COLLABORATIONS FOR CHANGE

Global Goals for Tomorrow's Education, Today

19TH ~ 21ST JUNE 2018 KEELE UNIVERSITY

Embedding sustainability across a total project portfolio

Headline Sponsor

CarbonCredentials

The team and our role

Director Safety & Sustainability

Richard Jackson

Built Environment

Ben Stubbs

Energy and Carbon Management

Ciaran Jebb

Joanna Marshall-Cook

Labs

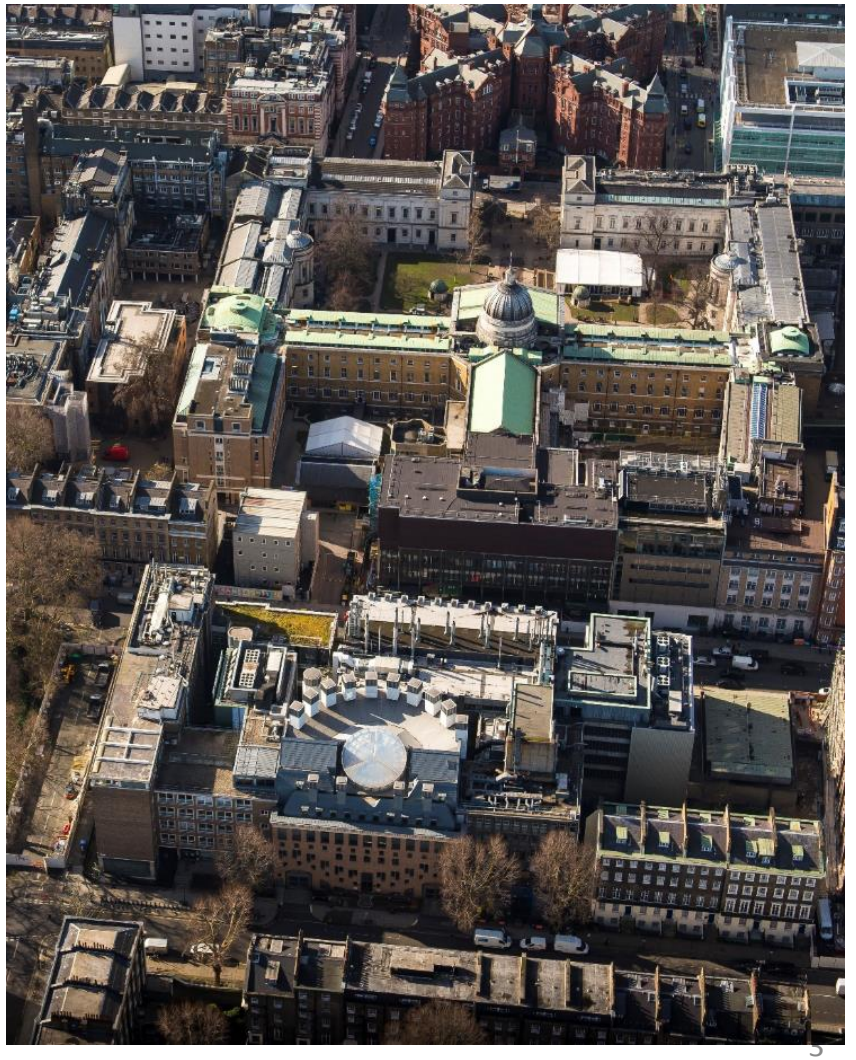
Martin Farley

The UCL Estate

- Over 230 buildings, 6.5m Sq ft
  - 4200 residential student rooms
- Heritage and conservation priorities
- Dispersed across London
  - Bloomsbury
  - Hampstead
  - Surrey

  And now
  - Canary Wharf
  - Here East

  And Soon
  - UCL East at the Olympic Park



UCL Estates

Our Mission:

- To enable UCL's Academic Mission
- To create a Sustainable Estate to meet our academic needs

What we do:

- Strategy
- Estate Planning
- Capital Delivery
- Running the operation
- Safety
- Environment






Transforming UCL

Why it's needed:

- The way we work, study, research and teach is changing:
  - hubs, collaboration and interaction across disciplines, open spaces, drop in
- Focus on student experience: good quality adaptable spaces to enable study and learning
- Reverse historic under-investment in UCL's estate
- Accommodate Growth



Transforming UCL Headlines

- Currently in year 4 of a 10 year £1.25bn Capital Programme
- 14 Projects currently on site with a value of £290M
- 70 Projects completed and in operation
- PLUS – Strategic Maintenance Programme - ~£40m/ year
- Programme delivery remains on track – delivering within programme budgets
- Learning lessons from post implementation reviews and post occupancy evaluations

What we're doing

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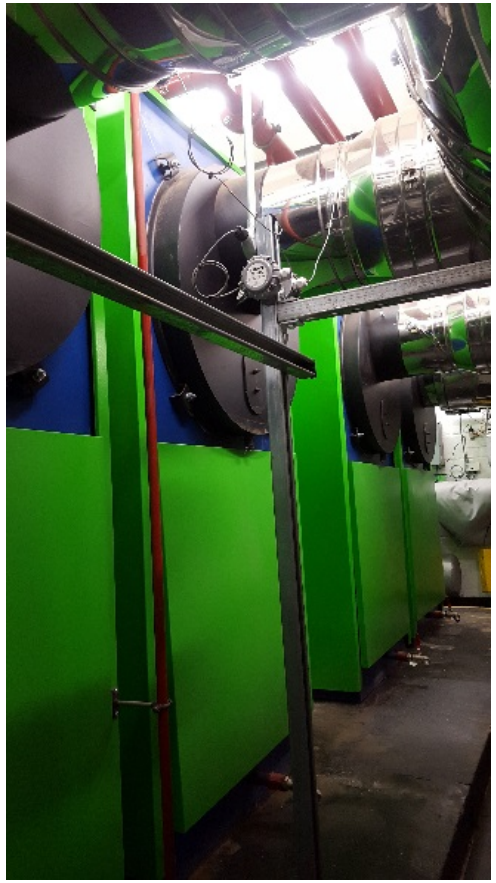
Major new build and refurbishment projects

