

Charrettes

A Handbook for Planning and Conducting Charrettes for High-Performance Projects

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1. Sustainable building design can most easily be achieved through a *whole-building design* process.
2. This process is a multidisciplinary strategy that effectively:
 - a. integrates all aspects of site development, building design, construction, and operations and maintenance to
 - b. minimize a building's resource consumption and environmental impact while
 - c. improving the comfort, health, and productivity of building occupants.
3. An integrated design can also save money in energy and operating costs, cut down on expensive repairs over the lifetime of the building, and reduce tenant turnover.
4. Process is key to whole-building design. Sustainable design is most effective when applied at the earliest stages of a design. This philosophy of creating a good building must be maintained throughout design and construction.
 - a. The early steps for a sustainable and high-performance building design are:
 - Creating a vision for the project and setting design performance goals
 - Forming a strong, all-inclusive project team
 - Outlining important first steps to take in achieving a sustainable design.
 - b. The best way to achieve the steps above is through a high-performance charrette.
5. A charrette is:
 - an intensive workshop in which various stakeholders and experts are brought together to address a particular design issue.
 - It is the mechanism that starts the communication process among the project team members, building users, and project management staff.
 - A facilitated discussion allows the team to brainstorm solutions to meeting the building user's requests and the sustainability vision for the building design.
 - By the time the charrette concludes, the participants should have identified performance goals in the context of validating the program needs.
6. The charrette should result in good communication among project team members and the development of unified design and construction goals for everyone to work toward.
7. For sustainable building projects, the project team must consider how the building design and interior function can affect the building's overall environmental impact.

8. Building design decisions address site, energy consumption, human comfort, building material, and landscaping issues.
9. A good design will integrate these factors so that the effects of one will minimally impact, or even benefit, the others.
 - a. The project team for such a design should, therefore, possess the expertise to analyze the interactive affects of various design strategies on the building's overall energy efficiency and environmental impact.
 - b. Computer simulation tools that are capable of modeling building performance are invaluable resources for understanding the tradeoffs associated with all design decisions. Continuing to use these tools after the building is constructed give insight into how well the building is actually performing compared to how it should perform.
 - c. Following the design phase, the project team will account for how design decisions influence construction and long-term building operation.
 - d. Writing effective construction documents and safeguarding design goals will result in projects that are built as the original design intended.
 - e. In addition, protecting the project site during construction will minimize the site impacts both during and after construction and ensure a safe working environment during construction.
 - f. Post-construction activities guarantee continued sustainable building operation. Building commissioning completed before occupation as well as continuous commissioning activities conducted throughout the life of the building ensure the building always performs as originally intended.
 - g. Also, regularly educating and training the building operators and occupants will encourage these groups to take an active role in minimizing the environmental impacts of their building.

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What Is a Charrette?

A charrette is a creative burst of energy that builds momentum for a project and sets it on a course to meet project goals. It can transform a project from a static, complex problem to a successful, buildable plan. Usually, it is an intensely focused, multiday session that uses a collaborative approach to create realistic and achievable designs that work.

Charrette planners and facilitators use strategic planning to overcome conflict. Part of their strategy is to focus on both the *big picture* and the *details* of a project to produce collaborative agreement on specific goals, strategies, and project priorities. Charrettes establish trust, build consensus, and help to obtain project approval more quickly by allowing participants to be a part of the decision-making process.

Charrette Benefits

Charrettes:

1. Provide a forum for those who can influence design decisions on a project to meet and begin planning the project.
2. Encourage agreement on project goals.
3. Kick off the design process.
4. Save time and money by soliciting ideas, issues, and concerns for the project design to help avoid later iterative redesign activities.
5. Promote enthusiasm for a project and result in early direction for the project outcome.

Conducting a charrette early in the design/decision-making process will:

1. Establish a multidisciplinary team that can set and agree on common project goals.
2. Develop early consensus on project design priorities.
3. Generate early expectations or quantifiable metrics for final energy and environmental outcomes.
4. Provide early understanding of the potential impact of various design strategies.
5. Initiate an integrated design process to reduce project costs and schedules, and obtain the best energy and environmental performance.
6. Identify project strategies to explore with their associated costs, time considerations, and needed expertise to eliminate costly “surprises” later in the design and construction processes.
7. Identify partners, available grants, and potential collaborations that can provide expertise, funding, credibility, and support to the project.
8. Set a project schedule and budget that all team members feel comfortable following.

University of North Carolina-Ashville Charrette Saved Time and Money

The University of North Carolina in Asheville (UNCA) used the charrette process with tremendous results. A 1-day charrette saved the university time and money on its new campus facility site location decision compared to a traditional design approach. Approximately 40 people from outside and inside the university gathered to discuss the relative merits of three site choices (A, B, and C). After a sustainable site issues briefing and several hours of group work, three of the four work groups independently selected an overlap area between sites A and B. The remaining group, although it recognized the significant advantages of the overlap choice, preferred Site C, giving the university the required two choices necessary to take to the university board. Aided by the development costs and the buy-in information from the charrette participants, UNCA quickly settled on the overlap area. In addition to coming to consensus on the site for the project, which was the focus of the charrette, UNCA now has a good understanding of Site C sustainable development options and costs for future considerations.

Purpose of the Charrette

Carefully identify the purpose of the event and the characteristics and expertise of participants needed to achieve that goal. The purpose will affect the event's format, along with all other decisions made during the event planning process. A good understanding of the intended outcome and participant characteristics will improve the likelihood of a successful event and help participants agree that it was worth their time to participate.



