



Why have we gathered today?

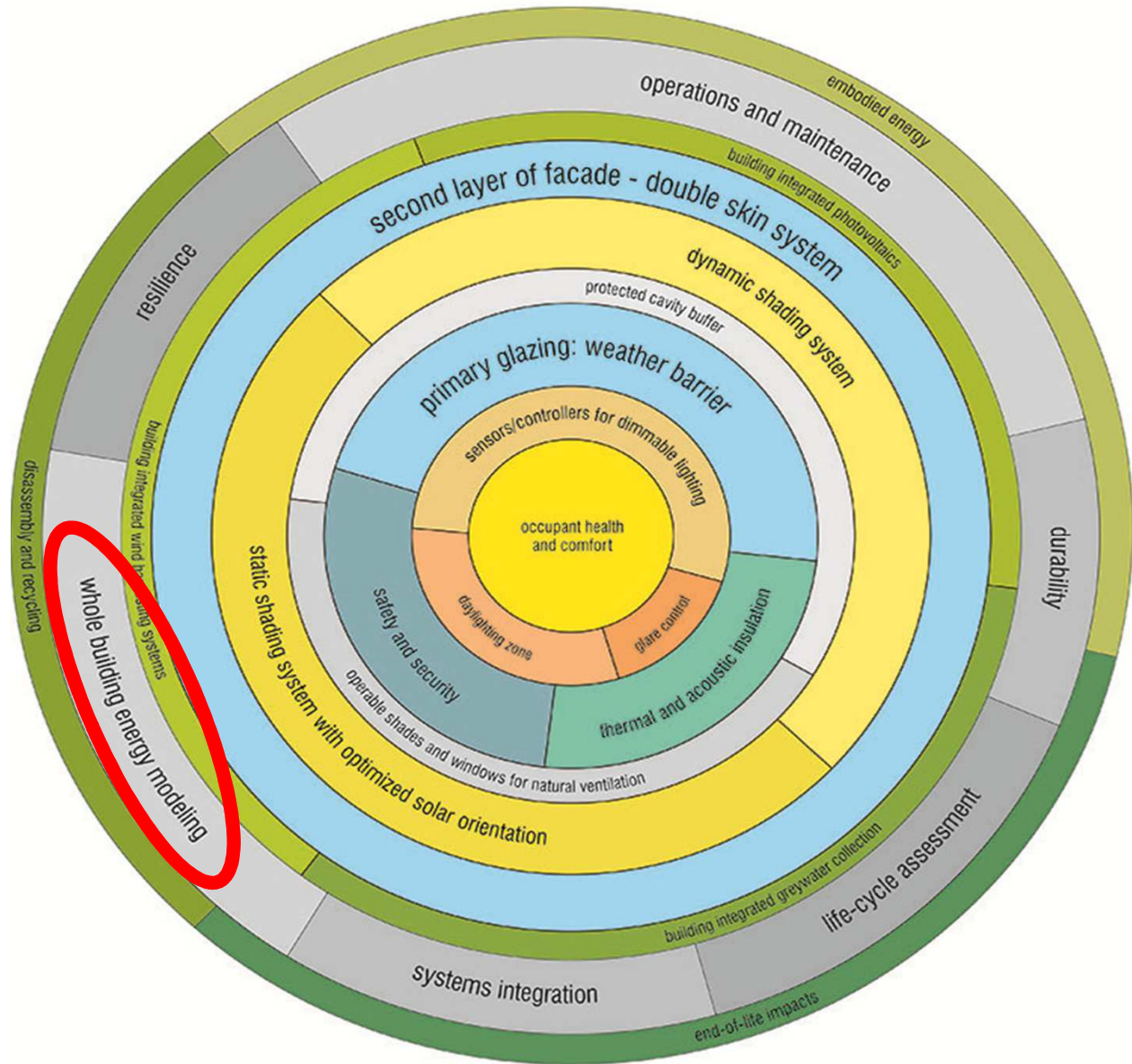
Prof. Dubravka Bjegović, PhD

Façade - definition

- The front of a building
- Any face of a building given special architectural treatment
- Any side of a building facing a public way or space and finished accordingly

- The building envelope has to provide the requirements of statics and stability, protection from the weather conditions, thermal insulation, noise, moisture and fire protection.

