ArcelorMittal

steeldesign

Autumn 2018 | VOLUME 50 | NO. 2

steeldesign 50 years – ans construction métallique

steeldesign

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PROJECT SUBMISSIONS

Do you have a project using sheet steel that you would like to see in *Steel Design?* The editor welcomes submissions of completed buildings – commercial, institutional, industrial, recreational and residential – using components made from steel, including cladding, steel decking, light steel framing, steel roofing, steel doors, steel ceiling systems and steel building systems. Please send a description of the project, including photographs, to:

The Editor, *Steel Design*
1039 South Bay Road
Kilworthy, Ontario P0E 1G0
E-mail: davidfollis@vianet.ca

CHANGE OF ADDRESS, NEW SUBSCRIPTIONS

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PHOTOGRAPHER:
Stéphane Groleau 418-522-4454

CSSBI Canadian Sheet Steel Building Institute

worldsteel Association

National Coil Coating Association

wbcsd World Business Council for Sustainable Development

American Iron and Steel Institute

ArcelorMittal

transforming tomorrow

IN | THIS | ISSUE

50 Years of Continuing Service to the Architectural Construction industry

2018 is the 50th Anniversary issue of Steel Design and we thank readers for their continued readership and on-going support. ArcelorMittal Dofasco's objective has and continues to be, to publish examples of how steel is used in completed buildings incorporating steel cladding, pre-engineered steel building systems, cold formed steel sections, standing-seam roofing and light steel framing. Also, to help keep professionals in the building construction field appraised of new and improved steels that may assist them in their designs.

CORRECTION to Iqaluit Aquatic Centre – Steel Design, Spring 2018

Carscadden Stokes McDonald Architects Inc. worked in close collaboration with Stantec Architecture who were the lead architects for the project. CSMA were involved at an early stage in the building design. Their design responsibility primarily lay on the wet side of the facility: pool, natatorium, change rooms and the coordination of consultants related to those facilities – pool mechanical, pool basin structure and pool lighting.

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.

Continued on page 4

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.

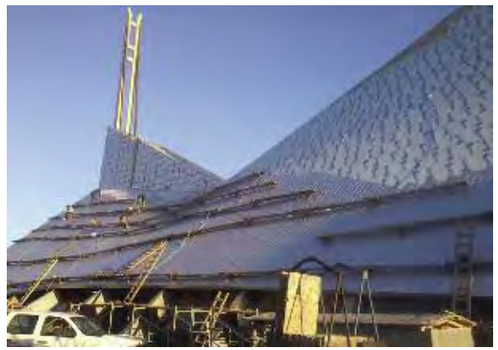
Continued from page 3

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.

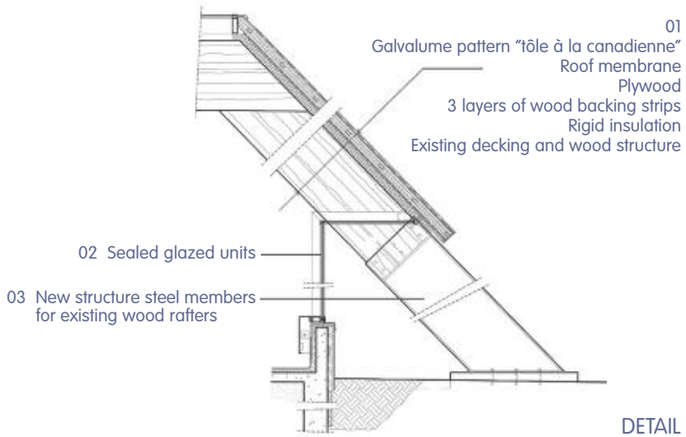
Toiture Qualitoit Inc., now defunct, cut the 914mm x 2,438mm (36" x 96") sheets of Galvalume Plus™ into 914mm x 304.8mm (36" x12") shingles, and embossed them with a pattern which Toiture Qualitoit Inc. called "À la canadienne".

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.



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.



DETAIL

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.

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.

DESIGN AND CONSTRUCTION TEAM

CLIENT: Quebec City

ARCHITECTURAL FIRMS:
Dan Hanganu + Côté Leahy Cardas Architects 418-694-0872

PROJECT ARCHITECTS: Jacques Côté, Gilles Prud'homme

GENERAL CONTRACTOR:
Pomerleau Construction 613-231-2426

STRUCTURAL ENGINEER: BPR Expert Conseils 418-723-8151

ROOF CLADDING SUPPLIER:
Ideal Roofing Company Limited 800-267- 0860

"TÔLE À LA CANADIENNE" METAL EMBOSSING:
Toiture Qualitoit Inc. 418-525-7853

ROOFING INSTALLER:
Toiture Qualitoit Inc. 418-525-7853

PHOTOGRAPHY: Stéphane Groleau 418-522-4454

Behlen's Design and Manufacturing Expertise –three Indoor Arenas in Georgia

Steel is so incredible for construction projects that it is known the world over for its versatility and durability. That is why, when it came time to build three indoor arenas in the Republic of Georgia, Behlen Industries was tapped to construct these steel-based structures for all to enjoy. "Two of them are the same size and the third is a little bit bigger," said Dave Fletcher, Director of International Sales for Behlen in an interview with Steel Design.

Fletcher went on to add that it was a long process to get the deal done in Georgia in order to build these structures but, by partnering with the right people the project became a reality. "One of the arenas is in Plavi the other one is in Gori, which is (interestingly) where Joseph Stalin was born and raised and the third one is in Batumi," said Fletcher. "The Plavi and Gori buildings are 50.8m x 112m x 120m. (166ft' x 326' x 32.8') and the one in Batumi is 52.5m x 112m x 12m (172' x 367' x 39')." The buildings are a "good size" and the main use for the arenas is team handball, which is the main sport here but, they are being built as multi-functional facilities."

