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Gleaming Historic Cupola Delivered In Record Time



The polished Cranbrook Observatory dome was completed and installed in just two months.

CRANBROOK OBSERVATORY TOWER, BLOOMFIELD HILLS, MICH.

Contractor: C.A.S.S. of Detroit, Mich.

Working with a daunting schedule, Custom Architectural Sheet Metal Specialists (C.A.S.S.), of Detroit, Mich., custom fabricated and installed a shiny new, historically accurate copper cupola on top of the Cranbrook Observatory Tower, a national historic landmark in Bloomfield Mills, Mich.

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Gleaming Historic Cupola Delivered In Record Time

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“This was an extreme task that involved much cooperation and effort between our subcontractors and the trades,” said Glenn Parvin, C.A.S.S. president. “We kept to a tight schedule.” The company’s challenge was to complete and install the dome in two months working around the community’s summer calendar.

The work was part of a combined project to rebuild the tower’s deteriorating copper cupola and to restore the Ludowici clay tile roof of the Cranbrook Library, both part of the venerable Cranbrook Educational Community. The tower was built in the 1920s and originally served as a functioning observatory.

The years and weather had taken their toll on the structure. Its existing copper cladding, which was simply riveted to the structural steel, had leaked for years. Wind and water damage had caused galvanic corrosion and severely rusted the structural steel.



Wind and water damage had taken their toll on the original Cranbrook Observatory dome.



The burnished 5,800-pound dome is hoisted 80-feet high to its new home.



C.A.S.S. employees prepare to hoist the shimmering new dome to its new home atop the Cranbrook Observatory tower. C.A.S.S. preserved the dome’s historic intent by emulating the original rivet pattern without penetrating the panels. All seams were soldered watertight.

C.A.S.S., which specializes in custom sheet metal fabrication, laid out a schedule that included the dates of deliveries and critical activities. The firm participated in the design concept to build the structure and then, to save time, worked with its partners to construct the structural steel, wood decking, and copper cladding on the ground. The self-performing unit of the Skanska construction group built the plywood substructure under the copper roof.

Eight C.A.S.S. employees as well as three carpenters and laborers were on the job nine hours a day, six days a week to complete the work. The steel subcontractor, Davis Iron Works of Commerce Township, even sent a driver to Chicago who waited for the galvanizing to be done on the steel, Mr. Parvin noted.

The team began work on June 11, the Monday after the school doors closed, and operated around graduation ceremonies, an alumni weekend, and other events. Then, on August 13, the structure was ready. They hoisted the burnished 5,800-pound dome 80 feet high and installed it on top of the tower – two days ahead of schedule.

The company strove to be true to the building’s historic intent. “The tower was nonfunctioning, yet needed to look as it did originally,” Mr. Parvin said. “C.A.S.S. came up with a button-punch panel to emulate the rivet pattern without actually penetrating the panels. The new dome was designed to be watertight with a flat-lock seam graduated panel system, with all panels above the 2-inch, 12-pitch mark on the top soldered watertight.”

Mr. Parvin credits the project’s success to their winning partnership with the same team, Skanska and Davis, who have worked together to complete another school’s historic copper roof restoration.

McKamish Signage Puts A Fresh Face On An Old Steel Town

LAWRENCEVILLE CORP., LAWRENCEVILLE, PA.

Sheet Metal Contractor/Designer: McKamish Inc. of Pittsburgh, Pa.

A renaissance is coming to Lawrenceville, Pa., an industrial neighborhood of Pittsburgh, and SMACNA contractor McKamish Inc. is helping put a brand new face on it. The Specialty Metals Group of McKamish Inc., a leading mechanical contracting company based in Pittsburgh, crafted innovative signage for this up-and-coming destination that celebrates both the community's steel-industry past and its newfound vitality.

