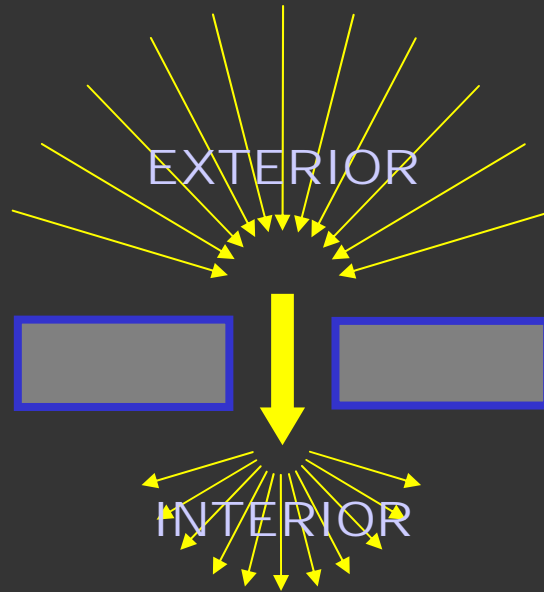


Daylight as a design factor

▶ Three aims when using natural light

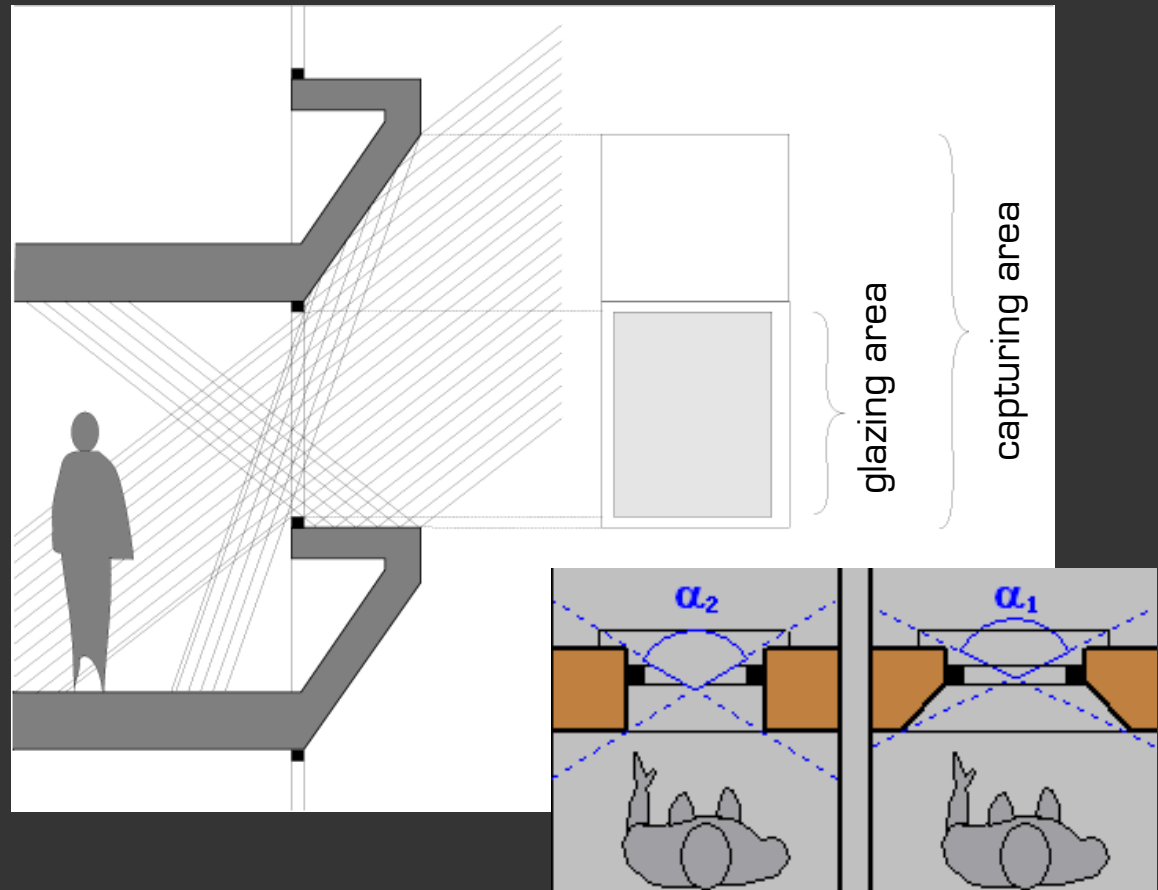
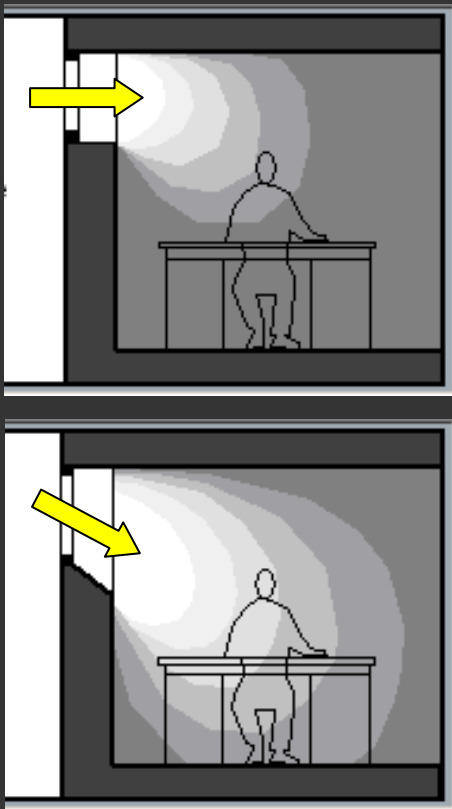
- Collect
- Transport
- Distribute



