



**Whole Life Cost of Social Housing**

**Housing Corporation  
Innovation & Good Practice Project  
(098/2002)**

**Stage 1 Final Report**

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**BCIS Ltd  
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London  
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## WHOLE LIFE COSTS OF SOCIAL HOUSING

### Stage 1 - standard whole life cost models

#### Summary

#### Introduction

The objective of this project was to produce benchmark whole life cost models based on the capital cost models used in the Housing Corporation's Total Cost Indicators (TCIs) to allow the Housing Corporation and Registered Social Landlords (RSLs) to compare the whole life costs performance of proposed schemes with definable standard schemes. It is restricted to those costs that are usually the responsibility of an RSL.

#### Existing capital cost models

The cost models used to calculate the current TCIs were prepared for DTI by Building Cost Information Service Ltd (BCIS) as the basis for calculating the Tender Price Index of Social Housing (TIPSH).

The BCIS cost models were based on surveys of RSL practice and the following requirements.

- *Scheme Development Standards, (August 2000)* Housing Corporation.
- *Standards and Quality in Development.* National Housing Federation.
- *The Building Regulations Including Part M.*

The original models are for superstructure costs only and are arranged elementally. Each elemental cost is built up from a suite of composite rates applied to composite units of measurement

#### Whole life cost models

The models selected by the Housing Corporation for this whole life cost exercise were:

1)	3B/5P	Terrace House	85m <sup>2</sup> 2 storey
2)	3B/5P	Semi detached House	85m <sup>2</sup> 2 storey
3)	4B/7P	Terrace House	110m <sup>2</sup> 2 storey
4)	1B/2P	Flats	50m <sup>2</sup> in 2 storey block of 4
5)	2B/3P	Flats	62.2m <sup>2</sup> in 2 storey block of 8
6)	2B/4P	Flats	65.6m <sup>2</sup> in 3 storey block of 6 including lift*

\*The TIPSH archetype for a 3-storey block of 6 flats does not contain a lift.

#### Generating quantity models for whole life cost exercise

It was decided that it would be easier to price the whole life costs and to compare results if detailed quantity models were derived from the original measurement for composite rates (rather than produce whole life costs for the composite items). Models also needed to be constructed for substructures and external works. These were based on the Housing Corporations standard allowance of 60% of superstructure costs (Substructure 16.27%, External Works 43.73%)

The process for generating the quantity models that form the basis for the whole life cost models was designed first for cost model number 2 (i.e. the 3 bedroom, 5 person, two storey, semi-detached house of 85m<sup>2</sup> GFA). The process was refined and largely finalized before it was then applied to repetitively generating the quantity models and construction cost values of the other five cost models.

The superstructure values, which form the basis for the new whole life cost models, have been developed from the original TPISH archetype costings. These costings were generated on MS Excel spreadsheets. Substructure and External Works construction cost elements were excluded from the original TPISH methodology but have been added into the new whole life cost models using a congruent approach and logic.

A systematic process was developed to disaggregate the composite rates in the TPISH costing, element by element. This, in effect, expands the TPISH composite costing into approximate elemental Bills of Quantities which, in turn, form the basis for the superstructure construction cost values of the equivalent new whole life cost model. Two objectives of this process of disaggregation were:

- to ensure that the new disaggregated costing reconciles mathematically with the original TPISH composite costing.
- to ensure that the audit trails through the original composite costing and the suites of composite rates that support it are preserved in the new disaggregated costing.

The disaggregation of the TPISH composite rates was achieved by inserting new rows and columns in a copy of the Excel spreadsheet containing the TPISH archetype costing and then importing (i.e. copying and pasting) relevant data from the separate composite rate build-up spreadsheets. Redundant rows and columns were hidden and new headings and references inserted where appropriate.

Significant obstacles to disaggregation were:

- disaggregation of the services elements, which in the original TPISH methodology were dealt with via separate cost schedules supported by manually calculated composite rates.
- disaggregation of the form dependent aspects of each element (e.g. rainwater pipes to roofs) that, in the TPISH methodology, were dealt with via ad hoc, manually calculated rates.
- disaggregation of the form dependant aspects of the Flat type cost models (e.g. access towers, passenger lifts etc) which in the TPISH methodology were dealt with via ad hoc, manually calculated estimates or, in the case of passenger lifts, were excluded).

These obstacles were overcome largely by developing and entering the relevant data manually (rather than by copying and pasting). This was labour intensive.

A suite of composite rates was specially produced for the Substructure element and composite quantities specially measured (because the TPISH archetypes exclude substructures). The resultant composite costings were then added in to the cost models and disaggregated in the same way as described above for the superstructures. The substructure costings were further adjusted to coincide with the standard proportion

allowed for substructure in the Works Cost component of the Housing Corporation's Total Cost Indicators.

A total cost for external works was calculated using the standard proportion allowed for this element in the Works Cost component of the Housing Corporation's Total Cost Indicators. A list of typical external work's sub-elements for a typical social housing scheme of 13.1 units was formulated. The proportion, in percentage terms, that the cost of each sub-element would typically bear to the total external works cost was assessed. It was agreed to assume that one house on each scheme would require a car port. Using these criteria both the quantities and costs of the cost significant components of each sub-element were modeled into the construction cost values.

The disaggregation process and the addition of substructure and external works elements converted each two page TPISH spreadsheet (of about 100 rows x 13 columns) into a 38 page spreadsheet (of about 1270 rows x 40 visible columns) before the further development and addition of the whole life cost aspects.

**Whole life cost assumptions:**

The whole life cost projection is based on the following agreed assumptions:

1. 100 year life
2. to include landlords costs only ie. maintenance, refurbishment, replacement and external redecoration generally, internal redecoration on change of tenancy and cleaning and internal redecoration to common parts.
3. Maintenance to include cleaning as maintenance eg. washing window frames, cleaning out gutters etc. (Note: assume that window glass is cleaned externally when frames are cleaned but not otherwise).
4. Roads and mains sewers will be adopted and therefore no future maintenance costs will accrue to the RSL.
5. Life expectancy assumptions will take into account social and technological obsolescence as well as physical.
6. Price base 2Q02 .
7. Discount rate 3.5%.
8. No allowance for tax.
9. No allowance for defects, vandalism or accidental damage.
10. No allowance for tenants domestic cleaning.
11. No allowance for energy costs
12. No allowance for internal redecoration except at change of tenant
13. No allowance for residual value
14. Include cost of final demolition

**Whole life cost projections**

Life expectancies and cleaning, decoration and maintenance frequencies have been estimated for each item in the costed quantity models. These 'lifespans' are based primarily on the BMI Life Expectancy of Building Components. It has been assumed that tenants would change on a 6-year cycle and that redecoration will be carried out at this time. Replacement periods for components have generally been rounded up to the nearest 6 years, from the median typical life expectancy, to fit in with this redecoration cycle. No allowance has been made for repair and redecoration to voids between the 6-year cycles. Major works during the last six years of the 100-year period have been omitted.

The costs of each item have been obtained from a variety of sources, but primarily from the BMI *Building Maintenance Price Book*, and *Occupancy Cost Plan* database. Comparative studies between the new build and replacement costs lead to the following assumptions having been made to simplify replacement costs estimates:

- Take out and replace element                      120% of original capital cost
- Repainting, no primer required                      75% of original decoration costs
- Part replacement, e.g. relay tarmac                75% of original element costs.  
on existing hardcore base.

Demolition costs for each house type have been calculated using the guidance in the *BCIS House Rebuilding Cost Guide*.

A complete set of assumptions for each item in the 3B/5P semi detached model is attached as Appendix A

The priced quantity model of capital costs was extended to include the 100-year maintenance costs. A discount rate of 3.5% was used to calculate the net present value of the annual cost totals.

A new spreadsheet was then created and the discount rate was applied to the costs for each item in the 100-year spreadsheet. This ‘discounted’ spreadsheet has been used to estimate the net present value for each item in the quantity model.

**Results**

The results of the exercise show that for all dwelling types the net present value of the maintenance costs is about 90% of the capital cost.

*Table 1 Capital and maintenance costs by type of dwelling*

<b>Dwelling type</b>	<b>Capital Cost</b>	<b>Maintenance NPV</b>	<b>Total Cost</b>	<b>Ratio Total/Capital</b>
3B/5P Terrace	£59,595	£55,102	£114,697	1.92
3B/5P Semi	£64,003	£53,492	£117,495	1.84
4B/7P Terrace	£70,503	£63,518	£134,021	1.90
1B/2P Flat	£42,113	£36,989	£79,102	1.86
2B/3P Flat	£46,337	£39,894	£86,231	1.86
2B/4P Flat	£62,735	£51,902	£114,637	1.83

From the models the elements with the highest ratio of total net present value to capital costs are:

- Wall finishes
- Fittings
- Heating
- Electrical
- Siteworks
- External services

Table 2 gives the capital and maintenance NPV costs for each element from the 2B/4P Flats in a 3 storey block of 6 with lift. Elemental results for all dwelling types are given in Appendix B.

Table 2 Capital and Maintenance costs by elements – 2B/4P Flat, 3Storey block of 6\*

<b>Element</b>	<b>Capital Cost</b>	<b>Maintenance NPV</b>	<b>Total Cost</b>	<b>Ratio Total/Capital</b>
Foundations	6378	0	6378	1.00
Upper Floor	1889	0	1889	1.00
Roof	2492	968	3460	1.39
Stairs	863	689	1552	1.80
Ext. Walls	4679	0	4679	1.00
Chimney	0	0	0	
Windows	2054	1630	3684	1.79
Ext.Doors	913	269	1182	1.30
Int. Walls	3656	367	4023	1.10
Int. Doors	3172	1479	4651	1.47
Wall Finish	2160	2132	4292	1.99
Floor Finish	2133	827	2960	1.39
Ceil'g Finish	1440	509	1949	1.35
Fittings	1403	3075	4478	3.19
Sanitary	1282	907	2189	1.71
Hot & Cold water	523	394	917	1.75
Heating	3446	5412	8858	2.57
Electrical and lift	6912	6527	13439	1.94
Gas	194	0	194	1.00
Siteworks	9858	19411	29269	2.97
Drainage	4159	3447	7606	1.83
Ext.Services	3129	3796	6925	2.21
Total	62735	51840	114575	1.83
Demolition		62	62	

\* with lift

The complete set of results for each item in a 3B/5P semi detached model is attached as Appendix C and a full 100 year elemental projection for the same model as Appendix D.

Some of the key components with NPV total to capital cost ratios is shown in Table 3.

The results show that those items that require frequent work, e.g. cleaning out gutters, grass cutting, redecoration and replacement of external fittings, etc. , tend to produce a high ratio. This would suggest some obvious steps that might be taken, e.g. protection for the gutters.