Façade tasks



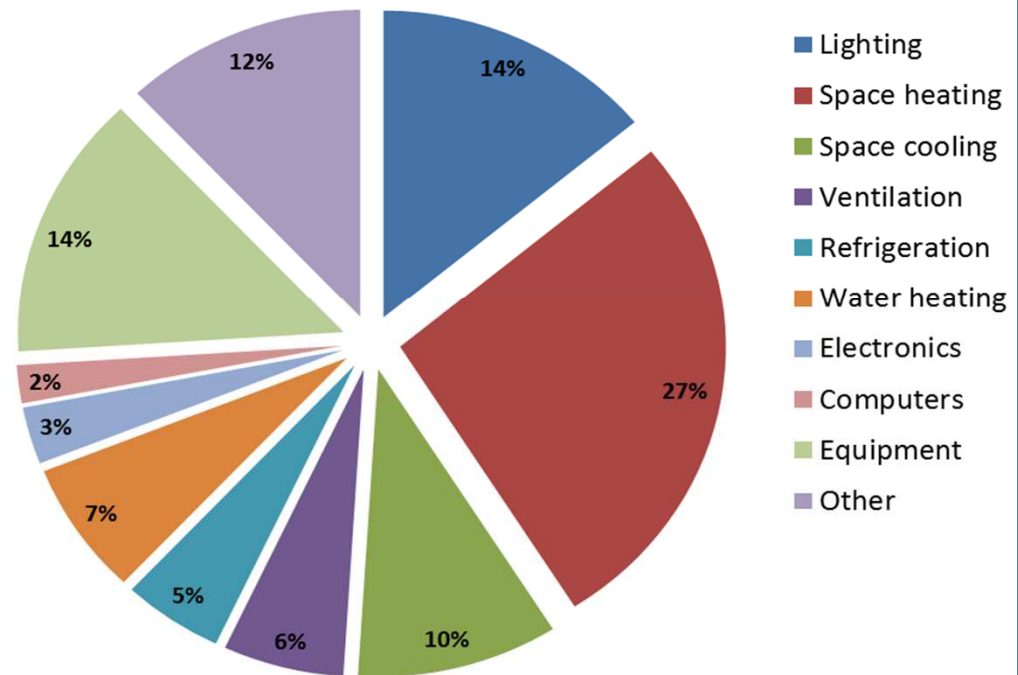
Energy consumption

- Today

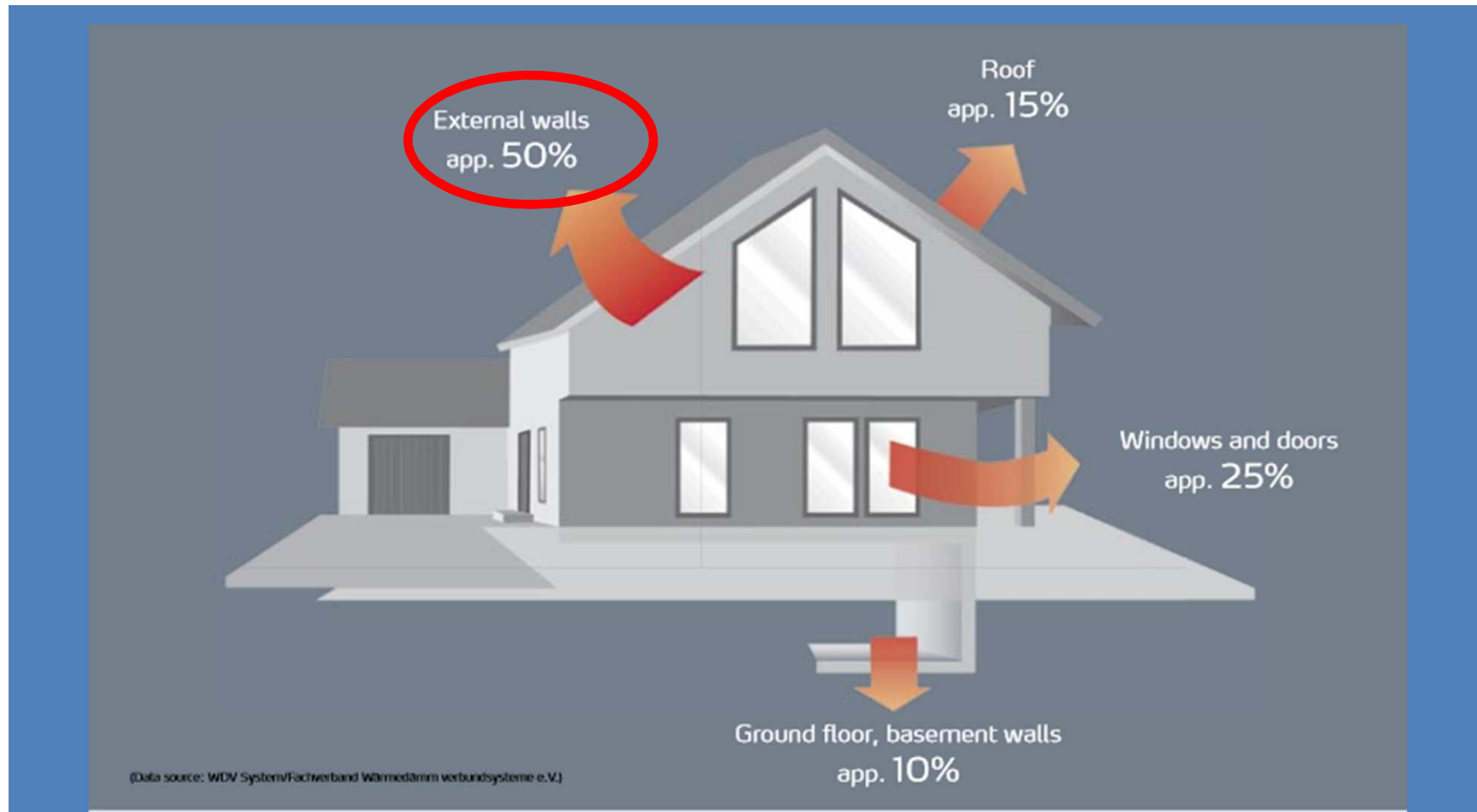


Buildings are responsible for the approximately 