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Material change for
a better environment
Setting Requirements for Recycled Content and Waste Management in Construction
CaSPr Event
9 October 2007

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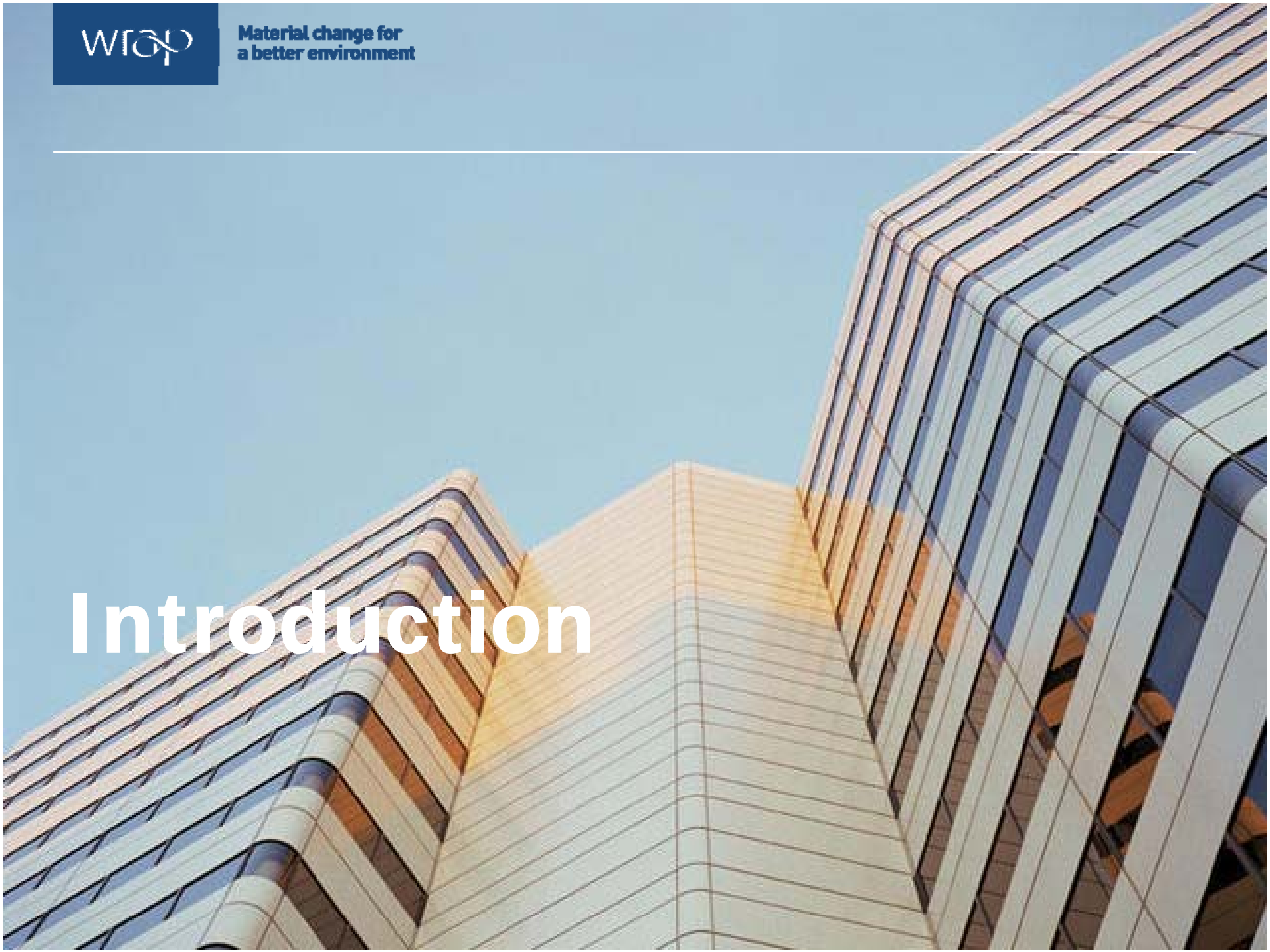
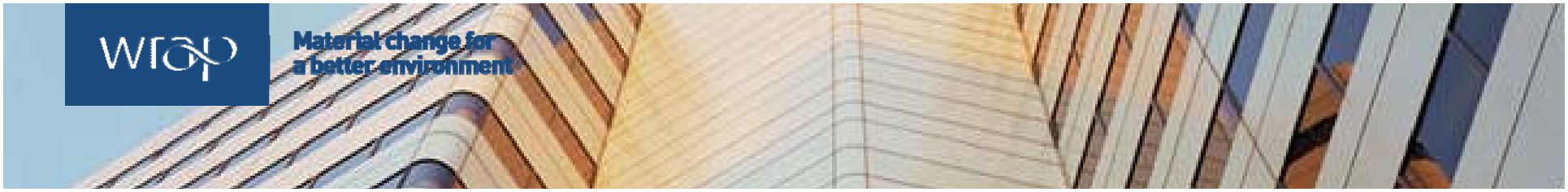


Introduction



Introductions

Sara McGowan

Senior Project Manager

Mace Ltd

12 years experience in the construction industry with a background in engineering design and sustainability

Simon Hall

Project Manager

Mace Ltd

In depth involvement in the Education sector with a background in capital redevelopment delivery and funding regimes

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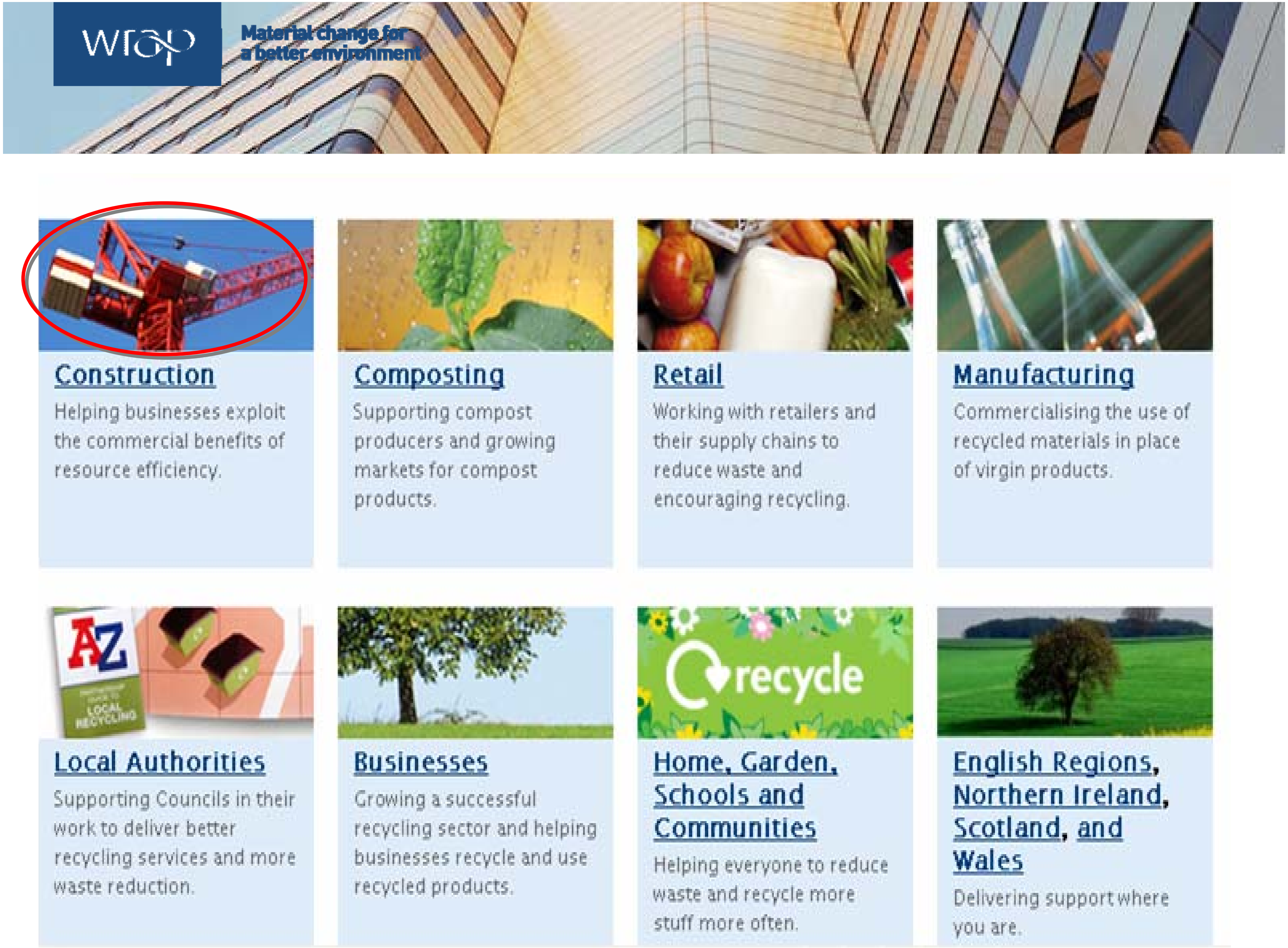
Overview of WRAP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Construction
Helping businesses exploit the commercial benefits of resource efficiency.
Composting
Supporting compost producers and growing markets for compost products.
Retail
Working with retailers and their supply chains to reduce waste and encouraging recycling.
Manufacturing
Commercialising the use of recycled materials in place of virgin products.
Local Authorities
Supporting Councils in their work to deliver better recycling services and more waste reduction.
Businesses
Growing a successful recycling sector and helping businesses recycle and use recycled products.
recycle
Home, Garden, Schools and Communities
Helping everyone to reduce waste and recycle more stuff more often.
English Regions, Northern Ireland, Scotland, and Wales
Delivering support where you are.

WRAP's construction focus

"helping deliver Government targets for construction waste by:

- developing standards and requirements
- getting these adopted by construction clients
- enabling good practice
- supporting investment in waste recovery infrastructure."

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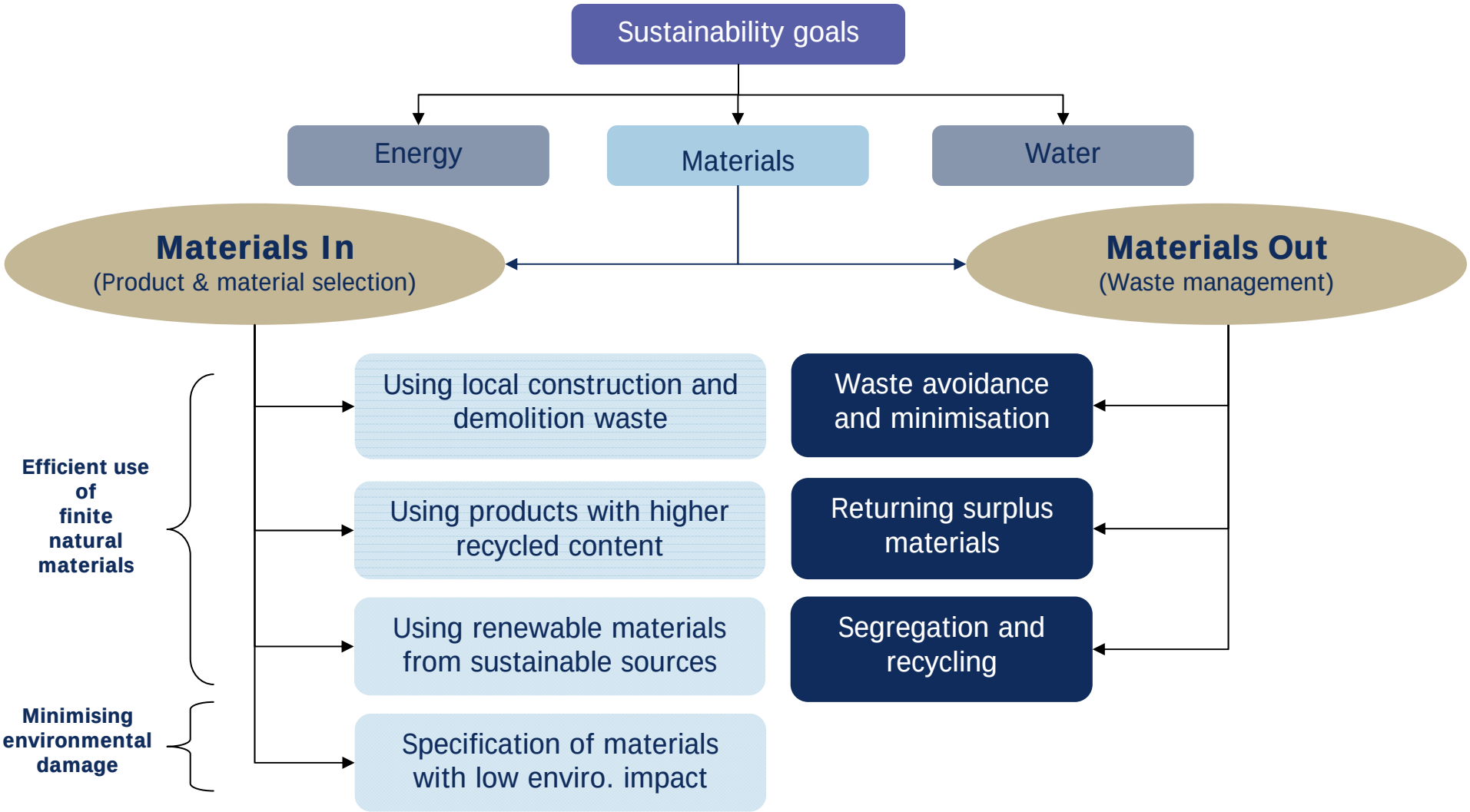
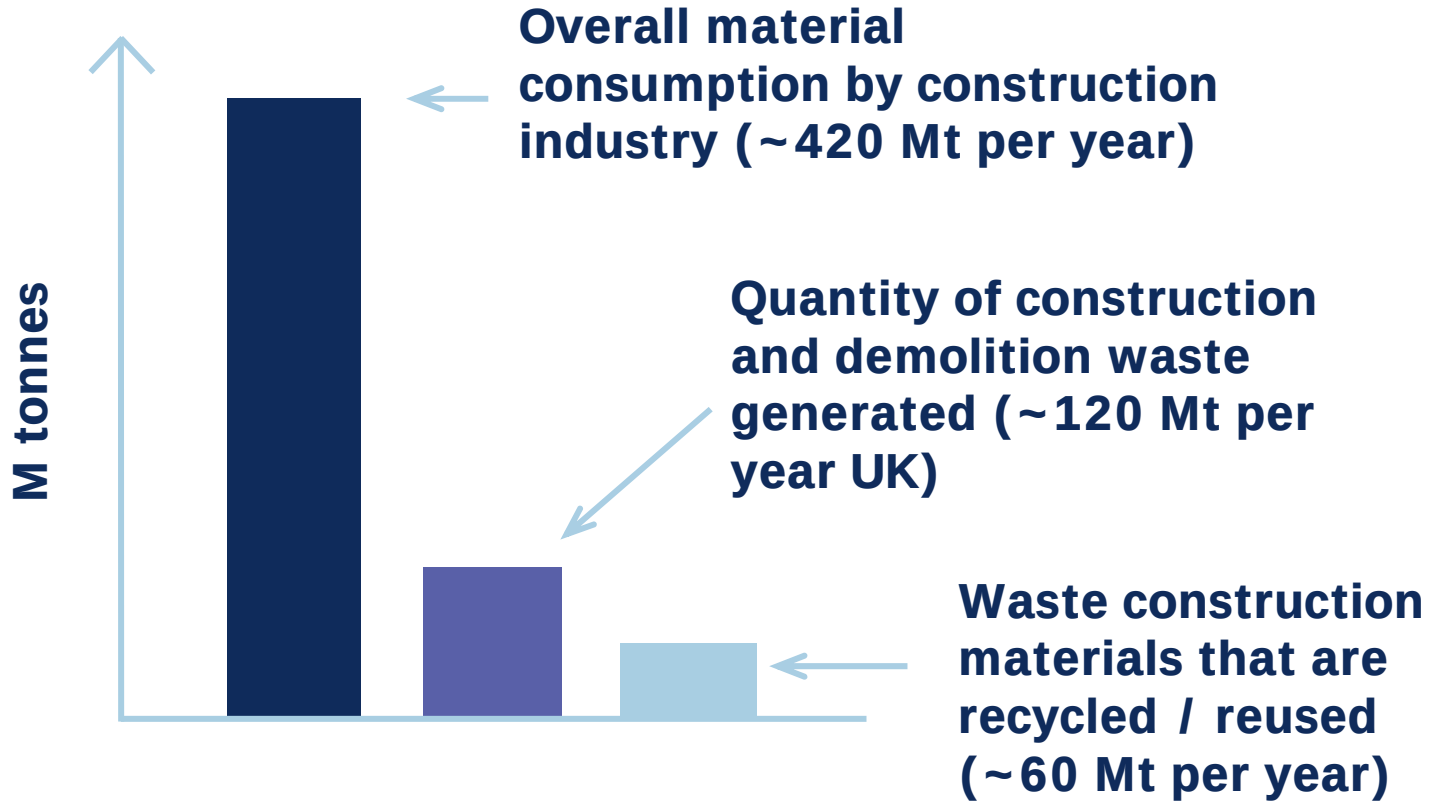
Resource Efficiency as part of Sustainable Construction



UK material flows in construction



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Setting Requirements for Recycled Content

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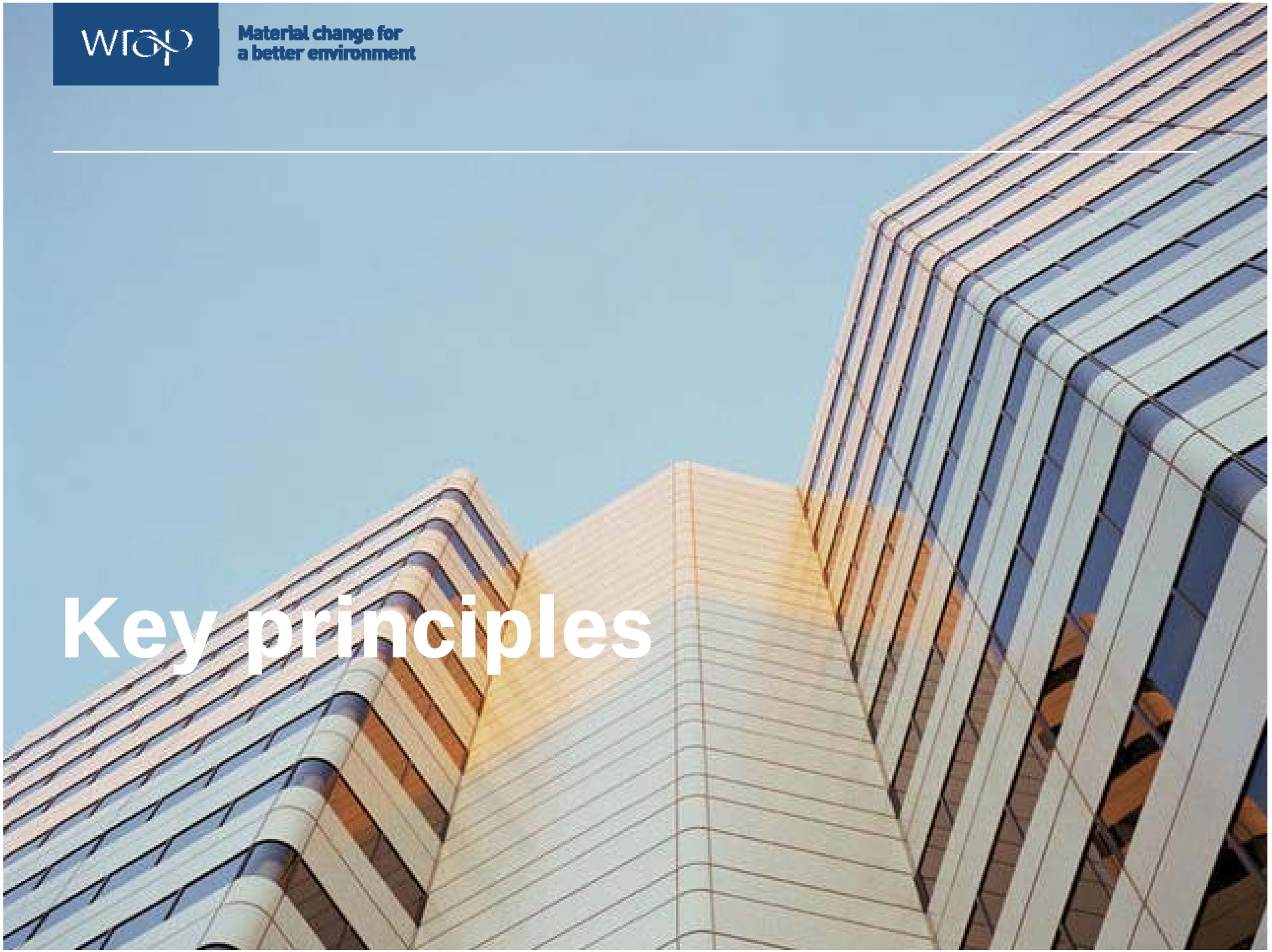
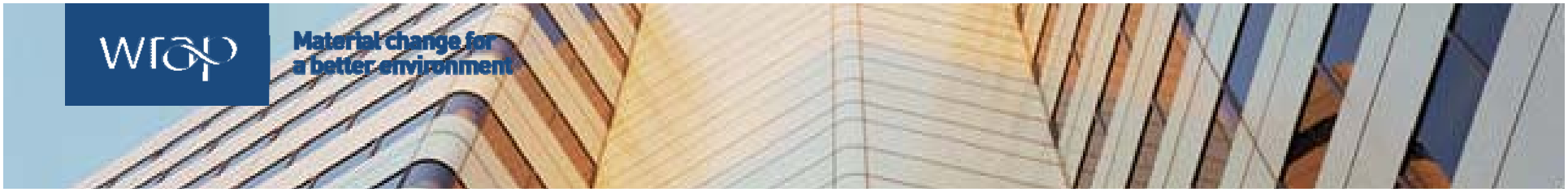


Key principles



What is recycled content?

Recycled content.

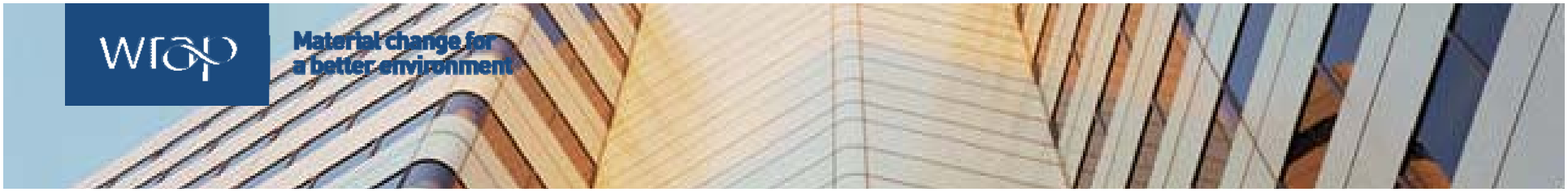
The proportion, by mass, of recycled material in a product or packaging.

Defined by ISO 14021 (Standard on environmental labels and declarations).

Recycled content by value.

Proportion of the overall value of the materials in a product or building that is derived from recycled content.

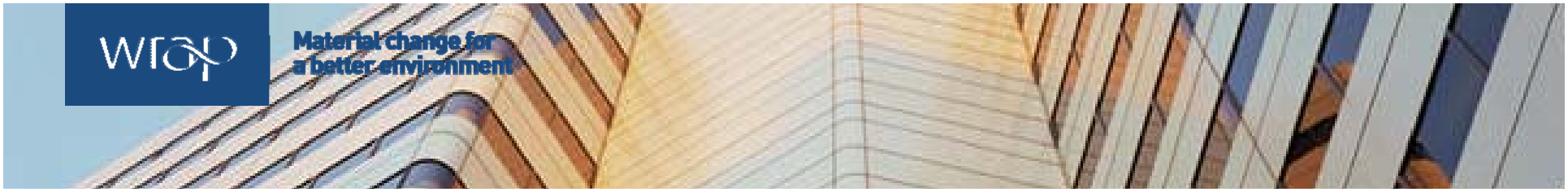
RC material mass x material cost = % RC by value



Calculating recycled content by value

Component	Quantity	Material Value (unit rate)	Total Material Value	Recycled content by mass	Recycled content by value
Bricks	2000	£250/1000	£500	15%	£75
Dense blocks	50	£8/m^2	£400	50%	£200
Chipboard	10	£70/m^2	£700	70%	£490
Insulation	20	£10/m^2	£200	80%	£160
Fill*	4	£10/m^3	£40	100%*	£40
Other items (% RC unknown)			£2,000	0%	£0
Total (£)			£3,840		£965
Total (%) for project					**25.1% (£965/£3,840)**

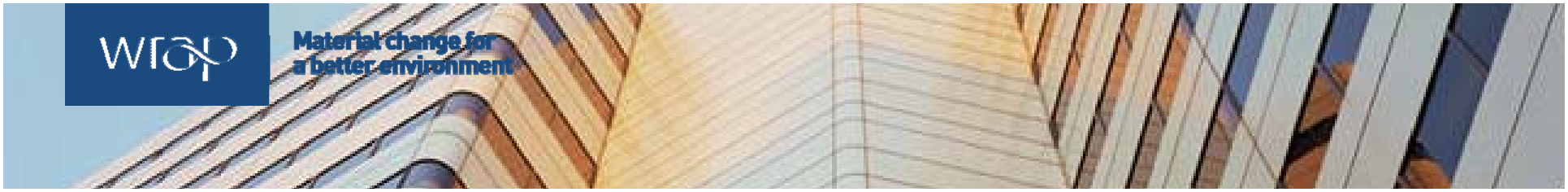
Note * in this example the fill used in the project is from reused demolition waste, it is therefore considered to be 100% 'recycled' and its cost is taken as being equal to the purchase price of an equivalent product from the open market.



Identifying opportunities to increase RC

WRAP maintain data on three benchmarks of recycled content for construction materials.

- **Standard**: level of recycled material content likely to be used if no request for recycled content is made;
- **Good**: better than standard practice, but also readily available at competitive cost;
- **Best**: highest level of recycled material content currently available in the UK.



Determining Quick Wins

Component	Material value	Recycled content by mass (%)			Recycled content by value (£)		
		Standard	Good	Best	Standard	Good	Best
Brick	£5000	0	10	30	£0	£500	£1500

Potential contribution from using good practice bricks is £500.

Case study results show:

- the top 10 or so ‘Quick Win’ product substitutions deliver most of the potential increase from Standard to Good practice for a project overall;
- .....hence design teams can minimise effort in measuring, increasing and reporting recycled content.

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Why require recycled content?

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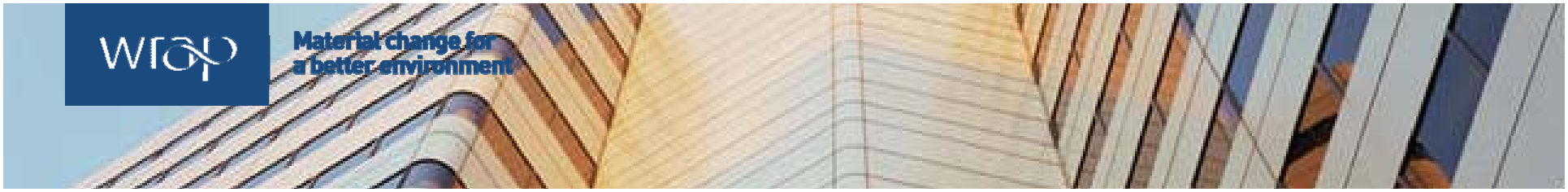
Setting requirements delivers tangible improvements

- Substantially increases use of recovered materials;
- Reduces burden on landfill sites;
- Saves resources;
- Reduces carbon emissions.

Affordable, quantifiable and worthwhile



Embedded in public policy

Scottish Government

- in 2006 Scottish Ministers asked all public bodies to set a minimum 10% requirement for recycled content in all £1m + construction projects they procure or fund.

A number of public bodies in Scotland have already set RC requirements, including:

- Glasgow City Council (as a policy for all its major construction projects);
- Aberdeen CC (schools project);
- Raploch Urban Regeneration Company;
- Dundee CC (waste infrastructure project);
- South Ayrshire Council (schools project).

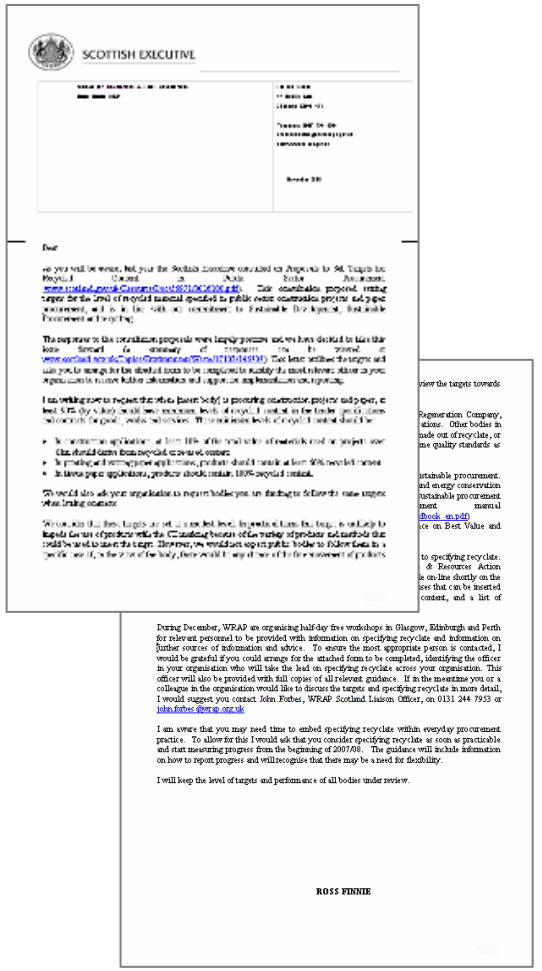
UK landfill tax (ongoing)

- inert waste - £2.50 per tonne from April 2008
- active waste – doubles to £48 per tonne from 2008 – 2010

Scottish Government Requirements

at ***least 90% (by value) of construction projects should have minimum levels of recycled content as follows:***

- **In construction applications, at least 10% of the total value of materials used on projects over £1m should derive from recycled or re-used content**



SCOTTISH EXECUTIVE

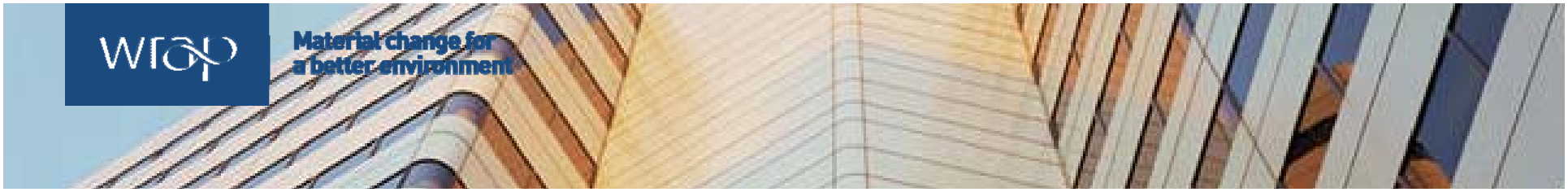
Dear

During December, WRAP are organising half-day free workshops in Glasgow, Edinburgh and Perth for relevant personnel to be provided with information on specifying recyclate and information on further sources of information and advice. To ensure the most appropriate person is contacted, I would be grateful if you could arrange for the attached form to be completed, identifying the officer in your organisation who will take the lead on specifying recyclate across your organisation. This officer will also be provided with full copies of all relevant guidance. If in the meantime you or a colleague in the organisation would like to discuss the targets and specifying recyclate in more detail, I would suggest you contact John Forbes, WRAP Scotland Liaison Officer, on 0131 244 7953 or john.forbes@wrap.org.uk

I am aware that you may need time to embed specifying recyclate within everyday procurement practice. To allow for this I would ask that you consider specifying recyclate as soon as practicable and start measuring progress from the beginning of 2007/08. The guidance will include information on how to report progress and will recognise that there may be a need for flexibility.

I will keep the level of targets and performance of all bodies under review.

