Material Efficiency & Designing Out Waste

Project:	Fusion Vision
Location:	Whitworth Street, Manchester

Project Manager / QS	Rhomco
Principal Contractor:	TBC
Architect:	Corstorphine and Wright
Sustainability / BREEAM:	Ensphere
M&E Designer:	Amber
Civil + Structural Engineer:	Shear Design

RIBA Stage 1 (B) - Preparation and Brief

Measure		Comment
Target set for reducing waste to landfill		See BREEAM Pre-Assessment
Design for Re-Use and Recovery	Are there any existing buildings on site that can be refurbished to meet client needs in part of in whole?	No
	If existing buildings need to be demolished, has a pre-demolition audit been carried out?	N/A
	Which elements on site can be reused on site, how can they be re-used?	Site is empty
	Which elements can be recovered for use on other sites?	Fencing can be taken apart and reused elsewhere
	Which elements can be recycled?	Fencing
	Can any materials salvaged for reuse from another project be incorporated in the proposed new building design?	Fencing may be able to be reused
	Have the likely impacts of Design for Reuse and Recovery opportunities on design, cost and project programme been identified?	The site is empty, and only had soft landscaping/turf as well as a metal fence around the outside.
Design for Deconstruction and Flexibility	Is Design for Deconstruction and Flexibility a priority, how will this be considered if so.	BREEAM WST06 Credit to be achieved.

RIBA Stage 2 (C) - Concept Design

Measure		Comment
Design for Re-use and Recovery	Have materials, structures or existing building components that will be reused be identified?	there are no existing building to be reused
	What testing, refurbishment or certification is required for the above?	N/A
Design for Off-Site Construction	Have the impacts of off-site construction solutions on the design, cost and programme been reviewed?	Offsite contruction methods are being explored throguhout the project. Façade panels are being investigated. GRP bathroom pods
	What site conditions facilitate (easy access or use of local manufacturer) the use of Off Site Construction?	See below.
	What site conditions impede (access/traffic problems, neighbours, air rights issues, buildability e.g. craneage) the use of Offsite Construction?	The site is restricted on the south side due the railway line, and neighouring properties are close on the east/west of the building. The north of the site is accessible fully from Whitworth Street.
	What benefits or disadvantages does Offsite Construction offer the project in terms of local residents?	Less time on site which could mean less distruption.
	Have benefits and disadvantages of offsite methods been reviewed with the design team when compared to traditional on-site methods?	Yes
	Has the cost of any testing / certification required been taken account of?	Yes
Design for Materials Optimisation	Have structural solutions using less materials and simplify the design been considered?	The building is concstructed in a concrete frame with flat slab and regular column grid allowing for a simple arrangement an no load bearing partitions therefore allowing for adaptations without complete demolitiion.
	Have building functions with similar specialist requirements been grouped together to simplify servicing and design?	Yes - the building is split into three zones; the base,middle and top.
	Is the building as simple as possible in terms of: - building form - structural system - building services - construction sequence / methodology	The building is a simple lozenge shape which maximises the space on the site
	What opportunities to avoid excavation have been considered, what restraints are there with respect to this?	Basements have been avoided through design team coordination and finding space within the building for equipment that may otherwise have required a basement.
	What % of excavated material can be re-used on site?	It is unlikely that excavated materail on the vacant site will be re-used on site.
	Have the client and design team agreed the balance between excavation minimisation and functional requirements / practicality?	Basements have been avoided through design team coordination and finding space within the building for equipment that may otherwise have required a basement.
	What foundation solutions have been considered, are these the most efficient?	Piled foundations are proposed. These are the most effecieent and suitable for a building of ths height.
Design for Waste Efficient Procurement	Which specification documents will contain details of waste minimisation requirements?	BREEAM requirements
	What contractual requirements / targets are going to be placed on the Demolition Contractor to maximise reuse, recovery and recycling?	There are no existing building to be demolished.
	What contractual requirements / targets are going to be placed on the Sub-Contractors of major waste producing packages to maximise reuse, recovery and recycling?	To be confirmed when Main Contractor is appointed.
Design for Deconstruction and Flexibility	How easy to recycle / recover are the materials selected for the structural frame, foundations and substructure, ground floor, upper floors, external walls, internal walls, windows / doors?	Reinforced concrete is regularly recylced. Concrete can be crushed down and used in granular materails as well as a recycled aggregate. Steel reinforcement is regularly recylced.
	How flexible is the building to adapt for changing future needs?	Whilst the structural frame is concrete, the internal partitions are made from metal studwork, and can be dismantled/removed/reconfigured as required.