
A GUIDE BY NEVALUX

What you need to know about lighting renovation

Strategic planning and implementation for decision-makers.

FOREWORD

Light is the most underestimated investment in a building.

In many Swiss buildings, lighting installed more than twenty years ago is still in use today: fluorescent-based, inefficient and not (optimally) controlled.

A lighting renovation is therefore not just a question of aesthetics. It is one of the few building measures that pays for itself within a few years: lower energy costs, better lighting and no more waste, without major intervention in the building structure.

This guide summarises what we have learned from hundreds of renovation projects in German-speaking Switzerland, as a reference for anyone who wants to make their property future-proof.



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READING TIME

*Approx. 8 minutes.
Written for decision-makers.*

Wasted potential: the problem with half-measures

Around half of all light points have been converted to LED in recent years, but mostly by simply swapping the lamps (retrofit) without intelligent controls. That is technologically outdated and economically questionable, because much of the savings potential is lost.

Outdated, uncontrolled systems leave lights burning at full power in empty corridors and unused zones. A modern renovation makes lighting intelligent: it only shines where it serves a purpose.

The economic reality

A decisive share of the efficiency gain comes not from the LED source itself, but from the controls. Without them, you give away a large part of the savings potential.

50 %

of street lighting in Switzerland has already been converted to LED, in most cases without intelligent controls.

Up to 94 %

energy savings are possible when LED technology is consistently combined with presence and daylight sensors.

10 – 30 %

of the investment can, under certain conditions, be reimbursed through the ProKilowatt funding programme (SFOE).

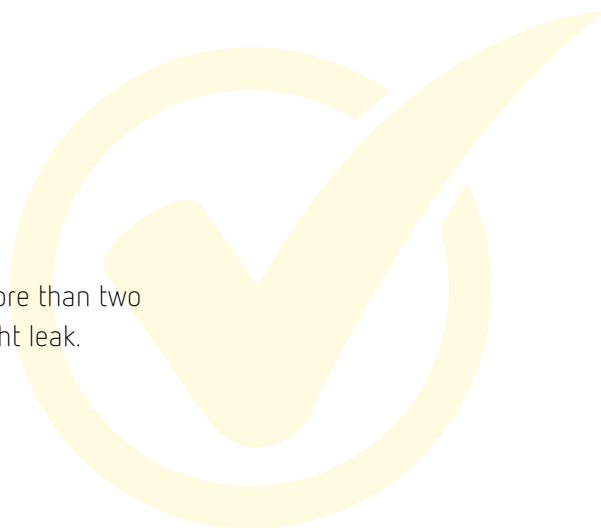


"For years, project team meetings have debated whether lighting installations should be dimmable and controllable. That discussion really should no longer be taking place."

STEFAN BORMANN • SFOE SPECIALIST · IN "ENERGEIA PLUS" FEB 26

Does your building have a 'light leak'?

Before you invest, check the status quo. If you answer 'yes' to more than two questions, your property is losing energy every day through a light leak.



Ask yourself...



Do you rely on the last person out to switch off the lights?

Be honest: in uncontrolled buildings, the lights usually stay on until the next morning.



Are you competing with the sun?

Do the lights by the windows shine just as brightly in full sunshine as those in the middle of the room, regardless of the daylight coming in?



Are lights on in empty rooms?

Factory halls, offices, stairwells and corridors often stay lit even when nobody is there, causing a huge amount of unnecessary energy consumption.



Can you feel the heat?

Can you feel the heat coming off the luminaires? That is measurable energy lost as heat instead of usable light. Most heat-emitting lamps are now banned in Switzerland. Time for a renovation!



Does the light dazzle you while you work?

Light does not always need full output to do its job. Is there distracting glare or reflection?

BONUS



Are you prepared for an emergency?

Can occupants get out of the building safely during a power cut? In Switzerland, escape route lighting must have a backup duration of at least one hour.



