

## Sir Jack Zunz Awarded Honorary Doctorate Of Science In Engineering By The University Of The Witwatersrand

Sir Jack Zunz is receiving an Honorary Doctorate of Science in Engineering Honoris Causa, from his alma mater, the University of the Witwatersrand's Faculty of Engineering on 9 December 2015. This is in recognition of his vast contribution to engineering and the built environment, as well as his philanthropic initiatives, implemented through the Ove Arup Foundation.

Sir Jack, now 91, will record his address for the graduation audience from his home in London. James Oppenheim - recently retired and a long-standing colleague of Sir Jack and director of Arup - will accept Sir Jack's Honorary Doctorate Scroll on his behalf.

Sir Jack was a trailblazer in providing elegant 'total design' engineering solutions, as his retrospective amplifies. Continuing his legacy in Johannesburg, Arup is currently engineering the complex twisted form of the new PwC Tower in the Waterfall development in Midrand, north of Johannesburg. This iconic construction will be visible from almost anywhere within a 30 km radius.

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### Background

Perhaps best known for leading the team that solved the engineering challenges on the Sydney Opera House's now iconic roof structure, Sir Jack graduated in Civil Engineering from the University of the Witwatersrand in 1948.

He left for London to join Ove Arup in 1950, returning to South Africa in 1954 to establish the South African office of Ove Arup with Michael Lewis – another graduate and fellow engineering student

from Wits. The firm was awarded the design of the Sentech Tower in Johannesburg – commonly known as the Brixton Tower. Requiring state-of-the-art engineering in its day, this structure sits 237 meters high and resists winds of up to 200 km/hour and able to deflect as much as 2 meters without damage.

In 1961, Sir Jack was made an Associate Partner at Ove Arup, becoming a Senior Partner in the London office in 1965. Jack Zunz became Chairman of the Ove Arup group from 1977 to 1984 and later Co-chairman of the firm globally from 1984 to 1989.

### Sydney Opera House Project

Ove Arup and Partners, as the structural engineers for the iconic Sydney Opera House, saw Sir Jack lead the team that designed the Sydney Opera House roof - considered by many to be the pinnacle of his career. Under Sir Jack's leadership, the engineering complexities of the Sydney Opera House project were overcome; the use of innovative shell constructions from fan-like pieces of precast concrete arch ribs, each made of multiple sub-sections was a first to be used on such a large scale. To make the construction feasible, every arch was formed from the surface of a single sphere, resulting in a constant curvature, which meant re-use of the same curved formwork for every arch segment.

Sir Jack and the Arup team of engineers represented some of the finest minds in structural engineering in the world at the time. It was this combined effort that resolved all the major problems associated with the Sydney Opera House, ranked one of the most complex engineering challenges of the twentieth century.

One of Sir Jack's enduring qualities is his unfailing acknowledgement of his colleagues' contributions. He credits his Wits classmate and colleague, the late Michael Lewis (who also rose to the highest level in Arup) who led the Sydney-based 'Opera House' team, as being an outstanding and dedicated engineer and as the 'doer' without whom he may never have completed his undergraduate group project at Wits. Jack commented about his Ove Arup colleagues in relation to the Opera House: "... this unusual structure is a tribute to their skill and ingenuity."

## Global Recognition

Perhaps the most reliable indicator of an engineer's greatness is the regard in which they are held by their colleagues. For example Dr John Nutt, an eminent engineer and former chairman of Arup Australasia, who worked with Jack on the Opera House, set up the Zunz lecture series at the University of Technology Sydney. This lecture series is described on their website as follows: "The lecture series was named in honour of the work of Sir Jack Zunz, a brilliant British engineer who led the design team on the Sydney Opera House as a partner of Sir Ove Arup. His approach to engineering and education was inspirational." The firm also created the 'Jack Zunz Scholarship' to provide advanced study opportunities for Arup's most talented young engineers globally.

Further iconic structures were designed under Sir Jack's leadership: Britannic House for BP; the 'hanging-floors' Standard Bank Building in Johannesburg; Emley Moor Transmission Tower in the UK; HSBC Headquarters in Hong Kong and Stanstead Airport Terminal outside London to name but a few.

## Awards

In recognition of his achievements Sir Jack was Knighted (Knight Bachelor) in 1989. Sir Jack received many other prestigious awards including: Institution of Structural Engineers Gold Medal (1988); Honorary Doctor of Engineering from University of Glasgow (1994); Honorary Doctor of Science from the University of Western Ontario (1993); Fellow of the Institution of Civil Engineers (1966); Fellow of the Institution of Structural Engineers (1965); Fellow City of Guilds Institute (1990); Honorary Fellow of the Royal Institute of British Architects (1990); Fellow Commoner at Churchill College, Cambridge (1967-68); Fellow of the Royal Academy of Engineering (1983); Honorary Member of the Architectural Association (2011); Oscar Faber Silver Medal (1968); Oscar Faber Bronze medal (1988); Institution of Structural Engineers Silver Medal Award (1983); and Honorary Fellow of Trevelyan College, Durham University (1996).

Through charitable trusts, the employees own and control the Ove Arup group. This came about through an emergence of a set of shared values in the firm that differentiated it from others – and still stand and guide today. Sir Jack was one of the seven partners who gave the whole firm away into shared ownership.

Education has always been ‘my big thing’ for Sir Jack: “Real investment means selecting, training, educating, retaining and re-educating the people who create wealth of the country”. Sir Jack also largely spearheaded the firm’s philanthropic activities, through the Ove Arup Foundation.

One of the hallmarks of Arup today remains the concept of “total design”, integrating all the parts into an effective and socially relevant whole, pioneered by Ove Arup and Sir Jack. In speaking about a project that he is particularly proud of, the Millennium Bridge in London, Sir Jack sums up his career of contribution, humility and innovation: “It was a very limited involvement but it’s a project that makes one think that, actually, engineering is not such a bad profession to be involved in”.

### About Arup

Arup is the creative force at the heart of many of the world’s most prominent projects in the built environment and across industry. From 90 offices in 38 countries our 11,000 planners, designers, engineers and consultants deliver innovative projects across the world with creativity and passion.

We have over 650 staff in Africa, of which over 400 are based in South Africa. Through our unsurpassed technology and connectivity, we can call on the international expertise of our colleagues from across the globe at any time. We have worked on more than 20,000 projects and developments in Africa including commercial buildings, mixed-use developments, airports, sports venues, bridges, highways, railways, industrial development zones, oil, gas and energy projects, hospitals, prisons, arts and cultural venues, science and technology parks, water and waste projects.