CHERACILITY MANAGER'S GUIDE TO OPTIMIZING BUILDING PERFORMANCE

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Sustainable Facility Management -The Facility Manager's Guide to Optimizing Building Performance

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First Printing, 2013 ISBN-13: 978-1492769590 ISBN-10: 1492769592 Printed in the United States of America

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Dedication

From Mark:

To my wife Donna, my strength and inspiration.

To my mother and father, Matt and Mae who taught me to do right.

From Chris:

To my Dad, for teaching me to never be afraid to do something new, and to my wife Sharon, for her patience and perseverance whenever I try one of those new things.

Acknowledgements

To Kathy O. Roper, CFM, MCR, LEED AP, IFMA Fellow and Associate Professor, Georgia Institute of Technology, for writing the Foreword to our book and for her encouragement and leadership in our industry.

To our IFMA friends and mentors; particularly Dave Cotts, Kit Tuveson, Bill Conley, and all of those IFMA volunteers and leaders that inspire.

To our FEA colleagues, particularly Laurie Gilmer, Mayra Portalatin, Maureen Roskoski, and Teena Shouse, who always look for ways to advance the facility management profession by always looking for a more sustainable path forward.

To Kevin Lewis and his staff at LMK Partners for their dedication and hard work in editing and formatting our book and for guidance in getting it published.

Preface

Since this book was over two years in the making, a multitude of changes have taken place in the world of design and construction of green buildings and in facility management. Although there are still some gaps between the two worlds, the gap is closing as building owners and property managers realize that there is a different skill set involved between the design and construction phase of a building and its operational phase.

More and more facility managers are participating in the design and construction of the buildings that they will eventually operate. Technologies such as building information modeling (BIM) offer ways to bridge the gap between the design and construction phase and the operation of buildings by making much more information available than existed in the past. We are starting to see requirements to operate buildings in accordance with maintenance codes (although operations and maintenance has long been in existence in the codes world). We are also seeing the emergence of consensus standards in facility management. Groups such as the International Organization for Standardization (ISO) are gathering consensus for world-wide acceptance of standards in facility management practice.

We are also starting to see the emergence of the importance of a properly educated workforce in facility management. Initiatives such as the Federal Buildings Personnel Training Act of the U.S. Federal Government have emphasized the need for new and advanced skills to meet the demand of technologically advanced building systems, energy and water conservation technologies, and management of the work environment in a safe and healthy manner. This has also highlighted the need to manage our buildings in a more strategic manner – recognizing the need for a strategic approach to facility management; better planning, more emphasis on the financial aspects of our facility strategies, more robust operational systems, adoption of best practices, and education and networking ability of the facility management workforce.

The facility management workforce is better versed in finance, communication, technology, leadership and strategy development then in any time in the past. Business acumen is emphasized over operational and technical know-how. Communication and reporting skills are invaluable in facility management. The use of performance management tools such as the Balanced Scorecard are becoming second nature in facility management.

Perhaps the most significant trend that effects facility management is the growing need for transparency in reporting our Corporate Social Responsibility and commitment to the Triple Bottom Line. Since facilities can account for a large portion of an organization's energy use, carbon footprint, and waste production, the facility manager is in a unique position to drive the organization's CSR reporting efforts. Programs such as the Global Reporting Initiative and the Carbon Disclosure Project drive organizations to look internally at what they do, and to look up and down the supply chain for their effect on people and the environment, and cost of doing business in a more transparent world. The facility manager has long been in the position of being measured. Those that have embraced measurement and transparency are becoming the leaders in their organizations and in the facility management field. This convergence of the world view of the Triple Bottom Line of business and the more conventional world of facility management has brought us to a new perspective on how we manage and operate facilities – sustainable facility management.

As the authors of this book, we have no illusions that we have captured everything that sustainable facility management involves. We also realize that changes in the facility management field will continue at a pace that far outpaces our ability to capture it in words. We only hope that we will be able to continue to bring the subject of sustainable facility management to light in future editions of this book. Whether you key-in on specific topics, or you partake of the writings in this book in their totality, our hope is that there are at least a few things that get you thinking differently about facility management. We hope that you value the information included in this book and look at it as a resource for improving how you manage facilities.

Read in good health!

Chris Hodges and Mark Sekula

Foreword

Sustainable Facility Management - The Facility Manager's Guide to Optimizing Building Performance is an important contribution to literature in facility management. While many books have recently come out about sustainability, others on facility management and a few on sustainable facility management, this book provides the unique background and how-to for developing not only sustainable, high performance facilities, but a Facility Management organization that is high performance. This important aspect of managing the people who manage facilities has been overlooked in prior publications.

In my role as a facility management educator, I have the privilege of helping students grasp the many important and diverse roles that facility management professionals encompass. And in my role as a researcher, it is clear that facility management is evolving. Just ten years ago, the industry was focused not so much on sustainability, but on integration of facility management with other organizational silos. Over a short time, the sustainability movement has taken a strong hold across the world, requiring that businesses of all sizes and in all industries consider their carbon footprint, energy reduction and other sustainability efforts to become green organizations. Facility management is evolving rapidly and sustainability within facility management is a key component to today's management of the built environment.

Facility management professionals are not unfamiliar with all of these concepts. In fact, most facility managers were practicing sustainability before the term was in favor. Facility managers *had* to reduce wherever

possible (we still do!). Energy, water, maintenance, space were all areas for cost cutting - the original driver of sustainability for facilities. However, as businesses embraced concepts of sustainability, it was suddenly easier to have discussions on longer return on investment projects that saved substantial energy, water, materials or other resources. The deferred maintenance backlog now had some impact in budget discussions, especially if upgrades or improvements would provide long-term efficiencies and savings. After years of fighting for the logical long-term support to properly maintain systems, efficiency has become better understood within businesses and terms like life cycle costs and total life costs are now considered rather than only the shortest return on investment project. This is nothing new to an experienced facility manager, but a welcome understanding of our field, where the better we maintain something, the longer and more efficiently it operates. Some facility managers have been able to evolve from strictly facility management to a broader role of sustainability leader within their organization. Their deep understanding of sustainable concepts can lead the way.

Sustainable Facility Management - The Facility Manager's Guide to Optimizing Building Performance also provides insight into the changing language within sustainable facility management. "Green" efforts are now being recognized more broadly as "high performance" issues. This shifts the focus to value rather than a trendy initiative or popular phrase. And as this value has become embedded into facility operations across multiple industries, facility managers have advanced their value from operators to business partners who support the organization and their sustainability measures. Changes in the business environment obviously affect the management of facilities to support the business. One large change is the impact of mobility and advancing technologies. While these advancements provide opportunities for space savings which reduce costs, it also dictates that facility management organizations adapt their processes, procedures, training for facility management employees and eventually even shifting how facility managers operate the building. This implies a lot of change. Change for the business, change for the facility management organization, changes to the workplace and changes for the individual facility management workers. A new focus is required to understand the "softer" skills needed to effectively implement change management, work with customers under change circumstances and how to lead an effective facility management team.

All of these evolutions are covered in Sustainable Facility Management - The Facility Manager's Guide to Optimizing Building Performance and the authors who are recognized experts in sustainable facility management practices provide detailed descriptions of how and why to implement sustainable, high performance facility management in your organization. As facility management continues to evolve, it becomes more and more important to be aware of new concepts, technologies and new practices that can lead to better, more sustainable management of the built environment. Sustainable Facility Management - The Facility Manager's Guide to Optimizing Building Performance is one good place to start and I wholeheartedly endorse the concepts provided by Chris Hodges and Mark Sekula to bring up-to-date sustainable facility management practices to light.

> Kathy O. Roper, CFM, MCR, LEED AP, IFMA Fellow Associate Professor, Georgia Institute of Technology

Chapter 1: Sustainable Facility Management - The Facility Manager's Perspective

The life of a facility manager is filled with demands. The demand for customer service; for efficiency and cost effectiveness; for comfort and productivity in the workplace; for health and safety; and a long series of demands that would be too long to fit in this book. Some of these demands are reasonable; an expected part of the profession. Others are "above and beyond" and often challenge even the most seasoned facility managers. These are shared experiences that facility managers only reveal to each other when gathering at an event only other facility managers attend. Facility managers see everything – the good, the bad, and the difficult to deal with.

Demands come from all directions. The demands "from the top" are usually financially driven. These demands are tied to the bottom line of the organization. The cost of facility management services and the ability to reduce them are constantly scrutinized by upper management. This is a justifiable demand. After all, the need to run our facilities in a cost effective manner is a large part of the reason there is a facility management profession. Other demands come from our customers; the receivers of our service. These are the people that work for the organization. They often do not recognize that there is an entire team of dedicated individuals whose job it is to keep them safe, comfortable, and productive. Sometimes, these demands are emotionally driven. They are not always rational, and they usually reflect a wide range of individual tastes, preferences, and requirements. These demands are not always aligned with the mission of the organization, but that does not prevent the facility manager from hearing them and having to deal with them on a daily basis.

Another set of demands come from the facility management workforce. The days of telling our workforce what to do and expecting them to follow it blindly day after day and year after year are gone. The workforce of today is much more sophisticated and demanding; as they should be. On-the-job training, professional development, certifications and credentials, career advancement, and continuous learning are the norm in today's work environment, and facility management is no exception. Organizations that have been achieving success in their field usually recognize that much of that success is driven by their commitment to their workforce. Organizations with a commitment to employee development often outperform their peers.

One of the most important demands on a facility manager is regulatory and rule-driven. It encompasses all of the business processes facility managers are required to follow in order to adhere to external health and safety regulations, laws, and ordinances. Privacy laws, legal record keeping, emergency procedures, and legal filings are also part of those regulatory and rule-driven demands. Internal policies, practices, and procedures also create a different set of demands that dictate how we do our jobs on a daily basis. This category of demand is the procedural or work process part of the demanding life of the facility manager.

Over the last several years, we have seen the emergence of a new demand. This is the demand for greener, more efficient, more peoplefriendly and environmentally-friendly facilities. Although this has been on the facility managers agenda for many years, the external world has caught up. Large organizations, governments, social groups, and others have recognized the effect of buildings on our environment and started demanding a higher level social commitment and a commitment to our environment.

DEFINING A GREEN BUILDING

In his book, How to Measure Anything, Douglas Hubbard says that the names we use for things and how those names change reveals a lot about how our ideas about them change over time. We can apply this thought to the language we use to describe our buildings and how we manage them. Cost efficiency, human comfort, workplace safety and productivity issues are certainly not new to facility managers. What is new is the emphasis that facilities receive as a result of the introduction of terms such as "green" and "high-performance". The language changes that have taken place over the last few years have led to a renewed emphasis on processes that facility managers have dealt with over their entire careers. Some look at this as an attempt by others to gain credit for introducing something new by spinning an old concept. This attitude may have some validity, but generally will not help much in the long run. A better way to look at things is to view the language change as an opportunity to showcase the talents and abilities of the facility manager. After all, this may be the best way to advance the profession and demonstrate the true value of having a qualified and confident facility management staff to care for your most important physical and human assets.

The language of "green" has been constantly changing and evolving. The term "green building" has been with us since the 1990's. Since then, we have seen an emergence of the idea that green buildings could enhance the health, safety, productivity, and well-being of our workforce. This is certainly not a new concept, and the source of the renewed emphasis on health, safety, and productivity is an opportunity for the facility management profession. The current drivers of green buildings are in the design and construction community. The facility management community has been influential, but not to the extent required to make a significant change in our existing building stock. Although the health, safety, and productivity benefits of a green building are intuitive, in the 1990's, we had yet to develop the body of empirical evidence to make the business case for green buildings on a grand scale. Progress in new buildings was significant, and is still growing, but progress in our aging building stock is still sluggish.

Through the early 2000's the facility management profession was reacting to one of the primary drivers of "green" on the operational side of buildings; and that was the reduction in energy consumption in the face of rising energy costs. It is understandable that the primary driver of sustainable buildings in the facility management community was cost. About the middle of the first decade of the new millennium (since about 2005), the world started to adopt the language of carbon. Almost everything we did, from commuting to operating buildings to purchasing consumer goods could be translated to our carbon footprint. This shift in thinking fit well with the facility manager's primary concern – the consumption of energy as one of the primary contributors to an organization's carbon footprint. That is about the same time that the effect of the supply chain entered the picture.

By about 2007, we started to see the language of buildings and facility management change again. We have seen the consistent use of the term "high-performance" to describe how we would like to see our facilities perform. High-performance characteristics include; energy efficiency, low reliance on natural resources, low-carbon, and a healthier indoor environment. We have even seen a commitment to net zero energy use in the facility of the future – one which produces as much energy as it uses. The term "high-performance" fits well into the facility manager's lexicon because it basically describes an outcome that facility managers have been seeking since long before buildings were termed "green". The goal of the facility manager has always been to optimize performance.

If we were to indulge in a bit of forecasting, perhaps we are seeing another shift from high-performance buildings to high-performance facility management organizations. After all, it is not likely that one can achieve a high-performance building over its entire life cycle without having a highperformance facility manager in charge.

Although it is difficult to tell what the next change in the language of facilities will be, it is helpful to take a bit of history into account when seeking to determine what the next demand on the facility management profession will be.

DEFINING SUSTAINABLE FACILITY MANAGEMENT

Maybe the term we should adopt is sustainable facility management (SFM). SFM is the ability to manage our facilities and resources in a manner consistent with all that is "green" and "high-performance". The idea of sustainable facilities is not just about doing something that is environmentally or people-friendly. It is about that, but it is also about making facilities last, and making them perform at a level that meets the needs of the organization, and is managed in a manner that is consistent with the mission, vision, and values of the organization.

Many facility managers, maybe even a few of you who are reading this book, are intimidated by the term "high-performance". The term "highperformance" when applied to buildings, implies a high level of energy efficiency, very little water use or waste production, and a light-filled, comfortable and productive workplace. Although these are admirable goals, they may be achieved by only a small percentage of our existing building stock. It is no accident that the title of this book includes the phrase "optimizing building performance". While we all may covet the greenest building on the block so that we can attach the label "high-performance", we do not want to forget those everyday activities of the facility manager that can add value to an organization by optimizing the resources that are given to us to operate and maintain our facilities. As the authors of this book we believe that sustainable facility management is the true goal of the facility manager. Regardless of the size, budget, complexity, or other characteristics of your building, sustainable facility management should be the theme that drives our long-term actions and philosophy toward our facilities.

The facility manager is the steward of the built environment – the physical infrastructure that uses a significant portion of the world's energy and water, and produces waste and important effluents such as greenhouse gases. However, the most important role of the facility manager is in providing a safe, healthy and productive workplace. This role is often understated, and as an industry, we have not effectively tracked our influence over the workplace.

Meanwhile, the facility manager works diligently on the tactical initiatives set forth in the annual facility budget and sometimes has a say over the strategy the organization follows relative to the delivery of workplace services. Thus a gap exists – the gap between the strategy of an organization in its delivery of the workplace, and the day-to-day tactical running of our buildings.

The gap between organizational commitments to sustainability and corporate social responsibility and delivery of sustainable workplaces will be filled when we start thinking about buildings not just as bricks and mortar, but as a workplace to be managed just as we manage the people of the organization. That is; strategic planning and leadership. Leadership requires not only physical tools – tools like electricity, heat, furnishings, and lighting in our facilities; but strategy, goals, objectives and serious thought as to how we support our workforce through workplace comfort and efficiency. The facility manager fills that gap. Instead of looking at delivering a high-performance facility for its entire service life. The concepts of longevity, service life, renewal, and maintainability become the guiding factors for facility management.

If the facility management profession is able to fill this gap, we will be well on our way to building and running better workplaces that support our organization's commitment to the world's definition of sustainability and the delivery of workplaces that are *optimized* to help attract new talent, keep them healthy and safe, and to meet the financial challenges of the organization to run in a cost effective manner. We will then be able to observe the next trend, the next change in language, and the next demand on the facility management profession and say – "we've been doing that for years!"

Chapter 2: A (Very) Short History of Sustainability

Since this is a book about sustainable facility management, we will not attempt to chronicle the entire global sustainability movement. However, a brief review of some of the key events that define the sustainability movement is useful in showing how we started to think about sustainable facilities.

The authors of this book once heard from a wise facility manager that one ought not use the word "sustainability" alone, since a single word to describe such a significant global movement tends to diminish the term. Whether you agree with that wise facility manager or not, there is a point to what is being said – We should always answer the question – sustainable what? You will have to indulge the authors throughout this section as we violate that rule and address "sustainability" as that global movement we have all come to understand as the driver behind and the precursor to sustainable facility management.

The global sustainability movement is an outgrowth of an increasing concern for the environment. Earth Day comes to mind as one of the early drivers of the sustainability movement. A United Nations conference in San Francisco in 1969 is cited as one of the first times the term Earth Day is used. In the early 1970's, a number of academics and others started holding celebrations of Earth Day as a methodology of incorporating teaching about the environment in higher education. Today, that theme has spread worldwide and is far broader in participation than its early place in the academic community. Now, Earth Day has become an event celebrated in over 100 countries.

Another early example of environmental awareness comes from environmental activists like Rachel Carson. Carson had written about the effect of man-made chemicals on the environment since the early 1950's. One of her defining works is "Silent Spring", a 1962 book about the long term environmental consequences of our actions. Carson earned the title of "pioneer" in the advancement of the global environmental movement.

The broadest and most widely recognized definition of sustainability comes from the United Nations report on Sustainable Development in 1987. The Brundtland Commission produced the report, Our Common Future (otherwise known as the Brundtland Report). The Commission's definition of sustainability was adopted world-wide, and is used to this day.

"make development sustainable to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs."

Although this definition is specific to the way the world views development, it has been used to describe the way countries, governments, and organizations view the use of natural resources and the effect of their actions (whatever they may be) on the environment.

The other major influence on sustainable facility management is the more recent idea of a Triple Bottom Line or TBL. The TBL refers to our commitment to the environment and the social aspects of what we do, as well as the economic impacts that result from our actions. For many, the TBL has become the primary definition of sustainability since it takes into account the effects of our actions on people and the planet, as well as our financial bottom line. The underlying concept of the TBL is that we should no longer be driven only by profits; we should consider the effect of our actions on the environment and on people. The idea of the TBL has been around since the 1980's and one of its most famous citations was in the title of a 1997 John Elkington book, *Cannibals with Forks: the Triple bottom Line of 21st Century Business*.

Through the 70's and 80's, we viewed sustainability primarily from the perspective of how we develop cities and communities where we live and where we work. The emphasis was on the environmental impact of man-made activities. By the 1990's, large organizations with an international footprint started to look at their output from the point of view of their stakeholders. Whether their stakeholders were investors or their own workforce, organizations started to pay attention to how they were being perceived inside their organizations, by investors, and by the outside world. Labor practices and many other social issues became important to those that had a vested interest in an organization's output; whether that output was goods assembled from components from around the world, or services provided to the general public.

The financial aspects of the TBL have always been important to companies, governments, and non-government organizations. The environmental impacts of their actions became important in the 1970's and 1980's. In the 1990's and today, the social and environmental impact of our actions as organizations is as important to many organizations in driving their economic bottom line as their costs and profits.

Corporate Social Responsibility (CSR) has become the term most commonly associated with the TBL. Corporate executives, boards of directors, and government leaders recognize the need to address all three aspects of the TBL in order to deliver their goods and services. In the late 1990's and early 2000's, transparency in how we do business has led to a need to report our commitment to CSR. Reporting frameworks such as the Global Reporting Initiative (GRI) have given organizations a common language for translating their actions into terms stakeholders can evaluate in order to make investment decisions. Those investment decisions can be in how we purchase our food, the clothes we wear, the electronics we buy, the mutual funds we choose, for whom we choose to work, where we choose to live, and where we take our vacations.

FROM DEVELOPMENT TO BUILDINGS

As we move from the world view of sustainability to buildings, there are two notable organizations that have been very effective in informing us about the impact of buildings on the environment. Those two organizations are the Building Research Establishment (BRE) of the U.K., and the U.S. Green Building Council (USGBC). Although there are many organizations around the world that have made positive contributions to the subjects of buildings and sustainability, these organizations comprise the two most influential and recognizable.

In 1990, the BRE developed the Building Research Establishment Environmental Assessment Method (BREEAM), a voluntary rating system for green buildings. The USGBC was founded in 1993 and its building rating system is the Leadership in Energy and Environmental Design (LEED) program. Although there are many building rating systems around the world such as; Green Star (Australia), Green Globes (with origins in Canada), CASBEE (Japan) and many others, the BRE and USGBC can probably make the claim as the most widely recognized around the world. Most building rating systems now encompass the management and operation of existing buildings as well their original stock in trade, new building design and construction.

Much of the early influence of these driving organizations was on how we build new buildings, and the techniques, technologies and systems that lead to greater efficiency, more comfort, safety, and productivity. Some would argue that the emphasis of these rating systems on new construction techniques and technologies is still prevalent today. However, in the last several years we have seen a greater emphasis on how we operate existing buildings. Existing buildings represent the largest target for energy conservation, reduction of resource use, and improvements in productivity in the workforce.

Today in the United States, buildings are recognized as the largest contributor to energy consumption and greenhouse gas production; even larger than either transportation or manufacturing (U.S. Department of Energy, 2012). The projection for energy consumption and greenhouse gases attributed to buildings is expected to grow through 2050, to a point

where it will exceed the manufacturing and transportation sectors combined.

This growth has pushed the facility manager to the forefront regarding the impact of existing buildings. Facility managers are the stewards of the built environment; the profession that has the greatest amount of influence over the largest use of our natural resources and largest impact on the health, safety, comfort, and productivity of workforces worldwide.

THE ROLE OF THE FACILITY MANAGER

Since the 1990's, the most significant influence of sustainability in buildings came from the design and construction community. The design and construction community embraced the concepts of resource conservation, occupant comfort and productivity, transportation, and waste minimization in the building of new buildings. The standards set by systems such as BREEAM and LEED have become the default framework for assessing building performance.

Since the latter half of the first decade in the 21st century, the importance of our existing building stock has grown in importance, particularly in the United States. This rise in importance can be attributed to simple math. In most countries in the modern era, the percentage of buildings that can be considered "new" is only a small fraction of the entire building stock. For example, in the U.S., there are just under 5 million commercial buildings (U.S. Energy Information Administration, 2003). The rate of new construction of buildings is in the thousands per year at best. Even if we were able to design and build all new buildings to high quality "green" standards, the overall percentage of efficient and environmentally friendly buildings would be minimal.

The adoption of green building standards for existing buildings does help to mitigate the math problem. However, the complexities and cost of achieving the ratings are prohibitive to many organizations. This defines the "opportunity" for the facility management profession. The facility manager is the individual that has management authority of the purchasing decisions, operational processes, and leadership of the maintenance and upkeep of the existing building stock over its entire life cycle. That life cycle is typical defined as at least 30 to 40 years, and often over 100 years for our more historic structures.

The design and construction team undoubtedly considers life cycle performance in the building and major renovation of facilities. However, that influence is usually temporary when you consider the total life cycle, since facilities change rapidly in their use and configuration. The facility manager is a major influencer of life cycle facility decisions long after the design and construction team is gone. Comfort, safety, accessibility, and efficiency are all day-to-day concerns of the facility manager for the largest portion of the life of the building.

TODAY'S DRIVERS OF FACILITY MANAGEMENT

If you were to ask a facility manager today, "What is the most common driver of your activities?", it is likely that they would respond that cost is the most common driver. Facility operating costs are well documented, but usually not well understood by upper level management in most organizations. Money for operations and maintenance and capital improvements are allocated on an annual basis, usually as two separate funding mechanisms. These O&M and capital budgets form the basis of the annual facility management budget, which in turn dictates the day-to-day operations of facilities.

The need for more sustainable or green buildings puts pressure on both the operating and capital budgets since most improvements require some amount of capital to implement. However, there are many efficiency improvements that do not require capital. Many sustainability improvements require changes in behavior that are often just as difficult as acquiring additional funding.

Given the pressure on the facility manager to perform within the operating budget, it is common that the facility manager will attack the efficiency target with actions that have the most impact on the financial bottom line. These days, energy use is the most common target since it comprises about 30 to 40% of the facility operations and maintenance budget (IFMA, 2009). Energy efficiency improvements can often provide immediate positive impact on the O&M budget and many energy efficiency initiatives do not require a great amount of capital.

Along with energy use, the facility manager is also concerned with generation and disposal. indoor environment, waste water use. transportation issues, and site issues – all part of the original framework of environmental factors that were developed under the building rating system guidelines for new construction. In addition to those building-related characteristics that contribute positively to sustainable facilities, the facility manager can also evaluate and improve the workplace by making more efficient use of space, seeking and using materials that last longer (thus reducing waste), and by using quality management and performance management systems in the delivery of facility management services. The

performance management aspects of facilities that drive the facility manager toward more efficient and effective delivery of services is a sustainable practice that facility managers have utilized since long before "green buildings" were identified.

A final note on sustainable facility management as a modern day driver for facility managers is that in a rapidly changing and increasingly global economy, the language of sustainability is still evolving and changing. Historically, green buildings became the watchword for facility management – if you did not have one, you had better get smarter about how you could get one. The language of sustainability has changed over the last several years as the world started to measure sustainability in terms of carbon footprint.

Since the middle of the first decade of the 21st century, highperformance buildings have become the identifier for sustainable buildings. Perhaps this is a good thing – as the emphasis has started to shift from design and construction to operations and maintenance. The point is that the facility manager has had to learn and adapt to many "languages". These include the "language" of finance, from the CFO, the "language" of health and safety from the EH&S officer, the "language" of security and preparedness as a result of the world around us, and now, the language of high-performance. The next few years may bring about a new language – let us make it the language of optimization using the practice of sustainable facility management.

Chapter 3: Sustainable Facility Management and High Performance

When an organization decides to initiate a strategy to highlight its commitment to Corporate Social Responsibility (CSR), it typically must deal with a wide variety of factors. Things they might consider; employment practices, working conditions, environmental impacts, implementing sustainable procurement policies, and "greening" their manufacturing processes. A major factor in developing a strategy to address CSR is the buildings the organization owns and/or leases. Buildings play a significant role in supporting the strategy in terms of how they are constructed, operated, maintained and managed. The very nature of sustainable buildings dictates that they must perform at a high level. Sustainable buildings conserve energy and natural resources. They often incorporate sophisticated energy management and building automation systems that allow the building to run at peak performance, thus providing the healthiest environments possible. As such, facility managers should play a significant role in the development, initiation and ongoing management of their organization's CSR strategy.

It might help to clarify what is meant by CSR strategy, the FM strategic plan, and the tactical plans that drive initiatives that make buildings more environmentally and people-friendly. A strategy is a

methodology an organization would use to achieve a goal. The global sustainability movement over the last several decades has encouraged (and sometimes forced) many organizations to publically demonstrate their commitment to the environment and to people. This has led to the development of many "sustainability strategies" or CSR strategies that organizations use to demonstrate their commitment to the Triple Bottom Line (TBL) and other commitments to the environment and their stakeholders.

If we were to show how a CSR strategy cascades down to the facility manager, it might look something like figure 3.1.



Figure 3.1 From organizational strategy to sustainable facility management plan

Organizational strategy drives everything from our commitment to the environment and TBL to the way we run our facilities. If an organization develops a CSR strategy, it will influence the development of, and be supported by the Strategic Facility Plan. The Strategic Facility Plan leads to the creation of tactical plans – Operational and Sustainable Facility Management. These two tactical plans are often one in the same, and contain the details of how the facility management group within an organization will manage its buildings and operational and capital budgets.

Most organizations would like to be able to claim that their facilities are "high-performance". High-performance implies buildings that are energy efficient, people-friendly, and optimized from an operational standpoint. The first step toward creating a high performance facility is to optimally operate and manage them. To do that you must have the right people doing the right things and the right processes in place to support them. Because of the important role facilities and facility management play in the CSR strategy, the difference between implementing a successful sustainable facility management plan and struggling to get the plan off the ground is often dependent on the current level of facility management services being provided. If facility management is flying under the radar, underperforming and not in alignment with their organization's goals, creating traction for a facility management-led sustainable facility management plan will be difficult. The baseline from which to start will be low. For example, when buildings are in disrepair and waste energy, the things that need fixing before a sustainable facility management plan can go forward will be overwhelming and can stall the initiative. If facility management is considered to be an overhead cost by senior management and not a value-added service it will be a formidable challenge to be recognized by senior management as the leader of the sustainability initiative. If the facility manager only plays a secondary role in the development of the sustainable building initiative, he or she will be in continual reactive mode. And it will be a lost opportunity for the organization because of the positive impact facility management *could* have on the CSR strategy. On the other hand, if the facility management organization performs at a high level and the facilities it manages operate effectively, are viewed as an enabler of employees to do their best work, and are positive contributors to the organization's bottom line, it will be much less of a stretch to move to an even higher level of performance required to manage and operate sustainable facilities. What this all points to is the need to optimize facility performance, and when appropriate, seek high performance facilities as a goal. To do that, you must first achieve operational excellence throughout your facility management organization. High performance facility management organizations lead to high performance facilities.

HIGH-PERFORMANCE FACILITY MANAGEMENT ORGANIZATIONS

Much has been written over the years on what a high performance organization is. However there is little agreement on the definition of a high performance organization or how it operates. In a report prepared for Yale University 2000, High Performing Organizations Profile, by The Blanchard Companies, high performing organizations are those that over time continue to produce outstanding results with the highest levels of human satisfaction and commitment to the success of the organization. This definition is applicable to facility management. The services that facility management typically provides and the facilities themselves are powerful tools to help support the business initiatives and ultimately the success of the organization. That is because the organization's most important asset, its people, are the ones that perform the work that makes the organization successful. By providing well-planned workplaces that are functional, safe, secure and healthy, and in alignment with the organization's overall strategy, the facility management organization clearly demonstrates their commitment to the success of the organization. As a result, the employees will be able to perform at their highest level, produce their best work, and achieve high levels of satisfaction.

According to Facility Engineering Associates, an engineering and facility management consulting firm headquartered in Fairfax, Virginia, there are six health index categories that facility management organizations high performance become organizations should focus on to (www.feapc.com). By examining your facility management organization within the framework of each of these health indexes and making enhancements and improvements, your facility management organization can operate at a higher level of performance and position itself to fully support the organizations strategy and CSR strategy. The categories are:



Figure 3.2 Health index categories of a High-performance Organization

The following is a brief look at each of the performance categories.

Process Management

High performance facility organizations maximize the efficiency of their processes such as having an automated work management system in place. A work management system provides a means of capturing work order/staff/space/asset/financial data to help make decisions. They have formalized their operations and maintenance (O & M) activities such as having a comprehensive preventive maintenance (PM) program based on a completed and prioritized listing of maintainable equipment which includes preventive and predictive maintenance techniques. They also have documented procedures in place like standard operating procedures (SOPs) outlined in an operations and maintenance plan and a means for updating them. Some of the questions facility managers can ask themselves to better understand if they are a high performance facility management organization in the area of operations and maintenance are:

- Are there established written and publicized O&M practices and procedures?
- What is the current process for monitoring and evaluating how well your building systems perform?
- Is there an established process for managing corrective, preventive and predictive maintenance?
- Is there a well-developed emergency response procedure and disaster recovery plan and business continuity plan in place?
- How is the maintenance and cleaning needs of the building's permanent interior elements managed to ensure longevity of the asset and comfort of the occupants?

- Do space allocation standards exist, and is there a formal moves, adds and changes request process in place?
- Are there established standards, practices and procedures to ensure high performance of your grounds and exterior elements?

From a sustainable facility management standpoint, having these formal processes in place helps ensure that the facilities are running smoothly and effectively and are well maintained. A well maintained building results in a cleaner and healthier environment which contributes to improved indoor environmental quality and therefore supports the organization's CSR strategy.

Operations go hand-in-hand with the organization's CSR strategy. How water and energy is obtained and used, landscape is maintained, buildings are cleaned, and recycling programs are managed, are just a few examples of how a building's operation can have a significant impact on an organization's CSR strategy. High performance facility management organizations conserve energy and water, practice green cleaning and educate their building occupants about the recycling program and their role in making it a success. If these kinds of things are not in place, there will be much work required to optimize facility performance.

Workforce Development

The category of workforce development pertains to the employees that provide the facility management services. High performance facility management organizations pay attention to their employees. They provide constant feedback and guidance. There is an up-to-date job description and a professional development plan for every employee in the facility management organization. Annual performance reviews are conducted. There are quarterly performance check-ins and follow-up action plans in place. All performance reviews are directly related to individual goals and tied to the values and mission of the overall organization.

Employees are given the opportunity for continual learning, encouraged to achieve professional certifications, and are provided the time and resources to take advantage of those opportunities.

High performance facility management organizations regularly analyze and assess their organization in terms of staffing levels and
effective use of in-house staff and contractors in relation to what is needed to successfully carry out the facility management organizational strategy.

When attention is paid to employees they feel more engaged, empowered and enthused. They are ready and willing to perform at a high level because they take pride in themselves and the facility management organization as a whole. A CSR strategy takes commitment and buy-in from all those involved, especially the facility management staff who will be actively involved in implementing and maintaining it. Without their support and full engagement of the sustainable facility management plan their efforts will be lackadaisical at best. To successfully implement a sustainable facility management plan requires a high level of energy and sense of duty by the facility management staff. If management does not provide employees with the tools to be successful or show them the big picture and how they fit into it, their effort in making the sustainable facility management plan a reality will be lacking and they will have no sense of responsibility to undertake the initiative with the intensity that will be required.

Leadership

There is a business adage that states, "Managers do things right and leaders do the right things." Superior leadership ensures that the facility management organization is aligned with the organization's overall strategy and that they are always headed down the right path. It also means having the right management structure in place to get down that path in an efficient and effective manner. High performance facility management organizations have the leadership that understands the importance of having a strategic facility plan in place with a mission, vision, values and strategic objectives that are aligned with the parent organizations strategy. They conduct scenario planning and have regular conversations with senior management regarding business goals as a way of keeping the plan fresh. Skillful facility management leadership adequately communicates the facility management strategy to all facets of the organization, up to the C-Suite and down to front line staff, and has processes in place to effectively execute the strategy.

The primary goal of an exceptional facility management leader is to help all the employees in the organization to succeed by developing comprehensive communication strategies aligned with the needs of the entire organization. They see the big picture. They help the organization understand the need for change and then help them cope with it and guide them through it. They earn the respect at all levels of the organization. They position themselves as the go-to person and develop relationships and connections that help them drive important facility-related initiatives to their successful completion. The same attributes are also important in developing and implementing a sustainable facility management plan.

When an organization decides to develop a sustainable facility management plan, it is likely that people across the organization will have different perceptions of what a sustainable facility management plan is and what it means to their organization. One of the first steps in the development of a sustainable facility management plan is to understand the organization's purpose and needs in relation to the organization's overall CSR goals, and to facilitate a unified vision of what it means to the organization. Facility managers can enhance their position as a major player in the organization's overall CSR strategy by taking the lead and helping their organization achieve clarity of vision. Without that clarity, there will be many factions who will work against each other to satisfy their individual vision of what sustainability means to them. When that happens, the strategy is likely to fail. Because organizational sustainability, CSR strategies, and facilities go hand-in-hand, it is an opportunity for the facility manager to demonstrate their leadership skills and take on the role of facilitating a shared vision of what CSR means.

Planning

Winston Churchill once said, "Failure to plan is planning to fail." Skillful planning is important in all organizations. All good strategies cascade into tactical plans that make the strategy come to life. Without good tactical plans, organizational and facility management strategies will not be fulfilled. High performance organizations have an on-going integrated planning process that starts with strategic facility planning and then transitions to scenario planning, master planning, real estate planning, tactical planning, technology planning, operational and capital budget planning, communications planning, and a sustainable facility management plan. High performance organizations have communication plans that incorporate regular discussion and review, and measurement of the success of the communication efforts. Communication must be disseminated to all facets of the organization. This includes senior management, department heads, end users and other stakeholders. Communication is vitally important in order for the facility manager to understand their changing needs and verify that the intent, understanding, importance, and value of the plans meet their needs. Then they revise and update plans when needs change.

The plans that the facility manager implements and communicates typically impacts every occupant of the building either directly or indirectly. So it is with sustainable facility management. Once the CSR strategy is defined and agreed to, it must be implemented. To successfully do so, a sustainable facility management plan must be developed and a wide range of stakeholders must be informed. As the go-to leader of the sustainable facility management plan, the facility manager must facilitate the development of the plan and then oversee its implementation. For as important as leadership and strategy is, the facility manager must be adept at planning in order for strategy to become reality. This is especially true in the development of a sustainable facility management plan because of the large number and diversity of the stakeholders.

Customer Focus

The facility management organization exists to serve its customers. The facility management organization is responsible for providing a safe, secure, productive and healthy environment for the employees of the organization. In order to carry out this mission, communication must take place between facility management and its customers in terms of the level of services provided in comparison to the expectations of its customers. Facility management must understand the current satisfaction levels of the employees, close any gaps, measure their performance in the eyes of the customer, and continually look for ways to improve facility management services.

High performance facility management organizations conduct customer satisfaction surveys, have clearly written, unambiguous policies and procedures to help employees easily access key resources, and guide employee behavior as it relates to the use of the facility. Most importantly, a facility management organization that strives for operational excellence communicates regularly to its customer the things they need to know about the facility that will impact them in any way.

This is especially true when it comes to sustainable facility management. A sound sustainable facility management plan requires the personal involvement of all employees, whether it is recycling, access to HVAC and lighting after hours, alternative workplace strategies, doublesided printing, or whether to push the flush valve handle in the bathroom up or down. Sustainable facility management practices often require changes in attitude and behavior. High performance facility management organizations manage change carefully, rather that unleashing it and expecting everyone to conform.

Measurement & Analysis

Another axiom of business is you cannot manage what you cannot measure. In facility management, this rings true in many of the services facility managers provide. High performance facility management organizations establish goals and objectives in a formal way, such as with the Balanced Scorecard (See chapter 12 for more on the Balanced Scorecard). They have a set of flexible and responsive key performance indicators (KPIs) they use within their organization and a means to track and update them. They track operational costs. They know the facility condition index (FCI) of their facilities. They have clearly identified and communicated the level of services they expect to provide, and they have a means to verify their performance.

Measurement is particularly important when it comes to sustainable facility management. One of the first steps a facility manager takes when developing a sustainable facility management plan is determining their energy use. But it does not stop there. Ways to continually reduce energy use while maintaining customer satisfaction must be devised. When implemented, they must be continually monitored and measured to verify improvements have been accomplished. This means energy consumption must be monitored and measured. Indoor environmental quality must also be monitored and measured as well as water consumption. Having the right measurements in place will inform the facility manager when he or she has optimized facility performance.

HIGH PERFORMANCE FACILITIES

What is a high performance facility? Just as there is no widely accepted single definition of a high performance organization, the same is true with high performance facilities.

The High-Performance Building Council, a group formed as a result of the 2005 Energy Policy Act of the U.S. government, adopted the following definition of a high performance building:

"High-performance buildings, which address human, environmental, economic and total societal impact, are the result of the application of the highest level design, construction, operation and maintenance principles—a paradigm change for the built environment."

In the Energy Policy Act, Section 914, Building Standards, the term "high performance building" is defined as:

"A building that integrates and optimizes all major highperformance building attributes, including energy efficiency, durability, life-cycle performance, and occupant productivity."

Both Executive Order (EO) 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*, dated 24 January 2007 and EO 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, dated 5 October 2009 include goals and objectives applicable to High Performance Buildings:

- Pursue cost-effective, innovative strategies, such as highly reflective and vegetated roofs, to minimize consumption of energy, water, and materials
- Manage existing building systems to reduce the consumption of energy, water, and materials, and identify alternatives to renovation that reduce existing assets' deferred maintenance costs
- When adding assets to the agency's real property inventory, identify opportunities to consolidate and dispose of existing assets, optimize the performance of the agency's real-property portfolio, and reduce associated environmental impacts

- Ensure that rehabilitation of federally owned historic buildings utilizes best practices and technologies in retrofitting to promote long-term viability of the buildings
- Beginning in 2020 and thereafter, ensure that all new federal buildings that enter the planning process are designed to achieve zero-net-energy by 2030

The focus of high performance buildings is on issues directly related to sustainable facility management. Operations and maintenance policies, procedures and plans are increasingly focused on aspects of sustainable facility management such as maximizing operational energy savings, providing healthy interiors and limiting the detrimental impacts of the buildings' construction and operation.

The factor that stands out the most from the literature on high performance buildings is that they are considered sustainable buildings, not just in how they are constructed, but also in the way they are operated and maintained. An older building may not be constructed of sustainable materials and was probably not built using sustainable construction means in comparison to a building built in the last 10 years. However, in the lifecycle of a building, only about 5 to 10% of the total cost of ownership (TCO) relates to planning, design and construction (National Research Council of the National Academies, 2004). The remaining cost is attributed to operations, maintenance and on-going renovation and capital improvements. Applying sustainable practices such as those described in the United States Green Building (USGBC) council's Leadership in Energy and Environmental Design (LEED) rating systems (<u>www.usgbc.org/</u>), whether building certification is pursued or not, can reduce a building's TCO over time through energy and resource conservation and sustainable operations.

