



CURRICULUM VITAE

- NAME** > **Conrad Ulrich BRUNNER**
 Heliosstrasse 18, CH-8032 Zürich
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 > cub@cub.ch
 > www.cub.ch
- DATE OF BIRTH** > 18 June, 1942
- NATIONALITY** > Swiss
- POSITION** > Senior Advisor, CUB, Zurich Switzerland
- AWARD** > "IEC Award 1907", nominated by TC 2 on behalf of the International Electrotechnical Commission: "For 10 years of outstanding support in the field of energy efficiency of electric motors and power drive systems. Geneva, Switzerland, July 2017.
- HIGHER EDUCATION** > University of Pennsylvania, PA, USA, School of Fine Arts, 1968-1969, Master of Architecture, with Professor Louis I. Kahn, 1969
 > Swiss Federal Institute of Technology (ETH-Z), Zurich, Switzerland, Department of Architecture, 1962-1966, diploma with Professor Alfred Roth (Dipl. Architekt), 1967
- LANGUAGES** > German (native), French (fluent), English (fluent), Italian (good)
- 2014 - 2020** > Impact Energy Inc., Zurich, Switzerland, mandate as Senior Advisor
- 1972 - 1976** > Steiger Partner, Manager of R&D Group, Zurich/Switzerland
- 1971 - 1972** > Fumihiko Maki, Maki and Associates, Staff Architect, Tokyo/Japan
- 1968 - 1971** > Louis I. Kahn, Staff Architect, Philadelphia, PA/USA
- 1964 - 1966** > Internships as architectural student: Jakob Zweifel, Manuel Pauli, Philip Bridel, Zurich Switzerland
- 2014 – 2020** > Impact Energy Inc., Zurich, Switzerland, international energy research and consulting company, Co-founder, Co-owner with Rita Werle and Rolf Tieben, President of the Board, Senior Advisor
- 1998 - TO DATE** > Swiss Agency of Efficient Use of Energy S.A.F.E., National implementing agency for energy efficiency in Switzerland, co-founder, member, Zurich, Switzerland
- 2009 - 2019** > IEA Technology Collaboration Programme on Energy Efficient End-Use Equipment (4E), Electric Motor Systems Annex (EMSA), www.motorsystems.org. Task leader International Standards.
- 2009 – 2012** > IEA Implementing Agreement 4E, Electric Motor Systems Annex, cooperation of Australia, Austria, Denmark, the Netherlands, Switzerland and USA. Operating Agent.
- 2006 - 2013** > A + B International, Sustainable Energy Advisor, Co-founder, Co-owner with Anne Arquit Niederberger.
- 2005 - 2016** > Faktor, journal for architecture, technology and energy, Co-founder and Co-publisher with Othmar Humm and Max Kugler.
- 1999 - 2016** > Topten Switzerland, co-founder with Eric Bush, Othmar Humm, René Schuhmacher, Zurich, Switzerland

- 2008 – TO DATE** > Topten International Services (TIS): development of Best Available Product data base Topten China, (supported by WWF and Swiss government SECO, Repic); co-founder, co-owner of TIS and Top10 China, Beijing office; feasibility study for Topten India (in cooperation with IIEC and WRI, supported by SECO); preparatory studies for Topten Latin America (Chile, Argentina, Mexico and Brazil, supported by SECO, Repic, WWF), support for Topten implementation in Chile, Argentina and Brazil.
- 2006 – TO DATE** > Swiss delegate and expert in IEC Standard committees: IEC Technical Committee 2, Rotating Machines; IEC Subcommittee SC 22G, Power Drive Systems, IEC Advisory Committee on Energy Efficiency ACEE.
- 2006 – TO DATE** > Expert for Ecodesign development and revision of MEPS of motors (no 640/2009, 1781/2019), pumps (no 547/2012), circulators (no 641/2009) and fans (no 327/2011) in Lot 11 and Lot 30, under mandate by EC, ECOS and CLASP.
- 1995 - 1997** > Concept study: Solar Energy in India, with Sharad Jhaveri, Ahmedabad GJ, India.
- 1988 - TO DATE** > Energy City (Energiesstadt): Robert Horbaty, Stefan Frey, Conrad U. Brunner, WWF Switzerland, SES, Co-founders, Zurich, Switzerland
- 1986 - 2007** > Member of expert group for energy scenarios and energy perspectives (Expertengruppe Energieszenarien, EGES), nominated by Swiss federal council: Swiss Federal Office of Energy, Berne, Switzerland.
- 1984 - 2002** > Brunner & Dreier, Architects Zurich, Switzerland, partnership for several large building projects
- 1976- TO DATE** > CUB, Architecture, Energy and Environment; Consulting, Research & Planning, founder and owner of independent consultancy, Zurich, Switzerland.

