

Methodology for measuring and extrapolating reclamation stockholdings

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WPLTD1.5 Methodology for measuring and extrapolating reclamation stockholdings

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1. Introduction

- 1.1. Carbon emission reductions which mitigate climate change are a motivator for the reclamation and reuse of building material, assessment and measurement of which is gaining in importance to consumers, businesses, regulators and policymakers.
- 1.2. In 2019 during an FCRBE project partner meeting in Paris, the author presented a compelling public interest argument for collecting, measuring and extrapolating from the embodied carbon of reclamation stockholdings which was agreed in principle to be the subject of this deliverable, WPLTD1.5.
- 1.3. Here the author outlines a methodology to extrapolate and cross-check anonymised comparative mass and carbon data from reclamation indicators on a regular basis.
- 1.4. This document is a sequel to the final report of the FCRBE statistical analysis WPT1D2.3 Statistical analysis of the building elements reclamation trade in the Benelux, France, the UK and Ireland by F. Bougrain (CSTB) and M. Doutreleau (CSTB) which focused on social and economic indicators. As a statistical analysis, the report did not include the environmental impacts of stockholding reclamation dealers.

2. Summary

- 2.1. This document sets out ways in which the environmental benefit of reclaimed building material can be assessed and measured by extrapolation from known data.
- 2.2. Greenhouse gases emitted from making building material using fossil fuel were measured as the equivalent mass of the most prevalent, carbon dioxide, written here as 'CO2e' or 'carbon dioxide equivalent'.
- 2.3. The accepted way to assess the environmental benefit of reclamation and reuse was to measure the reduction in carbon emitted when antique, reclaimed or salvaged building material, products and elements were given a second life, and this was considered to be equal to the amount of CO2e emitted by making an equivalent amount of new material. For example, the reduction in emissions of CO2e from reusing a tonne of reclaimed bricks was equal to the CO2e emitted by making a tonne of new bricks. This was generally known as the 'displacement of new' or 'substitution' method of assessing the environmental benefit of reuse.
- 2.4. As part of the FCRBE project Salvo created a booklet of how to measure the quantity, volume and mass of the stockholding of a reclamation business and made a set of

baseline CO2e tables¹ and assumptions to convert 250 building products dating back 350 years, in 27 stock categories, into figures for mass of 180 basic material types. The products ranged, for example, from antique eighteenth century Georgian oak panelled rooms through to one year old salvaged plywood hoarding sheets. Businesses were assessed in the Interreg NWE area, including those reviewed by Salvo in the Republic of Ireland, Northern Ireland, Scotland, Wales and England.

- 2.5. An important comparator assumption was that all reclaimed material held in UK stockholdings would be sold and reused. This compares with new building material for which a similar assumption is made in the UK by the government's Office for National Statistics, where no allowance is made for non-use of stockholdings. It is Salvo's view that, although there are anecdotal examples of stockholdings of reclaimed material not being reused, these figures are lower than the percentage of new material which remains unsold or is sold as part of the construction sector's traditional over-ordering practice, is then delivered to site, remains unused and eventually enters the recycling or waste streams.
- 2.6. Stockholders of antique, reclaimed and salvaged building material in UK and Ireland were categorised by physical size, employment, stock type, geographical region, sales turnover band and the proportion of their sales which were generated from reclaimed material compared to new material. These data were compiled during visits, telephone interviews, emails and desk-based surveys. Statistical outliers were further investigated or rejected.
- 2.7. In future, Salvo intends to extrapolate aggregated measurements to produce figures at regular intervals from 2022 to 2032 to show comparative trends which measure comparative increases or decreases in reuse. The aim is to produce quarterly reports of the carbon benefit of the reclamation sectors of both the UK and Ireland. Salvo may also look at the possibility of offering this service to other countries.

¹ See an example of the material baseline figures for some metals, the product baseline figures for reclaimed radiators and roofing, and figures for value, mass and carbon benefit for an anonymised business on p14 below. The carbon emission figures for new material came from *ICE DB V3.0 (Circular Ecology, 2019)*, public EPDs and calculations by Salvo; all were cradle2gate figures. Anecdotally, construction supply chain distances were increasing for both new and reclaimed material, so the assumption was made that comparative transport energy was similar for new and reclaimed material - an assumption which would be tested in future when supply chain distances and fossil fuel transport energy figures were made available. The same assumption was applied to storage and processing costs. In 2021 the French government made similar assumptions when it passed a law allocating zero CO2e to the reuse of any reclaimed material or product.

