



## Marie-Claude Dubois

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<b>Citizenship</b>	Canadian and Swedish citizen, born in Alma, Quebec, Canada (700209 8569)
<b>Languages</b>	Fluent (spoken/written): <b>French, English, Swedish</b>
<b>Academic Education</b>	1996–2001 <b>Lund Institute of Technology, Lund, Sweden</b> <ul style="list-style-type: none"><li>▪ Doctor of Philosophy (Ph. D., 2001), Construction and Architecture</li><li>▪ Technical licentiate in Engineering (Tekn. Lic., 1998), Building Science</li></ul> 1989–1996 <b>Laval University, Quebec, Canada</b> <ul style="list-style-type: none"><li>▪ Masters of Architecture, Climatic Design (M. Arch., 1996)</li></ul>
<b>Professional Experience</b>	2020–2021 <b>Associate Professor (on sabbatical from LTH, 80%) Institute for Biosystems and Twchnology, Swedish University of Agriculture Sciences (SLU), Alnarp</b> <ul style="list-style-type: none"><li>▪ Teaching of undergraduate courses on building technology as part of the lantmästare (agriculture) program</li><li>▪ Research project on Agrovoltatics and participation on research applications</li></ul> 2010–today <b>Researcher (2010-2012), Lecturer (2013-2015, 80%), Associate Professor (Docent, 2016-today, 80%) Division of Energy and Building Design, Inst. for Arch. and the Built Environment, Lund Institute of Technology, Lund, Sweden</b> <ul style="list-style-type: none"><li>▪ Leadership and collaboration in national, European and International research projects:<ol style="list-style-type: none"><li>1) 'Koppling mellan dagsljus och energiparametrar i täta stadsmiljöer', Licentiate project funded by Skanska and SBUF, 4 MSEK.</li><li>2) 'Solving the BIM + energy performance + healthcare equation: Tool and work process for cost-effective and energy performing healthcare design', Licentiate project funded by White arkitekter and Swedish Energy Agency, 2 MSEK.</li><li>3) 'Daylight in the dense city' (2016-2020), project leader, in collaboration with: BAU arkitekter, White arkitekter, Skanska, NCC, Bengt Dahlgren. Funded by Swedish Energy Agency and SBUF 3,5 MSEK (Swedish Energy Agency), 300 000 SEK (ARQ stiftelse).</li><li>4) 'Daylight utilization in Buildings' (2016-2017), project leader, in collaboration with: BAU arkitekter, White arkitekter, Skanska, NCC, Bengt Dahlgren. Funded by Swedish Energy Agency and SBUF 1,2 MSEK.</li><li>5) 'Solavskärmningar i ett helhetsperspektiv: från energieffektivitet till energiproduktion och från produkt till arkitektur' (2016-2017), participant, in collaboration with SP Sveriges Tekniska Forskningsinstitut (resp. Peter Kovacs), 5,7 MSEK.</li><li>6) 'IEA Task 50: Advanced Lighting Solutions for Retrofitting Buildings' (2013-2016), leader of Subtask D on 'Case studies, funded by the Swedish Energy Agency (Statens energimyndigheten), 1,5 MSEK.</li><li>7) 'Energy-efficient office buildings with low internal gains: simulations and design guidelines' (2009-2012), co-project leader, funded by SBUF, CERBOF and NCC.</li><li>8) 'IEA Task 41 Solar Energy and Architecture' (2009-2012), leadership of Subtask B on 'Methods and Tools for Solar Design', funded by Natural Resources Canada.</li></ol></li></ul>

- 9) 'IDES-EDU: Master and Post Graduate education and training in multi-disciplinary teams implementing EPBD and beyond', participant, funded by Intelligent Energy Europe (IEE).
- Teaching of undergraduate and graduate courses as part of the architecture programme and the international Master in Energy-efficient and Environmental Buildings, Campus Helsingborg.
- Supervision of PhD theses (current: Iason Bournas, Marie-France Stendahl, Emanuele Pepe) and final Master's theses (Ex jobb), 1-4 per year.

