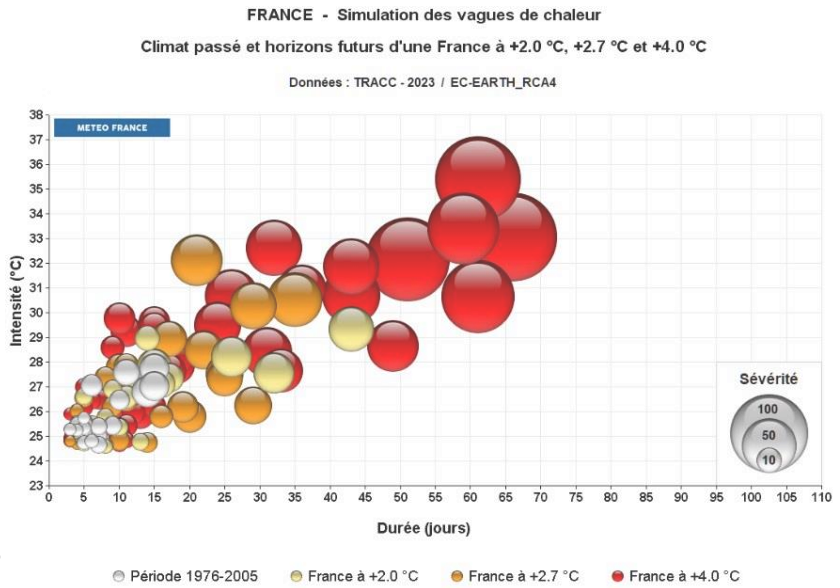
ADAPT BÂTI CONFORT

Les certificats D'ÉCONOMIES D'ÉNERGIE

To say **“Adaptation of building for comfort towards warming”**



Context

Heatwaves frequency and intensity rise, adapting existing buildings to these events is essential.

Our reference warming trajectory for climate change adaptation, named TRACC, means +2.7°C in France by 2050.

The issue is huge: ¼ of buildings at least will be exposed to a “very high” risk, perhaps more than 60%.

Demand for air conditioning will increase and it may become widespread, which calls for large-scale reduction in needs, and efficient active solutions.

In France, even in the south, summer performance has not yet received the same attention as winter in building construction.

Globally, summer performance is more complex and less predictable, especially in a changing climate

Good practice is too scarce across territories and among building stakeholders (contracting authorities, architects, engineers, firms...)

Field feedback is insufficient. Studies and decision-support tools exist but are not presented in a consolidated and easily accessible form. And the **absence of sufficient guarantees** strongly restrains the adoption of passive and innovative solution.

The project has a budget of €11.8 million, including €9 million financed through Energy Management Certificate program over four years.

The ADAPTBATICONFORT Programme

A coordinated initiative of public operators (Cerema, CSTB, ADEME), associating leading associative and quasi public partners

This Programme aims to deploy and bring forward cooling solutions that are effective, reproducible and proven :

- Produce data, knowledge and *in situ* technical, sociological and health/well being feedback on adaptation solutions for existing buildings to heatwaves, with little or no reliance on active cold;
- Contribute to the skill-building of actors on these solutions, targeting contracting authorities, specifiers, companies, etc.

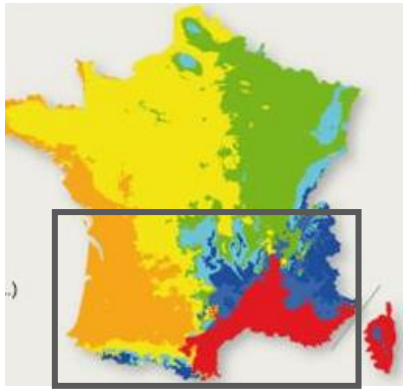
The Project

ADAPTBATICONFORT will develop :

- Technical and financial support for 50 adaptation projects on existing buildings for current and future heatwaves;
- Monitoring and evaluation of the solutions implemented (summer comfort, energy, carbon impact, economic analysis) and their uptake by users (interview, surveys) ;
- Capitalization and dissemination of
  - results acquired,
  - state-of-the-art knowledge and feedback,
  - information on skills and tools available

Projects will be choose in the four regions of south half France

The program will thus highlight solutions adapted to different geographical contexts and climatic constraints.