Table 3 Capital and Maintenance costs for key components

Component	Capital cost	Maintenance NPV	Ratio Tot/Cap	Work required
roof tiles	1041	496.24	1.48	replace at 54 clean at 3
roof insulation quilt	505	470.76	1.93	replace at 24
PVC gutters	91	647.30	8.11	clean every 2 and replace at 24
rainwater pipes	36	33.40	1.93	replace at 24
softwood eaves boarding inc paint	400	250.14	1.63	replace at 24 paint at 6
PVC windows	1179	1146.76	1.97	replace at 36, wash down and lubricate ironmongery annually
porch	375	427.55	2.14	replace tiles and timbers at 36
matwell	48	171.21	4.57	replace mat at 6 and well at 18
internal doors	629	292.12	1.46	replace at 36, adjust ironmgry at 12
internal door linings	1183	549.04	1.46	replace at 36
internal door painting	364.83	1045.98	3.87	6 yearly
internal door ironmongery	472	245.05	1.52	replace at 36
internal wall painting	476	2178.85	5.58	6 yearly
vinyl flooring	238	555.94	3.34	replace at 12
kitchen fittings	1177	2586.58	2.20	replace at 12
shelving	231	215.18	1.93	replace at 12
external storage	647	1798.32	3.78	replace at 12
sanitary appliances	1753	844.84	1.48	replace at 36 ball valve at 12
rising main & c.w. storage tank	344	585.11	2.70	replace at 24 ball valve at 12
exp. tank (+.b.feed & o'flow)	334	576.25	2.73	replace at 24 ball valve at 12
indirect cyl. (+ prim.flo & ret.)	446	595.26	2.33	replace at 24
Gas boiler, balanced flue	671	2886.59	5.30	replace at 24
radiators	3096	2745.08	1.89	replace at 24
electrical installation	2818	4001.35	2.42	replace at 30
external surface treatment	3251	10932.77	4.36	inc grass cutting and pruning of shrubs
external enclosure & division	579	2722.65	5.70	replace timber gates and fences at 12 paint at 6
external storage	786	1579.47	3.01	replacing at 12 or 24
external fittings & furniture	338	4287.25	13.68	cleaning signs, benches and bins regularly, painting at 6, replacing at 12
external drainage	3170	3177.24	2.00	check seals at 1, pipes at 6 or 12
external services	1584	4008.30	3.53	inspect at 1

### **Liaison with Beyond Green**

BCIS has liaised with Beyond Green the Housing Corporation's sustainability consultants throughout the project and discussed how the models could be expanded to include energy and other occupiers costs, embodied energy and designing for sustainability.

### **Future proposals**

#### *Tool for RSLs*

The models and data developed under this project provide a basis for a tool to allow RSLs to compare their own schemes with the current base models for the TCIs. BCIS Ltd.

#### *Sustainability model*

Following discussions with Beyond Green the models could also be extended to cover the complete sustainability agenda linking to work already carried out by BRE and others.

### **Appendices**

Appendix A - Full model for 3B/5P semi showing life expectancy/frequencies and maintenance costs

Appendix B – Elemental capital and maintenance NPV costs and ration for each model

Appendix C – Full model for 3B/5P semi showing capital, maintenance NPV costs and ratio

Appendix D – 100 year elemental projection for 3B/5P semi

























			4 brick paviour surface	24	6		1		97	46		4
			5 cobble surface	24	6		1		77	23		2
		4	Clothes airing areas									
			1 pcc edging	24					11			
			2 coated macadam yard surface	24					42			
			3 rotary drier	6					26			
		5	Playgrounds									
		6	Games courts									
		7	Retaining walls									
			1 brick facing									
			2 brick coping		6					14		
		8	Ramps and steps									
			1 hand-railing	36		6		28			7	
			2 balustrading	36		6		85			21	
			3 step nosings	24			1	4				1
			4 tread surface	24			1	169				28
			5 ramp surface	24			1	169				28
		9	Sound bunds									
		10	Playing fields									
		11	Landscape work									
			1 seeded area (grass, top soil)	1						137		
			2 planted area (herbaceous)	1						58		
			3 conifer tree	1						1		
			4 deciduous tree	1						1		
			5 ornamental tree	1						1		
			6 metal tree grid									
		19.2										
		19.3										
			1 Gates, barriers, screens									
			1 timber gate	12		6		99				4
			2 timber privacy screen	12		6		71				20
			2 Fencing, walling, hedges									
			1 masonry walling		6					18		
			2 masonry coping									
			3 timber fencing	12		6		169				60
			4 hedging		1					64		
		19.3										
		19.4										
			1 Stores									
			1 waste bins	12				62				
			2 waste recycling	12				15				
			3 bicycles	24				37				
			4 fuel / oil	24				0				
			5 tools (dirty storage)	12				518				
			2 Carports									
			1 coated macadam road surface	24				87				
			2 pcc kerb	24				24				
			3 flat roof	12				169				
			4 fascia	12				18				3
			5 supports			6						10
		19.4										
		19.5										
			1 Visual landmarks									
			1 bollard									
			2 hardwood seat	12		6	1	56			9	49
			3 planter	12		6		51			8	
			4 litter bin	12			1	85				44
			2 Signage									
			1 illuminated sign									
			2 sign post				1					46
			3 plain sign (wall mounted)				1					2
		19.5										
19	Siteworks											
20	Drainage											
20	Drainage	20.1										
	24.25%		1 Surface & Foul (combined system)									
			1 underground sewer				12					79
			2 Access, inspection etc.,									
			1 road gullies	1						2		
			2 IC + heavy duty cover	1						1		
			3 IC + medium duty cover	1						0		
		20.1										
		20.2										
			1 Surface water									
			1 underground drain				12					53
			2 surface channel & grating	1						37		
			3 soak-away	1						1		
			2 Foul									
			1 underground drain				12					185
			3 Access, inspection etc.,									
			1 surface water gully	1						2		
			2 foul gully	1						3		
			3 rodding eye				6					4
			4 IC + medium duty cover	1						3		
			5 IC + light duty cover	1						3		
		20.2										
		20.3										
			1 Land drainage									
			1 underground field drain				6					59
			2 underground drain				6					4
			2 Access, inspection etc.,									
			1 medium duty I.C.	1						0		
		20.3										
		20.4										



APPENDIX B

<b><u>STRUCTURE &amp; FINISHES</u></b>		CAPITAL COST	MAINT COSTS	WHOLE LIFE COSTS	WLC:CAPITAL RATIO
1	Upper Floor	1327	63	1390	1.05
2	Roof	3142	1089	4231	1.35
3	Stairs	718	364	1082	1.51
4	Ext. Walls	3210	0	3210	1.00
5	Chimney	0	0	0	0.00
6a	Windows	2004	1600	3604	1.80
6b	Ext.Doors	1924	1275	3199	1.66
7	Int. Walls	5148	764	5912	1.15
8	Int. Doors	2982	2209	5191	1.74
9	Wall Finish	2200	2231	4431	2.01
10	Floor Finish	1238	556	1794	1.45
11	Ceil'g Finish	1235	583	1818	1.47
<b><u>STRUCTURE &amp; FINISHES</u></b>		25128	10735	35863	1.43
<b><u>FITTINGS</u></b>					
12	Kitchen fittings	1177	2756	3933	3.34
13	Built-in cupboards	878	2013	2891	3.29
<b><u>FITTINGS</u></b>		2055	4770	6825	3.32
<b><u>SERVICES</u></b>					
14	Sanitary appliances and wastes	1753	1194	2947	1.68
15	Hot & Cold water installation	1734	1904	3638	2.10
16	Heating installation	3767	5632	9399	2.50
17	Electrical installation	3073	4001	7074	2.30
18	Gas installation	104	0	104	1.00
<b><u>SERVICES</u></b>		10431	12731	23162	2.22
<b><u>SUBSTRUCTURES</u></b>					
0	Foundations	6062	0	6062	1.00
<b><u>SUBSTRUCTURES</u></b>		6062	0	6062	1.00
<b><u>EXTERNAL WORKS</u></b>					
19	Siteworks	9365	19522	28887	3.08
20	Drainage	3950	3177	7127	1.80
21	Ext.Services	2974	4008	6982	2.35
<b><u>EXTERNAL WORKS</u></b>		16289	26708	42996	2.64
<b><u>DEMOLITIONS</u></b>			158	158	0.00
<b><u>GRAND TOTAL</u></b>		59595	55102	114697	1.92

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<b>STRUCTURE &amp; FINISHES</b>		<b>CAPITAL COST</b>	<b>MAINT COSTS</b>	<b>WHOLE LIFE COSTS</b>	<b>WLC:CAPITAL RATIO</b>
1	Upper Floor	1327	63	1390	1.05
2	Roof	4644	2374	7018	1.51
3	Stairs	718	364	1082	1.51
4	Ext. Walls	6077	0	6077	1.00
5	Chimney	0	0	0	0.00
6a	Windows	2179	1712	3891	1.79
6b	Ext.Doors	1549	1275	2824	1.82
7	Int. Walls	3691	764	4455	1.21
8	Int. Doors	2910	2209	5119	1.76
9	Wall Finish	2200	2231	4431	2.01
10	Floor Finish	1238	556	1794	1.45
11	Ceill'g Finish	1235	583	1818	1.47
<b>STRUCTURE &amp; FINISHES</b>		<b>27768</b>	<b>12132</b>	<b>39900</b>	<b>1.44</b>
<b>FITTINGS</b>					
12	Kitchen fittings	1177	2756	3933	3.34
13	Built-in cupboards	878	2013	2891	3.29
<b>FITTINGS</b>		<b>2055</b>	<b>4770</b>	<b>6825</b>	<b>3.32</b>
<b>SERVICES</b>					
14	Sanitary appliances and wastes	1753	1194	2947	1.68
15	Hot & Cold water installation	1734	1904	3638	2.10
16	Heating installation	3767	5632	9399	2.50
17	Electrical installation	2818	3649	6467	2.29
18	Gas installation	104	0	104	1.00
<b>SERVICES</b>		<b>10176</b>	<b>12379</b>	<b>22555</b>	<b>2.22</b>
<b>SUBSTRUCTURES</b>					
0	Foundations	6509	0	6509	1.00
<b>SUBSTRUCTURES</b>		<b>6509</b>	<b>0</b>	<b>6509</b>	<b>1.00</b>
<b>EXTERNAL WORKS</b>					
19	Siteworks	10059	16344	26403	2.62
20	Drainage	4241	3406	7647	1.80
21	Ext.Services	3193	4348	7541	2.36
<b>EXTERNAL WORKS</b>		<b>17493</b>	<b>24099</b>	<b>41591</b>	<b>2.38</b>
<b>DEMOLITIONS</b>			<b>113</b>	<b>113</b>	<b>0.00</b>
<b>GRAND TOTAL</b>		<b>64003</b>	<b>53492</b>	<b>117495</b>	<b>1.84</b>

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<b>STRUCTURE &amp; FINISHES</b>		CAPITAL COST	MAINT COSTS	WHOLE LIFE COSTS	WLC:CAPITAL RATIO
1	Upper Floor	1718	81	1799	1.05
2	Roof	3952	2480	6432	1.63
3	Stairs	718	364	1082	1.51
4	Ext. Walls	3612	0	3612	1.00
5	Chimney	0	0	0	0.00
6a	Windows	2262	1787	4049	1.79
6b	Ext.Doors	1549	1275	2824	1.82
7	Int. Walls	5987	885	6872	1.15
8	Int. Doors	3401	2541	5942	1.75
9	Wall Finish	2508	2549	5057	2.02
10	Floor Finish	1599	716	2315	1.45
11	Ceill'g Finish	1599	757	2356	1.47
<b>STRUCTURE &amp; FINISHES</b>		28905	12264	41169	1.42
<b>FITTINGS</b>					
12	Kitchen fittings	1674	3919	5593	3.34
13	Built-in cupboards	971	2100	3071	3.16
<b>FITTINGS</b>		2645	6019	8664	3.28
<b>SERVICES</b>					
14	Sanitary appliances and wastes	1761	1194	2955	1.68
15	Hot & Cold water installation	1780	1904	3684	2.07
16	Heating installation	5267	6676	11943	2.27
17	Electrical installation	3592	4309	7901	2.20
18	Gas installation	111	0	111	1.00
<b>SERVICES</b>		12511	14083	26594	2.13
<b>SUBSTRUCTURES</b>					
0	Foundations	7168	0	7168	1.00
<b>SUBSTRUCTURES</b>		7168	0	7168	1.00
<b>EXTERNAL WORKS</b>					
19	Siteworks	11081	22683	33763	3.05
20	Drainage	4672	3575	8247	1.77
21	Ext.Services	3517	4707	8224	2.34
<b>EXTERNAL WORKS</b>		19269	30965	50234	2.61
<b>DEMOLITIONS</b>		0	187	187	0.00
<b>GRAND TOTAL</b>		70503	63518	134021	1.90

