Method note — What renovation works change on the EPC (OneDpe)

Document for the press. Figures established on the full extraction of the public register of energy performance certificates, published by ADEME, the French environment agency, as a PostgreSQL backup file (a "dump") — **extraction of 25 August 2026** · Primary sources consulted on **11 September 2026** — each source carries its own date in § 12 · Figures sheet **v1.1 of 30 September 2026** (available on request) · Contact: Steven Annonziata — presse@onedpe.fr

> **Update of 12 October 2026 — the comparison our texts now publish.** This note's "control" (36,528 pairs, 54.9% leaving the F and G classes) excludes by construction second certificates that are **worse** and those with an **identical** state: it is selected on its outcome. To compare like with like, the press page, press release, article and figures publish a **symmetric** comparison, in which both groups exclude worse second certificates: **with no measure recorded** (control + pure corrections), 6,878 of 15,359 energy sieves leave the F and G classes, i.e. **44.8%**; **with a measure recorded** (conditional reading), 9,351 of 11,026, i.e. **84.8%**. Worse second certificates, classified separately by the grid whether or not a measure was recorded, concern **18.0%** of the 104,759 homes (18,893). The "three times more" ratio (−51 against −16 kWh/m²/yr) compares an unselected group with a selected one: it is no longer put forward. Counts by class in § 8.2. Every number in our public texts can be found in this note, or in our data files, available on request.

> This note exists for two reasons. A figure without its denominator is not verifiable, and **five populations** coexist in this file — ①, ② core, ② sensitivity, the control, the re-issues — : they are not interchangeable and they do not add up. And because we give our own bounds — that is what makes the rest believable.

Quotations from French orders and official pages are OneDpe's translations. The French original is given alongside every quotation that carries a definition.

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1. The perimeter, in one opposable sentence

Two populations are in use, and only one carries the headline figure. Here it is, drafted so that a third party can replay it:

> *Population ① — pairs formed of an energy performance certificate and the certificate that replaced it, filed with ADEME between 1 July 2021 and 24 August 2026, whose replacement link is declared by the assessor and verified in both directions by the ADEME database; the former certificate present in the extraction; both certificates established under the 3CL residential method, neither generated from a building-level EPC; the visit of the second more than 7 days after that of the first; same postcode; the habitable floor area of the second within 25% of that of the first.*

The visit clause is the one people forget to declare. Without it, a contradictor replaying the definition finds **2,040,000** replacements and not **104,759** homes assessed twice: **1,862,697** of those replacements, that is **91%**, re-issue the same visit (0 to 7 days between the two visit dates). A certificate redone on the day of

the previous visit describes the same home at the same instant; no measure can be read in it. Those re-issues are not discarded: they become the grid's first noise floor (§ 5, § 7).

The second population answers a single question — *are the declared replacements representative of the homes that get re-assessed?* — and is defined thus:

> *Population ② core — pairs of two consecutive certificates of the same home, with no replacement link between them, neither taken in another replacement, 3CL residential method, not generated from a building-level EPC, house or flat; matched by the BAN address identifier at street-number level (houses, habitable floor area within 3%) or by the BAN identifier and the dwelling reference (flats, within 10%); address key not suspect (at most 5 certificates); visit of the second more than 7 days after that of the first.* **216,621 pairs.**

The rest of ② (flats matched by floor and floor area, houses by the RNB building identifier, social housing by the RPLS identifier, flats on the address alone: **45,480** pairs) forms "② sensitivity", measured for sensitivity, never published.

What perimeter ① removes, and why. The eight criteria apply in this order, each pair receiving the first ground for exclusion met: that is what makes the breakdown sum to the unit.

EXCLUSION (IN ORDER)	PAIRS	REASON
Former certificate absent from the extraction	74	A declared number that does not resolve cannot be read
Outside the 3CL residential method	159,301	New-build (RT2012, RE2020) and non-residential certificates use another engine
Generated from a building-level EPC	449,707	A replaced building-level EPC regenerates all its flats: copies, not observations
Negative visit interval	6,428	A data-entry inconsistency, published, not resolved
Re-issue of the same visit (≤ 7 days)	**1,308,669**	No measure can be read; control population
Different postcode	3,391	Not the same home
Floor area diverging by more than 25%	7,671	Not the same home
Population ①	**104,759**	**5.1% of declared replacements**
Check: sum	2,040,000	to the unit

Two re-issue counts coexist and do not contradict each other: **1,862,697** is the count of 0-to-7-day intervals across all declared replacements; **1,308,669** is what remains of it after the four exclusions that

precede it in the order (former absent, outside 3CL, generated, negative interval). The second number is the one that serves as a floor, because it is of the same method and the same generation as population ①.

Why the full backup file and not the API. ADEME's open dataset (piece 2) exposes neither `dpe_a_remplacer` (the number of the former certificate, declared by the assessor), nor `motif_remplacement`, nor superseded certificates: it is filtered on live certificates. The replacement link in both directions (`dpe.dpe_remplacant_id` / `dpe.ancien_dpe_id`, both under a UNIQUE index, hence a one-to-one chain), the declared reason and the former certificate are readable only in the full PostgreSQL backup file (dump) (`dump_dpev2_prod_fdld.sql.gz`, piece 1), restored locally. Someone querying the API cannot reproduce the finding "2,040,000 replacements, 91% for the same visit", which the press release gives under "Method and sources": that is not a flaw in their method, it is a property of the open dataset.

⚠️ **What the extraction does not contain, and which we declare**: no table describing works (only the recommended packages of the former certificate exist, without the detail of their lots), no date of a building site, no cost, no subsidy, no identity of the assessor. Every "measure" in this study is read in the component state declared by two successive certificates, never elsewhere.

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2. The populations

CODE	POPULATION	HEADCOUNT	WHAT IT IS FOR
—	Certificates in the extraction (live and superseded)	**19,502,445**	The scale of the exercise, and nothing else
—	Declared replacements (`dpe_a_remplacer`)	**2,040,000**	The denominator of the scale; 2,039,333 (99.97%) carry a consistent ADEME link in both directions
—	… of which re-issues of the same visit (≤ 7 days)	**1,862,697 (91%)**	Given in the press release's "Method and sources": a normal act for an assessor
①	**Homes assessed twice, declared replacement, separate visit**	**104,759**	**The headline figure and every detailed table**
② **core**	Homes assessed twice, address-matched (houses at street-number level, flats on dwelling reference)	**216,621**	**Validation** of ① through its effects; never a works rate
② sensitivity	Rest of ② (floor + area, RNB, RPLS, address alone)	45,480	Matching sensitivity; not published
Re-entry control	Re-issues of the same visit, 3CL method, not generated	**1,308,669**	Noise floor of each measure
Control	① pairs with no headline measure at all ("undetermined")	**36,528**	What a second certificate brings without any detectable measure; with the pure corrections, the "no measure recorded" side of the headline figure (§ 8)
Headline base	① pairs with ≥ 1 headline measure, whatever the result	**31,953 (30.5%)**	Every effect figure

CODE	POPULATION	HEADCOUNT	WHAT IT IS FOR
Mirror	① pairs with ≥ 1 headline deterioration	**9,416 (9.0%)**	The noise seen the other way; net = 30.5 − 9.0 = **21.5%**
Conditional	Headline base minus the 2,520 pairs whose result worsens	**29,428 (28.1%)**	The "measure recorded" side of the headline figure (§ 8); the headline base is given beside it in this note
Pure correction	① pairs with no measure and no deterioration, identical component state	**19,910 (19.0%)**	With the control, the "no measure recorded" side of the headline figure (§ 8)
Worse result	① pairs whose second certificate is worse	**18,893 (18.0%)**	Variance check, given beside the headline figure, never a key figure

No other surface exists in this file. The populations **do not add up**: ① and ② are two readings of two succession mechanisms, and a ② pair is by construction outside ① (criterion "no replacement link"). The control, the headline base and the mirror are subsets of ① that overlap (a pair can carry both a measure and a deterioration: 2,743 pairs, § 5).

The breakdown to the unit, which any third party can re-sum. The 104,759 pairs of ① split into four exclusive classes: **29,428** works in the conditional reading (28.1%) + **19,910** pure corrections (identical component state, stable final energy; 19.0%) + **18,893** worse results on the second certificate (18.0%) + **36,528** undetermined, the control (34.9%) = 104,759. On ② core: 72,996 + 14,529 + 72,712 + 56,384 = 216,621. A calculation file, available on request, carries these eight numbers; their sum is the first check of the chain (gate 1.1).

The scale, as this note gives it: 19,502,445 certificates in the database → 2,040,000 declared replacements → 1,862,697 re-issues of the same visit (91%) → **104,759** homes assessed twice at separate visits → **31,953** where a measure is detected (30.5%) → **21.5%** net of the mirror.

⚠️ **The rate for ② is not published.** The headline base of ② core exists and its effects are published (§ 8); its headcount set against 216,621 would be a works rate, and we do not publish that rate: on ②, the mirror stands at 24% and the worse result at 34%, the signature of two certificates ADEME did not link, often issued by two assessors. ② serves validation through its effects, not through its frequency.

