

Intelligente Lamellenstore

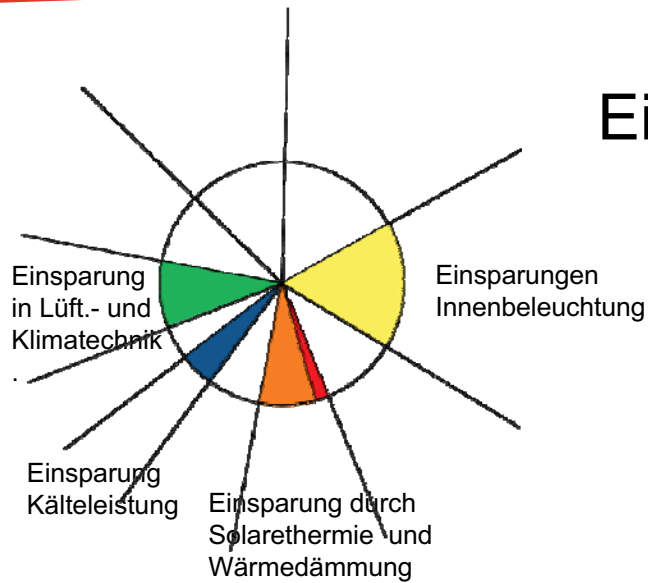
Forum-Energie-Zürich

Zürich 30.11.2010

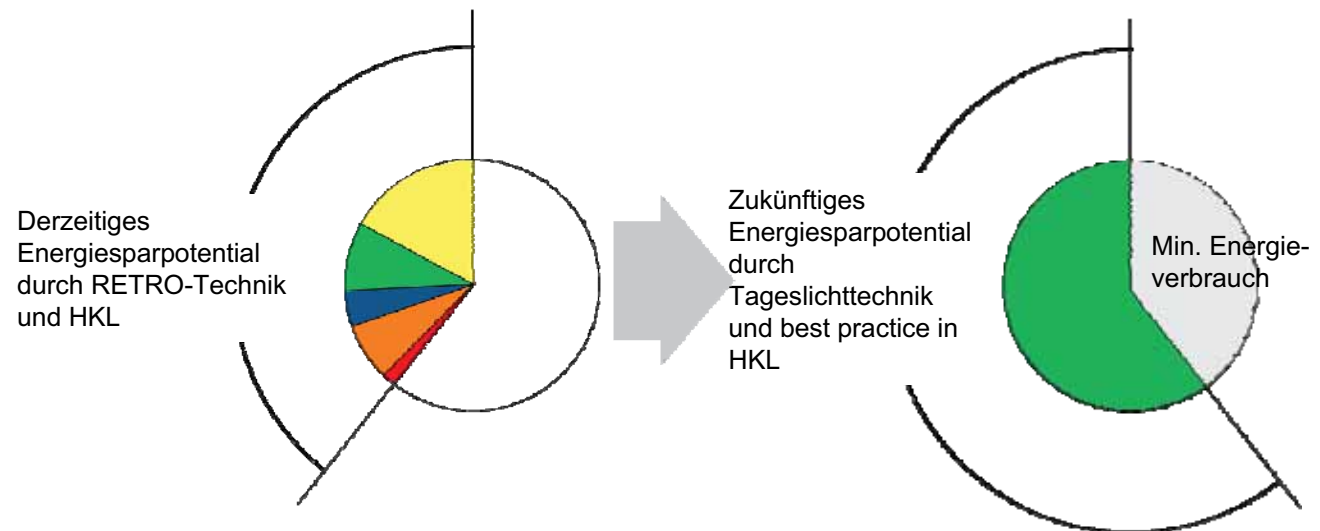
Dr.-Ing. Helmut Köster
Köster Lichtplanung – Frankfurt/M
www.koester-lichtplanung.de



Source:
Department of Community, Trade and
Economic Development,
State of Washington, and EIA



Einsparpotential mit RETROLux A

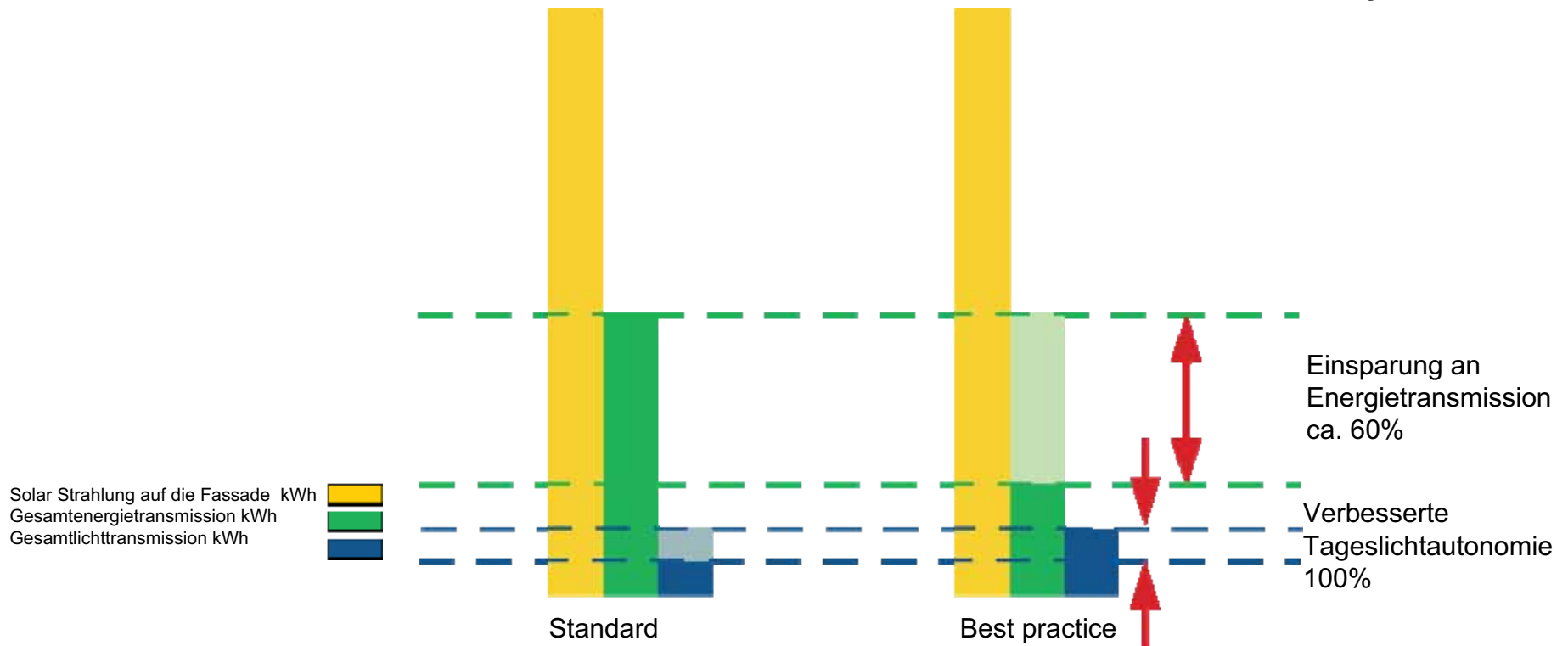


Ziel der Tageslichttechnik:

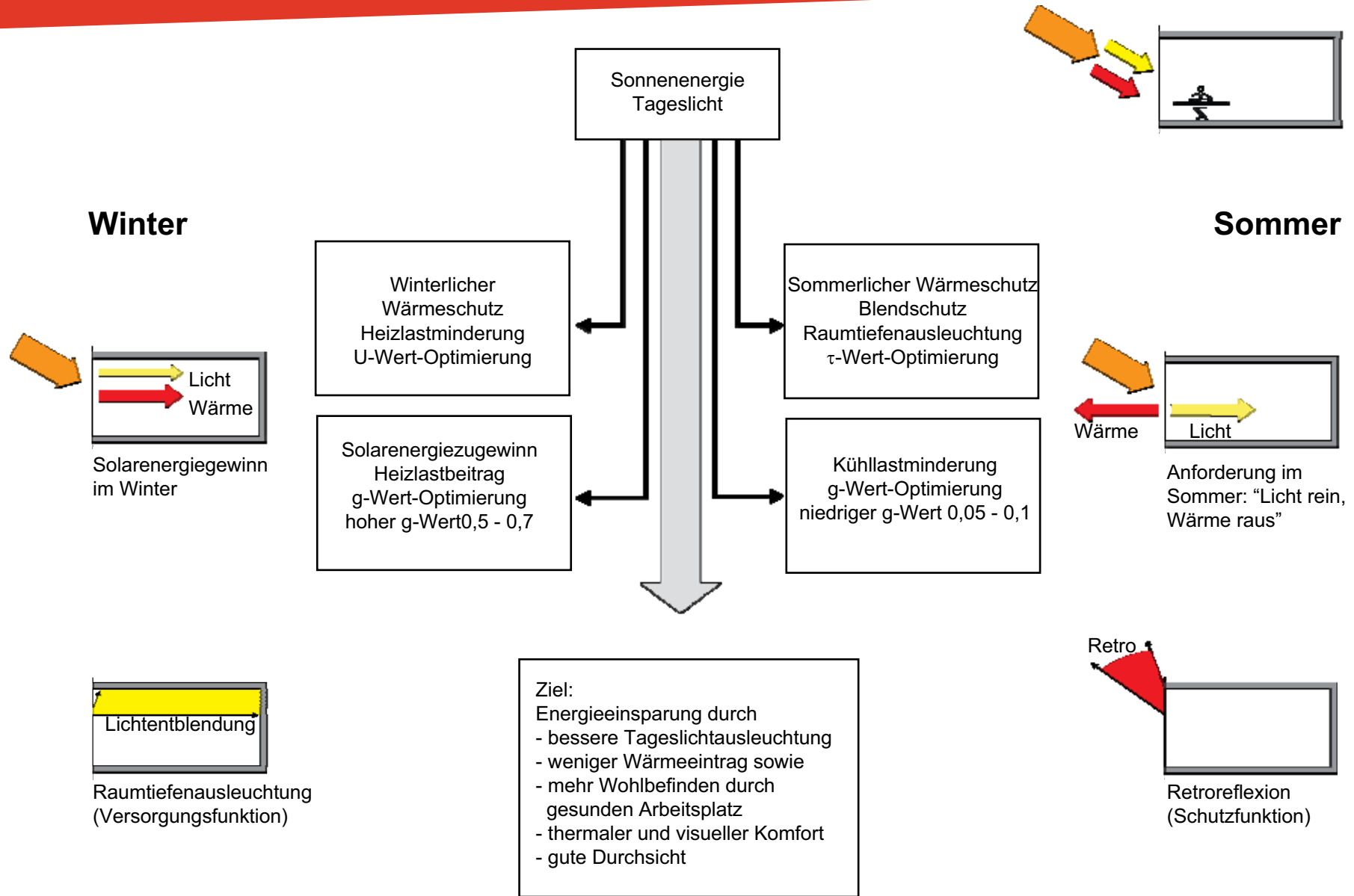
- Verminderung der Kühllast durch Retro-Reflexion
- Verminderung des Stromverbrauchs durch verbesserte Tageslichtautonomie



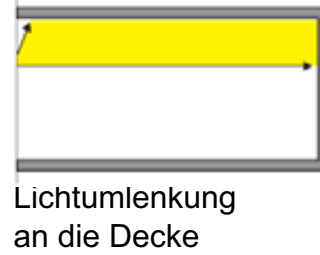
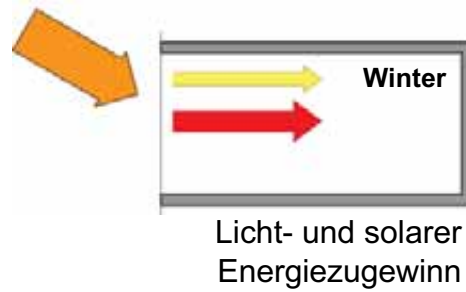
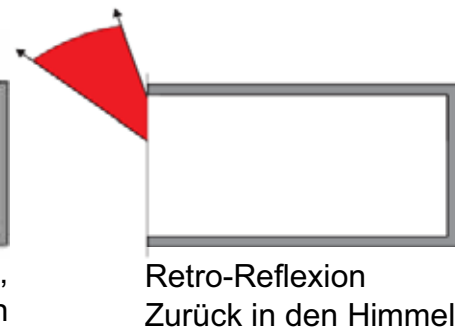
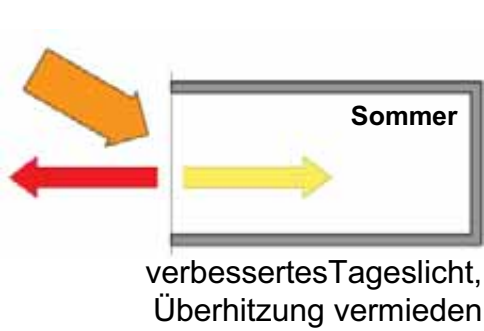
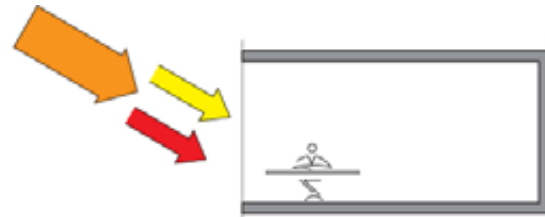
Energie AG, Linz