40% of the primary energy consumption in EU

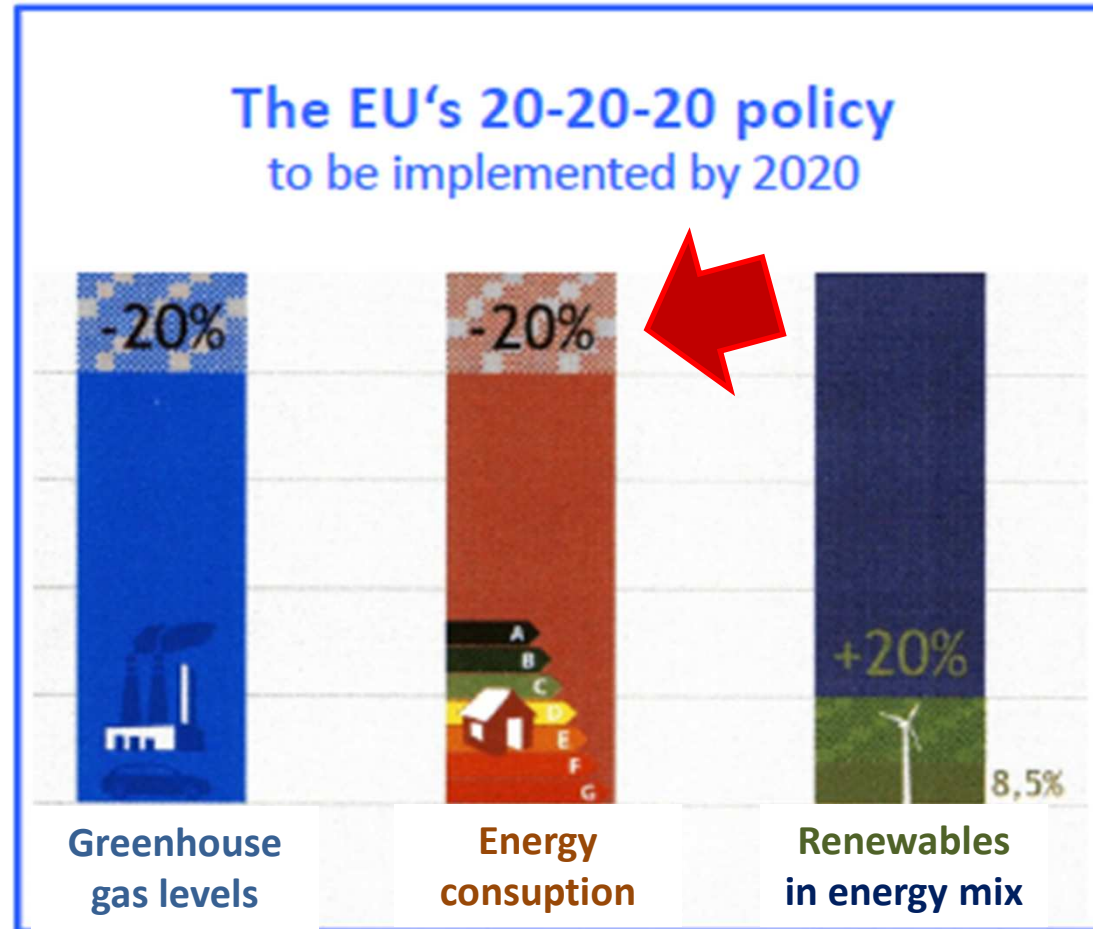
Figure: Energy use breakdown for commercial buildings (adapted from DOE, 2012)



