



# INTRODUCTION TO SAP CALCULATIONS AND ENERGY PERFORMANCE CERTIFICATES

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# ISLE OF MAN GOVERNMENT'S CLIMATE CHANGE POLICY

Priority actions, which have been initiated over the previous 12 months, include:

- Improving energy efficiency in buildings.
- Creating green jobs and a skilled workforce to deliver net-zero carbon.
- Further developing low carbon travel options.
- Renewable energy initiatives and grants.
- Promoting natural carbon capture.
- A future ban on diesel and petrol engine cars by 2040.
- A ban on new-build housing having fossil fuel boilers as early as 2025.







## Green Living Grants Scheme in 2021

- Designed to assist the energy efficiency of existing housing stock.
- Residents can claim up to £6,000 towards improvements that will make your home more energy-efficient.
- A qualified domestic energy assessor will undertake a free Energy Performance Certificate ('EPC').
- The EPC will provide you with your current rating and suggested improvements to improve your rating.
- A building must be rated a 'D' or under by the EPC to qualify for support.



# IMPROVING THE ENERGY EFFICIENCY IN BUILDINGS

## Implementation of Approved Document L (Part L):

- Supersession of Building Regulation Order 2014.
- 'Standard Assessment Procedure' ('SAP') for new and some existing dwellings.
- 'Simplified Building Energy Model' ('SBEM') for non dwellings (commercial properties).



## WHAT IS A SAP CALCULATION?

- An asset rating system introduced under Building Regulation Approved Document L to assess the annual energy use of new dwellings.
- Measures how much energy is needed to heat, ventilate and light your home.

A SAP calculation indicates a score from 1 to 100+

- **100 = Zero energy costs for the end-user.**
- **100+ = Energy exporter.**



# Minimum SAP Ratings introduced for the Isle of Man- New Builds:

- 1st January – 31st December 2020: 80
- 1st January 2021 - 31st December 2023: 88
- 1st January 2024 - 31st December 2026: 93
- 1st January 2027 onwards: 97







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## **Inputs into SAP calculation:**



- Materials used in construction.
- Thermal resistance of main building elements.
- Airtightness – how much air is lost through leaks in the building fabric.
- Thermal bridging.
- Efficiency & control of heating system.
- Solar gains.
- Type of fuel used.
- Renewable technologies.

## **Outputs (annual data):**



- Energy Consumption per kWh.
- Carbon Emissions.
- Predicted Running Costs.
- SAP score.





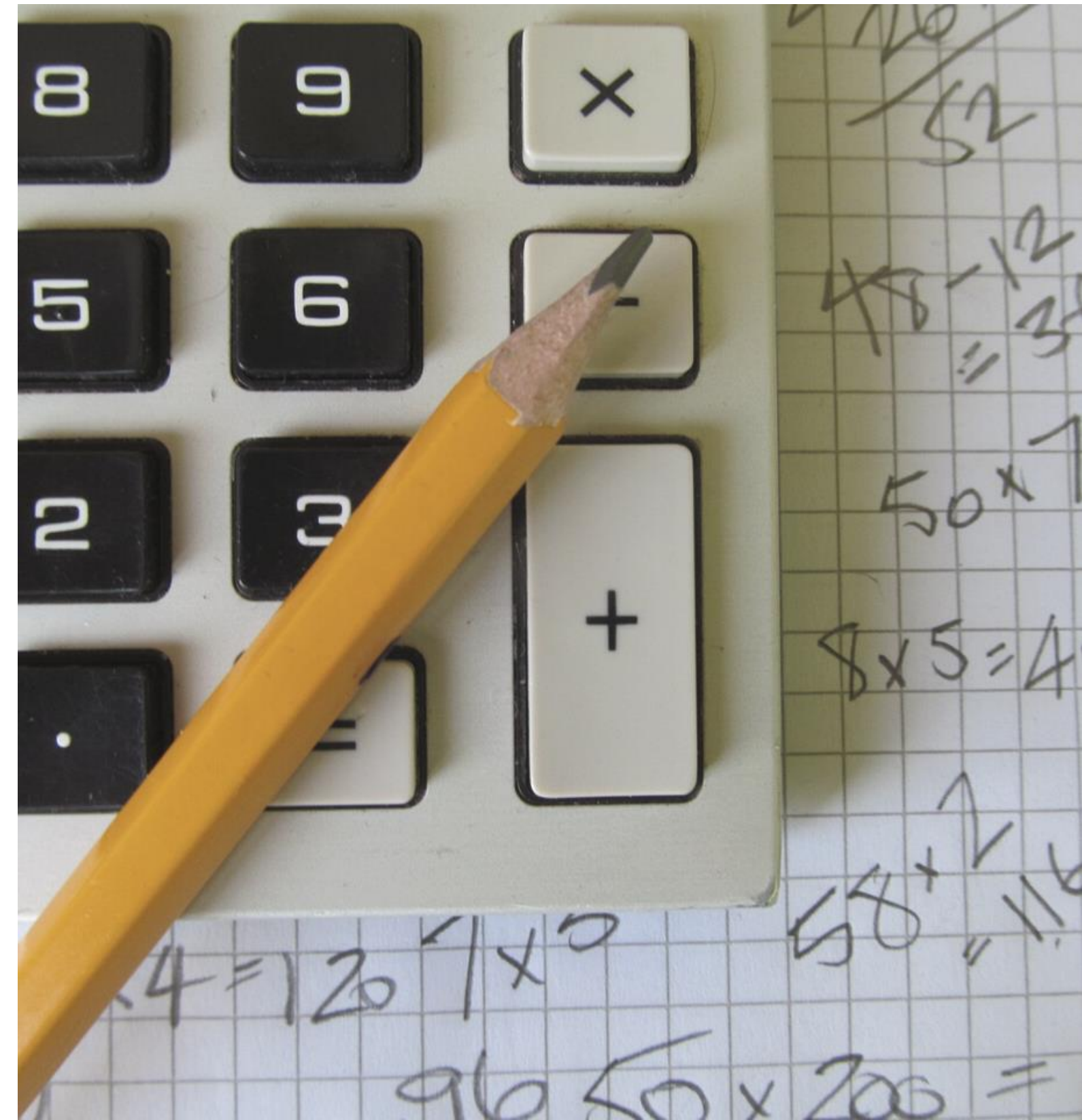
# WHAT BUILDING PROJECTS REQUIRE A SAP CALCULATION?