SUPPORTING SUSTAINABILITY THROUGH HIGH PERFORMANCE FACILITIES

High performance facilities are driven by high performance facility management organizations. High performance facilities run at peak levels. They result in safe, secure, productive and healthy work environments. But how do they support sustainability?

In the International Facility Management Association's (IFMA) Sustainability Facility Professional (SFP) credentialing program's Course 1 book titled, *Strategy and Alignment for Sustainable Facility Management*, sustainability initiatives are grouped into eight categories. They are:

- Energy
- Water
- Materials and Resources
- Workplace Management
- Quality of Services
- Waste
- Site Impact
- Indoor Environmental Quality

Six of these eight categories directly relate to concepts that have been the organizing principles for many of the sustainable building certifications around the world. The remaining two categories – workplace management and quality of services – relate directly to the facility manager's world of operations. The following is an examination of each of these categories and how high performance facilities can support them.

Energy

Energy has been on the top of facility managers' agenda for some time. All buildings require some form of energy to operate. Since energy is normally one of the highest facility operational costs, energy conservation measures are typically focused on cost savings through reduced usage. Little attention is paid to where the energy comes from or how it is consumed. In a high performance facility, cost saving through energy conservation is a priority. But so is seeking alternate sources of renewable energy, and using energy in a more socially and responsible manner. High performance facilities are operated and managed using sustainable facility management principles. High performance facility management organizations look at energy conservation not just from the standpoint of saving money, but also how it impacts the Triple Bottom Line (financial, environmental and social issues); like reducing greenhouse gases and increasing the satisfaction of occupants (See chapter 5 for more on the Triple Bottom Line).

Water

Similar to energy, water is often taken for granted by the average user of a facility. Little thought is given to where it comes from, how it is consumed and where it goes after it is used. In high performance facilities, there is more attention given to how and where it is used and where it goes. The facility manager of a high performance facility is more likely to track and map inflow, use and outflow, and to implement steps to recycle and reuse spent potable water for things like process equipment and irrigation. This type of thinking decreases overall water usage and the amount of water put back into our municipal waste systems. It not only saves money but is socially responsible and helps conserve our natural resources. It can even help reduce energy consumption. If less water is used in buildings, less energy is used in the delivery of that energy to the building and less energy is used to drive the pumps needed to deliver it. And it is a matter of social responsibility. If less irrigation is needed, pollution of our lakes and streams caused by harmful particulates will be reduced as well.

Materials and Resources

Many materials and resources are used to run our buildings. In high performance facilities, focus is placed on sustainable procurement policies. Facility managers are much more aware of their building's waste stream. They pay attention to materials and their make-up, what physical and human resources were used to make the materials, and how and from where they are transported. Their selection criteria is not limited to lowest cost. The criteria also includes research to determine if materials are being purchased from vendors in an ethical and socially responsible manner. Facility managers should also make every effort to use materials that are not harmful to humans or the environment. In high performance facilities, facility managers are always looking for the most sustainable options.

Workplace Management

The nature of work is changing and it will impact how we plan and design our workplaces. According to the furniture manufacturer Steelcase, in a $360\Box$ Report entitled, *Why Collaboration Gets All the Buzz* (http://360.steelcase.com/articles/), work today can be divided into four modes: heads-down work, collaboration, learning, and socialization. All of these modes of work require different physical settings: Private spaces for focused work and individualized training; formal and informal meeting spaces such as conference rooms, teaming spaces and project rooms for collaboration; technology-equipped training rooms for formal group learning; and gathering spaces for informal learning, socialization and cultural transfer.

The new workplace will be one where people do not come to an assigned workstation every day because they will not spend all day in one place. According to Steelcase research, most studies concur that the typical workstation stands empty 40% to 60% of the time.

Workers will move around depending on what they are working on and with whom they are working. According to a 2007 report entitled Managing Multiple Generations in the Workplace by furniture manufacturer Allsteel, Inc., workers will be able to move to spaces that reflect the nature of the work that needs to be done. They may start their days in a small 3' x 5' touchdown space, log on to their laptop, check their messages and calendar, do a few preparatory activities and then off they go: to a conference room for a scheduled meeting, to the cyber café for coffee with a colleague to informally discuss a business issue or, maybe because their meetings do not start until mid-morning, to the on-site fitness center for their daily workout, knowing that after their meetings end at 5 pm, they'll be in the office late tying up the loose ends of the day. On the other hand, they may not even come to the office in the morning, choosing instead to work from the local coffee shop or their home office. Does it make sense to provide assigned spaces to employees if on any given day, many of them will not even be in the office?

In most buildings, the goal is typically to get the largest number of people in the least amount of space, thereby saving money on real estate and operations. In high performance facilities, space is used in the most efficient and effective way possible. Space is made more flexible to allow multiple uses. This reduces the impact on the environment because less waste is generated due to less reconfiguration. Encouraging and supporting virtual work also has an environmentally positive impact because there are fewer people driving to work every day. Companies can use less space thereby reducing their carbon footprint.

Indoor Environmental Quality

According to the U.S. Environmental Protection Agency (EPA), Americans spend about 90 percent of their time indoors, much of it in their workplace (EPA, 2009). High performance buildings have systems in place to continuously monitor air quality to ensure a healthy environment. Occupants are less likely to become ill in high performance facilities because pollutants and harmful substances like mold, bacteria, tobacco smoke, and volatile organic compounds are significantly reduced or eliminated. Absenteeism and presenteeism, (i.e., when an occupant is in the building but not fully engaged because they are distracted by the low quality of the environment) are reduced. Occupant comfort is high in high performance facilities because temperatures do not fluctuate and negative visual and acoustic issues like lack of day lighting and noisy rooftop units are reduced or eliminated. In high performance facilities, indoor environmental quality is emphasized.

Quality of Services

Beyond delivering a safe, secure, healthy and productive workplace, facility management provides a variety of other services to their occupants. High performance facility management organizations flawlessly deliver these services to their customers. Whether it is a maintenance request system that is easily accessed by users or a well-managed and attended-to fitness center, all services are analyzed before they are placed in service, and continuously monitored and measured with end-user input. The following are some examples of services facility management typically provides and how a high level service delivery model can positively support sustainability:

Office supplies

The preferred office supply vendor:

- Uses hybrid delivery vehicles
- Significantly reduces packaging
- Provides rewards for recycling ink and toner cartridges

Food and beverage service

The cafeteria contractor:

- Uses recyclable paper goods
- Uses energy efficient and rated (such as ENERGY STAR) kitchen equipment
- Uses low flow faucets

Janitorial services

The facility manager's service level agreement calls for the janitorial services contractor to:

- Use green cleaning materials
- Use low impact, energy efficient equipment
- Provide day cleaning

Although quality of services may not be thought of as an area that can support the sustainability strategy as much as maintenance and operations, providing these services in a sustainable manner can have a positive impact on an organization's CSR strategy and on their sustainable facility management program.

Waste

To most people, waste is virtually invisible. It quietly gets washed down the drain or inconspicuously hauled away in a dumpster. No one pays it much attention, except astute facility managers. They understand that waste is a system. It can be divided into six distinct categories as shown in form 2/2

figure 3.3.



Figure 3.3 The waste cycle

(Adapted from the IFMA publication, *Strategy and Alignment for Sustainable Facility Management*)

In most facilities, some waste is recycled. The most commonly recycled materials include plastic, paper and cardboard. In high performance buildings each type of waste is considered individually within the framework of the six categories. First of all, can the waste be eliminated? Can food waste be saved and used for garden mulch and given to employees for their home gardens? Can the waste be reduced by contracting with an office supply or furniture vendor that minimizes packaging? Can it be reused; like a ceramic coffee mug rather than a disposable polystyrene cup? If not reused, can it be recycled? Can waste such as heat from equipment be recovered? And if all else fails and the asset must be disposed of, what can be done to it to avoid being placed in a landfill? Smart facility managers who manage high performance facilities take the time to understand the waste cycle and treat every waste product as sustainably as possible.

Site Impact

The final category of sustainable facility management is the impact of the site. Use of low chloride snow melt and reduced dependence on chemical-based lawn fertilizer are sustainable facility management practices. High performance facilities take advantage of these and many other initiatives to provide a more sustainable site. Native plantings, reduced area of impervious surfaces and less turf are other opportunities that high performance facilities take full advantage of. Others are reduction of light pollution, reduced heat island effect, and support of sustainable transportation through accommodation of bus stops, carpool and hybrid vehicle parking.

SUMMARY

High performance facility management organizations produce high performance facilities, the benefits of which are many. First and foremost is that high performance facilities support the strategic initiatives of the organization. When a facility fully supports the work being performed and provides a safe, secure, and comfortable work environment, employees can do their best work. When they do their best work, they are most fulfilled and satisfied. Sustainable facility management plans contribute to the overall comfort of the physical workplace, but it requires a strategy, plan, and dedicated facility management organization to make it happen.

High performance buildings cost less to run. The total cost of ownership (TCO) over the life of the building, which can be ten or more times the cost of its initial planning, design and construction, can be minimized (National Research Council, 2004). At the same time, its asset value is maximized. It will perpetually be in top condition. Its carbon footprint will be minimized.

Finally, a high performance facility can build pride in both the facility management organization and its occupants. Today, employees want to work for an organization whose facilities contribute significantly to their organization's commitment to social responsibility by minimizing its impact on the environment. And more and more people want to do business with socially responsible companies.

Throughout this chapter, we have used the term high-performance to describe facilities that achieve a significant level of reduction in energy and water use, efficiencies in the management of waste, efficient use of materials and resources, and maintenance of a high quality workplace. We could just as easily substituted the term "optimized facility" for "highperformance facility" and the concepts of sustainable facility management would still hold true. Whether the goal of an organization and its facility management group is high-performance, or optimization of resources toward more sustainable facilities, these broad categories serve as guideposts and performance measures for sustainable facility management programs.

Chapter 4: Sustainable Facility Management and the Facility Manager

Facility managers are strategically and operationally responsible for what is typically their organization's second largest asset. Therefore, in many organizations with multiple facilities that account for a large portion of its environmental impact, it is logical that the facility manager would be the most likely and best positioned person to lead the organization's sustainability strategy or Corporate Social Responsibility (CSR) strategy. As a part of their responsibility for setting facility management strategy and operating and managing their organization's real estate portfolio, they establish certain policies, procedures and practices that support the organizations sustainability and CSR strategy. For example, they not only manage their organization's recycling program, they think much broader and promote a holistic life cycle perspective on facilities from construction to demolition to landfill, or avoiding landfills altogether through innovative re-use of materials or implementing creative disposal methods. Another example is in their efforts to save costs by implementing energy saving programs such as effective use of lighting controls in conjunction with day lighting or day cleaning.

As shown in Figure 4.1, U.S. energy consumption accounts for about 19% of the world's total energy consumption – second only to China (U.S.

Department of Energy, 2013). U.S. Buildings account for about 41% of the U.S. primary energy consumption and 73% of the electricity consumed (U.S. Department of Energy, 2013). U.S. buildings also account for about 39% of the nation's total carbon dioxide emissions (U.S. EPA, 2009). When facility managers make a concerted effort to increase the efficiency of their operations, they are preserving natural resources because they are using less energy, less water, and producing less waste. They partner with procurement departments, vendors, and contractors to reduce packaging, minimize transportation of goods bought and purchase local products and materials.



Figure 4.1 Building energy use and emissions

In a typical workplace, there is no other department in the organization that has as many opportunities to help their companies fulfill their sustainability and CSR goals as facility management. Nor are there any other departments in the organization who fully embrace those opportunities as a strategy for more efficient and effective management of their area of responsibility.

Developing the sustainability or CSR strategy

There are two primary ways the facility manager can approach the organization's sustainability strategy. The first way is to take on an insurgent role. An *insurgent leader* is one who works behind the scenes without formal authorization. The second way is to take on the role of *sustainability champion*. This is an appointed and very visible role.

In the *insurgent* role, the facility manager is the self-appointed leader. This is possible because the operation of facilities provides many opportunities to act sustainably just by the nature of what drives them and supports them: energy and natural resources. Leveraged properly, this gives the facility manager the personal power and influence to take the lead in driving the strategy. It is logical to presume that the facility manager can take the lead in starting up a sustainable facility management program without formal authorization or sponsorship and build it into an organizational-wide initiative. But to do this, the facility manager must first develop a strategy.

There are a number of ways that facility managers can start a plan or program as an insurgent. For example, there are others in the organization that may be interested in sustainable actions their organization can take in the broader context of the Triple Bottom Line (TBL). As an insurgent, the facility manager must informally seek them out and solicit their input and gain their support for sustainable facility management initiatives. In his book, The Seven Habits of Highly Effective People, Stephen Covey talks about the circle of concern and the circle of influence (see Figure 4.2). The Circle of Concern and the Circle of Influence is a way to distinguish what we care about and are concerned about, but have little to no control over, from those things that we care about a great deal and are concerned about, and that we have some influence over. According to Covey, if we increase our Circle of Influence by spending more time and energy on the things that we can influence, we are elevating the degree to which we are being proactive. In the insurgent role, we have to be proactive because we have not (yet) been given the power of a champion and need to build that groundswell of support from within.

At the same time, if the opportunity is provided for those people in the organization who care about sustainable initiatives to have some say, the facility manager can begin to help increase their own circle of influence. As this process builds, the facility manager's Circle of Influence will increase, ultimately elevating them to the champion role. In this way, they have developed grassroots support for the CSR strategy from the ground up.

Another strategy is for the facility manager to take the initiative to implement low-cost and no-cost sustainable facility initiatives in order to build momentum. The United States Green Building Council (USGBC) publishes a checklist as part of the Leadership in Energy and Environmental Design (LEED) program for existing buildings (<u>www.usgbc.org</u>). This is an excellent starting point. Things like recycling, lowering the indoor air temperature set-point, installing low-flow faucets and setting the default on printers and copiers for double sided printing are examples of low or no cost sustainable facility initiatives. Once these things are in place, informally sharing success stories within your organization through a sustainable facility newsletter or informal discussion groups is another strategy to begin to build support for sustainable and CSR programs within your organization.



Figure 4.2 The Circle of Concern and Circle of Influence

Conducting informal lunch-and-learn programs featuring people who are recognized sustainability experts or activists within the community can be an effective way to get the word out.

Another method to build support is to network with other facility managers that are having success establishing a sustainable facility management plan in their organizations and communicating those successes.

If the facility manager is serious and passionate about establishing a sustainable facility management plan at their organization, it will become a major focus of their job. One of the benefits of taking an insurgent role in promoting sustainability programs is that it is a low key approach. As an insurgent, the facility manager can gradually build momentum at their own pace. There is not a great deal of pressure to get it done, and the facility manager can select the strategies that they feel will work best. They can also select their team rather than having people assigned to them.

Just as there are benefits to being an insurgent, there are risks as well. If sustainable facility management is not on the organization's radar screen, or if it is well known that CSR is not an issue for the organization's leadership, the efforts by the facility manager to build grassroots support can be misaligned. It may, in reality, never go anywhere. This can lead to frustration and a lowering of morale among those that support sustainable efforts. It could even be seen as a conflict of values and result in employees leaving the organization once they realize that their organization has no interest in CSR and sustainable efforts. Another risk of operating in the insurgent role is that sustainable efforts are "under the radar" and funding is difficult to acquire. Lack of funding can limit what the facility manager can do. Dedicating time to gain support for sustainable efforts can add stress to the facility manager's job.

The other position the facility manager can take in support of sustainable facility management efforts is to aspire to the role of *sustainability champion*. In this role, the facility manager is asked to lead the effort by a higher level of management. The facility manager has little choice but to accept this role and should do so enthusiastically. The success of the champion depends a great deal on the support that senior management provides, and their own commitment to the effort. The worst case scenario is that the facility manager is made the sustainability

champion but the underlying reason senior management has done so is to appease others in the organization. In some cases, they have no interest in CSR and sustainable initiatives. As harsh as this sounds, the situation exists in some organizations, putting the facility manager in a difficult position.

Unlike the insurgent role, there is time pressure in the champion role. Expectations and goals are set by others and could at times be unrealistic. The facility manager's performance evaluation may now be in part based on the success of the sustainable facility management program. It becomes a highly visible role. Depending on the authority level given to the facility manager to carry this out, it may be a recipe for disaster if not given the proper authority and support.

On the other hand, being appointed the sustainability champion has many benefits. The reason senior management has put the facility manager in this role may be because they are sincerely interested in CSR and value the level of impact that facilities have on CSR efforts. As such, they give total support to the facility manager in terms of budget, time, access to training, and enough leeway to be successful. Goals are defined, measurements are established and tasks are clearly defined. In this case, it is likely that the facility manager has greater access to management, allowing the facility manager to leverage that access in relation to other facility management initiatives not directly related to sustainable facility management.

Regardless of the facility manager's role in the development of a CSR strategy or sustainable facility management plan, he or she must first understand the perception that their organization has of CSR, and whether the organization is aware of the impact facilities has on CSR. Is it in the mainstream of the organization's thinking and part of the overall organizational strategy? Or is it not even on the organization's radar screen. Maybe it is somewhere in between. The first questions to ask are, what does your organization say about sustainability, how does it operate, and how will the nature of your organization's business impact CSR and vice versa?

THE ORGANIZATION'S PERCEPTION OF CSR AND THE ROLE OF FACILITIES

The first thing to ask is about the organization's perception of CSR, and whether there are specific objectives related to the TBL in the organization's strategic plan? What does the organization say about CSR? Do they have a CSR strategy in place and an associated public report? Or do they lack any kind of environmental strategy at all? Having a CSR strategy in place would indicate a willingness to embrace sustainable facility management. The lack of any type of CSR strategy and the absence of any discussion about it internally is a sure sign that the organization is not interested, and does not see its value. In that case, sustainable facility management at the organizational level will be a hard if not impossible concept to sell to senior management. Even so, it could be beneficial for the facility manager to fill the insurgent role and quietly implement sustainable facility management (SFM) practices in the interest of energy and cost savings, rather than in fulfillment of a CSR strategy. If interest is piqued and momentum can be gained by setting an example, all the better. If not, the facility manager has still gained much needed support. If the reason there is no buzz about CSR and SFM efforts in the organization is simply because management does not understand the importance of it, then the first step is for the facility manager to educate them, while at the same time setting an example through implementing no-cost and low-cost sustainable operations initiatives.

The other thing to consider when trying to understand your organization's appetite for CSR and sustainable strategies is to examine the industry it is in. This requires a broader view than just looking at CSR from the perspective of building operations and maintenance. Does your organization produce harmful waste or pollution either directly through manufacturing and production processes or indirectly by how it transports its products to the marketplace? If so, an appropriate strategy for the facility manager might be to partner with other business units in the organization who can have an impact on CSR strategies, like manufacturing, research and development, and procurement. Working together will not only result in a viable strategy but a very powerful one as

well. This is where business strategy and CSR strategy meet. In order for that meeting to be meaningful, the two strategies must be aligned. There must be a balance between profit and public good. If this is not the case, then that meeting of strategies will instead be a collision of opposing values. Whatever role the facility manager takes, and regardless of the perception your organization has toward CSR, it will be necessary to ensure that facility management's overall strategy is aligned with the organization's overall business strategy. The ultimate objective is for facility management's strategy to support and enable the organization to succeed in accomplishing its sustainability objectives. To be successful in developing a sustainable facility management plan, it is important that the facility management organization becomes a strategic partner with each of the organization's business units in all aspects of facility management. Strategic alignment has many benefits for the facility management organization. It will help build credibility and confidence in the eyes of senior management that the organization is in good hands. If it is clear that facilities are efficiently and effectively managed and operated, senior management will be more inclined to turn the leadership and implementation of the sustainable strategies over to the facility manager. Going forward, the facility management organization must integrate SFM into the services it provides. Asset selection and work plans must fully support sustainable facility management.

SENIOR MANAGEMENT BUY-IN

It is important for the facility manager to obtain senior management buy-in because without it, CSR and sustainable facility management initiatives will be difficult if not impossible to achieve. Commitment from the top of the organization will help ensure that the sustainable initiatives, either of the CSR or facility management variety, stay a priority in the C-Suite. The facility manager should garner this commitment by appealing to the interests of the various senior management team members. For example, the Chief Financial Officer's interest will likely focus on the cost of sustainable initiatives. In this case, the facility manager should emphasize the potential cost savings that comes from smart energy management, and how that fits with the organization's bottom line. This requires that the facility manager speak in business and finance language rather than in the terminology of CSR and facility management.

The senior human resource executive's perspective will be on attracting and retaining employees. With the onslaught of retiring Baby Boomers and the fact that there are fewer employees to replace them, attracting the best employees to organizations will become increasingly competitive and much more difficult in the very near future. This will intensify as more and more Baby Boomers retire. Being a socially responsible organization and having a sustainability strategy will give companies an edge. Acting ethically and in a socially and environmentally responsible manner is key to gaining top talent, according to a Kelly Services Inc. study (Kelly, 2013). The Kelly Global Workforce Index surveyed about 100,000 people in 34 countries throughout North America, Europe and the Asia-Pacific region. It found that nearly 90 percent of respondents in the study said they are more likely to work for an organization perceived as ethically and socially responsible. CSR and sustainability strategies may not be the biggest reason for employees to want to work for your organization, but given three equal job offers, it can certainly be the tipping point.

The focus of the organization's marketing executive's will be on how practicing in a socially responsible manner can increase revenue by attracting more customers. Similar to employees wanting to work for socially responsible companies, consumers increasingly want to buy from them too. According to Doug Miller, chair of GlobeScan Inc.,

"Our latest research shows that customers are not acting like they did in other economic downturns. Rather than softening their activism, consumers are more demanding than ever that companies maximize their societal and ecological contribution. It seems clear that only the best corporate citizens will thrive in tomorrow's marketplace" (Quoted in HP Global Citizenship Report 2008).

Looking at CSR and organizational sustainability strategies from these differing but converging perspectives is the foundation of the Triple Bottom Line, the financial, social and environmental aspects of sustainability. This will be discussed in more detail in chapter 5.

Organizational leadership supports sustainable initiatives when the initiatives make good business sense from both a financial and a public relations perspective. So it is imperative for the facility manager to have the right information at hand to be able to present a viable and compelling business case that ties together the financial, human resource and public image benefits of a CSR strategy. Once that happens, and senior management approves the business case, the facility manager must maintain that momentum by continually engaging senior management and involving them in the process. The facility manager should ask for five minutes on board meeting agendas to communicate progress. Reporting to senior management on what the competition is doing in the realm of sustainability can also be very useful. If the organization is not doing enough in comparison to the competition, senior management will realize that a viable sustainability strategy can yield a competitive advantage, or at least maintain a competitive focus. If they see they are doing better than the competition, they may want to stay ahead and continue their support of the efforts.

WHO WILL BE IMPACTED BY THE SUSTAINABILITY INITIATIVE?

There are many people within the organization and external to it that will be impacted by a CSR or sustainability initiative. The facility manager should understand the stakeholders involved. He or she should identify all of the people who are impacted by the CSR or sustainable facility management plan, understand how they are impacted, and develop a plan to meet their sustainability needs; at the same time leveraging their varied interests.

When senior management commits to the sustainable facility management plan, the facility manager is more likely to get the resources needed to implement it. There are many others inside the organization and external to it who will have a say as well. Many of these people have informal authority, and others will have little or no formal authority to make decisions regarding sustainable initiatives. However they may desire to influence decisions and their outcomes based on their position in the organization, the community or the government. They may have enough knowledge, experience, purchasing power, governing power or political power that allows them to have a say. Depending on their motives and agenda, which may not be evident on the surface, they can be staunch supporters of a sustainable initiative, or they can easily derail it. Some of these groups include (IFMA, 2011):

Internal Stakeholder Groups

- Facility Management
- Real estate
- Procurement
- Legal
- Human resources
- Finance and accounting
- Information technology
- Marketing and sales
- Senior management

External Stakeholder Groups

- Landlords
- Tenants
- Service providers and vendors
- Governing authorities
- Utility providers
- Neighboring businesses and residents
- The community at large

CORPORATE SOCIAL RESPONSIBILITY

In this chapter we have referred to corporate social responsibility (CSR). Now let us take a closer look at it and what role the facility manager can play in it.

CSR can be defined as doing the right thing in terms of meeting the environmental needs of the present while preserving the environment for future generations. As sustainability rises to the top of the list of issues that organizations deal with in their normal course of business, more companies are compelled to implement a formal CSR program. In fact, 86 percent of the Standard & Poor's top ranked 100 companies have corporate sustainability websites (Sustainable Investment Research Analyst Network (SIRAN), 2008). This is because the expectations of the public are high when it comes to the business practices of the organizations they choose to hire, purchase from or otherwise engage. For businesses of all types, CSR has become a matter of maintaining their competitiveness in the marketplace. Simply stated, people would rather deal with companies who practice sound CSR. Facility managers, as their organization's potential CSR leaders, are in a strong position to ensure compliance with their organization's CSR policies and must take a larger role in supporting them. Through their stewardship of one of the most important assets (facilities), and ability to influence the most important asset (people), they can take the lead in their organization's CSR strategy in many ways. For example, facility managers can stipulate CSR and SFM compliance in contracts with vendors and contractors, communicating to employees how they can support CSR and SFM through increased recycling and by purchasing sustainable facility-related products. They can also provide valuable information integral to the organization's CSR report. This could include information about the successful CSR and SFM initiatives that have been implemented.

SUMMARY

The importance of the role of facility management and the facility manager in developing and implementing a CSR strategy is essential because these strategies are so closely tied to buildings and the workplace. It is a distinct opportunity for the facility manager to take charge and lead these strategic programs. The facility manager should step up to that role and embrace it.

Chapter 5: The Benefits of Developing a Sustainable Facility Management Plan

The primary objective of facility managers is to provide a safe, secure, healthy and productive environment for employees. Another objective of facility managers is to focus on continual improvement and develop costeffective ways to manage their facilities. A sustainable facility management (SFM) plan can help support those objectives. A facility that is operated and managed in a sustainable way will result in a healthier environment because more attention is paid to the continual improvement of its operations and maintenance. The use of best practices in building maintenance results in improved indoor environmental quality and healthier buildings. It also better supports employees in performing their work at higher levels because it reduces or eliminates the distractions that result from things like inferior ergonomic conditions, sub-standard air quality, and inconsistent thermal comfort. Better maintenance results in buildings that run more efficiently, thus reducing overall operating costs. A sustainable building can positively impact the entire organization. Sustainable buildings also go well-beyond issues related to just facility management. CSR and SFM strategies balance the built environment with the natural environment and the intrinsic needs of the people it serves. Organizations and individuals endeavor to achieve this harmony by reaching an accord

with the social, financial and environmental aspects of sustainability. These three aspects make up the Triple Bottom Line (TBL). This is an important concept within the framework of organizational sustainability strategy development and alignment with the overall organization's strategic plan. The TBL can help organize the various benefits (and risks) of sustainability to the organization (See Figure 5.1).



Figure 5.1 The Triple Bottom Line

In the November 17, 2009 edition of *The Economist* the concept of the triple bottom line is explained.

"The phrase 'Triple Bottom Line' was first coined in 1994 by John Elkington, the founder of a British consultancy called SustainAbility. His argument was that companies should be preparing three different (and quite separate) bottom lines. One is the traditional measure of corporate profit – the 'bottom line' of the profit and loss account. The second is the bottom line of a company's 'people account' – a measure in some shape or form of how socially responsible an organization has been throughout its operations. The third is the bottom line of the company's planet account – a measure of how environmentally responsible it has been. The Triple bottom line thus consists of three P's: profit, people and planet. It aims to measure the financial, social and environmental performance of the corporation over a period of time. Only a company that produces a TBL is taking account of the full cost involved in doing business"

THE GREATER VALUE OF A SUSTAINABLE Organization

The International Facility Management Association suggests thinking of sustainability as the common ground shared by stakeholders – "...the place where 'doing good' and' doing well' are synonymous." The intersection of the three aspects of the TBL, according to Andrew Savitz in his book, *The Triple Bottom Line*, is the sustainability "sweet spot" (See Figure 5.2). This is where an organization's pursuit of financial gain blends equally with the pursuit of social responsibility and the preservation of our natural resources. Only when they measure their social and environmental impact in addition to financial considerations will they be a socially responsible.



Figure 5.2 The sustainable sweet spot

Let us explore each aspect in terms of both facility management and the overall organizational strategy.

Environmental

The environmental aspect of the TBL is related to not harming the environment and preserving natural resources for future generations. From an organizational standpoint this is done by implementing sustainable sourcing and procurement policies, addressing manufacturing and production processes so as to limit their contribution to landfills, elimination of hazardous waste, and the reduction of its overall carbon footprint. The goal is that the organization acts sustainably in everything they do. A side benefit is that they will be perceived as being an environmentally responsible organization. This perception may lead to a larger market share in their industry due to the fact that more and more customers are becoming environmentally conscious and want to purchase products and services from sustainable companies.

From a facility management standpoint, the environmental aspect relates specifically to reducing waste by fully understanding and better managing the waste stream, reducing energy costs through innovative and creative building management techniques, providing superior maintenance, establishing building operational policies and procedures that reduce waste and hazardous materials, and better utilization of natural resources like daylight and fresh air.

Social

The social aspect of the TBL is primarily about people. Organizations satisfy the social aspects of the TBL by generating less hazardous waste and pollutants thereby protecting the general population. They directly and indirectly avoid the exploitation of human beings through broad procurement policies that engage suppliers from the beginning to the end of the supply chain, including the consideration of the labor practices of suppliers, manufacturers and transporters. They create a positive human experience through the use of its products or services, and they provide healthy and safe environments for their employees to carry out their work. They also promote the same message to the community at large by committing both financial and human resources to the betterment of its citizens. The goal is one of social responsibility, and one of the side benefits is the organization's increased ability to attract and retain employees. A highly sought-after prospective employee may not decide to work for an organization based solely on its commitment to corporate social responsibility, but given three equal job offers, it could certainly be the deciding factor. And because of the mass exodus of the Baby Boomers from the workforce, and the fact that there are fewer younger employees to

replace them, *attract and retain* will be, and in fact already is, a major challenge to most businesses. According to CEO Online, one of the top issues discussed by CEOs and business leaders is the challenge of finding new employees. This is a trend that the facility management industry has also identified. It is even more difficult for facility managers to attract employees to an industry that suffers from a lack of recognition.

Sustainable facility management may have the advantage of accomplishing two important goals – elevating the level of the profession, and fulfilling the organizations sustainable and CSR strategy. The facility manager can positively impact the social aspect of the TBL by providing and maintaining a safe, healthy and productive workplace for employees, conducting responsible product and service sourcing, following fair labor practices and treating their employees and contractors respectfully.

Economic

Most companies want to be a productive part of society that contributes to the social and environmental aspects of the TBL. They can only do that if they stay in business. And to stay in business they must make a profit. But the profit must not be gained at the expense of the other two aspects of the TBL.

The facility manager can make a positive difference by operating and managing their buildings in an effective and efficient manner through smart building and energy management. From a sustainability standpoint, this means doing things like lowering operating costs by implementing energy conservation initiatives, reducing waste and better managing the waste stream, and reducing water usage (it takes energy to run the equipment to move water). Decreasing the total cost of ownership (TCO) and increasing the life-cycle of a building and its systems through effective maintenance practices can both increase the asset value and save resources in the long run. Let us take a closer look at TCO.

TCO can be defined as all of the direct and indirect costs of an asset over its useful life. For a building, this includes planning, design, construction, operations, maintenance, repair, capital renewal and disposal. As you can see in Figure 5.3, over the expected 50 year life of a typical branch office building (of about 145,000 square feet), the total cost of ownership in the example is just under \$120 million in total dollars (USD). The original cost to design and build the facility is about \$24 Million USD.



Figure 5.3 – Total cost of ownership for a typical branch office building

Year

In the branch office building model shown in Figure 5.3, the TCO is comprised of three major cost categories – design & construction, annual capital renewal, and annual operations and maintenance (O&M) costs. The data used to derive the TCO were taken from the International Facility Management Association's Operations and Maintenance Benchmarks Report #32 (2009) and represents the "average" branch office facility in size, capital renewal, and O&M budget. Construction cost was taken from CostWorks (2011), a product of the R.S. Means Company. The TCO is expressed in total dollars and uses an annual inflation rate of 1.5%. You might note that disposal costs at the end of the building's service life have been ignored. Although the total dollars expended may not adequately represent a valid accounting analysis (net present value would typically be used), it provides the reader with an order of magnitude of dollars spent on two very important facility management budget components - annual capital renewal cost, and O&M costs. This lends credibility to the concept that it takes 3 to 5 times the dollars to operate and maintain a facility than it takes to design and build it, even if the 20% of cost allocated to design and
construction in this model is higher than previously reported (National Research Council, 2004). The point is; the cost of operations and maintenance of a building is by far the largest building cost regardless of how we perform the analysis.



Figure 5.4 Building Life Cycle – in terms of total dollars

Taking this concept one step further we can then demonstrate how sustainability can decrease the TCO by meeting two of the main objectives of sustainability; reduce energy usage and to maintain buildings at a high level. If facility managers are successful in meeting those two objectives, the TCO can be reduced considerably as shown in Figure 5.5.



Figure 5.5 Reduction in total cost with a reduction in O&M and Capital Cost over the life of the facility

This is a fairly rudimentary cost analysis and does not account for the time value of money or salvage (residual) value. However, it provides a reasonable financial perspective on the potential for savings in the largest and most expensive phase of the life cycle of a facility. Since the largest portion of a building's O&M cost is in energy consumption, saving 10% in overall O&M cost is a reasonable target. On the capital renewal side, more efficient and smaller equipment, better control of building systems, and the use of FM technology can also make the 5% savings in capital renewal costs a realistic target.

One of long standing issues that facility managers have dealt with is that facilities are a very large expense that will not go away. Facility management is not a revenue generating activity and therefore it is typically not on the radar of senior management until costs have to be reduced. Then facility management is in the crosshairs of the C-Suite and is often the first place they look to for cost reductions. Astute facility managers spend a great deal of time trying to cast senior management's perception of facility management in a more positive light. Facility managers understand that they manage what is typically their organization's second largest asset. They also know the value that facility assets can bring to the organization's bottom line when planned, designed and managed properly. Let us take a closer look at how facilities can add to the bottom line.

THE BOTTOM LINE

Facility managers often use the phrase "Facilities can positively impact the organization's bottom line." To say that is one thing. To understand what it means and to convince senior management is another. In order to do that, facility managers must first understand the basics of business finance. What is the bottom line?

According to Investopedia, *Bottom Line* refers to an organization's net earnings, net income or earnings per share. Bottom line also refers to any action that may increase or decrease net earnings or an organization's overall profit.

The reference to *bottom* describes a relative location of the net income figure on an organization's income statement; it will almost always be the last line at the bottom of the page. This reflects the fact that all expenses have already been taken out of revenues and there is nothing left to subtract. A very simple example of an income statement is shown in Figure 5.6.

Income Statement for XYZ Company (in \$1000's)

	Current	Prior
	Year	Year
Revenues:	\$8,380	\$7,75
Expenses:		
Cost of operating expenses	4,982	4,594
Cost of goods sold	2,300	2,109
Interest expense	173	172
Depreciation and amortization	39	24
Income before	886	858
income taxes		
Income tax expenses	269	275
Net income	\$617	\$583

Figure 5.6 Sample income statement

In the sample income statement the very last line, *Net Income*, is the XYZ Company's bottom line. Now, pay special attention to the line *Cost of operating expenses*. Included in this line is the cost of operating and managing a company's facilities. You can see that if the cost of operating expenses was lower, the bottom line, or net income, would be higher.

One of the main objectives of operating a building in a sustainable manner is to reduce energy consumption. When energy consumption is reduced, energy costs go down. Referring to the sample income statement again, if energy costs are reduced, the cost of operating expense decreases and the net income increases. Therefore facility managers who are operating their buildings in a sustainable manner are reducing their energy (utility) costs and contributing to their organization's bottom line by operating their buildings more efficiently, thus increasing net income.

Another way facility managers can contribute to their organization's bottom line is by providing a well-designed workplace. How is this related to sustainable facility management? Many of the things we do to make a building more sustainable improves the physical environment. For example, we may implement a high performance green cleaning program that improves the cleanliness of the building. We implement facility management best practices such as monitoring and managing indoor air quality, increasing the amount of outdoor air we mix with return air, increasing building ventilation, reducing particulates in the air distribution system and monitoring thermal comfort. We improve our lighting systems with better lamps and controls. We pay attention to daylight and views to the outside for employees by how we design and reconfigure space. We survey occupant's thermal comfort and monitor acoustics, indoor air quality, lighting levels, building cleanliness, and other comfort issues.

When we do these things successfully, we enhance the experience our building occupants (the employees) have in the workplace. They are not always too hot or too cold. They are not going home ill because of inadequate air quality. They can actually see outside from where they sit, and the building is filled with natural light that increases the serotonin in which their brains (which in turn puts them in better spirits). This coupled with best practices in building maintenance removes the distractions that keep employees from doing their best work. In a poorly operated and managed building, it may take a week to replace a light bulb, fix a roof leak, or address an air quality issue. These may not be emergencies, but they present a distraction to employees. They bring a task light from home. They keep looking up at the stained ceiling tile hoping it does not get worse and drip on their desk. They have to wear a coat in the office because of poor temperature control. These things may not result in increased absenteeism but because employees are distracted it can result in presenteeism, the phenomena where an employee is at work but not fully engaged in their work.

When people can do their best work they are more effective in their jobs. Employees are at the top of their game. And that is when revenue can increase because the work it takes to produce the product or service that the organization provides is being performed more proficiently. When they can do their best work employees are often happier in their jobs. That results in less stress, less absenteeism and even lower healthcare costs, all of which make an organization better and stronger.

Proof of this can be found at the Best Places to Work in America. Every year, *Fortune Magazine* names the 100 best places to work in the United States based on a survey that participating companies ask their employees to take. In 2005, Barbara Armstrong and Mark Sekula (co-author of this book) conducted a research project that asked the question, "Does a company's physical workplace play a role in them being a best place to work?" By surveying the 100 companies that were named best places to work in 2005 they found the answer was a resounding "yes". In their whitepaper, *What Makes a Workplace Great, (www.kahlerslater.com)* they describe 14 attributes that make a workplace great. They are:

- The ability to perform distraction-free work
- Spaces that support collaboration and impromptu interaction
- Spaces that support undistracted group work
- Flexibility of workspaces to accommodate personal work styles
- Attention to individual thermal comfort
- Direct visual access to daylight and control of glare
- Workspaces are designated in size and type by function
- Simple and clear wayfinding (signage)
- Appropriate adjacencies to support workflow and productivity
- Ease of accommodations for the changing demands of technology
- Proactive attention to ergonomics
- Inclusion of green plants
- A workplace that reflects the organization's culture

All of these attributes improve the physical workplace and it should be every facility manager's objective to attempt to provide them. Two of the attributes, attention to individual thermal comfort and direct visual access to daylight and control of glare, directly support both a sustainable workplace and a well-designed workplace. Although the other attributes may not directly support CSR or sustainable strategies, a case can be made that they are in the spirit of sustainable facility management since they all contribute to a better physical workplace. When all is said and done, the benefit of a sustainable workplace is to make the workplace a healthier environment in which to work.

CORPORATE IMAGE AND COMPETITIVE EDGE

Some intangible but important benefits to companies that are working to satisfy the TBL are that they can enhance their image and increase their competitive edge. More and more people want to work for companies who employ sustainable practices. The companies that do this will have the edge over their competition when it comes to hiring the best people. People increasingly want to purchase products and services that are provided by organizations that have a commitment to the TBL. They also want to do business with companies who demonstrate their commitment to CSR. Thus, being an environmentally and socially responsible organization can improve the perception of customers and potential customers.

SUMMARY

What we learned in this chapter is that there are many benefits for an organization that practices in an environmentally and socially responsible manner. These are summarized in Figure 5.7.



Figure 5.7 The benefits of sustainable facility management

An organization can be more efficient and effective from an operations and maintenance standpoint, thus lowering operating costs and providing best in class maintenance, which enhances the experience of the organization's employees. In turn it can free employees from the distractions of a poorly maintained workplace, allowing them to concentrate on their jobs and perform their work at a high level.

An organization that practices sustainable facility management can get the jump on their competition when it comes to attracting the best employees. This can create a significant competitive edge in their marketplace. And creating the perspective in the minds of the public that the organization is being socially responsible is a valuable experience.

Chapter 6: Alignment with Organizational Strategy

The first step in the development of a sustainable facility management strategy is to fully understand the overall strategy of your organization. This is important because there may be elements of your organization's mission, vision, values and strategic objectives that directly or implicitly impact how you approach facility management. Alignment of facility management strategy with the overall strategy of the organization is the process of getting all aspects of the organization moving in the same direction (IFMA 2011). In this case, the direction is toward meeting the organization's CSR goals. The end goal of the facility management strategic plan is to enable the organization to accomplish its overall strategic objectives in a manner that supports its commitment to CSR. To begin the alignment process we must first understand what strategy is.

