Forskningsfronten globalt
Internationellt samarbete

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Skalets

U-medel

Table 11: State of the art thermal insulation in the building envelope presently built residential buildings in the capital of each country weighted to small house 8 by 12 meters with 20 % of the wall area as windows. Thermal bridges are not taken into consideration.

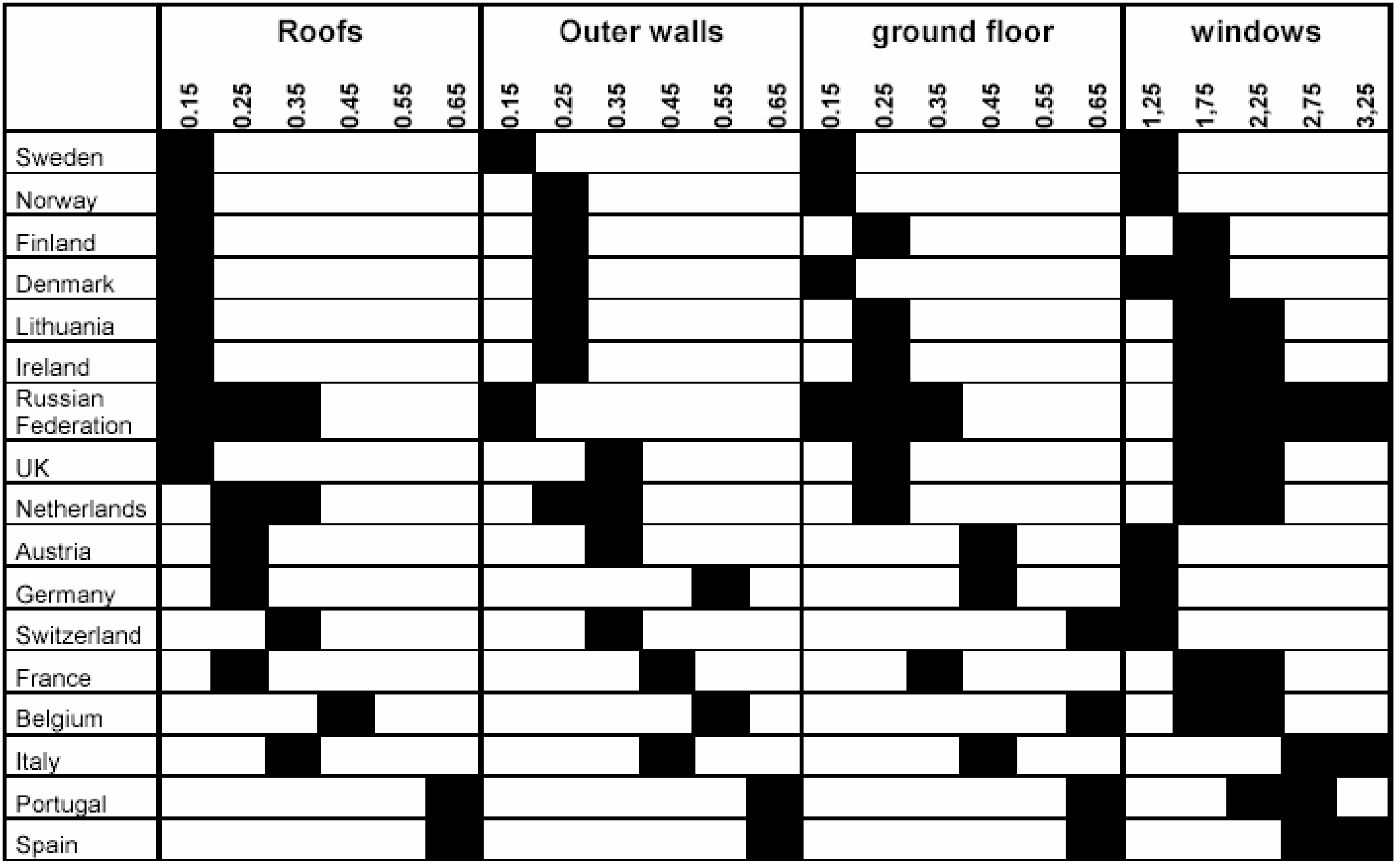


Table 4: showing impact of climate on the applied U-values. Northern countries have much stricter requirements than southern ones.

