Understanding the Owner's Definition of Sustainability – Just How Sustainable to Make it?

Abstract

A major disconnect in the sustainability movement is due to varying definitions of sustainability between the owner and the sustainability expert. While the owner understands their needs and level of comfort with technologies and opportunities, they often cannot communicate these desires using common industry terminology. Therefore, it is essential for a successful sustainable facility to implement a cohesive and repeatable process for eliciting the owner's needs using their terms without filtering and bias of the design professionals and other experts.

This information can be obtained utilizing the nominal group technique method for accomplishing an Owner's Sustainability Workshop. This paper includes information on preparing and executing the workshop, consolidating and reporting the results, and using the results with a defined rating system. Also included is an example showing a portion of the results from a workshop for a new school building.

Who is the Owner?

Typically, the design team (architect, engineers, and specialists) have a contractual contract with an interface with one or two key people. Often it is this person that is considered the "owner" for the project. However, this is typically not the true owner for the project in a broader sense, they are just the money interface.

Therefore, who is the owner? Basically, the owner is anyone who will interface with the project, building, or operations. It is best to illustrate this through an example, such as a school:

- Contractual contact
- Technical contractual contact
- Superintendent
- School board
- Financial officer
- Principal
- Vice principal
- Administrative personnel
- Facility manager
- Operation and maintenance personnel
- Security
- Kitchen staff
- Teachers
- Students
- Parents
- Community organizations
- Neighbors

While the list gets long for more complicated and large projects (e.g., hospital), the nominal group technique allows for quick identification and consolidation of input from any size group. It is the interaction between the various entities that enables the entire owner group to identify the overall project goals and success criteria and not just one or two points of view.

What is the Nominal Group Technique?

The nominal group technique[i] is a means to gather consensus and all ideas from a diverse group, using a brainstorming technique that:

- Obtains responses from all attendees
- Does not allow one person to dominate
- Determines individual needs
- Documents group ranking of needs

Use of the nominal group technique obtains the group's input and consensus quickly. Without this structure for the workshop, key information is not obtained and the results would contain biases of the creator, resulting in a disappointed owner and disappointed users as their expectations are not met upon occupancy.

A key benefit of utilizing the nominal group technique is a greater interaction between the individual team members (Owner, users, designers, contractors, etc.) through the workshop. During the workshop, information is obtained that ranges from basic definition of sustainability to how to achieve a particular sustainability goal, such as energy efficiency. As each project is unique in its requirements, the use of the same questions from project to project is not always appropriate. However, the same methodology for obtaining the information is used.

Implementing the nominal group technique for the workshop requires the following steps be accomplished:

- Develop the Questions
- Organize and Convene the Workshop
- Transform the Results
- Present the Results

It is absolutely critical that the procedure be followed. Based upon experience, whenever the procedure has not been followed, control of the discussion is lost and consensus or the information required is not obtained.

Developing Questions for the Workshop

The questions for the workshop need to be broad in nature to elicit discussion among the workshop attendees. In addition, a broad question is more likely to obtain a variety of viewpoints and not lead the attendees in a single direction. Therefore, careful consideration of the question content and wording is required.

The development of questions first requires the topic areas to be identified. For sustainability, the general topics could include environmental, energy, and durability. In order to provide guidance in the development of questions for the workshop, an example is shown below.

- Sustainability – the purpose of this question is to understand how the owner team defines sustainability.

  Three questions that could be asked to obtain this information are:

  a) What LEED™ rating level is desired?
  b) What can be done to make this facility more sustainable?
  c) What technologies should be used to minimize energy use in the facility?

  Question A is too narrow in that it limits the response of the workshop attendees to only four choices (certified, silver, gold, or platinum). Further, many attendees are likely not conversant on the LEED™ rating system to be able to logically answer this question and it would require significant training on LEED™ to get them to answer without guessing. Question C is not much better in that it focuses on only one aspect of sustainability and is asking about technologies, and does not even address sustainability directly.

  Question B is the one to ask. All attendees have some concept of what sustainability is and how to reduce waste and improve the facility. Keeping the question broad, and even a little vague, enables the workshop attendees to fill in the blank using their knowledge and perspective. For example, it is not necessary to provide a definition of sustainability of a facility. However, an analogy is often appropriate (e.g., an igloo is the one truly sustainable facility in that all resources are completely recycled upon end of use.).