## All new build houses (Part L1A):

- At the 'as designed' stage (to be submitted as part of the Building Control application).
- At the 'as-built' stage (required to get final sign-off from Building Control).

**A heavily glazed extension (Part L1B) where the glazing is greater than 25% of the floor area of the extension.**

**Change of use as defined by Part L1B, for example, a change of use from commercial to residential.**





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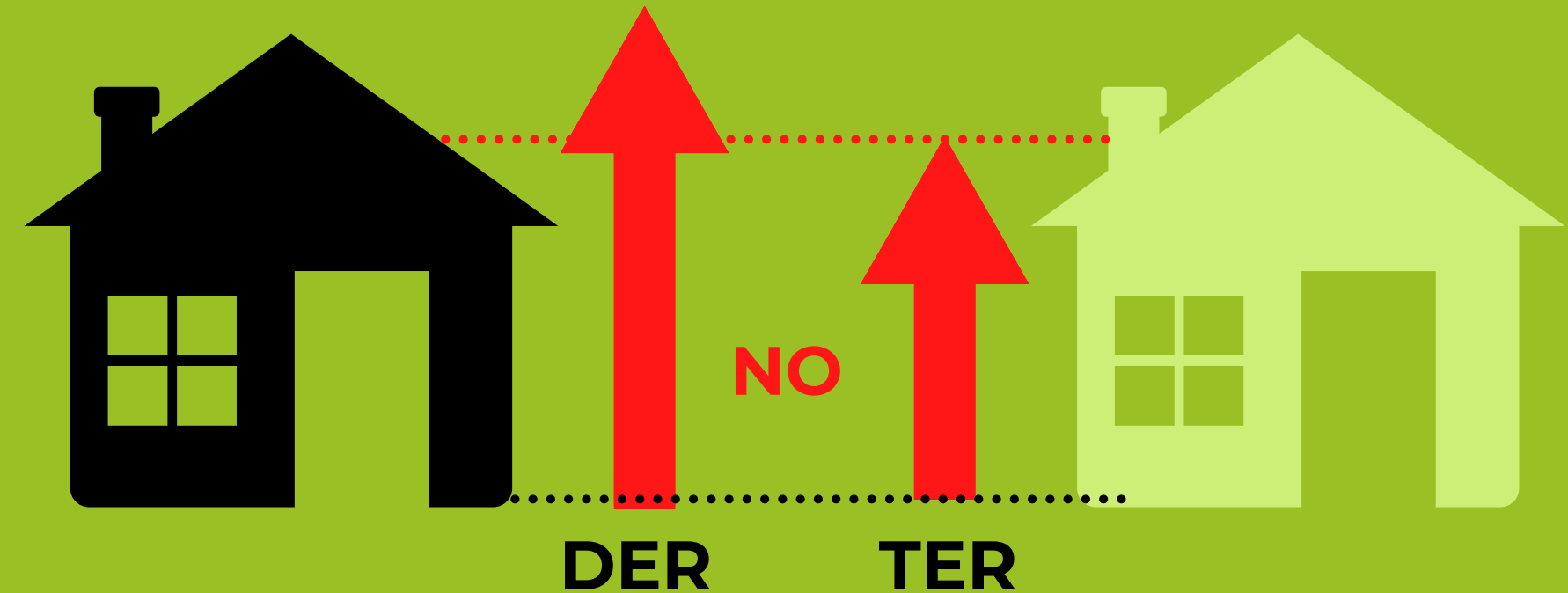


