

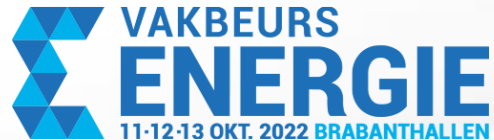


U-CERT

User-Centred Energy Performance
Assessment and Certification

WELKOM

EPB standaarden & EPBD perspectief



U-CERT

User-Centred Energy Performance
Assessment and Certification



Jan Pieter van Dalen
jp@bouwbeter.nl



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WELKOM

EPB standards & EPBD perspectief



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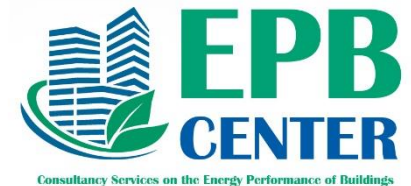


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Jaap Hogeling

jaap.hogeling@epb.center



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Betrokken onderzoekers



Joost Rienks



Arjan Broers



Zoltan Magyar



Jana Bendžalová, PhD.



Pawel Wargocki



Nicolò Mignani



Marleen Spiekman



Dick van Dijk



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EU Green Deal – Fit for 55 naar 2030

- Drijvende kracht achter de EPBD, nu volgt IV revisie
- Heeft dit effect op het gebruik van de EPB standaarden?



EU Green Deal, Renovation Wave: Fit for 55 by 2030 towards Zero Carbon emission richting 2050

- **3 focus gebieden in de “Renovation Wave”:**
 - Tackelen energie armoede en transitie van de energetisch slechts presterende gebouwen naar gezonde gebouwen.
 - Leidende voorbeelden: prioriteit voor renovatie van publieke gebouwen.
 - Decarbonisatie: energieleverende gebouwen produceren.
- Om dit te bereiken promoot de EU de MEPS (Minimum Energy Performance Standards) , dat feitelijk staat voor **Minimum Energy Performance Requirements**.
- Het gebruik van EPC’s (Certificaten) en Building Renovation Passports.

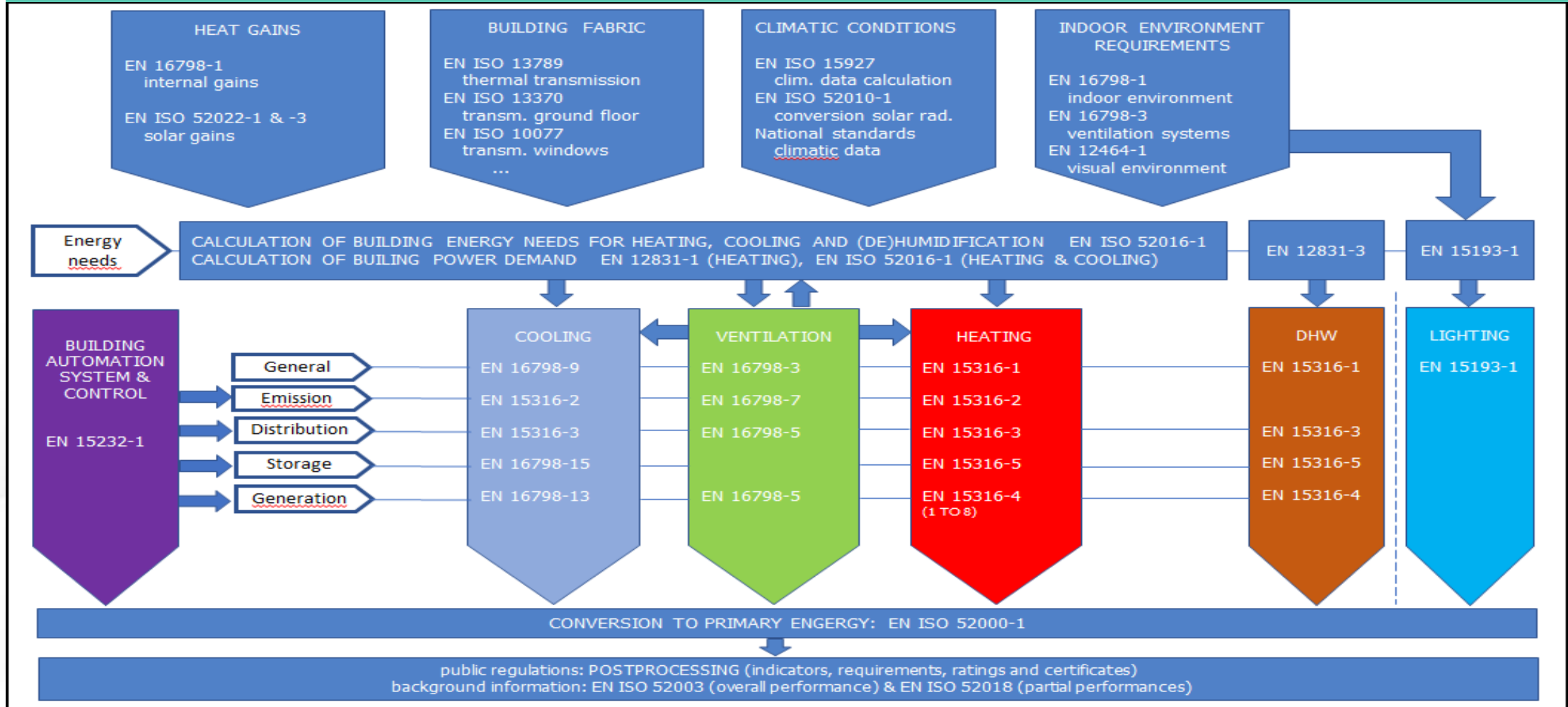
EU Green Deal, Renovation Wave: Fit for 55 by 2030 towards Zero Carbon emission by 2050

