

Steel Cladding Case Study CS-113-18

(Reprinted with permission from ArcelorMittal Dofasco's Steel Design, Fall 2018)

BIBLIOTHÈQUE MONIQUE-CORRIVEAU Québec, Québec

Galvalume Plus™ accentuates the new tent-like roof

The unpainted 30,000 shingles in "À la Canadienne" shingle pattern, manufactured from .45mm and .61mm (.0179" and .0239") Galvalume Plus™ help the tent-shaped roof of the church, now functioning as a public library, brilliantly reflect snow and sky and reach to the heavens. The shingles blur the distinction between snow, roof and sky, and complement the glass-walled extensions to the building.

The architects teamed-up to complete the Monique-Corriveau Library, which involved an addition to and conversion of the St-Denys-du-Plateau church in Québec City. Built in 1964, the church is a landmark example of modernism in the region, featuring a tent-like form and it served parishioners until it was closed in 2009. In the fall of 2013, after being restored and expanded, it reopened as the Monique-Corriveau public library.

The signature exterior feature of the original church, designed by the architect Lean-Marie-Roy, is its tent-like roof. Its guy-like rafters, exposed between the bottom edges of the roof and the ground, reinforce the illusion of a revival church tent.

The roof was originally covered with white and the later, with somber black asphalt shingles that visually weighed down the church and pinned it to the ground. As part of the restoration, the shingles were removed. A new roof which included a roof membrane, plywood, batten, rigid insulation and decking was put in its place. Then installers fastened the shingles manufactured from Galvalume Plus™ to the new roof.

Toiture Qualitoit Inc., now defunct, cut the 914mm x 2,438mm (36" x 96") sheets of Galvalume Plus™ into 914mm x 304.8mm (36" x 12") shingles, and embossed them with a pattern which Toiture Qualitoit Inc. called "À la canadienne". The 2,800m² (30,139 sq. ft.) worth of shingles, by virtue of their small size, hug the complex curves of the roof, but they also effectively sheath the 27.43m (90 ft.) high steeple at the roof's other end. The peak tops out at about 26.82m (88 ft.).

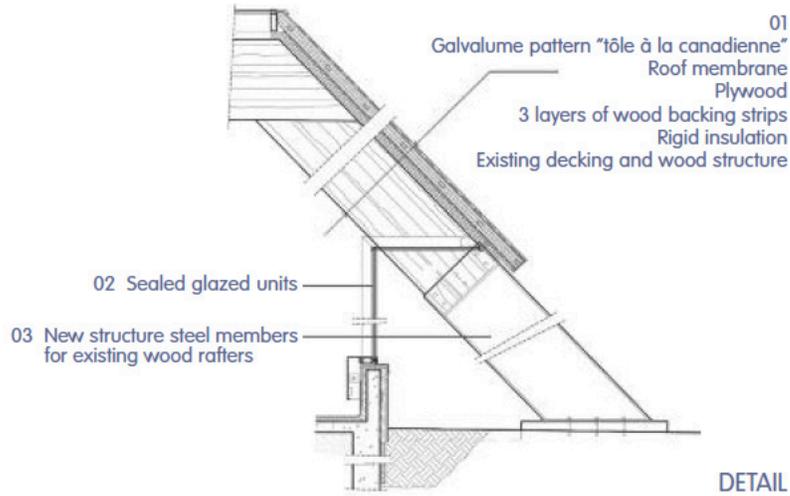
Qualitoit Inc. used Galvalume Plus™ in two thicknesses, .45mm (.0179") for the "flat" portion of the roof and .61mm (.0239") for some of the roof details, according to Denis Blanchet, who was president of Qualitoit Inc. when the conversion of the church was undertaken. He is currently the estimator and project administrator with Toiture 4 Saisons.



ArcelorMittal Dofasco's Galvalume Plus™ is an unpainted steel sheet product that starts with our Galvalume™ substrate and its highly corrosion resistant 55% aluminum – 45% zinc alloy hot dipped coating. A clear, organic resin coating is applied to both sides of the substrate, using sophisticated reverse roll coaters. Galvalume Plus offers strength, superior corrosion resistance and an attractive bright appearance that provides excellent heat reflectivity.



Both the spire and the roof were stripped and re-clad with Galvalume Plus™ corrosion resistant steel, arranged "à la Canadienne", in an overlapping 45-degree pattern. The attractive bright appearance and reflectivity of the roof in all weather conditions is one of the new library's most striking features.



To accentuate the fluidity of the volume, the solid soffit above the window beneath the tent like roof has been replaced by glass panels which allows each beam to visually slip seamlessly to its exterior steel base, a revelation of visual continuity.

DESIGN AND CONSTRUCTION TEAM:

CLIENT: Quebec City
 ARCHITECTURAL FIRMS: Dan Hanganu + Côté Leahy Cardas Architects
 PROJECT ARCHITECTS: Jacques Côté, Gilles Prud'homme
 GENERAL CONTRACTOR: Pomerleau Construction
 STRUCTURAL ENGINEER: BPR Expert Conseils
 ROOF CLADDING SUPPLIER: Ideal Roofing Company Limited
 ROOFING INSTALLER: Toiture Qualitoit Inc.
 PHOTOGRAPHY: Stéphane Groleau

The nave houses the library's public functions, with shelves, work and reading areas, while the addition contains the administration and community hall. This separation of functions means that the community hall can be kept open outside of library opening hours, while the spectacular and monumental volume of the nave is preserved, since the architectural concept was to transform the space into a model of spatial appropriation as a reinterpretation of the interior.



Converting and expanding such an eloquent example of modern Quebec architectural heritage was a very delicate operation which was approached with respect and humility. Saint-Denys-du-Plateau Church deserved the special consideration due to its unusual, dynamic volume, which evokes a huge tent inflated by the wind and anchored to the ground with tensioners.

