

Björn Schouenborg

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To the Board of IUGS ICG Sub-
Commission on heritage stones

Application as board member and chair for 2020 - 2003

I hereby apply for the position as chair and board member of the IUGS ICG Subcommittee on Heritage stones and have included some relevant information. This also meaning to stay within the board without being chair is a possibility. A CV mostly specific for stones is also enclosed.

Introduction

I'm sixty years old, living in Southwestern part of Sweden, employed by the largest research institute in Sweden: RISE, Research Institute of Sweden, with about 2 800 employees, most of them with an academic education. RISE is a governmentally owned holding company. See also www.ri.se. I have been working for the Swedish Testing and Research Institute, SP, since 1990. SP is now the largest "institute" within RISE. Presently I work as an Innovation manager, senior researcher and advisor. My main focus areas are geologically based building and construction materials and products such as natural stone and aggregates. Natural stones being my special expertise. I deal with standardisation (I am the chair of the Swedish stone committee SIS TK508), networking, damage investigations, cultural heritage, testing commissions and a lot more. I have also recently had a position as associate Professor for the Geological Survey of Sweden, SGU, for 3 years, with the main task to build up their natural stone competence.

Since 2007 I have been the chair of IAEG Commission C10 Building and ornamental stones after Professor Shadman. It was 2008 in a seminar I organised at the IGC in Oslo in which Heritage stones working group was formed on the initiative of Barry Copper's. The development of the working group into a Subcommittee within the IGC is not necessary to detail here. At the IGC in Cape Town 2016 I was appointed chair for the first 4 years of the new Commission and sub Commission.

My aim has been to promote the work and use/benefits of the designation system, to push for a democratic and transparent decision process and more structured organisation and processes.

Thoughts for the next 4 years

In my mind it is not possible to continue with "business as usual". We need to further develop our procedures and requirements to avoid misunderstandings for any concerned part, regardless if it is an author, reviewer or user of final information. This also concerns our internal procedures. A possibility for increased transparency within the board is to start a DropBox account or similar. Presently there is no common archive for Commission/Sub-commission files not necessary to share to all members. We also need to discuss the

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possibility of designations on different levels, not only on a global level. I believe that with a stronger position in the future we can also have an influence on national needs.

We need to continue and expand the promotion of our concept and designation. Our work has not finished once a stone has received its designation.

We need to broaden collaboration and networking with other international and national groups, communities. Presently there is also a discussion about further collaboration with UNESCO which could help provide a stronger case for the designated stones when aiming to preserve/save quarries etc for future needs.

Another aim is to broaden our network geographically, e.g. regarding membership and stones and seminars/conferences. Presently it is a very strong European domination.

Kind regards!

Björn Schouenborg
PhD Mineralogy & Petrology

Enclosures

- 1. Short CV of Björn Schouenborg; RISE, 2019-01-21 – Natural stones and cultural heritage**
- 2. Selected publications, reports and presentations.** N.B! Much of our work is commissioned from industry, authorities etc and not published as scientific papers. Much of it is confidential and not reported at all.

Short CV of Björn Schouenborg, RISE, 2019-09-27 – Natural stones and cultural heritage

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| Full Name: | BJORN SCHOUENBORG |
| Nationality: | Danish |
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Doctoral degree (year)

1989: PhD Mineralogy & Petrology, Geological institute, University Lund, S-412 96 LUND, Sweden

Current position

2008 - present: Senior researcher at RISE CBI Betonginstitutet Co-ordinator of the Swedish Research Centre for Rock Materials. Innovation liaison officer since 2015. Since 2018 Business & Innovation Manager.

Previous position

1990 – 2007: R & D Manager at Building Technology, SP Technological Research Institute of Sweden