Daylight as a design factor

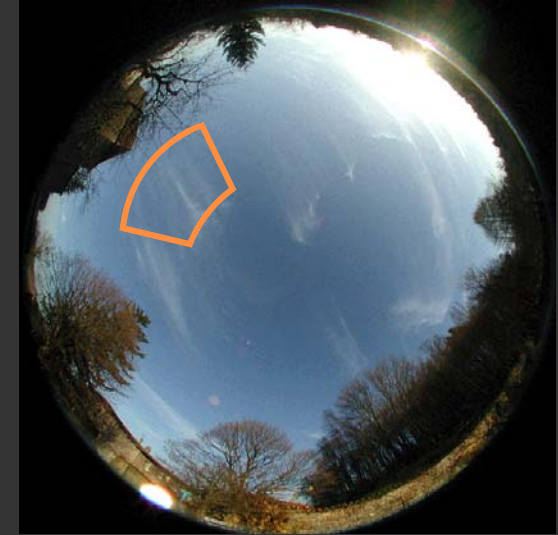
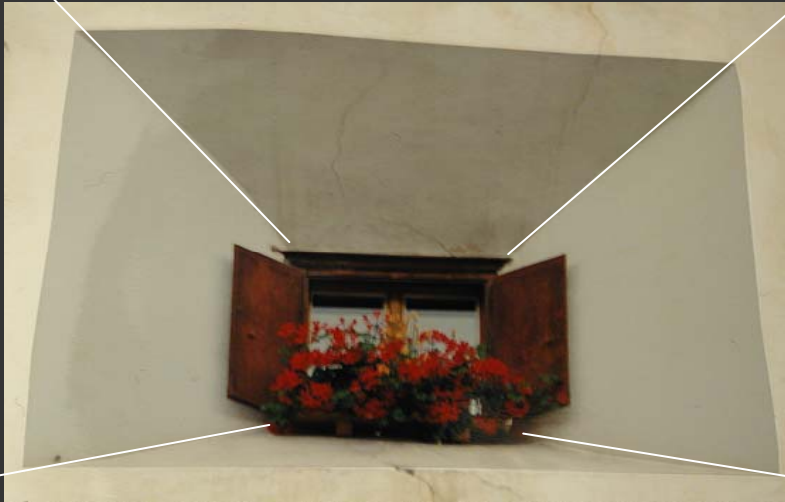
▶ Three aims when using natural light