# HOW ARE THE IOM REGULATIONS DIFFERENT FROM THOSE IN THE UK?

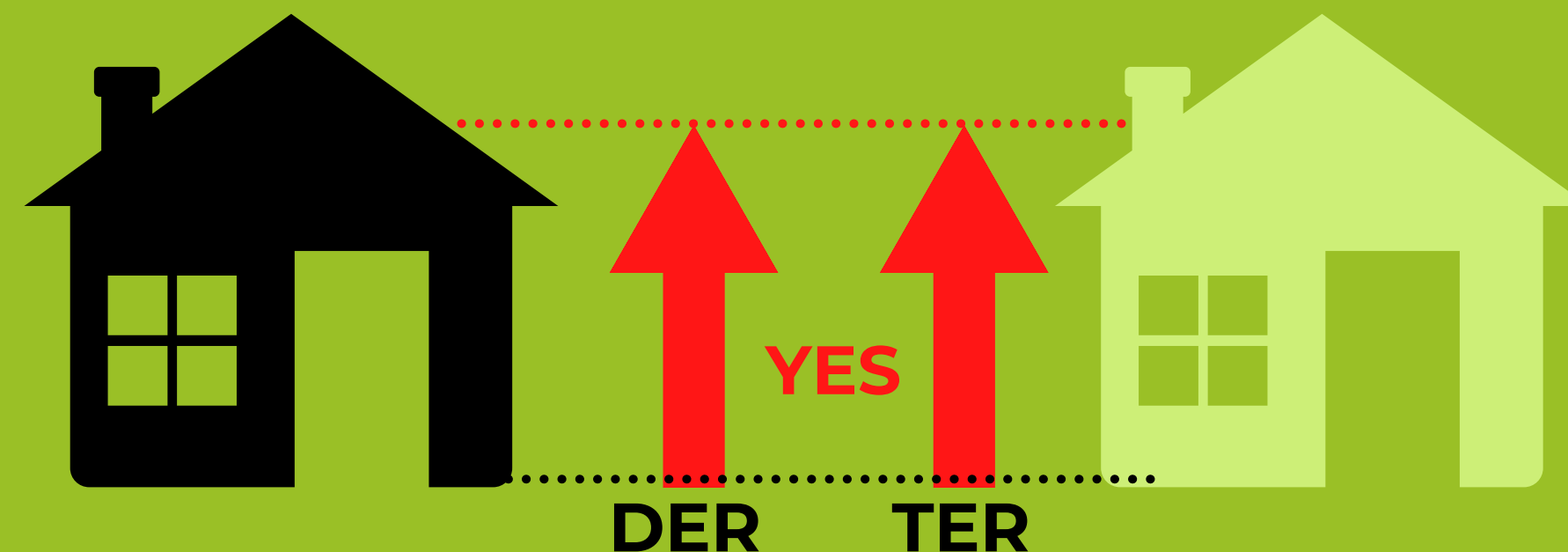
## IOM not required to measure CO2 emissions to comply with Part L.

- The 'Target Emission Rate' (TER) is the maximum emissions allowed.
- Measured in kg of CO2 per m<sup>2</sup>.
- 'Dwelling Emission Rate' (DER) needs to be equal to or lower than the TER at both the design stage and the 'as built' stage of construction.
- DER influenced by control and efficiency of heating system, fuel choice, and use of renewables.

