

# CWCT 2021 AGM and Members Meeting Sustainability update



## **Sustainability Update**

Agenda

Introduction
John Downes

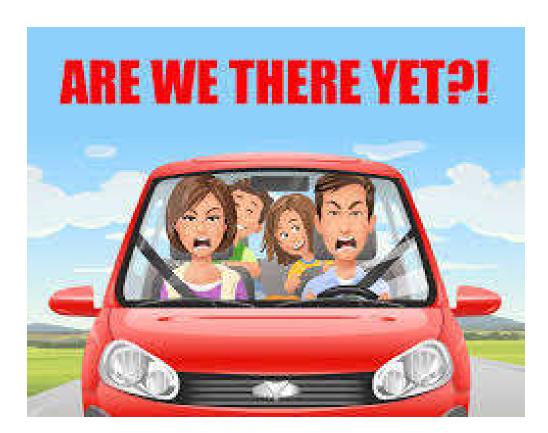
Methodology update
Anna Wendt, Teni Ladipo

Future Work
Will Wild

Summary and round up John Downes



- We have had 1 year since legislation has been introduced.
- What have we done collectively?
- As an Industry what have we produced?
- ▶ Am I being too hard on everyone?





- ▶ The CWCT has formed a sustainability committee
  - John Downes
  - Ed Forwood
  - Damian Rogan
  - Leandro Heine
  - ▶ Henk De Bleecker
  - Mark Foster
  - Gary Ledger
  - David Metcalfe



- Education and Information Papers
- What does 'Future Work' look like?
- Produced CWCT 1<sup>st</sup> sustainability paper – Sustainability Guide 01.
- Formed a workstream group on carbon calculation methodology
- Secondment Resource Strategy



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  - John Downes
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Sustainability Guide 01

An Introduction to Sustainability in Façades



#### 1.0 Introduction

The Brundtland Commission<sup>[1]</sup> defined sustainable development as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs'.

Sustainability is a broad topic encompassing environmental issues such as greenhouse gas emissions, the use of water and other resources, the treatment of waste and many other social and economic factors.





Carbon Calculation Methodology update

**Anna Wendt** 

John Downes Slide 6



# SUB-COMMITTEE EMBODIED CARBON CALCULATION METHODOLOGY



Anusha Badrinarayanan, Sustainability Engineer, Lendlease



Anna Wendt, Partner, Global Director Facades Buro Happold



Duncan Cox, Senior Associate, Sustainability Thornton Tomasetti



Gianluca Rapone, Associate Sustainability Lead FMDC



Medha Gayathri Nilayamgode Sustainability, Wintech

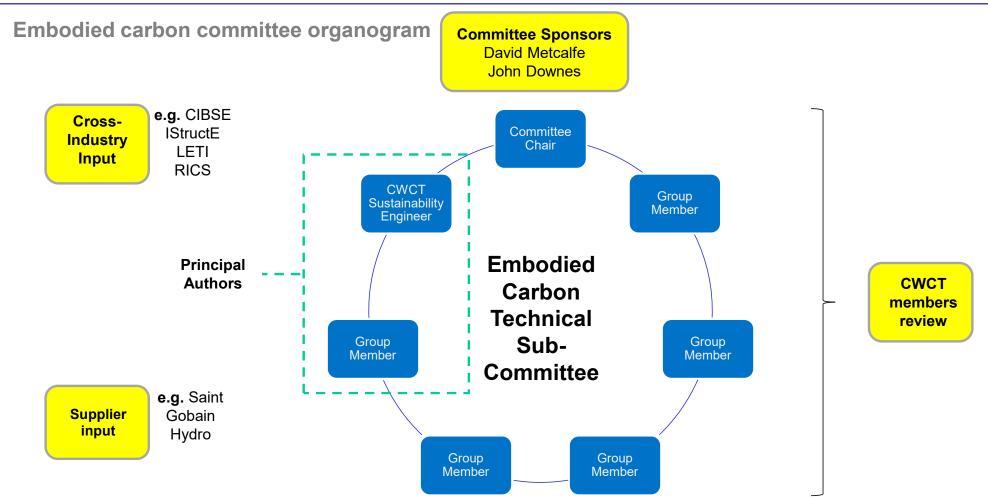


Teni Ladipo, Senior Facade Consultant Buro Happold



Will Wild, Senior Facade Engineer, Arup





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Mission: To develop an industry wide standardised approach for calculating embodied carbon in façade systems

