

Proof of
concept

Towards Sustainable CER Buildings

By,



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Foreword

What is being sustainable?

- (1) Improving energy use, controlling water consumption, controlling waste generation, **reducing occupancy risks and costs**; getting ahead of the regulatory curve; enhancing the environment for day to day living and also improving a facility's or building's standing in the community.
- (2) These goals and initiatives are mainly part of a vision for sustainability that develops a strategic framework that unifies everyone around the aim to optimize benefits in three realms: the environment, the economic, and the social—also known as the triple bottom line.
- (3) Every facility or building faces a different set of issues, motivators, economic strengths, and environmental forces, so there is no "one-size-fits-all" solution for implementing sustainable practices across the construction industry.

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- (4) As challenges, pressures and motivations vary from one site to another depending on location, standards set and circumstance, each site will have its own internal reasons and additionally establish a business case for pursuing any sustainability initiative.
- (5) AOEC's toolkit helps in assessing such needs and thereon helps in planning for this effort via a methodology called **Towards Sustainable CER Buildings**.

CER stands for Connected Emergency Response.

Foreword

What does sustainability mean?

One explanation could be, it refers to the ability of a system to keep doing what it's doing with excellence over time. A system that is not continually excellent and unsustainable collapses, by extending the previous theoretical argument.

A growing number of research organizations, and scientists are publishing reports on the need for sustainability with information about how global trends such as—climate change, deteriorating natural resources, increasing waste, aggressive competition for market share, political instability is making it difficult for organizations to conduct “business as usual” or for people to live in today’s interrelated and interconnected global world.

What is becoming important to conduct “business as usual” or simply live?

We must recognize the sizable impact that construction, or the operating of facilities, or buildings and day to day practices have on the health and safety of occupants, neighbors and on the rest of the world/environment.

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People must accordingly **understand the importance** (1) of planning for sustainability, (2) of identifying stages for adaptation or implementation and (3) of maintaining their facilities or buildings, where they must take decisions that simultaneously improves the interrelated and interconnected bottom line to not only serve themselves, the community and other businesses, but to also support **Connected Emergency Response (CER)**, conserve and preserve the environment.

The vital focus must be that all these actions must be good for profitability, for our planet, and for society as a whole.

To plan for and achieve sustainability, we must see things from a **demands based utilization of systems** perspective. In other words, any typical operating environment is made up of countless systems and practices linked together in different cause and effect relationships, and that these systems and practices on being used affect one another, the ecosystem and the environment.

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A facility or building is a system, and therefore we must understand its structure, key elements and linkages in order to take decisions that lead to a more sustainable and healthy for the environment infrastructure.

Though this may be well-known, it needs to be said, that a facility or building requires energy, water, materials, set of practices for operations & maintenance and it produces waste.

AOEC's toolkit includes self-assessments that helps design a strategic plan that recognizes common needs for CER, holistic quality, addresses energy and water use, waste generation, dependency on supply chain elements and outlines what construction companies, third party companies or occupants can do in these areas to work ones way to sustainable construction and occupancy.

AOEC's toolkit can help decision-makers prioritize what one must take as most relevant steps to stay ahead in the millennium's path to sustainability.

About the handbooks

AOEC has put together reckoner handbooks that include an easy-to-adopt self-assessment and guidance framework that can complement existing construction management, facility management or building management Endeavors with a newer focus for **Connected Emergency Response (CER)**.

The handbooks have the following goals:

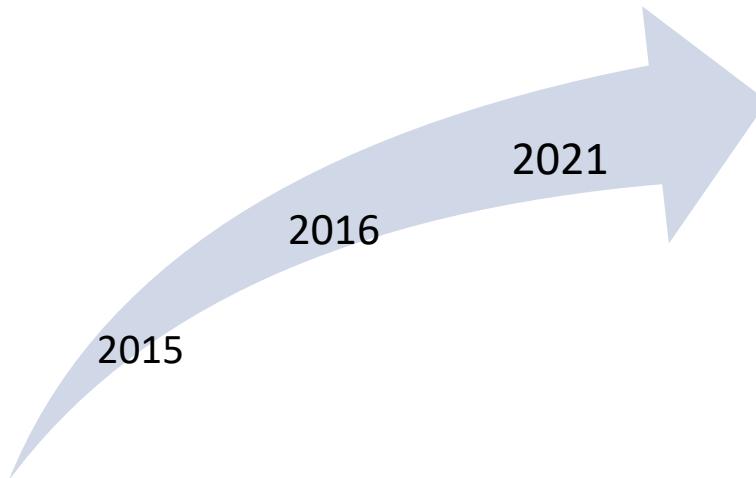
1. Elevate the recognition and visibility of the need to plan for and work towards sustainability
2. Help differentiate between what is generally known today (about sustainability) and the actual uniqueness / exclusiveness of your site, to thereon help plan for and achieve what is important for your services
3. To encourage well-understood and credible strategic activity that can draw results for sustainability
4. To help understand responsibility and to encourage involvement for a greener tomorrow
5. To develop an in-house methodology / structured management system to periodically evaluate needs for continual excellence and sustainability and to make a meaning of the assessed information