The questions typically used for a sustainability workshop include:

1. What can be done to make this facility more sustainable?
2. What conditions are important to your comfort in an ideal facility?
3. What activities compromise sustainability in this facility?
4. How will you benchmark sustainable operation of the facility?

Additional questions can be asked based on the input from the above questions, such as:

1. How can the energy efficiency of the facility be improved?
2. How can recycled content in the facility materials be increased?
3. How can the need for parking be minimized?

Workshop Execution

In organizing the workshop, the following tasks should be accomplished:

- Identify Attendees: this would include the owner group and if present the architect, engineers, construction manager, general contractor, sub contractors, and key manufacturers. If the design professionals are invited, it is essential that the design architect or engineer not be the workshop facilitator. The facilitator position needs to be an independent third party that facilitates the workshop and does not lead discussion down their preferred path.

  The difficult part is identifying the particular individual who will represent a particular group. This person must be knowledgeable of the group's activities and needs, be able to speak for the group, and to communicate the results of the workshop back to their group. The best person often is not the manager of the group, but a line worker who deals with day-to-day problems the manager is unaware of. The difficulty is getting the manager to empower a representative and supporting this person in the workshop team's decisions.

- Develop Agenda: experience has shown that each question takes approximately 30 minutes to complete, ranging from 20 minutes to 45 minutes depending upon the number of attendees, the number of responses, and the discussion. A half day is typically sufficient for sustainability issues.

- Invite the Attendees: the facility owner should invite the attendees in order to show the importance of this workshop. In the invitation, the attendee should be told the location, length of the workshop, and the basic structure. However, it is critical that the attendees not be given the questions ahead of time. By allowing the attendees to think about their answers, they become stubborn and believe only their response is the correct one. By providing the question and then obtaining responses immediately during the workshop, the attendees are open to all responses, resulting in the best possible group consensus.

- Prepare Workshop Materials: this includes the attendance sign-in sheet, response forms, flip charts, and possibly name tags. Also, food and drinks should be arranged for as well as selecting the location and room configuration.

The workshop is started with introductions by the workshop facilitator and attendees. This should be kept brief. The facilitator's role is to present the questions, watch the time, record the responses, keep anyone from dominating the discussion, and summarize the results. For each question, the following procedure is used:

- Facilitator states the question – In stating the question, the facilitator may need to provide analogies to get the attendees started. However, it is important to not lead the attendees to only a few answers. Therefore, for any guidance given, a different facility type should be used – if the project is a school, a fast food restaurant might be used as the example.

- Quiet response time (approximately 5 minutes) – The quiet response time where the individual attendees write down there responses on a piece of paper is important. This time enables the individuals to think of responses and essentially purge themselves of any possible response. It is important to not judge any response and consider that "all" responses are valid.

- Record individual responses on a flip chart with no discussion (approximately 10 minutes) – The recording of the individual responses on a flip chart without discussion is important in that it prevents one person from dominating. It is critical that the facilitator goes from attendee to attendee and only obtain one response at a time. Once each attendee has provided one response, start over from the beginning to get a second response. This continues until all responses are obtained and documented. Even if a response appears to be similar to a previously recorded answer, avoid the urge to combine them at this step. By combining answers, the facilitator is introducing bias into the process. Additionally, not having any discussion provides the opportunity for shy individuals to provide their input, as they will not be questioned or ridiculed for "wrong" answers. It is recommended to mix up the starting position and direction of obtaining responses so that each person gets to go near the start, middle, and end of a round.

- Discuss the responses (approximately 5 to 10 minutes) – Once all the responses are recorded, the group reviews the responses one by one. This is where responses are grouped together and clarification is provided on what an item means. If the attendees think of additional responses during the discussion (this often happens), they are recorded. It is important for the facilitator to keep the discussion on the topic and not get mired down in politics or past history. The goal of the workshop is to identify the needs of the new project, not past ones.

- Individual ranking of the top 5 responses (approximately 5 minutes) – Once all attendees understand all of the responses, each attendee is asked to choose and rank their top five responses. Sometime during the workshop, the facilitator should state that all responses will be used in understanding the attendee's needs. The ranking of the items is for the purpose of focusing the design and construction teams on the key criteria.

