Stirling Solar cooling

The requirements, comfort needs and expectations for facades have increased, so has the need for energy efficient design. Present climate systems are using a lot of energy, especially to control heat and cooling loads. The cool load and solar power often occur at the same time and an increase of solar power often increases the cool load of a building. In the development of solar harvesting plants the Stirling engine is used as a clean, low maintenance and efficient engine to create electricity. In this research the possibilities are explored for a Stirling system driven by solar energy, the consequences of integrating such a system into the facade and the possible performance. In this system the increase of solar power can increase the cooling power. This leads to an increase of a free source of energy when the cool load is increasing.

The development and research on the Stirling engine is still in progress and is not yet been integrated in a system in the facade for the purpose of cooling an office building. This causes the calculations on performance and comparison to other system to be an estimation which in time could be revised and updated.