Heat Loses



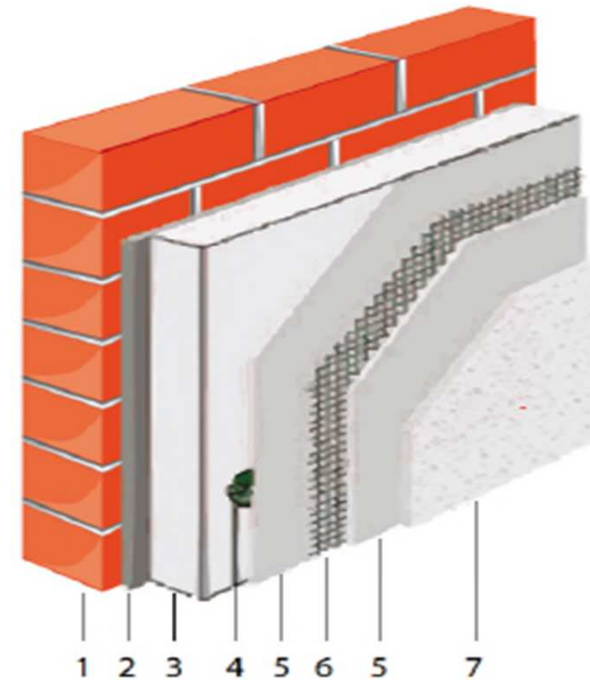
European political objectives for 2020



One of the solutions - ETICS

External Thermal Insulating Composite Systems

Used to improve the energy efficiency of both new and existing buildings



- | | | | |
|---|---------------------|---|------------|
| 1 | wall | 6 | fiber mesh |
| 2 | adhesive | 7 | render |
| 3 | insulation board | | |
| 4 | anchor | | |
| 5 | reinforcement layer | | |

Flash over



After 12 minutes



After 20 minutes



After 25 minutes

I. Kotthoff "Fire performance of external thermal insulation composite systems (ETICS) in buildings", 4th Global insulation conference, 2. – 3. 11.2009 in Prague

Façade in Fire

- destroy human lives
- cause severe property damage
- have negative impact on environment

Mermoz Tower, Roubaix, France, May 2012



Combustible insulation materials on façade in fire*

- Uncontrolled fire spread on the outside of the high rise building
- 7 people killed and 11 seriously injured
- more than 130 people were evacuated from the building

* SOURCE: LE MONITEUR, Incendie du foyer Adoma à Dijon: les experts ont rendu leur rapport
Jean-Charles du Bellay, expert auprès de l'Etat et FV |
17/02/2011 | 17:46 | Règles et normes

Dijon, France on 14 November 2010



Energy efficiency - a huge opportunity to improve fire safety

- Fires involving façades with combustible materials are low frequency events, however...
- the resulting consequences (extent of fire spread, injuries and fatalities) can be large as demonstrated by fire incidents

Fire safety goal for a building design...

