crossCert

Next-generation of Energy Performance Assessment and Certification

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 101033778

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Next-generation of Energy Performance Assessment and Certification

Overview of current EPC methodologies and Building Renovation Passports

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22nd June 2022

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Energy Performance Certification – Regulations

- **Regulation:**
  - Energy Performance of Buildings Regulations, 2018 - Legal Notice 47 of 2018, Transposing Directive 2010/31/EU of the European Parliament and of the Council on the energy performance of buildings
  - Superseded regulation: Legal Notice 261 of 2008 / Legal Notice 376 of 2012

- **Body/institution responsible for:**
  Building and Construction Authority (BCA) - Ministry for Transport, Infrastructure and Capital Projects

Energy Performance Certification – Regulations

- **Who can perform EPCs?**

"EPB assessors" duly registered with the Building Regulation Office – in possession of a warrant to practice the profession of architect and, or civil/structural engineer, or mechanical or electrical engineer, and who has also successfully undertaken a period of training on the assessment of the energy performance of buildings built in Malta

- **Certificate Validity:**

10 years (unless major renovations or alterations to the building/installation have taken place)

Control and Verification

- **EPC is obligatory for:**
- Buildings which are constructed, sold or rented out to a new tenant
- Buildings where a total useful floor area over 250m^2 is occupied by a public authority and frequently visited by the public.
- **Control and verification:**
- BCA performs control and verification of EPCs
- A random selection of at least a statistically significant percentage of all the energy performance certificates issued annually is performed and subjected to verification.
- **Official Registry/Database:**

EPC data is uploaded by the EPB assessors in electronic format (xml) together with a photo of the facade or front elevation, site plan and comments / recommendations on the dedicated web platform

Procedures and Sofware

- **Procedures**

A site visit by the assessor is obligatory for asset rating EPCs. The recommendation report shall indicate cost-effective measures.

- **Dwelling EPCs Software**

National calculation tool developed is the 'Energy Performance Rating of Dwellings in Malta' (EPRDM)

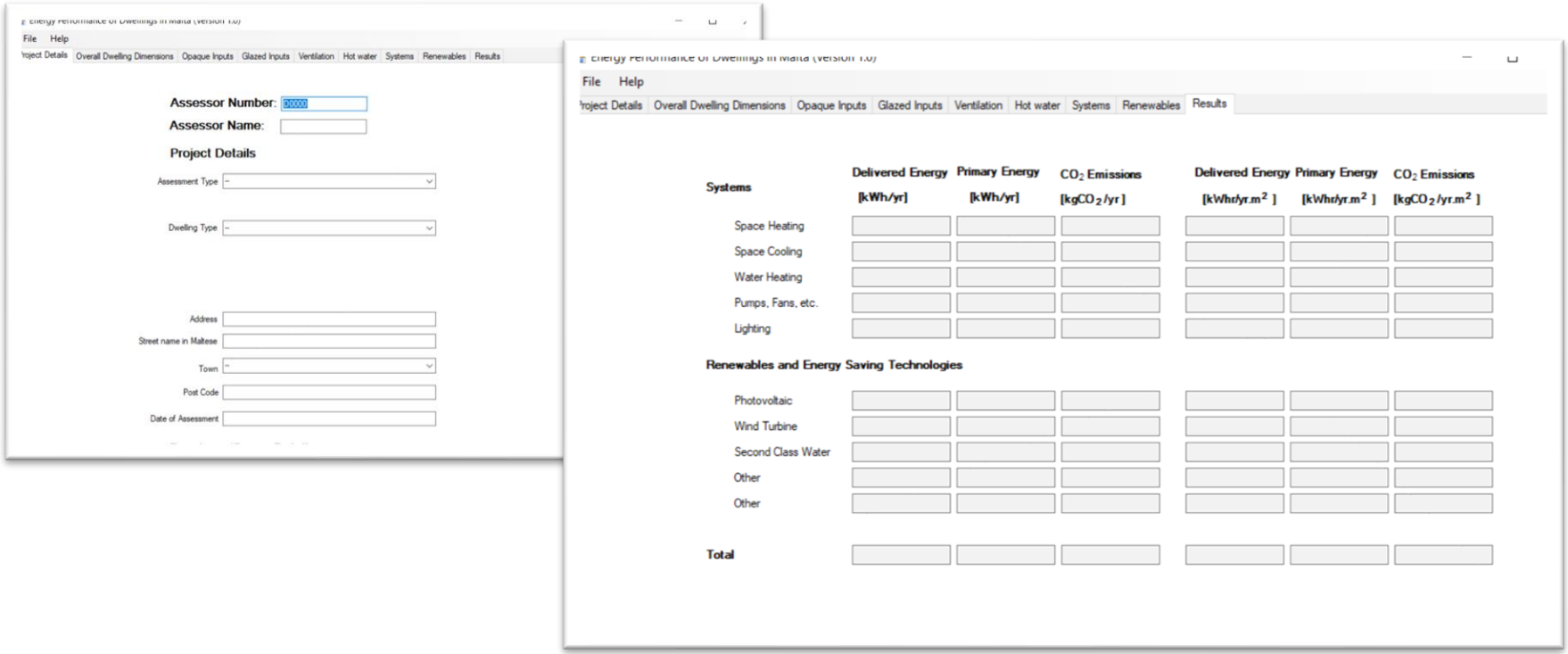
Used for both design and asset rating EPCs

