RENAC: VALENCIAN NETWORK FOR APPLICATION OF NANOTECHNOLOGY IN CONSTRUCTION AND HABITAT PRODUCTS

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Last September 2005 the network RENAC (www.nano-renac.com) concerning the application of nanotechnology and nanomaterials to construction and habitat products was borne in Valencia Community. RENAC aims to create a sustainable (long-term) scientific and technological structure capable of integrating the research effort in this field. The construction sector (historically conservative, low levels of RTD investment) is not sharing in the benefits offered by nanotechnology (and other approaches now identified in FP6 priority three), which were already apparent in fields such as medicine and microelectronics. Research in nanotechnology in construction *is* going on, but only in a few isolated centres, in an extremely fragmented fashion. Here, the need for a co-ordinated approach to make real progress towards full exploitation of the commercial, competitive and even societal benefits of this 'science of the small' was, and remains, very obvious. There is a clear need to shift this traditional industry towards high added-value activities.

RENAC integrates at this moment 20 members from the Valencia Community, 8 of them are Technological Institutes dealing with research in different traditional materials involved in construction and habitat sectors: wood, plastic, concrete, ceramic, stone, metal. The rest of the members are research groups from three Valencia Universities with a recognised excellence in different Nanoscience fields as interface science, nanoparticles synthesis, nanocomposites, mesoporous materials, chemical sensors, and polymer science.

After evaluation of alternatives, the broad field of research into nanotechnology in construction has been divided into four complementary research 'platforms'. These are: Nanoparticles Platform; Nanocomposites Platform; Sensors and Smart systems Platform; and Basic Nanotechnology Platform. The first two relate to materials modified by alteration of internal structures at nano-scale, addition of nano-structures and modification of surfaces/interfaces together with their macro-applications. The third covers development of sensors, components, systems, devices, etc. for use in the construction sector. The fourth, underpinning the others, relates to fundamental developments in nanotechnology (tools) and nano-science (understanding). Each platform will include a number of specific research clusters, where critical mass and required excellence currently exist. The structure intentionally cuts across 'disciplines' and sectors of construction and also intent in a new stage to incorporate a industrial group integrated for companies interested in getting improvement of their global competitive position and employment prospects by properly directing and making use of research in nanotechnology

References:

[1] Authors, Journal, **Issue** (Year) page.