To properly facilitate the workshop requires three people – the facilitator as the facilitator, a chart recorder, and a computer recorder. The chart recorder allows the facilitator to focus on maintaining control of the workshop and ensures the process is followed. Further, the chart recorder strictly records each response as stated by the attendee or summarized by the facilitator. The computer recorder enters the information into the spreadsheet so that the results can be presented to the attendees at the completion of the workshop.

Reporting Results

Obtaining information from the workshop attendees is the simple part. The hard part is transforming these criteria for use in a sustainability rating system (e.g., LEED™). For this transformation to occur, the criteria must be measurable, verifiable, and documentable. Vague and undefinable criteria will frustrate the design and construction team and result in them ignoring the owner's input.

For example, Table 1 provides the top ten responses to the question of how the attendees define comfort. As can be seen in the table, the responses are varied and cover relatively broad categories. It is the responsibility of the facilitator to expand these to clear and concise criteria. Even a simple response such as "view to outdoors" requires a better definition. Is this from the seated or standing position, should certain rooms not have views, and what entails a good or bad view? Therefore, the translation of the criteria takes a significant amount of time, iterative reviews by the various parties, and the knowledge of the facilitator.

Table 1: Ranked Comfort Responses

Rank	Responses
1	Workspace Ergonomics
2	Temperature
3	Privacy
4	Acoustics and Noise Control
5	Individual Controls
6	Computer Reliability
7	Customer Comfort
8	Security
9	View to Outdoors
10	Ventilation (fresh air)

Since on most projects the design team has been hired at the time the workshop is held, they are often participants in the workshop. An interesting result of this inclusion is that the ranking of the responses of the design team can be compared to that of the owner and users. It will be important to remember that the design team was completely involved in all workshop discussions and heard the same arguments and criteria as all others.

Table 2 contains the results for the functional use question from an actual workshop where the user, including the owner, and the design team (A/E) were involved. The table is sorted by the user's ranking, with the rankings normalized for differences in user to A/E group size. As can be seen, there are several responses the user thought were very important that the A/E did not rank at all, and vice versa. This is not to say that the user or the A/E have the wrong answer, just that they are approaching the project from different perspectives and will judge the success of the project using different criteria. Often, the owner, users, and design team let past bad experiences taint their perspective or jump to conclusions on what the needs are – they do not listen to what is being said.

This is a perfect example of why the current methods for obtaining project criteria do not work, especially in sustainable projects. The design team is in on the same discussions, yet comes up with different priorities. Utilizing the nominal group technique workshop brings the owner, users, and A/E together to agree upon common criteria from which success will be defined.

Table 2: Functional Use – User and A/E Rankings

Rank	Responses	User Score	A/E Score	Overall Score
1	Employee Workspace	8.4	9.4	17.8
2	Comfort	4.4	2.7	7.1
3	Good First Impression	3.6	10.5	14.1
4	Privacy (acoustics)	3.2	2.3	5.5
5	Private Offices	2.3		2.3
6	Non-Obtrusive Smokers' Area	2.0		2.0
7	Larger Restrooms	1.9		1.9
8	Good Elevators	1.6		1.6
9	Security	1.5	1.2	2.7
10	Reliable Utilities	1.4	4.5	5.8
11	Dumpster	1.3		1.3
12	Technology	1.3	0.6	1.9
13	Interaction Among Agencies (co-location)	1.2	4.4	5.6
14	Flexibility for Future	1.1	4.7	5.8
15	Meeting/Conference Rooms	1.1		1.1
16	Consistent (non boring) Interiors	1.1	1.3	2.4
17	Showers	0.9		0.9
18	Operable Windows	0.6		0.6
19	Clear Definition of Public Areas		3.0	3.0
20	Easy Maintenance		2.4	2.4
21	Easy Customer Access		1.4	1.4
22	Communications		1.3	1.3
23	Good Envelope		1.1	1.1
24	Easy Access of Movement		1.0	1.0

Utilizing Defined Rating System

Once the responses have been clarified and put in ranked order, the next task is to simply compare the criteria to that in the rating system to determine where to focus the sustainability efforts in the project. Utilizing the LEED™ framework as an example, a simple table detailing the credit descriptions (it is assumed that the prerequisites will be met), number of credits available, and a ranking column to indicate the importance placed upon it by the workshop attendees.

