

Productos Roche Q.F.S.A.: Lima, Peru

Green Office and LEED for Commercial Interior Certification

Executive Summary

After many years in their previous location, Productos Roche moved into new offices. This represented both a physical as well as a cultural shift for the employees and the company. To constructively manage this shift, the management of Roche implemented a plan branded *Go Green* that pulled together some of the practical aspects of the move along with the desired cultural shift into their new facilities. In alignment with this plan and with Roche's corporate Sustainability Principles, the new office in Lima is an exemplary high performance green workspace.

One of the primary ways to measure success with this goal is the certification of the tenant improvement using the United States Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED) rating system. Although LEED was developed in the United States, it has established applicability and gained acceptance in many corners of the globe. The LEED rating system is a third-party verified, performance based standard which sets benchmarks and performance thresholds for a comprehensive range of green building concerns divide into six categories; Sustainable Sites, Water Efficiency, Energy and Atmosphere, Materials and Resources, Indoor Environmental Quality and Innovation and Design. Within these categories, there are prerequisites that establish minimum levels of performance for all projects, and credits that outline opportunities for performance improvements. Points are awarded for achievement of credit performance thresholds and projects are recognized with elevating levels of LEED certification based on how many points are earned. Because the project scope is limited to five floors in the new Alto Caral office building, this project will be certified using the LEED for Commercial Interiors v2.0 (LEED CI).

The **Leadership in Energy and Environmental Design (LEED) Rating System** provides building owners, operators and design teams with a concise framework for identifying and implementing practical and measurable green building design and construction strategies.

The Rating System addresses environmental performance in six **categories of concern**.

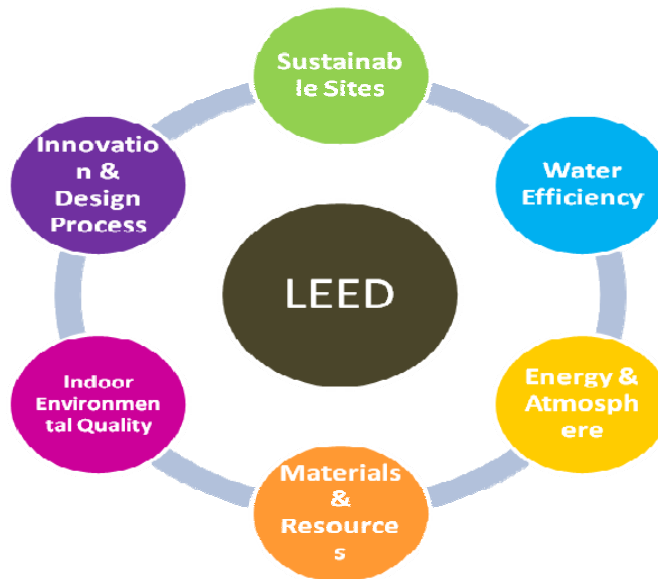
Each category contains **prerequisites** and/or **credits** that measure building performance. Requirements may be prescriptive or performance-based.

For each prerequisite and credit, the Rating System provides:

- Intent
- Requirements
- Strategies
- Referenced standards

Productos Roche moved into their new office space in December 2009 and began to enjoy the benefits of their new green office. The project achieved LEED CI Gold certification in April 2010, becoming the first LEED certified project in Peru.

Performance Targets & Project Achievements



Sustainable Sites

Because a tenant improvement project rarely involves design and construction outside of the building, in LEED CI this credit category focuses primarily on rewarding the owner for choosing to locate in a building that supports green design and urban planning practices. The Alto Caral building, located in Lima’s San Isidro district, provides convenient pedestrian access to public transit routes, shops and restaurants, giving employees options for commuting and mid-day errands without using an automobile. Additionally, the building was designed with structured parking and a reflective roof to reduce heat island impacts and has limited exterior illumination to reduce light pollution. The project earned five points in this category.

Water Efficiency

Water saving flush valves and faucets were selected for all plumbing fixtures within the project. Using the LEED CI benchmark of the US Energy Policy Act of 1992, these fixtures are expected to reduce water consumption by over 40% and save approximately 530,000 liters of water annually. The project earned two out of two possible points for water efficiency.

Energy and Atmosphere

The largest energy use with the office space will be lighting which presented tremendous opportunities for energy savings. This is because luminaires both use electricity directly to produce light and as a bi-product produce heat which must be mitigated with air-conditioning, using more energy. To address this, the project team first started with an open plan design of the office space takes full advantage of the windows on three sides of the building. All lighting in the perimeter zone of the office space will be equipped with light sensors to turn off the electric lighting when there is sufficient daylight to illuminate the work area. The lighting in the

entire project has been optimized to provide quality illumination while reducing the lighting power density and saving energy. All of the lighting uses efficient T5 fluorescent and new LED lighting technology. Additionally, energy saving cooling equipment has been incorporated and all office equipment (computers, copiers, etc.) will be Energy Star certified. The combination of all these measures is expected to save over 158,300 kWh per year in operating energy. After the mechanical and electrical systems were installed, a commissioning authority conducted functional testing to ensure that the systems and controls were working properly to realize expected energy savings and provide occupant comfort. The project earned seven points out of the possible 12 points in this category.

