Crown Buildings

WLGA Decarbonisation Masterclass

Whole Team approach

BEST PRACTICE THROUGH CONTINUOUS IMPROVEMENT

Wrexham and Read have delivered a string of successful projects. Long term relationships are the foundation of collaborative working that drives innovation and best practice.

LOCAL

Local D&B Contractor working with WCBC 15+ years

EXPERIENCE

Shared experiences & Learning

NET ZERO

Net Zero 2030 Commitment

NET ZERO

Net Zero operational delivery

COLLABORATIVE

Whole team effort

Why Crown?

- NOT NET ZERO?!

- New build rivalling operational emissions
- Maximising existing assets
- 2-stage Collaborative selection
- Experience, appetite, collaboration
- Fabric First Passive design
- Embodied carbon considerations

Read
wrexham county borough council cyngor bwrdeistref sirol wrecsam
AG AINSLEY GOMMON ARCHITECTS
SPP Consultants for the built environment
DAVIESPARTNERSHIP ENERGISING ENVIRONMENTS
DESIGN IN SAFETY
Caulmert engineering environmental planning

Why Crown?

Carbon reduction potential

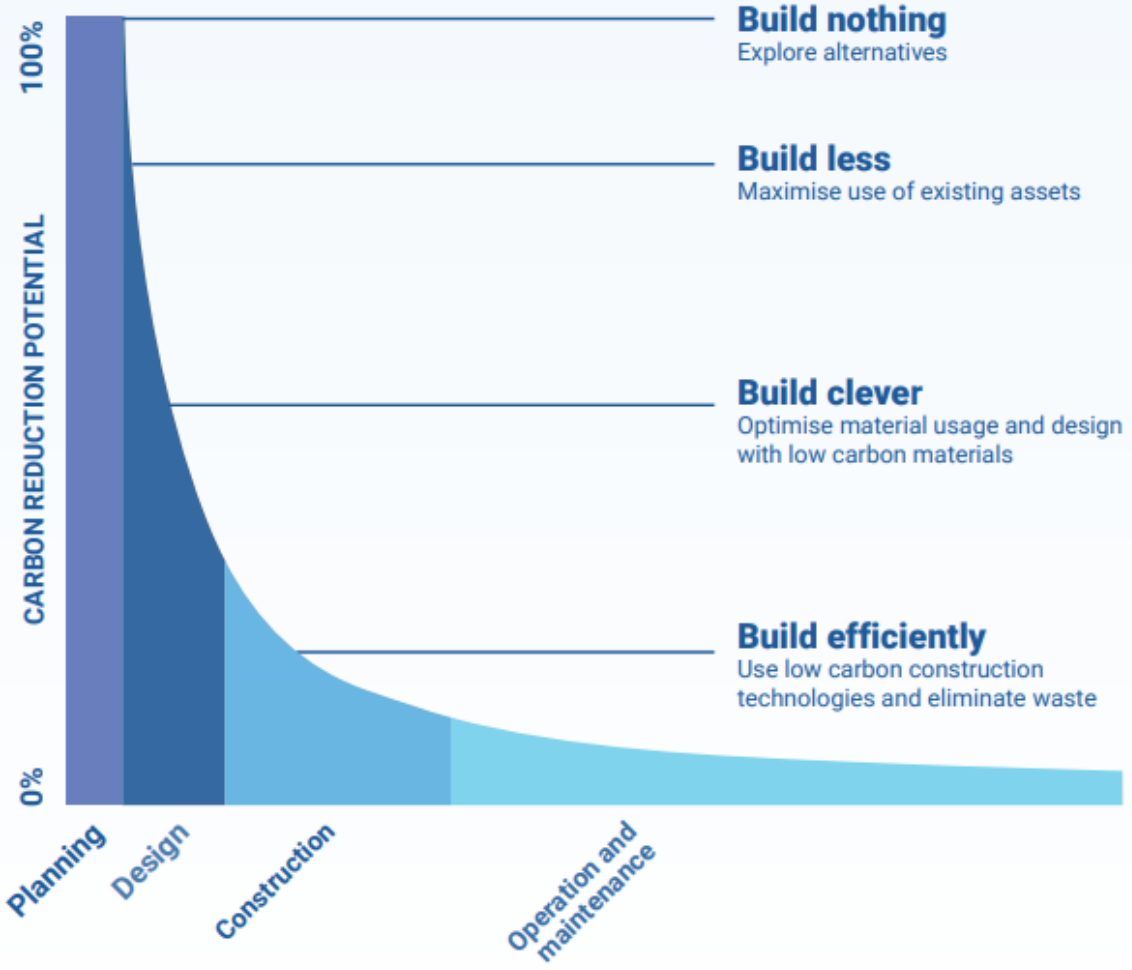
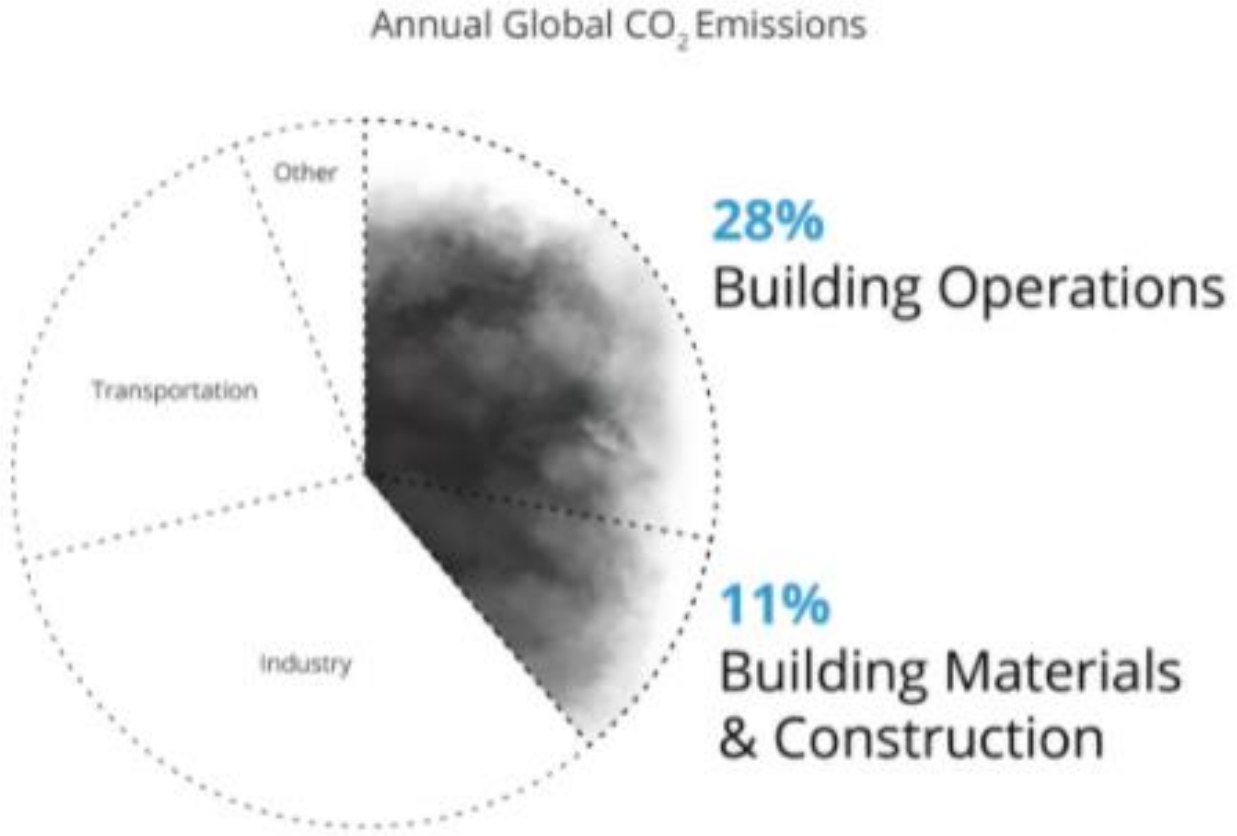