McKamish created a unique look for custom signage welcoming visitors to the neighborhood, which was strategically placed at major thoroughfares entering Lawrenceville to the north, south, east, and west. The signs were made of perforated 14-gage sheet metal of cold rolled steel. Half a dozen employees in McKamish's Specialty Metals Group manufactured the signage from design to fabrication.

The striking signs feature the image of a World War I doughboy on an orange background with a vine of green ivy curling up from the base and the community tagline "History in the Remaking" along the bottom.



McKamish's innovative signage celebrates Lawrenceville's newfound vitality.



McKamish sprayed these receptacles with a special coating to protect them against graffiti, which wipes right off.

"The customer, Lawrenceville Development Corp., wanted a unique look to their signage, which utilized steel because of Pittsburgh's involvement in the steel-making industry," said Gary Miller, McKamish's director of marketing, of the \$110,000 project. "The whole idea of the signage and the logo was about stimulating new growth in the community. The doughboy goes back to the era when Lawrenceville was being developed." The signage effectively captured the community's exciting revitalization as a "go-to" destination with its newly affordable housing, renovated lofts, art galleries, boutiques, restaurants, and coffee shops.

McKamish also fabricated a 4-foot-by-40-foot Lawrenceville sign that was placed at the entrance to the neighborhood from the 40th Street bridge that leads over the river. The company also manufactured some 50 trash receptacles with the doughboy image, which were placed along the main artery and on every block as well.

There was a big problem with graffiti in the neighborhood, Mr. Miller noted. McKamish, working with American Precision Powder Coating, also of the Pittsburgh area, solved the problem by spraying a protective layer over the receptacle's powder coating, which was then baked at a high temperature to secure it to the material. When one receptacle was recently vandalized, McKamish had a chance to test this protection. "They sprayed window cleaner on it and the graffiti wiped right off with a paper towel," Mr. Miller said. "The receptacles have helped to clean up the community immensely."

McKamish, which has done mechanical contracting for steel mills, manufacturing facilities, hospitals, universities, and the amusement and retail industries, also performed the mechanical work for Pittsburgh's new UPMC Children's Hospital in Lawrenceville, which is scheduled to open shortly. The company, which has been in business for more than 30 years and has 350 employees, is also part of a joint venture called Pro-McKamish that is handling the mechanical and plumbing work on the new arena for the Pittsburgh Penguins' hockey team.



Signs featuring a WWI doughboy and the motto "History in the Remaking" welcome visitors at the major roads entering Lawrenceville.

FAB FOCUS

MetalFab Transforms Ordinary Entrance Into The Extraordinary

HIGH-RISE CONDOMINIUM, BONITA SPRINGS, FLA.

Contractor: *MetalFab Inc., San Antonio, Fla.*

MetalFab Inc. of San Antonio, Fla., recently transformed an ordinary aluminum entryway into an eye-catching entrance featuring the fresh, sleek look of polished steel. The high-rise condominium, Florencia at the Colony, in Bonita Springs was brand new, yet the owner wasn't happy with the look of the front entrance, which was painted aluminum. MetalFab, which provides design, fabrication, and installation for architectural metal projects around the country, designed and fabricated a stunning entryway that is definitely upscale.

MetalFab solved the problem by enveloping the existing aluminum front entrance with polished stainless steel, then applying laser-cut decorative pieces to the windows above and on each side of the double doors. Using 18-gage stainless steel for the cladding, this SMACNA contractor added circular details to the windows.

The result – an elegant, upscale entryway that conveys a fresh sense of vitality and movement that gives new life to this residence.



SMACNA contractor MetalFab Inc. of San Antonio, Fla., clad the existing entrance of this Bonita Springs condominium with stainless steel and applied laser cut pieces to the windows.

