

Using the unused

The reconversion of a historical rural building into the hub of a light industry for the production of prefabricated straw bale panels

Straw bales have been used in the construction industry for over a century, with excellent thermal, acoustic, economic and ecological results. Such benefits have been confirmed not only by the direct experiences of those who have chosen to live in a straw houses, but also by a series of accurate laboratory experiments that have shown how straw achieves results that are on a par with those attained with traditional materials.

After a study of various types of technology that utilise straw as a plugging or structural material, I decided that prefabrication seemed to be the most innovative of the systems in use because it combines the qualities of green building with the advantages of serial construction in terms not only of costs, but also of distribution and visibility.

I then investigated the possibility of installing a production chain in a farmhouse that is currently non-operational. This choice was not incidental. The farmhouse in question was, until a couple of decades ago, functional to the farm's production; it was the logistical centre from which the lives of all farm employees were organised. The typological transformation I have envisaged undoubtedly revolutionises its spaces, functions and productive ends, but maintains several elements that tie it to the world of agriculture. The first is its relationship to the farm, which produces half the amount of straw thought to be necessary for the annual production of panels; it is therefore convenient for both parties to use this straw in the production chain. The farmhouse is also already present on-site and would probably otherwise be torn down, which means it would not be a source of income for the farm if left unutilised. Another link to the world of agriculture is the programming of production activities and spaces based on the seasonality of straw. Indeed, due to the fact that straw is available for market purchase at low prices only during the summer months, the production spaces have been sized in such a way as to be able to store the quantities necessary for the winter (when it is not economically convenient to buy it). At the same time, the stockpiling of finished panels is also calibrated according to the principle of seasonality: production continues year-round, but it is anticipated that material will build up during the winter months to then be used up between Spring and Autumn.

The last phase concludes with the design of two warehouses made out of prefabricated straw panels; one to be used for the panel production phase, the other for storage of the finished panels.

The present volume contains the study and analysis sections; the elaborated graphs and illustrations complete the Thesis, depicting every component of the chain of production.