DYNASTEE
NEWSLETTER ISSUE 2026/26

Foreword

From 14 to 18 September 2026, the 12th DYNASTEE Summer School took place in Almería (Spain). Nine participants attended the summer school, which focused on the assessment of the Heat Transfer Coefficient (HTC) using measurement data from experiments. You'll find an article about the summer school in this newsletter, as well as an announcement of next year's DYNASTEE Summer School, which will take place from 6 to 10 September 2027 at Saxion University of Applied Sciences in Enschede (Netherlands). If you are, or know someone who might be interested, please refer to the announcement in this Newsletter and pre-register.

The third working meeting of IEA-EBC Annex 94: Validation and Verification of In-situ Building Energy Performance Measurement Techniques takes place at CIEMAT (Centre for Energy, Environmental and Technological Research) in Madrid (Spain) on 28 and 29 October. A day before the meeting, on 27 October, the CIEMAT – DYNASTEE symposium on Thermal Transfer of Building Envelopes takes place at the same venue. The programme of the symposium is included on the last page of this newsletter.

Twan Rovers

Ciemat, Madrid

CONTENTS

Foreword
Outcomes of the Summer School 2026
Announcement of the Summer School 2027
About Ciemat
About DYNASTEE
Symposium Programme

Newsletter Editors

Hans Bloem, INIVE

Twan Rovers, Saxion University of Applied Sciences

SPONSORSHIP ANNOUNCEMENT

Would you like to see your company logo and details in our newsletter? DYNASTEE is calling for new sponsors.

More details can be found on the sponsorship leaflet which can be obtained by emailing aimee.byrne@tudublin.ie

Outcomes of the DYNASTEE Summer School 14–18 September 2026, Almería, Spain

The five-day Summer School took place at the CIESOL building in the campus of the University of Almería in Spain. The Summer School was organised by the INIVE-DYNASTEE Network in collaboration with the Spanish Centre for Energy, Environmental and Technological Research (CIEMAT) and CIESOL (Solar Energy Research Centre). By June 15 there were 12 registrations but due to problems with visa, only 9 were able to travel to Almería.

This Summer School (SS26) was organised in the framework of the IEA-EBC Annex 94: *Validation and verification of in-situ building energy performance measurement techniques*, and focused on the assessment of the Heat Transfer Coefficient (HTC) using on-site measurement data. Five lecturers from different European universities presented specific information on measurement conditions, equipment, standards and statistical methods. A total of twelve presentations were given, two of which through a video-link. In addition, several analysis methods were explained and, by using high quality data series, the practical side of the analysis has been demonstrated.

The data series that has been used during the Summer School, was new benchmark data. A well-controlled experiment was used and studied in stepwise increasing complexity while taking into account the expected HTC value and uncertainty. The training has discussed the quality of the data, e.g. what information is available of the thermal conditions of the building and hence, the various analysis methods that could be applied to get further insight. After all, the aim is to build a skill for this kind of analysis. Depending on the experimental conditions and data, the applied analysis methods range from steady state methods based on average techniques to linear regression and to grey-box models. The software tool LORD was highly appreciated and students were able to understand the conversion from physical to mathematical models. The R-environment was also used also for the application of regression techniques and grey-box models.

DYNASTEE Summer School 2027 in Almería, Spain. The participants were very motivated and enthusiastic

Smart TinyLab at Saxion University of Applied Sciences, Enschede (the Netherlands)

Announcement of the DYNASTEE Summer School 2027

6-10 September 2027, Enschede (Netherlands)

Dates: 6 – 10 September 2027

Venue: Saxion University of Applied Sciences, Enschede (Netherlands)

Registration fee: €500

Registration deadline: 15 June 2027

The Summer School (SS27) is organised in the framework of the IEA-EBC Annex 94: *Validation and verification of in-situ building energy performance measurement techniques*. The focus of SS27 will be on the assessment of the **Heat Transfer Coefficient** (HTC) using measurement data from experiments.