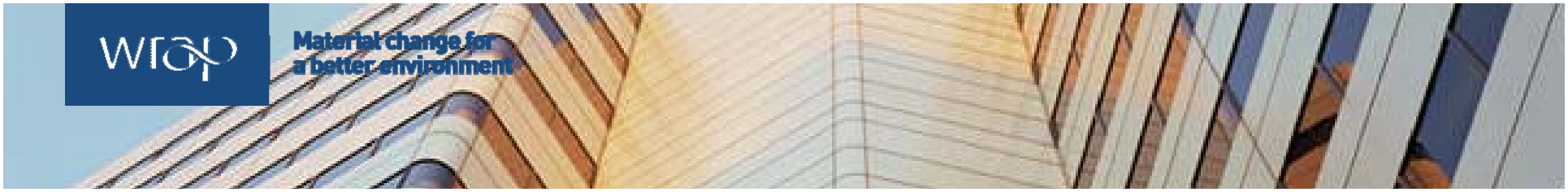
ROSS FINNIE



Recommended form of wording

‘....**at least 10 % of the total value of materials** used should derive from recycled and reused content in the products and materials selected.

In addition, show that the most significant opportunities to increase the value of materials derived from recycled and reused content have been considered, such as the top ten Quick Wins or equivalent, and **implement good practice where technically and commercially viable.’**



Who is taking action?

- Glasgow City Council
- Aberdeen City Council
- Dundee City Council
- Newcastle City Council
- Solihull MBC
- Sheffield City Council
- British Land
- Yorkshire Forward
- Olympic Development Authority
- Welsh Health Estates
- Greater London Authority
- Northern Ireland Procurement Directorate
- Defence Estates
- Lancashire County Council
- Building Schools for the Future (BSF)
- National Grid
- Raploch Urban Regeneration Company
- Skanska
- Scottish Government
- NOMS
- Scottish Water
- Leeds Metropolitan University

...and many more

Designed for *Life* : Building for *Wales*
Cynllun *Oes* : Adeiladu Ar Gyfer *Cymru*

Taking action - Education

Building Schools for the Future

- environmental KPI on recycled content
- WRAP guidance and product information

Bradford University

- minimum recycled content requirement in refurbishment programme

UNIVERSITY OF BRADFORD
MAKING KNOWLEDGE WORK

Leeds Metropolitan University

- minimum requirement for new buildings

leedsmet

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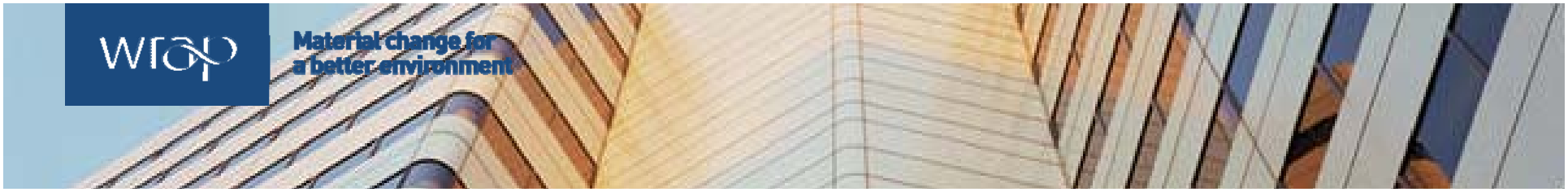
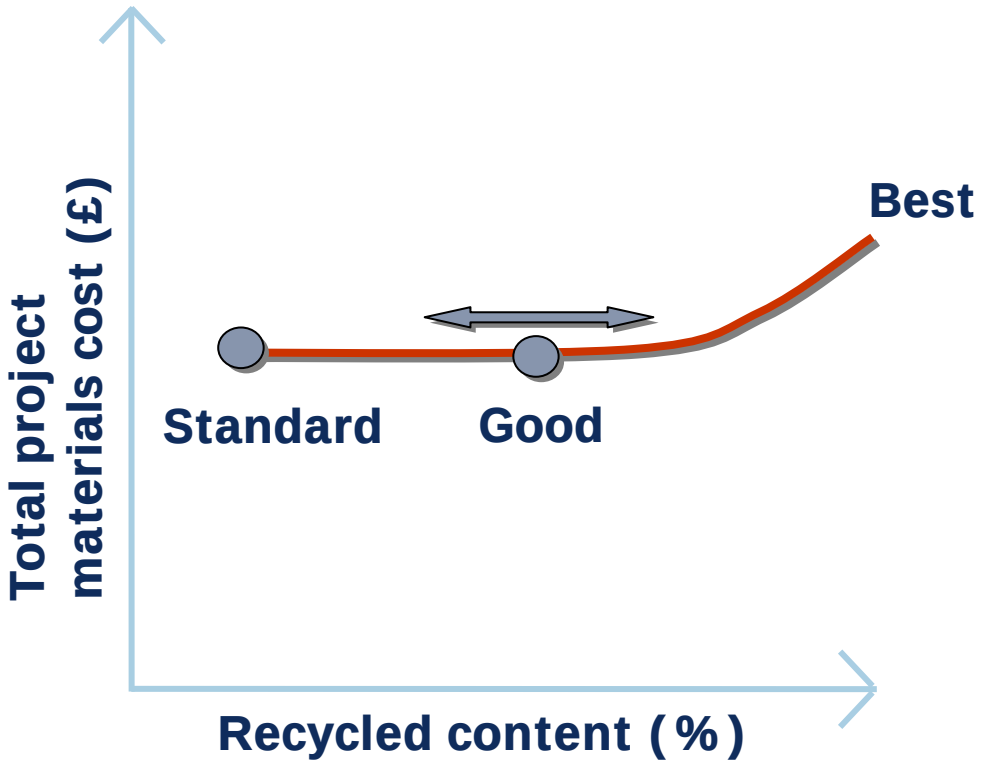
FAQ's



Common questions...

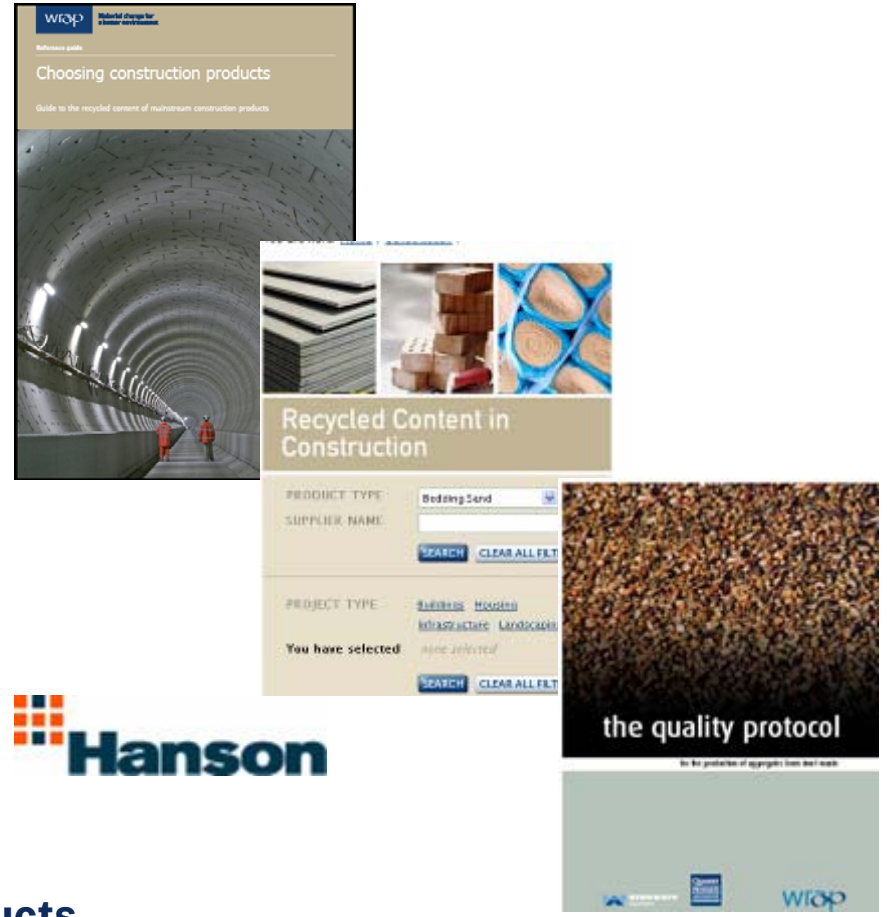
- will requiring higher recycled content cost more?
- do products have the same quality and performance?
- are products readily available?
- will a requirement impact on other sustainability objectives?
- is a 10% minimum requirement realistic?
- how much effort is required?
- do public procurement rules allow me to require recycled content for my project?

Will requiring higher recycled content cost more?



Do products have the same quality and performance?

- mainstream products
- familiar manufacturers
- products already in use
- readily available
- reassuring to trades

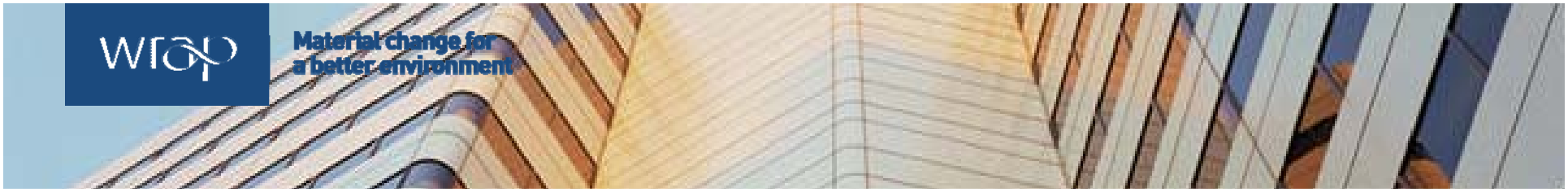


TopPave

LAFARGE

Hanson

www.wrap.org.uk/rcproducts



Examples of mainstream products

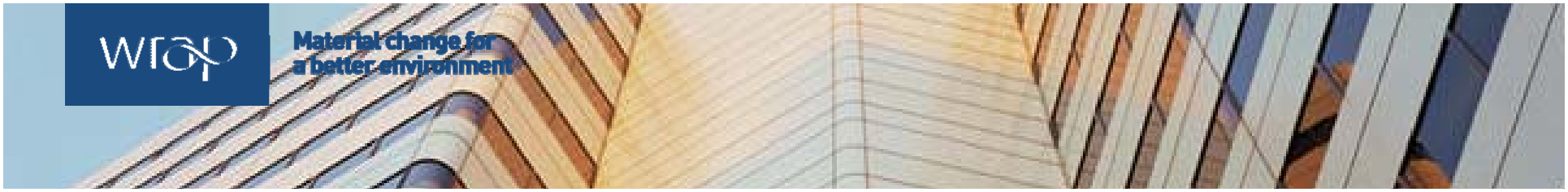
Product type	Option with lower recycled content	Option with higher recycled content
Dense block	**0 %**	**Hanson Conbloc Up to 70 %**
Wall insulation	**0 %**	**Superglass Superwall Cavity Slab >80 %**
Concrete roof tile	**0 %**	**Lafarge – various, e.g. Grovebury 17 %**
Ceiling tiles	**>10 %**	**Armstrong – various 28-52 %**
Intermediate floors, e.g. timber	**50-70 %**	**Sonae – Sonaefloor 90-95 %**
Floor coverings – safety	**0 %**	**BSW Regupol Everroll rubber flooring 80 %**

The bigger environmental picture

- Important to remember specifications are not changing, only the products/brands - the Green Guide aids the basic design and the RC Toolkit aids product choice/procurement within the selected design;

- There is no adverse impact on Green Guide ratings – in general, higher recycled content in the major substitution product categories reduces overall environmental impact;

- Higher recycled content may even enhance the rating of a specification.



A 10% minimum requirement is readily achievable

Type of project	Baseline / actual practice	Cost neutral good practice
Detached / terraced house	6 – 26%	16 -29%
Commercial office	10* - 22%	12* - 30%
School, hospital	12* - 20%	15* - 27%
Road reconstruction	8 – 16%	27 - 29%
Bridge reconstruction	18 – 23%	33 - 49%
Retail	11 - 32%	21 - 44%

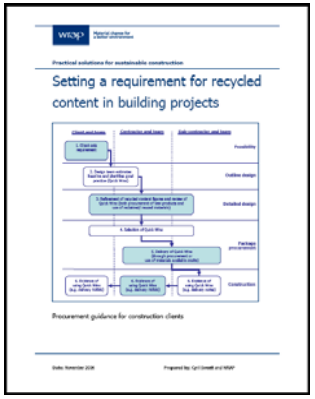
*** Excluding building services**

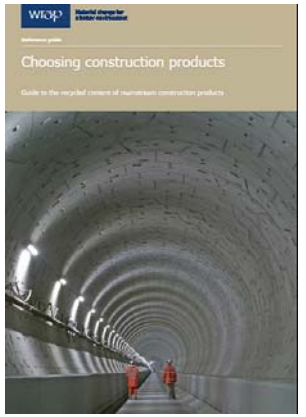
How much effort is required?

WRAP support package:

- **exemplar wording** for pre-qualification questionnaires, brief, and contracts;
- on-line recycled content toolkit **for calculating performance and opportunities;**
- product guide **identifying specific products with higher levels of recycled content;**
- case studies **covering all types of construction.**

www.wrap.org.uk/construction

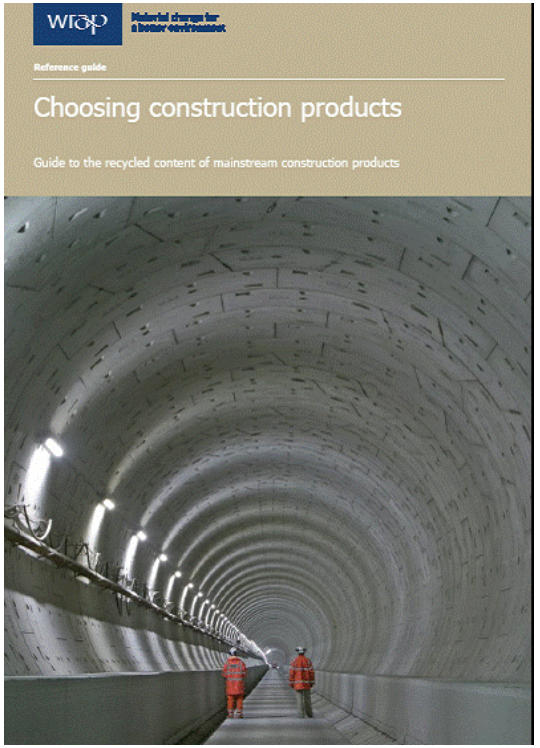




Product guide

- WRAP reference guide provides a directory of products with higher levels of recycled content.

- Designers and contractors review the practicality of Quick Win options
  - capital cost and availability
  - durability
  - quality / aesthetics
  - “buildability”
  - performance characteristics.



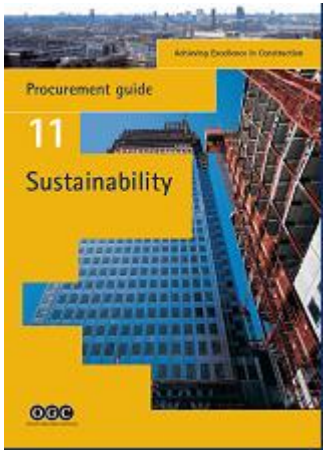
Case studies

Public procurement

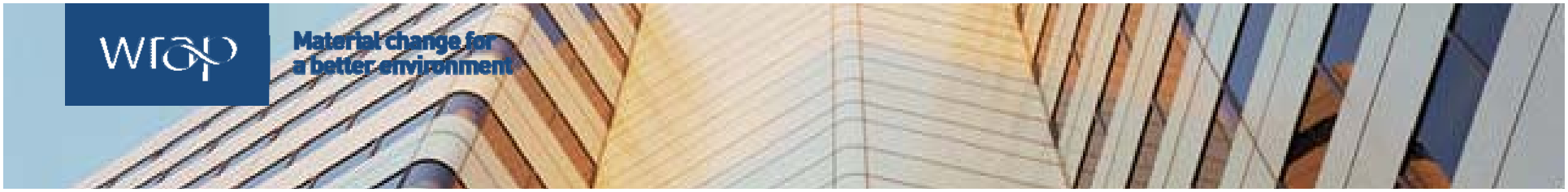
European Commission (2004)

"As a contracting authority, you have the right.....to demand a minimum percentage of recycled or reused content where possible."

Office of Government Commerce (OGC) (2005)



"The (project) brief should include an outcome-based requirement for overall materials efficiency, such as a minimum requirement for recycled content in the project ."



Key principles

1. Requirement delivered through **procurement**
   - main aim is to use products with more recycled content

2. Requirements are likely to be set at the **project not product level**
   - offers flexibility to the supply chain
   - fits with outcome focus of Design & Build and PFI

3. A **modest** minimum requirement but **with a requirement for good practice**

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Discussion

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BREAK

WRAP

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Waste Minimisation in Construction

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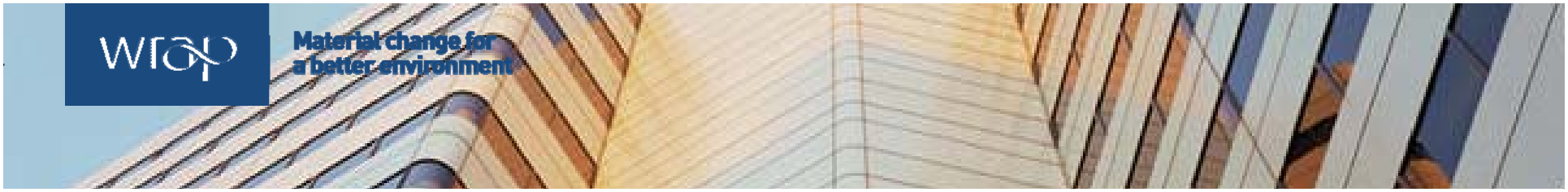
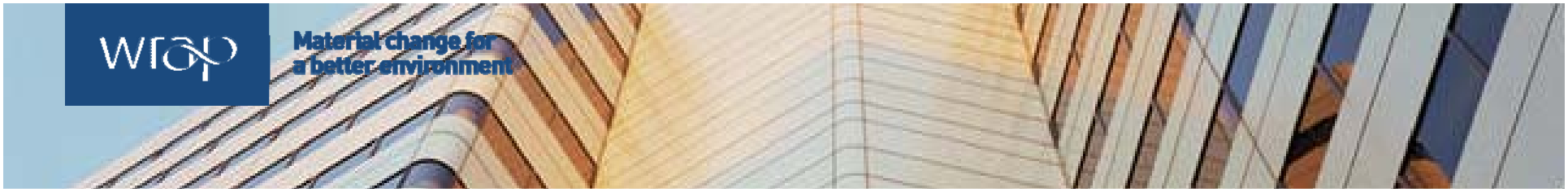
Using procurement to drive best practice in waste management



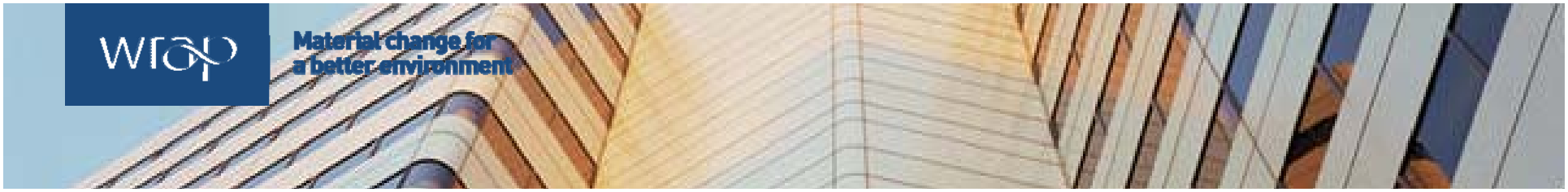
Agenda

- Introduction
- Why take action?
- General principles
- Setting good practice waste management requirements
- Action at each stage of procurement, design and construction
- Practical support and tools
- Conclusion



Aims of this presentation

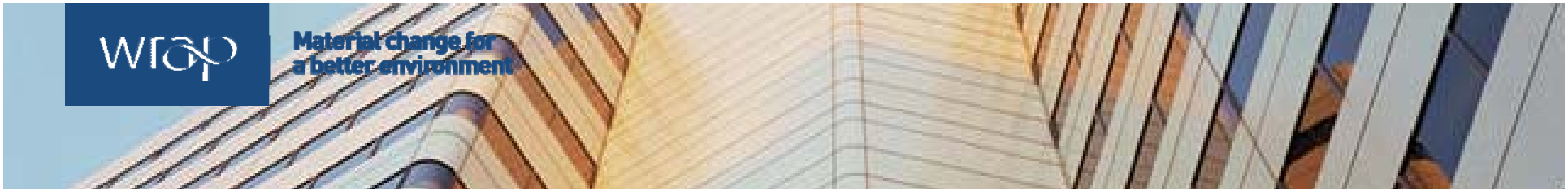
- Communicate reasons for adopting good practice and its practicality
- Explain how to encourage good practice by setting requirements in procurement
- Introduce freely-available tools and resources
- Enable you to take action



What is waste?

- “Any substance or object the holder discards, intends to discard or is required to discard”

- “It will remain a waste until it has been fully recovered and no longer poses a potential threat to the environment or to human health.”



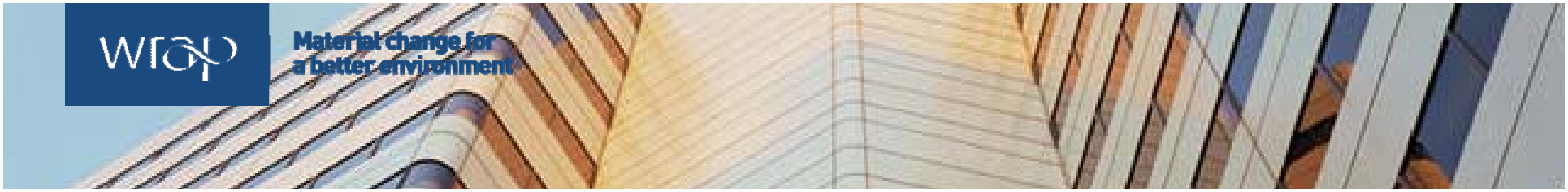
Key principles of client requirements

1. Requirement delivered through procurement process

2. Set requirements early in the process
   - greatest ability to mandate actions

3. Requirements should be set at the project level
   - offers flexibility to the supply chain
   - responsibility of contractor to determine best way to meet requirements
   - fits with outcome focus of Design & Build and PFI

4. Specify requirement for **good practice –** not just the legal minimum



Overview of Waste Management process

- Include within contract / tender requirements
- Identify wastes
- Identify opportunities, consider quick wins
- Set targets
- Consider site practices
- Establish measurement and monitoring of waste

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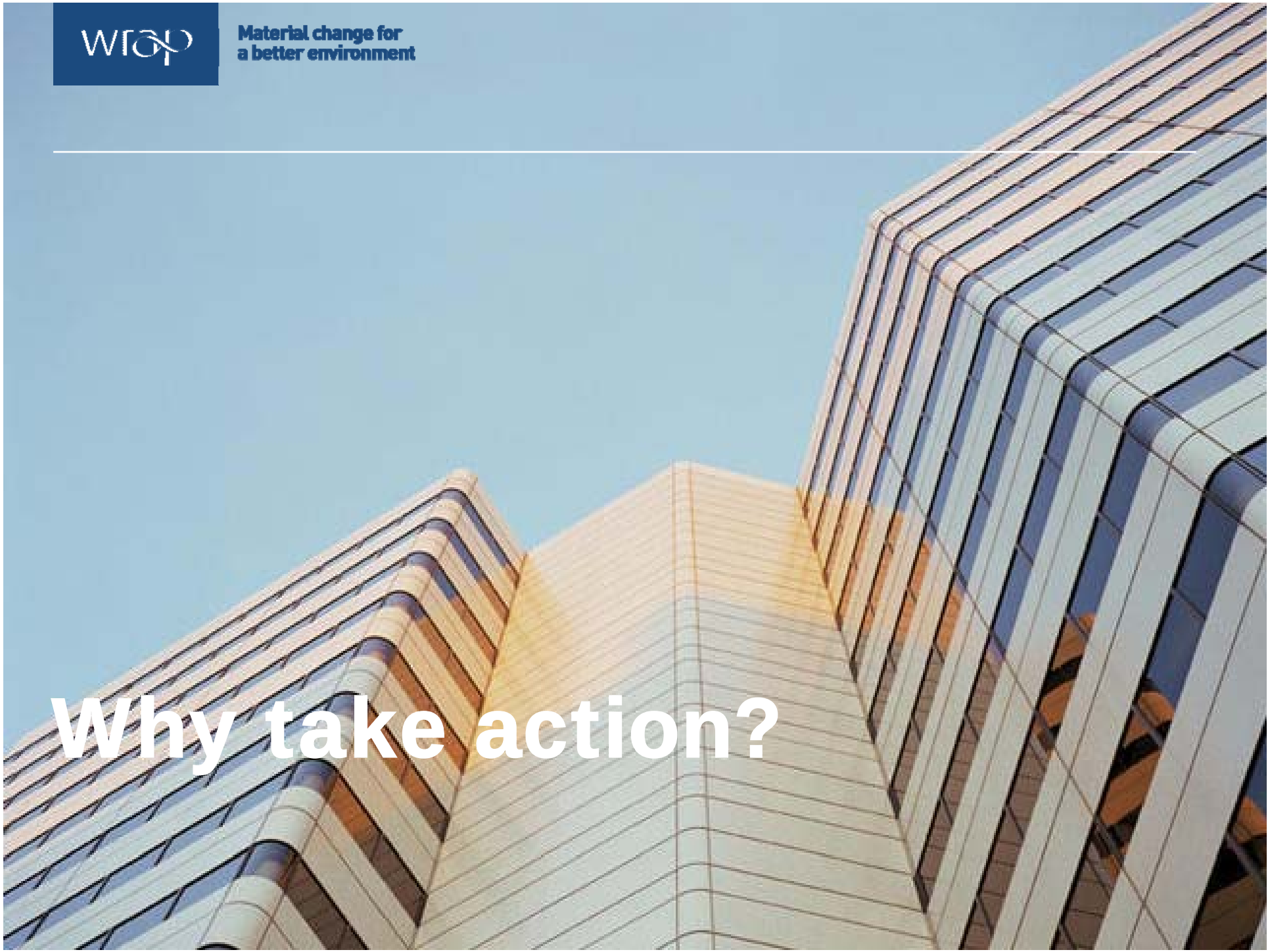
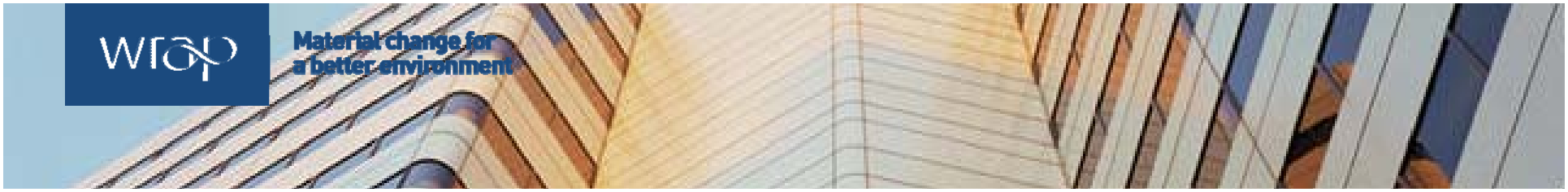


Why take action?



The business benefits

A. Reduce costs of material & disposal

B. Increase competitive edge

C. Improve Corporate Social Responsibility performance

D. Lower CO_2 emissions

E. Meet planning requirements

F. Complement other aspects of sustainable design

G. Respond to and pre-empt legal requirements and taxation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Material change for a better environment
£90
Packaging
£90
Inert
£0
Metals
£258
Mixed
£90
Wood

A. Reduce costs of materials & disposal

Housing development (30 skips / week):

Mixed waste system = £4,970

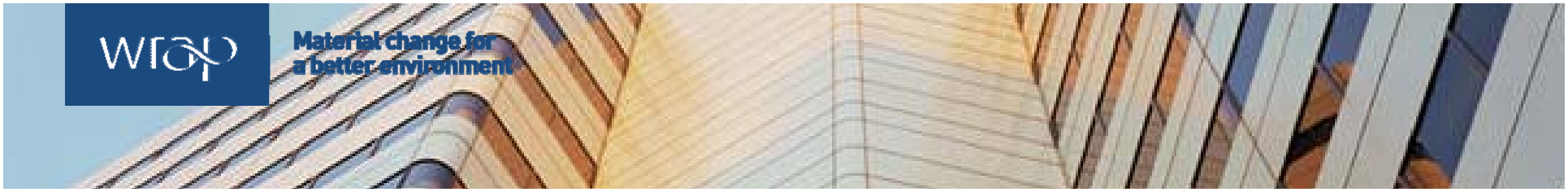
Segregated waste = £1,935

~60% saving to Simons Construction

B. Increase competitive edge

Examples of contractors who are making sustainability part of their market position:

- Wates Group Ltd: "Target Zero" and commitment to a zero waste to landfill policy by 2010
- General Demolition Ltd: Emphasise sustainable waste management in its marketing materials
- Mace Construction and its partnership with a waste recycling company, ensuring recycling of 88% of construction waste



C. Improve CSR performance

Adopting sustainable practices enables:

- Achievement against corporate policies to be quantified
- Demonstration of continual improvement within the client's environmental management system
- Sustainability to be adopted as a unique selling point

"Reducing waste and ensuring we re-use materials during construction are at the forefront of the Olympic Delivery Authority's sustainable development strategy."

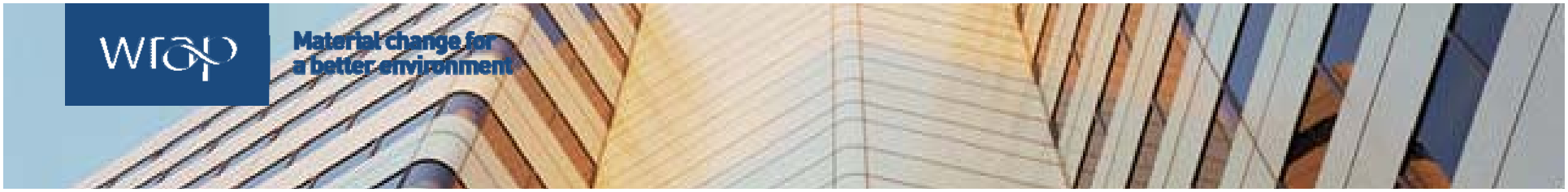
David Higgins, Chief Executive, Olympic Delivery Authority.