Old World Techniques Meet New World Aesthetics Architectural Metal Council Presents At METALCON

The Architectural Sheet Metal Council Steering Committee represented SMACNA at the 2008 METALCON Convention in Baltimore, Md. Attendees learned about SMACNA standards and the work of SMACNA members. Council chairman Harold Munder, executive vice president of Schtiller Plevy, Long Island City, N.Y., and council member Glenn Parvin, partner of Custom Architectural Sheet Metal Specialists, Detroit, Mich., presented “Sheet Metal Restoration: Old World Techniques Combined With New World Aesthetics.”

The presentation covered architectural metal restoration and custom metal roofs, including how to ensure a long-lasting, high-performing metal roof system. They also shared infor-

mation on new technologies, preassembly of components, increased product longevity, and LEED-certifiable restoration projects.

Mr. Munder discussed the numerous options available with architectural sheet metal and the diverse metals and methods utilized by craftsmen today. He also covered the scope of restoration work such as roofs, wall panels, cornices, steeples, fascias, flashing, and skylights.

Mr. Parvin gave an overview of sheet metal roofing covering form and function, custom design, benefits, and quality craftsmanship. The presentation concluded with a discussion on the unlimited possibilities in custom roofing. ■

LEED Version 3 Provides Opportunities For SMACNA Architectural Contractors

Green business opportunities may provide SMACNA architectural contractors with new work. In April 2009, the United States Green Building Council (USGBC) launched its newest versions of the Leadership in Energy and Environmental Design (LEED) building certification programs. By coincidence, these programs are being launched as a new administration with a strongly stated interest in green technologies is beginning to rollout programs that will provide additional support for sustainable technologies.

The following highlights of LEED-NC Version 3 is intended as a guide of what credits appear to offer those new business opportunities to architectural contractors. These are presented in the order that the credits are listed in the LEED-NC rating system.

There are several LEED credits that are tied to capturing rainwater that falls on the site. For architectural sheet metal contractors rainwater harvesting and reuse represent great opportunity from both a man-hour and material standpoint.

In addition, cities are becoming increasingly focused on managing stormwater at the site in order to reduce the burden on municipal stormwater systems, giving all the rainwater capture credits additional impetus.

Sustainable Sites Credit 4.2: Alternative Transportation—Bicycle Storage and Changing Rooms

One of the most sought-after LEED credits is the bicycle rack. In commercial buildings these can be free-standing devices, but they must be within 200 yards of the building entrance. Artistic metal work—possibly with a bicycle theme or similarly relevant scheme—may present opportunities to showcase sheet metal working skills. In residential buildings the racks must be covered either by an integral housing—metal is a logical material—or covered under a building overhang or protrusion.

Sustainable Sites Credit 4.4: Alternative Transportation—Parking Capacity

For residential buildings one of the options is to provide infrastructure to facilitate shared vehicle use such as carpool drop-off areas, ride boards and shuttle services to mass transit. These typically include free-standing people shelters and posting boards that are used to connect those driving with riders. These may sound like “public” facilities that are normally provided by the city, but, in fact, they will have to be part of the building’s design plans in order for the credit to be achieved. Architects are usually interested in design concepts that integrate well with the overall building and site design.

Sustainable Sites Credit 6.1: Stormwater Design—Quantity Control

This credit’s intent is to control or limit stormwater discharge from the site. While the primary references are to the type of ground cover—pervious or impervious—on the site surrounding the building, rainwater capture from both the building and the surrounding landscape can play a major role in the stormwater management plan. While there are many methods

to accomplish this, capturing rainwater is the most effective and the captured stormwater can be used to meet the intent of other LEED credits. This credit is based on 24-hour rainfall data so the water retention/storage is the key component of the system. The method of containment can also play a role in the companion credit, SS Credit 6.2: Stormwater Design—Quality Control, by separating suspended solids from water captured on site.

The rainwater capture is typically accomplished by capturing water that falls on the roof and “piping” it into a storage container or several storage containers. A storage container can be located underground or in a basement area of the building—in which case it would likely be a plastic tank. Or, it can be a storage container at or above ground level in the form of a large metal container that actually becomes part of the building’s architectural design.