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<b>STRUCTURE &amp; FINISHES</b>		CAPITAL COST	MAINT COSTS	WHOLE LIFE COSTS	WLC:CAPITAL RATIO
1	Upper Floor	918	0	918	1.00
2	Roof	2631	1513	4144	1.58
3	Stairs	557	26	583	1.05
4	Ext. Walls	3989	0	3989	1.00
5	Chimney	0	0	0	0.00
6a	Windows	1533	1173	2706	1.76
6b	Ext.Doors	1087	917	2004	1.84
7	Int. Walls	2176	545	2721	1.25
8	Int. Doors	1336	812	2148	1.61
9	Wall Finish	1508	1486	2994	1.99
10	Floor Finish	1336	461	1797	1.35
11	Ceil'g Finish	921	339	1260	1.37
<b>STRUCTURE &amp; FINISHES</b>		17992	7273	25265	1.40
<b>FITTINGS</b>					
12	Kitchen fittings	884	1639	2523	2.85
13	Built-in cupboards	308	644	952	3.09
<b>FITTINGS</b>		1192	2283	3475	2.92
<b>SERVICES</b>					
14	Sanitary appliances and wastes	1293	892	2185	1.69
15	Hot & Cold water installation	506	389	895	1.77
16	Heating installation	3046	5032	8078	2.65
17	Electrical installation	2152	2846	4998	2.32
18	Gas installation	135	0	135	1.00
<b>SERVICES</b>		7132	9158	16290	2.28
<b>SUBSTRUCTURES</b>					
0	Foundations	4282	0	4282	1.00
<b>SUBSTRUCTURES</b>		4282	0	4282	1.00
<b>EXTERNAL WORKS</b>					
19	Siteworks	6617	13154	19771	2.99
20	Drainage	2791	2599	5390	1.93
21	Ext.Services	2101	2482	4583	2.18
<b>EXTERNAL WORKS</b>		11509	18236	29745	2.58
<b>DEMOLITIONS</b>			40	40	0.00
<b>GRAND TOTAL</b>		42113	36989	79102	1.88

APPENDIX B

<b>STRUCTURE &amp; FINISHES</b>		<b>CAPITAL COST</b>	<b>MAINT COSTS</b>	<b>WHOLE LIFE COSTS</b>	<b>WLC:CAPITAL RATIO</b>
1	Upper Floor	1145	0	1145	1.00
2	Roof	2828	1652	4480	1.58
3	Stairs	557	26	583	1.05
4	Ext. Walls	3726	0	3726	1.00
5	Chimney	0	0	0	0.00
6a	Windows	1709	1309	3018	1.77
6b	Ext.Doors	1087	917	2004	1.84
7	Int. Walls	2596	549	3145	1.21
8	Int. Doors	1654	944	2598	1.57
9	Wall Finish	1599	1572	3171	1.98
10	Floor Finish	1662	574	2236	1.35
11	Ceil'g Finish	1146	426	1572	1.37
<b>STRUCTURE &amp; FINISHES</b>		<b>19709</b>	<b>7969</b>	<b>27678</b>	<b>1.40</b>
<b>FITTINGS</b>					
12	Kitchen fittings	1002	1914	2916	2.91
13	Built-in cupboards	355	687	1042	2.94
<b>FITTINGS</b>		<b>1357</b>	<b>2601</b>	<b>3958</b>	<b>2.92</b>
<b>SERVICES</b>					
14	Sanitary appliances and wastes	1297	892	2189	1.69
15	Hot & Cold water installation	518	389	907	1.75
16	Heating installation	3446	5258	8704	2.53
17	Electrical installation	2487	2983	5470	2.20
18	Gas installation	142	0	142	1.00
<b>SERVICES</b>		<b>7890</b>	<b>9521</b>	<b>17411</b>	<b>2.21</b>
<b>SUBSTRUCTURES</b>					
0	Foundations	4711	0	4711	1.00
<b>SUBSTRUCTURES</b>		<b>4711</b>	<b>0</b>	<b>4711</b>	<b>1.00</b>
<b>EXTERNAL WORKS</b>					
19	Siteworks	7282	14245	21527	2.96
20	Drainage	3073	2730	5803	1.89
21	Ext.Services	2313	2779	5092	2.20
<b>EXTERNAL WORKS</b>		<b>12668</b>	<b>19754</b>	<b>32422</b>	<b>2.56</b>
<b>DEMOLITIONS</b>			<b>49</b>	<b>49</b>	<b>0.00</b>
<b>GRAND TOTAL</b>		<b>46337</b>	<b>39894</b>	<b>86231</b>	<b>1.86</b>

## APPENDIX B

<b>STRUCTURE &amp; FINISHES</b>		CAPITAL COST	MAINT COSTS	WHOLE LIFE COSTS	WLC:CAPITAL RATIO
1	Upper Floor	1889	0	1889	1.00
2	Roof	2492	968	3460	1.39
3	Stairs	863	689	1552	1.80
4	Ext. Walls	4679	0	4679	1.00
5	Chimney	0	0	0	0.00
6a	Windows	2054	1630	3684	1.79
6b	Ext. Doors	913	269	1182	1.30
7	Int. Walls	3656	367	4023	1.10
8	Int. Doors	3172	1479	4651	1.47
9	Wall Finish	2160	2132	4292	1.99
10	Floor Finish	2133	827	2960	1.39
11	Ceil'g Finish	1440	509	1949	1.35
<b>STRUCTURE &amp; FINISHES</b>		25451	8871	34322	1.35
<b>FITTINGS</b>					
12	Kitchen fittings	1002	2345	3347	3.34
13	Built-in cupboards	401	730	1131	2.82
<b>FITTINGS</b>		1403	3075	4478	3.19
<b>SERVICES</b>					
14	Sanitary appliances and wastes	1282	907	2189	1.71
15	Hot & Cold water installation	523	394	917	1.75
16	Heating installation	3446	5412	8858	2.57
17	Electrical and lift installation	6912	6527	13439	1.94
18	Gas installation	194	0	194	1.00
<b>SERVICES</b>		12357	13240	25597	2.07
<b>SUBSTRUCTURES</b>					
0	Foundations	6378	0	6378	1.00
<b>SUBSTRUCTURES</b>		6378	0	6378	1.00
<b>EXTERNAL WORKS</b>					
19	Siteworks	9858	19411	29269	2.97
20	Drainage	4159	3447	7606	1.83
21	Ext. Services	3129	3796	6925	2.21
<b>EXTERNAL WORKS</b>		17146	26654	43800	2.55
<b>DEMOLITIONS</b>			62	62	0.00
<b>GRAND TOTAL</b>		62735	51902	114637	1.83

STRUCTURE & FINISHES			ref		CAPITAL COST	MAINT COSTS	WHOLE LIFE COSTS	WLC:CAPITAL RATIO
1	Upper Floor							
1	Upper Floor	upper floors	1.1	47 x 200 SC3 softwood joists	516	0	516	1.00
				at 400 centres	0	0	0	
				18 Wood chipboard BS 5669	324	63	387	1.19
				type 2 with t&g joints	0	0	0	
				(in 1200 x 2400 sheets)	0	0	0	
				38 x 38 SC3 softwood HBS	115	0	115	1.00
				between 200 joists at mid	0	0	0	
				span where span exceeds 2.5m	0	0	0	
				50 x 50 SC3 softwood noggin	86	0	86	1.00
				between joists (support to long	0	0	0	
				edges of sheeting)	0	0	0	
				metal joist hanger inc notching	286	0	286	1.00
				47 x 200 joist to fit	0	0	0	
				closing positions for:-	0	0	0	
				joists	0	0	0	
				noggings	0	0	0	
				joist hangers	0	0	0	
				<b>exclusions &amp; notes</b>	0	0	0	
				Lateral restraint straps	0	0	0	
				Doubled joists under partitions	0	0	0	
				Trimming to stair opening	0	0	0	
				Trimming to duct openings	0	0	0	
		upper floors	1.1		1327	63	1390	1.05
					0	0	0	
		form dependent	1.2	NONE	0	0	0	
1	Upper Floor				1327	63	1390	1.05
2	Roof				0	0	0	
2	Roof	coverings & structure	2.1	420 x 330 granular finish conc.	1130	532	1662	1.47
				interlocking tiles (75 head lap)	0	0	0	
				fixed for NORMAL exposure	0	0	0	
					0	0	0	
				25 x 50 softwood battens	0	0	0	
					0	0	0	
				Underlay BS747 type 1F	0	0	0	
				Prefab.softwood trussed rafters	730	0	730	1.00
				W Fink to suit:	0	0	0	
					0	0	0	
					0	0	0	
					0	0	0	
				150 glass fibre quilt between	548	510	1058	1.93
				ceiling joists at 600 centres	0	0	0	
				25 x 100 softwood bracing	121	0	121	1.00
				Galvanised truss clip	60	0	60	1.00
				Closing position for truss	74	0	74	1.00
				Trap hatch & trimming & dec.	46	9	55	1.19
				<b>exclusions &amp; notes</b>	0	0	0	
				wall plate and straps	0	0	0	
				lateral restraint straps	0	0	0	
				gable masonry	0	0	0	
				tank bearers	0	0	0	
		coverings & structure	2.1		2709	1051	3760	1.39
		eaves condition	2.2	112 uPVC hr gutter	92	663	755	8.21
				inc. brackets scr. to timber	0	0	0	
				25 x 150 prep.softwood grooved	52	49	101	1.94
				fascia	0	0	0	
				Ext.qual. plywood soffit	57	53	110	1.93
				4 thick x n.e. 300 wide	0	0	0	
				Prime backs	6	5	11	1.78
				Prep., prime + 3 oil paint	31	100	131	4.23
				Proprietary plastic strip vent.	21	19	40	1.92
				Proprietary plastic filler piece	14	13	27	1.94
				50 x 100 SC3 softwood plate	43	0	43	1.00
				Bedding plate level in mortar	12	0	12	1.00
				Closing cavity under plate	70	0	70	1.00
				E.m.l. to plate	7	0	7	1.00
				g.m.s.plate strap at 2m centres	25	0	25	1.00
				30 x 5 cross sect. x 1000girth	0	0	0	
				(needed for trussed rafter roofs)	0	0	0	
				25 x 75 (extreme) continuous	20	4	24	1.19
				SC3 softwood tiling fillet	0	0	0	
				38 x 38 sawn bearer, plugged	28	5	33	1.19
				Proprietary plastic eaves vent	0	0	0	
				duct (saddles each rafter)	23	5	28	1.20
				Stop ends and running outlet (1)	0	0	0	
				fittings to 112 uPVC gutter	0	0	0	
				addit. plate at halved joints (7a)	0	0	0	
				<b>exclusions &amp; notes</b>	0	0	0	
				68 uPVC down pipe and	0	0	0	
				discharge / connection to drain	0	0	0	
				Boxed end to eaves	0	0	0	
		eaves condition	2.2		501	916	1417	2.83
		ridge condition	2.3	Segmental ridge tile (to match	112	159	271	2.42
				main tiling) jointed with	0	0	0	
				proprietary uPVC ridge unions	0	0	0	
				snap connected to uPVC	0	0	0	
				battens (see below)	0	0	0	

