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Looking Back, Looking Ahead

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and success
on the road to military
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Less is More: Getting to Net Zero

Among the largest Military Housing Privatization Initiative sites are Fort Bliss, TX and Fort Carson, CO. Combined, the housing communities at these installations serve approximately 7,300 families. Both communities have been designated by the Army as “Net Zero installations” by 2020, defined by the Army as “an installation that produces as much energy, waste and water as it uses, over the course of a year.” Out of more than 100 nominations received from installations around the world, only these two will target all three categories (energy, waste, water) to become integrated Net Zero sites.

As the privatized housing partner at both Fort Bliss and Fort Carson, Balfour Beatty Communities is playing a critical role in helping the installations achieve Net Zero status. One particular challenge is that community budgets depend largely on the Basic Allowance for Housing rate which is predetermined by the Department of Defense typically on an annual basis. This means increased utility and operating costs cannot be passed along to residents in the form of higher rent in the same manner as one would find in the private sector housing. Instead, Balfour Beatty Communities is working with suppliers, creating innovative financing models, and leveraging utility incentives and rebates to overcome budget restraints.

“What our company has learned is that less is more when it comes to utilities,” said Chris Williams, president of Balfour Beatty Communities. “The less waste, water and energy we use, the more efficient and healthy our communities become.”

Energy Efficiency & Renewable Generation

New development in the privatized family housing community at Fort Bliss has been built to the National Green Building Standard Emerald Rating—among the world’s most stringent green building standards. The Emerald rating requires six times higher energy efficiency than the LEED-H platinum rating and easily puts these homes in the top 1% most efficient of all new homes built in the U.S. Some might think achieving this standard comes at a steep cost, however these homes have a construction cost only three percent higher than other efficient new homes built within the community, yet exceed the International Energy Conservation Code (2006) standard by 60%.

Beyond the Emerald rated homes, the Balfour Beatty team at Fort Bliss has also conducted a number of energy efficient retrofits and renovations on the older homes in the portfolio, and built other new homes to the LEED-H silver standard and above. Balfour Beatty Communities believes more efficient homes not only reduce operating costs, but also increase resident satisfaction—not to mention reducing demand for energy from our local Army partner.

Creating sources of local, renewable energy is a way to mitigate traditional rate increases while improving energy security and reducing carbon emissions. At Fort Bliss we have launched a rooftop solar generation program that is approximately one third installed. When complete, the solar panels are expected to generate 13.2MW or more than 25% of the family housing community’s energy needs.

Balfour Beatty Communities’ biggest challenge with the solar project was identifying, with its Army privatization partner, an economic model where it made sense to develop renewable energy within communities paying an electricity cost already less than the national average. This was eventually

accomplished through a unique teaming arrangement. The solar panels at Fort Bliss are owned and operated by SolarCity Corporation, a third-party company that sells the renewable energy to our housing community at a reduced cost. The renewable power generated is placed into the shared community grid so that all residents can benefit equally from the reduced costs. This innovative power purchase agreement is in place for 20 years with a fixed rate escalator, allowing Balfour Beatty Communities as the property manager to accurately predict its cash flows and reduce demand costs during peak use hours from the grid.

A similar program, estimated at 13.5 MW of rooftop solar, is under review at Fort Carson as well.

Waste Reduction & Recycling

The Fort Bliss and Fort Carson family housing communities have implemented extensive resident recycling programs to support waste reduction within each home and office. In addition to curbside pickup, our company hosts approximately 5,000 sustainability focused LifeWorks events across its MHPI sites annually. LifeWorks at Balfour Beatty Communities engages local residents of all ages and provides interactive activities to support the Net Zero Initiative through programs including: recycling workshops, community gardening, energy and water conservation, and TerraCycle.

TerraCycle is a global program that takes hard-to-recycle waste such as chip bags and printer ink cartridges and turns them into usable products. Participating sites send in waste and receive points in exchange, available to redeem as products or monetary donations to a charity or organization of choice.