What we're doing

Investing in new plant to maintain the campus



What we're doing

Investing in future-proofing and environmental sustainability

What we're doing

Enhancing access and investing in inclusivity

TRANSFORMING UCL

What we're doing

Maintaining a safe and secure environment

- Live campus in central London
- 50,000+ staff and students
- Complex project interfaces
- Multiple projects in buildings
- Pedestrians 58,000/day, only 4 gates
- 500+ site workers

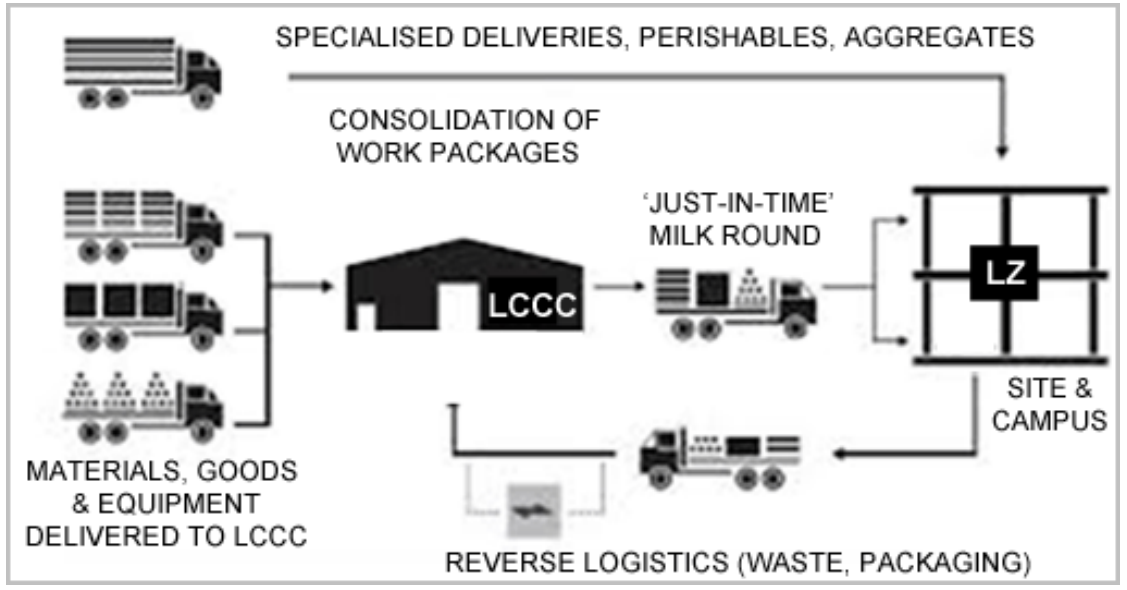
TRANSFORMING UCL

What we're doing

Optimising our logistics

TRANSFORMING UCL

- Challenges
  - Construction up to c.100/day
  - Business as usual 120/day
  - Vehicle emissions/ local air quality
  - Congestion
  - Safety concerns
  - Lack of storage
- Establishment of logistics zone at Gordon Square
- 'Just in time' deliveries enabled by London Construction Consolidation Centre
- Reverse logistics
- 70% reduction in deliveries



Video

UCL drivers for a sustainable estate

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1. Institutional vision

1 of the 6 'key enablers' of our 2034 Vision

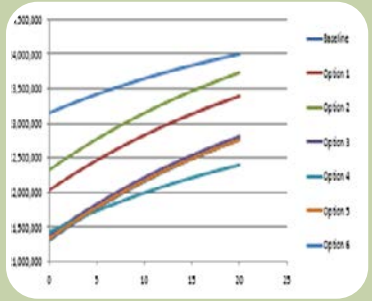
2. Dedicated strategy

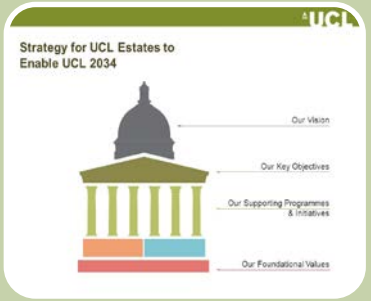
1 of the 5 core aims…..is to 'Create a sustainable campus'

3. Plans and targets

Carbon Management Plan, Sustainable Building Standard etc.

How do we realise the value?





1) We have set our own requirements:

Sustainable Building Standard

2) Use of recognised standards:

BREEAM

(major new builds/refurbs)

SKA

(fit-out/ minor works)

3) We have decision support tools:

Cost & Carbon Tools

Degrees of Change

Value Engineering

4) Embedding:

Institutional Strategies

Portfolio Services

Specifications

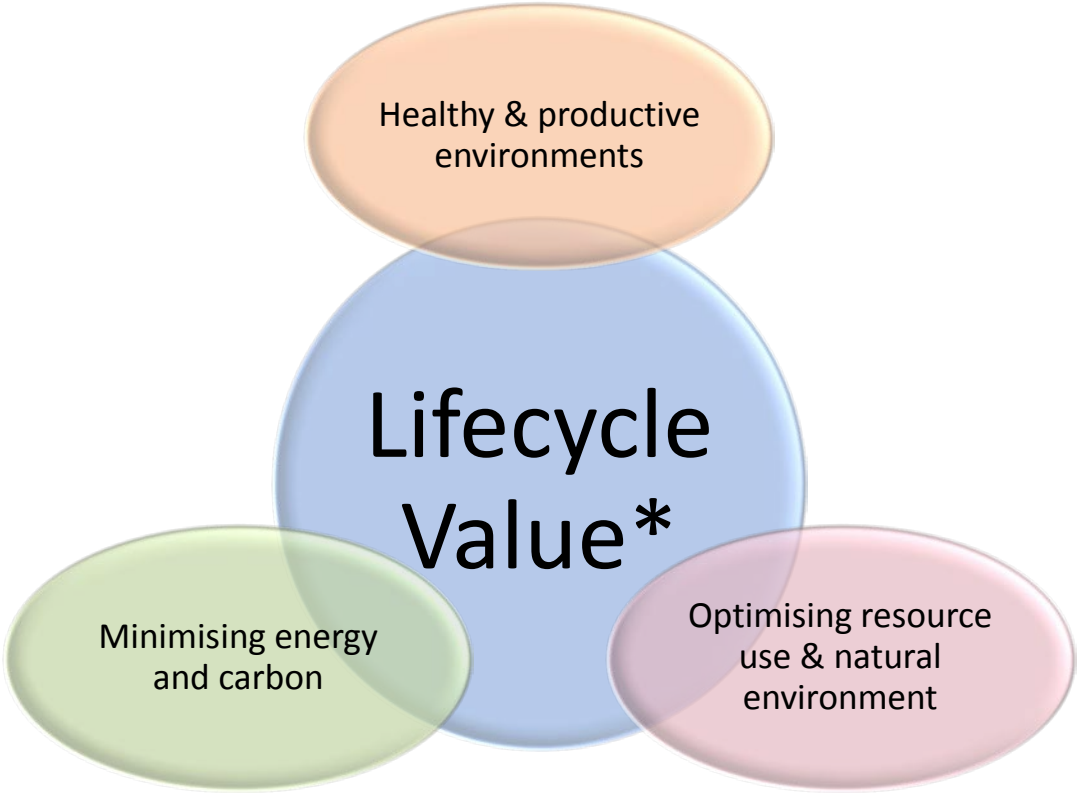
Procurement

Soft Landings

Sustainable Building Standard

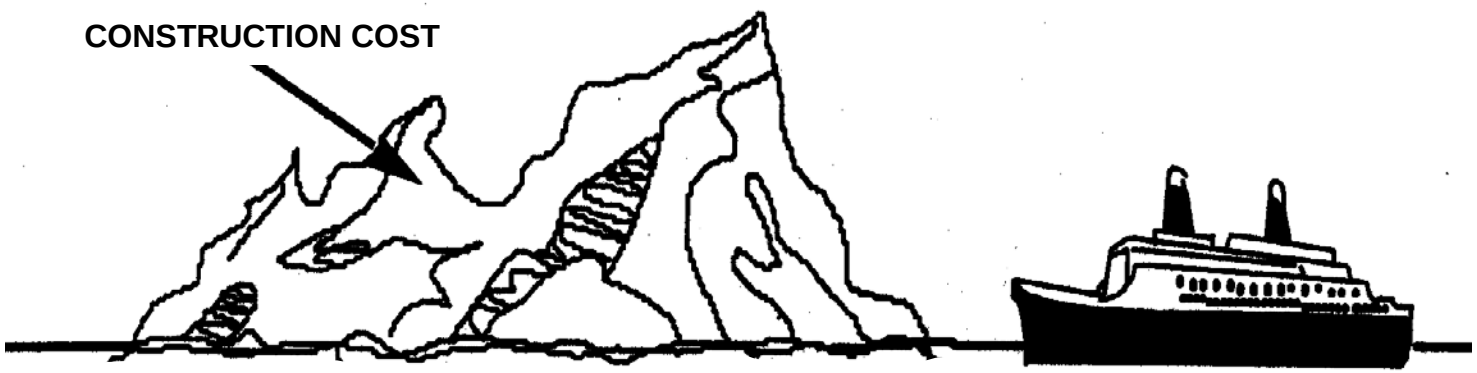
- Clear, value-driven requirements
- Strong business case
- UCL sustainability targets, including Carbon Management Plan
- Rising expectations of staff & students
- Integration with other processes and standards
- Regulatory obligations and best practice
- Closing the performance gap
- Continuous improvement