Bring forward 50 projects, support them

- Select existing buildings, help them carry out ambitious adaptation works

Monitor, observe, evaluate the projects

- Define a robust methodology, implement monitoring and evaluation tools

Animate, raise awareness and train building actors

- Publicize the project to public and private actor networks, disseminate resources, train professionals

september 2025 to décembre 2029

Capitalize the results, produce deliverables

- Analyze evaluations of implemented devices, cross feedback from operations, draw operational lessons

Communicate widely

- Promote results at national level, general and institutional communication

Awareness / training:

- 500 local authorities
- 3000 actors
- 300 prescribers “architects, engineering firms…” trained

ADAPT BÂTI CONFORT

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RÉPUBLIQUE FRANÇAISE
Liberté
Égalité
Fraternité

ADEME
AGENCE DE LA TRANSITION ÉCOLOGIQUE

Cerema
CLIMAT & TERRITOIRES DE DEMAIN

CSTB
le futur en construction

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE ET SOLIDAIRE

LEAD

RÉPUBLIQUE FRANÇAISE
Liberté
Égalité
Fraternité

ADEME
AGENCE DE LA TRANSITION ÉCOLOGIQUE

CO- LEAD

RÉPUBLIQUE FRANÇAISE

Cerema
CLIMAT & TERRITOIRES DE DEMAIN

CSTB
le futur en construction

CALL TO FUNDERS

Obligated parties and delegates from the call for funding

CALL FOR PROJETS

Sélection by consortium

INTELLECTUAL SERVICES CONTRACTS

POOL OF EXPERTS FOR PROJETS SUPPORT

« INNOVATION » REFLECT GROUP

INDUSTRIALS, TECHNICAL CENTERS, INCUBATORS

Collaborative work throughout the project and transversally, internally within the 5 work packages, and externally with the reflection group

PARTNERS

4 RESOURCE CENTERS FROM THE BATIMENT DURABLE NETWORK

envirobatbdm

ville & aménagement durable
(R)éveillons nos pratiques

odéys
Cluster construction et aménagement durables

envirobât OCCITANIE

Implementation of a program of animation and upskilling of professionals at large scale

Call for Expressions of Interest

Aims to select existing buildings that have already experienced significant overheating (discomfort, activity interruptions, health problems, etc.) and on which authorities wish to intervene.

Adaptation actions may include :

- **Architectural, landscape or technical measures**;
- **Organisational** measures: involving occupants, modifying building usage conditions (shedules, functional organisation…),
- **Operational** conditions (management of openings), emergency protocols in case of heatwave, etc.

137 applications received, representing 180 buildings.

Types of projects, uses and conditions :

- **Education** and early **childhood** (crèches, schools, etc.),
- Medico-social, excluding hospitals and **health** sector (nursing homes),
- **Collective housing**, among them notably vulnerable households,
- **Offices**

Buildings must be **in real usage** conditions

And **representative** of their category of use in their architectural design, with the aim of producing reproducible feedback.

Call for Expressions of Interest

3 configurations of project :

Case 1: Building with energy renovation or improvement works at the very start of the project. Implementation of specific adaptation solutions to overheating appears necessary, but these have not necessarily been deepened

Case 2: Recent buildings or buildings already renovated but requiring complementary targeted works to correct overheating : for example, authorities launching single-measure work plans (windows, Air Handling Unit ...) with strong potential for replication across their estate.

Case 3: Buildings undergoing ambitious and advanced energy renovation. Ambitious actions, addressing overheating with a full strategy.

Actions carried out for selected projects

The following study and assistance missions will be deployed, depending on type and stage of advancement :

- **Initial state diagnosis** : to understand building operation, equipment and deficiencies regarding comfort, usage, related constraints and to obtain measured reference data before corrective actions.
- **Feasibility of improvement solutions** : assistants will propose actions and works, prioritising passive and behavioural levers (insulation reinforcement or type, quality of solar protections, possibility of natural ventilation, etc.) and low-energy options (air movers, evaporative cooling, etc.). Feasibility will define proposals (based on preliminary sizing, calculations, cost estimates and impact on the work schedule), in liaison with project actors. The assistant may use dynamic energy simulation tools.
- Users involvement : **informing and mobilising occupants and maintenance managers** to enable adoption of sobriety gestures and effective practices in equipment use (solar protections, air movers, etc.)
- **Simulations of the performance** of existing and renovated building : based on realistic occupancy hypotheses and **current and prospective weather files**
- Pre-acceptance and **instrumented monitoring before and after works**, over hot periods
- **Collection of occupant questionnaires** to evaluate initial perception and afterwards solution effectiveness and uptake.

Selected operations may also receive financial assistance for works (10% of specific works).

Framing and Capitalisation

The Cerema will create a **data warehouse**, to centrally store all the data about the projects.

This will enable a **multicriteria** (carbon, cost, energy, summer comfort) and **homogeneous evaluation** of the 50 operations

It will also further provide an interesting **organised opened data source**.

The panel of projects and solutions is wide > monitoring and evaluation of all is delicate.

But despite the differences between contexts, projects and actions, effects can indeed be compared.