- Gebouwen worden erkend als een van de belangrijkste aandachtsgebieden voor de Europese Green Deal en meer specifiek de Renovatiegolfstrategie.
 - **Ambitie:** ten minste een verdubbeling van de jaarlijkse renovatie van het gebouwenbestand in de EU, met de nadruk op grondige renovatie
 - **EPBD:** Diepe Renovatie die leidt tot BENG: alleen diep indien meer als 30% reductie
- Basis voor de dringende herziening van de EPBD (versie 2018) om de nationale renovatiestrategieën te richten op een koolstofvrij gebouwenbestand tegen 2050.

New EPBD : Naar een beter EP en vermindering van de broeikasgasemissies van gebouwen: Gebouwen met nulmissie

- Bijlage I, art. 3: Om de energieprestatie van een gebouw uit te drukken, kunnen de lidstaten aanvullende numerieke indicatoren vaststellen voor het totale, niet-hernieuwbare en hernieuwbare primaire energieverbruik en voor de operationele broeikasgasemissies, uitgedrukt in $\text{kgCO}_2\text{eq}/(\text{m}^2 \cdot \text{y})$.
- Emissievrij bouwen: De NZEB-benadering (bijna-energieprestatie) wordt geschrapt en vervangen door emissievrij bouwen (ZEmB). Het volgens bijlage I (en benchmark bijlage III) beoordeelde zeer lage energieverbruik moet nog volledig worden gedekt door ter plaatse geproduceerde hernieuwbare bronnen.
 - **Building Renovation Passport**: het verstrekken van een stappenplan op maat voor ZEmB, **afgegeven door erkende deskundige**, volgt op bezoek ter plaatse (gedelegeerde handeling tegen 2023),
 - **Duurzame mobiliteitsinfrastructuur** in en naast gebouwen (slim opladen (2-weg) en fietsparkeren).

Set van onderliggende EPB standaarden



Support, consultancy and services on Energy Performance of Buildings Standards calculations and implementation

EPB Center - Your service center for information on the new set of **EPB standards**: the internationally harmonized energy performance of buildings (EPB) assessment and certification standards. EPB Center works for the benefit of all stakeholders in the implementation of the **Energy Performance of Buildings Directive** (EPBD), acting as a dedicated consultancy and service provider for the Energy Performance of Buildings (EPB) Standards development under the Commission's (EC) Mandate M/480.

