Magnetic Refrigeration

Magnetic refrigeration is an innovative and potential low carbon technology. The technology is based on changing magnetic fields that produces a cooling effect. Using this technology refrigerators and air conditioners can significantly reduce the amount of electricity required. Also, as this technology does not need refrigerant, only heating or cooling fluid which could be water-based, this eliminates the possibility of refrigerant leakage and no direct CO_2 emissions.

Based on investigation of innovative or new technologies, project teams must demonstrate 5% reduction in energy demand can be achieved through its implementation. Building energy modelling software shall be used to model the building and to evaluate the performance of energy reduction strategies. Guidance on energy modelling requirements is provided in *Regulation 505.03: Efficiency of Building Performance.*

COMPLIANCE DOCUMENTATION

Table 505.01(1): Documents Required

Project Stages	Submittal Documents
Design Permit Application	1. Descriptive report of the techniques and measures used to reduce energy demand. 2. Energy modeling and simulation report along with input and output summary details.
Construction Completion Application	1. Equipment or materials technical data-sheet for the considered energy conservation measures. 2. Delivery notes for the installed systems.
After Completion	1. Performance and commissioning report.

REFERENCES AND ADDITIONAL INFORMATION

Dubai Municipality. (2018). Al Sa'fat Dubai Green Building Systems: Regulations 505.03 – Efficiency of Building Performance.

American Society of Heating, Refrigerating and Air-Conditioning Engineers. (2016). ASHRAE standard 90.1: Energy Standard for Buildings Except Low-Rise Residential Buildings, www.ashrae.org.

Yebiyo. M and Maidment, G. (2016). What's so attractive about magnetic refrigeration? CIBSE Journal, Retrieved from www.cibsejournal.com.