Materials and Resources

The project includes a number of materials with recycled content including metal studs, gypsum board, and task chairs as well as carpeting containing over 38% recycled material. Overall, more than 21% of the materials used in the tenant improvement were recycled. A significant material component of this open office project is systems furniture. To support the regional economy and reduce transportation impacts, the furniture was purchased from a Peruvian company and was manufactured in Lima, and more than 66% of the materials used in the project were manufactured in Peru. All of the sub-contractors who worked on the project sorted their construction waste and recycled as much as possible with a final recycling rate of over 53% representing 9.55 tons of recycled material. To support resource efficiency on an on-going basis, the office includes recycling centers at convenient locations throughout the space to encourage recycling of office waste. The project earned five of the available 14 points in this category.

Indoor Environmental Quality

In this category the triple bottom line of sustainability; society, environment and economy, really come together. To begin with, all desks are located within three meters of windows, providing excellent access to daylight and views for everyone. Numerous studies, including one recently released by the University of San Diego (www.usdrealestate.com), show that this improves the health and productivity of occupants, providing a benefit to the company and the employees. The mechanical ventilation system provides optimal quantities of fresh, filtered outside air and occupants have the opportunity to adjust the temperature in their workspace to suit their preferences. The sub-contractors took extra measures during construction to prevent air quality problems in the finished office space and all adhesives, sealants, paints and carpeting used in the construction met or exceeded low-emitting product standards for volatile organic compound emissions. The project earned 11 of the possible 17 Indoor Environmental Quality points.

"Healthier buildings reduce sick time and increase productivity, "If you consider the benefits in terms of recruitment, retention of employees, less sick time and greater productivity, tenants should be willing to pay more rent for such space or require steep discounts for less healthy space." Reuters Sep 15, 2009

Innovation and Design

Educational materials were developed and tours are being conducted to inform employees and visitors about sustainability and the environmental attributes of the office space, earning one innovation point. Because the selected plumbing fixtures will reduce water usage by over 40%, and because regionally manufactured materials comprise more than 40% of the project, two additional points will be earned for exemplary performance. A point is also awarded for engaging a LEED Accredited Professional to manage the certification process, giving the project four of the five possible Innovation and Design points.

Results



Overall, the project earned 34 points in the LEED rating system, achieving LEED Gold certification. Additionally, the predicted energy and water savings will reduce annual carbon emissions by approximately 4.2 tons. But most importantly, the project demonstrates a number of aspects including industry leadership, environmental stewardship and an enhanced corporate responsibility by reducing environmental impacts, both locally and globally, and creating a healthy and productive work environment for Roche employees. The LEED certification serves as a concrete validation of these accomplishments.



One of the nation's most comprehensive sustainable development consulting firms, Green Building Services Inc. helps clients successfully adopt green building and facility management practices. With offices in Portland, Sacramento, Orlando and Houston, GBS serves clients across the United States as well as in Canada, Latin America and the Far East. To date, the company has managed the certification of over 250 LEED projects and has well over 300 other green building projects in process. To learn more visit www.greenbuildingservices.com or contact 866.743.4277 or 503.467.4710.



Laboratorios Roche LEED CI v2.0 Scorecard

8 de Abril de 2010

				Responsible			
5	3	2		Party	Status		
SUSTAINABLE SITES							
	3		SSc1	D	Site Selection (3)		
	0.5		SSc1A	D	Brownfield Redevelopment (0.5)		
	0.5		SSc1B	D	Stormwater Management, Rate and Quantity (0.5)		
	0.5		SSc1C	D	Stormwater Management, Treatment (0.5)		
0.5			SSc1D	D	Heat Island Reduction, Non-Roof (0.5)		
0.5			SSc1E	D	Heat Island Reduction, Roof (0.5)		
	0.5		SSc1F	D	Light Pollution Reduction (0.5)		
0.5			SSc1G	C	Water Efficient Irrigation, Reduced Potable Water (0.5)		
	0.5		SSc1H	D	Water Efficient Irrigation, No Irrigation (0.5)		
	0.5		SSc1I	D	Innovative Wastewater Technology (0.5)		
	0.5		SSc1J	D	Water Use Reduction 20% (0.5)		
	0.5		SSc1K	C	Onsite Renewable Energy		
0.5			SScL		Other Quantifiable Environment Performance (0.5) EAc4 ERM		
1			SSc2	D	Development Density & Community Connectivity (1)		
1			SSc3.1	D	Public Transportation Access (1)		
		1	SSc3.2	D	Bicycle Storage & Changing Rooms (1)		
1			SSc3.3	D	Parking Availability (1)		
5		8	Total Points for Sustainable Sites				
WATER EFFICIENCY							
1			WEc1.1	D	Water Use Reduction, 20% Reduction in Tenant Water Use (1)		
1			WEc1.2	D	Water Use Reduction, 30% Reduction in Tenant Water Use (1)		
2			Total Points for Water Efficiency				
ENERGY & ATMOSPHERE							
Y			EAp1	C	Fundamental Building Systems Commissioning		
Y			EAp2	D	Minimum Energy Performance		
Y			EAp3	D	CFC Reduction in HVAC&R Equipment		
		3	EAc1.1	D	Optimize Energy Performance, Lighting Power (1-3)		
1			EAc1.2	D	Optimize Energy Performance, Lighting Controls (1)		
1		1	EAc1.3	D	Optimize Energy Performance, HVAC (1-2)		
2			EAc1.4	D	Optimize Energy Performance, Equipment & Appliances (1-2)		
1			EAc2	C	Enhanced Commissioning (1)		
2			EAc3	C	Measurement & Payment Accountability: Sub-Metering (2)		
		1	EAc4	C	Green Power (1)		
7		5	Total Points for Energy & Atmosphere				