2.8. Measurement was recognised as important in, and a legal requirement of, the EU Waste Framework Directive in 2008 (rev 2018)², and the UK Waste Regulations in 2011³. The EU directive was ratified in domestic law in all other European countries.

3. Data inputs, privacy and accuracy

- 3.1. The FCRBE partners, including Salvo, maintained the anonymity of surveyed businesses in the publication of datasets. Salvo intends to be responsible for the production of data, but will disclaim legal liability for inaccuracies.
- 3.2. Shared extracts of business data would be anonymised. During the survey publicly available non-sensitive data was shared openly such as, for example, the published names and phone numbers of businesses taken from the internet and shared on an internet business directory.
- 3.3. Stock assessments of UK and Irish businesses were gathered by the Salvo team, anonymised and added to spreadsheets (*see examples in the Annex 2 p14*). The estimated mass and material composition of stock items were calculated by volume and density tables, or from known masses. The item's material type was allocated if known, or using median figures for a group of similar materials if not known.
- 3.4. Physical areas of business premises were used as indicators of business size. Open yards, storage buildings and showrooms were found and measured from satellite photos, where some detailed items could be seen, and from street views, especially those showing rows and heights of stacks of pallets.
- 3.5. Information, photos and videos of smaller businesses could be found on social media (such as Facebook, Instagram and Twitter) adding useful detail for assessing stocks.
- 3.6. Stockholders' own websites contained information about the proportion of new to reclaimed materials, sometimes stated or implied.
- 3.7. Around 80% of the *UK&Ireland500* stockholding businesses were limited companies required by law to provide usually simplified annual company financial accounts. These accounts may have balance sheet stock valuations, and numbers of employees. The stock valuation included new building material, as well as miscellaneous items such as

² 30 May 2018 amending Directive 2008/98/EC on waste Article 9: *4. Member States shall monitor and assess the implementation of their measures on re-use (sic) by measuring re-use on the basis of the common methodology established by the implementing act referred to in paragraph 7, as from the first full calendar year after the adoption of that implementing act.*

³ UK 2011 Waste Regulations: Monitoring and evaluation of waste prevention programmes 6.(1) An appropriate authority (a) must establish qualitative or quantitative benchmarks; and (b) may establish qualitative or quantitative targets and indicators, against which to assess the value of waste prevention programmes. (2) An appropriate authority must publish the benchmarks and any targets or indicators it establishes.

printed marketing, office and vehicle consumables. However, caution was exercised in the balance sheet stock figures given because increases in stock values were a taxable addition to the annual company profit and therefore absolute stock total figures may have been underestimated to reduce tax, but in Salvo's experience, the comparative year on year changes were valid and could be useful.

- 3.8. Declared employment in annual accounts or survey questionnaires (Salvo sometimes had access to both which provided a valuable cross-check) may have been underestimated with increases in outsourcing due flexible working and cost reduction of, not least, social costs. Changes in employee numbers may have reflected an increase or decrease in sales, or a change in the organisation. However, year on year increases or decreases in declared employees were usually significant indicators of upwards or downwards sales trends. An example of the way in which this was dealt with was in the case of a very large northern UK scrap steel business (£170m t/o) which also sold secondhand steel beams. A satellite view showed two areas where these were stacked representing 3% of the huge yard area, which allowed an estimate of the proportion of turnover, quantity of stock, stock/turnover ratio and employment. From the accounts and extrapolations it could be seen that the 3% assessment was approximately correct.
- 3.9. Usually businesses which were longer established and had a large turnover provided financial accounts which were more comprehensive and could be considered more accurate, especially on a comparative annual basis rather than as absolute figures.
- 3.10. The businesses surveyed were a mixture of different sizes and types that were drawn from those listed on the *UK&Ireland500*⁴ with an emphasis towards those dealing in reclaimed building materials, but also a fair proportion of modern salvage and architectural antiques businesses.