Do some rooms feel too dark or unsafe?

That should never be the case. This is not a light leak, simply outdated lighting that is ready for modernisation. :-)

Two or more ticks? Then it is worth arranging a free potential analysis.

**REQUEST FREE
ANALYSIS →**

Renovation due?

You have options.

OK, so you need to change something about your lighting, but where do you start? Every situation is different, of course, but as a basis we will first look at the type of renovation and the technology you prefer.

There are many options, but in general renovations fall into three types. They range from simple to complex, and each has its own advantages and disadvantages. When making this decision, it is important to consider your long-term goals and your investment capacity.

Types of renovation

01

Retrofit

Old tubes and bulbs out, new LEDs in. Simple swap, no lighting design needed. Outdated wiring, housings and drivers. A different light distribution can reduce light quality.

Analysis	No
Light design	No
Light quality	Low
Investment	Cheapest
Future-proof	No

+ Cheapest entry point

+ Quick fix

+ Caretaker can do the swap

- No intelligent controls

- Costly in the long run

- Risk of failure in the old infrastructure

02

Hybrid

Old technology out, only the housings are reused. Custom parts and a new acceptance inspection are often needed to keep existing fittings.

Analysis	Yes
Light design	Limited
Light quality	Good
Investment	High
Future-proof	Yes

+ Good environmental footprint

+ Design concept retained

+ Light matched to use

- Recertification may be required

- Unplanned follow-up costs possible

03

FOR BEST RESULTS

Full replacement

Complete new installation, including new lighting design for optimal placement and energy savings.

Analysis	Yes
Light design	Full
Light quality	High
Investment	Most expensive
Future-proof	Yes

+ Maximum savings

+ Design freedom

+ The right light in the right place

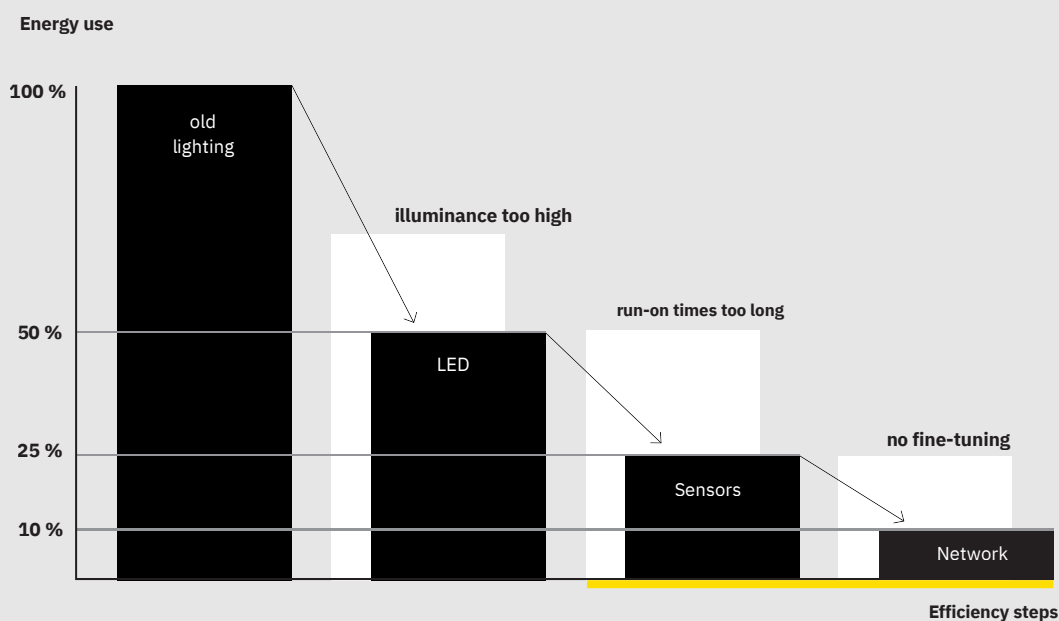
- Planning takes time

- Most expensive option

Don't miss what matters most.