National and international assignments of importance connected to natural stones

- 1994-1996 National expert in CEN TC 246 Natural stones and 178/WG 2 Natural stone paving units
- 2007 - Member of Swedish technical committee SIS TK 508 Natursten (Natural stones). **Convenor since 2015**
- 1996 - National representative and expert in CEN TC 246 Natural stones and all Working groups
- 2006 Consulting Commission: Conformity Assessment of Stone in Amman, Jordan. Qualification of Ajlouni Natural Building Stone for external cladding to affix the CE-mark.
- 2007 - Chairman (since 2007) of IAEG C 10 Natural stones and Dimension stones.
- 2007 Awarded the CIB/IABSE/RILEM “International certificate” no. 4
- 2009 - Member in Advisory committee of Research Centre for Geological Science and Engineering (CICEGE), Portugal
- 2010 Member in the scientific committee of Global Stone Congresses in; Spain, Turkey, Portugal and Brazil... (Brazil in 2018)
- 2007 - 2012 Giving annual lectures on geologically based building materials/products at Chalmers since 2007
- 2009 - Board member of MinBaS: Swedish RDI-cooperation organisation between the three industries; Industrial minerals, Aggregates and Natural stones
- 2012- 2015 20 % Guest researcher at the Geological Survey of Sweden (SGU)
- 2012- Member of the editorial board of the Bulletin of Engineering Geology and the Environment
- 2012 – now Chairman of the IAEG/IUGS new committee on Geoheritage and sub commission on Heritage stones
- 2012 Convenor/session chair of session 7.2 “Future sources of industrial minerals and construction materials” at the 34th IGC (International Geological Conference) in Brisbane
- 2014 Convenor of one session during the IAEG XII Congress in Torino
5.3 - Building stones & ornamental rocks - resource evaluation, technical assessment, heritage designation
- 2016 Theme Champion of the 35th IGC in Cape Town 2016: Engineering geology and Geomechanics.
Convenor of “Dimension stone and building materials”
In addition co-ordinator of a large number of national and international research and development projects and coordinator of national damage investigation commissions
- 2019 Organiser of konferens on Heritage science, Sweden, December 2019, Gothenburg:
<https://www.ri.se/sv/utbildning/heritage-science-forum-2019-dags-inspel-och-bidrag>

Commissioned work as advisor, coordinating testing, site investigations and research on historically important buildings in connection to renovation and restoration since early 1990, e.g:

- Medieval churches in Scania (mortar analysis)
- Stockholm castle (Gotland sandstone analysis and consolidation)
- Stockholm castle (Roslagssandsten replacement stones analysis)
- Australian National Library in Canberra (exchange of Carrara marble, consultant and laboratory tests etc)
- Marble façade of Finlandia Hall, Helsinki (testing and consultant advisory function)
- Damage investigation of blue marked (Cultural heritage protected of highest rank) building in Stockholm (stone/brick wall; comprehensive site and laboratory investigation)

Scientific merits (publications and presentations)
for Björn Schouenborg
-2014

| SP REPORTS (internal SP publication series) | Type of contribution | Year |
|---|--------------------------------|-------------|
| SCHOUENBORG, Björn, ALNÆS, Lisbeth, Testing of Nordic Natural Stones, SP REPRT 1994:19, NT Technical report 236. ISBN 91-7848-478-2 | Project leader and main author | 1993 |
| Schouenborg, B., Grek, B., Brudin, J. A. & Alnaes, L., Bowtest for cladding panels of marble. Borås 2001. Swedish National Testing and Research Institute, SP REPORT 2000:20. 31 p. (in Swedish) NT Project No. 1443-99. Nordtest Technical report no. 482 | Project leader and Main author | 2000 |
| Schouenborg, B. & Söderström, S.: Testing of Swedish Natural Stones according to the new European Standards. MinBaS-project, SP REPORT 2004:37 (in Swedish) | Project leader and Main author | 2004 |
| Björn Schouenborg, Conformity Assessment of Stone in Amman, Jordan, SP REPORT 2006:37 | Consultant in Amman And author | 2006 |
| International publications (peer reviewed articles and proceedings) | Type of contribution | Year |
| SCHOUENBORG, Björn. et al. Comprehensive studies of old mortars from three medieval churches in southern Sweden, ICMA - 94 | Proceedings | 1994 |
| SCHOUENBORG, Björn. Frost resistance of natural stones in the Nordic countries. 7 th International Conference on the Durability of Building Materials and Components, Stockholm, 1996 | Proceedings | 1996 |
| Alnaes, L., Brundin, J.A., Grek, B. & Schouenborg, B.: Testing and Assessment of Marble and Limestone, <i>Proceedings of the 10th Workshop of EUROMARBLE, National Heritage Board, Stockholm, Sweden pp 94-99.</i> | Co-author | 1999 |
| Sahlin, T., Malaga.Starzec, K., Stigh, J. & Schouenborg, B.: Physical properties and durability of fresh and impregnated limestone and sandstone from central Sweden used for thin stone flooring and cladding. pp 171-180, <i>Proceedings of the 9th International congress on deterioration and conservation of stone, Venice 2000.</i> | Co-author | 2000 |
| Brundin, J.A., Alnæs, L., Schouenborg, B., Grek, B.: ”Deformerade fasader – ett problem att lösa” (Warping of facade panels – a problem to solve), Sten nr. 4, 1999 og Sten nr. 1, 2000. | | 2000 |
| Sahlin, T., Stigh, J. & Schouenborg, B.: Untreated and Potassium-based water-glass impregnated igneous, sedimentary and metamorphic dimension stones and their physical properties. <i>Manuscript in Licentiate thesis of Torgny Sahlin: Physical properties and durability of untreated and impregnated dimension stones of igneous, sedimentary and metamorphic origin, Earth Sciences Centre Göteborg University A71, 2001</i> | Co-author | 2001 |