#### What is key?

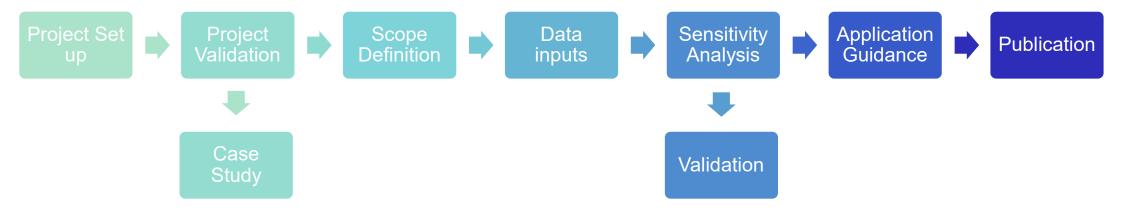
- Consistency of approach
- Pace of development
- Accessibility to calculation



CWCT AGM 2021 - Anna Wendt



#### **Approach and Draft Roadmap**







Case study feedback

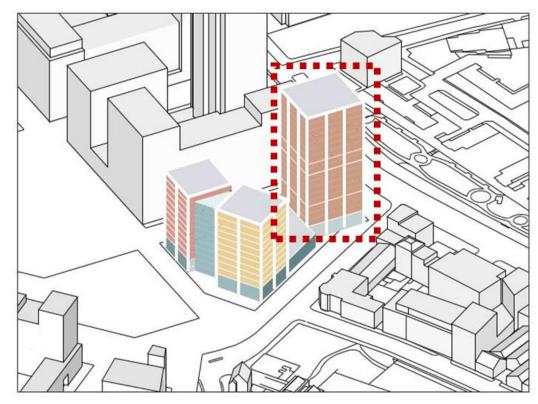
Teni Ladipo

CWCT AGM 2021 - Anna Wendt Slide 5



## **Embodied Carbon Case Study**

- First sub-committee task: for a case study building in London, calculate the embodied carbon of the facade for all life cycle stages
  - Product stage (A1 A3)
  - Construction process stage (A4 A5)
  - Use stage (B1 B7)
  - End of life stage (C1 C4)
  - Benefits and loads beyond the system boundary (D)