### Regulations compliance?



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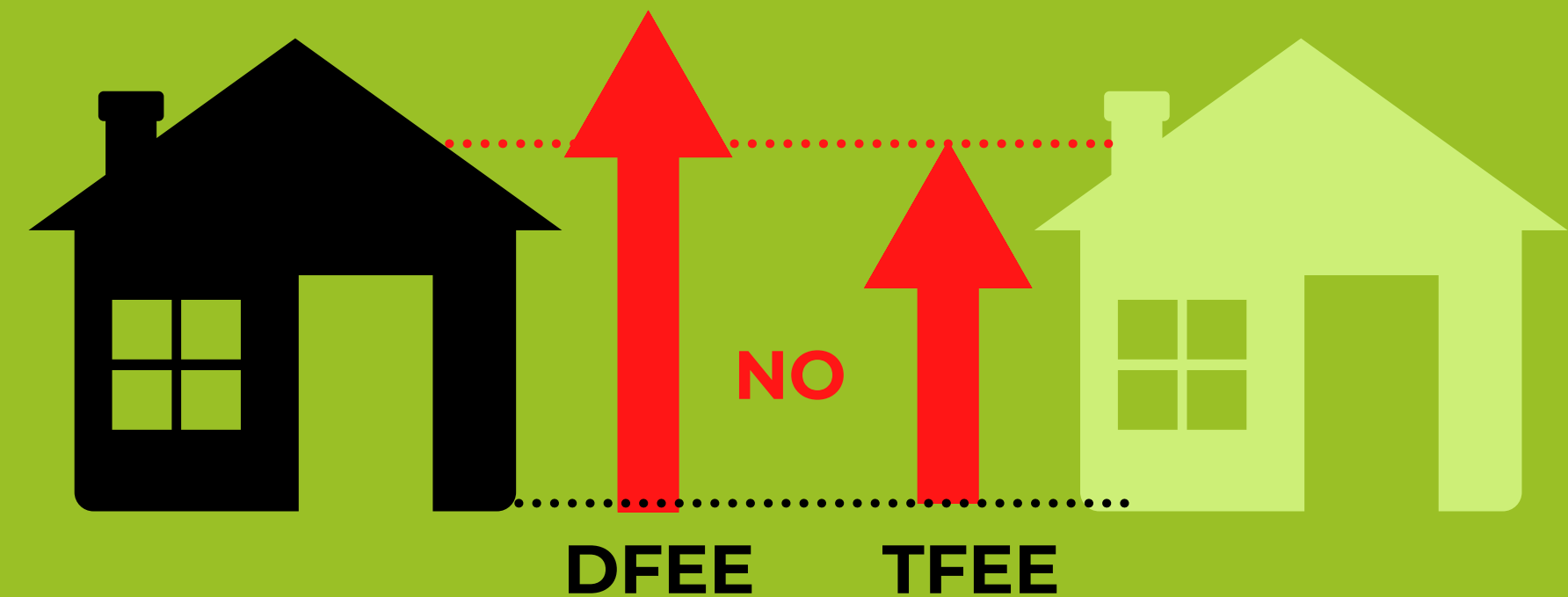


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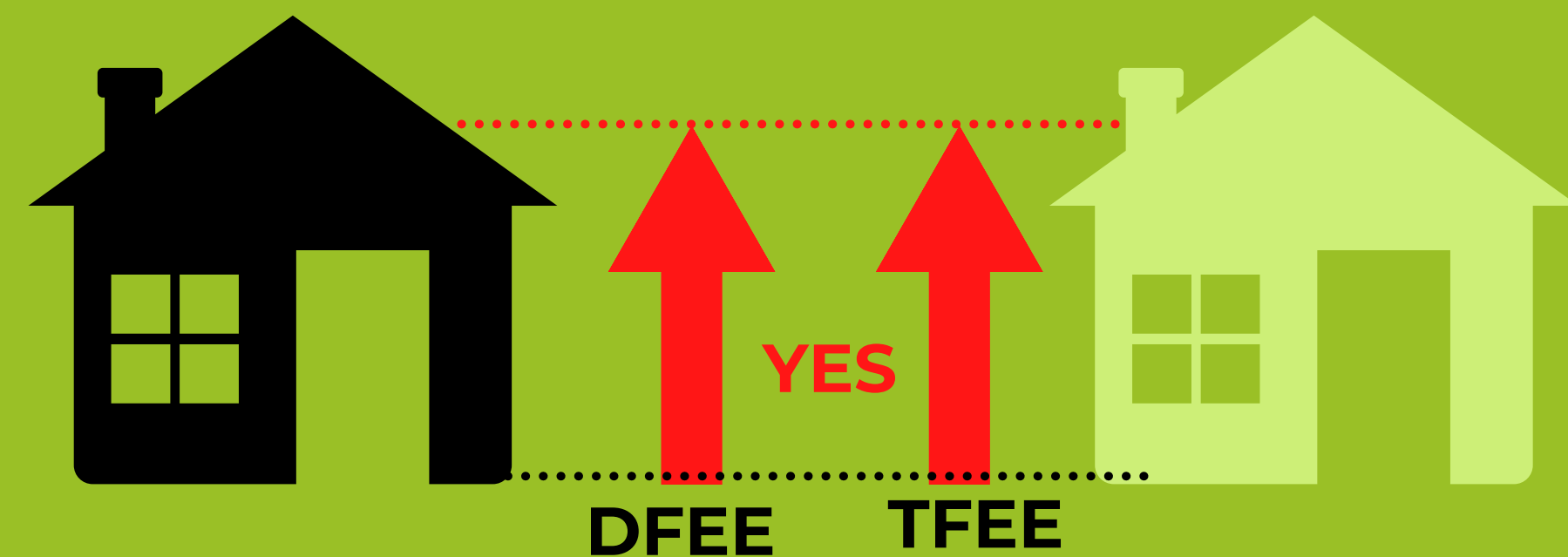
## No Target Fabric Energy Efficiency