“TerraCycle has been a very rewarding program for our teams and our residents. We continue to find creative ways to make recycling fun, raise the awareness throughout our communities, and most importantly come together for a common goal of giving back to local schools and nonprofit organizations,” said Terri Edelman, EVP for Balfour Beatty Communities.

Beyond resident recycling, Balfour Beatty Communities implements stringent corporate renovation and construction waste diversion practices. Across our MHPI sites, 72% of construction waste from renovation activities was diverted from US landfills in 2013. This significantly exceeds the Executive Order 13514 goal of diverting 50% of non-hazardous solid waste by FY 2015.

In other sustainable efforts, Balfour Beatty Communities’ Renovation and Construction team is currently preparing to repurpose two existing childcare facilities by converting them into community centers for our residents at Fort Carson. These facilities were originally built by the Army as temporary buildings that would be demolished pending the construction of new facilities at Fort Carson. Balfour Beatty Communities project director at Fort Carson, Bob Mooney, worked with the Army to find an alternative use for the buildings—saving waste, water and energy in the process and reducing the environmental impact associated with raw materials, manufacturing, and transportation of goods.

Specifications for the conversion of buildings include more Net Zero Initiative support such as: reuse of features or recycling unused materials, EnergyStar fixtures, green cleaning supplies and other recommendations from LEED and EnergyStar programs. Balfour Beatty Communities is also working with vendor Interface Flooring by performing a case study on carpet tile in high traffic areas in one of the community centers. Using tiles for carpet allow only damaged areas to be replaced, reducing waste, time and expense.

“Our employees, vendors, and community are engaged in Net Zero waste nationwide. I am proud of our team’s efforts and creative solutions to divert waste from our landfills. Everyone benefits when our waste diversion goals have been exceeded each year,” comments David Cloutier, renovations director, Balfour Beatty Communities Renovation and Construction.

The new construction team at Fort Bliss also has been keenly focused on sustainability. In addition to diverting 98% of their construction waste, they work within a detailed project sustainability action plan that includes subcontractors and other stakeholders on the base. One successful program they developed further enhanced the company’s no smoking policy. The team at Bliss instituted marked ‘no smoking’ zones and implemented protocols that have not only cut down on the cost of general cleanup, but have helped a number of people on the jobsite quit smoking.

Water Conservation

Within Balfour Beatty Communities’ housing at Fort Carson, we have identified and leveraged a 20% rebate from the local utility toward the purchase and installation of the ETwater System, a smart metering software program that utilizes two-way communication to conserve water. Using cloud-based software, the end user enters the landscape information into a profile. The local weather station then captures weather and rainfall data, sharing with ETwater. Evapotranspiration and daily irrigation schedules are then computed based on this data, allowing field-based smart controllers to connect wirelessly with servers to exchange schedules and data. Finally, smart controllers execute daily irrigation schedules to the irrigation hardware.

As the cost of water is expected to increase 80% over the next five years, the conservation efforts also mitigate the risk of increased utility budgets. Benefits include:

- Reduced irrigation consumption of 60%, or 91,000 gallons annually
- Reduced annual operating costs of nearly \$300,000
- ROI achievement in less than 10 months

Balfour Beatty Communities did not have additional funds for a water conservation system, but thanks to innovative thinking from project director Bob Mooney, “We tapped into local rebates to help pay for our ETwater System. It is critical we meet water reduction needs while maintaining our commitments and existing budgets with the Army partner.”

These water initiatives are in addition to xeriscaping efforts, or use of natural local landscaping and drainage techniques to reuse runoff, minimize watering requirements, and maintain natural surroundings—all sustainable steps toward our net zero water goals.

Balfour Beatty Communities is very proud to support the Army’s Net Zero initiative while mitigating risks, increasing energy security and saving precious natural resources. Beyond building green homes, “less means more” is our focus as our company strives towards a net zero future.

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