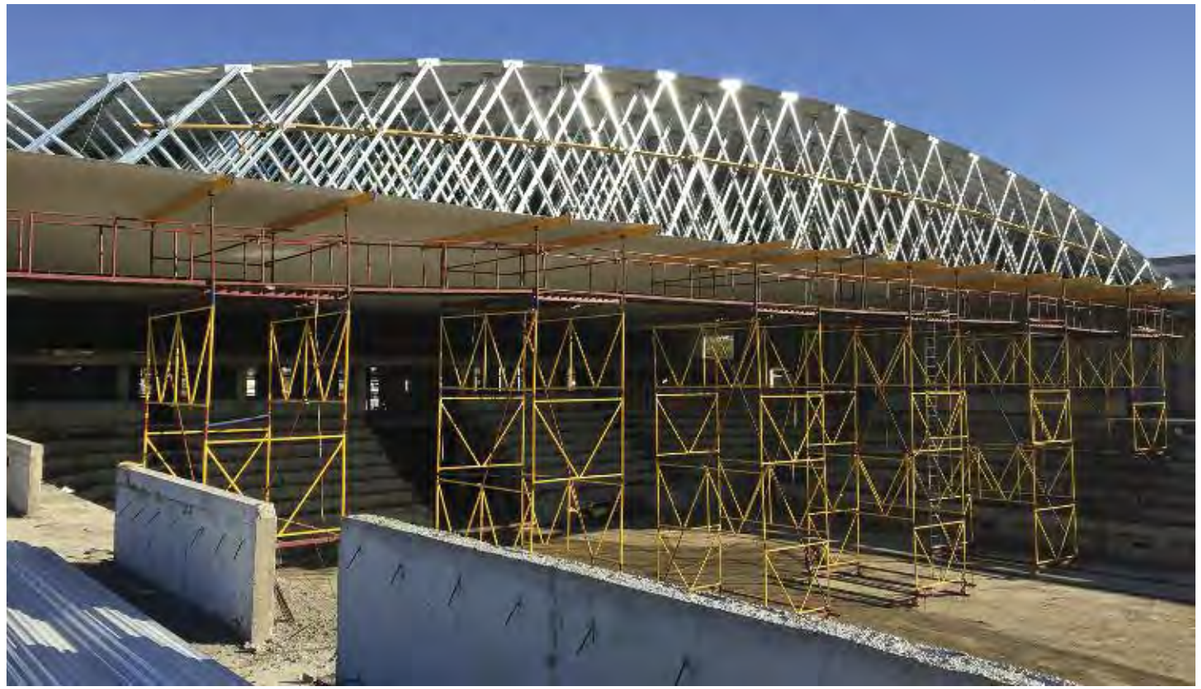
Batumi Arena

- 'Natural ceiling' means no exposed roof trusses, while providing a bright clean interior with high reflectivity, thus contributing to lower energy bills.
- The roof cavity can easily accommodate inexpensive, blown-in insulation with an R-Value up to R60 which offers excellent protection against extreme heat or cold.
- The ventilated attic helps deliver lower energy bills and eliminates the risk of wet, saturated insulation.
- The FRAMELESS wall system uniformly transfers the load to the foundation eliminating expensive, heavy foundations, piers and columns.
- The flexibility of the attic trusses can be designed for varying load by changing the gauges. This allows the roof system to accommodate heavy loading capacity roof equipment.

Continued on page 8

The Plavi and Gori arenas are the same size with the third arena a little bit bigger.

Roof Truss system provides a ventilated attic that lowers energy cost and eliminates the potential for wet insulation caused by condensation or leaks in light gauge roof cladding found in other building systems.

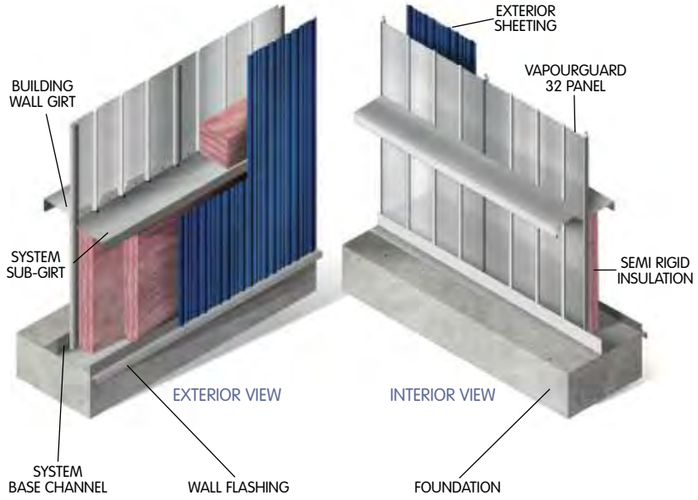


Continued from page 6

Fletcher pointed out that the country sought an international company to build the structures mainly because Georgia does not have companies within their borders that can handle this level of construction. He added that there were a number of companies vying for the job that Behlen ultimately succeeded in nabbing. "There was lots of competition we were up against, firms mainly out of Turkey and some out of China."

The arenas are frameless buildings with an entrance group that's a conventional type of structure. "It's a Behlen frameless building with a convex roof," said Fletcher. "We also have a double-panel roof, but this is a convex roof to the main structure and off of that is the entrance group with a typical conventional building attached."

As well, with each arena, Behlen had to take into account the vastly different climates the final structures would rest in. For example, "Plavi is in the mountains, so there is more snow, while Batumi is on the Black Sea which is more seismic."