Vad inkluderas I energiberäkningar

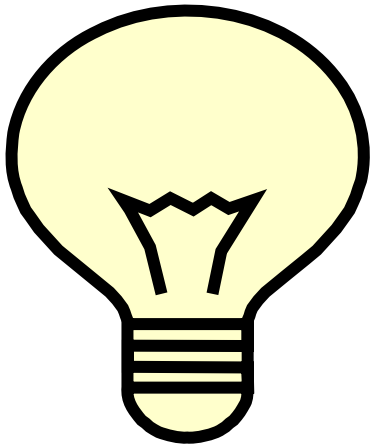
	nl	be .fl	fr	de	it	gr	lt	se	ch	uk	at	cz	dk	fi	ie	no	pt	ru
Transmission	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Ventilation	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Internal and solar gains	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Heating system	■	■	■	■	■	■	■	■	■	■								
Lighting	■	■	■			■			■	■								
RE thermal	■	■	■	■	■													
RE electric	■	■																

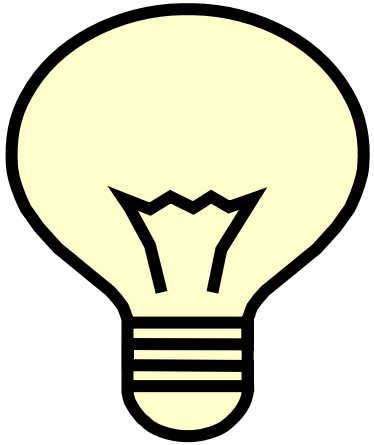
Table 1: Energy flows covered by EP calculation procedures

Vitbok 2000 Watt society

The 2000 watt society

- Varje individ förbrukar energi motsvarande 6000 Watt konstant förbrukning, 6 hårtorkar.
- Målet är (Schweiz – Novatlantis) 2000 W
- Motsvarar förbrukningen när Beatles gav ut sin första skiva.