2.1 The chain that produces these headcounts

Every figure in this note traces back to an SQL execution log and, for the tables, to a frozen CSV whose sha256 fingerprint is kept; scripts, logs, CSVs and fingerprints are available on request. The replay order is imposed; the durations are those measured in sequential execution.

STEP	CODE	PRODUCES	REAL DURATION
Reconnaissance	`r0a` · `r0b` · `r0c`	catalogue and vintage · replacement population · breakdown to the unit	< 1 min · 12 min 38 s · 1 min 36 s
Base ①	`m1`	`paires` (104,759), `paires_controle` (1,308,669)	7 min 18 s
Base ②	`m1b`	`paires2` (262,104 rows, ② core and ② sensitivity included)	22 min 30 s
Component state	`m2a` · `m2b` · `m2c`	`etat_dpe` , one row per certificate of the three populations (4,049,458)	20 min 24 s · 28 min · 17 min 33 s
Detection	`m3` v2.1, three threshold variants	measures (pair × measure × direction), pair class	2 min 01 s · 2 min 04 s · 1 min 53 s
Harmonisation	`m4` (export → reclassification outside the database → reload)	`harmonise` (1.9 factor, statutory scale)	50 s · 51 s
Aggregates	`m5` v3.1 · `m5x`	logs and aggregate CSVs	4 min 10 s · 1 min 10 s
Packages	`m7` v3	simulated after the package against observed	1 min 00 s
Machine-readable populations	`m0x`	CSVs of the populations, the breakdown to the unit and the filing-duplicate check	a few seconds
Rating noise of the re-issues	`m8` · `m8b` · `m8c`	harmonised rating of the 1,308,669 re-issues of the same visit · the same split by recorded measure · counted exits from the F and G classes by letter (§ 7bis.1, § 7bis.3, § 8.2)	35 s · 4 min 13 s · 4 s

The replay order in full: `r0a → r0b → r0c → m1 → m1b → m2a → m2b → m2c → m3 → m4 → m5 → m5x → m7 → m0x → m8 + m8b + m8c` . The last three were run on **30 September 2026** and added to the figures sheet as v1.1;

they change **no base and no rate** of the study, because they measure the re-issue segment, which enters none of them.

The study's frozen data file (26 checks passed) is built solely from those CSVs; annexes, figures and the regional kit read it, and no value is retyped by hand. Earlier versions of the grid (v1 with ten unranked measures, v2 before the arbitration on the headline base) are kept with their logs and are **superseded**: their figures no longer circulate.

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3. The four natures of figure, and their exact scope

This is the principal asset of the work, and it is visible in all our publications: every figure carries its nature. Four levels, never three.

NATURE	WHAT IT MEANS	EXAMPLES	WHAT WE ALLOW OURSELVES TO WRITE
Counted	A direct count in the extraction, with no rule of ours. Medians and percentiles of quantities published by ADEME	19,502,445 · 2,040,000 · 104,759 · 216,621 · median change in final energy −51 kWh/m²/year · Uw 3.35 → 1.59 · 488,232 filing duplicates	"we count", "ADEME has recorded"
Classified	The result of a **rule of the grid** (§ 5), with declared thresholds tested for sensitivity. A classified figure changes if the rule changes	31,953 (30.5%) · 9,416 (9.0%) · 21.5% net · windows in 40.7% of homes where a measure is recorded · 18.0% worse results	"the grid records", "the second certificate records a measure" — never "did works"
Harmonised	Both certificates of the pair **brought to the same electricity factor (1.9) and the same statutory scale**, then reclassified. Reproduces the published class to 99.678% and ADEME's recomputed state to 99.971% (§ 6)	headline figure: 44.8% of exits from the F and G classes with no measure recorded, 84.8% with one · 68.5% gain a class · 3.2% lose · 82.9% of exits from the F and G classes · control 41.6% · conditional 73.5%	"brought to the same factor and the same statutory scale", "harmonised" — never "corrected", "recalculated by us", "predicted"
Published	The rating **as displayed** by ADEME, the former certificate under the 2.3 factor, the second under	76.9% gain a class on published ratings · 8 points of gap with the	"on published ratings", with the harmonised reading beside it

NATURE	WHAT IT MEANS	EXAMPLES	WHAT WE ALLOW OURSELVES TO WRITE
	1.9. What the owner saw	harmonised reading	

⛔ **Scope rule.** These natures qualify quantities **read or reclassified on the extraction**: counts, the rates derived from them, medians. They apply to **no amount in euros** (the extraction carries none: no euro exists in this file), to **no projection to the national stock** (we perform no rule of three, § 10) and to **no simulated consumption**: the "consumption simulated after the package" (§ 10, limit 11) is a value of the former certificate; we neither count, classify nor harmonise it — we copy it and compare it.

The order of rank between the four. The median change in final energy is **counted**: it depends on no scale, only on the engine version (§ 9); it is given in § 8, as a secondary reading. The headline figure, an exit from the F and G classes, is **harmonised**, on groups **classified** by the grid. Class quantities are **harmonised** at the headline and **published** in second rank, and the gap between the two is a result (8 points). The measure rate is **classified**, which is why it is given with its mirror and its net: a classified figure without its symmetric counterpart cannot be checked.

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4. The definitions, as we apply them

- **Pair**: a certificate and the certificate that replaced it (①), or that succeeded it at the same

address (②). The unit of count is the pair, never the home nor the stock. A home whose certificate was replaced twice forms two pairs (510,696 new certificates were themselves replaced later, all populations combined).

- **Home assessed twice**: what the base contains. It is neither "the stock" nor "French homes".
- **Headline measure**: a declared change of state between the two certificates, on one of the

following six components, towards an improvement and according to the rule of § 5 — walls (explicit external or internal insulation), roof, windows, ventilation (arrival of a mechanical system), heating (a step up in the family of the main generator, with no heat pump or wood already present), independent hot water (heat-pump or solar). A measure is neither dated, nor invoiced, nor verified on site.

- **Annex measure**: a change of state detected by the same grid but outside the headline count,

because its rate on re-issues or its symmetric counterpart shows that it reads re-entry: doors, ground floor, photovoltaic and solar, walls "insulated, type unknown", same-family heating with better performance, hot water tied to a boiler, air conditioning, requalified natural ventilation. Detected, logged, published apart.

- **Headline deterioration**: the rule of a headline measure read backwards (from the second

certificate to the former). Same code, same thresholds, the other direction.

- **Headline base**: pairs with **at least one headline measure, whatever the result** —

including those whose rating falls. **31,953 pairs out of 104,759 (30.5%).** It is the base of the unconditional reading and of every detailed table; the "measure recorded" side of the headline figure is its conditional reading.

- **Conditional reading**: the headline base **minus** the pairs whose result worsens

(final energy +5%, or a worse harmonised rating, or more deteriorations than measures). **29,428 pairs (28.1%); 2,520 set aside.** The "measure recorded" side of the headline figure, never alone: by construction it cannot "lose", and it is given against a no-measure group that also sets aside worse results (§ 8), and, in this note, beside the headline base.

- **Mirror reading**: pairs with **at least one headline deterioration**, same denominator. **9,416

(9.0%).** The grid's noise seen the other way.

- **Net**: headline base minus mirror, in points of the same population: **30.5 − 9.0 = 21.5%.**

Measures are published net one by one (detections minus deteriorations, § 5).

- **Control**: pairs with no headline measure and no headline deterioration, whose result is not worse,

and whose component state is not identical to the former one (otherwise the pair is a pure correction). **36,528 pairs (34.9%).** What a second certificate changes on a home where the grid reads no measure.

- **Pure correction**: separate visit, no measure, no deterioration, component state identical within

ε on eight structural variables (floor area, U-value of walls, roof and ground floor, Uw of windows, type of heating and hot-water generator, type of ventilation). **19,910 (19.0%).** The certificate was redone, the home did not change.

- **Worse result on the second certificate**: final energy per m² up by at least 5%, or

a worse harmonised rating, or more headline deteriorations than headline measures. **18,893 (18.0%).** Published as a check, not as a key figure: it is neither a "degraded home" nor "failed works".

- **Re-issue of the same visit**: the visit date of the second certificate is that of the first, or

follows it by at most 7 days. A normal act of the assessor, not a fault, nor a "fake replacement".

- **Exit from the F and G classes**: the move, between the two certificates, from a **harmonised** F or

G rating to a harmonised E or better. "Energy sieve" everywhere designates the F and G classes — the "homes with excessive energy consumption" of the service-public page (piece 5) — under the 1.9 factor and the statutory scale. We write "leave the F and G classes" or "leave energy-sieve status", not "are no longer energy sieves" without "assessed".

- **Harmonised**: both certificates of the pair brought to the 1.9 factor and the statutory scale

(§ 6). **Published**: the ratings as displayed by ADEME.

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5. The detection grid

5.1 Principle

For each certificate of each pair, the chain computes **a state** (one row of the `etat_dpe` table, some forty variables) from the extraction's component tables: walls, floors, windows, doors, generators, ventilation, air conditioning, solar production, per-use balances. A measure is detected by comparing the state of the former certificate (A) with that of the second (N). **Every rule is symmetric by construction**: applied to (N, A) instead of (A, N), it produces a deterioration. The deterioration rate is the second noise floor of each measure; the first is the rate of the same measure on the 1,308,669 re-issues, where nothing could have changed.

