

First experience of concrete in passive houses

Expan A/S, one of the country's largest manufacturers of lightweight concrete and concrete units, is currently garnering valuable experience of the use of their units in passive houses.

“We were invited to join Westergaard Arkitekter's project. Since then, we have also become the supplier to Villa Vision - House 2 and C.F. Møller's house,” says technical director Erik Fredborg, Expan.

The walls of Westergaard Arkitekter's house have concrete unit inner walls, 400 mm insulation and, rather non-traditionally, 100 mm concrete unit facades.

“By using units for both the inner and outer walls, we obtain almost uninterrupted insulation, and the fixings between the walls are made of fibreglass reinforced polyester, so that in reality there are no cold bridges,” says Erik Fredborg.

This house uses lightweight concrete slab units for the floor structures and roof slabs. The slab units have an acoustic layer that gives a large reduction in the reverberation time in the rooms, leading to a comfortable acoustic environment.

While Westergaard Arkitekter's house was born concrete, the original aim was for C.F. Møller's house to have lightweight timber partitions.

The final choice went with concrete because of its heat-accumulating properties. Concrete also has the advantage that the architect's desire for a raw finish to the internal walls could be fulfilled.

Erik Fredborg says that the inner wall of concrete can reduce the heat demand by approximately 11 percent relative to a lightweight construction. This is because the concrete absorbs heat from persons, domestic appliances and sunlight during the day, and releases it overnight.

Participation in the KOMFORT HUSENE project (the comfort houses project) has also given experience of laying ventilation ducts within the units.

“The KOMFORT HUSENE project, our debut in passive houses, has led us to feel quite well prepared for future projects,” says Erik Fredborg.





Expan A/S has developed concrete units with fitted ventilation ducts for KOMFORT HUSENE.