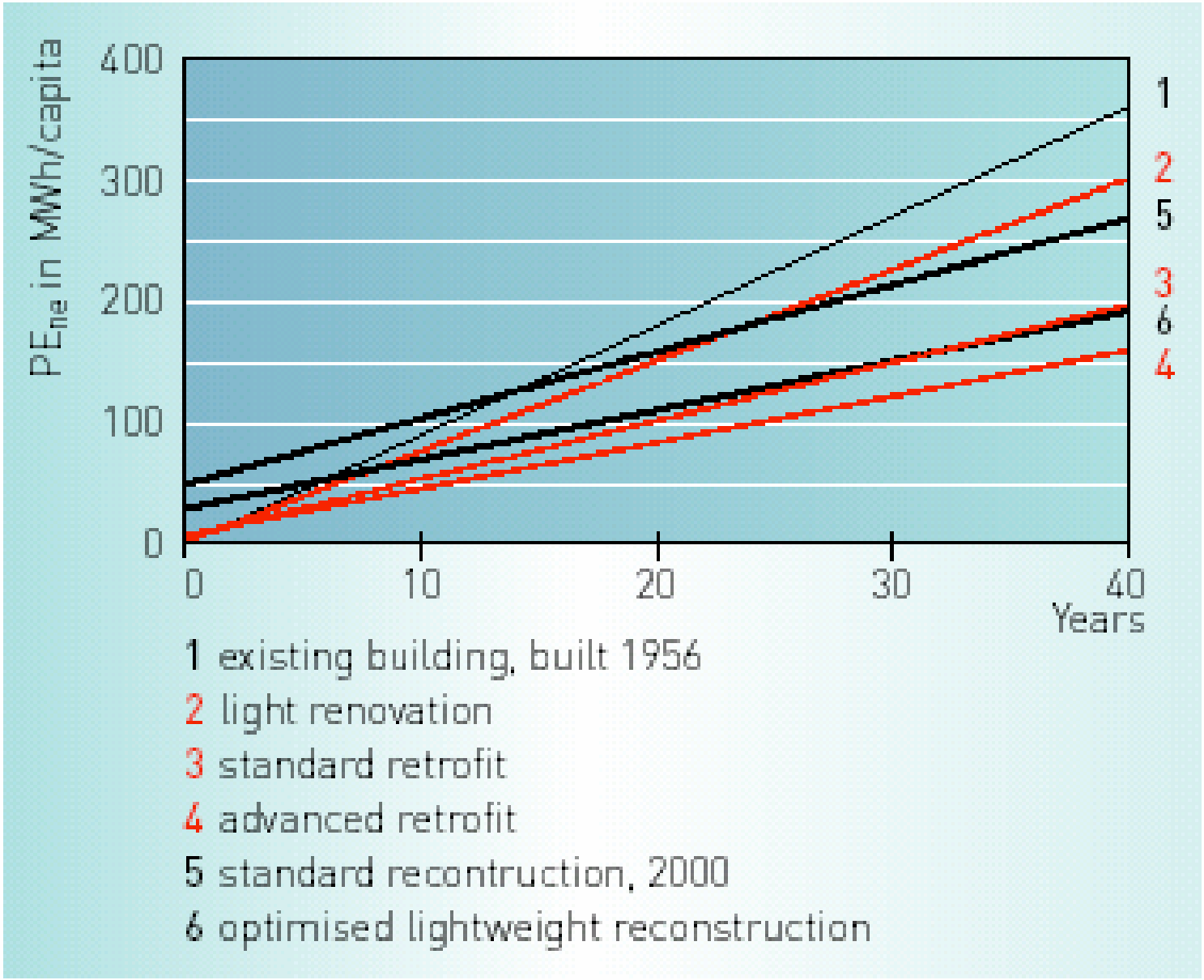


Fig. 4.1-2: Long-term impact of refurbishment versus new-buildings. The diagram shows the cumulated primary energy demand of an existing 24 apartment house (1), three retrofit alternatives (2 + 3 + 4) and two reconstruction options (5 + 6)

Renovera eller bygga nytt

Ineffective processes - the world is full of them

Existing technology	Best technology / Relative energy use
Double pane window	20 %
Masonry wall	25%
Exhaust ventilation	15%
Normal air tightness	33 %
Mechanical cooling	10 %
Resistive electrical heating	30 %

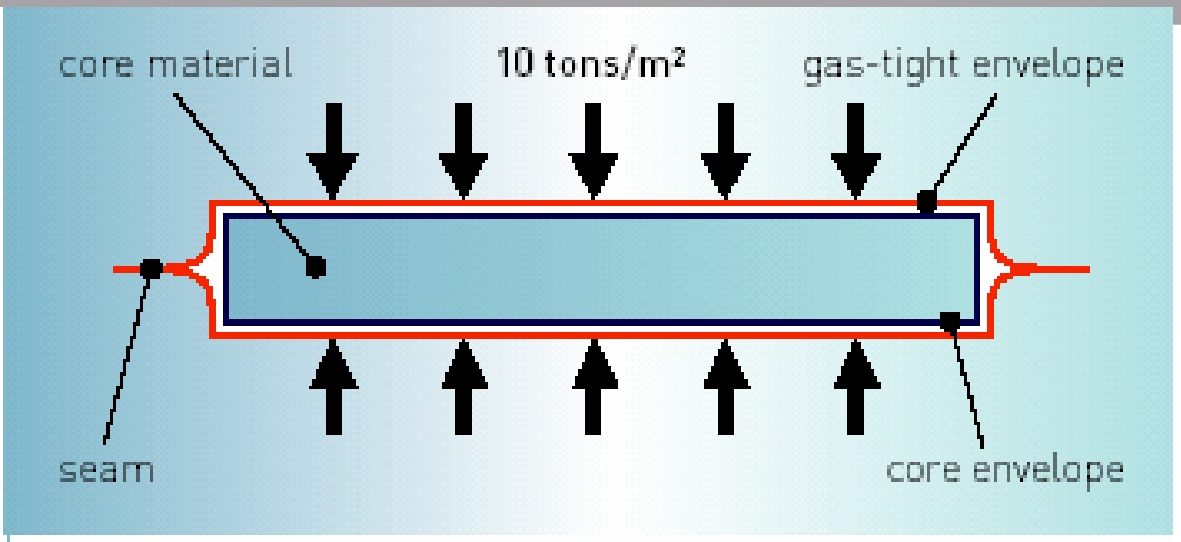


Fig. 1: Schematic cross section through a VIP (above), comparison of the thickness of a conventional mineral wool insulation board and a VIP (below) of equal thermal resistance

Ny teknik vakuum paneler

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CIB's mission is to serve its members through encouraging and facilitating international cooperation and information exchange in building and construction research and innovation.

CIB is engaged in the scientific, technical, economic and social domains related to building and construction, supporting improvements in the building process and the performance of the built environment.