The thresholds of the **base variant** are six parameters: `s_part 0.25 · s_u 0.70 · s_uw 0.80 · s_sv 0.50 · s_rend 0.05 · s_ef 0.05` . Two variants, "low" and "high", tighten and loosen them by half (§ 7).

5.2 The six headline measures

MEASURE	STATE VARIABLE (PER CERTIFICATE)	DETECTION RULE A → N, BASE VARIANT	THRESHOLD
Walls	share of the heat-loss wall area insulated; area-weighted mean U-value; shares in external (ITE) and internal (ITI) insulation	insulated share **+25 points** of area, **or** mean U-value ≤ **0.70 ×** the former with the insulated share rising; **headline** only if explicit external or internal insulation gains at least 25% of the wall area — otherwise annex "type unknown"	`s_part` `s_u`
Roof	same (insulated share, U-value)	insulated share **+25 points**, **or** U-value ≤ **0.70 ×** with the insulated share rising	`s_part` `s_u`
Windows	share of window area in single glazing or secondary glazing; area-weighted mean Uw; share in triple glazing	single-glazing share (≥ 20% before) **at least halved**, **or** mean Uw ≤ **0.80 ×** the former	`s_sv` · `s_uw`
Ventilation	ordinal of **technology** alone, periods merged: natural by opening windows < air inlets or duct < mechanical single-flow self-regulating < humidity-controlled < heat-recovery (duct extraction at the mechanical rank)	technology of a strictly higher rank **whose arrival is mechanical** (mechanical ventilation, duct extraction)	no thresho]

MEASURE	STATE VARIABLE (PER CERTIFICATE)	DETECTION RULE A → N, BASE VARIANT	THRESHOLD
Heating	**family** of the main generator, ranked: 1 direct electric heating, electric boiler, oil, coal · 2 non-condensing gas and LPG, log wood, condensing oil · 3 condensing gas and LPG, heat network, gas heat pump · 4 pellets, air-to-air heat pump · 5 air-to-water heat pump, geothermal	change of family to a **higher rank**, with no heat pump or wood already present before	no thresho
Independent hot water	family of the main hot-water generator; solar installation	move to a **heat-pump** water heater or **solar** production, excluding hot water tied to a boiler	no thresho

Two ranks of heating families carry a reading decision that has to be known to replay the grid: direct electric heating and the electric boiler sit at **rank 1** with oil and coal, so that oil → direct electric is not an improvement; and a pair in which a heat pump or wood is already present before cannot carry a headline heating measure (a heat pump already there that changes period is a re-entry of the generator).

5.3 The annexes, and why they are outside the count

Grid v1 counted ten measures without rank. The adversarial review of 11 September 2026 sent to the annex any measure whose rate on re-issues is not at least half its rate on ①, or whose deteriorations exceed half its detections. Annexes are detected with the same symmetric rules, published apart, and **enter neither the headline base, nor the mirror, nor any effect figure**.

ANNEX MEASURE	①: DETECTIONS / DETERIORATIONS (% OF THE 104,759)	RE-ISSUES: DETECTIONS / DETER
Doors (Udoor ≤ 0.80 × or an insulated door appearing)	5.01 / 1.46	0.9
Air conditioning added	5.56	
Hot water tied to a boiler	3.24	
Same-family heating with better performance (performance ≥ 1.05 ×, `s_rend`) or heat pump already present	2.27	
Walls "insulated, type unknown"	1.20	
Requalified natural ventilation (v2.1)	**1.11 / 1.10**	0.2
Photovoltaic / solar	0.85 / **1.56**	0.8
Ground floor	0.39 / 0.26	0.1

Ventilation that stayed natural was removed from the headline count after the result was read, and we declare it. Grid v2 counted every change of ventilation technology; reading the physical detail (step `m5`) showed that a step that stays within natural or hybrid ventilation — from "opening windows" to "high and low air inlets" or to "natural by duct" — installs nothing. On ①, those requalifications have exactly as many deteriorations as detections (1.10% against 1.11%): that is the definition of noise. Version 2.1 requires a mechanical arrival; the requalification is published as an annex. It weighed 8% of ①'s ventilation measures in v2.

5.4 What the grid reads in the 104,759 pairs

HEADLINE MEASURE	HEADLINE DETERIORATION	PAIRS	FINAL ENERGY IMPROVED	STABLE	WORSENED
no	no	66,133	25,921	30,541	9,666
yes	no	29,210	25,056	2,425	1,729
yes	yes	2,743	1,857	216	665
no	yes	6,673	2,363	1,156	3,147

With a measure and no deterioration, final energy falls in **86%** of cases; with neither, in **39%**. This is the table a contradictor should reproduce first: it contains the headline base (29,210 + 2,743 = 31,953) and the mirror (2,743 + 6,673 = 9,416).

5.5 The headline measures, with their two floors (headline base, ①)

MEASURE	PAIRS	% OF THE HEADLINE BASE	DETECTIONS (% OF THE 104,759)	DETERIORATIONS
Windows	12,993	**40.7**	12.40	1.93
Heating	10,849	**34.0**	10.36	2.69
Ventilation (mechanical arrival)	10,828	**33.9**	10.34	1.98
Independent hot water	3,462	10.8	3.30	0.96
Walls (external / internal)	3,010	9.4	2.87	1.57
Roof	2,084	6.5	1.99	0.84

The shares of the base sum beyond 100: a pair carries **a single** measure in 72.9% of cases, two in 20.8%, three in 4.8%, four or more in 1.6%. The most frequent bundles are windows alone (7,943), heating alone (6,330), ventilation alone (5,271), windows + ventilation (2,230). A "hard" measure — a change of generator family, single → double glazing, external wall insulation, heat-pump or solar hot water — is present in **13,499** pairs of ① (12.9%), against 3.6% of re-issues.

"Direct electric → gas", declared. The step from rank 1 to rank 2 counts as a headline measure; on the 224 pairs of ① that carry it, heating final energy per m² moves at the median from 92 to 183 kWh, that is **+82 kWh/m² across the five uses and −0.21 class**. It is a change of energy, not an improvement in final energy. It stays in the count because the grid was frozen before the effects were read; it weighs **0.7% of the headline base** and is limit 13 of § 10.

5.6 The physical detail: what the home's state declares before and after (headline base, ①, medians)

MEASURE	PAIRS	BEFORE → AFTER
Windows	12,993	Uw **3.35** → **1.59** W/m²K; area in single glazing 33.4 → 2.8%; heat loss through windows 28.3 → 15.2 W/K
Walls	3,010	U-value **1.50** → **0.56** W/m²K; insulated area 33.6 → 85.6%; "unknown" 17.0 → 2.9%; external insulation 5.8 → 25.9%; heat loss through walls 74.4 → 27.1 W/K
Roof	2,084	U-value **1.00** → **0.24** W/m²K; insulated area 53.0 → 94.8%; heat loss 56.6 → 14.5 W/K
Ventilation	10,828	heat loss through air renewal 57.7 → 44.9 W/K; most frequent transitions: windows → self-regulating mechanical after 2012 (1,533), → humidity-controlled A (947), → humidity-controlled B (744)
Envelope, whole base	31,953	Ubât **1.13** → **0.79** W/m²K; envelope heat loss 204 → 164 W/K

Heating, heating final energy per m² before → after, change in final energy across the five uses, classes gained (①): direct electric → air-to-air heat pump (3,515) **120 → 43; −71; 1.84** · gas → condensing gas (2,626) 230 → 159; −62; 0.94 · oil → air-to-water heat pump (975) **236 → 57; −186; 2.84** · gas → air-to-air heat pump (507) 210 → 37; −176; 2.06. These are **counted** quantities: the extraction carries them, we read them before and after. They are what makes the measures physically credible, and they do not prove a building site: they prove that a second assessor declared another state.

6. Harmonisation: same factor, same scale

6.1 Why ① requires it, and ② almost not

The primary-energy conversion factor for electricity moved from **2.3 to 1.9 on 1 January 2026** (order of 13 August 2025, piece 6). ADEME recomputed the 1.9 state of **live** certificates and kept both states; it did not recompute **superseded** certificates. In a ① pair, the former certificate is superseded by its replacement: it stayed **under the 2.3 factor** while the second is under 1.9. An all-electric home would gain a class with no measure detected. In a ② core pair, both certificates are live and already recomputed: the gap all but disappears.

Regimes of the ① headline base (step `m5`): former certificate **rebuilt at 2.3** 27,006, former recomputed by ADEME 4,264; second recomputed 22,308, second natively in version 2.6 (born at 1.9) 4,832; floor area missing 714, altitude missing 12. The effect, measured in § 8: on ①, **8,823** starting letters (27.6%) change under harmonisation, 8,810 of them through the factor alone; on ② core, 558 (0.6%).

