



Playing with History

An all LED design scheme gives a dramatic makeover to a celebrated 19th century fort

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Photos: Galina Zbrizher



7-W LED downlights, one per column, illuminate the architecture of the wood buildings. Above, buildings surrounding an open courtyard present a unified appearance. The soft floodlighting of the white buildings creates a sharp contrast to the rhythmic pattern of the wood buildings.

Nestled alongside the Fraser River and mountain vistas, the national historic site of Fort Langley, British Columbia, remains an icon of a fur trade organization that was thriving a century-and-a-half ago. Built in 1827 as part of the Hudson's Bay Company's network of fur trading posts across what is now western Canada, the Fort wasn't designated as a national historic site by the Canadian government until 1923, and you can still see stacks of furs and other common articles of trade and commerce at the Fort today.

Fort Langley includes original and reconstructed buildings for guests to visit, including servant's quarters, a storehouse and a blacksmith shop. Although the Fort offered patrons an abundance of history, it lacked the excitement to invite them in. Part of the problem was uninspired site lighting. Langley was merely floodlit with poles, doing little to enhance the historical structures within. Realizing the condition of the site, and that public expectations change over time, Parks Canada commissioned Total Lighting Solutions, Vancouver, British Columbia, to relight Langley.

The goals of the project were to create a pleasant and dramatic evening environment suitable for public events, private functions and celebrations. "Parks Canada wanted to light the Fort appropriately, respecting its historical importance," says Galina Zbrizher, principal at Total Lighting Solutions. "Along with these aesthetic goals, they wanted easy maintainability, energy effectiveness and low operating costs."

Previously, Langley was illuminated by 10 400-W metal halide floods mounted on five 30-ft-high poles, four of which were located near the outside corners of a surrounding

palisade—an approximately 300-meter long wall made of heavy timber that wraps around the Fort as a defensive structure. The fifth pole was positioned at the exit gate. Inside the Fort, each of the building's doorways had a double lamp holder above it with halogen PAR 38 lamps. The connected load of the existing system was about 7kW. "The lighting acted more as a severe spotlight," says Zbrizher. "It wasn't emphasizing the structures in an attractive way."

Using a delicate hand, Zbrizher devised a lighting concept that touches each individual structure, as opposed to merely shining light from the distant corners of Langley. The design allows visitors to experience the

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Fort and its history as it was intended. An all LED solution proved to be the best approach. "The LEDs allowed the lighting to create a scene with a natural, harmonious feel appropriate to the historic site," says Zbrizher. "They are a great source that allows precise placement of the light where it's needed, thus allowing more control over composition while minimizing waste of energy." The entire project is lighted with only three fixture types, is photocell-controlled and consumes 2kW, 3626 kWh per year less than what was consumed by the original five poles lighting the Fort.

A NEW LOOK

The Fort consists of seven buildings, two bastions, a colonnade inside and the palisade surrounding the structures. Zbrizher

aimed to create a traditional scene and a pleasant feel appropriate to a historic facility. As you approach the entrance to the Fort, 15-W LED floodlights stanchion ground-mounted or strap-mounted to trees create a subtle glow and light the walkway leading to the bastions and palisade.

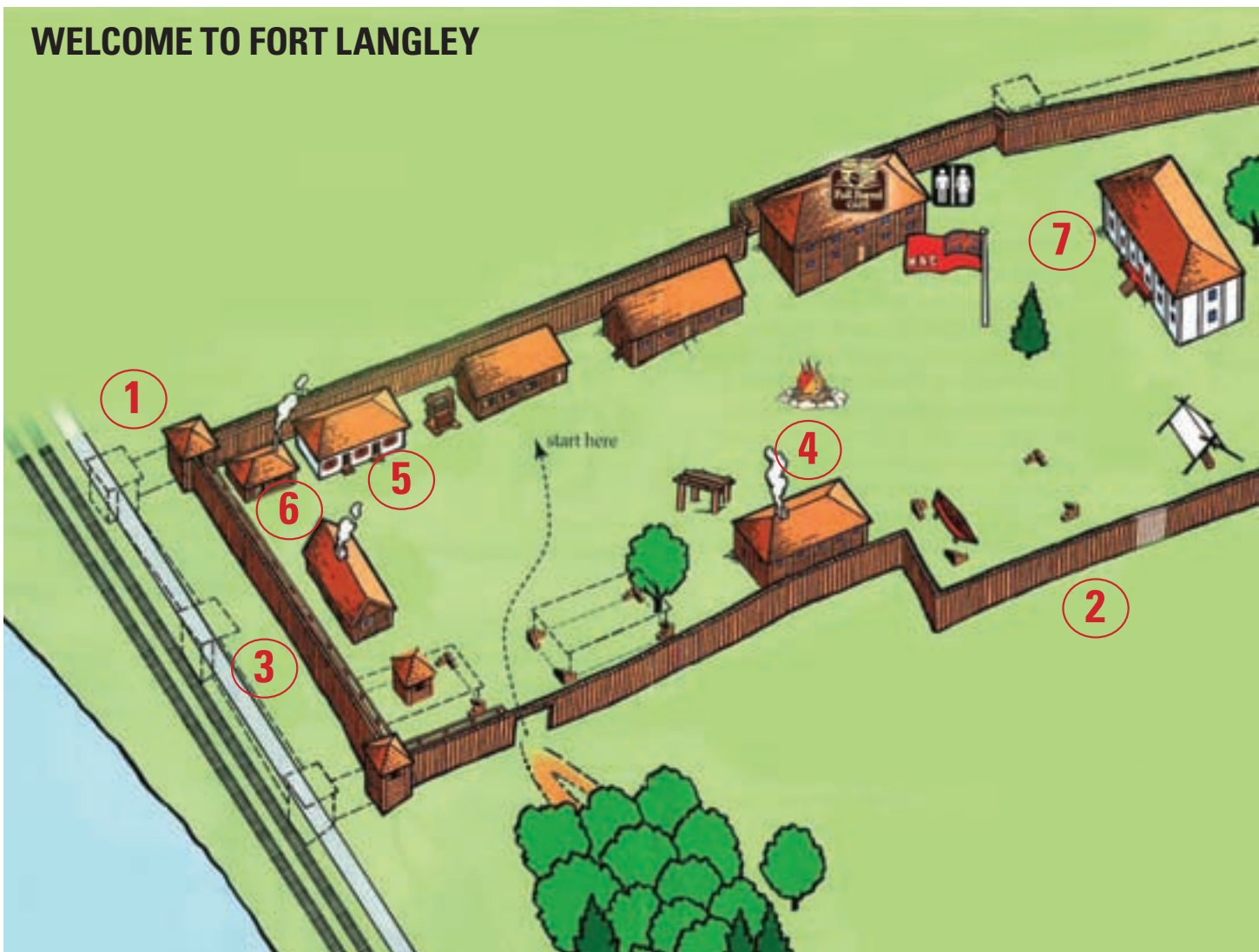
Bastions at the corners of the site were used as lookout stations and temporary housing. To enhance their stature, 7-W downlights, angle-mounted at the columns and tucked behind a shielding beam, were used to light the wall of the gallery, the path adjacent to the palisade. Bastions, entered from the gallery, use the same 7-W downlights for visual continuity. The gallery is

