

ZERO AVOIDABLE WASTE

Alan Cawley Senior Sustainability Manager 12th October 2022



Outline

- Company objectives and targets
- Why is waste important
- Zero Avoidable Waste
- Case studies





Objectives and Targets



2030 Sustainability Roadmap

- Our 2030 Sustainability Roadmap reflects our company's role and purpose and what we must do to tackle important sustainability issues and where we can have significant influence and impact.
- Our <u>2030 Sustainability Roadmap</u> Themes focus on five key areas, with 21 targets:
 - Caring for the Environment
 - Tackling Climate Change and Air Pollution
 - Embracing Innovation and Digital Technology
 - Enhancing Communities
 - Leading on Responsible Business Practices





2030 Sustainability Roadmap





Objectives and Targets

04 Supply Chain, Packaging & Waste

Targets

- We will reduce our waste intensity by 50%, when 11 measured against our 2019 baseline, by 2025
- All operations will be undertaken with Zero 12 Avoidable Waste by 2028
- We will eliminate the use of single use plastics in 13 all our operations by 2023
- We will successfully embed circular economy 14 principles into strategic business planning by 2023
- We will successfully embed the ISO 20400 18 Sustainable Procurement principles into our way of working by 2022

Themes







11	We will reduce our waste			
	intensity by 50%, when			
	measured against our 2019			
	baseline, by 2025			

12

13

14

All operations will be

undertaken with Zero

Avoidable Waste by 2028

By continuing our Waste 6 programme targeting the 6 largest waste streams generated by Sisk. Through elimination of single use plastics in all operations.

- By successfully embedding circular economy principles in strategic business planning.
- By increasing the use of modern methods of construction and lean construction methodologies.
- By working with a supply chain with aligned values.
- Through embedding Zero Avoidable Waste principles at design and considering deconstruction, where we have the opportunity to influence decisions.
- Through our Waste 6 Programme targeting the 6 largest waste streams generated by Sisk.
- By eliminating our use of single use plastics in all operations.
- By successfully embedding circular economy principles in strategic business planning. Where waste is unavoidable it will be recovered at the highest possible level of the waste hierarchy.
- We will eliminate the use By appointing a 'Single Use Plastics Working Group' from within Sisk and our supply chain. By developing a business transformation guide to work with our supply chain partners to
- of single use plastics in all eliminate SUPs our operations by 2023

- By identifying SUPs, building a plan, and implementing change to meet the 2023 commitment

Sponsors



DONAL MCCARTHY MARK MCGREEVY

We will successfully embed circular economy	•	By reviewing and adopting appropriate tools and systems to assess and embed circularity into Sisk operations. Through assessing the current level of circularity in Sisk operations and re-assessing throughout the process. By identifying and implementing opportunities to improve circularity e.g. through designing out

- principles into strategic business planning by 2023
- waste, keeping materials/ products in use and generating environmental benefits. Through collaboration with our clients, the design teams and our supply chain to increase circularity in the products which are specified and procured.



Established 1950



Why is waste important?



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Why is waste important?

Hazardous Waste

Ireland Waste Spend



- Mixed Tonnage Charge Metal Skip Waste
- Paper Sherdding
- Compost Wheelie Bin



Value of the resource lost

The value of the contents of a skip is estimated as £1343

- >> Skip hire: £85.00
- >> Labour cost: £163.00
- >> Unused materials: £1095



Source: WRAP / Amec survey - 2008

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Cost of rework - quality



Failure of the bonding of EPDM around windows leading to major leaks to finished apartments

Fitout stripped out and redone

Incorrect movement joint designed causing resin to break

Movement joint replaced with alternative joint





Waste?







What is zero avoidable waste?



Green Construction Board (UK):

Zero Avoidable Waste (ZAW) in construction means preventing waste being generated at every stage of a project's lifecycle, from the manufacture of materials and products, the design, specification, procurement and assembly of buildings and infrastructure through to deconstruction. At the end of life, products, components and materials should be recovered at the highest possible level of the waste hierarchy, i.e. reused before being recycled, whilst ensuring minimal environmental impact.



ZAW Routemap





Preconstruction



Circular Economy





Life Cycle of a construction product



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Designing Out Waste

There are five principles:

- 1) Design for Reuse and recovery
- 2) Design for Off Site Construction
- 3) Design for Materials Optimisation
- 4) Design for Resource Efficiency Procurement
- 5) Design for Deconstruction and Flexibility







Early Engagement

What is the value of Early Engagement?

