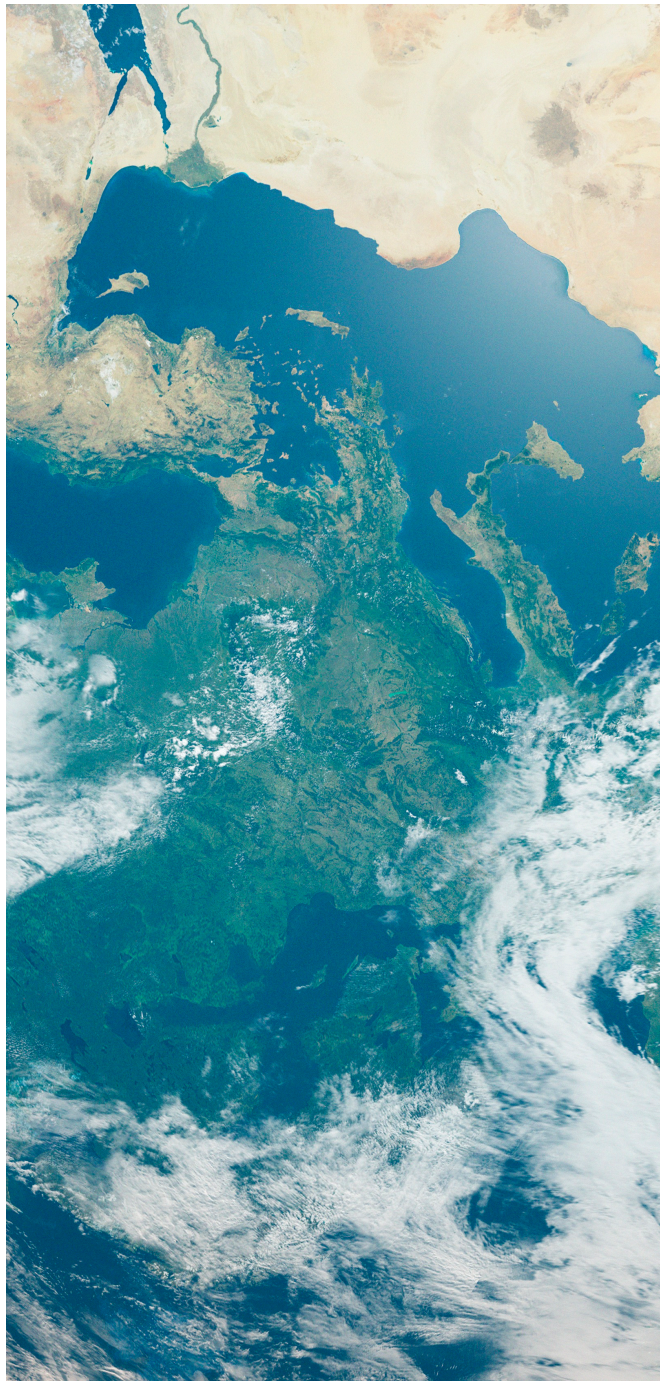
Værktøjer til mere bæredygtig renovering

Webinar 2024-06-11



Hvorfor renovering?

30 / 35 / 40

FN's klimapanel renovering som et vigtigt greb for at nedbringe byggeriets miljø- og klimaaftryk

Renoveringer i fokus og de muligheder der kan være fx energieffektivitet, klima, indeklima, socialt, økonomisk mv.

Program

1. Velkommen V/ Marika Englén, Dansk Standard
2. En europæisk standard for mere bæredygtig renovering V/ Svein Bjørberg, Multiconsult, Norge
3. Certificering af din renovering med Svanemærket V/ Henrik Hougaard, Miljømærkning Danmark
4. ObelHus, Danmarks første svanemærkede bygningsrenovering V/Jens Ole Maribo Samallo & Kasper Winther Larsen, HP Byg
5. Spørgsmål

Om standarder

DANSK STANDARD

Drivkraft for en bæredygtig udvikling

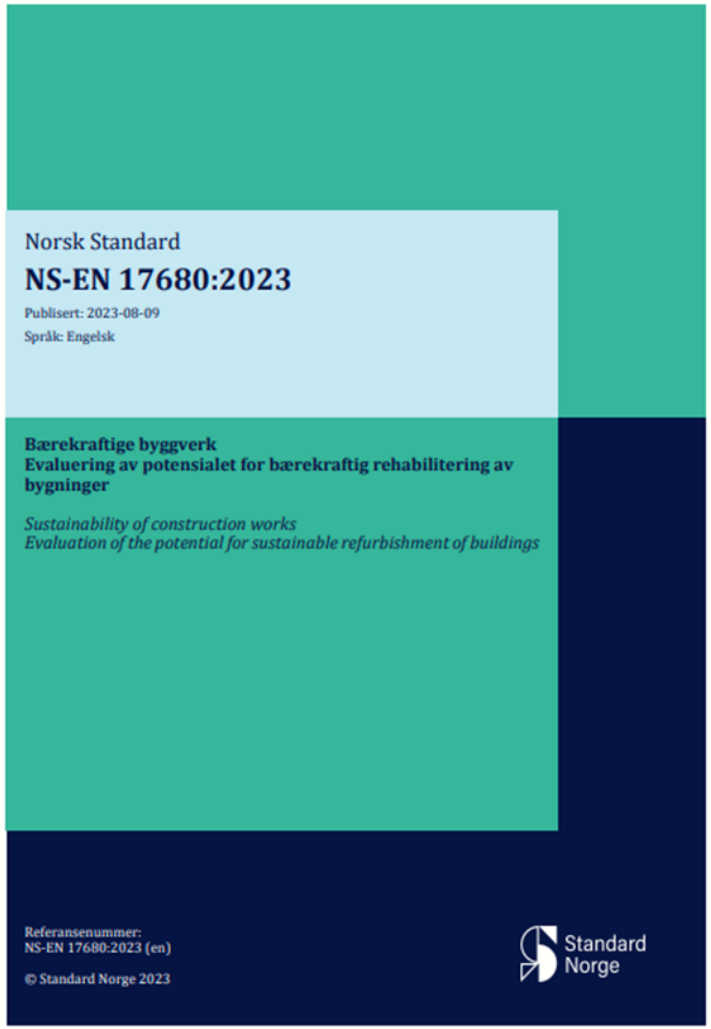
I Dansk Standard samler vi tre stærke redskaber, der på hver deres måde understøtter og udvikler den bæredygtige omstilling i samfundet: Standarder, miljømærkerne Svanemærket og EU-Blomsten og godkendelser fra ETA-Danmark.

Vi bruger miljømærkerne til at fremhæve de bedste på markedet.

Godkendelser til at vise, at de nye løsninger faktisk virker.

Og standarder til at skabe et fælles sprog, der kan skalere de grønne løsninger og udvikle det brede marked.

NS-EN 17680:2023 Sustainable Construction “Evaluation of Sustainable Refurbishment potential”



Presentasjon
11. juni 2024

Professor emertitus Svein Bjørberg, Multiconsult / NBEF

Bakgrunn

- Siv.ing. Bygg fra NTNU 1973
- Eksisterende bygg fra 1974
  - Ombygging, bevaring, fredning
- FoU-aktiviteter
  - Utvikling av bygningsforvaltning som fagområde
  - NS 3424, **NS 3454**, Modell (Multi-Map) for teknisk verdi, oppgradering, åpningsballanse, tilpasningsdyktighet++
  - LCC-Norden, ISO / CEN **(FM)**
  - Byggskader (RUB), Bygningssakkyndige, Hurtig-Erfa
  - Effektive helsebygg, OSCAR Verdi for eier og bruker
  - Sustainable Refurbishment (Nordisk og CEN TC 350/WG8)
    - August 2023: **NS-EN 17680 Guideline for Sustainable Refurbishment**
- Professor II ved NTNU
  - 1992 – 2019 (Ombygging, BEF) ved byggfakultetet
  - 2010 - 2019 (Eiendomsutvikling og –forvaltning) ved arkitekturfakultetet

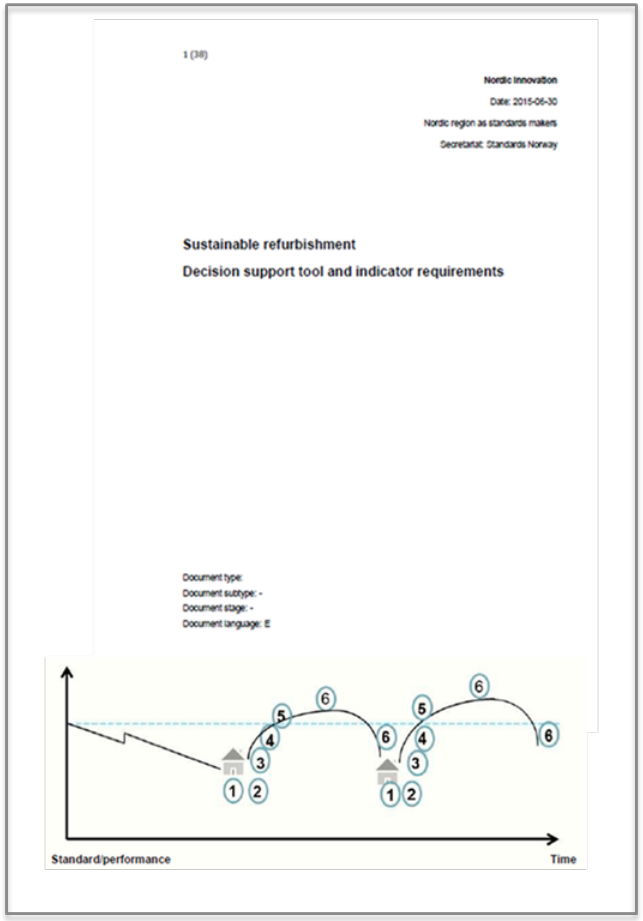
Stort potensial i eksisterende bygningsmasse til å tilfredsstille nye trender og krav