Speakers to Provide the Desired Motivation and Education During the Charrette

An assortment of speakers representing a variety of expertise will make the workshop portion of the charrette more effective. Good presenters motivate the participants and impart valuable information that the participants can apply during the charrette activities and other high performance projects. Consider inviting the following types of speakers to participate in the event.

- Kickoff speaker(s) to energize and excite participants
- Local dignitaries to demonstrate support
- Project owner or project representative to explain the project and goals for the charrette
- Content experts for specific topics to be addressed, such as energy and materials
- Case study speakers to share previous experience gained from actual projects.

Facilitators to Lead the Design Charrette and Breakout Groups

1. Good facilitators keep the group motivated and encourage participant involvement in the group discussions. They foster a sense of openness and inclusion for all group members by keeping the momentum going in the group setting.
2. Identify potential facilitators during the kickoff meeting. An overall facilitator leads the event and ensures that the desired results are achieved. Breakout group facilitators perform similar functions during the breakout group discussions.

3. The success of the actual event depends almost entirely on the overall facilitator's ability to motivate the participants and keep the charrette on track. Obtain recommendations for facilitators from trusted colleagues. Select an overall facilitator who:
 - Is skilled and practiced at leading group discussions and, preferably, has experience facilitating charrettes
 - Has demonstrated skill in encouraging constructive contributions from all participants and adhering to the agenda to ensure that participants and organizers are on schedule
 - Has a good understanding of the high-performance design process

Project Overview

The owner or owner's representative should present a clear, concise overview of the project. This presentation should include the project's goals and vision, current status (what decisions have been made), issues and problems, and specific objectives or questions to be addressed at the charrette. Reviewing the owner's presentation in draft form to ensure that appropriate material is covered in an appropriate level of detail is a good idea.

Describe Project and Charrette Expectations

Clearly state project description, issues, and goals and the expectations for the charrette. At a minimum, the event sponsor or project owner should address:

- Goals—what results he or she desires from the project and from the charrette
- Project description—brief overview of the project with photographs and drawings as appropriate
- Project status—what decisions have been made already and what work has been performed?
- Issues or concerns—are there any barriers or problems that affect the project?

Technical Presentations

The first technical presentation should be an overview of the findings from the predesign energy analysis (note, this presentation may not be available for workshops). The content experts present next. These speakers are the technical experts in areas relevant to high-performance design and the specific project. It is helpful if these speakers illustrate the successful applications of the topics presented through case study examples. Case studies prove that the concepts presented really do work and make it more likely that the participants will consider these concepts later during the charrette exercises or on their own projects.

Breakout Groups and Reporting

Minicharrette and full-scale charrette agendas continue to include multiple breakout group discussions and large-group reporting sessions. At the conclusion of these sessions, or after the technical presentations during a workshop, conclude the event by reviewing the purpose of the event, making suggestions for next steps, and thanking the participants for attending.

Breakout Group Composition

The composition of charrette teams greatly influenced the directions they took and the design outcomes. For example, the lack of expertise with bio-systems meant that the environmental consequences of design were not fully explored. Teams dominated by engineers produced strong engineering and modelled solutions and spent little time considering occupant needs. Architect-dominated teams based their decisions more on building appearance and less on calculated energy benefits. Developer-dominated groups looked at condominiums focused on capital costs, while property managers could move the problem-solving towards life-cycle costing. Simulation tools, such as energy use analysis, helped designers better understand the issues and the need to work together in order to significantly advance building design and construction.

Example from one report describing group work:

Immediately following the video, the charrette participants were assigned to one of the six breakout working groups and were asked to review the LEED rating system checklist to determine which points/credits were appropriate for this specific Southface project. After approximately an hour, the participants reassembled as a large group and discussed their findings. The overwhelming consensus was that this project, with Southface as an innovative leader in energy and environmental concerns with “in-house” expertise, should strive for at least 52 points out of the possible 69 points, thus achieving a Platinum LEED rating. Once the targeted LEED points were selected, the charrette participants went back to work in their assigned breakout groups. (Each breakout group was made up of 8-9 participants from varied disciplines and “high performance” knowledge levels.) The break-out groups were then asked to begin designing and creating their solutions to the project based on the LEED strategies as well as innovative and “beyond LEED” initiatives. This activity took the remainder of the day until the late afternoon presentations from each group.

Large group discussion and consensus on the LEED rating system credits and points

At 3:30 in the afternoon, each group was asked to appoint a speaker or several speakers to relay their findings, insights, and strategies. These presentations generated good discussions and fruitful exchanges. Several participants had previously voiced skepticism that much could be accomplished in a one-day charrette but after the six work group presentations, several of those skeptics had been “converted” and expressed that they were both amazed and impressed. The participants voiced their support and approval for the endeavor and its results. A striking discovery- the original assumed location for the new Southface addition was questioned by several work groups and an alternative location warranted a closer look after the charrette input.

Closing comments were given by participants, facilitators, and Southface staff; many felt the charrette identified opportunities that were doable, attainable, made good business sense AND could be integral to a long-range vision of high performance design and education at Southface Institute. By the conclusion of the High Performance Buildings Charrette, participants felt that with continued research, consistent reviews, teamwork, and partnerships, most targets set in this charrette could be attained.