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- R&D collaboration

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- indoor environment
- design of buildings and of the built environment
- organization, management and economics
- legal and procurement practices

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CIB Commissions (July 2007) Energy and environment related

TG49 Architectural Engineering
TG62 Built Environment Complexity
TG66 Energy and the Built Environment
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W040 Heat and Moisture Transfer in Buildings
W098 Intelligent & Responsive Buildings
W108 Climate Change and the Built Environment
W116 Smart and Sustainable Built Environments

Other International Activities

- **LowEx** Low Exergy Systems for Heating and Cooling of Buildings page of the ECBCS Annex 37

ECBCS Energy Conservation in Buildings and Community Systems page of the ECBCS

ZUB Centre for Sustainable Building host of the network

LowEx.info Low Exergy The national German LowEx alliance project

LowEx.nl Low Exergy The national Dutch LowEx projects

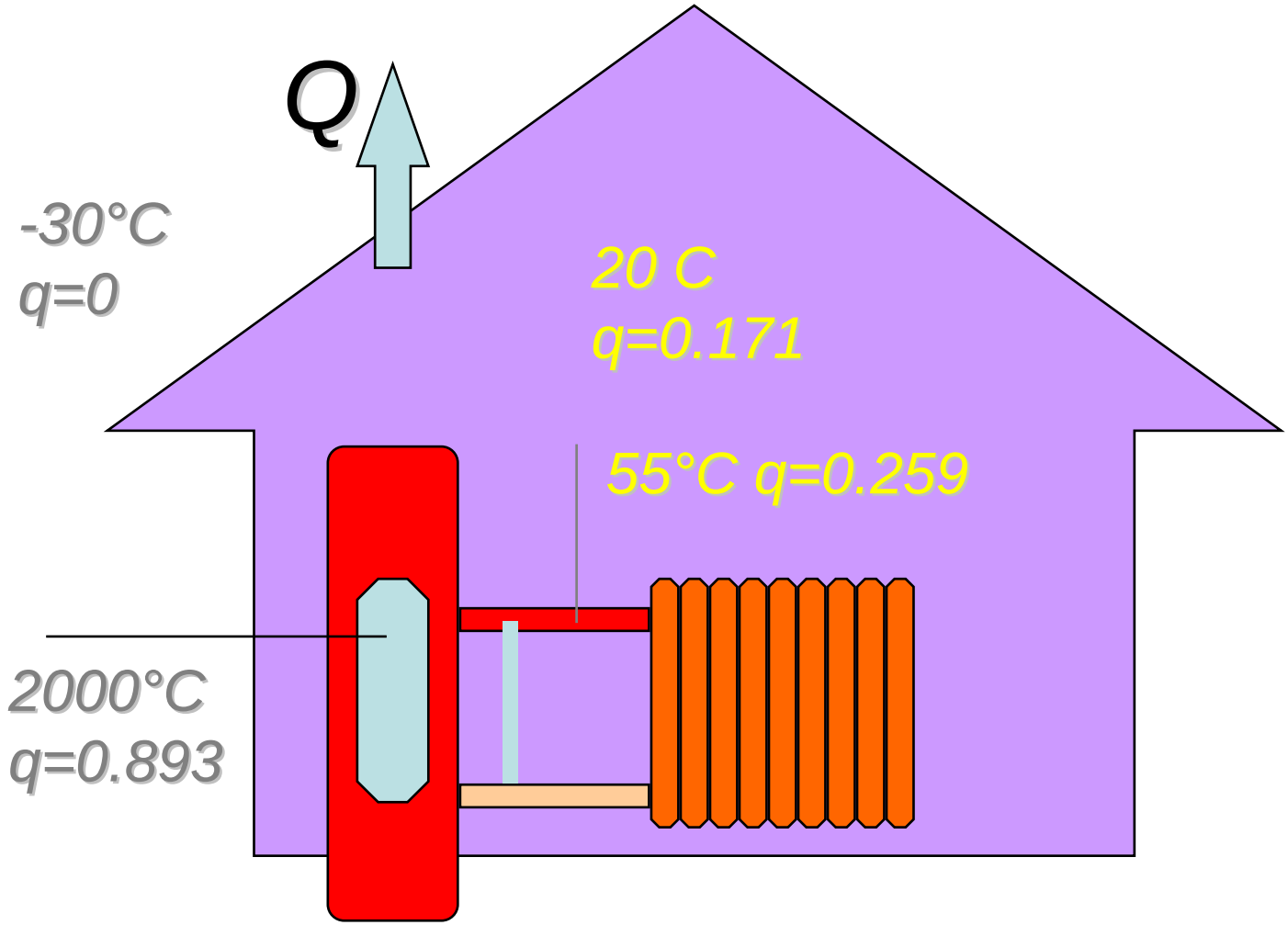
Annex49 Low Exergy Systems for High Performance Buildings and Communities page of the ECBCS Annex 49

