MULTI-STORY DESIGN-BUILD SOLUTIONS
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Introduction to Canam

Canam, a business unit of Canam Group Inc., specializes in the fabrication of steel joists, joist girders and steel deck. The business unit also designs, fabricates and installs the building system. The safer, faster and greener BuildMaster® approach completes Canam’s range of customized solutions and services.

BuildMaster® Design-Build Approach

BuildMaster® is a completely new and innovative approach to planning, constructing and operating a new building.

BuildMaster® combines Canam’s extensive experience in the construction business with the latest advances in technology to deliver a level of management and connectivity never before possible across the entire construction spectrum. There are significant benefits for erectors, fabricators, general contractors, architects, engineers and owners since BuildMaster® is designed to make the entire building process safer, faster and greener.

Canam has traditionally offered the Murox system for light industrial, commercial and institutional buildings. Today, Canam has developed a new application for Murox panels: multi-story buildings (3 to 6 stories).

Canam has successfully designed, fabricated and erected 2 multi-story buildings in 2010, one with 3 floors and a second with 4 floors with each using load-bearing Murox panels and the BuildMaster® approach.

The following pages describe the various advantages of building multi-story buildings with Canam products.
Steel Framing and Decking

Using the BuildMaster® approach, Canam will complete the design, fabrication and erection of the structural steel, steel joists and deck as shown for the multi-story buildings in Figures 1 to 6. This approach will allow the owner to:

- attain a more aggressive schedule for the fabrication and installation of the steel structure which will shorten the overall construction process and allow for earlier occupancy.
- have the BuildMaster® “insurance policy” – guaranteed start and completion dates.

Canam can also work as a partner with the engineer and architect of the project by assisting in the design process.

![FIGURE 1 | Domaine Beauceville – Perspective](image)

![FIGURE 2 | Heritage Gardens – Elevation](image)
Load-Bearing Murox Panel – Exterior Finish Shop-Installed

In addition to the structural steel, Canam can also incorporate the Murox load-bearing panel system for the exterior wall envelope. The Murox panels:

- are designed, delivered and erected by the Canam team using the BuildMaster® approach.
- can have a variety of exterior and interior wall finishes shop-installed.
- can provide framed openings with windows and doors also shop-installed.

In addition to the benefits of the Canam design-build solution, Murox panels provide additional benefits of:

- a rapidly enclosed, insulated, exterior envelope allowing subsequent trades to start earlier in the building interior – fast tracking the construction process.
- finishes walls in place at the same time as the steel structure.
- installation time savings of at least 50% on the structure and exterior envelope.

**FIGURE 3 |** Processing Centre – Elevation
A 4-story building using Murox load-bearing panels. The design-build contractor elected to install the windows on site.
FIGURE 4 | Processing Centre – Perspective

Horizontal corrugated finishes, vertical reveals and windows are all shop-installed. Orange coloured corners were built on site by the design-build contractor.

FIGURE 5 | Processing Centre – Detail

A variety of shop-installed finishes were used on the building to create a unique look and optimize efficiency of the pre-fabrication.

FIGURE 6 | Processing Centre – Typical floor plan

Each load-bearing Murox panel, identified with a number inside a triangle, is shipped in erection sequence. No columns on the floor periphery maximizes open space on exterior walls.
Load-Bearing Murox Panel - Exterior Finish Field Applied

The Murox panels can also be delivered without any finishes shop-installed. This option allows the client to install special finishes on site that cannot be pre-installed in the Canam plant.

The benefits of the Canam design-build solution with load-bearing Murox panels allows for:

- the possibility of high end architectural finishes installed on site.
- impressive savings on total structure and exterior envelope installation times.

**FIGURE 7** | SIQ Building – Vertical Wall
Section construction detail with load-bearing Murox panels showing intermediate floor. Channels attached at every panel joint can support intermediate floors.

**FIGURE 8** | SIQ Building – Elevation
Each load-bearing Murox panel, identified with a number inside a triangle, is shipped in erection sequence. Windows are shop-installed in Canam plant.
FIGURE 9 | SIQ Building – Perspective
Load-bearing Murox panels finished on air barrier ready to receive aluminum finish on site by design-build contractor.

FIGURE 10 | SIQ Building – Lobby Area
The Murox structural columns boxed in plywood at ground floor level.

FIGURE 11 | SIQ Building – Elevation
On-site, a variety of high-end finishes installed, were used on the building to create a unique look that does not necessarily show the modularity of the load-bearing Murox panels.
Superimposed Load-Bearing Murox Panel

Another solution to achieve a multi-story building is to stack the load bearing Murox panels. Two panels can be stacked one on top of the other to create a multi-story building. Up to a 4-story building has been constructed this way to date.

This solution can be used in a situation where the owner requires the possibility of a vertical future expansion. The bottom panels and structural steel need to be plumbed and the deck welded on each lower floor before starting the installation of the upper components.

Refer to Figure 14 for the wall section of a 2-story building constructed in 2004 where a second level of load bearing panels was added in 2007 to provide the 3rd and 4th stories for a total height of 54'-3”. Since no bracing is used in the Murox panels in this configuration, conventional bracing is needed for lateral stability.

FIGURE 12 | Desjardins Bank
The building as completed in 2004, with two stories of load bearing Murox panels.

FIGURE 13 | Desjardins Bank
The 3rd and 4th floors added in 2007.
FIGURE 14 | Desjardins Bank – Vertical Wall Section
The lower (1st and 2nd floors) Murox panel and upper (3rd and 4th floors) Murox panel are connected without additional structural components at the joint (as highlighted). The top of the lower panel, which was the parapet in the original 2-story building, is now used as the sill of the window of the upper panel.

What’s in it for You?
Selecting the appropriate solution for your multi-story office project will assure,
- guaranteed adherence to the budget and schedule.
- earlier revenue generation from your investment.
- reduced financing costs through fast tracking of the construction process.

Contact your local Canam representative today to find out how we can help you.