6.2 The identity, and the two methods refuted

For a former certificate left at 2.3 without a recomputed state, primary energy under the 1.9 factor is rebuilt through an identity that depends only on the certificate's published **totals**, primary energy (EP) and final energy (EF):

> **$EP_{1.9} = EP - (4/13) \times (EP - EF)$**

It is exact whenever non-electric energies are at factor 1: the gap EP − EF is then 1.3 times final electricity, and the step from 2.3 to 1.9 removes 0.4 times that electricity, that is 4/13 of the gap. Greenhouse-gas emissions do not depend on the factor and do not move. For a certificate of version 2.6, or one from before 2026 for which ADEME kept the recomputed state, the published value is **already** at 1.9 and serves as it stands.

Two methods were tried before this one, logged and **refuted**: the factor "measured" from the split of final energy by energy source (`dpe_sortie_par_energie`), which recovers ADEME's recomputed state only in 95.7% of cases at ±1 kWh/m² because that split under-declares electricity by about 5% on 4% of certificates; and the step −0.4 × electric final energy read on that same split, at 91.1%. The identity on the totals passed the gate at the fourth attempt.

6.3 The scale, and the gate that would have blocked publication

Once at 1.9, both certificates are reclassified by our statutory classification module (code available on request), which implements the thresholds of annex 1 of the order of 25 March 2024 (replacing annex 5 of the order of 31 March 2021, piece 4): thresholds modulated by floor area below 40 m² and by altitude above 800 m in climate zones H1b, H1c and H2d. The altitude class, missing on a share of rows, is handled as lowland with a flag. Reclassification is done **outside the database** (CSV export → script), never in the query.

Two blocking tests were written before any harmonised figure; below either of them, nothing was to be published in the harmonised reading.

GATE	WHAT IT TESTS	REQUIRED	RESULT
4.1a — scale	the reclassification (published EP, GHG, floor area, altitude, zone) reproduces the class published by ADEME	≥ 99.5%	**99.678%** of 3,950,397 certificates; **99.870%** above 40 m²
4.1b — factor	the identity reproduces the recomputed state kept by ADEME, on certificates with both states (the oracle)	≥ 99% at ±1 kWh/m²	**99.971%** of 1,780,801 certificates; class reproduced at 99.612%
7.2a — inverse	the 2.3 EP rebuilt from the 1.9 state (inverse identity, for the packages) recovers the published EP of superseded former certificates	≈ 100%	**100.00%** of 10,702 certificates at ±1 kWh

The remaining 0.03% of gaps in gate 4.1b are aberrant ADEME recomputations (a 1.9 state of 9 to 25 kWh/m² for a 2.3 state of 160 to 200). The residuals of gate 4.1a are concentrated below 40 m², where the scale is modulated.

7. The checks that could have failed

These carry the argument, not the absence of error. A check that cannot fail is not a check: it weakens the others by contagion. Each line below had a result that would have invalidated the grid, and we say which.

CHECK	WHAT WOULD HAVE INVALIDATED	RESULT	NATURE
Symmetry (gate 3.1): every headline measure has its inverse rule, produced by the same query on the reversed pairs	deteriorations as frequent as detections: the grid would be reading noise	**30.5% against 9.0%** on the same 104,759 pairs; 39 rule lines, each with its inverse	classified
The measure where it happened: requalified natural ventilation	detections = deteriorations	**1.11% against 1.10%** → removed from the headline count (v2.1), published as an annex	classified
Re-issue floor (gate 3.2): rate of each measure on 1,308,669 pairs where nothing could change	a ① / re-issues ratio below 3 on a headline measure	windows 6.6 · ventilation 4.6 · hot water 4.6 · walls 4.0 · roof 3.7 · heating 3.6; doors, ground floor, photovoltaic sent to the annex	classified
The control: what a second certificate brings with no measure	a control gaining as much as a pair with a measure: the second certificate would be doing all the work	control **41.6%** gain a class and **−16 kWh/m²**, against 68.5% and −51 on the headline base	harmonised / counted
Engine drift: median change in final energy on re-issues of the same visit and on pure corrections	a non-zero median: two calculations of the same home would not give the same result	**0.0** on re-issues (p25 / p75: −8 / 0) and 0.0 on pure corrections; by version couple in § 9	counted
Threshold sensitivity (gate 3.3): low / base / high variants, thresholds tightened or loosened by half	more than 2 points of gap on the conditional share	**29.7 / 28.1 / 26.5%**; 1.6 points either way; ventilation, heating and hot water depend on no threshold, only walls, roof	classified

CHECK	WHAT WOULD HAVE INVALIDATED	RESULT	NATURE
		and windows respond	
Declared reason (cross-validation, never a filter): `motif_remplacement` × pair class	a "works" reason no more frequent in the base than elsewhere	"works" reason: **54.8%** of the 9,088 pairs carrying it are in the headline base (48.5% net), against **29.8%** for the software's default text (20.5% net), 21.5% for "correction", 25.1% for other reasons	classified
Interval: the share of the base must rise with the interval between visits, otherwise the grid reads noise	a flat curve	8–30 days **17.6% gross, 10.3% net** · 91–365 days 31.0 / 21.8% · 1–2 years **38.3 / 28.9%** · more than 2 years 37.7 / 27.6%; the worse result follows the opposite slope: 21.7% at 8–30 days, 16.3% at 1–2 years	classified
Breakdown to the unit (gate 1.1)	a sum off by one	2,040,000 = 74 + 159,301 + 449,707 + 6,428 + 1,308,669 + 3,391 + 7,671 + 104,759	counted
State coverage (gate 2.1)	a missing component treated as "not insulated"	`etat_dpe` : 4,049,458 rows for 4,049,458 certificates; a missing component comes out NULL, never "not insulated"	counted

Three floors, published together. A re-issue measures the re-entry of a single operator; it does not measure the variance between two assessors, which is the dominant noise of a separate visit. And the re-issue noise is not symmetric: at identical engine version and on the **harmonised** rating, 12.8% of the re-issues gain at least one class against 4.4% that lose at least one (§ 7bis.1). The same asymmetry read on published ratings is not published: it carries the 2.3 → 1.9 factor, not re-entry. We therefore publish three floors, never one: re-issues (re-entry alone), the 8–30-day band at a separate visit (few building sites possible: 17.6% gross, 10.3% net), and the mirror (9.0% on ①). The measure rate (30.5%) is given net of the third (21.5%); the headline figure is published with the first beside it (17.2% of re-issues change class, § 7bis.1).

The check that could have failed, in one sentence. Had our grid been reading noise, the two shares — measures and deteriorations — would be equal on the same 104,759 homes. They stand at 30.5% against 9.0%. It happened on one measure, ventilation that stayed natural (1.11% against 1.10%); it was removed from the count.

7bis. The rating noise of the re-issues of the same visit

The re-issue floor of § 5.5 measures each measure one by one. It does not say what a re-issue does to the **rating**, and that is the first thing a contradictor asks: *if a second entry of the same visit can already move a class, how much of your 68.5% is that?* The reading below answers it. It was run on 30 September 2026 and added to the figures sheet in its v1.1.

The segment is the **1,308,669 certificates re-issued for the same visit** — the pairs excluded from ① because no measure can be read in them — of which **1,139,724 at identical calculation-engine version**. Both certificates are brought to the 1.9 factor and the statutory scale, and the engine version is held equal: neither the factor nor version drift can produce what follows, and no works are possible. These figures bear on certificates that re-issue the same visit, and a re-issue is a **normal act of the assessor**, not a fault; read without that qualifier, they would look like an accusation, which they are not.

Why the published rating cannot be read on this segment. On the same 1,139,724 re-issues, the published reading gives 297,768 improvements (26.1%) and 82,687 exits out of 228,171 energy sieves (36.2%) — twice the harmonised figures. The contamination check (step `m8`) gives the cause: **253,375 starting ratings are reclassified** by the factor, and **158,677 pairs carry a published gain with no harmonised gain**. A re-issue noise read on published ratings is therefore mostly the 2.3 → 1.9 step, not re-entry. Only the harmonised reading is published here.

7bis.1 The figure (step `m8` ; 1,139,724 re-issues, 1,139,719 with both harmonised ratings)

RE-ISSUES OF THE SAME VISIT, IDENTICAL ENGINE VERSION (N = 1,139,724; BOTH HARMONISED RATINGS AVAIL/
Change rating
Gain at least one class
Gain at least two classes
Lose at least one class
Energy sieves at the start → exits from the F and G classes
Final energy consumption differs between the two

Median change in final energy **0.00** kWh/m²/year; median **absolute** gap **2.00**; ninth decile of the absolute gap **39.00**. The median is nil and the tail is thick: this noise is invisible at the centre of the distribution and visible at its edge — which is where a class threshold sits.

⚠️ At a **different** engine version (168,945 re-issues, 168,887 with both harmonised ratings), 56,212 change rating, 48,876 gain a class (28.9%), 19,818 of 53,697 energy sieves leave the F and G classes (36.9%), and the median change in final energy is **−6.00**. The two lines are not added together: version drift is a separate effect, quantified in § 9.