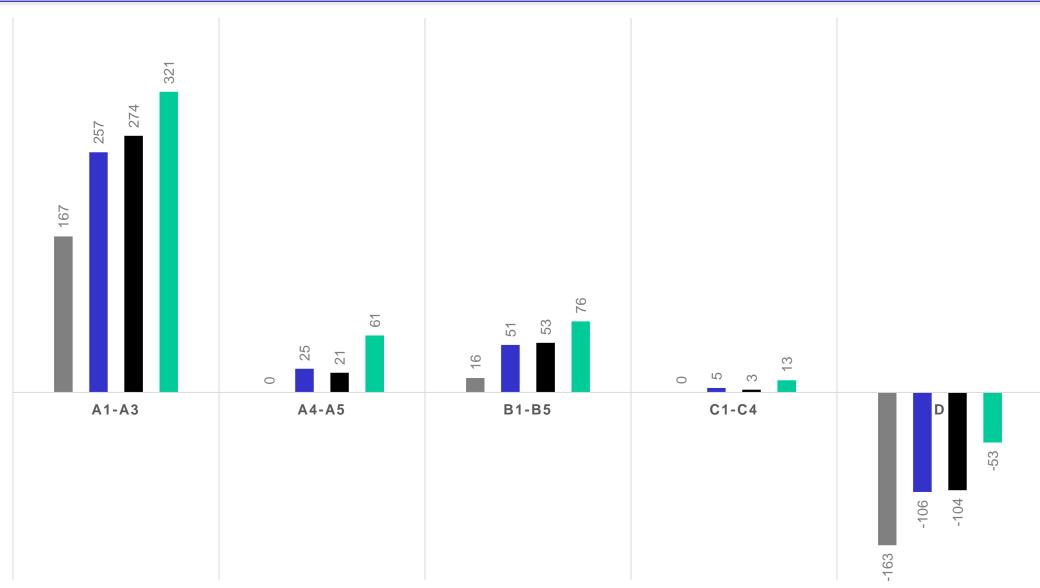


Concept Sketch demarcating residential tower

#### KGCO2E/M2 FACADE BAY SURFACE AREA

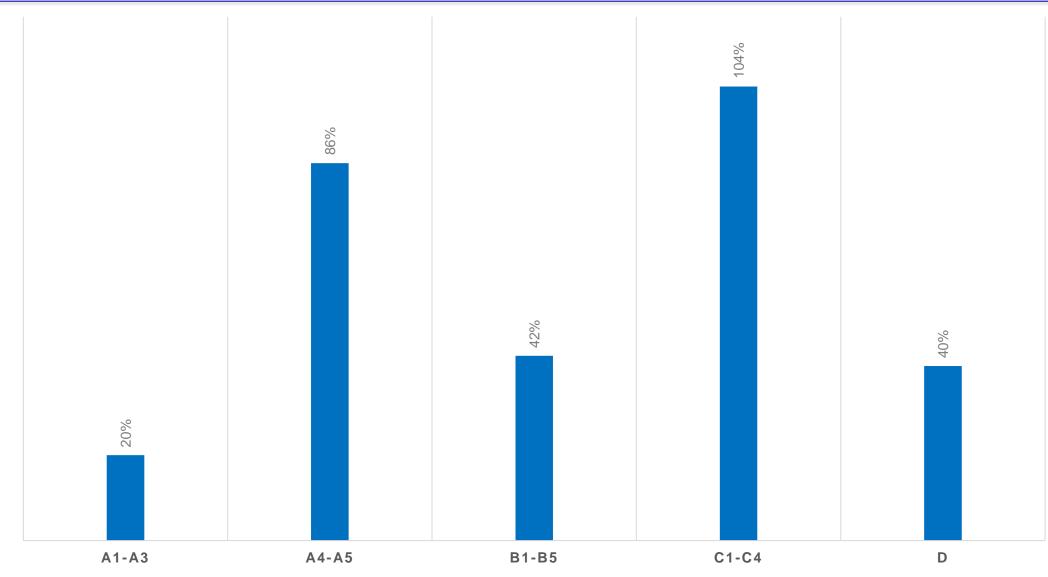


■Lowest ■Mean ■Median ■Highest



#### VARIATION (COV) BY LIFECYCLE STAGE







## Typical Components vs

(considered by everyone)

**Mullions** 

**Transoms** 

**Curtain wall projections (fins/caps)** 

**Glazing systems** 

**Spandrels / opaque infill panels** 

Rainscreen cladding panels

Insulation

## **Non-Typical Components**

(not considered by everyone)

Fire stopping

**Cavity barriers** 

**Bracketry** 

**Sealants** 

**Membranes** 

**Gaskets** 

**Spacers** 

**Thermal breaks** 



### Common data sources

**ICE Database** 

**Manufacturer EPDs** 

**Consultant calculated values** 



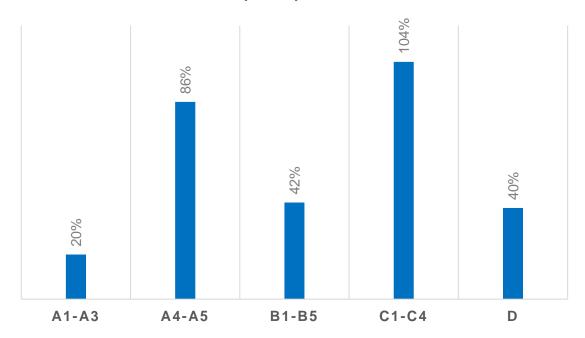
# Some key initial conclusions

- 1. Agreement required for essential facade components in calculations
  - 2. Consistent method and assumption process required
- 3. Guidance required on how to derive and apply embodied carbon data
- 4. Significance of developing A4-D methodology stages must not be overlook



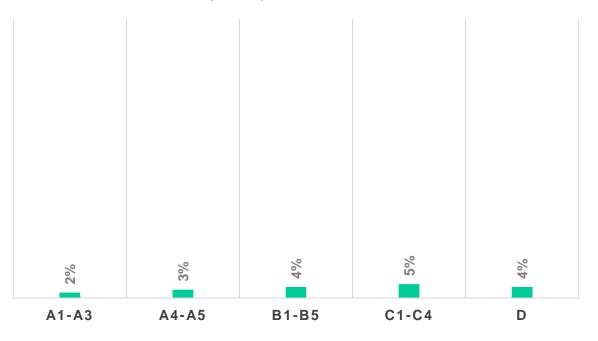
# Next steps...

#### VARIATION (COV) BY LIFECYCLE STAGE



Results pre-methodology

#### VARIATION (COV) BY LIFECYCLE STAGE



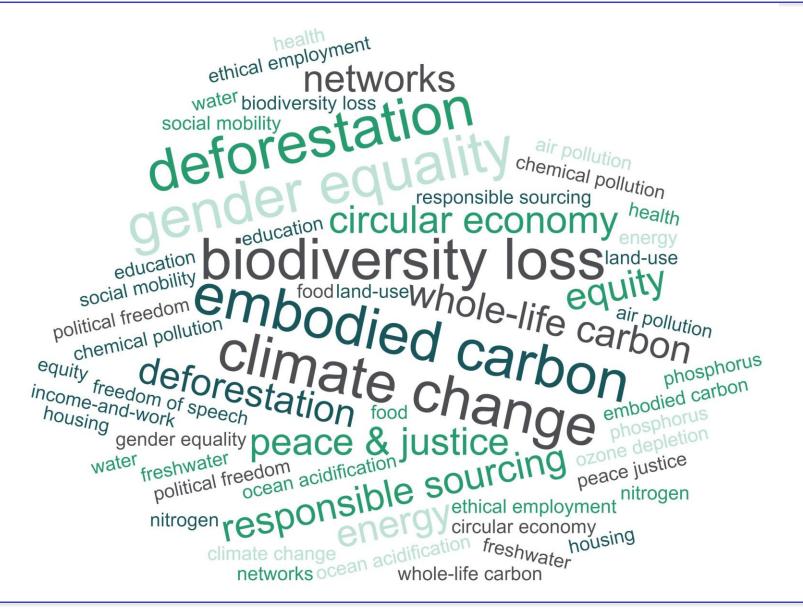
**Aspirational results post-methodology** 