4. Extrapolation, algorithms and assumptions

- 4.1. The *BigREc Surveys 1 and 2* in 1998 and 2007 used algorithms and cross-checks to extrapolate results of detailed surveys with which estimates for the whole UK could be extrapolated. The method and results were peer-reviewed by BRE's statistics team.
- 4.2. The following extrapolations, algorithms and assumptions were used in the 2020 futuREuse FCRBE survey (*aka BigRec 3*):

Anonymised: Annual sales bands and averages - reused from the earlier BigREc surveys businesses were arranged by sales turnover into five size bands. These size bands averaged total sales turnovers of a range of different sizes of business. Salvo referred to anonymised businesses ranging from a

⁴ A list of 500 UK and Irish businesses compiled for FCRBE. See https://www.salvoweb.com/salvo-directory/fcrbe

'small dealer' of average £37,000pa t/o or a 'major reclamation business' of more than £1m pa t/o. No report was produced which showed named businesses listed by sales band.

	sales band	average sales
а	less than £50,000	average £37,000
b	£50,000 to £200,000	average £125,000
с	£200,000 to £500,000	average £350,000
d	£500,000 to £1m	average £750,000
e	more than £1m	average £1.5m

Anonymised: Business names and locations - no business or person contributing to the survey was named, nor their address. Each was allocated to an EU region. Descriptions could be, for example, 'a reclamation dealer in Scotland' or a 'reclaimed flooring dealer in southeast England'. Where possible, visited dealers listed in the UK&Ireland500 had estimates made of total stocks in each stock category as mass or volume. Non-visited limited company dealers had their financial accounts at companieshouse.gov.uk inspected to give possible stock values and employee numbers. These would be cross-checked, and an average annual stock sale figure obtained for an average type of dealer in that size band with a given size of yard or showroom. Where no company accounts existed, the average extrapolation would be made using fewer criteria. Where possible, these would then be cross-checked for accuracy with real figures obtained confidentially. Small discrepancies would result in a change of extrapolation algorithm. Large discrepancies would be dealt with as outliers. Where possible, medians were preferred to averages.

Algorithm: Average or median £sales turnover

average annual stock sales and tonnes of an average or typical dealer = estimated sales total of all polled dealers sales ÷ number of dealers polled

Algorithm: Mass in tonnes

average annual total stock in tonnes of an average or median typical dealer = estimated total tonnes of all polled dealers sales ÷ number of dealers polled

Trends: Carbon emissions reduction - a baseline was created using the displacement or substitution CO2e of equivalent new material. In future the kgsCO2e/kg figures may increase due to revised downward evaluations by IPCCC of natural planetary carbon sequestration.

4.3. Assumptions for calculating CO2e in 2021 were subject to testing and revision in 2022 onwards:

Assumption: There was no wastage - it was assumed that all reclaimed material stockholdings in a salvage yard or showroom were eventually taken for reuse by end-users⁵.

Assumption: Distance stocks travel - it was assumed that the cradle to gate figure for distance travelled of new goods and the distance travelled to endusers, is more than that for antique and reclaimed goods. Until such figures are available for new goods Salvo cannot make easy comparisons. A container load of goods can travel from China to UK by ship for less CO2e than it takes to move that container from Tilbury Dock to London by truck.

Assumption: No additional fossil fuel energy is used - for example, for cleaning, repairing, packaging or storage. These figures will be sought and added in future.

Assumption: Multiple reclamation and reuse - it was assumed that the material will be reclaimed and reused again at end of second life or subsequent lives (LCA module D).

Algorithm: Carbon benefit of reclamation algorithm - data taken from ICE or Inies (and other direct CO2e displacement methods) and applied to material, product sheets, and reclaimed stocks. If the natural capacity of the planet to sequester CO2 decreased, the embodied carbon value of reuse would increase, while also factoring for decreasing carbonisation of new materials manufacture; accordingly an algorithm will be designed and applied to current and past carbon benefit figures.

- 4.4. **Assumption: Green business practices will continue** Reclamation businesses are reducing their carbon footprint, for example, by using blanket-wrapped zero packaging, renewable electricity suppliers and electric vehicles. The general assumption is that the reclamation sector comparable to the new material sector included in the CO2e figures which Salvo used to measure the carbon emissions saving of reuse.
- 4.5. **Assumption: Stock to turnover ratio and other algorithms will change** the algorithms applied will be changed in response to changes in quantity, type, value, material, embodied CO2e and climate change. The stock-to-turnover ratio is likely to be

⁵ Occasionally, antique and reclaimed material is rented by film companies and returned into stock after use. However, there have been many instances when hundreds of tonnes of reclaimed material have been sourced and bought from salvage dealers for a film after which, despite requests to salvage the material, it was all sent to landfill. Salvo has asked UK government not to support film productions with tax subsidies unless a responsible take-back policy is adopted for reclaimed material, so far without success.

fairly consistent for the same reclaimed stock in different reclamation businesses. Outliers should always be identified and discarded.