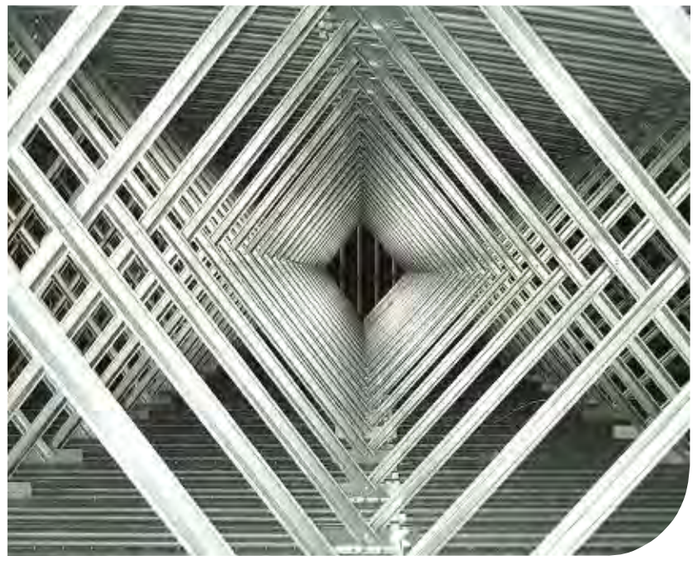


Thermalguard® Insulation System:
Incorporates all the benefits of a liner panel while providing the advantages of superior thermal efficiency, condensation control and noise reduction. The system comprises a steel liner, complete with sealant at all joints and laps to act as a vapour retarder. This liner gives the interior an attractive finish and is insulated from the exterior. The insulation cavity can be supplied to accommodate up to 300mm (12") of insulation.

Panel Diagram and Wall Panel:

- No heavy lifting equipment is required since there is no structural steel. Our wall system uniformly transfers the load to the foundation eliminating expensive heavy foundations, piers and piles that are required with other building methods.
- Footing channel manufactured from Galvalume coated steel, eliminating potential for corrosion.
- Wall system can incorporate windows, overhead doors, glass, wood, pre-cast masonry abs cladding materials to provide creative design flexibility.

Panel Detail:
41" wide panels are bolted together at 6" intervals on the seam and footing channel with 3/8" plated bolts.



Attic trusses can be designed for varying loads by changing the gauges. This allows the roof system to accommodate heavy loading capacity roof equipment.

GALVALUME PLUS:
ASTM A792 SS GRADE 50 Class 1 AZ165 ACRYLIC DRY

- Roof Panels:
  Behlen profile – CS45 panel, 4.5" corrugations, 18 gauge.
- Wall Panels:
  Behlen profile – CS75 panel, 4.5" corrugations, 16 gauge.

TELAVI/GORI:

- Roof Panels:
  Behlen profile – CS45 panel, 4.5" corrugations, 18 gauge.
- Wall Panels:
  Behlen profile – CS75 panel, 7.5" corrugations, 14/16 gauge.

Prefabricated Light Steel Framing and Prefab Panels save time

The reality behind Interbuild Limited's pre-fabricated lightweight cold formed steel wall, structural floor and roof framing systems is simplicity and efficiency.

Cold formed steel provided lower construction costs, reduced insurance costs, plus the added benefit of non-combustibility.

Interbuild's pre-fabricated steel wall panels, together with a faster construction time make these materials a no-brainer – a cost-effective alternative to traditional building. That is why Habitat For Humanity used this method for a recent project in Hamilton.

"The trigger for the project was the Habitat for Humanity Canadian Conference coming to Hamilton," said Tom Vert, Vice-President of Manufacturing for ArcelorMittal Dofasco. "We were trying to figure out what we could do differently for that conference and we brainstormed saying, it's Steeltown, why don't we build a steel house during the conference?"

Vert added that, for the project, he did some research on companies that do steel prefab housing. "In Ontario there are approximately three companies that do it," he said. "We went and did some research and found that Interbuild was the best fit for us. They had the product, they had the ability to do it and Ivano was kind enough to donate his time and expertise to do the design work as well as to the fabrication and installation."

The Ivano that Vert is referring to is Ivano Minatel, the owner of Interbuild Limited, a company which specializes in prefab Cold Formed Steel applications.

"We have both an engineering-based firm here and an installation company," said Minatel. "On the engineering

side, from an architectural drawing, we will design the LSF walls and roof systems, if that should be the case, as well as some of the floor systems."

Minatel then outlined the rest of the process, saying that everything is integrated together in Revit format so there is an actual model to work from. Interbuild then manufactures all the walls and ships everything out to the build site and they install it.

The frame of the building was constructed by Interbuild using state-of-the-art 3D modeling software to design and frame all the cold formed steel load bearing and non-load bearing walls.The prefabricated wall panels are assembled off site. The panels are then shipped to the site and installed, negating the need for space to build and store the materials on site. The floor system in this case for a single dwelling is CFS joists pre-panelized floor with plywood sheathing.

After construction of the structural frame was completed, traditional interior steel stud partition walls were installed to complete the interior framing.

The process is "at least as good as traditional construction and in certain applications, style and types of building, it is a much better application," he said. Regarding the Habitat for Humanity Hamilton project, the construction portion was done in 3 days for a two-floor structure. "It is a concrete slab with two floors and a roof," said Vert, who also has a lot of praise for the process. "If you try doing steel studs by stick-and-frame, it takes a long time. By doing it prefab in a warehouse, you just drop all the sections right in place. The first floor was done in just three hours."

Vert pointed out that "speed of installation and construction" are the main benefits. "You know that when you build it in a factory, you're not affected by any kind of weather."