lighted with angle-mounted downlights tucked behind a shielding beam. The palisade is lighted with 24-W shielded 10 by 77 deg LED floodlights placed 70 ft on center outside the Fort. The lighted palisade anchors create a soft, yet prominent glow around Langley, establishing its rightful place as an important historic landmark.

Inside the Fort, the seven buildings surround an open courtyard. A key challenge was determining how to mount the fixtures to the buildings without damaging them. "All surface luminaires are unistrut-mounted, minimizing attachments to the historic structures," says Zbrizher. "We used super shallow luminaires to achieve better shielding."

The two timber buildings painted white are accented by a minimum number of shielded, stanchion-mounted 15-W LED

WELCOME TO FORT LANGLEY

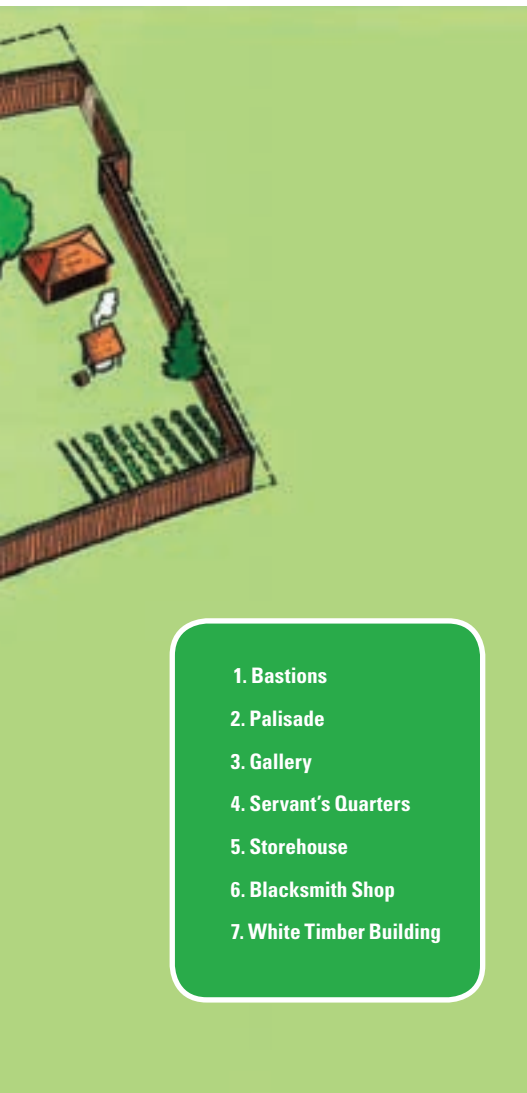


The gallery is lighted with angle-mounted downlights tucked behind a shielding beam.

floodlights, focused for uniformity and minimum spill light. The other five timber buildings are lighted with 7-W downlights mounted under the overhangs of each column. The lighting illuminates walkways, defines boundaries and emphasizes the architecture. The soft floodlighting of the white buildings creates planar elements in contrast to the sharp rhythmic pattern on the timber buildings. “The scene really has a natural look,” says Zbrizher.

Two 7-W LED downlights over the stairs leading to the second floor of the bastions

are occupancy-sensor controlled, and the walls receive the reflected light for visual comfort. All of the lighting is time clock and photocell-controlled. “We faced some difficult challenges with this project,” says Zbrizher. “Aside from the mounting restrictions, there was a short construction period and a low budget. Both were met with judicious use of luminaires, reducing the inventory to only three types of luminaires and by careful planning.” ■



- 1. Bastions
- 2. Palisade
- 3. Gallery
- 4. Servant's Quarters
- 5. Storehouse
- 6. Blacksmith Shop
- 7. White Timber Building



The white timber buildings are accented with shielded, stanchion-mounted 15-W LED floodlights.



The stairs leading to the top of the bastions use two 7-W LED downlights to create a soft glow.

METRICS THAT MATTER

Fort Langley
Energy Use: 13.5kw to 15kw
 (complies with ASHRAE/IESNA 90.1-2007)
Lamp Types: 1
Fixtures Types: 3

THE DESIGNER



Galina Zbrizher, IALD, LC, Member IES (1986), is the firm principal of Total Lighting Solutions, Vancouver, British Columbia.