

Energy & compliance case-study review report

San Francisco Office Energy & Compliance · pack sf-office-compliance-r1 · prepared 2026-10-25 from preserved evidence only (nothing re-simulated) · Hexanta

STATUS: NOT COMPLIANT / NOT ACCEPTED. Both native Title 24 2025 performance runs were rejected on engineering review (decisions D-CX-24, D-CX-25, D-CX-28). The official Title 24 compliance report (PRF-01) was not generated. The ASHRAE 90.1-2019 PRM was blocked by expiry of the IESVE trial licence on 2026-10-25. No Title 24 certification, compliance pass, LEED result or engineer approval is claimed. Engineering approval: OUTSTANDING.

1. Project

Building	Office, synthetic: the WF1 London Run 4 building (single storey, 12 rooms) relocated without geometry change. Conditioned 756 m ² ; model 864 m ² incl. 108 m ² unconditioned plantroom
Site	San Francisco, CA, USA — hypothetical site, provisional ZIP 94103; Title 24 climate zone 3; ASHRAE 169 zone 3C
Stage	Design validation (provisional); permit date assumed 2026-11-02
Codes	California Title 24 Part 6 2025 (nonresidential); ASHRAE 90.1-2019 Appendix G PRM (rules packs also for 2016 and 2022); LEED v5 BD+C energy; San Francisco 2025 local requirements
Software	IES Virtual Environment 2026 (26.0.0.0) with its built-in Title 24 2025 module (trial licence, expired 2026-10-25); Hexanta compliance engine (offline pre-checks and estimates)

2. Native Title 24 2025 performance runs

Item	Run 1 (2026-10-24)	Run 2, corrected (2026-10-25)
Software statement	"DOES comply"	"DOES comply"
Efficiency LSC margin	64.82 %	59.95 %
Source energy margin	72.17 %	68.55 %
Standard indoor fans (MWh)	81.13	75.12
Standard unmet heating hours	151	21 (Results Summary) / 24 (plausibility check) — difference unexplained
Proposed plant	library water-cooled chiller (not HP-01), autosized	code-minimum air-to-water heat pump BENCHMARK (not HP-01)
Engineering verdict	NOT ACCEPTED (D-CX-24); superseded	NOT ACCEPTED (D-CX-25, D-CX-28)

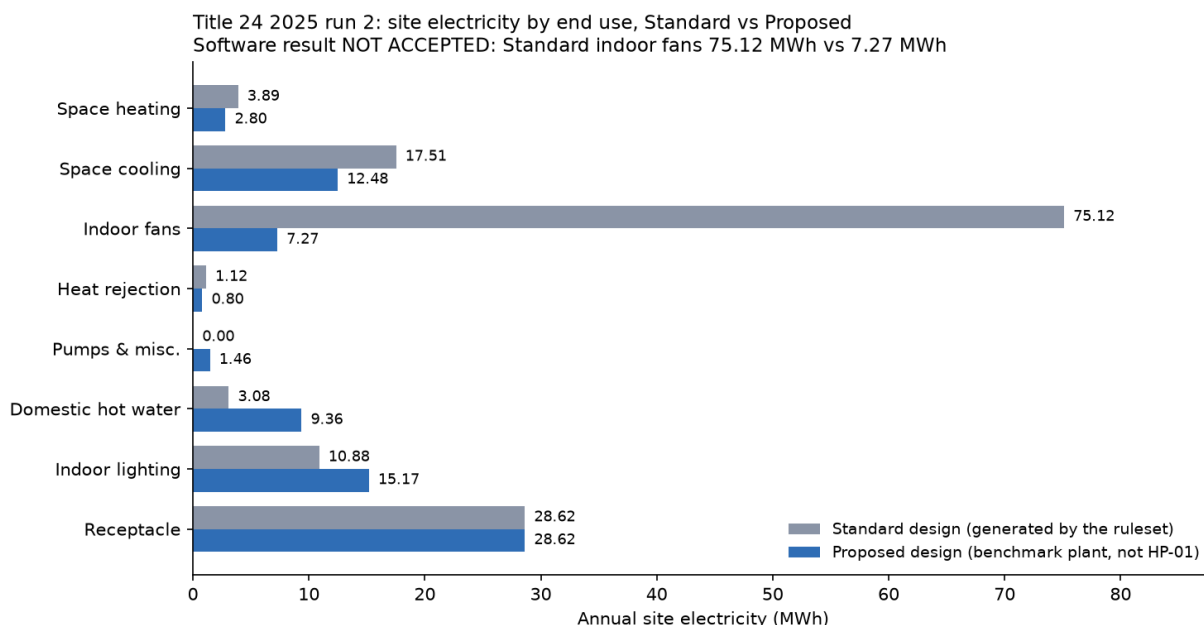
Run 2 was corrected by treating the unserved plantroom as unoccupied (Standard unmet heating hours 152 → 21), by replacing the chiller with a code-minimum benchmark heat pump, and by regenerating the Standard design with the ruleset. Automated plausibility triggers still fired: Standard fan EUI 86.9 kWh/m²·yr (trigger 40), Standard/Proposed fan ratio 10.34 (trigger 3), fans 75 % of the site-energy margin (trigger 60 %). **94.5 % of the LSC margin (44.53 of 47.11 \$/ft²·yr) is Standard fan energy; without it the margin would be about 3 %.** The corrected models therefore do not substantiate the software result.