Audience. The Heat Transfer Coefficient (HTC) is a valuable metric for builders, designers, energy advisors and other professionals in the construction industry. Using measurement data from dedicated experiments (such as the Aggregate Heat Loss test as prescribed in EN 17887-1 and -2), but also monitoring data from test houses, case studies and large-scale measurement campaigns, the thermal performance of the building envelope can be determined.

The Summer School, as organised by DYNASTEE for more than 12 years, focuses on the assessment of the heat transfer of building components and whole buildings. DYNASTEE has developed tools and high-quality benchmark data to support the training of students and professionals.

Data from a well-controlled experiment will be used and studied in stepwise increasing complexity while taking into account the expected HTC value and uncertainty. Depending on the experimental conditions and available data, the used methods will range from steady state methods based on average techniques or linear regression, to dynamic models.

Organisation. The 5-day Summer School will take place at Saxion University of Applied Sciences. The course concept will remain the same as in previous years, which means that during the week about half of the time is devoted to lectures and the other half to performing exercises.

Several lecturers from different universities will present specific information on measurement conditions, equipment, standards, etc. In addition, several methods will be explained and, by using high-quality data series, the practical side of the analysis will be demonstrated.

For pre-registration, please fill in the online form:

Pre-registration form DYNASTEE Summer School 2027

Information on payment, travelling and accommodation will be provided upon registration. Feel free to contact t.j.h.rovers@saxion.nl to be placed on the mail list and you will receive updates.

Context and related activities of CIEMAT as co-organiser and host of the DYNASTEE Symposium 2026

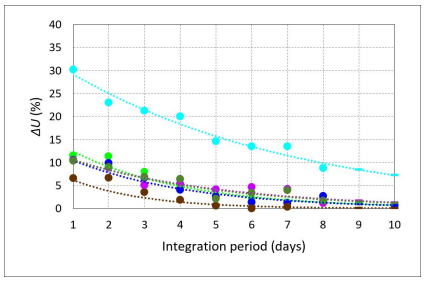
By María José Jiménez

CIEMAT co-organises and welcomes the DYNASTEE Symposium on Thermal transfer of building envelopes. This topic is one of its relevant lines of research which is briefly outlined in this article.

CIEMAT's research on building energy performance assessment of buildings based on measurements, started with international collaboration at the beginning of the nineties in the PASSYS EU projects. These projects developed test procedures for the experimental thermal performance assessment of building components using outdoor test cells, initiated the development of infrastructure and deepened in modelling work and several approaches and tools. Further own research on specific modelling issues related to warm and sunny weather revealed the relevance of signal to noise ratio as a consequence of low indoor to outdoor temperature difference, and long wave effect caused by significant heating of certain surfaces as a consequence of high solar irradiance, in contrast to the low benefits of increasing the complexity in modelling solar irradiance.

Thereafter, the scope of research was broadened from testing building components to assessing whole buildings, both empty and occupied, but addressing specific issues resulting from the upper scale scenario. This research was built on the premises that accurate, and cost-effective measurements are necessary to enable the developed procedures for commercial and standardisation applications. Non-intrusive test campaigns and measurements are additional requisites for applications to in-use buildings, where experimental assessment of occupancy patterns has received special attention.

While evaluating the traditional co-heating test procedure in a semi-desert climate—as a reference method limited to empty buildings in winter—the Dynamic Integrated Method (DIM) has been developed. DIM delivers results independent of boundary variables and test conditions. It has been developed through its application to walls, Round Robing Test Box, empty building benchmark data, and an in-use office. A recent paper on DIM applied to facades proved that it can determine the test duration needed to meet specific accuracy thresholds (dependency of parameter spread on test length is shown in the figure as an example), pointing out this issue as a relevant aspect for future research on other methods. In parallel, research on other methods has been conducted. e.g. performance of RC models on empty and in-use buildings.



