



LafargeHolcim



BAFWAC

# **Green roof and water management in Philippines government office building**

a LafargeHolcim Philippines case study



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## **Company details**

A world leader in building materials, LafargeHolcim employs 63,000 people in 61 countries, and posted sales of €12.8 billion in 2014. LafargeHolcim has an established presence in the Philippines through a nationwide manufacturing network operated by over 1300 skilled professionals and composed of five cement plants, one grinding station, one cement terminal, and aggregates quarries that are strategically located throughout Luzon, Visayas and Mindanao.

## **Summary of action**

Rapid urbanization in the Philippines has given rise to many challenges, including increased energy consumption. To address this issue, LafargeHolcim supported the government's mission to protect the Laguna Lake area and act as an environmental steward by providing innovative technology products for the government's new building.

## **Program rationale**

Both the public and private construction sectors are responding to urbanization challenges by reshaping the cityscape and designing building structures that are energy efficient and adapt to the changing environment.



## Program approach

The two main stakeholders in the project were LafargeHolcim Philippines and Laguna Lake Development Authority (LLDA). LLDA's mission is to ensure the development and balanced growth of the Laguna Lake area while providing environmental management, control, and preservation of the quality of human life and ecological systems whereas LafargeHolcim helps customers differentiate themselves from competitors by receiving environmental credits for their projects.

LafargeHolcim partnered with SIKA—a manufacturer of specialty chemicals for construction and industry—to develop the innovative green roof solution that was used for the LLDA's new building.

In addition to the green roof, the project also included other ecological features such as a wetland area for onsite stormwater treatment and to provide a cooling effect in the area surrounding the building.

## Results & Benefits

The Bio Roof is integrated within the building's structure. Its vegetative layer protects the waterproofing membrane from climatic extremes, which allows for reduction in maintenance and decreased need for stormwater handling facilities.

In addition to monetary benefits, ancillary benefits include:

- Rainwater, collected within the substrate for plants, helps cool the atmosphere when the temperature rises, reducing heat island effects.
- Insulating properties of the green roof system improve the energy performance of a building over its lifetime, reducing demand for heating and cooling.
- Green roofs contribute to improved air quality and have the ability to neutralize the pH of the rainwater run-off.
- Having historically worked primarily with contractors, LafargeHolcim was able to expand its expertise by working in the planning and pre-design stages of planning the building, which it traditionally has not done. Discussions with other key players such as landscape architects, environmental consultants, and structural engineers, and job site supervision and team coordination during installation were also new activities for LafargeHolcim.

## **Lessons learned**

This system provides many benefits, including improved cooling, better energy efficiency and water management, and the conversion of idle roofs to green spaces.

## **What next?**

The LLDA building will be followed by other buildings in the Philippines and elsewhere in the world. Building on the success of this green roof project, LafargeHolcim is also offering additional solutions for stormwater management for driveways and pathways, using the pervious concrete Hydromedia.

## **Source:**

[http://www.naturalinfrastructureforbusiness.org/wp-content/uploads/2015/11/LafargeHolcim\\_NI4BizCaseStudy\\_GreenRoof.pdf](http://www.naturalinfrastructureforbusiness.org/wp-content/uploads/2015/11/LafargeHolcim_NI4BizCaseStudy_GreenRoof.pdf)





# BAFWAC

BAFWAC was jointly launched by CDP, CEO Water Mandate, SUEZ, and World Business Council for Sustainable Development (WBCSD) in December 2015. The initiative commits companies to analyze and report water-and-climate-related risks and impacts, and to implement collaborative response strategies along the value chain.

**[bafwac.org](http://bafwac.org)**