				0	0	0	
			E.o timber tiling battens for two	0	0	0	
			uPVC proprietary ventilated	0	0	0	
			tile battens	0	0	0	
			<b>exclusions &amp; notes</b>	0	0	0	
			Apex ends to ridge	0	0	0	
		ridge condition	<b>2.3</b>	112	159	271	2.42
		verge condition	<b>2.4</b>	33	6	39	1.20
			Interlocking dry verge unit	33	6	39	1.20
			25 x 175 prep.softwood barge	56	31	87	1.55
			Ext.qual. plywood soffit	54	29	83	1.54
			4 thick x 300 wide	0	0	0	
			Prime backs	6	3	9	1.45
			Prep., prime + 3 oil	30	100	130	4.33
			E.o one trussed rafter for	0	0	0	
			provision of one pair of	0	0	0	
			gable ladders	0	0	0	
			Close cavity at top with slate	51	0	51	1.00
			38 x 38 sawn bearer, plugged	33	0	33	1.00
			Apex junction with ridge	4	0	4	1.00
			Boxed end to eaves	30	28	58	1.93
			<b>exclusions &amp; notes</b>	0	0	0	
			nil	0	0	0	
		verge condition	<b>2.4</b>	297	197	494	1.66
		gable condition	<b>2.5</b>	494	0	494	1.00
			102.5 Facing brick outer skin	494	0	494	1.00
			in gm 1:1:6	0	0	0	
			72.5 Cavity, 3 ties per m2	14	0	14	1.00
			galv. steel butterfly ties	0	0	0	
			65 Rockwool full fill	93	0	93	1.00
			cavity insulation	0	0	0	
			(see recommend's.in Rockwool's	0	0	0	
			brochure for insul. gables)	0	0	0	
			100 standard 2.8N/mm2 block	292	0	292	1.00
			in gm 1:1:6	0	0	0	
			<b>exclusions &amp; notes</b>	0	0	0	
			verge construction	0	0	0	
			raking cutting at verge	0	0	0	
			strapping around verge	0	0	0	
			strapping at base of gable	0	0	0	
		gable condition	<b>2.5</b>	893	0	893	1.00
		form dep.	<b>2.6</b>	36	33	69	1.93
			68 uPVC R.W. pipe fixed with	36	33	69	1.93
			brackets, plugged & screwed	0	0	0	
				14	13	27	1.94
				5	5	10	1.93
			gable straps	77	0	77	1.00
		form dep.	<b>2.6</b>	132	51	183	1.39
2	Roof			4644	2374	7018	1.51
3	Stairs			0	0	0	
3	Stairs	flight & handrail	<b>3.1</b>	469	91	560	1.19
			Standard softwood	469	91	560	1.19
			Straight flight domestic stair	0	0	0	
			One string open with balusters	0	0	0	
			Rise in range 2500 - 2700	0	0	0	
			Typical construction:	0	0	0	
			25 softwood treads	0	0	0	
			plywood risers	0	0	0	
			32 softwood strings	0	0	0	
			two 100 sq.softwood newels and	0	0	0	
			one 50 x 75 hardwood handrail	0	0	0	
			32 sq. softwood open balusters	0	0	0	
			Prep, prime and 2 cts oil paint	27	91	118	4.38
			general surfaces of softwood	0	0	0	
			Prep, prime and 2 cts oil paint	31	105	136	4.39
			general surfaces of softwood	0	0	0	
			n.e. 300 girth	0	0	0	
			Prep and three coats clear	6	18	24	4.06
			polyurethane on hardwood	0	0	0	
			n.e. 300 girth	0	0	0	
			E.O.plain joist for trimming joist	14	0	14	1.00
			typ. 75x200 in lieu of 47x200	0	0	0	
			75 x 200 SC3 Trimmer	16	0	16	1.00
			metal joist hanger inc notching	11	0	11	1.00
			75 x 200 joist to fit	0	0	0	
			Trimming stair opening	31	0	31	1.00
			newal caps	9	0	9	1.00
			<b>exclusions &amp; notes</b>	0	0	0	
			Apron lining and	0	0	0	
			Landing balustrade	0	0	0	
			Bulkhead condition	0	0	0	
		flight & handrail	<b>3.1</b>	614	306	920	1.50
		landing condition	<b>3.2</b>	12	2	14	1.20
			housed	0	0	0	
			32 x 32 Softwood baluster	32	6	38	1.19
			framed	0	0	0	
			Prep, prime and 2 cts oil paint	9	32	41	4.54
			general surfaces of softwood	0	0	0	
			n.e. 300 girth	0	0	0	
			Prep and three coats clear	1	5	6	5.51
			polyurethane on hardwood	0	0	0	
			n.e. 300 girth	0	0	0	
			25 x 225 Apron lining	6	1	7	1.19

				softwood in one width	0	0	0	
				19 x 75 softwood rounded	4	1	5	1.16
				nosing tongued to flooring	0	0	0	
				Prep. prime and 2 cts oil paint	1	5	6	5.51
				general surfaces of softwood	0	0	0	
				50 x 100 Softwood half newel	5	1	6	1.19
				plugged & screwed	0	0	0	
				inc. cap and paint	0	0	0	
				<b>exclusions &amp; notes</b>	0	0	0	
				Bulkhead condition	0	0	0	
		landing condition	<b>3.2</b>		70	52	122	1.75
		bulkhead condition	<b>3.3</b>	50 x 150 SC3 sprocket	7	1	8	1.18
				50 x 200 SC3 bearer	9	2	11	1.20
				metal joist hanger inc notching	10	2	12	1.18
				100 x 200 joist	0	0	0	
				Expanded metal mesh to	8	2	10	1.20
				softwood n.e. 300 wide	0	0	0	
				Sloping floor and ceiling	0	0	0	
				finishes	0	0	0	
				<b>exclusions &amp; notes</b>	0	0	0	
				Trimmer joist	0	0	0	
		bulkhead condition	<b>3.3</b>		34	6	40	1.19
		form dependant	<b>3.4</b>	NONE	0	0	0	
3	Stairs				718	364	1082	1.51
4	Ext. Walls				0	0	0	
4	Ext. Walls	external walls	<b>4.1</b>	102.5 Facing brick outer skin	3292	0	3292	1.00
				5N/mm2, in gm 1:1:6	0	0	0	
				72.5 Cavity, 3 ties per m2	95	0	95	1.00
				galv steel butterfly BS 1243	0	0	0	
				65 Rockwool full fill	622	0	622	1.00
				cavity insulation	0	0	0	
				100 Aerated Block	1943	0	1943	1.00
				2.8N/mm2, in gm 1:1:6	0	0	0	
				<b>exclusions &amp; notes</b>	0	0	0	
				restraint straps	0	0	0	
				movement joints	0	0	0	
				closing cavity at openings etc	0	0	0	
				closing cavity at plate	0	0	0	
		external walls	<b>4.1</b>		5952	0	5952	1.00
		form dep	<b>4.2</b>	Lateral restraint strap	66	0	66	1.00
				Air vents (Kitchen, GF WC,)	59	0	59	1.00
				Movement joints	0	0	0	
		form dep	<b>4.2</b>		125	0	125	1.00
4	Ext. Walls				6077	0	6077	1.00
5	Chimney				0	0	0	
5	Chimney	stacks & liners	<b>5.1</b>	NONE	0	0	0	
		form dependent	<b>5.2</b>	NONE	0	0	0	
5	Chimney				0	0	0	0.00
6a	Windows				0	0	0	
6a	Windows	windows	<b>6a.1</b>	uPVC windows to BS 2782	1268	1216	2484	1.96
				w. lugs p&s to masonry.	0	0	0	
				including :-	0	0	0	
				standard ironmongery	0	0	0	
				cills	0	0	0	
				double glazing	0	0	0	
				glaz'g gaskets & weather seals	0	0	0	
				Tempary templates to enable	32	0	32	1.00
				window openings to be formed	0	0	0	
				(note - windows are not build in	0	0	0	
				but are fitted into prep. open'gs	0	0	0	
				and then pointed)	0	0	0	
				<b>exclusions &amp; notes</b>	0	0	0	
				bedding windows	0	0	0	
				pointing windows	0	0	0	
		windows	<b>6a.1</b>		1300	1216	2516	1.94
		head condition	<b>6a.2</b>	Extra over cavity insulation	294	0	294	1.00
				for combined lintol & cavity tray	0	0	0	
				top hat section - see sketch	0	0	0	
				catnic cougar CZ 70/100 or similar	0	0	0	
				Bedding frame in c.m.1:3	22	43	65	2.95
				point one side in mortar	0	0	0	
				point other side in mastic	0	0	0	
				13 Plaster, premixed lightweight	30	14	44	1.46
				in two coats to wall soffit	0	0	0	
				n.e. 300	0	0	0	
				On mist and TWO coats	2	5	7	3.56
				emulsion paint	0	0	0	
				g.s. walls	0	0	0	
				Galv metal plaster angle bead	11	5	16	1.46
				25 x 38 prep. softwood	22	10	32	1.46
				curtain batten p.&s.	0	0	0	
				Prime backs n.e.300	3	1	4	1.39
				Prep., prime + 2 oil n.e.300	11	35	46	4.16
				Plastic weep vent	10	5	15	1.46
				<b>exclusions &amp; notes</b>	0	0	0	
				quadrant bead internally	0	0	0	
		head condition	<b>6a.2</b>		405	118	523	1.29
		cill condition	<b>6a.3</b>	Extra over facing brick outer skin	69	86	155	2.24
				B.O.Edge canted cut brick cill	0	0	0	

