



Professor Wolfgang Zerna (1916 – 2005)



The Wolfgang Zerna honorary medal is given by the VDI company Bauen und Gebäudetechnik in recognition of the excellent and exemplary personality of the recipient. It honors particularly deserving members and volunteers or engineers who have earned special services in the field of construction engineering.

See:

https://de.wikipedia.org/wiki/Wolfgang_Zerna

https://www.iass-structures.org/index.cfm/journal.getFile/16.5._Zerna_Memorial.pdf?aID=16

<http://www.zpp.de/downloads/bio-prof-zerna.pdf>

Biography (from Karl-Eugen Kurrer, *The History of the Theory of Structures from Arch Analysis to Computational Mechanics*, Ernst & Sohn, 2008, 848 pages):

*11.10.1916 Berlin, German Empire, †14.11.2005 Celle, Germany

Zerna studied structural engineering at Berlin TH, where his tutors included Franz Dischinger, August Hertwig, Ferdinand Schleicher and Arnold Agatz. After gaining his diploma in June 1940, there followed four years of military service and subsequent internment after the war before he was able to return to Germany in 1946. He then took a post as assistant to Alf Pflüger at the chair of theory of structures and structural steelwork at Hannover TH. He completed his doctorate in June 1947 with a dissertation on the membrane theory of general shells of revolution [Zerna, 1949/2]. Zerna finished his habilitation thesis in mechanics in September 1948 with a work on the basic equations of elastic theory [Zerna, 1950]. Afterwards, he was a guest lecturer at the Department of Mathematics at the University of Durham, UK (October 1948 to September 1949), where together with A. E. Green he wrote the monograph *Theoretical Elasticity* [Green & Zerna, 1954], which was to become the standard work of reference for elastic theory based on tensor analysis during the innovation phase of structural theory (1950 – 75). After his return from England, he first worked at Polensky & Zöllner (Cologne) and then at Ph. Holzmann AG (Frankfurt a. M.), where in the end he became responsible for all prestressed concrete works. He held the chair of concrete and masonry construction at Hannover TH from 1957 to 1967 and after that was professor for concrete and masonry construction at the Institute of Structural Engineering at the Ruhr University in Bochum (founded in 1963), where he remained until being transferred to emeritus status in 1983. Zerna's chair became the cornerstone of the Institute of Structural Engineering and "a highly acclaimed research institute with what was at that time a new style of theoretical-numerical-experimental research" [Krätzig et al., 2006, p. 177]. Zerna and his colleagues became known for their pioneering work on the design of large natural-draught cooling towers and nuclear engineering structures; in particular, Zerna's research work had a major influence on the design and construction of prestressed concrete reactor pressure vessels. Furthermore, Zerna inspired the establishment of two highly successful consulting engineering

practices in Bochum. The honorary doctorates awarded to him by the universities of Stuttgart and Essen are just two of the many honours he received for his services to science.

Main contributions to structural analysis: Beitrag zur allgemeinen Schalenbiegetheorie [1949/1]; Zur Membrantheorie der allgemeinen Rotationsschalen [1949/2]; Grundgleichungen der Elastizitätstheorie [1950]; Theoretical Elasticity [1954]; Rheologische Beschreibung des Werkstoffes Beton [1967]; Beuluntersuchungen an hyperbolischen Rotationsschalen [1974]; Kriterien zur Optimierung des Baues von Großnaturzugkühltürmen im Hinblick auf Standsicherheit, Bauausführung und Wirtschaftlichkeit [1978].