ca 400 millioner m2 bygg (ca 2/3 er boliger) + ca 40 millioner m2 hytter

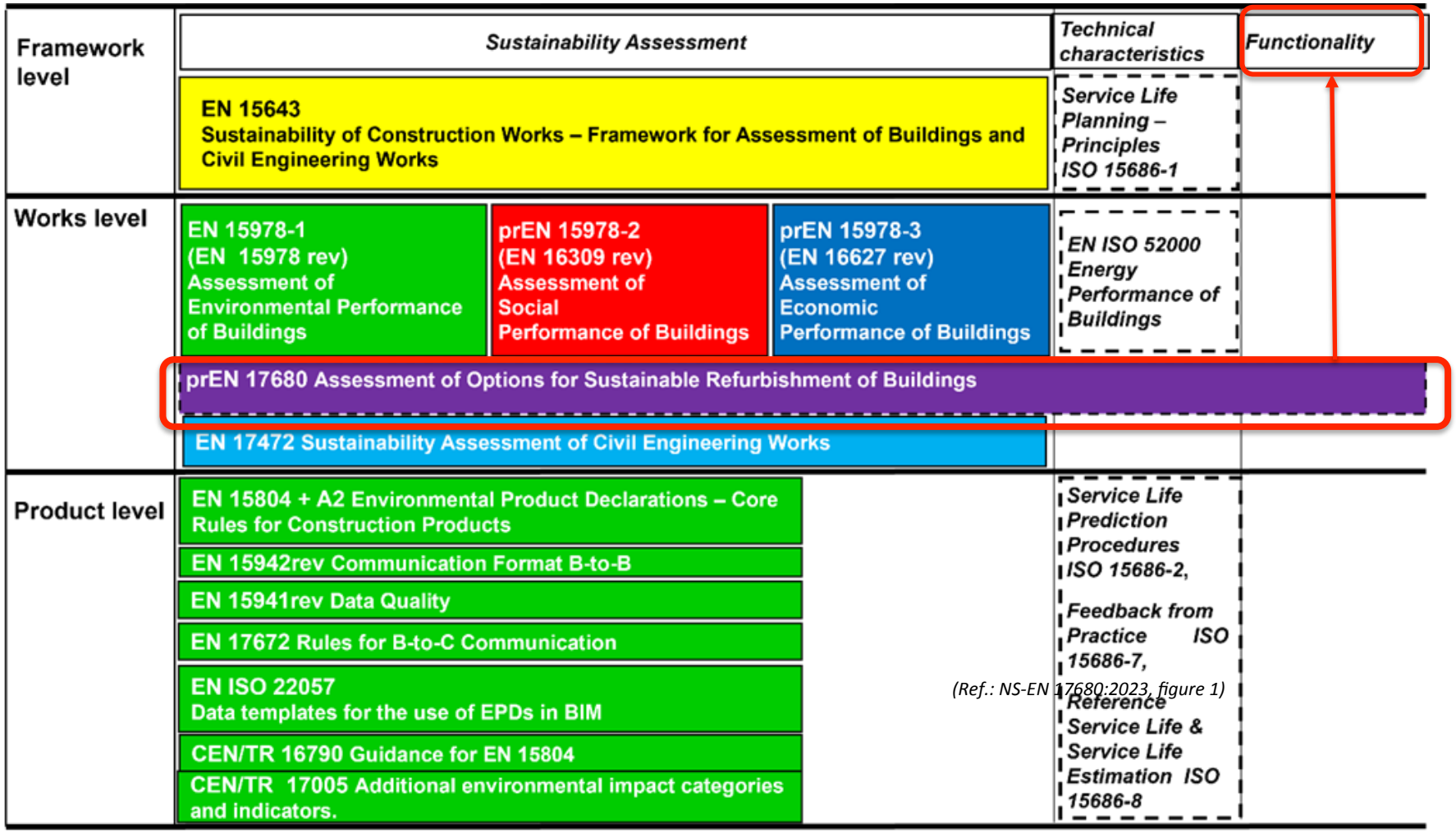
- **Demografisk utvikling:**
  - 80% av verdens befolkning ender i byer / tettsteder: sosial utfordring
  - Økende antall enslige husholdninger: ca 55% i Oslo
- **Klimaendringer** (påvirkning på bygg og områder)
- **Sirkulær økonomi** (gjenvinning, gjenbruk, lang levetid på hele bygg gir stor gevinst)
- **Taksonomi** (grønne bygg, brune bygg)
- **Vedtak i EU:** Ombygging av 35 millioner bygg 2020 – 2030 (stor gevinst i bygg med gener for et langt liv)

Startpunkt i Norden: Nordisk Ministerråd

- To runder
  - 2009: Nettverk i nordisk byggeindustri
  - 2011: Nordisk region skal være ledende i det grønne skifte
- Nordic Innovation Center (NICe)
  - 2012: Utpekte 3 områder hvorav
    - **Sustainable Refurbishment of excisting buildings**
    - 2015: Ferdig rapport juni
    - 2017: **Dansk Standard foreslår rapporten som grunnlag til EU-standard**
- Sekretariat hos Standard Norge
  - ✓ Oppstart jan 2018, ferdig august 2023
  - ✓ Prosjektleder: Svein Bjørberg

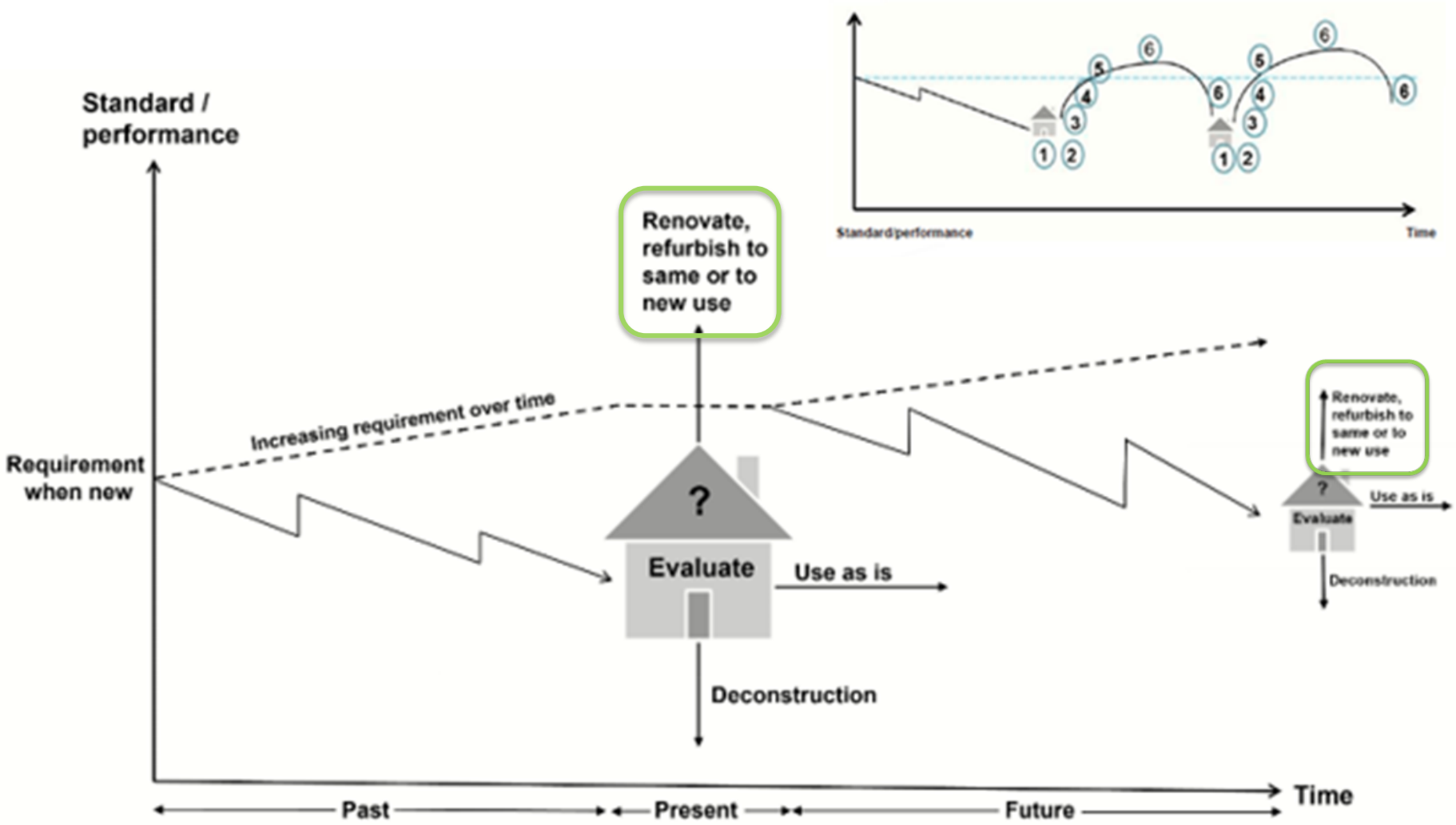


TC 350: Sustainability of construction works



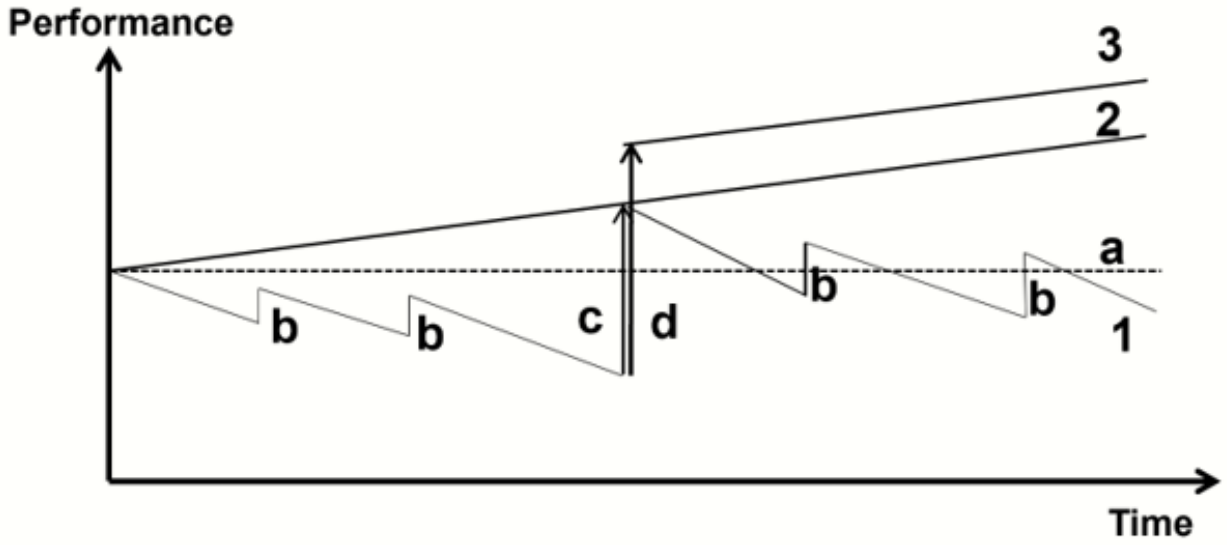
(Ref.: NS-EN 17680:2023, figure 1)

Decision methodology process



(Ref.: NS-EN 17680:2023, figure 2)

Renovation and refurbishment



Key

a Requirement at construction time as **new building**

b **Maintenance**

Note 1: Only maintenance will lead to some repaired and replacements in the future

c **Renovation:** Upgrading the fabric/material, components and energy retrofit

Note 2: For listed buildings, renovation (c) may only reach line (a) depending on national regulations.

d **Refurbishment**: Major renovation that can also include change of space distribution in connection with construction activities