Figure 4: Opportunities to reduce embodied carbon from stage of design process.
Source: HM Treasury: Infrastructure Carbon Review, 2013

Carbon – The Big Picture



Data Sources: Global ABC Global Status Report 2018, EIA

The Importance of Refurbishment

Savings Through Refurbishment

‘Cost’ of demolition:

- 2,000m3 Concrete Waste
- 3,500kgCO2 from demolition
- 4,350kgCO2 from recycling
- 350 HGV journeys
- 37,700kgCO2 travel carbon

Replacement Frame:

- Concrete = 590T CO2
- Steel = 300T CO2

Crown Success

- 3 weeks ahead of programme
- £225k under contract sum
- £5.4m total construction cost

- Joint VE saved £250k on cladding
- Agreed solution
  - Lightweight
  - Long life
  - Maintenance free

Operational Efficiency

- Existing building D rated EPC = 276T carbon emissions / year
- Completed project A rated = 60T carbon emissions / year
- Energy demand down to 114kWh/m2/year from 210kWh/m2/year
- New build equivalent U-Values 0.18 roof and walls
- New build beating air tightness of 2.66m3/h.m2@50 pascals

Design Vs Reality

- Evaluation of in-use performance is key
- Post Occupancy Evaluation required:
  - Ensure building used as designed
  - Account for operational changes
  - Account for changing ways of working
  - Furnishes with data for future projects

Conclusion

- Crown = Success
- Refurbishment = sound environmental option overall
- Compensation required across the estate
- Design new build for over-generation