



Sustainability ...

helping you achieve your goals

Defining Sustainability

Sustainability is defined as meeting the needs of today without compromising the ability of future generations to meet their own needs. To integrate sustainability into the building process, a facility should be energy and resource efficient while maximizing occupant comfort.

The value of sustainability

Incorporating sustainable features into your building will create less waste, equating to **lower operating costs**. However, a sustainable program can provide many **environmental and social benefits** as well, resulting in further improved efficiencies from enhanced worker productivity. Also, being able to demonstrate your “corporate social sustainability” improves your image to both public and private clientele.

The approach taken to achieve a sustainable building environment is dependent on many factors, such as the age of your existing building, advancements in equipment technology, changes in building function, or expansion needs.

How we can help

Where and how to start evaluating various building sustainability options can be overwhelming. Mascaro’s professionals can help. We take a holistic approach to **evaluate your entire facility – from mechanical systems to building envelope**. This allows us to determine the energy efficiency options that will best suit your facility and help you to meet your sustainability goals. We will work with you to develop high performance standards and deliver a quality facility that will last for generations.

In addition, we understand that the process to achieve true sustainability does not stop when the installation of the sustainable features is complete... **sustainability is a continuous cycle**. As such, Mascaro will provide the support necessary to keep your building operating with maximum efficiency.

By getting Mascaro’s professionals involved early in the process, we will help you **maximize your return on investment** throughout the life of your building.



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We deliver ...

*excellence in sustainable
building construction*

Step 1 - Define your Goals

Understanding your goals is the key to starting the cycle.

Which items are most important to you at this point in time?

- Optimize performance of current systems
- Enhance corporate reputation
- Increase building efficiency
- Minimize expenditures
- Incorporate renewable energy
- Improve employee performance and productivity
- Create a better work environment
- Obtain LEED® certification
- Tax incentives

Step 2 - Collaborate

Once the goals have been established, the next step is to thoroughly evaluate and understand the risk/benefits and economic impact associated with achieving those goals. To effectively do this, Mascaro takes an integrated approach whereby the skills, resources, and experience of all team members, including operations and maintenance, are accessed to brainstorm all available options.

Step 3 - Implement

Mascaro offers a one-stop shop that provides single-source coordination for all of the project pieces, from design to final commissioning. We will work with your staff to minimize the impact to your ongoing operations.

Services vary depending on the type of work being performed.

A sample of some of the services we may provide include:

- Building Information Modeling (BIM)
- LEED documentation
- Construction sequencing
- Building energy performance
- Commissioning (Cx)
- Retrocommissioning (RCx)
- Training of staff
- Update operations and maintenance (O&M) information and procedures

Step 4 - Verify and Monitor

Once the building program is complete, our team will monitor, measure, and analyze the building's performance to determine if the desired goals have been met.

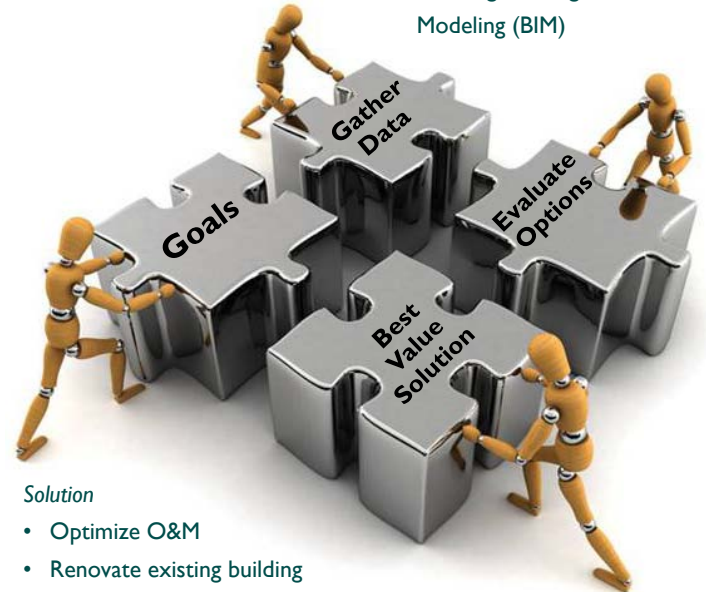
In order to achieve optimal energy efficiency, the systems need to be monitored on a continuous basis. Keeping systems in tune reduces energy consumption, which translates into less dollars spent. If systems are left unchecked until the next major RCx project, costs for energy consumption will continue to rise and often outstrip any benefit achieved within a few short years.