Scientific merits (publications and presentations)
for Björn Schouenborg
-2014

| | | |
|---|------------------------------------|------|
| Bengtsson, T., Stomilovic, W. & Schouenborg, B.: Tagging and Grafitti on natural stones. Industry paper STONE no. 2, 2001 | Co-author | 2001 |
| Malaga-Starzec, K., Lindqvist, J.E. & Schouenborg, B.: Experimental study on the variation in porosity of marble as a function of temperature. <i>Special Issue of Geological Society Special Publication, no 205. 2002</i> | Co-author | 2002 |
| Sahlin, T., Stigh, J. & Schouenborg, B.: Bending-strength properties of untreated and impregnated igneous, sedimentary, and metamorphic dimension stones of different thickness. <i>Geological Society Special Publication, no. 205.</i> | Co-author | 2002 |
| LINDQVIST, Jan Erik, MALAGA, Katarina, SCHOUENBORG, Björn. Experimental study on the variation in porosity of marble as a function of temperature. Presentation vid Krakow EU-Cultural Heritage Conference, 2002. | Co-author | 2002 |
| SCHOUENBORG, B. European research within the field of natural stones: OSNET, I-STONE (Q-STONE), TEAM. Swedish Stone Industry federation, annual meeting,, 2003. | Lecture | 2003 |
| SCHOUENBORG, B. Testing and assessment of marble and limestone cladding. pp 187-194: <i>Industrial Minerals and Building Stones.</i> Proceeding of International symposium IMBS 2003 | Lecture and proceedings | 2003 |
| Malaga-Starzec, K; Lindqvist, J-E; Schouenborg, B., Experimental study on the variation in porosity of marble as a function of temperature. <i>Geological Society Special Publication 205</i> | Co-author | 2003 |
| Alnæs, L., Schouenborg, B., Grell, B., Brundin, J.A., Blasi, P., Yates, T., Marini, P., Tschegg, E., Tokarz, B., Koch, A., Mladenovic, A. and Góralczyk, S.: "Influence of rock and mineral properties on bowing and strength loss of marble claddings – Discussion paper based on status of work in the TEAM-project". 9 th Euroseminar on Microscopy Applied to Building Materials, Trondheim, Norway, September 9-12, 2003. | Paper and presentation (co-author) | 2003 |
| ALNAES, L., KOCH, A., SCHOUENBORG, B., ÅKESSON, U. & MOEN, K.: Influence of rock and mineral properties on the durability of marble panels, pp 245-251 in <i>New perspectives for a traditional building material.</i> Proceedings of the international conference on Dimension Stone 2004 | Co-author | 2004 |
| GRELK, B., GOLTERMANN, P., SCHOUENBORG, B., KOCH, A. & ALNAES, L, The laboratory testing of potential bowing and expansion of marble. pp 253 – 259 <i>New perspectives for a traditional building material.</i> Proceedings of the international conference on Dimension Stone 2004 | Lecture and co-author | 2004 |
| MALAGA, K., SCHOUENBORG, B., ALNAES, L., BELLOPEDE, R. & BRUNDIN, J.A. Field exposure sites and accelerated laboratory tests of marble panels. pp 261-266 in <i>New perspectives for a traditional building material.</i> Proceedings of the international conference on Dimension Stone 2004 | Co-author | 2004 |