About the handbooks

Your NEXT Steps to receiving a handbook

- 1. Answer the Gap analysis / Self-assessment to understand the needs and gaps that exist in your construction model, facility or building**
- 2. Use the SERT Analysis section to generate a roadmap and report for your decision-making (at a business level , or at occupancy level) to help focus on how you can achieve continual excellence and sustainability**
- 3. Print the necessary CERC deployment / Advisory reckoners and inspection forms that point out what you need to keep in mind for different areas of flat or building or site management**
- 4. Additionally you can ask for an exclusive case study to be carried out for your site, where this can help focus on more in-depth consultation to help overcome barriers with cost-benefit analysis, sourcing for implementation, where all this can be done keeping in mind the apt vision and budgeting.**

Understanding where you are positioned today with regard to the need for sustainability



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Part 1

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Commissioning in the past

Commissioning (in the past) was a one-time activity that indicated that a facility or building was ready for utilization or occupancy.

Commissioning guaranteed to an extent to occupants that the facility or building was not in a state of flux, where all key elements, and systems were ready to become fully operational.

It also indicated that the facility or building had been handed over to a facility management team or to a building management team or to occupants, that would be in charge of uninterrupted occupancy.

This has changed today, as the deteriorating environment and competitive landscape makes it necessary to come up with a plan for sustainable facilities or high-performance buildings that need to be periodically reviewed for gaps and lacunae that may affect the triple bottom line norms expected from all building sites. We are insufficiently prepared for Connected Emergency Response.

Planning for sustainability

A typical facility or building is a system with key elements and linkages like [Site or Building Management \(or Building Design And Construction\)](#), CER, [Energy Utilization](#) (and emissions), [Water Utilization](#) (and effluents), [Waste Management](#), [Chemicals Utilization](#), and [Supply Chain Management](#), where strategic thinking to conserve and preserve the environment is as important as is the need to deliver safe, high quality and profitable services. Commissioning for sustainability and CER is a systematic approach for environmental management that includes the following steps:

- 1. Writing of a business case that identifies**
 - a. Why a key element is important for a site, facility or building?
 - b. Opportunities for improving sustainability or CER specific performance measures in terms of financial benefit & market share, stakeholder, occupant, & community satisfaction and reducing environmental impact
 - c. Current compliance and risk considerations for the triple bottom line
 - d. Overview of target setting and need for action planning for the triple bottom line
 - e. Overview of relevant resources available / needed for the triple bottom line

Planning for sustainability

- 2. Identification of drivers to justify the business case, which includes**
questions to ask and points to note, such as:
 - a. Is the site ready to adopt and adhere to a culture of sustainability / CER in which related actions become second nature, similar to the inherent way the facility or building serves its occupants?
 - b. Pre-assessment of the need for a [regulatory environment](#) (environmental management system), which may be the primary driving force for developing a sustainability program
 - c. What resources are available to get the job done? Successful programs require dedicated resources to achieve sustainability goals—environmental excellence, financial viability (or better TCO/ROI), and more community participation and overall satisfaction
 - d. Factors that would motivate a facility or building to action (e.g., CER, [energy costs and energy independence](#), [financial benefits](#), market share, community pressures, [regulatory requirements](#), [climate change](#), [public relations](#), need for [improved operations](#) & maintenance, [social responsibility](#) etc)

Planning for sustainability

3. Development of strategies to implement sustainability and CER, which includes

- a. [Getting a pre-assessment done](#)
- b. [Building Teams / Planning & Steering Committees](#)
- c. [Planning the Journey](#): This strategy includes developing an environmental management system, developing goals, establishing baselines, and establishing action plans for sustainability initiatives
- d. Identifying [ways to fund sustainable solutions](#)
- e. Selection of [Target-Setting Tools](#): These tools should help set goals for land, structure, energy, water, and waste by choosing a basic, intermediate, or advanced path that is right for the site, facility or building
- f. Selecting from [Gap Analysis Results](#): This periodically identified list outlines projects for each topic area reporting gaps and lacunae that may affect the functioning of the facility or building in the near future
- g. Selecting from [CERC Case studies](#): This site specific proverbial outlines suggests practices for each topic area that result in improved performance and are relatively easy to implement

