QUALITY IN BUILDING THROUGH THE *PASSIVHAUS* STANDARD

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The reality is that, in building, quality is not just a hallmark in the market, but also a requirable feature. Therefore, different strategic approaches are needed to achieve it during the whole constructive process [1].

That is the case of constructions following the PassivHaus standard which, trying to obtain zero net energy consumption, becomes an example of the concept of quality according to UNE-EN ISO 9000: 2015 [2], fulfilling the basic requirements for buildings established in the Building Regulations Act 38/1999 [3].

In this context, Penélope house (Figure 1), in Ciempozuelos (Madrid) was designed and planned subject to the limitations of the PassivHaus standards, location restrictions, the contractor's quality policy, etc. In the process, all the different participants were aware of the importance of every decision made [4].

During the work, thorough testing was carried out to achieve thermal comfort and the inner air quality required in the above mentioned standard, through exhaustive leaktightness tests, an excellent thermal insulation installation, thermal bridge breakage allowing for greater thermal insulation and the installation of ventilation systems with heat recovery that guarantes indoor ventilation. This way, it became possible to reach a heating demand of 12 kWh/m2 · year, below 15kWh/m2·year necessary for fulfilling the standard, with primary energy demand of 62 kWh / m2 · year below 120 kWh / m2·year for heating, hot water and electricity in the standard and, an airtightness of 0.26 air renewals per hour (with pressure differential of 50 Pa), below 0.6 air renewals per hour maxims indicated in the standard [5].

Fig. 1: Penélope house certified with standard PassivHaus.Source: Auna Arquitectos, S.L.

With this way of construction, not only design quality is reached by means of adequacy to the use and comfort expected by the client. Also, production and construction quality is achieved due to high performance requirements of the products and installation processes; and, finally, the quality wished by the client arises from the two previous circumstances [1]. Therefore, the quality in this constructive system is clear from two extents: that of the client, who demonstrates satisfaction with the ordered product and that of the company contractor, whose non-compliance costs decrease as its external expenses caused by claims significantly diminish.

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