By using prefabricated wall panels, pre-assembled roof trusses and selected floor systems, Interbuild can complete your project in a fraction of the time that it would take with wood/concrete frames.

Wall Panel, Floor and Roof layout drawings are used for coordination by the on site erection team. This process ensures that the shell structure is built accurately and on schedule.

In-house Engineers provide structural designs according to the International Building Code, United States Building Code, the National Building Code of Canada and Building Codes for the Caribbean.

The framing and prefabricated panels for the building were constructed by Interbuild Limited using state-of-the-art, efficient on-site panel erection assembly system, where the walls are framed off-site as panels.

The panels are then shipped to the site and installed, negating the need for space to build and store the materials on-site. As well, this allows services such as electrical wiring and plumbing to be expediently installed, providing time and cost benefits to your project.

COLD FORMED STEEL FRAMING SECTIONS:

- 600S162-43 Structural steel stud: 6" web, 1 5/8" flange, .043" thick
- 600S200-33 Structural steel stud: 6" web, 2" flange, .033 thick
- 600T125-43 6" web, 1.25" flange, .043" thick
- 362T125-54 3 5/8" web, 1.25" flange, .054" thick
- 362T125-68 3 5/8" web, 1.25" flange, .068" thick
- 362S162-68 Structural steel stud: 3 5/8" web, 1 5/8" flange, .068" thick
- 800S200-54 Structural steel stud: 8" web, 2" flange, .054" thick
- 1200T125-97 12" web, 1.25" flange, .097" thick
- 1200S200-97 Structural steel stud: 12" web, 2" flange, .097" thick

ROOF CLADDING:

- AR38 Panels: .61mm (.0239") pre-painted galvanized, coloured Graphite Grey QC 60035 in the Deep Mat paint system.

WALL CLADDING:

- Stratus vertical cladding hidden fastener panels: .45mm (.0179") pre-painted galvanized, coloured QC28730 Regent Grey in the Perspectra Series paint system.

ROOF DECK:

- .76mm (. 0299") pre-painted galvanized RD36 cladding Lap panels.

DESIGN AND CONSTRUCTION TEAM

OWNER: Habitat for Humanity

PREFABRICATED COLD FORMED STEEL WALL PANELS
STRUCTURAL FLOOR AND ROOF SYSTEM:
Interbuild Limited Prefab Systems 905-482-1919

ROOF AND WALL CLADDING SUPPLIER:
Agway Metals Inc. 1-800-268-2083

ROOF AND WALL CLADDING INSTALLER:
John Kenyon Ltd. 905-527-2721

COLD FORMED STEEL SUPPLIER:
Bailey Metals Products 1-800-668-2154

STEEL ROOF DECK SUPPLIER: Agway Metals Inc. 1-800-268-2083

PHOTOGRAPHER: JOE BUCCI 905-730-1985

Engineered CFS wall panels are prefabricated with exceptional precision in a controlled environment, versus unpredictable field conditions. This not only guarantees a higher degree of quality, but it also prevents unexpected schedule delays due to weather conditions and other factors.

Using engineered prefabricated CFS wall panels, pre-assembled roof trusses and selected floor systems Interbuild can complete your project in a fraction of the time needed for wood/concrete frames, resulting in faster on-site erection, minimal on-site wastage as well as savings in on-site storage space of raw materials.

The increased use of new techniques using steel helps reduce costs of the overall project and makes projects like this more marketable since steel is inherently a stable, engineered material with consistent properties and attributes.

Interior view showing prefabricated roof trusses, exterior pre-assembled wall panels and interior wall studs. The floor system is comprised of a CFS panel system with a reinforced concrete overlay.

Finishing off the exterior is Stratus vertical wall cladding and AR38 Panels on the roof.

Due to the deadline date for publishing *Steel Design* we will show the finished project in the Spring 2019 issue.

Corrugated AZM150 Galvalume® steel cladding – fit for a Harley!

With a steel exterior and towering presence, the unique Premont Harley-Davidson dealership on the outskirts of Quebec City, like the motorcycles themselves, is built to be admired. Opened for business in August 2012, the approximately 8,000m² (86,000 sq. ft.) building contains a showroom, boutique, repair shop, museum and even a restaurant.

Located at 1071 Boulevard Pierre-Bertrand, near the axis of Route 358 and Autoroute Félix-Leclerc (A40), the building is sheathed with 2,787m² (30,000 sq. ft.) of 0.61mm (.0239") 22.2mm (7/8") corrugated AZM150 Galvalume steel cladding, coloured QC2642 Silver.

Why Galvalume? "It was a question of economy. The choice of a metallic exterior facing is economical. Also, it gives the sides of the building an industrial look. It is a bit in that spirit. It creates a look seldom seen elsewhere," says Stefan Landry, architect with Les Consultants DMG. Landry also acknowledges that the cladding is a good fit with the Harley Davidsons themselves.

Adding to the look is approximately 1,858m² (20,000 sq. ft.) of AMICO architectural series expanded metal APEX style 01, installed over the exterior walls and all the way up the sides of the six-story tower.

The total effect is an iconic building which, just like the no-nonsense Harleys themselves, never fails to make an impression.

The wall system includes 152mm (5.98") by 20-gauge studs.