▪ Collection



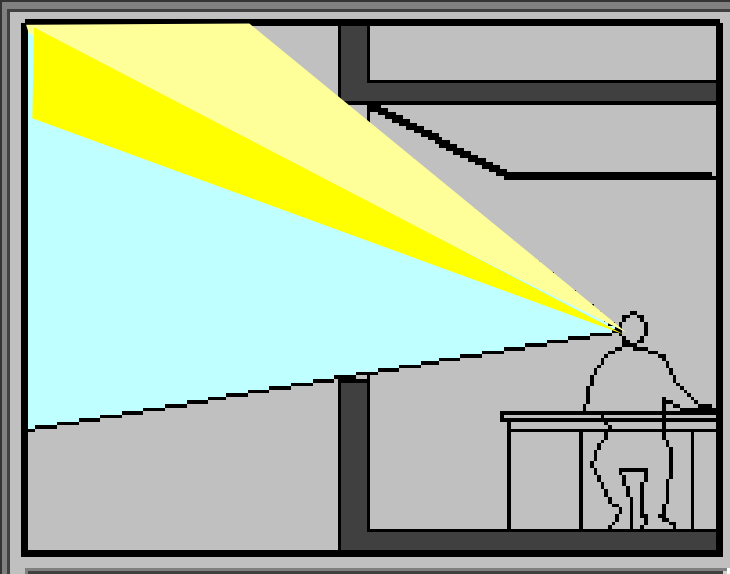
Daylight as a design factor

- ▶ Three aims when using natural light
 - Collection



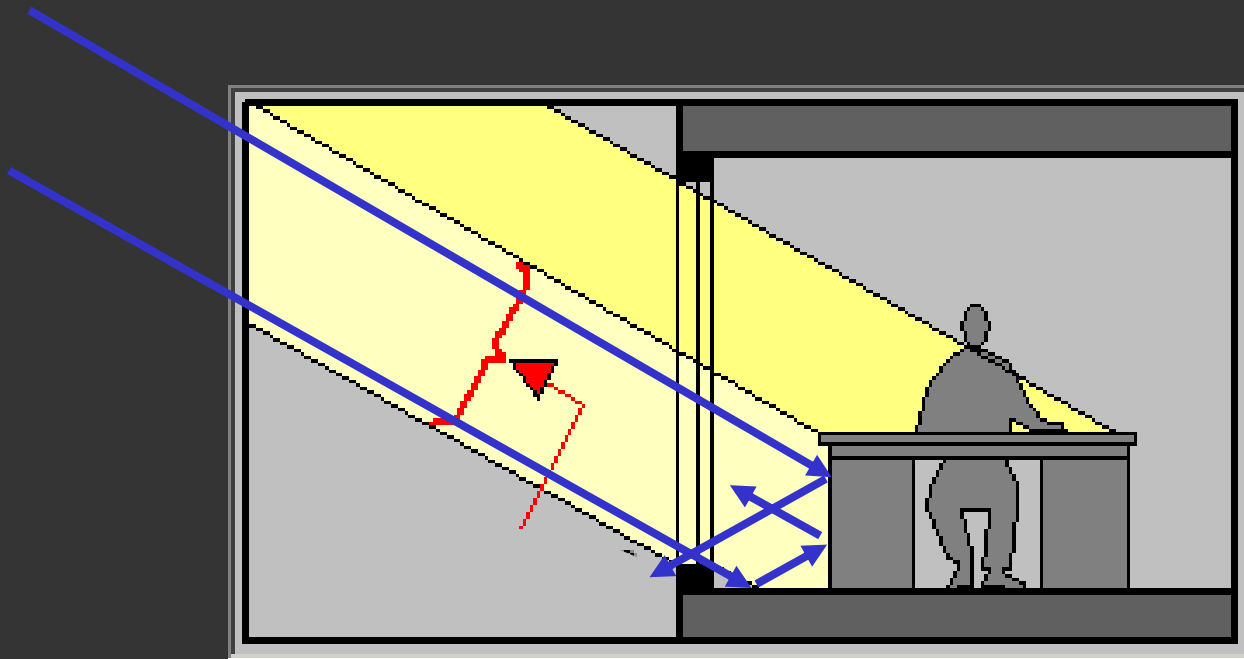
Daylight as a design factor

- ▶ Three aims when using natural light
 - Collection



Daylight as a design factor

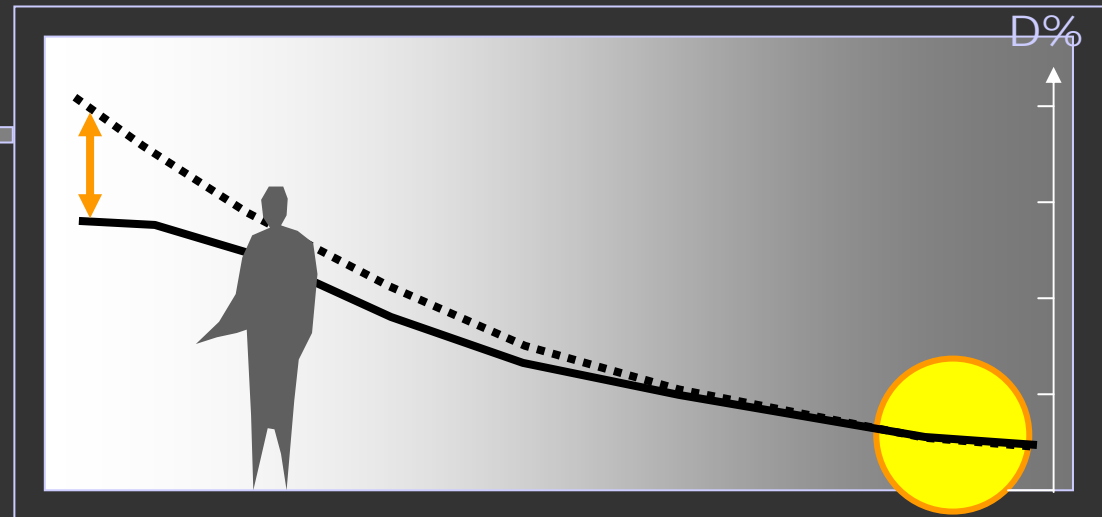
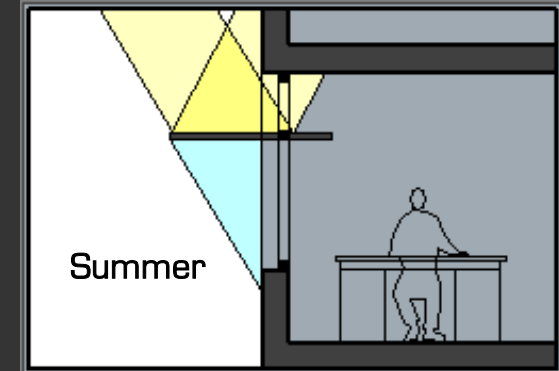
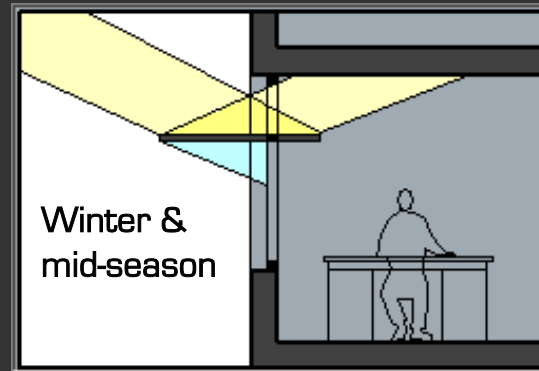
- ▶ Three aims when using natural light
 - Collection



