ARC GREEN-BUILDING EDUCATION MANUAL
A MESSAGE FROM THE 
WRD BOARD OF DIRECTORS

Dear Visitor,

The Albert Robles Center for Water Recycling & Environmental Learning (ARC), located in the City of Pico Rivera, is a multipurpose and multi-benefit site which encapsulates the Water Replenishment District’s (WRD) commitment to the community through the construction of a state-of-the-art advanced water treatment facility (AWTF), an Administration & Learning Center (A+LC), and an outdoor amphitheater and demonstration garden. Collectively, these project features improve neighborhood engagement, health, and aesthetics, while serving as a reminder that sustainable, cost-effective, and high-tech projects are having a positive impact on residents, ratepayers, taxpayers, the local environment, and global climate change.

ARC is the cornerstone project of WRD’s Water Independence Now (WIN) program which was approved by the Board of Directors in 2003 and sought to eliminate all demand for imported water to replenish the groundwater aquifers. By building the A+LC and all outdoor spaces to meet the highest level of national standards set by the United States Green Building Council’s Leadership in Energy and Environmental Design (LEED™) certification process, WRD hopes to inspire future environmental stewards by leading through example.

Designing a facility comes with many decisions, and with each decision, we can create opportunities for the more efficient use of water, energy, and space, or invite the use of healthier, locally-sourced materials. By investing in environmentally sound, ultra-efficient choices at every step of the design, construction, and operating processes, WRD is significantly reducing its water and carbon footprint, improving stormwater infiltration, increasing native species habitat, decreasing the urban heat island effect, and contributing to neighborhood health and aesthetic.

When visiting the ARC site, community members, students, and stakeholders, will have a chance to learn about all the eco-conscious decisions that went into the construction of this facility through signage and educational exhibits. We hope you have a chance to visit us and that you enjoy your time exploring the advanced water treatment facility, as well as the learning center and demonstration gardens.

Sincerely,

The Water Replenishment District Board of Directors
The Albert Robles Center for Water Recycling & Environmental Learning (ARC) consists of an Advanced Water Treatment Facility (AWTF), an Administration & Learning Center (A+LC), and an outdoor amphitheater and demonstration garden. The site is located in the City of Pico Rivera along the San Gabriel River near the intersection of Beverly Blvd and the 605 Freeway. The LEED™ project boundary covers 134,940 square feet (sf) and includes the 21,825 sf two-story A+LC as well as the surrounding garden area.

The A+LC includes an educational exhibit hall, large and small meeting spaces, and a rooftop garden deck (floor plan to the left). The recreational area includes a demonstration garden, a working model of the San Gabriel River watershed, and an amphitheater for group gatherings.
LEED™ PROJECT HIGHLIGHTS

SUSTAINABLE SPACES
» Maximized open space to 41.5%
» 15,059 square feet of pedestrian-oriented hardscape

» 36,663 square feet of landscaping

INTEGRATED STORMWATER MANAGEMENT SYSTEM
» Four bio-retention basins
» Vegetated open space
» Porous concrete
» Pervious paver parking
» Garden roof

OUTDOOR LANDSCAPING FEATURES = 60% WATER SAVINGS
» Water efficient native planting
» Low-flow irrigation systems using recycled water
» Reduces the burden on municipal water supply systems

ENERGY GENERATED ON-SITE
» 995 Photovoltaic (PV) panels
» 355 Kilowatt system
» 529,741 kWh produced in the first year

TEACHING SUSTAINABILITY
» Visitors are educated on the sustainability aspects of the facility and are encouraged to recycle all paper, cardboard, plastic, glass, and aluminum waste materials in appropriate receptacles
LOW-ENERGY CONSUMPTION
» Low energy LED bulbs are used throughout the building to reduce energy usage and cooling load

» Energy-efficient building envelope and air conditioning system designed to be a minimum 20% better than standard energy efficiency codes

GOOD INTERIOR AIR QUALITY
» Inside paints and coatings contain minimal or no volatile organic compounds (VOCs)

» Minimal floor coverings reduce construction waste and emissions of VOCs from manufactured flooring and adhesives

PROVIDING NATURAL DAYLIGHTING
» Thoughtfully designed windows and tubular skylights minimize the need for electric lighting, create energy savings, and visually connect occupants to outdoor spaces

REDUCED WASTE AND MAXIMIZED RECYCLING
» 96% of demolition waste and at least 75% of construction waste was diverted from the landfill.

» Building materials are made of recycled content or were manufactured locally

» 350 sf waste and recycling collection area located in parking area reduces the waste hauled to landfills
Onsite Renewable Energy
A 355 kilowatt DC solar photovoltaic (PV) system, consisting of 995 panels is located on the treatment plant roof and two carports. In the first year, this system is estimated to generate at least 529,741 kilowatt-hour (kWh) of electricity to help power both the A+LC building and the treatment plant. This renewable energy source saves carbon dioxide equivalent emissions that would otherwise have been derived from a fossil fuel powered electricity grid.