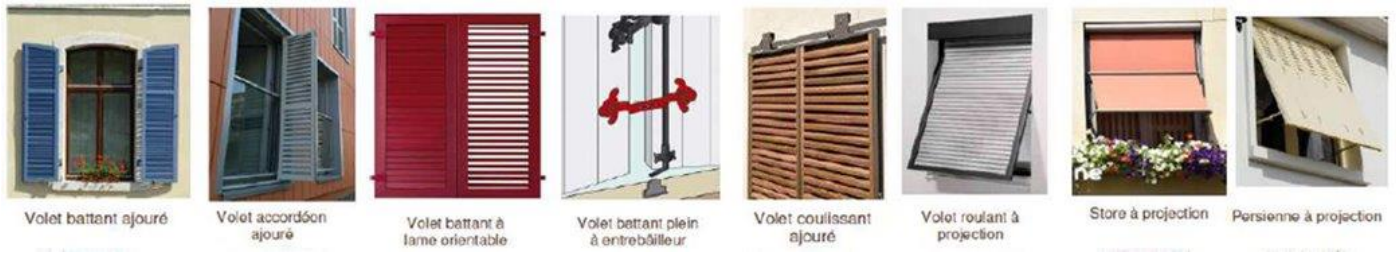
The practice of the assistants in charge of measurements has to be homogenised

Methodological framing is provided by Cerema and CSTB, who will later carry out the evaluation of the 50 operations :

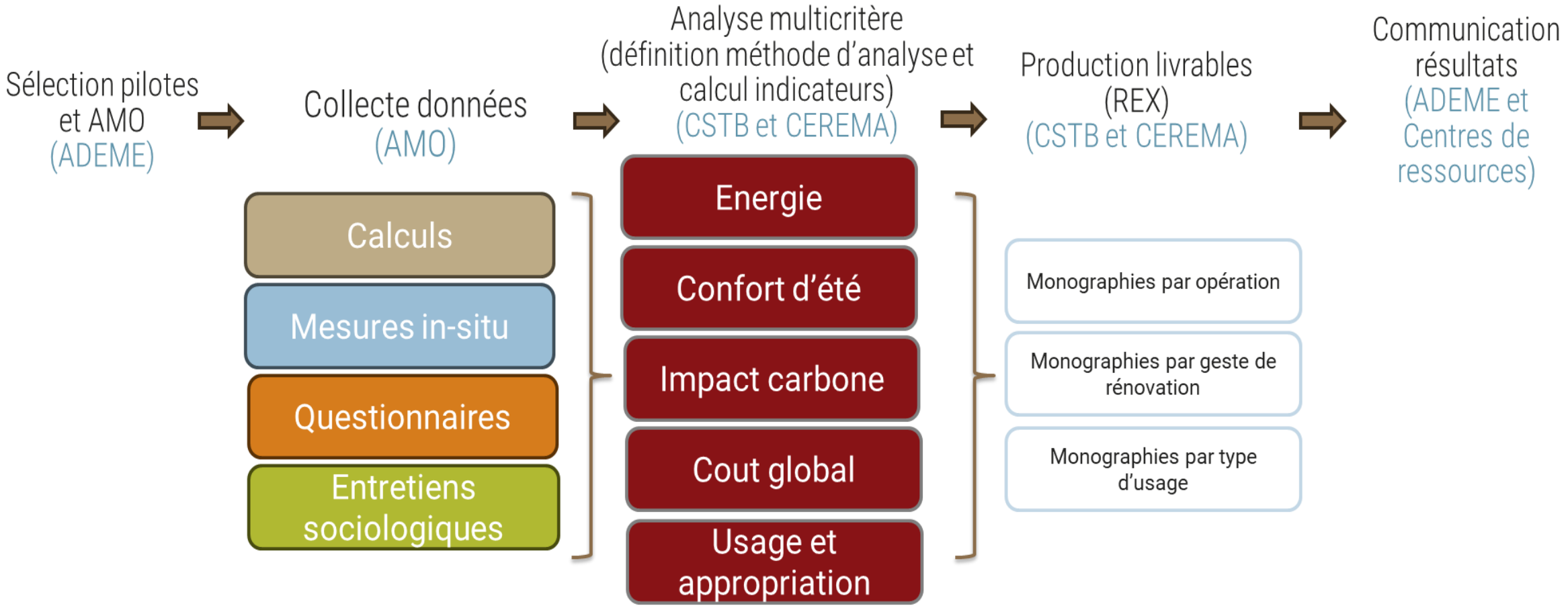
A frame is given for instrumentation of every kind of solution envisaged, adapted to the mechanism of action of each.

Adaptation solution foreshadowed

- Adapted and effective external shading,
- Innovative glazing, smart windows,
- Efficient fans (notably with low ceiling heigth),
- Reinforcement of interior thermal mass,
- Strengthening certain insulation items, like dense insulation for roofs ,
- Implementation of controlled and managed natural ventilation,
- Implementation of adiabatic cooling systems,
- climatic or hydraulic wells, etc.
- Works and fittings to remove constraints (technical or regulatory) and enable integrate solutions (for example anti-burglary protections enabling night ventilation, or use of smoke extraction systems).
- Dedicated instrumentation and control



Analysis of deployed adaptation solutions



Rôle of resource centers

A TERRITORIAL ACTION TOWARDS PROFESSIONALS

- **Communication** on the scheme: Webinar/mailing/social networks/site/working group
- **Animation and project follow-up**: mobilization of project actors, events
- Participation in **capitalization and deliverables** : teaching, feedback
- **Information and training** of project managers and project owners
- Conducting a **benchmark of existing resources**, making them available