

CASE STUDY

Alameda County's Green Building Program

Alameda County, California

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Abstract

Alameda County's greenhouse gas emissions inventory for government operations shows that our buildings are responsible for approximately 40% of our total emissions. Meeting the County's ambitious climate protection targets requires multiple strategies aimed at ensuring new buildings are designed and constructed to the highest green building standards and meet the County's specific sustainability requirements. This case study provides an overview of the multi-pronged approach we are taking to reduce the impact of our municipal construction activities to ensure we provide healthy and efficient buildings for our employees and the communities we serve.

Goals

Achieve LEED Silver for projects over \$5 million

Deliver new facilities that integrate with operations & maintenance and meet defined sustainability goals

Strategies

Performance requirements in construction contract

Design guidelines that set environmental performance requirements

Results

3 LEED Gold or Platinum rated buildings; 9 others pending or in development

Seamless integration with operations, maintenance and sustainability initiatives

Goals

As one of the largest local employers with more than 9,500 employees, Alameda County owns and leases a building portfolio of approximately 7 million square feet across 150 buildings. These facilities, which help the County provide a wide range of critical government services to our community, vary greatly in function and include office buildings, youth centers, warehouses, clinics, detention centers, medical services, and maintenance shops, among many others.

We engage in a strategic capital program that seeks to minimize the life-cycle impacts of our new building construction, adapt to new service delivery models for public services, and conserve taxpayer funds. The goal of these activities, managed primarily by the County's General Services Agency, are to:

1. Achieve a minimum LEED™ Silver certification from the US Green Building Council for all new construction valued over \$5 million.
2. Incorporate relevant green building design elements equivalent to the LEED standard whenever possible for construction projects under \$5 million.
3. Align building designs with County operational practices to increase functionality, conserve resources, and reduce the lifecycle cost of building maintenance.

Strategies

Alameda County takes a multi-pronged approach to meeting these goals. Specific strategies include adopting **policies** to build high-level support, creating **design guidelines** specific to environmental performance, and **engaging stakeholders** throughout the design and construction process to ensure our goals are realized.

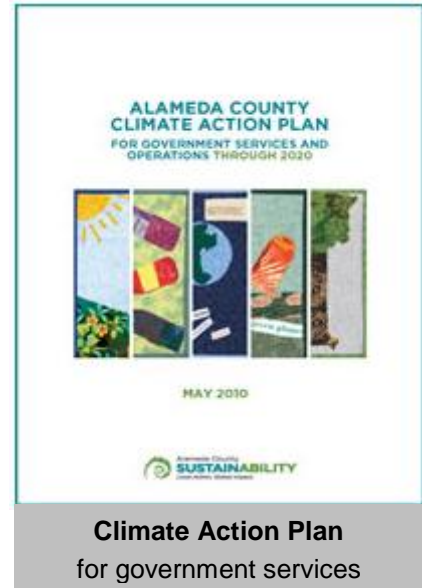
Policies

Alameda County has adopted a number of policies that provide high-level support and direction for implementing our Green Building program.

- *Green Building Ordinance (R-2003-63)* – Adopted in 2003, this ordinance put in place requirements to reduce the impact of construction activities. First, the ordinance requires that at least fifty percent of the total debris generated by the project shall be diverted from landfill via reuse or recycling. Second, it requires County projects to meet a minimum of LEED Silver rating under the US Green Building Council's LEED Rating System, or a County-approved equivalent.
- *Environmentally Preferable Purchasing Policy (R-2011-108)* – Adopted in 2011, it identifies environmental performance for products and services procured by the

County and by its vendors when doing business with the County, including construction materials.

- *75% Waste Diversion Goal Resolution (R-2008-213)* – Adopted in 2008, which sets a goal of 75% reduction of waste going to landfills, including construction waste.
- *Climate Action Plan for Government Services and Operations (R-2010-170)* – Adopted in 2010, it establishes 16 commitments to climate protection, and sets targets for reducing emissions 15% below 2003 levels by 2020 and 80% by 2050. It includes specific commitments to address our built environment including green building practices.
- *The Real Property Portfolio Management Efficiency, Effectiveness and Sustainability Policy (R-2008-213)* – Adopted in 2010, it seeks to maximize utilization of existing space prior to leasing or constructing new space. In addition, it encourages all agencies and departments within the County to consider using alternative work spaces such as providing hoteling offices for employees primarily in the field, or implementing alternative work arrangements such as enabling remote work practices.
- *Bay Friendly Landscape Resolution (R-2008-222)* – Adopted in 2008, it promotes the design and construction of landscapes that conserve water, generate less waste, and meet other goals identified in the Bay Friendly Landscape Guidelines <www.bayfriendlycoalition.org>.