All these activities have been carried out in the framework of Spanish National projects and other international collaboration frameworks. Even though relevant step forwards and achievements are identified in the context of research and the acknowledged potential benefits of incorporating experimental procedures energy performance assessment of buildings, these procedures are not yet fully leveraged by their potential stakeholders. The recently started TestsToEPB R&D project (2026 – 2029, Ref. PID2025-172888OB- I00) funded by the Spanish National Research Agency (MCIN/ AEI/10 .13039/501100011033), aims to address research questions contributing to brake the barriers that currently hamper the incorporation of experimental procedures of energy performance assessment of buildings

on practical applications in the Spanish context. This project is closely related to the research being conducted in IEA-EBC Annex 94 and the collaboration in the DYNASTEE network, which offer an ideal international environment for exchange of ideas and feedback. In this context, the DYNASTEE Symposium being celebrated is very important to put together different stakeholders and get mutual feedback and insights that can be very useful in future research activities or/and practical applications.

ABOUT DYNASTEE

The objective of the DYNASTEE network is to be a global network of excellence on dynamic testing and evaluation of Energy Performance of Buildings. We aim to bring together academic, industry and governmental experts having knowledge on the **test environment and experimental setup** as well as on **data analysis** and **performance prediction** to consolidate, disseminate and further develop the knowledge that has been developed in this field in the past decades.

We make sure that the expertise developed in European research projects over a long period (1986-2004), and more recently the IEA-EBC Annexes 58 and 71 (2010-2022), remains available to the community of builders, designers, industrial developers, scientists and public authorities. The DYNASTEE platform continues to act as an information exchange medium and focuses on training exercises and events (such as the annual Summer School on **Dynamic Methods For Whole Building Energy Assessment**), the development of analysis software and the collection of high quality data.

IEA-EBC Annex 94

The aim of the Annex 94 project is a global collaboration in the EBC-context to develop the necessary knowledge and tools to achieve reliable *in-situ* **dynamic testing** and **data analysis methods** that can be used to characterize and label the effective **energy performance** of building components and whole buildings. DYNASTEE has been working on these topics for over 30 years and has been training numerous people during workshops, the system identification competition and training events (summer schools).

Summer Schools

In the annual DYNASTEE Summer School, participants are trained in the use of dynamic methodologies to assess thermal characteristics of building components and assess whole building energy performance. The approach is dealing with building physics as well as applied mathematics and statistics. Experience in the past has shown that knowledge of both disciplines is a must in order to be successful for making decisions in the analysis process. In the past 12 years, around 250 people have participated in DYNASTEE Summer Schools.

Datasets

Over the past decades, the network has collected high quality measurement and simulation data. These datasets are used in training exercises and events. The available benchmark high quality data contains:

- Simulated data from homogenous wall
- In-situ data from homogenous wall
- In-situ data from composition wall
- Data from Round Robin box (research project)
- In-situ data from an air gap building envelope
- Data from a whole building
- Data from a co-heating test experiment

Two tools are promoted by DYNASTEE that will be trained and applied using the aforementioned benchmark data. These are LORD; lumped parameter model and CTSM-R; continuous time model.

See for an extended description on the Dynastee website the document Software techniques applied to thermal performance characteristics.

CIEMAT – DYNASTEE SYMPOSIUM

on Thermal Transfer of building envelopes

from different stakeholder perspectives towards energy efficient buildings.