E. Meet planning requirements

The Planning regime presents an effective driver for sustainable construction practices:

- ODPM's Planning Policy Statement 1
  - requires Development Plan Policies to seek to use waste as a resource wherever possible

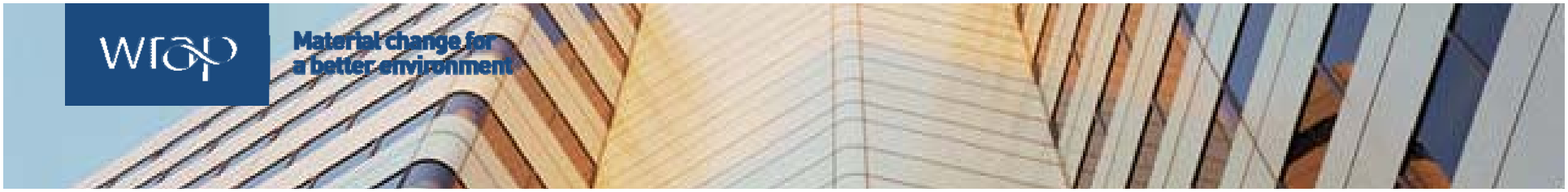
- Planning Officers Society & Local Government Association document 'Planning Policies for Sustainable Building 2006'
  - encourages the reduction of wastes and the efficient use of wastes in construction



F. Part of sustainable construction

Policies and frameworks for sustainable construction are raising the bar for waste management:

- National policy targets
- Standards for the Government Estate
- Model requirements for PFI schools and hospitals
- Code for Sustainable Homes



G. Pre-empt legal requirements & taxation

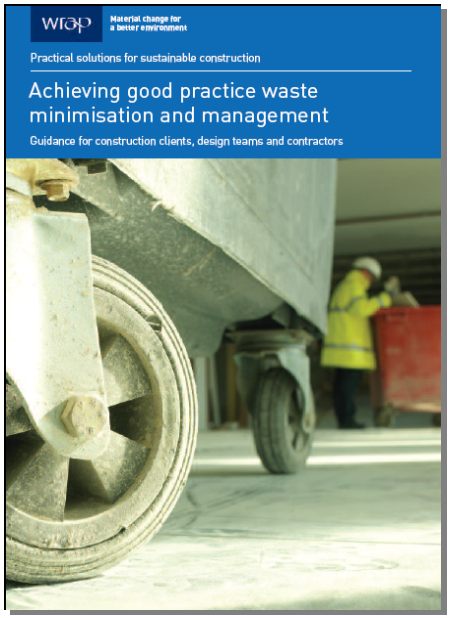
Smart organisations will pre-empt changes in taxation and regulation of waste:

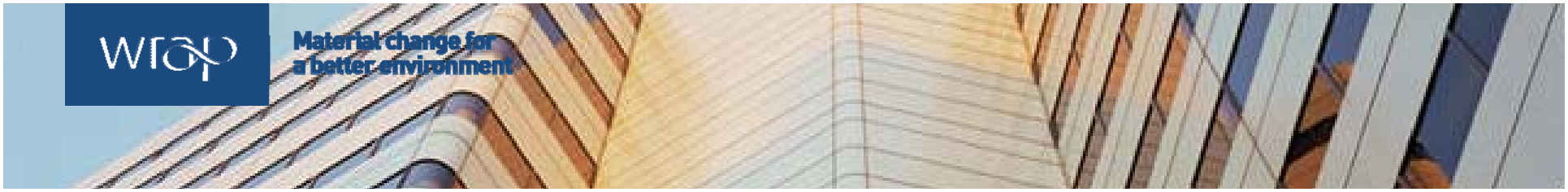
- Landfill Tax
- Requirements for Site Waste Management Plans
- Government funding, procurement and planning requirements

G. SWMP Legislation – Scotland

- Proposed Scottish Planning Policy 10: Planning for Waste Management

  – SWMPs as planning conditions for new developments of more than £200,000





Recap: The business benefits

A. Reduce costs of material & disposal

B. Increase competitive edge

C. Improve CSR performance

D. Lower CO_2 emissions

E. Meet planning requirements

F. Complement other aspects of sustainable design

G. Respond to and pre-empt legal requirements and taxation

Material change for
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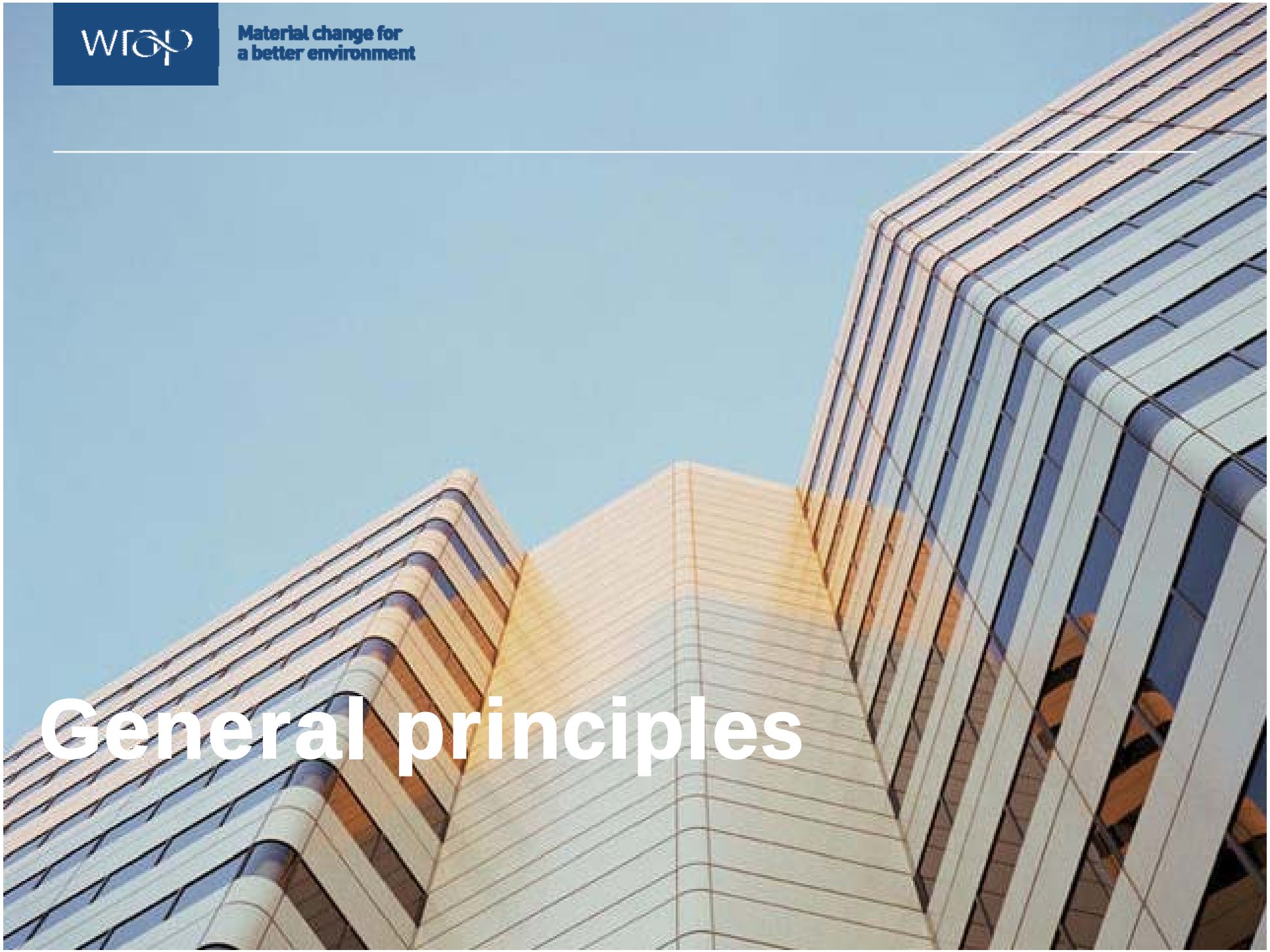
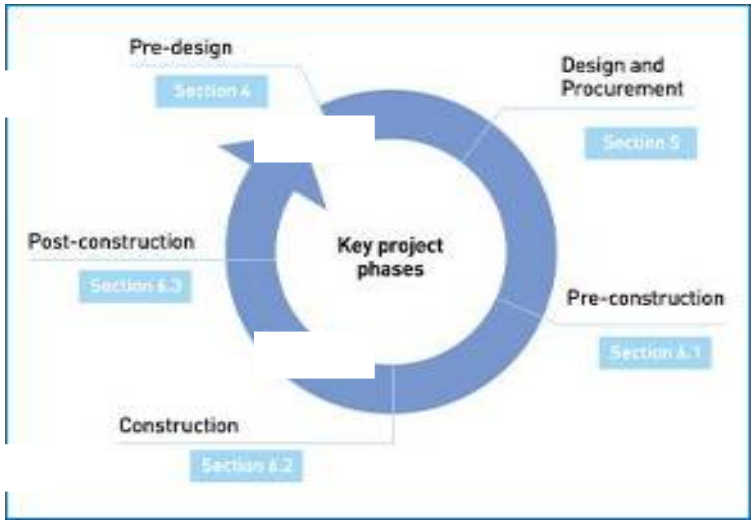


General principles

Waste hierarchy

Key project phases

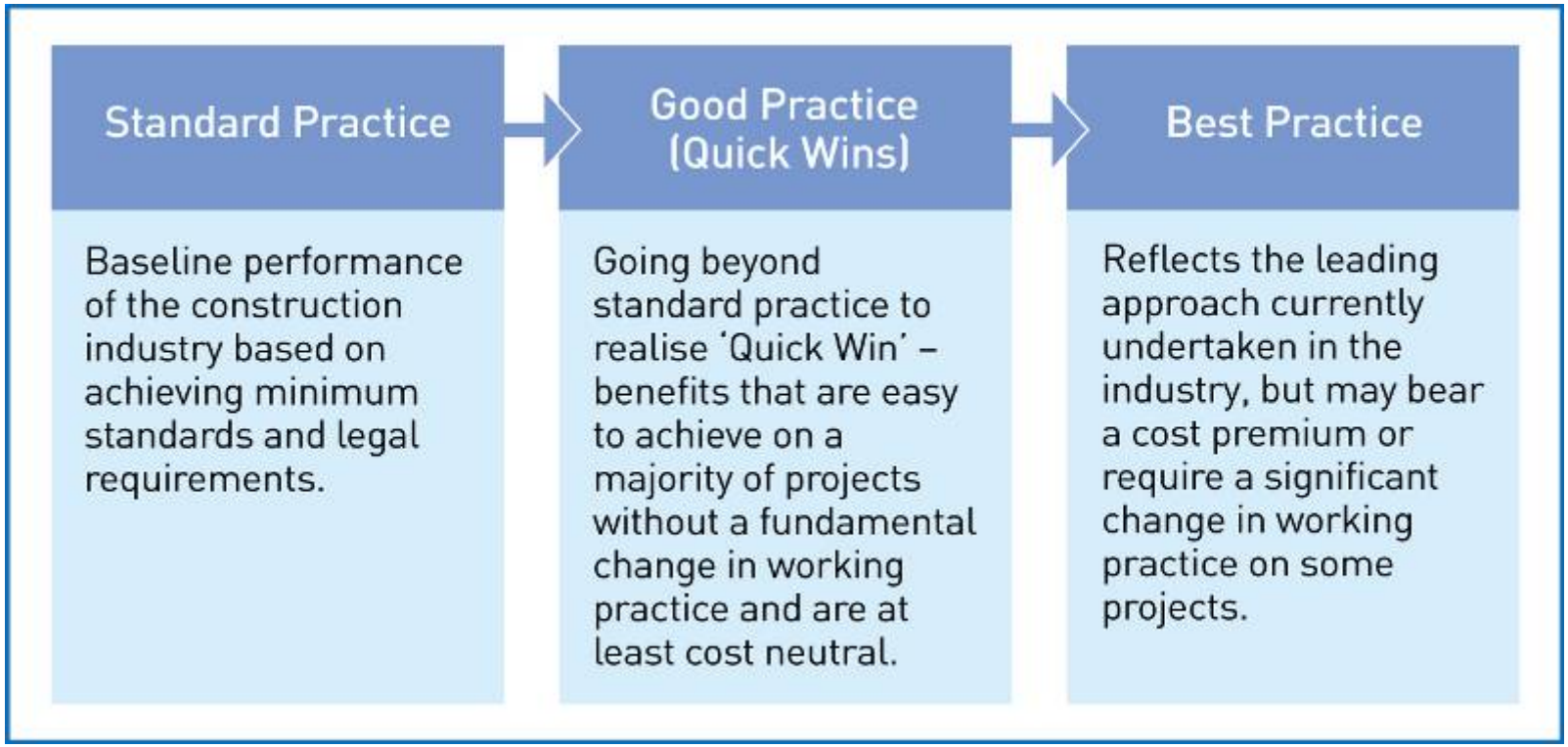


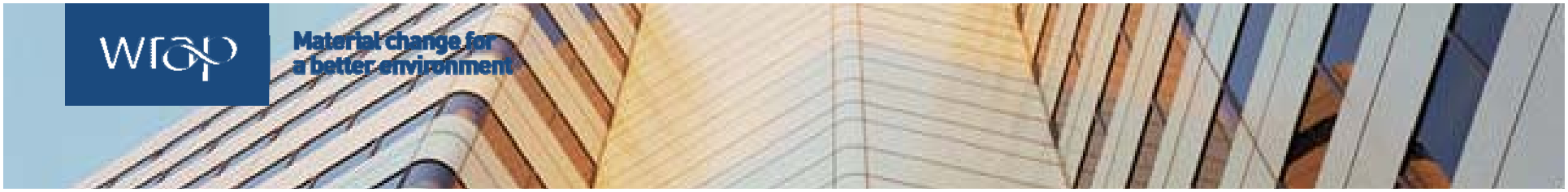
Construction wastes

Factors influencing the waste profile:

- Composite designs of buildings
- Changes in design
- Lack of communication between tradesmen
- Over estimation and consumption of resources
- Material damaging from mishandling and careless deliveries and storage
- Vandalism
- Inadequate recording of materials used on site
- Rework
- Packaging

Waste management levels





What does this mean to a client?

- Need to clearly state project waste management expectations and requirements
- Good and best practice can realise cost savings without significant expenditure
- Best results from adoption of requirements at earliest stage
- Need to require designers, contractors and QSs to forecast, set targets and measure wastage
- Performance optimised by the review of waste management practices and achievement against benchmarks, throughout the project

Case study: Greenwich Millennium Village

Countryside Properties, Taylor Woodrow & English Partnerships

Key actions

- Contract clauses for waste minimisation

Results

- Waste reduction target of 50% from baseline of 50m^3 per dwelling
- Saving of over £150,000 by:
  - incorporating binding terms into contractual agreements
  - workshops for new contractors and monitoring of segregation
  - engaging the supply chain in waste minimisation

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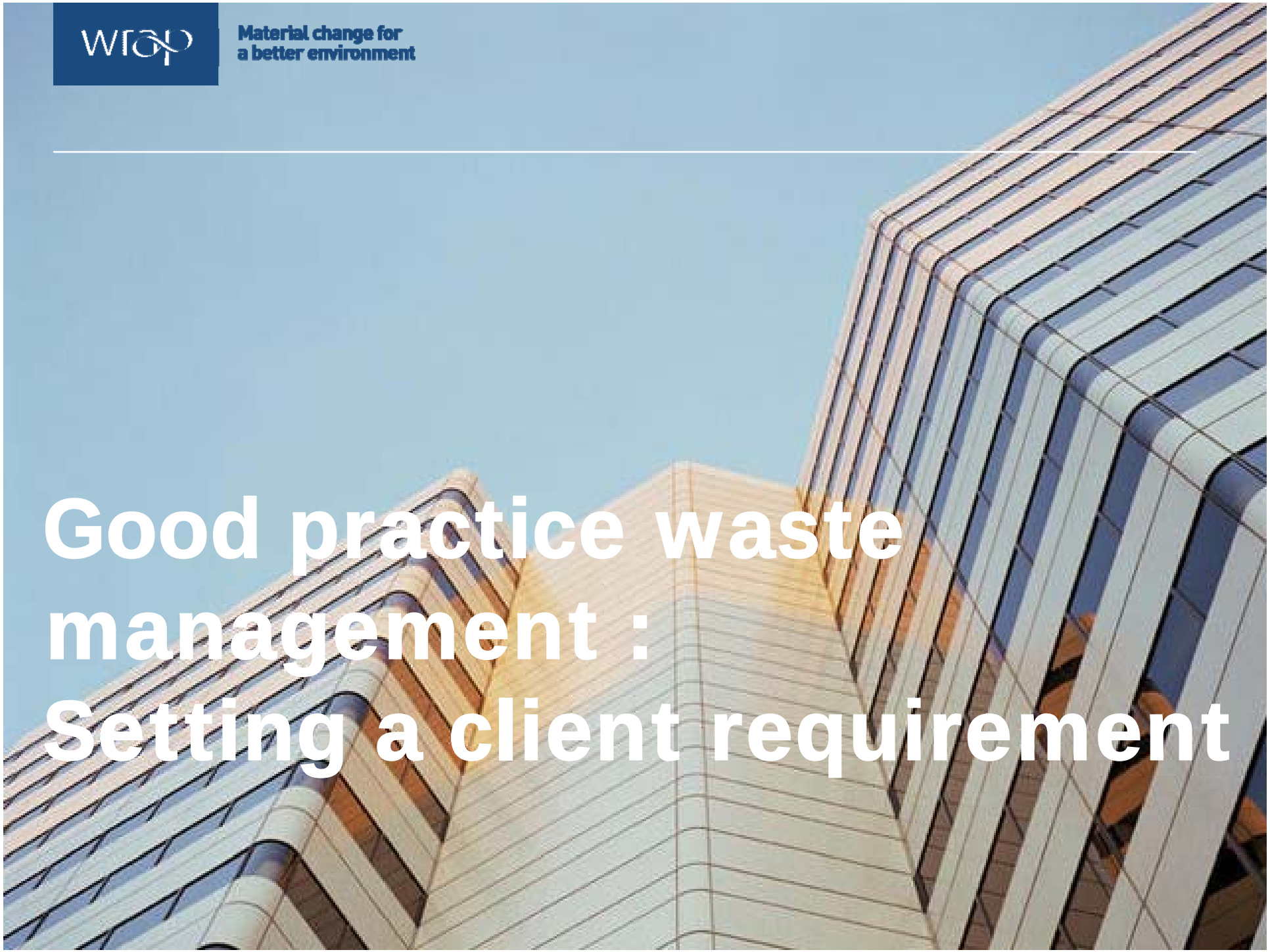
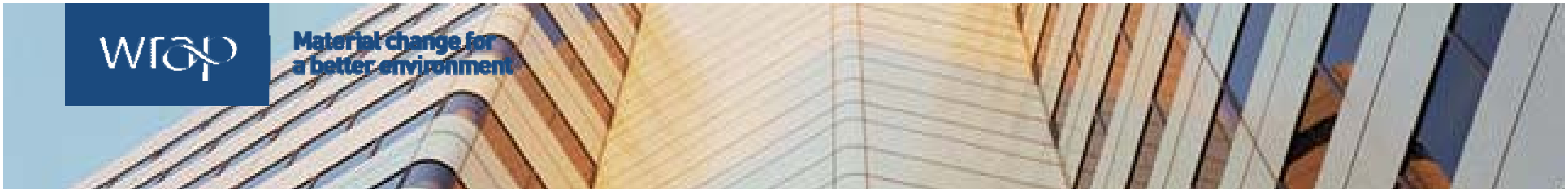


Good practice waste management : Setting a client requirement



Key principles of client requirements

1. Requirement delivered through project and procurement process

2. Set requirements early in the process
   - greatest ability to mandate actions

3. Requirements should be set at the project level
   – offers flexibility to the supply chain
   – responsibility of contractor to determine best way to meet requirements
   – fits with outcome focus of Design & Build and PFI

4. Specify requirement for **good practice –** not just the legal minimum

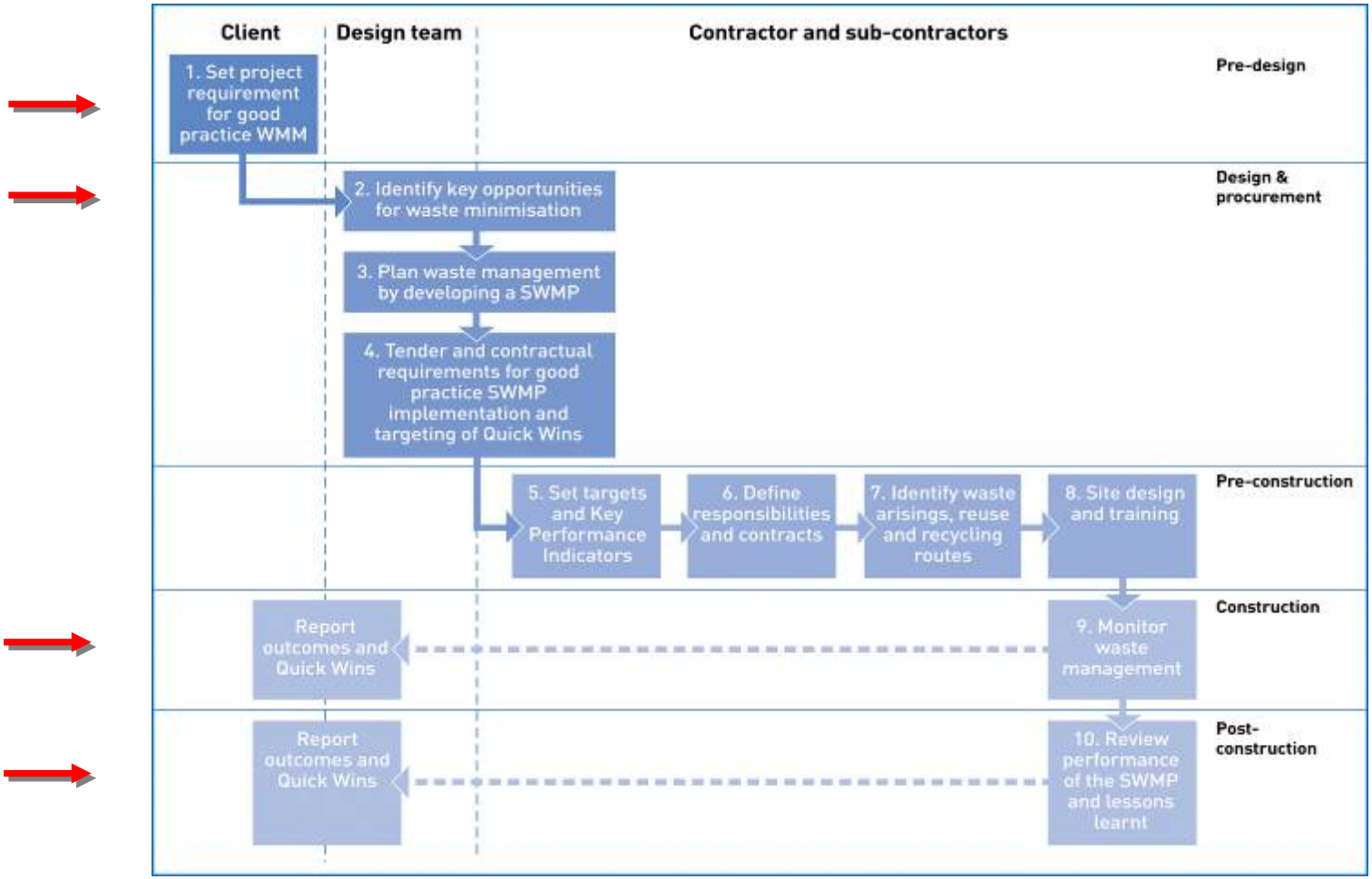
Requirement for waste minimisation and management

'....we require a **Site Waste Management Plan** (SWMP) to be developed from the **pre-design** stage and implemented in all construction **site activities** in line with good practice published by WRAP.

The SWMP is required to set **targets for waste reduction and recovery** based on:

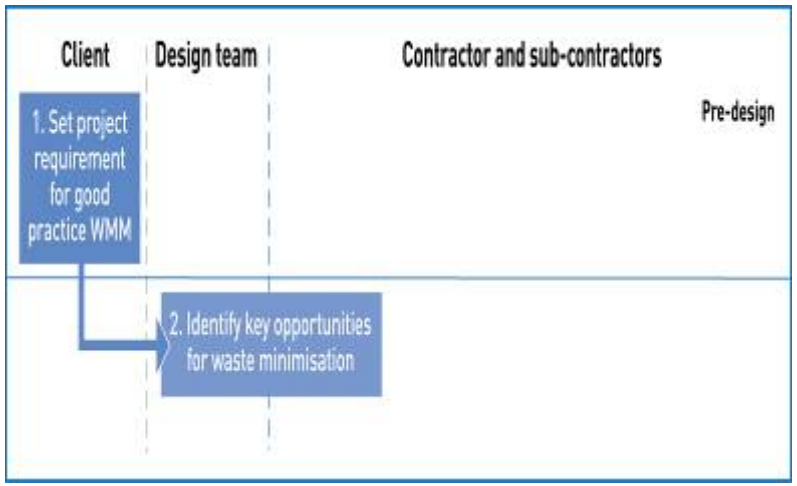
- assessment of the likely composition and quantity of waste raisings
- **identification of the most significant cost-effective options for improvement (Quick Wins)**.'

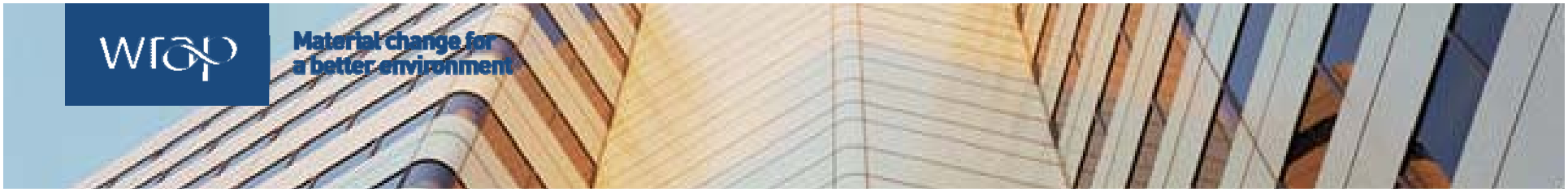
Key client intervention points



Pre-design & client requirements stage

- Agenda set through project requirements:
  - waste management requirements in contracts
  - Site Waste Management Plans (SWMPs)
  - good practice waste management as a minimum
  - design brief, including consideration of options
  - good practice targets
- Allow a 'partnership' approach
  - time and resources for SWMP
- Include within client's own internal policies and objectives





Policy statement example

‘As part of its commitment to sustainable construction, [Organisation name] aims to increase its **efficiency in the use of material resources.**

One targeted outcome is to continuously reduce the quantity of waste arising and increase the recovery of materials for reuse and recycling on all construction projects.

Therefore, in its procurement, [Organisation name] will **set requirements for its projects to incorporate good practice waste minimisation techniques and to plan and implement good practice waste management and recovery in accordance with WRAP guidance'.**

Who is already doing this?

Public Sector:

- Greenwich Millennium Village (GMV)
- Oxford City Council
- The Housing Corporation
- Ealing Family Housing Association
- Shepherds Bush Housing Association

Clients and Developers:

- Bovis Lend Lease
- Laing Homes
- St George South London Ltd
- Eastland Partnership Ltd
- Persimmon

Contractors

- Skanska Integrated Projects
- Wates
- many more.....

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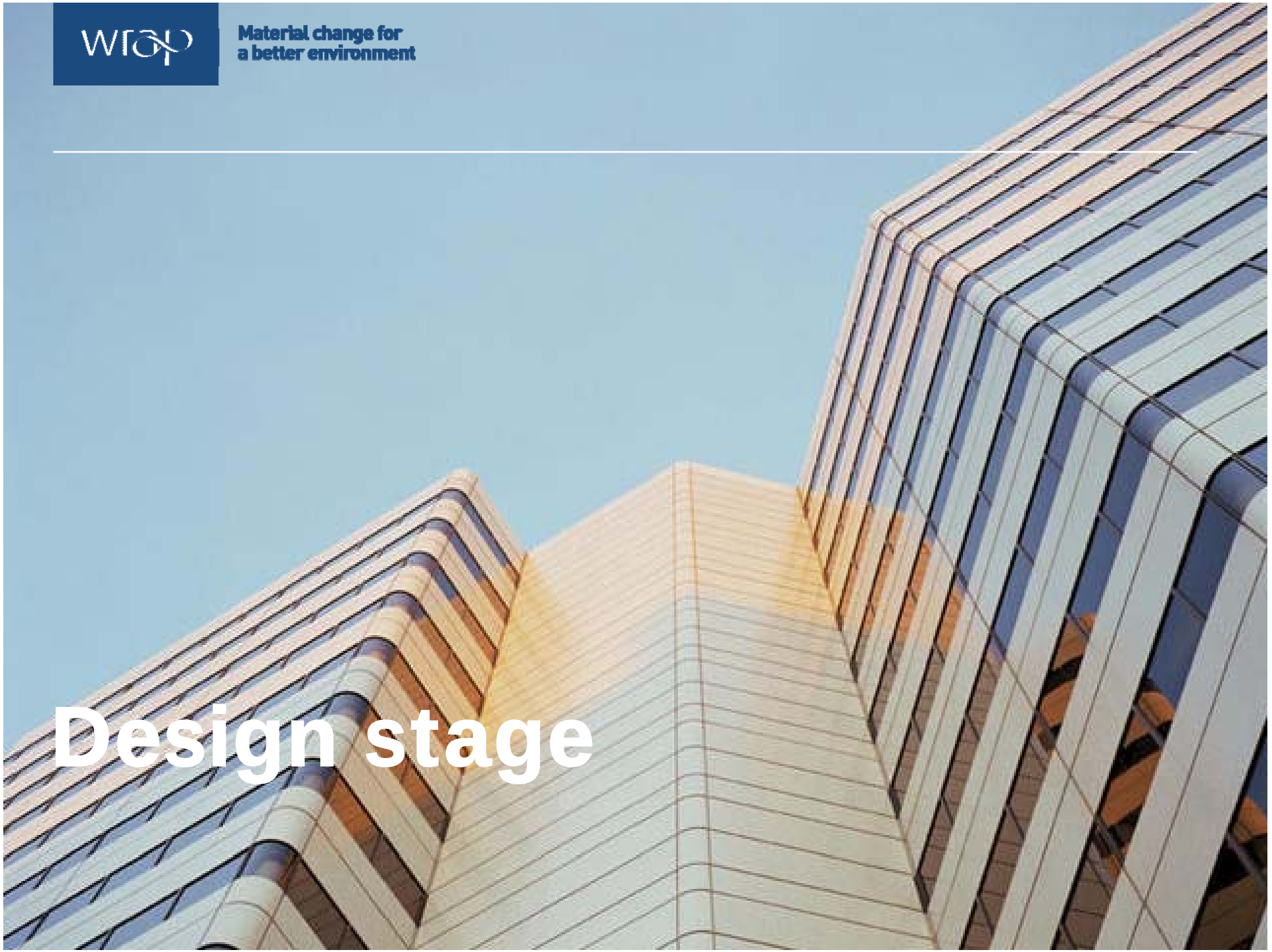
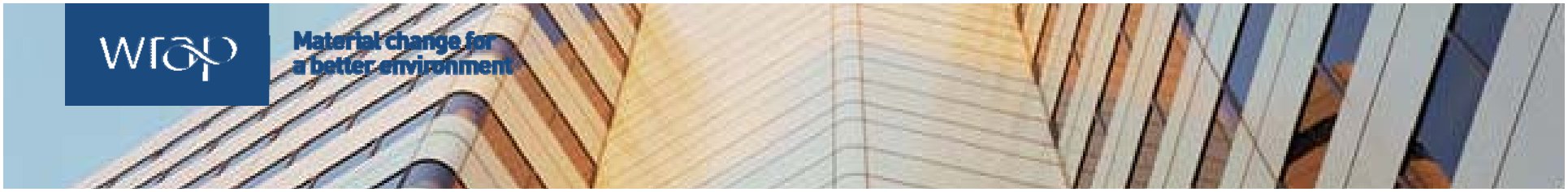


Design stage



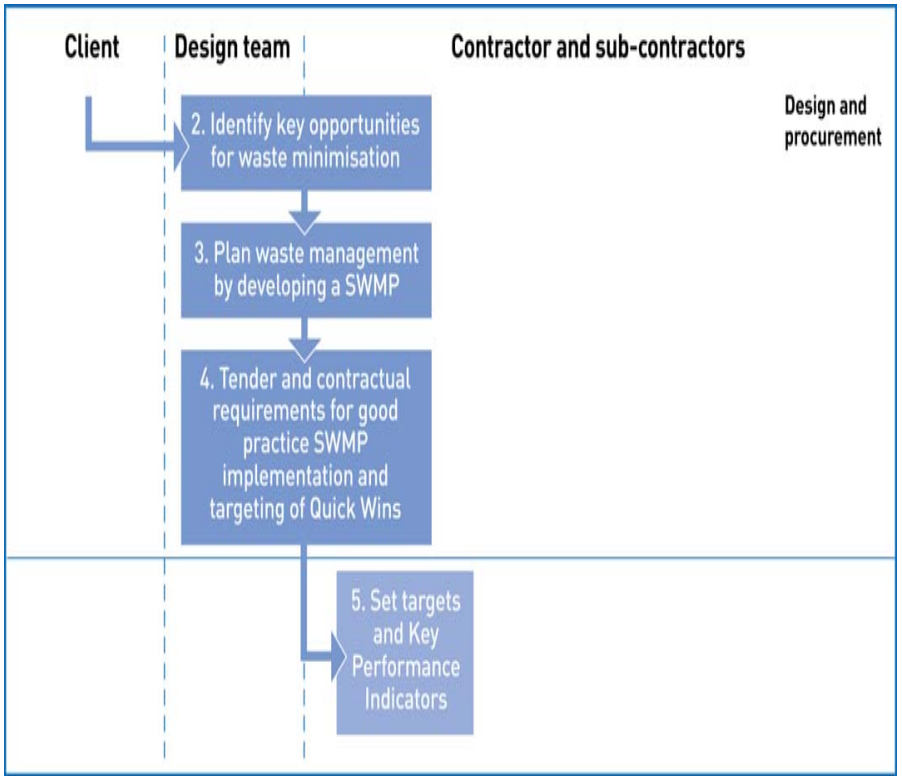
Roles and responsibilities

- Client is responsible for setting the requirement
- Designer* identifies the response and approach
- Contractor delivers

* Designer (may include architect, QS, cost planner, structural engineer) - can be part of the Client team or contractor. In either case, the process is essentially the same.