7bis.2 The noise has a direction, and the direction depends on the starting letter (step `m8` , identical version)

Classes gained, mean: A **−0.127** (19,485 pairs) · B −0.084 (49,484) · C −0.032 (345,718) · D +0.049 (330,803) · E **+0.205** (215,767) · F **+0.412** (111,763) · G **+0.543** (66,699). A re-issue **degrades well-rated homes on average and improves poorly rated ones**. ⛔ That is a description, not an explanation: the class boundary belongs to the worse of the two classes, and A has no class above it. Of the 66,699 pairs starting from G, 21,643 gain a class while 10,066 (15.1%) leave the F and G classes — **11,577 gain a class without leaving energy-sieve status**, they become F. Of the 111,763 starting from F, 36,746 (32.9%) leave.

7bis.3 When the grid records a measure on a re-issue — the model limit, quantified (step `m8b`)

RE-ISSUES OF THE SAME VISIT, IDENTICAL ENGINE VERSION	A HEADLINE MEASURE IS RECORDED	NO HEADLI
Pairs	**82,221** (7.2% of 1,139,724)	1
Gain at least one class	38,280 (**46.6%**)	107,394
Lose at least one class	2,428 (3.0%)	
Energy sieves at the start → exits	20,097 → 12,753 (63.5%)	1 34,059
Median change in final energy (kWh/m²/year)	**-19.00**	
Median absolute gap · ninth decile	22.37 · 102.11	1.00
Measures per pair, mean	1.091	

The objection this settles. It runs: *your effect ought to be read against the re-issues where the grid records a measure, so the real gap is 17 points, not 27.* It fails for two reasons (this rebuttal answers the former headline reading, the headline base / control differential, in force until 12 October 2026). **(a)** The right comparator for a recorded measure is the **absence** of a recorded measure on the **same** population: on the re-issues that gap is **36.4 points** (46.6% of 82,221 against 10.2% of 1,057,503), that is **more** than the 27 points of the main population (68.5% of 31,953 against 41.6% of 36,528). **(b)** The median change in final energy where a measure is recorded is **−19 kWh/m²** and not 0: those detections are not empty — the second entry declares a **different state of the building**.

⚠️ **This is the study's model limit, and it is now quantified.** The grid detects a **declared change of state**, never works. On 82,221 re-issues of the same visit it records one. What the grid believes it sees (step `m8b` , identical version, n ≥ 300, with the median change in final energy): heating 25,312 (−31.20) · ventilation 19,780 (−6.00) · windows 14,679 (−12.38) · walls 6,315 (−33.00) · roof 5,048 (−27.90) · hot water 4,439 (−17.00) · windows + ventilation 1,431 (−30.00) · heating + hot water 1,132 (−72.00) · heating + ventilation 811 (−45.00) · heating + windows 690 (−60.50) · hot water + ventilation 376 (−23.70) · walls + ventilation 375 (−49.00). **25,312 times, two entries of the same visit do not agree on the family of the main heating generator**, for a median gap of 31 kWh/m².

⚠️ A coincidence of value: the exit rate of the re-issues with **no** measure recorded is 21.5% of 158,367 energy sieves, and 21.5% is also the net of the headline base on ① (30.5 − 9.0 on 104,759 pairs). They are two unrelated quantities, on two different populations, that share a number.

What this segment is **not**. It is not a measurement of assessor-to-assessor variance (one operator, one visit); it is not a rate of anything on population ①; and it enters no base and no rate of the study, since the 1,308,669 re-issues are excluded from ① by the fifth criterion of § 1.

8. The four readings, always together

The headline figure compares two groups selected the same way: both exclude worse second certificates. **With a measure recorded**, it is the conditional reading: 9,351 of the 11,026 energy sieves at the start leave the F and G classes, i.e. **84.8%**. **With no measure recorded**, it is the control and the pure corrections together (§ 8.2): 6,527 + 351 = 6,878 exits out of 11,870 + 3,489 = 15,359 energy sieves at the start, i.e. **44.8%**. Worse results at the second certificate, classified separately whether or not a measure was recorded, concern 18.0% of the 104,759 homes (18,893) and are given beside it. The unconditional reading (the headline base), the control alone and the mirror are secondary readings, published below; in this note, we never give the conditional reading without the headline base, nor the headline base without the control.

① — 1.9 FACTOR, STATUTORY SCALE	HEADLINE BASE	CONDITIONAL	CONTROL (0 MEASURE)	MIRR
Pairs in the reading	**31,948**	29,428	36,511	9,4
Gain at least one class	**68.5%**	73.5%	**41.6%**	28.
Gain at least two classes	33.6%	36.3%	12.4%	10.
Same class	28.3%	26.5%	58.4%	45.
Lose at least one class	**3.2%**	0.0% (by construction)	0.0% (by construction)	25.
Classes gained, mean	1.16	1.29	0.58	0.
Energy sieves (harmonised F or G) at the start	11,372	11,026	11,882	1,9
Leave the F and G classes	**82.9%**	84.8%	**54.9%**	49.
Reach D or better, among E, F and G	63.8%	66.2%	34.4%	33.
Change in primary energy at 1.9, median (kWh/m²/year)	−67.2	−75.4	−22.6	+1
Change in final energy, median (kWh/m²/year)	**−51.0 (−26.3%)**	−57.0 (−29.3%)	**−16.0 (−9.8%)**	−2 (−1.3
Change in total final energy (kWh/year, not divided by floor area), relative	−26.5%	−29.4%	−9.2%	−0.
Change in GHG, median (kg CO_2/m²/year)	−6.0	−7.0	−2.0	0

The headcounts in the first row are those on which the harmonised rating of both certificates could be established (31,948 of the 31,953 pairs of the headline base, 36,511 of the 36,528 of the control, 9,404 of the

9,416 of the mirror); the changes in final energy are counted on the same rows.

The secondary readings, as a differential. A home whose second certificate detects a measure cuts its final energy consumption by **51 kWh/m² a year (−26%)**; a home merely re-assessed, with no measure at all, cuts it by **16 (−10%)**. In classes: 68.5% gain at least one class against 41.6%, that is **+27 points**; exits from the F and G classes: 82.9% against 54.9%. Setting aside the 2,520 pairs whose result worsens (conditional reading): 73.5%, −57 kWh/m², 84.8% — and 0% of losses, by construction. The ratio of 51 to 16 ("three times more") is no longer put forward: it compares the headline base, unselected, with the control, selected on its outcome.

Why the headline selects both groups the same way. The grid's noise is symmetric: a pair can carry a measure through re-entry just as it can carry a deterioration through re-entry. The conditional reading sets aside only the pairs whose result worsens, that is **one side of the noise**; set against an unselected group, it would therefore bias upwards. The control, for its part, is selected by construction: it excludes worse results and identical states. Until 12 October 2026, the headline was the unconditional reading (68.5% of class gains, rather than 73.5% in the conditional reading), set against that selected control; it now sets the conditional reading against a no-measure group that also sets aside worse results. That is the publisher's choice. The headline base remains published here with its 3.2% of pairs that lose a class despite a measure, and worse results are given beside the headline figure.

The control remains the safeguard of any before-and-after reading. A second certificate with no measure at all already lifts 41.6% of the 36,528 homes of the control by one class, and takes 54.9% of its 11,882 energy sieves out of the F and G classes; with the pure corrections, 44.8% of the energy sieves with no measure recorded leave them. Any study that compares a certificate before and a certificate after without a no-measure group attributes to the works what the second certificate does on its own.

8.1 Validation by ② core

② CORE — 1.9 FACTOR, STATUTORY SCALE	HEADLINE BASE	CONDITIONAL	CONTROL	MIRROR
Gain at least one class	59.0%	**71.3%**	44.2%	28.8%
Lose at least one class	8.6%	0.0%	0.0%	25.3%
Classes gained, mean	0.91	1.24	0.59	0.08
Leave the F and G classes	77.8%	82.7%	51.4%	50.0%
Change in final energy, median (kWh/m²/year)	−40.1 (−22.6%)	**−57.0 (−30.0%)**	−20.0 (−11.7%)	−1.0

On ② core, the conditional reading gives **the same effect** as on ① (71.3% against 73.5%; −57 against −57; 82.7% against 84.8%): that is the validation. The headline base of ② core is noisier (8.6% of losses, against 3.2% on ①), as expected of two unlinked certificates, often issued by two assessors; the headcounts of its columns are not given because their ratio to 216,621 would be a works rate (§ 2).

8.2 By harmonised starting letter (①)

LETTER	HEADLINE BASE: N; GAIN ≥ 1; LOSE; CLASSES; CHANGE IN FINAL ENERGY	CONTROL: GAIN ≥ 1; CL
G	4,335; **90.1%**; 0.0%; 2.35; −151	63.8%; 1.23; −79
F	7,035; 88.4%; 1.0%; 1.72; −90	65.3%; 0.95; −44
E	9,645; 75.8%; 2.0%; 1.07; −52	49.6%; 0.58; −22
D	7,109; 51.6%; 4.5%; 0.57; −26	25.8%; 0.26; −8
C	3,370; 20.9%; 9.9%; 0.12; −12	6.9%; 0.07; −4
B	366; 17.2%; 19.4%; −0.10; −4	10.7%; 0.11; −2

Exits from the F and G classes, headline base / control: **G 73.9 / 39.2%**; **F 88.4 / 65.3%**. ⚠️ An F in the control leaves the F and G classes in 65% of cases with no measure at all: an exit on its own is not a marker of works; it is given **with** the control. ⚠️ On A, B and C, a detected measure gains nothing and often loses (B: 19.4% lose): that is certificate variance on homes that already perform.