- Overview EPB standards
- Short videos
- Webinars
- Case Studies
- Documents

[Read more](#)

*Ga naar www.EPB.Center
Voor alle informatie over
EPB standaarden,
tools, webinars, korte videos, Q&As, ...*

<https://epb.center/support/>

Supported by U-CERT's Deliverable D3.2

U-CERT protocol to make energy performance calculations more realistic



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Oct 2022

Marleen Spiekman

Marleen.spiekman@tno.nl

TNO innovation
for life



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Grote verschillen in energiegebruik tussen burelen



Calculated energy use:
using 'standard user'

1156 m³



1156 m³



1156 m³



1156 m³



1156 m³



Actual energy use:
with actual user

816 m³



1247 m³



2363 m³



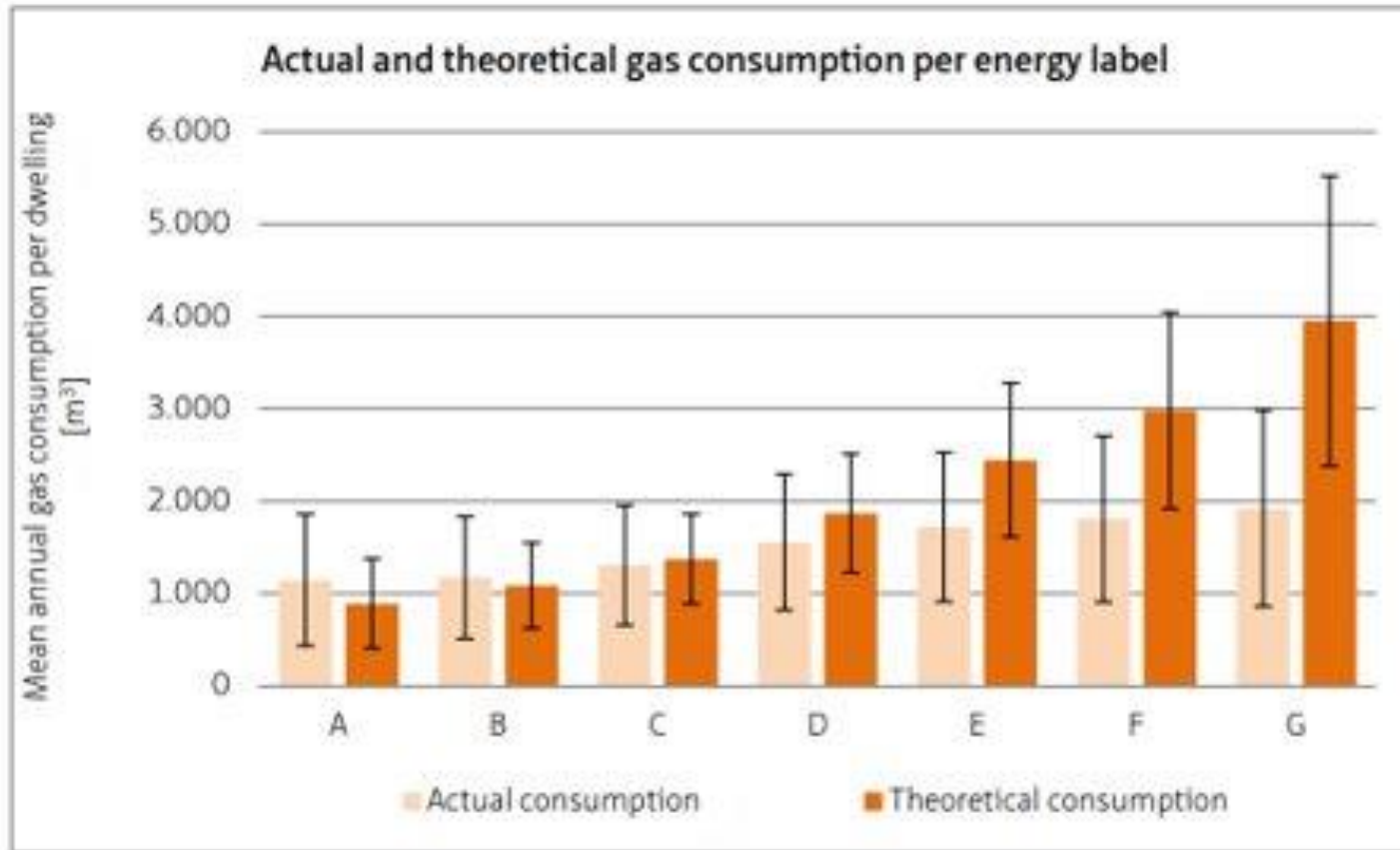
1325 m³



426 m³



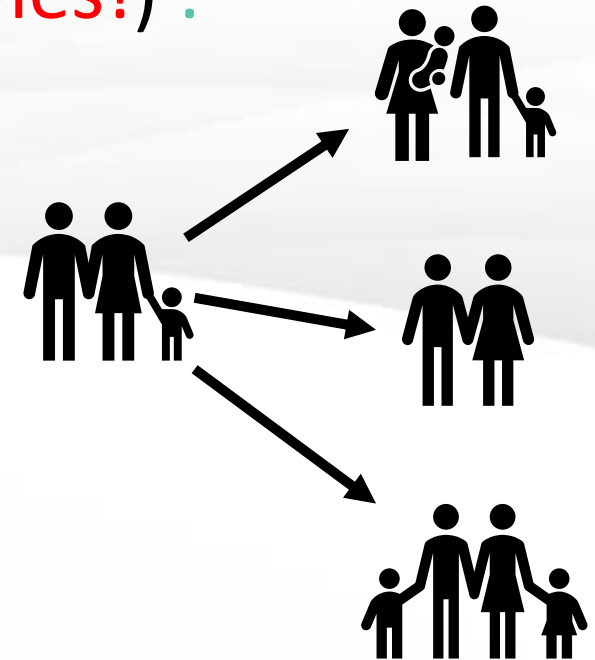
De energie prestatie kloof



U-CERT's oplossingen

U-CERT's stellen voor om meer realistisch te kijken naar de werkelijke situatie op maat (**het maatwerkadvies!**) :

- Vervang standaard door werkelijk gebruik.
- Kies uit verschillende detailniveaus.
- Vraag het gebruik uit.
- Meet waar mogelijk.



Toekomstvisie en kansen voor de maatwerkkadviseur



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Toekomstvisie: whole life carbon indicator. Level(s)

1. Ontwerp
2. Realisatie
3. Operationalisatie



Wat biedt Level(s)?



Gestandaardiseerd kader
voor rapportage

LIFE Level(s), (2022)



