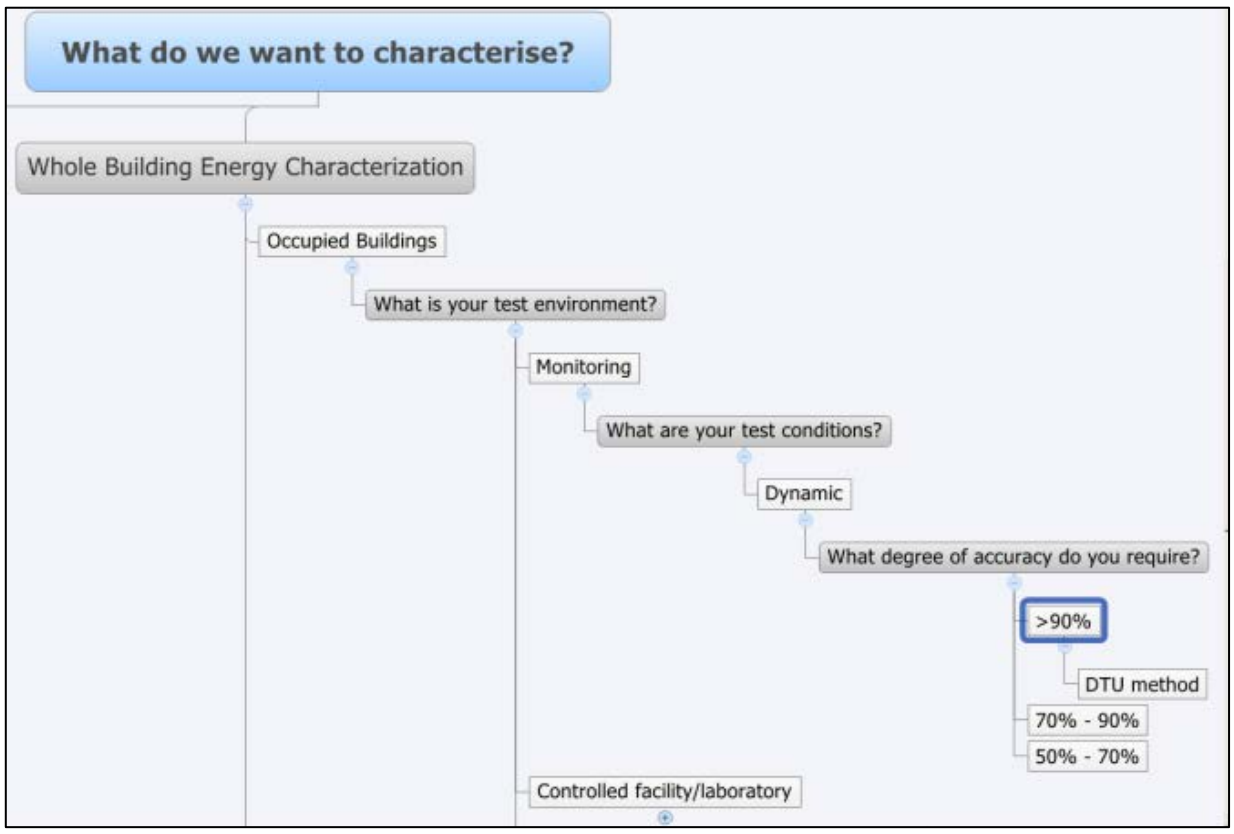
EBC Annex 58

International Energy Agency
Energy in Building and Communities Programme
Annex 58: Subtask 2

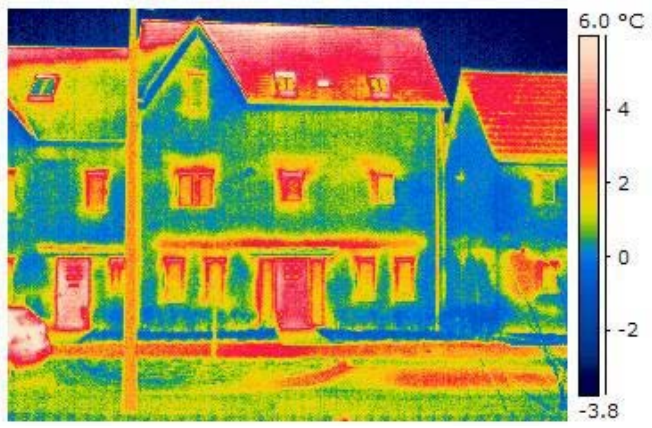
Annex 58 of the International Energy Agency: Energy in Buildings and Communities Programme is a 4 year collaborative endeavour, bringing together leading academics in the field of building performance to explore the topic of reliable building energy performance characterisation based on full scale dynamic measurements. This work is broken down into 5 Subtasks:

Subtask 1 State of the art on full scale testing and dynamic data analysis
Subtask 2 Optimising full scale dynamic testing
Subtask 3 Dynamic data analysis and performance characterisation
Subtask 4 Application of the developed framework
Subtask 5 Setting up a Network of excellence

As part of this project, the Centre for the Built Environment at Leeds Metropolitan University and the University of the Basque Country are leading on Subtask 2.



Screen shot of Subtask 2 decision tree section in XMind



Whole building thermography from Stamford Brook study (Leeds Metropolitan University, UK)

The overall intention of Subtask 2 is to conceptualise the optimisation of full scale dynamic testing, based on the State of the art information gained from Subtask 1. When addressing the subject of building performance testing there are two key elements which must be appreciated in order to ensure reliable, accurate results are obtained:

1. Ensuring the test environment and experimental set up are correct and fit for purpose. This includes correct monitoring equipment, accurate sensor placement and robust control procedures.
2. Correct methods of data handling and analysis.

In order to present these concepts in a manageable, user-friendly way, Subtask 2 involves the production of a decision tree to aid researchers in their decision making when considering a full scale dynamic test. The decision tree acts as a guide to ensure the user has considered all possible aspects of their chosen environment, and by following the line of questioning within the decision tree they will ultimately arrive at documents which offer further information specific to their needs. These include published academic papers, ISO documents and test protocols.

VERU test building (Fraunhofer IBP, Holzkirchen, Germany)

PASLINK test cell at LECE facility (CIEMAT, Spain)

The researcher is questioned about a range of parameters, from broad considerations such as the test environment and conditions to the level of accuracy required from the results. This allows the most appropriate documents to be presented at the end.

The intention is to present the final decision tree online, with easy access for users.

Martin Fletcher, Leeds Metropolitan University
Prof. Chris Gorse, Leeds Metropolitan University
Dr. Aitor Erkoreka, University of the Basque Country

LEEDS METROPOLITAN UNIVERSITY
Leeds Sustainability Institute

Makina eta Motor Termikoak Saila
Departamento de Máquinas y Motores Térmicos