AIA Best Practices:
How eco-charrettes save resources and build project teams

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Summary

An eco-charrette enables key decision-makers to give focused attention, creativity, and communication to the development of a high-performance "green" building. This case study highlights how an eco-charrette helped a project team devise strategies to meet a client's need in an energy-efficient, cost-effective manner.

A collaborative process

The charrette, long recognized among architects as a word connoting quick, efficient project development, can be introduced to clients and fellow project-team members as a means of encouraging creativity and focusing attention on resource efficiency. The result is a better project, a more cohesive design team, and satisfied clients.

A well-conducted charrette brings together people with the necessary skills and authority so that far-reaching decisions can be made quickly to save substantial time and money. The outcome is an organized plan that helps key decision-makers understand the opportunities and practical implications of a project concept.

In an "eco-charrette," the focus is on sustainable development goals, strategies, and integrated design solutions. It is an intense meeting of a day or more in which all participants in the project focus on ideas for the efficient use of energy and resources in the new building. The group generates goals and then develops strategies for accomplishing those goals.

By conducting an eco-charrette early in the design process, a project team goes a long way toward ensuring the success of a green building. Such sessions are rapidly becoming a common element in the design of high-performance buildings and have been used successfully to help design some of the most progressive buildings in the Pacific Northwest.

An actual case study

Here is an example of the factors at play in an actual project designed in 1996, and how the presence of key players in a charrette fostered rapid communication and decision-making.

- The **Client** wanted to optimize use of natural light in his new office building and contain costs.

- The **Architect** proposed high-performance glazing for the windows to maximize light coming into the building and control heat loss.
- The **Electrical Engineer** suggested using fluorescent lamps with light sensors to modulate the electric light in proportion to available natural light, and then proceeded to calculate the annual savings.
- The **Contractor** surmised that the glazing and the lights with sensors would substantially increase the project budget.
- The **Mechanical Engineer** suggested smaller mechanical units because the building would be in a cooling mode most of the year and the electric light fixtures would be a source of heat.
- Quickly calculating the cost of the smaller mechanical units, the **Contractor** determined that this integrated solution would reduce the total project cost.
- The **Electric Utility Representative** offered substantial rebates for the high-performance glass, energy-efficient light fixtures, and daylight sensors.
- The **Owner** was delighted with this collaborative problem-solving.

The result was a high-performance building at a lower cost, annual energy savings, and naturally lighted interior spaces for the building occupants.

How eco-charrettes work

The eco-charrette process takes place when a new project is launched, sometimes before architects and engineers have been hired. The facilitator interviews the client before the eco-charrette to determine the client's environmental and energy-efficiency goals for the project and the desired outcomes for the work session. It is also common for participants to help develop sustainability goals and objectives during the eco-charrette. The facilitator plays a pivotal role in shaping the agenda, selecting the venue, and managing the logistics for the meeting.

Once the design team has been selected, the entire team—architect, engineers, contractor, building user representatives, owner, and other essential experts—meets in the eco-charrette. The meeting may last for a day, sometimes two or more, depending on the size and complexity of the project. As a group, the team devises strategies for attaining the project's goals for sustainability and energy efficiency.

Team charrettes can also be used to achieve other goals, such as refining the architectural design of a project.

To achieve greatest success in an eco-charrette, everyone involved in the design, construction, and operation of the project—including occupants and those who approve or provide the funding—should participate. When involved from the outset, people are more likely to feel ownership of, and work toward, the success of the project.

About 12 to 30 people is the optimal size for most eco-charrettes. Once word gets around that the session is being scheduled, a multitude of interested individuals may want to take part. Select participants judiciously.

Large complex projects require more intensive eco-charrettes, which may require careful scheduling of breakout sessions of smaller groups to enable more depth of focus on the issues.

LEED green building rating system

In addition to crafting environmental design goals, objectives, and tactical plans, the eco-charrette is an excellent opportunity to conduct a preliminary Leadership in Energy and Environmental Design (LEED) assessment. LEED is the green building certification program of the U.S. Green Building Council. In a period of two hours, it is possible to review all 69 LEED points with the entire design team and the owner to determine which level of LEED certification is appropriate to serve as a goal for the project. This serves as a good basis from which to discuss design and construction cost implications for the project. For more information, go to www.usgbc.org/LEED.

An opportunity to educate

The eco-charrette is also a dynamic environment for the dissemination of information about the design of both the built and the natural environments. Eco-charrette participants consistently comment on how much they have learned about the design of high-performance buildings. For this reason, it is helpful to invite key individuals to participate in the charrette—even if they are not involved directly in the project—including the CEO of the client company, local government representatives, or other clients who are considering the launch of a new building project.

Desired outcomes

Eco-charrettes are structured for productivity, and considerable change can result. The goal is to collectively establish meaningful sustainable development goals, establish measurable objectives, and outline the process for achieving them. The eco-charrette enables a group of people with a vast array of specialized knowledge to discover solutions through consensus. To produce a high-performance "green" building, this is a formula for success.

About the contributor

Nathan Good, FAIA, LEED AP, principal of Salem, Oregon–based Nathan Good Architects, has more than 40 years of experience in the design of some of the most acclaimed green buildings in the Pacific Northwest. He has pioneered the use of the eco-charrette as a method of focusing integrated design teams on their green goals and has served as a facilitator for collaborative design sessions for federal, state, and local government agencies, private developers, school districts, and homeowners. Good was one of the first individuals in the United States to be designated a LEED-accredited professional by the U.S. Green Building Council, and he was named national Energy Manager of the Year in 2000 by the Association of Professional Energy Managers.

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