Specifications and Design Guidelines for Environmental Performance

It is important to provide information on sustainability goals and operations & maintenance requirements early in the design process in a format that can be used by the architects, consultants and contractors who are designing and constructing the building. Alameda County has developed a number of documents for use by project teams in order to help meet these goals.

Prescriptive contract specifications

When the contractor is required to meet specific performance requirements, we define them in the specifications of the contract documents.

The *Green Building Specification* requires the contractor to deliver a building that achieves a minimum performance rating of LEED Silver, and makes the contractor responsible for all documentation and submittals required for certification.

The *Construction Waste Management Specification* requires the contractor to divert at least 50% of all waste from the landfill through reuse and recycling. The contractors are required to track and report waste diversion results throughout the construction project.

Performance-based design narratives

Requiring buildings be LEED-rated gets us a long way towards our sustainability goals. But there are certain environmental performance standards and operational considerations that are specific to our local conditions, or that go beyond what the LEED standard requires. We define the required environmental performance outcomes in design narratives that are provided to the project architects and consultants early in the project to inform the building design and material selection. This approach allows project teams flexibility to meet the performance objectives in creative ways. This is critical because of the wide range of facility types we build, and to balance project-specific constraints, such as available space, facility location, customer requirements, and many others.

Below is a description of three design narratives we have developed to help new construction projects meet operations and maintenance practices, and sustainability environmental performance goals.

Solid Waste & Recycling System Design Narrative –

This document describes the design requirements for solid waste and recycling systems for facilities built for use by Alameda County. It includes information on capacity considerations for expected compost, recycling and waste generation; indoor and outdoor storage space and equipment needs; path-of-travel requirements for waste and recycling from the building to the outdoor enclosure; and design and accessibility requirements for the outdoor waste enclosure.

Green Cleaning System Design Narrative – This document describes the design requirements for janitorial service operations and restroom design for facilities built for use by Alameda County. It includes information on janitorial supply room space and equipment needs,



Designing for Waste and Recycling Systems

The REACH Ashland Youth Center waste enclosure has adequate space for comprehensive diversion programs

accessibility needs for janitorial services, and product specifications for restroom and janitorial closet accessories (e.g., hand soap dispensers, shelving requirements, etc.).

Sustainable Building Design Checklist – This document describes the minimum environmental performance requirements for specific products and materials used in constructing Alameda County facilities. For example, we require carpet products to carry a third-party eco-label and contain recycled content, and paints are required to have zero off-gassing emissions (volatile organic compounds or VOCs). Project design teams are responsible for incorporating these environmental performance criteria into the final construction specification documents so that the contractor will select materials that meet the County’s sustainability goals.

Stakeholder Engagement

Designing and constructing a new building is a long and complex process that goes through multiple stages and requires input from many stakeholders. Sustainability is only one small part of the many issues design teams must consider. Alameda County’s Sustainability Program has developed a partnership with the project managers in the capital projects Design and Construction Program to ensure sustainability and operational goals are met in construction projects. We become an active stakeholder in the project early on by providing performance specifications and design narratives to the design team, attending initial design charrettes, and reviewing project specifications and drawings at key milestones. While it is ultimately the County project manager’s responsibility to ensure each project meets the County’s policies, they appreciate the technical review and expertise we bring as stakeholders in the process.

☑ TIP

Sustainability staff use the following engagement strategies to achieve a successful partnership with the County's Design & Construction Program team:

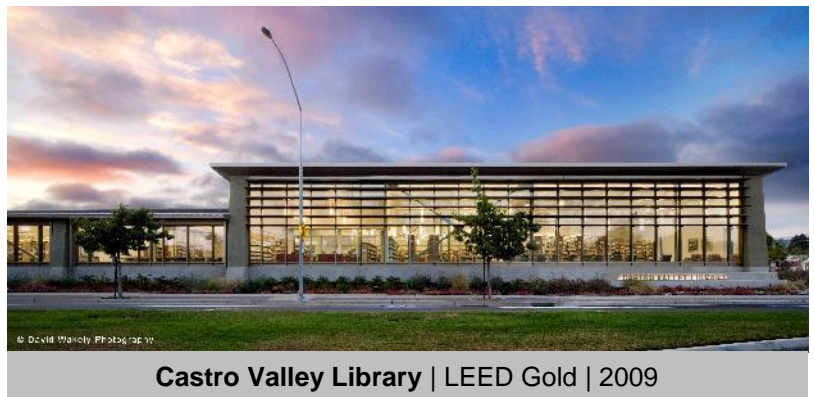
1. *Define strategies to meet goals* – Make the connection to climate (and other) impacts and define strategies for meeting your organization's sustainability policies and goals.
2. *Engage Proactively* – Becoming a known stakeholder in the early design phase of the project can help ensure priorities are considered. Track upcoming projects and find out when the project manager wants to receive input so it can be incorporated at the right time in the project.
3. *Provide written input in early design stages* – Project managers must manage an enormous number of details in moving a project forward. Design narratives and performance specifications allow them to pass on information easily to the project design teams for consideration as performance criteria alongside other functional and aesthetic criteria they will consider throughout the building design process.
4. *Review design specifications and drawings at key milestones in the project* -The building design and consultant teams typically submit their work to the project owner at various stages of completeness for each phase of the design. It is important to review these documents to ensure your environmental performance specifications have been met. Once the final design is complete, changes can be costly or impossible.

Results

Goals Achieved

Since adopting our Green Building Ordinance in 2003, Alameda County has achieved LEED ratings for three buildings. Click on the facility name below to find out more information about each of these facilities' green features at our website, www.acsustain.org.

- *Juvenile Justice Center* – Opened in 2007, this facility earned a LEED Gold rating, the first detention center in the nation to do so.
- *Castro Valley Library* – Opened in 2009, this facility earned a LEED Gold rating.
- *REACH Ashland Youth Center* – Opened in 2013, this facility earned a LEED Platinum rating.



Four more buildings that completed construction within the last year are finalizing documentation or awaiting final ratings from the US Green Building Council. This includes

the County's largest construction project ever, the \$668 million Highland Hospital Acute Tower Replacement, which is expected to achieve a LEED Gold rating. Additionally, five buildings are in various stages of design or construction that are targeted to meet the County's green building ordinance requirements.

Goals Not Achieved

Even as we continue to meet and exceed our green building goals, we find that sometimes our newly constructed facilities require modifications in equipment or operational practices to ensure they align with our ongoing sustainability, operations, and maintenance programs. Below are some examples, and while not wide spread, they highlight opportunities for improvement.

- Hand soap dispensers that are not compatible with the green certified product that we purchase on contract necessitating replacement of these dispensers
- Lighting strategy for a facility that includes over 20 different lamp fixtures, many unique to this facility, necessitating maintenance of a larger inventory of products

While these oversights may occur for any number of reasons, we believe they can be avoided in the future by increasing communication between the project design team and the relevant sustainability and maintenance stakeholders at key milestones in the design process. To help address these types of issue, we have developed design narratives that describe key operational, sustainability, and maintenance practices. By providing information early in the design process, these considerations can be integrated into the facility design alongside other requirements as defined by the client agency.

Unexpected Results

We have found that contractors frequently submit project proposals that aim for LEED ratings exceeding the County's minimum requirement of LEED Silver. We believe that this reflects the contractor's desire to be seen as leaders in green building design and construction in order to obtain competitive advantage during the bidding process.

Benefits

Internal Benefits

- Conservation of energy, water and resources and reduced waste, which lead to cost savings
- Reduce ongoing maintenance cost by considering long-term operational needs in the early design phase
- Healthy and dynamic workplace which benefits employee recruitment and retention
- Efficient utilization of County owned or leased space

External Benefits

- Efficient use of taxpayer dollars
- Reduce use of natural resources
- Mitigate climate impact of County operations

Business Case

The US Green Building Council provides comprehensive information regarding the business case for building green at their website at <http://www.usgbc.org/articles/business-case-green-building>. Some highlights include:

- LEED-certified buildings have been proven to use 25% less energy and a 19% reduction in aggregate operational costs in comparison to non-certified buildings.¹
- Building value (for LEED rated facilities) increased by 10.9% for new construction and 6.8% for existing building projects.²
- Owners of green buildings reported that their ROI improved by 19.2% on average for existing-building green projects and 9.9% on average for new projects.³
- In terms of health care costs, building retrofits which improved the indoor environment of a building resulted in reductions of: communicable respiratory diseases of 9-20%; allergies and asthma of 18-25%; and non-specific health and discomfort effects of 20-50%.⁴

¹ United States Federal GSA (2011), Green building performance A Post occupancy evaluation of 22 GSA buildings. Accessed Mar.30, 2016 via http://www.gsa.gov/graphics/pbs/Green_Building_Performance.pdf

² McGraw Hill Construction (2013). World Green Buildings Study. Accessed Mar. 24, 2016 via http://www.worldgbc.org/files/8613/6295/6420/World_Green_Building_Trends_SmartMarket_Report_2013.pdf

³ McGraw Hill Construction (2010). Green Outlook 2011: Green Trends Driving Growth. Accessed Mar. 24, 2016 via <http://aiacc.org/wp-content/uploads/2011/06/greenoutlook2011.pdf>

⁴ Fisk, William J. (2000). Health and Productivity Gains from Better Indoor Environments and their Implications for the U.S. Department of Energy. Accessed Mar. 23, 2016 via <http://energy.lbl.gov/ie/viaq/pubs/lbnl-47458.pdf>

Process

As an early adopter of green building practices, Alameda County benefited from the visionary leadership of our Board of Supervisors and strong support from local organizations and advocates. We look at each new project as an opportunity to adopt innovative new strategies and learn from our experience in past projects.

Initiating the Program

In the late 1990s, Alameda County embarked on its first effort towards green building practices with the construction of the Clerk-Recorder's new office building, a four-story, 80,000 square foot facility. This initiative, supported by the leadership of Board of Supervisors, required bidders to submit a management plan that identified their strategy for meeting sustainable building design goals, such as water and energy efficiency, and sustainable building materials. This project, managed by the County's General Services Agency, received significant green building technical support from Alameda County Waste Management Authority (now known as StopWaste⁵). Through this experience, County Supervisor Keith Carson, also a long-standing Board member for StopWaste, recognized early the benefits of green building, and in 2002 championed the adoption a Green Building Ordinance for Alameda County municipal construction projects.

Key Stakeholders

In the summer of 2002, Supervisor Carson convened the Green Building Ordinance Executive Committee, which include the Directors of the County's General Services Agency, Public Works Agency, and the Community Development Agency. The executive committee was supported by a Task Force which included 12 project managers and technical staff from across these three agencies. The Task Force was responsible for researching best practices and developing ordinance language to be considered by the executive committee. Facilitation of these committees was led by project management staff from GSA's Design and Construction program and Supervisor Carson's office. StopWaste was an integral stakeholder in providing external expertise through their program staff, as well as their



Celebrating the County's first LEED-rated facility

In 2007, Supervisors Keith Carson and Scott Haggarty were joined by County Administrator Susan Muranishi and US Green Building Council co-founder David Gottfried to celebrate a LEED Gold rating for the County's Juvenile Justice Center.

⁵ StopWaste is a Joint Powers Authority formed by Alameda County jurisdictions to implement waste reduction and recycling.

ability to bring outside experts to the table, including US Green Building Council co-founder and local Alameda County resident, David Gottfried.

Setting Goals

US Green Building Council analysis indicated that as of April 2003, only 22 commercial facilities on the West Coast had been awarded a LEED rating, with 70% of them at Silver rating or higher. This data indicated that the LEED program was still new in the marketplace, and because of this, it was not clear to the Task Force and Executive Committee how the green building requirements



REACH Ashland Youth Center
2013 | LEED Platinum

would affect construction project costs. In addition, it was critical that the ordinance be applicable to a range of government facility types in our pipeline, including detention facilities, libraries, fire stations and youth centers. Ultimately, the Committee put forth an ordinance, adopted by our Board, requiring County projects to meet a minimum of LEED Silver rating under the US Green Building Council's LEED Rating System, or a County-approved equivalent. The General Services Agency implemented a threshold of \$5 million dollars for achieving LEED rating; projects under \$5 million are expected to achieve similar environmental performance goals, but do not require a rating.