			bedding in g.m. and pointing	0	0	0	
			19 x 125 Softwood window board	59	27	86	1.47
			rounded and tongued to frame	0	0	0	
			plugged and screwed	0	0	0	
			Prime backs n.e. 300	3	1	4	1.39
			Prep., prime + 2 oil n.e. 300	11	35	46	4.16
			Extra over cavity insulation	61	0	61	1.00
			for closing with blockwork inc	0	0	0	
			pitch polymer dpc 250 girth	0	0	0	
			Bedding frame in c.m.1:3	22	43	65	2.95
			point one side in mortar	0	0	0	
			point other side in mastic	0	0	0	
			<b>exclusions &amp; notes</b>	0	0	0	
			quadrant bead internally	0	0	0	
		cill condition	<b>6a.3</b>	225	192	417	1.85
		jamb condition	<b>6a.4</b>	91	0	91	1.00
			Extra over cavity insulation	91	0	91	1.00
			for closing with blockwork inc	0	0	0	
			pitch polymer vert.dpc n.e.225	0	0	0	
			Bedding frame in c.m.1:3	49	96	145	2.95
			point one side in mortar	0	0	0	
			point other side in mastic	0	0	0	
			13 Plaster, premixed lightweight	68	31	99	1.46
			in two coats to walls	0	0	0	
			n.e. 300	0	0	0	
			On mist and TWO coats	4	15	19	4.65
			emulsion paint	0	0	0	
			g.s. walls	0	0	0	
			Galv metal plaster angle bead	25	12	37	1.46
			<b>exclusions &amp; notes</b>	0	0	0	
			quadrant bead internally	0	0	0	
		jamb condition	<b>6a.4</b>	237	153	390	1.65
		form dep	<b>6a.5</b>	12	33	45	3.76
			BOE plain soldier band course	12	33	45	3.76
6a	Windows			2179	1712	3891	1.79
6b	Ext.Doors			0	0	0	
6b	Ext.Doors	primary ext.doors	<b>6b.1</b>	94	44	138	1.47
			Flush SINGLE ext. door	94	44	138	1.47
			skeleton or cellular core	0	0	0	
			44 x 2040 metric sizes	0	0	0	
			ply faced both sides	0	0	0	
			lipped on all four edges	0	0	0	
			standard vision panel w. beads	0	0	0	
			factory primed	0	0	0	
			T.u. primer and 1uc + 1tc	6	24	30	5.01
			g.s. softwood doors inty	0	0	0	
			T.u. primer and 2uc + 1tc	8	29	37	4.65
			g.s. softwood doors exty	0	0	0	
			7mm GWCast glass to s.wd	24	9	33	1.39
			with beads (supplied) & comp.	0	0	0	
			Softwood rebated frame	56	26	82	1.46
			44 x 94mm (fin. sizes)	0	0	0	
			to suit 44 metric door	0	0	0	
			T.u. primer and 2uc + 1tc	8	29	37	4.65
			g.s. softwood frames	0	0	0	
			n.e. 300 girth	0	0	0	
			Gms frame cramp	7	3	10	1.44
			19 swd quadrant architrave	14	6	20	1.44
			(paint included with item 4)	0	0	0	
			<u>Standard quality ironmongery:</u>	0	0	0	
			to softwood	21	17	38	1.80
				55	21	76	1.39
				24	9	33	1.39
				21	8	29	1.39
			Letter box, slot and internal flap	31	12	43	1.39
			<b>exclusions &amp; notes</b>	0	0	0	
			bedding & pointing frame	0	0	0	
		primary ext.doors	<b>6b.1</b>	369	238	607	1.65
		secondary ext.doors	<b>6b.2</b>	68	32	100	1.47
			Standard flush SINGLE ext.door	68	32	100	1.47
			skeleton or cellular core	0	0	0	
			44 x 2040 metric sizes	0	0	0	
			ply faced both sides	0	0	0	
			lipped on all four edges	0	0	0	
			standard vision panel w. beads	0	0	0	
			factory primed	0	0	0	
			T.u. primer and 1uc + 1tc	5	19	24	4.87
			g.s. softwood doors inty	0	0	0	
			T.u. primer and 2uc + 1tc	7	24	31	4.49
			g.s. softwood doors exty	0	0	0	
			7mm GWCast glass to s.wd	24	9	33	1.39
			with beads (supplied) & comp.	0	0	0	
			Softwood rebated frame	55	26	81	1.46
			44 x 94mm (fin. sizes)	0	0	0	
			to suit 44 metric door	0	0	0	
			T.u. primer and 2uc + 1tc	8	29	37	4.65
			g.s. softwood frames	0	0	0	
			n.e. 300 girth	0	0	0	
			G.m.s. fixing cramp	7	3	10	1.44
			19 swd quadrant architrave	13	6	19	1.48
			(paint included with item 4)	0	0	0	
			<u>Standard quality ironmongery:</u>	0	0	0	
			to softwood	21	17	38	1.80

				23	9	32	1.39
				6	2	8	1.39
				24	9	33	1.39
				21	8	29	1.39
			<b>exclusions &amp; notes</b>	0	0	0	
			bedding and pointing frame	0	0	0	
	secondary ext.doors	<b>6b.2</b>		282	194	476	1.69
	canopy	<b>6b.3</b>	265 x 165 Plain machine made	76	44	120	1.58
			smooth tile roof covering	0	0	0	
			on 19 x 38 softwood battens	0	0	0	
			on underlay BS747 type 1F	0	0	0	
			Extra for do.cos. at eaves	13	6	19	1.45
			Extra for tile and half at verge	24	11	35	1.45
			and pointing in c.m.1:3	0	0	0	
			CODE 4 lead flashing 240 girth	37	17	54	1.46
			and wedging into groove	0	0	0	
			Rake out brickwork joint and	21	10	31	1.46
			point flashing in c.m.1:3	0	0	0	
			19 x 150 softwood Fascia	15	21	36	2.38
			12 WBP ply soffit	21	29	50	2.37
			12 WBP ply spandrel ends	18	25	43	2.41
			38 x 75 Prep. softwood bearer	11	15	26	2.36
			Ditto plugged & screwed	21	29	50	2.37
			Prime backs n.e. 300	4	5	9	2.15
			Prep; prime + 3 oil paint	11	47	58	5.31
			Ditto n.e. 300	30	135	165	5.49
			<u>Treated sawn softwood:</u>	0	0	0	
				26	12	38	1.48
				8	4	12	1.48
				9	4	13	1.47
				3	2	5	1.52
			8mm expanding g.m.s. bolt	17	8	25	1.46
			Mortice in bkwk for bolt	10	5	15	1.46
			<b>exclusions &amp; notes</b>	0	0	0	
			rainwater goods (none)	0	0	0	
	canopy	<b>6b.3</b>		375	428	803	2.14
	matwell	<b>6b.4</b>	Extra over screed for	48	171	219	4.57
			polished ally matwell frame	0	0	0	
			34 x 26mm x 6mm angle rim	0	0	0	
			with brazed angles and lugs	0	0	0	
			plugged and screwed	0	0	0	
			size to suit mat 1067 x 610	0	0	0	
			<b>exclusions &amp; notes</b>	0	0	0	
			nil	0	0	0	
	matwell	<b>6b.4</b>		48	171	219	4.57
	head condition	<b>6b.5</b>	Extra over cavity insulation	82	0	82	1.00
			for combined lintol & cavity tray	0	0	0	
			top hat section - see sketch	0	0	0	
			catnic cougar CZ 70/100 or similar	0	0	0	
			Extra over facing brick outer skin	7	23	30	4.34
			B.O.End plain soldier band course	0	0	0	
			Bedding frame in c.m.1:3	6	26	32	5.35
			point one side in mortar	0	0	0	
			point other side in mastic	0	0	0	
			13 Plaster, premixed lightweight	8	4	12	1.48
			in two coats to wall soffit	0	0	0	
			n.e. 300	0	0	0	
			One mist and TWO coats	0	5	5	
			emulsion paint	0	0	0	
			g.s. walls	0	0	0	
			Galv metal plaster angle bead	3	2	5	1.52
			Plastic weep vent	3	1	4	1.39
			<b>exclusions &amp; notes</b>	0	0	0	
			quadrant bead internally	0	0	0	
	head condition	<b>6b.5</b>		109	61	170	1.56
	threshold condition	<b>6b.6</b>	Proprietary metal weather	49	23	72	1.47
			seal and draught excluder	0	0	0	
			max. 15mm upstand	0	0	0	
			plugged & screwed	0	0	0	
			Compatible metal weather bar	37	17	54	1.46
			and sealing plate screwed to	0	0	0	
			bottom of s/wd door	0	0	0	
			Screed extended into opening	12	0	12	1.00
			<b>exclusions &amp; notes</b>	0	0	0	
			nil	0	0	0	
	threshold condition	<b>6b.6</b>		98	40	138	1.41
	jamb condition	<b>6b.7</b>	Extra over cavity insulation	47	0	47	1.00
			for closing with blockwork inc	0	0	0	
			pitch polymer vert.dpc n.e.225	0	0	0	
			Bedding frame in c.m.1:3	25	49	74	2.95
			point one side in mortar	0	0	0	
			point other side in mastic	0	0	0	
			13 Plaster, premixed lightweight	35	16	51	1.46
			in two coats to walls	0	0	0	
			n.e. 300	0	0	0	
			On mist and TWO coats	2	5	7	3.56
			emulsion paint	0	0	0	
			Galv metal plaster angle bead	13	6	19	1.45
			<b>exclusions &amp; notes</b>	0	0	0	

			quadrant bead internally	0	0	0	
		jamb condition	<b>6b.7</b>	122	76	198	1.62
		form dependent	<b>6b.8</b>	0	0	0	
			Security lighting:	115	53	168	1.46
				31	14	45	1.46
		form dependent	<b>6b.8</b>	146	68	214	1.46
6b	Ext.Doors			1549	1275	2824	1.82
7	Int. Walls			0	0	0	
7	Int. Walls	ground floor division	<b>7.1</b>	767	0	767	1.00
			2.8N/mm2, in gm 1:1:6	0	0	0	
			<b>exclusions &amp; notes</b>	0	0	0	
			nil	0	0	0	
		ground floor division	<b>7.1</b>	767	0	767	1.00
		upper floor division	<b>7.2</b>	543	0	543	1.00
			50 x 75 Untreated softwood	0	0	0	
			wall or partition member	0	0	0	
			at 400 centres	0	0	0	
			12.5 Plain grade tapered edge	575	0	575	1.00
			wallboard w. joints filled & taped	0	0	0	
			to receive direct decoration	0	0	0	
			to softwood studs	0	0	0	
			One mist and TWO coats	169	552	721	4.27
			emulsion paint	0	0	0	
			general surfaces to walls	0	0	0	
			assess. additional support:	0	0	0	
			47 x 200 SC3 softwood	37	0	37	1.00
			doubling joist	0	0	0	
			assume 50%	0	0	0	
			Extra over 47 x 200 joist hanger	6	0	6	1.00
			for 96 x 200 hanger	0	0	0	
			47 x 200 SC3 softwood	53	0	53	1.00
			solid strutting	0	0	0	
			22 x 100 Prep. softwood	58	11	69	1.19
			splayed skirting	0	0	0	
			Extra over emulsion paint	22	201	223	10.12
			for prep., prime and 2 cts oil	0	0	0	
			paint on s/wd n.e. 300 girth	0	0	0	
			Closing positions for:-	0	0	0	
			vertical studs	0	0	0	
			<b>exclusions &amp; notes</b>	0	0	0	
			Trimming for openings	0	0	0	
		upper floor division	<b>7.2</b>	1463	764	2227	1.52
		party	<b>7.3</b>	1088	0	1088	1.00
			100 Dense concrete block	0	0	0	
			2.8N/mm2 and min 415Kg/m2*	0	0	0	
			in gm 1:1:6	0	0	0	
			(*mass inc. plaster)	0	0	0	
			75 Cavity, 3ties per m2	23	0	23	1.00
			galv steel butterfly BS 1243	0	0	0	
			<b>exclusions &amp; notes</b>	0	0	0	
		party	<b>7.3</b>	1111	0	1111	1.00
		roof compartment	<b>7.4</b>	320	0	320	1.00
			100 Dense concrete block	0	0	0	
			2.8N/mm2 and min 415Kg/m2*	0	0	0	
			in gm 1:1:6	0	0	0	
			(*mass inc. plaster)	0	0	0	
			75 Cavity, 3ties per m2	7	0	7	1.00
			galv steel butterfly BS 1243	0	0	0	
			Closing cavity between top of	23	0	23	1.00
			compartment wall and	0	0	0	
			underside of roof tiling	0	0	0	
			<b>exclusions &amp; notes</b>	0	0	0	
			raking cutting at underside roof	0	0	0	
		roof compartment	<b>7.4</b>	350	0	350	1.00
		form dependent	<b>7.5</b>	0	0	0	
		form dependent	<b>7.5</b>	0	0	0	
7	Int. Walls			3691	764	4455	1.21
8	Int. Doors			0	0	0	
8	Int. Doors	internal doors	<b>8.1</b>	629	292	921	1.46
			Standard flush <b>SINGLE</b> door	0	0	0	
			hardwood veneer ply faced	0	0	0	
			40 x 2040 metric sizes	0	0	0	
			see <i>Premdor Catalogue 98/99</i>	0	0	0	
			e.g. 'Landscape Sapele' range	0	0	0	
			for clear finish	0	0	0	
			Three coats polyureth. varnish	187	681	868	4.64
			g.s. softwood doors	0	0	0	
			Standard lining sets	678	315	993	1.46
			softwood (supp. w. loose stops)	0	0	0	
			32 x 125 (o/a size to suit door)	0	0	0	
			T.u. primer and 1uc + 1tc	100	365	465	4.65
			g.s. softwood frames	0	0	0	
			n.e. 300 girth	0	0	0	
			19 x 50 prep. swd architrave	505	234	739	1.46
			splayed to BS profile	0	0	0	
			(paint included with item 4)	0	0	0	
			<u>standard quality ironmongery:</u>	0	0	0	
			to softwood	115	107	222	1.93
				301	116	417	1.39
				56	22	78	1.39
			<b>exclusions &amp; notes</b>	0	0	0	
			nil	0	0	0	
		internal doors	<b>8.1</b>	2571	2132	4703	1.83

