

citizenM Hotel

Lindapter Hollo-Bolts provided a solution to the modular construction of this hotel in Seattle.

Project Background

Market: Modular & Off-Site Construction
Product: Hollo-Bolt® by Lindapter®
Quantity: 10,600
Project Value: \$50 million
Project Team: Mortenson Construction, Gensler, Arup and Polcom



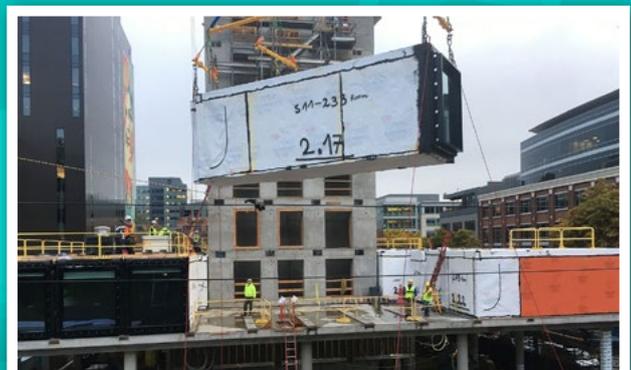
Modular buildings, which are manufactured off-site in sections before being assembled in the field, are gaining popularity as an affordable and sustainable solution. This design and delivery method has been adopted by Netherlands-based hotel operator citizenM, who have brought their steel-framed modular hotels to New York and Los Angeles.

Polcom Group, specialist off-site modular manufacturers, were appointed to build 228 modular units for the hotel. They identified that they would need to modify their normal production and assembly process to meet US building practices and standards.

Due to time constraints the traditional method of connecting units together in the field by drilling and bolting was not chosen, whilst hot welding risked damaging the critical waterproof membrane that protects each module.



No drilling or welding was required in the field



Each module unit weighed 40,000lbs

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Design Solution

Special steel structural shear plates were designed and added to the steel enclosures of the modules during production so that they could be connected to each other with Lindapter Hollo-Bolts during assembly in the field.

Hollo-Bolt was specified for its high strength capacity and ability to be installed from one side of the Hollow Structural Section (HSS). To meet the required standards, manufacturing took place under the supervision of inspectors, including inspectors from the City of Seattle.



Each module was then wrapped in a protective air and water barrier, pressurized to keep windows in place and shipped on a private vessel from Europe, unloading at the Port of Everett in Seattle ready to be assembled.

Installation

Mortenson Construction were the appointed main contractor for the construction of this seven-story, 264-room hotel. Each 40,000lb modular unit was lifted by crane and carefully stacked on top of each other.



Hexagonal head and countersunk Hollo-Bolts were then used to connect through the structural shear plates to the HSS of each module.

Installation was quick and easy. Each bolt was inserted into pre-drilled holes and tightened with a calibrated torque wrench to the recommended tightening torque to provide the necessary clamping force.

[Click here](#) to watch the installation video...



Result

Hollo-Bolts provided a weld free connection that was quick and easy to install without damaging the waterproof membranes.



This allowed the client to improve their modular construction method which provided many advantages over traditional methods, including shorter construction schedules, consistent quality control and reduced disruption in the field.

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It's about 4 months faster to do modular versus conventional, what would typically take about 17 months on a more traditional hotel, can be done in about 13 months when building modular.

Mortenson Construction Project Manager Lauren Boedeker

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Hollo-Bolt Benefits

- ✓ Fast and convenient installation from one side
- ✓ No specialist equipment required to install
- ✓ No hot work permits or area closures required
- ✓ Unique high clamping force design



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