



UNIVERSITÀ
DEGLI STUDI
DI PALERMO

Direttore: Prof. Giovanni Perrone



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AVVISO DI SEMINARIO

Si comunica che, nell'ambito delle attività formative del DOTTORATO DI RICERCA IN CIVIL, ENVIRONMENTAL AND MATERIALS ENGINEERING, in data **Giovedì 7 Novembre alle ore 15.15** presso l'aula consiglio dell'ex DICAM il Prof. Prof. Charles Clifton dell'University of Auckland (New Zealand) terrà un seminario dal titolo

Low Damage Design of Steel Structures.

Docenti, dottorandi e studenti sono invitati a partecipare.

Prof. Piero Colajanni

Dr. George Charles Clifton

Present Position (since 2008):

Associate Professor in Civil Engineering
Department of Civil and Environmental Engineering
The University of Auckland

Biography:

Charles Clifton graduated from the University of Canterbury with a Bachelor of Civil Engineering (Hons) in 1978 and a Master of Civil Engineering in 1979. From 1979 to 1981 he worked for a major New Zealand consulting engineering firm, (now) Beca Consultants, then from 1981 to 1983 for a joint UK/Saudi Arabian consulting engineering firm in London, RH Sanbar Consultants, Ltd. In this latter position he was responsible for the structural design of two high profile structures in Riyadh, Saudi Arabia; the headquarters of the Arab National Bank and the Entrance Gate to the King Saud University.

In 1983, Charles started the Structural Division of the New Zealand Heavy Engineering Research Association (HERA). At HERA, Charles conducted and coordinated research into structural steel and composite steel/concrete buildings, fire engineering and durability in order to provide robust, dependable design solutions for the performance of structural steel buildings in severe events and for ensuring their durability in all environments. The outputs from this research have been presented to the consulting engineering profession; first as design guides, starting in 1984 and then into new and revised Standards, from 1989. He has also led the dissemination of this material to the profession in sufficient depth and detail to change professional practice, leading to the widespread adoption of structural steel as the material of preference for multi-storey buildings, with the current market share in New Zealand being 70%, compared with 0% in 1983.

A long and productive collaboration with The University of Auckland, whilst at HERA, saw several innovations researched, developed and adopted by the profession and also the award of his PhD in 2005. The principal outcome of his PhD was two new forms of semi-rigid beam to column connections for moment-resisting steel frames which are now used in a number of high profile New Zealand buildings.

In 2008, he joined the Department of Civil and Environmental Engineering, specialising in structural steel and composite engineering. Here he has very successfully continued research optimising the semi-rigid



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connections developed during his PhD into world recognised low damage solutions for steel buildings, ongoing development of robust solutions for steel framed buildings in severe fires, development of seismic resilient solutions for pallet racking systems and further development of design guidance for durability.

Peer Recognition:

- 1997 Winner of *IPENZ Structural Award*, 1997
- 1998 *Fellow of Engineering New Zealand (FEngNZ)*
- 2003 *Fellow of NZSEE (New Zealand Society for Earthquake Engineering)*
- 2008 Winner of a Standards New Zealand *Meritorious Service Award*, 2008
- 2008 *Keith Smith Award for Distinguished Service to the Metals Industry*.
- 2009 *UK-based Institution of Structural Engineers 2009 Structural Prize for Engineering Excellence in the Healthcare and Education Sectors*.
- 2009 *Freysinnet Award for Services to Building and Construction*. Awarded by IPENZ (now Engineering New Zealand) for technical eminence.
- 2017 *Life Membership of the Structural Engineering Society, SESOC*.
- 2017 *Vice Chancellor's Commercialisation Medal*.

Principal Areas of Technical Expertise:

1. Behaviour and design of steel seismic-resisting systems
2. Behaviour and design of steel buildings for fully developed fire conditions, especially in regard to composite floor systems
3. Corrosion rates for steel in above ground and below ground conditions
4. Behaviour and design of composite steel and concrete elements
5. Construction of steel buildings
6. Behaviour and design of light gauge steel

Uptake and Impact of Charles Clifton's Work

Recent contributions to Standards and key end user documents, nationally and internationally especially within Australia.

- HERA Publication P4001: 2013, *Seismic Design of Eccentrically Braced Frames*. He led the research and design procedure development for this publication and is the principal author of this document.
- HERA Report R4-133: 2013, *New Zealand Steelwork Corrosion and Coatings Guide*
- SCNZ Publication, *Slab Panel Method*: 2014. He developed this method and is the principal author of this document.
- Clifton GC et al: 2015, *Australian Steelwork Corrosion and Coatings Guide*
- NZS 1170.5 *Structural Design Actions Part 5 Earthquake Actions – NZ*. He is on the committee for the 2016 and 2017 Amendments.
- AS/NZS 1252: 2016 *High strength steel fastener assemblies for structural engineering*. He led the research which developed the key quality assurance “free turn of nut test” which is in Part 2 of this Standard. This test is in AS/NZS 5131: 2016 *Structural Steelwork Fabrication and Erection*.
- AS/NZS 2327: 2017, *Composite Structures Standard*. He is principal author for Section 7 Design for Fire Resistance.
- NZS TS 3404: 2017, *Durability Requirements for Steel Structures and Components*
- *Fire Engineering Design of Multi-Storey Steel and Composite Steel/Concrete Structures; Demand/Capacity Document; Version 2.20, August 2018*. He is principal author of this document, which will be published in 2019 as a commentary to the fire engineering section of AS/NZS 2327.

Number of Publications Since 1984: 342

Number of Refereed Publications Since 1984: 227 Number of Patents: 2