		head condition	8.2	Galv steel lintel to 100 block wall	122	0	122	1.00
				Catnic CN102 or similar	0	0	0	
				<b>exclusions &amp; notes</b>	0	0	0	
				nil	0	0	0	
		head condition	8.2		122	0	122	1.00
		threshold condition	8.3	Screed	3	0	3	1.00
				1:3 cement and sand	0	0	0	
				Division strip set in floor screed	25	0	25	1.00
				Floor finishes (tiles etc) fitted	1	4	5	4.90
				into opening	0	0	0	
				<b>exclusions &amp; notes</b>	0	0	0	
				nil	0	0	0	
		threshold condition	8.3		29	4	33	1.13
		form dependent	8.4	Fanlights in lieu of partition	0	0	0	
				Double doors in lieu of single	188	73	261	1.39
		form dependent	8.4		188	73	261	1.39
8	Int. Doors				2910	2209	5119	1.76
9	Wall Finish				0	0	0	
9	Wall Finish	to division walls	9.1	13 Plaster, premixed lightweight	531	0	531	1.00
				in two coats to walls	0	0	0	
				One mist and TWO coats	136	496	632	4.65
				emulsion paint	0	0	0	
				general surfaces to walls	0	0	0	
				22 x 100 Prep. softwood	100	19	119	1.19
				splayed skirting	0	0	0	
				Extra over emulsion paint	38	333	371	9.77
				for prep., prime and 2 cts oil	0	0	0	
				paint on softwood	0	0	0	
				n.e. 300 girth	0	0	0	
				Adjustment to allow for	0	0	0	
				measurement deductions	0	0	0	
				for window openings which will	0	0	0	
				also deduct a proportion	0	0	0	
				of skirting which will in fact still	0	0	0	
				be provided	0	0	0	
				<b>exclusions &amp; notes</b>	0	0	0	
				nil	0	0	0	
		to division walls	9.1		805	849	1654	2.05
		to perimeter walls	9.2	13 Plaster, premixed lightweight	920	0	920	1.00
				in two coats to walls	0	0	0	
				One mist and TWO coats	236	770	1006	4.26
				emulsion paint	0	0	0	
				general surfaces to walls	0	0	0	
				22 x 100 Prep. softwood	173	33	206	1.19
				splayed skirting	0	0	0	
				Extra over emulsion paint	66	580	646	9.78
				for prep., prime and 2 cts oil	0	0	0	
				paint on softwood	0	0	0	
				n.e. 300 girth	0	0	0	
				Adjustment to allow for	0	0	0	
				measurement deductions	0	0	0	
				for window openings which will	0	0	0	
				also deduct a proportion	0	0	0	
				of skirting which will in fact still	0	0	0	
				be provided	0	0	0	
				<b>exclusions &amp; notes</b>	0	0	0	
				nil	0	0	0	
		to perimeter walls	9.2		1395	1383	2778	1.99
		form dependent	9.3	NONE	0	0	0	
		form dependent	9.3		0	0	0	
9	Wall Finish				2200	2231	4431	2.01
10	Floor Finish				0	0	0	
10	Floor Finish	screed only	10.1	65 (nominal) Screed	319	0	319	1.00
				1:3 cement and sand	0	0	0	
				reinforced with 20 - 50	0	0	0	
				lightweight wire mesh	0	0	0	
				with steel trowelled finish	0	0	0	
				Building paper	35	0	35	1.00
				standard grade, lapped at joints	0	0	0	
				Board or slab flooring insulation	255	0	255	1.00
				CELOTEX DoubleR GA2000 or	0	0	0	
				CELOTEX DoubleR TA2 or	0	0	0	
				JABLITE SD	0	0	0	
				or similar	0	0	0	
				Extra for vertical turn-up to	15	0	15	1.00
				flooring insulation and building	0	0	0	
				paper at external perimeters	0	0	0	
				(anti-cold bridging)	0	0	0	
				115 (nominal) x 100 treated	56	0	56	1.00
				softwood bearer plugged to	0	0	0	
				concrete	0	0	0	
				(to transfer partition loads)	0	0	0	
				<b>exclusions &amp; notes</b>	0	0	0	
				Division strips	0	0	0	
				Thresholds	0	0	0	
				Skirting	0	0	0	
				Floor finish (tiles, carpet etc.)	0	0	0	
		screed only	10.1		680	0	680	1.00
		finish only	10.2	2mm Vinyl sheet, heavy duty	58	137	195	3.35

				with welded seams	0	0	0	
				fixing with adhesive	0	0	0	
				<b>exclusions &amp; notes</b>	0	0	0	
				Division strips	0	0	0	
		finish only	<b>10.2</b>		58	137	195	3.35
		screed and finish	<b>10.3</b>	65 (nominal) Screed	150	0	150	1.00
				1:3 cement and sand	0	0	0	
				reinforced with 20 - 50	0	0	0	
				lightweight wire mesh	0	0	0	
				with steel trowelled finish	0	0	0	
				Building paper	17	0	17	1.00
				standard grade, lapped at joints	0	0	0	
				Board or slab flooring insulation	120	0	120	1.00
				CELOTEX DoubleR GA2000 or	0	0	0	
				CELOTEX DoubleR TA2 or	0	0	0	
				JABLITE SD	0	0	0	
				or similar	0	0	0	
				2mm Vinyl sheet, heavy duty	180	419	599	3.33
				with welded seams	0	0	0	
				fixing with adhesive	0	0	0	
				Extra for vertical turn-up to	7	0	7	1.00
				flooring insulation and building	0	0	0	
				paper at external perimeters	0	0	0	
				(anti-cold bridging)	0	0	0	
				115 (nominal) x 100 treated	26	0	26	1.00
				softwood bearer plugged to	0	0	0	
				concrete	0	0	0	
				(to transfer partition loads)	0	0	0	
				<b>exclusions &amp; notes</b>	0	0	0	
				Division strips	0	0	0	
				Thresholds	0	0	0	
				Skirting	0	0	0	
		screed and finish	<b>10.3</b>		500	419	919	1.84
		form dependent	<b>10.4</b>	NONE	0	0	0	
		form dependent	<b>10.4</b>		0	0	0	
10	Floor Finish				1238	556	1794	1.45
11	Ceil'g Finish				0	0	0	
11	Ceil'g Finish	floor lining	<b>11.1</b>	12.5 Square edge wallboard	255	0	255	1.00
				to softwood joists at 400 c/cs	0	0	0	
				joints filled with plaster and	0	0	0	
				scrimmed	0	0	0	
				ceilings over 300 girth	0	0	0	
				3mm Hardwall plaster finish	178	0	178	1.00
				ceilings over 300 girth	0	0	0	
				One mist and TWO coats	89	287	376	4.22
				emulsion paint	0	0	0	
				general surfaces ceilings	0	0	0	
				38 x 38 softwood noggings	46	0	46	1.00
				required at perimetres only of	0	0	0	
				plan areas (see BG White Bk)	0	0	0	
				<b>exclusions &amp; notes</b>	0	0	0	
				Coving	0	0	0	
				Battens for lightfittings	0	0	0	
		floor lining	<b>11.1</b>		568	287	855	1.51
		roof lining	<b>11.2</b>	12.5 Tapered edge wallboard	281	0	281	1.00
				insulating grade	0	0	0	
				to softwood trusses at 600 c/cs	0	0	0	
				joints filled with plaster	0	0	0	
				and srimmed	0	0	0	
				ceilings over 300 girth	0	0	0	
				3mm Hardwall plaster finish	183	0	183	1.00
				ceilings over 300 girth	0	0	0	
				One mist and TWO coats	91	296	387	4.25
				emulsion paint	0	0	0	
				general surfaces ceilings	0	0	0	
				38 x 38 softwood noggings	65	0	65	1.00
				between joists (support to long	0	0	0	
				edges of boards)	0	0	0	
				38 x 38 softwood noggings	47	0	47	1.00
				required at perimetres of	0	0	0	
				plan areas (see BG White Bk)	0	0	0	
				<b>exclusions &amp; notes</b>	0	0	0	
				Coving	0	0	0	
				Battens for lightfittings	0	0	0	
				Trap hatch	0	0	0	
		roof lining	<b>11.2</b>		667	296	963	1.44
		form dependent	<b>11.3</b>	NONE	0	0	0	
		form dependent	<b>11.3</b>		0	0	0	
11	Ceil'g Finish				1235	583	1818	1.47
<b>STRUCTURE &amp; FINISHES</b>					<b>27768</b>	<b>12132</b>	<b>39900</b>	<b>1.44</b>
<b>FITTINGS</b>								
12	Kitchen fittings				0	0	0	
12	Kitchen	units & worktops	<b>12.1</b>	<u>units:</u>	0	0	0	
		Fittings			184	431	615	3.34
					366	856	1222	3.34
					137	322	459	3.35
					236	552	788	3.34
					36	84	120	3.33
				<u>worktops:</u>	0	0	0	