Note 3: Fulfil new requirements on performance from core business

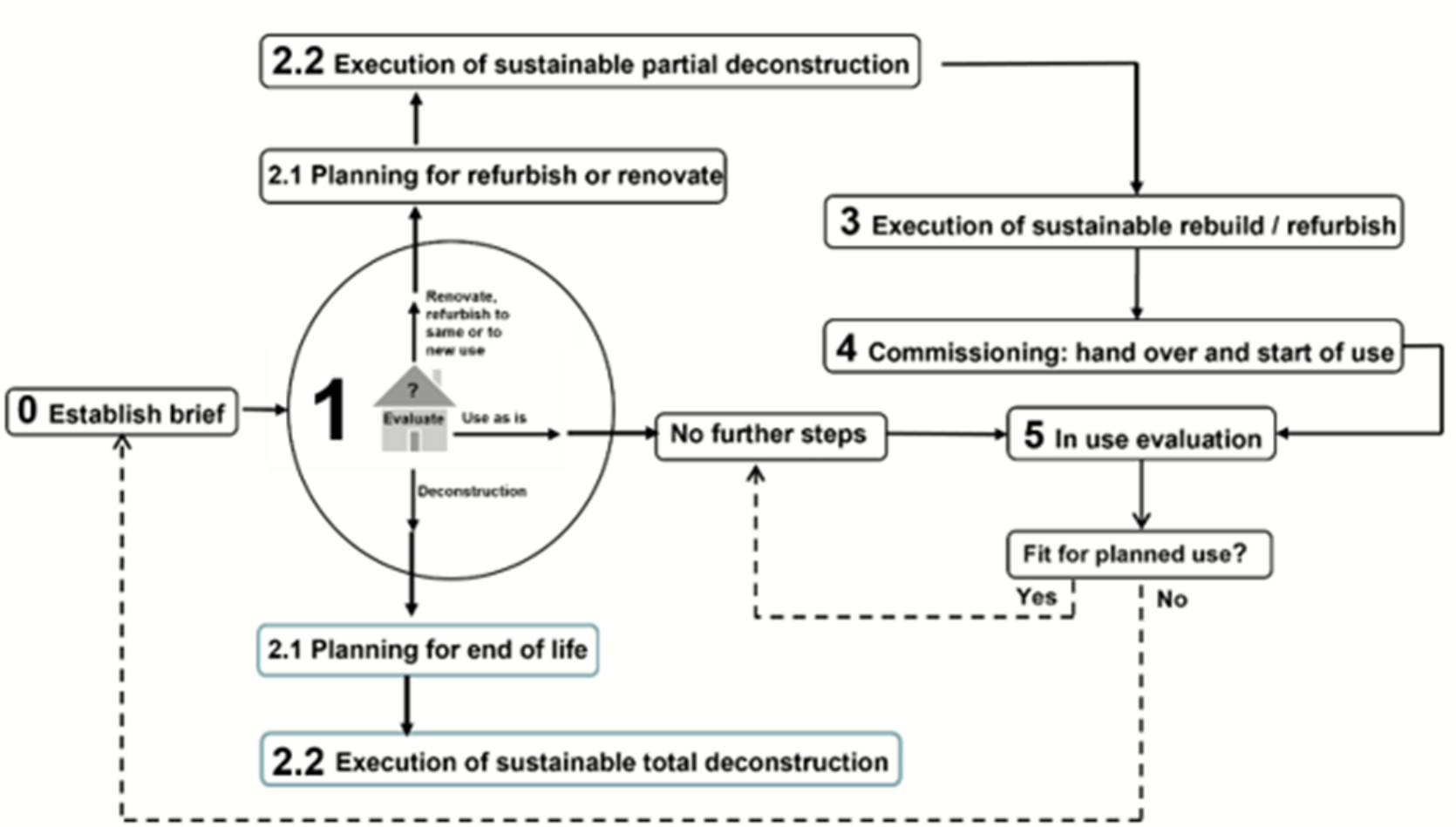
Note 4: In certain circumstances refurbishment measures may not reach sustainability requirements

Note 5: Requirements to space distribution and renovation and change of use

1. Performance level with just maintenance and replacement of components, elements and systems, including new energy efficiency upgrade
2. **Upgrading level**: Technical upgrade to today's performance demands.
3. **Sustainability level**: New demands related to sustainability performance. (Renovation that also includes change space distribution)

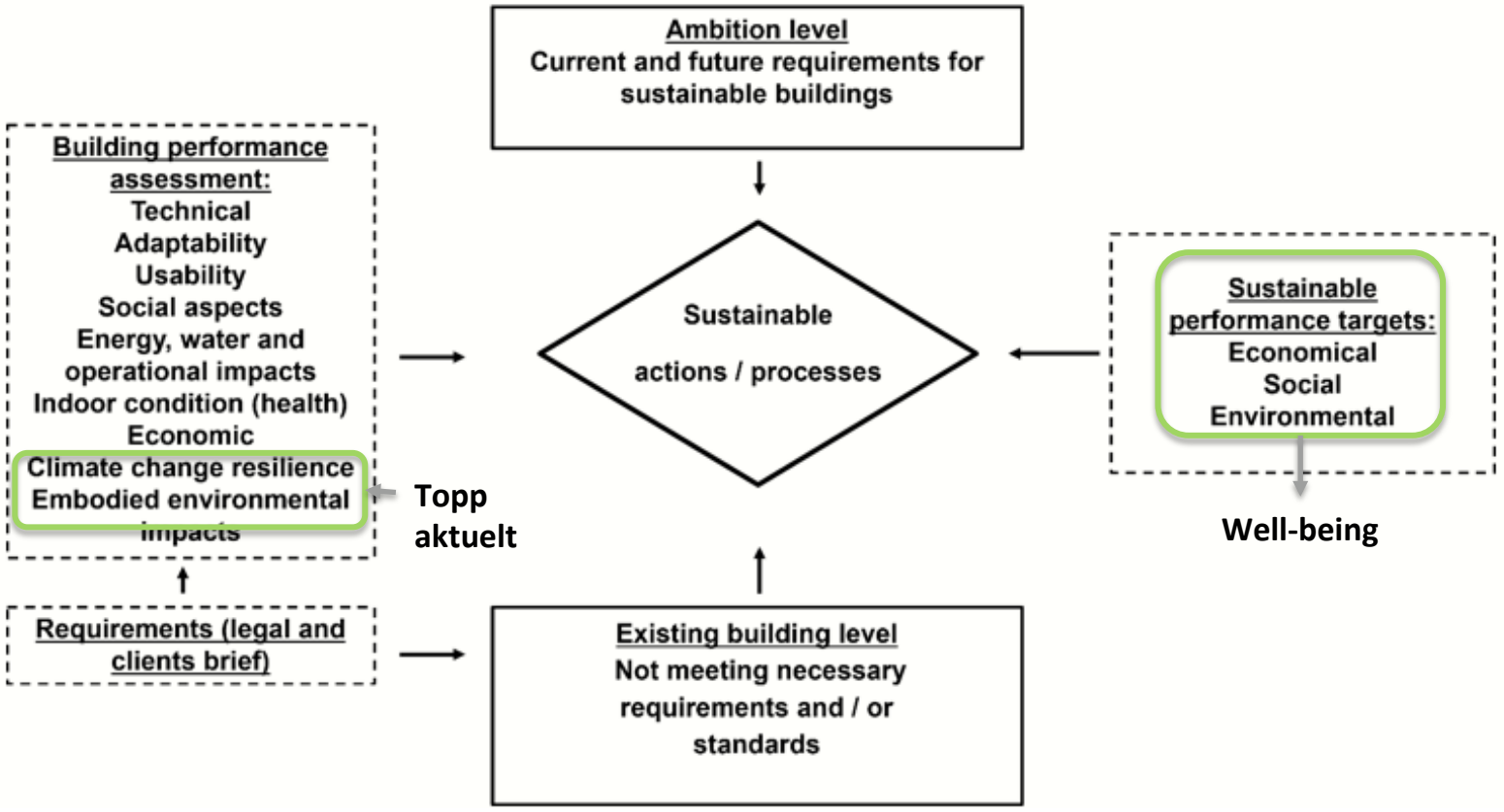
(Ref.: prEN 17680 fig 5)

Decision flowchart



(Ref.: NS-EN 17680:2023, figure 6)

Bridge (closing) the gaps



(Ref.: NS-EN 17680:2023, figure 3)

Step by step

Task of WG 8

Step 0	**Establish brief**	**Results from step 5** **Clients /owners strategy**	**Clause 5.3.1**
Step 1	**Evaluating the building**	**Technical** **Usability** **Adaptability** **Indoor condition (health)** **Economic** **Embodied environmental impacts** **Climate change resilience**	**Clause 5.5.2**
Step 2	Sustainable deconstructing	Reuse Waste handling Social (Neighbours, workers and building users) Process	Clause 5.5.3
Step 3	Sustainable construction process	Indicators	EN15978, EN16309 and EN16627
Step 4	Commissioning	Documentation Technical systems Operational Competence Acceptance building as is	Clause 5.5.5
Step 5	Sustainable in use	Social Environment Economy	

(Ref.: prEN 17680, figure 8)

Main categories for assessment

My point of view:
Important starting point

Main categories	Numbers of indicators	Exemplified description
Technical	18	The costs for upgrading a building which has not been well maintained, and/or has significant failures may be very high in relation to both payback and sustainability.
Adaptability	14	Adaptability should allow for changes in circumstances, either within the building (such as change of use), or its local environment (urban design of walls, floors, and other load bearing elements to allow for potential future changes in use or layout.
Usability	7	Poor usability levels will lower productivity of building user(s).
Social aspects	4	Poor architectural and urban quality can have a long-lasting negative effect on social and cultural value of space.
Energy and water (operational impacts)	4	Overuse of resources can have negative impact on efficiency and environment.
Indoor environment (including health aspects)	12	A poor indoor environment and/or poor indoor air quality can have a negative impact on the efficiency, productivity, creativity, comfort, and general health and wellbeing of the building occupants.
Economic	5	Total costs for refurbishment should be estimated as a consequence of performance classes found for technical, usability, adaptability and indoor climate related to possible income.
Climate change resilience	6	The design of the building, construction works, and materials used should attempt to mitigate the negative impacts of climate change, rising sea levels, flooding, avalanche, seismic activity, and extreme weather events.
Embodied environmental impacts	1	Assessment method shall be in accordance with EN 15978.

(Ref.: NS-EN 17680:2023, table 2)

Examples on indicators

Technical 18	Foundation-load bearing system. Windows/doors in facades Balconies Roof Indoor surfaces (ceilings, floors, walls) Inventory (fixed)sanitation Heating Ventilation system/ventilation rate Air-conditioning Fire protection (active and passive) Security Electrical system lighting IT-Communication Lifts Waste handling in use Outdoor technical systems Ground-drainage Seismic behaviour

Topp aktuell etter «Hans»

Climate change adaptation and resilience 6	Extreme weather conditions (wind load, rain, ...) } **The building** Materials and details of buildings envelope Increase of sea level Flooding } **The site** Landslide Avalanche

Adaptability 14	**Flexibility / generality:** ← **Within the building** Net floor to ceiling height Load bearing capacity (floors) Vertical space for installations Possibility for holes in slabs Amount of space on each floor Possibility to open space Width of communication areas Inner walls Width of building Lift **Elasticity:** ← **The building** Site situation Vertical and foundations load bearing capacity

(Ref.: NS-EN 17680:2023, table 3)

Perfomance classes. First big discussion!

