

David F. Wood

DAVID F. WOOD CONSULTING LTD.
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consultant in engineering geology,
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Education

B.Sc. (Honours), Physical Geology, University of Exeter, England, (1973).
M.Sc. Engineering Rock Mechanics, University of London, England, (1978).
D.I.C. Royal School of Mines, Imperial College, London, England, (1980).

Affiliations

Professional Engineer, Professional Engineers Ontario, Canada.
Consulting Engineer, Professional Engineers Ontario, Canada.
Professional Member, Ontario Society of Professional Engineers, Canada.
Chartered Engineer, The Engineering Council, London, England.
Member, International Society of Rock Mechanics.
Member, International Association of Engineering Geology.
Fellow, Geological Society, London, England.
Member, International Tunnelling Association, (Member, ITA Shotcrete Working Group).
Member, Tunnelling Association of Canada, (Chairman, Shotcrete Working Group).
Member, Canadian Geotechnical Society, (past-Secretary, Rock Mechanics Division).
Member, Institution of Mining and Metallurgy, London, England.
Member, American Institute of Mining, Metallurgical and Petroleum Engineers.
Member, Sudbury Branch, Canadian Institute of Mining and Metallurgy, (past Executive).

Experience - 1989 to date

Independent Consultant, Sudbury, Ontario, Canada.

Consultant to civil and mining engineering clients in rock engineering, rockfall hazard appraisal, engineering geology, rock support design, and application and design of shotcrete structures for projects in North and South America, Europe, Australia and Asia. Significant expertise in Canadian Shield rock masses for transportation clients – current reference projects include: Canadian Pacific Railway, Eastern North America, rock slope and rock mass stability and rock engineering; Ministry of Transportation Ontario, rockfall hazard assessment and rock engineering. Recent major projects include Boral Shotcrete, Australia, shotcrete consulting for mining and civil engineering.

Professional experience comprises rock mass evaluation, rockfall hazard evaluation, engineering rock mechanics analysis and ground support design, rock slope stability assessment and stabilization design, engineering geological and geotechnical field data collection studies, and report preparation for small and large-scale civil engineering and mining projects, both on surface and underground.

1988 to 1992**Research Engineer, University of Toronto,
based at Laurentian University, Sudbury, Ontario, Canada.**

Member of industry-funded research project in rock mechanics for the mining industry, specializing in research into the development of an engineering geological rock mass classification for estimating rock mass strength, and the design and use of shotcrete for underground support. Organized and presented 4 engineering geological courses, including graduate teaching at the University of Toronto, undergraduate lecturing at Laurentian University (1989 to 1997) and continuing presentation of a geotechnical mapping and analysis course for Mines and Aggregates Safety and Health Association of Ontario.

1981 to 1992**Senior Engineer to Associate, Golder Associates,
Vancouver, B.C., Canada.**

Project Engineer and Manager for rock engineering design programs for a variety of civil and mining clients. Responsibilities included: rock cut stability assessment and stabilization design, tunnel support design, shotcrete design, underground instrumentation design, and quarry planning studies. Representative projects located in Canada, USA, South America and China, included:

- supervision of rock mechanics data collection programs for open pit and underground Canadian and U.S. mine design projects;
- review of rock excavations for Canadian railway company, design and site engineering services for rock slope and tunnel stabilization program over 10-year period;
- supervision of geotechnical data collection and design of excavation support for trial adit at irrigation dam site in Canadian Prairies;
- evaluation of in situ stress measurements at Canadian nuclear waste research laboratory;
- design, installation and follow-up engineering services for underground instrumentation of Canadian oil sand test facility;
- design and implementation of complete geotechnical data collection programs for two large coal mining properties in The People's Republic of China;
- coordination of engineering geological and rock mechanics aspects of feasibility study for Chaglla Hydroelectric scheme, Central Peru;
- implementation of mapping program for quarry selection studies in the Canadian high Arctic.

1979 to 1980**Field Rock Mechanics Engineer, Golder Associates,
Río Grande, Argentina.**

Site engineer for stability assessment of excavations including underground tunnels and chambers and open cuts, rock support design and general geotechnical studies during excavation of machine hall, busbar galleries, tailrace tunnel, headrace structures and associated infrastructure tunnels for 750 MW underground hydroelectric pumped storage scheme in granitic gneisses at 200 metres depth.

1973 to 1979

Geological Engineer, Rock Mechanics Engineer, Golder Associates, Vancouver, B.C., and graduate student, University of London, England.

Involved in field data collection and analysis for slope stability and open pit mine design projects; rock mechanics analysis and design for stabilization of rock cuts and slopes, tunnels and bridge abutments for projects in Canada, USA and Zambia. Developed company manual for engineering geological data collection procedures. Master's dissertation based on research of highwall failure at a large Canadian open pit iron ore mine.

Partial list of publications related to rock engineering

- Wood, D.F., (1993); Estimating Hoek-Brown rock mass strength parameters from the rock mass classification of Barton, Lien and Lunde; proceedings I Simposio Nacional de Mecánica de Rocas, Lima, Peru; vol. 3, 14 pp.
- Hoek, E., Wood, D.F., and S. Shah, (1992); A modified Hoek-Brown failure criterion for jointed rock masses; in *Rock Characterization*, proceedings ISRM Symposium: Eurock '92, ed. J.A. Hudson; British Geotechnical Society, London, UK; pp. 209-214.
- Wood, D.F., (1991); Estimating Hoek-Brown rock mass strength parameters from rock mass classifications; Transportation Research Record No. 1330, Behavior of Jointed Rock Masses and Reinforced Soil Structures 1991; Transportation Research Board, National Research Council, Washington, DC; pp. 22-30.
- Wood, D.F., R.D. Hammett, A.W. Stokes and J. A. Haston, (1990); Deformation monitoring of a rock mass subjected to elevated temperatures and pressures; in *Rock Mechanics Contributions and Challenges*, proceedings 31st U.S. Symposium, ed. Hustrilid and Johnson; Balkema, Rotterdam; pp. 59-66.
- Wood, D.F. and G. Ambrosii, (1990); Design challenges in the Chaglla hydroelectric scheme; in *Rock Mechanics Contributions and Challenges*, proceedings 31st U.S. Symposium, ed. Hustrilid and Johnson; Balkema, Rotterdam; pp. 67-74.
- Wood, D.F., P.A. Lang, P.M. Thompson and C.D. Martin (1988); Report to AECL on the in situ stresses around the access shaft to the underground research laboratory near Pinawa, Manitoba; AECL Technical Record, **TR-454**, 90 pp.