Counted exits from the F and G classes, letter by letter (step `m8c`, added in v1.1). They exist because a share rounded to the tenth of a point does not multiply back: multiplying the energy sieves at the start by that share gives 4,682 where the count is **4,683**, and 6,219 where it is **6,220**. A rounding product set beside a counted figure would contradict the rule of natures (§ 3): the exact counts are those of this table.

READING	F	G	TOTAL
Headline base (unconditional)	7,035 → **6,220** (88.4%)	4,335 → **3,204** (73.9%)	11,370 → **9,424**
Control ("undetermined")	7,170 → **4,683** (65.3%)	4,700 → **1,844** (39.2%)	11,870 → **6,527**
Pure correction	2,134 → 302	1,355 → 49	3,489 → 351
Worse result on the second certificate	2,183 → 439	1,089 → 144	3,272 → 583

⚠️ **The headline base is not the "works" class**: it keeps the pairs that carry a measure and end worse. Hence 11,370 energy sieves at the start against 11,026 for that class alone (F 6,797 → 6,162, G 4,229 → 3,189). The totals of § 8 (11,372 and 11,882) count **starts**, including pairs with no complete transition: a gap of 2 and of 12 pairs, and the reason § 8.5 reads on 11,370.

8.3 By single measure and at equal letter (①) — the check on the second key figure

Classes gained, mean; gain ≥ 1; lose; median change in final energy: windows alone (7,943) **0.69; 51.9%; 4.4%; −28** · ventilation alone 0.82; 54.6%; 5.3%; −26 · heating alone (6,330) **1.26; 77.6%; 2.9%; −60** ·

walls alone 0.97; 69.6%; 3.4%; −46 · roof alone 0.74; 60.7%; 3.7%; −37 · hot water alone 1.07; 68.6%; 1.5%; −33 · heating + hot water **2.39; 98.7%; 0.1%; −144** (most often a single heat pump or boiler doing both).

A comparison of measures across all starting letters would be biased by the letter: heating changes more often in G-rated homes. The check (step `m5`) holds the letter fixed — classes gained, heating alone / windows alone: **D 0.70 / 0.27 · E 1.23 / 0.69 · F 1.83 / 1.22 · G 2.31 / 1.67**. At equal starting letter, heating gains **1.4 to 2.6 times more classes** than windows; windows, the most frequent measure (40.7% of the base), are the least effective of the single measures. That does not mean "windows are useless": 0.69 of a class and −28 kWh/m² are not nothing.

8.4 The published reading, in second rank

On ratings **as displayed** (former certificate at 2.3, second at 1.9), **76.9%** of the pairs of the ① headline base gain at least one class, against **68.5%** harmonised: **8 points of the published gain come from the factor**, and 2,930 pairs gain on the published reading without gaining on the harmonised one. Exits from the F and G classes: 84.8% published against 82.9% harmonised. On ② core, published and harmonised coincide (59.0% against 59.0%) because both certificates are already recomputed. What the owner saw is true; what the owner saw contains 8 points of regulation.

⚠️ **A coincidence of value**: the exit from the F and G classes of the headline base on published ratings (unconditional reading, 84.8%; in § 8.5, 12,161 exits out of 14,335 energy sieves) equals the "measure recorded" side of the headline figure (conditional reading, harmonised: 9,351 of 11,026, 84.8%, § 8). They are two unrelated quantities, on two different bases and two different rating conventions, that share a number.

8.5 The transition matrices, and the base they are read on

Both full matrices (harmonised ratings and published ratings) are available on request; the one for the headline base on the harmonised rating is reproduced below.

> ⚠️ **The clean base.** A transition requires **both** ratings, so the harmonised matrix counts **31,948 transitions for the 31,953 pairs** of the headline base (5 pairs with no harmonised rating on both sides, 2 of them energy sieves). Every share of this subsection is taken on the **row totals** below, never on the headcounts of § 8.2. That is why the energy sieves at the start count **11,370** here and 11,372 in § 8, which counts starts.

① **headline base, harmonised rating** (row = starting class, column = arriving class):

↓ FROM \ → TO	A	B	C	D	E	F	G	TOTAL
A	50	17	7	7	6	1	0	88
B	63	232	49	17	3	1	1	366
C	136	570	2,330	257	58	17	2	3,370
D	109	542	3,017	3,122	263	49	7	7,109
E	46	352	2,395	4,514	2,148	159	31	9,645
F	42	200	1,496	2,198	2,284	747	68	7,035
G	16	92	690	1,366	1,040	**703**	428	4,335

The cells we publish, each with its row total:

- **703 of the 4,335 pairs starting from G (16.2%) arrive at F.** On the harmonised rating they move out

of the letting ban in force since 1 January 2025 and into the one that takes effect on 1 January 2028. **428 (9.9%) stay at G.** In all, **1,131 (26.1%) are still energy sieves despite a recorded measure.**

- **747 pairs stay at F**, and 68 move from F to G.
- **268 pairs arrive at F or G without having started there** (rows A to E towards F and G), 0.8% of the

31,948. A check only, not a key figure: at that scale a contradictor will say "noise", and will be right.

The published variant, for the gap of convention (the same pairs, ratings as displayed): 31,953 transitions, **14,335 energy sieves at the start**, 12,161 exits (84.8%), 234 new energy sieves, **912 from G to F** (14.3% of the 6,364 starting from G), 511 still at G. **The gap of convention is worth 2,965 homes** — 14,335 energy sieves at the start on published ratings against 11,370 harmonised, on the same pairs. We write "brought to the same factor and the same statutory scale", not "corrected" or "recalculated by us".

⚠️ **Regulatory status reads on the enforceable rating, which is the published one.** A sentence about the letting ban that leans on the harmonised matrix holds only with that qualifier, or with the published variant beside it. And the extraction does not say whether these homes are let: they "fall under" the deadline, which does not mean they "will be banned".

⛔ **No matrix exists for the control.** We know that 6,527 of its 11,882 energy sieves leave the F and G classes (§ 8.2); we do not know whether they arrive at E or at C. Nothing is asserted about where they land.

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9. Version drift and re-measured floor area

Two confounders remain after harmonisation, because they touch neither the factor nor the scale but the **calculation** itself. We measure them and declare them; we do not correct them in the headline figure.

The version of the 3CL engine. With identical inputs, two versions of the engine do not give exactly the same consumption. The measurement is made on re-issues of the same version couple (median change in final energy **0.0**) and on headline-base pairs by couple. At identical version: 2.4 → 2.4 −47 kWh/m² (3,525 pairs); 2.3 → 2.3 −52; 2.2 → 2.2 −42; 2.6 → 2.6 −43; 2.5 → 2.5 −44. At different versions, net of what re-issues of the same couple give without any measure: 2.3 → 2.4 −59 − (−9) = **−50**; 2.2 → 2.3 −60 − (−12) = −48; 2.2 → 2.4 −41.6; 2.1 → 2.3 −21. In summary: **9,209** headline pairs at identical version, −42 kWh/m² and 1.02 class; **22,744** at different versions, −54 and 1.21. ⚠️ Pairs at different versions are also older and have a longer interval: the 12 kWh/m² gap between the two groups is not pure drift, it is drift mixed with an interval effect. The headline figure is given all versions combined; the full table by version couple is available on request.

Floor area. Two assessors do not measure the same habitable floor area, and a consumption per m² changes with its denominator. The check is the **change in total final energy** (kWh/year, not divided by floor area), published alongside: on the headline base, −26.5% against −26.3% per m² — the same median. Re-measurement does not manufacture the overall gain; it shifts it between bands.

FLOOR-AREA GAP BETWEEN THE TWO CERTIFICATES (①)	PAIRS	SHARE WITH ≥ 1 HEADLINE MEASURE	MED
≤ 3%	84,416	30.4%	
3–10%	9,344	38.1%	
10–25%	6,835	29.2%	
Floor area unknown on one side	4,164	17.1%	

The 3–10% band concentrates the strongest gains per m² and a higher share of measures: that is plausibly where extensions and converted lofts sit, but we do not know it and do not write it anywhere but here. Base ① admits up to 25% of gap; population ② is bounded at 3% (houses) and 10% (flats on dwelling reference), which is one of the reasons its effects are slightly weaker in the unconditional reading.

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10. The limits, as we declare them

We give them before they are put to us. They are ordered by severity, each with the direction of the bias it induces.

1. Certificates ≠ building sites. A measure is a **declared change of state** between two certificates, read by a rule with thresholds: neither dated, nor invoiced, nor verified on site. The extraction contains no table describing works. The bias runs both ways and we measure each separately: upwards, re-entry (an assessor reading "insulated" where the other read "unknown") — that is the mirror, 9.0% to be taken off the 30.5%, and the re-issues, 1.89% of "windows" where nothing changed; downwards, any measure without a trace in the 3CL method (controls, pipe lagging, servicing, insulation entered "unknown" on both sides) is invisible. We write "detected measure", "the second certificate records", never "works carried out", and we do not say whether those measures were the right ones. **This limit is now quantified** (§ 7bis.3): on 82,221 of the 1,139,724 certificates re-issued for the same visit at identical engine version — where no works are possible — the grid records a headline measure all the same, and those pairs gain a class in 46.6% of cases, with a median change in final energy of −19 kWh/m². The grid detects a declared change of state; it never detects works. The same table answers the objection built on it: the measure / no-measure gap on the

re-issues is 36.4 points (46.6% of 82,221 against 10.2% of 1,057,503), wider than the 27 points of the main population.

