Towards climate-proof buildings: concrete solutions

Practical advice and examples

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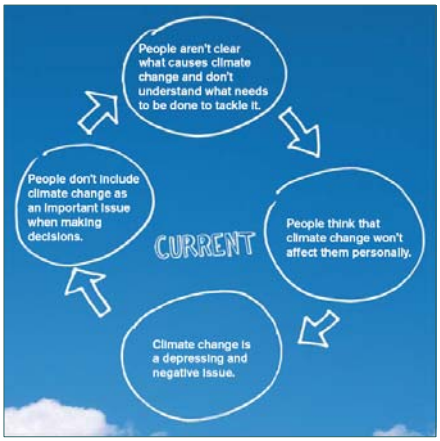
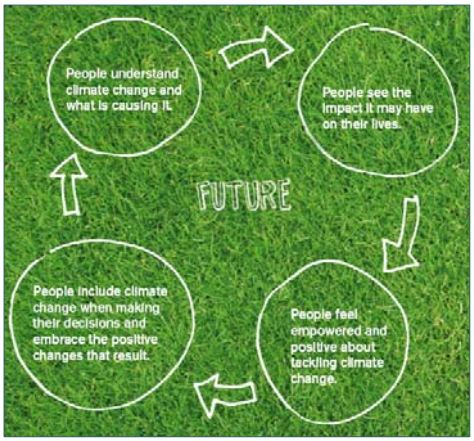
Introduction

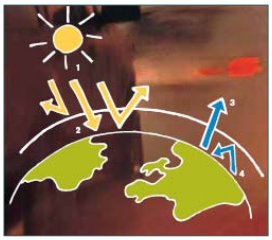




http://www.melstarrs.com/elemental/2006/10/02/its-not-what-you-say-its-how-you-say-it/

Climate change effects

- Increase in temperature
- Rise in sea level
- Effects on weather systems
- **DIFFICULT TO PREDICT!**



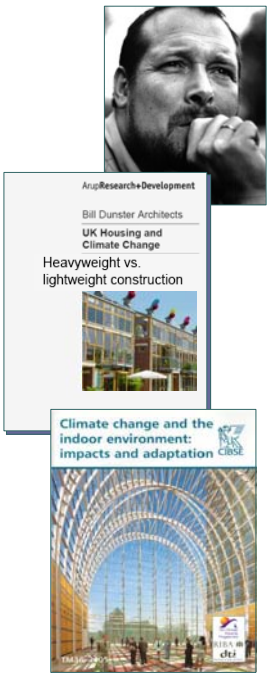
- **More wind**
- **More storms**
- **More local river flooding**
- **More coastal flooding**
- **More disruption…**

Images: DEFRA; Ilan Kelman, www.ilankelman.org

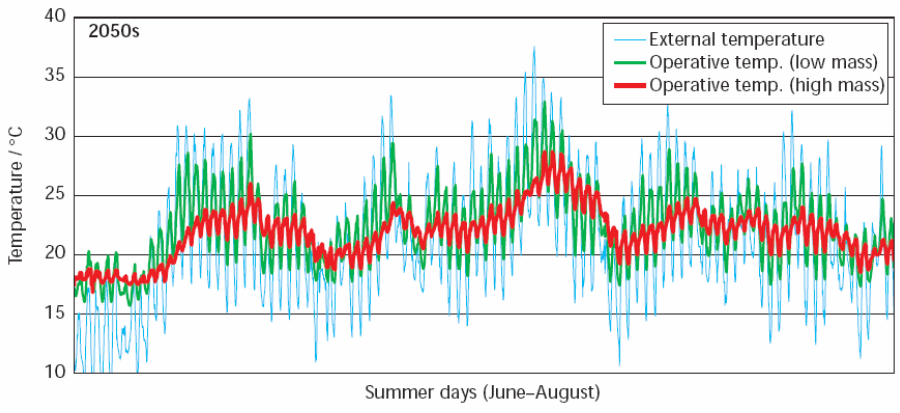
Research on buildings

- Arup R&D/Bill Dunster Architects (2005) UK housing and climate change report.

- Houses will need to include more mass to deal with higher summertime temperatures.
- Shading, mass and orientation will be much more critical.
- Low mass buildings will be uninhabitable.

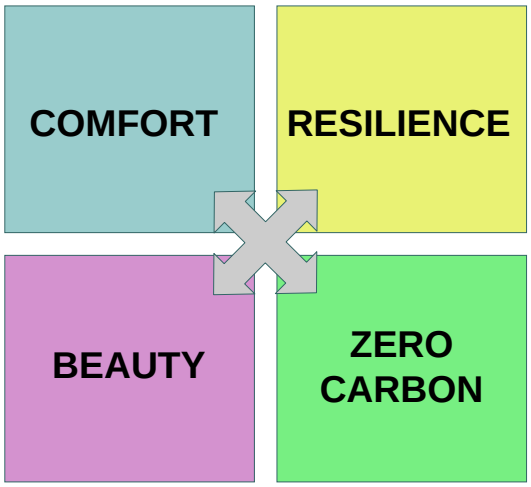


Room temperatures (Summer 2050)



Graph courtesy of The Concrete Centre, based on Arup/CIBSE research.

What can we do? A new menu for buildings…



Concrete solutions

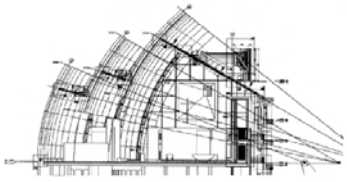
- Long-lasting
- Durable
- Resistant to attack
- Attractive finishes
- Assured quality
- Thermal mass
- Towards zero carbon

Images: www.sioux.com; Aggregate Industries.

BedZED, Surrey, UK.

Images:www.bedzed.org.uk and www.zedfactory.com

Chiesa *Dives in Misericordia*, Rome



Images: www.italcimentigroup.com; www.erco.com; www.sudferro.it

Health & Safety Executive, Bootle, UK.

Images: Dr Robby Soetanto.

Conclusions

- Climate change is a difficult problem – effects could be many and varied.
- Precast concrete can be used for future-proof buildings.
- “Bounce-back-ability”
- We must design in beauty, comfort, resilience and energy efficiency. Let us develop positive solutions to the effects of climate change.
- There are examples now and many more to come!

Thank you

For your time and attention

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Image: Peter Cooper, via Flickr.com