



Professor Cornelia Doerich-Stavridis

See:
https://www.abertay.ac.uk/staff/c_dorich-stavridis_bcf70.php
https://www.researchgate.net/profile/Cornelia_Doerich
<https://www.abertay.ac.uk/discover/the-university/governance-and-management/equalityanddiversity/charter-marks/athena-swan/international-womens-day-2017/cornelia-doerich-stavridis/>

School of Science, Engineering & Technology
 University of Abertay, Dundee, UK

Autobiography:

I am a Chartered Civil Engineering and lecturer within the School of Science Engineering and Technology. My research links strongly to the development of Eurocode 1993-1-6 on Strength and stability of shell structures. [I am now a member of the ECCS (European Convention for Constructional Steelwork) Technical Working Group 8.4 (TWG 8.4) on shell buckling and contributing author to several chapters of the 5th edition of the Recommendations “Buckling of Steel Shells - European Design Recommendations” published 2008 and closely related to the Eurocode EN 1993-1-6 (2007).] My research expertise of the past 13 years lies in the application of high powered numerical modeling of complex civil engineering systems, which are applicable to many research areas. My research to date has focused on the strength and the stability of thin curved structures such as wind turbine towers and pipelines. In recognition of my international research standing and quality of work up

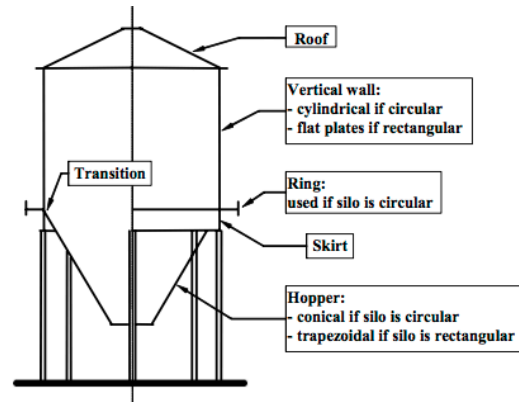


Figure 1.1: Terminology for parts of a typical silo (original picture in Rotter (2007))

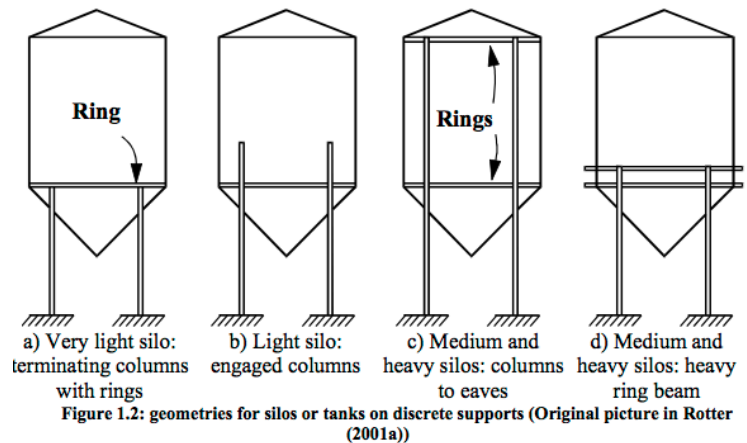


Figure 1.2: geometries for silos or tanks on discrete supports (Original picture in Rotter (2001a))

From: Cornelia Doerich (2007) “Strength and Stability of locally supported cylinders.” PhD thesis, Institute of Infrastructure and Environment, University of Edinburgh

to now I was appointed (in 2014) National Expert for the Eurocode EN1993-1-6: Strength and Stability of Shell Structures. Eurocodes are a set of harmonized technical rules, which have now replaced the British Standards, providing a common approach for the design of buildings and other civil engineering works and construction products. Only one Expert from each member country can be appointed for each Eurocode. Incorporating my research into the standard has a major impact on the design of thin walled structures across Europe.

Professional Employment History:

2011-now Lecturer and Programme Leader, Civil Engineering, Abertay University
2007-11 Post-Doctoral Research Fellow, University of Edinburgh

Professional Memberships:

2014 Fellow of the Higher Education Academy
2012 Award of membership with the Institution of Civil Engineers (MICE). Chartered Engineer (CEng) with the Engineering Council
2010 Award of the professional title “European Engineer (EUR ING)”. Recognition of professional qualification within Europe
2010-now Full member of the Association of German Engineers

Education:

2011-2013 PGCert Teaching in Higher Education
2004-2007 Ph.D, Institute for Infrastructure & Environment, Edinburgh: “Strength and stability of locally supported cylinders”
2002-2003 “Vertieferarbeit” (6 month project) issued by the University of Karlsruhe, Germany and supervised by Dr JMFG Holst at Institute for Infrastructure & Environment, Edinburgh
“Bracket supported silos”
1996-2003 “Diplom” degree at the University of Karlsruhe, Germany
2001 “Diplomarbeit” (final year project) at the University of Karlsruhe, Germany
“Failure behaviour of steel columns under elevated temperatures”

Selected Publications:

- [1] L. Chen, J. M. Rotter, C. Doerich (2012), Practical Calculations for Uniform External Pressure Buckling in Cylindrical Shells with Stepped Walls, Thin-Walled Structures, Volume 61, December 2012, Pages 162-168
- [2] L. Chen, J. M. Rotter, C. Doerich, Buckling of cylindrical shells with stepwise variable wall thickness under uniform external pressure, Engineering Structures, Volume 33, Issue 12, December 2011, Pages 3570-3578
- [3] C. Doerich and J. M. Rotter (2011), Generalised capacity curves for stability and plasticity: application and limitations, Thin Walled Structures, Vol 49, Issue 9, September 2011, Pages 1132–1140
- [4] C. Doerich, J. M. Rotter (2011) Estimating the plastic collapse load of a shell using LA, MNA and GMNA finite element analyses, The 6th International Conference on Thin Walled Structures, 05 – 07 September 2011, Timisoara, Romania
- [5] L. Chen, J. M. Rotter, C. Doerich (2011) Buckling behaviour of cylindrical shells of stepwise wall thickness under uniform external pressure, The 6th International Conference on Thin Walled Structures, 05 – 07 September 2011, Timisoara, Romania
- [6] C. Doerich and J. M. Rotter (2011), Accurate determination of plastic collapse loads from finite element analyses, Journal of Pressure Vessel Technology (ASME), Vol 133, Issue 1, February 2011
- [7] C. Doerich, W. Vanlaere, G. Lagae, J.M. Rotter (2009), Stability of column-supported steel cylinders with engaged columns, Proceedings of the IASS Symposium 2009, Valencia, Spain, September 2009

- [8] W. Vanlaere, C. Doerich, G. Lagae, R. van Impe (2009), Steel cylinders on local supports with rigid stiffeners, Proceedings of the IASS Symposium 2009, Valencia, Spain, September 2009
- [9] C. Doerich and J.M. Rotter (2008), Behaviour of cylindrical steel shells supported on local brackets, Journal of Structural Engineering, American Society of Civil Engineers 134(8): 1269-1277
- [10] L. Chen, C. Doerich, and J.M. Rotter (2008), A study of cylindrical shells under bending in the elastic-plastic range, Steel Construction- Design and Research 1(1): 59-65
- [11] C. Doerich (2008), Effect of geometric nonlinearity of locally supported cylinders, Structures and Granular Solids - from Scientific Principles to Engineering Applications, Edinburgh, Taylor & Francis: pp. 183-197, 2008
- [12] C. Doerich and J.M. Rotter (2008), Generalised capacity curves for stability and plasticity: application and limitations, Proc., Eurosteel 2008 Conference, Graz, Austria, 3-5 September, pp 1491-1496.
- [13] L. Chen, C. Doerich and J.M. Rotter (2008), A study of cylindrical shells under bending in the elastic-plastic range, Proc., Eurosteel 2008 Conference, Graz, Austria, 3-5 September, pp 1503-1508.
- [14] ECCS (2007), European Recommendations for Steel Construction: Buckling of Shells, European Convention for Constructional Steelwork, Brussels (contributing author to Chapters 8 and 11)
- [14b] Cornelia Doerich (2007) "Strength and Stability of locally supported cylinders." PhD thesis, Institute of Infrastructure and Environment, University of Edinburgh, Edinburgh (Supervisors J. Michael Rotter and Jin Ooi)
- [15] C. Doerich, J.M.F.G. Holst and J.M. Rotter (2005), The behaviour of cylindrical steel shells supported on local brackets, Proceedings of the 4th International Conference on Advances in Steel Structures, Shanghai, June 2005
- [16] J.M.F.G. Holst, C. Doerich, and J.M. Rotter (2005), Accurate determination of the plastic collapse loads of shells when using finite element analyses, Proceedings of the 4th International Conference on Advances in Steel Structures, Shanghai, June 2005
- [17] C. Doerich and J. M. Rotter (2005), Non-linear computations of cylindrical shells on local bracket supports, Proceedings of the 5th International Conference on Computation of Shell and Spatial Structures, Salzburg, 2005