2. The base is that of homes assessed twice, not the stock, and ① is selected by a declaration. 104,759 pairs are 5.1% of declared replacements, and a declared replacement is an act of the assessor: the "works" reason, when written, places 54.8% of its 9,088 pairs in the headline base against 29.8% for the default text. ① therefore over-represents homes where a measure is likely; that is the reason for ② core (216,621 pairs, address-matched without a declaration), which finds the same effect. No rule of three towards the stock is defensible or performed: no rate in this study reads "x% of French homes". Whole buildings (one certificate = one building) are a separate segment of ①: 3,767 pairs, 16.5% gross, **4.5% net**, 0.52 class, −16 kWh/m²; ② does not contain them.

3. The control already stands at 41.6%. A second certificate with no measure at all lifts 41.6% of the 36,528 homes of the control by one class, cuts final energy by 16 kWh/m² (−10%) and takes 54.9% of its energy sieves out of the F and G classes — 65.3% of the F-rated ones. Part of that movement is correction (an insulation "unknown" become "insulated" without crossing our thresholds), part is a measure without a trace. We do not know how to separate them. Any reading of the headline base without the control overstates; that is why no effect is read without a no-measure group: the headline figure sets 84.8% against 44.8% of exits from the F and G classes (§ 8), and the secondary reading in final energy is a **differential** (−51 against −16), and not −51.

4. 3.2% of pairs lose a class despite a measure, and 18.0% of ① pairs end with a worse result. The first number is in the headline base and stays there. The second is a check: the share of worse results is **21.7%** when the two visits are less than a month apart and **16.3%** at one to two years — the opposite slope to that of the measures. That is variance between two certificates, not failed works; its median change in final energy is +17 kWh/m² (+12%). On letters A, B and C, a measure gains nothing and often loses (B: 19.4%): homes that already perform, where noise dominates. The conditional reading, which sets those pairs aside, cannot lose by construction; that is why the headline figure sets it only against a no-measure group that sets them aside too, and gives the 18.0% of worse results beside it (§ 8).

5. Eight points of the published gain come from the electricity factor. On published ratings, 76.9% gain a class; harmonised, 68.5%. The former certificate of a ① pair stayed under the 2.3 factor, the second is under 1.9; 27.6% of the base's starting letters change under harmonisation, 8,810 out of 8,823 through the factor alone. The direction is known and corrected at the headline; the published reading remains true for the owner and is given in second rank. On ② core, the gap is 0.6%.

6. Walls and roof: net nil on ②, and "unknown" insulation is invisible. On ② core, the "walls" measure has as many deteriorations as detections (net **−0.05** point) and the roof barely more (0.69): insulation is an **entered** state that two assessors read differently. No insulation measure of ② is published. On ①, walls and roof are published with their net, **1.31 and 1.15 points** only, against 2.87 and 1.99 gross. Insulation "unknown" on both sides produces no measure; on the 3,010 pairs with a "walls" measure, the "unknown" share moves from 17.0 to 2.9% — part of what is read as new insulation is insulation recognised. Direction of the bias: upwards on insulation measures, which is why they are the smallest in the count.

7. The engine version. Headline pairs at identical version fall by −42 kWh/m², those at different versions by −54; the gap of 12 is not pure drift (§ 9). The net of re-issues by version couple (−9 to −12 kWh/m² on version changes) gives the order of magnitude of what an engine change produces with no measure. Direction: a slight upward bias on the change in final energy of the secondary reading given all versions combined; the table by couple is available on request, and the headline figure is not adjusted.

8. Re-measured floor area. The 3–10% gap band (9,344 pairs) carries −82.0 kWh/m² per m² against −49.9 at stable floor area; without division by floor area, the overall median does not move (−26.5% against

−26.3%). 4,164 pairs have no floor area on one side. Direction: neutral at the overall median, concentrated in a band we cannot explain.

9. Clustering under the thresholds. Consumptions cluster just below the class thresholds, and an "exit from the F and G classes" bears on a population close to the threshold, hence selected. Measured at 1.9, lowland, floor area > 40 m²: the share of certificates less than 5 kWh/m² below a threshold moves from **6.13% to 7.66%** between the former and the second certificate of pairs with a measure (at 10 kWh: 12.40 → 15.07%); on worse results, 7.98 → 6.19; on re-issues, 7.28 → 7.39. The after-measure state clusters more under the thresholds. Direction: exits are slightly overstated by selection at the threshold, by an amount we do not quantify; the distribution of the distance to the thresholds, before and after, is available on request.

10. The calendar. The extraction stops at 24 August 2026: **2026 is a partial year**. The years 2021 and 2022 are **censored** by the interval between visits — a pair whose second certificate dates from 2022 has a short interval by construction, hence a lower share of measures (2022: 17.8% gross, 7.8% net; 2024: 34.7 / 25.9%; 2025: 34.2 / 24.3%; partial 2026: 33.0 / 26.0%). The rise from 2022 to 2024 is first an interval effect, not a rise in works; the year × interval cross-tabulation is available on request.

11. No cost, no subsidy, no return on investment — and the packages do not describe the measures made. The extraction carries neither real cost, nor subsidy received, nor identity of the assessor, nor the detail of the lots of the recommended packages. The secondary angle compares the **consumption simulated after the package** of the former certificate (primary energy at 2.3, both members brought to the package's factor by the inverse identity) with what was observed: package 2, simulated −146.7 kWh/m², observed −48.5, 7.4% of the 1,349 pairs reach the simulated value; package 1 + 2, simulated **−186.0**, observed **−56.0**, **8.0%** of the 2,305 pairs; in GHG, −15.0 simulated against −4.0 observed. Package 1 is **unusable**: its simulated consumption is that of the initial state (ratio 1.001 to the published primary energy). ⚠️ The detected measures are not necessarily those of the package — 72.9% of pairs carry a single measure — and the extraction does not say which: this comparison measures the gap between a full simulated package and partial observed measures, not the fidelity of a simulation. We call it only "consumption simulated after the package".

12. What we saw in the database without exploiting it. In building ②, the chain counted **488,232** filing duplicates: two certificates of the same home (strict address keys, floor area equal within 1%), at the same visit or at most 7 days apart, with no replacement link between them. The open dataset counts them as two valid certificates. They lie outside every population of this study (criterion "≤ 7 days without a link"), and we publish them only here, as an observation on the database, not as a result: the gross count before the floor-area check, higher, is not publishable because it mixes different flats assessed the same day on ambiguous keys. The declared reason for replacement, a free-text field empty on 12.3 million rows and set to a software's default text on 1.25 million, served only for validation (§ 7). ② sensitivity (45,480 pairs) is published nowhere. No confidence interval, no test, no "±" of uncertainty: our figures are counts and medians, for which these are beside the point, and an inference would require clustering on the building that we do not perform.

13. An internal contradiction, which we own. The grid counts "direct electric → gas" (224 pairs, **0.7% of the headline base**) as a step up in family, from rank 1 to rank 2, hence as a headline measure — while the final energy of those pairs **rises** (+82 kWh/m² at the median, −0.21 class): a Joule-effect radiator replaced by a gas boiler burns more final kilowatt-hours, because final energy does not weight energies. Removing that sub-type after reading its effect would have been selective; keeping it contradicts the grid's "improvement" direction. We keep it, we say so, and its direction is known: it pulls the change in final energy of the secondary reading upwards (towards less improvement) by a weight of 0.7% of the base.

11. Publication guard-rails

- **No ① + ② sum.** Two populations, two tables, never an addition, never a total "homes assessed twice,

all populations".

- **No works rate on ②.** ② core is published by its size (216,621) and by its effects (71.3% / −57 in

the conditional reading); never "x% of ② did works"; no ② measure in the release; ② sensitivity is not published at all.

- **No conditional reading without a no-measure group selected the same way**: 84.8% reads only with

44.8% (§ 8). In this note, the headline base is also given beside it, and the control beside the headline base: 73.5% / −57 reads only with 68.5% / −51, which reads only with 41.6% / −16.

- **No ranking between *départements* or between regions.** Threshold of 300 headline pairs per *département*:

38 *départements* published out of 95 units (Corsica aggregated under code 20, 31,660 headline pairs geocoded), the others blanked; results published by *département* and by region, with no ranking between them; the "not geocoded" row serves the checks; no municipal figure. A missing *département* is not "barely affected": it is below the threshold.

- **No territorial narrative.** Île-de-France has windows as its dominant measure (49.6% of its base),

Provence-Alpes-Côte d'Azur and Occitanie have heating (56.7% and 52.1%): these are side-by-side descriptions, not explanations. Overseas *départements* and Corsica at region level: below 300 pairs, not published.