Often, the terminology may not completely match up, so interpretation by the facilitator is required. For example, the LEED™ rating system has reduced site disturbance as one of the available credits. In the workshop, one of the highly ranked items may have been to maximize use of existing trees and natural plants. The facilitator would have to make an evaluation of this was the same or similar enough to match up.

Example Results

The results from a workshop for a school that was trying to implement more sustainability in their designs and construction are shown in Table 3.

Table 3: Workshop Responses

Item	Responses	Score
1	Use of low energy system components	18
2	Build specific to this region	16
3	Minimize adverse impact on the environment	12
4	Create real incentive	9
5	2% of building energy use comes from renewable sources	8
6	Use of renewable resources (solar, wind, and geothermal)	7
7	Daylighting and energy efficient lighting systems	7
8	Ensure design of building minimizes energy loss	7
9	Incorporate energy control measures (ECM's)	6
10	Reuse materials	5
11	Site selection - use brown infills	4
12	Use more recycled building products	4
13	Establish and evaluate the options (LCC)	4
14	Produce less waste	4
15	Use low water fixtures	4
16	Use less toxic materials	4
17	Use sustainable materials	3
18	Set maximum amount of energy use of building per year	3
19	Improve indoor air quality	2
20	Use proper orientation of buildings on site	2
21	Install automatic controls on mechanical systems	2
22	Conserve resources and energy	2
23	Site building with access to existing infrastructure	2
24	Use natural landscaping	1
25	Size heating/cooling equipment to 98% of loads	1
26	Minimize pavements	
27	Use longer lasting materials	
28	Always use environmental friendly products	
29	Locate building on public transit routes	
30	Upgrade all utility supply systems	
31	Utilize green roofs	
32	Increase pedestrian ways	
33	Construct building for future expansion and changes to minimize use of materials	
34	Reuse materials from building scheduled for demolition	

The corresponding LEED™ credits are shown in Table 4.

Table 4: Corresponding LEED™ Credits from Workshop Responses

Item	Responses	Credits
1	Optimize Energy Performance	2-10
2	Innovative Design potential	1
3	Water Efficient Landscaping & Reduced Site Disturbance	2-4
4	More of a philosophy	
5	Green Power	1
6	Renewable Energy	1-3
7	Daylight & Views	1-2
8	Same as 1	
9	Same as 1	
10	Resource Reuse	1-2
11	Brownfield Redevelopment	1
12	Recycled Content	1-2
13	More of a philosophy	
14	Construction Waste Management	1-2
15	Water Use Reduction	1-2
16	Low Emitting Materials	1-4
17	Rapidly Renewable Materials and Certified Wood	2
18	Same as 1	
19	Construction IAQ Management Plan, Increase Ventilation Effectiveness, Indoor Chemical & Pollutant Source Control, and Thermal Comfort	4-6
20	Site Selection	1
21	Controllability of Systems	1-2
22	More of a philosophy	
23	Building reuse	1-3
24	Landscape & Exterior Design to Reduce Heat Islands – non-roof	1
25	Same as 1	
26	Alternate Transportation – parking capacity	1
27	More of a philosophy	
28	More of a philosophy	
29	Alternative Transportation – public transportation access	1
30	No match	
31	Landscape & Exterior Design to Reduce Heat Islands – roof	1
32	Alternative Transportation – bicycle storage & changing room	1
33	No match	
34	Building Reuse	1-3

Therefore, even though only one of the twenty participants in this workshop even knew what LEED™ was, they have identified between 29 and 56 credits. This is at a minimum Certified and at a maximum Platinum. The primary benefit of this approach is that the owner's team now owns the direction they are going on sustainability and will fight for the options identified. It also allows for application of limited resources using the ranked listing.

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[i] Delbecq, Andrew L., and Van de Ven, Andrew H. "A Group Process Model for Identification and Program Planning," *Journal of Applied Behavioral Sciences*, 1971, 7, pp. 466-492.