2012–2020

**Miljöspecialist, environmental specialist (20%)**

**White arkitekter, Malmö, Sweden**

**Publications** 1518 citations (1023 since 2015), h-index 21 (17 since 2015), I 10-index 41 (27 since 2015)

**Peer-reviewed articles (since 2010)**

- 1) Bournas I & Dubois M-C (2020). Residential electric lighting use during daytime: a field study in Swedish multi-dwelling buildings. *Building and Environment*. Volume 180, August 2020, 10697.
- 2) Bournas I, Dubois M-C, Laike T (2019). Perceived daylight conditions in multi-family apartment blocks – Instrument validation and correlation with room geometry. *Building and Environment*. 169 (2020). <https://doi.org/10.1016/j.buildenv.2019.106574>.
- 3) Bournas I, Dubois M-C, Laike T (2019). Relation between occupant perception of brightness and daylight distribution with key geometric characteristics in multi-family apartments of Malmö, Sweden. *Journal of Physics: Conference Series*, Volume 1343, conference 1. DO - 10.1088/1742-6596/1343/1/012161
- 4) Bournas I & Dubois M-C (2019). Daylight regulation compliance of existing multi-family apartment blocks in Sweden. *Building and Environment* 150: 254-265.
- 2) Gentile N & Dubois M-C (2017). Field data and simulations to estimate the role of standby energy use of lighting control systems in individual offices. *Energy and Buildings*, 155 (15): 390-403.
- 3) Bournas I, Abugabbara M, Balcerzak A, Dubois M-C, Javed S (2016). Energy renovation of an office building using a holistic design approach. *Journal of Building Engineering*. *Journal of Building Engineering*, 7(2016): 194-206.
- 4) Gentile N, Dubois M-C, Osterhaus W, et al. (2016). A toolbox to evaluate non-residential lighting and daylighting retrofit in practice. *Energy and Buildings*, 123, pp.151–161. Doi: 10.1016/j.enbuild.2016.04.026
- 5) Diéguez AP, Gentile N, von Wachenfelt H, Dubois M-C (2016). Daylight utilization with light pipe in farm animal production: a simulation approach. *Journal of Daylighting*. 3(1), 1-11.
- 6) Dubois M-C, Gentile N, Amorim C N D, Osterhaus W, Stoffer S, Jakobiak R, ... & Tetri E (2016). Performance Evaluation of Lighting and Daylighting Retrofits: Results from IEA SHC Task 50. *En-ergy Procedia*, 91, 926-937.
- 7) Von Wachenfelt H, Vakouli V, Pacheco Diéguez A, Gentile N, Dubois M-C, Jeppsson K-H (2015). Can light pipe technology reduce electricity use and improve daylight in pig stables? *Journal of Daylighting*. 2(2015): 21-31. ISSN 2383-8701.
- 8) Gentile N, Dubois M-C, Osterhaus W, et al (2015). Monitoring Protocol to Assess the Overall Performance of Lighting and Daylighting Retrofit Projects. Presented at 6th IBPC, Turin, Italy. *Energy Procedia*, 78, pp.2681–2686.
- 9) Dubois M-C, Bisegna F, Gentile N, Knoop M, Matusiak B, Osterhaus W, Tetri E (2015). Retrofitting the electric lighting and daylighting systems to reduce energy use in buildings: a literature review. *Energy Res. J.* 6, 25–41. doi:10.3844/erjsp.2015.25.41
- 10) Kanters J, Wall M, Dubois M-C (2014). Typical values for active solar energy in urban planning. *Energy Procedia*. 48 (2014): 1607 – 1616.
- 11) Kanters J, Wall M, Dubois M-C (2014). Development of a façade assessment and design tool for solar energy (FASSADE). *Buildings*, 4(1):43-59.