SIA (Swiss Society of Engineers and Architects)

- 2009** > SIA Energy Certificate for Buildings (member of committee), Zurich, Switzerland
- 2006** > SIA 380/1 Thermal Energy in Buildings, EN 832 (vice-chairman of committee), Zurich, Switzerland
- 2006** > SIA 380/4 Electrical Energy in Buildings (member of committee), Zurich, Switzerland
- 2006** > SIA Path to Sustainability (project coordinator), Zurich, Switzerland
- 2004** > SIA 480 Economical Investments in Buildings (chairman of committee), Zurich, Switzerland
- 1995 - 2010** > Committee for building technology and energy (KHE): Energycodes (member of steering committee for all energy standards)

CES (Comité Électrotechnique Suisse)

- 2006 - 2020** > TK 2
- 2012 - 2019** > TK 22

CENELEC (European Committee for Electrotechnical Standardization)

- 2006 - 2019** > CLC TC 2
- 2012 - 2019** > CLC TC 22X

IEC (International Electrotechnical Committee)

- 2006 - 2019** > IEC TC 2: Rotating Machinery, WG 12 (performance, scope, tolerances, rating plate, etc.), WG 28 (testing standards), WG 31 (efficiency classification)
- 2012 - 2019** > IEC SC 22G: Adjustable speed electric drive systems incorporating semiconductor power converters, WG 18 (efficiency classification and testing method for converters)
- 2008 - TO DATE** > IEC ACEE: Advisory Committee on Energy Efficiency, Task Group 6, convener: CAISEMS project

Program committees for international conferences

- 2007 - TO DATE** > Motor Summit, Founder and member of steering committee, biennial international conference in Zurich, Switzerland
- 2007 - 2017** > International Conference on Energy Efficiency in Motor Driven Systems (EEMODS), biennial international conference, Member of program committee
- 2006 - 2015** > International Conference on Energy Efficiency in Domestic Appliances and Lighting (EEDAL), biennial international conference, Member of program committee
- 2006 - 2012** > International Conference on Improving Energy Efficiency in Commercial Buildings (IEECB), biennial international conference, Member of program committee

Lecturer

- 1989 - 1992** > Energy Efficiency in Economics: University of Saint Gall/Switzerland, Prof. Christoph Binswanger
Visiting professor: Energy Efficient Buildings and Urban Design:
- 1980 - 1981** > Staedel Academy Frankfurt a. Main/Germany, Prof. Günther Bock
- 1981 - 1982** > Munich Academy of Design/Germany, Prof. Erich Schneider-Wessling
- 1978 - 1980** > Technical University Darmstadt/Germany, Prof. Peter Steiger