Aufgaben der Tageslichttechnik

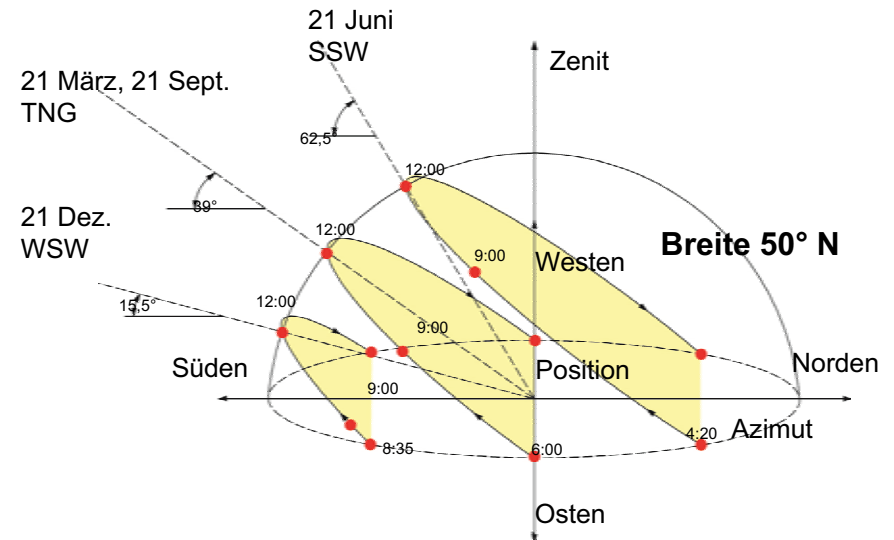
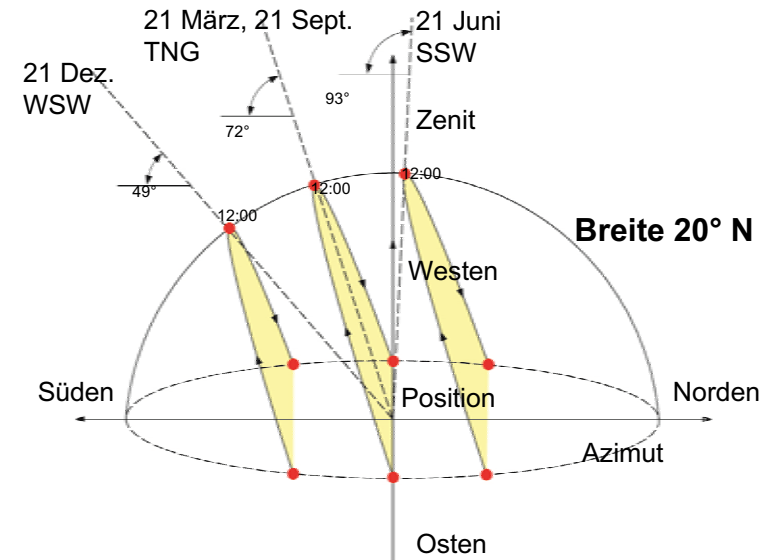
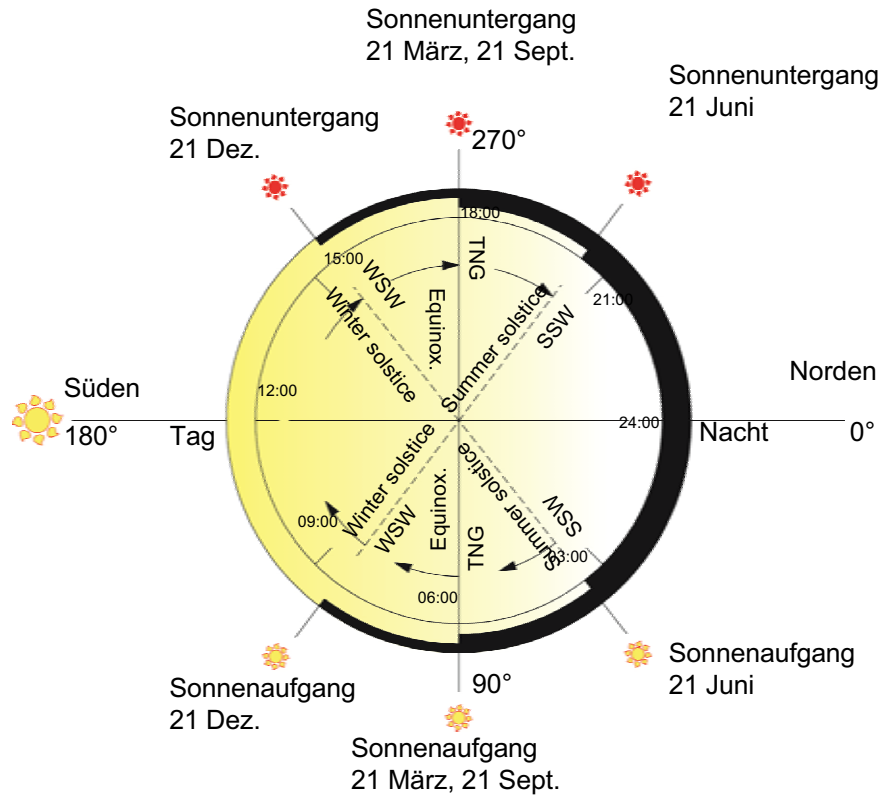


Wärme oder Licht - ein Gegensatz?