Increased Habitat
At least 40% of the non-building footprint of the site is covered with landscaped vegetation— all of which is irrigated with recycled water.

The vegetated open space includes a model of the San Gabriel River watershed, an outdoor amphitheater, and a garden rooftop. Each of these features includes drought-resistant plants, shade structures, areas of respite for visitors and employees, and opportunities for educational exhibits or signs. The garden roof also provides roof membrane protection and insulation, sound dampening, and roof stormwater runoff adsorption and attenuation.

Effective Stormwater Management
An integrated stormwater management system— consisting of the garden roof, four strategically located bio-retention basins, vegetated open space, porous concrete and pervious paver parking spaces— results in minimized runoff and increased infiltration. Stormwater not controlled by these best management practices (BMPs) passes through a final hydropathic separator for pollutant and suspended solids removal before spreading out into a subterranean infiltration basin. The very minimal amount of runoff that does not get infiltrated will flow into the San Gabriel River.

Reduced Heat Island Effect
The parking and access areas contain high albedo (i.e. light reflective surfaces) concrete surfaces and the parking stalls will become shaded over time from planted trees. Both high albedo and shade help minimize urban heat island impacts.

Alternative Transportation
The A+LC building has 16 bicycle storage spaces adjacent to the front building entrance and 6 long-term secure storage spaces in the bicycle access, storage, and showering facility. Surface parking has four set aside spaces for electric vehicle (EV) charging stations.
<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>FEATURE</th>
<th>ENVIRONMENTAL BENEFIT</th>
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<tbody>
<tr>
<td>WATER EFFICIENCY &amp; INNOVATIVE DESIGN</td>
<td>Water Efficient Native Planting</td>
<td>Potable water irrigation savings of at least 60% when compared to baseline default water usage. The reclaimed water irrigation system saves water which in turn translates into avoided greenhouse gas (GHG) emissions.</td>
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<td>Low Flow Irrigation Systems</td>
<td>Potable water savings of at least 46% are achieved by using:</td>
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<td>- Hybrid water-free urinals: automatically flush one gallon of potable water each 72 hours</td>
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<td>- Low flow toilets: 1.1 gallons per flush</td>
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<td>- Low flow lavatory faucets: 0.35 gallons per minute</td>
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<td></td>
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<td>- Low flow shower heads: 1.5 gallons per minute</td>
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<td></td>
<td>Water Efficient Plumbing Fixtures</td>
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<tr>
<td>ENERGY &amp; ATMOSPHERE</td>
<td>Energy Efficient Building Envelope</td>
<td>23% more efficient than California Title 24 Energy Efficiency Standards on annual energy cost basis. The efficiency saves carbon dioxide greenhouse gas emissions from being produced.</td>
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<td>Air Conditioning and Heating System</td>
<td>Requires less than 1 watt per square foot (sf).</td>
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<td>Interior Lighting Power Density</td>
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<td>LED Lighting</td>
<td>Reduces mercury from traditional bulbs.</td>
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<td>Energy Star Appliances</td>
<td>Reduces energy demands.</td>
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<td>MATERIALS &amp; RESOURCES</td>
<td>Demolition &amp; Construction Waste Management</td>
<td>75% (or 7,542 tons) of waste was diverted from the landfill using a comprehensive waste management plan.</td>
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<td>Recycled and Regional Construction Materials</td>
<td>Contains at least 20% recycled content and over 20% of construction materials sourced within 500 miles.</td>
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<td>Sustainable Indoor Flooring</td>
<td>Carpets contain a high amount of recycled content and linoleum flooring is made out of rapidly renewable linseed oil materials.</td>
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<td>Waste Management</td>
<td>350 sq waste, recycling collection, and storage space located in the parking area has been designed to meet minimum LEED™ requirements.</td>
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<td>indoor environmental quality</td>
<td>Lighting Controls</td>
<td>Use of daylight sensors, occupancy sensors, and nighttime sensors results in an energy savings when areas are not in use.</td>
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<td>Ventilation System</td>
<td>The dedicated outside air system (DOAS) and the ducted variable refrigerant flow (VRF) fan coil units are equipped with filtration that exceeds a 13 minimum efficiency reporting value (MERV 13).</td>
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<td>Low-Emitting Materials</td>
<td>Inside paints, coatings, adhesives, sealants, and furnishings contain minimal or no VOCs.</td>
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<td>Windows</td>
<td>Natural daylighting windows, high-performance low-E window glazings, and tubular skylights minimize need for artificial lighting.</td>
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Facilities of this scope and function involve a great number of stakeholders, and WRD has sought to develop a healthy foundation of partnerships throughout the planning and construction process. By holding community planning meetings to gather input from residents, and carefully selecting engineering and construction contractors, WRD is confident that the ARC facility will serve the public first and foremost. We’d like to thank our partners for all their great work.