3. Run 2 end uses (site, from the native Results Summary)

End use	Standard MWh	Proposed MWh	LSC margin \$/ft ² ·yr
Space heating	3.89 + 96.45 MBtu gas	2.80	7.13
Space cooling	17.51	12.48	3.53
Indoor fans	75.12	7.27	44.53
Heat rejection	1.12	0.80	0.23
Pumps & misc.	0.00	1.46	-0.84
Domestic hot water	3.08	9.36	-4.35
Indoor lighting	10.88	15.17	-3.12
Photovoltaics / battery	0 / 0	–	0

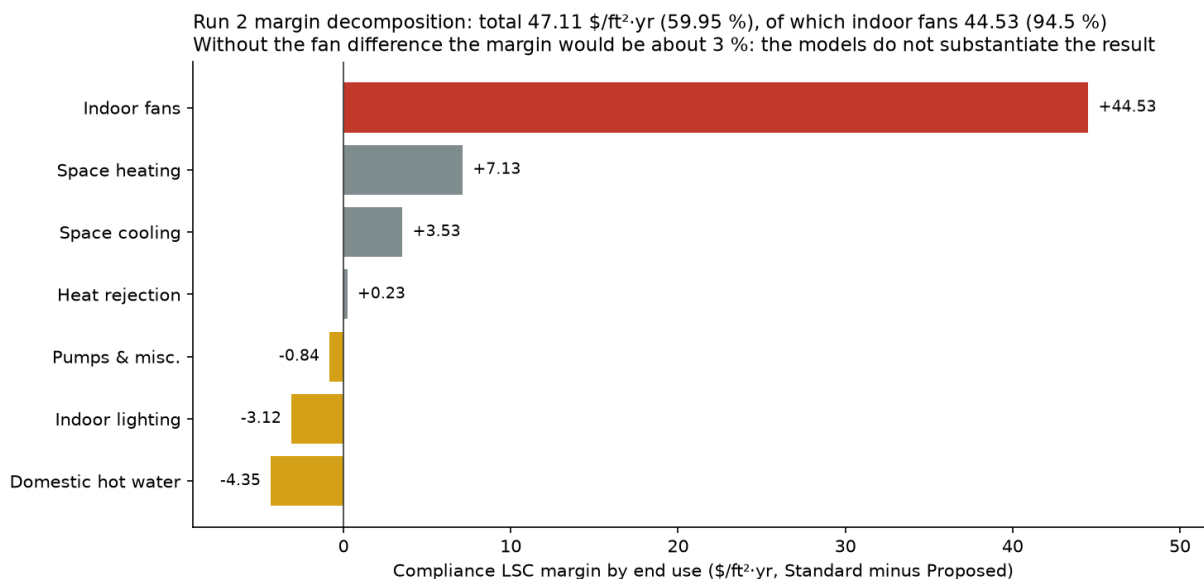
Receptacle	28.62	28.62	0
Total	140.2 + 96.45 MBtu	77.95	47.11

Efficiency LSC 78.58 → 31.47 \$/ft²·yr; source energy 44.79 → 14.09 kBtu/ft²·yr. Proposed site EUI 90.2 kWh/m²·yr (77.95 MWh / 864 m²) — not accepted.



Standard also uses 96.45 MBtu gas for space heating (not plotted). Totals: Standard 140.2 MWh + 96.45 MBtu; Proposed 77.95 MWh.

Source: native IESVE 2026 Title 24 2025 Results Summary, run 2 (2026-10-25), evidence compliance-NATIVE-T24-RUN2-20261025. NOT ACCEPTED (D-CX-25, D-CX-28).



LSC = Title 24 long-term system cost metric (a compliance metric, not a cost).

Source: native IESVE 2026 Title 24 2025 Results Summary, run 2 (2026-10-25), evidence compliance-NATIVE-T24-RUN2-20261025. NOT ACCEPTED (D-CX-25, D-CX-28).

4. Other native steps

Step	Status
Generate Standard Model (first attempt)	BLOCKED: "non-compliant materials" in four constructions; resolved by mapping WF1 layers to CEC library materials (U change -2.6 % to +0.6 %, engineer review required)
Native ASHRAE Heat Balance design loads, CZ 3	Run (provisional): room heating 10.600 kW, sensible cooling 52.513 kW; Hexanta/native ratios 0.925 and 1.085 (agreement checks only)
Battery step	Run 1 FAILED (blank availability schedule). Run 2 executed with a manufacturer-neutral code-minimum battery (37.522 kWh / 9.381 kW) after the Results Summary was produced, so the summary shows battery 0
PV geometry / solar access (SARA)	BLOCKED: the PV panel tool could not be driven by automation; operator placement needed