- How to get all participant to agree on a set of classes?
  - It was not possible
- Norwegian classification used in appendix
  - Class 0, 1, 2 and 3
  - based on prinsiples in prEN 16086

Classes	Performance	Description	Consequence
0 	No nonconformity	- the performance corresponds to the chosen reference level	Non
1 	Minor or moderate nonconformity	- the building or part thereof exhibits normal wear and has been maintained; or - the nonconformity or lack of documentation is not important in relation to the reference level	Minor
2 	Essential nonconformity	- the building or part thereof is severely worn or has suffered major damage or has a significantly reduced performance in relation to the reference level. Local severe wear and a need for local measures; or - lack of important documentation; or - the remaining useful life is short; or - it has been inadequately or incorrectly designed; or - it has been inadequately or incorrectly maintained.	Medium
3 	Major or serious nonconformity	- the building or part thereof has suffered or will imminently suffer total functional failure or need for immediate measures. Danger to life or health.	Catastrophic. Action needed
NI ??	Not investigated	- the part is not accessible for inspection and no documentation is available to verify correct design and a possible nonconformity can involve major consequences and risk.	More comprehensive investigations are needed to identify any nonconformity

(Ref.: prEN 17680, table A.1)

Example of classification of indicators in performance classes, from 0 – 3

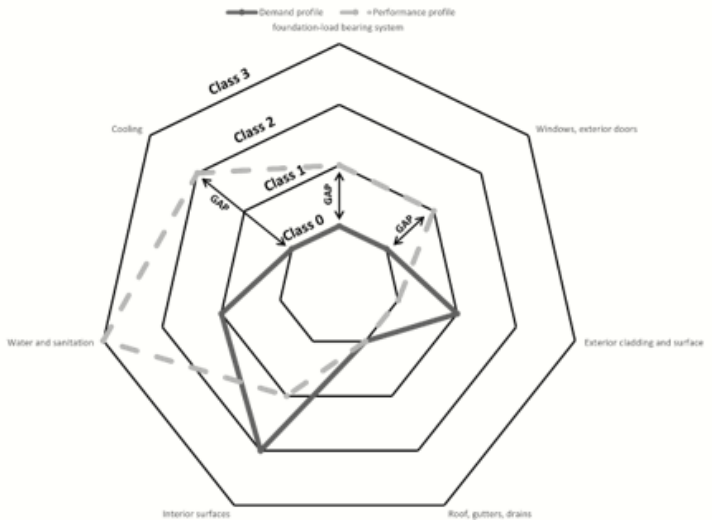
Technical (5 out of 18) and Adaptability (8 out of 14)

Indicator	Class 0	Class 1	Class 2	Class 3
Net floor to ceiling height (Indicator 1)	x > 4,0 m. (or that the over or underlying floor is a technical mezzanine)	3,5 m < x ≤ 4,0 m	3,0 m < x ≤3,5 m	x ≤ 3 m
Load bearing capacity floors (Indicator 2)	x >5 kN/m²	4 kN/m² - 5 kN/m²	3 kN/m² - 3,9 kN/m²	< 3 kN/m²
Vertical space for installations (Indicator 3)	Large and/or several shafts providing large space for expansion and/or new vertical transmissions (alternatively technical towers	Shafts size and/or several shafts providing possibility for expansion and /or vertical shafts	Shafts size and/or several shafts providing a limited / remote for expansion and /or vertical shafts	Small shafts and / or number of shafts providing a very little space for expansion and /or new vertical shafts. No residual capacity
Create openings in structural element. (Indicator 4)	Well adapted for creating new openings (eg. in situ slabs)	Adapted for creating new openings in some areas (eg. prestressed concrete elements)	Restricted opportunity for creating new openings in some areas (eg. prestressed concrete elements)	Not / very restricted opportunity for creating new openings (eg. prestressed concrete elements)
Amount of space on each floor (Indicator 5)	x > xx m²	xx m² < x ≤ yy m²	yy m² < x ≤ zz² m²	x≤ zz m²
Possibility to open space (not communication routes). (Indicator 6)	x > xx m²	xx m² < x ≤ yy m²	yy m² < x ≤ zz m²	x ≤ zz m²
With of communication routes (corridors within the functional range) (Indicator 7)	x > xx m	xx m < x ≤ yy m	yy m < x ≤ zz m	x ≤ zz m
Interior walls (Indicator 8)	No load bearing interior walls, light system walls without bindings to technical installations.	Limited extent of load bearing internal walls in one direction	Heavy inner walls with partial load bearing	Heavy and load bearing inner walls in both directions

Indicator	Class 0	Class 1	Class 2	Class 3
Foundation-load bearing system (Indicator 1)	Stable foundation founded on / to rock (piles). No risk or sign of settling damages. No sign of weakening of the structural system.	Small signs of settlement cracks, but stable	Stable foundation, a few signs of increasing structural damages. Small signs of weakening (spalling, cracks)	Unstable foundation. Signs of structural cracks or high risk of settlements damages. Signs of deflection or corrosion on reinforcement
Windows, exterior doors (Indicator 2)	No damages, only minor wear on windows/doors of new built standard. Good air tightness	Visual impairments, stiff casements/sash. No signs of decay.	Loose / torn gaskets, small air leaks. Defective coating. Standard insulating glass without low-e coating. Partly need for renovation/replacement	Substantial damages, air leakages, loose corner joint, cracks / decay of material, defect hardware, only single glass. Need for replacement.
Exterior cladding and surface (Indicator 3)	No damages, only minor wear damages on elements of new built standard.	Chipping or spalling of minor extent. No signs of decay or corrosion	Jointed wood or plastering and signs of decay or corrosion. Signs of weathering and spalling.	Substantial damages, cracks, spalling, decay etc. Need for replacement/renovation/ rehabilitation
Roof, gutters, drains (Indicator 4)	No damages, only minor wear damages/ageing on elements of new built- standard. Good design of roofing and fittings in connection with drains etc.	Initial growth of moss. Minor signs of wear damages on roofing / deformation of gutters, drains, fittings	Signs of initial damages of roofing. Leakages in gutters and drains. Substantial growth of moss. Need for periodic maintenance.	Substantial damages of roofing, leakages, defect drains etc. Demand for replacement/upgrading
Interior surfaces (floor, wall, ceiling) (Indicator 5)	No damages, only minor wear damages on elements of new built standard. Surfaces are plane and nearly new coating.	Initial wear. Minor cracks and spalling. Wear in areas with heavy traffic.	Partly substantial wear damages or cracks. Need for periodic maintenance.	Substantial damages or extensive wear damages. Need for renovation and rehabilitation/ replacement

(Ref.: NS-EN 17680, table A.1 and A.3)

Communication results



Demand profile — — — Performance profile

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Windows, exterior doors (indicator 2)	No damages, only minor wear on windows/doors of new built standard. Good air tightness	Visual impairments, stiff casements/locks. No signs of decay.	Loose / torn gaskets, small air leaks. Defective coating. Standard insulating glass without low-e coating. Partly need for renovation/replacement	Substantial damages, air leakages, loose corner joint, cracks / decay of material, defect hardware, only single glass. Need for replacement.
Exterior cladding and surface (indicator 3)	No damages, only minor wear damages on elements of new built standard.	Chipping or spalling of minor extent. No signs of decay or corrosion	Jointed wood or plastering and signs of decay or corrosion. Signs of weathering and spalling	Substantial damages, cracks, spalling, decay etc. Need for replacement/renovation/ rehabilitation
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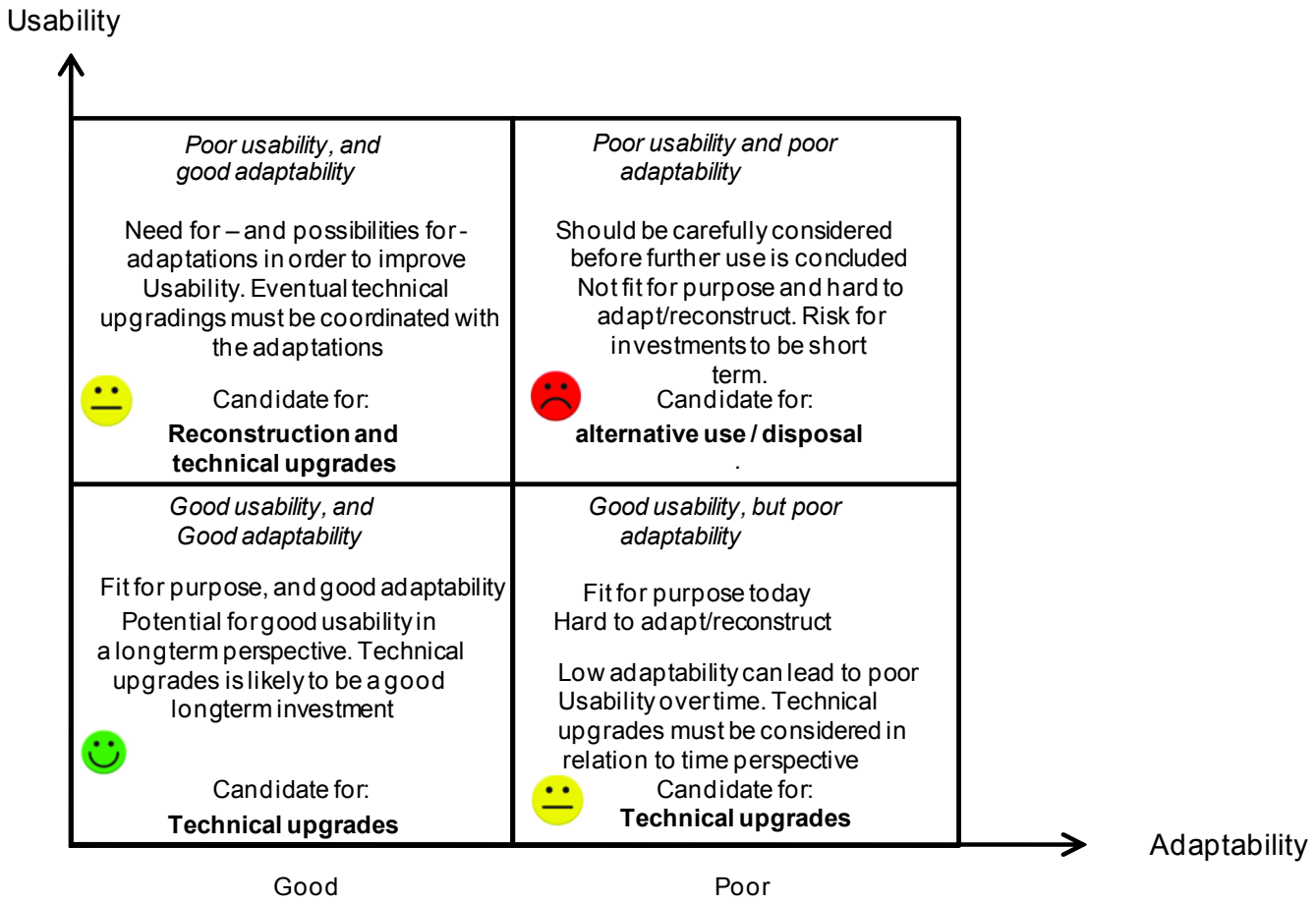
Interior surfaces (floor, wall, ceiling) (indicator 5)	No damages, only minor wear damages on elements of new built standard. Surfaces are plane and nearly new coating.	Initial wear. Minor cracks and spalling. Possible areas with heavy traffic	Partly substantial wear damages or cracks. Need for periodic maintenance.	Substantial damages or extensive wear damages. Need for renovation and rehabilitation/ replacement
Water and sanitation (indicator 7)	The quality of pipeline network, armatures, outfits are of new built standard. No sign of any problems. Service life left as new built. Sufficient capacity.	About 15 years of age, but well maintained. No signs of leakages or other problems. Sufficient capacity.	About 30 years/older than 30 years, but well maintained and parts with short service life are replaced. Signs of too low capacity.	Older than 30 years and parts with shorter service life are not replaced. Need for renovation and replacement.
Air-conditioning (indicator 9)	The quality of pipeline network, armatures, outfits are of new built condition. Service life left as new built. Sufficient capacity. Zoning.	About 10 years of age. Zoning. No signs of leakages or other problems. Sufficient capacity.	About 20 years/older than 20 years, but well maintained and parts with short service life are replaced. No zoning. Signs of low capacity Keep close attention	Older than 20 years and parts with shorter service life are not replaced. No zoning unsatisfactory capacity. Need for renovation or replacement. Or no air-conditioning installed.