Planning for sustainability

4. **Systematic implementation of sustainability or CER requirements/ recommendations, which includes** implementation and maintenance of an environmental management system, with sustainability improvement measures (SIMs) that help implement action plans keeping in mind aspects such as:
 - a. Anticipated “triple bottom-line” benefits to use as rationale and incentive for implementing a sustainability project
 - b. How-to guidance for implementation
 - c. Standardized language for specifying and/or labeling environmentally-preferable products, services and activities
 - d. Environmental management system related regulatory considerations
 - e. ISO 14000 family specific requirements, LEED specific considerations and (the public domain) Green Guide for different synergies
 - f. Associated Case studies, if available
 - g. Vital Commissioning information, as relevant
 - h. Other helpful resources, standards, handbooks etc

Sustainable flats or buildings

Planning for sustainability is a systematic approach for environmental management that includes planning for the following steps:

- (1) Sustainable development model where the construction materials or building materials used are safe for the environment and its occupants.
- (2) Sustainable energy utilization model
- (3) Sustainable water management model
- (4) Sustainable waste management model
- (5) Guided chemicals utilization in house-keeping
- (6) Connected Emergency Response
- (7) Guided inspection or maintenance that ensures adherence and conformity

Sustainable flats or buildings

Guided inspection or maintenance that ensures adherence and conformity, which includes aspects and points to note, such as:

- (a) Preferring the use of well-planned inspection forms in carrying out routine maintenance activities or in incidental endpoint management, repairs, alterations or renovations
- (b) Preferring the use of such forms will help identify inadequacies and shortcomings of a flat, building or facility, its working systems and appliances
- (c) Using a management system that considers that the building management lifecycle or flat management lifecycle is a cradle to grave lifecycle based on the utilization of different systems in different stages of its planning and management, where this can include what kind of products or technologies are used in construction, endpoint management, repair or renovation, to how raw material is acquired or generated (from natural resources) for these products or technologies, to how these products or technologies are intelligently deployed, to what is used in daily operations, to what is done for periodic or final disposal as waste.

Assessments of a high-performance building

This section includes details that review whether your organization operates for environmental management. Your team can iterate through these aspects to understand the need for assessment of performance.

Assessments of a high-performance building

Today's building assessments systems score or rate the performance of the environmental management practices implemented on-site. These systems rate the effects of a building's design, construction, utilization/operation, endpoint management where the focus is on environmental impact, resource consumption, connected emergency response that could be more deteriorating than conservative, and predominant consideration for occupant health.

Environmental effects are evaluated at the local/site, regional, national and global scales. Resource impacts are commonly measured in terms of area, density, mass, energy, volume, and parts per million (ppm) etc. The predominant consideration for occupant health is inferred by measurement of presence of chemical and biological substances in the indoor environment, the circulating air & ventilation, and the well-being / relative health of the occupants and their associated proximity with one another.

Assessments of a high-performance building

- **Site specific Connected Emergency Response:**
- Site specific practices are based on Sense & Respond systems
- for Connected Emergency Response via trained “Mindset, Methods and Metrics” along with Solutions and Strategies for mitigating threat, disaster, accelerated risk at sites due to challenges setting in due to climate change. We expect to help Preparedness, Mitigation, Response and Recovery, where a connected energy can help plan for, act and swiftly save and protect life. The 2-fold aspects of the envisioning being
 - (1) Mitigation & Adaptation (outer macro world to micro operating climate) and
 - (2) Facilitation via CERC departments at sites (micro operating climate to outer macro world)
- We find that to plant success in any solution finding, like divine energy we must focus both on (macro to micro) Subsistence and (micro to macro) Emergence.



Assessments of a high-performance building

There are different choices made in these assessment systems as to whether a single number will be used to describe the building's overall performance for environmental soundness, or whether an array of numbers will be used to describe the performance of the building related to different aspects of environmental safety and sustenance.

The important building assessment systems being used all over the world are as follows:

1. LEED (Leadership in Energy and Environmental Design)
2. Green Globes (US)
3. Green Globe Codification (Sustainable STRIDE Environment)
4. Living Building Challenge (yet emerging in the US)
5. BREEAM (United Kingdom)
6. CASBEE (Japan)
7. Green Star (Australia, New Zealand, South Africa)
8. DGNB/BNB (Germany)

CERC Sensitivity, Stakeholding and Training based on STRIDE:
Situation,
Trends.
Relevance,
Impact,
Deterioration,
(Operating Climate)
Engineering

Assessments of a high-performance building

Building assessment tools

STRIDE Tool will be one of the building assessment tools available for public access. It will require a comprehensive set of details on the building being assessed and also on a benchmark building that can be used to compare how the building being assessed is performing.

The tool will be downloadable from a website for a Sustainable STRIDE Environment.

The output from the tool will provide an assessment of the building as per eight categories: CER, Resource Consumption, Environment Loadings, Indoor Environment Quality, Service Quality, Economics, Management and Commuting Transport.

There are more details on all this on the Internet. Start your journey by first completing the **About where you are positioned today** ... questionnaire (in the folder called **At a Glance**), this will help reinstate your case for sustainability.