Daylight as a design factor

▶ Three aims when using natural light

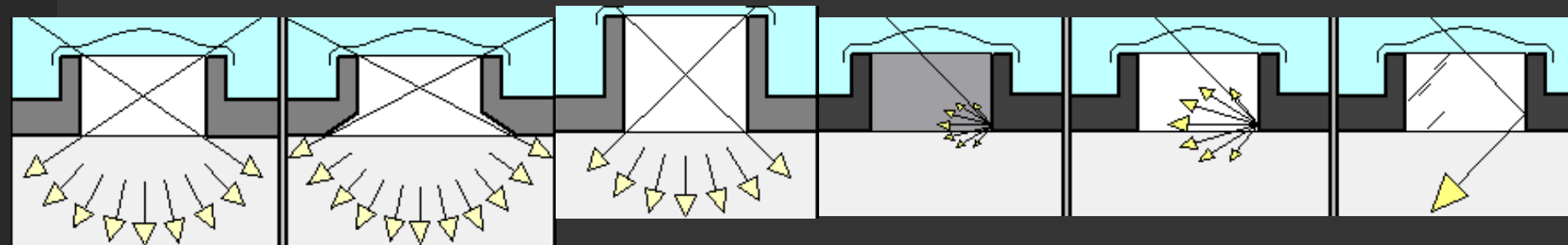
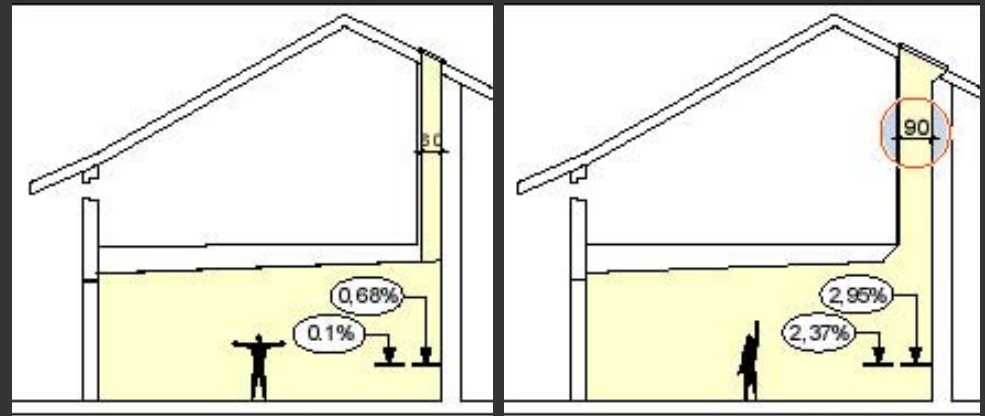
- Collection
- Transport



Daylight as a design factor

▶ Three aims when using natural light

- Collection
- Transport



Daylight as a design factor

▶ Three aims when using natural light

- Collection
- Transport



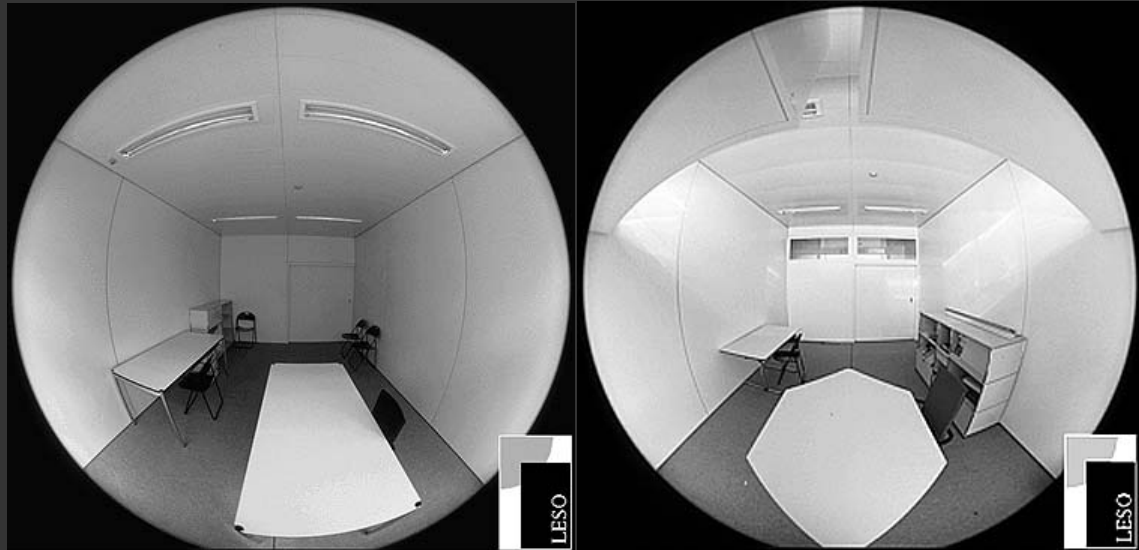
Daylight as a design factor

- ▶ Three aims when using natural light
 - Collection
 - Transport
 - Distribution