Switching to LED is the obvious choice, but many then miss out on further energy savings, better quality and more comfort.

Lighting technology keeps evolving, and solutions are becoming more efficient, more intelligent and easier to use. But which technology is best for your building or application? That needs to be analysed in detail.



Source: SLG

Lighting technology options for energy savings

01 LED

Switching from fluorescent lamps to LED light sources typically cuts energy consumption to 50%. However, part of the potential savings is often lost when luminaires are oversized and deliver too much illuminance. Dimmable LED drivers solve this.

02 Integrated sensors

Integrated presence and daylight sensors cut electricity consumption further, making total savings of 75% possible. To achieve this, run-on times are set as short as possible (usually one minute).

03 Networked

Only intelligent wireless networking of luminaires across zones unlocks the full savings potential of 90% and more. Instead of isolated solutions, sensors communicate across areas. The swarm system moves smoothly with occupants, dims surrounding areas to cut consumption and leaves unused zones dark.

Strategy meets technology.

The best strategy for a lighting renovation depends on your situation. The following matrix gives a useful overview of your options, based on the **type of renovation** and the range of **lighting technologies**.

TYPE OF RENOVATION			
	Retrofit Old out, new in. Same position, no assessment of the existing installation	Hybrid Reuse existing housings where possible	Full replacement Complete installation including new lighting design
LED Simple swap	SAVINGS 50% No controls, no sensors	SAVINGS 50% Full potential not reached	SAVINGS 50-60% Standby losses without controls
Sensors (Integrated) presence & daylight sensors		SAVINGS 60-70% Limited sensor placement	SAVINGS 70-80% Optimal sensor placement
Mesh Swarm intelligence		SAVINGS 90-95% Best intelligent lighting within existing infrastructure	SAVINGS 90-95% The right light in the right place at the right time



*"Light is only right when
nobody notices it."*

From needs analysis to the right light.

Every project is different. For a standard modernisation or renovation, these six steps are typical, from analysis to ongoing support.

01

Needs analysis

Identify types of use and requirements. Analyse environmental factors (daylight, reflection). Meet legal requirements (illuminance, glare).

02

Lighting concept

A tailored solution for every area, from the executive office to the industrial hall. Recommended: wireless networks and open standards.

03

Installation

Central coordination of all trades to ensure everything runs smoothly while the project is carried out.

04

Commissioning & fine-tuning

Setting up the controls on site. Systematic collection of user feedback in the first weeks for precise readjustment.

05

Training & long-term support

Training for your technical staff so they can make small adjustments themselves. Long-term guidance and support.

OPTIONAL

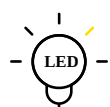
06

nevalux maintenance contract

On request, nevalux offers a full-service contract to ensure long-term advice and support.

What makes lighting intelligent?

Replacing old lamps with LEDs is only the beginning. Depending on your requirements, six levels of intelligence can optimise your installation, and each one saves additional electricity.



Efficient LED technology

BASIS

Modern LEDs form the basis. They are extremely energy-efficient, can be dimmed without loss and switched as often as needed: the foundation of every renovation.



Swarm intelligence

NETWORKING

Networked lighting that follows occupants increases safety while saving electricity, because only the zones in use are fully lit. Particularly effective in logistics, underground car parks and production.



Integrated sensors

SENSORS

Highly sensitive sensors detect even the smallest movements; true presence detectors even pick up the breathing of people sitting still. Lights are only on when rooms or zones are actually in use.



Short run-on times

TIMING

Thanks to reliable detection, run-on times can be cut sharply. The light switches off as soon as it is no longer needed, with no loss of comfort.



Constant light

DAYLIGHT

Integrated sensors measure the incoming natural light. The system adds exactly the amount of artificial light needed to reach the target brightness.