Kernindicatoren over
duurzaamheid



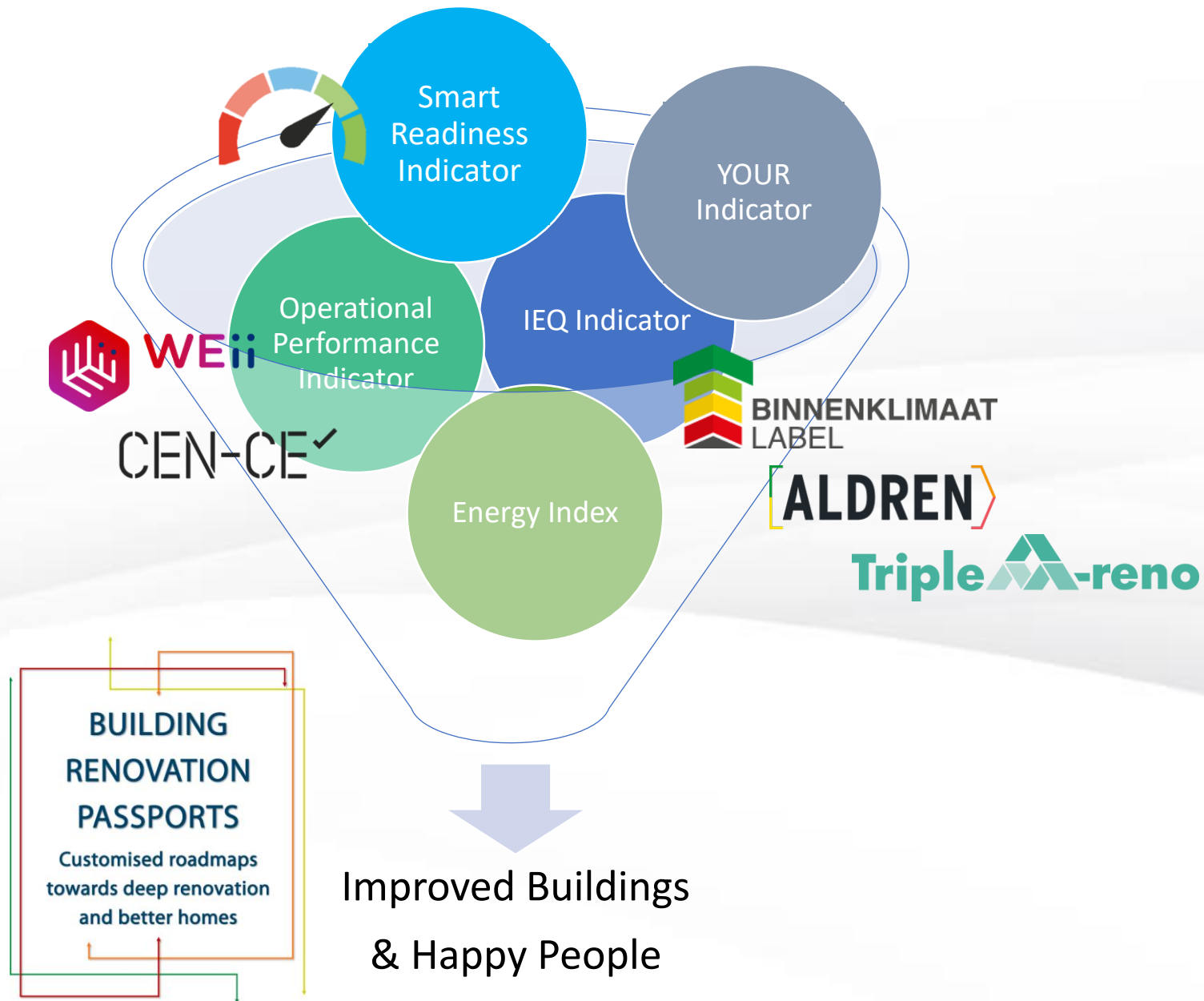
Gemeenschappelijk
methoden voor meten
levenscyclusprestatie

VISIE

Van Energie
Label
Adviseur
naar

Energie
Prestatie
Adviseur
&
Data

Verzamelaar



Supported by U-CERT's WP5

U-CERT Tool 2

The U-CERT Building Operational



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Arjan Broers



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OVERZICHT <

Building information ^

Assessor information

General building information

Methodology

Assessment date

Domains v

Results

Smart Readiness Indicator

BUILDING INFORMATION

The potential of smart technologies in the building sector was heavily emphasised in the 2018 revision of the European Energy Performance of Buildings Directive (EPBD) and the concept of a Smart Readiness Indicator (SRI) was introduced. This indicator allows for rating the smart readiness of buildings, i.e. the capability of buildings (or building units) to adapt their operation to the needs of the occupant, also optimizing energy efficiency and overall performance, and to adapt their operation in reaction to signals from the grid (energy flexibility). The smart readiness indicator will raise awareness among building owners and occupants of the value behind building automation and electronic monitoring of technical building systems and should give confidence to occupants about the actual savings of those new enhanced functionalities.

