



Project GRD1-2000-25296 for the Commission of the European Communities

Social-Technological-Commercial Process Model and Supporting Communication/ Information System for Design and Delivery of Industrialised, Flexible and Durable Buildings

Project Overview

The building/construction industry in Europe is experiencing structural decline in demand and a resultant shift from a supplier-dominated to a client/user-dominated market. Clients in the main are dissatisfied with the time and cost of building, and the performance of the finished product. A number of factors have contributed to this state of customer dissatisfaction. The segregation of design, construction and building after-care causes fragmentation and communication problems between parties involved and hinder buildability and maintainability considerations at the design stage. Projects are in the main secured by competitive tendering; continuity of work is not assured, this discourages economic grouping on the supply side. The industry is under-capitalised and operating on low margins. Economies of scale are difficult to achieve as most buildings are unique; the continued reliance on low-cost and low-skilled workers perpetuates quality and competitiveness problems.

The current state-of-the-art in building must be improved in a market place where dynamic economic, social and technological factors affect, and may change client's functional needs of their buildings over time. The industry must become more customer-focussed, be less fragmented in organising project delivery and increase its current level of industrialisation both on and off-site. This will require new roles and new management procedures, and above all a new market approach. The industry as it is currently organised is not well equipped or able to address the vagaries and dynamics of this changing market.

The research sought to develop the organisational, technological and commercial framework and supporting communication/information system to deliver client-oriented Industrialised, Flexible and Durable (IFD) Buildings. These buildings offer clients/users more freedom of choice through the use of factory-made, interchangeable building components. Central to the IFD concept is the separation of the building production process into three distinct sub-processes and a system morphology comprising three macro-modules viz.:

- 'Technical Core' module incorporating horizontal and vertical circulation space, spaces and shafts for building services with provisions for connecting piping and ducting network
- 'Functional Space' module hosting the functional spaces of the house, changing their shape and size depending on the user needs and
- 'Shell' module, which forms the external envelope and acts as roof and façade.

The IFD concept has its replica in successful manufacturing industries serving world markets such as the automotive industry where there is high reliance on co-makerships, which fosters long-term relationships such as strategic partnerships, marketing/distribution arrangements and joint ventures.

Research Consortium

Project Coordinator:

Real Estate Management Advisory Services: QD International (The Netherlands)
Project Leader: Dr Quah Lee Kiang

Partners:

RGD -The Dutch Government Building Agency (The Netherlands):	Building Client
Apogée-Périgée (France):	Building Owners Association
Ipostudio Associated Architects (Italy):	Architectural Practice
Climaconsult-Halton (Finland):	M&E Consultants
Halton (Finland):	M&E System Manufacturer
Costain Bldg & CE Engg (UK):	Building Contractor
Tampere University of Technology (Finland):	University
TNO-Bouw (The Netherlands):	National Research Institute

Project Budget

2, 999,126 Euros