Core Principles

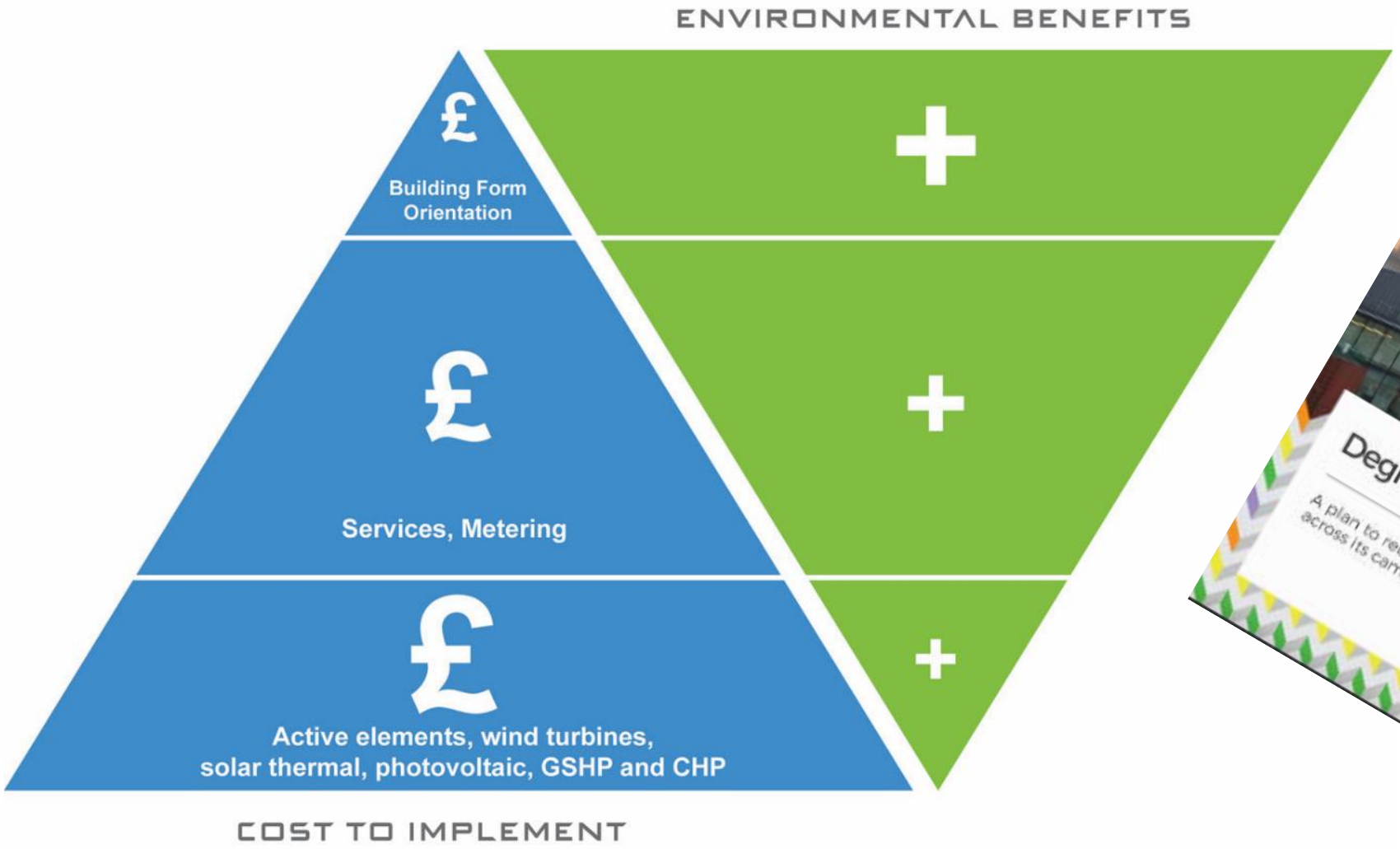


*By value, we don't just mean financial factors. It's essential that we account for the wider **environmental, social and community impacts** of our buildings.

