Case Study

Precast Insulated Wall Panels

Ramirent Kungsängen Sweden

AIT COMPOSITES
A DIVISION OF BASALT INTERNATIONAL INC.

Project Profile

Category:
Commercial Building

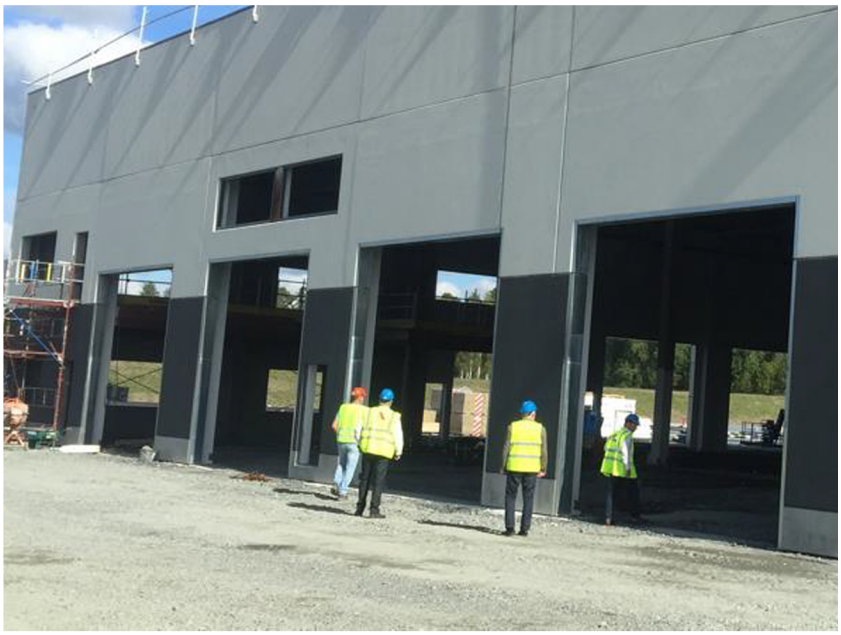
Owner & Developer:
Kilenkrysset

Structural Engineer:
AFG Consulting Engineers

General Contractor:
Kilenkrysset

Precaster:
Kilenkrysset

Completion:
2015



Technical Details

Precast Elements:

Precast Insulated Wall Panels
1 ½" (40mm) outer concrete layer
Stucco-style finish, painted black or white
2 ¼" (60mm) inner concrete layer

Concrete Type:

7250 psi (C50/60)

Composite reinforcement solution:

Basalt MiniBars™ 9.6lbs/yd3
(43mm @ 5.7 Kg/m3)

Composite bars strengthening at corners in window and door openings

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Project Description:

Kilenkrysset wanted to build a 2-story front office and 3-story warehouse with wall panels that were 50% less weight and a thinner profile than standard precast panels. This allows an increase in the building internal footprint and rentable space. The lighter panels reduce the cost of transportation and smaller cranes to improve efficiency on site and simplify installation. All the Welded Wire Reinforcing (WWR) mesh was eliminated by using Basalt MiniBars™, a corrosion-free, high performance structural FRP composite macrofiber. This reduced the need for concrete cover resulting in panels that were 50% lighter. The outer layer was reduced from 3" (80mm) to 1.5" (40mm). The inner layer went from 4.75" (120mm) to 2.25" (60mm). FRP composite rebars were used in the stress concentration points at the corners of windows and door openings. Note that panels were non-prestressed, horizontal one-story high from column to column, and stacked as opposed to the vertically oriented prestressed panels.

AIT Composites

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