Daylight as a design factor

▶ Three aims when using natural light

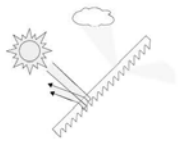
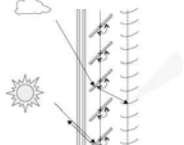
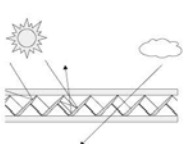

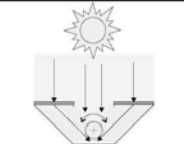
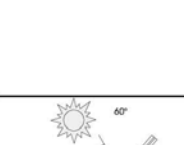
- Collection
- Transport
- Distribution



Advanced fenestration technologies

► Classification of CFS

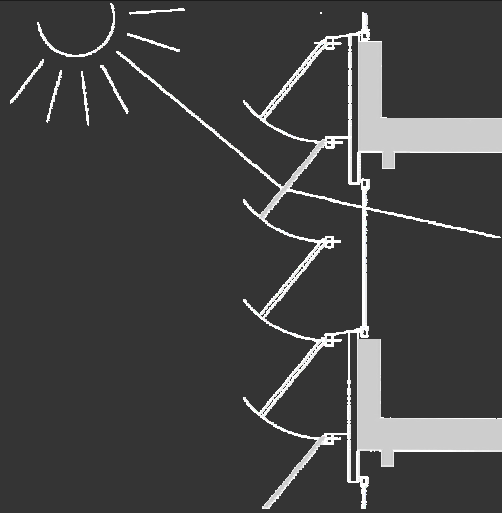
- with shading
 - diffuse daylight

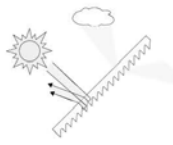
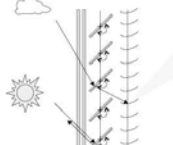
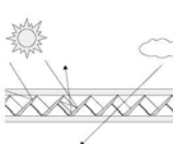

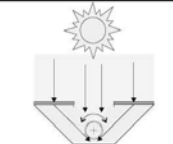
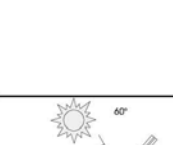
Prismatic panels (→ 4.5)		All climates	Vertical windows, skylights
Prisms and venetian blinds		Temperate climates	Vertical windows
Sun protecting mirror elements		Temperate climates	Skylights, glazed roofs
Anidolic zenithal opening (→ 4.12, 4.13)		Temperate climates	Skylights
Directional selective shading system with concentrating Holographic Optical Element (HOE) (→ 4.11)		All climates	Vertical windows, skylights, glazed roofs
Transparent shading system with HOE based on total reflection (→ 4.11)		Temperate climates	Vertical windows, skylights, glazed roofs

Advanced fenestration technologies

► Classification of CFS

- with shading
 - diffuse daylight

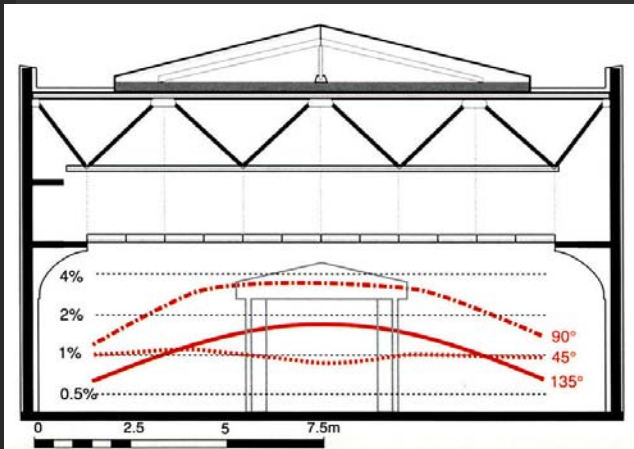


Prismatic panels (→ 4.5)		All climates	Vertical windows, skylights
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Transparent shading system with HOE based on total reflection (→ 4.11)		Temperate climates	Vertical windows, skylights, glazed roofs

Advanced fenestration technologies

► Classification of CFS

- with shading
 - direct sunlight



Light guiding shade (→ 4.7)		Hot climates, sunny skies	Vertical windows above eye height
Louvres and blinds (→ 4.4)		All climates	Vertical windows
Light shelf for redirection of sunlight (→ 4.3)		All climates	Vertical windows
Glazing with reflecting profiles (Okasolar)		Temperate climates	Vertical windows, skylights
Skylight with Laser Cut Panels (LCPs) (→ 4.7)		Hot climates, sunny skies, low latitudes	Skylights
Turnable lamellas		Temperate climates	Vertical windows, skylights
Anidolic solar blinds (→ 4.13)		All climates	Vertical Windows