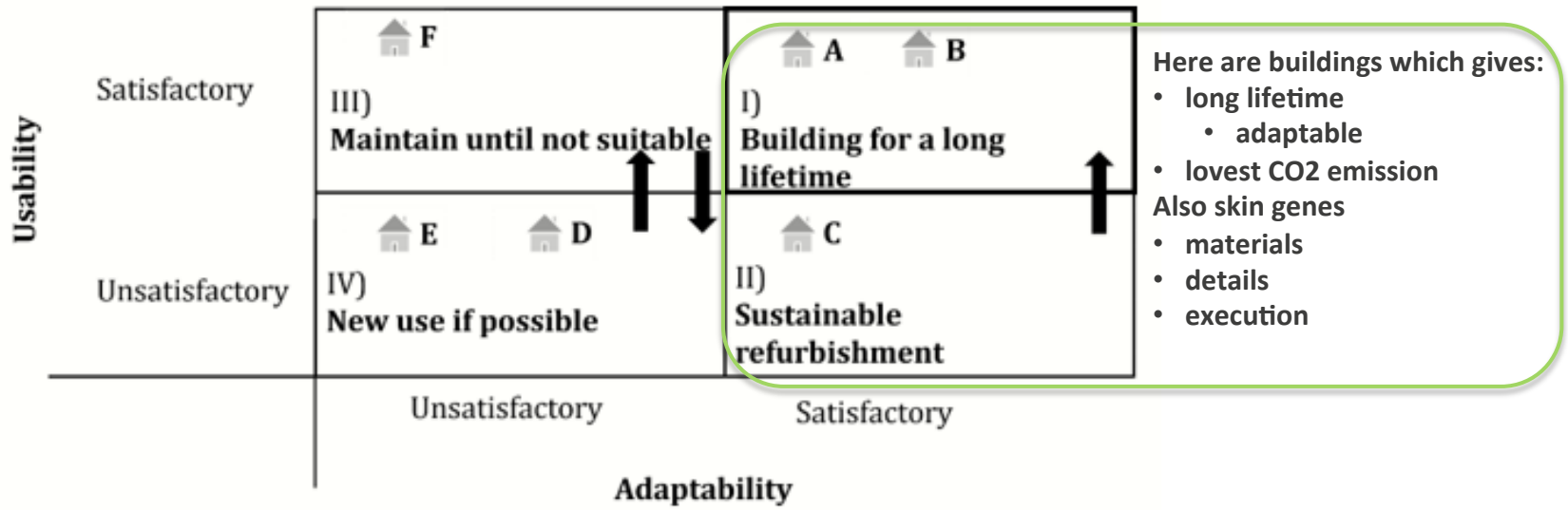
(Ref.: prEN 17680, figure A 1 og A 2)

The Viability Model



The viability model ("Levedyktighetsmodellen" – the combination of usability and adaptability
(adapted from Larssen and Bjørberg, 2004)

Communication results
Which buildings are fit for a long lifetime?



Here are buildings which gives:
- long lifetime
  - adaptable
- lovest CO2 emission

Also skin genes
- materials
- details
- execution

Key

Building A and B	Valuable buildings because they have good adaptability and usability. They have the potential to stay in quadrant I) due to the ability to adapt to new demands from core business. Will keep best economy for users and owner
Building C	Can easily be moved from quadrant II) to I) when core business or owner ask for new performance demands
Building D and E	If new use is possible, they can move from quadrant IV) to III). If no new use is possible, and the building is not listed, then recommendation should be sustainable deconstruction.
Building F	Will move to quadrant IV) when core business ask for new performance demands. Recommendation is to maintain with minimum of costs until it achieves unsatisfactory usability.

(Ref.: NS-EN 17680:2023 figure 9)

Further steps in the life cycle of the building(s)

Table 4 — Indicators for sustainable deconstruction

Categories	Indicators for step 2 (2.1 planning related and 2.2 execution related)
Reuse	Components for re-use on site or offsite Materials for recycling Materials for recovery
Waste disposal	Energy recovery from building materials Hazardous waste disposed (safe destruction or deposit/landfill) Non-hazardous waste disposed (safe destruction)
Social (Neighbours, users and workers)	Dust and particles Noise Traffic Vibrations Light pollution Health and safety of workers Health and safety of users in the case of refurbishment in-use conditions Accessibility
Process	Energy for deconstruction Energy for transport

Step 2
Deconstruction

Step 4
Commissioning

Step 5
Indoor climate

Table 5 — Indicators for commissioning-stage

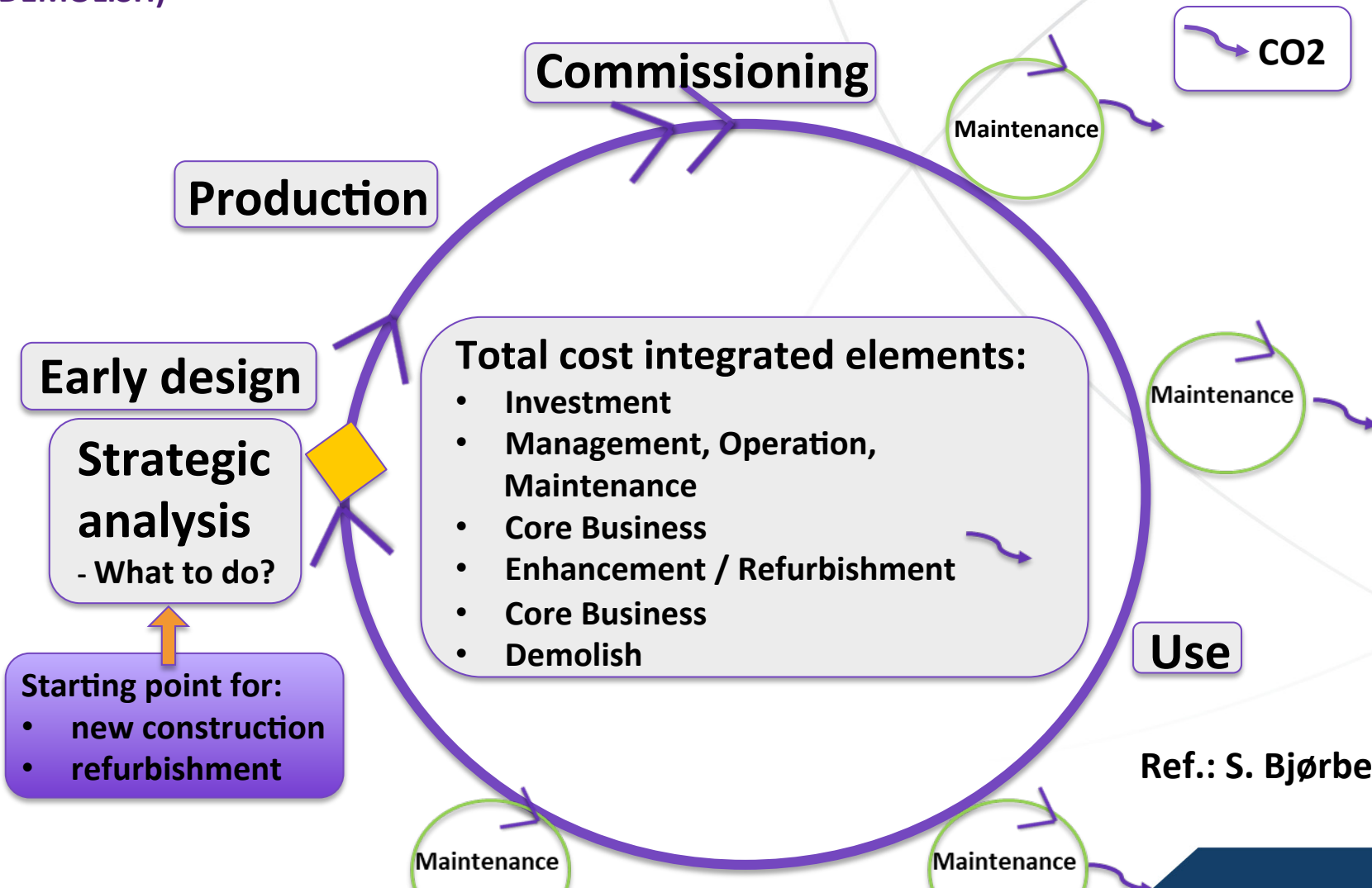
Categories	Indicators for step 4 Commissioning
Documentation	As Built documents Digital model of the project Guidelines for operation and maintenance[2] Documentation on adaptability Manuals for IT-systems Simple user's manual
Technical Systems	Functionality of integrated systems Airflow proved requirements Security and safety systems Outdoor systems[1]
Operational Competence	Training program fulfilled Organization of MOM (Management, Operation, Maintenance) defined
Approval of the building	Inspection of completion totally finished Surfaces are as described Indoor climate as described (example on criteria for indoor climate is given in table A5)

Table 6 — Indicators for in use-stage

Categories	Indicators for step 5
Social	Indoor climate
	Aesthetic environment Acoustic environment (for users of the building and neighbours) Actinic (light conditions) environment (for users of the building and neighbours) Accessibility and Universal Design, see EN 17210:2021 Usability Safety Thermal comfort (for users of the building and neighbours)
Environmental	Material and chemical usage Waste treatment Energy source Energy demand Electricity usage Energy management Water consumption Ecology Nature conservation
Economy	Adaptability Level of Maintenance (technical condition) Location Building certifications Value Life cycle costs

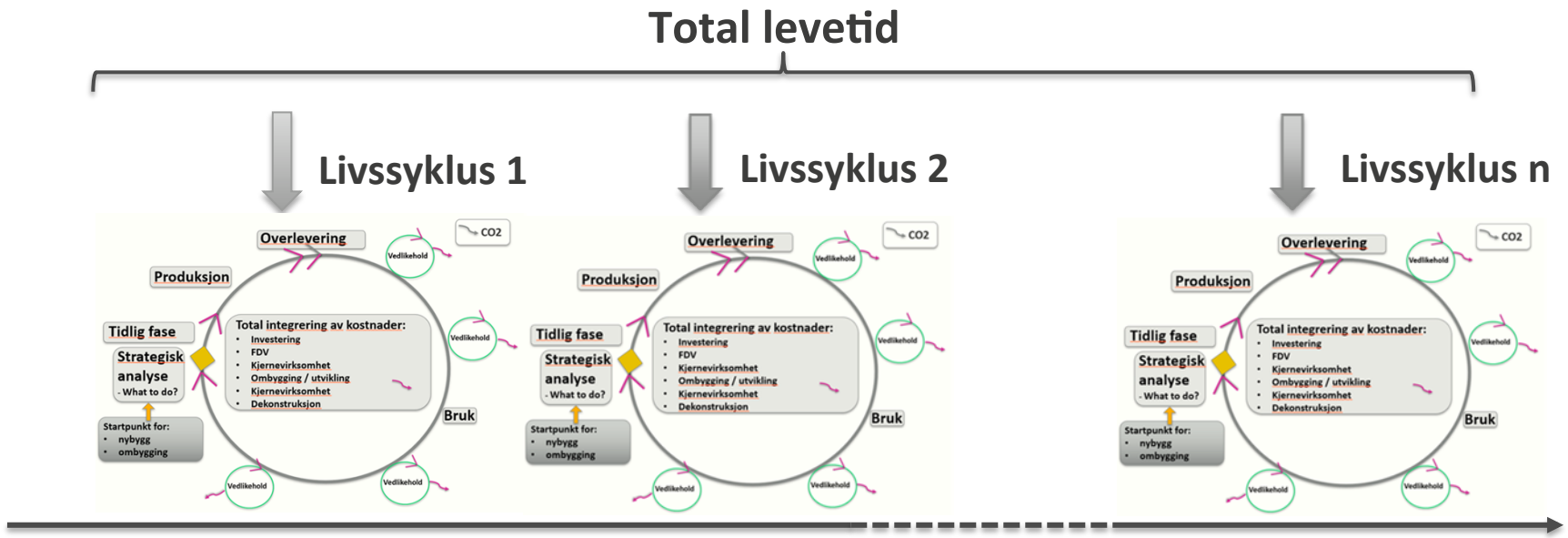
OSCAR GENERIC PHASEPLAN = CIRCULAR PHASEPLAN

(ANALYSIS-DESIGN-PRODUCTION-COMMISSION-USE- MAINTAIN - REFURBISHMENT-DEMOLISH)



Ref.: S. Bjørberg, 2017

My model:
Total levetid er en sum av n livssykluser



Design for nytt bygg
Gener for et langt liv besluttes i tidligfase

Design for ombygging
Genene må kartlegges

Design for dekonstruksjon

Hvordan kartlegge gener for ombygging?

