



WEBINAR:

Sublime chaos in construction: Each profession and trade as a strange and dominant attractor

Monday, April 6th, 2020

ASHRAE Distinguished Lecturer, Richard H. Rooley (FREng FASHRAE, Presidential Member) is a Consulting Engineer in London, UK. He has designed HVAC systems and developed operation and maintenance procedures for commercial, health, defence, public buildings and housing. He has project managed complex engineering and building projects. He has worked with universities in research on indoor air quality and the process of building design, construction and use. He has investigated problems and achieved solutions. He acts as an expert in litigation, and as an arbitrator and mediator in disputes. In seeking solutions to problems in buildings, he has used teams of professionals, from inside and outside the HVAC industry.

His extensive experience in the investigation of failed buildings because of cost, time, indoor air quality, failure to meet the brief and misrepresentation of intentions provide a strong basis for his work. Founded the Teambuild competition in 1990.

Outside America, Mr. Rooley is a Fellow of the Royal Academy of Engineering, a Fellow of the Institution of Civil Engineers, a Fellow of the Institution of Mechanical Engineers, and a Fellow of the Chartered Institution of Building Services Engineers. He has degrees from Trinity College, University of Dublin, in Civil Engineering and in Law and Management and post graduate studies at London South Bank University.

Presentation Abstract:

Since the inception of chaos theory from 1960 construction project management has failed to apply it. From 1970 the author has researched and investigated successes and failures resulting from the hiatus in the British RIBA plan of work, the fuzzy edge disease and his work in design, arbitration and investigation of failures and cross industry consultations. References are given on complexity theory which make the planning of projects very difficult but accept simply that there are difficulties to be overcome. Chaos theory largely explains why they are difficult.

Crowd research of the Teambuild Competition participants, over 1200, who are in many cases in leadership positions together with cross references to complex manufacturing industry, political processes, funding mechanisms show that chaos theory is a fertile area for improved construction performance.

The paper shows that a normal project is managed using a straight line process based on Pert or Gantt techniques. Surrounding that management diagram is a multi-dimensional chaos field. This field ensures that a small deviation at an early stage is amplified to a major problem later on.

Major elements in the chaotic field are forces and strange attractors. These push and draw the project off course but each time are considered to be surprising complexities to be overcome. The strong attractors and forces which are described include, financial drivers, changes in brief, changes in personnel; errors in input to mathematical model; failures to understand language among architect, engineer, contractor, surveyor operator and client; transfer of responsibility between designer and contractor, value engineering, risk assessment, separation or cooperation between manufacturer and designer.

Time: 12:00 to 1 pm

Payment: FREE

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