Find the stock category to turnover ratio: Take the known annual sales turnover in one of the 27 stock categories and divide by the known stock sales value, of a stated number of businesses. For example, a reclaimed roof tile and slate business had known annual sales in reclaimed material of £1million with reclaimed stockholdings of a sales value of £250,000 - therefore the stock to turnover ratio of that reclaimed roofing business was 4. If that ratio was similar for a number of businesses a median figure would be used for extrapolation after it had been cross-checked with other businesses.

Find the stock to turnover ratio of a general business type: Take the known annual total sales turnover of all measured businesses and divide by their known total stock sales value. For example, one general reclamation yard's total known annual sales were £300,000, and its known stockholding sales value was £100,000, therefore its stock to turnover ratio was 3. All ratios would be cross-checked for accuracy and outliers discarded from the stats, but will continue to be monitored. The method to define an outlier will be documented and whether an outlier is making claims which are wrong, is a business laggard, or is a highly progressive business pointing the way to better models for the future. Measuring the generality would give an idea of the mass.

Find the annual sales of a known stockholding value and a known stockto-turnover ratio: Take the known sales value of a known stockholding and multiply by the stock-to-turnover ratio to find the annual sales figure. For example, a stock of a pallet of reclaimed bricks may be sold and replaced four times a year, while an antique bath stock may be sold and replaced twice per year. If the sales value of bricks and baths and average total stock quantity is known then the total sales figures for bricks and baths can be estimated. *stock quantity x sales price x stock/turnover ratio = total annual sales*

Find the stockholding of a business of with a known annual sales figure and a known stock-to-turnover ratio: Reverse the process above.

4.6. **Changes to the trade over time may affect stock to turnover ratios:** Some stocks, such as fired clay roof tiles and natural roof slate require little processing other than a light cleaning and checking for damage. For these stocks the stock to turnover ratio has been reasonably constant. However, since Salvo's last check of stock/turnover ratios in 2007 it seems that some reclaimed stocks are now subject to more processing to make them more saleable at a higher price. For example, the stock/turnover ratio was 4 for reclaimed wood flooring in the BigREc surveys in 1998 and 2007, but in 2020 it was found that some specialist reclaimed flooring dealers now process, engineer and

finish their wood flooring extensively to make laying easier for floor layers, and this has increased the sales price which has probably resulted in their stock/turnover ratio reducing.⁶ Such ratios and algorithms will be kept up to date by Salvo.

4.7. **A typical salvage yard** - this would be an imagined average reclamation business with average levels of stocks of a broad average range of antique, reclaimed and modern building salvage, with an average sales turnover. The typical salvage yard may vary by region. If no region is specified the salvage yard would be an average of all those polled or estimated in every region of the UK and Ireland - or further afield.

5. Typical questions which may be answered

5.1. How much carbon is saved by an average Irish salvage yard? 'How much carbon' means is 'carbon emissions reduction' which is the CO2e value of new materials displaced by the sale and reuse of reclaimed stocks, or the 'carbon benefit of reuse'. This figure would be found by taking the median of the five annual sales bands found of the Irish entries in the UK&Ireland500, with a median range of stock, of a median material mass from which the carbon emissions reduction will be calculated. The figure would be found separately for the Republic of Ireland and Northern Ireland, or combined for an island of Ireland figure.

CO2e reductions of Irish yard = average tonnes material x CO2e carbon benefit of reuse

- 5.2. What are the carbon emission reductions achieved by reclamation and reuse of an *architects practice?* Architects and designers will be able to commission Salvo to audit their reclamation carbon benefit, and eventually to use a *Reclamation Carbon Emissions Reduction Calculator*⁷ to calculate carbon emissions reductions.
- 5.3. Which category of stock saved the most, least, and average reduction of carbon emissions in each quarter of 2022? Salvo intends to produce quarterly statistics.
- 5.4. *From which countries might dealers contribute statistics to Salvo?* UK and Ireland, possibly France, Luxembourg and more countries in future. There are 19 countries containing *SalvoWEB* registered users, of which around 6,000 7,000 are dealers.
- 5.5. *Which antique, reclamation or salvage business saved the most carbon last year?* Salvo aims to record anonymised embodied carbon savings for contributing businesses, but due to data anonymising Salvo cannot give the name of the business

⁶ Survey data is complete but not fully processed by Salvo, so new ratios have not been formulated.