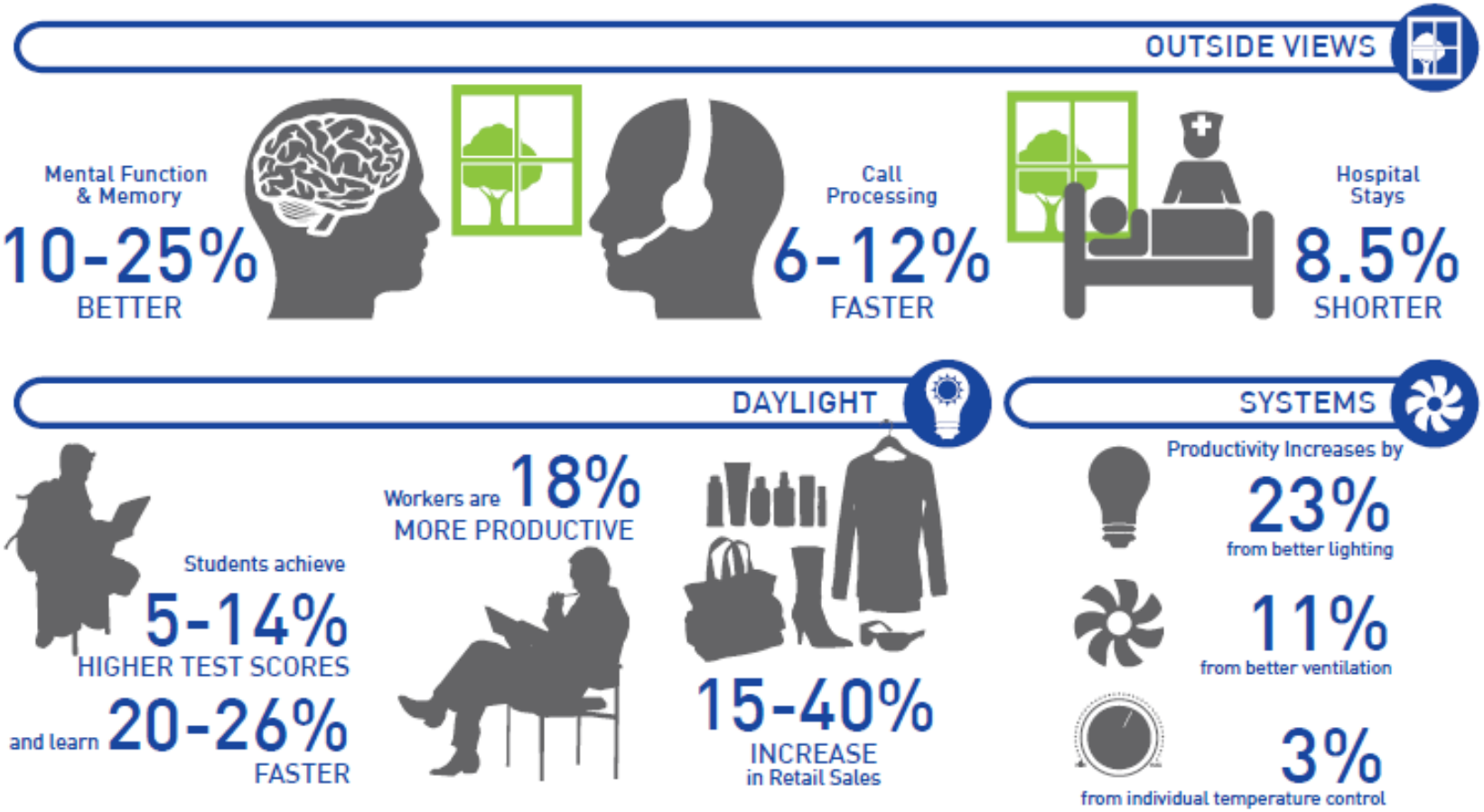
Life cycle value



Minimising energy & carbon

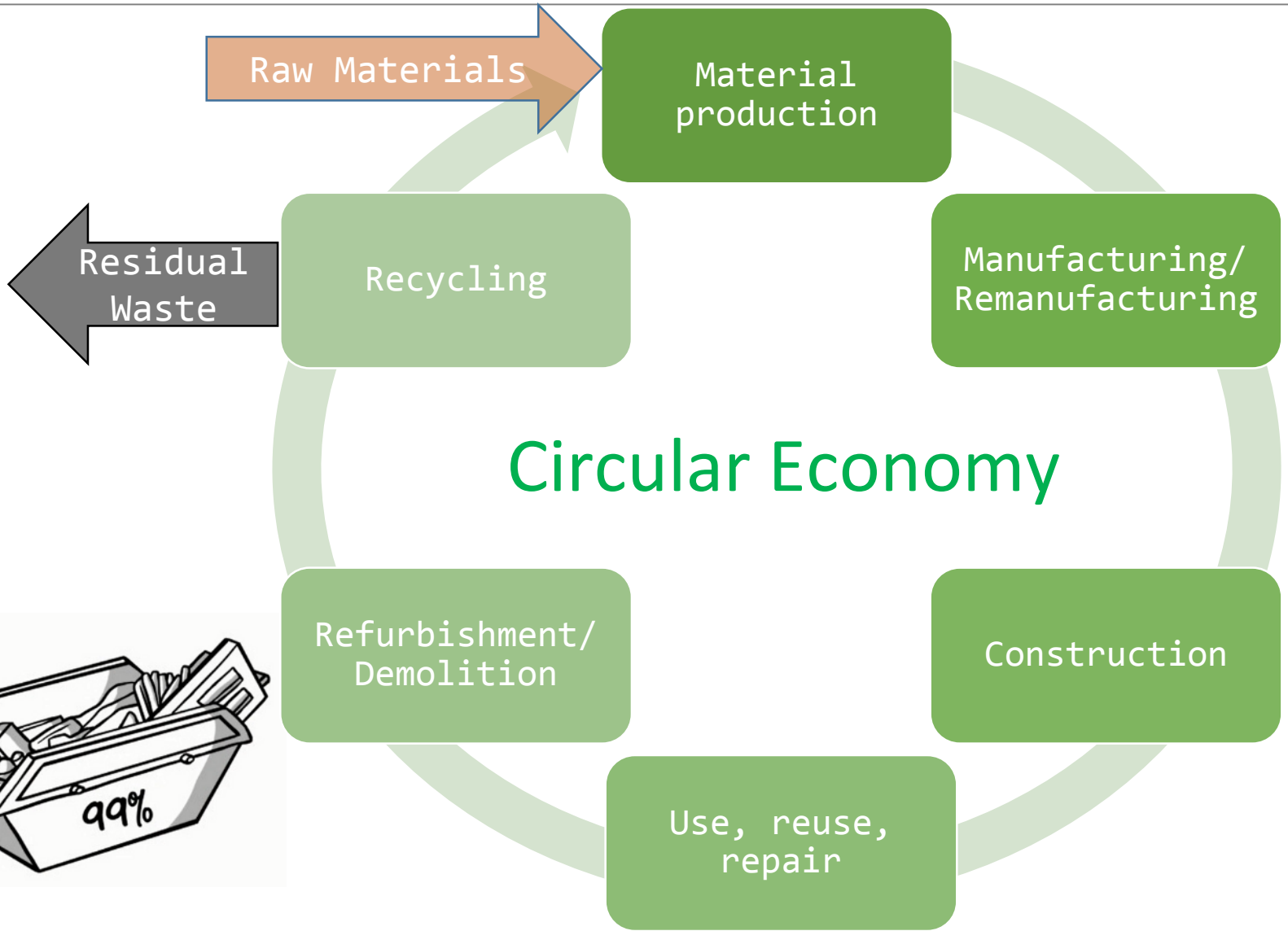


Healthy & productive environments



Wellbeing@UCL

Optimising resource use & the natural environment



Embedding the process - DISCUSSION

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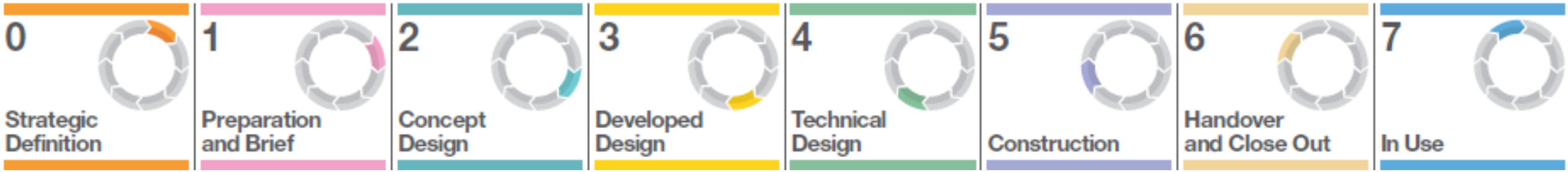
Place the steps in order and then discuss WHEN they should first be considered:

1. Inception and briefing stages (RIBA 0 – 1)
2. Early design (RIBA 2)
3. Detailed design (RIBA 3 – 4)
4. Construction (RIBA 5)
5. Handover and occupation (RIBA 6 – 7)



Step 1: Business case and target setting

Confirm sustainability and carbon targets no later than Stage 1.

