

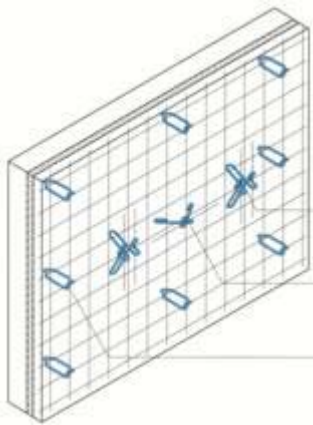
Sandwich Panels

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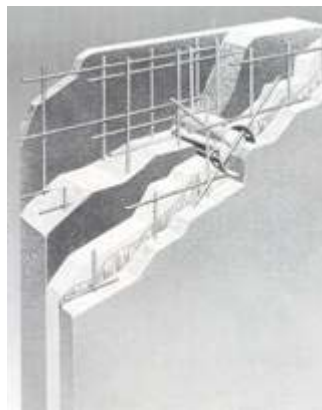
As the name suggests, a sandwich panel consists of a sandwich of concrete with a filling of insulation. It has the advantage of incorporating the outer skin, inner skin and insulation in a single element.

The outer skin (or 'wythe' as Americans call it) is usually quite thin, in the order of 50 – 80mm. The insulation is in the order of 80mm – 100mm thick depending on the required thermal performance and the inner layer may be anything from 100mm upward, depending on the size of the panel. In use, the inner layer is the loadbearing one, with the insulation and the outer layer hanging off it.

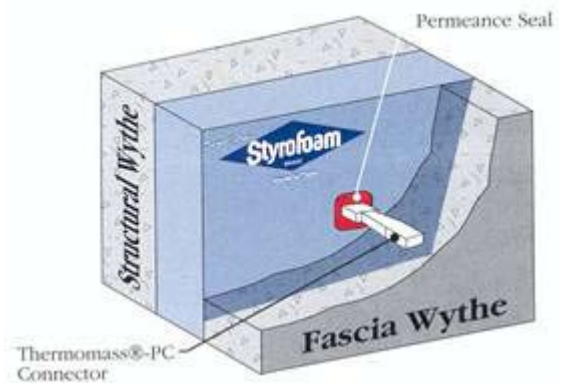
The make-up of the panel also depends on the system being used to fasten the two layers together. There are several systems available. It is possible to make a sandwich by using 'traditional' reinforcement passing between the layers, however in practice, commercially available systems are used, and there are several such systems available.



Halfen offer a system which uses stainless steel wire clips which go through the insulation



The DEHA system uses stainless steel cylinders as well as clips



The Thermomass system uses resin-fibre pins on a regular grid.

There is a drawback with steel systems in that they create relatively rigid connections between the two layers at 'strong points'. This means that differential movement due to the sun expanding the outer layer can set up quite high stresses. For this reason most steel systems limit the maximum size of the outer layer to 4.5m - 5m. Beyond this, expansion joints must be provided.

By agreement with the precaster, it is possible to have the inner face suitable to be left exposed, or suitable for direct decoration, The outer skin can be treated in the same way as single skin panels, including facing with natural stone or brick. It must be remembered though that such panels can get quite heavy, and site crange must be considered.