⁷ Salvo intends to place the calculator on <u>futureuse.co.uk</u> by Salvo. The eventual plan is for the calculator to model reclamation pathways to show 'what if' alternatives in order to maximise carbon benefit. Also please see FCRBE, *WPLT D.2.4 Reuse in Environmental Impact Assessment* tools. A prospective report available on <u>https://www.nweurope.eu/FCRBE</u>

but would state in which region that business was located and the amount of carbon that business helped to save.

- 5.6. What was the sales turnover of an 'average' salvage yard in each region of the UK? The sales turnover would be calculated from the stock levels of extrapolated stats obtained from the survey of the UK&Ireland500. (See an explanation for a typical salvage yard in para 3.7 above)
- 5.7. *How many tonnes of concrete are reclaimed and reused in London annually?* The figure for reclaimed concrete reclaimed and reused within London will not give an accurate picture. Due to the decrease in salvage yards within London (similarly to other cities) over the past two or three decades, most London architectural salvage and reclaimed building material is now exported out of the Greater London region to outlying regions, and most of the reclamation reused in London is imported from outside. This is not such good news for the transport impacts of a material as dense and endemic as concrete into and out of a city such as London.

6. Future outputs

- 6.1. Salvo intends to measure progress of the aim of the futuREuse FCRBE project to increase the amount of reclamation and reuse by 50% over the next ten years in quarterly summaries and annual reports to include emissions reductions.
- 6.2. From 2022 Salvo plans to collect:
 - a. anonymised stats of items for sale on SalvoWEB;
 - b. anonymised stats from SalvoSITES managed for dealers;
 - c. anonymised stats from simple stock polls of Salvo members;
 - d. anonymised stats from the Truly Reclaimed label scheme;
- 6.3. Additional reports which may be produced include:
 - a. Numbers of stockholders per region, per country, per capita
 - b. Numbers of stockholders per city, per capita
 - c. Projects reusing reclaimed material by number, material mass, embodied carbon, by stock category, region and country
 - d. Dealer stockholders by number, by material, by categories,
 - e. Architect/Designer/Specifier reuse of reclaimed material, average, maximum, minimum, by region, country
 - f. Storage of biogenic carbon, and possibly other storage forms
- 6.4. Salvo will cooperate with public authorities by providing statistics and will seek funding to assist with costs of collecting and maintaining the statistics.
- 6.5. Salvo will investigate ways to glean data and trends from niche reclamation stockholdings, for example, platforms such as eBay and Gumtree.

Annex 1: indicative factors (not for use)

This page shows indicative datasets only, which must not be used for statistical purposes.

aggregates, medians, extrapolation factors

CO2e extrapolation median5 rec yard emphasis UK&Ireland500: OUTLIERS BASELINE median5

	average or median	500x		
name (2b anonymised)	median rec yard	500		
code	median			
type	all categeries			
employees	4.5	2250		
exterior m2	6000	3000000		
interior m2	800	400000		
total m2				
uncounted				
est t stock	134.8	67,396		
est £ cost				
£ sales value				
est £ sales	£350,000.00	£175,000,000.00		
est t co2e	99.1	49,550		
stk/to ratio				
cost/t				
sales/t	£3,264.53			
sales/m2	£241.32			
sales/emp	£87,500.00			
t CO2e/emp	16.8			
kgsCO2e/m2	50.0			
est t CO2e/t stock	0.74			

This sheet (medians2.numbers) shows the result of taking a median sample of 5, with no outliers, of one common business type - a 'reclamation yard' - 4 in UK and 1 in Ireland, and extrapolating its median result as if there were 500 similar businesses. This gives a number of algorithms including the estimated tonnes of emissions reductions expressed in tonnes of CO2e. Multiplying by 500 would give 49,550 tCO2e of emissions savings in UK and Ireland and 16.8tCO2e emissions reductions per person employed. For other assumptions made see page 7 and others above. Iterating data over time will eliminate assumptions, improve accuracy and correct displacement method anomalies.

OUTLIERS were removed which deviated by more than 25% from the six rows from 'sales/t' to 'est t CO2e/t stockholding' at the bottom of the chart above.

NB: This is a demonstration chart. Do not use for statistical purposes!