Will Wild

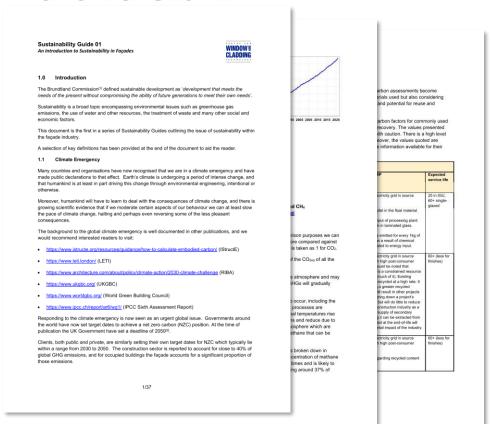




Will Wild Slide 2



#### Where to start?



SG01: Sustainability primer (37 pages)

Sustainability Climate jargon buster ator is GWP and unit of cation, stratospheric Climate jargon buster BS EN 15804. Meeting the demands of the climate emergency requires all parties within the façade industry to be able to communicate on the topic. To this end this article provides simple explanations of common sustainability terms and phrases. Where appropriate the source of definitions have been referenced questration into biomass as f the building exposed to Are we missing a term? Do you disagree with our definitions? Please let us know at n geological and/or fossilized ct or system for use as a Concepts tween similar products The building performance gap measurement of the Global able 2 of BS EN 15978. Note The building performance gap refers to the disparity between the predicted energy consumption of buildings and their actual energy use. The causes of the disparity are understood to result from pact of a development uncertainties in the environmental conditions, workmanship and occupant behaviour. Narrowing the gap is required to enable Designers to make meaningful comparisons between the embodied and operational carbon impacts of design decisions. lifetime of a here than it releases - for here are three Carbon capture and storage (CCS) s on individual fuels or volcanic eruptions), (11) form, mass etc) and Carbon capture and storage (CCS) is the process of capturing the CO2 arising from fossil fuel uildings (structural frame combustion or industrial processes, transporting it to a storage site and storing it where it will not enter essments, such as the atmosphere. (1) s well as its impact or ned by the UK Green Building Circular economy e a built asset, this includes A circular economy is a systemic approach to economic development designed to benefit businesses tion and assembly of every society, and the environment. In contrast to the 'take-make-waste' linear model, a circular economy is replacement, deconstruction BS EN 15978. The regenerative by design and aims to gradually decouple growth from the consumption of finite e embodied carbon refers strictly Declared unit refers to the unit of quantity of a construction product (e.g. kg, m2 or m3) for use as a consumed in a building. It Refer to BS EN 15804 Section 6.3.3 (3). and equipment e.g. kitchen y consumed per unit (i.e. Design for adaptability rnal Area) or NLA (Net Lettable Design for adaptability refers to designing to support the continued use of a building by allowing for and accommodating potential future adaptations. (1) ne emissions of 1 ton of a gas ton of carbon dioxide (CO2). The Design for Deconstruction (AKA design for disassembly) refers to the design decisions that increase was developed to allow the quality and quantity of materials that can be reused at the end of a building's life. (1) Environmental impact categories There are 15 environmental impact categories defined in BS EN 15804. Each of these has an d with global warming and associated environmental indicator and unit of measurement. Much of the discussion about ontribute to a rise in overall consideration in to Protocol as being responsible ine (CH4), nitrous oxide (N2O), xafluoride (SF6).

Climate jargon buster (12 pages)

Will Wild Slide 3



## **Future topics**

- Balancing embodied and operational carbon
- Embodied carbon methodology
- Benchmarking embodied carbon
- Guide to EPDs
- Carbon offsetting
- Design for disassembly
- Guide to low-carbon material specification
- Climate resilience
- Material passports
- Facades and the circular economy
- Guide to climate retrofit and refurbishment













Missing something? Please let us know at <a href="mailto:sustainability@cwct.co.uk">sustainability@cwct.co.uk</a>

Will Wild



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