- Understanding existing and emerging regulatory environment from day 1
- Recording and reflecting the internal level of ambition
- Agreeing ambitious but realistic targets
- Consultation: consider who needs to be involved and when
- Be aware of synergies with other projects

Step 2: Environmental Assessment

Select BREEAM, Ska or Mini-Ska at Stage 1

Project Category	Description	Method	Minimum Rating
New build/ part new build	New construction as well as significant extensions to existing buildings	BREEAM	Excellent*
Major refurbishment	Work involving the remodelling of the building envelope (e.g. glazing, roof or wall sections) **and/or** remodelling the core mechanical, electrical heating or ventilation systems.	BREEAM	Excellent
Fit-Out/ Minor refurbishment	Larger scale fit-out works within a building, confined within the building envelope and with minimal or no impact on core building services or envelope (e.g. lab refurbishment, space reconfiguration)	Ska HE	Gold
Minor works/ Lab fit-out	Small scale engineering, maintenance or repair works such as a toilet refurbishment, painting a corridor, new lighting etc. Separate requirements for labs.	Mini-Ska/ Ska Labs	Comply with all relevant measures
Smaller new build/ refurb	New build or refurbishment projects <1000m^2	Consult UCL Sustainability team	
Infrastructure	Civil engineering, infrastructure and landscaping projects	Consult UCL Sustainability team	

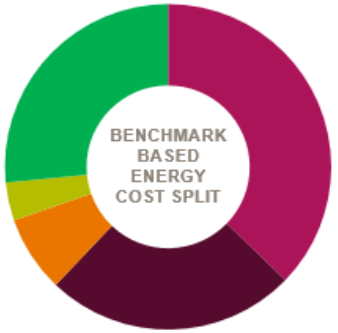
Ska rating

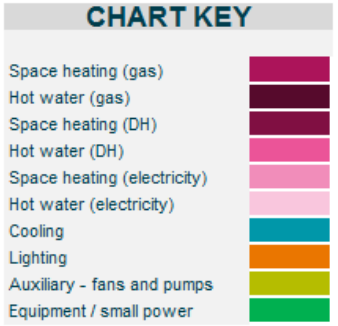
CODE FOR A SUSTAINABLE BUILT ENVIRONMENT
BREEAM

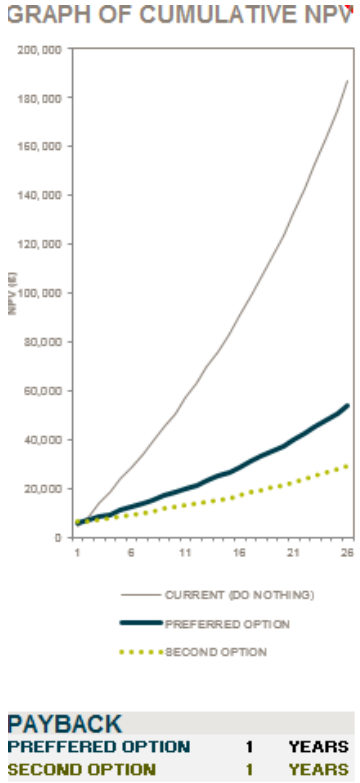
Step 3: Carbon Calculation

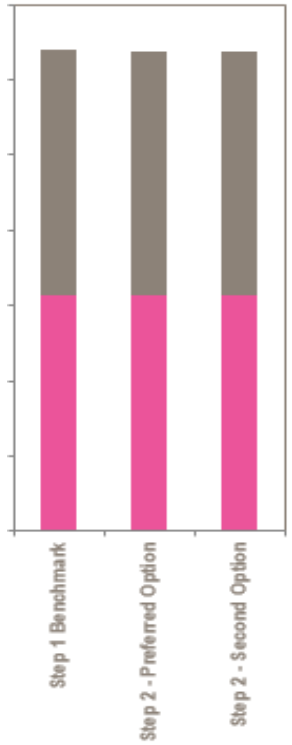
Measure, compare and reduce carbon emissions and operational costs

Introduction → Step 1 – Benchmarking Energy Use → Step 2 – Options Appraisal → Step 3 – Results and Business Case



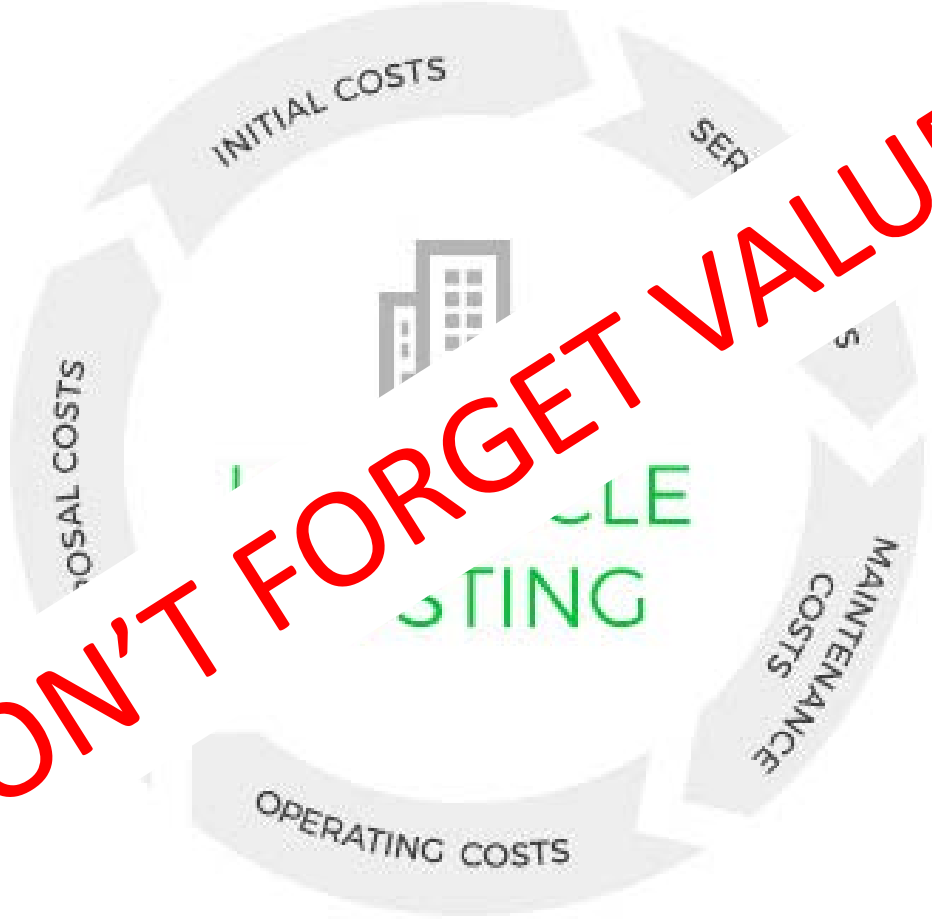






Step 4: Life Cycle Costing

Balance capital expenditure with ongoing operational and maintenance costs



DON'T FORGET VALUE!