DESIGN AND CONSTRUCTION TEAM

OWNER: Prémont Harley-Davidson

ARCHITECT: DMG Architecture 418-682-5358
L'architecture d'Olivier Bourgeois and Régis Lechasseur
418-914-0590

GENERAL CONTRACTOR:
Les Constructions Gagnon 1980 Inc. 418-827-5227

STEEL STUD SYSTEM SUPPLIER:
Les Constructions Gagnon 1980 Inc. 418-827-5227

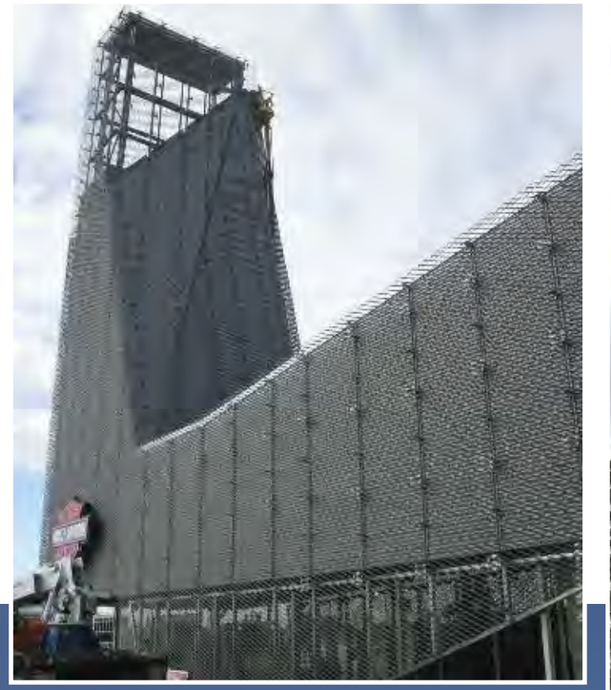
STEEL BUILDING SYSTEM SUPPLIER:
Tecno-Métal Inc. 418-682-0315

CLADDING SUPPLIER:
Ideal Roofing Company Limited 1-800-267-0860

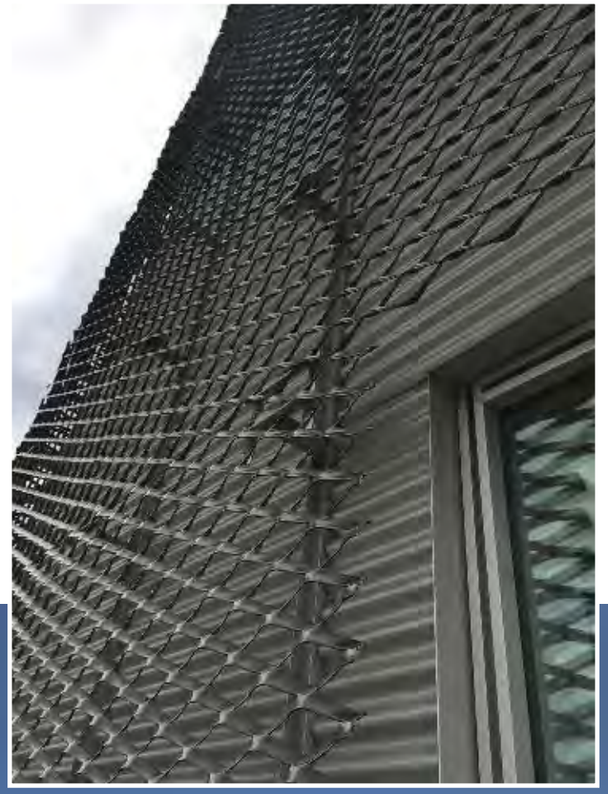
CLADDING INSTALLER:
Revêtements de la Capitale 418-688-6868

EXPANDED MESH SUPPLIER:
Revêtements de la Capitale 418-688-6868

North elevation showing the extensive use of 22.2mm (7/8") Galvalume AZM150 wall cladding.



Installing the Galvalume. The top of the tower is left open.



Expanded metal mesh was installed over the Galvalume.

LustreLok™ – the Advanced Acrylic Coating for Galvanized Steel

LustreLok™ is a thin, clear organic coating, applied to both sides of the galvanized steel as a final protective layer over the zinc coating. LustreLok provides an attractive appearance and enhances the traditional look of galvanized steel. The application of an organic coating eliminates the need for ArcelorMittal to apply conventional chemical treatment and vanishing oil.

This enhancement offers our customers and users the following benefits:

REDUCED COSTS:

- The product is designed to be roll formed dry, which eliminates the need for lubricants

Photo: Samco Machinery

Roll Forming – the product is designed to be roll formed dry, which eliminates the need for lubricants.

- Lower maintenance costs – reduced coating build-up and reduced tool wear will extend die life.
- Improved productivity – extended die life results in longer production runs.
- Enhanced scheduling flexibility – eliminates the need for die clean-up prior to roll forming prepainted metals or other unoiled products.

STORAGE, HANDLING AND INSTALLATION BENEFITS:

- Excellent resistance to staining during transit and field storage.
- Reduces smudging and streaks associated with rolling oils.
- Effectively resists fingerprinting and foot printing during installation.

IMPROVED SAFETY:

- Finished product is delivered to the job site dry, providing a safer, oil-free surface for workers.

STANDARD ZINC COATING WEIGHTS:

- Z001-Z600 • G01-G210

QUALITIES:

Commercial Steel – ASTM A653/A653M
Structural Steel – ASTM A653/A653M
Forming Steel – ASTM A653/A653M
HSLA – ASTM A653/A653M

SIZE AVAILABILITY:

- 0.25mm (.010") to 2.31mm (.091") thickness
- 1,537mm (60.5") maximum width

TYPICAL END USES:

- Roofing • Cladding and Siding • Ceiling Grid Systems
- Ducting • Electrical Boxes • Light Steel Framing
- Pools (above ground and in-ground) • Major Appliances
- Building Components and Accessories • Garage Doors
- Grain Bins, Truss Plates • Industrial Packaging.

LustreLok™ used in composite deck applications should be tested in accordance with CSSBI S2-2017 "Criteria for the Testing of Composite Slabs" or ANSI/SDI T-CD-2017 "Test Standard for Composite Steel Deck-Slabs".