- **Non-dwelling EPCs Software**

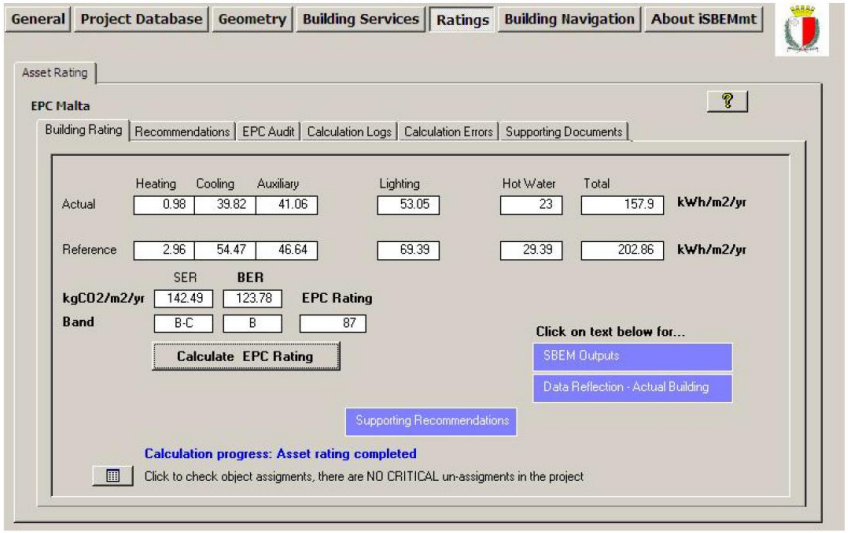
iSBEMmt methodology and software: Simplified Building Energy Model

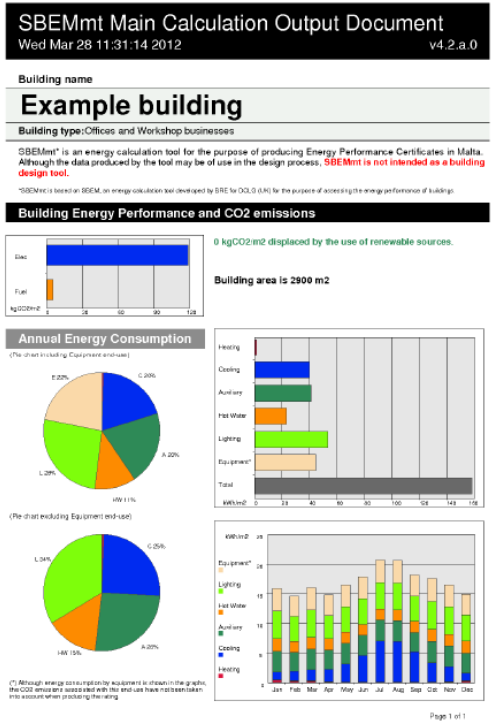
Used for both design and asset rating EPCs.

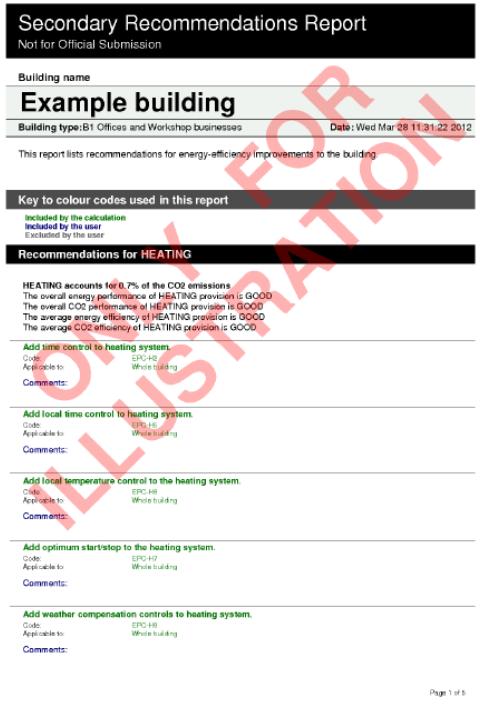
EPRDM Software (*dwellings certification*)



iSBEMmt Software (*non-dwellings certification*)