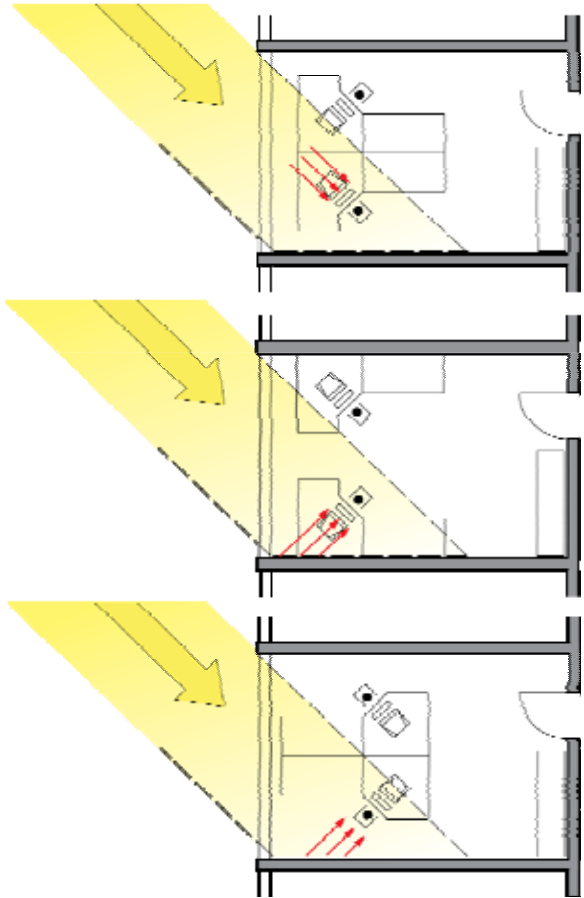




Sonnenbahnen



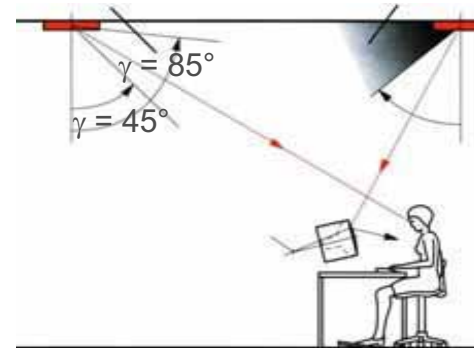
Blendschutz

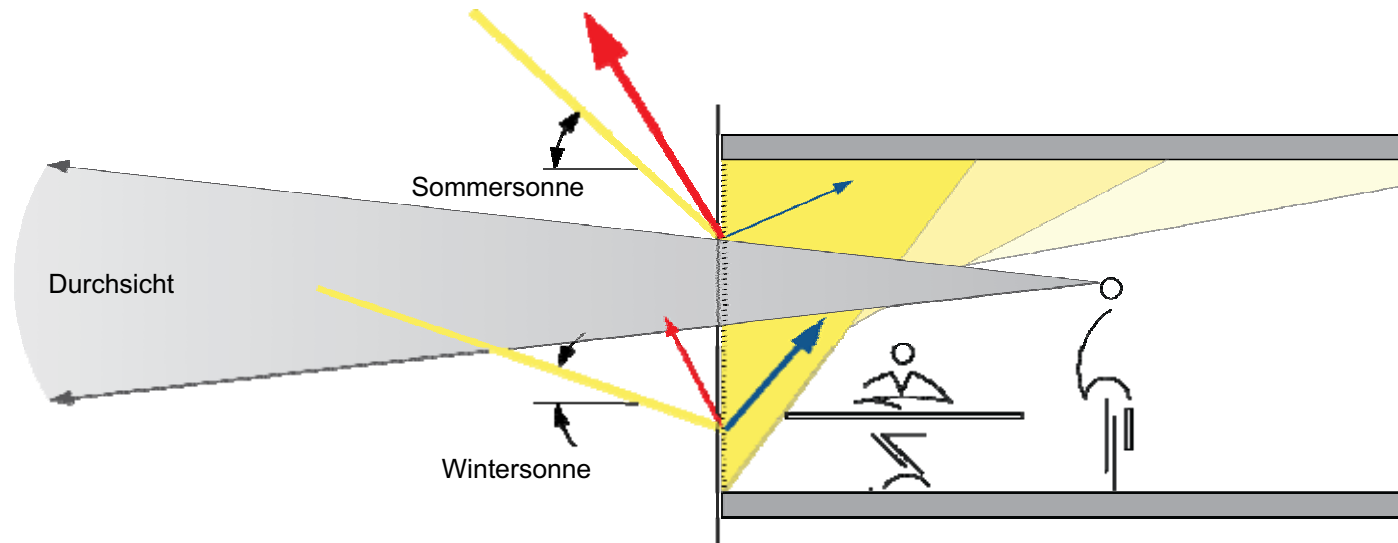


Direktblendung durch die Sonne

Hintergrundblendung

Reflexblendung im Bildschirm

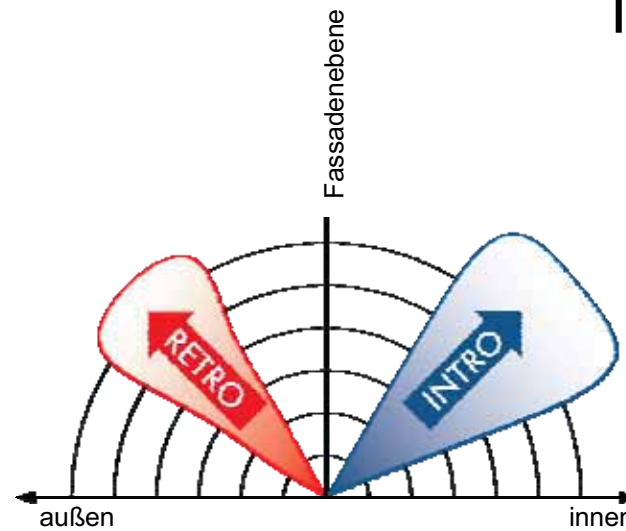




Tageslichtkonzept