LustreLok maintains the surface appearance of galvanized steel for a longer period of time than traditional mill-applied passivation coatings and chemical treatments.

Over time, the clear organic coating will disappear from weathering, leaving the natural appearance of the galvanized coating.

The organic resin does not discolour or yellow during exposure – as verified by ArcelorMittal during actual building inspections, outdoor exposure testing, as well as accelerated weathering and corrosion testing.

A slight darkening and gloss reduction can be expected, as with any metallic coating during weathering.

Gary W. Harris Canada Games Centre, Red Deer College

When the City of Red Deer approached Red Deer College about hosting the 2019 Canada Winter Games, it was a catalyst for finally realizing a dream. The college had been planning a new facility focused on health education, sport and recreation for years. The new Gary W. Harris Canada Games Centre will host five Canada Winter Games events, including Short Track Speed Skating, Figure Skating, Badminton, Wheel Chair Basketball and Squash.


Gary W. Harris Canada Games Centre in the foreground with the main campus to the rear.

"We envisioned a facility that would be learner-centred; support teaching, learning and the student experience; provide for sport and lifestyle fitness and be available for community use," says Doug Sharp, the college's Director of Capital Projects. "The facility would contribute to the economic, social and inclusive wellbeing of the central Alberta region and would become the legacy building for the 2019 Canada Winter Games." Site work for the facility began in the Fall of 2015, and the building was completed this Fall.

The exterior building materials relate contextually to the existing main campus, continuing a similar look and feel to make the Centre for Health, Wellness and Sport part of one campus.

The centre, a design/build project, includes an arena that can convert from an Olympic to a hybrid-size rink, which will accommodate trade shows and dry land events, skating, minor sport usage, Hockey Alberta usage, and will be home ice for the Red Deer College Kings and Queens hockey teams. Also included is a performance gymnasium that can be converted to two full-sized gymnasiums, with space for basketball, volleyball and badminton, as well as major events such as Red Deer College's, Convocation and other presentations. A second-level running track, looks onto the gymnasium courts below. Additionally, teaching and learning spaces, equipped with treatment and rehabilitation rooms, movement and sport studios, an anatomy lab, offices, and classrooms, will support post-secondary programming.

Since the main entrance of the Centre faces the northwest, it welcomes those accessing the college from 32nd Street, the north pathways systems, the parking lots, and sidewalks. Lead architect Enzo Vicenzino from Stantec Architecture Ltd envisioned a Great Hall with a dynamic roof that projects toward the city, creating a symbol of the connection between the college, community to the North and Waskasoo Creek.

The structural-framing system developed for the facility took into consideration the necessary functionality and flexibility,

Continued on page 18

DESIGN AND CONSTRUCTION TEAM

OWNER: Red Deer College

PRIME ARCHITECT: Stantec Architecture Ltd 780-917-7000

ASSOCIATE ARCHITECT: HCMA Architecture + Design 604-732-6620

STRUCTURAL ENGINEER: Stantec Consulting Ltd 780-917-7000

GENERAL CONTRACTOR: JV between Clark Builders 780-395-3300 and Scott Builders 403-754-5017

STRUCTURAL STEEL SUPPLIER: Collins Industries 780-440-1414

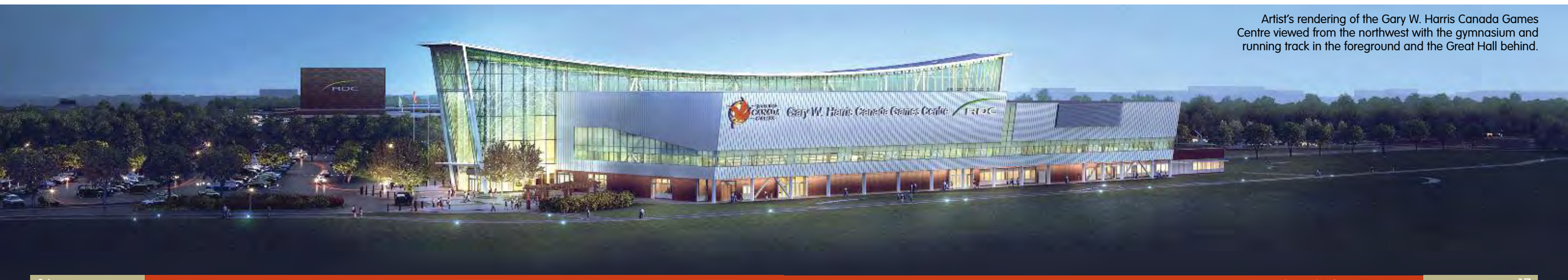
WALL CLADDING, INSULATED STEEL PANELS AND STEEL DECK SUPPLIER: Vicwest 780-454-4477

LIGHT STEEL FRAMING SUPPLIER: Bailey Metal Products 780-462-5757
Through – Foundation Building Materials 403-255-8157
and – Ajax Drywall 2000 Ltd 780-447-1029

PHOTOGRAPHER: Tammy Schick 403-342-3400


Interior of classroom prior to finishing.


North Entrance to Great Hall and Gym.



Artist's rendering of the Gary W. Harris Canada Games Centre viewed from the northwest with the gymnasium and running track in the foreground and the Great Hall behind.