There are two advantages of having an above ground water storage tank—captured water can be distributed to at least a portion of the areas needing water by gravity and any solids captured in the water can be sediment out and discharged as a maintenance activity—an occasional manual purge.

Water stored below grade must be pumped back up to where it can be used.

Sustainable Sites Credit 7.1: Heat Island Effect—Non-roof

While this credit is listed as “non-roof,” free standing architectural shading devices or structures that are attached to the building that have an SRI rating of at least 29 or have at least 50 percent of the parking space under cover with roofs having the same SRI satisfy part or all of this credit requirement. *Note: SRI is the measure of a material’s ability to reject solar heat and is a combination of reflectance and emittance—the higher the SRI the “cooler” the roofing material is considered to be. No “raw” metals meet this requirement so a “cool roof” material—in the case of metal one coated with a reflective “paint” must be used.*

Sustainable Sites Credit 7.2: Heat Island Effect—Roof

To achieve this point a low slope roof—defined as 2:12 or less—must have an SRI of at least 78 and a high slope roof—defined as greater than 2:12—must have an SRI of at least 29. Mechanical systems, skylights, and similar elements on or as part of the roof are excluded from the requirement that calls for at least 75 percent of the roof to be covered with cool roofing materials to achieve this credit.

An important point to keep in mind is that this—and all other “credits”—are optional, unlike the prerequisites. If the building’s designer is interested in using copper or another raw metal roof that does not meet the SRI requirement it may be possible to work with the designer to develop a roof that serves an innovative purpose and “earn” a “replacement” credit in the Innovation in Design category or possibly even gain another point via an improvement in overall building energy efficiency.

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LEED Version 3 Opportunities For SMACNA Architectural Contractors

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For example, if the roof covering is raised above the primary sheathing so that air can rise under it via the chimney effect, the thermal benefit might be sufficient to earn another energy efficiency point *and* if the thermal energy rising out of the ridge can be used for some other purpose—perhaps to preheat incoming ventilation air during the winter months—an Innovation in Design credit might be earned. The USGBC encourages innovation and will provide additional credits if the innovation is sufficiently robust.

Innovation in design credits can be earned either by greatly exceeding a credit requirement or by employing a “new” strategy that is not addressed by any existing LEED credits. To qualify using a “new” strategy requires a concept that has significant, measurable environmental benefits, the use of a comprehensive approach and the strategy must be applicable to other projects.

Water Efficiency Prerequisite 1: Water Use Reduction

Water captured on site—such as rainwater or air conditioning condensate—can be used to help meet this requirement to reduce water use at least 20 percent below the “normal” calculated baseline. *Note: This is a prerequisite, not a credit. It and all the other prerequisites MUST be achieved in order for the building to even be considered for the LEED rating.*

Water Efficiency Credit 1: Water Efficient Landscaping

Water captured on site—such as rainwater or air conditioning condensate—can be used to provide water to plants to help achieve this credit.

Water Efficiency Credit 3: Water Use Reduction

Water captured on site—such as rainwater or air conditioning condensate—can be used to help meet this credit by providing non-potable water for urinal and toilet flushing and custodial uses to reduce potable water use beyond the prerequisite 20 percent baseline reduction.

Energy and Atmosphere Credit 1: Optimize Energy Performance

One of the methods to reduce energy use in buildings is to provide permanent shading devices for windows to reduce solar heat gains. These are typically referred to as “projections.”

Projections have to provide calculated shading values over fenestration which can be accomplished with a louvered projection that has louvers designed—both the angle and spacing—such that summer sunlight is effectively blocked. Ideally, these projections would also permit sunlight in during the winter months to provide passive heating benefits. Metal is the ideal material from which to construct projections since the louver portion of the projection can be adjusted and then fixed to meet the special shading requirements of the south, west or east side of the building.

