



Programme Area: Buildings

Project: Building Supply Chain for Mass Refurbishment of Houses

Title: Appendix A – Estimate of Product Volumes

Abstract:

Please note this report was produced in 2011/2012 and its contents may be out of date. This document is an appendix of Deliverable 4.3 – Target Supply Chain Scenarios.

Context:

This project looked at designing a supply chain solution to improve the energy efficiency of the vast majority of the 26 million UK homes which will still be in use by 2050. It looked to identify ways in which the refurbishment and retrofitting of existing residential properties can be accelerated by industrialising the processes of design, supply and implementation, while stimulating demand from householders by exploiting additional opportunities that come with extensive building refurbishment. The project developed a top-to-bottom process, using a method of analysing the most cost-effective package of measures suitable for a particular property, through to how these will be installed with the minimum disruption to the householder. This includes identifying the skills required of the people on the ground as well as the optimum material distribution networks to supply them with exactly what is required and when.

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ETI Retrofit Product Volumetric

<u>Product</u>	<u>Component</u>	<u>Measure</u>	<u>Per House</u>	<u>Day (6)</u> 17	<u>Week (50)</u> 100	<u>Month</u> 417	<u>Year</u> 5000	<u>Notes</u>
Internal Wall	Plaster Board	sq metres	67.49	1,125	6,749	28,121	337,450	Supplied by GH at PRP (doesn't allow for party wall cold bridge +7%) 90% of wall to allow for battens at 400mm - 50mm foam Batten every 400mm = 2.5 per m ² Battens are 2.1m long 2.1 x 0.2m As plasterboard - FST dry's quicker (mins not days) As plasterboard
	Phenolic foam	sq metres	60.741	1,012	6,074	25,309	303,705	
	Battens		169	2,812	16,873	70,302	843,625	
	Battens	metres	354.32	5,905	35,432	147,634	1,771,613	
	Battens	sq metres	7.09	2,812	16,873	70,302	843,625	
	Skim or FST	sq metres	67.49	1,125	6,749	28,121	337,450	
	Paper /paint	sq metres	67.49	1,125	6,749	28,121	337,450	
External Wall	Phenolic foam	sq metres	73.25	1,221	7,325	30,521	366,250	150mm foam different to internal
	Render	sq metres	73.25	1,221	7,325	30,521	366,250	Acrylic render
Loft Insulation	Mineral wool	sq metres	37.1	618	3,710	15,458	185,500	300mm mineral wool
	Phenolic foam	sq metres	0.72	12	72	301	3,613	100mm - 3rd spec consider changing to 2 x 50 or 150mm
UPVC	Profiles	weight kg	87.65	1,461	8,765	36,521	438,256	Ave profile weight of 1.4kg / m ²
		Metres	111.8	1,863	11,180	46,583	559,000	Ave profile of 70 x 85mm

Not covered

Actual doors
Window sills
Skirting boards

Need spec of door to calculate PVC extrusion (ie panels bought in?)
Need to work out calculations plus current depth.
Need metres minus door openings from PRP

Assumption 1 (windows)

Profile 80x70mm weighs 1.4kg per m² (internet)
cross section 80x70mm is 0.08x0.07m = 0.0056 m²
1m² / 0.0056m = 178.6
Therefore 1.4kg profile = 1.786m long
1m long profile = kg 0.784 kg

Rough Estimate Capacity

PVC Extrusion	kg/ hour	200	9.13	Rate provided by supplier as 200kg per hour per machine for extrusion Sent window profile and metres to supplier and asked for ball park assumption on capital, labour, raw material usage and service cost / usage.
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