Ref.: S. Bjørberg, 2023

Genes in a buliding context

- Usability: possibility to satisfy new demands:
  - Adaptability
    - Flexibility: possibility to change space distribution
      - » Ex.: from cell offices to open landscape
    - Generality: possibility to change functionality
      - » Ex.: from office to school
    - Elasticity: possibility to change volume
      - » Ex.: extra floor or/and horizontal extension

- Skin: possibility for a long technical lifetime
  - Maintenance friendly
    - Materials, details and execution that together provide maximum resistance to degradation
      - » Long intervals for maintenance and replacements

Ønskeliste for sirkulær økonomi

Bygningsdeler / systemer i tre grupper sett i et livsløpsperspektiv (**Bygg skal vare lenge**):

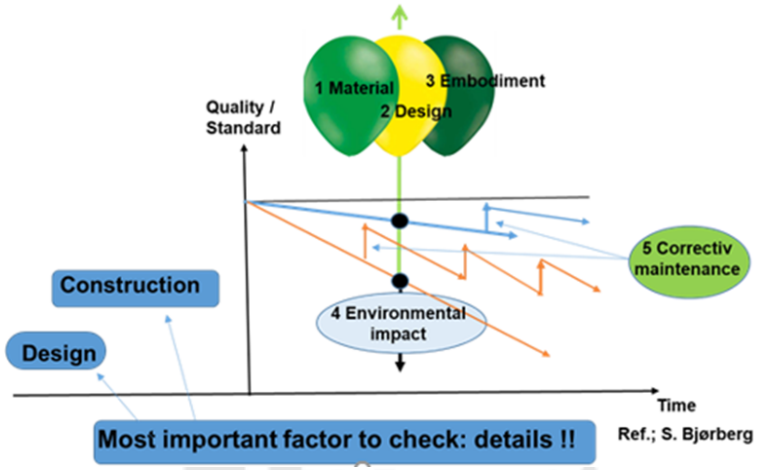
1. «Ser vi aldri igjen»: **må vare i total levetid**
2. «Ser, men skal ikke utskiftes»: **må være vedlikeholdsvennlig**
3. «Ser, kan vedlikeholdes og skiftes ut»: **vedlikeholds- og demonteringsvennlig**
   1. OBS: Bygningsdel / system med kort bruks-/levetid må ikke dekkes av noe med lang bruks-/levetid
   2. 0-friksjon mellom bygningsdel / system med ulik bruks-/levetid

Byggskader og vedlikeholdsbehov **starter i detaljene** (ikke alltid)

- Standardiser **«Ballongteoriens 5 trinn»**

Vi må kvitte oss med ordet **«Etterslep»**

- Standardiseres til gjeld i **balanseregnskapet**



Og så var det slutt…..

Takk for oppmerksomheten

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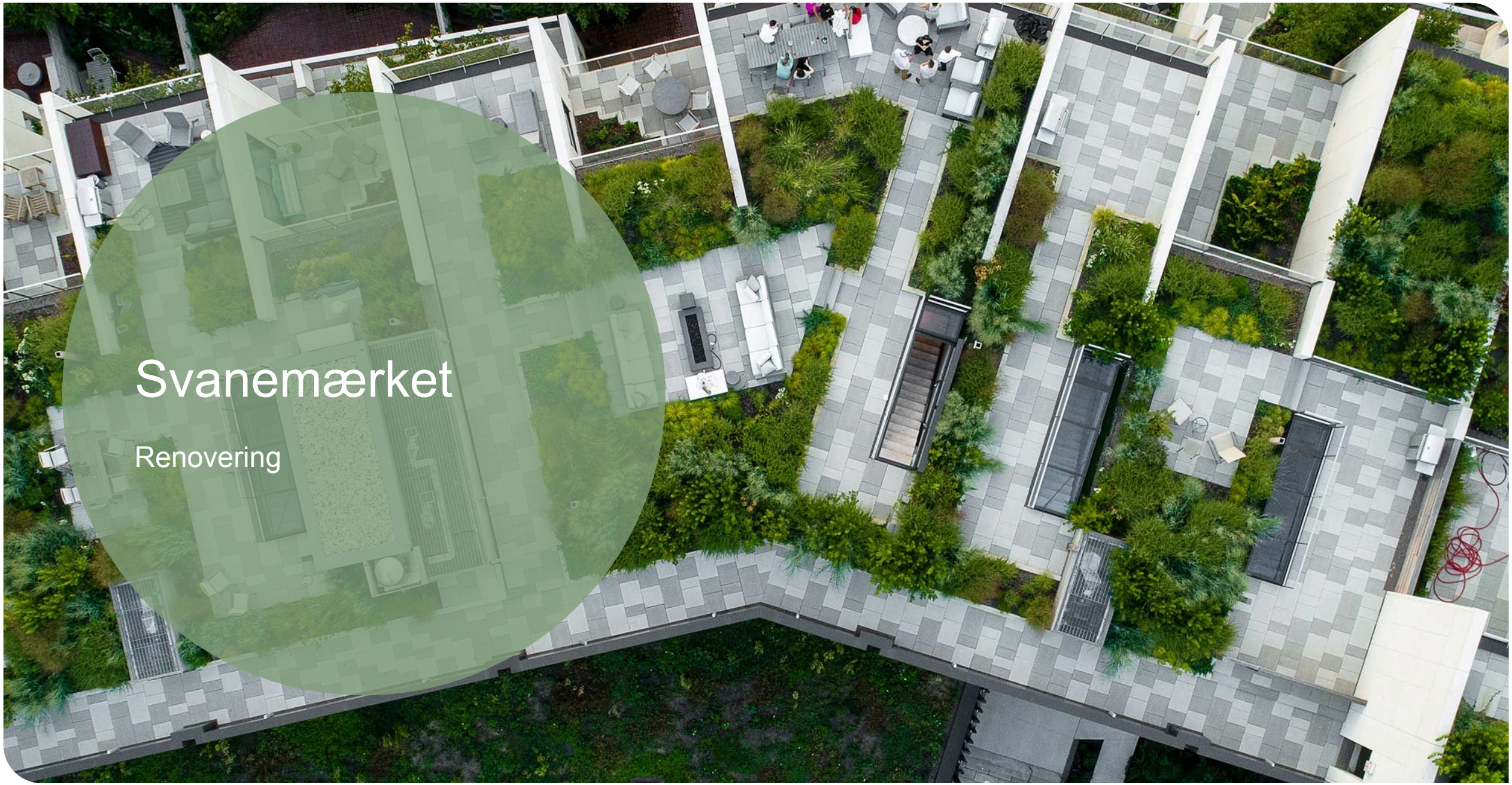
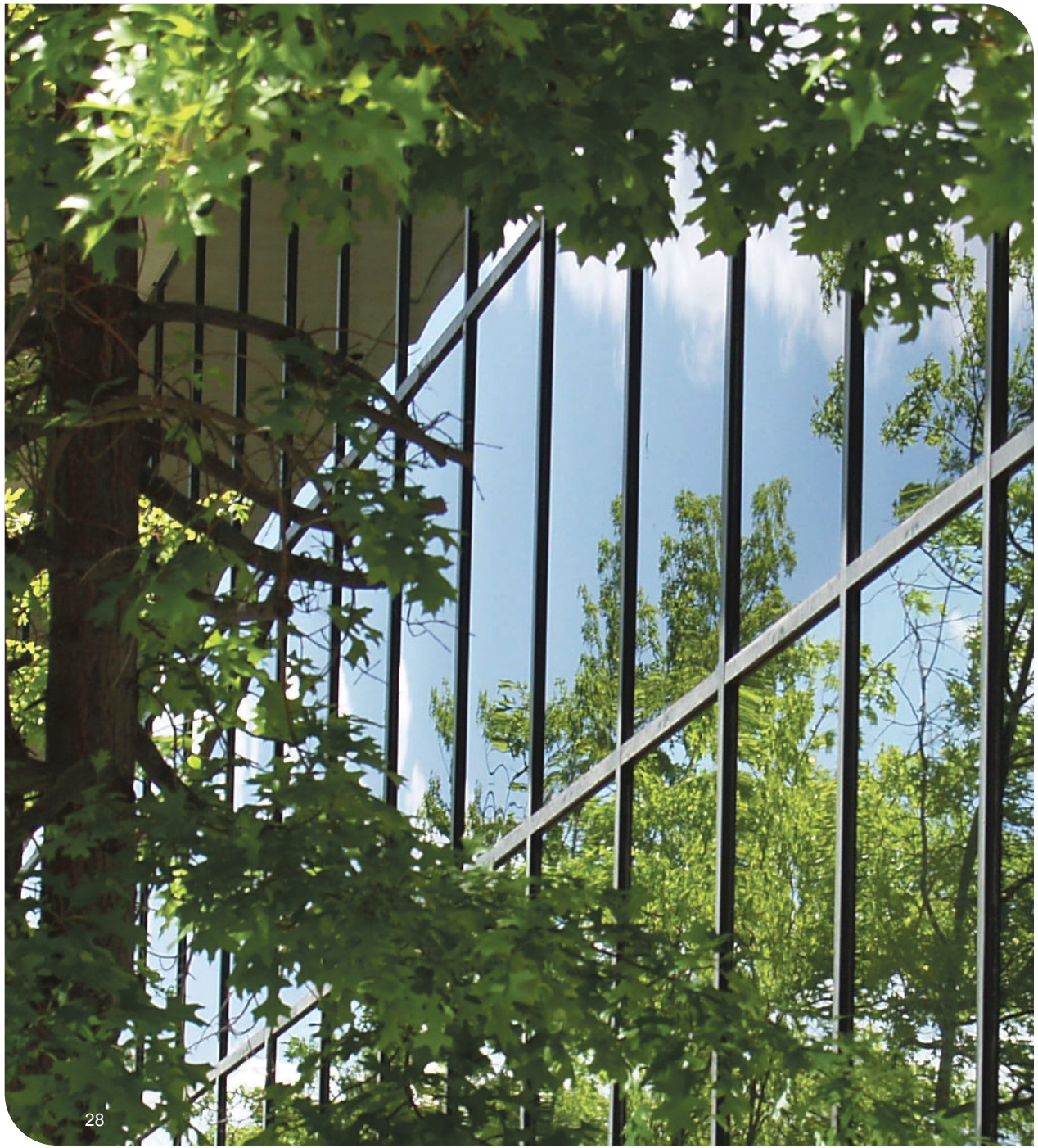
+47 915 35 547