Schutzfunktion
 - vor Überhitzung
 - vor Blendung

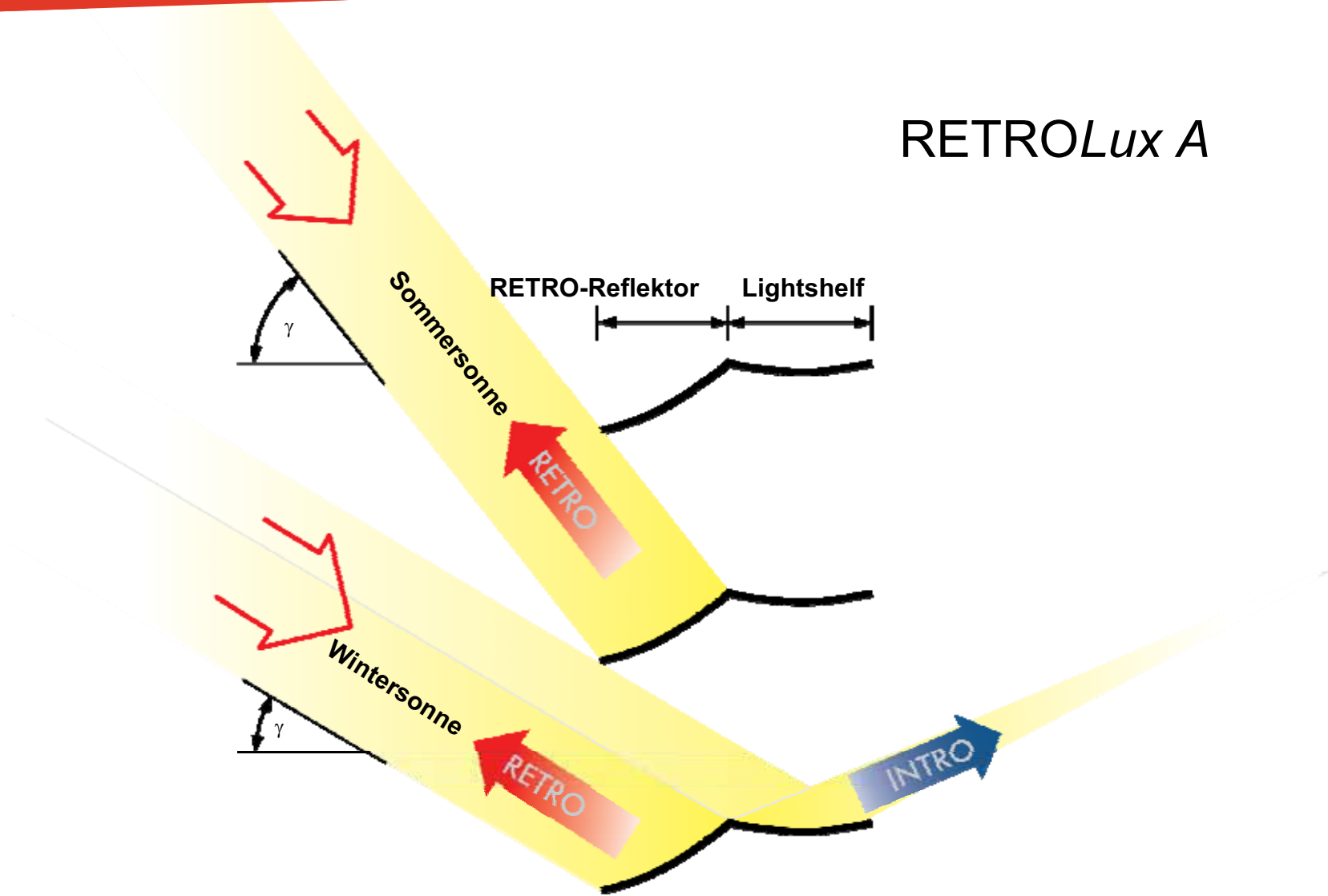
Passive Kühlung
 durch Energieauslenkung



Versorgungsfunktion
 - für Tageslicht
 - im Winter mit Sonnenenergie

Tageslichteinlenkung
 In die Raamtiefe
 zur Verbesserung des
 Tageslichtquotienten