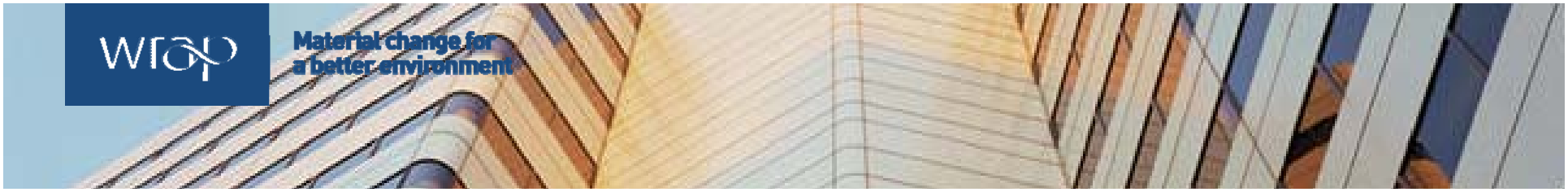
Design & works procurement stage

- Waste minimisation
  - design solutions
  - off-site manufacture
  - logistics
  - materials procurement
- Site waste management plans (SWMPs)
- Contractual requirements, model wording



Opportunity: Design solutions

- Building form
- Design flexibility
- Design complexity
- Specifications
- Include demolition phase



Opportunity: Off-site manufacture

- Includes:
  - pre-fabrication
  - factory assembly
  - panelised construction

- Controlled manufacturing environment

- Greater potential to manage and control waste

Opportunity: Logistics

- Logistics plan
- On-site logistics specialist
- 'Just in time' delivery
- Construction consolidation centres
- 4th party logistics
- Integrated ICT system across supply chain

Case study: Try Construction, Stanhope Gate, London

Strategic approach to raw materials and waste management

- Just-in-time deliveries
- Procedures to reduce late variations
- Waste minimisation included in a site booklet
- Posters: ‘No space for waste’
- Bad practice corrected by contractors

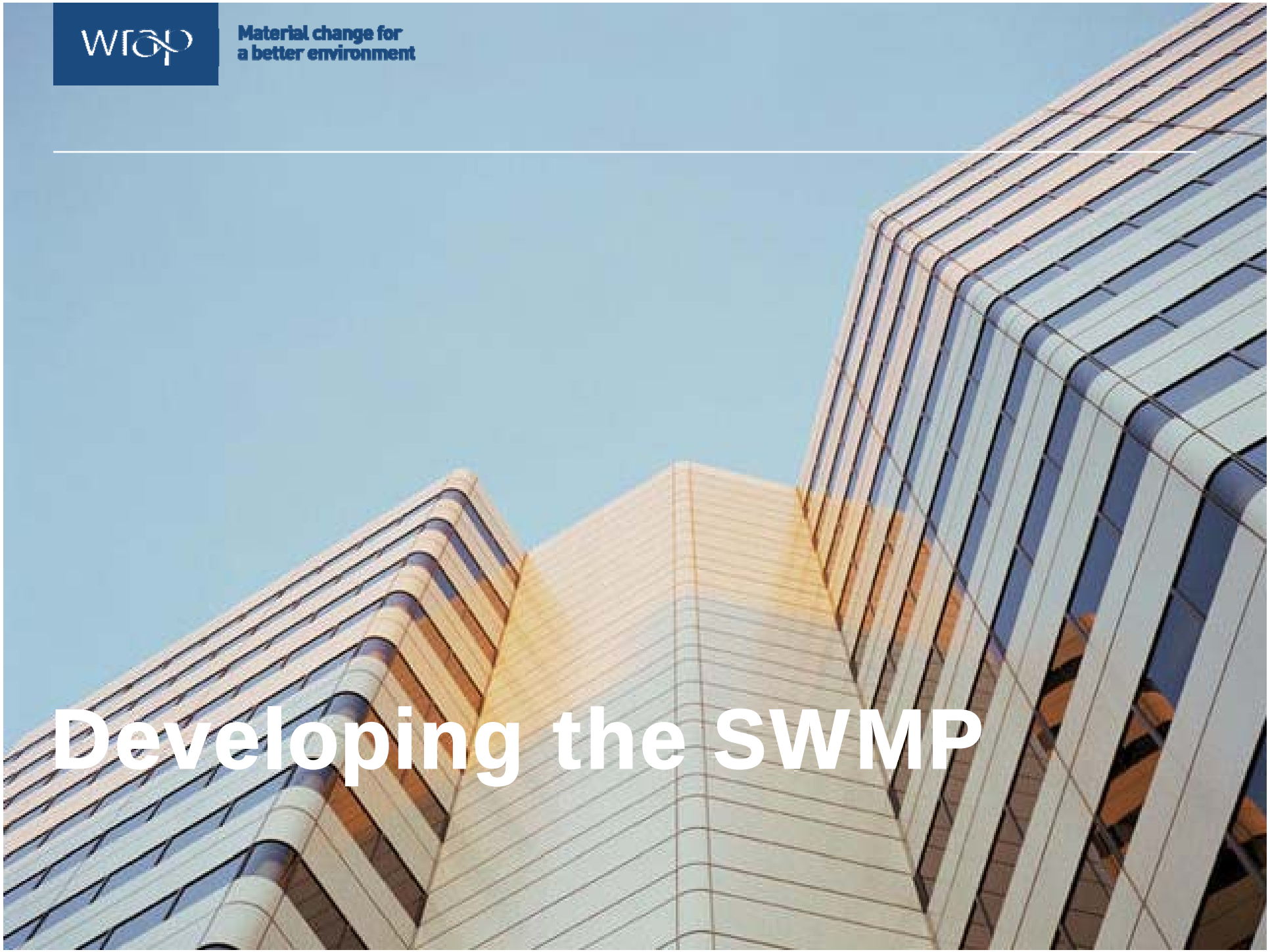
Results

- 50% reduction in waste bricks and blocks compared to industry norms

Opportunity: Materials procurement

- Materials ordering
- Materials storage
- Materials handling
- Supply chain manager
- 'Take-back' schemes
- Packaging

Material change for
a better environment

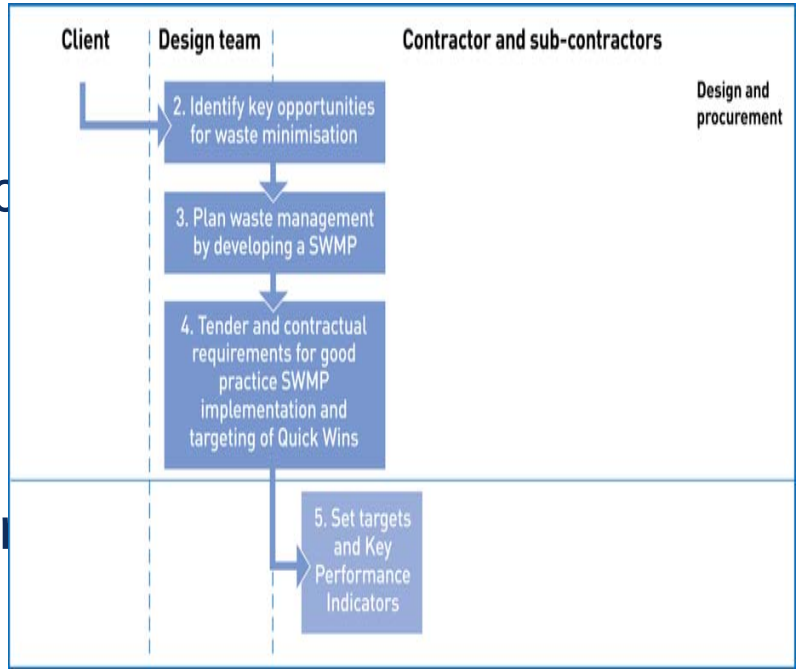


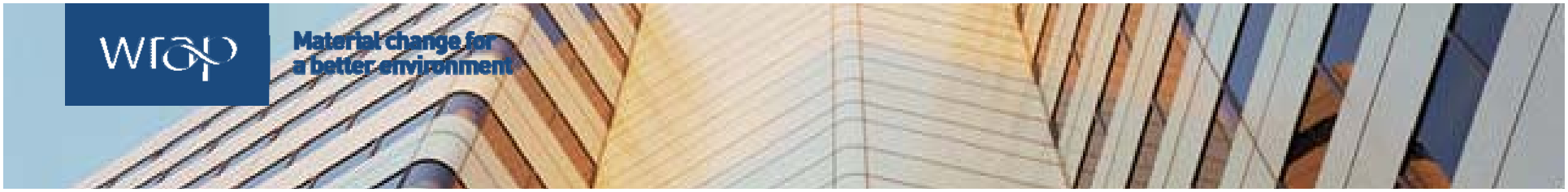
Developing the SWMP

Avoid poor on-site practice

Step 3: Plan waste management by developing SWMPs

- Identify wastes
- Identify opportunities, consider quic
- Consider site practices
- Establish measurement and monitor waste

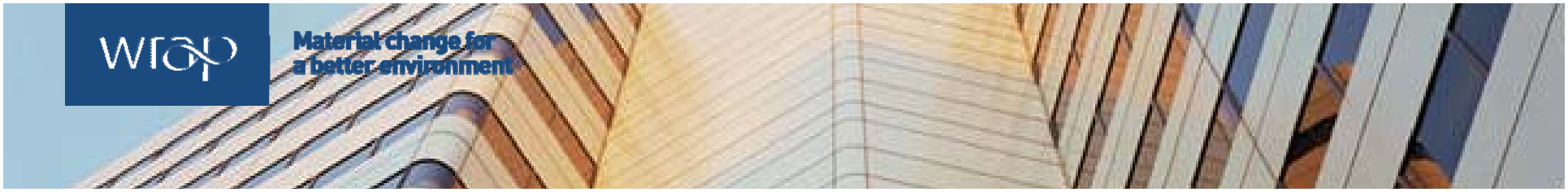




Waste Recovery Quick Wins

Potential to increase recycling rates by more than 20 %

Recovery of Waste Streams (% by tonnes)			
Quick Win materials	Standard practice	Good practice	Best practice
Timber	**57%**	**90%**	**95%**
Metals	**95%**	**100%**	**100%**
Plasterboard	**30%**	**90%**	**95%**
Packaging	**60%**	**85%**	**95%**
Ceramics	**60%**	**85%**	**95%**
Concrete	**75%**	**95%**	**100%**
Inert	**75%**	**95%**	**100%**
Plastics	**60%**	**80%**	**95%**
Furniture	**0-15%**	**25%**	**50%**
Insulation	**12**	**50%**	**75%**
Cement	**70%**	**75%**	**95%**



Case study: Optimised waste recycling

Cost saving

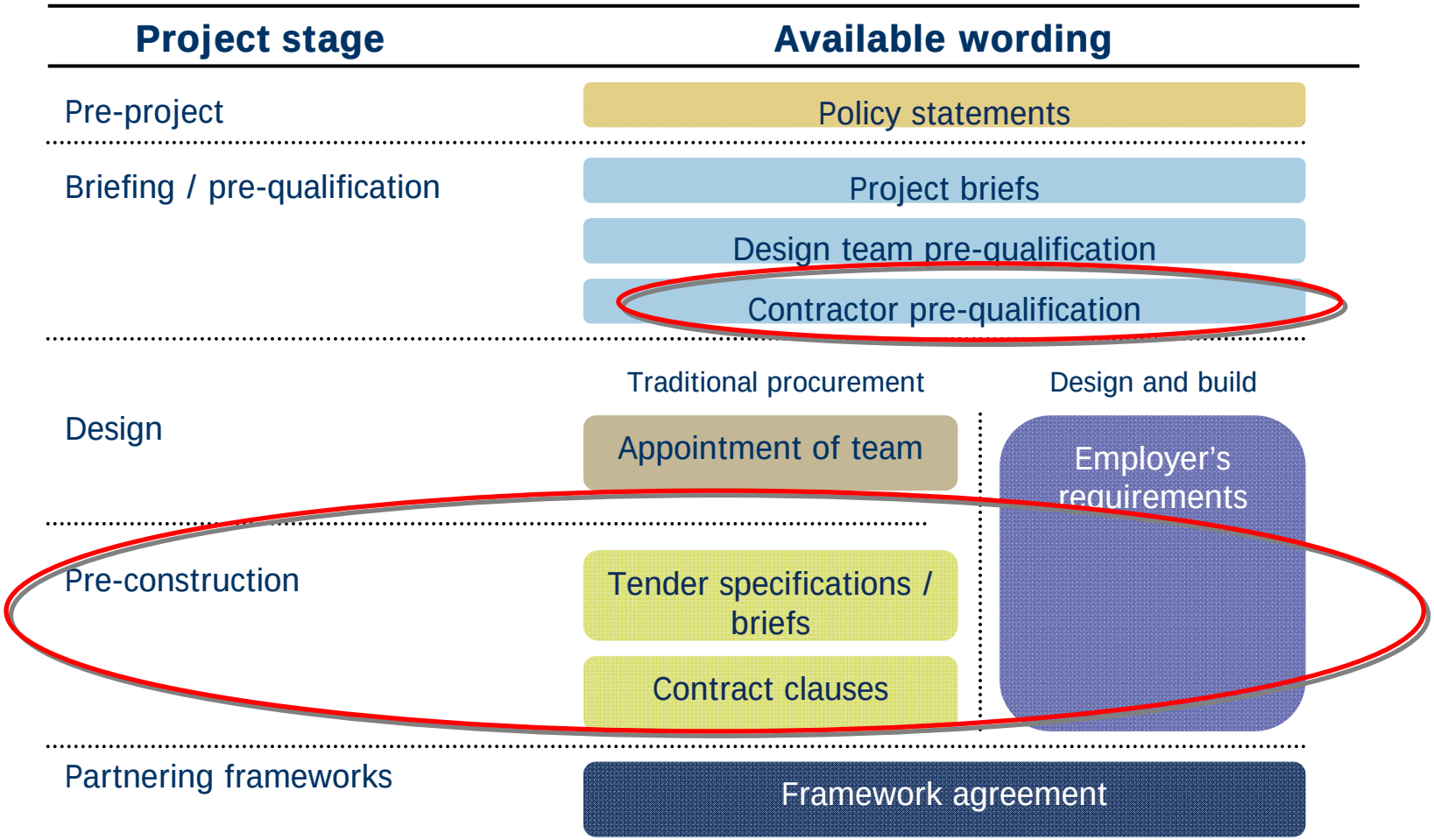
- Bovis Lend Lease (BLL) calculate waste management typically accounts for 0.5% of the value of a construction project
  - £50 million project = £250,000
  - 10% waste reduction = £25,000

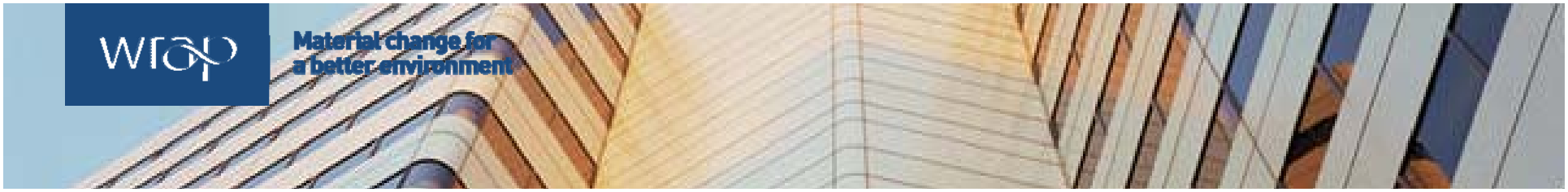
Bovis Lend Lease

Key behavioural changes included:

- establishing targets and KPIs to benchmark performance
- setting tender and contract requirements for waste segregation
- appointing waste contractors able to achieve segregation levels of 90%
- implementing SWMPs as standard practice to change site behaviour and reduce the quantity of waste to landfill
- incorporating improved waste recovery performance via the EMS

Step 4: Tender and contractual requirements

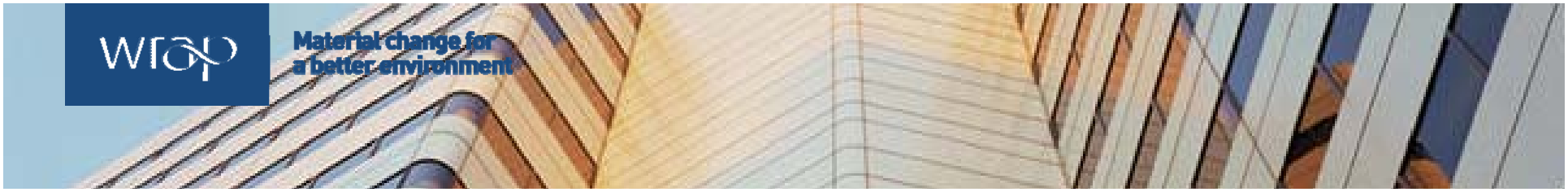




Key principles in the supply chain

- Waste management contractors:
  - contracts tendered on basis of optional prices for segregation
  - report quantities of different waste streams and fate

- Same liability for sub-contractors as main contractors



Case study: Skanska Integrated Projects

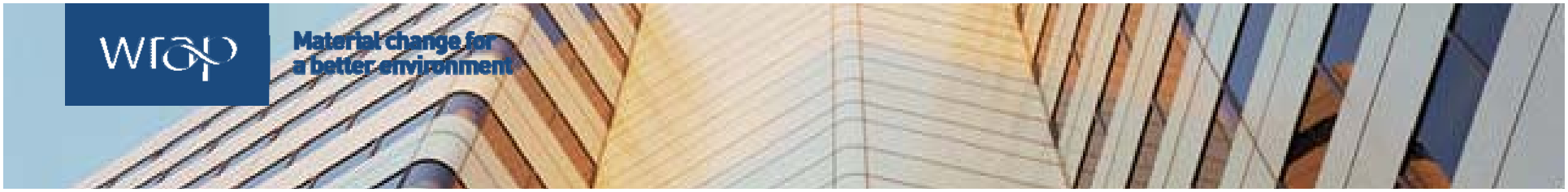
Selection of contractual terms for Trade Contractors re waste management:

- Charged for cost of waste disposal
- Mixed waste is at a higher rate than segregated waste

Or:

- Agree a wastage rate
- If higher level than agreed, a penalty charge is paid
- Have to estimate quantities at the start of the project/work package
- Stop notice issued if area is untidy
- Charge made if waste is not cleared up

SKANSKA

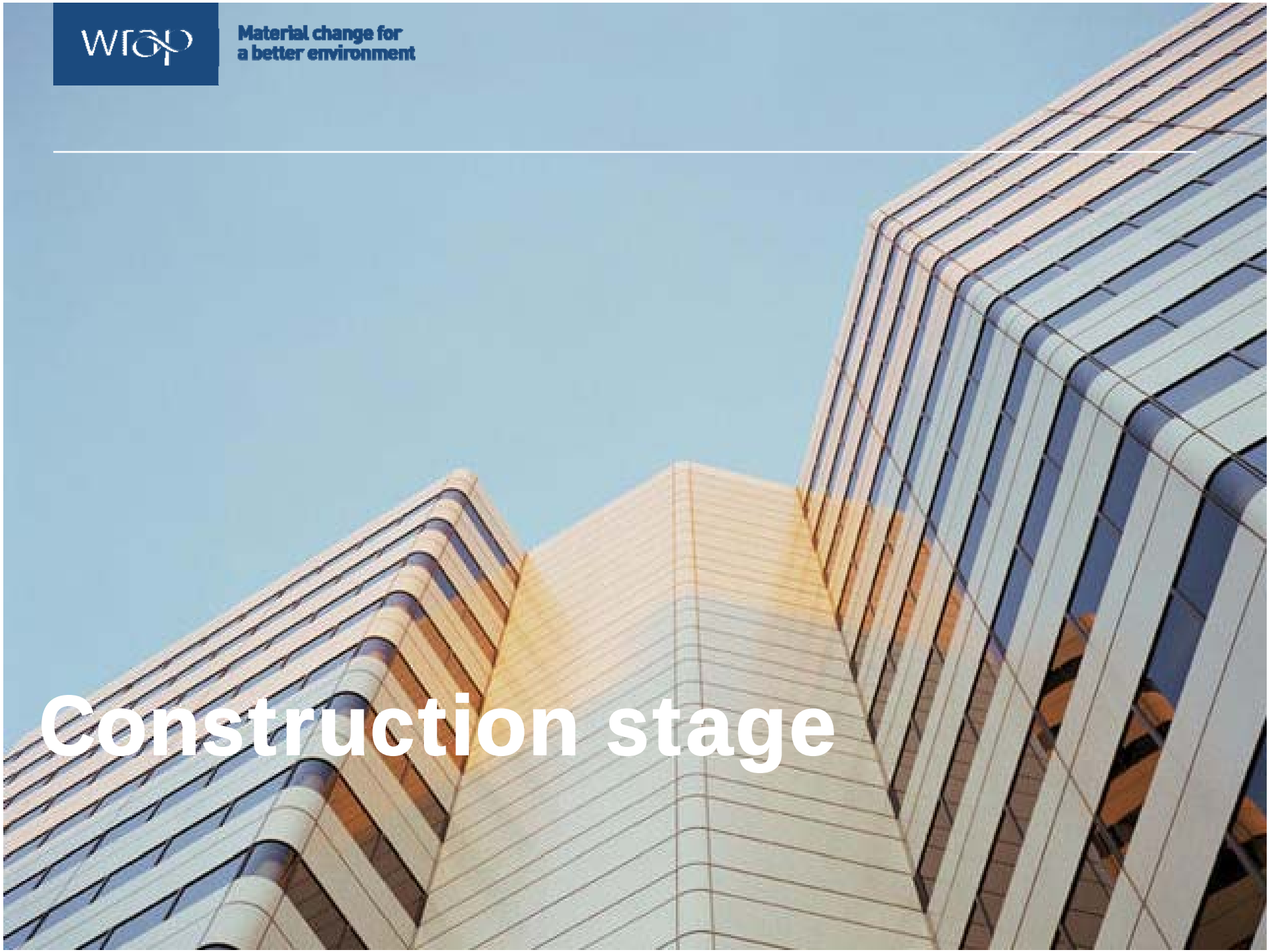


Recap: End of design phase

- Majority of effort on waste planning now in place

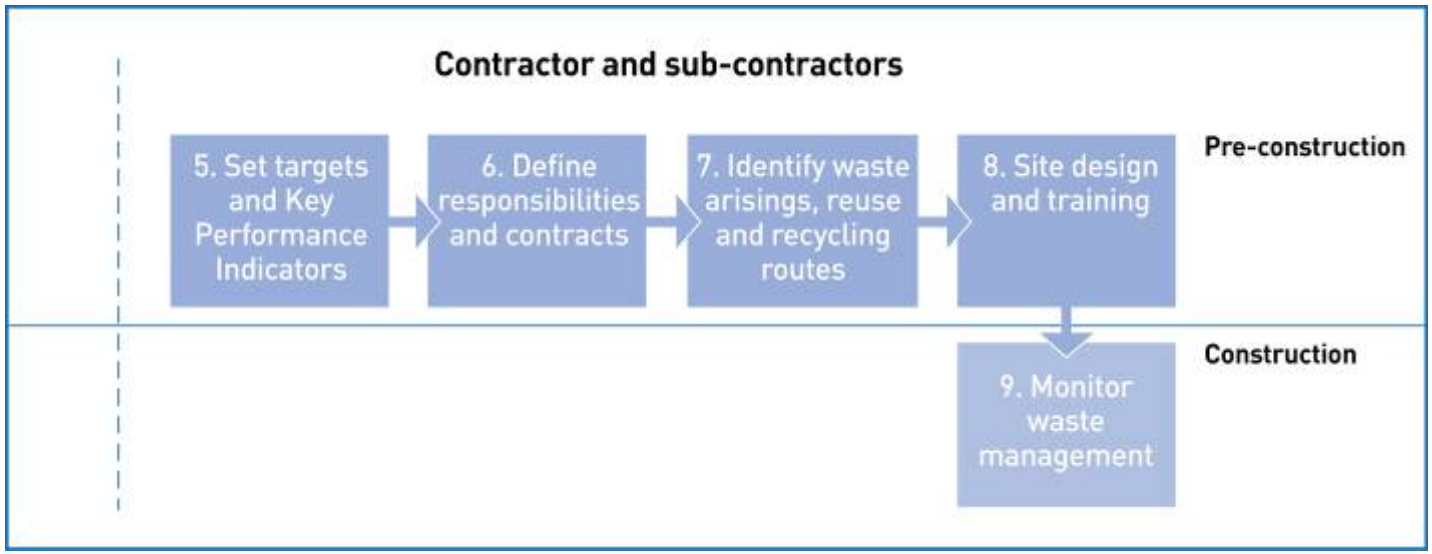
- Client organisation's key activities:
  - clear policy
  - clear requirements set prior to design stage
  - Measurement and improvement mandated

Material change for
a better environment



Construction stage

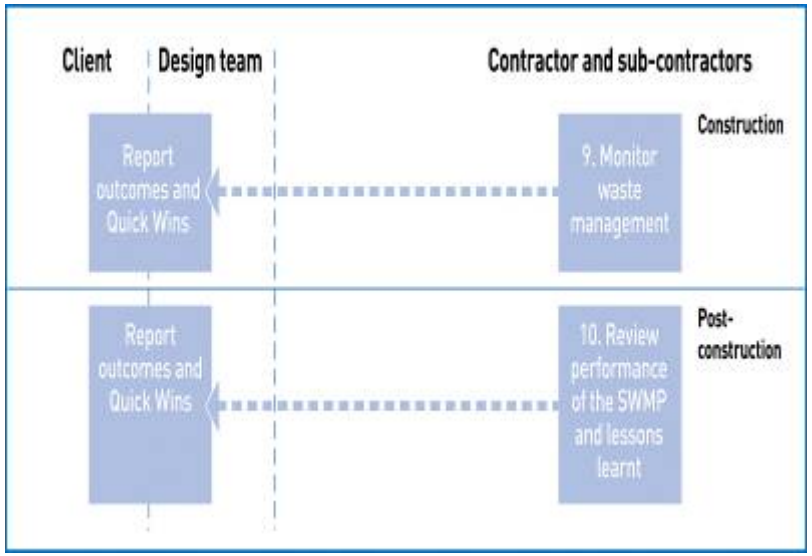
Construction stages: Steps 5 - 8



Construction stages: Steps 9 & 10

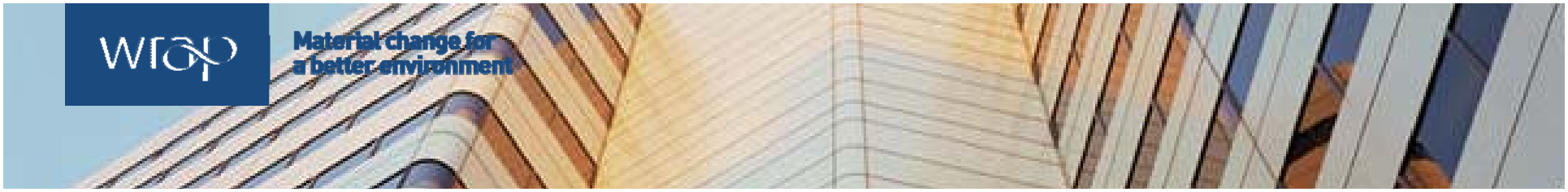
Consider client needs and appropriate data:

- Quantitative (yearly and/ or monthly)
- Apply to all project types
- e.g. x% of projects where the amount of waste recovered is greater than x%



Project data:

- Provided regularly
- Interpretation and trends
- Identification of wasteful practices



Information for clients, post-construction

- Final review of project and SWMP
- Identification of lessons learnt
- Feed into company benchmarks
- Fine-tuning of SWMP procedures and practices

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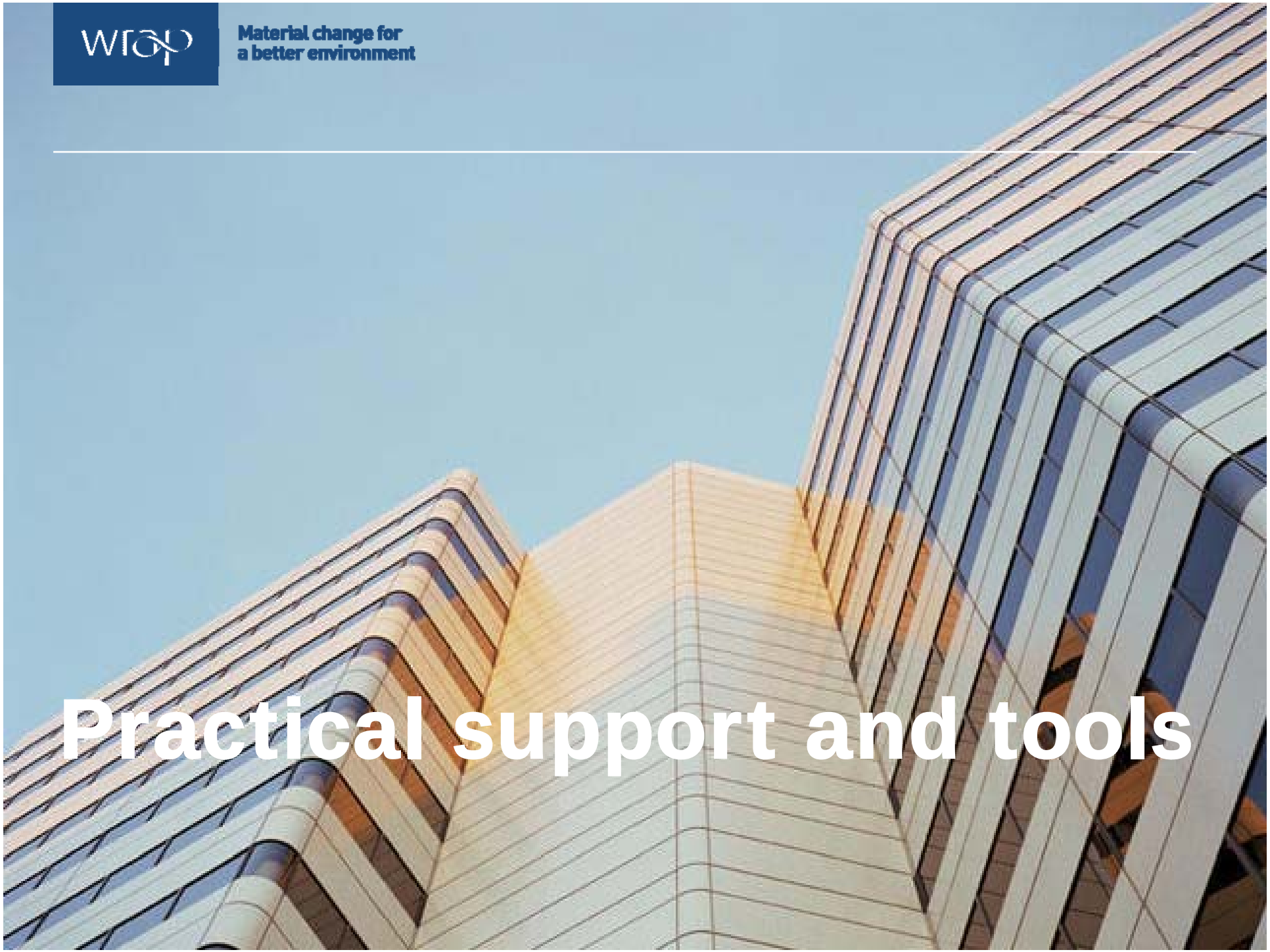


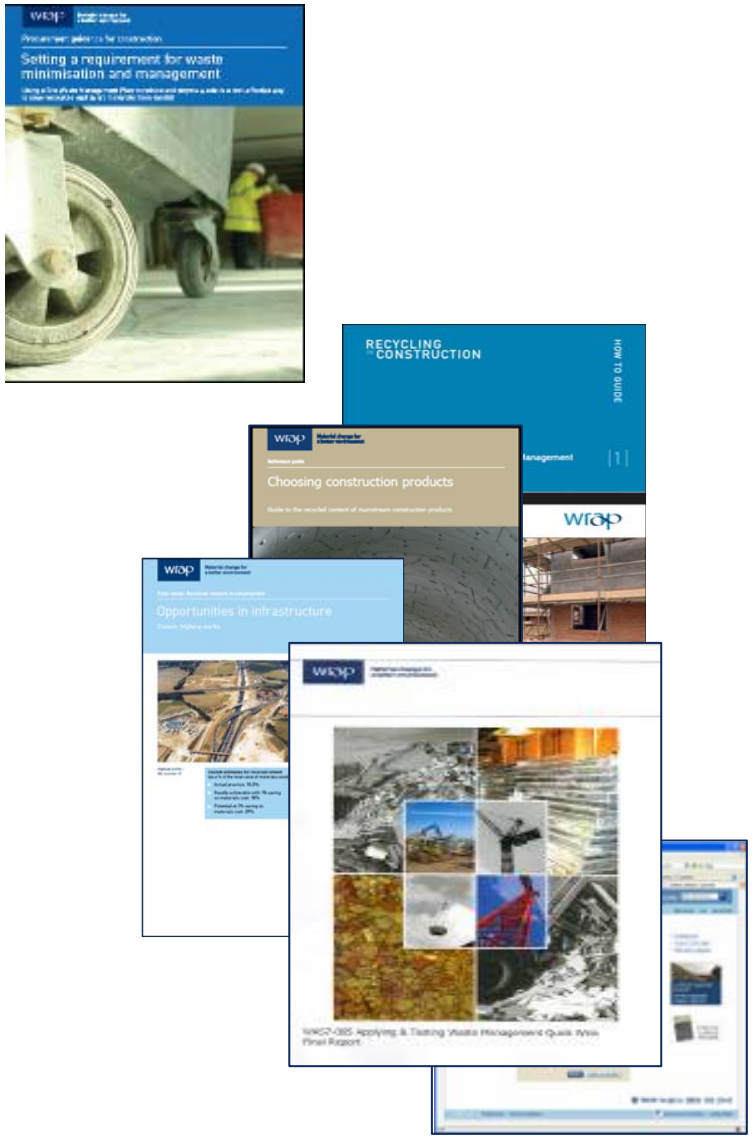
Practical support and tools

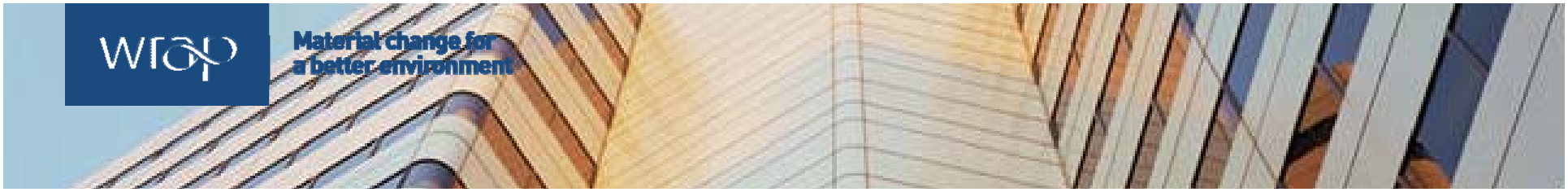
Support available

- **Good Practice Guide:**
  - Exemplar wording for pre-qualification questionnaires, briefs and contracts

- **Publications** on standards and good practice:
  - quick win guides
  - step by step regeneration guide
  - case studies covering all types of construction

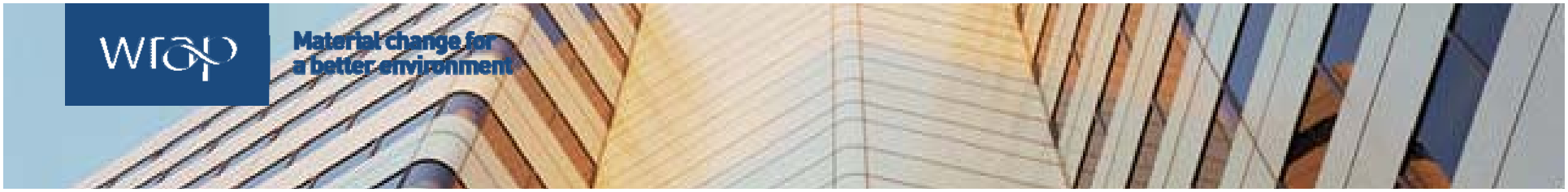
- **Training packages** and in-house delivery





Model wording for procurement

Project stage	Available wording	
Pre-project	Policy statements	
Briefing / pre-qualification	Project briefs	
	Design team pre-qualification	
	Contractor pre-qualification	
	Traditional procurement	Design and build
Design	Appointment of team	Employer's requirements
Pre-construction	Tender specifications / briefs	
	Contract clauses	
Partnering frameworks	Framework agreement	



Pre-qualification example

Capacity to deliver good practice waste management (waste minimisation and recovery) can be included in pre-qualification processes for various parties. This should then be tested at interview stage.