Also, a light shelf can be built into architectural projections. A light shelf reflects sunlight back up to the ceiling and aids in the distribution of daylight into the work space.

Energy and Atmosphere Credit 2: On-site Renewable Energy

In the case of either photovoltaic (pV) or hot water panels, some type of permanent support structure must be provided—metal is virtually always the material of choice. While these devices are typically on the roof, wall-mounted systems are beginning to be developed and used. Another particularly intriguing technology is the flexible pV panels that are designed to be positioned and adhered between the seams of standing seam panels.

Materials and Resources Prerequisite 1: Storage and Collection of Recyclables

This recyclables collection area must be an easily accessible, dedicated area or areas for the collection and storage of materials for recycling for the entire building. The recycled materials must include, at a minimum: paper, corrugated cardboard, glass, plastics and metals. Since each building has a unique use and floor plan, the potential exists for custom-made metal recycle bins to be constructed to fit the unique needs of each facility. Bins for each of the five required materials would need to be optimized both in terms of holding capacity and access and how it or its contents can be easily removed from the site for off-loading to the recycling facility.

Material and Resources Credit 4: Recycled Content

Any material that is permanently installed that is not part of the mechanical, electrical and plumbing components or specialty items such as elevators can be included in this calculation which can be applied toward the total building’s requirement to achieve this credit. The recycled content is typically available through material suppliers. The default for steel products is 25 percent but can actually be as high as 90 percent, depending on the process by which the steel is made. So, it is worth checking with the metal supplier for the actual recycled content that can be used toward the credit.

Material and Resources Credit 5: Regional Materials

Building materials or products that have been extracted, harvested or recovered, as well as manufactured, within 500 miles of the project site can be applied to the total percentages that are needed to achieve this credit. This can be combined with other credits. For example, projection shading devices might be made from local materials by a local craftsman.

Environmental Quality Credit 8.1: Daylight and Views—Daylight

Another “big” item for architectural contractors are skylights, clerestories, and similar daylighting devices. The calculation methods required to achieve this credit favors custom-made devices in many types of buildings—but not in “big box” type structures.

Familiarity with how daylight calculations are made and how they can potentially be applied in different types and configurations of buildings can be valuable.

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Calling All Architectural Metal Marvels

Are you proud of your company's architectural sheet metal projects? Then tell us about them! Let us tell your story in SMACNA's Architectural Metal newsletter.

Is your work a unique roof, historic renovation, copper gutter work, signage, custom doors, or a dramatic fireplace? We want to know all about it. Did you brave the elements, meet demanding specifications, and deliver a magnificent project on time and under budget?

For your work to be considered, send us your best, high-resolution project photos of the project and give us the details using our submittal form. To use our online submittal form go to the Architectural Sheet Metal Council Web page on the SMACNA Web site at www.smacna.org/councils/asm, then send the completed form and digital photos to Cynthia Young, SMACNA communications manager, at cyoung@smacna.org.

If we use your project, besides appearing the Architectural Metal newsletter, we'll send you a customized marketing piece featuring your company's project. This marketing piece may be used however you like – as an advertisement, direct mail piece, flyer, or on your Web site.

You can also mail your submittal form and digital photos on CD to Cynthia Young, SMACNA, 4201 Lafayette Center Drive, Chantilly, VA 20151. Submit your project today! ■

Calculating Temperature Gradients To Prevent Condensation Under Metal Roofing

Moisture condensation under metal roofs is a problem encountered all architectural sheet metal contractors. While architectural contractors may furnish the substrate to which the metal roof attaches, they typically do not design the balance of the roofing system's insulation and vapor barrier. Unfortunately, excess moisture accumulation under a metal roof can cause and give the impression that the metal roof is failing, when, in fact, a failure to properly consider the dew-point temperature is a flaw in the design. It is the failure—by the designer—to consider the dew-point temperature and the location of the vapor barrier in an insulated roofing system.