WIND BEARING COLD FORMED STEEL SECTIONS

600S162-33 152.4mm (6") Structural Steel Stud w/41.3mm (1 5/8") Flange 33mil

600S162-43 152.4mm (6") Structural Steel Stud w/41.4mm (1-5/8") Flange 43mil

NON-LOAD BEARING COLD FORMED STEEL SECTIONS

362S125-PLAT25 92mm (3 5/8") Platinum Plus Steel Framing

600S125-PLAT25 152.4mm (6") Platinum Plus Steel Framing

362S125-33 92mm (3 5/8") Non-Load Bearing Steel Stud w/ 31.75mm (1 1/4") Flange 33mil

600S125-33 152.4mm (6") Non-Load Bearing Steel Stud w/ 31.75mm (1 1/4") Flange 33mil

Unfinished arena showing extensive use of load bearing cold formed steel sections on exterior walls.

COLD FORMED STEEL SECTIONS

600S162-43 Structural steel stud – 6" web, 1.625" flange, .043" thick

600S200-33 Structural steel stud – 6" web, 2" flange, .033 thick

600T125-43 – 6" web with 1.25" flange, .043" thick

362T125-54 – 3-5/8" web with 1.25" flange, .054" thick

362T125-68 – 3-5/8" web with 1.25" flange, .068" thick

362S162-68 Structural steel stud – 3.625" web, 1.625" flange, .068" thick

800S200-54 Structural steel stud – 8" web, 2" flange, .054" thick

1200T125-97 – 12" web with 1.25" flange and .097" thick

1200S200-97 Structural steel stud – 12" web, 2" flange, .097" thick

STEEL DECK:

0.76mm (.0299") ZF75 Galvanneal

WALL CLADDING – INSULATED FOAM STEEL PANELS:

- Keynote M2-CF42 Profile, 10.66mm W x 76.2mm (42" W x 3" thick)
  EXTERIOR: Fluted 45mm (.0179") coloured Regal Gray, Kynar paint system, embossed.
  INTERIOR: Mesa 45mm (.0179") coloured Igloo White, Polyster paint system, embossed.
- Keynote M3 – CF 7.2 Rib, 127mm (5") thickness
  EXTERIOR: Insul-Rib 45mm (.0179") coloured Sandstone, Kynar paint system, embossed
  INTERIOR: 45mm (.0179") coloured Igloo White, Polyster paint system, embossed.
- Keynote M4 – CF36A, 914mm x 76.2mm (36" W x 3" thick)
  EXTERIOR: Architectural Flat 45mm (.0179") coloured Regal Gray, Kynar paint system, embossed.
  INTERIOR: Light Mesa 45mm (.0179") coloured Igloo White, Polyster paint system, embossed.

STRUCTURAL STEEL:

- Columns and ASTM Grade. ASTM A572 G50/A992/ CSA 350W
- Beams and ASTM Grade. CSA G40.21-13 50W Class C

Continued from page 17

in order to enable future renovations and alterations. This included minimizing the use of load-bearing walls throughout, standardizing the bay sizes for each of the major components and clear spanning the roof structure, wherever feasible, to accommodate column-free space, such as in the second floor in the fitness area.

To address column-free, long-span roof structures in the gymnasium and ice-arena areas and to allow for more natural light into the building, structural steel was the most suitable choice. "Given the geometry of the building design, there are enough repetition or similar grids and spans to standardize and modularize the design of steel trusses, joists, beams and columns for cost effectiveness and production efficiencies," Vicenzino explains. "Fabricated steel components can be transported to the site and installed even during winter with much less heating and hoarding provisions. Structural-steel buildings weigh less and require a more economical and smaller foundation system for support."

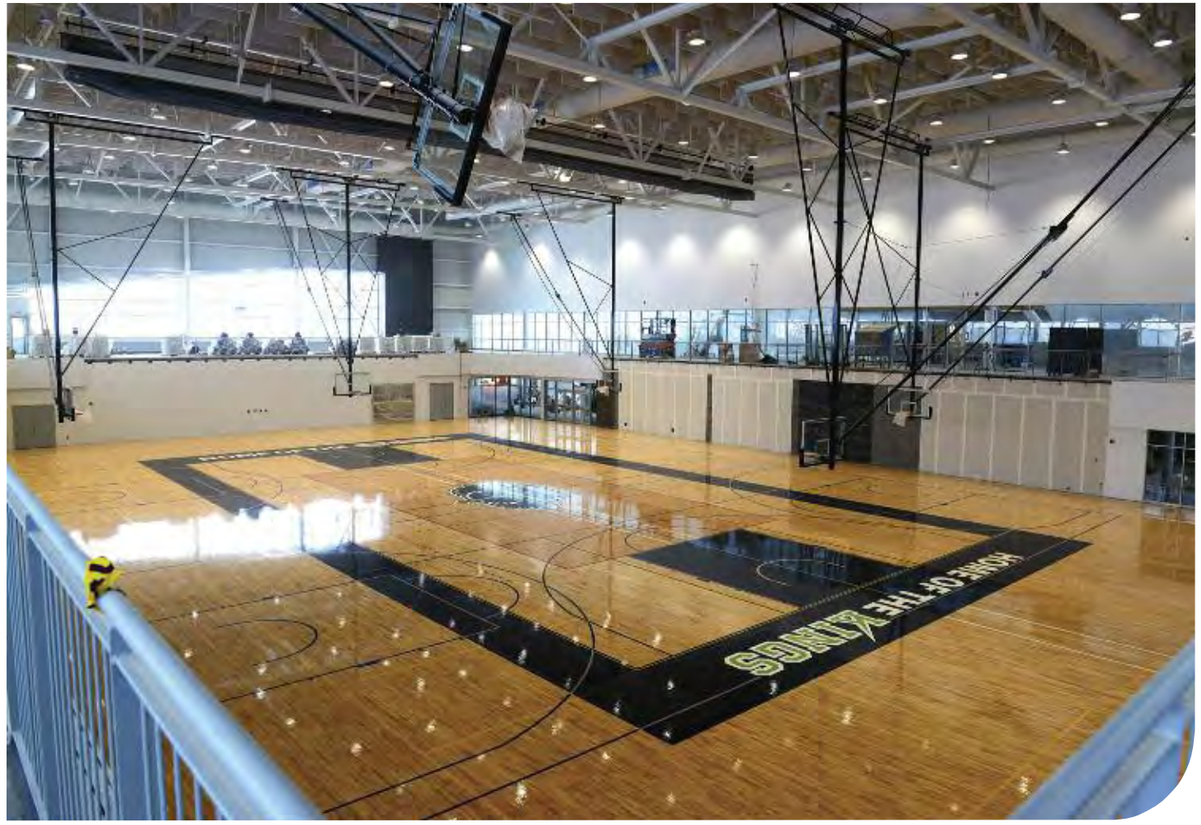
Where the exterior wall consists of a curtain-wall system, structural-steel girders were utilized. Where conventional exterior-wall construction with masonry or cladding veneer was detailed, backup walls using light steel studs designed as wind-bearing walls were utilized. Pre-painted steel cladding is used to allude to a lighter cap to the solid brick base. In the sun, this cladding reflects light and captures the eye of those approaching the Centre or passing by on QEII.