At pre-qualification stage:

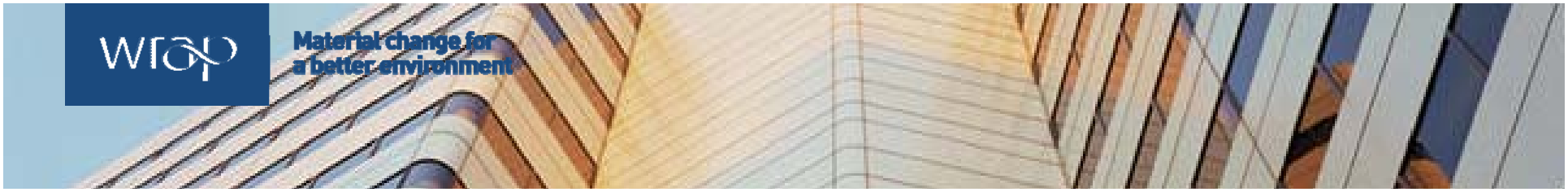
"Does your company have the skills and experience to implement good practice waste management (waste minimisation and recovery) in accordance with WRAP guidance during the design and/or construction phase?"

At interview stage:

"Which good practice waste management processes do you think are applicable to this project and why?"

"What knowledge and experience do you have in developing and /or implementing site waste management plans to good practice levels on construction projects?"

"What is your experience in setting waste recovery targets, measuring waste streams on-site and implementing review processes?"



Project documentation: traditional

Design brief defines overall project outcomes:

Identifies requirement for good practice waste management (waste minimisation and waste recovery) and use of SWMP

Appointment of design team:

- Key elements SWMP
- Identify Quick Wins

Project documentation:

Good practice waste management requirement and suggested Quick Wins included in specification

Selection of a contractor:

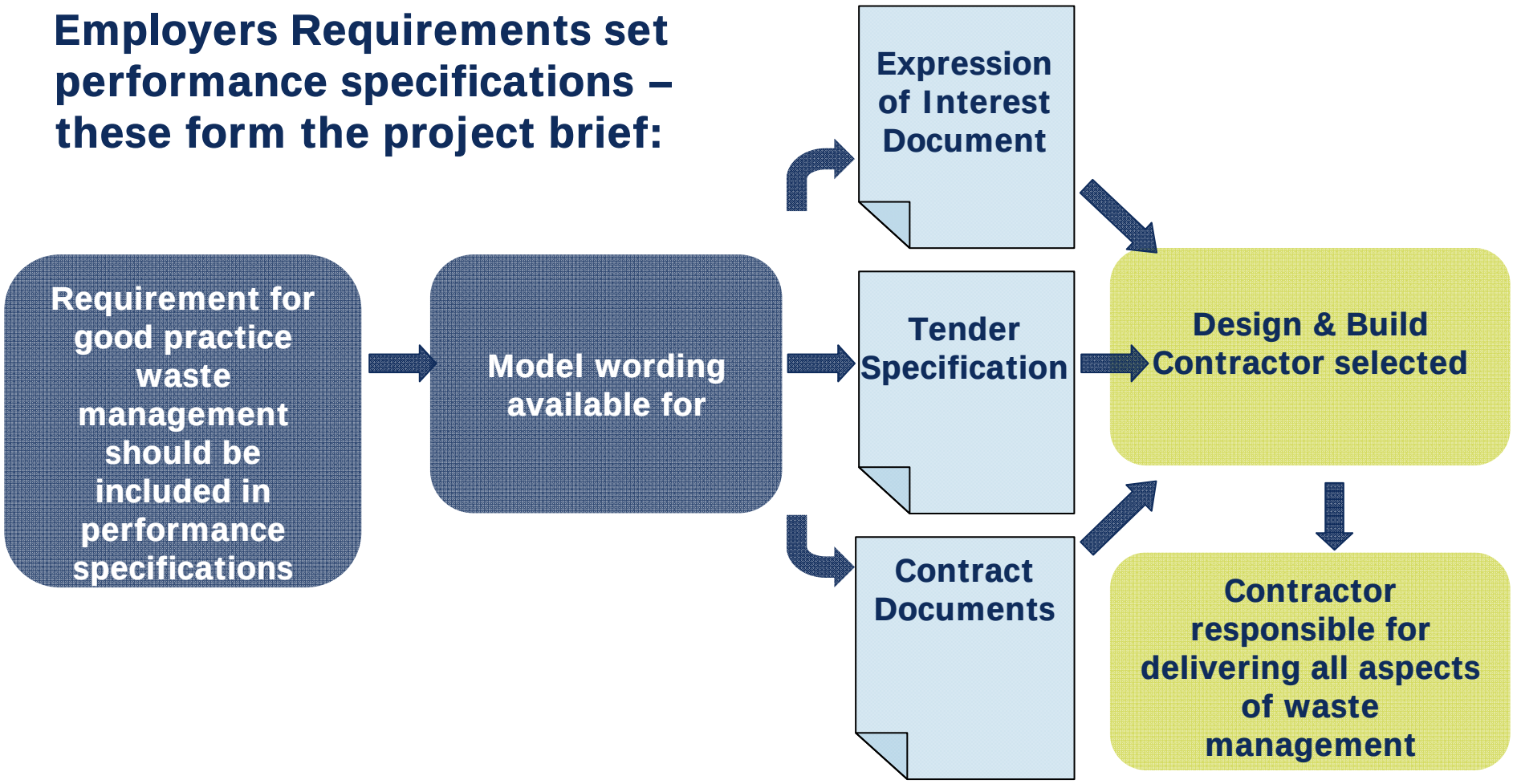
Contractors set out in tender how they will meet the requirements

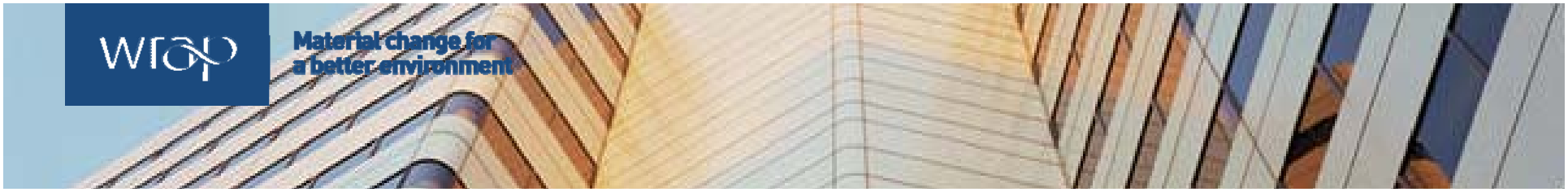
Contract Clauses:

Selected contractor agrees to meet minimum recovery rates for specific waste streams, develop the SWMP, measure and report waste arising and work with sub-contractors to support these areas.

Project documentation: design and build

Employers Requirements set performance specifications – these form the project brief:





Partnering / framework agreements

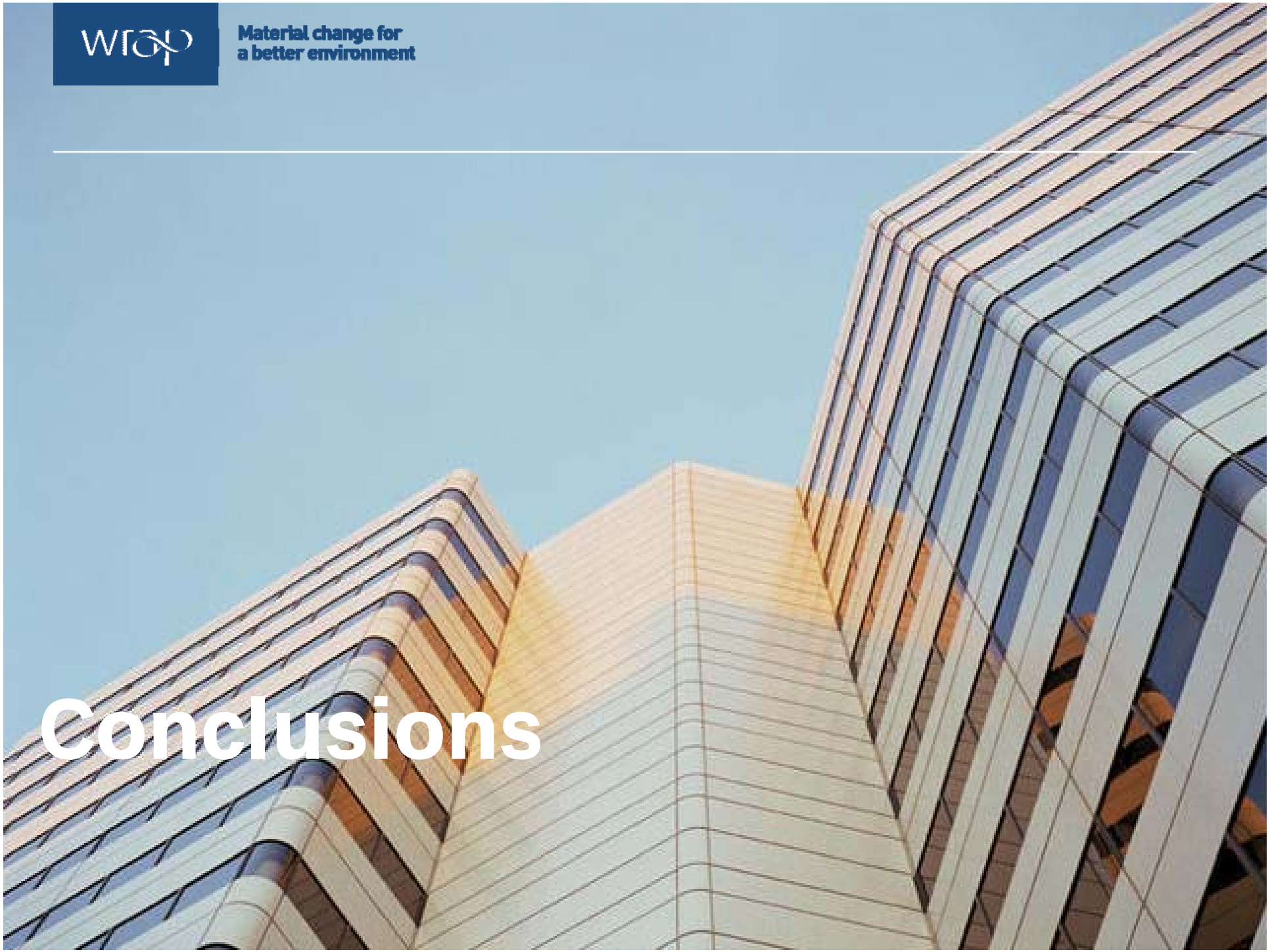
Partners to demonstrate continuous improvement

- Framework objectives
  - adopt principles of waste management (and waste minimisation)
  - demonstrate good practice levels of overall waste recovery
  - set targets and implement good practice SWMP

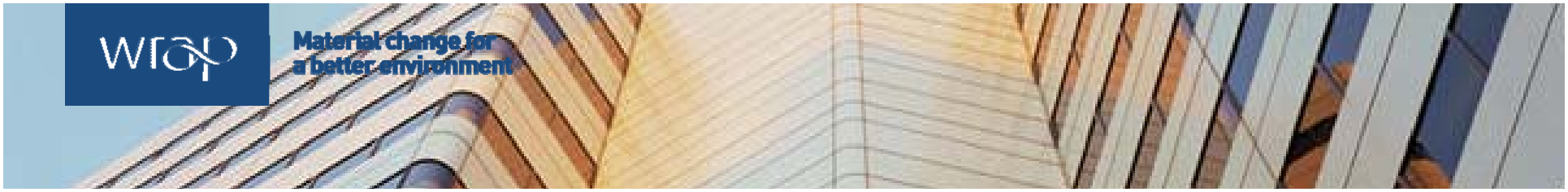
- KPI monitoring
  - increase in % recovery rates for specific waste streams above standard waste management practices

- Roles and responsibilities
  - Project Architect: identify quick wins, waste management in design, start SWMP
  - Contractors: select & implement quick wins, set target recovery rates, implement SWMP

Material change for
a better environment

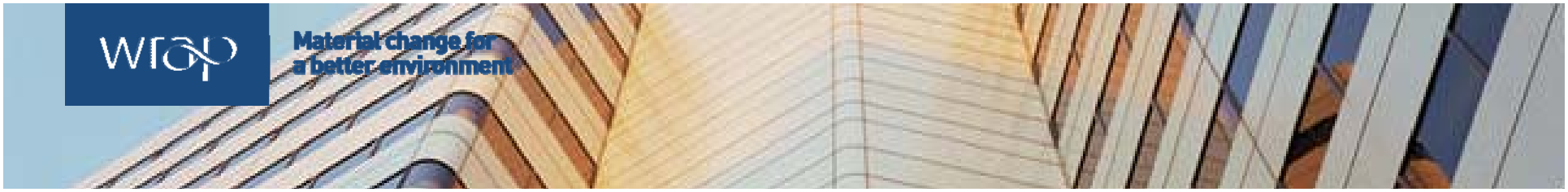


Conclusions



Summary

- Good practice waste management can be achieved on all forms of project without a fundamental change in working practice
- **Early** implementation by **client** organisations will **maximise potential benefits**
- Client requirements will affect the whole supply chain
- Good practice SWMP will inform both design and waste management on site
- WRAP support available for:
  - policy and project wording
  - broader support
  - onward training of contractors
- A quantifiable, demonstrable contribution to a sustainability or CSR strategy, corporate brand & image and improved profitability



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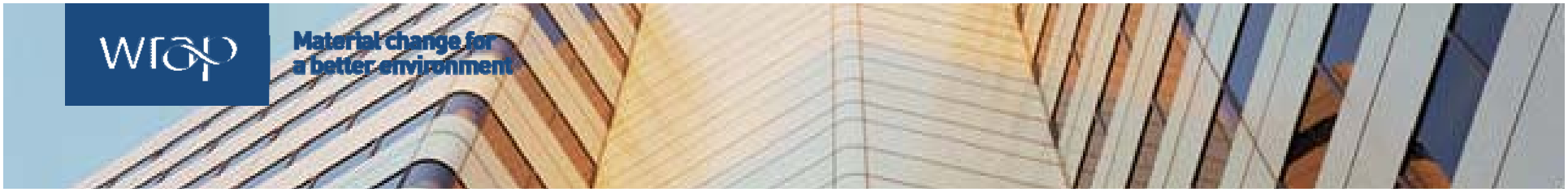

Resources

WRAP
www.wrap.org.uk

Envirowise
www.envirowise.org.uk

Environment Agency
www.environment-agency.gov.uk

BRE
www.bre.co.uk

CIRIA
www.ciria.org.uk

DBERR (Department for Business, Enterprise and Regulatory Reform)
www.dti.gov.uk

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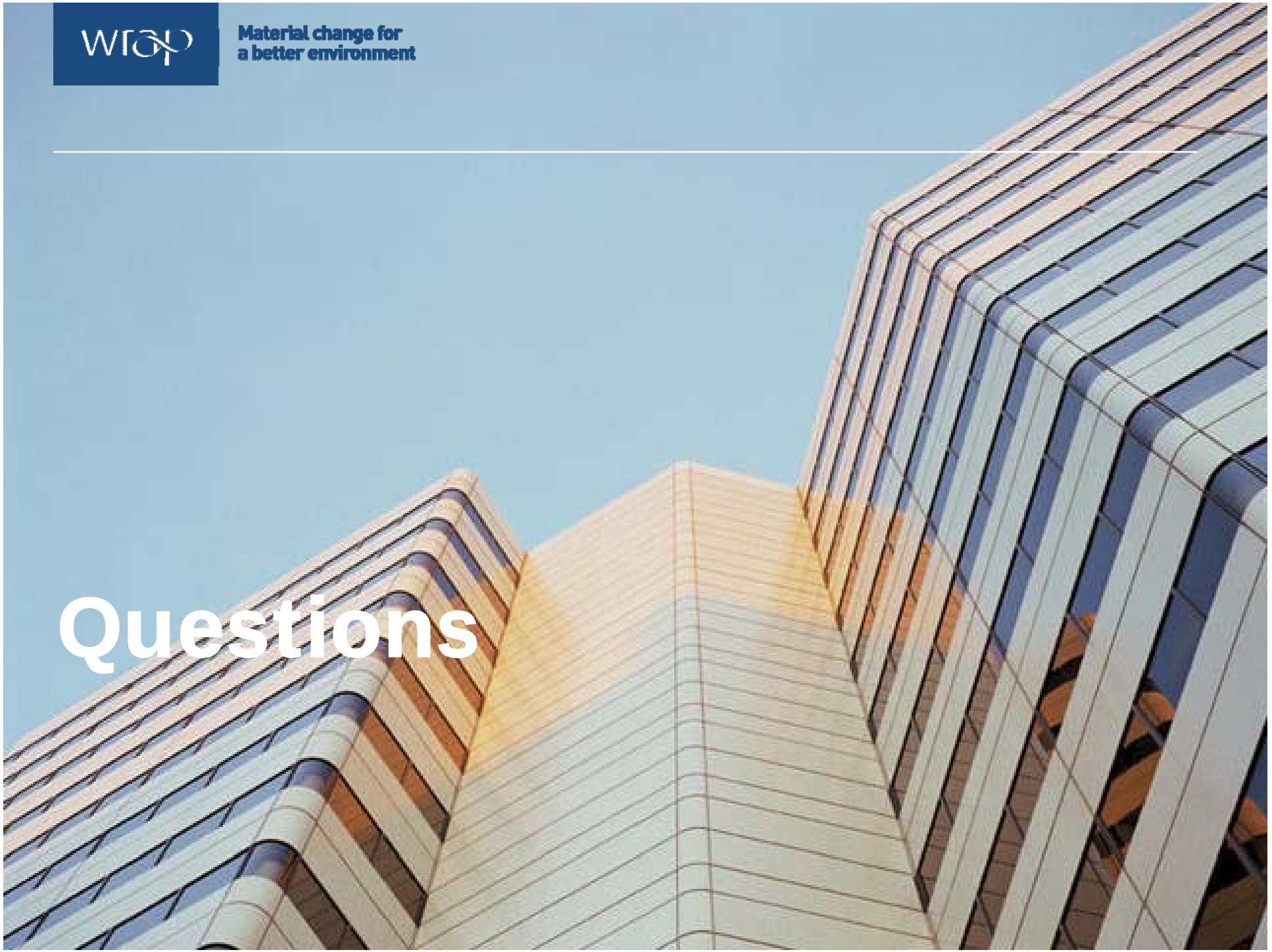
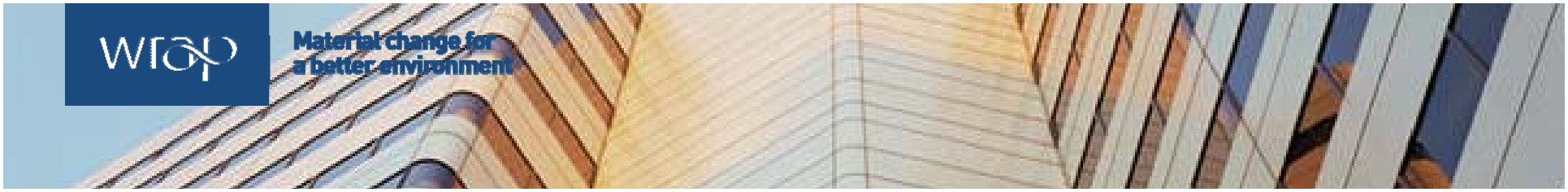


Questions

Material change for a better environment

WRAP Recycled Content Toolkit

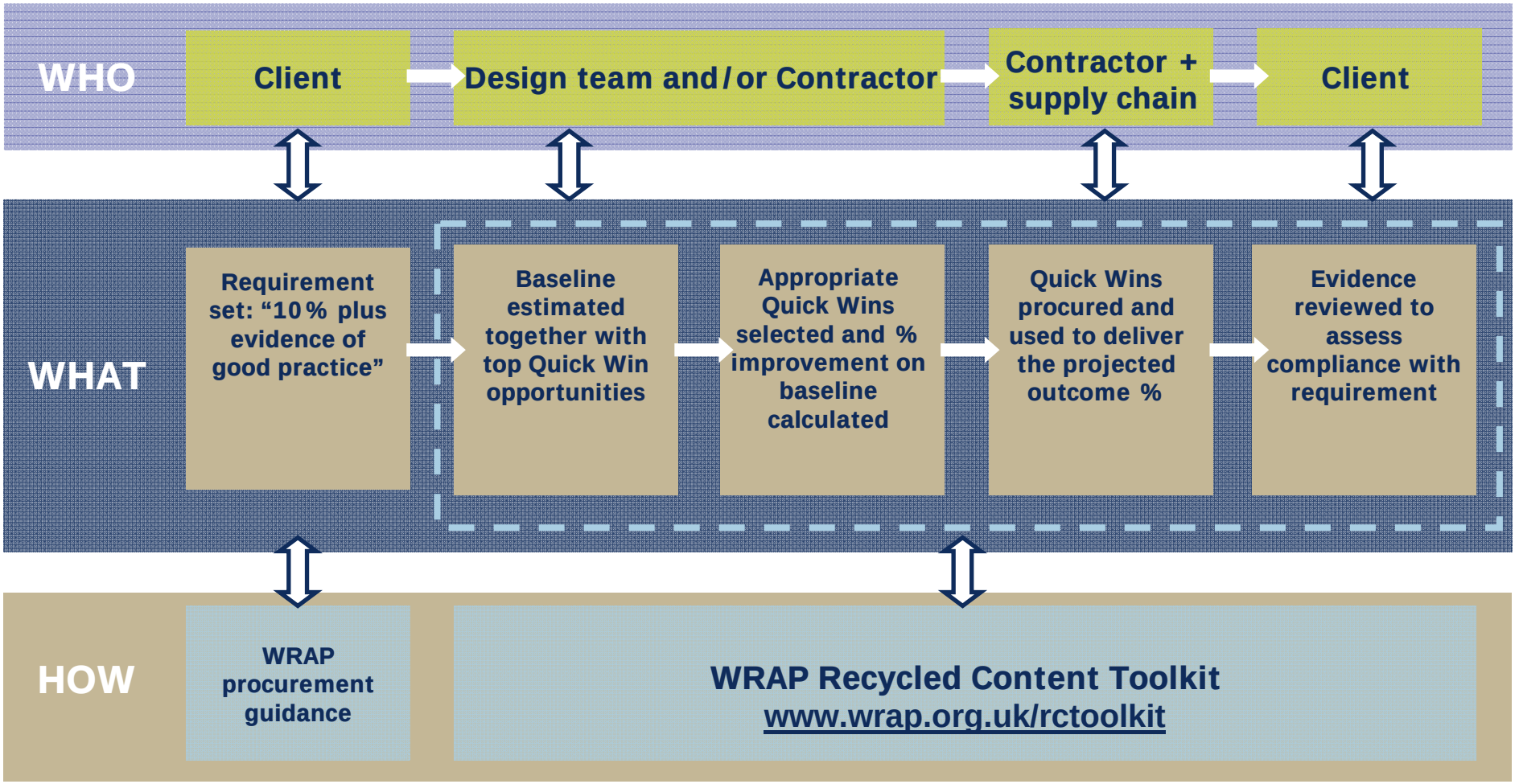


Toolkit function

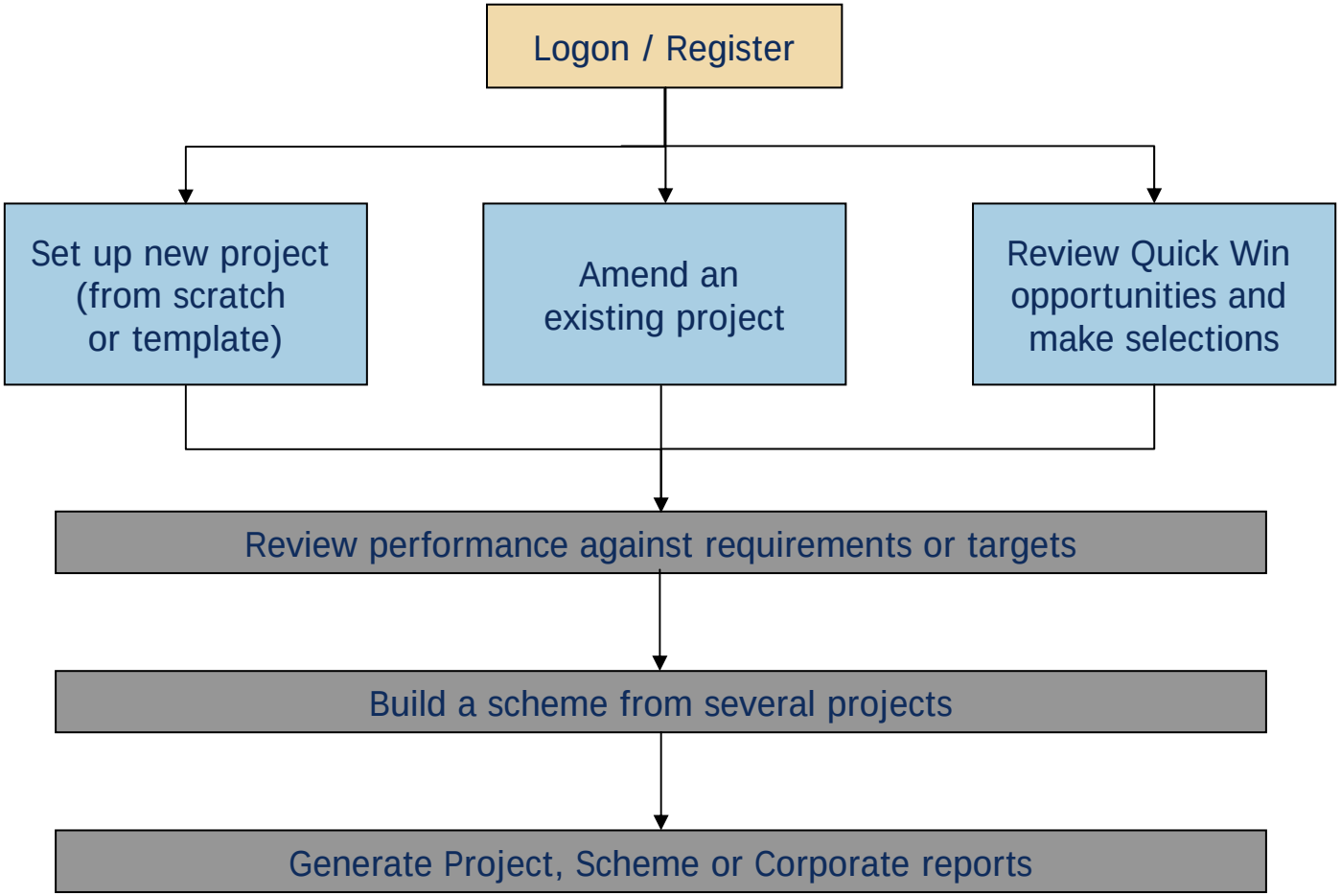
Enable recycled content assessment of construction projects' design specification

- assess the **baseline performance** of project (s):
  - recycled content of projects at current specification;
- identify **Quick Win** opportunities:
  - opportunities to substitute specified materials with "good" practice products;
- generate **pre-formatted reports** – informing stakeholders of a project's forecast and actual performance.

