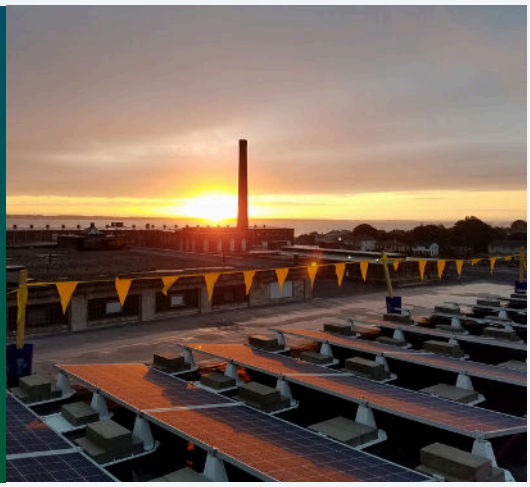
BD ELECTRICAL & SOLAR

HISTORIC WATERFRONT TEXTILE MILL

420 kWdc Commercial Rooftop Solar Installation



Client: Historic Waterfront Textile Mill Redevelopment

Location: New Bedford, Massachusetts

Completed: 2016

System Size: Approximately 420 kWdc / 333 kWac

Role: Full EPC Contractor

Equipment:
- Approximately 1,400 Qcells photovoltaic modules
- Ten SolarEdge 33.3 kW three-phase inverters
- EcoFoot2+ ballasted racking system

Electrical Infrastructure:
- Existing 2,000A service
- Main breaker reduction from 2,000A to 1,600A
- Legacy switchgear integration
- Obsolete breaker and rating plug procurement

Notable Challenges:
- Historic mill redevelopment
- Waterfront corrosion exposure
- Interior conduit routing for long-term durability
- High-reach crane operations with jib extension
- Portfolio net metering strategy

Project Overview

Completed in 2016, this approximately 420 kWdc rooftop solar project transformed the roof of a historic New England textile mill into a long-term energy asset. The facility, originally constructed for textile manufacturing and later converted into warehouse space, offered a unique opportunity to leverage a large, underutilized roof area while supporting the owner's broader energy strategy.

BD Electrical & Solar served as the Engineering, Procurement, and Construction (EPC) contractor, managing every phase of the project from system design and utility coordination through procurement, construction, commissioning, and interconnection.

The completed system consists of approximately 1,400 Qcells photovoltaic modules interconnected through ten SolarEdge 33.3 kW three-phase inverters and mounted on an EcoFoot2+ ballasted racking system.

The project was designed to support a behind-the-meter net metering strategy, allowing excess production to generate credits that could be allocated across multiple properties within the owner's portfolio.

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The Challenge

While the rooftop provided an ideal location for a large commercial solar installation, the project presented several significant engineering and construction challenges.

Legacy Electrical Infrastructure

The building was served by an original 2,000A switchboard that had been in operation for decades. Integrating a 333 kWac solar system into existing equipment required a detailed evaluation of the service and a creative interconnection strategy.

Rather than replacing the switchgear, BD developed a solution that preserved the existing infrastructure while maintaining compliance with utility and electrical code requirements. The project required sourcing a compatible backfeed breaker for obsolete equipment, locating a hard-to-find main breaker rating plug, and reducing the building's main breaker from 2,000A to 1,600A to create the capacity required for solar interconnection.

Successfully navigating these challenges avoided a costly switchgear replacement and allowed the owner to maximize the value of the project.

Material Handling and Logistics

The size of the building and the scale of the installation required extensive planning and coordination.

Approximately 1,400 solar modules, hundreds of ballast blocks, racking components, and electrical equipment had to be safely transported to the rooftop. Due to the building's height and reach requirements, the project utilized one of the tallest cranes available at the time, equipped with a jib extension capable of reaching the center sections of the roof.

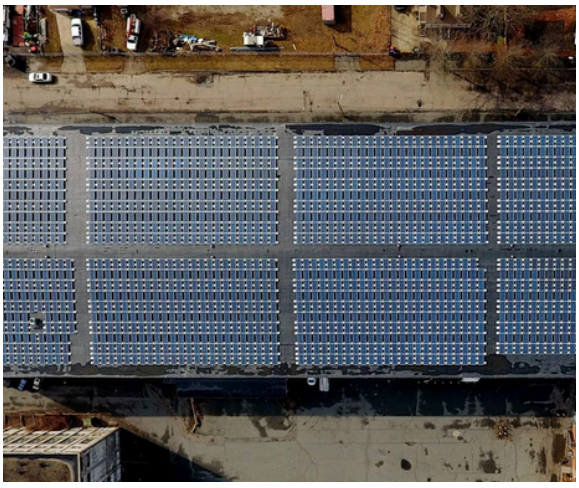
Careful material staging and rooftop logistics allowed the installation to proceed safely while maintaining productivity throughout construction.

Coastal Environment

Located directly on the waterfront, the facility is exposed to elevated moisture levels and corrosive salt air year-round.

To improve long-term reliability, BD routed all major conduit runs through the interior of the building rather than along the exterior walls. This approach protected conductors and raceways from the harsh marine environment, reduced future maintenance requirements, and enhanced the longevity of the electrical infrastructure.

The decision reflects a design philosophy that prioritizes lifecycle performance rather than simply minimizing installation costs.



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Engineering and Construction

As the project's EPC contractor, BD Electrical & Solar was responsible for:

- Solar system design and engineering coordination
- Utility interconnection management
- Equipment procurement and logistics
- Structural and electrical integration
- Rooftop racking and module installation
- Inverter and AC collection system installation
- Switchgear modifications and interconnection work
- Testing, commissioning, and system startup

A dedicated inverter wall was constructed within the facility to house ten SolarEdge 33.3 kW inverters. The installation featured organized raceway systems, centralized equipment placement, and seamless integration with the building's existing electrical distribution infrastructure.

Net Metering Strategy

The owner's objective extended beyond offsetting the electrical consumption of the host facility.
The system was developed as a behind-the-meter net metering asset, allowing excess solar production to generate credits that could be applied to other electric accounts owned by the customer. This strategy transformed an underutilized rooftop into a long-term operational asset capable of delivering value across multiple facilities.
By leveraging Massachusetts' net metering framework, the project provided both energy savings and portfolio-wide financial benefits.

The Results

The completed project successfully transformed a historic industrial building into a productive renewable energy asset while overcoming significant electrical, environmental, and logistical challenges.
More than a decade later, the project remains a strong example of the value created through thoughtful engineering, practical problem-solving, and high-quality construction.

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