- 12) Gentile N, Laike T, Dubois M-C (2014). Lighting control systems in peripheral offices rooms at high latitude: measurements of electricity savings and users preferences. *Solar Energy*. 57 (2014): 1987–1996.
- 13) Kanters J, Horvat M and Dubois M-C (2014). Tools and methods used by architects for solar design. *Energy and Buildings*. 68 (2014): 721–731.
- 14) Dubois M-C & Flodberg K (2013). Daylight utilization in perimeter office rooms at high latitudes: Investigation of key design features by computer simulations. *Light. Res. Technol.* 45(1): 52-75.
- 15) Horvat M, Dubois M-C (2012). Tools and methods for solar design – an overview of IEA SHC Task 41, Subtask B. *Energy Procedia*. 30(2012): 1120–1130.
- 16) Flodberg K, Blomsterberg Å, Dubois M-C (2012). Low-energy office buildings using existing technology: Simulations with low internal heat gains. *Int J Energy Environ Eng* (2012) 3: 19. <https://doi.org/10.1186/2251-6832-3-19>
- 17) Kanters J, Dubois M-C, Wall M (2012). Architects' design process in solar-integrated architecture in Sweden. *Architectural Science Review*. 56 (2): 141-151.
- 18) Wall M, Munari Probst MC, Roecker C, Dubois M-C, Horvat M, Bruun Jorgensen O, Kappel K (2012). Achieving solar energy in architecture - IEA SHC Task 41. *Energy Procedia*. 30 (2012): 1250–1260.
- 19) Dubois M-C & Blomsterberg Å (2011). Energy saving potential and strategies for electric lighting in future low energy office buildings: a literature review. *Energy and Buildings*, 43 (2011): 2572–2582.
- 20) Cantin F & Dubois M-C (2011). Daylighting metrics based on illuminance, distribution, glare and directivity. *Lighting Res. Technol.* 2011 (43): 291-307.
- 21) Arsenault H, Hébert M & Dubois M-C (2011). Effects of glazing colour types on daylight quality, arousal and switch-on patterns for electric lights. *Building and Environment*, 56 (2012): 223-231.

**Peer-reviewed conference papers (since 2010)**

- 1) Ferreira T, Bournas I, Dubois M-C (2019). Effect of atrium geometry and reflectance on daylighting in adjacent rooms. CISBAT 2019 International Scientific Conference, 4-6 September 2019, EPFL Lausanne, Switzerland.
- 2) Angeraini S, Dubois M-C, Diéguez AP, (2018). Iterative Daylight and Energy Simulations in Designing a New Major Hospital Building in Malmö, Sweden. *Conf. Building Simulation 2019*, Rome, Italy, September 2019.
- 3) Gentile N, Dubois M-C, Laike T (2015). Daylight Harvesting Control Systems: Design recommendations based on a literature review, in: *Environment and Electrical Engineering (EEEIC)*, 2015 IEEE 15th International Conference. Rome, Italy, pp. 632–637. doi:10.1109/EEEIC.2015.7165237
- 4) Paule B A, Kaempf J H, Dubois M-C (2015). Lighting retrofit in current practice: Evaluation of an IEA survey. *CISBAT Conf.*, Lausanne (Switz.), October 2015.
- 5) Gentile N, Laike T, Dubois M-C (2013). Lighting control systems in peripheral offices rooms at high latitude: measurements of electricity savings and users preferences. *Proc. of ISES SWC 2013*, Cancún, Mexico.
- 6) Gentile N, Håkansson H, Dubois M-C (2013). Lighting control systems in individual offices at high latitude: measurements of lighting conditions and electricity savings. *Publications Office of the European Union*, Frankfurt, pp. 333–344. doi:10.2790/77021
- 7) Gentile N, Håkansson H, Dubois M-C (2012). Lighting control systems in individual offices at high latitude: measurements of daylight utilization and electricity savings. *Proc. of IECEB 2012 Seventh International Conference on Improving Energy Efficiency in Commercial Buildings (IECEB'12)*, Frankfurt, Germany.
- 8) Dubois M-C, Du J (2012). Landscape offices at high latitude: daylight autonomy and electric lighting savings in relation to key design features. *Proc. of IECEB 2012 Seventh International Conference on Improving Energy Efficiency in Commercial Buildings (IECEB'12)*. Frankfurt, Germany.

