



# CONSTRUCTION WORKING GROUP UPDATE

MATERIALS COMMUNITY MEETING – 25 Jan 07

Dr Philip Ramsey – VP Technology, Pilkington

## Construction Working Group Update

Construction Working Group started in Sep 2006

2 steering committee meetings held (29<sup>th</sup> Sep, 12<sup>th</sup> Jan)

Drafting Terms of Reference

Agreed to follow Energy WG's approach

*Objective: Develop a Strategic Research Agenda and Deployment Plan for the UK Materials supply chain in the Construction Sector over a 5, 10 & 20 year horizon.*

*Define key materials research and development needs*

*Task Groups: Housing, Commercial Buildings, Infrastructure  
Develop an R&D roadmap for Construction Materials covering:  
Status/value, SWOT, Drivers, R&D needs, Barriers, Recommend<sup>n</sup>s*

## Construction Working Group – Steering Committee

### Membership of Steering Committee:

Phil Ramsey	Pilkington	Glass (chair)
Tim Broyd	ex CIRIA now Halcro	Research
John Brumwell		DTI
Graham Couchman		BRE
John Davenport	TWI	Composites
Cliff Fudge	H+H Celcon	Concrete
Denzil Spencer	lbstock	Ceramics
John Tebbit		CPA (sec)
Roy Wakeman		Timber
<i>Corus member now left</i>		Metals

Other potential members: Plastics, Designers, Insulation, C-Trust,  
Large Contractors, CIBSE, Universities, DEFRA, RDAs, etc

*Suggestions and volunteers welcome !*

Working Groups and Town Meetings will ensure much wider involvement

## Construction WG – Not “Starting from Scratch”

*For example: Materials IGT Workshop, May 06*

*Tech Strategy for Built Environment – May 05*

### Drivers:

- Sustainability (in all its guises)
- Security, terrorism, vandalism
- Robustness to changing climate
- Self-maintaining / healing, self-diagnosis
- Health – germs, comfort, entertainment
- Safety (during construction and use, eg fire resistance)
- Off-site construction
- IT – communication, smart appliances

### Barriers to Innovation:

- Client Behaviour
  - Purchase bespoke solutions
  - Not aware of available innovations
  - Risk averse
  - Capital cost, not whole life cost
- Gov responsibility for policy split over several departments / agencies
- Adversarial & fragmented supply chain
- Difficult to protect innovation (?)
- So, innovation tends only to occur to:
  - Solve specific problems
  - Make a statement
  - Meet new regulations

***What about materials-related issues?***

## An Example from the Glass Industry

### Reduced energy loss through windows

U-values ( $W/m^2K$ ):

Single Glazing 5.4

Double Glazing (IGU) 2.8

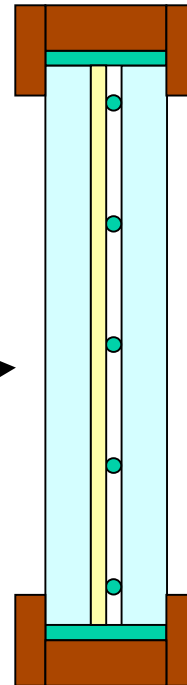
IGU with Low-E and Ar 1.1

Triple Glazing with Low-E and Ar 0.8

Vacuum Glazing 0.3-0.4

Also need to include solar heat gain

Same basic points for other leading edge window technologies:  
eg Switchable, Self-Cleaning, etc.  
And probably in the rest of the industry



### All about Materials Issues

- Spacer material
- Surface condition
- Low-E coating
- Sealing
- Framing

Numerous process issues

- Not the glass
- The additional materials
- Hybrid systems
- Joining technologies