The Energy Performance Certificate

- **What does a typical certification entail?**

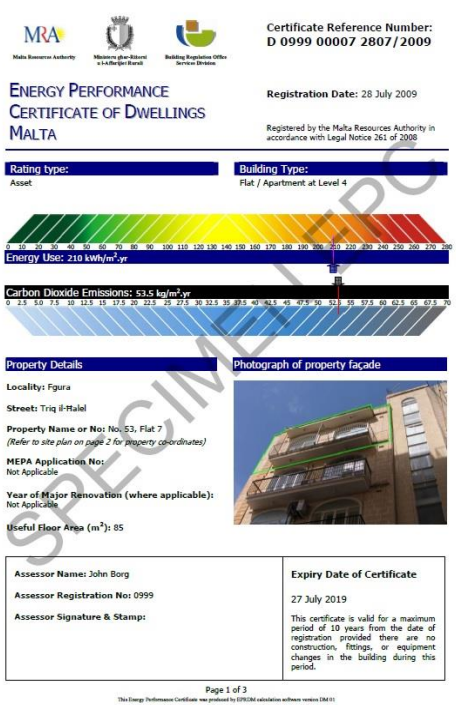
Site visit (for asset rating EPCs), collect data in relation to the building envelope (walls, glazing, roof, shading) and systems (HVAC, lighting, renewable energy)

- **EPC documents:**

EPC xml file, facade photo or front elevation plan, building site plan, recommendations report

- **Basic info of EPC:**
  - Building type
  - Energy rating for dwellings (kWh/m^2.year, CO_2 emissions)
  - Energy label (A-G) for non-dwellings
  - Description of the energy characteristics of the building (building envelope and technical systems)
  - Potential energy efficiency interventions

EPC Specimen (*dwellings*)



MRA
Malta Resources Authority

Ministeru ghar-Riżorsi u l-Affarijiet Rurali

Building Regulation Office Services Division

Certificate Reference Number:
D 0999 00007 2807/2009

ENERGY PERFORMANCE CERTIFICATE OF DWELLINGS MALTA

Registration Date: 28 July 2009

Registered by the Malta Resources Authority in accordance with Legal Notice 261 of 2008

Rating type:
Asset

Building Type:
Flat / Apartment at Level 4

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280

Energy Use: 210 kWh/m².yr

Carbon Dioxide Emissions: 53.5 kg/m².yr

0 2.5 5.0 7.5 10 12.5 15 17.5 20 22.5 25 27.5 30 32.5 35 37.5 40 42.5 45 47.5 50 52.5 55 57.5 60 62.5 65 67.5 70

Property Details

Locality: Fgura

Street: Triq il-Ħalel

Property Name or No: No. 53, Flat 7
(Refer to site plan on page 2 for property co-ordinates)

MEPA Application No:
Not Applicable

Year of Major Renovation (where applicable):
Not Applicable

Useful Floor Area (m²): 85

Photograph of property façade

Assessor Name: John Borg

Assessor Registration No: 0999

Assessor Signature & Stamp:

Expiry Date of Certificate

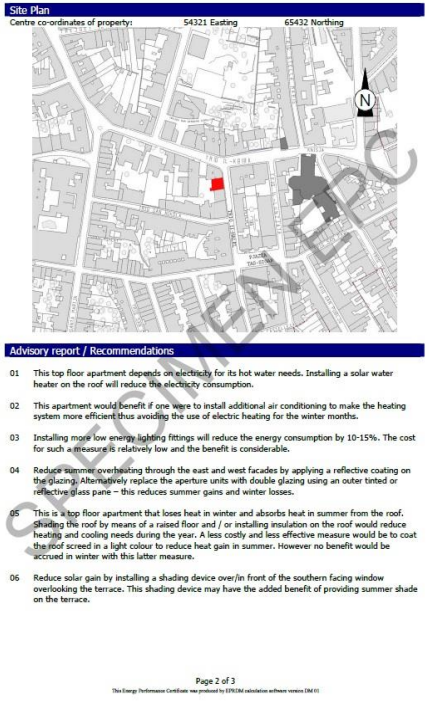
27 July 2019

This certificate is valid for a maximum period of 10 years from the date of registration provided there are no construction, fittings, or equipment changes in the building during this period.