Key steps


WHO
Client
Design team and/or Contractor
Contractor + supply chain
Client
WHAT
Requirement set: "10% plus evidence of good practice"
Baseline estimated together with top Quick Win opportunities
Appropriate Quick Wins selected and % improvement on baseline calculated
Quick Wins procured and used to deliver the projected outcome %
Evidence reviewed to assess compliance with requirement
HOW
WRAP procurement guidance
WRAP Recycled Content Toolkit
www.wrap.org.uk/rctoolkit

The user journey

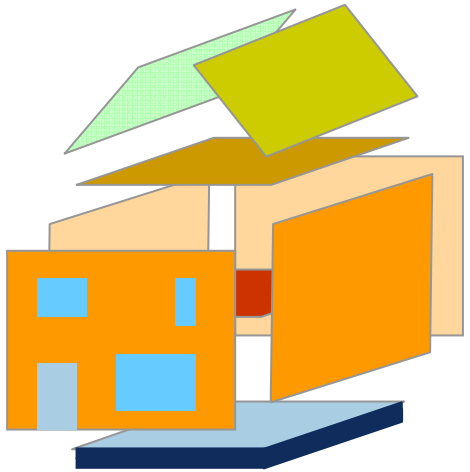


Definitions used in the toolkit

“Component” An individual building product or material

“Composite” A mix of components

“Element” A major part of a project



“Project” Single construction project

“Scheme” Group of buildings and infrastructure in a development

“Corporate reporting” Top level reporting for a programme of schemes or buildings

Idiot's guide to toolkit hierarchy

Component

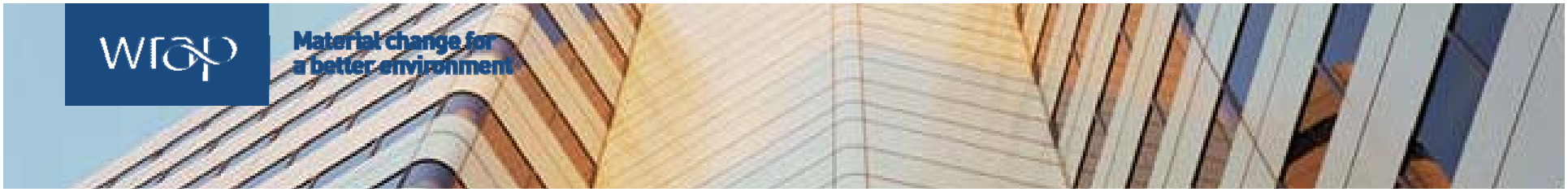
Composite

Element

Project

Scheme

Corporate reporting



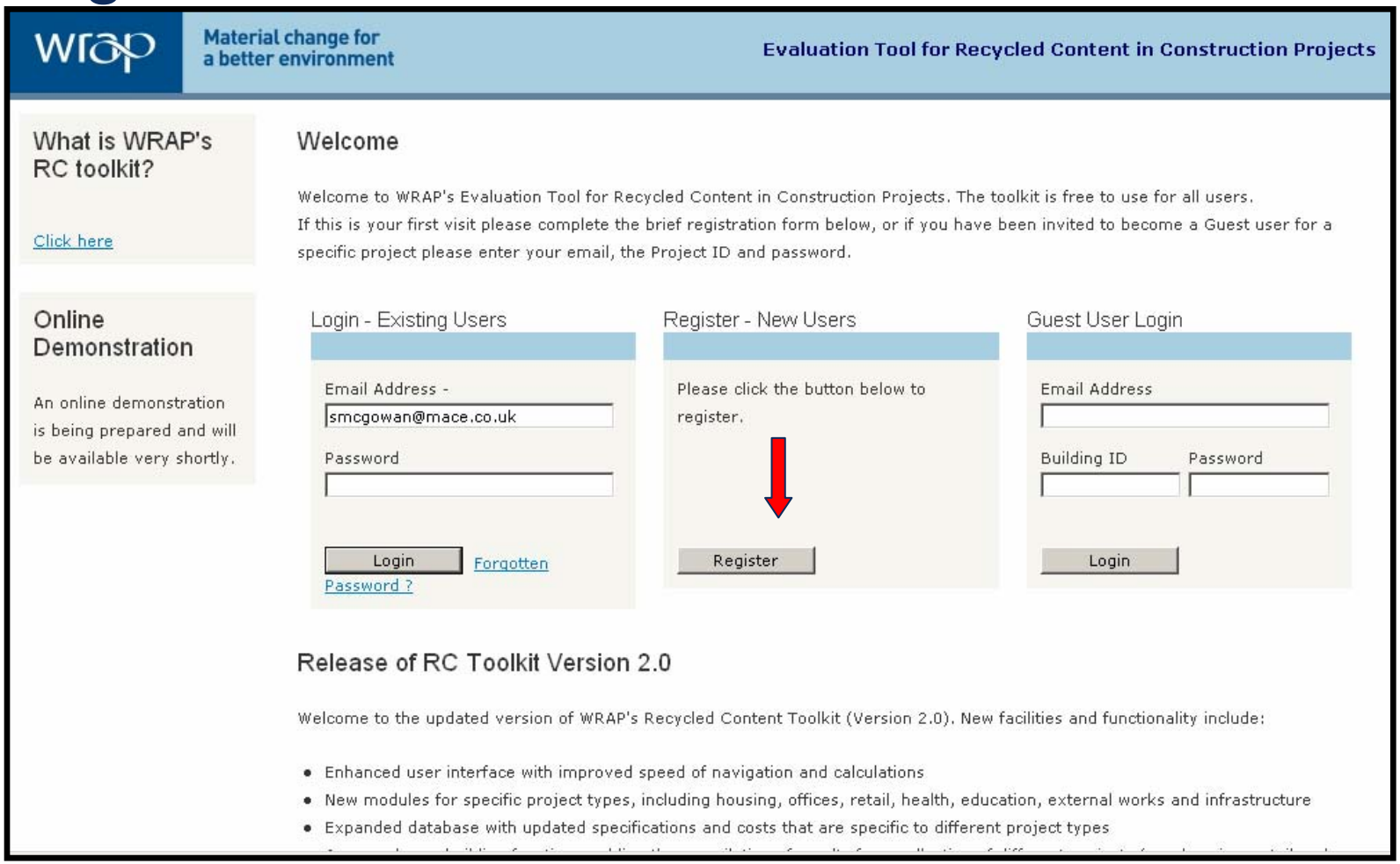
Common questions...

- what is the scope of this toolkit?
- is the toolkit free to use?
- how does the toolkit enable increased recycled content in a construction project?
- how can I access the toolkit?
- is my project too complex?

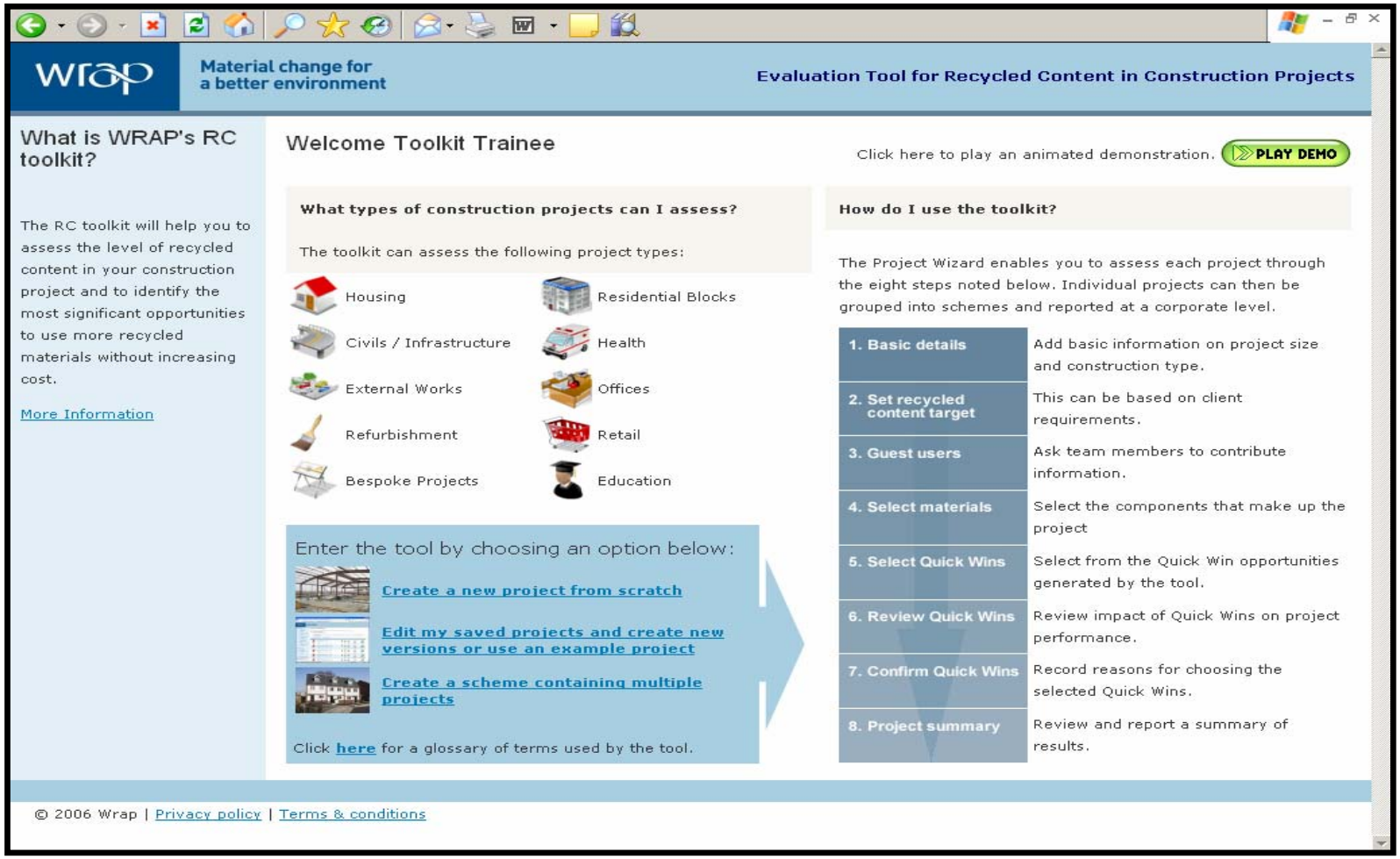
Material change for
a better environment