Part of the E.U.'s Horizons 2020 Programme

- Map opportunities to improve a building
- Raise awareness among owners and occupants on the added value of building automation and electronic monitoring of technical building systems
- Provide confidence to occupants about savings of those new functionalities

SRI – What is it?

Smart Readiness Indicator

Assesses to what extent a building is ready to become “smart”. Is an addition to the existing Dutch NTA8800 Energielabel.



Optimise energy efficiency and overall in-use performance



Adapt their operation to the needs of the occupant



Adapt to signals from the grid (energy flexibility)



Energy efficiency



Maintenance and fault prediction



Comfort



Convenience



Health, well-being and accessibility

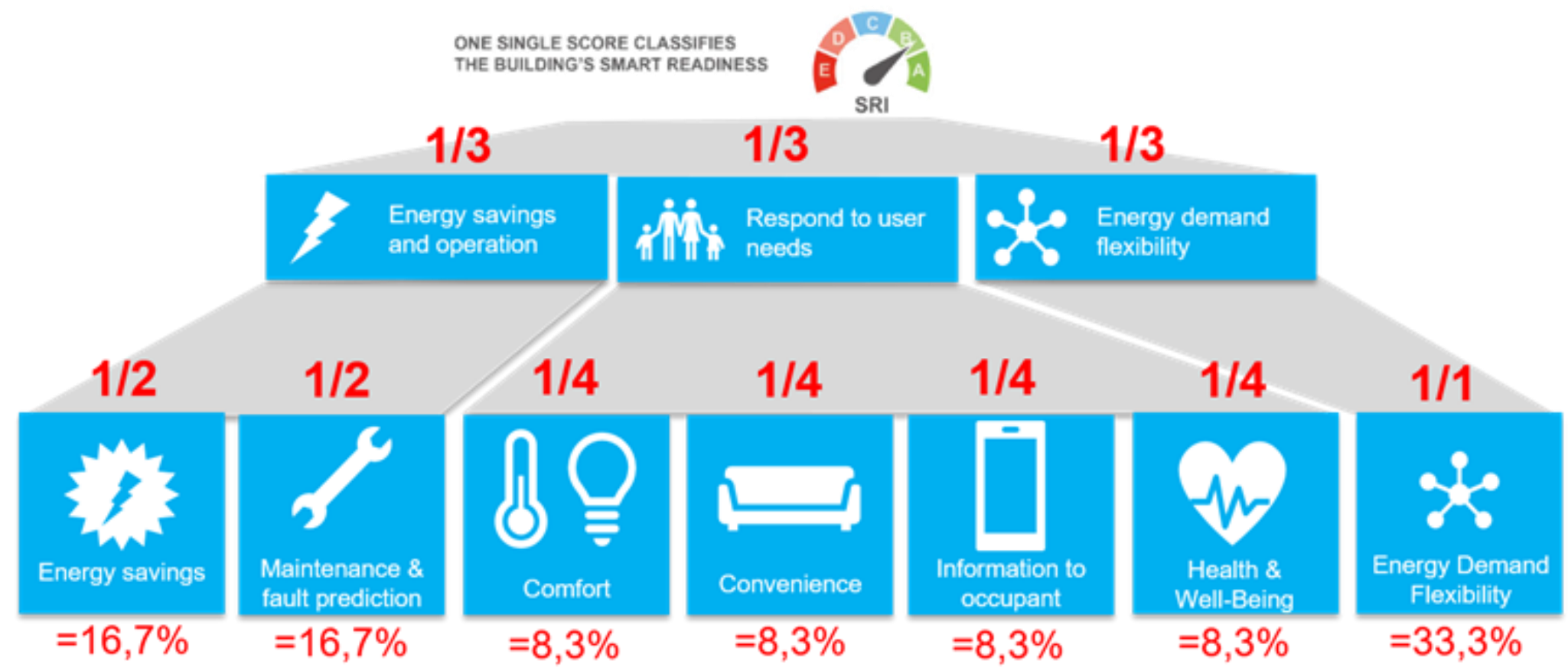


Information to occupants



Energy flexibility and storage

SRI – How does it work?