Lectures

- 1992** > ETH Zurich, Building Technology, Miklos Kiss
- 1984** > University of California Berkeley, Solar Building Design, Prof. Richard Bender
- 1980** > ETH Zurich, Building Physics, Prof. Ralf Sagelsdorff
- 1972** > Tokyo University, Energy and Urban Design, Prof. Fumihiko Maki
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- 2017 - 2019** > Sandie B. Nielsen, Andrea Vezzini, Emmanuel Agamloh, Andrew Baghurst, Conrad U. Brunner: Round Robin for Converter Losses (RR'C), phase 1, IEC SC 22G in cooperation with EMSA, Zurich, Switzerland
- *Funding international: EMSA member countries CH, AU, AT, DK, NL, US*
- 2017 - 2019** > Conrad U. Brunner, Rita Werle, Petar Klingel, in cooperation with IHS Markit/Omdia: Topmotors Market Report 2017, 2018, 2019, Zurich, Switzerland
- *Funding national: Swiss Federal Office of Energy*
- 2016 - 2018** > Swiss Agency for Development and Cooperation (SDC): Promoting efficient pump systems in agriculture in India. In cooperation with TERI, India.
- *Funding: national; Focus: energy efficiency, pump systems, market transformation*
- 2014 - 2017** > Swiss National Science Foundation, Berne/Switzerland: M_Key Management as a key driver of energy performance; research for investigating how energy management influences decisions for energy efficiency investments, with Infras, University of Geneva, University of Neuchatel.
- *Funding national; Focus: energy efficiency, motor systems, energy management.*
- 2014 - 2017** > Ministry of Industry and Information Technology Beijing/China and Zhenjiang Municipal Government, Jiangsu province, Zhenjiang/China: Topmotors China program; pilot projects for motor systems retrofits, audits in 20 industrial facilities, Motor Summit China, with Top10 China. (www.motorsummit.cn)
- *Funding: international; Focus: energy efficiency, motor systems, audits in industrial facilities, market transformation*
- 2013 - TO DATE** > Swiss Federal Office of Energy, Berne/Switzerland: Feasibility study, build-up and implementation for a continuing education program IEO "Industrial Energy Optimization" in collaboration with universities of applied science in Horw/Lucerne (HSLU), Yverdon/Vaud (HEIG-VD) and Basel (FHNW) (www.topmotors.ch/en/content/continuing-education-ieo)
- *Funding: national; Focus: energy efficiency, motor systems, capacity building.*

- 2018 - TO DATE** > ProKilowatt, Sion / Swiss Federal Office of Energy, Berne: TopFU (financial incentive program for variable frequency converters)
- *Funding: national; Focus: motor systems, energy efficiency, audits in industrial facilities*
- 2010 - 2015** > ProKilowatt, Sion / Swiss Federal Office of Energy, Berne: Easy (Effizienz für Antriebssysteme), financial incentive program for motor systems retrofits.
- *Funding: national; Focus: motor systems energy efficiency audits in industrial facilities*
- 2007 - TO DATE** > Swiss Federal Office of Energy, Berne: Topmotors program for training, awareness raising and information dissemination on efficient electric motor systems. Motor-Systems-Check methodology, software tools SOTEA, ILI+, STR and MST (together with DTI, Denmark).
- *Funding: national; Focus: industry, motor market transformation, capacity building, energy efficiency.*
- 2009 - TO DATE** > Swiss Federal Office of Energy, Bern: Electric Motor Systems Annex of the 4E (Efficient Electrical End-Use Equipment), Technical Cooperation Programme of the International Energy Agency: global awareness raising on motor systems efficiency, policy and regulatory framework support, know-how and experience exchange, harmonization of national and international standards.
- *Funding international; Focus: industry, motor market transformation, energy efficiency.*
- 2009 - 2016** > State Secretariat for Economic Affairs, Berne: promotion of standards for energy efficient consumer goods in China, Top10 China.
- 2006 - 2008** > SEEEM Standards for Energy Efficiency of Electric Motor Systems, Anne Arquit Niederberger and Conrad U. Brunner, Hoboken NJ, USA and Zurich Switzerland.
- 2005 - 2008** > European Commission, Executive Agency for Competitiveness and Innovation, Intelligent Energy Europe: Residential Monitoring to Decrease Energy Use and Carbon Emissions in Europe (RE-MODECE), Anibal T. de Almeida (project manager), ISR-University of Coimbra, Dep. of Electrical Engineering, Coimbra, Portugal (Conrad U. Brunner steering committee member).
- 1996 - 2000** > Conrad U. Brunner, Renato Gartner, Heinrich Huber, Jürg Nipkow, et al. ENPER, Energy Efficiency in Railways Coaches, measurements, simulations and prototypes.
- *Funding national: SFOE.*
- 1985 - 1986** > Conrad U. Brunner, Jürg Nipkow, Ernst A. Müller, et al.: Reduction of electric energy consumption in buildings (Verminderung des elektrischen Energieverbrauches in Gebäuden (VEE)), Swiss National Science Foundation, Bern, Switzerland.
- 1983 - 1985** > Conrad U. Brunner, Ernst A. Müller, et al.: Structural reduction of energy consumption in buildings (Strukturelle Verminderung des Energieverbrauches in Gebäuden), Swiss National Science Foundation, Bern, Switzerland.
- 1980 - 1982** > Working group PLENAR (Conrad U. Brunner, Ernst A. Müller, et al.): Triggers and side effects of energy saving in the building sector, phase II (Auslöser und Nebenwirkungen beim Energiesparen im Bauwesen), Swiss National Science Foundation, Bern, Switzerland.
- 1979 - 1982** > Peter Forrer, Conrad U. Brunner, et al.: Reduction of disparities in housing standards (Abbau von Wohnstandarddisparitäten), Swiss National Science Foundation, Bern, Switzerland.
- 1977 - 1980** > Working group PLENAR (Conrad U. Brunner, et al.): Triggers and side effects of energy saving in the building sector, phase I (Auslöser und Nebenwirkungen beim Energiesparen im Bauwesen), Swiss National Science Foundation, Bern, Switzerland.