When: Tuesday 27th October 2026, 9:30 - 16:30

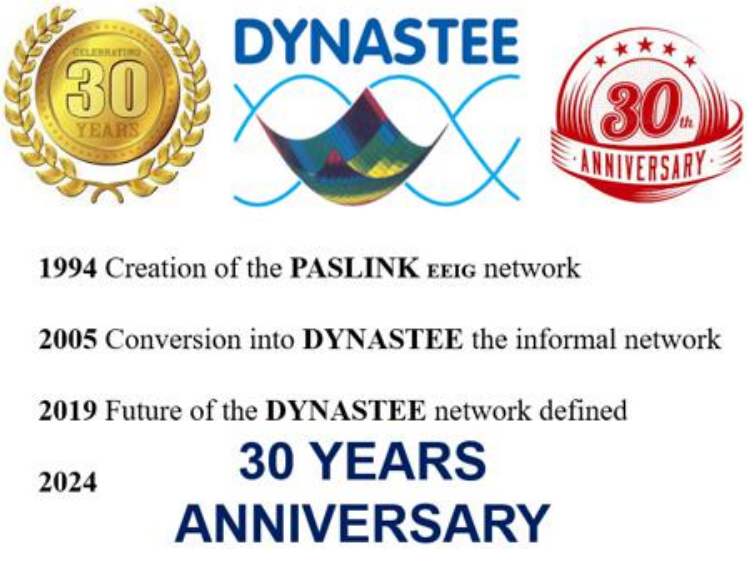
Where: CIEMAT Madrid. Avenida Complutense, 40, 28040 Madrid

Language: English

The focus of this one-day event is on novel building thermal performance measurement, with guest speakers from Spain, the EU and UK to take us through the most innovative ways of measuring and analysing the energy performance of domestic and non-domestic buildings.

The symposium topics include updates on latest EU and Spanish legislation, available guidance and standards around the EPBD and the implementation of the EPBD recast, the role of experimental procedures in the implementation of the National Plan for Building Renovation and ongoing research on Heat Transfer Coefficient (HTC) assessment.

By organising this symposium, DYNASTEE aims to continue bringing people together to build networks and to discuss some genuinely novel methods that are cost effective and beneficial for clients and stakeholders in the construction industry. We hope to offer the audience an interesting day with the programme that follows:



Time	Duration, estimate	Speaker
9:30	10 min	Félix Barrio, CIEMAT Welcome
	10 min	María José Jiménez, CIEMAT Experimental activities on Building Energy Performance Assessment
	10 min	Hans Bloem, the DYNASTEE network
	15 min	Richard Fitton, Latest Updates and Development from Energy House 2.0 at the University of Salford, UK
	15 min	Cliff Elwell. An Introduction to IEA EBC Annex 94
	15 min	Liesje Van Gelder. Annex 94 SubTask 1. Applications of in-situ building energy performance measurement techniques.
10:45 Break		
11:00	20 min	Guillermo Acero Caballero, Regeneration of the Existing City: From Building Retrofit to Urban Transformation, ES
	20 min	Guillermo Escobar, Measurement and verification techniques to standardise the calculation of energy savings in buildings (under the umbrella of the EU Energy Efficiency Directive), ES
	20 min	AliReza Nazari. Technical University Dublin. PREDICT project (IRE National Database).
	20 min	Sarah Juricic, Beyond Compliance: Measuring the Real Performance of Buildings in France, FR
	20 min	Richard Jack, The Business Case for Building Performance Measurement: Real-World Return on Investment and Risk Management, UK
12:45 Lunch		
14:00		Ongoing activities in IEA EBC Annex 94 and national projects.
	10 min	Katia Ritoša, SubTask 2. HTC estimation beyond conventional boundaries
	10 min	Sarah Juricic, SubTask 3. Validating HTC measurement methods - drafting from a paradigm shift
	10 min	Richard Jack, SubTask 4. Building Diagnostics: Understanding Unexpected Performance
	10 min	Joshua Cooper, SubTask 5. Data and Best Practices Supporting.
14:45 Break		
	20 min	Peder Bacher, Perspectives on modelling and applications in Denmark - a country with lots of district heating, DTU
	20 min	Hasan Baig, From Textile Waste to Multifunctional Building Envelopes: Thermal and Acoustic Performance of Sustainable Composite Panels
	20 min	Joshua Cooper, Data Consent Mechanisms - Tools
	20 min	María José Jiménez, TestsToEPB R&D Project. Towards breaking barriers that hamper practical applicability of measurements and Tests To Energy Performance assessment of Buildings
16:30 End		