Implementing Strategies

The first step to implementing the County's Green Building ordinance was to ensure key staff across the organization were aware of the ordinance and understood what was required of them. By the end of 2003, approximately 50 staff across several County departments had attended trainings on the implementation of the green building ordinance. Over the years we have continued to advance green building knowledge within our agency by sending County staff to USGBC trainings and conferences. In addition, seven County staff members became LEED accredited professionals.

Another key to implementing the ordinance was to ensure its provisions were integrated into the bidding documents and construction contracts. As the legal documents governing the construction process, it is imperative that the project owner clearly state all expectations that materially affect the project delivery or outcome. To incorporate the new ordinance into our contract language, we worked with our legal counsel on our next major construction project to modify the documents to reflect the performance requirements for

contractors, namely, the expectation for the contractor to achieving a minimum LEED Silver certification on behalf of the County, as well as the requirements for construction waste diversion and reporting. Making these changes within the context of an active project allowed us to efficiently engage multiple sources of expertise already on contract for the project, saving time and financial resources.

Continuous Improvement

Alameda County has had great success in delivering LEED certified buildings through our contracting process. However, we have found that even these green facilities do not always seamlessly transition into our ongoing operational practices, especially as it relates to sustainability. For instance, designers may not specify the appropriate dispensing equipment to match the hand soaps and cleaning chemicals on contract for use in our green cleaning program, or may design waste disposal cabinetry in break rooms that are too small to accommodate the waste bins stocked by the County. In order to avoid costly modifications, operational details such as these must be communicated to project design teams early in the design process to ensure the specifications and drawings reflect the needs of the maintenance staff.

Long project timelines can make it difficult for maintenance staff to know when to get involved in the project review process. In addition, specifications and project drawings can be difficult and time consuming to review. That's why we've developed comprehensive design narratives for three of our critical operational areas focused on maintenance and sustainability program goals. These narratives document the goals and expectations for the operations and maintenance functions of the facility, and specify specific finishes and accessories that align with our operations. With a portfolio of approximately 150 facilities to maintain, it is important for us to strive for consistency so that maintenance staff can move between facilities without requiring training, and so that we can maximize efficiencies by keeping a consistent inventory of products.

Measuring and Reporting Results

Alameda County has achieved LEED certification for three facilities to-date, and is on target to receive certification for 9 more facilities that are in various stages of design or construction, including four recently-completed facilities awaiting their certification. By making LEED Silver certification a minimum requirement of the contract, project team are motivated to stay on task and create efficiencies to reduce costs associated with meeting the objectives. Alameda County has reported on its green building achievements by posting brief project case studies at its public website at www.acsustain.org.

In addition, we have recently improved our ability to compile and report construction waste management data by requiring contractors to report diversion through an online

portal hosted by Green Halo Systems. The County's unique online portal at acgsa.wastetracking.com provides aggregated, publicly-available summary metrics for all County projects utilizing the system. Diversion metrics are reported in tons, percentage of total waste generation, and then translate into carbon footprint and sustainability reports. Additional project metrics are available to County project managers via secure login. While this data has always been available as part of our contractor requirements, it was rarely reported publicly due to the difficulty of compiling and analyzing the data.

Financial Information

With the adoption of the Green Building Ordinance, Alameda County's Board of Supervisors made the commitment to conserving energy and resources, and enhancing indoor environmental quality in the County's new facilities. The Board recognized that being on the leading edge of sustainability in this emerging marketplace may incrementally increase the cost of construction, but a portion of these costs would be offset by operational savings through efficiency, and lead to increased availability of green building products and design expertise, and ultimately change the nature of building design and construction marketplace. Any incremental cost increases are incorporated into the project budget, and to-date, no LEED rated project completed by the County has come in over budget.

Leadership

This project exemplifies many of the Council's Principles for Leadership and Sustainable Purchasing.

- **Understanding** our impact through assessment of the lifecycle climate impact of our building portfolio.
- **Committing** to comprehensive actions to address the environmental impact of our new construction activities.
- **Delivering** on our commitment as seen through our consistent achievement of minimum LEED Silver rating for all of our new constructions projects.
- **Promoting transparency** through the sharing of achievements and our specifications and design resources via our public-facing website at www.acsustain.org.

In addition, we continue to seek new and innovative ways to increase the efficiency of our workplaces, while continuing to maintain a high level of services to our constituents and community. These activities exemplify leadership as defined by the Council in the purchasing category guidance for Construction and Renovation.