



# Hambro Modular Parking System

St. Lambert, Quebec



A gleaming utilitarian marvel, the Hambro Modular Parking System is an ingenious construction with wide-reaching market implications. The portable parking structure comprised of a parking deck and ramp, rails, and fencing elevated on support columns, all assembled over an existing parking lot to increase the number of usable parking spaces.

The moveable structure offers the flexibility to resolve issues of limited parking space, typically encountered in urban areas. The parking system can be used to alleviate pressure on popular lots, or serve as a temporary solution when part of a lot is taken out of commission for construction purposes, fairs and markets, or other temporary events that reduce available parking. Potential markets that could benefit from such a structure include airports, train stations, hospitals, shopping malls, university campuses, and more.

Because the components of the structure are prefabricated and partially pre-assembled, field installation is quick and economical, taking only four to six days. The construction is carried out on an already-paved surface, thus eliminating the need for a foundation, and the entire structure can be disassembled, then reassembled at a new location and even reconfigured. When the structure is no longer needed, the area previously occupied by the modular system will be returned to its original state, undamaged.

The entire structure has been hot-dip galvanized, top-to-bottom, from the deck panels and railings, to the fencing, and supports. It was a logical choice to utilize galvanized steel throughout the system, as these modules must be able to stand strong and corrosion free against the abuses of steady traffic and varied environments. The abrasion resistance of galvanized steel makes it an ideal construction material for this project, because the portable nature of the structure means increased exposure to rough handling during transport and assembly. A tough, durable corrosion protection system was necessary to preserve the attractive metallic aesthetic of the parking structure, which will be visible in close proximity due to the intended public use.

Hot-dip galvanizing protects steel from the inside out, utilizing both tough barrier protection and intrinsic cathodic protection to defend against corrosion. The durable barrier protection will guard the steel from constant exposure to sunlight, moisture, road salts, and grit carried in by tires. Because the zinc coating created during the hot-dip galvanizing process is harder than the substrate steel, it creates a tough-to-penetrate barrier that will defend the steel against corrosive moisture and vehicle pollutants. →

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The metallurgical reaction that occurs during the galvanizing process also protects the steel cathodically – meaning nicks and scratches (up to ¼ inch in diameter) exposing the substrate steel will be protected from corrosion by the sacrificial properties of the surrounding zinc. This makes galvanized steel particularly well-suited for the potentially rough garage environment, where vehicles may bump or scratch exposed beams.

Not only does the galvanized steel provide superior protection from the inevitable exposure to corrosive elements and superficial damage, it does while remaining maintenance-free for 75 years or more. This means none of the direct or indirect costs of routine maintenance will be incurred, as the structure will not need to be taken out of commission.

This aspect also lends itself to the sustainable nature of the portable structure. Because the system is to be used and reused time and time again, the structure should also utilize the most sustainable corrosion protection system on the market. Utilizing 100% natural, abundant, and recyclable zinc and steel, hot-dip galvanizing remains maintenance-free over the life of the project. This means no wasted energy or materials on continuous upkeep, which supports the earth-friendly nature of this parking solution.

For this specific system, the entire 300-plus ton project was completed in only one month, from the design assessment and the galvanizing of the pieces, to the last shipment to the site. This

quick turnover is characteristic of the galvanizing process, which is factory-controlled and can be conducted regardless of weather or environment.

The fast track planning and execution of this project called for close and effective cooperation between the engineers and the galvanizer to quickly come up with manufactured components that achieved the high aesthetic quality necessary, were free from distortion, while remaining cost-effective for both the fabricator and galvanizer.

Two completed modules were leased to the city of St. Lambert, Quebec to accommodate business owners and shoppers during the reconstruction of a busy thoroughfare in the heart of the city. The new, portable two-story parking facilities provide the municipality with a total of 70 additional parking spaces.

The concept of the portable parking system offers new and exciting market potential highlighting the inherent qualities of galvanizing, including durability, abrasion resistance, and sustainability. The aging urban infrastructure of our inner cities promises many more applications for this system, and the use of hot-dip galvanized steel guarantees the structures will stand strong and corrosion-free, from location to location, for generations to come. ♿

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