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Edited by
Daniel Mugnier, Daniel Neyer, and Stephen D. White

The Solar Cooling Design Guide

Case Studies of Successful Solar Air Conditioning Design

Solar Heating and Cooling

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The Solar Cooling Design Guide

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Cover: Admiral Building in Arche Jacques Coeur, Montpellier, France. The view is showing one part of the solar collector field feeding the solar cooling system for the building. The view is showing as well the upper part of the technical premice including both solar cooling absorption chiller, heat rejection device and back up compression chillers.

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Dr Daniel Mugnier is currently head of the R&D department at TECSOL, one of the leading French solar engineering companies. He is graduated as an Engineer from Ecole des Mines d'Albi (France, 1999) and has a PhD from Ecole des Mines de Paris (France, 2002). He has a long professional experience in engineering solar thermal systems for large DHW applications and above all solar heating and cooling systems. He is also involved in numerous R&D projects on solar cooling at the national, European and international level. He is author of several publications and presentations at international conferences on solar cooling. TECSOL has achieved more than 50 feasibility studies on solar cooling and designed 15 currently working solar heating and cooling installations since 1990. Dr Mugnier is currently Vise Chairman of the European Solar Thermal Technology Platform, as well as Vise Chair of the IEA SHC Program. He was, from 2011 to 2015, Operating Agent of the IEA Solar Heating and Cooling Program for Task 48 (task48.iea-shc.org/) and is currently Operating Agent of the IEA Solar Heating and Cooling Program for Task 53, dedicated to the New Generation of Solar Cooling and Heating Systems (PV or solar thermally driven systems; task53.iea-shc.org/).

Daniel Neyer is senior researcher at the Unit for Energy Efficient Building at the University of Innsbruck in Austria, associate lecturer at Applied Universities in Salzburg and Upper Austria, and CEO of his consulting company for renewable energies and energy-efficient building. He is an Engineer holding a Masters degree in Eco Engineering and a Masters degree in Mechatronics with a special focus on buildings and renewable energy (domotronics). He gathered 10 years of R&D experience at the Applied University of Upper Austria, Technical University of Graz and University of Innsbruck. His PhD thesis considers design, dynamic control and assessment of solar heating and cooling systems. He is involved in several national and international projects as a participant or coordinator and is an Austrian expert in the IEA SHC Tasks 38/48/53. His main fields of activities are numerical simulations in HVACs and buildings, component and system optimization, as well as assessment and benchmarking of renewable heating and cooling systems.

Dr Stephen White leads CSIROs energy efficiency research, and he is a Program Leader in the Low-Carbon-Living Cooperative Research Center. He has more than 30 international journal publications in air-conditioning and refrigeration. He has played a leading role in a number of award-winning solar cooling showcase installations, and in the development of the world's first AS5389 Technical Standard for Solar Heating and Cooling. He chairs the AIRAH Solar Cooling Special Technical Group, the ASBEC Sustainable Housing Task Group, and was a subtask leader in the IEA Solar Heating and Cooling Program Task 48 (task48.iea-shc.org/). He is on the International Advisory Board of the *International Journal of Refrigeration*, and is a member of the Australian Airconditioning and Buildings Services (ARBS) "Hall of Fame."

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