...to restrict the vertical fire spread so that the smoke and flames are limited to the fire origin floor

Goals of Façade Fire Test

- To determine the effect of different ETICS on the fire safety level of the building
- To use fire engineering to improve existing fire testing methods
- To raise awareness among decision makers, expert and general public about the potential fire risk in buildings in EE renovations

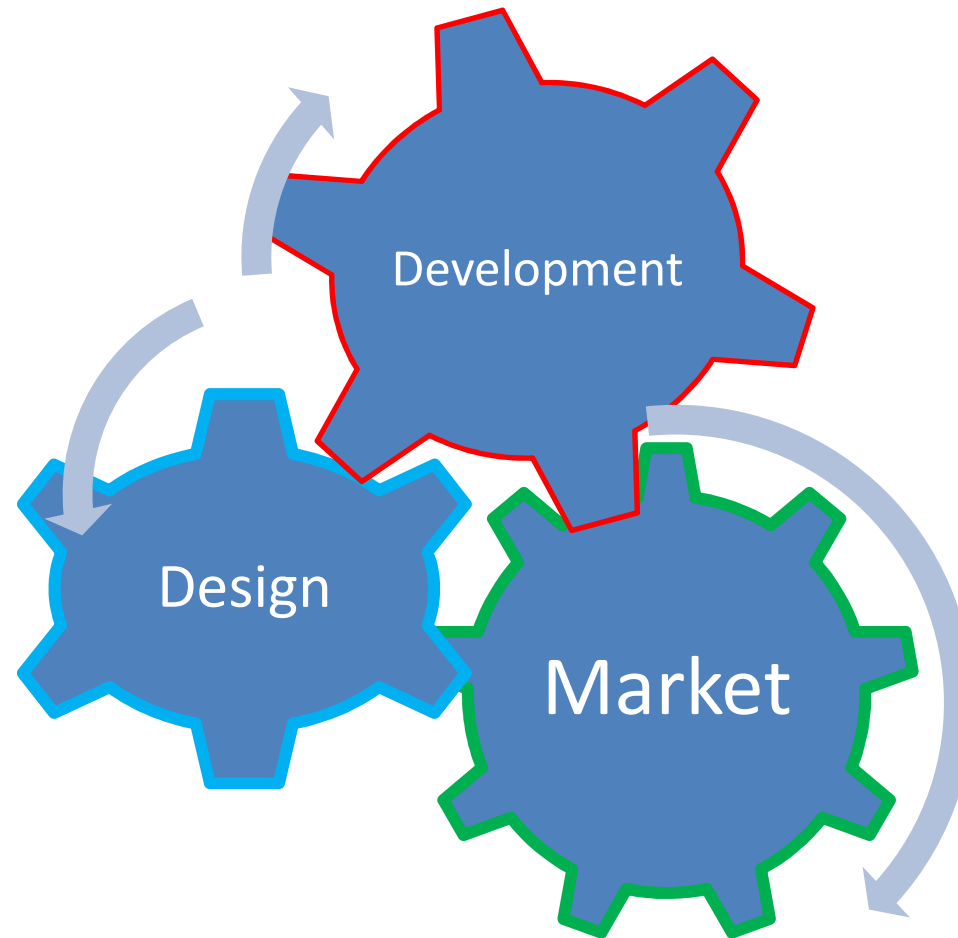
Cooperation of...

- Materials manufactures
- Construction companies
- Materials inventors
- Scientific institutions (universities, institutes, etc.)
- Political decision makers
- Final users



...is necessary

Facades need to reduce the fire risk



Thank you for your attention!