- Target Fabric Energy Efficiency (TFEE) is the space heating and cooling requirements per sq m of floor area per year.
- Influenced by insulation levels, thermal mass, thermal bridging, airtightness, and solar gains.
- 'Dwelling Fabric Energy Efficiency' (DFEE) needs to be equal to or lower than the TFEE at both the design stage and 'as built' stage of construction.

### Regulations compliance?



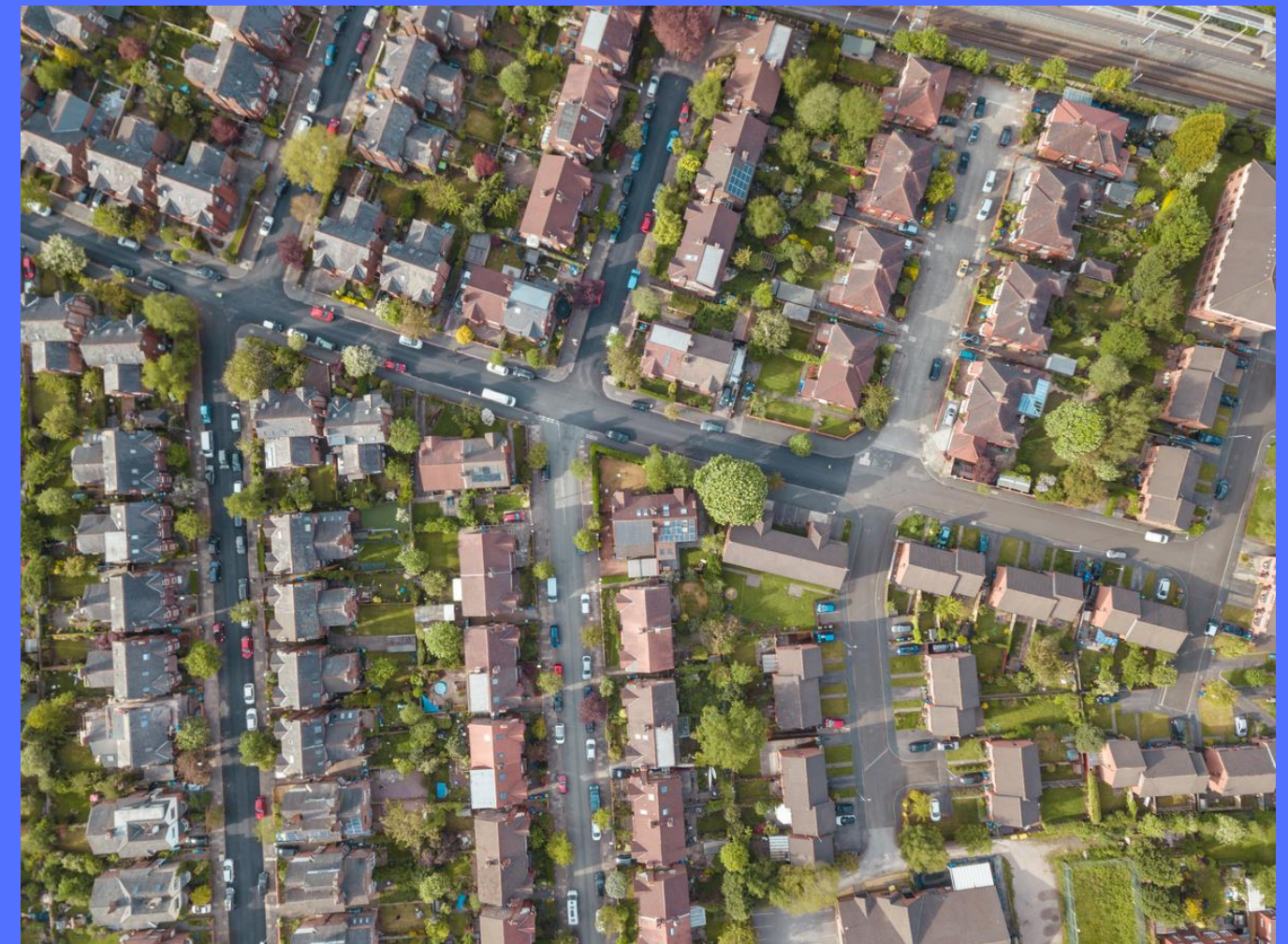
### Regulations compliance?