The following article recommended by SMACNA's Architectural Sheet Metal Steering Council is an excellent roof-specific explanation of how designers might approach dew point calculations for insulated roofing support systems. While the illustrations and examples are specific to low-slope roofs, these methods can also be applied to any insulated roofing assembly.

To view the article "Calculating Temperature Gradients," from Professional Roofing magazine, please visit the Professional Roofing magazine Web site at www.professionalroofing.net/article.aspx?id=589. ■

LEED Version 3 Provides Opportunities For SMACNA Architectural Contractors

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Innovation in Design Credit 1: Innovation in Design

There are a number of ways that a LEED project can earn an Innovation in Design credit. In fact, up to five points can be earned via innovative designs. Examples related to architectural contractors might include an innovative method of capturing rainwater or of capturing heat energy from a roofing system and reusing it to heat the building or the domestic hot water.

Innovation in Design Credit 2: LEED Accredited Professional (LEED-AP)

The simplest way to earn a LEED point is to have one member of the overall design/construction team be a LEED Accredited Professional (AP). Architectural sheet metal contractors may want to consider taking the required exam to receive this recognition so that on smaller projects where no LEED-AP may be available they have the qualified individual on staff to provide this credit. In addition, learning enough about the USGBC ratings systems to pass the test will assist in developing a sufficient understanding that may better position your firm as where to look for the opportunities. ■

Wind Test Proves Custom Sheet Metal Meets Wind Design Standards

The time-tested performance of custom-fabricated roof edge metal and copings is evident in the thousands of systems installed by SMACNA contractors around the country. Some installations are nearing the century mark and are still firmly in place.

In recent years, pre-manufactured edge and coping products have proliferated—both imported and domestically produced—and the wind design standard ANSI/SPRI ES-1 was adopted into the model building codes. These factors and events led SMACNA's Technical Resources Committee, with the guidance of the Architectural Sheet Metal Committee, to conduct wind testing of custom-fabricated gravel stop fascia and coping designs shown within the *SMACNA Architectural Sheet Metal Manual*. This was done to provide the design community documentation that proved custom sheet metal met the wind design standards.

To view the Technical Resources Bulletin: Fascia and Coping Wind Test Report visit the Technical Services section of the SMACNA Web site under "Papers/Guidelines" at www.smacna.org. ■

Vickers Metal Works Creates Soft Drink Displays

NEW WORLD OF COCA-COLA MUSEUM AND EVENT CENTER, ATLANTA, GA.

Exhibit Fabricator: DPN, A Joint Venture of the Nassal Company and Design and Production Inc., Orlando, Fla.

Sheet Metal Contractor: Vickers Metal Works Inc., Orlando, Fla.

Visitors to the New World of Coca-Cola Museum and Event Center in Atlanta, Ga., can choose from 24 flavors of Coca-Cola soft drinks at the monumental custom-fabricated displays created by SMACNA contractor Vickers Metal Works Inc., of Orlando, Fla.

Vickers Metal Works crafted a group of tall cylindrical stainless steel soda dis-

pensers – taste totems – at the Cokes Around the World display at the New World of Coca-Cola museum. The project called for the construction of five large, metal kiosks to hold machinery capable of serving two dozen flavors of Coca-Cola. The unique kiosks were designed not only to support the 2,000-pound soda dispensing machines

but several different types of lighting and 16 video monitors as well.

Prior to fabrication, Vickers worked with Solidworks 3D design software to interpret and redesign the original AutoCAD 3D drawings. Solidworks allowed for solid modeling as required, ensuring that all of the parts would fit together and operate as intended. Flat patterns were then downloaded from Solidworks into Metal Soft or PCM for fabrication.

The internal steel tube frames support the one-ton dispensing machines along with hidden fluorescent and LED lights located behind custom stainless steel perforated panels. The stainless steel panels were either burned on Vickers' high definition plasma table or punched out on a Nisshimbo Punch Press.