WRAP Recycled Content Toolkit – Demonstration

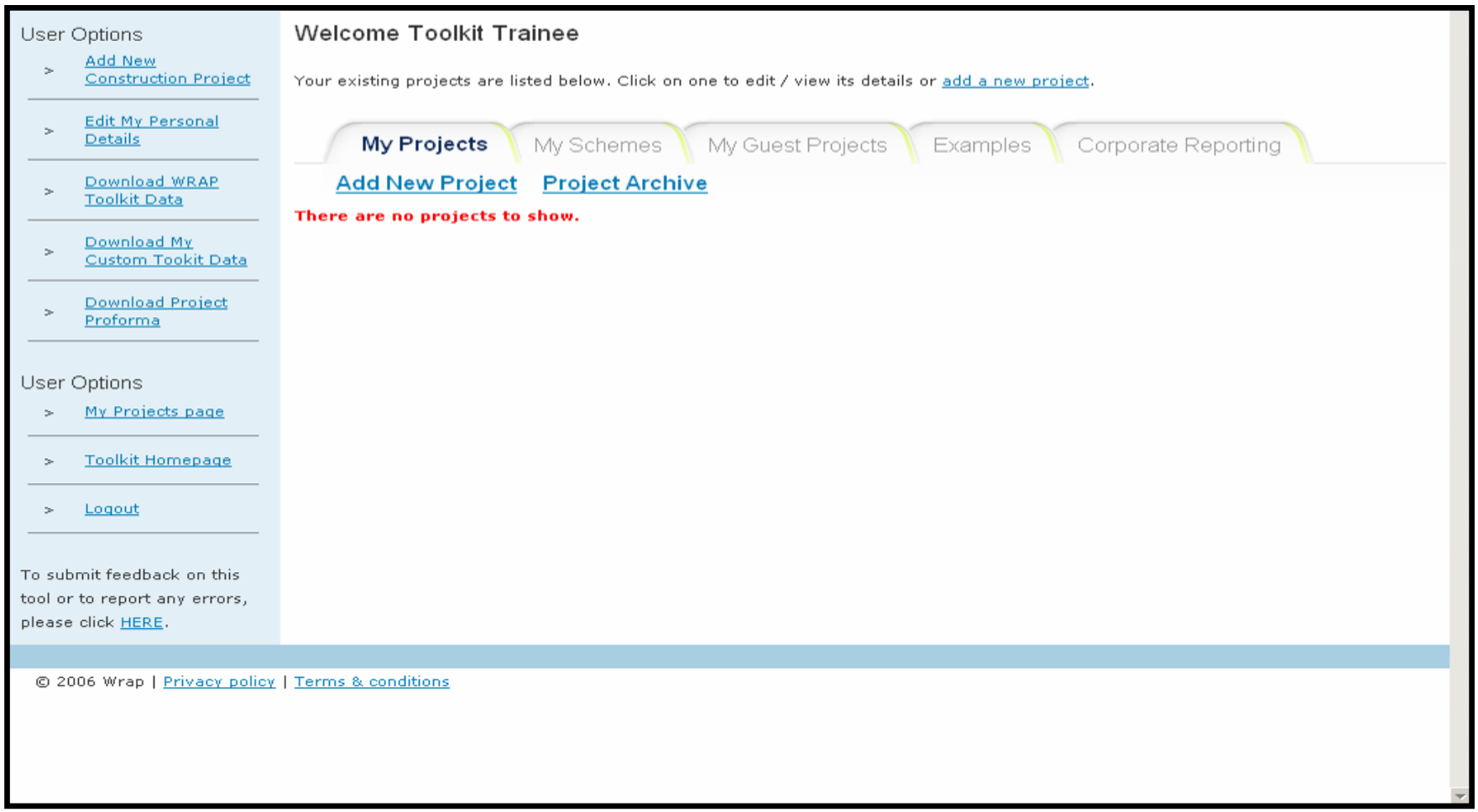
Register as a New User



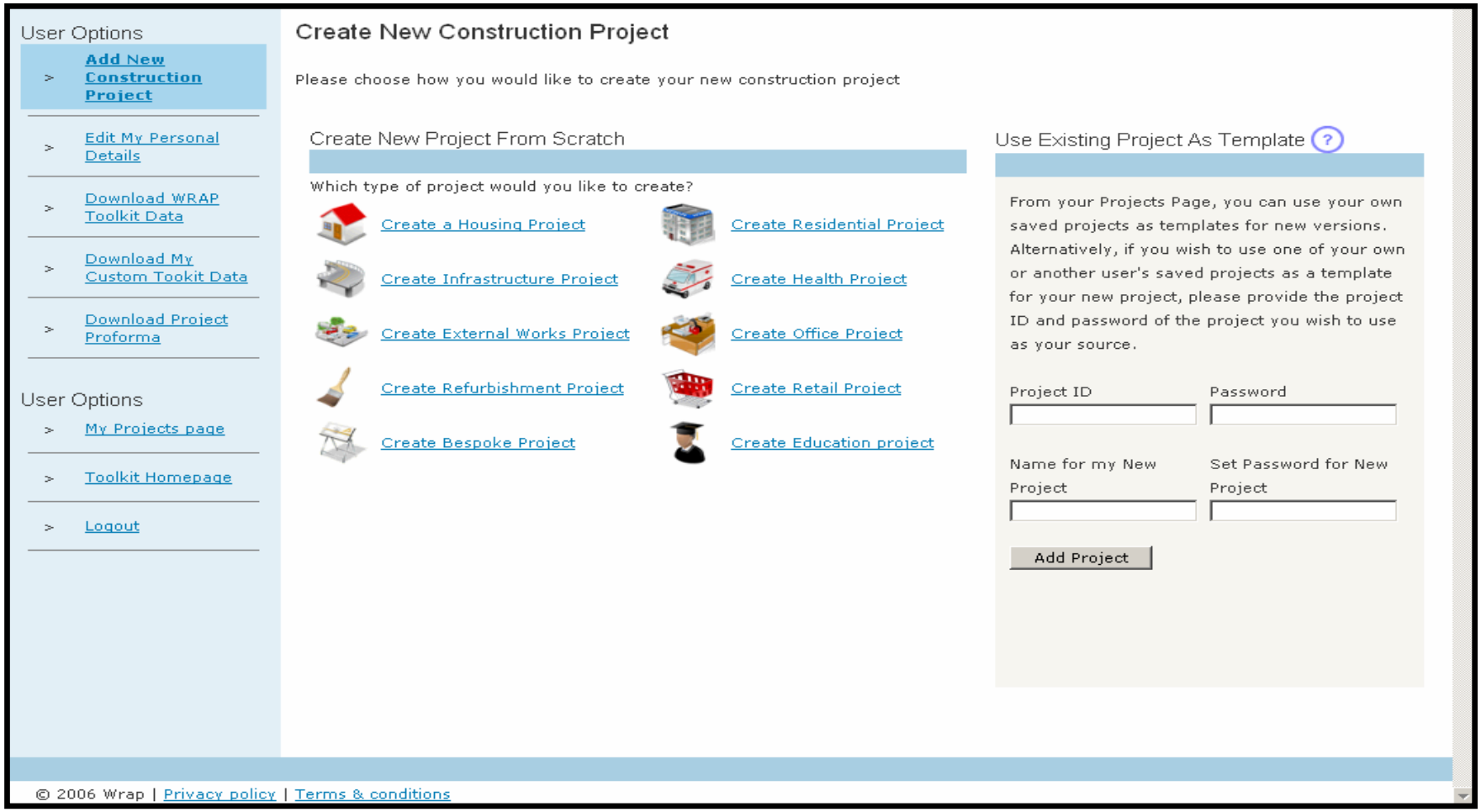
Toolkit Homepage



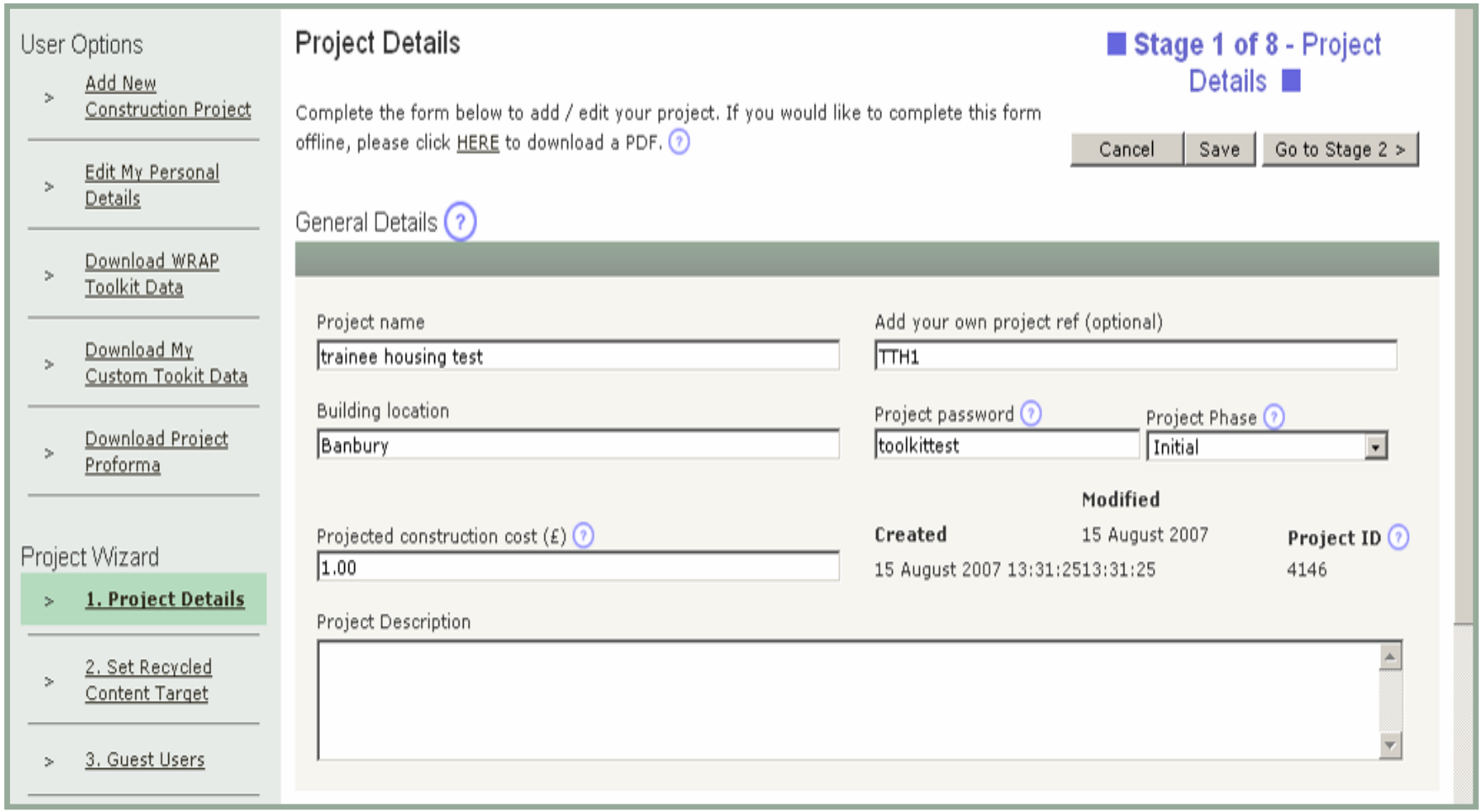
User Homepage



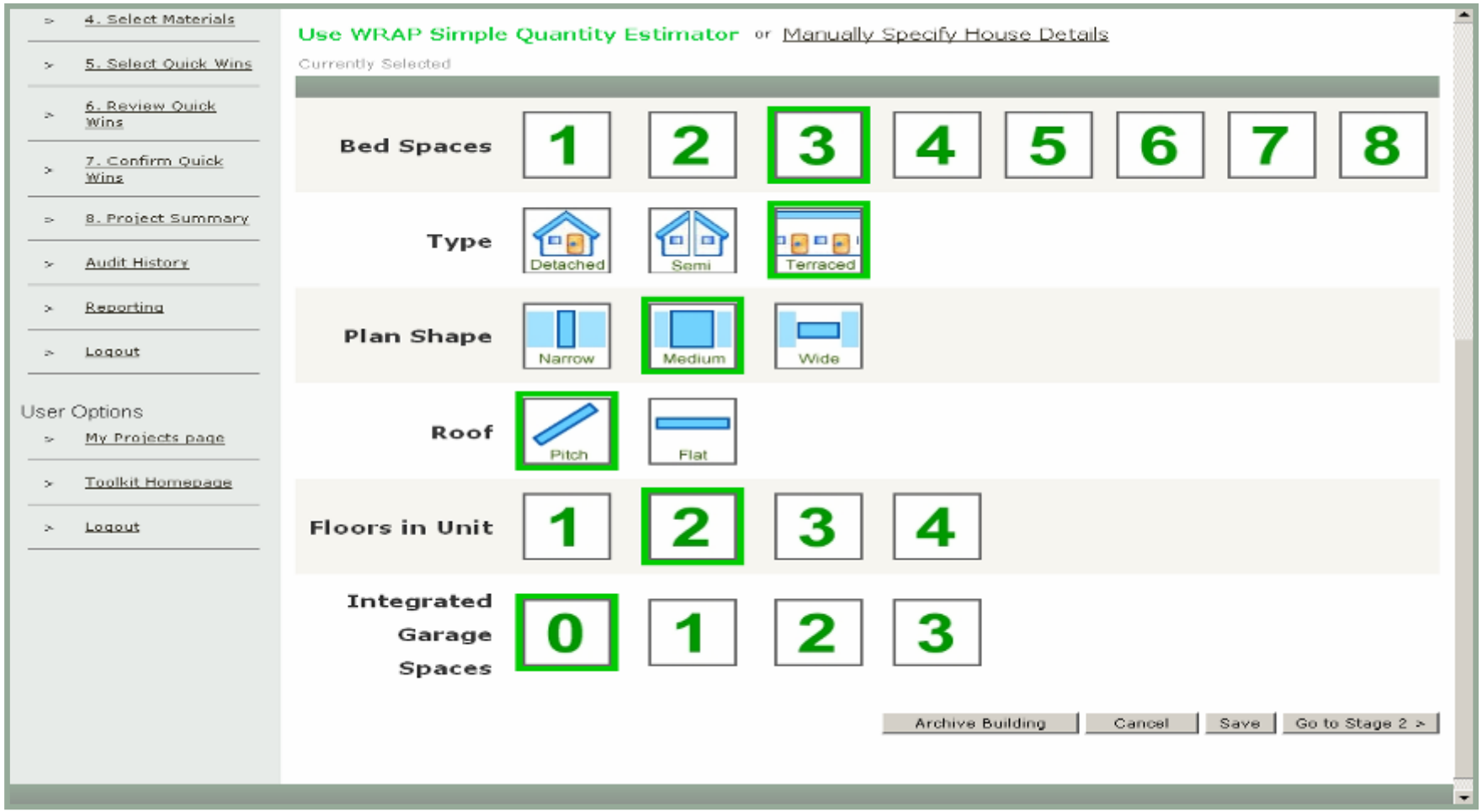
Create New Construction Project



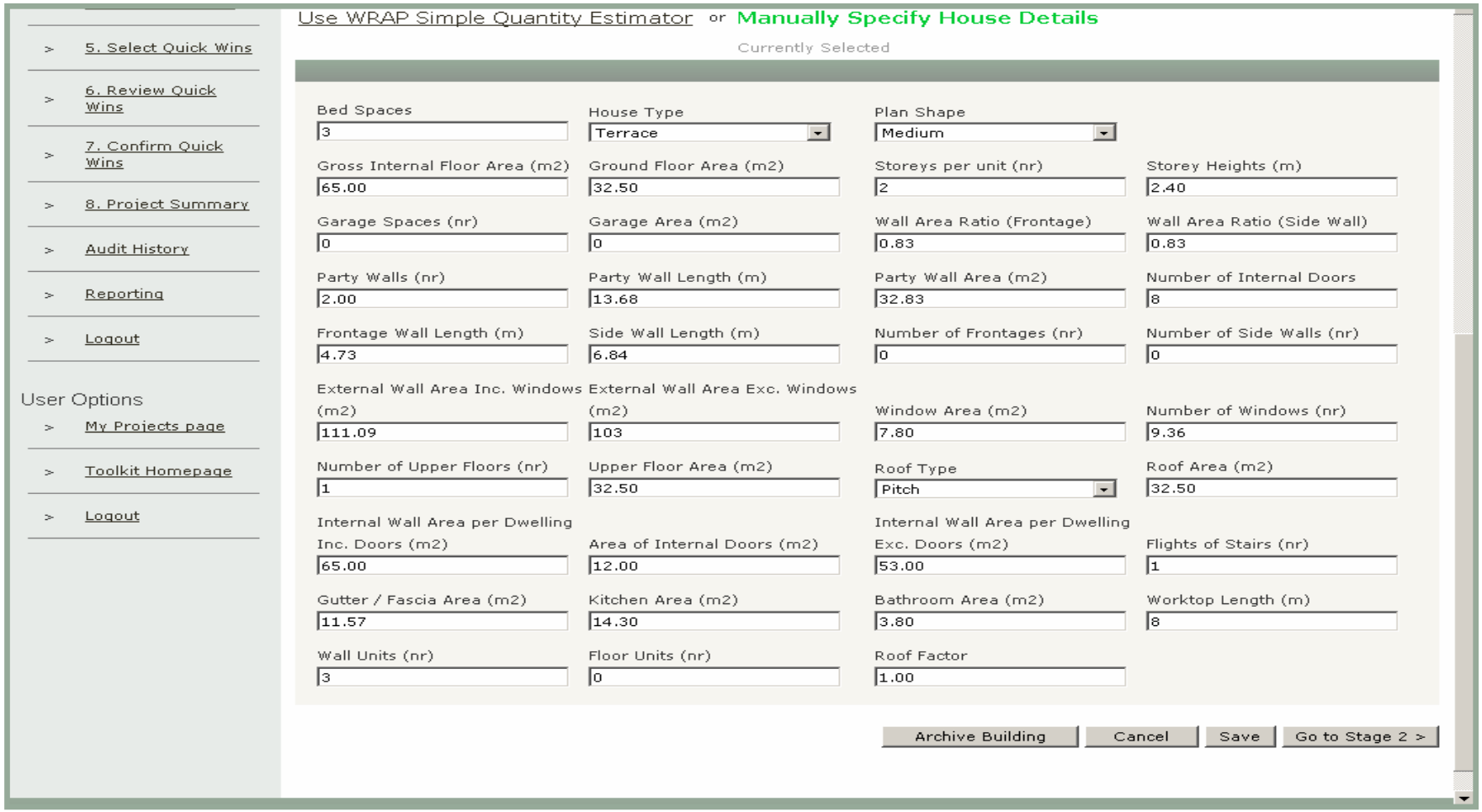
Stage 1 - Enter Project Details



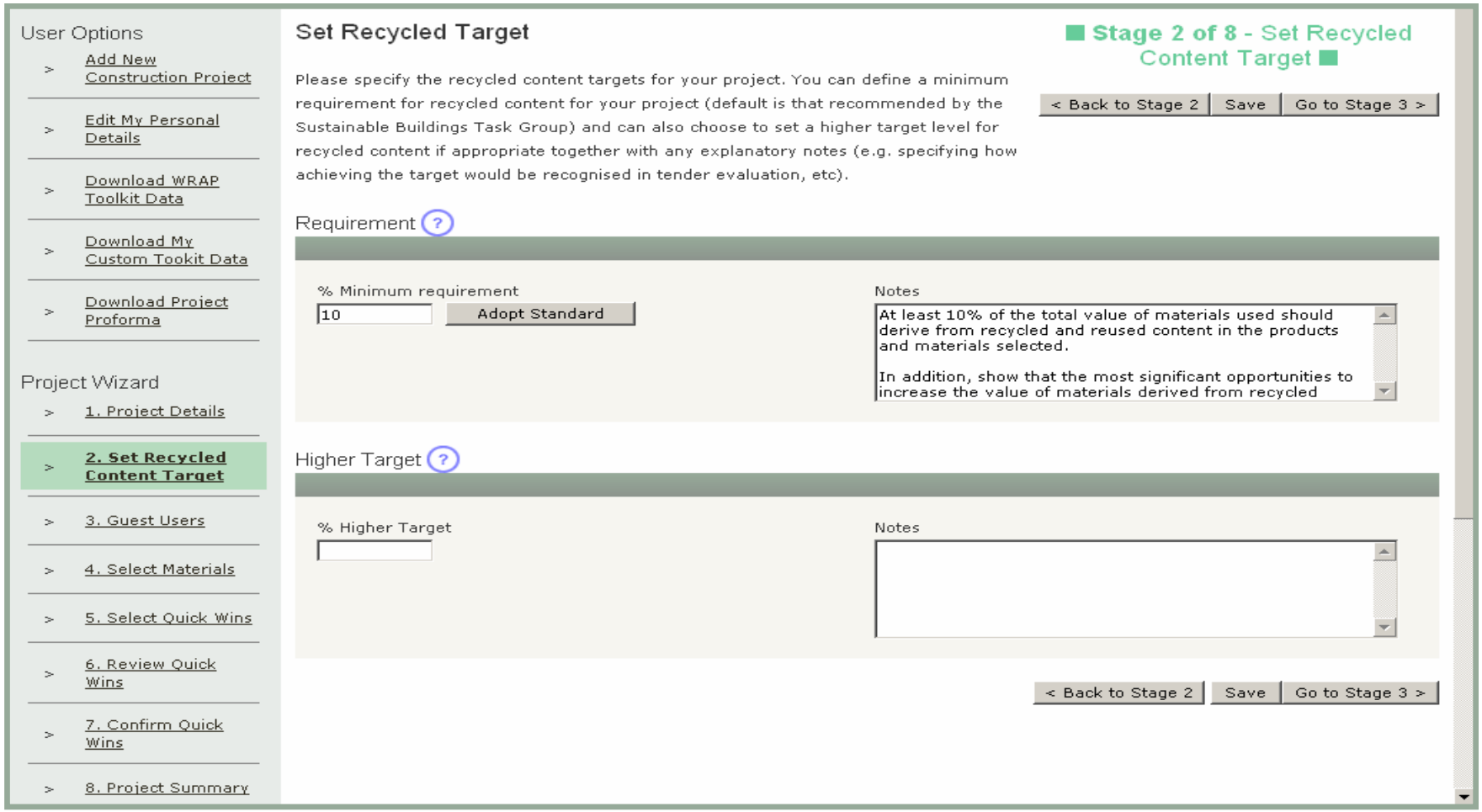
Stage 1 - Simple Quantity Estimator



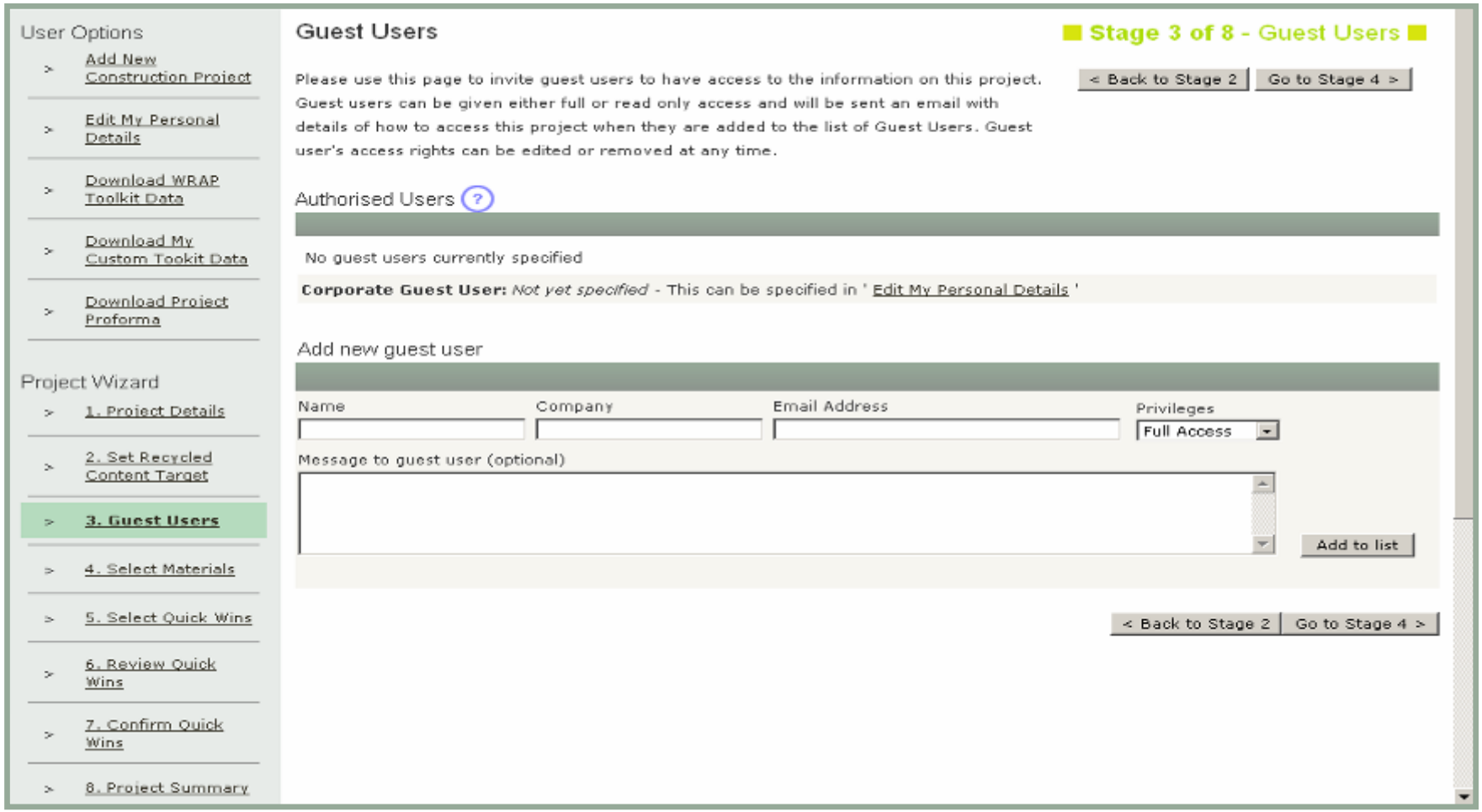
Stage 1 - Manually Specify Details



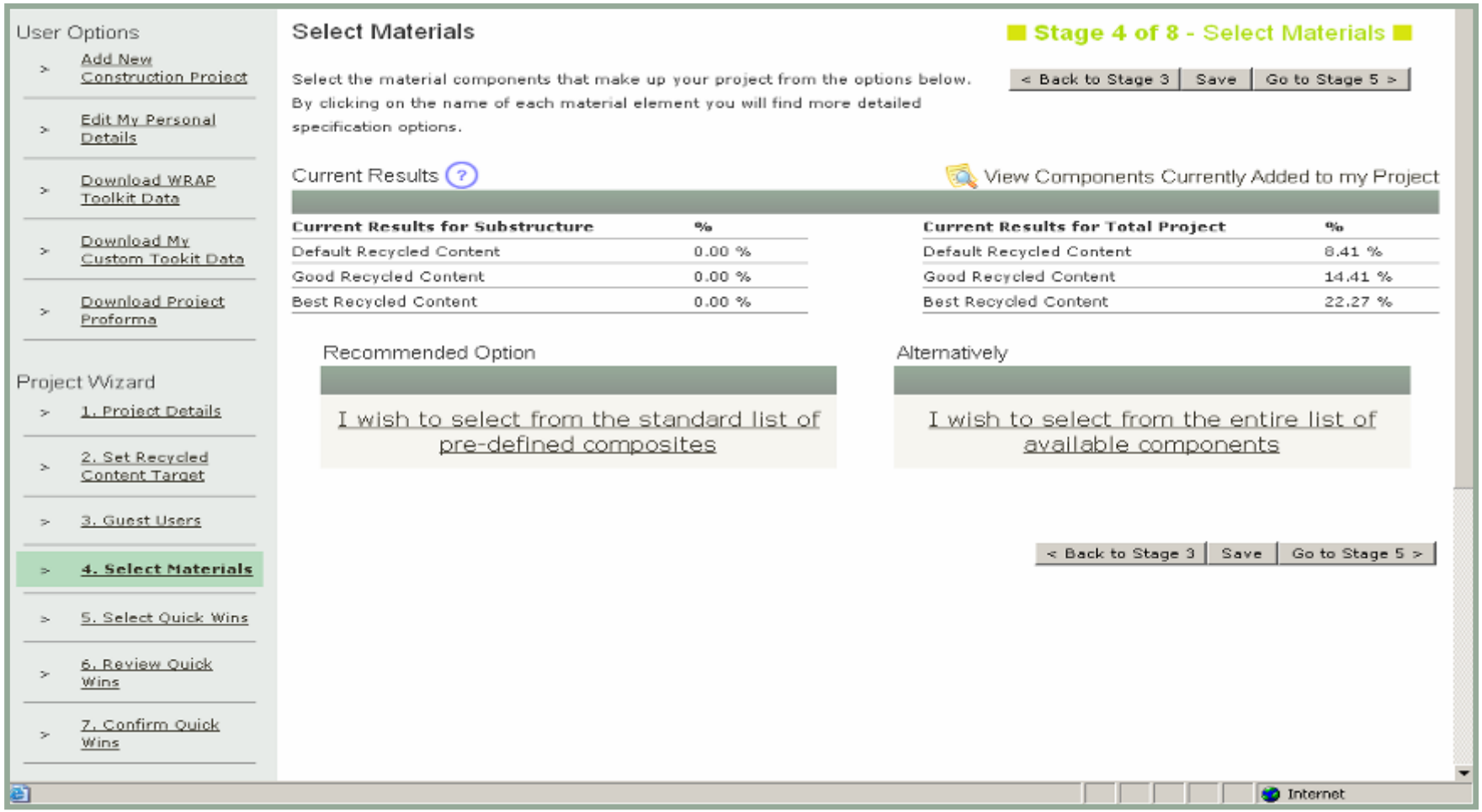
Stage 2 - Setting Recycled Content



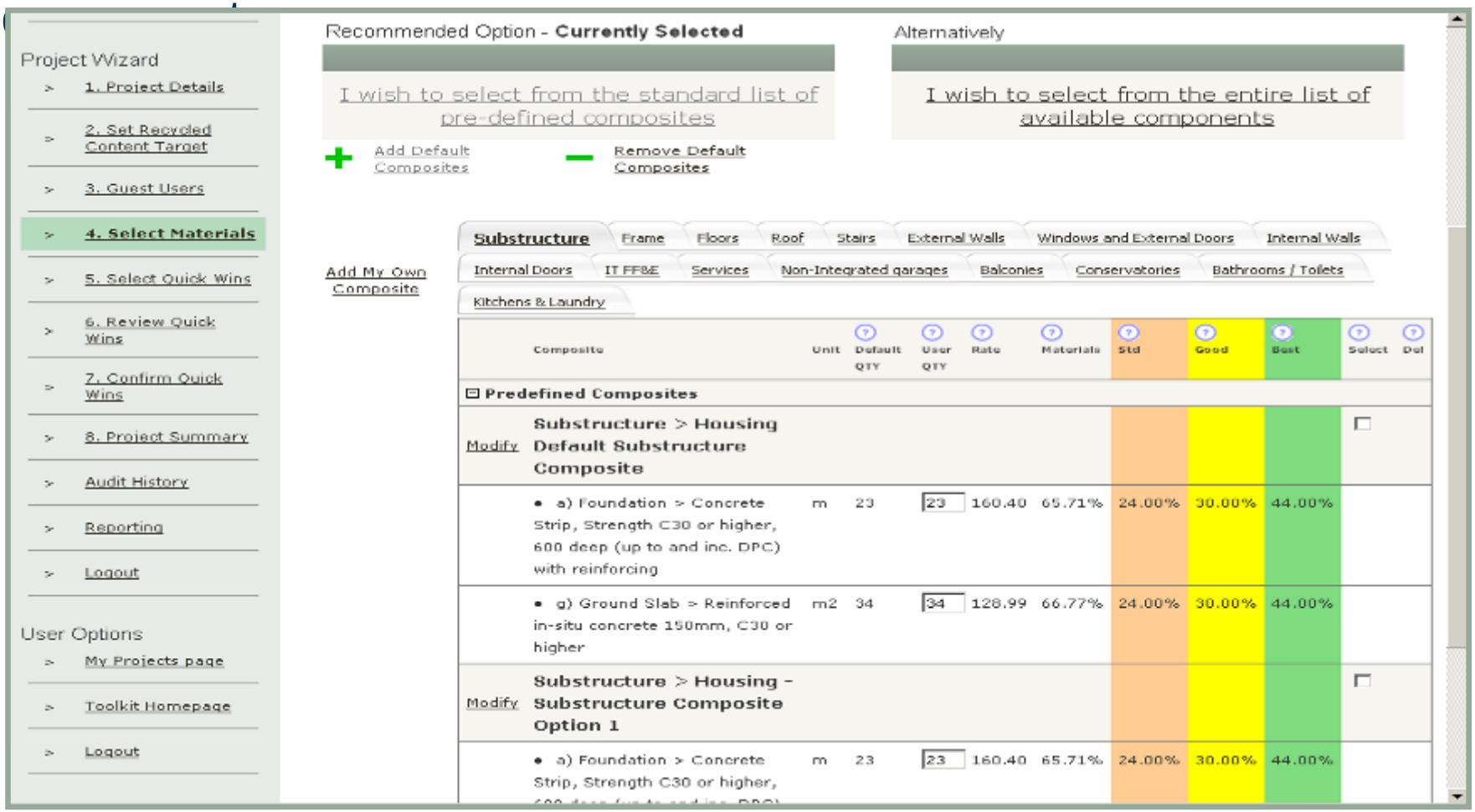
Stage 3 - Invite a Guest User



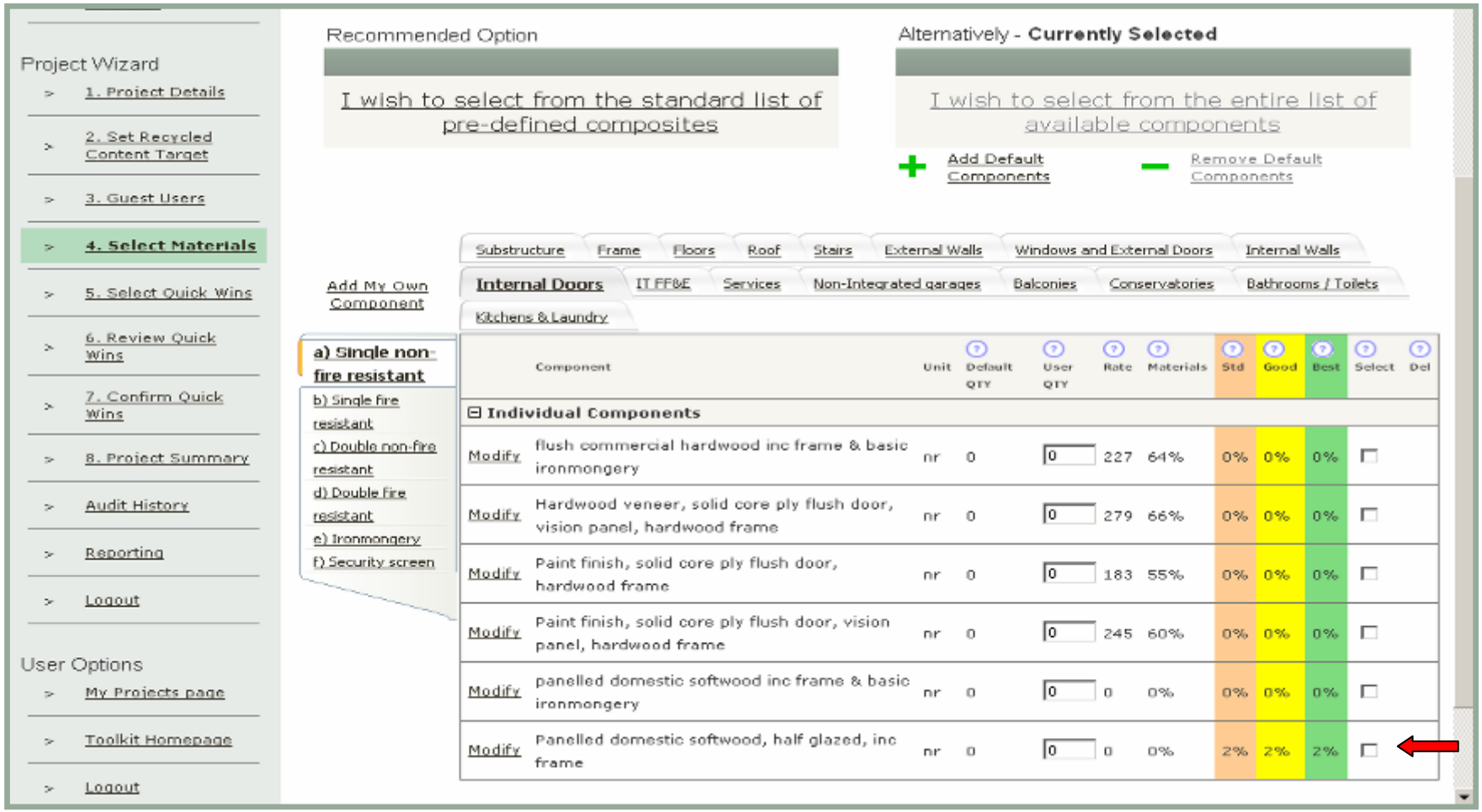
Stage 4 - Select Materials



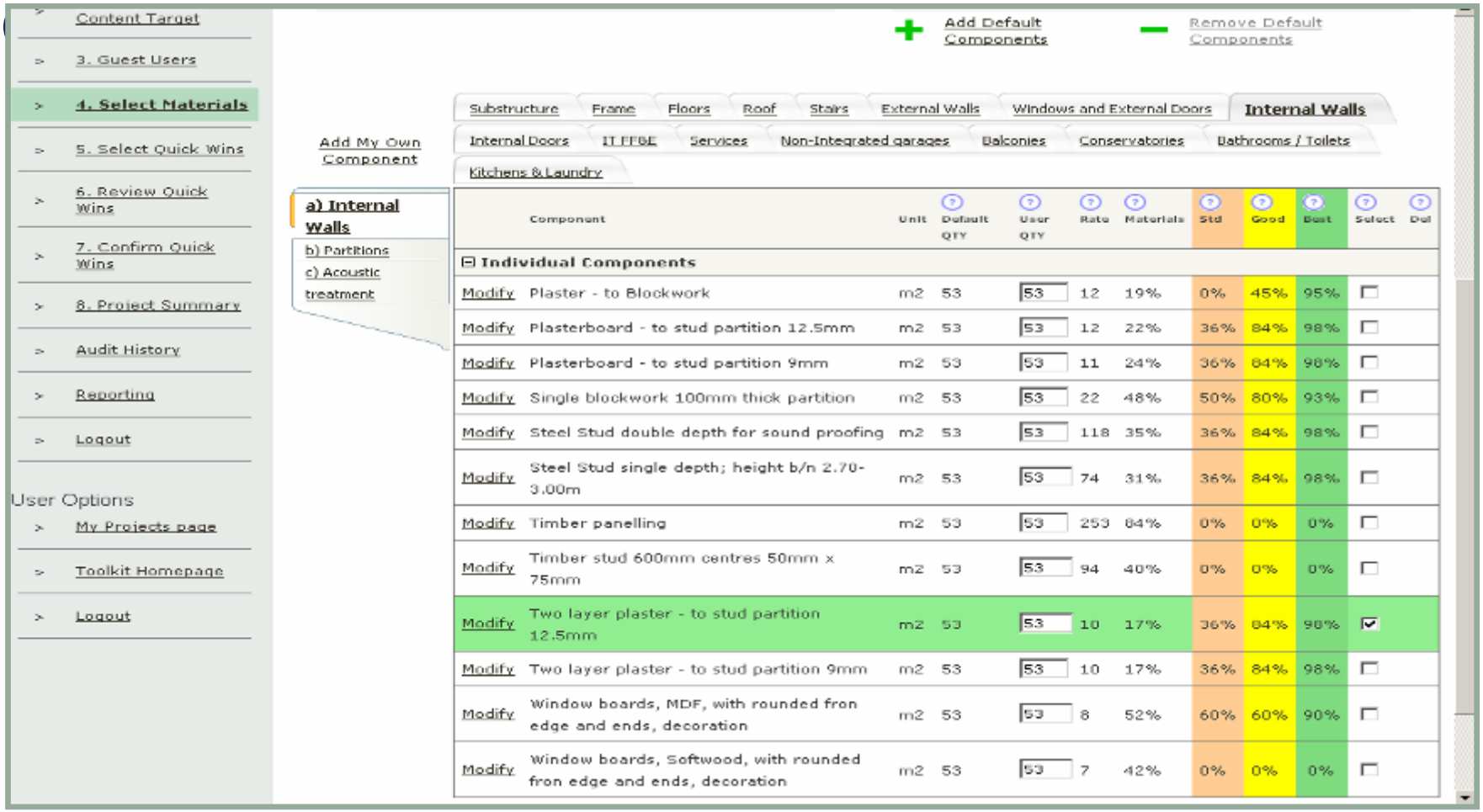
Stage 4 - Select Materials - Select composite



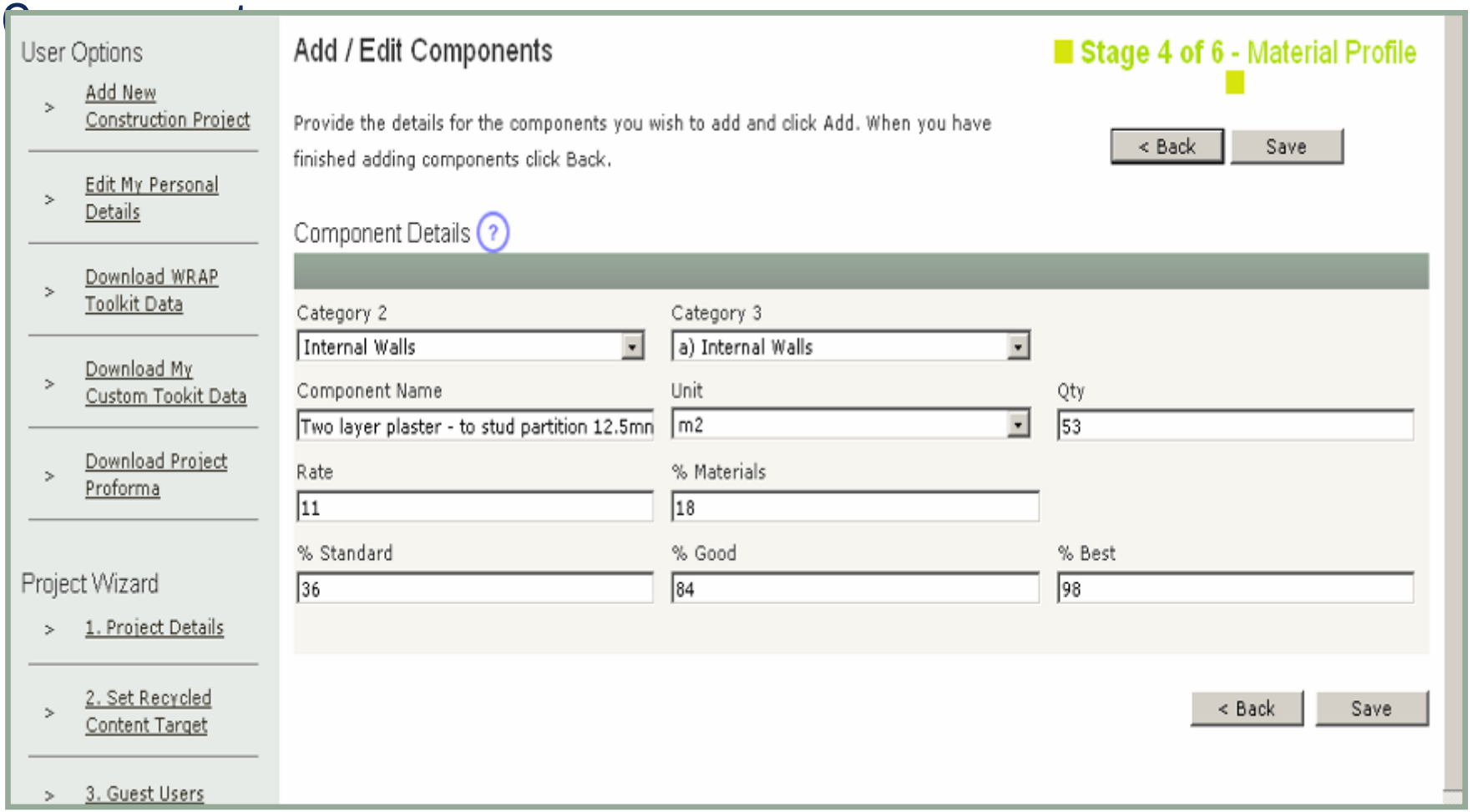
Stage 4 - Select Materials - Select Individual Component



Stage 4 - Select Materials - Modify Individual



Stage 4 - Select Materials - Modify Individual Components



Stage 4 - Select Materials - View selected components

trainee housing test

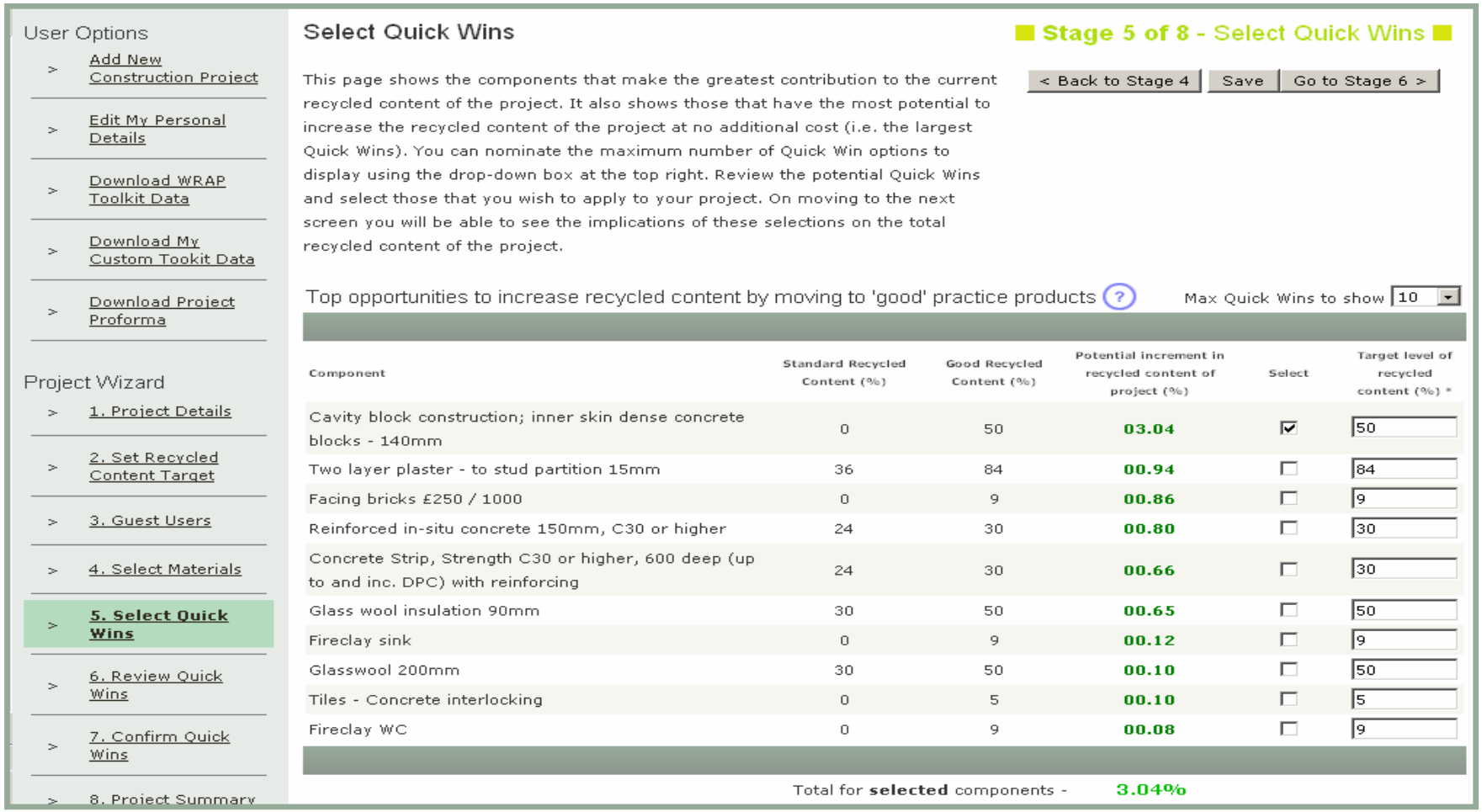
This report shows your project components.

Results

Toolkit Data Version
2.0

Category	Element	Component	Unit	Rate	Qty	Materials	Standard	Good	Best	Default Component?
Substructure	a) Foundation	Concrete Strip, Strength C30 or higher, 600 deep (up to and inc. DPC) with reinforcing	m	160.40	23	65.71	24.00	30.00	44.00	Yes
Substructure	g) Ground Slab	Reinforced in-situ concrete 150mm, C30 or higher	m2	128.99	34	66.77	24.00	30.00	44.00	Yes
Substructure	h) Fill	Hardcore 6F2	m3	32.22	0	84.48	0	25.00	100.00	Yes
Floors	d) Boarding	Hardboard 12mm	m2	24.20	0	65.71	60.00	60.00	60.00	Yes
Floors	e) Steel Structures	Beam & Block	m2	22.60	0	60.00	4.00	44.00	79.00	Yes
Roof	a) Wood Structure generic	Roof Structure - Pitched - Timber	m2	31.00	39	60.00	0	0	0	Yes
Roof	g) Roof covering	Tiles - Concrete interlocking	m2	19.62	39	56.11	0	5.00	22.00	Yes
Roof	j) Drainage	upvc gutters	m	12.69	8	55.87	0	10.00	10.00	Yes
Roof	l) Loft Boarding	OSB 16 mm	m2	11.20	0	47.32	0	0	0	Yes
Roof	m) Insulation	Glasswool 200mm	m2	4.90	32	70.20	30.00	50.00	80.00	Yes
Stairs	a) Internal stairs (per flight)	Timber stair	nr	880.81	1	78.07	0	0	0	Yes
External Walls	c) Outer skin	Facing bricks £250 / 1000	m2	49.69	103	40.97	0	9.00	35.00	Yes
External Walls	d) Insulation	Glass wool insulation 90mm	m2	8.73	103	79.41	30.00	50.00	80.00	Yes
External Walls	e) Inner skin	Cavity block construction; inner skin dense concrete blocks - 140mm	m2	34.50	103	37.65	0	50.00	93.00	Yes

Stage 5 - Selecting Quick Wins



User Options

- Add New Construction Project
- Edit My Personal Details
- Download WRAP Toolkit Data
- Download My Custom Tookit Data
- Download Project Proforma

Project Wizard

- 1. Project Details
- 2. Set Recycled Content Target
- 3. Guest Users
- 4. Select Materials
- **5. Select Quick Wins**
- 6. Review Quick Wins
- 7. Confirm Quick Wins
- 8. Project Summary

Select Quick Wins

Stage 5 of 8 - Select Quick Wins

< Back to Stage 4 | Save | Go to Stage 6 >

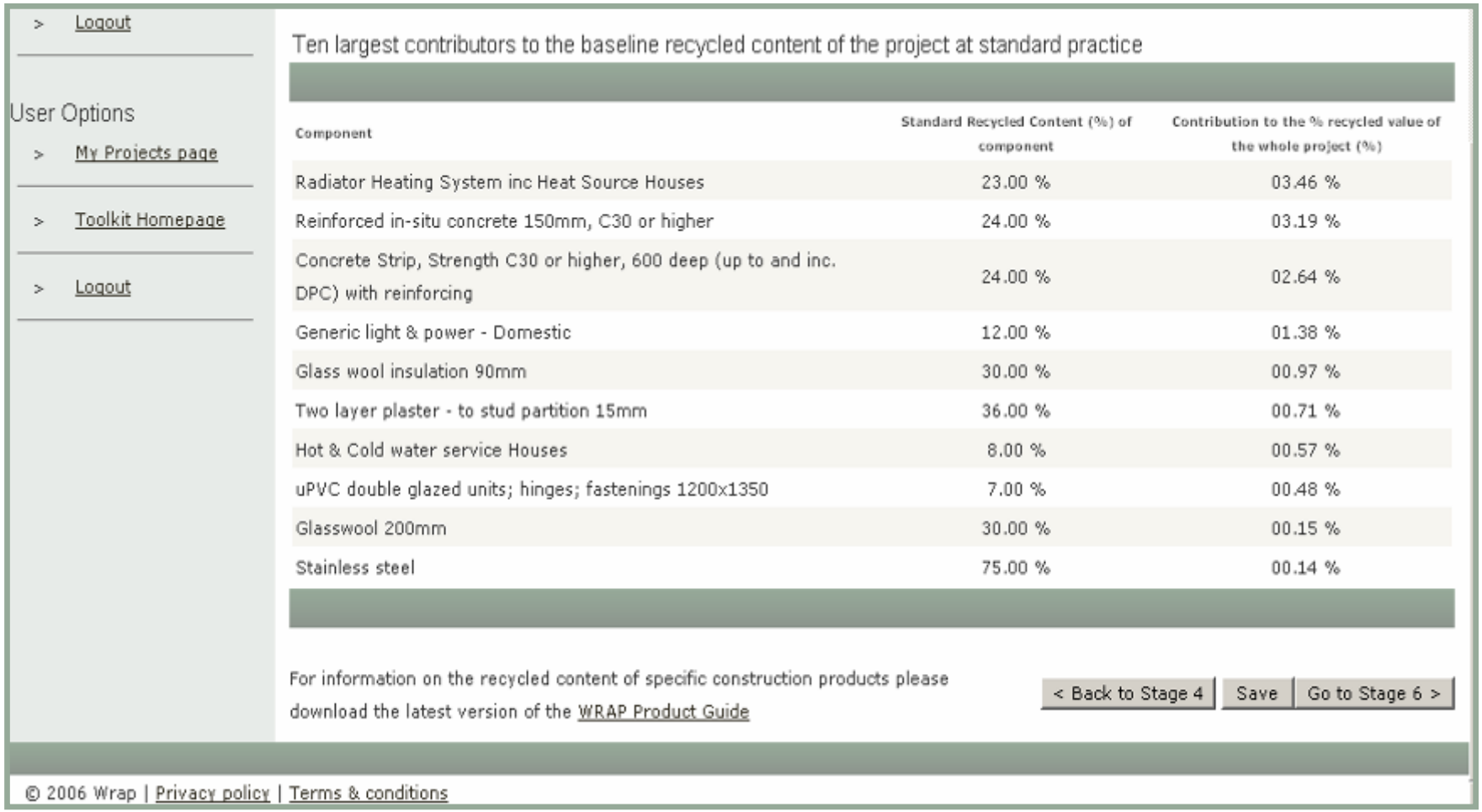
This page shows the components that make the greatest contribution to the current recycled content of the project. It also shows those that have the most potential to increase the recycled content of the project at no additional cost (i.e. the largest Quick Wins). You can nominate the maximum number of Quick Win options to display using the drop-down box at the top right. Review the potential Quick Wins and select those that you wish to apply to your project. On moving to the next screen you will be able to see the implications of these selections on the total recycled content of the project.