Advanced fenestration technologies

► Classification of CFS

- with shading
 - direct sunlight

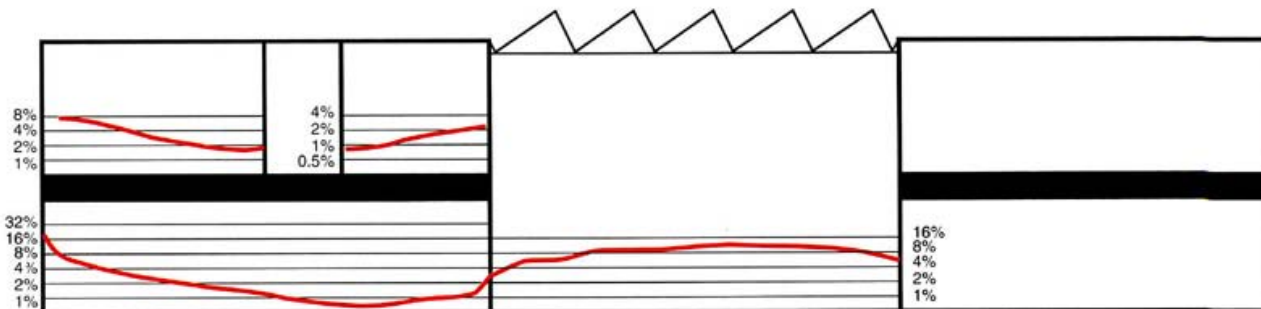
Light guiding shade (→ 4.7)		Hot climates, sunny skies	Vertical windows above eye height
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Anidolic solar blinds (→ 4.13)		All climates	Vertical Windows

Advanced fenestration technologies

► Classification of CFS

- with shading
 - direct sunlight


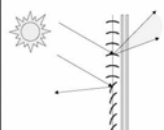
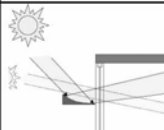
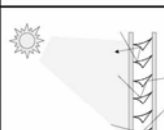
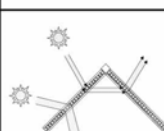
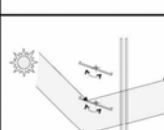
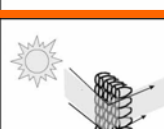
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Advanced fenestration technologies

► Classification of CFS

- with shading
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Anidolic solar blinds (→ 4.13)		All climates	Vertical Windows

Advanced fenestration technologies

► Classification of CFS

- without shading
 - diffuse light guiding systems

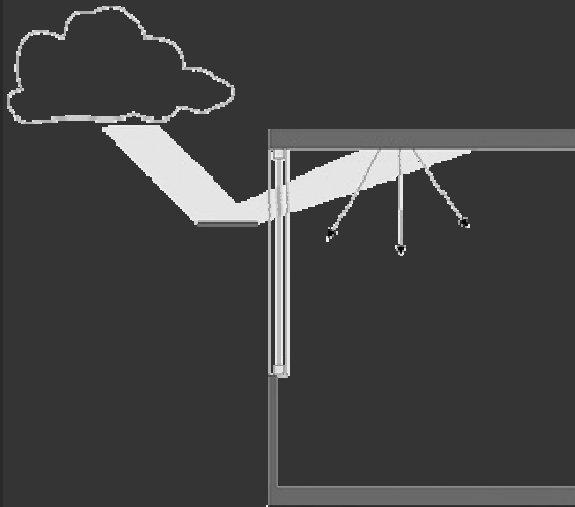
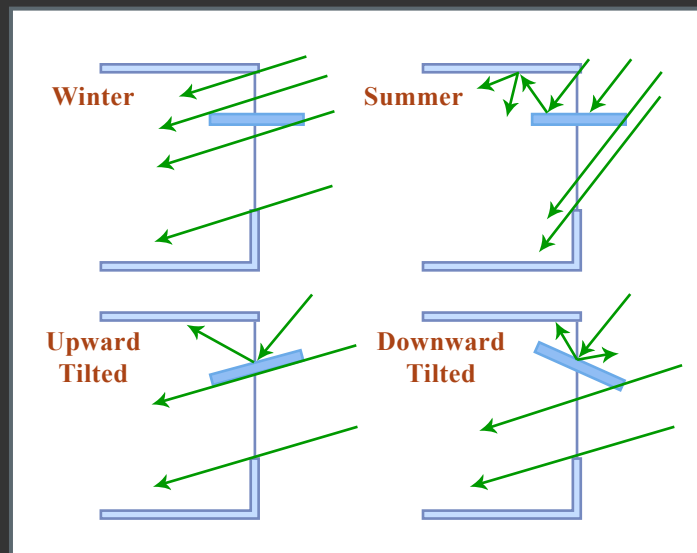


Figure by MIT OCW.


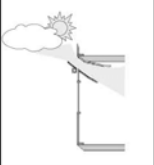

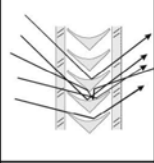

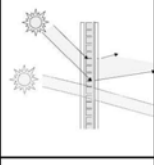
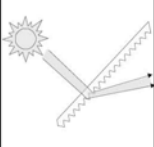


Light shelf (→ 4.3)		Temperate climates, cloudy skies	Vertical windows
Anidolic Integrated System (→ 4.12)		Temperate climates	Vertical windows
Anidolic ceiling (→ 4.12)		Temperate climates, cloudy skies	Vertical facade above viewing window
Fish System		Temperate climates	Vertical windows
Zenith light guiding elements with HOEs (→ 4.10)		Temperate climates, cloudy skies	Vertical windows (especially in courtyards, skylights)
Laser Cut Panel (→ 4.6)		All climates	Vertical windows, skylights
Prismatic panels (→ 4.5)		All climates	Vertical windows, skylights

