

CASE STUDY

# PRECAST INSULATED WALL PANELS

ICA Shopping Center, Ljungskile Sweden



**CEM-FIL MINIBARS™**  
High Performance Composite  
Macrofiber



Entrance detail with thinner outer layer



Store Entrance

### Project Profile:

**Category:** Retail Store

**Owner & Developer:** ICA Grocery Stores

**Structural Engineer:** AFG Consulting Engineers

**General Contractor:** Kynningsrud

**Precaster:** Kynningsrud

**Completion:** December 2015

### Technical details:

**Precast Element:** Precast Insulated Wall Panels  
40mm (1 ½") outer concrete layer  
White polished concrete finish

**Concrete Type:** C50/60 – 7250 psi Concrete

**Composite reinforcement solution:** Cem-FIL MiniBars™ 43mm @ 5,7 Kg/m<sup>3</sup> – 9.6 lbs/yd<sup>3</sup>  
Composite bars to strengthen corners at windows & doors and FRP connectors to connect wythes

**Other:** Unique corner design with polished surfaces at 90 degree end panels

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## Project description:

For this ICA retail grocery store project in Sweden, the challenge for Kynningsrud was to supply precast insulated wall panels for the front entrance that were less weight and thinner profile than standard panels.

Thin wall panels allow increased floor space within the same building footprint. Reduced panel weight saves logistic costs, improves efficiency and simplifies installation by the contractor.

By replacing all the welded wire reinforcing (WWR) steel mesh with Cem-FIL MiniBars™ corrosion-free & high performance composite macrofiber, the need for cover concrete was reduced. The outer concrete layer thickness went down by 50% from 80mm (3") to 40mm (1 ½") and then polished further to 35mm (1 3/8").

Composite bars were used to strengthen the panels at stress concentration points at the inside corners of doors.

FRP composite wythe connectors were also used so that there is no metallic reinforcing in the layer of concrete exposed to weather and no heat transfer points for maximum insulation value.

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