- 9) Dubois M-C, Flodberg K, Blomsterberg Å (2011). Daylight autonomy and useful daylight illuminance in low-energy Swedish office rooms. 4th Nordic Passive House Conference, 17-19 October, 2011 Helsinki, Finland.
- 10) Arsenault H, Hébert M, Dubois M-C (2011). Effects of glazing colour types on daylight quality, arousal and switch-on patterns for electric lights in a scaled office room. Glass Performance Days Conf., Tampere (Finland), 17-20 June.
- 11) Arsenault H, Hébert M, Dubois M-C (2011). Glazing colour types, daylight quality, arousal and switch-on patterns for electric lights. CISBAT Conf., Lausanne (Switz.), Sept. 14-16, 2011. Book of abstracts p. 70 and paper published on CD-rom.
- 12) Dubois M-C, Horvat M, Kanters J (2011). Design tools and methods used by architects for solar design: results of an international survey in 14 countries. CISBAT Conf., Lausanne (Switz.), Sept. 14-16. Book of abstracts p. 178.
- 13) Dubois M-C & Blomsterberg Å (2011). Energy saving potential and strategies for electric lighting in future low energy office buildings: a literature review. CISBAT Conf., Lausanne (Switz.), Sept. 14-16, 2011. Book of abstracts p. 78 and paper published on CD-rom.
- 14) Bouffard E, Gagnon S, Kanters J, Dubois M-C, Horvat M (2011). Adequacy of current design tools and methods for solar architecture – results of IEA-SHC Task 41's international survey. PLEA Conf., Louvain, Belgium, July 2011.

#### **Other conference papers (since 2015)**

- 1) Bournas I, Lundgren M, Alenius M, Dubois M-C (2017). Urban densification affects daylighting: existing daylight levels in Swedish multi-family housing as a base for future daylight requirement. 3rd International Conference on "Changing Cities": Spatial, Design, Landscape & Socio-economic Dimensions, 26-30 June 2017, Syros, Greece.
- 2) Dubois M-C & Rogers P (2017). Daylight levels in existing Swedish residential buildings as a base for modernized national regulations, Public presentation at the Velux Daylight Symposium, Berlin, 3-4 May 2017. <https://www.youtube.com/watch?v=x7VE-V0-fpY>
- 3) Dubois M-C, Erlendsson Ö, Ebrahimabadi S, Eklund A, de Bruin N (2016). A wind-sun exposure analysis method to predict pedestrian urban comfort at early design stage: Regnbågensallén at Luleå University Campus in Sweden. Conf "Beyond ism", Alnarp, Sweden, October 2016.

#### **Book chapters, books**

- 1) Dubois M-C, Gentile N, Laike T, Bournas I, Alenius M (2019). Daylighting and Lighting under a Nordic Sky (book). Studentlitteratur, Lund. 422 pages.
- 2) Dubois M-C (2013). A review of energy saving potential and strategies for electric lighting in future low energy office buildings. Book Chapter. In Rose L. (ed.). Energy: Modern energy storage, conversion, and transmission in the 21st century, pp. 47-78. Nova Science Publishers 'Energy Storage, Conversion and Transmission Technology'. Nova Publishers.

#### **Technical reports (since 2015)**

- 1) Rogers P, Dubois M-C, Tillberg M, Östbring M (2018). Moderniserad dagsljusstandard. Report SBUF ID: 13209, November 2018, available online <http://www.bau.se/wp-content/uploads/2018/12/SBUF-13209-Slutrapport-Moderniserad-dagsljusstandard.pdf>
- 2) Bournas I & Dubois M-C (2018). Daylight in multi-family housing: Results of a daylight survey in Malmö, Sweden. Report to Arkus, Stockholm.
- 3) Dubois M-C, Angeraini S J, Bournas I, Haav L, Levin T, Shalaby M (2017). Innovative solutions for good daylighting and low energy use in multi-family dwellings: MKB Greenhouse, Malmö, Sweden, final report E2B2. Online [https://www.e2b2.se/library/3529/slutrapport\\_dagsljuskraav\\_i\\_miljocertifierade\\_byggnader-laengre-version.pdf](https://www.e2b2.se/library/3529/slutrapport_dagsljuskraav_i_miljocertifierade_byggnader-laengre-version.pdf).
- 4) Dubois M-C & Gentile N (Ed.) (2015). Monitoring protocol for lighting and daylighting retrofits. Report T.50.D.3. International Energy Agency (IEA), Task 50 Advanced Lighting Solutions for Retrofitting Buildings. 89 pages. Under revision.