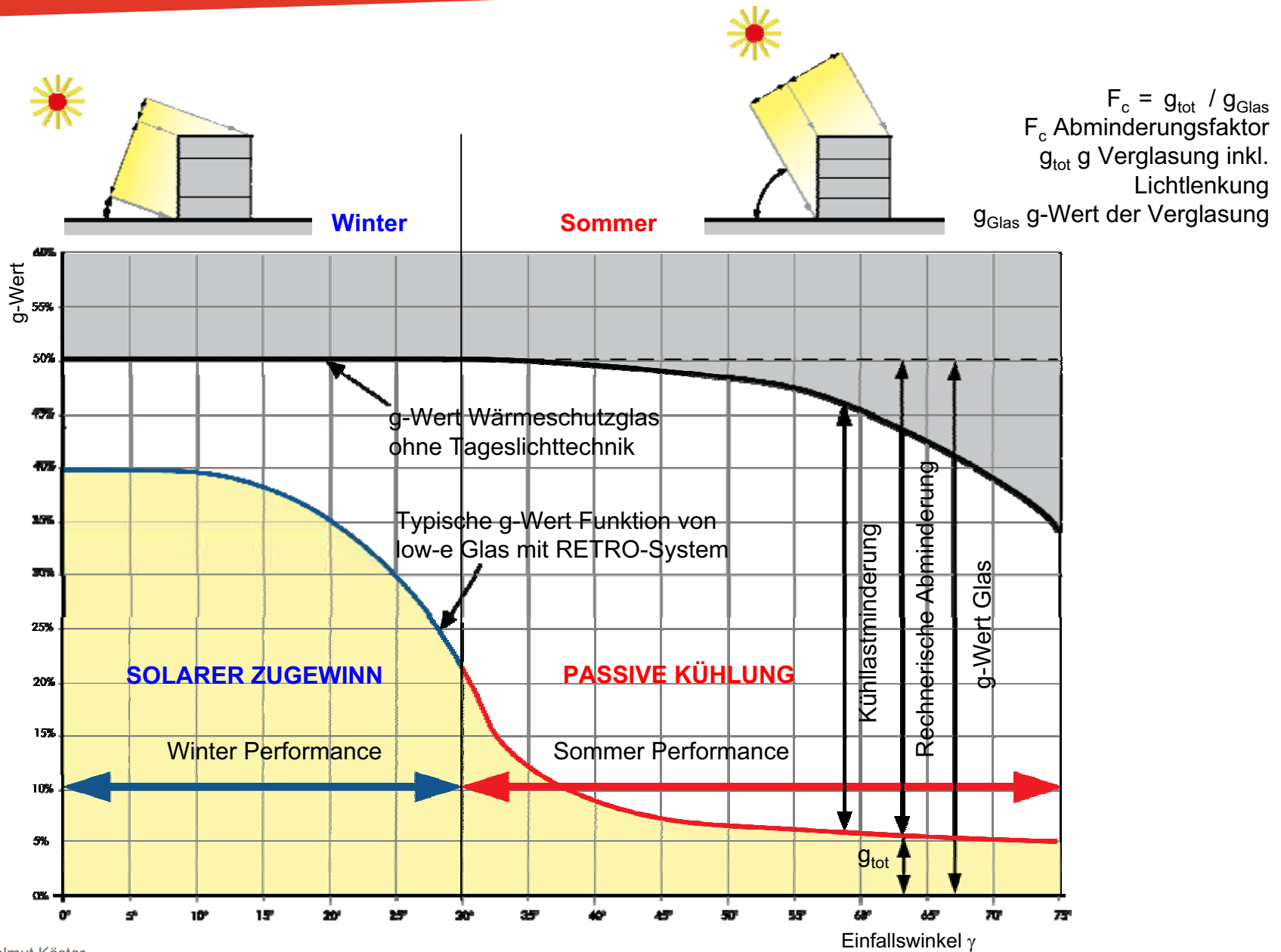
RETROLux A

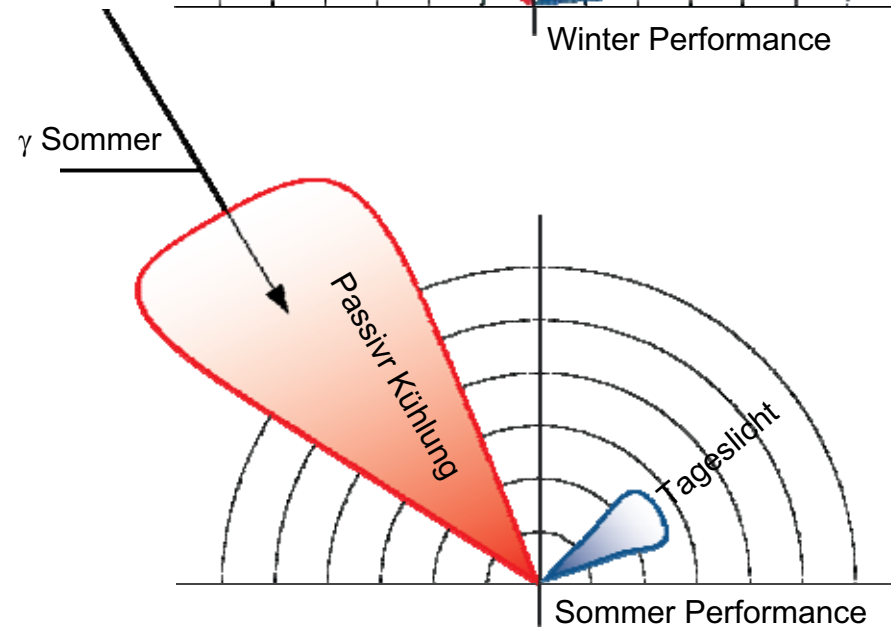
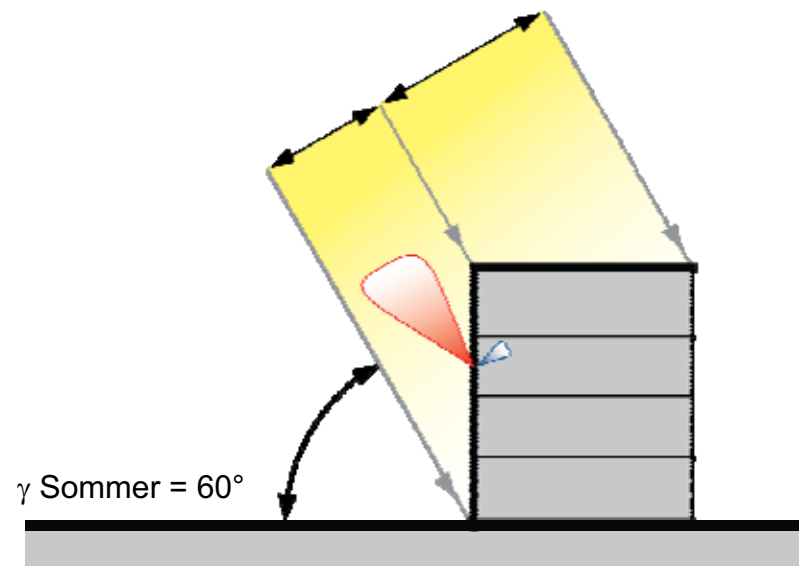
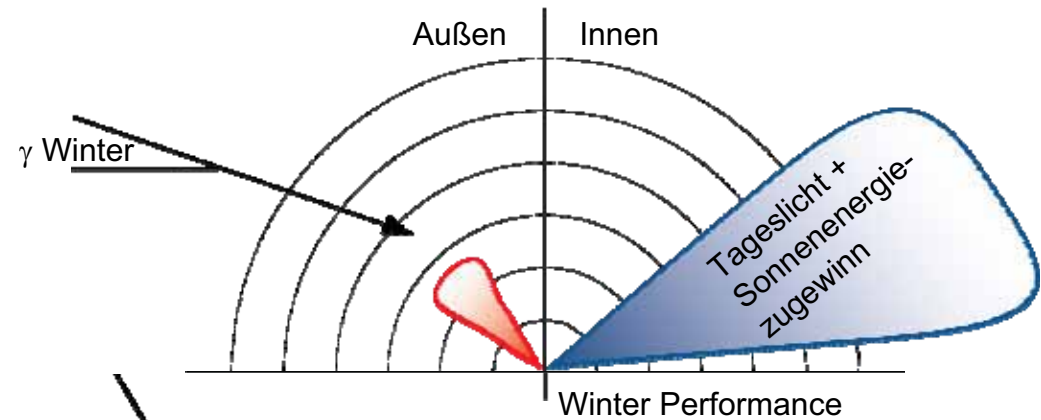
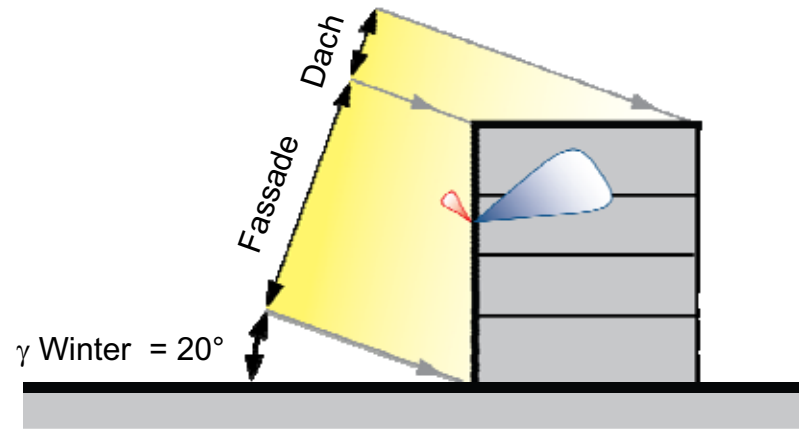




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Haus der Technik,
Wien, Sensengasse
Architekten:
Neumann + Partner
und Mascha &
Seethaler, Wien
Tageslicht:
Köster Lichtplanung