WHAT IS STRATEGY?

In today's business world, the word strategy gets tossed about with little thought to its true meaning. Everything from a bright idea to a plan of attack is often mistakenly considered a strategy. In a 2007 article in the *Harvard Business Review Blog Network*, Michael J. Watkins, founder and Chairman of Genesis Advisors, a business consulting firm states that,

"A business strategy is a set of guiding principles that, when communicated and adopted in the organization, generates a desired pattern of decision making. A strategy is therefore about how people throughout the organization should make decisions and allocate resources in order to accomplish key objectives. A good strategy provides a clear roadmap, consisting of a set of guiding principles or rules, that defines the actions people in the business should take (and not take) and the things they should prioritize (and not prioritize) to achieve desired goals."

In the publication *Strategy and the Alignment for Sustainable Facility Management* the International Facility Management Association (IFMA) defines strategy as:

"...the science of planning that involves developing a scheme (a program of action to obtain a goal) using artful means or creating an advantageous position to best accomplish important goals."

A strategy is a road map that organizations follow to accomplish their mission and achieve their vision. It is a direction with a purpose. The route may change but the destination seldom does. You can think of all the business units within an organization as vehicles on that journey, all of them heading in the same general direction in a caravan. Some may travel in hybrid cars, others in electric cars, others in economical fuel efficient gasoline powered cars, and still others in old, fuel-inefficient vehicles. Some are driving down the interstate highway, others are on the back roads, but all of them will meet the single overriding objective which is to deliver their passengers and their cargo to the same destination. This is how organizational strategy works. The organization determines the overall strategic objective (the destination) and the strategies of the individual business units (the cargo) align with and cascade from the overall organizational strategy in order to meet in the same place.

Facilities are typically the second largest and second most expensive asset an organization has. Their largest, most expensive asset is their employees. By performing their work, the employees are the ones that carry out each of the business units' strategies. In the travel analogy, they are the passengers in the vehicles, the vehicles are the facilities and the drivers are the facility managers. Without a well maintained vehicle that is operated effectively, efficiently and safely, the passengers and their precious cargo will not reach their destination on time, or worse, they may never reach it at all. Instead, they will be focused on fixing a flat tire or calling a tow truck because something failed to work properly. Or they may turn down a road that looks interesting but does not lead to the intended destination. They will not be able to focus on the end point, which is reaching their intended destination. Similarly, if an organization's facilities are not run efficiently and effectively and are poorly maintained, the employees will not be focused on their work. They will not only be unable to help their business unit meets its strategic objectives, they will be frustrated, unhappy and This is why it is imperative that the facility management unfulfilled. organization's strategy aligns with the overall organizational strategy. The facility management strategy must fully support each business unit's The only way that can be done is by first gaining a deep strategy. understanding of the organization's mission, vision and values which drive the organization's strategy. Having this understanding will make the thinking behind the strategies of each business unit clearer, allowing the facility manager to craft a supporting strategy.

The benefit of aligning strategic facility plans with organizational plans is that the logic behind the facility strategy becomes obvious in how it supports the organizational plans. It will be more readily accepted and approved by senior management because it is linked to satisfying the entire organization's requirements. It also provides the opportunity for facility managers to put forth other sustainable facility management initiatives.

SUSTAINABLE BUILDING CERTIFICATION

This book would not be complete without a discussion of sustainable building certification schemes. For many organizations, it is seen as the endpoint of their facility management strategy. Although it is truly only the beginning, there is a common misconception that once we have achieved a sustainable building certification, the most difficult work is done. However, the most difficult challenge lies in the continual operation of that facility in a sustainable manner.

The International Facility Management Association (IFMA) states in Course 1 of the Sustainability Facility Professional (SFP) credential program,

"Sustainable facility management is broader and more significant than simply complying with a building rating system to attain certification; it is a commitment to improving the facility's impact on the environment and people – not just at one point in time but continually."

According to the U.S. Green Building Council (<u>www.usgbc.org</u>), sustainable building certification is the process where-by a building is verified to have been designed, built, and/or operated using strategies aimed at achieving high performance in key areas of human and environmental health, sustainable site development, water savings, energy efficiency, materials selection, and indoor environmental quality.

There are several recognized building rating systems in use today around the globe. They have many similarities and at the same time are quite different in terms of their evaluation requirements and criteria, and how they are implemented. A summary of the most recognized building rating systems follows:

BREEAM

• <u>Building Research Establishment</u> Environmental Assessment Method (BREEAM); a voluntary measurement rating for green buildings that was established in the UK by the <u>Building Research</u> <u>Establishment</u>. It is a tool to measure the sustainability of new nondomestic buildings in the UK. (<u>www.breeam.org</u>)

LEED

• Leadership in Energy and Environmental Design; a suite of building rating systems for the design, construction and operation of high performance green buildings, homes and neighborhoods developed by the <u>U.S. Green Building Council</u> (USGBC). LEED is intended to provide building owners and operators a concise framework for identifying and implementing practical and measurable green building design, construction, operations and maintenance solutions. (<u>www.usgbc.org</u>)

CASBEE

• Comprehensive Assessment System for Built Environment Efficiency; the green building management system in Japan. It was created by the Japanese Sustainable Building Consortium (JSBC). It is a voluntary evaluation tool for assessing the environmental design and performance of buildings. (<u>www.ibec.or.jp/CASBEE</u>)

Green Globes

• Green Globes is an environmental assessment, education and rating system that is promoted in the <u>United States</u> by the <u>Green Building</u> <u>Initiative</u>, a <u>Portland</u>, <u>Oregon</u>-based non-profit. Green Globes had its roots and is used extensively in Canada. The system is an online interactive software tool. It helps both with the new construction of commercial buildings and with the maintenance and improvement of existing buildings. (<u>www.greenglobes.com</u>)

Green Star

• Green Star is a voluntary environmental rating system for buildings in <u>Australia</u>. It was launched in 2003 by the <u>Green Building</u> <u>Council of Australia</u>. The system considers a broad range of practices for reducing the environmental impact of buildings and to showcase innovation in sustainable building practices, while also considering occupant health and productivity and cost savings. (<u>www.greenstar.com</u>)

Green Mark

• The Green Mark Scheme was developed by Singapore's Building and Construction Authority (BCA). It is intended to promote sustainability in the built environment and raise environmental awareness among developers, designers and builders when at project conceptualization and design, as well as during construction. (www.greenmark.sg)

Three Star System

• The Three Star System was established by the Ministry of Construction in China. It is administered by the China Green Building Council and is an evaluation system for green residential and large commercial and public buildings in China.

Often, organizations only narrowly consider sustainable building programs from the perspective of building certification. The situation may exist where the CEO learns that his or her organization's competitor has a plaque hanging in their lobby that indicates their building was certified as green. Knowing nothing more than that, the CEO directs his organization's facility manager to "Make our building green!" The CEO might be unaware of the cost, and there may not be a strategy in place to implement a green building certification program. For the facility manager, this could be a recipe for disaster, unless of course, he or she approaches the CEO's directive strategically. Rather than the facility manager reacting blindly to the CEO's directive and attempting to gain building certification at any cost, he or she instead takes a step back and considers the practice of sustainable facility management holistically. The facility manager first looks at what sustainable and CSR strategies are in place for the entire organization. He or she asks questions like: how can it benefit the organization; how might it improve how the organization is perceived in the marketplace. By taking a wider perspective and a broader approach, the overall organizational sustainability strategy becomes the driving force for the Sustainable Facility Management (SFM) plan. An output of the SFM plan may be a building certification, complete with a plaque hanging on the lobby wall. This puts the proverbial horse *in front* of the cart.

Of course there is nothing wrong with building certification being the main objective. There are many benefits to obtaining building certification such as:

- Lower operating costs and increased asset value
- Reducing waste sent to landfills
- Conserving energy and water
- Providing healthier and safer buildings for occupants
- Reducing harmful greenhouse gas emissions
- Qualifying for tax rebates, zoning allowances and other incentives

But there are challenges as well. There is no guarantee that the building will continue to perform in a sustainable manner once the certification is achieved. Building certification can also consume a great deal of time and effort, not to mention cost. Regardless of whether the building certification is the end goal or not, the time, effort, and cost will still exist. But when building certification is part of a more comprehensive organizational sustainability strategy, it represents one of several tactics to meet the strategic objectives. The facility manager can also start small by implementing no-cost and low cost sustainable initiatives while building up to certification, if that is what is desired.

As Paul R. Niven so astutely points out in his book, *Balanced Scorecard: Step-By-Step for Government and Non Profit Agencies*, sometimes strategy is

"...to know when to say no, when to drop things, when to pass up opportunities. Deciding when to say no, and determining what you should not do constitutes a critical component of strategy."

There is time and a place for building certification. Part of strategy is knowing when it is time.

THE STRATEGIC PLANNING PROCESS

As described in the International Facility Management Association's (IFMA) *Strategic Facility Planning White Paper*, the strategic facility planning process has a four-phase life cycle. The four steps are:

- Understanding
- Analysis
- Planning
- Acting

If we refer back to the strategic planning process we described in chapter 3 (see figure 3.1), we note that in the development of a Strategic Facility Plan, we have understood and analyzed the organizational strategy and the commitment to the CSR strategy. This in turn allows us to develop an operational plan and sustainable facility management plan that aligns with the organizational goals and supports the CSR strategy. In the strategic planning process, the facility manager may consider a focused SFM strategy to assure that we have properly understood and aligned all of these strategies and plans. We have added the SFM Strategy in figure 6.1 to illustrate the importance of a specific SFM strategic planning process. All organizations will not necessarily follow the same process. In smaller organizations, many of these strategies and plans may be folded into each other so that this process map is much simpler.



Strategic planning is an iterative process, meaning each phase is dependent on the previous phase. Each phase has inputs which are processed into resulting outputs. The output of each phase becomes the input to the next (See Figure 6.2)

Let us briefly examine the four phases of the strategic planning process as it relates to sustainable facility management. We will discuss this process in more detail in Chapter 7.



Figure 6.2 The strategic planning process

Understanding

Any strategic plan should focus on the longer-term, big picture needs and vision of the organization. As discussed previously in this chapter, it is critical that the SFM strategy aligns with the overall strategy of the organization. A thorough understanding of the organization's perspective on CSR and how it relates to its business and its industry is necessary in order to properly analyze the needs and compare existing conditions to those needs. To that end, the facility manager must consider factors such as the organization's mission, vision, culture and core values, as well as the perspectives of key stakeholders who represent a cross section of business units and support departments within the organization. This type of discussion will allow the facility manager to hear the various opinions and needs with regards to CSR, and allow the individuals to hear each other as well. Once these considerations are well understood, a business-driven approach is taken to analyze the organization's facilities and to set tangible goals and plan targets. Utilizing a business-driven approach rather than a cost-driven approach delivers a clearer vision for the future, earns employee support, and enhances performance, which strengthens the business competitively.

Once a clear understanding of the current situation, the future needs and the drivers of success are known, the facility manager can proceed to phase 2, Analysis. One of the key benefits of going through the Understanding phase is that the process solicits input from key stakeholders. Engaging them in the process demonstrates to them that their opinion and input is important to the development of the SFM strategy. This will pay dividends, because they will be more likely buy in to the strategy if their input is genuinely considered. If they are only being patronized, more harm will be done than good.

Analysis

Now, the facility manager must do something with the information that was gathered in the Understanding phase. In the analysis phase, the existing situation and the future needs of the organization are compared, and a gap analysis is conducted using the success drivers as the guiding principles. The main objectives of this phase are to conduct a gap analysis and develop a plan to bridge the gap between existing conditions and future requirements. A set of strategic user requirements, commonly referred to as a Statement of Requirements, is the document that will drive the rest of the process. This includes a set of feasible strategic objectives and a recommended strategy.

Some of the analysis tools that the facility manager commonly uses to analyze the information that was gathered in the Analysis phase are scenario planning and SWOT Analysis (Strengths, Weaknesses, Opportunities and Threats).

Once the information is gathered and analyzed, it should begin to become apparent as to what actions need to be taken to meet the needs of the organization in terms of going forward with a SFM strategy.

Planning

The recommendations made in the Analysis phase will now become the foundation of the SFM strategy. In the Planning phase, the facility manager will take the recommendations from the Analysis phase and transform them into a plan with tactics or actions that must be accomplished to successfully implement the strategy. This is represented as the Sustainable Facility Management Plan as shown at the tactical level in figure 6.1. This plan is then developed into a business plan and presented to senior management for their approval.

Acting

The Acting phase is where execution of the strategy takes place. In the Acting phase, the strategy is implemented using tactical plans developed in the previous planning phase. Acceptance and approval of the strategy does not mean the individual tactical plans can move forward yet. The facility manager must develop an individual business plan to present to senior management for each tactical plan in order to gain approval and funding. For a typical facility management organization as we have shown in figure 6.1, there may be several tactical plans, such as the Operational Plan and the SFM Plan. At this point in the process the facility manager is actually helping to implement the organization's CSR strategy by supporting the strategy throughout each of the tactical plans under their control. But remember this is an iterative process. Continual scenario planning must occur on a regular basis because organizational strategies can change, the global market place can change, and many other factors can change that are beyond the control of facility management and the organization. The SFM strategy and plan should be re-visited on a periodic basis. The facility manager must be flexible, nimble and proactive when those changes occur. They must be ready to change if conditions dictate.

SUMMARY

Strategy is both a cascading and an iterative process. Strategy starts at the highest levels of the organization and cascades through the organization. It is first a broad, big picture view of the future and then it descends and the picture becomes clearer. It is like flying in a passenger jet. You are on your way to a specific destination, but even as you look out the window you see the sprawling landscape of the earth below, knowing only your general direction. This is the organizational strategy. Then as the jet begins to descend, a more definitive view appears, making the destination clearer. But on the way down, you may hit turbulence, and you need to rise up again, circle and make another pass from a different direction. Or the sky may be overfilled with jet traffic. There is a new understanding of the situation, air traffic control re-analyzes the situation and a new plan is set in place. Your pilot is instructed to take an alternative plan of action. You may eventually land at your final destination or you may be rerouted to another airport. That is how business strategy works. Once the facility manager understands that strategy starts at the top they can develop their "flight plan" accordingly.

When developing a SFM strategy, other elements enter the fray. The end goal of SFM strategy is not just about making a profit. It is the fragile balance of economics, people and the environment. Only when the facility manager fully grasps the concept of alignment and the need for balance, can they traverse through the steps of understanding, analysis, planning and acting. Then, they can proceed to the next step -- developing the strategy.

Chapter 7: Developing the Strategy

n Chapter 4 we discussed the two rolls the facility manager can take in the

process of strategic planning; the insurgent role or the champion role. If the organization takes a proactive stance on CSR, and direction has come from senior management, the facility manager is in a good position to champion the effort. However, it is also possible that there are other drivers, and the facility manager is not asked to champion the effort. It may be that the organization desires to place the leadership of the effort elsewhere in the organization, such as in marketing or with the Chief Operating Officer. In that case, the facility manager should make a case for active involvement in the process. Or, it may be that the organization is not driving the process, and the facility manager is forced to take the lead as an insurgent. For the purposes of this book, it is assumed that the facility manager is the appointed champion of the sustainability initiative. However, if this is not the case, all is not lost. Even in an insurgent role the facility manager can make a difference in creating more efficient, sustainable facilities.

THE SPONSOR

It is important at this point for the facility manager to get a management sponsor for the SFM strategy. The sponsor is one who can keep the effort at the forefront of the organization and continually emphasize its importance. This person should have both position power and personal influence in the organization. The sponsor will play an important role in maintaining the momentum of the effort. Ultimately, this person will be the one who provides the support to the sustainability team when it comes time to present it to senior management for approval and funding. The sponsor does not have to be actively involved in the day-today activities of the SFM Team. The facility manager should keep the sponsor well-informed of the progress of the initiative through regular status meetings and reports. These meetings should be brief, and written updates should be concise and succinct. It is not necessary for the sponsor to attend SFM team meetings, but it would be wise for the sponsor to occasionally address the group. This will serve as reminder that senior management is engaged and supportive of their effort. It can be a powerful motivating factor for the team. At the very least, the sponsor should be made aware of all scheduled team meetings and events. Keeping the sponsor informed will arm him or her with the information they need to report back in senior management meetings. The sponsor should also be asked to report the progress of the sustainability effort in departmental meetings and all-company meetings. It is the responsibility of the facility manager to remind the sponsor to get the word out and to coach them as to what to report.

Once a sponsor has been identified the next step in the process in developing a SFM plan is to gather all the pertinent information needed to get started. This is the Understanding phase. It is in this phase that, within the framework of the organization's overall strategy, facility managers must find where in their organization's mission, vision, values and culture sustainability falls. Is it in the mainstream or the periphery? Or does it appear at all? Once this is known, the facility manager can begin to develop a strategy that focuses on the interests of the organization specific to the CSR strategy. The question is: how does the facility manager extract their organization's mindset on CSR from its mission, vision and values?

The mission statement of an organization is a statement of its purpose, the reason it exists. Its vision is a word picture of where it wants to be in the future. Its values, according to Terrence E. Deal and Allan A. Kennedy in their book, The New Corporate Cultures, are the sustaining and non-negotiable fundamental beliefs that shape life inside the workplace." Values are the foundation of the mission, vision and culture and are the roots of sustainability within the organization. Edgar Schien, often referred to as the father of corporate culture, writes in his book, The Corporate Culture Survival Guide, that beliefs and values gradually come to be shared and taken for granted. They may not be written, but they are embedded in the organization's culture. If the facility manager has been employed by the organization for some time, he or she should have an understanding of its culture and if the precept of CSR exists within the culture and its underlying It is also necessary for the facility manager to gain the values. organization's perception of CSR through the eyes of its employees. This can be accomplished in a Same Page Workshop.

THE SAME PAGE WORKSHOP

The Same Page Workshop is a facilitated and structured event to help facility managers better understand the perspectives and expectations of their stakeholders. The objective of the Same Page Workshop is to understand everyone's diverse perspectives on sustainability and CSR, and for each of the stakeholders to understand each other's needs and expectations. It is meant to get the facility manager and their stakeholders on the same page and to align the organization's leadership around a shared vision of what CSR means to them, and how SFM supports the commitments of the organization. The various points of view of all those impacted by a SFM strategy must be heard and melded into a single voice. Although an individual meeting with each stakeholder group is helpful and necessary, it is important that they understand each other's frame of reference and expectations. Then, they will facilitate the appropriate discussions, debates, and compromises until they are unified in their understanding.

The purpose of the Same Page Workshop is to:

- Gain a better understanding of existing conditions and constraints
- Explore what CSR means to the organization and how it benefits the organization and its stakeholders
- Identify the gaps between the perceptions of the various stakeholders in the organization
- Build consensus around an inspired vision through facilitated dialogue
- Create a vision of the future for CSR in the organization
- Explore how CSR and SFM are connected
- Develop the project drivers that are derived from the linkage of the desired SFM strategy and the organization's business strategy. The project drivers will ultimately be the measures of your success in developing the SFM plan

The attendees at the Same Page Workshop should include a cross section of key people from within the organization. Ultimately, the facility

manager will ask some of them to become members of the SFM team. The Same Page Workshop should be kept to no more than 20-25 people so that it can be more easily managed and facilitated. A good cross section of people to invite to the Same Page Workshop would be a management representative from each department in the organization, a representative from senior management, and a member from the executive administrative staff. A few line employees who have a passion for sustainability, or who have expressed an interest in it will round out the group.

It is important here to have someone lead the workshop who is experienced in facilitating large group meetings. The purpose of the workshop is to solicit opinions and ideas from the attendees and to generate creative thinking and innovative ideas about SFM; to brainstorm. A professional facilitator will be able to ensure that happens while at the same time keeping the workshop on task in order to meet its objectives. Even if they are not the champion of the process, the facility manager should take an active role in working with the facilitator and the champion to; identify who should be invited, establish the expectations of the attendees, and creating the agenda. A memo should be written and sent to the attendees prior to the workshop so they are mentally prepared for what is to come. It should include the list of invitees, the purpose of the workshop, the expectations of the attendees, and some general information about the strategy. The facility manager should be the main communications conduit, therefore establishing him or herself as playing a key role in the process, and positioning themselves going forward as one of the leaders of the initiative

Some of the questions to ask in the Same Page Workshop are:

- What is sustainability, and how does our organization view CSR?
- Is it important to the organization and why (or why not)?
- What things do you know of that our organization does to be a good corporate citizen?
- Does our organization's mission and vision imply a requirement for CSR?
- What are the benefits to the organization of having a strong CSR program?
- What are the benefits to the employee participation in a CSR program?

- What should the primary drivers of CSR be for the organization?
- What should the goals of the CSR program be?
- How will we know we are successful?

Once the information is extracted from the organization's strategic plan, mission, vision and values and other documentation such as a CSR statement (See Chapter 4) it must be analyzed and processed. The resulting output of the Understanding phase is the sustainability initiative's mission and vision, and goals.

THE SUSTAINABILITY MISSION AND VISION

In this chapter, since we are discussing organizational missions, visions, and strategies, we go back to the word "sustainability" in the broader context of the word. We have tried diligently throughout this book to stick to the "wise facility managers" advice not to use the word 'sustainability" alone, but it proves to be quite difficult when the rest of the world uses the term for anything and everything that they perceive might help their image as good corporate citizens. For the purposes of this chapter, "sustainability", "sustainability strategy", "SFM strategy", and "CSR strategy" are all used in the context of how to effectively develop a strategy, whether it is at the organizational level or the facility management level within the organization.

As stated in the previous chapter, a mission is a statement of why the organization exists. It defines the core purpose of the organization. A vision statement is a word picture of what the organization intends ultimately to become and how it wants to be perceived in their marketplace. It translates the mission into truly meaningful results. It is through the vision that a deep sense of purpose comes alive.

The mission and vision of a CSR and SFM strategy must be supportive of the overall mission and vision of the organization. They must coexist. The facility manager should look for key words in the organization's mission and vision statements that would imply, connect to, correlate with, or parallel the concept of sustainability. For example, PepsiCo's vision states,

"... (a) responsibility to continually improve all aspects of the world in which we operate - environment, social, economic - creating a better tomorrow than today."

Their vision implies a significant commitment to sustainability.

Another example is Kraft's vision statement:

"Helping people around the world eat and live better."

One could correlate sustainability as a supporting component of "living better."

Honda's vision statement is:

"To Be a Company that Our Shareholders, Customers and Society Want."

This broad statement accounts for much more than the products that Honda makes. It implies that Honda wants to do whatever it takes to make their shareholders and customers want to do business with them and to make a greater contribution to society. It is likely that not all of "society" will ever buy Honda products, therefore their vision presupposes that they must do other things besides make great products to be "wanted". Because of the positive effect sustainability can have on people and society it is easy to make the connection between Honda's vision statement and sustainability.

Finally, let us look at DuPont's vision statement:

"...to be the world's most dynamic science company, creating sustainable solutions essential to a better, safer and healthier life for people everywhere."

Here the word sustainability is used in the vision statement, so it is easy to see how developing a sustainability strategy would parallel their organizational vision.

Another way to align the sustainability strategy with the overall organization is to look at its values. Values are those non-negotiable things that an organization stands for and lives by. They are timeless principals that guide an organization. They are deeply held beliefs that are manifested in the day-to-day behaviors of an organization's employees. For example, an organization may have "Accountability" as a value meaning that they take responsibility for their actions that influence the lives of their customers and fellow workers. Sustainability correlates nicely with this value because it can positively influence the lives of their employees and customers by way of preserving the environment for future generations. Another common value is "Balance." In the context of an organization, this refers to maintaining a healthy life and work balance for its workforce. More broadly, this could easily be understood as the balance between profit and the environment.

A much overused and often misused organizational value is "Integrity" (This was one of Enron's values!). It means to act with honesty without compromising the truth. We can align this value with sustainability simply by the fact that having a sustainability plan clearly and honestly demonstrates the organization's commitment to it rather than by merely saying, "We are a sustainable organization."

Sustainability Goals

There are two levels of goals that facility managers should consider when developing a SFM strategy: the global level and the operational level. These levels are not mutually exclusive. They are intertwined. For example, saving energy is a common sustainability initiative. Not only does it equate to cost savings, it also leaves more energy for the future. The same is true with preserving natural resources such as water. Reducing waste is a cost saving activity that benefits the environment by keeping our air and water cleaner by reducing the amount of waste going into our landfills. Each of these goals has both intrinsic and extrinsic value. A cleaner environment is an outcome of saving energy, conserving resources, and reducing waste – a benefit to everyone. Saving money is often (but not always) an outcome of a sustainable initiative. That is, it is not a benefit to all people but still very important at the organizational level. When developing a sustainability strategy for the organization, the global level of goals should be considered first, and the goals specific to operations will follow. For example, the goal of reducing an organization's carbon footprint is a higher level global goal with one of the operational results being reduction in energy costs.

In the IFMA Sustainability Facility Professional credential program's Course 1 book titled, *Strategy and Alignment for Sustainable Facility Management*, when considering a facility's sustainability goals, one should first think globally. What this means is that even if the organization has facilities in different geographical regions or in different countries, sustainability goals should generally consist of the same basic idea, even though they may differ from region to region. A good starting point for establishing sustainability goals is to consider the following (IFMA, 2011):

Think Globally



Figure 7.1 Think Globally

(IFMA Strategy and Alignment for Sustainable Facility management) Waste Nothing

Avoid using materials that are scarce. Rather than using throw-away products, use things that can be reused like ceramic mugs rather than disposable cups. Is there a trade-off? Yes there is. You have to use water to wash the mugs. But using water efficient dishwashers and low flow faucets prove to provide far more savings that offset the use of disposable cups. A less-is-more attitude is often a viable approach to SFM.

In an article titled *Less is More Sustainable* published by Maggie Layden, Facility Support Technician at American Family Insurance in Madison WI, she says,

"Green consumerism offers people the opportunity to save the planet by buying more environmentally-friendly things, but this approach is less environmentally-friendly than actually buying fewer things and living more modestly."

She goes on to say,

"The problem with green consumerism is that it encourages consumers to go out and buy, buy, buy, and offers 'guilt-free' feelings about this unsustainable action. But "green" products still use resources." Expand the goal of reuse beyond what the organization disposes of. Engage your employees and challenge them to think "out of the recycling bin." Before they recycle or dispose of anything, ask them to consider whether it has life left in it. A jam jar can store leftovers. Food scraps from the cafeteria can become compost for the corporate garden or for employees to take home for their own garden. Old magazines can be given to a women's shelter. A computer or a cell phone can be given to a charitable donation center.

As the National Resources Defense Council states on their web site, "Reusing keeps new resources from being used for a while longer, and old resources from entering the waste stream. It's as important as it is unglamorous." (www.nrdc.org)

Adapt to Place

Buildings are not natural. They are disruptive. In many cases, vegetation is removed to make room for them, and then replaced with vegetation not native to the surroundings. The non-native plantings require irrigation. Hardscapes are created to accommodate occupants, but add to the heat island effect by creating unwanted hot spots. Impervious surfaces are installed so occupants can park their gas-driven cars. This increases pollution from the cars, disrupts natural drainage, and adds to the pollution of ground water, rivers and streams. When you stop and think about it, none of it makes much common sense. Adopting a "think first, then build" mentality can turn this cycle around.

Use "Free" Resources

Resources are typically not free. But once used, they can be re-used and they can become free. Reclaiming grey water or rainwater to irrigate landscaping or for process cooling is in effect utilizing a resource for free. While manufacturing new products drains our limited natural resources, and disposing of unwanted materials pollutes our environment, our communities face difficulties getting the affordable goods they need. One way to prevent waste, improve our communities, and increase the material well-being of our citizens is to take useful products discarded by those who no longer want or need them and redeploy them to those who do. According the website *ReDo* (http://loadingdock.org/redo/), buying and using items that are reusable supports a method of waste management that has been identified by the U.S. Environmental Protection Agency and others, as a priority method of handling materials. In many cases, an item can be reused several times, and then sent to the recycling center for processing. The list of reused items is virtually unlimited. In a business some of the typical items that could be reused but are more often disposed of and wind up in landfills are:

Building Materials – Lumber, tools, windows, doors, light fixtures, paint, plumbing supplies and fixtures, architectural pieces, fencing and hardware.

Office Furniture and Supplies – Desks, tables, chairs, filing cabinets, credenzas, shelving units, stacking trays, tape dispensers, notebook binders and other equipment and supplies can be reused in offices, schools, hospitals, non-profit organizations and others.

Computers and Electronics – Personal computers, printers, fax machines, televisions, and audio/visual equipment can be reused in business, personal, and non-profit environments.

Optimize Instead of Maximize

As part of their sustainability strategy, organizations need to look at how they order products and how they ship their own products. For example, when businesses manufacture their products with less packaging, they are buying fewer raw materials. A decrease in manufacturing costs can mean a larger profit margin, with savings that can be passed on to the consumer. They can also work with their suppliers and request that they reduce their packaging or ship in reusable containers. Rather than stocking up and ordering large amounts of products, Procurement departments should order only what they need.

Create a Liveable Working Environment

According to IFMA, to create a livable environment,

"...means to protect sensitive and endangered ecosystems so they aren't further degraded. It also involves supporting the restoration of those natural systems that have been compromised to help them return to their former state. The focus should be on creating healthy environments free of toxic materials."

Closer to home, creating a livable environment can also increase worker productivity. When that happens, employees are more fulfilled, happier, less stressed and more likely to stay at the organization.

Worker productivity can be enhanced through SFM by providing a healthier environment. A healthy environment is one that has good indoor air quality, thermal comfort and an appropriate mix of electric lighting and daylight. This is the result of good design or biophilic design.

In the August 3, 2007 edition of *AIArchitect* Yale Professor Dr. Stephen R. Kellert, says that,

"Buildings deficient in facilitating the positive experience of nature hypothetically result in diminished human functioning, whereas facilities possessing biophilic features foster higher levels of human health and productivity." These biophilic design features, Kellert notes, "are the direct, indirect, or symbolic occurrence in the built environment of the human affinity for nature."

That means that for people to connect to buildings, certain attributes must be present such as natural light, natural ventilation, access to open or moving water, access to plants, interactions with nature, fundamental natural forms, local minerals and sensory connections with nature. Dr. Kellert goes on to say,

"The human's connection to nature is rooted in evolutionary development, as these natural elements proved instrumental in fostering fitness and survival."

When these attributes are present and workers feel connected to their environment, they can concentrate on their work. When they are more productive, the work they perform helps their organization meet their business initiatives which helps them be more profitable. This satisfies the economic side of the Triple Bottom Line. When employees are happier and healthier, the social side of the triangle is satisfied. And when the result of good design in conjunction with the use of best practices in operations and maintenance is reducing waste, using less energy and preserving our natural
resources, the environmental side of the triangle is satisfied. Creating a livable working environment should be the goal of any SFM strategy.

MAKING A CASE FOR SUSTAINABILITY

At this point, the SFM strategy should be finalized. The mission and vision have been developed and the goals clearly outlined. Now the strategy must be approved by senior management. It is time to build your business case.

A business case is a structured plan that provides the reasoning for the strategy. Its goal is to obtain approval to go forward with the strategy. It should be pointed out here that as the strategy is further developed into specific tactics, each tactical plan will also need to be approved and funded. The initial business case is developed so that senior management understands the background and logic behind the strategy. This will make them more comfortable with releasing the resources and preliminary funding required to develop the tactical plan required to implement the strategy. If we refer back to figure 3.1 in chapter 3, we see that we are now at the tactical planning level of our strategic facility planning process (see figure 7.2 below).



Figure 7.2 Tactical planning process

A good business case must be credible, practical, feasible and accurate. In the case of the sustainability strategy, the business case should start off with the mission and vision and how it was derived. It should clearly describe the origin of the strategy, and map out the history of why the planning got started, who started it, why it was started, and its importance to the organization. It should include a synopsis of the Same Page Workshop, including the names of the attendees, why each individual was invited, the structure of the workshop, and the findings. It should demonstrate how the mission and vision was derived and how they align with the organizational mission and vision.

In this initial business case, the benefits that the organization will reap from implementing a SFM strategy should be presented. This is where the Triple Bottom Line can be introduced. It can help organize the benefits of sustainability to the organization. An in-depth discussion on the financial metrics is not necessary in this initial business case, but the stage should be set for how the tactical planning will be presented in the future. An overview should be presented of how the expected outcomes of the strategy such as return on investment (ROI), simple payback period, life cycle cost analysis and total cost of ownership will positively impact the organization.

The non-financial benefits should also be presented. These represent the other two aspects of the Triple Bottom Line, the social and environmental aspects. The benefits include customer and employee satisfaction, corporate image and improved perception in the marketplace, branding, and employee attraction and retention.

Another helpful component of the initial business plan is to describe the next steps. Describe how the tactical plan will be developed, giving them a picture of what tactics you plan to employ using financial metrics, non-financial indicators of success, measures and targets. This will give them a sense that there is a logical, well-thought out plan in place that will make the strategy come alive.

Finally, a summary of the expected results from implementing the SFM strategy should be presented. This answers the question: what are the financial and non-financial consequences of implementing the proposed strategy versus not implementing it?

As the facility manager develops the initial business case, he or she should keep the sponsor involved in reviewing it. Remember, the sponsor is a senior manager who has the position power and personal influence to help push the strategy forward. The sponsor will play an important role in helping to gain approval of the strategy, so their input is critical. One final thought on the development of the initial business case: it is essentially a marketing plan, and one of the most important components of it is the Executive Summary. Senior management will likely formulate their opinion and make their decision primarily on how you summarize the business plan in the Executive Summary. Therefore it must be concise and impactful, telling the whole story in a very small amount of space and few words. The goal should be to get on the agenda of a senior management meeting and present the business case in ten minutes or less. Once the case is presented, the facility manager should ask for approval and if granted politely thank them and immediately excuse themselves from the room!

SUMMARY

Strategy development is of utmost importance. It is the roadmap for the future, providing the guidance needed to reach the final destination. It is the light that shines on the path allowing you to see the way. There is a strategy to developing the strategy. Recruiting a sponsor to support the effort and help pave the way to senior management approval is critical. The next step is to develop a mission and a vision aligned with the organization's mission and vision. The mission is why the strategy exists. The vision is a picture of where the organization wants to be in the future. From the mission and vision come the goals. The goals are the composite thinking of the organization in terms of the importance of sustainability and its impact on both the organization and society at large. And finally, the initial business case must be developed. It must convince senior management that SFM is worth the effort and that the benefits justify the end.

Remember the definition of high performance organizations stated in Chapter 3:

"High performing organizations are those that over time continue to produce outstanding results with highest levels of human satisfaction and commitment to the success of the organization."

This does not happen by accident. It takes hard work and commitment and sustainability can be a driving force.

Now that the strategy has been developed and approved, the facility manager can focus on forming the sustainability team.

Chapter 8: The Sustainable Facility Management Team

The facility manager is responsible for the operations and management of their organization's second largest asset. By the very nature of their position and responsibilities, it is logical to assume that their involvement in developing a SFM strategy for their organization is crucial. However, they

do not necessarily need to be the absolute overseers of the organization's entire CSR strategy. There are perhaps others at another place in the organization who are in a better position to do that. However, when it comes to facilities, they can and should take the leadership role in a SFM strategy and implementation plan. In Chapter 4 we discussed the insurgent and champion roles that the facility manager can play. Whether they act as a champion or insurgent, or are simply part of the team, the fact that facilities have a significant impact on sustainability means that the facility manager will be a fulltime participating member of that team.

Klaus Weber, assistant professor at the Kellogg School at Northwestern University said about the importance of the sustainability team:

"It's not like a lone hero turns a company into a sustainable enterprise. It's about people coming together and working together."

Whether the facility manager is an integral part of the organization's strategy, or they are forming and leading the team for the SFM strategy and

execution, a basic knowledge of team dynamics is helpful.

TEAM DYNAMICS

Before any group of people can become a successful team, they need to understand team dynamics. All teams go through similar stages in their lifecycle. According to Dr. Bruce Tuckman, the founder of the Forming-Storming-Norming-Performing team development model published in 1965, the lifecycle of a team starts when the team is formed and ends when the team is adjourned. Knowing the lifecycle stages of a team helps leaders develop the appropriate strategies to take to ensure teams function as intended.

Stage 1 / Forming

When a team is first formed, team members begin to get to know one another. Members want to justify their presence and earn group acceptance. They will depend on a leader for guidance and direction. The team will look for someone who has the characteristics of a strong leader. Until that happens, there will be little agreement on team aim, and individual roles and responsibilities will remain unclear. There will be much discussion about purpose. At some point, a leader will emerge.

Leadership Responsibilities in the Forming Stage: As the team begins to take shape, the first and most critical issue is the development of a strategy. In the previous chapter, we recommended conducting a Same Page Workshop to get the team headed in the right strategic direction. It is here, either by leading the Same Page Workshop or engaging a professional facilitator, the Team Leader should ensure that a mission and vision shared by the team is put in place.

The team leader should set the tone for the behavior of the team and help the team establish its rules of engagement.

Team member's concerns can be grouped into one of two categories, *task concerns* and *maintenance concerns*. Task concerns are the desire of team members to know how the team will move forward in accomplishing its tasks. Maintenance concerns are the need for team members to feel that their input is valued and they are welcome. It is very important to the congruity of the team for the Team Leader to help team members satisfy both of these concerns.

Stage 2 / Storming

In the Storming phase, members start to get a bit more comfortable with the process and the team. They begin to test boundaries. They seek professional status. Some may withdraw from participation. Others will recruit supporters that share and support their opinion.

In this phase, decisions do not come easily. Team members vie for position and leaders will be more readily challenged by team members. The clarity of the purpose of the team increases but uncertainties still persist. Cliques and factions form resulting in power struggles. It is imperative that the team be focused on its goal.

Leadership Responsibilities in the Storming Stage: The leader must be able to coach team members. The leader needs to recognize the skills and competencies of the various members and try and bring them out to strengthen the team. The Team Leader should understand individual communication and behavioral styles of the team members.

The Team Leader should continually clarify expectations and define the criteria for success that was developed as part of the strategy. The Team Leader should reinforce the roles and responsibilities of the team members.

Stage 3 / Norming

The Norming stage is where the teams begin to integrate. Internal factions disperse and the team's confidence grows. There is more compromise, and the group begins to value harmony over task performance. The danger here is that "Group Think" may set in, where good ideas can become diluted by harmonious consensus. Constructive dissent is subconsciously suppressed. The group can get stale and generic.

On the other hand, agreement and consensus is easily achieved. There is a general respect for the leader. Team members respond well to leadership facilitation and roles and responsibilities are more readily accepted as they are made clearer. Big decisions are made by team agreement and small decisions are delegated to committees, task groups and individuals. Commitment and unity are strong. The team begins to develop its processes and working styles.

Leadership Responsibilities in the Norming Stage: The Team Leader must facilitate the exchange of information between team members to clarify priorities and enable individuals to voice issues, concerns, and opinions. Group cohesion must be emphasized by developing a climate of leadership through empowerment and involvement. The Team Leader will place less focus on task behaviors and more focus on relationship building.

Stage 4 / Performing

As the team performs it is more strategically aware and knows clearly what it is doing. Team members have a shared vision and the team can stand on its own without participation from the leader.

There is group loyalty. Productivity and creative problem solving abound. The group becomes fully engaged and well organized. The team has a high degree of autonomy. Although disagreements still occur, they are resolved positively and changes to processes or structure are appropriately made. Relationship building continues to be more important – team members look after one another. The team requires tasks and projects given to them by the Team Leader.

Leadership Responsibilities in the Performing stage: The Team Leader distributes leadership throughout the team and encourages shared responsibilities. The Team Leader ensures that the team focuses on task orientation and achievement of objectives.

Once the team leader fully understands these four stages of a team, he or she will understand what phase the team is in at any given time and apply the strategies needed to make a successful team.

TEAM COMPETENCIES

There are a good number of things a team has to do well together to be successful. They have to have a good organizational structure in place. They have to communicate well with each other and they have to be committed. According to Christopher Lueneburger and Richard Murry Bruce of the management consulting firm Egon-Zehnder International, six key competencies govern the success of sustainability teams. They are:

- Balance
- Energy
- Openness
- Resilience
- Efficiency
- Alignment

Each of these competencies thread through all stages of a team. They also each have a particular importance in specific stages of a team's lifecycle. Let us look at each of these competencies in more detail.

Balance: It is not enough to bring together a variety of professionals with individual skills relevant to developing and implementing a sustainability strategy. Team members must complement each other to maximize their collective impact. There has to be a balance of the right skills and experience and how and where to apply them in the most productive way.

Energy: The group's energy level must be maintained through all the stages of a team lifecycle to maintain momentum. It is of particular importance in the Forming Stage. Many concurrent activities will take place in this stage as team members find their way; a mission is established, a strategy unfolds and a leader emerges. It will take a high level of energy to keep all of these things going.