# WHY DOES THE UK HAVE **BOTH TER AND TFEE** AS PERFORMANCE TARGETS?

- TER and TFEE ensure all new dwellings are built to good standards in terms of fabric energy efficiency.
- With an efficient heating system.
- & with the possible installation of renewable technologies.
- Achieved by meeting both these targets.
- Are houses in IOM meeting the same standards as those currently in the UK?





# SUMMARY FOR INPUT DATA

## Calculation Type: New Build (As Designed)



Property Reference	V2			Issued on Date	09/04/2021
Assessment Reference	001	Prop Type Ref			
Property					
SAP Rating	81 B	DER	19.97	TER	37.58
Environmental	83 B	% DER<TER	46.86		
CO <sub>2</sub> Emissions (t/year)	2.13	DFEE	116.73	TFEE	96.62
General Requirements Compliance	Fail	% DFEE<TFEE	-20.81		
Assessor Details	Julia Erskine, 3Co Consultancy Services, Tel: +44 (0) 7624 423412, info@3co.im			Assessor ID	V956-0001





# HOW ARE THE IOM REGULATIONS DIFFERENT FROM THOSE IN THE UK?

**No requirement on IOM to hold and display Energy Performance Certificates (EPC's.).**


- In the UK, any building unit which is sold or rented out must have a valid EPC.
- A legal requirement since 2007.
- Must be renewed every 10 years.
- Provides a rating from A (most efficient) to G (least efficient).
- Must be lodged in a central database, accessible to the public.





CENTRAL DATABASE:

[HTTPS://EPC.OPENDATACOMMUNITIES.ORG/](https://epc.opendatacommunities.org/)

 **GOV.UK**

Energy Performance of Buildings Register

**BETA** This is a new service – your [feedback](#) will help us to improve it.

[< Back](#)

## Find an energy performance certificate (EPC) by postcode

Enter the postcode of the property  
For example SW1A 2AA

Find

### Search by street and town

If you do not know the property's postcode, [find an EPC using the street name and town](#).

### Search by certificate number

You can [find an EPC by using its certificate number](#).





# HOW ARE THE IOM REGULATIONS DIFFERENT FROM THOSE IN THE UK?

## No 'Minimum Energy Efficiency Standards' (MEES) in IOM.

- In the UK, a Landlord cannot renew or grant a new tenancy of longer than 6 months if a property has a low EPC rating.
- A property of F or lower means the Landlord is liable to pay a substantial fine.
- Came into effect in April 2018 and from 1st April 2023, MEES will be extended to cover all leases.





# Understanding SAP – Isle of Man Workshop – 20<sup>th</sup> October (am)

## PART 1

*30 minutes*

- Building Regulation Approved Document L
- Standard Assessment Procedure 'SAP'
- Regulations: (UK vs IOM)

## PART 2

*30 minutes*

Fabric Energy Efficiency:

- *Elemental u-values*
- *Thermal Mass*
- *Air Tightness*
- *Thermal Bridging*

## PART 3

*30 minutes*

Low and Zero Carbon

Technologies:

- *Heat Pumps*
- *Photovoltaics (PV)*
- *Domestic Solar Hot Water*
- *Ventilation & Waste Water Heat Recovery*

## PART 4

*20 minutes*

- The Future Home Standard
- Achieve a SAP score of 93 (2024) & 97 (2027)





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