Step 5: Comprehensive Energy Modelling

Predict more accurate and holistic building energy use

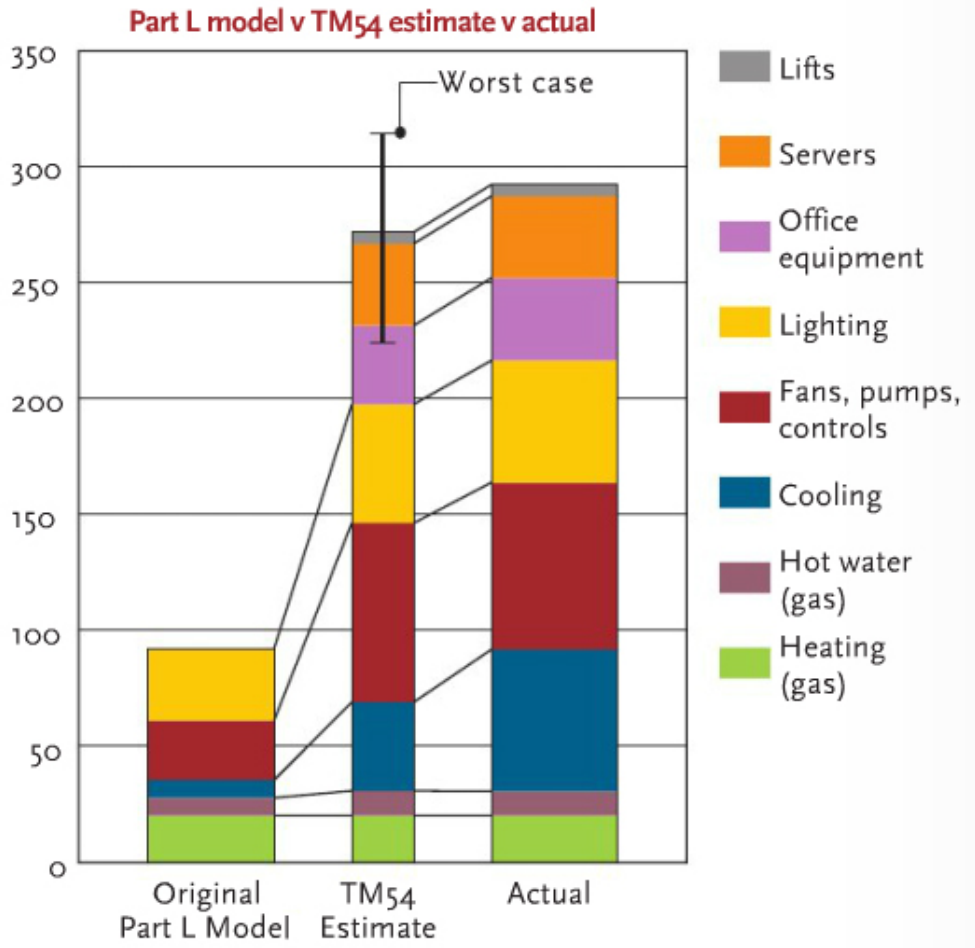


Figure 1: Comparison of ADL2A calculations, TM54 estimate and operational performance for the case study

Step 6: Specs, tender and contract documents

Embed specific, measurable sustainability targets and requirements

- UCL specs & standards
- Framework scopes of service
- Portfolio Services
- Soft Landings: end-to-end
- Training and support

Step 7: Post project review

Ensure that buildings are set up to perform at optimum levels from throughout their lifetime

- Soft Landings
  - Post-implementation review
  - Post-occupancy evaluation
- Get a grip on defects!
- Learning and feedback

SOFT LANDINGS™

0	1	2	3	4	5	6	7
Strategic Definition	Preparation and Brief	Concept Design	Developed Design	Technical Design	Construction	Handover and Close Out	In Use