Openness: Openness is how free team members are to express their opinions and voice their concerns. This is extremely important in the Forming Stage. Without an openness that allows this freedom to speak, personalities will not come out. Dominate behavior by some members that

squelches other voices may hinder leader emergence. Instead, the dominate member becomes the leader simply due to their domineering personality. Openness allows everyone who wants to show who they are the opportunity to do so, and as the team sees these personalities blossom, they are more likely to let the right leader naturally emerge from this genesis.

Resilience: In the Storming Stage, the strategy will be fully developed and the team will begin to gradually introduce it to a variety of audiences, including senior management and the organization's employees. There will be resistance to the strategy as people see how they are affected. Most people do not like change. The team will need to unite, stay its course, and overcome the resistance. They will need to be resilient and hold fast to the strategy.

Efficiency: Just as the team will need to be resilient against the resistance they will experience, they will need to be proficient in moving the objectives forward. The ability to turn sustainability initiatives into quantifiable results will become a key success indicator. As such, their processes must be efficient, effective and clearly articulated to team members so they can move quickly toward successes. Continual incremental successes and recognition of those successes by celebrating them help to diffuse resistance.

Alignment: Alignment is needed every step along the way. Alignment is equally important in all of the team stages. In the Forming Stage, alignment with the organization's overall strategy is the key to the development of the sustainability strategy. In the Storming and Norming Stages, the team is most vulnerable to internal and external influences that can derail it. Continual alignment with the strategy among all team members is critical. Constructive disagreement is welcomed, but disparagement is not and cannot be condoned at the expense of alignment.

Figure 8.1 shows how these team competencies relate to the five stages of a team.

Competency	Team Stages						
	Forming	Storming	Norming	Performing	Adjourning		
Balance		\triangle	\triangle	\triangle			
Energy							
Openness			Δ	\triangle			
Resilience	\triangle		Δ	Δ			
Efficiency	\triangle		Δ		\triangle		
Alignment			Δ	\triangle			

▲ Has the most importance in this (these) phase(s) Figure 8.1 Team Competencies

INDIVIDUAL TEAM MEMBER COMPETENCIES

Just as the team has to have certain overall competencies to be a success, team members must bring their own competencies to the team. It is these individual competencies that contribute to the overall competency and success of the team. These individual competencies have to be present at different levels among the team members. For example, everyone needs to be energetic. Energy is contagious and the team will need plenty of it as it progresses through the various stages of development. On the other hand, not everyone on the team needs to be a leader. Eventually one will emerge and the remainder of the group can grow under that person's leadership skills. Let us take look at the individual team member's competencies and how they apply to the team.

Teamwork: Henry Ford once said,

"Teamwork is the ability to work together toward a common vision. The ability to direct individual accomplishments toward organizational objectives. It is the fuel that allows common people to attain uncommon results."

All team members need to work as one and rally around their purpose. To succeed at the task at hand, everyone involved needs to combine their efforts. If everyone does their job well, it increases what the team can accomplish. This teamwork has to be recognized by everyone and they must understand that great things can happen if individuals master the fundamentals and work together as one unit. Everyone brings their own unique perspective to the table and each person's individual role must be recognized and appreciated.

Teamwork is something that must be a high priority and given constant attention. Every team member needs to understand how important it is for them to work together if they want to be successful. When challenges arise, as they always do, the team needs to have the resources, accountability and commitment to deal with them in a constructive and positive manner. **Energy:** There will be many simultaneous initiatives that will challenge the team. The team will need the energy to take these initiatives to their successful completion. Momentum must be maintained. Usually there will be a handful of individuals who will lead the team in energy level and inspire others to persevere. If their energy wanes, the enthusiasm will wane, and the entire team will lose the energy it needs to get things done.

Dedication and Commitment: Dedication and commitment are required of all team members. A lack of it on the part of a few people can be infectious and deleterious to the entire team. There will be ups and downs. The team will meet with resistance and sometimes have their recommendations rejected. It is especially important through those times that team members need to re-double their commitment to the team.

Communication and Interpersonal Skills: Communication and interpersonal skills are important in every job. It is unrealistic to think that everyone on the team will have great communication and interpersonal skills. Not everyone is wired that way. It is important that at least a few team members have exceptional communication skills. That is especially true of the team leader.

Passion: Along with dedication and commitment, team members should have a passion for sustainability. Whether it be preserving the environment for future generations, corporate social responsibility, conservation of our natural resources, an employee recruitment tool, or a marketing tool, each team member should strongly support the sustainability strategy. Demonstrating passion will help team members to inspire each other and to carry the message of CSR and SFM to the rest of the organization. There will be resistance to sustainable initiatives along the way, and passion will help team members push past the resistance.

Strategic Thinking: Carrying out a sustainability initiative is first and foremost a strategic endeavor. Strategy represents the broad priorities adopted by an organization in pursuit of its mission. The sustainability strategy must be in alignment with the organization's strategy. If so, it will

be much easier for the team to get buy-in from the organization's senior leadership.

Accountability: All team members must be accountable for their behaviors and actions. Their behavior must be supportive of the strategy and directed toward meeting the goals of the initiative. When team members are assigned tasks, they should complete them on time and to their fullest ability.

Leadership: Ultimately, a leader will either emerge from the group or one will be selected by them. This is not to say everyone on the team cannot be a leader. You do not have to be the most visibly enthusiastic team member - you can be a silent leader. If you demonstrate compassion and empathy for others and treat your membership on the team as a privilege, people will seek you out as someone they can talk to, ask for advice, and confide in. They will look to you because they know they can find a person who is approachable, will listen, and take genuine interest in what they have to say. Anyone can be a "behind-the-scenes" leader by practicing good listening skills, considering the opinion of others, and demonstrating a willingness to compromise. By being accountable, dedicated, committed, and passionate about sustainability, fellow team members will gravitate to you and treat you as a silent leader.

Figure 8.2 shows how these individual competencies should be best spread throughout the team.

Competency ▲ Critical to the success of the team ▲ Nice to have	Ho membe profic com	ow many ers should ient in ea ipetency?	d be ich ?
	One	A few	All
Teamwork			
Energy			

Dedication and Commitment		
Interpersonal & communication skills		
Communication skills		
Passion		
Strategic thinking		
Accountability		
Leadership		

Figure 8.2 Individual Competencies

THE TEAM

The sustainability team should consist of a core group of chief stakeholders who will identify and direct the tactics needed to satisfy the overall strategic objectives and keep the process on track. The structure of the core team must be flexible enough to add task groups as required to accomplish the tactical activities. The overall objectives of the sustainability team should be clearly communicated as should the responsibilities of each team member and the commitment required. Expectations should be established and agreed to by each team member and their manager. Each team member should also be held accountable for their actions.

The makeup of the team should be such that it can provide a broad and diverse perspective of the organization's view on sustainability. It will become the organization's voice. The team should be populated by people in the organization who have insight into the organization's inner workings, are proficient in a team competency, and whose job responsibilities touch sustainable actions in some way (e.g. the facility manager, the procurement officer, the Public Relations Director, etc.). The sustainability team is charged with developing the organization's sustainability strategy and then seeing that it is successfully implemented. Their involvement will occur at different levels. Some may be actively involved such as the organization's communication director. Others may only be passively involved. They may be asked to review progress at specific milestones along the way or to provide background support because of their particular expertise. Team members could also be persons outside of the organization who will be asked to play a role in the sustainability effort (such as suppliers). Examples of persons who may be included on this team at various levels of involvement are:

• Facility Management

Sustainability is closely connected to building operations and management. As such, the best case scenario would be for the facility manager to be the team leader.

• Senior Management

Senior management approval of the sustainability strategy will likely be necessary before execution can take place. They will also approve and fund the tactical plans as they go forward. Their endorsement and public support of the sustainability effort is critical to its success.

• Occupants

The occupants of the building will be impacted by the sustainable facility management program. They will be expected to comply with new operational policies and procedures and to modify their behaviors in order for it to succeed. Only with their buy-in will that happen and buy-in only comes by soliciting their input.

• Real Estate

Often larger companies have real estate departments separate from the facility management organization. Whether the organization owns or leases their buildings or a combination of both, Real Estate will have to be on board and understand how sustainability will impact how they approach the organization's real estate portfolio and leasing strategies.

• Engineering/R & D

Products that the organization designs and sells may be impacted by a corporate sustainability initiative. For example, a product may have to be designed differently so that more sustainable processes can be used in manufacturing it.

• Manufacturing

Production techniques and manufacturing process may be impacted by the sustainability initiative.

• Procurement/Purchasing

A major component of the sustainable facility management program is the procurement of products and services throughout the organization. How products are manufactured, who the people are that make the products, where they come from, how they are transported are all procurement issues that have a profound impact on a SFM program and the organization's overall commitment to corporate social responsibility.

• Marketing and Sales

Although it should not be a primary goal of a sustainability program, developing marketing and sales strategies around the fact that the organization practices sustainability can be a competitive differentiator.

• Information Technology

Part of the on-going process of managing sustainability programs long term is instituting energy management and building automation systems, and measuring performance. Information technology will be an important contributor because of the input they will have on the technology platforms and data management processes that may be required.

• Human Resources

Implementing a sustainable facility management program will involve instituting business practices that will impact occupants/employees. New behaviors will be expected and human resources will be relied upon to help with the change management system that will be needed to guide the organization through this process. Also, sustainability programs can benefit human resources in terms of helping them attract and retain employees.

• Finance and Accounting

As in any new initiative, financial management and accounting will play a role. Finance and Accounting can assist the facility manager in developing the financial aspects of the business case such as the return on investment (ROI) of various alternatives. They can also help in developing the financial metrics needed for monitoring and measuring progress and results.

• Legal

Legal will be needed at times to review supplier contracts and possibly deal with regulatory agencies.

• Local governing authorities

These people will be helpful in providing information on pertinent codes and regulations that are germane to implementing a sustainable facility management program.

• Service Providers

They will be required to conform to certain aspects of the sustainable facility management program that may impact their contract requirements and the products they use.

• Suppliers

Suppliers may need to change the products they provide, how they package them and how they are shipped.

• Utilities

They can provide pertinent data about energy usage, provide additional monitoring and measurement and identify cost savings measures.

The involvement of each team member will vary and may change during the course of the sustainability program's development. Each team member may be actively or passively involved in the development of the strategy. For example, purchasing may be actively involved throughout the project because of their influence on the procurement of products and services. Conversely, the legal department is a more passive member of the team in that they may only be involved when supplier contracts need to be reviewed. Figure 8.3 demonstrates the possible involvement levels of each prospective team member:

Figure 8.3 Team Member Involvement

TEAM OBJECTIVES

In chapter 7 we discussed the development of the sustainability strategy and sustainability goals. It stated that in general, sustainability goals can be grouped into two categories; global and operational. Goals associated with the development of strategy lie in the global category. They *drive* strategy. The example given in Chapter 7 was the goal of reducing the organization's carbon footprint. This is a high level goal. Coupled with other high level goals, a strategy can be wrapped around them and developed into cohesive statements of those high level goals. From this the strategic objectives that *support* the strategy can be developed. Referring back to our strategy model (see Figure 8.4), we can see how strategy is driven by organizational goals such as providing a particular product or service.



Figure 8.4 The Strategy Model

Objectives are concise statements describing the specific things an organization must do well in order to execute its strategy. In the case of a sustainability strategy, these objectives consist of the main areas of sustainable facility management that the organization wants to focus on. For example, an organization might want to improve their environmental performance, provide a safe, secure and responsible working environment, and increase their environmental performance in the supply chain. These three things should take precedence in the discussions at every sustainability team meeting.

The team should determine what specific tactics need to be put in place and accomplished to meet the strategic objectives. If the discussion veers off to topics that do not support these objectives, then the leader should steer the team back on track. It is imperative that the team focus on these strategic objectives at all times. The conversations will turn to tactics, but only to the extent of identifying what those tactics are, who will be charged with carrying them out, and what the current status of each are. Once that is completed, the conversation returns to strategy until the next tactic is identified. The detail of how the tactics will be successfully implemented will occur at task group meetings. Task groups manage the projects that result from the tactical planning.

TEAM RESPONSIBILITIES

Besides strategy development, goal setting, establishing strategic objectives, and tactical planning and implementation, the team has additional responsibilities to carry out in order for the sustainable facility management program to be successful.

First of all, the team should communicate the progress of the initiative to the whole organization. They will communicate up to senior management, laterally to the employees, and externally to customers and the general public. The team is the organization's voice on sustainability. Communication will be covered in greater detail in Chapter 13.

It is the sustainability team's responsibility to maintain the momentum of the initiative by ensuring that the right people are doing the right things at the right time, and that resources are properly allocated, efficiently utilized and effectively deployed.

The sustainability team should integrate all the aspects of the sustainable facility management program such as addressing the concerns and issues of all interested parties internal and external to the organization, controlling the budget to keep it on track, and ensuring that the team stays on point, maintaining the scope of the initiative within the framework of the strategy.

SUMMARY

The success of the sustainability strategy will hinge on the performance of the team. The team will be challenged with doing their best to carry out the strategy while at the same time carrying out the responsibilities of their everyday jobs. The performance of the team will require strong leadership and an understanding of team dynamics. The team must have the right competencies as must each individual team member. Objectives must be set, responsibilities assigned, and performance measured. Only when all of these things are in place can the team be assured of success. A SFM strategy cannot be developed in a vacuum, nor can it be forced upon people. It must be a collaborative effort by those who will be impacted by it.

Chapter 9: Measuring Building Performance – Energy, Carbon, Water, and Waste

A critical role for the facility manager in an organization's sustainability efforts is the ability to measure, monitor and report. Since buildings account for much of an organization's energy use, carbon footprint, water use, and waste production, the facility manager has an important responsibility in carrying out the triple bottom line objectives. That is; managing facilityrelated activities in a responsible fiscal manner, minimizing how our actions affect the environment, and by enhancing the positive effects of the workplace on our people. While the first two parts of that responsibility (efficiency and the environment) is of the utmost importance, the third (strategic management of the workplace) may hold even greater rewards for any organization that seeks to use SFM to maximize the health and productivity of its workforce.

In this chapter, we will address measuring the performance of the *physical* workplace in four key areas; energy, carbon, water, and waste. Most of these elements are under the management of the facility manager. This chapter focuses on these four important ongoing operational issues. In Chapter 10, Managing the Supply Chain in Sustainable and High-Performance Facilities, we will address several other key issues in

managing sustainable facilities – cleaning and appearance care, purchasing, green leasing, and managing service providers.

Measuring and Reporting

Auditing of an organization's financial activities has existed for hundreds of years. Financial auditing is intended to demonstrate to stakeholders that what the organization claims from a fiscal standpoint is in fact valid. The same is true for claims of CSR and a commitment to the triple bottom line. Since our interest in CSR and sustainable buildings has only been around for a few decades, the standards for reporting CSR are not widely established or agreed. There are however, some emerging standards and protocols that have gained some world-wide acceptance. Among them, the Global Reporting Initiative (GRI) has emerged as one of the most widely adopted reporting protocols for measuring triple bottom line commitment. We will discuss the GRI in more detail in Chapter 13.

The International Organization for Standardization (ISO) has also developed several standards for how measurements of resource use, energy, and emissions should be structured and reported so that stakeholders are able to make consistent judgments of the results, regardless of who or where the claim is made, provided the standards are followed. It is important to note that even though these reporting protocols and standards are emerging and gaining acceptance, they do not require or suggest results, targets or benchmarks.

The goals, objectives and target metrics of a sustainability or CSR program are left to the governance system or overall market. The individual organization and regulatory authorities determine their level of compliance with regulations and market pressures. It is the emergence of global standards such as the GRI and ISO that have focused the spotlight on our ability to measure and monitor our use of energy and water, and our carbon emissions and waste. These four key measures are also good indicators of our building's efficiency. Building efficiency is now measured and benchmarked against others around the world and we have seen the emergence of the term "high-performance" to describe our best buildings. Definitions of what constitutes a high-performance building are still under development. However, it is certain that energy, water, carbon, and waste are four of the most critical performance indicators.

Determining building performance and developing a plan for improvement consists of several key steps:

- Determine business risks
- Establish baseline building performance in the most important categories (such as; energy, carbon emissions, water, and waste production)
- Identify short and long-term opportunities for improvement
- Plan and manage improvement initiatives
- Communicate with stakeholders

Business risks include resource availability, the potential for rising costs, availability of capital, changing regulatory requirements, political climate, changing attitudes toward environmental commitment, general economic conditions, and a variety of other business factors that drive the decision to commit to sustainability initiatives. Establishing the baseline means determining the current condition of the facility regarding resource consumption and the production of carbon and waste. As with the use of any resource, there are opportunities to reduce, reuse and recycle the materials we consume to run our organization. The essence of sustainable facility management is in our ability to identify opportunities and develop a plan to improve building performance. Finally, we need to communicate our successes and engage our stakeholders in the process of creating a high-performance environment that optimizes building performance.

The process of measuring building performance should, at a minimum, address the impact of facilities on each of these issues:

- Energy use electricity, natural gas, and fuels
- Carbon Emissions the carbon footprint associated with the facility and establishing the boundaries of the facility footprint
- Water use establishing water sources, building uses, and handling of waste water
- Waste production proper disposal, reuse, or prevention of facility waste

Building performance audit processes have been developed around building sustainability rating systems. Rating systems originated in the design and construction of new buildings. Currently, most rating schemes incorporate systems for evaluating existing buildings. For the facility manager, few will have the opportunity to work with an established building rating system. However, these rating schemes can be utilized by the facility manager to address key building performance indicators.

In the U.S. alone, there are just under 4.9 million commercial buildings comprising over 70 billion square feet of space (Energy Information Administration (EIA), 2003). Of these 4.9 million buildings, only a small fraction will receive the benefits of a building certification system such as LEED or Green Globes. In most cases, the facility manager has to deal with the realities of capital and operating budget processes. With typical operating budgets of about 1.5 percent of current replacement value (CRV) (IFMA, 2009) and capital budgets of about 1.5 percent of CRV (APPA, 2013), there is not much room for significant expenditures for sustainability efforts. The most significant improvements may come when a building is slated for a major renovation that includes building operating systems that lead to major reductions in energy and resource use. In the meantime, the facility manager can utilize the building performance audit to determine which sustainability initiatives can be attributed to the ongoing capital and operating budget process.

Choosing the right metrics for measurement and monitoring is an important consideration in evaluating building performance. It would be appropriate here to cover a few basic definitions:

Metric – a unit of measure that is used as a performance indicator

Baseline – a measure of the current status at the beginning of an improvement process

Benchmark – a specific value of a metric that represents a specific performance level

Target – a future level of performance achievement

A building performance audit can cover many things, but the facility manager needs to concentrate on those issues that the workplace in general and the building specifically contributes. There are no more significant direct expenditures that are related to the operation and management of a facility than its energy use.

Energy Use

Energy can account for over 40 percent of a facility's operations and maintenance costs (IFMA 2009). Due to its magnitude and importance in managing cost, it receives much of the attention. Energy consumption is also the most significant contributor to carbon emissions. First, we will tackle energy consumption; then look at carbon emissions.



As shown in Figure 9.1, the two primary fuels in commercial buildings in North America are electricity and gas. Electricity is the primary fuel for building cooling and gas is used primarily for heating. The production and delivery of electricity and natural gas produces carbon emissions. These emissions can be significant, as in the case of the burning of fossil fuels to generate electricity, and leads to the indirect carbon emissions shown in Figure 9.1. Energy use in buildings can also produce some outflows including; waste heat, light pollution, and the direct carbon emissions associated with the burning of fossil fuels on-site.

Quantification of energy use is not particularly difficult for facility managers since it is highly regulated and purchased through metering. The primary measure of a building's energy efficiency is its Energy Use Intensity or EUI (sometimes referred to as Energy Utilization Index).

EUI = <u>Annual Building Energy Use (MJ or kBTUs)</u> Building Area (square meters or square feet)

The EUI is determined by measuring the building's annual consumption of electricity (measured in kilowatt hours) and gas (measured in therms). These quantities are easily derived from utility invoices which are determined from meter readings. Annual energy consumption is the sum of these metered quantities converted to BTUs or MJ (British Thermal Units or Mega Joules). The gross area of the building in square feet or square meters is typically used as the denominator in the equation. In building types other than office buildings, the organization may use other metrics for determining the denominator. For example, a manufacturing company may use units produced for the denominator, relating energy use more directly to the organizations output.

In determining a building's EUI, energy consumption is measured at the point of use, or site energy. Site energy is considered to be that which crosses the property line of a building and is typically the point at which the energy provider meters and charges for fuel consumption. Site energy differs from source energy in that source energy includes the total quantity of energy produced at the source of generation in order to deliver it to the building (site). Source energy production can often be up to three times that required to be delivered to the site, primarily due to losses in transmission. Source energy is not considered in the calculation of EUI; however, it becomes very important in the calculation of carbon emissions, which is covered later in this chapter.

A building performance audit will include a building's energy consumption and efficiency. There are many tools available for the facility manager to measure and monitor energy consumption, often in real time. Most building automation systems (BAS) and energy management systems (EMS) include capabilities for real-time monitoring of energy consumption. Since electricity is usually the largest portion of energy consumption, the facility manager is interested in four aspects of electricity consumption and management:

1. Consumption – total amount of electricity consumed, measured in kilowatt hours

- 2. Time-of-use variations in charges from the energy producer based on time of day or season
- 3. Peak Demand charges from the producer based on peak use during a specified time period (usually in one billing period)
- 4. Demand-Response Programs incentives to reduce demand during peak use periods

Figure 9.2 shows an electrical consumption profile for a facility over a 24-hour period. Consumption is the sum of all of the area under the "curve", measured in kilowatt hours (kWh). This is the basic unit of consumption that the utility provider charges for. The amount of electricity consumed during the day will vary as equipment is turned on and off. This results in peaks and valleys in the daily consumption profile. In this particular example, the consumption profile is shown for each major building system: Cooling, Lighting, Office Equipment, Ventilation, and Other.

Time-of-use charges are determined by the utility provider and are not necessarily applied in all regions. It is used as a tool of the utility provider to curtail consumption through financial penalty. These charges are applied in regions that have difficulty in delivering enough power to the electrical grid during time of peak demand. An example of this is during hot summer months in hot climates; during mid- to late afternoon when cooling loads are highest in commercial and residential buildings. During these peak periods, utility providers have difficulty in keeping up with the demands of the electrical grid and may resort to involuntary power reductions (brownouts). Time-of-use charges encourage consumers to curtail power consumption during peak periods and shift some of that load to off-peak hours.



Figure 9.2 Load profile for a facility – shows potential peak reduction and demand response strategies

Energy providers also use peak demand charges to encourage users (using a negative financial consequence) to shift peak consumption from peak hours to distribute consumption more evenly throughout the day. Peak demand charges are usually based on the highest level of consumption achieved during a billing period. This is often measured as the highest demand over a 15-minute period in one month's time, measured in kilowatts. Peak demand charges can be a significant percentage of a facility's monthly electricity charges. While the penalty for peak demand can be stiff, the opportunity to shift the building's demand for power and reduce the peak can also be significant. Strategies for reducing peak demand include altering the start-stop time for major building systems and selective shut-off of non-essential equipment during peak periods.

Utility providers may also offer financial incentives for facility owners to voluntarily reduce demand during peak consumption periods (demand response programs). Under demand response programs, the user agrees to utilize procedures such as using generator power, lowering set points, and reducing outside air intake in order to reduce peak demand during the daytime when demands on the electrical grid are highest. The utility provider contacts the user to initiate the reduction strategies when they anticipate peak demands on the grid that approach maximum grid capacity. In return, the user is offered reduced rates and other financial incentives to reduce demand.

Measuring and Reporting Energy Use

EUI – In order to determine a facility's EUI, the annual consumption of electricity and natural gas need to be assessed. This is easily done by auditing utility bills and determining annual consumption rates for electricity and natural gas. Utility invoices are provided monthly in accordance with the metering scheme for the building. In most cases there is a master electricity meter that measures consumption at the building property line, and total consumption is provided on the invoice in kilowatthours (kWh). Utility invoices are often complicated with time-of-use charges, rate differentials, generation charges, facility charges, and delivery charges. However, there is usually one place on the invoice that totals the amount of kilowatt-hours used over the course of the month. This is the most important number to track. Figure 9.3 is an example of a monthly utility invoice.

				Phone I Power (cusion inquiries: (888) 222 Outages: (888) 258	MEK BILL 2-3344 -5566
Account Number: 123456	68/5					Page 1 of 1
Sample Building Issue Date: 2/1/08		3	Total Amo	unt Due 2/28	80/	\$36,573.78
Location: 123 Main	Street	Usage History	Dates	Davs	kWh/Dav	\$/Dav
My Town,	USA	Billing Period	1/1/08-1/31/08	32	21,339.4	\$1,727.09
Rate: GS-1		Last Year	1/1/07-1/31/07	32	20,758.0	\$1,679.50
		Last Month	12/1/07 - 12/31/07	31	21,657.5	\$1,758.53
ELECTRIC SERVICE CHAR(SES/CREDITS	USAGE		TYPE	RATE	TOTAL
Power Factor Energy Charge		0.8899 195,815	Winter Off Peak kWh	9	0.062600	12258.02
Energy Charge		218,901	Winter On Peak kWh	6	0.080200	17555.86
Facilities Charge	Subtotal Electricity	Consumption 414,716 k 2,146	KWh Maximum	kw @	3.150000	6759.90
TOTAL ELECTRIC SERVICE	CHARGES/CREDITS					36573.78
GAS SERVICE CHARGES/C	CREDITS	USAGE (THER	(SWI)		RATE	TOTAL
Gas Charges			4,637		0.79899	3704.92
TOTAL GAS SERVICE CHA	RGES/CREDITS					3704.92

Figure 9.3 Example of a monthly utility invoice

The subtotal of electricity consumption is listed in kilowatt-hours (kWh). The total gas usage is listed in therms. The monthly invoices are totaled for the year. Figure 9.4 includes conversion factors for converting kilowatt hours and therms to British Thermal Units (BTUs). Figure 9.5 is an example of EUI calculation for the sample building. The EUI can be determined on a simple spreadsheet using the correct conversion factors for kWh to BTU's and therms to BTU's.

Conversions:	1 kWh = 3413 BTU
	1000 BTU's = 1 kBTU

1 Therm = 100 BTU's

Hanth	Building E	lectricity	Building Natural Gas		Total	
Month	kWh	kBTU	Therms	kBTU	kBTU	
Jan-08	414,716	1,416,255	4637	463,700	1,879,955	
Feb-08	362,472	1,237,842	4637	463,700	1,701,542	
Mar-08	421,542	1,439,566	3750	375,000	1,814,566	
Apr-08	404,827	1,382,484	4103	410,300	1,792,784	
May-08	404,827	1,382,484	1316	131,600	1,514,084	
Jun-08	438,143	1,496,258	1315	131,500	1,627,758	
Jul-08	470,274	1,605,986	563	56,300	1,662,286	
Aug-08	466,758	1,593,979	421	42,100	1,636,079	
Sep-08	422,669	1,443,415	451	45,100	1,488,515	
Oct-08	435,507	1,487,256	653	65,300	1,552,556	
Nov-08	405,122	1,383,492	1725	172,500	1,555,992	
Dec-08	415,273	1,418,157	4932	493,200	1,911,357	
Annual Use	5,062,130	17,287,174	28,503	2,850,300	20,137,474	
ilding Gross Sq	uare Footage =	252,243	square feet (sf)			
Energy Use I	ntensity =	79.8	kBTU/sf			

Figure 9.4 Conversion factors for building energy use

Figure	9.5	Determination	of EUI
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There are a number of commercially available calculators that will calculate the EUI based on simple data input. The U.S. Environmental Protection Agency's ENERGY STAR Portfolio Manager is a convenient on-line tool that allows for easy calculation of a building's EUI given the utility consumption by month, and a few basic building attributes such as building location and gross square footage. Portfolio Manager is a free online tool that can go well beyond calculation of EUI and into building energy benchmarking, building related carbon emissions, and energy related to water consumption. Building automation and energy management systems can also provide real-time calculation and monitoring of important energy metrics that allow for efficient energy monitoring, reporting and management.

The calculation of EUI generates baseline energy use for the building based on the total amount of utilities entering the property or generated onsite or in the building that is passed through a meter and attributes to the
gross square footage for that building. This is a whole-building approach to determining baseline energy efficiency.

In order to benchmark energy efficiency against similar buildings, a broader knowledge of baseline energy use of similar buildings operating in a similar climate is required. EPA's ENERGY STAR program utilizes data from a number of buildings in a similar locale in order to rate energy performance based on the EUI of similar buildings operated under similar conditions. The outcome of benchmarking a single building to other similar buildings in the database is a score from 1 to 100. For example, an ENERGY STAR score of 50 indicates that 50% of the buildings in the database are less efficient and 50% are more efficient that the building being scored. The higher the score, the more energy efficient the building is relative to its peers. The ENERGY STAR program for buildings can also certify the building as an ENERGY STAR building on an annual basis, provided that a third party validation is conducted of the EUI and the building achieves a minimum score of 75 or greater. In achieving a rating, there are several other factors evaluated. Some of those factors include; hours of operation, whether the building is heated or cooled, total occupancy, and number of computers. Space allocations for different use types are also considered (server rooms, indoor parking areas, outdoor lighting that is not metered separately, and special use areas).

EPA's ENERGY STAR is considered an energy labeling program. The UK and European Union have similar labeling programs that require owners to provide information on energy efficiency through Energy Performance Certificates and displaying a Display Energy Certificate (DEC). ASHRAE also has a similar building Energy Quotient (bEQ) program for determining and displaying building energy efficiency.

Most energy labeling programs rely on a whole building measurement process that evaluates the total amount of energy used by the building as measured at a single point of entry (single meter), or at discrete multiple points that can be added to account for the building's use of site energy. However, not all buildings are metered in a convenient manner such that total energy use can be allocated to the building. Total building energy use (EUI) can be a useful metric to measure and monitor. However, if there is only one, or a limited number of meters to measure energy consumption, there may not be sufficient information available to the facility manager to determine the system or systems in the building that account for the largest percentage of energy use.

This is frequently the case with data centers located within the building, and other high-energy use building systems such as HVAC systems. Sub-metering, building automation and energy management systems are frequently used to provide additional energy consumption data within the building. Sub-metering allows for measurement and monitoring of individual systems, often individual electrical circuits. Remote monitoring and non-invasive metering techniques are common elements of new buildings and are increasingly useful in monitoring building systems in older buildings.

An important consideration for the facility manager is to choose the most applicable (and helpful) tools for measuring and monitoring energy consumption and choosing the appropriate metrics for ongoing monitoring. EUI provides the baseline for the whole building, and the choice of buildings against which to benchmark is a function of the region of the world and regulatory requirements for energy labeling and reporting. The area of the building used in determining EUI is also important as the area correlates to the amount of energy use being measured with the function of the area. All building types may not be suitable for a calculation of energy use per square foot. Other measures could include energy required per manufactured unit in a manufacturing environment, or energy consumption per building occupant.

Data centers are typically high energy-use portions of a building and it may make sense to evaluate data centers separately. The IT industry favors the use of the Power Usage Effectiveness index (PUE) in evaluating data centers. The PUE is the ratio of power entering the data center to the power used to run the computer infrastructure within it, thus separating building infrastructure power requirements (primarily cooling of the data center space) from the power required to run the equipment.

Thus far, we have addressed measuring and monitoring energy consumption at the building level. However, there are a number of sublevels of energy consumption within the building that command the attention of the facility manager in evaluating building performance and reducing energy consumption. Although no two buildings are exactly the same, the distribution of power within a building might look something like Figure 9.6.



Figure 9.6 Energy Use within a typical office building (Source: U.S. Dept. of Energy)

most buildings, In lighting makes up a major portion of consumption, followed by heating and cooling. Depending on the climate, heating and cooling can become the dominant power demand. Office equipment has accounted for an increasing portion of the energy use in

facilities over the last few years.

Building management systems and energy management systems are intended to provide the building engineer and facility manager with the proper tools to measure and monitor building systems in real time so that overall consumption characteristics can be evaluated and adjusted and individual system efficiency can be measured, monitored and adjusted. With the proper tools to look at real time energy use of each of the systems shown in Figure 9.6, any number of strategies can be developed for energy reduction. Some of those strategies include:

- Purchasing and use of energy efficient equipment
- Adjusting start-stop times to avoid peak and time-of-use charges
- Running equipment only when necessary
- Installing energy efficient lighting
- Using occupancy sensors to reduce electrical consumption
- Utilizing more efficient heating and cooling equipment
- Utilizing solar, geothermal, wind and other renewable energy sources

The intention of this book is to provide the facility manager with some basic tools and understanding of building systems so that they can start to employ some of these strategies for energy reduction. However, it is not intended to provide an exhaustive list or detailed coverage of the potential strategies that exist.

While EUI includes gas and electrical consumption for a building, there are several other fuel consumption practices that need to be considered in a building performance audit. Other sources include diesel fuel for emergency power generation and any on-site sources of power generation.

On-site power generation includes central power plants and any source of renewable power produced on site (wind power generation, solar, biomass, etc.). The building performance audit should consider all on-site and off-site energy sources used to power building systems such as; lighting, heating, ventilation and air-conditioning, vertical transportation, water, plug loads and process equipment.

CARBON EMISSIONS

Figure 9.7 shows the typical sources of carbon footprint of a building, starting with the activities of the people or workforce. Other inputs include material used in and around the facility including; transportation and shipping of goods used in production activities in the facility. The bulk of the carbon emissions associated with the management and operation of buildings is related to energy consumption (electricity and natural gas).



Figure 9.7 – Carbon inflows, generators, and outflows in buildings

Since most facilities rely on fossil fuels for energy, the carbon emissions related to building energy requirements will be significant until such time as we are able to displace fossil fuels with renewable and other no - or low-carbon fuels. For now, the largest portion of the carbon emissions profile for a building will be due to the fuels used to produce the electricity, and the extraction, processing and use (burning) of natural gas.

Carbon generators associated with the facility include the transportation of people to and from the building, material flow into and out of the building, and any production activities within the facility. Business travel is also included in an organization's carbon footprint. However, most would not consider business travel a function of the building (other than the

location of building as it relates to the requirements for business travel). Inclusions and exclusions to the calculation of footprint become a function of the operational boundaries that are drawn in determining footprint.

One of the most commonly used carbon footprint tools is that of the World Resources Institute (WRI) Greenhouse Gas Protocol Initiative. The GHG protocol initiative separates carbon output into three different "scopes". The three carbon scopes of an organization are shown in Figure 9.8.



greenhouse gas emissions (Adapted from World Business Council for Sustainable Development, Greenhouse Gas Protocol)

There are five primary "target" greenhouse gases as shown in the figure. These gases are targeted because they are widely agreed to contribute to the warming of the atmosphere over time. Since these gases have been identified as the most significant contributors to man-made atmospheric carbon, the calculator is focused on these five gases.

Scope 1 and 2 GHG emissions are the energy-related emissions that are associated with the building. Scope 1 emissions include direct emissions related to the combustion of fuel – either to generate power or to operate fleet vehicles. Scope 1 emissions would otherwise be known as what you "burn" related to your organization. This would be significant for a facility or campus with on-site energy generating capabilities such as a central plant. It would also include the burning of any imported fossil fuels such as diesel fuel used to power emergency generators. Scope 2 emissions include purchased energy. Relative to powering the building, this is what you would "buy". This is the most common and easily measured form of emissions since the bulk distribution of this energy is easily metered. However, complications exist once the purchased energy reaches the facility in the manner in which it is distributed throughout the building or campus. The facility manager can usually readily determine the gross amount of purchased energy, but may have more difficulty in determining the most prominent uses of that energy once it reaches the property.

Properly developed measurement and metering plans can help the facility manager to determine the most frequent and heavy users and develop specific initiatives to target the energy reduction. Since energy is normally distributed to a number of systems within a building, a properly constructed metering plan can allow for frequent or real-time monitoring of where the most energy is being consumed. A reduction in power consumption leads to a reduction in GHG emissions.

The building performance audit can be used as a tool for energy and carbon reduction. Tools such as energy audits and building commissioning techniques can be used to reduce energy and thus carbon emissions.

Scope 3 emissions are the most difficult emissions for any organization to determine. Scope 3 emissions encompass just about everything in the "other" category. Whereas scope 2 emissions are relatively easy to determine as long as the appropriate measuring tools are in place, scope 3 emissions rely on significant third party input to determine. Scope 3 emissions are generally considered to be all emissions that are not included under scopes 1 and 2. They include; GHG emissions from business travel, all supply chain sources, emissions related to subcontractors and suppliers, waste generation, and a variety of other GHG sources related to the conduct of the business of the organization. Determining scope 3 emissions is dependent upon where the organization chooses to draw their organizational and operational boundaries.



Figure 9.9 Setting Boundaries in Carbon footprint

Figure 9.9 shows a typical organizational profile for the delivery of goods or services and a sample of an organizational and operational boundary. The organization may produce a product, or perform in a service industry. Either way, there will be a number of stakeholders including customers, vendors and service providers that support or influence the production of goods and services and support the facility management portion of the organization. The three scopes of carbon emissions represent the majority of potential carbon outputs. Organizational boundaries are those limits an organization chooses to draw around the scope of their organizational influence on creating GHGs. These include which subsidiaries to include, which facility locations are included in the GHG calculations, and how far down the organizational chain (joint ventures, affiliated companies, etc.) the organization chooses to go in order to measure their GHGs.

Operational boundaries include those levels of product production or provided service to which they are willing and able to measure GHG production down the supply chain. For example, goods purchased in the manufacture of a product would have a carbon footprint which is not under direct control of the manufacturing organization. However, the supplier of those goods should be able to determine the carbon footprint of those goods and materials. The operational boundary of the organization determine where in the supply chain the calculation of carbon footprint "stops", and become someone else's responsibility.

Measuring and Reporting Carbon Footprint

The facility manager may be involved in a portion of the scope 3 emissions, depending on how the organization draws its operational boundaries. The facility manager may be involved in determining organizational carbon footprint related to employee commuting, product distribution, waste disposal, outsourced support services, or even in product use. The operational boundaries and management direction defines the extent of the facility managers involvement in scope 3 measurement and reporting.

The primary contributor to carbon footprint of facilities is in Scope 1 and Scope 2 emissions – emissions associated with the energy consumption of the building and any fleet vehicles operated by the organization.

Whereas site energy is used to determine the energy efficiency of the building, source energy is used to determine carbon footprint associated with energy use. Carbon emissions associated with energy use depend on the manner in which the energy is produced and delivered to the building. Since most parts of the world use a common grid for electrical distribution, the manner in which the power is produced and introduced to the grid will determine the building's energy-related carbon footprint. In most cases, there are regional calculations made as to the percentage of fuels used to generate electricity, and those percentages drive the carbon equivalent of each unit of electricity delivered to the building.

For example, the carbon footprint of a unit of electricity delivered in the northeast United States will utilize a combination of coal, nuclear power, hydroelectric power, renewable, and other fuel sources to deliver that unit of electricity. The carbon equivalent of a unit of electricity will be higher for regions that use a high percentage of coal or other fossil fuels. Transmission losses, typically on the order of 3 times the amount actually received at the building site, also contribute to the carbon footprint since 3times the amount of units are required to be produced for each unit consumed on the site. All of these factors are used in the determination of energy-related carbon footprint, the largest portion of most building's footprint.

Fortunately from an audit standpoint, there are many tools that exist for the facility manager to determine a buildings energy efficiency and energy-related carbon footprint. Since the conversion of kilowatt hours of electricity and therms of gas to BTUs and MJs is relatively easy, there are many calculators available to make the conversion. If the fuel sources used to generate the electricity are known, and the carbon footprint associated with the extraction, delivery, and burning of natural gas are known, the carbon equivalent of those quantities consumed can be determined. There are many conversion factors that are readily available for determining the carbon equivalent of a kilowatt of electricity or a therm of natural gas. For electric power, these factors depend on the source energy used to produce the power consumed by the building and are a factor of the fuel mix used for that "region" of the power grid. Programs such as the U.S. EPA's ENERGY STAR Portfolio Manager have built-in conversion factors that take the energy consumption data used to determine building energy efficiency (EUI), and add the carbon equivalent associated with the production of that energy. The conversion factors vary depending on region. The other convenient feature of a tool such as Portfolio Manager is that it has the capability of using the EPAs database of source energy information to determine the energy-related carbon footprint of the facility.

Programs such as the UK's Department of Environment, Food, and Rural Affairs (DEFRA) publish guidelines for conversion factors for reporting GHG emissions (2011 Guidelines for DEFRA).

Although the energy-related carbon footprint of a facility is the largest portion of its footprint, there are other contributors to the footprint that a facility manager may be responsible for. Fortunately there are also a number of carbon footprint calculators available that make the determination of facility-related footprint a bit easier. The facility manager may also be involved in the determination of carbon footprint related to employee commuting (as scope 3 emission). In that case, data such as commuting miles, types of vehicles, and gas mileage ratings are used to convert gasoline consumption to carbon emissions. Other conversion factors are readily available for business air travel. Other scope 3 emissions might be more difficult to determine and may require reliance on vendors, suppliers, and service providers to determine. Reductions in energy use and carbon footprint have become major issues in purchasing programs, covered in Chapter 10. Some organizations extend their commitment to social responsibility by participating in the carbon credit market. By purchasing carbon credits, the organization can "take credit" for carbon reduction through a third party that theoretically reduces carbon output through investment and operation of green and renewable energy sources. Although the direct link between the credit purchaser and the direct reduction of carbon output follows a long and complicated route, many believe that this type of investment is needed to encourage carbon reduction strategies and investment in clean and renewable technologies. The choice to purchase carbon credits belongs at the organizational and senior management level. An explanation of the purchasing and certification of carbon credits is beyond the scope of this book, but should not be ignored as an element of CSR programs.