The fabrication required approximately 2,500 man-hours. Working closely with The Nassal Company, which fabricated the video monitors, lighting and installation, Vickers was able to supply these unique kiosks, constructed of 16 gage brushed stainless steel panels, in approximately three months.



Vickers Metal Works Inc. fabricated several tall cylindrical kiosks that dispense 24 different kinds of sodas at the New World of Coca-Cola Museum and Event Center in Atlanta, Ga.

Convention Session

Architectural Sheet Metal Council Forum: ITI Introduces New Soldering Certification Program And Increasing Safety With Fall Protection Systems

The Architectural Sheet Metal Forum, which takes place at SMACNA's Annual Convention in Palm Desert, Calif. on Oct. 12, will feature two presentations not to be missed. The International Training Institute's (ITI) new soldering certification program (presently under development) and an innovative fall protection systems that improve both worker safety and productivity are on the agenda.

Mike Harris, ITI's program administrator, will present the new soldering certification program based on the recently released AWS B2.3 "Specification for Soldering Procedure and Performance Qualification." A panel of SMACNA architectural

contractors will discuss how to promote the benefits of soldering certification to architects and customers.

A consultant from the fall protection systems industry will review technological innovations in fall protection systems – a constant safety concern for every architectural sheet metal contractor.

SMACNA's 66th Annual Convention will take place at the Desert Springs JW Marriott Resort and Spa in Palm Desert, Calif., from Oct. 11-15, 2009. For more information on the convention visit the SMACNA Web site at www.smacna.org, or contact Mary Lou Taylor, director of meetings and convention, at (703) 803-2998 or mtaylor@smacna.org. ■

SMACNA Sustainability Position Statement

Position

“Green building” began as an environmental campaign, but has now become a recognized subdivision within the construction industry and as individuals, and as an organization, SMACNA’s members want to maintain, and whenever possible, improve a way of life that is a role model for the globalized world we live in today. SMACNA’s members play a key role in the building industry – the design, fabrication, installation, commissioning and operation of HVAC systems which arguably play the most important role in sustainable buildings.

Issues

While building operations in the United States consumes some 40 percent of our energy and 71 percent of our electricity, they also can contribute to potential health problems. Indoor air pollutant concentrations are typically between two and five times the amount of pollutants found in outdoor air, and can even reach a level of 100 times the amount. Most Americans spend 90 percent of their time inside a building, a fact which helps one understand the importance of indoor air quality.

SMACNA and its members have chosen to do their part in the design, construction and operation of buildings to continuously move the industry closer to a sustainable future. However, to achieve success, the assistance and teamwork of designers, building operators, building trades and governmental agencies are essential. SMACNA and its members are working in conjunction with organizations to develop plans that use resources more efficiently and, together we will enhance standards that can be implemented to reduce energy use and increase sustainability.

Key Points

- Standards – Design and construction of all elements of buildings should rely on systems, methods and materials that are based on standards developed via a recognized consensus process
- Standards – Promote integrated designs to balance function with sustainability, while enhancing the priority for environmentally responsible construction and operational practices
- Standards – Promote research by industry, scientific, and governmental entities to provide the design/construct/maintain industry with future guidance for sustainable practices
- Education – Encourage development of education programs K-12 through collegiate, continuing education, and legislative—to provide access to state-of-the-art practices in sustainable construction, service and operation of buildings for all
- Planning – To encourage properly operated buildings through commissioning an ongoing monitoring and documentation of energy and water consumption. This will identify potential continuous improvements in building operations to reduce consumption of limited resources
- Planning – Support building information models (BIM), interoperable software tools and product data management to reduce costs and errors while improving all aspects of performance over the design-construct-operation life cycle of a building. ■

The Architectural Metal newsletter is a biannual publication published by SMACNA’s Architectural Sheet Metal Council Steering Committee.

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