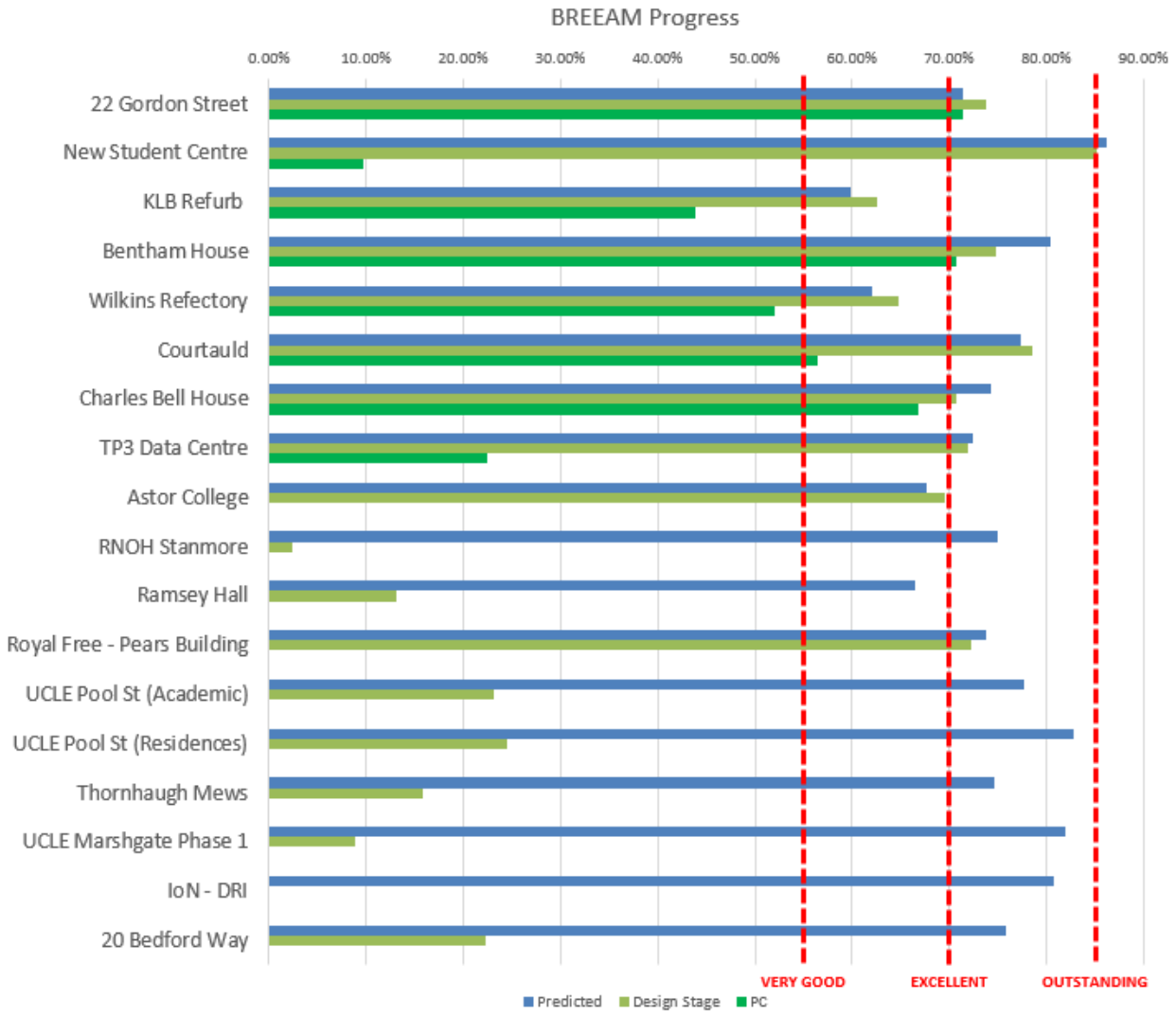
Managing sustainable projects

UCL	Sustainable Building Standard (SBS) Sustainable Project Planner		RIBA Stage							
Issue/ Requirement	**Activity**	**Notes**	0	1	2	3	4	5	6	7
Project Management (Strategy Manager/ University Project Officer/ Lead Project Manager)										
Project Brief/ Business Case	Identify and reflect project sustainability requirements with reference to the SBS	Establish project-specific sustainability targets and requirements during RIBA Stage 1 and include in project brief/ business case documents. Lead PM (UCL or external) will be accountable for compliance and reporting against these targets throughout the project.	PREPARE / ACTION							
Masterplan opportunities/ implications	Account for potential interactions with wider buildings/ estate	Potential opportunities for synergies within and between both existing and future buildings must be considered. For example, Bloomsbury projects must explore feasibility and potential benefits of connecting to the existing district CHP system.								
Stakeholder Consultation Exercise	Undertake consultation with relevant University and project delivery stakeholders	Effective consultation with relevant stakeholders should be planned to inform and influence the initial project brief and concept design, helping to ensure buy-in from building users and also reduce the risk of costly design changes or remedial works later on.								
Carbon Appraisal	Ensure Carbon Appraisal Tool is completed and updated.	All projects affecting scope 1 and 2 carbon emissions must undertake a carbon appraisal to help evaluate options with a view to improving life cycle efficiency. Results to be included in relevant stage gate review documentation at RIBA Stage 1, and updated at Stage 2/ 3, as appropriate.								
Life Cycle Costing	Commission project-specific life cycle cost appraisal at feasibility stage	Lifecycle costing analysis is essential to demostrate the business case for sustainable design options and can lead to dramatic reductions in operational costs if carried out effectively at during the early stages of project planning.								
Sustainability Assessment (BREEAM/ SKA/ Mini-SKA)	Appoint relevant assessor, initiate and monitor assessment process according to project scope	Minor works: Mini-SKA Refurbishment/ fit-out: SKA (Gold) Major refurbishment: BREEAM 2014 Refurbishment/ Fit-Out (Excellent) New Build: BREEAM 2014 New Construction (Excellent)								
Sustainability Specialists	Commission relevant specialists to support	As required: ecologist, transport planner, life cycle costing analyst, carbon consultant, specialist M&E inputs, acoustician, security specialist								

How we're doing – the headlines

- **ENERGY** - >35% better than Building Regulations (New Build)
- **CARBON** – calculating savings using our 'Cost & Carbon Tool'
- **RENEWABLES** - installing low an zero carbon technologies
- **CONTRACTORS** – strict requirements and accountability
- **MATERIALS** – prioritising circular economy principles
- **WASTE** - typically achieving >95% diversion from landfill
- **WATER** – reducing consumption by up to 55% on new buildings
- **WELLBEING** – access to daylight, thermal comfort, occupant control, ventilation and air quality

BREEAM and Ska Progress



BREEAM

- 18 projects are currently being assessed using BREEAM. We are on track for:
  - VERY GOOD – 4
  - EXCELLENT – 13
  - OUTSTANDING - 1

SKA

- Used on 20 projects – so far we have achieved:
  - 5 GOLD
  - 2 SILVER
  - 6 further projects on track for GOLD
- Mini-Ska covers smaller works

The SDG Accord

The University and College Sector's Collective Response to the Global Goals

End extreme poverty, inequality and climate change

www.sdgaccord.org

eauc