Selected reference projects (Architecture)

- 2002 - 2005** > Brunner & Grossen, Architetti: Casa BruLè, Intragna, Centovalli, Switzerland.
- 2000 - 2003** > Brunner & Dreier, Architects, Zürich: 15-family house Heliosstrasse 18, Zurich, Switzerland.
- 1994 - 1995** > Brunner & Dreier, Architects, Zurich: retrofit multi-family house Freiestrasse 27, Zurich, Switzerland.
- 1990 - 2000** > Brunner & Dreier, Architects, Zurich: retrofit and enlargement, city district court, Badenerstrasse, Zurich, Switzerland,
- 1981 - 1987** > Brunner & Dreier, Architects, Zurich: retrofit office building, Weberstrasse, Zurich, Switzerland.

- 1980 - 1985** > Brunner & Piller, Architects: Hinteregg Stiefelwies, group of 8 houses, Egg, Zurich, Switzerland.
1978 - 1981 > Conrad U. Brunner, Architect, Neuhaus group of three houses, Hinteregg Egg, Zurich, Switzerland.

Selected reference projects (Energy Consultant)

- 1989 - 1990** > Canton of Zurich: Energetic analysis of 62 buildings of the University of Zurich by 15 energy consultants (Unikat):
 Conrad U. Brunner, Ernst A. Müller, Cornelia Brandes, et al.
- 1987 - 1989** > Canton of Basel-Country: Energetic analysis of 22 public buildings by 16 energy consultants:
 Conrad U. Brunner, Ernst A. Müller
- 1983 - 1984** > Canton Schaffhausen: Energetic analysis of 23 public buildings:
 Conrad U. Brunner, Ernst A. Müller
- 1980 - 1990** > City of Zurich, building inspectorate for renewal, energy analysis:
 - City slaughterhouse
 - Zurich Congress Center (architects: Steiger Partner)
 - Leukerbad geothermal clinic
 > Energy office of the Senate, Berlin: Ernst A. Müller, Conrad U. Brunner (in collaboration with ICC Aachen/Berlin)
- 1992 - 1995** - Energy savings in private hotels in Berlin
- 1989 - 1994** - 22 public buildings
- 1989** > Reduced emissions in SME (Emissionsminderung im Kleinverbrauch), Enquête-Commission of the German National Assembly: Prevention for the protection of the atmosphere (Bundestag):
 Conrad U. Brunner, et al., CUB Zurich, Switzerland, and FFE, Munich, Germany
- 1988** > Three large Swiss banks, UBS (SBG, SBV), CS (SKA) and ZKB, energy analysis and energy performance index: Banks in Switzerland, Swiss National Science Foundation, Zurich, Switzerland
- 1986 - 1987** > Swiss Office of Federal Buildings:
 - Energy analysis of 800 federal office buildings in Switzerland
- 1982 - 1983** > Conrad U. Brunner, Ernst A. Müller, Bruno Wick: 56 housing estates
- 1979 - 1980** > Conrad U. Brunner, Peter Forrer, Ernst A. Müller, Working Group PLENAR:
 - 121 city public primary schools
 - 49 City administration office buildings
 - City indoor swimming pools
- 1979 - 1990** > City of Zurich, building inspectorate for renewal, PRESANZ program, Energy analysis and energy performance index, Conrad U. Brunner, energy advisor
- 1975 - 1981** > City of Zurich, retrofit public housing estate with 224 apartments, Limmatstrasse (architects: Bolliger, Hönger, Dubach)

See also separate list of selected publications

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