Top opportunities to increase recycled content by moving to 'good' practice products (?) Max Quick Wins to show 10

Component	Standard Recycled Content (%)	Good Recycled Content (%)	Potential increment in recycled content of project (%)	Select	Target level of recycled content (%) *
Cavity block construction; inner skin dense concrete blocks - 140mm	0	50	03.04	☑	50
Two layer plaster - to stud partition 15mm	36	84	00.94	☐	84
Facing bricks £250 / 1000	0	9	00.86	☐	9
Reinforced in-situ concrete 150mm, C30 or higher	24	30	00.80	☐	30
Concrete Strip, Strength C30 or higher, 600 deep (up to and inc. DPC) with reinforcing	24	30	00.66	☐	30
Glass wool insulation 90mm	30	50	00.65	☐	50
Fireclay sink	0	9	00.12	☐	9
Glasswool 200mm	30	50	00.10	☐	50
Tiles - Concrete interlocking	0	5	00.10	☐	5
Fireclay WC	0	9	00.08	☐	9

Total for **selected** components - 3.04%

Stage 5 - Selecting Quick Wins



> Logout

User Options

> My Projects page

> Toolkit Homepage

> Logout

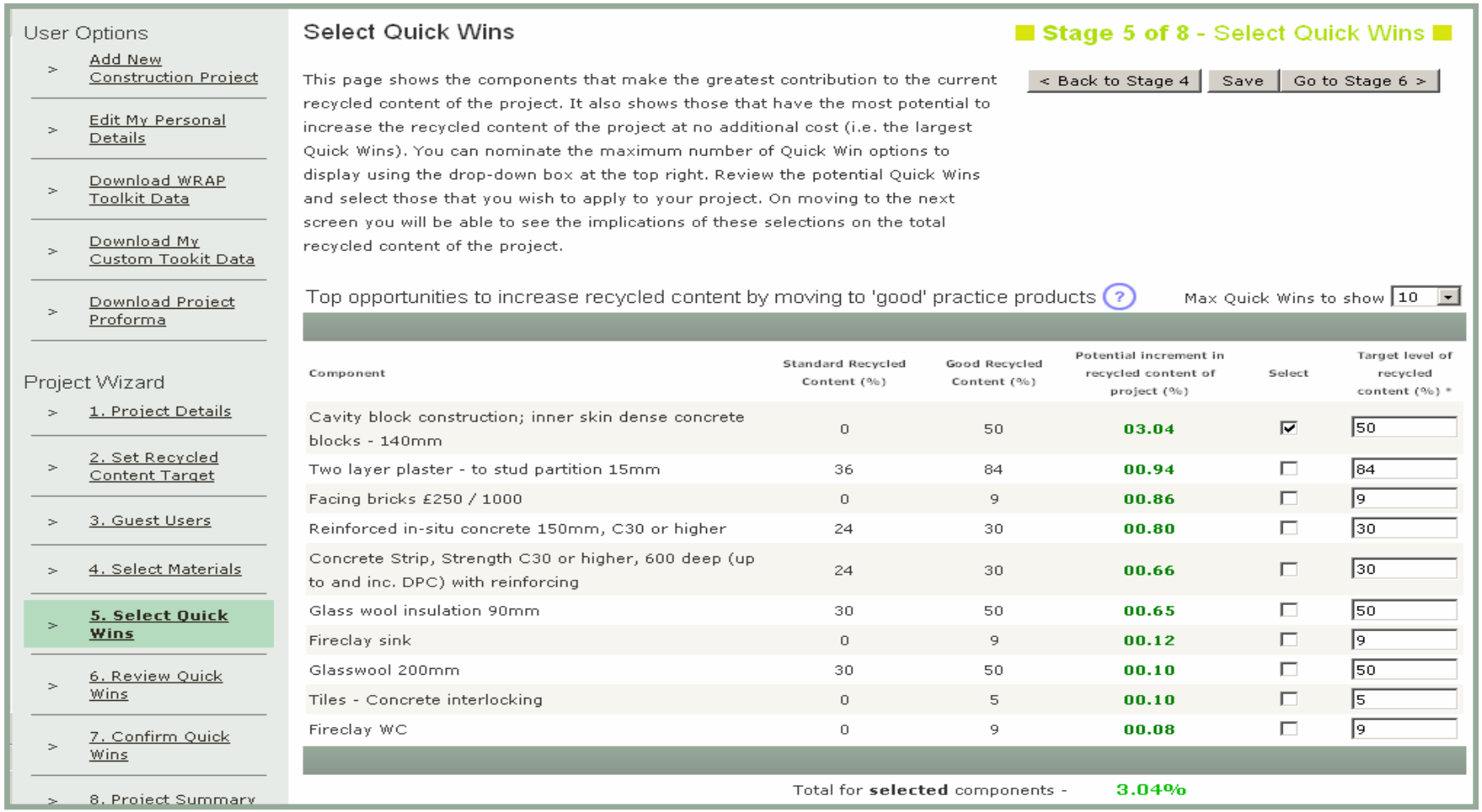
Ten largest contributors to the baseline recycled content of the project at standard practice

Component	Standard Recycled Content (%) of component	Contribution to the % recycled value of the whole project (%)
Radiator Heating System inc Heat Source Houses	23.00 %	03.46 %
Reinforced in-situ concrete 150mm, C30 or higher	24.00 %	03.19 %
Concrete Strip, Strength C30 or higher, 600 deep (up to and inc. DPC) with reinforcing	24.00 %	02.64 %
Generic light & power - Domestic	12.00 %	01.38 %
Glass wool insulation 90mm	30.00 %	00.97 %
Two layer plaster - to stud partition 15mm	36.00 %	00.71 %
Hot & Cold water service Houses	8.00 %	00.57 %
uPVC double glazed units; hinges; fastenings 1200x1350	7.00 %	00.48 %
Glasswool 200mm	30.00 %	00.15 %
Stainless steel	75.00 %	00.14 %

For information on the recycled content of specific construction products please download the latest version of the WRAP Product Guide

< Back to Stage 4 | Save | Go to Stage 6 >

Stage 5 - Selecting Quick Wins



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Project Wizard

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Select Quick Wins

Stage 5 of 8 - Select Quick Wins

< Back to Stage 4 | Save | Go to Stage 6 >

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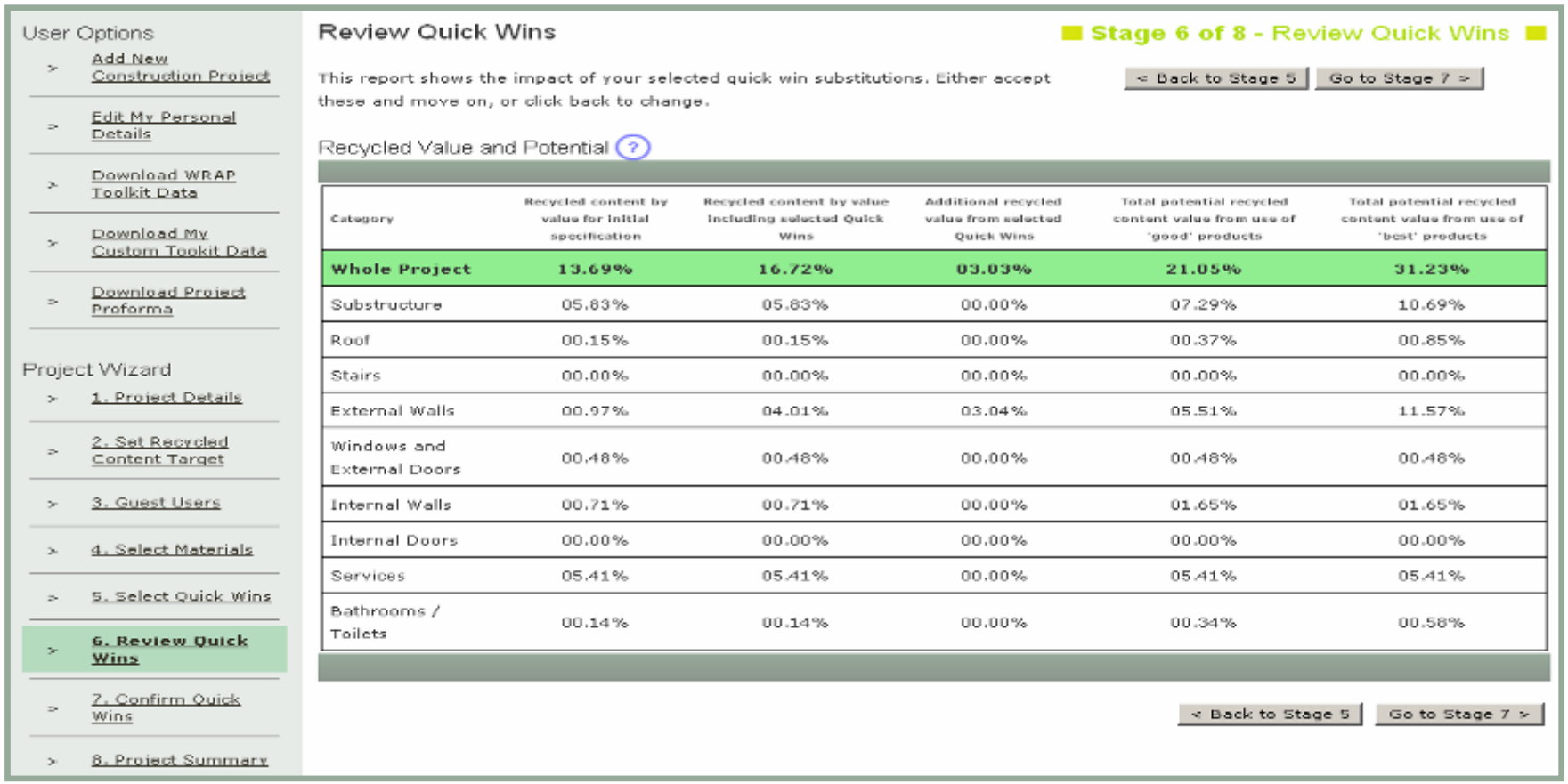
Top opportunities to increase recycled content by moving to 'good' practice products (?) Max Quick Wins to show 10

Component	Standard Recycled Content (%)	Good Recycled Content (%)	Potential increment in recycled content of project (%)	Select	Target level of recycled content (%) *
Cavity block construction; inner skin dense concrete blocks - 140mm	0	50	03.04	☑	50
Two layer plaster - to stud partition 15mm	36	84	00.94	☐	84
Facing bricks £250 / 1000	0	9	00.86	☐	9
Reinforced in-situ concrete 150mm, C30 or higher	24	30	00.80	☐	30
Concrete Strip, Strength C30 or higher, 600 deep (up to and inc. DPC) with reinforcing	24	30	00.66	☐	30
Glass wool insulation 90mm	30	50	00.65	☐	50
Fireclay sink	0	9	00.12	☐	9
Glasswool 200mm	30	50	00.10	☐	50
Tiles - Concrete interlocking	0	5	00.10	☐	5
Fireclay WC	0	9	00.08	☐	9

Total for **selected** components - 3.04%

Stage 6 - Reviewing Quick Wins



User Options

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Project Wizard

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- **6. Review Quick Wins**
- 7. Confirm Quick Wins
- 8. Project Summary

Review Quick Wins

Stage 6 of 8 - Review Quick Wins

This report shows the impact of your selected quick win substitutions. Either accept these and move on, or click back to change.

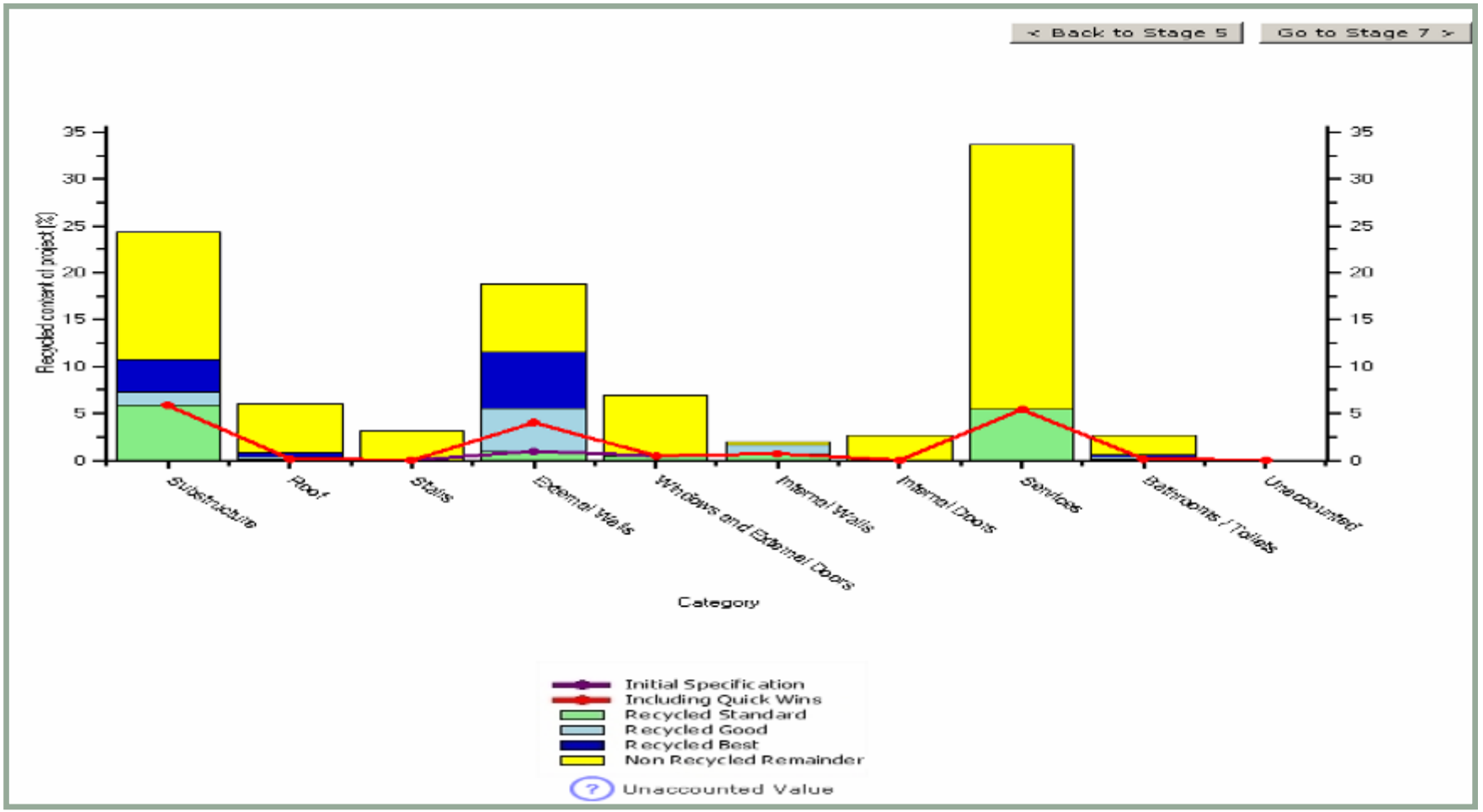
< Back to Stage 5 | Go to Stage 7 >

Recycled Value and Potential

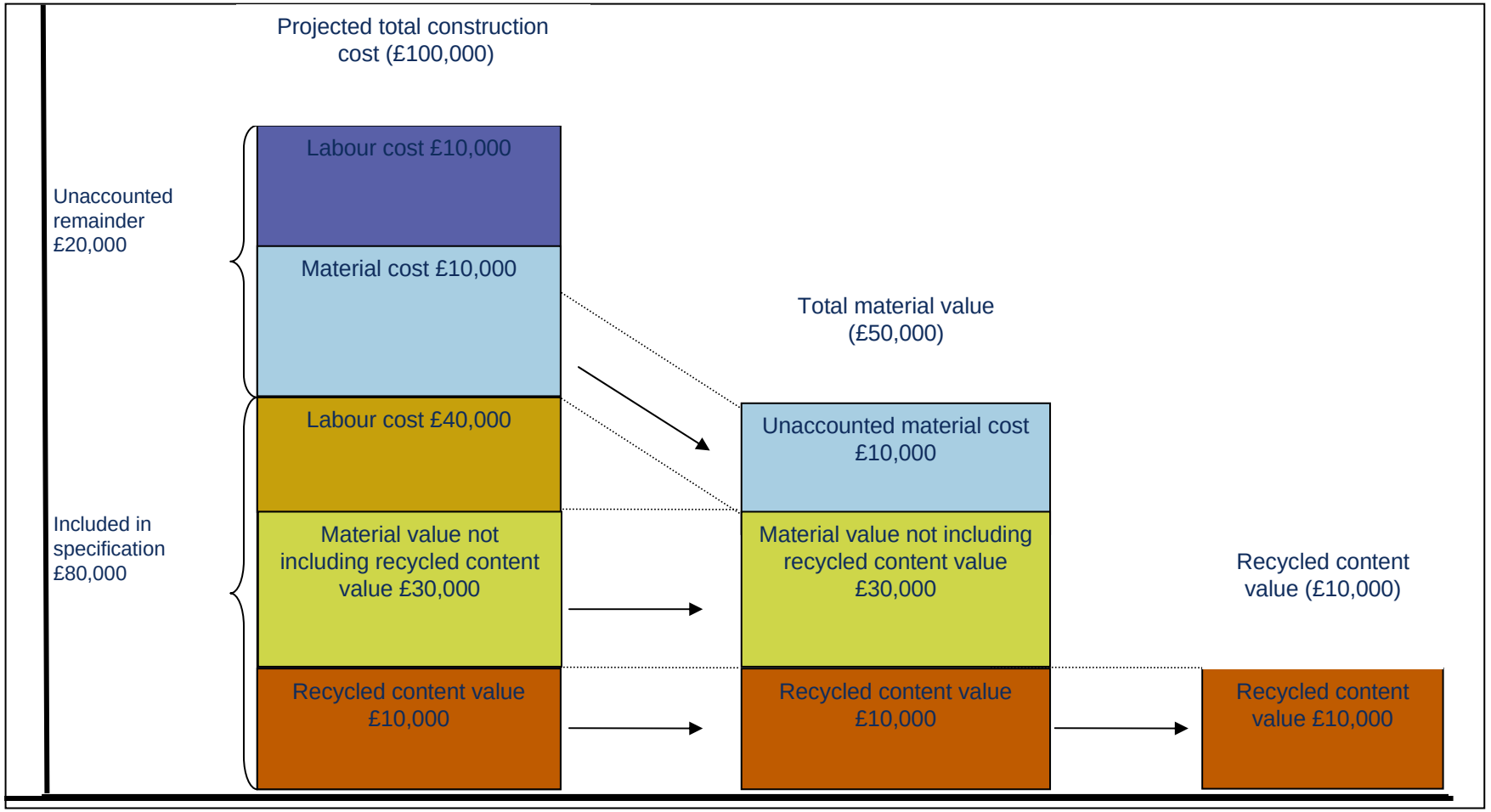
Category	Recycled content by value for initial specification	Recycled content by value including selected Quick Wins	Additional recycled value from selected Quick Wins	Total potential recycled content value from use of 'good' products	Total potential recycled content value from use of 'best' products
Whole Project	**13.69%**	**16.72%**	**03.03%**	**21.05%**	**31.23%**
Substructure	05.83%	05.83%	00.00%	07.29%	10.69%
Roof	00.15%	00.15%	00.00%	00.37%	00.85%
Stairs	00.00%	00.00%	00.00%	00.00%	00.00%
External Walls	00.97%	04.01%	03.04%	05.51%	11.57%
Windows and External Doors	00.48%	00.48%	00.00%	00.48%	00.48%
Internal Walls	00.71%	00.71%	00.00%	01.65%	01.65%
Internal Doors	00.00%	00.00%	00.00%	00.00%	00.00%
Services	05.41%	05.41%	00.00%	05.41%	05.41%
Bathrooms / Toilets	00.14%	00.14%	00.00%	00.34%	00.58%

< Back to Stage 5 | Go to Stage 7 >

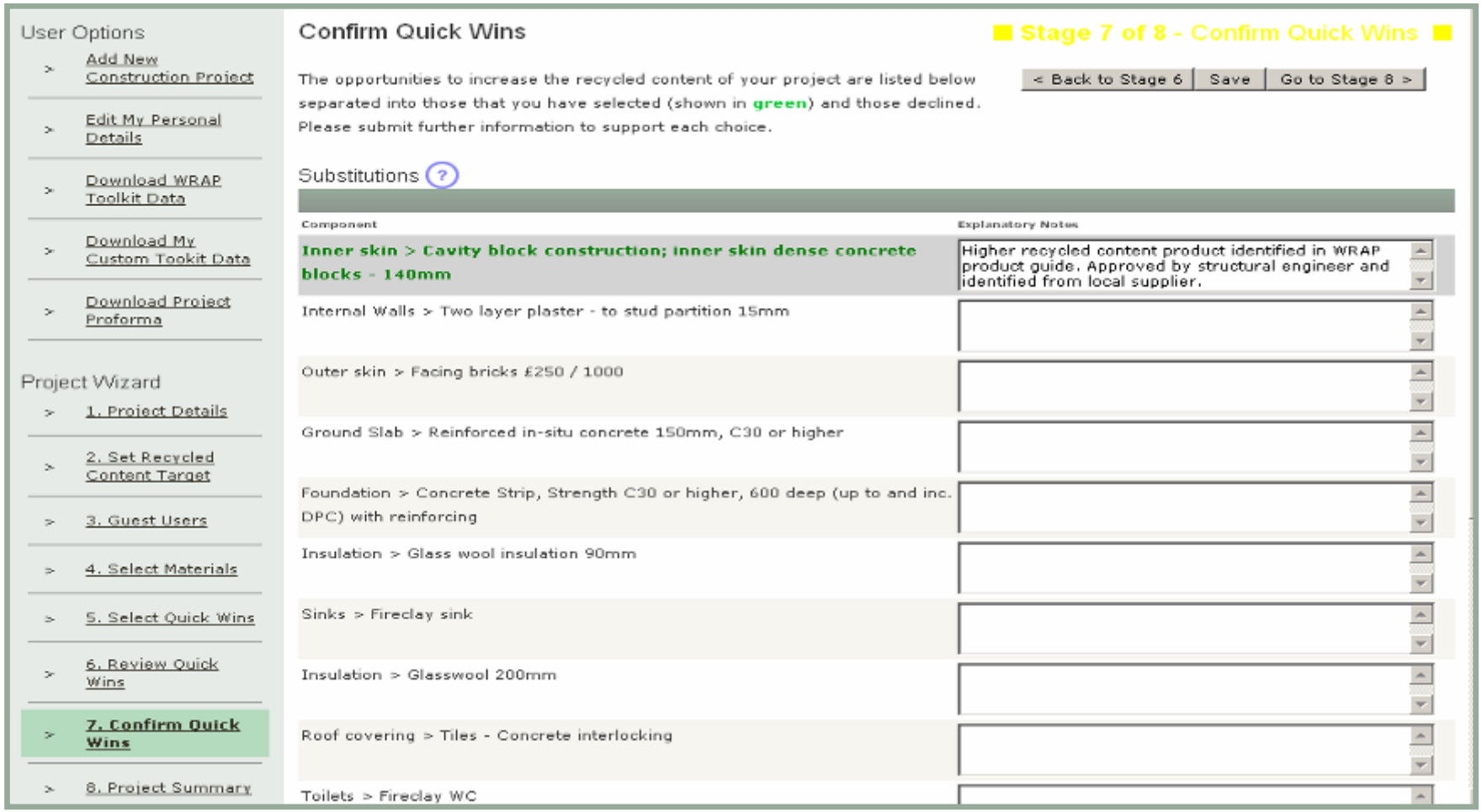
Stage 6 - Reviewing Quick Wins



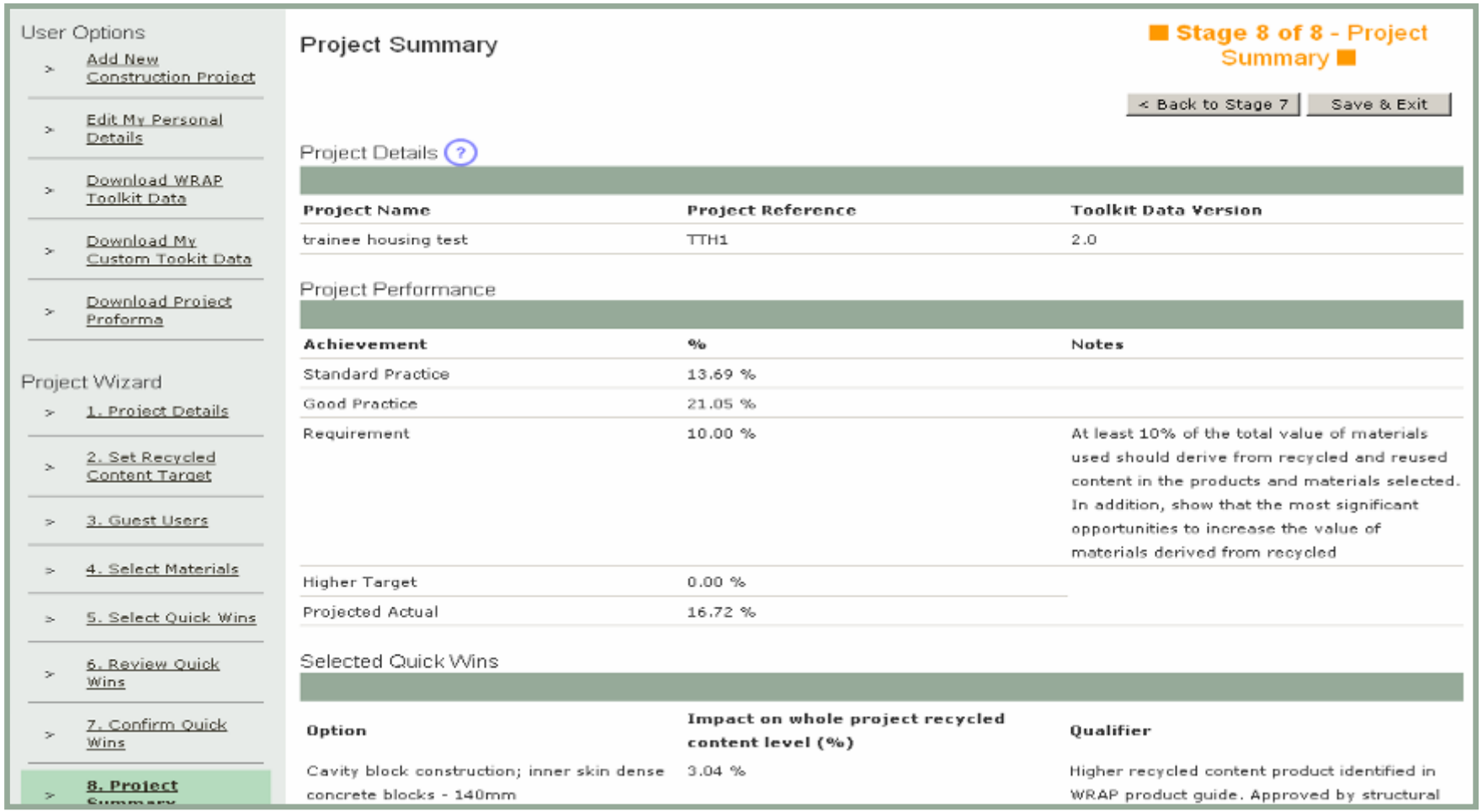
Stage 6 - Calculation of unaccounted value



Stage 7 - Confirming Quick Wins



Stage 8 - Project Summary



User Options

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- Download Project Proforma

Project Wizard

- 1. Project Details
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- 5. Select Quick Wins
- 6. Review Quick Wins
- 7. Confirm Quick Wins
- 8. Project Summary

Project Summary

Stage 8 of 8 - Project Summary

< Back to Stage 7 | Save & Exit

Project Details

Project Name	Project Reference	Toolkit Data Version
trainee housing test	TTH1	2.0

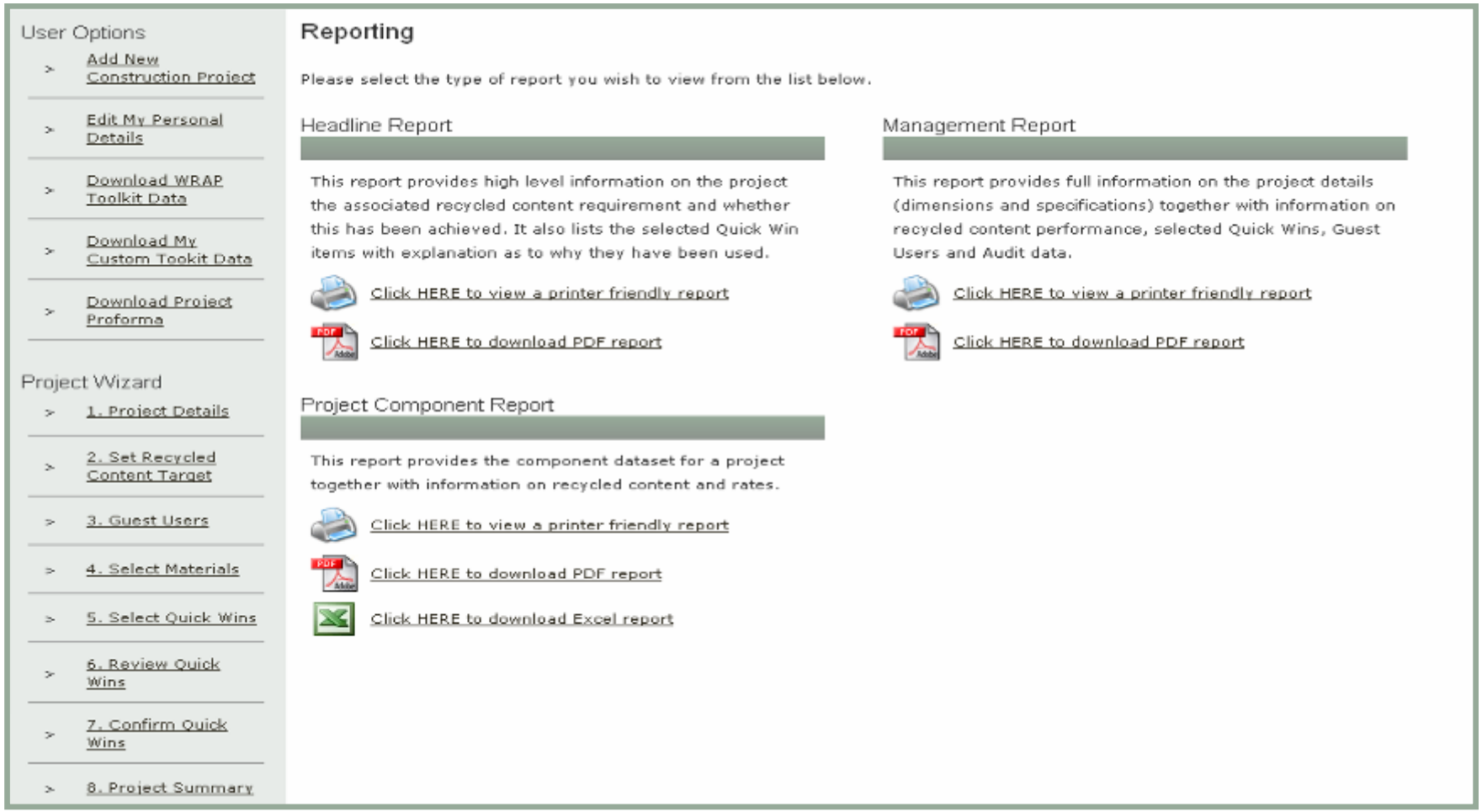
Project Performance

Achievement	%	Notes
Standard Practice	13.69 %	
Good Practice	21.05 %	
Requirement	10.00 %	At least 10% of the total value of materials used should derive from recycled and reused content in the products and materials selected. In addition, show that the most significant opportunities to increase the value of materials derived from recycled
Higher Target	0.00 %	
Projected Actual	16.72 %	

Selected Quick Wins

Option	Impact on whole project recycled content level (%)	Qualifier
Cavity block construction; inner skin dense concrete blocks - 140mm	3.04 %	Higher recycled content product identified in WRAP product guide. Approved by structural

Reporting


User Options
Add New Construction Project
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Project Wizard
1. Project Details
2. Set Recycled Content Target
3. Guest Users
4. Select Materials
5. Select Quick Wins
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7. Confirm Quick Wins
8. Project Summary
Reporting
Please select the type of report you wish to view from the list below.
Headline Report
This report provides high level information on the project the associated recycled content requirement and whether this has been achieved. It also lists the selected Quick Win items with explanation as to why they have been used.
Click HERE to view a printer friendly report
Click HERE to download PDF report
Management Report
This report provides full information on the project details (dimensions and specifications) together with information on recycled content performance, selected Quick Wins, Guest Users and Audit data.
Click HERE to view a printer friendly report
Click HERE to download PDF report
Project Component Report
This report provides the component dataset for a project together with information on recycled content and rates.
Click HERE to view a printer friendly report
Click HERE to download PDF report
Click HERE to download Excel report

Audit History

Material change for
a better environment

Feedback