Scientific merits (publications and presentations)

for Björn Schouenborg

-2014

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|---|-----------------------|------|
| SCHOUBENBORG, B., BARQUIN, F., LINDQVIST, J.E., MALAGA, K. & Tiano, P. Durability: a characterisation challenge for the optimisation of stone applications. In Needs and priorities in Stone Characterization, <i>Technical Edition 1</i> of OSNET | Main author | 2004 |
| SCHOUBENBORG, B. & MALAGA, K. Proper Maintenance; a necessity for a long service life of natural stones. In <i>Needs and priorities in Stone Characterization</i> , Technical Edition 2 of OSNET | Main author | 2004 |
| Malaga, K., Åkesson, U., Lindqvist, J.E. & Schouenborg, B., Microscopic Studies of the Porosity of Marble as a function of temperature and impregnation, pp 131-138. <i>Proceedings of 10th International Congress on Deterioration and Conservation of Stone</i> . Ed. Kxiatkowski, D. & Löfvendahl, R. | Co-author | 2004 |
| Grelk, B., Schouenborg, B. & Brundin, J.A. Deterioration of thin marble cladding - Observations from the inspections of buildings with marble cladding in Europe. <i>Docomomo conference in N.Y.: Import-Export: Postwar modernism in an expanding world 1945-1975: Stone and Technology in the Modern Movement</i> | Co-author | 2004 |
| Åkesson, U, Grelk, B., Lindqvist, J.E. & Schouenborg, B.: Relationship between microstructure and bowing properties of calcite marble claddings. <i>PhD-thesis Earth Sciences Centre Göteborg University, A94 2004: Microstructures in granites and marbles in relation to their durability as a construction material</i> | Co-author | 2004 |
| Grelk, B., Christansen, C., Schouenborg, B., Brundin, J.A. & Alnaes, L.: Deterioration of thin marble cladding - Observations from the inspections of buildings with marble cladding in Europe. VIIIth <i>DOCOMOMO International Conference 2004</i> , <i>Technical Seminars, Stone and Technology in the modern movement</i> . | Co-author and speaker | 2004 |
| Malaga K., Åkesson, U., Lindqvist J. E. & Schouenborg B., Micro- and macroscopic study on the porosity of marble as a function of temperature and impregnation. <i>Materials and Structures</i> , 2005 | Co-author | 2005 |
| Schouenborg, B.: TEAM-Testarea si evaluarea acoperirilor cu marmura si calcar. TEAM-Teasting and Assesment of Marble and Limestone (in Romanian and English). In <i>Revista Romana de Materiale</i> , vol XXXIV, no. 2, 2004. | Author | 2004 |
| Åkesson U., Lindqvist JE, Schouenborg BE & Grelk B: Relationship between microstructure and bowing properties of calcite marble claddings. <i>Bulletin of Engineering Geology and the Environment</i> . Vol 65:1, 73-79. | Co-author | 2005 |
| Grelk B. & Schouenborg, B. & Malaga, K.: Deterioration of Thin Marble cladding, in <i>discovering STONE</i> , issue 9. pp 22-28 (http://www.infotile.com.au/magazines/discoveringstone) | Co-author | 2006 |