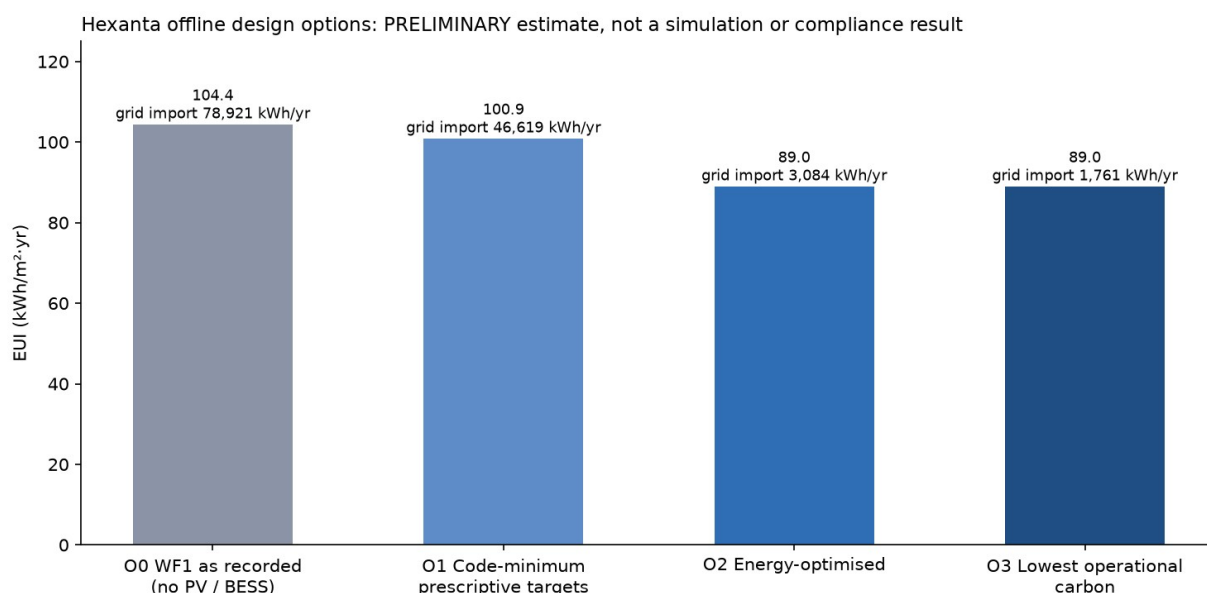
Official compliance report (PRF-01)	NOT GENERATED: the step stayed disabled
ASHRAE 90.1-2019 PRM	Set up only (Oakland Intl, ASHRAE 3C); BLOCKED by licence expiry 2026-10-25 02:40 GMT

5. Hexanta offline study (r4) — PRELIMINARY

Prescriptive pre-check: **failed_precheck** (fenestration solar heat gain; installed lighting 9,864 W vs 5,480 W allowed; no PV; no battery). Passes: wall U-factor, window-to-wall ratio 37.65 %, west 40.0 %, system type. Many items blocked for missing design data. Title 24 §140.10 sizing: PV ≥ 21.076 kWdc; battery ≥ 37.522 kWh / 9.381 kW. San Francisco all-electric and energy-budget checks, ASHRAE PRM and LEED: blocked. QA 15/15 PASS (software and arithmetic checks only).

Option (PRELIMINARY)	PV kWp	EUI kWh/m ² ·yr	Grid import kWh/yr	CO2e kg/yr
O0 WF1 as recorded	0	104.4	78,921	15,393
O1 Code-minimum prescriptive targets	21.16	100.9	46,619	9,093
O2 Energy-optimised	114.12	89.0	3,084	602
O3 Lowest operational carbon	114.12	89.0	1,761	344

Quasi-steady hourly estimate; fans at Title 24 limits as design targets; pumps and DHW unresolved; annual-average grid carbon factor. Cost-optimised and LEED-oriented options blocked (no prices, no PRM results).



Source: Hexanta offline study r4 (compliance-WF1-SF-STUDY-20261024-r4), quasi-steady hourly estimate; fans at Title 24 limits as targets; pumps and DHW unresolved.

6. Outstanding before any compliance claim

HP-01 selection with certified ratings; review of the Standard design fan energy (with the ruleset documentation or the software vendor); certified glazing ratings; DHW design; PV geometry and solar access; official compliance report; ASHRAE PRM simulations and a project tariff; real site and permit date; a valid software licence; qualified-engineer review and approval.

7. Evidence

Evidence folder	Status
compliance-NATIVE-T24-RUN2-20261025	current native run; NOT ACCEPTED
compliance-NATIVE-T24-RUN-20261024	SUPERSEDED (rejected run 1)
compliance-NATIVE-T24-UI-20261024	navigator session; Standard model blocked
compliance-NATIVE-N0-N2-20261024	probe, work copy, exploratory simulation
compliance-WF1-SF-STUDY-20261024-r4	current offline study (r1-r3 superseded)

Every evidence folder carries a SHA256SUMS manifest, re-verified 2026-10-25 with no mismatches. Values in this report are copied from the evidence; nothing was re-simulated. This report is a sanitised

derivative and not a compliance document.