Annex 2: indicative datasets (not for use)

material - density, carbon

1	material	kgs/m3	kgsCO2e/kg	embodied kgsCO2e/ kg	biogenic kgsCO2e/ kg	CO2 only	per sq m	source CO2e	date	first used	last used	(
95	gold	19300	0.000									
96	iron - modern cast iron	7300	2.080	2.080				ICE v3	2019			
97	iron - modern cast iron, enamelled, vitreous or epoxy	7870	4.310	4.310				Gerberit	2017			
98	iron - wrought iron	7750	2.300	2.300				tk	2021			
99	lead (virgin)	11350	3.370	3.370				ICE v3	2019			
100	lead (recycled)	11350	0.580	0.580				ICE v3	2019			
101	mercury	13594	0.000									
102	nickel	8900	12.400			12.400		ICE v3	2019			
103	pewter, English - tin 91%, antimony 7.5%, copper 1.5%	7280	14.520	14.520				ICE v3	2019			

В

С

D

0

products - mass, embodied carbon

Α

1	item	mass kgs	kgsCO2e	
182	19 Reclaimed RADIATORS - based on average 80kg radiator, eg hospital rad 30ins (75cms) h by 12 sections 30ins (75cms) long - for towel rails see cat 2 Ant BATHROOM			
183	cast iron column, hospital and panel radiators ->EA	80.00	344.80	iron - modern cast iron, enamelled, vitreous
184	cast iron special and old radiators ->EA	100.00	208.00	iron - modern
185	reclaimed brass valves, connectors ->EA	1.00	4.80	brass virgin (0% recycled), admiralty - copper,
186				
187	19 Reclaimed RADIATORS TOTALS			
188				
189	20 Reclaimed ROOF TILES & SLATES Units: steel stillages or wooden crates small format clay tiles avg 10.5ins by 6.5ins (267mm x 165mm) average 480@1.1kgs large format clay tiles avg 17ins by 13ins (432mm x 330mm) average 130@4.5kgs slate average 22ins by 11ins (558mm x 279mm) average 580 @ 2.1kgs limestone sandstone roofing average 750kgs per crate ridge in crates or on pallets - plain ridge avg 70no, decorative ridge avg 30no			
190	small format roof tiles - fireclay, plain, nib, pegs ->CRATES	530.00	132.50	fireclay, earthenware, stoneware, terracotta
191	large format roof tiles - fireclay somerset, double romans, pantiles, triples ->CRATES	600.00	150.00	fireclay, earthenware, stoneware, terracotta
192	slate per slate avg size 11x22ins ->CRATES	1270.00	44.45	stone - slate,

	£tot value	mass kgs	kgsCO2e
19 Reclaimed RADIATORS - based on average 80kg radiator, eg hospital rad 30ins (75cms) h by 12 sections 30ins (75cms) long - for towel rails see cat 2 Ant BATHROOM			
cast iron column, hospital and panel radiators ->EA	£0.00	4,560	19,654
cast iron special and old radiators ->EA	£0.00	0	0
reclaimed brass valves, connectors ->EA	£0.00	0	0
19 Reclaimed RADIATORS TOTALS	0	4,560	19,654
20 Reclaimed ROOF TILES & SLATES - stocked in steel stillages or wooden crates, small format clay tiles average 10.5ins by 6.5ins (267mm x 165mm) average 480 @ 1.1kgs; large format clay tiles average 17ins by 13ins (432mm x 330mm) average 130 @ 4.5kgs; average slate 22ins by 11ins (558mm x 279mm) average 580 @ 2.1kgs; limestone sandstone roofing average 750kgs per crate; ridge in crates or on pallets - plain ridge average 70no, decorative ridge average 30no			
small format roof tiles - fireclay, plain, nib, pegs ->CRATES	£0.00	0	0
large format roof tiles - fireclay somerset, double romans, pantiles, triples ->CRATES	£0.00	0	0
slate per slate avg size 11x22ins ->CRATES	£0.00	0	0
stone slate, stone tiles, Cotwsold, Yorkshire grey ->CRATES	£0.00	0	0
chimneypots - clay avg 70cms high ->EA	£2,185.00	380	95
ridge clay or stone - 30cms/50cms - plain 70no, decorative 30no ->CRATES	£0.00	0	0
20 Reclaimed ROOF TILES & SLATES TOTALS	2,185	380	95