- **No cost, no subsidy, no return on investment, no euro**: the extraction carries none.
- **No correlation**, no `r` coefficient, no scatter plot, no regression; the axes (interval, year,

property type, construction period, heating energy before, region) are descriptions with a declared denominator, gross **and** net.

- **No "renovated", no "works carried out", no "building site"**: "detected measure", "declared change

of state", "homes assessed twice". In our texts, "assessed" accompanies the study's count of homes ("104,759 homes assessed twice") and appears in the standfirst of the press release.

- **No assessor's name, no software, no narrative about a software**, no "complacent EPC": a

re-issue is a normal act of the assessor.

- **No re-issue figure without "re-issue the same visit".** The 12.8%, the 26.2%, the 46.6% and the

−19 kWh/m² of § 7bis.1 and § 7bis.3 read on certificates that re-issue the same visit, at identical engine version and on the harmonised rating; the published reading of that segment is never used, and the two engine-version lines are never added.

- **No mean of a change in final energy, no interval**: medians, percentiles and counts; "classes

gained, mean" is a mean of whole-number rating differences, given with the share that gains and the share that loses.

- **No replay after publication.** A published study is a dated artefact: extraction of 25 August 2026,

figures sheet **v1.1 of 30 September 2026** (v1 frozen on 11 September 2026; v1.1 adds the re-issue rating noise and the transition matrices without changing a single base or rate), CSVs with their sha256 fingerprints kept (available on request). A contradictor replaying on another vintage will find other numbers, and that will be normal.

- Rates are rounded to the tenth of a point; headcounts are given to the unit and their press rounding

is explicit ("more than two million", "close to 105,000").

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12. Primary sources, and their consultation dates

Every figure in this study comes from the **ADEME database extraction of 25 August 2026**. Pieces 3 to 6 serve to **name** the regulatory objects (classes, energy sieves, factor, licence), never to produce a figure. Each piece is archived with its verbatim, available on request.

Data

- **ADEME dataset "DPE Logements existants (depuis juillet 2021)"** — existing-home EPCs since July

2021 (`data.ademe.fr/datasets/dpe03existant`), consulted on **11 September 2026**. Producer ADEME; licence «*Licence Ouverte / Open Licence version 2.0*»; weekly update; **15,557,428** records displayed at 9 September 2026; download link of the PostgreSQL dump `opendata.ademe.fr/dump_dpev2_prod_fdld.sql.gz` — the one the study restores. *(Piece 1.)*

- **Metadata of the data-fair API of the same dataset**

(`data.ademe.fr/data-fair/api/v1/datasets/dpe03existant`), consulted on **11 September 2026**: `dataUpdatedAt` 2026-09-09, `createdAt` 2025-02-03; open columns including `numero_dpe_remplace` , `date_visite_diagnostiqueur` , `statut_geocodage` ; **absent from the open schema**: `dpe_a_remplacer` , `motif_remplacement` , `dpe_desactive` . *(Piece 2.)*

- **Catalogue of the restored extraction** (log of step `r0a` , internal piece available on request), established on **10 September 2026**: upper bound of `date_reception_dpe` **2026-08-24

21:29:44**; 19,502,445 rows in `dpe` ; `dpe.dpe_remplacant_id` and `dpe.ancien_dpe_id` under a UNIQUE index; `dpe_administratif.dpe_a_remplacer` , `motif_remplacement` , `date_visite_diagnostiqueur` ; `dpe.desactive` ; `dpe_pack_travaux` (3,870,791 rows: package number, consumption simulated after works, minimum and maximum cost); `dpe_enum_lot_travaux` with no table using it. *(Piece 7.)*

- **Licence Ouverte / Open Licence 2.0** (Etalab, April 2017), SPDX identifier `etalab-2.0` , PDF served

by `static.data.gouv.fr` and the licences page of data.gouv.fr, consulted on **11 September 2026**, 232 KB capture archived. French original: the re-user is free to «*reproduire, copier, adapter, modifier, extraire,*

communiquer, diffuser, redistribuer, publier, transmettre, exploiter à titre commercial» — OneDpe translation: "reproduce, copy, adapt, modify, extract, communicate, broadcast, redistribute, publish, transmit, exploit commercially" — with attribution of «*la source*» and «*la date de dernière mise à jour*» (the source and the date of last update). Our aggregates are republished under the same licence. *(Piece 3.)*

Texts

- **Order of 31 March 2021** on the energy performance certificate for residential buildings or parts

of buildings in mainland France, NOR `LOGL2033917A` , `JORFTEXT000043353335` , *JO* no. 0087 of 13 April 2021, in force on 1 July 2021; initial version consulted on **11 September 2026**. Article 4: classification on «*une échelle de référence notée de A à G*» — "a reference scale rated from A to G" — established from the two quantities; thresholds referred to annex 5. No article of the text deals with the replacement of a certificate. *(Piece 4.)*

- **Order of 25 March 2024**, annex 1 (`JORFARTI000049446339`), which replaces annex 5 of the order of

31 March 2021 — the scale modulated by floor area and altitude that our classification module implements and that gate 4.1a verifies. Archived for our study on the electricity conversion factor (OneDpe, 25 August 2026), verified cell by cell on 17 August 2026 (528 cells, 0 divergence). *(Cross-reference from piece 4.)*

- **Order of 13 August 2025**, NOR `ATDL2519132A` , *JORF* no. 0197 of 26 August 2025, in force on

1 January 2026 — the text that moved the primary-energy conversion factor for electricity from 2.3 to 1.9 for certificates issued in 2026; the order of 19 August 2026 repeals it from 1 January 2027 (arts. 5 and 6). Archived for our study on the electricity conversion factor (OneDpe, 25 August 2026), consulted on 17 August 2026; no new capture, the piece is identical. *(Piece 6.)*

- **Order of 19 August 2026**, NOR `VLOL2617030A` , `JORFTEXT000054747079` , *JORF* no. 0198 of

26 August 2026, in force on 1 January 2027 — it moves the primary-energy conversion factor for electricity from 1.9 to 1.7 and repeals the order of 13 August 2025 on that date (arts. 5 and 6). ⚠️ **Published after our database cut-off (24 August 2026): no figure in this study depends on it.** It is cited so that the list of texts states the law as it stands, and because a reader who did not find it here might think the study was written without it.

- **service-public.gouv.fr, page F16096 "Diagnostic de performance énergétique (DPE)"**, consulted on

11 September 2026, page "verified on 1 January 2026". Classes **F and G** are designated there as «*logement à consommation énergétique excessive*» — "home with excessive energy consumption"; letting ban: class G since 1 January 2025, F on 1 January 2028, E on 1 January 2034; validity of the certificate: 10 years. ⚠️ The page **describes no procedure** "redo an EPC after works". *(Piece 5.)*

Two citation traps, flagged in advance

- ⚠️ **15,557,428 is not 19,502,445.** The counter displayed by the open dataset is that of **live**

certificates; the restored extraction counts 19,502,445 certificates because it also contains the **superseded** (replaced) ones — which is precisely what makes the study possible. The two numbers do not count the same thing, and 2,040,000 set against 15,557,428 gives no valid share.

- ⚠️ **"The post-works EPC" is not a document.** No regulatory procedure names an "after-works"

certificate (piece 5): the replacement of a certificate is an act of the assessor, traced by the fields of piece 7, and 91% of those acts re-issue the same visit. And the semantics of those fields is established **by the extraction itself** (UNIQUE index, consistency of the two links at 99.97%): the documentation of the Observatoire DPE-Audit refuses automated reading (HTTP 403) and could not be archived.

⏳ **This section is perishable.** ADEME's open dataset is updated every week and its counter changes; the service-public page carries a verification date that will be overtaken; live pages can change. **The study's vintage can be checked in one query** — the upper bound of `date_reception_dpe` in the extraction — and the frozen CSVs, with their sha256 fingerprints (available on request), are what a replay is compared against.

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13. What this note is served with

OBJECT	URL
Press page of the study — press release, figures, département annex, this method note	`onedpe.fr/en/presse/travaux-renovation-dpe-2026`
Article for readers	`onedpe.fr/en/blog/renovation-works-epc-what-really-changes`
The tool the study comes from — it takes an EPC by its number and simulates the effect of each measure on the rating	`onedpe.fr/en/renovation-works`

Calculation files (figures sheet v1.1 of 30 September 2026, SQL logs, frozen CSVs and their sha256 fingerprints): on request at presse@onedpe.fr.

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14. Disclosure

OneDpe publishes a free works simulator that takes an EPC by its number and simulates the effect of each measure on the rating, and sells a premium PDF report. It also develops quality-control tooling aimed at professionals. Readers should weigh the headline figures in that light — which is why the control, the mirror reading and the checks that could have failed are published with their full counts, so that every figure can be checked against the source extraction rather than taken on trust.

OneDpe method note — What renovation works change on the EPC, edition of 17 November 2026. Prepared by OneDpe (published by RIANN SAS, Paris). Every figure comes from the ADEME database extraction of 25 August 2026 and from the primary sources cited above. Our figures are free to reuse, including commercially, with the credit "Source: OneDpe.fr".