WATER USE

Buildings are major sources of water use around the world. The primary concern of the facility manager is the amount of water used to operate a commercial facility such as a manufacturing plant, airport, healthcare facility, or commercial office building. Although much of our water use around the planet is associated with agricultural uses; about 82% of the water supply; there is a significant amount of water attributed to the workplace.

Water use in commercial buildings in the U.S. is estimated to be about 12 to 14% of our municipal water supply (United States Geological Survey [USGS] and the U.S. Green Building Council [USGBC]). In Canada, it is estimated to be about 19% of the municipal supply (REALPAC 2011); in Europe; 10% (SAGE Gironde).

Incentives for the reduction of water use are not considered a high priority around the world, since it is still a relatively inexpensive resource for regions with a large amount of buildings and reliable municipal supply. Much of the recent research on the cost of water indicates that it may be undervalued. Some sources indicate that water is delivered to consumers at about one-sixth of its actual cost when considering the true cost of extraction, delivery, use, and treatment of wastewater (BD+C, 2009). The processing of water, to include waste treatment is also an energy consumer – estimated to require about 4% of the U.S. energy production (BD+C, 2009).

A simplified view of water inflows, uses, and outflows in a typical facility is shown in Figure 9.10.



Figure 9.10 Inflows, uses, and outflows of water in buildings

Inflows to the facility include precipitation, utility provided, and any on-site water sources. The primary concern of the facility manager is the utility-provided water. There are three primary *water uses* in facilities:

- Domestic water
- Process water
- Irrigation

Domestic water use includes all water used for lavatories, sinks, showers, and toilets. In the workplace, the use of domestic water is relatively predictable. Plumbing codes have been in place for decades that codify water use in toilet and washroom facilities by population and gender of the users.

Leakage can also account for a significant source of water use (waste). A single leaking tap can waste up to 24,000 liters (approximately 6,200 gallons) per year (Australian Department of Environment and Heritage, 2006). Outflows in buildings include evaporation, sewage, gray water, and storm water runoff. Evaporation is a significant issue in the operation of building HVAC systems using a cooling tower (process water). The water performance of buildings is primarily dependent upon water efficiency and water conservation. Water efficiency is driven by the technology of the water use devices, and water conservation is dependent on consumption by the end user (BD+C, 2009). Most sources agree that water consumption in buildings can be reduced by 20 to 30% by utilizing both efficiency and conservation measures (BD+C, 2009 and European Commission, 2009).

Strategies for the reduction of water use in buildings are usually focused on the water efficiency approach -- technological use of low-flow toilets, waterless urinals, and low-flow lavatory and shower fixtures. Significant reductions in water demand in the workplace can be achieved by using low-flow and waterless fixtures.

Process water includes water uses in the heating and cooling of buildings. Water-based building cooling systems rely on the evaporation of water to produce cooling. These types of systems employ cooling towers that are designed to use the evaporation of water as a cooling technique. Cooling towers require a significant amount of makeup water to operate properly. Several million gallons of water per day can be lost to evaporation in large-scale building cooling systems. This loss of process water can lead to significant demands on local water supplies. The average cooling tower uses about 3 gallons of water per minute per ton of cooling (BD+C, 2009). A 1,000 ton cooling system uses 3,000 gallons of water per minute. A reduction in building cooling load of about 10 tons can save about 43,000 gallons of water per day.

Irrigation can also account for a significant amount of water use in buildings. The need for aesthetically pleasing outdoor landscaping should be balanced with water demand. As with electrical power, the ability to meter and measure different water demands in a building is critical to reducing demand and controlling both water use and waste treatment costs in a facility. Distribution of the water supply to the building and collection and treatment of waste water is controlled by the municipality.

In many cases, buildings are charged for wastewater treatment based on the amount of water they use. If the building is using large quantities of water for landscaping, they may be unfairly penalized for the production of wastewater that they are not responsible for producing. In these, as in all cases, the accurate measurement of water use and wastewater production through metering and monitoring is a key part of the facility manager's responsibility.

Measuring and Reporting Water Use

There are three primary approaches to measuring the water performance of buildings (European Commission DGENV, 2009) --- the *key fixtures approach*, the *global water consumption approach*, and the *water management plan approach*. This is a brief summary of each approach:

Key fixtures approach – this approach relies on the technology of water efficiency and focuses on building fixtures and equipment that make the most efficient use of water (based on the tolerance levels of the user to using less water). This approach is used by most of the world's building rating systems. These systems target fixtures with the highest water consumption and compare the water usage rates of modern, efficient fixtures against traditional plumbing code fixture rates. The key fixtures approach works on the idea that eventually, we will retrofit all of our buildings with the most efficient fixtures and thus drive down water consumption over time. Many building rating systems calculate total consumption with efficient fixtures and compare that consumption rate to the same building with standard fittings. The rating systems then reward the user with points for level of reduction in consumption. Using a key fixtures approach exclusively would have the tendency to ignore other important water conservation measures such as gray water use and rainwater harvesting.

Global Water Consumption (GWC) approach – this approach assesses the overall water consumption of the building and establishes metrics for baseline consumption and benchmarking. Using the baseline consumption metrics and employing best practices for water conservation, the GWC approach can allow facility managers to tap into a wide variety of conservation measures as well as employing the technological approach of key fixtures. There are a number of water performance benchmarks for buildings around the world. The typical water metric is expressed in quantity of water per person (or per capita) or per area. The Australian NABERS (National Australian Built Environment Rating System) program is based on a calculation of annual water consumption of liters per square meter (l/m^2). Other programs such as the UK's Watermark program use a benchmark of 9.3 cubic meters of water per person per year and a best practices target of 6.4 cubic meters per person per year. BREEAM awards points in the building rating system for achieving consumption levels using a metric of cubic meters per person per year (m³/person/year).

Water Management Plan (WMP) approach – the water management plan approach uses metering and target definition to evaluate water performance. This approach seeks reduction targets based on actual consumption data for the building. The advantage of this approach is that no matter how efficient (or inefficient) a building is, the manager of the process is the primary driver of efficiency and he or she is using real consumption data as the baseline. In this case there is no arguing the validity of an outside benchmark since the existing building *is* the benchmark.

An audit of water use involves a comparison of actual (metered) water consumption against the standard set by the plumbing code (key fixtures approach), or against an established consumption benchmark (per person or per area). Although there is a tendency to use occupancy-based metrics in establishing benchmarks (such as; quantity per person per year) in evaluating building water efficiency, there are at least one study that shows that there is stronger correlation between consumption and building area than there is between consumption and occupancy (REALPAC, Canada, 2011). This implies that the simplest water metric in office buildings is quantity per square foot (or square meter). In other types of facilities, the metric may change, depending on the facility use. A European Commission (DGENV) study in 2009 listed a number of different metrics for evaluating water consumption. Examples include gallons (liters) per guest per day for the hotel industry and gallons (liters) per bed per day for hospitals.

Most sources agree that water audits serve a critical function in determining baseline water use and defining technological and conservation approaches to reducing building water consumption. Water audits should also focus on policies that govern consumption as well as prior efforts to reduce consumption. As with electrical metering plans, there are challenges to the facility manager in the manner in which water consumption is metered.

Implementing a building water performance plan requires preparation, planning, implementation, and communication. The key steps

are:

- Performing the water audit
- Monitoring water use metering plan
- Determining performance targets and metrics
- Identifying conservation options
- Allocating proper resources including capital and operating budgets
- Implementing the water conservation initiatives
- Reporting, informing, and engaging facility users

Effective water and wastewater strategies is an increasingly important part of the facility manager's responsibility, especially as water becomes a more important and expensive resource. Strategies to reduce water consumption, collect and use natural water sources such as rainwater (where permitted), and to reuse gray water in facilities are growing in importance from a conservation and financial perspective.

The water audit should lead to reduction strategies that can be budgeted, implemented, and monitored over time to lead to real reductions in consumption. Some of the more frequently used strategies include:

- Installing low-flow fixtures
- Utilizing native plantings for landscaping
- Using rainwater harvesting systems (where permitted by code)
- Using gray water capture and re-use for irrigation and other non-potable requirements
- Reducing cooling load requirements and cooling tower watersaving technologies
- Implementing an aggressive leak detection and avoidance plan
- Seeking behavioral changes in water use and communicating stakeholder benefits

Implementations of water reduction initiatives have the potential to reduce consumption from about 10% to over 30%. This can lead to significant reduction in resource consumption, cost savings, cost avoidance, and better risk management by the organizations the facility manager serves.

WASTE HANDLING AND DISPOSAL

The use of natural resources is common in the conduct of almost every business in the world. In facility management, there are a number of resources that are used in almost all facilities. Regardless of the industry the facility manager serves, there are ample opportunities to assess the purchasing practices employed (inflows) and the effect of those practices on our environment, on the user, and on our finances – the triple bottom line of how we purchase, use, and dispose of materials. Purchasing policies and practices are explored in Chapter 10.

The concept of reduce-reuse-recycle is the mantra of all sustainable facility management programs, including those associated with green and high-performance facilities. In the workplace, the idea of reduce-reuserecycle has been expanded to changing the source of materials we use and thinking about the effect of our consumption on the waste stream.

Just as we are learning to reduce energy consumption, the use of natural resources in day-to-day business life hold significant promise toward reducing material consumption related to facilities. The facility manager usually has significant influence over the purchasing of paper products, cleaning agents, construction materials, and employee amenities such as food service. All of these materials and resources offer significant opportunities for reduction in the amount of material that comes and goes from the building. However, many of these reduction strategies require a fair amount of education and cooperation of stakeholders.

Change management and communication become a large part of a facility manager's responsibilities in conserving material and properly disposing of materials within a facility. Recycling programs are often met with an equal degree of enthusiasm and skepticism. However, significant opportunities for reduction in consumer products and facility waste can be achieved through effective resource management.

Figure 9.11 is a schematic of material flow through a building. Inflows are represented by five major categories of materials and resources and outflows consist of four major types – recyclables, solid waste (trash), food service and yard waste (compostable), and hazardous waste.



Figure 9.11 Inputs, flow, and waste in buildings

In facility management, we can generally categorize day-to-day material inputs into five key areas:

- Consumables
- Durable goods
- Construction and alteration materials
- Food service goods
- Industrial and hazardous materials

In addition, the building site has a contribution to the waste stream in the form of yard clippings and organic material. Each of these inputs has a corresponding output once their building use has been exhausted.

Consumables: Disposal of ongoing consumables includes materials and products such as; paper, packaging material, recyclables, and trash generated on an individual basis. Since the facility manager is the steward of the built environment over the entire life cycle of the facility, consumables can also include those long life-cycle products such as lamps and disposable products used in building maintenance. Many building rating systems separate out lamps into a different category of waste. However, for the purposes of this discussion, we will consider lamps as an ongoing consumable – albeit a long-life cycle consumable.

Facility recycling programs would be considered a major part of this category. Bottles, cans, plastic, and paper products are an important part of any facility recycling program. A major element of any good recycling

program starts with reduction strategies. This is often applied to products such as paper. Savings can be achieved through the reduction in paper purchasing through double-sided printing practices and policies that encourage greater use of electronic communications in lieu of printing. Reduction and recycling programs require a high degree of cooperation and education of stakeholders. The change management component of stakeholder education regarding consumables is a very important part of this process. In any facility, the facility manager is likely to encounter a broad range of acceptance of reduction and recycling programs, ranging from enthusiastic support to downright resistance.

The challenge of recycling in facilities is the collection and removal points. A facility recycling program needs to be designed around how the recycled materials are collected and transported to the removal location. Recycling bins and personal trash receptacles form the first line of communication with the facility stakeholders. The amount and type of containers and level of convenience to the occupant often dictate the success of the program. An understanding of human nature and good communications often dictate the outcome of a good facility recycling program.

Bottles and cans are a frequent target of recycling programs. Municipal recycling programs generally dictate what types of plastics they will recycle. For products such as plastic bottles, the triangular symbol found on the bottom of the bottle signifies the type of plastic that was used to produce the bottle (PET, HDPE, etc.). Figure 9.12 shows the standards symbols for "recyclable", and "recycled" according to the Society for Plastics Industries (SPI) standards. Recyclers will indicate which products are recyclable by indicating which symbols they will accept. Over the last several years, more municipalities are accepting a wider range of waste products.



Figure 9.12 Recyclable and recycled symbols

The plastic type used in consumer products determines the "recyclability" of the product. Figure 9.13 shows the seven most common recycling symbols in use, their corresponding plastic type, and the primary use of the product.

Symbol	Туре	Primary Use	
PET	Polyethylene terephthalate	Soft drink bottles	
Ês	High-density polyethylene	Bottles, grocery bags, milk jugs, plastic recycled lumber	
â	Polyvinyl chloride	Pipe, fencing, lawn chairs	
Â	Low-density polyethylene	Plastic bags, containers, retainer rings on drink packs	
ß	Polypropylene	Auto parts, food containers, dishware	
	Polystyrene	Packing peanuts, food containers, coffee cups	
Ĝs	Other plastics (acrylic, nylon, polycarbonate)	Bottles, plastic lumber, safety glasses	

Figure 9.13 Plastics from group 1 to group 7

Another popular reduction strategy is the reduction in use of bottles and cans. Although bottled water has enjoyed significant popularity, the recycling of those bottles has become problematic and the cost to the consumer is quite high. Reduction strategies include the use of stainless steel and other reusable water bottles that encourage reuse and reduction of our dependence on disposable plastics. Many meeting and convention venues now discourage the use of disposable plastic bottles and provide drinking water in permanent containers and dispensing into smaller recyclable plastic cups or reusable containers.

Paper is the other major category of recyclable product that most people can readily identify. Paper, as well as many other products, is identified by its pre-and post-consumer recycled content. Pre-consumer recycled products are those waste products from another manufacturing or production process that make their way into the products we purchase before we purchase them. Post-consumer recycled content is derived from the amount of material used in the production process that has been reclaimed from consumers and used again. For example, 40% postconsumer paper products include 40 percent (by weight or volume) of paper that has already been recycled and put back into the new product.

Consumables account for a large portion of the waste handling effort in facilities and require a significant amount of attention from the facility manager. Waste handling and recycling in facilities is often outsourced or out-tasked to a service provider. The service provider can be an important strategic partner to the facility manager in that they know the municipal recycling practices and waste disposal and recycling methodologies. The service provider can often assist the facility manager in waste audits and the measurement, monitoring, and benchmarking of waste removal in facilities.

Durable Goods: Durable goods include office equipment and furnishings that have a mid-range service life of a few years, but are generally not a permanent part of the facility. This includes equipment such as copiers, printers, computers, appliances, and office furniture. There are two primary sustainable strategies for use with durable goods – purchasing those that reduce consumption by reducing energy consumption and offering a longer service life, and proper disposal. Durable goods normally fall into the capital budget in facility management.

Purchasing to reduce consumption includes buying products that use less. The primary example of this type of strategy is buying labeled products that consume less power. Computers, monitors, and electronic appliances that have a valid and recognizable label such as the ENERGY STAR rating program in the U.S. provide a reasonable degree of assurance that we are purchasing the most efficient products available at the time of purchase.

Recycled or recyclable content may also drive our purchasing decisions for durable goods in facility management. The amount of pre-or post-consumer recycled content can influence our buying decisions and help meet building performance goals set by our organizations. The term "recyclable" has entered into the consumer's vocabulary. Recyclable products will certainly grow in popularity as technological improvements advance in how we deal with durable goods at the end of their service life.

Another significant savings in durable goods is in the design and use of modular furniture, demountable partitions, and raised flooring systems. These durable goods can account for significant savings when it comes to reconfiguration of office systems, allowing reconfiguration and reuse for multiple reconfigurations. Use of raised floor systems can account for significant savings in office reconfiguration by allowing for easy redistribution of electrical and telecommunications services. This can lead to reduction in the cost of churn in the office environment. Even if modular systems are not utilized, office furniture can have a positive contribution to sustainability efforts through the resale or donation of used office furniture at the end of its useful life.

One of the most significant contributions of the facility manager to sustainable facility management is in the management of the life cycle of the materials and resources that are the inputs to each and every facility. For durable goods such as furniture and equipment, proper maintenance and operation of the equipment can assure that expected service life is met. In many cases, there are processes that can be employed to extend expected service life. This practice, in itself, can be considered a sustainable practice. Proper maintenance can avoid premature failure and periodic retrofits and upgrades can often lead to extension of service life.

Construction and Alteration: Construction waste includes those materials that require disposal at the beginning of the life cycle, whether that includes base building construction or facility alterations. Materials such as lumber, drywall, excess metals, conduits, plastics, and finish materials make up the bulk of construction waste. According to the American institute of Architects (50to50 Wiki), these materials often account for 25 to 40 percent of the solid waste stream in the U.S. and only about 20% of construction waste is recycled. Significant reductions can be achieved in the design and construction process by using modular systems and raised floor systems as mentioned in the durable goods section.

For the facility manager, the reduction of construction and alteration waste begins in the design and construction process. Sustainable design practices are employed by most designers and designers can serve as a resource for the facility manager on the most current practices in reduction, reuse, and recycling practices. Construction contractors can also be a good source of sustainable and waste-reduction practices. **Food Service Goods:** Sustainable dining options include tray-less dining, use of reusable dining products, and dispensing of paper products, condiments, and other consumables. Handling of dining waste and food disposal, composting, and food donation are important parts of sustainable food service operations. Food service is often outsourced in facilities and food service providers are a good source of information on the most efficient and sustainable practices in food service.

Chemicals, Industrial and Hazardous Materials: In any facilities, there are likely a number of waste products and practices that are considered hazardous. This category of waste also includes disposal of routine cleaning products. In industries such as health care, there are many more complex waste products that include hazardous materials, biological waste, chemicals, medicines, and waste gases. In manufacturing, the disposal of waste includes chemicals and waste products products produced in the making of products.

Even in a traditional office environment the handling of dangerous chemicals is the responsibility of the facility manager – usually through contract agreements with service providers. Examples include treatment of cooling water in open-loop building cooling systems. Chemicals are required to treat building piping to prevent buildup of scale that can lead to corrosion and shortening of the service life of piping systems. Innovative uses of non-hazardous treatment systems for piping systems have led to significant reductions in expenditures on anti-corrosion chemicals through reduction or elimination of their use.

Chemicals used for cleaning in a normal office environment, or in industrial cleaning processes can be expensive to purchase, handle and dispose. Alternatively, more environmentally friendly products such as those used in green cleaning programs can significantly reduce expenditure and the risks associated with the handling of dangerous cleaning products. The use of green cleaning techniques has risen to a commonly-accepted level and has led to the reduction of hazardous waste disposal world-wide.

Site Waste: Site waste is associated with land care activities and includes organic waste such as grass clippings, leaves, plants, trees and other organics. Disposal is governed by local regulation and many municipalities

collect yard waste as a portion of their waste disposal services. Local regulation will dictate allowable disposal practices such as burning, composting, and mulching.

Measuring and Reporting Waste

The primary objective of any waste management program is to reduce solid waste disposal levels in order to conserve landfill space and reduce cost. There are four primary approaches that can be used to address the reduction of solid waste in a business environment (U.S. EPA Business Guide for Reducing Solid Waste, 1993):

- 1. Waste prevention or source reduction
- 2. Recycling
- 3. Composting
- 4. Purchasing

Waste prevention measures include minimization of packaging, maintaining durable equipment and supplies, using reusable products, reducing hazardous constituents, making more efficient use of supplies, and eliminating unnecessary materials. Recycling can be applied to consumables, durable goods, and materials used in construction and renovation. Composting can be used to handle food waste and yard waste. Purchasing sustainable goods is addressed in Chapter 10.

The primary targets for reductions in consumption and waste and recycling opportunities for the facility manager lie with:

- Office paper products
- Packaging materials
- Bottles and cans
- Office waste
- Food service activities
- Restroom management (particularly paper products)

Opportunities for reduction, recycling and alternative methods of disposal are identified through the performance of a waste assessment. Waste assessments establish the baseline for measurement and management of the waste stream in a facility. The key steps in performing a waste assessment are as follows:

- 1. Examine material and resources records purchasing records, supply invoices, and equipment service records
- 2. Perform a facility walk-through
 - a. Observe types and amounts of waste
 - b. Identify waste producing activities
 - c. Evaluate inefficiencies
 - d. Observe material and waste flow in the facility
 - e. Evaluate existing waste storage space and potential for modifications
 - f. Evaluate current reduction efforts
 - g. Engage stakeholders through conversation and interviews
- 3. Conduct a waste sort determine waste categories, weights and percentages by sampling daily or weekly waste output and estimated annual output
- 4. Document the assessment and produce a waste management report

The waste assessment process should include an evaluation of purchasing procedures to evaluate the purchase of recycled products (reduce), use of alternative products (change the source), and minimizing waste (effect on the waste stream). Most assessments start with the end in mind; evaluating the amount of waste produced and working backward. Waste assessments seek to provide such information as the total weight or volume of waste produced (daily, weekly, and monthly), the distribution of waste products into appropriate categories.

Figure 9.14 is an example of a waste assessment output. It categorizes waste into major categories and indicates the percentage of each category in the waste stream.



Figure 9.14 Output of waste audit – waste percentage by category

A tabulation of the waste assessment is also made that includes current weights (and percentage) of each category that is diverted from the solid waste stream by reuse or recycling. Figure 9.15 shows and example of the tabular results.

Waste Type	Total Waste (lbs)	Percentage of Waste	Weight Diverted (lbs)	Percentage Diverted
Trash	1200	31%	800	21%
Mixed Paper	300	8%	100	3%
Glass	450	12%	250	6%
Metal	550	14%	400	10%
Plastics #1-3	200	5%	180	5%
Plastics #3-7	250	6%	220	6%
Cardboard	150	4%	120	3%
E-waste	750	19%	710	18%
Total	3850	100%	2780	72%

Figure 9.15 Tabular results of the waste assessment showing diversion rates

An important output of the waste assessment is the identification of further reduction opportunities and the implementation of processes to further improve the diversion rate. Figure 9.16 is a schematic of the waste assessment process and assessment outputs.



Figure 9.16 Waste assessment process

Reduction opportunities lie in prevention, recycling, composting, and purchasing practices as outlined previously in this chapter.

Common reduction opportunities in facility management include the following:

- Use of recycled products
- Recycling
- Reduction of consumables such as paper
- On-site composting
- Proper handling of e-waste

The most common metric for determining the success of a waste diversion process is the weight diverted expressed as a percentage of the total amount of waste sent to the landfill. Often the facility manager can solicit input and assistance from the waste management service provider in evaluating existing programs, conducting waste assessments, and developing a waste reduction program. Many of these strategies and tactics require stakeholder education and participation. As with any successful program carried out in the facility management world, communication of the goals and benefits of the program are critical to achieving senior management and stakeholder by-in, team formulation, and measuring and managing results.

SUMMARY

This chapter has addressed four of the most important facility-related resources and outputs – energy, water, carbon, and waste. For each of these items, there are common steps involved in quantifying impact, determining the starting point, and developing a plan for improvement. Implementing any building performance plan requires preparation, planning, implementation, and communication. The key steps are:

- 1. Performing the audit to qualify use
- 2. Establishing the baseline
- 3. Determining performance targets and metrics
- 4. Identifying conservation options
- 5. Allocating proper resources including capital and operating budgets
- 6. Implementing the conservation initiatives
- 7. Reporting, informing and engaging facility users

Effective strategy and planning is an increasingly important part of the facility manager's responsibility, especially as resource availability and expense becomes a more important issue. Strategies to reduce energy and water consumption, and reduction of carbon footprint are growing in importance from a conservation and financial perspective.

Chapter 10: Managing the Supply Chain in Sustainable and High-Performance Facilities

An organization's commitment to CSR will dictate the commitment to operating sustainable and high-performance facilities. Without management support, operating facilities in a sustainable manner will be difficult, but not impossible. In chapter 9, we covered the operational issues that have the most direct impact on the triple bottom line of sustainable facility management – energy, carbon, water, and how we manage and reduce waste. These issues are normally under the direct control of the facility manager. In this chapter, we will cover the elements of an organization's supply chain that are either controlled or heavily influenced by the facility manager. These are comprised of goods and services that an organization needs to procure, but may not necessarily be performed in-house.

The debate over performing FM-related services in-house or through outsourcing is an old one. There are many correct approaches to the outsourcing question. In regard to managing facilities in a sustainable manner that seeks to optimize performance, there are a number of outsource service providers that can bring sustainable practices and procedures to any facility management organization that they may not be able to achieve on their own.

MANAGING THE SUPPLY CHAIN

The business world is familiar with supply chain management. It is a topic that has been discussed for decades and involves how we procure goods and services in order to make our business function. Since CSR has become an important factor in how an organization is perceived by the rest of the world, organizations have started to focus attention not only on themselves, but on the abundance of goods and services that they need to function that are outside their own organizational boundaries. It is only over the last few decades that we have seen how important supply chain management has become in the business world. Operating an organization in a sustainable manner, in accordance with the Triple Bottom Line, has become important not just to the what the organization does and how it delivers its product, but on all of the elements outside the organization that help it function. It is becoming common practice to evaluate the environmental and social impact of supply chain goods and services. Lowest cost is not necessarily the only driver for procurement of goods and services.

For the facility manager, the supply chain includes all of the goods and services that go into the operations and maintenance of a facility. The facility management supply chain consists of the practices of purchasing and procurement. Purchasing involves the acquisition of routine products that are needed every day – paper products, cleaning supplies, and office products, just to name a few. Purchasing also involves some of those goods and services we reviewed in Chapter 9 – energy and water. Purchasing is the term used for procuring goods and services that are considered routine and repeatable, and are easily specified. Anything that would be considered a commodity for which you would find little difference in product quality from different providers would be under an organizations purchasing policy.

Procurement is the term associated with goods and services that are not often routine, and require a degree of scrutiny of the provider. Procurement policies deal with the hiring of contracted services that have a high impact on facilities, and involve a wide range of service providers. Examples of procured services include cleaning services, grounds care, and design and consulting services. Waste management is also a service that would frequently fall under the umbrella of procurement rather than purchasing, especially when sustainable practices are involved. Figure 10.1 shows a typical supply chain management scheme for a facility management organization.



Figure 10.1 An example of the supply chain in facility management

In addition to looking at the differences between purchasing and procurement, Figure 10.1 also introduces the concept of life cycle management in the acquisition of goods and services in facility management. Life cycle management can be applied to products purchased in the routine operations and maintenance of facilities and in goods and services procured under the capital budget. Purchasing of operational goods and supplies may be done directly by the organization, or may take place through service providers (represented by the horizontal arrows in Figure 10.1). The greatest impact the facility management of the capital budget – renovations, alterations, base building construction, and repair and

replacement of major building systems under the organization's capital budget.

By no means does this chapter cover all services that are performed by the facility manager or those that contribute to sustainable facility management. However, they are the most frequently addressed in procurement and purchasing policies and have significant impact on how we manage sustainable facilities.

PURCHASING

It is important to consider the facility manager's level of influence over the purchasing practices of an organization, and the organization's commitment to CSR when considering a sustainable purchasing program for FM. The commitment to CSR will drive the level of participation and acceptance, and the facility manager's purchasing power will drive the level of influence over the purchasing budget. The facility budget takes the form of operational costs and capital costs. Purchasing of goods to support the facility management organization, and sustainable facility initiatives will fit into these categories and require funding approval from the organization. The sustainable facility manager should have a working knowledge of how to assess short and long term costs associated with sustainability initiatives so that they can adequately defend the budget procedure and drive a sustainable purchasing program.

Sustainable Goods – Operational Budget

The facility management operational budget is primarily comprised of appearance care. and utilities. operations and maintenance, site management. Operations and maintenance covers numerous sub-categories such as waste management and building operational issues. There may also be many other components such as; food service, security, health and safety (which may be a separate organization), mailroom and material handling. In developing a sustainable purchasing program for facility management, it is important to evaluate which elements of the operational budget have the greatest impact on sustainable and high-performance facilities. Traditional building rating systems consider sustainable purchasing from the viewpoint of the goods and services that are involved in a building's function. In facility management, it may be more useful to consider the individual elements of the operational and capital budget that can be made more sustainable and contribute to high performance. The change in viewpoint can lead to better long term solutions for achieving better performance of our facilities.

These are the primary elements of the facility operational budget that deserve evaluation and consideration of efforts to reduce consumption, change the source, and modify purchasing practices.
Operational Budget: Utilities – the consumption of utilities by the facility were covered in Chapter 9. Purchasing of utility services, particularly electric power, offers many opportunities for quantity and cost reduction. Cooperative buying power, demand response programs and purchasing of renewables, and credit purchasing for offsets would all be important elements of a sustainable purchasing program for utilities. The use of renewables would most likely be driven by the organization's CSR program. Programs such as demand response and cooperative purchasing would most likely be driven at the facility management level. Utility purchasing can become quite complex and it is not the intention of this book to cover this subject. The facility manager's primary role should be to understand the opportunities available for sustainable utility purchasing in their locale. In most cases, that understanding comes from familiarity with the programs of the local utility provider. The utility provider usually drives the incentive programs for utility consumption.

Operations and Maintenance – The O&M function in facilities offer significant opportunities for sustainable purchasing. The primary opportunities would be in the purchasing of consumables. A partial list of these consumables follows:

- Paper products for restroom and cleaning support paper towels, toilet paper, etc.
- Office goods office paper and office support goods such as binders and report covers, etc.
- Batteries
- Small-scale electronic equipment cell phones, chargers, etc.
- Cleaning products
- Filters and other maintenance-related consumables
- Lamps and lighting products

The purchasing of office goods may not be under the control of the facility manager; however, they offer a significant opportunity to organizations for the use of pre- and post-consumer recycled products that contribute to a sustainable purchasing program. Even if the facility manager is not directly involved in the purchasing of such goods, they may clearly be involved in the handling and disposal of such goods (as was covered in Chapter 9). The same holds true for batteries and small-scale electronic equipment that falls under the consumables category – handling and

disposal would most likely be handled by the facility manager. The use of sustainable cleaning products would most likely be included in the service provider's contract and is covered in a subsequent section in this chapter. Filters, other maintenance related products, and replacement lamps and fixtures would most likely be included directly in the operational budget of the facility manager.

The development of a sustainable purchasing program for ongoing consumables in facility management would include an audit procedure to determine quantity, cost, and responsibility for purchasing and use of each consumable. Figure 10.2 shows an overview of the audit process that would serve as the basis for a sustainable purchasing program. The facility manager may be responsible for conducting the audit, or at the very least, be a major participant in the audit.



Figure 10.2 – Audit process for consumables

Once the audit process is completed and the stakeholders in the purchasing process are identified, a sustainable purchasing program for facility management products and services can be implemented. The primary tool in a sustainable purchasing program is the use of the appropriate labeling program used to identify sustainable products. One of the more well-known labeling programs for consumables is the Green Seal program (<u>www.greenseal.org</u>). The Green Seal program covers products such as; household products, paints and coatings, printing and writing paper, food packaging, industrial cleaning products, and a variety of other consumables.

Sustainable Purchasing Programs

The goals of the audit process outlined in Figure 10.2 would be to integrate the purchasing of consumables for the facility management organization with the purchasing policies and procedures of the entire organization. Ideally, this would lead to an enterprise-wide environmentally preferable purchasing program that covers consumables, durable goods, capital purchases, and the entire design, construction, and building renovation process. Comprehensive Procurement Guidelines (CPG) such as those promoted by the U.S. Environmental Protection Agency promotes the use of recovered materials and seeks to reduce and reuse as much as possible. The CPG program of the U.S. EPA includes eight product categories:

- 1. Paper and paper products
- 2. Vehicular products
- 3. Construction products
- 4. Transportation products
- 5. Park and recreation products
- 6. Landscaping products
- 7. Non-paper office products
- 8. Miscellaneous products

Procurement

By definition, the procurement function in an organization is applied to services where there is a broad range of expertise involved and the level of quality services is not nearly as well-defined as with purchased goods. Procurement policies are usually well established within an organization and were most likely developed without a great deal of input from the facility management department. Since procurement covers all aspects of an organization's function, the facility manager's influence over the procurement process will vary depending on the industry served. In an office environment, the influence of the facility manager can be significant since the operations and maintenance of the workplace would largely be made up of utilities, maintenance, appearance care, site management, and the most important aspect of the facility manager's influence: indoor workplace quality. The office environment and procurement of goods and services to support it would have a great deal of influence. The facility manager's "control" over the organization's supply chain would involve a large percentage of the supply chain.

In a manufacturing environment, the facility manager's support of the organization is just as important, but he or she would control a smaller percentage of the organization's supply chain. It is often this level of influence over the supply chain that establishes the facility manager's "buying power" within an organization. It also establishes the facility manager's level of influence over the procurement practices of the organization.

Since the procurement function in an organization involves much more than buying consumables that are easily quantified and of consistent quality, we need to elevate the level of attention to our primary service providers. Under the heading of procurement, we will address:

- Waste management
- Grounds care
- Cleaning Services
- Food services
- O&M services
- Leasing

A good example of the difference between purchasing and procurement is to look at how you manage a household. Many homeowners purchase bulk goods at a warehouse outlet because they are well aware of the quality of the products they purchase, and buying in bulk allows a homeowner to take advantage of reduced pricing for routine products. However, when it comes to replacing a home HVAC system, the homeowner is well advised to consult a professional that can give the replacement system the attention it needs. Procurement in facility management is much like consulting a professional that has the knowledge and experience that the facility manager may not have.

Waste Management

In procurement of waste management services, the ability to reduce, reuse, and recycle would be the characteristics to look for in a waste management service provider. The facility manager should conduct a waste audit as outlined in Chapter 9. Once the waste audit is conducted, the facility manager can quantify solid waste removal and recycling quantities required to be removed on a weekly basis. Those quantities are used to create size and weight requirements for the waste management service providers. There are two important considerations in choosing a waste management service provider; the municipal solid waste handling methodologies, and the capabilities of the waste management service provider.

Municipal solid waste – solid waste and recycling capabilities are dictated by the municipality. The municipality will accept certain types of waste and recycling depending on their disposal method. By far, most municipalities dispose of solid waste in landfills. However, some have alternative waste disposal methods such as; incineration, recycling, and composting. New methods of waste disposal are being researched and evaluated for their effect on the environment. However, the municipality will dictate the available waste disposal methods.

Capabilities of the Waste Management Service Provider - Ability to handle and properly dispose of waste is a specialty that is usually confined to a small number of service providers. In procurement of waste management services, the facility manager should seek providers with an in-depth knowledge of local practices and appropriate handling and transportation capabilities, and proper documentation of waste management practices. The procurement process often involves research, interviews, and comparison to pre-prepared selection criteria. In evaluating waste management service providers, the following is a partial list of capabilities the facility manager may want to look for:

- 1. Equipment the appropriate size and type of waste handling equipment, including dumpsters, compactors, trash containers, and recycling containers
- 2. Specialty Waste the ability to handle medical waste, hazardous chemicals, and consumables that may have environmentally damaging components (such as; batteries, PCB's, PVC, mercury, lead, and asbestos-containing materials)
- 3. Recycling the ability to handle and remove recyclables such as glass, metals, paper, electronics, and other recyclable materials (The facility manager may also need to tap into the service provider's knowledge and abilities to design and implement recycling programs; this type of assistance might also be available with the municipality)
- 4. Construction waste the ability to handle and properly dispose of or recycle construction materials such as excess lumber, concrete, asphalt products, steel and other construction materials
- 5. E-waste the ability of the service provider to participate in proper disposal (or return to manufacturers) for electronic waste such as computers, telecommunications equipment, cell phones, copiers and other electronic equipment
- 6. Compostables the ability to handle food service waste and landscaping waste such as leaves and trimmings

Above all, the facility manager should develop a waste management strategy that is in alignment with municipal solid waste disposal requirements and within the capabilities of the service providers to deliver effective waste management services.

Grounds Care

Grounds care is another frequently outsourced function of facility management and is comprised of two major elements – sustainable landscaping and site maintenance. The skills and expertise of the labor force and the specialized equipment required for proper grounds care is often contracted. The primary exception to this is in campus settings (education) and in large healthcare facilities where grounds care is treated as an in-house function of the facility management department. The objective of a sustainable grounds care strategy is no different than the other facility management services covered in this book – reduction of adverse environmental impacts, enhancement of the visual and physiological effects of our surroundings, and economical operation of the grounds care aspects of our facilities. There are a number of important intersections between traditional grounds care practices and those of sustainable facilities.

Sustainable Landscaping – Sustainable landscaping solutions involve a number of major topics as we have outlined in earlier chapters. A few key aspects of sustainable landscaping include:

- 1. Water Management
- 1.1 Reduction in water use
- 1.2 Reduction and proper routing of storm water
- 1.3 Bio-filtering and the use of permeable surfaces for the filtering of rainwater and runoff
- 1.4 Gray water use for irrigation
- 2. Integrated Pest Management (IPM)
- 3. Product use and recycling use of sustainable products such as sustainably harvested wood products, and use of recycled glass, rubber, concrete and other construction by-products
- 4. Landscape design and maintenance
 - 4.1 Use of native plantings to reduce water demand
 - 4.2 Soil Management including composting and maintenance of healthy growing environments
 - 4.3 Proper placement of vegetation to promote shade and wind breaks where needed

4.4 Creation and maintenance of wildlife habitats

Site Maintenance – site maintenance is also an important component of sustainable facility management. The management, operation and cleaning of parking facilities, roadways, sidewalks, utility structures and other hardscape features can be a key contributor to sustainable facility management. The primary elements to consider in providing sustainable site maintenance include:

- 1. Cleaning of hardscape features parking lot cleaning, road and sidewalk maintenance, and deicing offer ample opportunities for reducing the environmental effect of harsh chemicals, reducing the spread of dust and dirt, and enhancing customer satisfaction
- 2. Maintaining site lighting proper maintenance and re-lamping of site lighting can reduce light pollution, create energy savings, and reduce light encroachment on neighboring communities
- 3. Use of low-emission and low-noise maintenance equipment offers opportunities for fuel reduction, greater customer satisfaction, and safer operation

Sustainable grounds care requires a strategic approach and balance between the appropriate design elements that create a sustainable environment and operations and maintenance practices that reduce impact and improve customer satisfaction.

Cleaning Services

Green cleaning has taken hold in the facility environment for several reasons. Early on, there was recognition that some traditional cleaning products were harmful to the environment, hard to handle, and led to health and safety issues for workers and others that are exposed to them. Over time, the concept of green cleaning evolved to address cleaning equipment, tools, and paper goods (IFMA Foundation, 2011). The potential energy savings impact of daytime cleaning was also recognized and helped propel green cleaning to the forefront in facility management.

The driver for safer green cleaning products has been the high rate of incidence of work-related safety issues in the cleaning industry (Bureau of Labor Statistics, 2012). Harsh chemicals such as bleach and solvents are

difficult to handle safely. The move toward "greener" cleaning agents is admirable in the use of more environmentally products; however, there is some resistance to using some products because they are viewed as less effective. The shift toward green cleaning products requires a fair amount of worker training to compensate for the perceived reduction in effectiveness of those products.

The energy saving aspects of daytime cleaning programs can have immediate impact on energy consumption. However, the practice of daytime cleaning can be a hard obstacle to overcome considering the perception of the interruption of the normal flow of work in a facility when cleaning is taking place during normally productive work hours. There are many techniques and processes involved in green cleaning and this book does not intend to be a comprehensive review of green cleaning.

In facility management, appearance care is an important part of the facility manager's responsibility and is one of the most frequently outsourced aspects of facility management. The primary focus of this section is to point out the most commonly used standards and references the facility manager can use to create and manage an effective appearance care program that maximizes the benefits of green and environmentally (and people-friendly) cleaning programs. For standardization, we turn to several standardization programs for appearance care.

A green cleaning program can help an organization meet social, economic, and environmental goals. In developing a green cleaning program, there are several fundamental components that should be addressed.

Green Cleaning Programs:

- Use of environmentally friendly cleaning products
- Use of safe cleaning equipment that protects workers and building occupants
- Properly trained cleaning staff
- Maintenance and documentation of cleaning equipment
- Recurring training and updating of cleaning procedures on a periodic basis

Eco-labeling is used to validate compliance with environmental, health and safety requirements of cleaning products, procedures, and equipment. Green Seal is one of the most widely recognized organizations that promotes standards, certifies products, and provides public education in the cleaning industry. Green Seal's Environmental Standard for Cleaning Services (GS-42) identifies environmentally-responsible cleaning products, helps with purchasing decisions regarding environmental impacts, promotes quality of labeled products, and maintains a focus on new product development that minimizes damage to the environment, workers, and building occupants.