MATERIALS & RESOURCES

Y			MRp1	D	Storage & Collection of Recyclables		
1			MRc1.1	D	Building Reuse, Long Term Lease (1)		
		1	MRc1.2	D	Building Reuse, Maintain 40% of Interior, Non-Structural Comp. (1)		
		1	MRc1.3	D	Building Reuse, Maintain 60% of Interior, Non-Structural Comp. (1)		
1			MRc2.1	C	Construction Waste Management, Divert 50% From Landfill (1)		
		1	MRc2.2	C	Construction Waste Management, Divert 75% From Landfill (1)		
		1	MRc3.1	C	Resource Reuse, Salvaged, refurbished or reused materials 5% (1)		
		1	MRc3.2	C	Resource Reuse, Salvaged, refurbished or reused materials 10% (1)		
		1	MRc3.3	C	Resource Reuse, 30% Furniture and Furnishings (1)		
1			MRc4.1	C	Recycled Content, 10% (post-consumer + 1/2 pre-consumer) (1)		
1			MRc4.2	C	Recycled Content, 20% (post-consumer + 1/2 pre-consumer) (1)		
1			MRc5.1	C	Regional Materials, 20% Manufactured Regionally (1)		
		1	MRc5.2	C	Regional Materials, 50% Extracted & Manufactured Regionally (1)		
		1	MRc6	C	Rapidly Renewable Materials (1)		
		1	MRc7	C	Certified Wood (50%) (1)		
5		9	Total Points for Materials & Resources				

INDOOR ENVIRONMENTAL QUALITY

Y			EQp1	D	Minimum IAQ Performance		
Y			EQp2	D	Environmental Tobacco Smoke (ETS) Control		
		1	EQc1	D	Outside Air Delivery Monitoring (1)		
1			EQc2	D	Increased Ventilation (1)		
1			EQc3.1:	C	Construction IAQ Management Plan, During Construction (1)		
		1	EQc3.2:	C	Construction IAQ Management Plan, After Constn./Before Occ. (1)		
1			EQc4.1	C	Low-Emitting Materials, Adhesives and Sealants (1)		
1			EQc4.2	C	Low-Emitting Materials, Paints and Coatings (1)		
1			EQc4.3	C	Low-Emitting Materials, Carpet Systems (1)		
		1	EQc4.4	C	Low-Emitting Materials, Composite Wood & Agri-fiber products (1)		
		1	EQc4.5	C	Low-Emitting Materials, Systems Furniture & Seating (1)		
1			EQc5	D	Indoor Chemical & Pollutant Source Control (1)		
		1	EQc6.1	D	Controllability of Systems: Lighting (1)		
1			EQc6.2	D	Controllability of Systems: Thermal & Ventilation (1)		
1			EQc7.1	D	Thermal Comfort, Compliance (1)		
1			EQc7.2	D	Thermal Comfort, Monitoring Systems (1)		
1			EQc8.1	D	Daylight and Views, Daylight for 75% of Spaces (1)		
		1	EQc8.2	D	Daylight and Views, Daylight for 90% of Spaces (1)		
1			EQc8.3	D	Daylight and Views, Views for 90% of Seated Spaces (1)		
11		6	Total Points for Indoor Environmental Quality				

INNOVATION & DESIGN

1			IDc1.1	D	Innovation in Design: Green Education		
1			IDc1.2	D	Innovation in Design: Exemplary Performance MRC5.1		
1			IDc1.3	D	Innovation in Design: Exemplary Performance WEC1		
		1	IDc1.4	D	Innovation in Design:		
1			IDc2	D	LEED® Accredited Professional (1)		
4		1	Total Points for Innovation & Design				

34	29	Total Points Attempting	Gold	Current Level
34	29	Total Points Possible		
<i>Certified: 21- 26, Silver: 27-31, Gold: 32-41, Platinum: 42+</i>				