Tunable White

HUMAN-CENTRIC

Light colours matched to the body's natural rhythm improve well-being, health and productivity in office areas. Cool and activating in the morning, warm and relaxing in the evening.

Funding options

ProKilowatt is the office of the Swiss Federal Office of Energy (SFOE) responsible for managing funding for energy efficiency. Its main aim is to make energy-efficient projects possible, even if they may not be economically viable on their own.

ProKilowatt distinguishes between programmes and project applications.

Programmes, e.g. Lightbank



- Faster decision, less paperwork.
- Fixed funding amounts per kWh saved (max. CHF 30,000).
- Max. investment per customer: CHF 300,000.

Lightbank website: www.lightbank.ch

Direct application via ProKilowatt



- Competitive tender, more effort; the best 85% of submissions are selected based on funding efficiency.
- You set the funding amount you apply for (up to CHF 6 million).
- Ideal for large projects with several sub-projects.
- No maximum investment amount.

ProKilowatt website: www.prokw.ch



Funding is only granted for measures that have not yet been carried out. Wait for ProKilowatt's approval before finalising your project, ordering materials or signing contracts. Many property owners lose their entitlement to funding because they start too early – retroactive funding is not possible.

What you need to know

Every lighting renovation in Switzerland is subject to a wide range of cantonal energy laws, federal building regulations, SIA technical standards and EU-compliant safety standards. Four of these regulations were updated between 2023 and 2025. If your last lighting concept was drawn up before then, as is the case for most existing concepts, it may be based on regulations that no longer apply.

SUMMARY OF CHANGES		WHAT THIS MEANS FOR YOU
2023	SIA 387/4 — 2023 EDITION (FIRST 2017) In 2017 it replaced the lighting part of SIA 380/4:2006 and introduced the LENI value, with limits around 30% stricter for main usable areas and around 50% stricter for circulation areas. The 2023 edition came into force on 1 August 2023 and tightens the requirements again.	Check whether your last energy certificate is based on the current version. If not, plans built on it may no longer meet current ProKilowatt or Minergie requirements.
2025	MuKE 2025 — CANTONAL MODEL REGULATIONS Adopted by the Conference of Cantonal Energy Directors (EnDK) on 29 August 2025. Forms the basis for cantonal energy laws. Successor to MuKE 2014, with transposition into cantonal law planned from 2025. Continues the course towards stricter overall energy limits and explicit requirements for lighting controls in non-residential buildings.	Implementation across the cantons is uneven, but the direction is clear. Plan with the 2025 rules, not those of 2014.
2025	SN EN 1838 — EMERGENCY LIGHTING Fourth edition of the European standard for emergency lighting, in force in Switzerland since March 2025. New photometric requirements and recommendations for design, installation and operation. A transition period applies to the 2019 edition until 27 May 2027.	Any emergency lighting design started from 27 May 2027 must comply with the 2025 edition. Renovation measures are currently the most cost-effective route to future-proofing.
2025	Mantelerlass — CIRCULAR ECONOMY The revised Environmental Protection Act, Energy Act and Public Procurement Act have been in force since 1 January 2025. Cantons are required to set limits for grey energy in new buildings and major renovations.	Hybrid renovations (reusing existing luminaire housings) now have regulatory tailwind. Pure full-replacement strategies face stricter requirements for grey energy.

Key terms

Because abbreviations and technical terms can sometimes be confusing.

Glossary

Lux (lx)

Measure of illuminance on a surface. Office workstation: 500 lx. Workshop with fine work: 750–1000 lx. Precision work: 1500 lx.

Lumen (lm)

Measure of a luminaire's luminous flux. Important for comparing efficiency: lumens per watt (lm/W).

Kelvin (K)

Unit of colour temperature. Warm white (~3000 K) feels cosy, daylight white (~6500 K) feels activating.

UGR value

Unified Glare Rating — measure of psychological glare (e.g. from luminaires and bright surfaces). In offices and schools, the limit is usually $UGR \leq 19$.