The stated purpose of the GS-42 standard is to establish requirements for cleaning services providers for creating a green cleaning program that protects human health and the environment. The primary components of GS-42 are:

- Creation of Standard Operating Procedures and a green cleaning plan, including powered equipment requirements and maintenance
- Requirements for environmentally-preferable products, supplies, and equipment
- Establishment of cleaning procedure requirements for reducing chemical and solid waste and procedures for vacuum use. In addition, cleaning procedures are outlined for the following finishes and building areas:
- Entryways
- Floors
- Disinfection
- Restrooms
- Dining areas and break rooms
- Trash collection and recycling
- Indoor plants
- Vulnerable populations
- Establishment of communication requirements
- Training requirements

Green Seal GS-42 also provides a benchmark for product certification and labeling.

Another well-recognized cleaning standard is published by ISSA (originally the International Sanitary Supply Association – <u>www.issa.com</u>). ISSA established its roots in 1923 and evolved into its current form in 2005 – ISSA – The Worldwide Cleaning Industry Association. ISSA established the Cleaning Industry Management Standard (CIMS) to provide guidance for building service contractors and in-house custodial and cleaning departments. The CIMS standards describe principles, procedures, and recommended practices for quality management for establishing and implementing environmentally preferable cleaning programs. The CIMS requirements outline common practices in the following areas:

- 1. Quality Systems
- 2. Service Delivery
- 3. Human Resources
- 4. Health, Safety, and Environmental Stewardship
- 5. Management Commitment
- 6. Green Buildings and Service

The green buildings and service portion of the CIMS standard establish the framework for green cleaning in buildings in addition to the basic requirements outlined above. The CIMS-GB requirements include:

- 6.1 Green Cleaning Policy
- 6.2 Green/High-Performance Cleaning Program
- 6.3 Custodial Effectiveness Assessment
- 6.4 Purchase of Cleaning Products and Materials
- 6.5 Cleaning Equipment
- 6.6 Indoor Chemical and Pollutant Source control
- 6.7 Integrated Pest Management (IPM)
- 6.8 Building Exterior and Hardscape Management Plan
- 6.9 Solid Waste Management (Recycling)
- 6.10 Resource Conservation

Another green cleaning standard that has gained nation-wide acceptance in the U.S., particularly in school environments is the OS1 high-performance cleaning management system. The OS1 management system was developed by ManageMen, an organization located in Salt Lake City, Utah (<u>www.managemen.com</u>). The OS1 performance management system emphasizes:

- Custodial safety
- Reducing waste in materials, chemicals, and processes
- Low environmental impact
- Workload balance
- Budget management
- Worker training and training of individuals with disabilities
- ISO compliance
- Use of benchmarking and best practices

ManageMen also offers leadership and professional development courses for cleaning executives and industry CEOs through its Janitor University. Janitor University covers the philosophy behind OS1 as well as health, safety, environmental compliance, and guidance in creating a good working environment for cleaning industry workers.

The benefits of green cleaning programs clearly include enhanced safety for cleaning service staff and building occupants, reduction in liability in safety and environmental issues, and development of a more positive image (IFMA Foundation, 2011). Daytime cleaning has also gained traction and can lead to significant energy and labor savings. Daytime cleaning may require the use of different equipment that has reduced noise capabilities. The purchase and use of the equipment may be offset by the reduction in energy use and the reduction in labor cost since the work is shifted to daylight hours. The use of daytime cleaning is a strategic decision that should be undertaken by the facility manager and the service provider. If it is treated as a strategic decision in partnership between these two parties, both can take strategic advantages of the green cleaning program to benefit both parties.

This book does not provide an endorsement of any green cleaning product, system, or procedures. It is an attempt to provide the facility

manager with some potential references to green cleaning standards and systems that are being continuously refined and developed.

Food Service

Food service is another frequently outsourced service in facility management. The equipment, personnel skills and safety issues involved in food service are often best performed by specialty service providers. Often the building infrastructure including the dining hall furniture, HVAC system, access, and security are the responsibility of the facility manager and the food preparation, sale, distribution, and cleaning and maintenance of the food service equipment is the responsibility of the service provider.

The key elements to be considered in a sustainable food service operation should include the following:

- 1. Food purchasing and procurement practices
- 1.1 Purchasing sustainable foods this includes the purchase of organic, fair trade, chemical-free, and other sustainable practices in the growth, raising and harvesting of the foods prepared and distributed in the facility
- 1.2 Purchasing local foods this includes requirements to purchase certain locally-available foods and restrictions on the amount of transportation required to bring the food from the source to the table
- 1.3 Food safety this includes use of proper food safety procedures in the handling of meats, seafood, and produce, and any requirements that govern the use of pesticides and preservatives
- 1.4 Consumer Products the use of dining products by the end-user includes; re-usable or disposable plates, trays and flatware, drink containers, condiments and the use of recycled and recyclable goods
- 2. Food preparation, distribution and maintenance of food service equipment
 - 2.1 Proper design and layout of food preparation areas that allow for proper food and worker safety

- 2.2 Use of energy and water efficient refrigeration and cooking equipment
- 2.3 Proper food preparation processes in the storage, preparation, cooking, and distribution
- 2.4 Proper cleaning and maintenance of food preparation equipment, cooking and ventilation equipment
- 3. Building systems
 - 3.1 Design and use of resilient finishes in food services dining areas and food preparation areas that use finishes that are easy to clean and sanitize
 - 3.2 Layout and access design and maintenance of dining and food preparation areas to maintain traffic flow and ease of food disposal, recycling and return of service equipment
 - 3.3 Water and energy efficiency proper design and maintenance of building systems energy and water efficiency
- 4. Waste management
 - 4.1 Composting or other disposable of wet waste
 - 4.2 Oils and other liquids
 - 4.3 Recycling
- 5. Occupant Education
 - 5.1 Commitment to employee health and wellbeing through education about food consumption
 - 5.2 Employees role in recycling, energy use, sustainable food purchasing practices, and waste disposal

Proper operation of food service also requires coordination of responsibilities between the facility manager and the food service provider. Proper delineation of responsibilities and communication about systems such as ventilation equipment and HVAC systems can avoid costly safety, health, and customer satisfaction issues. Food service in a facility may also include vending, concessions, catering services, and management of separate restaurant facilities within an organization's facility. This section of Chapter 10 is intended to give the reader a broadbrush view of the intersections between sustainable facility management and food service. Much more information can be found in references such as the IFMA Foundation's Sustainability How-to Guide Series, Sustainability in the Food Service Environment (IFMA Foundation, 2011).

O&M Services

Operations and maintenance services are not often thought to be areas in which we can practice sustainable facility management. However, operations and maintenance of basic building systems can have a significant effect on the health and wellbeing of building occupants. Proper maintenance procedures can improve the indoor environment, improve appearance, reduce health threats, and improve customer satisfaction. Many of the elements of sustainable operations and maintenance have been addressed in other areas of this book. This section is intended to highlight several areas of O&M that may not have been included previously.

One of the primary functions of proper O&M in facilities is to keep building systems functioning as intended and to help achieve expected service life. Although the primary function of a proper O&M program is to meet service life requirements and not necessarily to extend them, it is commonly agreed that proper maintenance can serve to extend service life of equipment. Proper O&M would include at least the following key elements:

- 1. Proper cleaning procedures and products including green cleaning techniques as outlined earlier in this chapter
- 2. Proper operation and maintenance of HVAC equipment including the care and maintenance of filtration equipment, and preventive maintenance techniques for belts, hoses, motors, pumps, and rotating and other moving equipment
- 3. Maintenance and re-lamping programs for lighting systems including regular cleaning to reduce diminishment of lighting due to dust and dirt, and procedures for re-lamping that minimizes labor and maximizes energy efficiency

- 4. Electrical system maintenance including periodic infrared scanning of electrical panels and switchgear
- 5. Fire protection system maintenance including periodic inspections and testing for proper function
- 6. Plumbing system maintenance including inspection for leaks and potential leaks that can lead to water loss and hazardous material spillage
- 7. Roof and exterior maintenance to keep drainage functioning properly and prevent the build-up of ice, snow, and debris on exterior surfaces, and inspections for potential deterioration of sealants, gaskets and other openings
- 8. Training of maintenance personnel on proper maintenance procedures and the integration of different building systems

Other important O&M functions are included under the purchasing, cleaning, grounds care, and waste management sections of this chapter.

Leasing

There is a perception among many that there are few if any differences between property management and facility management. Conceptually, the goal of both disciplines is the same – manage physical assets that are less harmful to the environment, beneficial to the occupants, and make sense financially. However, the motivation of the property manager and the facility manager are often quite different. The property manager has the added burden of assuring that the overall financial goals of the owner are met; to manage the property to make money. The facility manager also has a fiduciary responsibility, but the profit motive is not always there. That does not mean that the facility manager is allowed to ignore monetary gain from the management and operations of facilities. The profit motive is replaced by a cost-avoidance mentality. The property management market is frequently used as the yardstick for financial performance of all facilities. This is done by any organization that wishes to keep the cost of its real estate assets in check. Even if facilities are owned and operated by the organization, the commercial leasing world is always there to provide alternatives to ownership.

By leasing facilities instead of owning them, an organization avoids many of the risks associated with operating and maintaining a facility, and provides a great deal of flexibility in terms of length of time in the building and management of capital. However, the total cost of occupancy may well be greater than in an owned facility and there is no long term preservation of value to an organization in a leased facility.

Regardless of the motivation, most large organizations have a mix of leased and owned facilities that allow maximum flexibility in the delivery of their goods or services. For that reason, most facility managers deal with leased facilities in one form or another. While this section of Chapter 10 is not intended to provide a guide to leasing facilities, it is intended to guide the facility manager toward the proper strategy and things to look for in negotiating a facility lease for a more sustainable facility.

There are a number of model green leases available in the U.S., Europe, and other areas of the world. There are also a number of common elements or principles that should be included in a green lease:

- 1. Data sharing and cooperation on reduction strategies since many buildings systems are not arranged neatly to cater to individual (especially small) tenants, the ability to measure the amount of energy and water that is attributed to a particular tenant may not be measured (or measurable) without extraordinary or expensive measurement techniques. In these cases, the lease should spell out the data sharing agreement and methodology for attributing water and energy use
- 2. Agreement on environmental issues and target consumption metrics
- 3. Agreement on existing building certifications that need to be maintained and the practices that support continued certification (such as LEED, BREEAM, ENERGY STAR)

Specific lease terms that govern the following areas of sustainable facilities should be included in the lease:

- 1. Energy
- 1.1 Data Sharing

- 1.2 Measurement frequency
- 1.3 Industry accepted methodology for data consistency
- 1.4 Metering and sub-metering plans
- 2. Energy Efficiency
 - 2.1 Outline and agreement on reduction strategies
 - 2.2 Agreement on energy auditing
 - 2.3 Alteration and replacement of equipment strategies
 - 2.4 Operations and maintenance practices
 - 2.5 Energy monitoring practices (BMS, EMS)
- 3. Waste handling
 - 3.1 Data Sharing
 - 3.2 Measurement frequency
 - 3.3 Industry accepted methodology for data consistency and conformance to municipal waste disposal practices (i.e.; recycling)
 - 3.4 Cooperation on reduction and recycling strategies including occupant education and training on the proper implementation of strategies
 - 3.5 Maintenance and use of building water conservation strategies such as rainwater harvesting
 - 3.6 Metering and sub-metering plans
- 4. Building Operations
 - 4.1 Building management structure and inclusion of tenant in management decision-making
 - 4.2 Documentation of sustainable practices including responsibilities for development and maintenance of a Tenant Handbook
 - 4.3 Responsibilities for reporting and auditing
 - 4.4 Sharing and communication of sustainability successes

Other green lease elements should include provisions for service charges for green initiatives, sharing of cost (or savings) and incentives for capital repairs and replacements, the use of on-site renewables, sustainable transportation initiatives for employees, use of on-site amenities, and maintenance responsibilities for sustainable practices when building certifications are involved.

While this is not intended to be a complete review of the elements of a green lease, it outlines areas of responsibility for the facility manager, primarily for the measurement, monitoring, and reporting processes that support sustainable facilities.

WHAT TO LOOK FOR IN A SERVICE PROVIDER

With the exception of the purchasing and procurement sections of this chapter, each of the preceding sections addressed facility management services that are frequently outsourced. The reasons for outsourcing are varied and many. The primary drivers are cost reduction and the ability to access specialty expertise that are a much needed element of facility management. Since these are the most frequently outsourced services in the facility management industry, there are a few key things to look for in a service provider:

- Management commitment of the service provider
- Ability to establish a strategic partnership with the service provider that aligns with organizational strategies
- Industry recognized procedures and credentials
- Innovative solutions to the facility managers specific issues
- Experience and credentials in the appropriate service area
- Quality control documentation, track record, and positive safety record
- Demonstration of customer satisfaction
- Potential for and track record in performance-based contracting

While this may not be a complete list of requirements for selecting a service provider, it represents the minimum level of input the facility manager should look for in selecting this important service. There are also a number of other services that support facility management that are outsourced or out-tasked. There are also a number of sustainable components to those services such as; security services, environmental management services. The principles described above would also apply to those services. Proper training, certifications, risk management, safety and health, and environmental and regulatory compliance are just as important when hiring a designer as when hiring a cleaning contractor.

Workplace Management

Workplace management offers perhaps the single-most important aspect of facility management that the facility manager can positively influence in managing and operating sustainable and high-performance facilities. Management of the workplace is the opportunity for the facility manager to integrate decades of experience of the facility management profession (time proven best practices) with the more recent advances in building design and construction that lead to high-performance facilities.

The three key elements of workplace management are:

- 1. Reduce space through effective space management
- 2. Maximize occupant satisfaction
- 3. Maximize facility life cycle

Space Management

Space management and effective management of the entire life cycle of the products and systems that make up the physical aspects of our buildings are great opportunities to enhance sustainable practices with traditional facility management practices. These two important management practices; effective space management and life-cycle management offer the greatest opportunity for successful and efficient facility management.

Space Management – Space management is not new to facility management. Space management techniques and technologies that enable more effective use of our space have been ingrained in facility management for decades. Effective space management can be considered one of the earliest and most effective strategies for optimizing building performance. Technologies to improve space management have been around for decades, and the introduction of new technologies like Building Information Modeling (BIM) offer significant opportunities for more efficient use of space in the design and operational phases of facility management.

Effective space management is also a sustainable practice in that it reduces organizational footprint, reduces occupancy cost, and frequently benefits employee productivity because it promotes technologies that allow for telecommuting, teleconferencing, reduced commuting time, expense, and carbon footprint.

Occupant Satisfaction

Paying attention to occupant satisfaction and being able to correct or modify service delivery issues in facility management can lead to a more productive workforce. While workforce productivity is generally not studied to the extent required to become routine, there are a number of studies that demonstrate the economic value of satisfied building occupants. The role of the facility manager in measuring and monitoring occupant satisfaction is significant. Many work management technologies have the capabilities to solicit and measure occupant satisfaction through electronic surveys and feedback forms. The primary areas that are measured by work management systems are:

- 1. Thermal comfort
- 2. Workplace safety
- 3. Ergonomic satisfaction
- 4. Workplace lighting
- 5. Indoor air quality
- 6. Workplace accessibility
- 7. Privacy and Security
- 8. The ability of the workplace to positively impact health and reduce stress

Each of these issues is influenced by sustainability initiatives in the workplace and can have a significant impact on the overall productivity of the workforce. The challenge to the facility manager is to measure and monitor the effect of each sustainability initiative and produce appropriate metrics and data that support further support of the sustainable facility management program.

Maximizing Facility Life Cycle

Life cycle assessment and management is addressed from the financial perspective in Chapter 11. Maximizing the service life of a building system is a sustainable practice in that it reduces our environmental demand for new materials, promotes continued use of systems through proper maintenance and timely repairs, and establishes the facility manager as the authority on life cycle management of major building systems and components.

Facility component life cycle can be managed by paying close attention to these key factors:

- Choice of durable materials with long service life
- Building equipment that requires fewer hazardous or environmentally detrimental materials
- Equipment and systems that use less energy and water

Although these are simple concepts to follow, their implementation in a sustainable facility management program is not always easy. Information on environmental impact and efficiency is not always available, may be unreliable, and is subject to the influences (and motivation) of the provider of the service or system. The facility manager should employ appropriate risk management strategies for their organization when implementing sustainability initiatives so that the uncertainties are reduced to a manageable level.

SUMMARY

The primary role of the facility manager in the implementation of a sustainable facility management program is to act as the quality control proponent and to require proper documentation of expected outcomes. The role then becomes one of measurement, monitoring and reporting of the success (or other outcomes) of the program. In establishing any sustainable facility management program, the following elements should be addressed:

- Program Responsibilities tasks, time, and budgets
- Program Monitoring methodology, targets, metrics
- Communications management what, when, how often, what level
- Quality control
- Risk Management identifying and monitoring project risks

If the facility manager takes on the role of program manager and makes sure that each initiative has appropriate roles and responsibilities are assigned to each team member, the probability of success and acceptance by the organization is significantly improved.

Chapter 11: Making the Business Case – Financial and Life-Cycle Tools for Sustainable Initiatives

One of the facility manager's greatest contributions to their organization is the ability to look at the entire life cycle of its physical assets and make capital purchasing decisions that provide the greatest economic benefit. There are a number of strategies that can be employed to maximize the economic benefit of a purchasing decision, but they all hinge on knowing the total cost of ownership (TCO) of the purchase. Of all of the sustainable practices that are important in facility management, taking a life-cycle approach and knowledge of the total cost of ownership may be the most important.

Total Cost of Ownership (TCO) = total of all expenditures an owner will make over the course of the service life of the building or system under consideration

TCO includes:

•	Planning,	design	and
	construction cost		
•	Operations and maintenance cost		
	(including fuel and energy)		
•	Disposition	(dis-asser	nbly,
	removal,	recyc	ling,
	environmental cost of disposal)		

TCO can be determined for any building system or component, or can be applied to the entire building. A firm grasp of the initial cost, operating cost, and potential disposal costs of any major building element can lead to efficient financial decision making and reduction of total cost of ownership. There are a number of ways that sustainable facility management can contribute to reduction in total cost of ownership. The challenge in determining the TCO is that it is difficult to come up with accurate projections of cost over a 10, 15, or 20 year period.

This chapter will introduce the general concept and application of total cost of ownership, life cycle management, and budgeting and financial tools that help the facility manager in making the business case for long life-cycle and sustainable initiatives. The facility manager should be well versed in life cycle cost analysis and the total cost of ownership of each of the major building systems and components.

Unfortunately, just knowing the TCO is not enough. In order to make the business case for a major capital purchase, the financial strategies and tactics for money management of the organization need to be understood. Determining TCO is the first step in making the business case, but it needs to be coupled with the concept of time value of money, which is how most financial managers make their major purchasing decisions. Understanding the time value of money is an important skill that the facility manager should develop and refine over their career.

MANAGING BUILDING LIFE CYCLE

There are several strategies for reducing TCO of a facility or major building system. Figure 11.1 outlines several strategies that can be used to reduce the TCO of a building or major building system. Although this list is not a complete list, it represents a few of the more commonly used cost reduction strategies in facility management.



Figure 11.1 – Strategies for managing building life cycle

Each of these strategies will result in lowering total cost of ownership by employing the factics outlined. Now let us take a look at a few of these



condition when the system is new (100), and a theoretical deterioration on a

scale from 100 to 0. At some point in time, the condition of the system will become such that it will require replacement. For a roof system, this may occur when the cost of repairing leaks and the risk of interior damage becomes too great. That point in the service life of the asset is represented by the intersection of the deterioration curve and the horizontal line that represents the replacement threshold. Using proper maintenance and renewal processes through the service life of the system can lead to extension of the amount of time before the replacement threshold is reached. In this example, a service life of 18 years is extended by about 4 years, or the addition of another third of its EUL.



Figure 11.2 Extension of service life

The challenge is in estimating the cash value of the extension of service life of this roof system by 4 years or about 22% of its original EUL. Clearly this has a cash value in that it avoids (delays) the expenditure for a new roof system by 4 years. Even if there are above-average repair costs incurred in the extension of service life (in the 4 year period), the cash value of that additional cost is likely to be far overshadowed by the cost savings incurred by the extension of service life. The proper way to account for the value of the extension of service life is to create a timeline of projected expenditures and savings and determine the net present Value (NPV) of that timeline. The cost of a new system is projected at several points in time – at the end of the "average" service life of the system, and at the end of the "extended" service life. The analysis would cover a specific period of time and the NPV of both periods would be evaluated against each other. Return

on Investment (ROI), NPV, Internal Rate of Return (IRR) and other financial analysis tools can be utilized to evaluate options and yield more definitive numbers about the financial value of our choices.

While this example may not be representative of all building systems, it represents a significant economic return to the organization by using proper operations, maintenance and capital renewal processes. The length and shape of equipment and building deterioration curves will vary, but proper maintenance and timely repairs are frequently used to extend expected service life. Extension of service life through proper operations and maintenance is a sustainable practice. It reduces the impact on the environment by delaying and extending unnecessary disposal. It also has a more favorable return on investment for the organization.

Total cost of ownership should also be considered in doing a service life economic assessment. Evaluating life-cycle cost will also consider fuel and energy cost and allow the facility manager to weigh the value of system replacement with a more fuel or energy efficient system. It may be the case that replacement of a building system before it has reached its EUL is economically feasible if the energy cost savings is sufficient to overcome the benefit of extension of service life (or normal EUL).

Gains in Efficiency (early replacement strategy)

Efficiency improvements are probably the most often-cited reasons to justify a sustainable initiative in facilities. Technological advances in equipment for environmental control in buildings advance at a very rapid rate. The technology that drives the efficiency of a building's heating and cooling system, one of the largest uses of energy in a building, can advance at a rapid rate over the 20 or 25 years that constitutes the EUL of the original system. The tradeoff becomes whether the gains in efficiency can out-perform the long service life of the less efficient equipment that is currently in service, on an economic basis. Thus, the tradeoff becomes energy saving versus remaining service life, similar to the assessment done in the preceding section (extension of service life). Replacing wellfunctioning equipment before the end of its projected service life can be a difficult path to properly model from a financial perspective. The potential energy savings of the new alternative needs to be significant in order to overcome the costs of early replacement. This early replacement strategy works quite well for low-unit-cost energy savings initiatives such as lighting replacements, but may be significantly harder to justify for large capital equipment replacements.

In the case of low-unit-cost building elements, payback period is often used to justify the expenditure. While payback period is a useful first cut at a financial analysis, it has a number of significant drawbacks. The advantages and disadvantages of several financial assessment tools such as payback period are discussed and compared in subsequent sections of this chapter.

Reduction in Space Demand

Facility managers were focusing on efficient use of space long before green buildings became part of the language of facility management. The space requirements of an organization are dictated by the growth or contraction of the workforce, market conditions, client response to a product or service, or any number of circumstances that are beyond the control of the facility manager. However, the responsibility for reacting to these changes in an economically feasible manner is a facility management challenge.

Technology tools for effective space management have been around since the 1980's and facility managers have been using these tools to track space use, manage moves, adds, and changes (MAC), and continually update work spaces. The need for moves, adds, and changes is often described by churn rate, the metric used to describe the number of moves occurring within an organization over a one year period (the ratio of the total number of moves to average number of occupants during a 12-month period). IFMA research and benchmark reports have recorded average churn rates in the neighborhood of 36% (IFMA, 2007). Although this is an average across a number of facility types, and individual churn rates will vary, churn represents a significant cost to any organization. Although a churn rate of zero is not necessarily achievable, and the facility manager cannot always influence the churn rate (the reason for churn is often beyond the control of the facility manager), more effective use of space and mitigation of the effect of high churn can be positively influenced by the facility manager.

Other common metrics in space management are utilization rates (expressed in % occupancy), desk to occupant ratios, and percent of space dedicated to conferencing and other common functions. Space management technology applications are adept at monitoring these metrics and alerting facility managers and designers when excess space is available for redesign or reassignment. Knowing these metrics can facilitate the implementation of space reduction strategies that can create more efficient use of space and reduce demand for new space.

By employing these strategies, organizations have been able to save millions of dollars. Figure 11.3 shows several space management strategies and the potential economic benefit.



Figure 11.3 Space Management Strategies

If the facility manager can work at the organizational planning level along with department heads and directors, they can convey the value of effective space management programs and its overall economic benefit to the organization. If this takes place, the facility manager can positively influence the planning function and help to reduce space demand by taking part in the strategy discussions at the highest level and at an early point in the planning process. While the space management strategies described here are not all-inclusive and there are many more strategies in existence, the point is that the economic benefits of an effective space management strategy is that it can have a significant impact on facility costs and productivity. The facility manager should be ready and willing to evaluate the economics of space management strategies. The next section in this chapter is devoted to a review of the financial tools available to the facility manager for making the business case for space management and other sustainability initiatives.

BUDGETING AND FINANCE TOOLS IN FACILITY MANAGEMENT

The challenge faced by the facility manager is to be able to model a sustainability initiative (or any large capital expenditure) from a financial standpoint that is stated in the language that a financial officer will understand and accept. In order to frame the argument properly, the right financial tools are needed to make the business case.

Most facility management departments work from a two-tiered budget process – an operating budget that deals with day-to-day purchases like cleaning and maintenance; and a capital budget that deals with longerlived and more expensive assets. These assets include building components, major equipment replacements, furnishings, office equipment, and telecommunications technologies. They also include space fit-outs, building additions, major renovations, and new construction.

Sustainable initiatives can be introduced at both tiers of the budget. For our operational budget, we look at items like how we accomplish our work, utility purchasing, operational efficiencies, and education of the workforce to provide efficiency improvements. Most organizations have embraced the low and no-cost benefits of sustainability in the management of facilities.

On the other hand, capital purchases may take longer and require a great deal more justification than operational cost improvements. Capital purchasing, by definition, involves large sums of money that, from an organizational standpoint might be perceived as better spent somewhere other than on bricks and mortar. Facilities are an important asset of most organizations, but the people and profits are most often the focus of upper management. Therefore, when making the argument for a large capital purchase, we would do best to link the purchase to positive long term effects of the productivity and profit-making ability of the organization.

Financial Basics

Speaking the language of finance is a skill that has been discussed as a necessity in the facility management community for quite some time. In order to speak the language, the facility manager needs a basic understanding of the time value of money. This is easier said than done, but does not have to be the difficult task that most people think it is. If we start with the basics of finance, there are a few key concepts that are worth absorbing and practicing until they become second nature. Here are a few of the basics:

Basics #1: The goal of the financial officer is to make money work for the organization. That is to say, make \$1 today worth *more* than \$1 at a future date. This is true, even if you work for a government entity or a not-for-profit organization. It is wise to keep this in mind when approaching the financial officer with a request for funding. Remember, you are competing against other investments, where that \$1 can be reinvested in the work of the organization to create a return. Therefore, you will need to prove your case that the money you are requesting will have a positive return for the organization. The more positive the return, the better your chances of receiving the funding.

Basics #2: Based on the financial officer's goal to make money work for the organization, there is an expected rate of return for that \$1 invested that is well known to the leaders of the organization. This rate of return is the capitalization rate, and forms the basis for comparison for all investment decisions. Every organization has a target capitalization rate for their investments. That is, the minimum rate of return on money that has been invested in any investment the organization makes. In determining the time value of money, the capitalization rate is used to project the future value of a present sum of money. Conversely, the discount rate is used to determine the present value of a future sum of money. In most simplified financial analysis, the capitalization rate and discount rate are the same.

Basics #3: When requesting funding for a capital expenditure, the business case is made by making a comparison to the existing condition or the status quo. This allows you to make a comparison between an old, inefficient piece of equipment to a new, energy efficient model, even though there may not be an actual cash return to the organization if it funds your proposed capital expenditure. This makes the competition for funding much more equitable since you are not comparing your capital expenditure with a new product that actually produces a positive cash

flow for your organization (i.e. the purchase of a new piece of manufacturing equipment that allows your organization to increase revenue). The capitalization rate gives you the standard by which you can compare your proposed investment against the status quo (the existing, inefficient piece of equipment).

Once these financial basics are well understood, the facility manager can use these financial tools to make the business case for a capital expenditure. Beyond the basics, there are also intangible benefits that can help the facility manager make the business case for an initiative. These intangibles are, by definition, non-monetary and not easily defined. One of the most significant (often intangible) benefits of a sustainability initiative is the positive impact of a sustainability initiative on our greatest asset – our people. Understanding and articulating some of these intangibles is a valuable skill, and will improve our success rate in getting our capital projects underway.

Financial Analysis Tools

Financial management is a critical skill needed to be able to demonstrate the value of the facility management profession, and particularly, to show the business case of sustainable facility management programs and initiatives. Basic financial skills are not hard to acquire. Since facility management is populated by people with diverse educational and management backgrounds, usually without a strong financial influence, financial analysis is often given over to the finance department.

In most cases, facility managers use simple payback period to sell sustainability initiatives. Simply put, it is the amount of time required to generate enough savings (usually in energy) to pay back the initial investment. There are better ways to present a more solid business case – using life cycle costing and total cost of ownership. Although simple payback is a useful tool, it ignores a number of basic financial components that are second nature to financial officers. Since facility management is so often called on to defend the value of facility-related projects and sustainability initiatives, greater care and skill in the presentation of the financial impact of these decisions leads to a higher success rate in implementing sustainable projects and initiatives.

Other analysis tools include Return on Investment (ROI), Net Present Value (NPV), and Internal Rate of Return (IRR). These terms are usually not commonly used by the facility manager and are often difficult to translate into the everyday life. Let us look at each of these tools for a common sustainability initiative and see how the facility manager can make a better business case.

An Example: A Lighting Retrofit . . .

Assume the business case for an 80,000 square foot office space with inefficient fluorescent lighting. A lighting contractor offers a full lighting retrofit with a combination of LED technology and energy efficient fluorescent lamps at a cost of \$50,000. You expect about a 30% reduction in energy use with a resulting savings of about \$10,000 a year in total energy savings. In order to do a proper financial analysis, you should consider all inputs; including rebates from the power company and the cost of escalating energy costs. However, we are going to keep this example simple and concentrate on project costs, energy savings, and an average lamp life of 8 years. Here are a few of the financial tools to consider:

Simple Payback Period

Common sense would tell you that it would take 5 years to pay back the initial investment based on the annual energy savings (\$50,000 initial investment and \$10,000 in annual energy savings). If you used simple payback, you would be following a common industry practice to justify a capital expenditure. In many organizations, a 5-year payback period would be considered too long, especially in a troubled economy. Most organizations have shortened their payback requirements from anywhere from 18 months to 3 years. In many cases, your \$50,000 lighting retrofit would not be considered since it would take too long to pay back the investment.


\$50,000 investment ÷ \$10,000 annual savings = 5 years

The problem with utilizing Payback Period as your only means of financial analysis is that it does not take into account the time value of money, nor the continuing savings after the initial payback is accomplished. In this case, if you assume a "project" life of about 8 years for the lighting retrofit, you would be ignoring an additional \$30,000 in savings in energy cost after the initial investment is recovered (in years 6, 7 and 8). There are obviously many more factors that can produce a much more thorough financial analysis, even if we use Simple Payback Period. In this example, factors such as variability in lamp life, hours of use, how the lamps are turned on/off each day can all lead to a more complex analysis. We will continue to look a bit deeper by introducing the time value of money into our financial toolkit.

Net Present Value – NPV calculations consider all cash inflows and outflows over the life of an investment and convert them all to the value of today's dollar. In this case, energy savings would be considered cash inflows (as compared to the status quo, or keeping the existing fluorescent lighting system in place), and outflows would be the initial investment. In order to perform a NPV calculation, you need to know how your organization "values" money. In other words, if your organization could reinvest the same amount of cash you needed for your lighting retrofit in itself or another worthy investment, how much could it make? This is the capitalization rate. The capitalization rate represents the expected rate of return that your organization is seeking if were to invest in other opportunities.



Figure 11.4 – Net Present Value of a 5 year asset

Figure 11.4 is a graphical representation of the time value of money. All cash outflows are represented by vertical lines below the timeline and are spaced to represent the year in which the cash outlay is made. Cash inflows are represented by vertical lines above the timeline and in most cases, represents savings over the existing (status quo) condition (E). The salvage value (S) of the asset is represented by the cash inflow at the end of the service life. This might just as easily involve a cost (or outflow) at the end of the service life if funds are required to cover the cost of disposal of the asset (as opposed to selling the asset). Annual maintenance costs are represented by M.

Net present value (NPV) is calculated by adding the present value of all of the cash outflows (Initial Cost plus Maintenance) and inflows (Energy savings plus Salvage Value). The outflows are negative and the inflows are positive. All values (except Initial Cost) are returned to today's value using the discount rate. The discount (or capitalization) rate is not used on the Initial Cost since it is already expressed in "present" value or today's dollars. If a capital investment is viewed alone, it will most likely yield a negative NPV since the costs will outweigh the savings. NPV is very useful in comparing two competing and mutually exclusive investment options. This is an ideal use for using NPV in comparing two energy-saving sustainability initiatives, or in comparing an energy-saving investment to an existing building system. In cases of comparison of two energy-savings options, the option with the lower (least negative) NPV would have the more favorable economic value to the organization.

A common mistake in financial analysis is to assume that the capitalization rate and the inflation rate (or average interest rate) is synonymous. This stems from the misconception that your organization would be satisfied to let money sit in an interest bearing account or to assume that the future value of one dollar invested would only grow at the current rate of inflation and no greater. Remember, under Basics #2, your financial officer expects to invest the organization's money in a manner that returns at least as much as the business has the potential to make – this is usually in the 8 to 12 percent range. This is far greater than you might expect from your family savings account where you are just keeping your savings in pace with inflation.

Many organizations also have a hurdle rate. The hurdle rate is the capitalization rate plus a specified amount of "profit" an organization would like to see in an investment. For some organizations the capitalization and hurdle rates are the same. For more aggressive investors the hurdle rate is larger because it includes the additional "profit" goal. For the sake of our lighting example, we will assume a capitalization rate of 8 percent, and a 2-percent premium, for a hurdle rate of 10%.

In our lighting retrofit, one version of a NPV calculation would be to determine the present value of the energy savings over the service life of the initiative. In this case, you would take the \$10,000 annual savings and bring each year of those savings (over each of the 8 years) back to current dollars, using the a discount rate that matches the organizations cost of capital. If we use an 8% capitalization rate over an 8 year service life, we would find a discount factor "multiplier" of 5.7466. This multiplier is found in any economics or financial text or any high functioning calculator or spreadsheet program that shows factors for Present Value (PV) of an Annuity (A).

Net Present Value			
Service	Capitalization		Discount

Life = 8 years	(discount) rate = 8%	factor = 5.7466				
Discount Factor for Present Value (PV) of an Annuity (A) at 8 years/8% = 5.7466						
PV = Annuity × Discount Factor = \$10,000 × 5.7466 = \$57,466						
NPV = \$57,466 (savings) - \$50,000 (initial investment) = \$7,466 (net positive cash flow)						

In other words, \$57,466 dollars in your hand today (PV) is equal to getting \$10,000 per year for the next 8 years at an 8% capitalization rate. What this is telling us is that the potential savings for the lighting retrofit is greater than the initial cash outlay (all in today's dollars). The net present value is determined by subtracting the cost of the initial investment from the present value of the savings, yielding a positive cash (present) value of the investment of \$7,466.

Is this a good investment? Most certainly; especially since it demonstrates that all of the initial investment would be returned to the organization (plus \$7,466), at the minimum rate of return that the organization expects out of its investments. This is the same investment that would have been rejected by most organizations if they were only to consider Simple Payback Period to evaluate the retrofit. That brings us to the next financial tool, Return on Investment (ROI):

Return on Investment -- ROI can be presented in a number of different ways. For the purposes of our lighting retrofit, as well as most multi-year projects that require a cash outlay, an effective way of presenting the ROI is to use a Discounted ROI, which accounts for the time value of money. It would look something like this:





Not a bad return on the organizations money! The last tool in the FM's financial tool kit, and often the most difficult to understand, is the Internal Rate of Return (IRR).

Internal Rate of Return – The IRR of an investment is always expressed as a capitalization (or discount) rate. It is the discount rate for which the NPV of an initiative equals zero. In other words, the cash inflows equal the cash outflows over the life of the initiative. In the case of the \$50,000 lighting retrofit, it is the discount rate at which the present value of the savings equals the \$50,000 initial investment over the 8 year service life. Sometimes that is a tricky rate to find, and it requires a few iterations to determine at which rate the NPV equals zero.

To simplify our example, we determined that a discount rate just under 12% would make the NPV of our \$10,000 annual energy savings equal the initial \$50,000 investment. Thus, our IRR would be just under 12% (11.8% to be exact).

Internal Rate of Return (IRR)



The IRR is the Discount Rate at which the NPV = 0

In this case, IRR is the Discount Rate at which the Initial Investment (\$50,000) is

equal to the PV of the savings (\$50,000)

This occurs at approximately 11.8%, therefore the IRR = 11.8%

If our organization has a hurdle rate of 10%, this indicates that our project would yield a higher rate of return and should be accepted. An IRR of less than 10% (the hurdle rate) would not be accepted since the organization could make better use of its capital. If we used a capitalization rate of 8% and expected an additional 4% out of our investment (thus a hurdle rate of 12%), the investment would be just below the acceptable rate of return based on IRR and would most likely be rejected. It is important to know your organization's capitalization and hurdle rates and where your sustainability initiative fits.

Lighting Retrofit Example – Four methods, more than one answer!

In this lighting retrofit example we have ignored a number of other factors that would normally be taken into account by the financial community. Factors like whether the initial investment requires financing would certainly skew the returns downward and make the justification a bit more difficult. Rebates would add a very positive incentive to the program by reducing the initial investment. The point is that the facility manager should become familiar with how their organization handles money – specifically what capitalization rate (and hurdle rate) is used for various projects and how the financing is accomplished. There are a number of other technical details in any financial analysis that can also affect the outcome – when the discount rate is applied (at the beginning or end of an accounting period), length of accounting period (months vs. years), how "saved" money is reinvested, etc.

The table below summarizes the results of our lighting retrofit example, and the anticipated outcome based on the financial tool used.

Financial Tool	Methodology	Result	Decision?	
Simple Payback	Amount of time to return investment	5 years – considered too long by many!	No	
Net Present Value (NPV)	Life Cycle Cost – discounted to today's dollars	Positive return of cash for the investment	Yes	
Discounted Return on Investment (ROI)	Total value of Investment – discounted to today's dollars	Organization returns 15% on investment (compared to status quo)	Yes	
Internal Rate of Return (IRR)	Comparison of rate of return of this investment against organization's minimum requirement	Investment returns 11.8% and is accepted compared to an 8% capitalization rate and a 10% hurdle rate	Yes	

Figure 11.5 – Lighting Example: Financial decision process

The point is that the type of analysis can influence the outcome. If Simple Payback Period is the only financial tool used, then many more economically feasible investments will be rejected. It is true that Simple Payback Period is a valuable tool, but should not necessarily be used as the sole indicator for acceptance or rejection of an initiative. Obviously this lighting example is a simplified version of a sustainability initiative. Although there are many other factors that make up a detailed financial analysis, this should give the facility manager a more robust tool kit for making financial decisions by becoming more familiar with, and aligning with, the financial language and tools of the organization.

Articulating the Intangibles

Each initiative can be framed in financial language by using one of the tools listed in this chapter. An important part of defending any major purchasing decision is to also articulate the intangible benefits (and risks) of an investment. Some of the intangibles include:

- Positive contributions to customer and stakeholder satisfaction
- Productivity increases that may be difficult to measure, but are clearly present
- Reductions in absenteeism
- Increased productivity in the workplace

- Reduction in moves, adds, and changes
- Employee retention
- Risk reduction
- Reduced accident rates
- Improvements to image and brand
- Positive contributions to CSR

On the other hand, there may be risks involved when articulating the intangibles:

- Risk of not meeting savings projections
- Uncertain health risks
- Risks associated with the use of unproven technologies
- Potential negative or unintended perceptions of an initiative

Risk management should also be incorporated into a financial analysis so that our organizations have a complete picture of all of the consequences of investing money in facilities and infrastructure.

SUMMARY

Strategies for making better business decisions on capital investments start with a thorough knowledge of the total cost of ownership and an appreciation and understanding of life cycle costing methodologies. Sustainability initiatives in facility management involve more than just energy savings and resource conservation. Initiatives must be balanced against the economic portion of the triple bottom line and justified against the organization's financial policies and practices. Sustainable strategies for longer service life and decreased total cost of ownership include:

- Extension of service life
- Gains in efficiency
- Reduction in space demand

Although there are many more strategies, these represent some of the most valuable concepts for sustainable facility management. However, since these benefits do not always have an immediate payback, they are often hard to grasp and are not frequently quantified since they are on the long end of the facility's service life.