				145	341	486	3.35	
			<i>cost allowances:</i>	0	0	0		
			+ ends, joints, inters.etc	0	0	0		
			+ additional standards	0	0	0		
				0	0	0		
		units & worktops	12.1	1104	2587	3691	3.34	
		tiling splash backs	12.2	Ceramic tile splash back	73	170	243	3.32
		tiling splash backs	12.2		73	170	243	3.32
		form dependent	12.3	NONE	0	0	0	
		form dependent	12.3		0	0	0	
12	Kitchen fittings			1177	2756	3933	3.34	
13	Built-in cupboards			0	0	0		
13	Built-in shelving	13.1	<i>shelving: (normally 1.5m2 per person</i>	0	0	0		
	Cupboards		within Internal storage areas	231	215	446	1.93	
			<i>cost allowances:</i>	0	0	0		
			+ hanging rails etc.	0	0	0		
			+ additional standards	0	0	0		
				0	0	0		
		shelving	13.1		231	215	446	1.93
		external store	13.2	<i>dirty storage (upto 4p = 2.5m2 min.: 5</i>	0	0	0	
			lockable external store	647	1798	2445	3.78	
		external store	13.2		647	1798	2445	3.78
		form dependent	13.3	NONE	0	0	0	
		form dependent	13.3		0	0	0	
13	Built-in cupboards			878	2013	2891	3.29	
	<b>FITTINGS</b>			2055	4770	6825	3.32	
	<b>SERVICES</b>							
14	Sanitary appliance and wastes			0	0	0		
14	Sanitary appliances & wastes	14.1	<i>Sanitary appliances (including wastes</i>	0	0	0		
	Appliances & Wastes		<i>Bathroom facilities:</i>	0	0	0		
			WC & cistern	237	186	423	1.78	
			bath	468	217	685	1.46	
			wash basin	181	84	265	1.46	
			<i>Shower facilities:</i>	0	0	0		
			mixer taps over bath	0	0	0		
			electric over bath	0	0	0		
			tray+cubicle (in bathroom)	0	0	0		
			separate shower room	0	0	0		
			<i>GF toilet facilities:</i>	0	0	0		
			WC & cistern	200	93	293	1.46	
			cloak. basin	129	60	189	1.46	
			<i>Kitchen facilities:</i>	0	0	0		
			sink	231	205	436	1.89	
			<i>Utility facilities:</i>	0	0	0		
			wash.mach. (waste only)	11	10	21	1.87	
			utility sink	0	0	0		
	appliances & wastes	14.1		1457	854	2311	1.59	
	tiling splash backs	14.2	Ceramic tile splash back	53	125	178	3.36	
	tiling splash backs	14.2		53	125	178	3.36	
	soil stacks	14.3	Stack and duct casing	243	215	458	1.88	
	soil stacks	14.3		243	215	458	1.88	
	form dependent	14.4	NONE	0	0	0		
	form dependent	14.4		0	0	0		
	form dependent	14.4		0	0	0		
14	Sanitary appliances and wastes			1753	1194	2947	1.68	
15	Hot & Cold water installation			0	0	0		
15	Hot & Cold Water Inst.	15.1	<b>COLD WATER:</b>	0	0	0		
			rising main & c.w. storage tank	344	585	929	2.70	
			<i>FEEDS (copper capillary):</i>	0	0	0		
			<i>Bathroom facilities:</i>	0	0	0		
				34	7	41	1.19	
				46	9	55	1.19	
				34	7	41	1.19	
			<i>Shower facilities:</i>	0	0	0		
				0	0	0		
				0	0	0		
				0	0	0		
			<i>GF toilet facilities:</i>	0	0	0		
				52	10	62	1.20	
				27	5	32	1.20	
			<i>Kitchen facilities:</i>	0	0	0		
				48	9	57	1.19	
			<i>Utility facilities:</i>	0	0	0		
				17	3	20	1.20	
				0	0	0		
			<i>Boiler: (conventional vented system</i>	0	0	0		
				51	24	75	1.46	
				54	25	79	1.47	
				0	0	0		
			<b>HOT WATER:</b>	0	0	0		
			exp. tank (+.b.feed & o'flow)	334	576	910	2.73	
			indirect cyl. (+ prim.flo & ret.)	446	595	1041	2.33	
			<i>SECONDARY FEEDS (copper capilla</i>	0	0	0		
			<i>Bathroom facilities:</i>	0	0	0		
				62	12	74	1.19	
				38	7	45	1.20	
			<i>Shower facilities:</i>	0	0	0		
				0	0	0		
				0	0	0		
				0	0	0		





			n.e. 250mm dp., by machine	0	0	0	
			Excav. Trench; over 0.30m wide;	0	0	0	
			n.e.2.00m deep; by machine	0	0	0	
			Mechanical disposal to tip 13km	0	0	0	
			Earthwork support, low risk	0	0	0	
			n.e. 2.00m bet.opp.faces	0	0	0	
			n.e. 2.00 deep	0	0	0	
			In situ concrete, r.m.;	0	0	0	
			10N/mm2, 40mm agg.;	0	0	0	
			poured against earth;	0	0	0	
			Foundations	0	0	0	
			102.5 Facing brick outer skin	0	0	0	
			5N/mm2, in cm 1:4	0	0	0	
			102.5 Common brick inner skin	0	0	0	
			5N/mm2, in cm 1:4	0	0	0	
			ANCILLARY COMPONENTS	0	0	0	
			72.5 Cavity, 3 ties per m2,	0	0	0	
			galv steel butterfly BS.1243	0	0	0	
			Pitch polymer dpc; in gm 1:1:6,	0	0	0	
			Horiz., n.e. 225mm wide	0	0	0	
			Compacting bottoms of excav.	0	0	0	
			<b>exclusions &amp; notes</b>	0	0	0	
			steps and staggers	0	0	0	
			movement joints	0	0	0	
			slip membranes	0	0	0	
			formwork to slab	0	0	0	
			backfill around perimeter	0	0	0	
			surface water disposal	0	0	0	
			protection	0	0	0	
			breaking out obstructions	0	0	0	
			<b>excavation assumptions:</b>	0	0	0	
			normal ground	0	0	0	
			all work above water table	0	0	0	
			no top soil removal	0	0	0	
			site is level	0	0	0	
			red lev dig =	0	0	0	
		to perimeter walls	<b>0.2</b>	2819	0	2819	1.00
		to party walls	<b>0.3</b>	Excavating to reduce levels,	0	0	0
			n.e. 250mm dp., by machine	0	0	0	
			Excav. Trench; over 0.30m wide;	0	0	0	
			n.e.2.00m deep; by machine	0	0	0	
			Mechanical disposal to tip 13km	0	0	0	
			Earthwork support, low risk	0	0	0	
			n.e. 2.00m bet.opp.faces	0	0	0	
			n.e. 2.00 deep	0	0	0	
			In situ concrete, r.m.;	0	0	0	
			10N/mm2, 40mm agg.;	0	0	0	
			poured against earth;	0	0	0	
			Foundations	0	0	0	
			102.5 Common brick skin	0	0	0	
			5N/mm2, in cm 1:4	0	0	0	
			72.5 Cavity, 3 ties per m2,	0	0	0	
			galv steel butterfly BS.1243	0	0	0	
			Pitch polymer dpc; in gm 1:1:6,	0	0	0	
			Horiz., n.e. 225mm wide	0	0	0	
			Compacting bottoms of excav.	0	0	0	
			<b>exclusions &amp; notes</b>	0	0	0	
			steps and staggers	0	0	0	
			movement joints	0	0	0	
			slip membranes	0	0	0	
			formwork to slab	0	0	0	
			backfill around perimeter	0	0	0	
			surface water disposal	0	0	0	
			protection	0	0	0	
			breaking out obstructions	0	0	0	
			<b>excavation assumptions:</b>	0	0	0	
			normal ground	0	0	0	
			all above water table	0	0	0	
			no top soil removal	0	0	0	
			site is level	0	0	0	
			red lev dig =	0	0	0	
		to party walls	<b>0.3</b>	587	0	587	1.00
		to NLB internal walls	<b>0.4</b>	Packing to vert.or battered face;	0	0	0
			hardcore filling to m/u levels;	0	0	0	
			Extra over hardcore for	0	0	0	
			in situ concrete, r.m., reinf.	0	0	0	
			20N/mm2, 20mm agg,	0	0	0	
			Beds, n.e.150mm th.	0	0	0	
			Fabric reinforcement, BS 4483	0	0	0	
			ref A142 (2.22 kg/m2), tension strip	0	0	0	
			<b>exclusions &amp; notes</b>	0	0	0	
			nil	0	0	0	
		to NLB internal walls	<b>0.4</b>	86	0	86	1.00
		to LB internal walls	<b>0.5</b>	Excavating to reduce levels,	0	0	0
			n.e. 250mm dp., by machine	0	0	0	
			Excav. Trench; over 0.30m wide;	0	0	0	
			n.e.2.00m deep; by machine	0	0	0	
			Mechanical disposal to tip 13km	0	0	0	
			Earthwork support, low risk	0	0	0	

				n.e. 2.00m bet.opp.faces	0	0	0		
				n.e. 2.00 deep	0	0	0		
				In situ concrete, r.m.;	0	0	0		
				10N/mm2, 40mm agg.;	0	0	0		
				poured against earth;	0	0	0		
				Foundations	0	0	0		
				102.5 Common brick wall	0	0	0		
				5N/mm2, in cm 1:4	0	0	0		
				Pitch polymer dpc; in gm 1:1:6;	0	0	0		
				Horiz., n.e. 225mm wide	0	0	0		
				Compacting bottoms of excav.	0	0	0		
				<b>exclusions &amp; notes</b>	0	0	0		
				steps and staggers	0	0	0		
				movement joints	0	0	0		
				slip membranes	0	0	0		
				formwork to slab	0	0	0		
				backfill around perimeter	0	0	0		
				surface water disposal	0	0	0		
				protection	0	0	0		
				breaking out obstructions	0	0	0		
				<u>excavation assumptions:</u>	0	0	0		
				normal ground	0	0	0		
				all above water table	0	0	0		
				no top soil removal	0	0	0		
				site is level	0	0	0		
				red lev dig =	0	0	0		
				to LB internal walls	0.5	946	0	946	1.00
				form dependant	0.6	NONE	0	0	
				form dependant	0.6		0	0	
0	Foundations				6509	0	6509	1.00	
					6509	0	6509	1.00	
				<b>SUBSTRUCTURES</b>					
				<b>EXTERNAL WORKS</b>					
19	Siteworks				0	0	0		
19	Siteworks	site preparation	19.1		0	0	0		
		35536.54%	0.00%		0	0	0		
					0	0	0		
				site preparation	19.1	875	0	875	1.00
				surface treatment	19.2	0	0	0	
				27148.48%		0	0	0	
				pcc kerb	163	0	163	1.00	
				coated macadam road surface	995	0	995	1.00	
				sett road surface	225	0	225	1.00	
				pcc edging	95	0	95	1.00	
				pcc flag path surface	367	0	367	1.00	
				road marking - lines	9	0	9	1.00	
					0	0	0		
				pcc kerb	102	59	161	1.58	
				coated macadam road surface	633	1038	1671	2.64	
				sett road surface	161	175	336	2.09	
				road marking - pictograms	7	14	21	2.95	
					0	0	0		
				pcc edging	71	41	112	1.58	
				demarcation railing	141	207	348	2.47	
				pcc flag path surface	245	1421	1666	6.80	
				brick paviour surface	129	504	633	4.90	
				cobble surface	103	307	410	3.99	
					0	0	0		
				pcc edging	14	9	23	1.61	
				coated macadam yard surface	56	33	89	1.58	
				rotary drier	35	113	148	4.23	
					0	0	0		
					0	0	0		
					0	0	0		
				brick facing	294	0	294	1.00	
				brick coping	18	61	79	4.38	
					0	0	0		
				hand-railing	24	41	65	2.72	
				balustrading	71	124	195	2.75	
				step nosings	3	32	35	11.58	
				tread surface	141	933	1074	7.62	
				ramp surface	141	933	1074	7.62	
					0	0	0		
					0	0	0		
					0	0	0		
				seeded area (grass, top soil)	588	3921	4509	7.67	
				planted area (herbaceous)	165	1660	1825	11.06	
				conifer tree	132	29	161	1.22	
				deciduous tree	85	29	114	1.34	
				ornamental tree	85	29	114	1.34	
				metal tree grid	49	0	49	1.00	
				surface treatment	19.2	5347	11711	17058	3.19
				enclosure & division	19.3	0	0	0	
				0.00%		0	0	0	
				timber gate	82	211	293	3.57	
				timber privacy screen	59	225	284	4.82	
					0	0	0		
					0	0	0		
				masonry walling	280	0	280	1.00	
				masonry coping	24	78	102	4.26	