Advanced fenestration technologies

► Classification of CFS

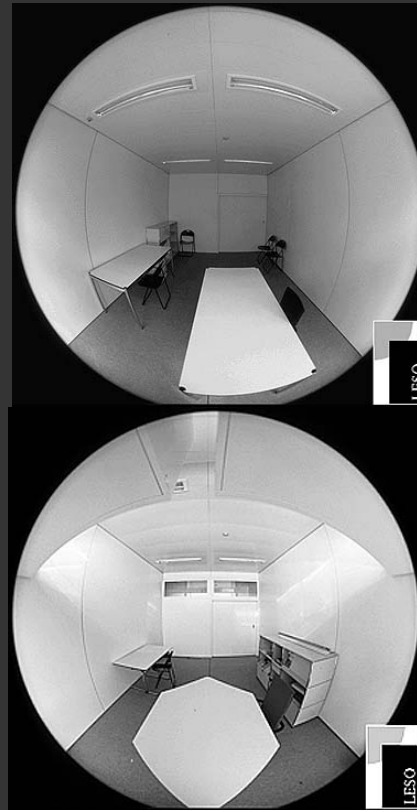
- without shading
 - diffuse light guiding

Light shelf (→ 4.3)		Temperate climates, cloudy skies	Vertical windows
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Advanced fenestration technologies

► Classification of CFS

- without shading
 - diffuse light guiding systems


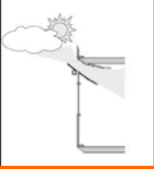

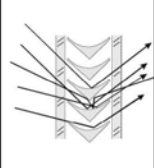

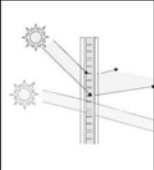
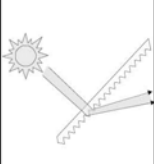


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Advanced fenestration technologies

► Classification of CFS

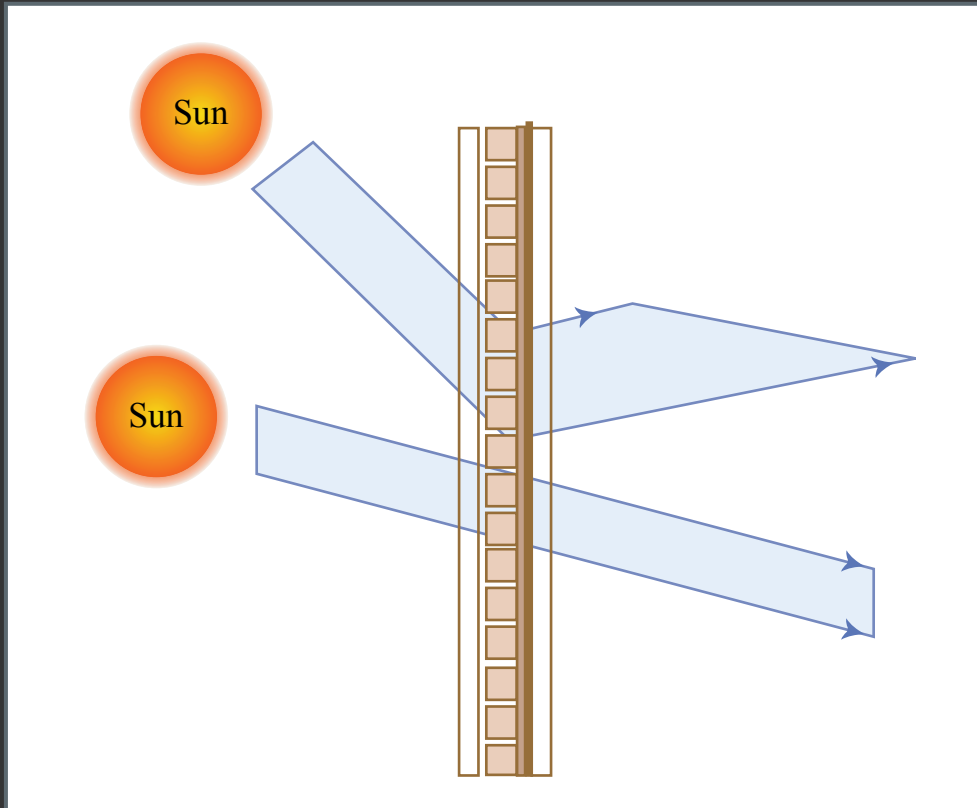
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Advanced fenestration technologies

► Classification of CFS

- without shading
 - diffuse light guiding systems

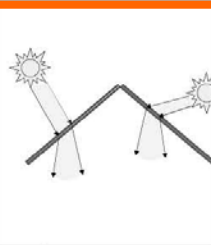
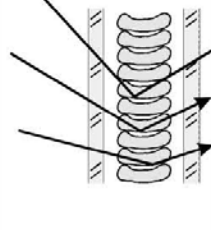
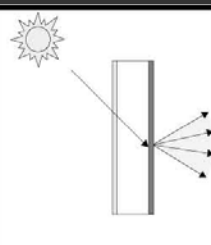


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Advanced fenestration technologies