Financial analysis tools are used to make a more compelling business case based on the total cost of ownership of an asset. The more common tools include:

- Payback Period
- Return on Investment
- Net Present Value
- Internal Rate of Return

Although these tools do not represent the full range of analysis techniques that a financial officer would use, they are basic financial concepts that serve a facility manager well in making a better business case for capital investments.

Chapter 12: Performance Management for Sustainable Facility Management – the Sustainability Scorecard

The key to any successful facility management organization is the ability

to measure and manage the use of resources, the effectiveness of the facility management workforce, and the effect of the workplace on the people of the organization. Over the years, we have become very successful at measuring the first two, but very limited in our ability to tie the effects of a sustainable workplace to the productivity of the workforce. Although this is slowly changing, there is very little empirical data to show us the effect of sustainable practices on the workforce.

That is why performance measurement, monitoring, and reporting are so important in promoting sustainable practices. In Chapter 9, we covered the measurement, monitoring and reporting of four very important facility characteristics – energy, water, carbon, and waste. In Chapter 10, we covered the management practices and relationships with service providers that can contribute to high-performance and sustainable facilities.

For years, we have had facility technology that optimizes the way we do work, the way we operate and maintain building systems, and the way we direct and allocate limited personnel resources in facility management. In the last several years, sustainable and high-performance facility management have come to the forefront in facility management, because of the amount of resources required to run facilities, but more importantly, the realization that the workplace can have an even more profound effect on the productivity of the largest organizational resource – the people of an organization.

In order to effectively manage the use of our natural resources in facilities and to maximize our impact on the health, safety and productivity of the organization's workforce, we need a performance management system that encompasses all parts of facility management. The Balanced Scorecard (BSC) has been used for many years by many worldwide organizations to manage the performance of companies, organizations, and governments. The BSC can be easily adapted to managing the performance of facilities and align the facility management organization to the organizational philosophy.

In order to use the BSC as a performance management system, the facility manager first aligns the overall goals and objectives of the facility management department to the larger goals and objectives of the organization. This is a useful step in determining organizational commitment to sustainable facility management efforts. Once the commitment level is established, the facility manager can develop a list of sustainable facility initiatives that align with the philosophy and resources of the organization. The BSC allows for the prioritization of initiatives based on cost, effectiveness, and any number of other Triple Bottom Line factors.

Once the initiatives are established and chosen, the BSC acts as a framework for developing the right measures and targets for monitoring and reporting the success of SFM efforts. These Key Performance Indicators (KPIs) serve as the guide for monitoring, changing, and improving our SFM efforts. They also serve as the basis for reporting up through our organization the facility related metrics that support the organizations Corporate Social Responsibility goals and initiatives.

Performance Management using the Sustainability Scorecard

The concept of the Balanced Scorecard was introduced in the early 1990's by two Harvard-associated individuals, Robert S. Kaplan and David P. Norton (Harvard Business Review, 1992). Prior to this concept, most corporations measured their success by their financial results. This led to a view of financial results that emphasized short-term gain over long-term success. In public corporations, the only financial driver that was recognized as important to many organizations was share value. Although this may still hold true today for some corporations, the value of the customer as an important stakeholder, and the importance of non-financial indicators of success were and are on the rise.

Kaplan and Norton recognized that the short-term view of financial success ignored a number of very important characteristic that define success in the business world. By concentrating solely on financial metrics to measure success, organizations were ignoring several other key contributors; most notably the organization's customers and their workforce. They were also ignoring the contribution of their own business process in their success. Although not all organizations operated with such a single-minded approach to measuring success, the financial emphasis was pervasive in for-profit organizations.

The other important motivation to seek a different approach to measuring success was that organizations were becoming more proficient in the use of strategic planning to set a pathway for financial success. Many organizations created well-thought out strategies and put lots of time and effort into strategic planning. The problem was that many of these strategies "sat on the shelf" and implementation of the strategy became extremely difficult without the right performance management tools. The process that takes an organization from strategic planning to implementation, to measurement, and then success was short-circuited. The metrics for measurement of success were only financially oriented, too hard to measure, were disconnected from the day-to-day responsibilities of the employees, or not in place at all. The balanced scorecard (BSC) provides a framework for success that goes well beyond traditional financial measures. The BSC is now used by thousands of corporations, non-profits and government entities world-wide.

The framework of the BSC is based on four perspectives that define the success of an organization – the customer (client), business processes, learning and growth, and the financial perspective. Figure 12.1 shows the four perspectives of the BSC and the incorporation of all four perspectives in the strategy of an organization.



Figure 12.1 – The four perspectives of the Balanced Scorecard

The BSC recognizes that the client or customer has a great deal of influence over the definition of success for an organization. This is quite obvious if the organization sells a product directly to consumers, but may be a bit more subtle if the organization is not in direct communication with customers in the traditional sense. This would be the case for a manufacturer of parts that go into a larger product somewhere up the supply chain. The parts manufacturer would evaluate who their true customer is, and determine methods for measuring and improving customer satisfaction. The beauty of the BSC as a performance management system is that it forces an organization to think deeply about who their customers are, and how to best satisfy their needs by recognizing how the customer judges success. For the facility manager, customer satisfaction with the workplace would be the most commonly used metric for defining success in the *customer* perspective of the BSC. Other customer metrics for the facility manager might include measurement of the effect of the workplace on the workforce.

The business *process* perspective forces the BSC user to define the critical business processes at which the organization must excel. Along with defining the critical business processes, it requires the user to define success measures (metrics) that are easily identifiable, measurable, and have the ability to be periodically tracked. These business processes can range from how well a manufacturer produces its product to how well a facility manager accomplishes work in a work management system. A primary function of facility management is the operation and maintenance of the building – conducting preventive maintenance, corrective maintenance, and responding to occupant (customer) comfort and safety needs. A wellfunctioning integrated work management system (IWMS) would be a good example of a work process in facility management that would be critical to success, and the success criteria could easily be determined and measured. Other metrics for the facility manager that relate to business processes might include the efficient use of space and the efficient management of changes in space use.

The *learning and growth* perspective of the BSC recognizes that a well-educated workforce will be much more productive for an organization. In the context of the BSC, learning and growth not only means education and training in the traditional sense (job skills), it refers to the workers knowledge of organizational mission, vision and values, and the employee's role in carrying out that mission. It is a generally accepted management concept that an engaged and knowledgeable workforce is more productive and valuable in carrying out the mission of the organization. Success criteria in the learning and growth perspective can mean a variety of different things to organizations. In facility management, the knowledge, skills, and abilities of the facility management workforce can be enhanced and measured by participation in continuing education, professional development, organizational involvement, and credentialing programs. Certifications such as the Certified Facility Manager (CFM) credential from IFMA and specialty credentials such as the Facility Management Professional (FMP) and Sustainability Facility Professional (SFP) programs can be used as success measures in workforce development.

The fourth perspective of the BSC is the traditional *financial* perspective. This is often the most common measure of success since it has been in use for as long as organizations have been making money. For the

facility manager, measures in the financial perspective would most likely be metrics such as annual operating cost per unit of area, energy cost, metrics that measure the cost of space, and the cost to manage regulatory compliance issues in the workplace. Use of the BSC can also capture financial success measures that may not have been previously thought to be important or measurable. An example of a metric that could be possible (and very valuable) would be to tie the health and safety aspects of the workplace to savings and productivity increases of the workforce. Although this may be a difficult metric to implement, the financial benefits of a safe, healthy and productive work environment can far outweigh the cost of the facility itself. The BSC can provide the mechanism for capturing important metrics and demonstrating the enormous potential value of sustainable and high-performance facility management.

THREE PHASES OF A BALANCED SCORECARD Approach

Creating a balanced scorecard has a number of steps, but can easily be broken down into three phases. The three phases of the development of the scorecard are shown in Figure 12.2.



Figure 12.2 – Three phases of BSC development

It may be helpful here to review a few terms used in strategy development; the definition of strategy, and the difference between goals and objectives. Although we reviewed the definition of strategy in chapter 7, another way to define strategy is a list of actions that an organization believes it needs to take in order to achieve its mission. In a way, it is the defined path the organization feels it needs to take in order to achieve its overall objective (mission) and look like the type of organization it wants to look like in the future (vision). A goal is a higher level end-point the organization wants to achieve. A good example of an organizational goal would be; to be the number one company operating in their market with respect to annual revenue. An objective is a more specific measure of success that an organization feels it needs to reach on the way to achieving a goal. An example would be that in order to reach the goal of number one company in their field, an objective would be to open factories in three new locations in the next three years. The objective is more specific, and supports an overall goal. Strategic planning involves recognition (or establishment of) the organization's mission, vision, and values, and establishment of strategic objectives (the roadmap of stops along the way) that defines the path to success or the achievement of the vision.

Evaluate and Align

The first phase involves evaluating and aligning with the organizational strategy. This includes reviewing the mission, vision, values, and strategy of the parent organization. Recognizing the vision and underlying values and beliefs of the overall organization can allow the facility manager to align all of their goals and objectives with the strategic objectives of the parent organization. The mission, vision and values of the organization are used as the foundation for creating goals and objectives for the facility management group that frame their everyday contribution.

The first phase of development of a BSC also involves aligning the organizational strategy with the most common external measure of success in responsible organizational behavior; the Triple Bottom Line. This is often evaluated by looking at the public statements the organization makes about its Corporate Social Responsibility (often found in an annual report or specific sustainability or CSR report). Once the organization's commitment is determined, the facility management group develops its own mission and vision statement that reflects and supports the organization's commitment. In the case of the facility manager, the department is the facility management group, and the alignment comes when the actions of the facility management department support and align with the overall strategic objective of the organization.

Restatement of the organization's overall strategic objectives allows the department to create alignment between their objectives and that of the parent organization. This restatement of mission and vision is followed by a set of strategic objectives that form the basis of a facility management strategic sustainability (or SFM) plan. This defines the departmental path to achieving the mission. These statements are presented in the framework of the four perspectives of the BSC – The customer, the work processes, the learning and growth (workforce), and financial perspectives. These perspectives are usually listed horizontally and categories of objectives on the left-hand side of the scorecard. Figure 12.3 shows the first phase of BSC development.



Figure 12.3 – The first phase of the BSC

Develop and Prioritize Initiatives

The second phase in the development of the BSC is to develop and prioritize specific initiatives for the SFM plan that support the department's strategic objectives. Initiatives are specific actions that support and help achieve the strategic goals and objectives of the organization and the facility management group. In the case of the facility manager, this would be a series of initiatives that are intended to create improvement in each of the four perspectives of the BSC. From the customer perspective, the facility manager may have two or more specific initiatives that involve measurement and improvement in customer service. The initiatives listed at this level would be specific actions that are measurable and success is easily defined. The facility manager would do the same for the other three perspectives of the BSC – process, learning & growth, and financial. The idea is not to create long lists; usually no more than two or three "departmental" initiatives are sufficient to develop a functional BSC. Too many initiatives or initiatives that are too vague or un-measurable can lead to confusion, slow progress, or failure of the process. Figure 12.4 shows the second phase of BSC development.



Figure 12.4 – The second phase of the BSC

One of the most challenging tasks in developing sustainable facility management initiatives is the prioritization of those initiatives. Limited time and funding are always challenges to accomplishing all of the tasks that can lead to significant change and improvement in an organization. Most facility management groups have little difficulty in deriving a long list of initiatives that can lead to greater energy efficiency, water savings, waste reduction and improvement in workplace quality. However, there is a limit to the amount of time and expense any organization can commit to these improvements.

There are several tools available to help prioritize SFM initiatives according to a number of different parameters that are significant to the organization. We will take a look at three different tools that can help prioritize SFM initiatives.

Two by Two Matrices

A simple two by two matrix can be used to prioritize SFM initiatives. The most common methodology in these matrices is to portray the initiative's cost on one axis and impact on the other. Impact is a relative measure of an initiative's effect on efficiency, environmental stewardship, or the perception of stakeholders. This tends to be a rather subjective measure of an initiatives impact. A simple two by two matrix is shown in Figure 12.5.



Figure 12.5 Two-by-two matrix as an evaluation tool

This matrix compares Environmental Benefit to Return on Investment (ROI). The highest priority initiatives would be those that return the highest environmental benefit with the highest ROI. The matrix can be easily adapted to comparison of other parameters such as cost, savings, and impact on stakeholders (social impact).

Triple Bottom Line

The Triple Bottom Line can also be used to prioritize SFM initiatives. Using the TBL as a prioritization tool involves estimating the impact of an initiative on each of the triple bottom line factors -- economic impact, environmental impact, and social impact. This is also a subjective tool in that the impact can be judged on a simple positive (+) or negative (-) scale. Figure 12.6 shows an example of a number of initiatives, their reason, and relative impact in each of the three TBL areas.

Initiative	Intent	Environmental Benefit	Economic Benefit	Social Benefit
Reflective Roof	↓ Heat Island Effect	+/-	+/-	+/-
Low H20 Fixtures	↓ Water Use	+	+	+/-
Commissioning	↓ Energy Use	+	+	+
Reduced Mercury	↓ Hazardous Waste	+	-	+/-
Lighting Retrofit	↓ Energy Use	+	+	+/-

Figure 12.6 The Triple Bottom Line as and evaluation tool

Some of the initiatives may have an uncertain impact and can be shown as a potentially positive or negative (+/-) impact. An example of a +/- impact is the social impact of a water saving initiative. This could be viewed as negative from the point of view of the user of a water-saving device in the workplace if personal water use is reduced, or positive impact by external stakeholders that may view any water savings efforts as a positive step in environmental stewardship. In using the TBL as an evaluation tool, priority is given to those initiatives with the most positive indicators (for example; "Commissioning" in Figure 12.6). Instead of a plus/minus rating, this type of TBL assessment could easily be converted to a numerical score (such as a 1 to 10 rating for each of the TBL impacts).

Materiality Matrix

The term *materiality* comes from financial accounting and is a concept that relates the importance or significance of an amount or transaction in an organization's accounting process. In sustainability reporting, it refers to the importance of a sustainability policy, practice, or initiative. A materiality matrix compares the level of importance to the organization relative to the importance to its stakeholders. In other words, something may be very important to stakeholders, but of marginal significance to the organization, or vice-versa. By plotting the importance and giving it a quantitative metric, you can evaluate the relative importance

of a sustainable practice or initiative and thus prioritize your initiatives based on what is important to both constituents.

In the example shown in Figure 12.7, a materiality matrix was derived to represent the importance of several organization-wide sustainable issues to the stakeholders of the organization (in this case, the organization's customers) versus the importance of the initiatives to senior management. A materiality matrix aligns well with sustainability reporting frameworks such as the Global Reporting Initiative (GRI). In the GRI framework, there are a number of social and financial metrics that supplement the environmental indicators, and a materiality matrix is much more effective in evaluating stakeholder importance.



Figure 12.7 Materiality matrix as and evaluation tool

There are several different methods of prioritizing initiatives in a materiality matrix. In this case, the dotted lines represent a first tier of prioritization (right hand dotted line), and a second tier of prioritization (left hand dotted line). The two tiers represent a potential first and second set of initiatives that could be implemented over a two year period. Instead of drawing horizontal and vertical lines and prioritizing those initiatives in the upper right quadrant of the matrix, the curved dotted lines represent a more equitable prioritization of those initiatives that have high value to both sponsors represented in the matrix.

The prioritization process depends on the level of importance of the facility management function within the organization. The two-by-two matrix and the TBL prioritization tool are effective when the priorities lie strictly within the management and control of the facility management group and the drivers are primarily economic and resource use. If the perspective of the broader stakeholder group is desired, the materiality matrix is an effective prioritization tool. The materiality matrix is also much more effective in aligning with an organization's CSR commitment and reporting framework (such as the GRI).

Implementation

The third phase in the development of the BSC is to create specific measures, targets, and status indicators for each of the initiatives. This is the measurement and monitoring phase of the BSC process. Establishment of specific measures is one of the most crucial steps in the BSC process. Specific measures are the success factors for the initiatives. The more easily measured the better. However, the measure needs to be relevant and important to the initiative, and it must be measurable within a reasonable level of effort. An example of an initiative for a facility manager would be to improve work processes to manage the level of corrective maintenance required in a facility to an optimal level. Measures of success of the initiative could include number of work orders completed, timeliness of completion, and ratio of preventive to corrective work orders. The ability to measure and monitor these metrics may be resident in the technology used for work management, and may be readily accessed. The quality of the data is always important, and appropriate data management practices should be employed to assure that accurate measurement is taking place. Targets can be set for the improvement of the measures. Targets can involve quantities of consumption, cost, time involved, percentages increased or decreased, or other units of measure. Status is an indicator of current status; whether it is measured instantaneously, daily, weekly, monthly, guarterly, or annually. For most measures, the more frequently the status is checked, the more like timely corrections can be made and improvement achieved.

Figure 12.8 – The third phase of the BSC



Next, we will look at how the BSC can be used as a performance management system to support sustainable and high-performance facilities.

The Sustainability Scorecard

In the first phase of development of the BSC, the organization's mission, vision, values, and strategic objectives are reviewed in order to facilitate the alignment with the strategic objectives of the department – in this case, the facility management department. In this phase, the output of the review process would be no different than if any other department performing the exercise. The mission, vision, values, and strategic objectives of the organization should drive the behavior of any of the organization's divisions, groups, departments, or other operating entities.

The organization's mission, vision, and values would lay the groundwork for any sustainability initiatives that the facility manager may develop and wish to implement. During this initial phase, the facility manager can gauge the level of organizational support for sustainability initiatives by evaluating the organization's commitment to CSR and the Triple Bottom Line. These organizational commitments are usually evident in mission statements, vision statements, and value statements. These statements, along with the marketing and branding activities of an organization can serve as a barometer of the level of support that can be expected for sustainable facility initiatives. However, strong commitments to CSR at an organizational level do not guarantee the facility manager automatic success in implementing sustainable facility management

initiatives. The visibility of the facility management function is not always readily apparent at the corporate level. Sound facility management practices involve making solid business cases for sustainable facility programs and gaining approval for facility-related sustainability initiatives. Using sound financial techniques such as return on investment (ROI), net present value (NPV), and internal rate of return (IRR) are useful tools in justifying sustainability initiatives in the language of the Chief Financial Officer and other members of the C-suite. Calculating Total Cost of Ownership (TCO) and using Life Cycle Costing (LCC) techniques for evaluating capital costs in facilities are useful techniques in defending projects that lead to higher performance and more sustainable facilities. A financial look at sustainable facility management is included in Chapter 11.

Once the level of organizational support and commitment for sustainable facility initiatives is established, the initiatives that align with the organization's strategic objectives can be developed for each of the four BSC perspectives. The objective of most performance management systems such as the BSC is not to create a long list of initiatives. The objective is to create a focused, achievable, and affordable list that is in alignment with the organizations goals. Figure 12.9 shows the first and second phase of a sustainability scorecard for a facility management group.

Figure 12.9 - A sample of phase1 and 2 of a sustainab le BSC

The sustainability initiatives are aligned with the organizational strategic objectives and support and align with each objective.

The next phase of the development of the sustainability scorecard involves the development of appropriate measures, goals, and status markers. For the customer perspective, occupant comfort, safety and security would serve as the most likely measuring posts for sustainability initiatives. These would normally take the form of occupant surveys with minimum percentages of satisfied occupants serving as the baseline. For the process perspective, the ability to measure the success of sustainability initiatives is dependent on building

measurement and metering processes such as those for measuring and



monitoring gas, electricity, water, and waste. These are the primary facility inputs and outputs covered in Chapter 9.

For the learning and growth perspective, the initiatives and measures for sustainable facility management would focus on the development of the knowledge, skills, abilities of the and stakeholders. For the most part, the and growth initiatives learning would focus on the facility management workforce and their ability to recognize and implement best practices in sustainable facility management.

For the financial perspective, the success measures for the sustainable facility management initiatives usually involve metrics such as utility cost per square foot with targets for reduction and status markers that indicate

progress toward the target. The financial output of a sustainable facility management initiative would normally be a decrease in cost. Figure 12.10 shows an example of the third phase of a sustainable facility management program using the sustainable BSC.

A properly constructed sustainability scorecard for facilities can be an effective performance management tool. In addition, it can be constructed such that it feeds data directly into reporting tools such as the GRI reporting framework covered in Chapter 13.

SUMMARY

Although there are other performance management systems in use by a variety of organizations, few have had the major impact of the BSC. The balance between stakeholder requirements, effective work processes, the knowledge and skill level of the workforce, and financial success are brought into balance. The BSC as a performance management system pairs well with the Triple Bottom Line as a methodology for evaluating sustainability initiatives. The BSC also supports CSR reporting systems such as the GRI in that the data collected can be easily aligned with the reporting framework of the GRI and other global reporting systems. This allows the facility manager to more readily support the organization and their commitment to CSR and the Triple Bottom Line while providing added-value to the organization through effective asset management.

Chapter 13: Communication Planning and Reporting

The idea of developing a sustainability strategy can originate from different people or groups in the organization. For example, it could be the vision of a single person with high authority such as the CEO who has decided that a commitment to CSR is important to the organization. Or it could come from the Marketing Vice President who sees it as a competitive It may come from the Human Resources Director who differentiator. considers it an employee attraction and retention tool. Or it could stem from a sustainable purchasing policy instituted by the Procurement Department. Each organization has its own reasons for wanting to put a sustainability strategy in place and information is at the foundation of their reasoning. The reason may be that the CEO wants it simply because it is the right thing to It could be due to industry peer pressure. It may be that the do. organization's customers and/or employees are demanding it. Government regulation may be driving it. Or it may be purely an issue of energy (cost) savings. It could be some of each. Whatever the reasons, they serve as the foundation of the initiative. They are the reasons why the initiative exists.

As more information is provided, the reasons will begin to evolve and become clearer. For example, when a CEO sees a plaque in a building lobby certifying that the building is sustainable, his or her competitive nature may drive them to want the same recognition for their organization. The CEO communicates the sustainability directive to the executive team. Eventually it filters down through the management chain. Although sustainability is very broad and cuts across the entire organization, it is so closely related to facilities that it is likely to land on the facility manager's desk. The facility manager may then send information back up the management chain, educating senior management to the realities of the plan. They need to know that it is more than simply installing low flush toilets and automatic faucets. They need to understand it will take a team of people to accomplish it and considerable time, effort and money. They need to know that a mission and shared vision must first be developed among the stakeholder groups. The facility manager may also point out the various sustainability strategies that other organizations have employed. The CEO becomes more aware of the breadth of the sustainability initiative which helps to sharpen the focus of his or her vision of what sustainability really means to the organization. It also helps the CEO to realize the impact their directive will have on the organization. This back and forth flow of information helps inform an organization as to why sustainability is important to them.

Once the reason the organization wants to be sustainable becomes clear the next step is to obtain senior management buy-in. Whether the mandate is derived from a consensus agreement by senior management, or it is an edict directly from the CEO's office, the entire senior management team must concur and agree to support it, or the initiative will fail. Lack of support at the top cascades down through the ranks and buy-in by the organization cannot be achieved.

A sustainability initiative cannot be developed in a vacuum, regardless where it has originated. To successfully carry out any type of organizational strategy, especially a sustainability strategy, requires representation of all the stakeholders as well as their buy-in. When the leadership role is handed off from senior management to the facility manager, unified support is required in order to achieve success. When there is a unified voice, it creates a clear path for the facility manager to lead the organization. It is up to the facility manager to clearly communicate where that path leads. Because there are multiple stakeholders, a comprehensive communication plan is needed in order to communicate with more than one audience. Several communication channels are needed. From the very beginning. the stakeholders are going to want to know what the sustainability initiative is about, what is driving it, what its purpose is, why it is important and what impact it will have on the organization and on themselves. They need information. How it is communicated and to whom is essential to the success of the sustainability initiative. Thus, the facility manager must understand who the stakeholders are, what information they need, when they need it and in what format it would be most effectively disseminated. It is for these reasons that a communication plan must be carefully developed and strategically deployed.

Once the sustainability initiative is launched the organization should report its progress, successes and challenges. The Global Reporting Initiative, which will be discussed in greater detail later in this chapter, describes a sustainability report as a consolidated disclosure that shows an organization's performance and progress made in social, environmental, governance and economic performance over a specific period of time.

Communication is one of the most important activities to be undertaken when implementing a sustainability initiative. Sustainability is not a one person operation. The facility manager may lead the effort, but it will involve a diverse group of people who have specific needs and can contribute in different ways. For this reason, multiple communication strategies will be needed.

There are two types of communication strategies that are needed for a sustainability initiative to be successful:

- An informational communication strategy
- A reporting strategy

Each of these strategies have different but overlapping audiences, goals, objectives, and timelines. The informational communication strategy focuses on getting senior management and internal and external stakeholders to buy-in to the sustainability initiative and participate in its development and implementation. The reporting strategy is focused on telling the world how the organization practices in a sustainable manner.

When developing and implementing a sustainability initiative, these two communication strategies should be employed with the understanding that each has its own purpose and unique stakeholder groups who have different interests and perspectives. Let us first examine an informational communication strategy.

THE INFORMATIONAL COMMUNICATION STRATEGY

In chapter 4 we discussed that the role of the facility manager as the leader of the organization's sustainability program can be approached in two ways. The insurgent role is one where the leader works behind the scenes without formal authority or directive. The other is as a champion, a role that is appointed and visible. No matter what role the facility manager plays, there are four basic steps to follow when building an informational communications strategy.

- 1. Know your audience
- 2. Define the purpose
- 3. Define your message
- 4. Develop a communication strategy for each stakeholder group:
 - a. Establish goals and objectives
 - b. Determine how to best reach them
 - c. Develop and implement tactical plans necessary to carry out the strategy
 - d. Measure your progress and your performance

Know Your Audience

Knowing your audience and what their interests are is fundamental to developing an informational communication strategy. But what does knowing your audience mean? It means:

- Understanding who the audience is
- Understanding their needs, interests, priorities and concerns
- Knowing how and when to communicate to them

Let us examine each of these points more closely. In chapter 8 we looked at the sustainability team and what groups within and outside the organization they represent. These groups combined with several other peripheral groups are the core stakeholders in developing the sustainability strategy. There are both internal and external stakeholder groups. A typical list of stakeholder groups might be:

• Senior Management

- Employees
- Building occupants
- Corporate Real Estate (CRE)
- Engineering/R&D
- Manufacturing
- Procurement
- Purchasing
- Marketing
- Sales
- Corporate Communications
- Public relations
- Information Technology (IT)
- Human Resources (HR)
- Finance & Accounting
- Legal
- Local governing authorities
- Service providers
- Suppliers
- Consulting professionals
- Utility providers
- Customers/clients
- Neighbors
- The community at large

Depending on the group, they may be supporting contributors, direct contributors or influencers of the strategy. For example, employees may be asked to alter their behavior. They might be encouraged to car pool or bike to work. They may be asked to make a conscious effort to recycle. They might even have to provide their own coffee mug! By virtue of agreeing to change behavior, they are supporting contributors. Their actions contribute to the success of the sustainable facility management program.

Another group of supporting contributors are vendors who supply products or services to the organization. They are supporting the initiative by adapting their processes and changing their behaviors to meet the needs of their customers. They will need to know what changes they must make, and the impact of that change on the rest of the organization. For example, a building contractor may now be expected to sort and recycle demolished building materials. That means they have to change their process and provide multiple dumpsters on the construction site. They will have to train their workers and sub-contractors. They have to find recycling partners who accept these materials and negotiate contracts with them. The contracts they have with their sub-contractors may have to be revised, and as a result, there may be a cost impact.

There are other individuals in the organization who, by the nature of their job responsibilities, will be asked to take an active role in the development and implementation of the sustainability strategy. These are the direct contributors – people in facilities, procurement, corporate communications, public relations and finance who have a specific role in making a sustainability initiative work. They will need to know what their role is and the time commitment that is expected of them.

Finally there are the influencers. These are the stakeholders who drive the effort by virtue of their position and/or their leadership in the organization (position power). Position power is <u>influence</u> bestowed by the <u>position</u> or <u>office</u> of whoever is filling or occupying it. Or they may be influencers because of their personal influence. Personal influence is the ability to affect the actions, opinions and decisions of others indirectly rather than through the direct use of position power. It is earned over time through ongoing relationship and trust building. Most often, position power and personal influence power come from senior management. But personal influence can also come from others outside the C-Suite who are highly respected and listened to.

Every stakeholder group should be evaluated as to how they fit into the strategy and what their needs, priorities issues and concerns are. The more facility managers know their audience, the better they will be able to communicate to them and the better chance they will have to positively influence them.

Knowing your audience also means understanding how to best communicate with them. By what means does the audience want to be communicated? For example, Baby Boomers may prefer more face-to-face and hardcopy communication. The youngest generation in the workforce, commonly referred to as the Y Generation or Millennials may prefer communication through mediums such as social networks, blogs and You Tube.

It is important to know where the stakeholder groups are physically located. Someone on the same floor will communicate differently than if they were located on another continent.

To help better understand your audience, you can develop a stakeholder communication matrix. This is a chart that is organized by stakeholders and includes the information necessary to understand them and communicate to them. It includes columns for:

Stakeholder groups

• Any group of people who will be impacted directly or indirectly by the sustainability initiative

Classification

- A supporting contributor is one who contributes to the effort by changing their behaviors and actions either voluntarily or by directive
- A direct contributor is a person who has knowledge, skills, influence or position power to shepherd the process. A direct contributor provides input directly into the effort
- An influencer, by way of their power or function in the organization, may set direction, establish affecting policy or procedure or sway opinion

Purpose of communicating to them

• The specific reason why a stakeholder group must be communicated with. For example, the Procurement Department is a stakeholder group. The reason to communicate with them is to get them to change their sourcing strategy such as buying locally made products made from renewable resources by sustainable manufacturers.

What matters to them

• Of all their needs, interests, priorities, concerns and issues, what will impact each stakeholder group the most? For example, employees may have to bring their own coffee mugs to work
because the organization will no longer provide disposable cups. This may seem like a trivial matter but it represents a change in behavior and most people find change a difficult thing to deal with.

What message should we be delivering to them

• The message should be focused on what matters most to them. In the coffee mug example above, the message should emphasize why the organization is not going to provide disposable cups any longer (less material to recycle, cost savings). It should help the employees deal with this change by offering solutions (e.g. Offer ceramic coffee mugs with the company logo - each employee gets the first one free).

Objectives of the communications strategies for each stakeholder group

• Objectives are the things that need to be accomplished for the communication to be successful. In the previous example with the Procurement Department, one of the objectives would be for them to re-write the general conditions of their standard procurement contract to include sustainability requirements expected of vendors.

Measure progress and performance

• A great business sage once said you cannot manage what you cannot measure. In the Procurement Department example, targets have to be established for when the new supplier contracts are to be rolled out. Their performance should be monitored. If the process is not progressing, changes should be made.

Means of communication

• This is the "How". What medium should be used depends on what information is being communicated, the stakeholder group, the importance of the information, and the urgency. Communiqués do not have to be restricted to one type. In the coffee mug example, the CEO might initially announce it in a town hall meeting with follow-up reminders on the organization's intranet site.

Figure 13.1 shows the basic Stakeholder Communication Matrix template. Here we have begun to build the first few columns based on the typical stakeholder groups we have identified.

		Te	KEHOLDER COMMUNICATIO	ON MATRIX			
Stakeholder Group	Internal/ External	Influencer/ Contributor	What Matters to Them	Key Messages	Objective	Means	Measure
Sr. Management	Internal	Influencer	Business strategy			80	
Employees	Internal	Supporting	Triple bottom line				
Building Ocoupants 1	Internal	Supporting	Workplace confort				
CIRE 1	Internal	Supporting	Lease negotiations				
TM I	Internal	Influencen' Direct	Operations & maintenance				
Engineering/R & D	Internal	Supporting	Product development				
Manufacturing	Internal	Supporting	Processes, materials & waste				
Procurement 1	Internal	Influencer	The supply chain and sustainable sourcing				
Purchasing 1	Internal	Direct	Buying the right products at the best price				
Sales	Internal	Supporting	Levenging the message				
Public Relations 1	Internal	Supporting	New message they need to send out to the world			12	
Corp. Communications 1	Internal	Influencer	How the message is transmitted				
Marketing	Internal	Supporting	Incorporating the message into strategy		2	2 	
Human Resources	Internal	Supporting	Impact of alfract and relain			\$50	
Finance 1	Internal	Influencer	The impact on the bottom line				
Legal 1	Internal	Influencer				Ċ.e	
Shareholders	External	Influencer	Social responsibility				
Landlord/developer	External	Influencer	Meeting their pro forma				
Governing Authorities	External	Influencer	Following the rules				
Service providers	External	Supporting	Process changes				
Suppliers	External	Supporting	Process changes			20	
Utility Providers	External	Supporting	Reduced energy demands			5.8	
Customers/Clients h	External	Supporting	Triple bottom line				
The Community h	External	Supporting	Quality of life			90	

Figure 13.1 Stakeholder Communication Matrix (Part 1)

As we progress through the remainder of this chapter we will continue to add to the matrix so that by the end of the chapter we have a valuable tool that can be used as a guide going forward.

Now that the stakeholder groups have been identified and their needs understood, the messages to them can be crafted. The first thing that must be done is to define the purpose of the message.

Define the Purpose

Successful organizations do the right things. When they decide to expend considerable time, effort and dollars on an initiative, they feel it is the right thing to do, and they do so with a purpose in mind. Once you have identified and defined your audience and their needs and priorities, you should determine the purpose of communicating to each stakeholder group. Generally speaking, the purpose of a communication is to convey the right information to the right stakeholders at the right time. As leader of the sustainability initiative, it is the facility manager's responsibility to consider each stakeholder group and determine the purpose of the communication. Some typical purposes are to:

- Achieve consensus
- Convince them of sustainability's relevance and importance to the organization
- Persuade them to actively participate in the process
- Get them to make a decision or take action
- Build a shared understanding of the strategy

Whatever the purpose, it must be clearly established and communicated so that expectations are aligned and met.

Define Your Message

The next step in the process is to clarify what your messages will be. Each stakeholder group will have a specific interest in the sustainability initiative. For example, the marketing department might be interested in how sustainability can attract more customers to the organization. More and more people want to do business with companies that practice CSR. As commitments to sustainability grow, so do the number of people that want to work for sustainable organizations. Human Resources will be interested in how it can enhance their "attract and retain" strategy. Facility managers see SFM as an opportunity to reduce their energy costs.

Different audiences need different kinds of information before they will change their behavior. For instance, the message to Human Resources might be that SFM can help them attract great employees. Giving them the right information about how being a socially responsible organization can be attractive to prospective employees will help them understand the importance of conducting their work in a sustainable manner. This is done by providing them with research results, statistics and tangible examples, and encouraging them to incorporate that information into their recruitment strategy.

When developing these targeted messages, you should clarify and categorize your communication goals. Are you simply announcing the fact that your organization is going forward with a sustainability initiative? If so, that would be the overall message to the employees. Are you announcing that your organization has put in place a sustainability strategy and is now practicing sustainability as a part of their everyday processes and behaviors? Are you asking for feedback from the senior management team or asking them to give you approval to go forward with the sustainability initiative? Are you trying to achieve consensus or trying to Whatever the answers to these questions are, the build a shared vision? messages you send should link the communications objectives to the audience's specific need. Figure 13.2 shows our Sustainability Communication Matrix once again, with a focus on each stakeholder group and what the key message is for each. The message should be what your communication strategy is centered on as you begin to develop a strategy for each stakeholder group.

Stalscholder Group Internal Faternal						
Sr Management	Influencer' Contributor	What Matters to Them	Key Messages	Objectives	Means	Measure
	Infinencer	Business strategy	Attract & Retain, Cost savings, CSR, Integration into strategy, Cultural change			
Employees Internal Building Occupants Internal	Supporting	Triple bottoen line Workplace comfort	Cultural-Behavioral dange, CSR Behavioral change			
CKLC Internal	Supporting	Lease negotiations	Green leases, LEGED certification, Operational changes			
J'M Internal	Influencer ¹ Direct	Operations & maintenance	Initiative leaders, FM perception change. Sustainable O & M. Strategic positioning			
Engineering/R. & D Internal	Supporting	Product development	Process changes, Shift product development focus to sustainable products			
Memberuring Internet	Supporting	Processes, materials & waste	Process changes			
Procurement Internal	Influencer	The supply chain and sustainable sourcing	Shift sourcing focus, Process changes, Focus vendor contracts on sustainability			
Purchasing Internal	Direct	Buying the right products at the best price	Change buying habits			
Sales Internal	Supporting	Leveraging the message	New benefits of sustainable products and services			
Public Relations Internal	Supporting	The message they need sent out to the world	CSR			
Corp. Oxeronumications Internal	Talluctoor	How the message is transmitted	CSR			
Morketing Internal	Supporting	Incorporating the message into strategy	CSR			
Ifaman Resources Internal	Supporting	limpact of attract and retain	CSR, Recruiting			
Pirence Internal	Influencer	The impact on the hottom line	Cast savings			
Legal Internal	Influencer	Meeting regulations and standards	Clumps contract focus to sustainability			
Sharcholders External	Influencer	Social responsibility	CSR			
Landlord/developer Latenad	Infinencer	Meeting their pro forma	Green leases, Sustainable O & M			
Governing Auffembles External	Tellisenser	Following the rules	We need your help			
Service providers Extended	Supporting	Process changes	New focus on sustainability in SLA's			
Suggliers External Utility Providers External	Supporting	Process changes Reduced energy demands	New forms on substradiality in SLA's, Less energy required. More alternative sources			
Customers/Clients External	Supporting	Tinple bottom line	CSR			
The Community External	Supporting	Quality of life	CSR, Leading example in sustainability,			

Figure 13.2 Stakeholder Communication Matrix (Part 2)

Develop the Communication Strategy

Establish objectives

The communications strategies that you put in place will differ from one stakeholder group to another. As such, so will the objectives. There will be multiple stakeholder groups, and establishing objectives for each and then tracking and measuring them can be time consuming. It is important not to set too many objectives. Establish one or two critical objectives for each stakeholder group and monitor them closely.

It is very important to make sure the objectives are SMART. SMART goals are performance requirements that the stakeholder groups are expected to meet or exceed. SMART is an acronym that indicates the necessary elements of each goal, and is defined as follows:

Specific: it is clear and concise

Measurable: against a standard to determine its degree of success (quality)

Achievable: (attainable) with existing resources

Realistic: in terms of time, cost and quality

Timely: accurately estimated deadlines

Participation increases stakeholder engagement and buy-in. After you have engaged the stakeholder groups in this process for a while, you can transfer the responsibility to track and monitor their progress to the stakeholder groups themselves and request that they report back to the facility manager or the sustainability team.

Now let us go back to the Communications Matrix in Figure 13.3 and list some objectives of each message for each stakeholder group.

Stakeholder Group	External:	Luthuencer/ Contributor	What Mutters to Them	Ikey Messages	Objectives
St. Management	Internal	Influence	Business destroy	Attract & Tectain, Cost savings, CSR, Integration late strategy, Cultural change	Oct their buy-in
Employees Pailding Occupants CRE	Internal Internal	Supporting Supporting	Triple bottom line Workplace comfort Lease negotiations	Culturat/behavional change, CSR, B./savioral change Citera leases, LEED certification, Openational chanaes	Gain facir participation as necessary Gain facir participation as necessary Res functine fiture leases to include arean antistures
IM	Internal	Influencer' Direct	Operations & maintenance	Initiative leaders, UM perception change, Sustainable O.S. M. Strategic positioning.	Develop sustainable building operations
Engineming/R & D Mercheluting	Internal	Supporting	Product development Precesses, materials & waste	Process througes, Shift products development focus to sustainable products Process channes	Develop a sustainable product design andle to grave model becoments sustainable and areasses
Pressuoment	Internal Internal	Direct	The supply disin and austainable searcing Buying the right produces at the best price	Shift sturcing frank, Process dumpes, Foster vender seethest on authinibility Change buying ability	Frantyurate sustainuble requirements in contract general condition. Develop sustainable purchasing standards
Siles	Internal	Supporting	Leveraging the message	New benefits of sustainable products and services	Itain sales force on the benefits of sustainable products
Public Relations Corp. Communications	Internal	Surporting	The message they used acri- out to the world How the unescage is transmitted	1380 1380	Develop a sastainshiliy ammunitatiwa Jumpy. Develop an anutal CSR report
Madeing	Internal	Supporting	incorporating the message into strategy	CSR	Develop a sustainability mathematic strategy
Humen Resources	[microsol	Supporting	Impact of altract and relatin	CSR, Rozmiting	Incomposate CSR into recruiting strategies
limo	Internal	Influencer	The impact on the bottom line	Cost savings	Develop financial reporting on the positive S inquest of sustainability
Legal Shareholders	Federmal	Influence: Influence:	Muniting regulations and shadarda Social responsibility	Change contract fiscus to such the filty CSR	hearprost: succeivelle expuirements in contract general conditions Develop an annual. CSR report
LandordMeveloper Governing Authorities	External	Influence ⁴	Meeting their pro forma Following the rules	Cruzin lesses, Sustainable O.& M We need your help	Include austimatelity standards in losses Work w/local gov't environmental dept
Service providers Suppliers	External External	Supporting Supporting	Process disrupce Process dianges	New fitcus on acdateability in SLA's New froms on authiliability in SLA's	Negotistic new sustainuble SI.A.N Negotistic new sustainuble contracts
Utility Providers Customers/Clients	External	Supporting Supporting	Roduced mergy demarads Triple bottom line	Loss energy rougified, Mone altornative asserts CSR	Work with utilities for energy medity Distribute CSR report to ensioners
The Community	External	Supporting	Quality of life	CSR, Lending example in sustainability,	CSR report to community leaders

Determine how to best reach them

Once you have established the objectives for each of the individual stakeholder group's communications strategies, you can begin the communication process.