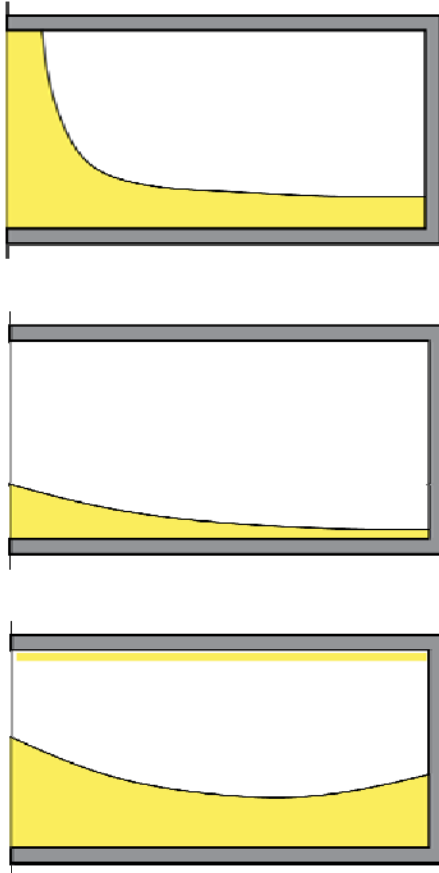




Tageslicht und visueller Komfort

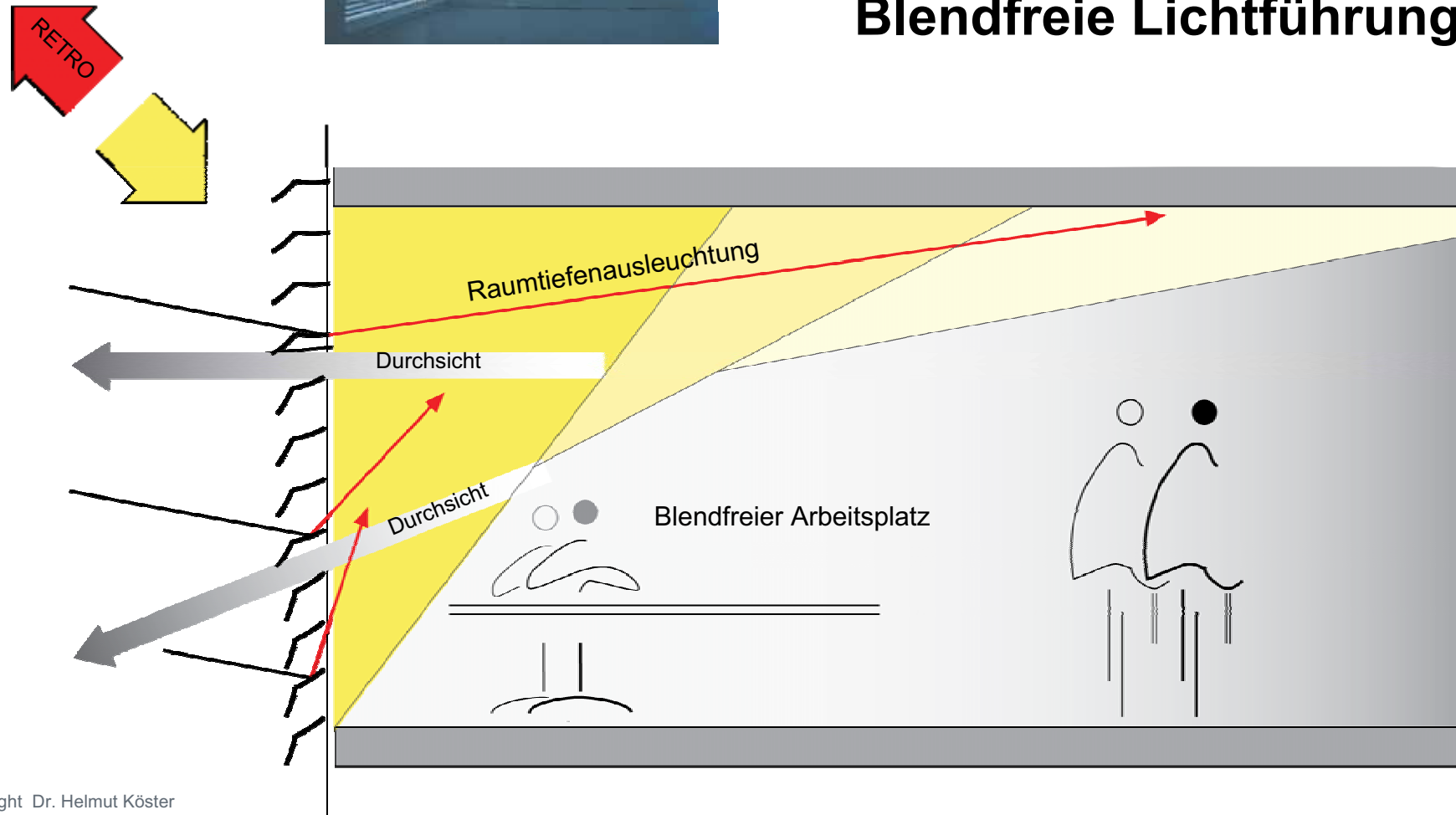
Tageslichtquotient $D = E_i / E_a \times 100\%$

E_i = Innenbeleuchtungsstärke [lx]
 E_a = Außenbeleuchtungsstärke [lx]



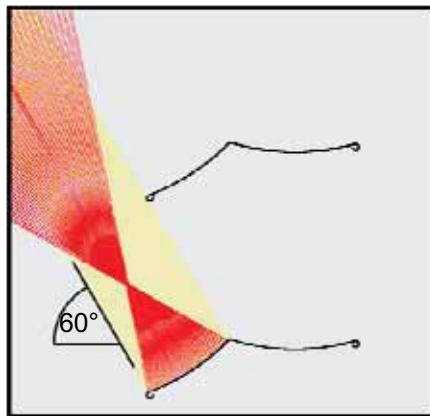


Blendfreie Lichtführung

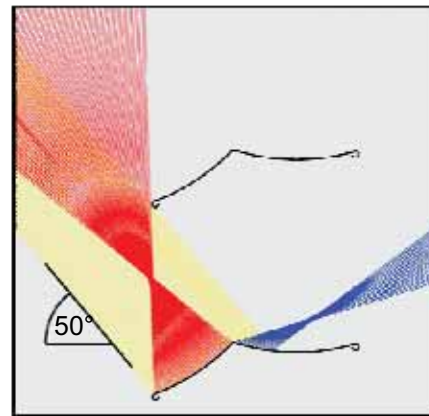


Blendfreie Lichtführung

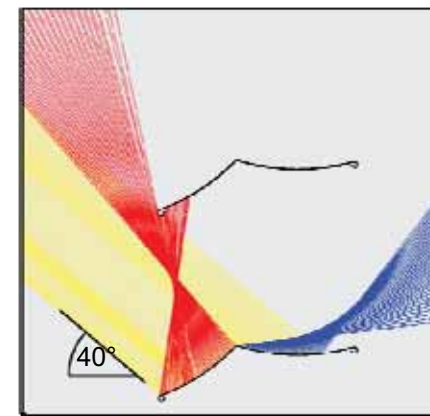
Strahlenverfolgung nach dem Gesetz Einfallswinkel = Ausfallswinkel