Certainty of cost, schedule,waste and carbon reduction is maximised through engagement at early project development stage







Materials





Material selection

- Selection of Materials
 - Environmental Product Declarations
 - Green Guide to Specification
 - ➢ PEFC/FSC timber
 - Cross Laminated Timber in lieu of concrete / steel
 - Reclaimed / reuse of existing materials
- Recycled Content
- Responsible Sourcing (BES 6001)
- Lifecycle Assessment One Click LCA
- Product knowledge (made to measure, precast, availability)
- WRAPS designing out waste (UK)







IGBC EPD Campaign















MEDITE PREMIER FR MDF

EPD Programme - EPD Ireland Programme Operator - Irish Green Building Council www.epdireland.org



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Construction



Modern Methods of Construction

Live Project Application of MMC

- 1. Modularised dock levellers
- 2. Foundation reinforcement cages prefabricated off site
- 3. Perimeter RC wall designed out
- 4. Prefabricated Waste Management building
- 5. Modularised piperacks
- 6. Big lift" steel sections/Stairs etc
- 7. Precast attenuation tank
- 8. Prefabricated drainage sump pits
- 9. Prefabricated steel / canopy dock levellers
- 10. Precast drainage channels to plant room floor





Blockwork





Reuse of materials



Certified timber



Reusing topsoil



Reclaimed bricks



Recycled aggregate



Use of Recycled Materials



50% GGBS used in concrete





Use of Recycled Materials / Recycling





Insulated Concrete Forms





Plasterboard



Take-back schemes



















In use & End of Life



Reduce waste from refurbishment

- Pre-refurbishment audit
- Set targets for the reuse of products in refurbishment contracts.
- Optimise the scope of Cat A vs Cat B fit out to minimise waste when tenancies change.
- Check your tenant contracts, from a waste perspective – having to 'make good' to items which the next tenant may remove will create waste that could be avoided.
- Certain items may be able to be leased in, such as lighting, carpet tiles and returned to the manufacturer or third party for reuse/remanufacture.



Reuse waste from Demolition

Building owners

- Pre-demolition audit is
- Set targets for the reuse of products in demolition contracts.
- Set targets for open and close loop recycling of materials within demolition contracts.
- Have early involvement of the demolition contractor.

Demolition contractors

- Discuss reuse and recycling routes for products and materials.
- Advise the client and/or contractor on the value of materials at end of life.
- Make use of the growing number of reuse organisations and architectural salvage companies.

Digital asset information

- Designers and contractors obtain information on end of life options from Environmental Product Declarations (EPD).
- Whole Lifecycle Analysis
- Contractors include end of life data in the handover information and in the O&M manual.
- Facility managers and asset owners can make sure BIM models WLA are kept up to date

Better Measurement Better Management

Waste 6 Programme

Waste 6 Programme

- Identification and classification of waste
- Assess quantities and properties
- Plan the avoidance
- Correctly collect, store and treat the waste
- Follow Duty of Care requirements

Waste hierarchy

You can apply the Waste Hierarchy when selecting the waste techniques for your project...

W1 Bulk Materials

Golden Rule: Ensure quantities are identified prior to commencement and reuse options explored

Reuse

- Reuse soil & stone within development or on other sites
 - Article 27
- Encapsulate hazardous soil and stone within development

Recycle

- Article 11/ Article 28 Ireland
- Quality Protocols UK

Recover

- Soil recovery facilities

Segregation

Smartwaste

1WP - Total Construction / Demolition / Excavation Waste

Actual waste sent offsite 🧌							
	Total (t)	V£100k 🚺	t/100m² 🚺	Diverted from landfill (t)	Diverted from landfill (%)		
Construction	1,647.3	2.3	11.7	1,486.3	90.23		
Demolition	1,186.6	1.7	8.4	1,185.6	99.92		
Excavation	1,972.4	2.7	14.0	1,972.4	100.00		
Modular	0.0	0.0	0.0	0.0	0.00		
Post-Completion	0.0	0.0	0.0	0.0	0.00		
Total (offsite):	4,806.3	6.7	34.1	4,644.4	96.63		
Total (offsite & onsite):	4,806.3	6.7	34.1	4,644.4	96.63		

Download bulk waste data entry form

Case studies

Wembley – Modular Construction

Wembley – Modular Construction

MMC via early engagement – Wembley

Wembley – Modular Construction

Wembley

The Robinson - Modern Methods of Construction

3,000 pre-hung door sets **2,000**

windows precast off-site

1,610

brick faced precast facade panels

754

pre-fabricated bathroom pods off-site

Offsite construction

- **Proposal:** 3.3m Module to suit Lab Grid with furniture, equipment and ceiling (grid and service tiles) pre-fitted offsite.
- Services: Delivered longitudinally within the ceiling void. Dead testing to local distribution board / valve completed offering a "Plug & Play" product.
- Logistics: Modules are structure engineered to enable lifting by gantry crane

BioCork 2 – Soil retained on site

Potential round trip

140,900 litres Diesel Saved

Based on data for DAX XF Truck with average of 3.34 km/lt. consumption

Up to 6,000 Truck Movements Saved from Public Roads

Based on a load of 17t per truck

0.47 million km of transportation saved

376 tonnes of CO_2 saved

Based on data for DAX XF Truck with average of 2.67kg of $\rm CO_2/per$ litre

Thank you.

Established 1859

KA/K