Page 1 of 3

This Energy Performance Certificate was produced by EPSUM calculation software version DM 01

SPECIMEN EPC



Site Plan

Centre co-ordinates of property: 54321 Easting 65432 Northing

N

Advisory report / Recommendations

01 This top floor apartment depends on electricity for its hot water needs. Installing a solar water heater on the roof will reduce the electricity consumption.

02 This apartment would benefit if one were to install additional air conditioning to make the heating system more efficient thus avoiding the use of electric heating for the winter months.

03 Installing more low energy lighting fittings will reduce the energy consumption by 10-15%. The cost for such a measure is relatively low and the benefit is considerable.

04 Reduce summer overheating through the east and west facades by applying a reflective coating on the glazing. Alternatively replace the aperture units with double glazing using an outer tinted or reflective glass pane – this reduces summer gains and winter losses.

05 This is a top floor apartment that loses heat in winter and absorbs heat in summer from the roof. Shading the roof by means of a raised floor and / or installing insulation on the roof would reduce heating and cooling needs during the year. A less costly and less effective measure would be to coat the roof screed in a light colour to reduce heat gain in summer. However no benefit would be accrued in winter with this latter measure.

06 Reduce solar gain by installing a shading device over/in front of the southern facing window overlooking the terrace. This shading device may have the added benefit of providing summer shade on the terrace.

Page 2 of 3

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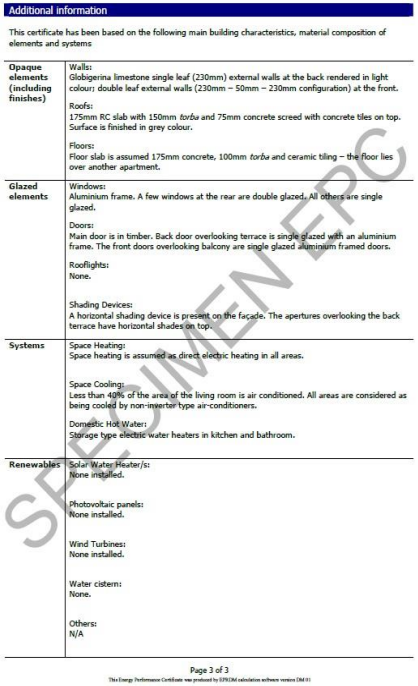
SPECIMEN EPC



Additional information

This certificate has been based on the following main building characteristics, material composition of elements and systems

Opaque elements (including finishes)	Walls: Globigerina limestone single leaf (230mm) external walls at the back rendered in light colour; double leaf external walls (230mm – 50mm – 230mm configuration) at the front. Roofs: 175mm RC slab with 150mm *torba* and 75mm concrete screed with concrete tiles on top. Surface is finished in grey colour. Floors: Floor slab is assumed 175mm concrete, 100mm *torba* and ceramic tiling – the floor lies over another apartment.
Glazed elements	Windows: Aluminium frame. A few windows at the rear are double glazed. All others are single glazed. Doors: Main door is in timber. Back door overlooking terrace is single glazed with an aluminium frame. The front doors overlooking balcony are single glazed aluminium framed doors. Rooflights: None. Shading Devices: A horizontal shading device is present on the façade. The apertures overlooking the back terrace have horizontal shades on top.
Systems	Space Heating: Space heating is assumed as direct electric heating in all areas. Space Cooling: Less than 40% of the area of the living room is air conditioned. All areas are considered as being cooled by non-inverter type air-conditioners. Domestic Hot Water: Storage type electric water heaters in kitchen and bathroom.
Renewables	Solar Water Heater/s: None installed. Photovoltaic panels: None installed. Wind Turbines: None installed. Water cistern: None. Others: N/A

Page 3 of 3

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SPECIMEN EPC

The Future: Building Renovation Passports

A **Building Renovation Passport** is a document – in electronic or paper format – outlining a long-term (up to 15-20 years) step-by-step renovation roadmap to achieve deep renovation for a specific building.

It supports owners with personalised advice on their renovation options and clarifies the renovation stages for all involved parties.

Building Renovation Passports

SOURCE: Building Renovation Passports: Creating the pathway to zero carbon homes, A report by the Green Finance Institute's Coalition for the Energy Efficiency of Buildings Green Finance Institute, UK

Thank you!

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