► Classification of CFS

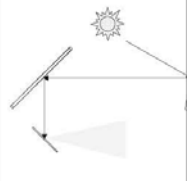
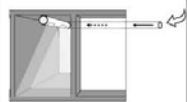

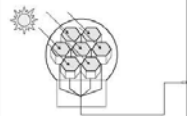
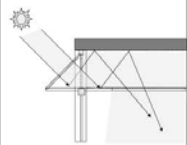
- without shading
 - direct light guiding systems
 - light scattering/diffusing systems

HOEs in the skylight		All climates	Skylights
Sun-directing glass (→ 4.9)		All climates	Vertical windows, skylights
		All climates	Vertical Windows, skylights

Advanced fenestration technologies

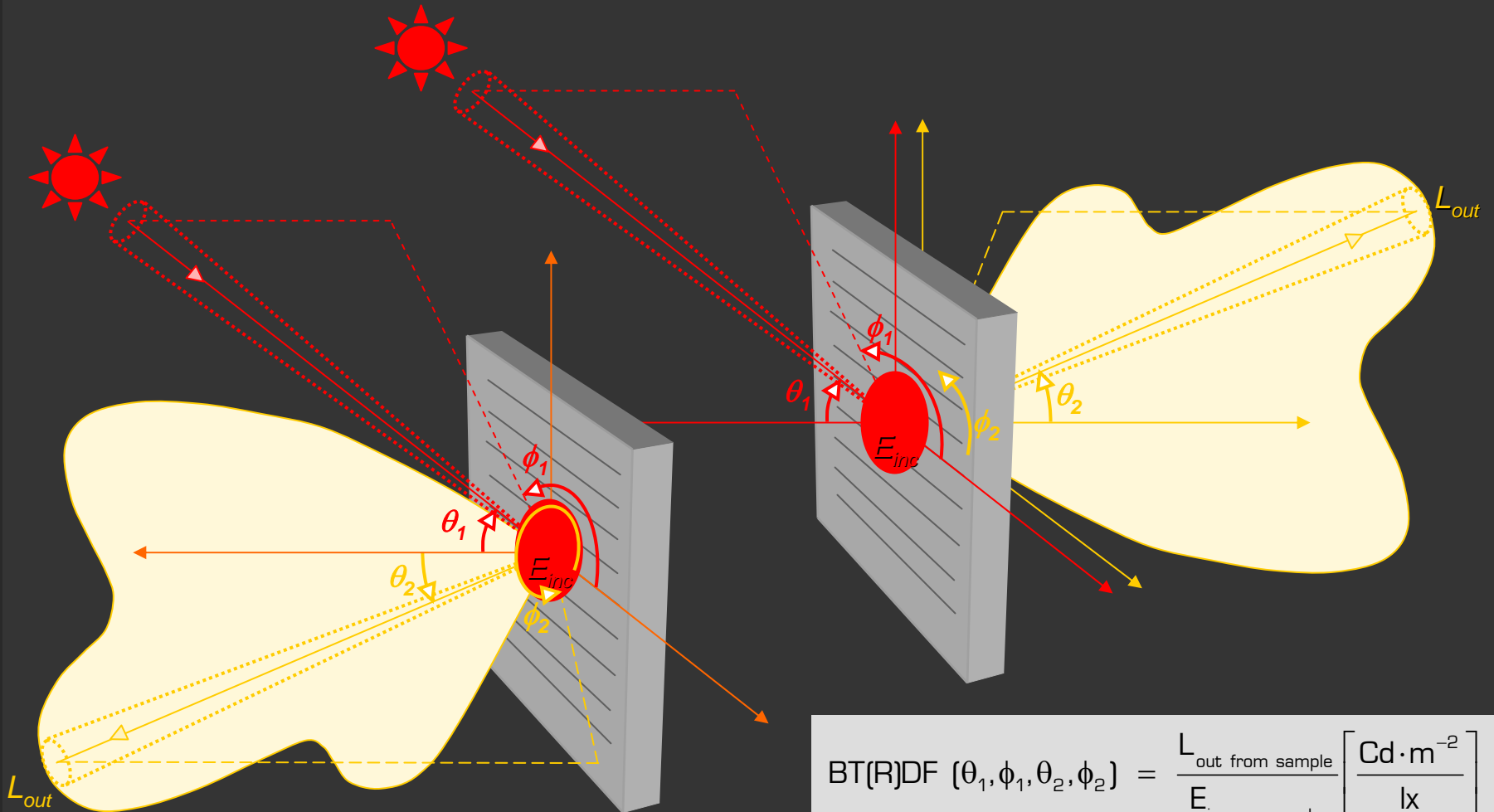
► Classification of CFS

- without shading
 - light transport systems

Heliostat		All climates, sunny skies	
Light Pipe		All climates, sunny skies	
Solar Tube		All climates, sunny skies	Roof
Fibres		All climates, sunny skies	
Light-guiding ceiling		Temperate climates, sunny skies	

Day/sunlight redirecting systems

► Bidirectional Transmission/Reflection Distribution Function



$$BT(R)DF (\theta_1, \phi_1, \theta_2, \phi_2) = \frac{L_{out \text{ from sample}}}{E_{inc \text{ on sample}}} \left[\frac{Cd \cdot m^{-2}}{lx} \right]$$