Data

- Organize available information on utility costs and maintenance schedules
- Building and system characterization (age, make, model, energy rating, etc.)

Options

- Cost vs. benefit analysis
- Benchmarking
- Energy modeling and 3D visuals using Building Information Modeling (BIM)



Solution

- Optimize O&M
- Renovate existing building
- Construct new building



Building sustainable projects for 20 years



Heinz Family Office

In 1993, Mascaro completed renovation of the Heinz Family Office, which was the first sustainable project for Pittsburgh. It involved the renovation of 16,000 square feet of office space in CNG Towers.

Twenty years ago, low VOC materials, formaldehyde-free products, sustainably harvested wood, and non-CFC systems were difficult, if not impossible, to find. Mascaro partnered with William McDonough to work through the various issues and incorporate sustainable elements.

Our headquarters was completed in 1998, the same year the USGBC developed the LEED rating system. The 22,000-square-foot building incorporated numerous sustainable design elements

typically not seen in new building construction at that time.

Recently, Mascaro began a program to retro-commission (RCx) the building to increase building efficiency, create a better work environment, and achieve a LEED EB (existing building) certification.



Mascaro Headquarters

We believe being involved at the start of the green building movement in Pittsburgh shows our commitment to sustainability. Today, this commitment translates into over \$800 million in LEED construction. Below is a sampling of our LEED experience.



Children's Museum of Pittsburgh

- The skin of the connecting building contains approximately 43,000 translucent plastic flaps that provide an artistic, energy-saving sunscreen for the building
- Not only does the facility incorporate sustainable design features such as solar panels, an exhibit area demonstrates these green building features to children
- The complex is one of the first children's museums to achieve LEED® Silver certification



MEDRAD Sterile Disposables Manufacturing Facility

- Constructed on a former industrial site
- Recycled approximately 300 tons of construction waste
- Storm water management system allows runoff to be filtered and cooled prior to entering the storm water system
- Building is LEED® certified

Whatever your need, we offer the services to help you achieve your goal.

- Energy management and strategic planning
- Energy audits / Energy analysis
- LEED® consulting / LEED team management
- Commissioning (Cx)
- Sustainability consulting
- Energy program and building infrastructure master planning
- BIM energy modeling
- Building system optimization (Retro-commissioning - RCx)
- On-going performance assurance



In 2003, John C. Mascaro co-founded the Mascaro Center for Sustainable Innovation (MCSI) at the University of Pittsburgh. In addition to producing the first generation of professional graduates, MCSI is leading the research to produce the next generation of technologies for green buildings. Mascaro's support of the program provides you with access to people and technology that is breaking new ground in the sustainability movement.

From Mascaro's introduction to "green" in 1993, we realized that it was more than materials and techniques. It was about tapping into the knowledge and experience of highly trained professionals to stay on the cutting edge of technology.

As pioneers and innovators, we consider it imperative to create change rather than merely react to it.

Our expertise in sustainable construction is a result of approximately 30 LEED® professionals (including specialties) who have participated in roughly four million square feet in LEED construction projects. Additionally, Mascaro was the first contractor to be recognized from the Western Pennsylvania, Ohio, and West Virginia area by *Engineering News-Records* Top 100 Green Contractors. In 2010, Mascaro was ranked No. 64, and is the only contractor from this area to be recognized in the 2010 survey.



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