Scientific merits (publications and presentations)
for Björn Schouenborg
-2014

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| B. Schouenborg, B. Grelk and K. Malaga: Testing and Assessment of Marble and Limestone (TEAM) – Important Results from a Large European Research Project on Cladding Panels. <i>Journal of ASTM International, Vol 4, No. 5</i> | Main author | 2007 |
| B. Grelk, C. Christiansen, B. Schouenborg and K. Malaga: Durability of Marble Cladding – A Comprehensive Literature Review. <i>Journal of ASTM International, Vol 4, No. 4</i> | Co-author | 2007 |
| Malaga, K., Schouenborg, B. and Grelk B.: Combadura y dilatación de panels de piedra dura natural: ensayo y evaluacion de mármol y caliza. <i>Materiales de Construction. Vol. 58, 280-290. 2008.</i> | Co-author | 2008 |
| Grelk, B & Schouenborg, B. 2008: Deterioration of thin marble cladding - A major International Study". <i>Construction Journal of India</i> , June 2008, Volume 11, issue 06, pp. 36-41 | Co-author | 2008 |
| Grelk, B & Schouenborg, B. 2008: deterioration of Thin Marble Cladding – Observations from the Inspections of Buildings with Marble Cladding. <i>Docomomo - Preservation technology</i> , dossier 8, August 2008, pp. 109-114 | Co-author | 2008 |
| Tschegg, E., Jamek, M. & Schouenborg, B. 2008: Fracture properties of marble-mortar compounds. <i>Bulletin of Engineering Geology and the Environment</i> , 67: 199-208 | Co-author | 2008 |
| Schouenborg, B. & Yates, T., 2008: Import of non-European natural stones – What to think about, <i>DIMENSION STONES, ICDS, XXI century Challenges</i> . Proceedings of the second international congress. | Lecturer and session convenor | 2008 |
| Bams, V. & Schouenborg, B. “Discolouration and cleaning of natural stones, an area of many opinions”. Second international congress Dimension Stones, Carrara, 29-31 May | Co-author | 2008 |
| Alnaes, L, Aasly, K.A., Schouenborg, B & Grelk, B. “A joint-Nordic project on application documents for natural stones”. Second international congress Dimension Stones, Carrara, 29-31 May | Project leader and co-author | 2008 |
| Björn Schouenborg, B., Grelk, B., Döse, M., Lindqvist, J.E. & Åkesson, U. “Granites with discolouration - How to avoid them”. In Proceedings volume. Global stone Congress, Alicante 2010 | Lecture and ext. Abstract and international comm.. | 2010 |
| Åkesson, U., Lindqvist, J. E. & Schouenborg, B. ”AGA- THE METHOD TO DEMONSTRATE THE RELATIONSHIP BETWEEN MICROSTRUCTURE AND BOWING PROPERTIES OF CALCITE MARBLE CLADDINGS” In Proceedings volume. Global stone Congress, Alicante 2010 | Co-author | 2010 |
| Schouenborg, B. & Johansson, K. NATURAL STONE, AN ENVIRONMENTALLY HIGHLY COMPETITIVE BUILDING PRODUCT In Proceedings volume of XIX Congress of the Carpathian-Balkan, Geological Association, Thessaloniki, Greece, 23-26 September 2010 | Lecture and ext. abstract | 2010 |

Scientific merits (publications and presentations)
for Björn Schouenborg
-2014

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| Schouenborg, B. & Burton, D. 2011: Sustainable use of natural stone as paving material, EGU 2011 Conference, Vienna 5-7, May, 2011. | Lecture and abstract | 2011 |
| Schouenborg, B., Andersson, J., Döse, M. & Cornell, D. 2011: Natural stones of granite with a discolouration potential. Paper and presentation at the EMABM 2011 in Ljubljana. | Paper, Speaker, and session chairman | 2011 |
| Georgiadis, A. & Schouenborg, B. High Speed Milling and Drilling without Hammering. <i>1st ICSM: 1st International Conference on Stone and Concrete Machining, Hannover, 23-24th Nov</i> | Co-author | 2011 |
| Schouenborg, B. "Repair of a marble facade – a Swedish case study". Invited speaker, 34 th IGC, Brisbane | Speaker, author and session chair | 2012 |
| Schouenborg, B. ERE 3.4: NATURAL STONE RESEARCH AND HERITAGE STONE DESIGNATION at the EGU-conference in Vienna | Convenor | 2013 |
| Schouenborg, B. ERE 3.4: NATURAL STONE RESEARCH AND HERITAGE STONE DESIGNATION at the EGU-conference in Vienna | Co-convenor | 2014 |
| IAEG XII Congress in Torino , 5.3 - <i>Building stones & ornamental rocks - resource evaluation, technical assessment, heritage designation</i> | Convenor of sessions and workshop | 2014 |
| Brander, L. & Schouenborg, B.: CE-marking of natural stone – practical application and solutions in Sweden. Reviewed proceedings. IAEG Congress, Turin, 2104 | Co-author | 2014 |
| Schouenborg, B.: <i>Present challenges for the European stone industry</i> Global Stone Congress in Antalya, Turkey | Key-note speaker | 2014 |
| Brander, L. & Schouenborg, B.: Rock mechanics and petrography – results from the HYDRASPLIT project. 5th Global Stone Congress, Antalya, Turkey | Co-author | 2014 |
| Schouenborg, B. : <i>Nordmin Workshop om ballast och natursten, Trondheim</i> | Organisator and presenter | 2014 |
| Schouenborg, B., Andersson, J., Göransson, M & Lundqvist, I.: The Hallandia gneiss, a Swedish heritage stone resource. Geological Society of London, Special publication 407. Global Heritage Stone: Towards International recognition of Building and Ornamental Stones | Main author | 2014 |
| Pereira, D., Marker, B., Kramar, S., Cooper, B. & Schouenborg, B.: Global Heritage Stone. Towards international recognition of building and ornamental stones. Geological Society of London, Special publication 407. Global Heritage Stone: Towards International recognition of Building and Ornamental Stones | Co-author | 2014 |