COSTeXergy Analysis and Design of Innovative Systems for Low-EXergy in the Built Environment
Europeen Cooperation in the field of Scientific and Technical Research

ASHRAE ASHRAE Technical Group 1 - Exergy Analysis for Sustainable Buildings page of the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.

www.lowex.net

Energins kvalitet vid olika temperaturnivåer



Från vitboken

Vi måste börja nu med bostadshusen

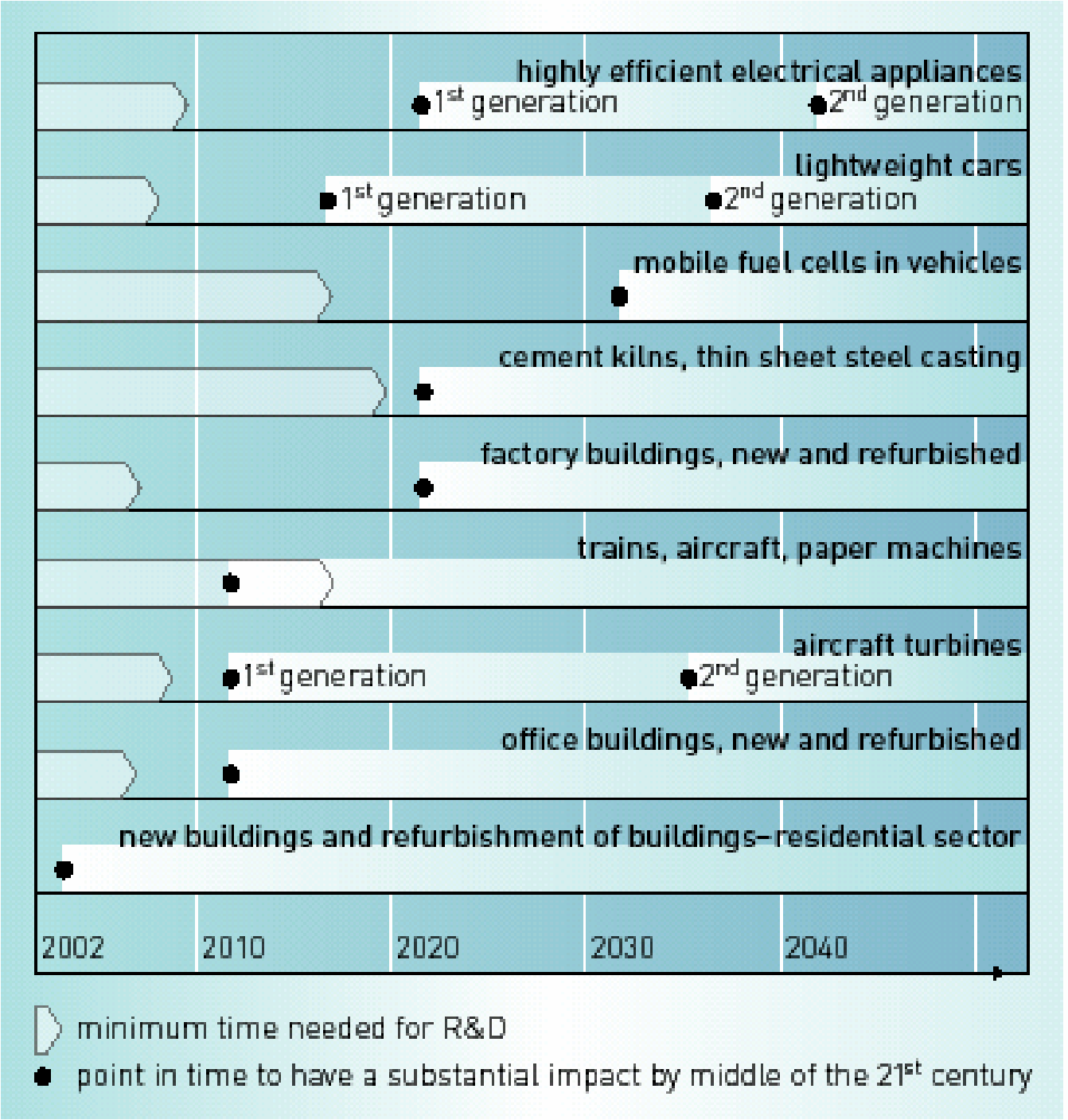


Fig. 3-2: Timing and priority-setting of R&D by backcasting and re-investment cycles