There are many ways to communicate a message but not all methods of communication are appropriate for every message sent. This is where the facility manager can leverage the expertise of the organization's communications director. With the Communications Matrix in hand, look at each stakeholder group, determine what matters most to them, what the key message is, and determine what methodology is best used to deliver the message. Some means of communications are

- Intranet
- Home page
- Project page
- Departmental page
- E-mail
- Written reports
- Meetings
- Formal or informal
- Briefings
- Press releases
- Town hall meetings
- Web site
- Departmental staff meetings
- General staff meetings
- Phone
- Social media
- Open forums
- Union meetings
- Training sessions
- Newsletters
- Surveys
- Videos

On the Communications Matrix this is represented in the last column, titled "Means". This column can be expanded to create a second matrix listing the communications means and methods that are available, and what each is best for communicating. This is demonstrated in Figure 13.4 below.

80000	L - CUM	UNCONCATIEN MAT	INIX CONTRACTOR	1926
Medium	Furpose	Intended Result	Communications Team Role	Frequency
Intranet	Surger .	Second and A		1220224
Company Home page	Business metrics.das.hlb.anl	Io heepemployees up-to-date on uuo mes	Update data that is not anto mated	Weelly.
Project Page	Project key performance indicators, dashboard, contracts, bud æts	Io leep wan members up-to-daw	None	<i>к</i> өэр.
Dept. Page	Departmental dashboard, contracts bud avis	To heepemployees up-to-date on local uno zues	None	Weelly.
Web Sibe		general g	18 68 0.555	
	Relevant information about your company's sustainability initiative.	Report progress to cument and prospective customens/clients	Input into what is communicated but written by the Communication or wiblic relations deut.	As meded
Written				
E-mails and n-vale tiens	Inform, engage employees	Employees undentant the purpose and what their responsibilities are	Dewlop and publish	As necessary
Formal Meetines				
Iown hall Departmental Ataff	Message from semior management Gaima presence at peer level	S howsemior management's support and emulasize innortance Keep sustainabilityon the forefront emphasizing that "we're all in this to ze ther"	Red information Dave lop content make passeminitions at departmental staff meetings	As necessary Whenever the opportunity presents itself-b proactice
Informal Meetines				
canatomenanons, impomptopesentations	Camenybyte buy-in at the individual level- make it pe sonal	the forefront emphasizing that "we're all in this to p ther"	reep then respective constituents, peens, department members informed at a personal level	rath
Social Media	2	and the second s		
Reebool, Iwitter, Linded in	Get the messa ge out that the company is going or is now sustainable	Report" to the world" the company's progress in developing the sustainability initiative	Red the Corporate Communications Dept. content	As pressary
Media				
	Get the message out that the company is going of is now sustainable	Report" to the world" the company's progress in developing the sustainability initiation	Red the Corporate Communications Dept. content	As nossary

Figure 13.4 Means of Communication

(Adapted from *Strategy and Alignment for Sustainable Facility Management*, IFMA)

Develop and implement tactical plans necessary to carry out the strategy

Strategy does not implement itself. There are many good strategic plans sitting on bookshelves collecting dust because no one developed the

tactical plans to implement them. It is no different with a communication strategy.

Tactical plans are detailed plans that indicate how to implement strategic plans. A tactical plan is an action plan. There are three basic components to a tactical plan:

- 1. Identify the activities that need to be accomplished
- 2. Assign responsibility for each action
- 3. Develop a time line for completion of each activity

The facility manager should conduct regular status meetings to track progress and address pertinent issues. Attendees should include the facility manager, the person or persons responsible for the activities, a representative from the stakeholder group that the communication strategy is directed toward, and anyone adjunct to the process.

Measure your progress and your performance

The last thing to do in implementing informational communication strategies is to make sure they are working. For example, in a case where you are requesting someone in the organization to take an active part in the development of the SFM plan, make sure that person is taking on the requisite responsibilities. Are they attending meetings? Are they accomplishing their activity in accordance with the time line? If not, find out why. Maybe the communication was not clear enough. Maybe it should have been communicated to that person's supervisor as well. Maybe the expectations were not communicated clearly enough. Whatever the case, you should identify the problem and find a solution, or the strategy can fail.

Taking the communication Matrix to it final step, figure 13.5 shows some suggested measures.

Figure 13.5 Stakeh older Comm unicati on Matrix (Part 3)

Stalzeholder Group	What Matters to Them	Key Menages	Objectir es	Means	Mexures
Sr. Management	Business strategy	Attract & Retain, Cost savings, CSR, Integration into strategy, Cultural change	Get their buyen		Signed charter
Employees	Triple bottom line	Cultural behavioral change, CSR,	Gain their participation as necessary	_	+ % recycling/yr
Building Occupants	Workplace comfort	Behavioral change	Gain their participation as necessary		+ % recycling/yr
CRE	Lease negotiations	Green leases, LEED certification, Operational charges	Re-structure future leases to include green initiatives		S tandard green lease
FM	Operations & maintenance	Initiative leaders, FM perception change, Sustainable O & M. S trategic positioning	Develop sustainable building operations		% (-) in energy use
Engineering/R & D	Product development	Process changes, Shift development focus to sustainable products	Develop a sustainable product design cradle to grave model		(X) # of sustainable products/year
Manufacturing	Processes, materials & waste	Process changes	Incorporate sustainable mfg processes	_	Reuse process water
Procurement	The supply chain and sustainable sourcing	Shift sourcing focus, Process changes, Focus vendor contracts on sustainability	Incorporate sustainable requirements in contract general condition	See	New standard contract
Purchasing	Buying the right products at the best price	Change buying habin	Develop sustainable perchasing standards	Fig.	S us tainable puschasing S OP
5 ales	Leveraging the message	New benefits of sustainable products and services	Train sales force on benefits of sustainable products		1 training session per yr.
Public Relations	The message they need sent out to the world	GR	Develop a sustainability communications atrategy.		Implement strategy within specific time
Corp. Communications	Means of transmittal	CSR	Develop an annual CSR report		Publish seport
Madesing	Incorporating the message into strategy	CR	Develop a sustainability marketing strategy		Implement strategy within specific time
Human Resources	Impact of attract and retain	CSR, Recruiting	Incorporate CSR into recruiting strategies		Implement strategy
Finance	The impact on the bottom line	Cost savings	Develop financial reporting on the positive \$ impact of sustainability		Publish reports within specific time frame
Legal	Meeting segulations and standards	Change contract focus to sustainability	Incorporate sus tainable requirements in contract general conditions		Develop new standard contract
S hareholders	S ocial responsibility	CSR	Develop an annual CSR report	_	Publish report
Landlord/developer	Meeting their pro forma	Green leases, Sustainable O & M	Include sustainability standards in leases	_	Green lease in place
Governing Authorities	Following the rules	We need your help	Workw/local gov't environmental dept	_	Initial meeting
S ervice providen	Process changes	New focus on sustainability in SLA's	Negotiate new sustainable SLA's	_	SLA in place
S uppliers	Process changes	New focus on sustainability in \$LA's	Negotiate new sustainable contracts		Contract in place
Utility Providers	Reduced energy demands	Less energy More alternative sources	Workwith utilities for energy credits	_	Reduce energy cost
Customers Clients	Triple bottom line	CSR	Develop CSR report for customers	_	Distribute report
The Community	Quality of life	CSR, Leading soumple in sustainability,	Develop CSR seport for community leaders		Distribute report

Reporting Strategies

The two reporting strategies that most sustainable organizations employ are the:

- Public reporting strategy (as part of the Corporate Social Responsibility report)
- Global Reporting Initiative

In the former, the purpose is to educate the public that the organization consistently practices in a sustainable manner and the reasons why. It is a decree that formalizes the organization's sustainability strategy. In the latter, the purpose, according to the Global Reporting Initiative, is to "…report(ing) the practice of measuring, disclosing, and being accountable to internal and external stakeholders for organizational performance towards the goal of sustainable development."

Public Reporting Strategy

The public reporting strategy is the overarching message your organization sends to the world at large. It is often deployed when the sustainability strategy is in place and running.

Every public company in the United States is required by the Securities and Exchange Commission (SEC) to produce an annual report disclosing their financial situation. Not long ago, when sustainability was a burgeoning movement, many companies who were starting to put sustainable practices in place began to include a paragraph or two in their annual report about their sustainability efforts. Now if you search the internet for "corporate sustainability reports" you will see that just about every major corporation in the U.S. produces a separate report describing their sustainability strategy and programs. In fact, according to the Sustainable Investment Research Analyst Network (SIRAN), 86 percent of Standard & Poor's top-ranked 100 companies use a special web site or a section on the organization's web site to report their social and environmental performance (SIRAN, 2008). Today they are commonly referred to as corporate social responsibility (CSR) reports.

The term "corporate social responsibility" came into common use in the late 1960s and early 1970s after many multinational corporations adopted the term "<u>stakeholder</u>", meaning those on whom an organization's activities have an impact. As you can see in the chart below (See Figure 13.6), the roles and responsibilities that organizations have assumed in reporting CSR are changing with the demands of their employees and stakeholders.



Figure 13.6 A history of CSR (From Strategy and Alignment for Sustainable Facility Management, IFMA)

CSR is broader than a sustainability report. It encompasses everything from business ethics to corporate philanthropy. The World Business Council for Sustainable Development defines CSR as the continued commitment of an organization to contribute to economic development while improving quality of life for their workforce, the community and society. According to Wikipedia, CSR is a form of <u>corporate self-regulation</u> integrated into a <u>business model</u>. CSR policy functions as a built-in, self-regulating mechanism whereby a business monitors and ensures its active compliance with the spirit of the law, ethical standards, and international <u>norms</u>. CSR is a process with the aim to embrace responsibility for the organization's actions and encourage a positive impact through its activities on the environment, consumers, employees, communities, <u>stakeholders</u> and all other members of the <u>public sphere</u> who may also be considered as stakeholders.

As you can see, SFM fits in nicely as a sub set of CSR. For a sustainable organization, the CSR statement should reflect its sustainability priorities. CSR is most often utilized as a means to publicly articulate the organization's sustainability strategy. Although CSR is typically not the facility manager's responsibility, the facility manager's focus on sustainability is closely related to it. Therefore the facility manager may be

asked to contribute to the organization's CSR report. If not, the facility manager should proactively insert themselves into the process of developing the organization's CSR plan by tracking and documenting the progress of the organization's sustainable facility management program and reporting on its progress. An added benefit to being involved in the development of the CSR report is that the facility manager can invoke the organization's CSR plan to gain support throughout the organization for the SFM plan.

Similar to the informational communication strategy, there are several steps the facility manager can take to contribute a sustainable value statement to the CSR. These simple steps include:

- 1. Knowing your audience
- 2. Defining your message
- 3. Tracking, measuring and reporting the progress and performance of your organization's SFM plan

Know Your Audience

Understanding what causes are important to employees is usually the first priority of a sustainability strategy because of the many interrelated business benefits that can be derived from increased employee engagement (i.e. more loyalty, improved recruitment, increased retention, higher productivity, and so on). Key external stakeholders include customers, (particularly investors institutional consumers. investors), local communities, regulators, academics, and the media. What these stakeholders need to know is that your organization has a sustainability strategy in place and that there are tangible results consistently emanating from it that positively impact the Triple Bottom Line (TBL).

Define Your Message

Sustainability expert John Elkington suggests that a defining characteristic of corporate social responsibility in the 21st century, of which sustainability plays a big part of, will be communicating effectively with stakeholders about an organization's progress toward the TBL. Your overarching message to the organization should focus on the TBL. It should tell how each element of the TBL is important to the organization and to the

employees. The overarching message should say that conducting business in a sustainable manner:

- Uses less energy and saves money
- Preserves natural resources
- Is the recognized way of doing business-it is the *new normal*

The overarching message should specifically address each of the perspectives of the TBL.

Financial: A SFM plan conserves energy and reduces the amount of natural resources spent. The organization benefits by reducing their energy costs. If it uses alternative renewable energy sources, it can also reduce their reliance on traditional non-renewable energy sources. The organization also benefits if the savings contribute to the bottom line and increases profit. Furthermore, individual employees may benefit financially if the organization shares some of the increased profit. At the very least, many employees will feel good that their employer is making a conscious effort at being sustainable.

Social: As people's understanding of the benefits of CSR and SFM increase, they will want to work for and do business with companies who practice sustainability. The organization benefits because practicing sustainability can help attract new employees and customers, and retain the ones they already have. There are approximately 155 million employees in the U.S civilian workforce and 65 million of them are at or nearing retirement age.

The McKinsey Group conducted a study and asked CEOs what the most critical issues companies will face in the coming years. An overwhelming majority answered that attracting great employees will be crucial to the success of their organizations.

There are fewer new employees entering the workforce to replace the retiring workers. This means that competition for new employees will be fierce. The organization's commitment to CSR may not be the number one reason a person decides to work for a particular employer, but given two similar job offers, it could be the tipping point. Individual employees can benefit because with great employees, the organization will have a competitive advantage. With great employees, the workplace will become more energized and fun. Employees can take pride in their organization's willingness to take the necessary steps to be socially responsible.

Environmental: The environmental factor means that people are doing the right thing when it comes to managing their business and personal behaviors in regard to sustainability and the Triple Bottom Line. The benefits to the organization are the same ones gained in the financial and social aspects of the TBL, with the added benefit that they can become a more efficient and effective organization. The very nature of sustainability practices require an organization to look at every aspect of its operations to see where it can be applied. This organizational deep dive can lead to even more process improvements beyond CSR and SFM that can result in higher profit margins. Employees benefit from their organization's financial success.

The goal of the CSR message is to inform employees why the organization feels it is important to be sustainable, aligning it with the organization's overall business strategy, and linking it to the daily operations of the business. It is intended to build employee pride in the organization and to generate excitement and enthusiasm about helping make the sustainability initiative come alive.

The overall message should be framed in terms of desired results. For example, from a financial standpoint, the facility manager should quantify estimated savings in energy and resource costs that is anticipated to be derived from the sustainability initiative. He or she should inform senior management how those savings contribute to the bottom line. From an environmental perspective, tell them how much energy will be saved and what that means in terms of natural resource preservation and carbon footprint reduction. In social terms, demonstrate how the initiative supports corporate social responsibility and what it means to the stakeholders of the organization.

Tracking, Monitoring and Measuring Progress and Performance

In Chapter 12, we discussed performance management and the sustainability scorecard. We said we must define success measures (metrics) that are easily identifiable, measurable and have the ability to be

periodically tracked. This is key to providing information that is valuable to the organization because it tells the story of the organization's sustainability efforts. It is not enough to have sustainable practices in place. Organizations must demonstrate continued dedication to the mission of the sustainability strategy through continued progress and focused measurement and reporting.

GLOBAL REPORTING INITIATIVE (GRI)

Overview and History

As technology rapidly changes, the need for companies to be innovative is imperative to their survival and their success. It is this constantly evolving global landscape that challenges organizations to rethink how they do business. They must make new choices about how the products and services they offer, how they operate and how their actions impact the planet, people and economies. According to the GRI,

"The urgency and magnitude of the risks and threats to our collective sustainability, alongside increasing choice and opportunities, will make transparency a fundamental component in effective stakeholder relations, investment decisions, and market relations. To support this expectation, and to communicate clearly and openly about sustainability, a globally shared framework of concepts, consistent language, and metrics is required. It is the GRI's mission to fulfill this need by providing a trusted and credible framework for sustainability reporting that can be used by organizations of any size, sector or location."

Founded in 1997, the GRI is a network-based organization that has pioneered the development of the world's most widely used sustainability reporting framework.

Developed through a consensus-seeking process with participants drawn globally from business, civil society, labor and professional institutions, ensures the highest degree of technical quality, credibility and relevance. It provides a framework for a balanced and reasonable representation of the sustainability performance of the reporting organization and includes both positive and negative contributions.

A comprehensive discussion of the GRI is beyond the scope of this book. It is the objective here to give the reader an overall understanding of the GRI, its structure and some basic steps on how to go about developing a sustainability report within the framework of the GRI's Reporting Guidelines. For a more in-depth discussion of the GRI the reader can go to <u>www.globalreporting.org</u>.

Earlier in this chapter we mentioned that every public company in the United States is required by the Securities and Exchange Commission (SEC) to produce an annual report disclosing their financial situation The accounting profession in the United States has a set of standards referred to as the generally accepted accounting principles or GAAP. It is a set of rules, procedures, and conventions used to help govern an organization's accounting activities and the preparation of those financial statements. It is based on the principals of relevance, reliability, comparability and consistency. Similarly, the GRI is intended to serve as a generally accepted framework for reporting on an organization's economic, environmental and social performance (The Triple Bottom Line). Figure 13.7 graphically represents the GRI Reporting Framework.

G3 Reporting Framework



Figure 13.7 G3 Reporting Framework (From, *Sustainability Reporting Guidelines*, Version 3.1, The Global Reporting Initiative)

The GRI Reporting Framework helps organizations decide their reporting strategy for sustainability by helping answer three primary

questions:

- What are the principals that will guide the report content?
- What are the principals that will define the report's quality?
- What are the boundaries of the sustainability reporting?

Let us take a closer look at the GRI Framework.

Principals and Guidelines

Reporting principles describe the outcomes a report should achieve and guide decisions throughout the reporting process. Each of the principles consists of a definition, an explanation and a set of tests the reporting organization can use to assess its use of the principles. The principles are intended to help achieve transparency. Transparency can be defined as the complete disclosure of information to reflect impacts and enable stakeholders to make decisions. The principles are organized into two groups and answer the first two questions listed above:

- Principles for determining the topics on which the organization should report
- Principles for ensuring quality and appropriate presentation of reported information

The four principles and their definitions for defining content of the report according to the GRI are:

Materiality: The information in the report should cover topics and indicators that reflect the organization's significant economic, environmental and social impacts or those that would substantially influence the assessment and decisions of the stakeholders.

Stakeholder Inclusiveness:

Stakeholders are defined as entities or individuals that can reasonably be expected to be significantly affected by the organization's activities, products, and/or services; and whose actions can reasonably be expected to affect the ability of the organization to successfully implement its strategies and achieve its objectives. Stakeholders can include those who are invested in the organization (e.g., employees, shareholders, suppliers) as well as those who have other relationships with the organization (e.g., vulnerable groups within local communities, civil society).

Sustainability Context: Information on sustainability should be placed in context, meaning that it should report on how it contributes or aims to contribute in the future to the improvement or deterioration of economic, environmental and social conditions, developments and trends at the local, regional or global level.

Completeness: Coverage of the material topics and indicators and definition of the report boundary should be sufficient to reflect significant economic, environmental and social impacts and enable stakeholders to assess the reporting organization's performance in the reporting period.

The six principles and their definitions for defining the quality of the report according to the GRI are:

Balance: The report should reflect positive and negative aspects of the organization's performance to enable a reasoned assessment of overall performance.

Comparability: Issues and information should be selected, compiled and reported consistently. Reported information should be presented in a manner that enables stakeholders to analyze changes in the organization's performance over time and could support analysis relative to other organizations.

Accuracy: The reported information should be sufficiently accurate and detailed for stakeholders to assess the reporting organization's performance.

Timeliness: Reporting occurs on a regular schedule and information is available in time for stakeholders to make informed decisions.

Clarity: Information should be made available in a manner that is understandable and accessible to stakeholders using the report.

Reliability: Information and processes used in the preparation of a report should be gathered, recorded, compiled, analyzed and disclosed in a way that could be subject to examination and that establishes the quality and materiality of the information.

Reporting Boundaries

The third question that the Reporting Guidelines answer is what the boundaries of the report are. This means which entities' (e.g., subsidiaries and joint ventures, etc.) performance will be reported. The sustainability report should include the entities over which the reporting organization exercises control or significantly influences. Control pertains to the power to govern the financial and operating policies of an enterprise so as to obtain benefits from its activities. Substantial influence refers to the power to participate in the financial and operating policy decisions of the entity but not the power to control those policies.

Stated another way, the sustainability report should include in its boundary all entities that generate significant sustainability impacts (actual and potential) and/or all entities over which the reporting organization exercises control over or significant influence with regard to financial and operating policies and practices.

Standard Disclosures

Standard disclosures specify the base content that should appear in a sustainability report. The Guidelines present topics and information for reporting that are material to most organizations and of interest to most stakeholders. These are captured in three types of Standard Disclosures:

- Strategy and Profile Disclosures set the overall context for reporting and for understanding organizational performance, such as its strategy, profile, governance, and management approach
- Disclosures on Management Approach cover how an organization addresses a given set of topics in order to provide context for understanding performance in a specific area

• Performance Indicators that elicit comparable information on the economic, environmental, and social performance of the organization

The Report

Figure 13.8 graphically represents the elements of the sustainability report.

Orientation to the Reporting Guidelines



Figure 13.8 Orientation to the Guidelines (From, *Sustainability Reporting Guidelines*, Version 3.1, The Global Reporting Initiative)

The sustainability report is global in nature and includes many elements that are not in the facility manager's area of responsibility.

However there is much a facility manager can contribute to the overall report. To help the facility manager understand how their input might fit into the overall report we have provided excerpts from the GRI report outline that show what information the facility manager can contribute.

Organizational Profile

This section is intended to provide a high-level, strategic view of the organization's relationship to sustainability in order to provide context for subsequent and more detailed reporting against other sections of the Guidelines. It may draw on information provided in other parts of the report, but this section is intended to produce insight on strategic topics rather than simply summarize the contents of the report.

Organizational Profile

- Location of organization's headquarters
- Number of countries where the organization operates, and names of countries with either major operations or that are specifically relevant to the sustainability issues covered in the report
- Significant changes during the reporting period regarding size, structure or ownership including the location of, or changes in, operations, including facility openings, closings and expansions
- Awards received in the reporting period

Report Profile

- Reporting period (e.g., fiscal/calendar year) for information provided
- Date of most recent previous report (if any)
- Reporting cycle (annual, biennial, etc.)
- Contact point for questions regarding the report or its contents

Report Scope and Boundary

- Boundary of the report (e.g., countries, divisions, subsidiaries, leased facilities, joint ventures, suppliers)
- Any specific limitations on the scope or boundary of the report
- Basis for reporting on joint ventures, subsidiaries, leased facilities, outsourced operations and other entities that can significantly affect comparability from period to period and/or between organizations

- Explanation of the effect of any re-statements of information provided in earlier reports, and the reasons for such re-statement (e.g., mergers/acquisitions, change of base years/periods, nature of business, measurement methods)
- Significant changes from previous reporting periods in the scope, boundary or measurement methods applied in the report

Stakeholder Engagement

- General stakeholder engagement conducted by the (facility management) organization over the course of the reporting period
- List of stakeholder groups engaged by the (facility management) organization

Report Parameters

What was the process for defining report content?

Data on Performance

This is where the facility manager reports on performance indicators specific to the organization's facilities and facility management operations.

Steps for the Facility Manager to Get Started

The GRI describes five steps an organization can follow to develop their sustainability report.

These steps are summarized as follows:

1. Prepare

Consider what your report might contain. Typically the information is related to performance metrics that can be measured and compared. In GRI lingo, these are referred to as performance indicators. These performance indicators are qualitative or quantitative information about results or outcomes associated with the organization that is comparable and demonstrates change over time. Categories from which performance indicators specific to facility management can be extracted are:

• Energy:

How energy is consumed by the facility's core building systems and its occupants; how it can optimize energy performance and; how it can improve the energy efficiency of its operations and equipment

• Water:

How the facility uses water and recycles and reuses it

• Materials and resources:

How the building uses finite resources, manages recyclable material, makes purchases and manages hazardous or harmful materials

• Indoor environmental quality:

How indoor air quality affects work and contributes to occupant comfort

• Waste:

How waste is collected and disposed of; how waste can be reduced; how to create a better recycling program and; how the facility disposes of hazardous waste

• Site impact:

How the facility manages storm water, reduces it light pollution, reduces its contribution to heat island effect and how it will encourage sustainable transportation options

2. Connect

Once you understand the major impacts that facility management operations have on sustainability, hold a kick-off meeting with your organization's sustainability team to get their buyin to your performance indicators and develop an action plan of how you will collect and report this information

3. Define

Based on your engagement with your organization's sustainability team, conduct an internal assessment with those in and outside of your facility management organization who will help gather the information and monitor and measure it

4. Monitor

Check processes and systems. Monitor activities and record data ensuring the quality of information. Then set performance goals and measurements and follow up

5. Report

Write your report and communicate it

SUMMARY

Information is at the center of an organization's success. Pertinent information allows decision makers, stakeholders and managers to analyze problems, craft feasible solutions and make sound decisions. Information helps managers manage and lead their business. For this information to be properly disseminated and used it must be clearly communicated to its recipients.

The International Development Research Centre (IDRC) is a Canadian Crown corporation dedicated to help developing countries find solutions to their social, economic, and environmental problems. They have developed a "Knowledge Translation" toolkit in which they list ten elements of a stronger communications strategy.

With these elements in mind, the facility manager can now help communicate the organization's SFM plan within the framework of a sound communication strategy.

- 1. **Review:** How have you been communicating in the past? How effective has that been? How do audiences perceive the messages?
- 2. **Objective:** What do you want your communication to achieve? Are the objectives SMART?
- 3. Audience: Who is the key audience? Are there others? What information do they need to act upon the message?
- 4. **Message:** What is the message? Do you have one message for multiple audiences or multiple messages for multiple audiences?
- 5. **Basket**: What kinds of communication "products" best display and deliver your messages?
- 6. Channels: What channels will promote and disseminate your products?
- 7. **Resources:** What budget do you have for this? Will this change in the future? What communication skills do we have?
- 8. **Timing:** What is your timeline? Would a phased strategy be most appropriate? What special events or opportunities might arise? Are there opportunities with like-minded organizations?
- 9. **Brand**: Are all of your communication products "on brand?" How can you ensure that you are broadcasting the right message?

10. **Feedback:** How will you know when your communication strategy is successful? What would have changed? How can you assess whether you used the right tools, were on budget and on time, and had any influence?

With these elements in mind the facility manager can now help communicate the organization's sustainability initiative within the framework of a sound communication strategy.

Chapter 14: Change Management

The Greek philosopher Heraclitus said, "Change is the only constant." Change happens in organizations all the time. Whether it is organizational change, cultural change, procedural or process changes, changes in the physical workplace or a complete re-engineering of an organization, it is occurring more rapidly and frequently in today's fast pace global business environment. Media mogul Rupert Murdoch summed this up very succinctly. He said, "The world is changing very fast. Big will not beat small anymore. It will be the fast that beat the slow." The velocity of organizational change is increasing rapidly so change management is becoming a necessity for organizations to stay competitive. In fact, it can become a competitive advantage. But for any change to be successful there must be a plan behind it. Change must be managed.

WHAT IS CHANGE MANAGEMENT?

IFMA defines change management as the process that involves defining, refining and implementing plans for changes. It emphasizes overcoming stakeholder and bureaucratic resistance through coordinated communications and stakeholder involvement. According to the Change Management Learning Center, change management is the application of the set of tools, processes, skills and principles for managing the people side of change to achieve the required outcomes of a change project or initiative. This is illustrated in Figure 14.1 below.



Figure 14.1 Change Management

(Source: Change Management Learning Center)

However, when dealing with people, we need to think beyond the individual's resistance to change. When approaching change, we should look at it from a systems perspective. According to Wikipedia, systems-thinking has been defined as an approach to problem solving by viewing "problems" as parts of an overall system, rather than reacting to specific parts, outcomes, or events that potentially contribute to further development of <u>unintended consequences</u>. Systems-thinking is not one thing, but a set of habits or practice within a framework that is based on the belief that the <u>component</u> parts of a <u>system</u> can best be understood in the context of relationships with each other and with other systems, rather than in isolation.

Bob Dopplet, an Instructor at the University of Oregon in his 2004 presentation titled, "*Sustainable Change Management*", says the need for systems thinking in sustainability is driven by several factors:

- The increasing *interrelationships* between environmental, social, and economic problems
- The increasing *complexity* of environmental and socioeconomic problems
- A mistaken belief that one person or unit can resolve problems
- The source and solution of most environmental and socioeconomic problems is usually *not where the problems first appear*
- The preponderance of *quick fixes* (symptomatic solutions) for systemic problems
- The need for *common language* to discuss complex issues
- The need for a method to *graphically* describe complexity

Change management in sustainability is understanding all of the moving parts and communicating them to those who you want to willingly accept it. In this way, you are changing their vantage point from one that is focused on their own personal opinion on sustainability to a more global perspective based on the Triple Bottom Line.

MANAGING CHANGE

In 2011, the management consulting giant McKinsey conducted the Global Survey on The Business of Sustainability (McKinsey & Company, 2011). From the survey, they found that 57 percent of respondents said their companies had integrated sustainability into strategic planning; 67 percent said sustainability had been integrated into mission and values; and percent said sustainability had been integrated into external 60 communications. Organizations no longer treat sustainability as something It is an initiative that many companies are that is nice to have. implementing because they understand that it is something that they need to have. It is the new normal. It is what successful companies do. But every new initiative brings change, and with change comes resistance, denial and angst. As the leader of the sustainability initiative, the facility manager should lead the effort to manage this change so that it is successfully carried out.

Why is change so difficult? According to business strategist Christine McMahon, the resistance people feel about change is often not so much about the change itself, but what the change represents. For example, many companies are re-engineering their physical workplaces by reducing the number of private offices or downsizing cubicles. This represents a loss of status to employees, making them resistant to the change. In another example, an organization may be restructuring. Here, resistance to change may stem from the uncertainty of the unknown, a loss of control or a threat to existing relationships. In the case of CSR and SFM, the resistance may come from the fact that employees will likely have to change their behavior. They may be asked to recycle at their desks. Parking spaces may be reduced to encourage carpooling. The organization may decide to "go paperless" and digitize existing files and impose limits on the number filing cabinets allowed. Or, the organization could decide to eliminate disposable coffee cups and employees will have to bring their own coffee mug from home. As minor as these changes appear on the surface, asking people to change their behaviors and routines will most often incite some resistance. So as much as it would seem that a sustainability initiative would be something everyone would support there will always be resistance to it, at least initially. That is why, according to Thom Walters, Senior Strategist in the Sustainability Services Group at Brightworks,

"...long- term success in sustainability comes through treating these efforts with the same intention with which the organization would treat any strategic change or innovation."

The first step in managing change is to understand how your organization approaches it. How does it typically communicate change? Is the organizational culture such that change is embraced or is it typically resisted? If your organization has recently been through a major change and there was a formal process used to help push the change forward, by all means use that process. Talk to the people who were involved in it previously and solicit their advice and input. If there is no formal change management process then you will need to create one and lead it.

There are specific phases of change that the facility manager needs to understand in order to develop the change management plan. There is much research to be found on the stages of change acceptance. Depending on what research you read, these phases go from shock and surprise to restructuring (sometimes referred to as total integration or acceptance).

Following is a compilation from several different research sources of the stages of change acceptance:

- 1. Shock: This is where the individual cannot accept that the change is occurring. Even if the change has been well planned and they understand what is happening, this is when reality of the change hits, and people need to take time to adjust
- 2. Denial: The individual does not want to deal with the change. They convince themselves that the change will not happen or it will not affect them. They will put it out of their minds
- 3. Anger: The individual feels helpless and may tend to lash out or attack
- 4. Apathy: The individual complies minimally and without enthusiasm, showing tolerance but not acceptance. They deny that the change will have any real consequence on them
5. Restructuring: The individual begins to accept the change and tries to find ways of making the change work. This is where the changes start to become second nature, and people embrace the improvements and integrate them into the way they work

In order for stage 5 to occur, each prior phase needs to have its own element of change management applied. Some strategies for helping manage each of these stages are:

Shock

- Listen and understand
- Educate people with information that reinforces why the change is important
- Encourage people to ask questions

Denial

- Do not expect large leaps of acceptance
- Keep the change in the forefront but allow people time to digest the change
- Help people see that continual denial is risky-if everyone else buysin to the change that person in denial may be left behind-at the very least will stand alone and appear not be a team player

Anger

- Put yourself in their shoes to understand the cause of their anger
- Let them vent
- Empathize with them but do not let them get away with it
- Weaken their anger by understanding it, listening to it and respecting it
- Do not take it personally

Apathy

- Get them to understand that everyone is in the same boat
- Remind them of the business need for the change and why it is important
- Educate them about the specifics and the benefits of the change
- Show them what will actually be different because of the change

Restructuring

- Ask them to be a champion of the change
- Ask them to help initiate the change and promote it among their colleagues
- Give them an active role in the change so they feel that they are actually making a difference

It should be pointed out that supporting sustainability programs and initiatives should not be a major change. For example, changing individual behaviors to help the organization achieve a sustainable environment is much less intense than the reengineering of the entire organization. As such, we need to adjust the approach appropriately. Regardless, some type of change management must take place and the facility manager is often the one leading the effort.

Leading change takes a person with sound leadership skills and the ability to inspire. Not all leaders are successful at change management. A leader who is willing to involve others in a collaborative fashion, understands how to influence with little or no authority, is aware of their circle of influence and can gain the respect of management and the stakeholders is positioned to be a change leader. There are five things that a successful leader must do well to lead change:

- Influence without authority
- Be authentic
- Get the attention and respect of management
- Sustain momentum
- Involve others

Let us look at each of these more closely.

Influence Without Authority

Much research has been conducted on this subject, and although some would argue that being able to have influence without authority is impossible, there are many other opinions, such as business consultant, author and executive Jesse Lyn Stoner. According to Ms. Stoner, "Leading without relying on authority is a higher evolutionary skill. It supports the development of adult-adult relationships based on mutual objectives. And it helps create work environments grounded in respect for human dignity."

In her blog, she maps out eight ways to influence without authority:

Character – Your own character is your greatest source of influence. Do you lead by example and follow through on your commitments? Are you respectful, authentic and trustworthy? People will believe you are motivated by the common good and not personal gain.

Expertise – Do you have content knowledge and experience? Are you a thought leader? Do you understand the process needed to accomplish the objective? You can influence by providing a clear logic, an explanation of the benefit, and reassurance that it is the right course of action.

Information – Do you have access to valuable information? You can influence by providing data and proof.

Connectedness – Do you form close relationships with people? Do they enjoy working with you? Do you engender loyalty? You can influence by appealing to shared values and your emotional connection.

Social intelligence – Do you offer insight into interpersonal issues that interfere with work and help facilitate resolution of issues? People trust that you will be able to help them work together effectively.

Network – Do you put the right people in touch with each other? Can you garner the endorsements of credible people? People will trust that you will get the support needed.

Collaboration – Do you seek win-win solutions, unify coalitions and build community? People will trust that you can help them become a high performing team that accomplishes its objectives.

Funding – Do you have access to financial support? If financial resources are required, it is easier to influence when you can ensure adequate funding is available.

Be Authentic

An organization's desire to be sustainable must be rooted in its core values. When an organization lives its core values it is being authentic. It is living up to the adage of "walking the talk". The organization must do what it says it will do to be sustainable. An organization that claims to want to be sustainable yet does not have energy reduction procedures in place or has an automatic lawn irrigation system that turns on even if it is raining is not being authentic. Since an organization's facilities have such a significant effect on an organization's sustainability strategy, the facility manager must be authentic in his or her actions. Being aware of the organization and its goals and then towing the line to ensure that everyone meets those goals is important to consumers, partners, employees and investors. If the facility manager is not authentic there will be no followers.

Obtain Senior Management: Buy-In

Gaining buy-in from senior management is critical for any organizational initiative to succeed. Even if the sustainability initiative is coming from the CEO, there is no guarantee that the rest of the senior management team will support it with the enthusiasm and passion that is needed for it to succeed. Once the CEO announces the initiative, the implementation of it will be delegated to someone in the organization. That person is likely to be the facility manager because of the close tie sustainability has to buildings and their operation. As discussed in previous chapters it will be necessary to put a team of stakeholders together, many of which will come from within the organization. Their input will be integral to successfully carrying out the initiative. But they are all very busy people and if their senior managers are not fully engaged in the support of the initiative, neither will they. They will not be allotted the time outside their normal job responsibilities by their manager that is required to properly carry out the activities they need to accomplish as part of the sustainability initiative.

In order to get senior management buy-in and support, facility managers must demonstrate that they are knowledgeable in the subject. They must understand the impact sustainability can have on the organization financially, operationally and from the public's perspective in terms of customer and community relations. Most important of all, the facility manager must link the sustainability initiative to the organization's overall business strategy and demonstrate how it can help the organization succeed.

Create and Sustain Momentum

In professional sports, it is not always the team that is the best performer at the beginning of the season that wins the championship. Championship teams build momentum throughout the season playing at their peak performance when the championship is on the line. Throughout the season, obstacles inevitably are presented that the team must overcome. Things occur like injuries to players, and players that were expected to have a great year but who instead struggle. Championship teams overcome these obstacles. Other players step up to replace injured players or poor

performers. It is the coach's responsibility to alter the line-up, call up players from the minor leagues, and inspire the team to work harder and persevere. It is difficult to maintain a high level of achievement throughout a long season, so a pace needs to be set.

It is the same with the change leader. As time progresses, it is difficult to maintain the same level of enthusiasm and excitement as existed at the beginning. Stakeholders will become distracted by other things – like their daily job responsibilities. There are three things that the facility manager, as the change leader, can do to sustain the momentum (IFMA, 2011):

- Remove the obstacles and barriers for stakeholders who wish to or have been asked to participate
- Celebrate small wins
- Frequently review status

Involve others

Involvement of others is crucial to the success of the sustainability initiative. It is well documented that one of the key principals of change management is the idea that involvement and empowerment breeds commitment. Inviting their suggestions and feedback, valuing their opinion and listening to what they have to say demonstrates a genuine interest in what they have to offer. When they see that their input is valued and they can make a difference the process will be all the more successful.

The emotional aspects of change far outweigh the rational aspects. We can tell people all day long that recycling is important, that eliminating disposable coffee cups will save money and reduce land fill waste, and that low flow faucets will conserve water and energy. But those are just words. Most people will not fully accept change until they experience it themselves, even the "early adopters". As important as it is to hear from senior management about how this change will be for the good; this speaks only to the mechanics of the change. The change leader has to take stakeholders on a journey that engages them in the sense of what could be possible. They have to demonstrate to them in a rich and vivid sensory way the specifics of how things will be different. They have to tell a story of what the future holds. They have to tell a story that engages the stakeholder's emotions and their senses. The change leader must tell them:

- What they will see that they do not see now
- What they will feel that they do not feel now
- What they will be doing that they do not do now
- And, what they will hear that they do not hear now

This should be coupled with continued dialogue between senior management, the change leader and the stakeholders that gradually clarifies the picture by answering these questions:

- What is the business need for the change?
- What are the specifics of the change?
- What are the benefits of the change?
- What will actually be different because of the change?
- Most importantly, what are the impacts of the change INCLUDING (and this is of utmost importance), whose going to lose what?

Just as with any type of plan the change management plan has several basic components. These components are the CARE principals: change initiation, assessment, recommendation and execution (IFMA, 2011).

Change Initiation: Identify the changes that are needed to successfully implement the sustainability initiative. These can include cultural, behavioral, process, policy and procedural and technology changes.

Assessment: Understand the potential impacts of the proposed changes including costs, resources, time and cultural and environmental acceptance.

Recommendation: Identify recommendations for action. Delegate responsibilities and empower stakeholders to take them on by providing them the resources they need to succeed.

Execute: Monitor activities and adjust as needed. Set time frames and schedules and keep to them. Maintain the momentum.

With the right skills, management support, perseverance to make the commitment and the willingness to continually monitor the change, the facility manager will be able to successfully implement the sustainability initiative. Again, according to Thom Walters,

"A thoughtful, focused and well-led change management approach enables organizational alignment. It allows you to better navigate complexity, balance uncertainty, manage conflict, and mobilize a culture that does not resist change or become victimized by it, but instead learns how to leverage change to reach key strategic goals."

SUMMARY

There are numerous change management theories and models and just as many opinions by experts in change management about how to manage it. According to Edgar Schien in his book, *The Corporate Cultural Survival Guide*, the key thing to remember is that resistance to change is a normal phenomenon. We must deal with it. It will not go away. We have to be honest with the people impacted by the change. There will be some pain and loss. If we can help people not only understand the reasons for the change and the anticipated results but get them to experience it before it happens by clearly communicating how it will impact them personally; painting a picture of the future if you will, people will be more likely to accept the change. A committed effort by the facility manager to act as a change leader in the process of implementing a sustainability strategy will help ensure a more lasting, and ultimately a more successful outcome will result.

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