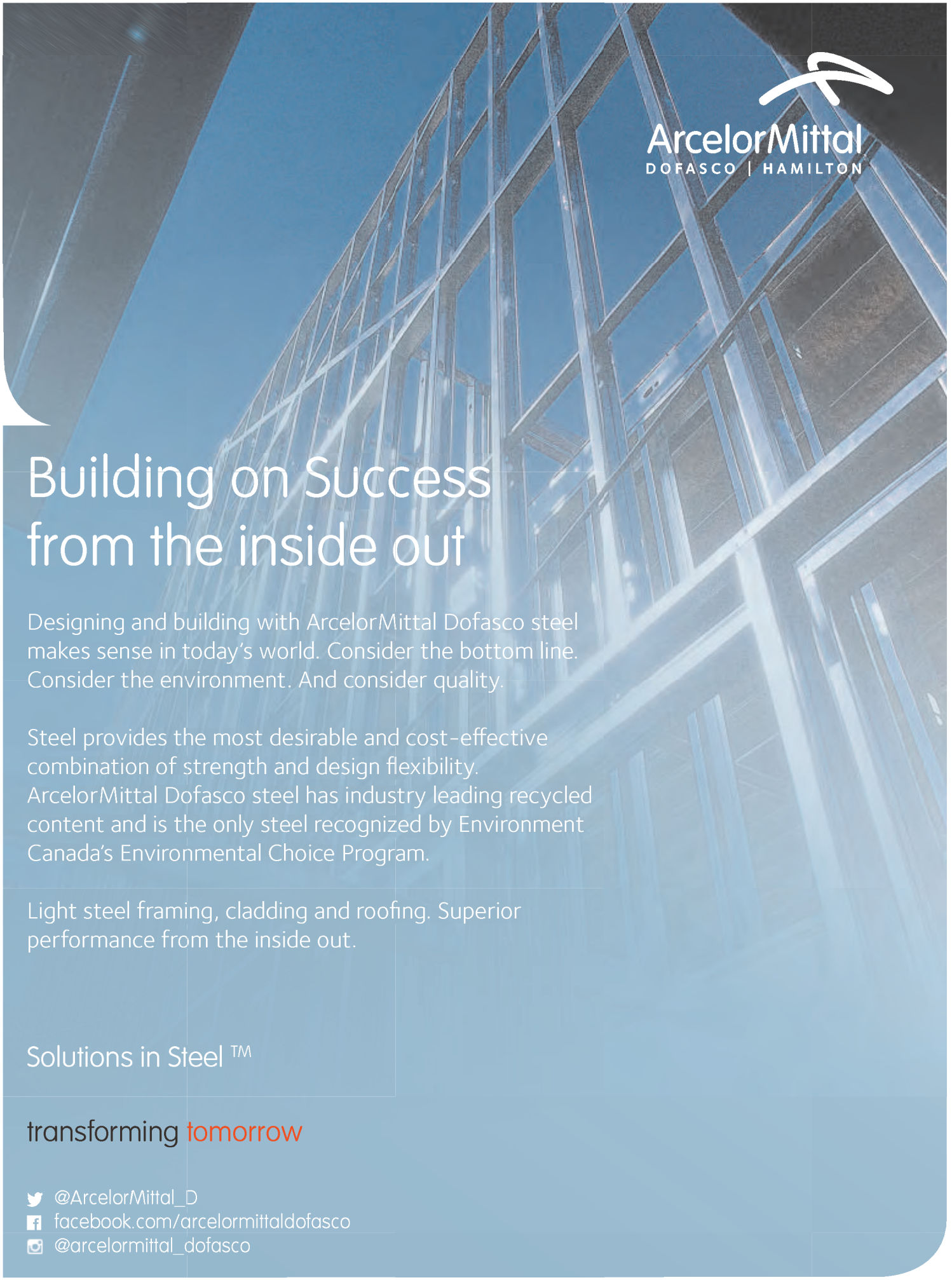
Vicenzino adds that steel was used for its strength and safety. "Steel is stronger than any other conventional material such as concrete, wood and masonry, therefore members sizes are much smaller. Also, steel is non-combustible for compliance with certain building code requirements."

The project has already enjoyed a positive response from the community, says Sharp. "We have hosted many tours during construction and the general feedback has been very positive. The building will have a huge impact on student life and will be a major addition to the community as a whole."

Interior arena, west facing – extensive use of cold formed sections for exterior walls.

Finished Gymnasium.





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