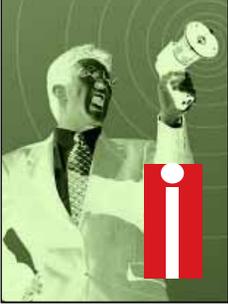
- Address OCAP harmonization and interfaces.
- Address wireless extensions.
- Continue to work with industry standards organizations.
- Enhance content protection and trust models.
- Enable compliance and certification testing.

Why join HANA?

Companies in the four industry areas - content providers, service providers, CE and IT - can work with other HANA members to help shape the future of HD and fulfill the HANA vision. HANA plans to address stronger content protection, wireless extensions, richer applications and user interfaces, advanced video compression, interactive HD content and enhanced security. Interested companies can view the HANA roadmap at www.hanaalliance.org.

How does a company join HANA?

HANA membership is open to all companies involved in the digital entertainment industry. Information on how to join HANA is available at www.hanaalliance.org.



Industry Event Listing

2007 International CES
January 8-11, 2007
Las Vegas, NV
www.cesweb.org

2007 AHR Expo
January 29-31, 2007
Dallas, TX
www.ahrexpo.com

Integrated Systems Europe
January 30-February 1, 2007
Amsterdam, NL
www.is-europe.org

**Building Intelligence
Tour: Intelligent Building
System Design**
January 31, 2007
Dallas, TX
www.buildingintelligencetour.com

EHX Spring 2007
March 6-10, 2007
Orlando, FL
www.ehxweb.com

**CEDIA Electronic Lifestyles
Expo 2007**
April 18-21, 2007
Las Vegas, NV
www.cedia.org

CONNECTIONS 2007
May 1-3, 2007
Santa Clara, CA
www.connectionsconference.com

Automating Sustainability

By Ken Sinclair

Our present building infrastructures are not sustainable and there is a large movement underway to change that. It is fundamental that the building automation industry not only becomes part of this movement, but that it leads it. Building automation constitute sustainable systems, in which a few silicon chips and some programmed software can achieve amazing resource reductions while providing valuable feedback to the sustainability equation.

Automation systems can control non-renewable and renewable resources, switch buildings on and off the energy grid, and utilize the greenest of all building materials. Its anywhere operation can also eliminate unsustainable travel.

Sustainability is defined as the ability to provide for the needs of the world's current population without damaging the ability of future generations to provide for themselves.

Arthur Schwartz, Deputy Executive Director of the National Society of Professional Engineers noted that a new code of ethics now requires professional engineers to strive to adhere to the principles of sustainable development.

This is a breakthrough. No longer can engineers claim that their employer or client's wishes take precedence over their obligation to society to develop designs, products, and systems that are sustainable.

Clearly, times are changing. And our industry needs leadership to guide us through what will amount to a very substantial change in our industry's direction.

The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) have heeded this call by launching a new campaign emphasizing its role as "the engineering engine that drives sustainability." As part of ASHRAE's stronger focus on its involvement in green buildings, the Society has introduced a new, theme, "Engineering for Sustainability," which will be used to identify ASHRAE products and services related to sustainability.

I am pleased that ASHRAE has moved towards sustainable design. The hopeful result is that the organization leads the profession toward a far more innovative, resource and environmental friendly focused future.

Ken Sinclair is Editor of AutomatedBuildings.com.

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A Message from the Publisher

Happy New Year and welcome to the new, fresh-faced look of *iHomes & Buildings*. The result of a new partnership between the Continental Automated Buildings Association and MediaEdge Publishing, this renewed publication promises to be an important and vital part of the continued success of CABA.

As a full-service publisher for more than 27 years in the association-communications field, MediaEdge is committed to helping this publication prosper and become a “must read” for everyone in the automated building industry. We believe that each quarterly issue will provide CABA members with informative and innovative content, keeping them on the industry cutting edge. The latest industry news, trends and issues will be at members’ fingertips in the form of well-written, relevant editorial.

The dynamic team at the CABA office, coupled with our dedicated team of publishing, sales and communications professionals are proud of this first issue, and are committed to ongoing prosperity and improvement in all future issues.

We invite members to participate in and support this new alliance. Your ideas and suggestions are welcome and appreciated. We encourage you to fill out the brief survey that will be circulating early this year so that we can create a publication pertinent to all members – a vital resource to everyone in the automated building industry.

Robert G. Thompson
Senior Vice-President & Publisher

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