Human Centric Lighting

Dynamic adjustment of light colour and intensity over the course of the day, supporting the human circadian rhythm.

Bluetooth Mesh

Wireless communication standard that lets luminaires exchange information directly with each other, without control cables.

Predictive maintenance

Proactive maintenance through system alerts before an actual failure.

Grey energy

Amount of energy needed to manufacture, transport and dispose of a product.

Sources & standards

SIA 387/4

Swiss standard for the electricity demand of lighting in buildings — Swiss Society of Engineers and Architects.

EN 12464-1

European standard for the lighting of indoor workplaces.

MuKE 2025

Model energy regulations of the cantons, published by the Conference of Cantonal Energy Directors (EnDK), 2025 edition. Transposition into cantonal law (e.g. Canton of Zurich) is ongoing.

SLG

Swiss Lighting Society — national professional association for light and lighting; publisher of guidelines and recommendations for lighting design.

nevalux analysis

Internal data collected across 100+ renovation projects, 2019–2026.

The right light for every sector and every room in it.

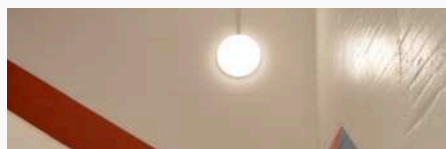
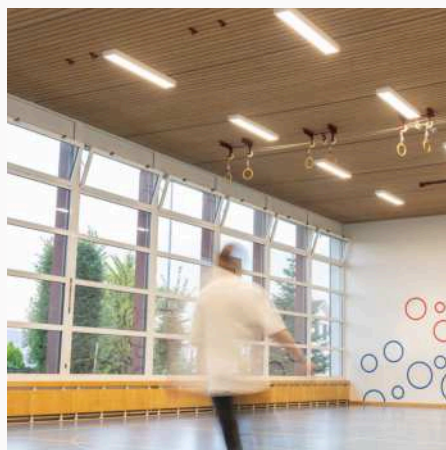
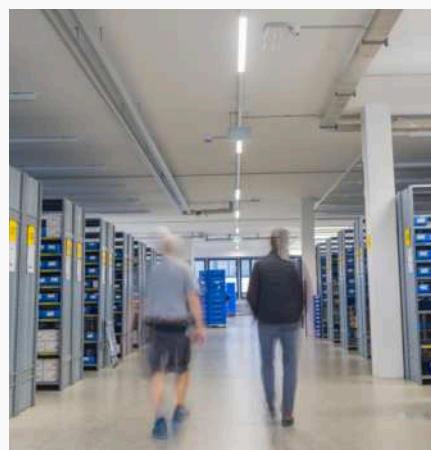
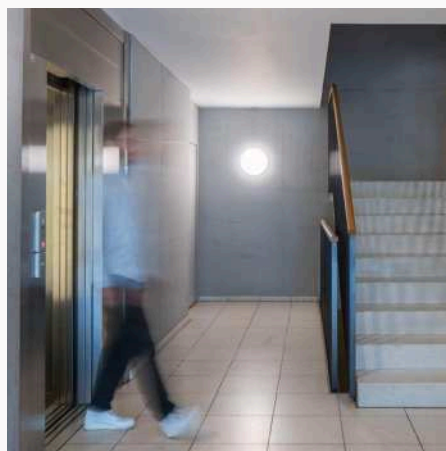
THE SAME PRINCIPLE, IN EVERY SECTOR

-  Housing cooperatives
-  Municipalities & education
-  Industry & commerce
-  Real estate & facility mgmt.
-  Healthcare & assisted living

The principle is the same in every building: full brightness is only needed where people are; everywhere else, an intelligent base light is enough.

Whatever the sector or activity, every room simply needs the right light in the right place at the right time.

How you get there is individual, and intelligent lighting adapts to that too.



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lux

— AND NOW...

Inspired?
We get it.
Let's talk!



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