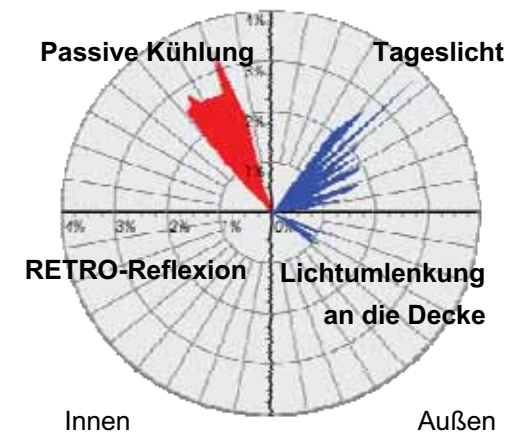
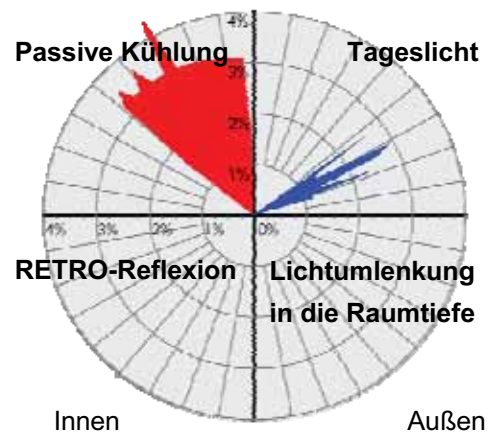
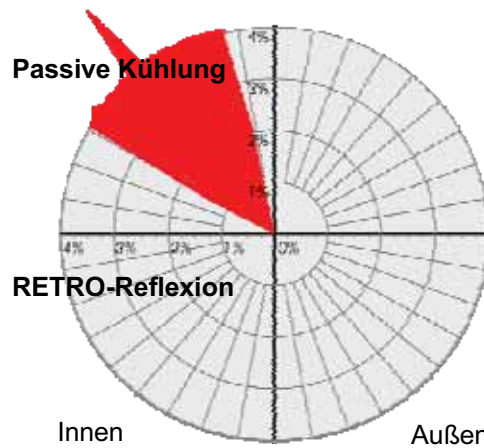
Lichtverteilung für $\gamma = 60^\circ$

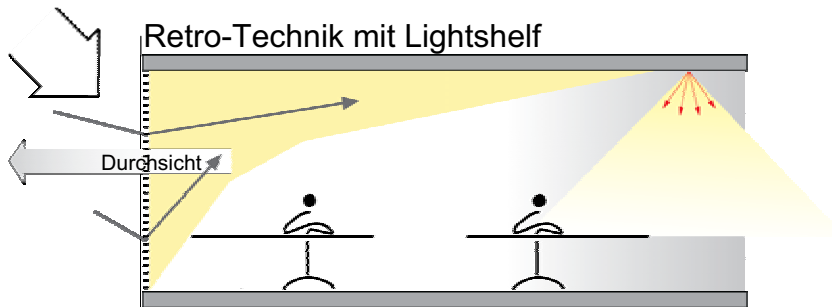
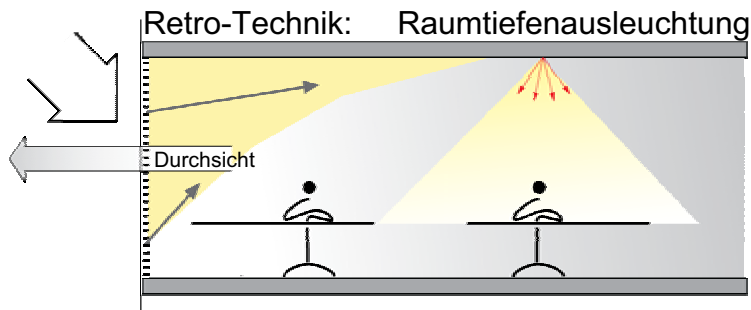
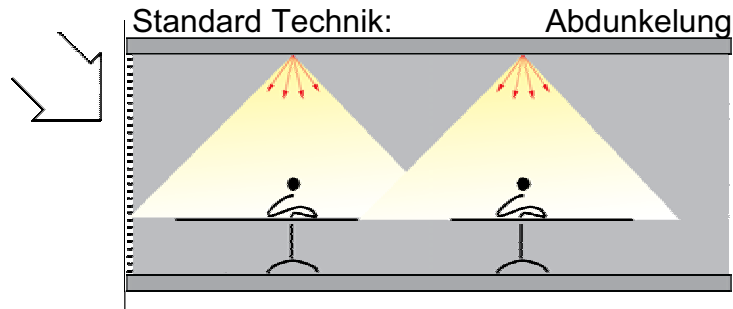


Lichtverteilung für $\gamma = 50^\circ$

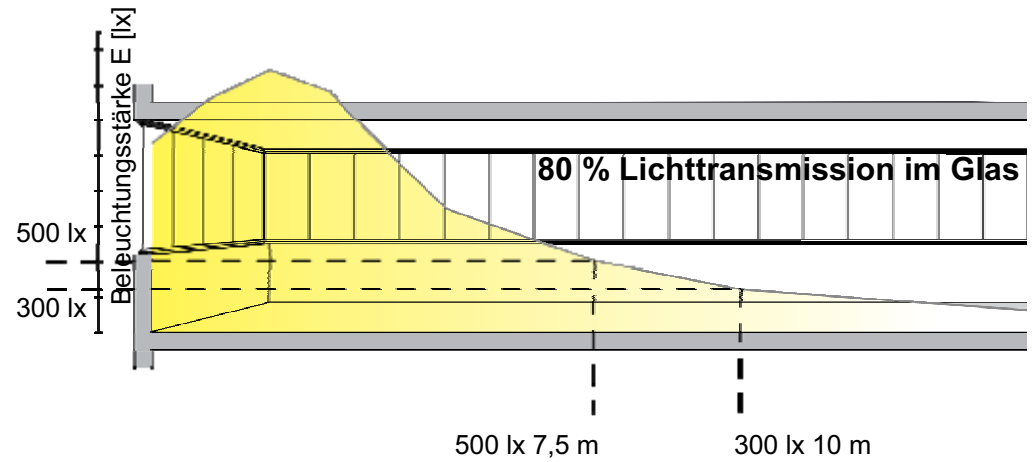


Lichtverteilung für $\gamma = 40^\circ$





Tageslichtautonomie: Einsparung elektrischer Beleuchtung



Zweischalige Fassade mit RETROLux A



RETROLux A in zweischaliger Fassade,
Postverteilerzentrum Wädenswil, CH
Architect: HZDS, Heinz Zimmermann





RETROLux A in zweischaliger Fassade,
Postverteilerzentrum Wädenswil, CH
Architekt: HZDS, Heinz Zimmermann