Svanemærket

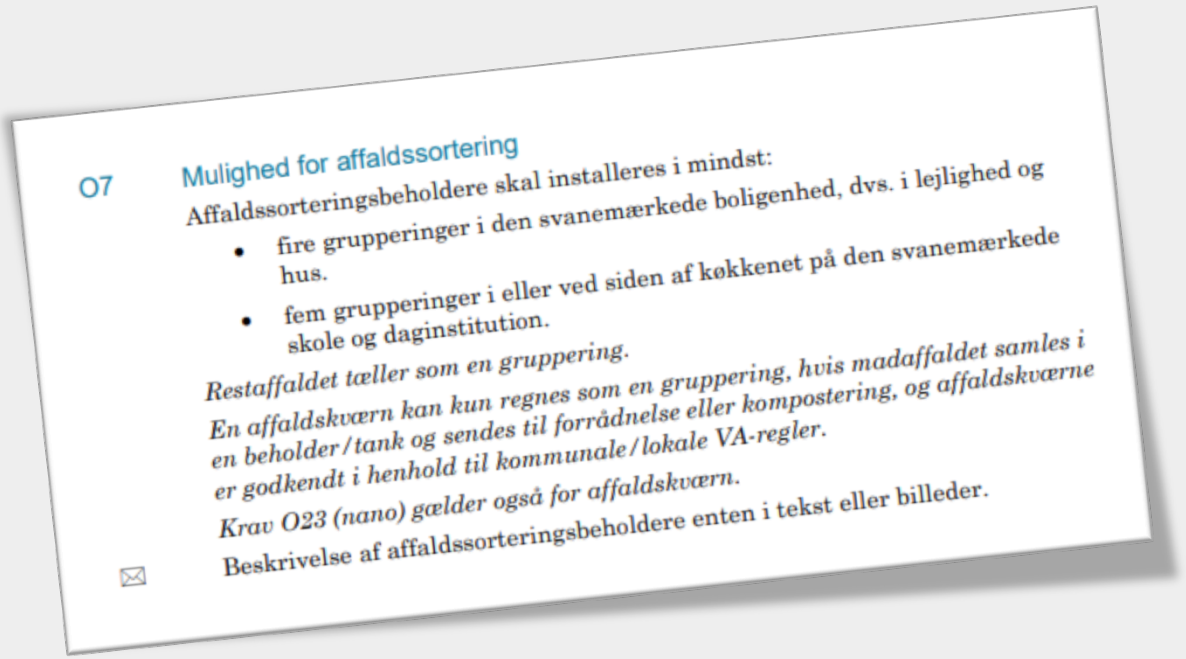
Renovering



Indhold

- Hvem bygger og hvor meget
- Hvad kan Svanemærkes
- Et hurtigt overblik over krav

Svanemærket



O7 Mulighed for affaldssortering

Affaldssorteringsbeholdere skal installeres i mindst:

- fire grupperinger i den svanemærkede boligenhed, dvs. i lejlighed og hus.
- fem grupperinger i eller ved siden af køkkenet på den svanemærkede skole og daginstitution.

Restaffaldet tæller som en gruppering.

En affaldskværn kan kun regnes som en gruppering, hvis madaffaldet samles i en beholder/tank og sendes til forrådnelse eller kompostering, og affaldskværne er godkendt i henhold til kommunale/lokale VA-regler.

Krav O23 (nano) gælder også for affaldskværn.

✉ Beskrivelse af affaldssorteringsbeholdere enten i tekst eller billeder.

Svanemærket indenfor byggeri

<u>Nybyg,</u> Renovering og kommende kriterier for drift af ejendomme

Bygningsdrift: Høring er i gang og det forventes at lancere i november

Krav: 41 obligatoriske

Nybyggeri: Kontor, Bolig og Institutioner

Krav: 42 Pointkrav: 23

Renovering: Kontor, Bolig og Institutioner, eller transfomation

Krav: 39 Obligatoriske

- Svanemærket gradueres <u>ikke.</u>

Svanemærket

Svanemærkede referencebyggerier (93 byggerier version 3.0)

”Kolding Sky”, 19 etager, AP Pension/5E Byg, 2019-2020

”Skråningen II, Lejre”, EcoVillage/Casa Byg, 2018-2019

”Dalhusene” , Taglejligheder, Vanløse, JØP/ Hune & Elkjær, 2019-2020

”Regnskoven” Børneinstitution, Gladsaxe Kommune/ Elindco, 2019-2020

478 Ungdomsboliger, Lyngby, PensionDanmark/ Boligfonden DTU/ Scandi Byg, 2020-2021

”Store Solvænget”, Almene boliger, Amager, JØP/Scandi Byg, 2019- 2020

Svanemærket

Højt kendskab og troværdighed

93% af danskerne kender Svanemærket[1]

67% af danskerne har tillid til Svanemærket[2]

66% af danskerne ser efter Svanemærket, når de vælger varer[2]

1) YouGov jan. 2023
2) Nordic Consumer Sustainability Index by Nordic Swan Ecolabel, IPSOS 2022, ser af og til, ofte eller altid efter Svanemærket, når de vælger varer.

Svanemærket


Svanemærket
Renovering

Kategorier	Eksempler på obligatoriske krav
1. Generelle krav / inden renoveringen	Beskrivelse af projektet Ansvar Tilstandsanalyse Miljøkortlægning og miljøsanering Fugtinventering Affaldsplan og affaldshåndtering Opfølgning / slutrapport for sanering
2. Indeklima	IAQ-plan Radon Fugtforebyggende arbejde Kontrol af ventilationens funktion PCB-måling Kemikaliekrav
3. Energi og klima	Bygningens energibehov efter renovering Belysning Energieffektive hvidevarer
5. Affald og ressourceudnyttelse	Håndtering af bygge- , nedrivnings og farligt affald
6. Materialer	Bæredygtigt træ Trykimprægneret træ* Kobber % PVC (gulv, tag og vægge) Relining epoxy Ressourceeffektive materialevalg (O31) / Bæredygtighedstiltag (O35)
7. Information til kunden	Instruktioner til kunden
8. Kvalitetsstyring	Materialekontrol Fugtsikring 3. partskontrol af kvalitet Egenkontrol

Hvad er der krav til i dag?

- Udelukkende obligatoriske krav i kriteriet

HP Byg

Svanemærket

Svanemærket

Renovering af Strandvejen 12-14
9000 Aalborg

Kasper Winther Larsen
Projektchef / Sagsansvarlig

Peter Brokholm Andersen
Projektleder / Svanemærket-ansvarlig

Jens Ole Maribo Samallo
Bæredygtighedsleder

Dagsorden

- Projektet
- Erfaringer
- Udfordringer
- Digital håndtering
- Besøg på byggepladsen

HP BYG

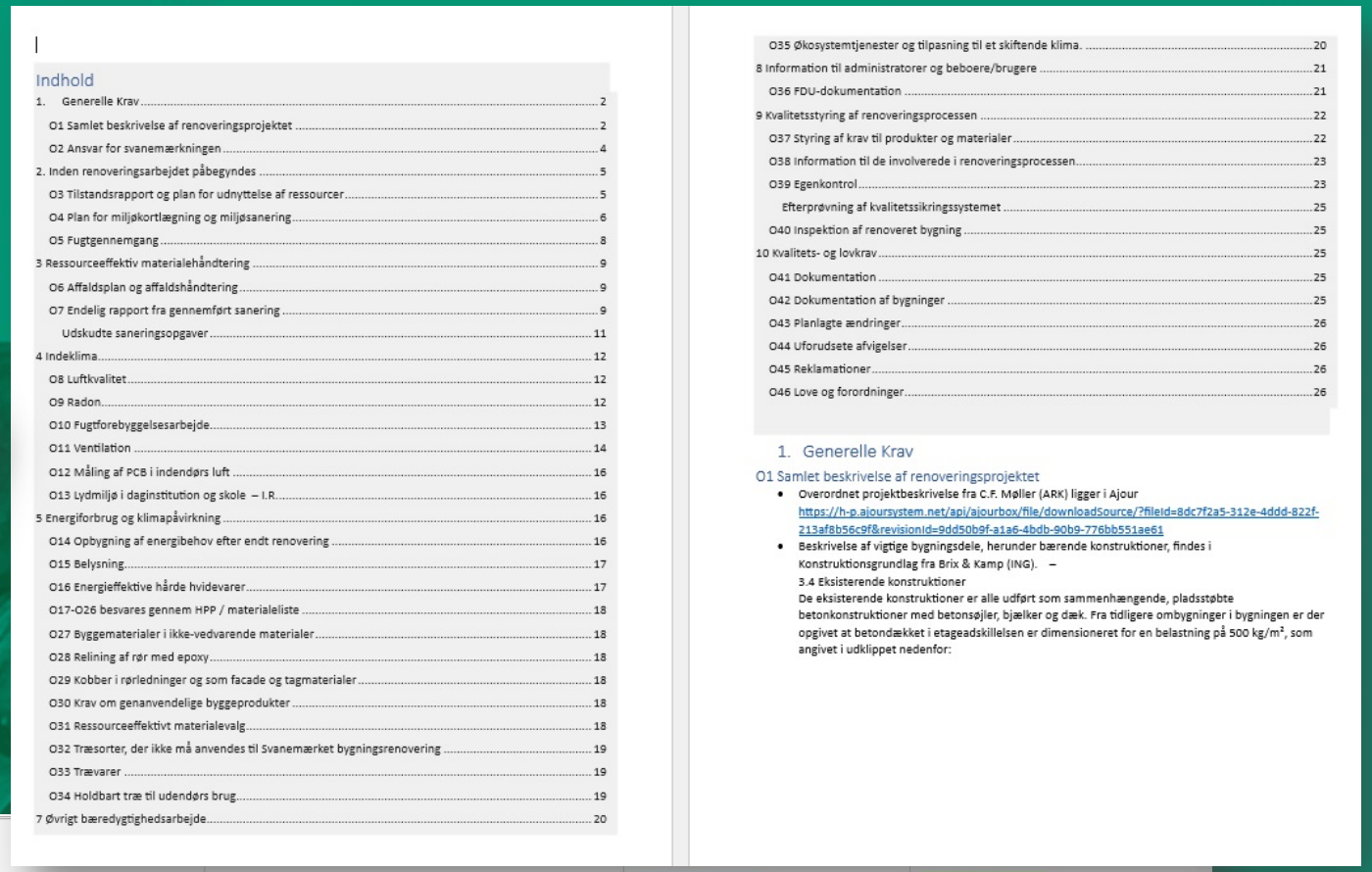
Projektet

- Transformation
- 4500 kvm + kælder
- 65 lejligheder

HP BYG

Erfaringer

- Forberedelse – Internt, Bygherre og UE'er
- Producenter – Database
- Materialer – Lister
- System løsninger
- Håndværker - Medansvar
- Generel håndtering



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1. Generelle Krav

O1 Samlet beskrivelse af renoveringsprojektet

- Overordnet projektbeskrivelse fra C.F. Møller (ARK) ligger i Ajour https://h-p.ajoursystem.net/api/ajourbox/file/downloadSource/?fileId=8dc7f2a5-312e-4ddd-822f-213af8b56c9f&revisionId=9dd50b9f-a1a6-4bdb-90b9-776bb551ae61
- Beskrivelse af vigtige bygningsdele, herunder bærende konstruktioner, findes i Konstruktionsgrundlag fra Brix & Kamp (ING). –

3.4 Eksisterende konstruktioner

De eksisterende konstruktioner er alle udført som sammenhængende, pladsstøbte betonkonstruktioner med betonsøjler, bjælker og dæk. Fra tidligere ombygninger i bygningen er der opgivet at betondækket i etageadskillelsen er dimensioneret for en belastning på 500 kg/m², som angivet i udklippet nedenfor:

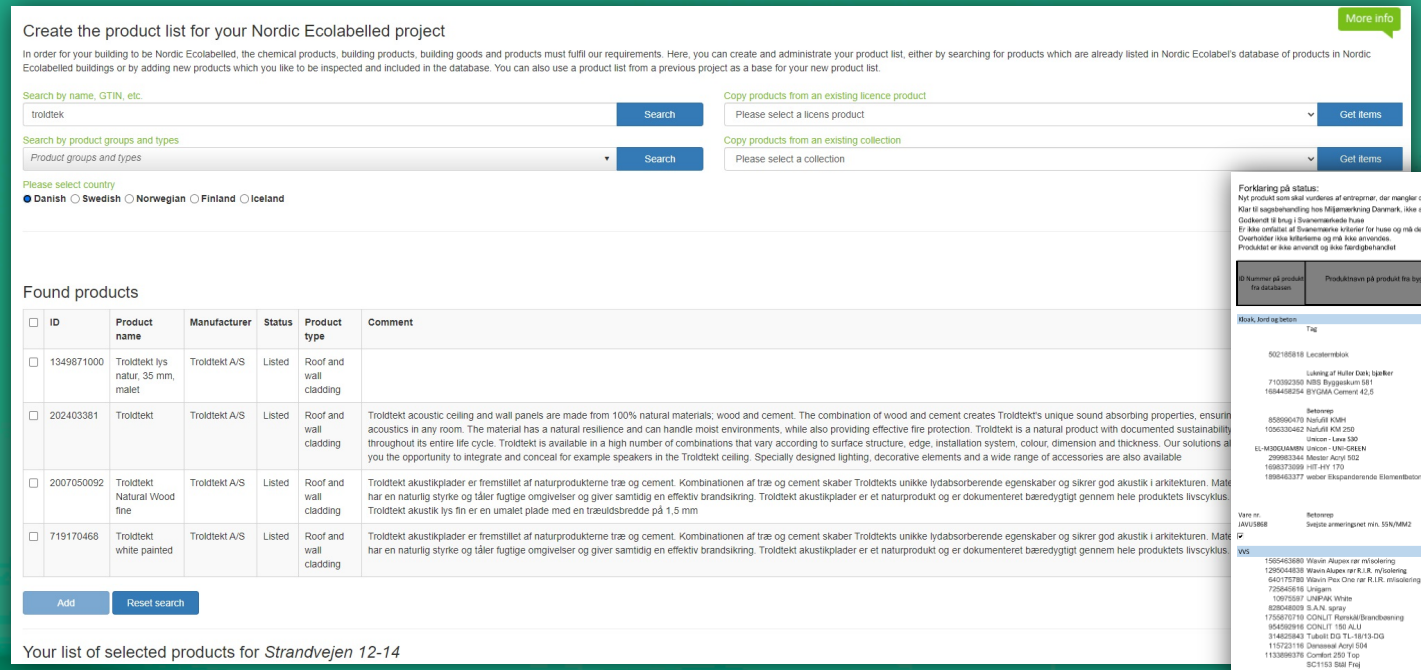
200	15-05-2024 - 10:39	2.8.1.2_02 Afgrænsning af fællesområder kælder.pdf (1) Kælder	15-05-2024	Metal og metalskrot		Færdig / Afvist Afsluttet / Ikke godkendt
199	08-05-2024 - 10:08	111.pdf (1) 1. Sal / 111	08-05-2024 - 08-05-2024	*Svanemærke* 6 - Holdbare produkter og materialeoversigt	Opfølgning på materiale - kasse i type 9 lejlighed 2 sal ***Seneste kommentar*** GTIN nr. virker dog heller ikke databasen	*Modtaget 08-05-2024, 10:09* HP Byg A/S Peter Brokholm Andersen Færdig / Afvist *Oprettet 08-05-2024, 10:08* HP Byg A/S Peter Brokholm Andersen Afsluttet / Ikke godkendt
198	25-04-2024 - 11:41	K02_H1_EXX_N101 Situationsplan strandvejen.pdf (1) Situationsplan	25-04-2024 - 25-04-2024	*Svanemærke* 6 - Holdbare produkter og materialeoversigt	Sikabond-541 Kan ikke findes i databasen ***Seneste kommentar*** Er ikke på databasen	*Modtaget 25-04-2024, 11:46* Miljømærkning Danmark Thomas Jessen Færdig / Afvist *Oprettet 25-04-2024, 11:41* HP Byg A/S Peter Brokholm Andersen Afsluttet / Ikke godkendt

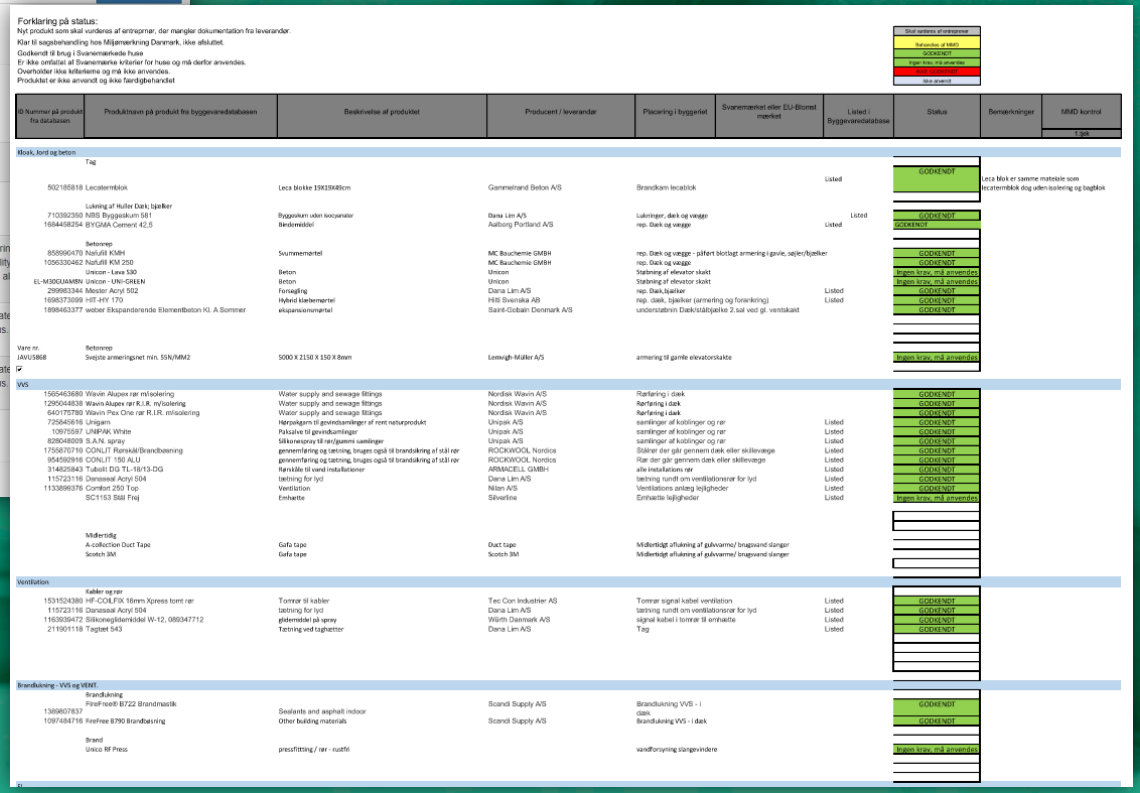
Udfordringer

- Håndværkere
- Underentreprenører
- Leverandører
- Overdragelse
- Materialer
  - Lyd-dug
  - Tape
  - EPDM fastgørelse
  - PCB
  - Gammel maling

HP BYG

Digital håndtering

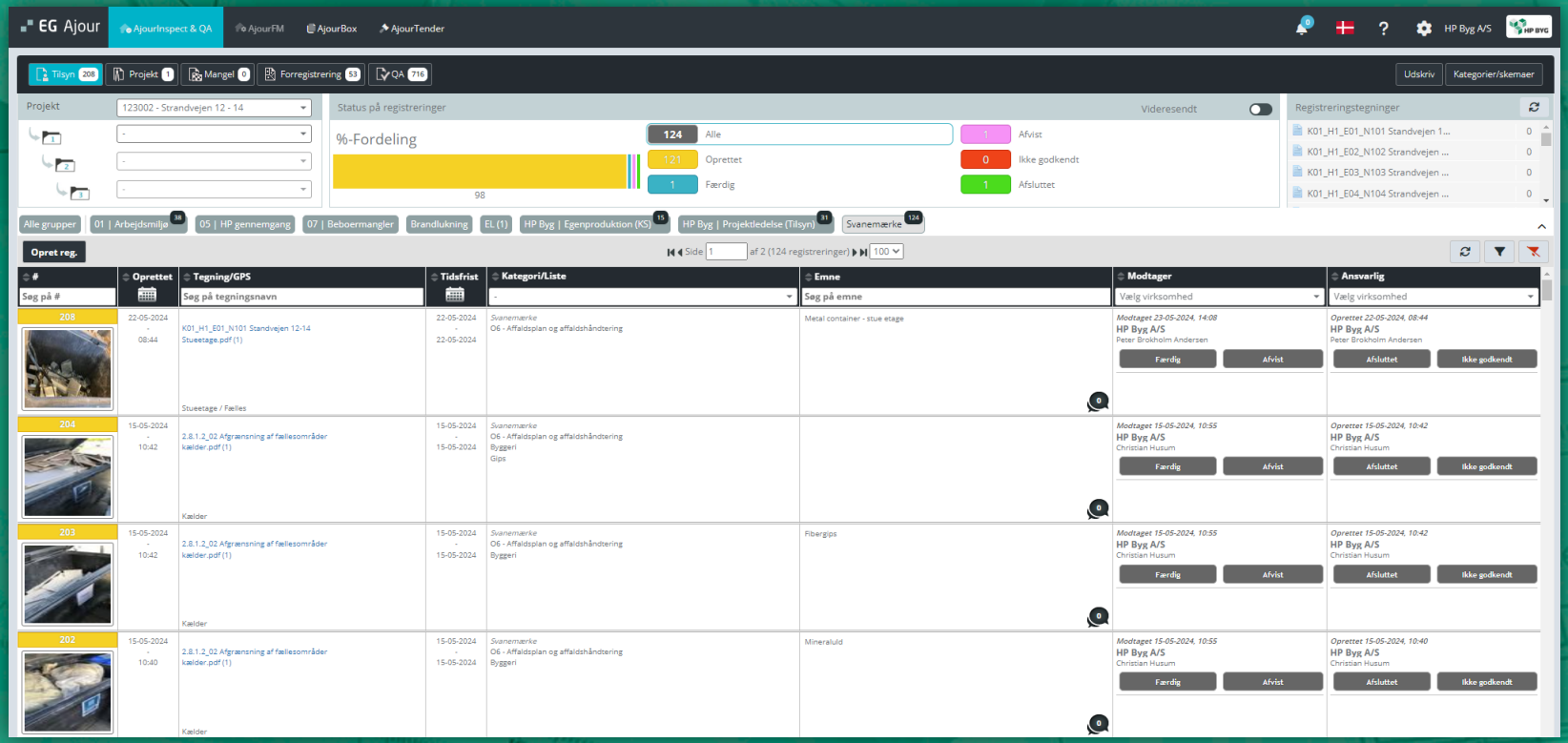




Digital håndtering

Ajour

- Setup med MMD
- O-punkter
- Registeringer
- Affald
- Materialer
- Egen gennemgang



Besøg på byggepladsen

- Gennemgang og besigtigelse
- Ikke registrerede materialer
- Snak om byggeriets videre forløb
- Mangler / OBS punkter
- Rapport

Spørgsmål

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Projektchef / Sagsansvarlig

Peter Brokholm Andersen
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Jens Ole Maribo Samallo
Bæredygtighedsleder


Tak for i dag

DANSK STANDARD