Smart Readiness Indicator

Assesses to what extent a building is ready to become “smart”. Is an addition to the existing NTA8800 Energielabel.

Aspects assessed per method	SRI-tool	Energielabe l
Construction/building envelop	dynamic aspects	√
Climate services, DHW services, Lighting (equipment and controls)	controls only	√
Electricity generation, supply and storage	√	generation only
Vehicle charging	√	X
Interaction with outside world, e.g. Smart Electricity Grid	√	X

Way of working

- It allows for two different methods:
 - Method A – simplified method
 - Method B – detailed method
- **Measurements are not needed, qualitative input only.**
- User is guided through the questions
- LINK: <https://sri.u-certproject.eu/project/bewerken/buildinginfo/>

LIGHTING

Domains present

Lighting

This domain is present
▼

Occupancy control for indoor lighting

Is present?

Yes No

Main functionality

Automatic detection (auto on / dimmed or auto off)
▼

Add addition functionality i

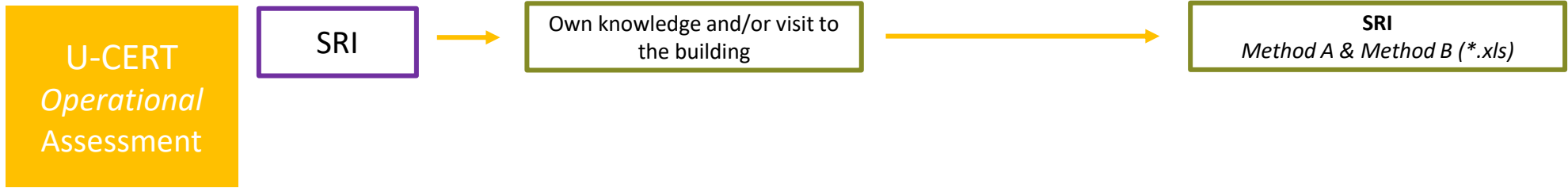
Yes No

Control artificial lighting power based on daylight levels

Is present?

Yes No

Main functionality



Simplified services list



Checklist approach, covering catalogue of smart services cf. 1st study outcomes



Measured / metered data (potentially restricted set of domains)

Online	On-site inspection	In-use buildings, metered data Part of the commissioning?
Self-assessment (or contractor,...)	Third-party qualified expert	TBS self-reporting their actual performance
15 minutes	1 hour – max 2 days	Gather data over a long period (e.g. 1 year)
Restricted to residential buildings	Non-residential: offices and education (+ others later on?) + Residential as well	Residential and non-residential Restricted to occupied buildings (not in design phase)

Method A vs method B

- Method A has 27 aspects and method B 54
- Only included in method B (*examples*):
 - Control of distribution pumps
 - Sequencing i.c.o. different heat generators (cascaderegelung)
 - Prevention of simultaneous heating and cooling
 - Free cooling
 - Daylight control of artificial lighting

LIGHTING

Domains present

Lighting

This domain is present
▼

Occupancy control for indoor lighting

Is present?

Yes No

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Add addition functionality i

Yes No

Control artificial lighting power based on daylight levels

Is present?

Yes No

Main functionality



SRI – PILOT met Platform Duurzame Huisvesting

- Objective: acquire experience with Online SRI tool in Dutch non-residential buildings
- Approach: use online tool for 5 buildings; apply both method A and method B
- Deliverables:
 - Assessment of the user-friendliness and applicability for the Dutch situation
 - Assessment of best way of working: in situ or behind the desk
 - Map room for improvement
 - Comparison methods A and B



SRI – PILOT met Platform Duurzame Huisvesting

Example: mid-sized office building; 300 m² with heating, cooling, ventilation, DHW, lighting.

THANK YOU FOR YOUR ATTENTION!

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