			timber fencing	141	591	732	5.19
			hedging	35	1832	1867	53.34
		enclosure & division	19.3	621	2937	3558	5.73
		external storage	19.4	0	0	0	
		0.00%		0	0	0	
			waste bins	62	121	183	2.95
			waste recycling	15	29	44	2.95
			bicycles	31	29	60	1.93
			fuel / oil	0	0	0	
			tools (dirty storage)	431	1010	1441	3.34
				0	0	0	
			coated macadam road surface	72	68	140	1.94
			pcc kerb	20	19	39	1.93
			flat roof	141	330	471	3.34
			fascia	15	48	63	4.21
			supports	56	43	99	1.78
		external storage	19.4	843	1697	2540	3.01
		fittings & furniture	19.5	0	0	0	
		8388.07%		0	0	0	
			bollard	59	0	59	1.00
			hardwood seat	47	1551	1598	34.00
			planter	42	134	176	4.20
			litter bin	71	1425	1496	21.07
				0	0	0	
			illuminated sign	14	0	14	1.00
			sign post	71	1317	1388	19.54
			plain sign (wall mounted)	59	57	116	1.97
		fittings & furniture	19.5	363	4484	4847	13.35
19	Siteworks			10059	16344	26403	2.62
20	Drainage			0	0	0	
20	Drainage	main sewers	20.1	0	0	0	
		3607.77%	180.39%	0	0	0	
			underground sewer	318	154	472	1.48
				0	0	0	
			road gullies	165	57	222	1.35
			IC + heavy duty cover	212	29	241	1.14
			IC + medium duty cover	66	0	66	1.00
		main sewers	20.1	761	240	1001	1.32
		house drains	20.2	0	0	0	
		3427.38%		0	0	0	
			underground drain	212	23	235	1.11
			surface channel & grating	56	1059	1115	19.91
			soak-away	188	29	217	1.15
				0	0	0	
			underground drain	741	361	1102	1.49
				0	0	0	
			surface water gully	82	57	139	1.70
			foul gully	52	86	138	2.65
			rodding eye	16	17	33	2.09
			IC + medium duty cover	470	86	556	1.18
			IC + light duty cover	423	86	509	1.20
		house drains	20.2	2240	1804	4044	1.81
		land drains	20.3	0	0	0	
		0.00%		0	0	0	
			underground field drain	235	257	492	2.09
			underground drain	14	17	31	2.24
				0	0	0	
			medium duty I.C.	47	0	47	1.00
		land drains	20.3	296	274	570	1.93
		facilities	20.4	0	0	0	
		0.00%		0	0	0	
				0	0	0	
				0	0	0	
			grease	0	0	0	
			petrol	66	658	724	10.97
			silt	42	429	471	11.22
				0	0	0	
		facilities	20.4	108	1088	1196	11.07
20	Drainage			4241	3406	7647	1.80
21	Ext.Services			0	0	0	
21	Ext.Services	site mains	21.1	0	0	0	
		6223.40%	4780.30%	0	0	0	
			underground service	282	0	282	1.00
			valve chamber & cover	43	315	358	8.32
			meter box	55	401	456	8.29
				0	0	0	
			underground service	282	0	282	1.00
			meter box	55	401	456	8.29
				0	0	0	
			underground service	188	0	188	1.00
			meter box	55	401	456	8.29
				0	0	0	
				0	0	0	
		site mains	21.1	960	1517	2477	2.58
		communications	21.2	0	0	0	
		1443.11%		0	0	0	
			underground service	76	0	76	1.00
			junction box	31	229	260	8.39
				0	0	0	

			underground service	76	0	76	1.00
			junction box	31	229	260	8.39
				0	0	0	
				0	0	0	
				0	0	0	
		communications	21.2	214	458	672	3.14
		site lighting	21.3	0	0	0	
		0.00%		0	0	0	
			lighting standard	353	1977	2330	6.60
				0	0	0	
			lighting bollard	99	232	331	3.34
			wall light	35	82	117	3.34
				0	0	0	
			motion sensor & light (wall mounted)	35	82	117	3.34
		site lighting	21.3	522	2373	2895	5.55
		b.w.i.c.	21.4	0	0	0	
		0.00%		0	0	0	
				0	0	0	
		b.w.i.c.	21.4	0	0	0	
21	Ext.Services			3193	4348	7541	2.36
<b>EXTERNAL WORKS</b>				17493	24099	41591	2.38
<b>DEMOLITIONS</b>					113	113	0.00
<b>GRAND TOTAL</b>				64003	53492	117495	1.84

3 bed 5 person semi-detached

STRUCTURE & FINISHES	CAPITAL COST	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1 Upper Floor	1327	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2 Roof	4644	0.00	0.00	31.74	0.00	0.00	28.63	0.00	0.00	25.82	0.00	0.00	23.29	0.00	0.00	21.00	0.00	0.00	18.94	0.00	0.00	17.09	0.00	0.00	343.14	0.00	0.00	13.90	0.00	0.00	12.54
3 Stairs	718	0.00	0.00	0.00	0.00	0.00	47.15	0.00	0.00	0.00	0.00	0.00	38.36	0.00	0.00	0.00	0.00	0.00	31.20	0.00	0.00	0.00	0.00	0.00	25.38	0.00	0.00	0.00	0.00	20.65	
4 Ext. Walls	6077	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5 Chimney	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
6a Windows	2179	22.00	21.26	20.54	19.84	19.17	35.36	17.90	17.29	16.71	16.14	15.60	134.25	14.56	14.07	13.59	13.13	12.69	23.40	11.84	11.44	11.06	10.68	10.32	88.84	9.64	9.31	8.99	8.69	8.40	15.49
6b Ext.Doors	1549	0.00	0.00	0.93	0.00	0.00	84.20	0.00	0.00	0.76	0.00	0.00	93.84	0.00	0.00	0.62	0.00	0.00	170.50	0.00	0.00	0.50	0.00	0.00	62.10	0.00	0.00	0.41	0.00	0.00	36.87
7 Int. Walls	3691	0.00	0.00	0.00	0.00	0.00	143.98	0.00	0.00	0.00	0.00	0.00	117.13	0.00	0.00	0.00	0.00	0.00	95.28	0.00	0.00	0.00	0.00	0.00	77.51	0.00	0.00	0.00	0.00	0.00	63.06
8 Int. Doors	2910	0.00	0.00	0.00	0.00	0.00	181.02	0.00	0.00	0.00	0.00	0.00	170.55	0.00	0.00	0.00	0.00	0.00	119.80	0.00	0.00	0.00	0.00	0.00	112.87	0.00	0.00	0.00	0.00	0.00	79.28
9 Wall Finish	2200	0.00	0.00	0.00	0.00	0.00	403.31	0.00	0.00	0.00	0.00	0.00	328.09	0.00	0.00	0.00	0.00	0.00	266.90	0.00	0.00	0.00	0.00	0.00	217.12	0.00	0.00	0.00	0.00	0.00	176.63
10 Floor Finish	1238	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	195.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	129.19	0.00	0.00	0.00	0.00	0.00	0.00
11 Ceil'g Finish	1235	0.00	0.00	0.00	0.00	0.00	112.82	0.00	0.00	0.00	0.00	0.00	91.78	0.00	0.00	0.00	0.00	0.00	74.67	0.00	0.00	0.00	0.00	0.00	60.74	0.00	0.00	0.00	0.00	0.00	49.41
<b>STRUCTURE &amp; FINISHES</b>	<b>27768</b>	<b>22.00</b>	<b>21.26</b>	<b>53.21</b>	<b>19.84</b>	<b>19.17</b>	<b>1036.47</b>	<b>17.90</b>	<b>17.29</b>	<b>43.29</b>	<b>16.14</b>	<b>15.60</b>	<b>1192.49</b>	<b>14.56</b>	<b>14.07</b>	<b>35.21</b>	<b>13.13</b>	<b>12.69</b>	<b>800.70</b>	<b>11.84</b>	<b>11.44</b>	<b>28.65</b>	<b>10.68</b>	<b>10.32</b>	<b>1116.90</b>	<b>9.64</b>	<b>9.31</b>	<b>23.30</b>	<b>8.69</b>	<b>8.40</b>	<b>453.93</b>
<b>FITTINGS</b>																															
12 Kitchen fittings	1177	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	967.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	640.49	0.00	0.00	0.00	0.00	0.00	0.00
13 Built-in cupboards	878	0.00	0.00	0.00	0.00	0.00	54.73	0.00	0.00	0.00	0.00	0.00	576.72	0.00	0.00	0.00	0.00	0.00	36.22	0.00	0.00	0.00	0.00	0.00	507.23	0.00	0.00	0.00	0.00	0.00	23.97
<b>FITTINGS</b>	<b>2055</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>54.73</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>1544.55</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>36.22</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>1147.72</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>23.97</b>
<b>SERVICES</b>																															
14 Sanitary appliances and wastes	1753	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	70.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	310.05	0.00	0.00	0.00	0.00	0.00	0.00
15 Hot & Cold water installation	1734	0.00	0.00	0.00	0.00	0.00	116.19	0.00	0.00	0.00	0.00	0.00	150.69	0.00	0.00	0.00	0.00	0.00	76.89	0.00	0.00	0.00	0.00	0.00	711.21	0.00	0.00	0.00	0.00	0.00	50.89
16 Heating installation	3767	79.00	76.33	73.75	71.25	68.84	66.52	64.27	62.09	59.99	57.96	56.00	54.11	52.28	50.51	48.80	47.15	45.56	44.02	42.53	41.09	39.70	38.36	37.06	2085.11	34.60	33.43	32.30	31.21	30.15	29.13
17 Electrical installation	2818	50.00	48.31	46.68	45.10	44.16	42.10	40.68	39.30	37.97	36.12	35.45	34.25	33.09	31.97	30.93	29.84	28.84	27.86	26.92	26.14	25.13	24.28	23.46	22.66	57.37	21.16	20.44	19.75	19.08	1251.90
18 Gas installation	104	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
<b>SERVICES</b>	<b>10176</b>	<b>129.00</b>	<b>124.64</b>	<b>120.42</b>	<b>116.35</b>	<b>183.00</b>	<b>224.81</b>	<b>104.94</b>	<b>101.39</b>	<b>97.96</b>	<b>154.08</b>	<b>91.45</b>	<b>309.60</b>	<b>85.37</b>	<b>82.48</b>	<b>129.73</b>	<b>77.00</b>	<b>74.40</b>	<b>148.77</b>	<b>69.45</b>	<b>109.23</b>	<b>64.83</b>	<b>62.64</b>	<b>60.52</b>	<b>3129.03</b>	<b>91.97</b>	<b>54.59</b>	<b>52.74</b>	<b>50.96</b>	<b>49.23</b>	<b>1331.92</b>
<b>SUBSTRUCTURES</b>																															
0 Foundations	6509	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
<b>SUBSTRUCTURES</b>	<b>6509</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	
<b>EXTERNAL WORKS</b>																															
19 Siteworks	10059	507.00	489.86	473.29	457.28	441.82	781.35	412.44	398.50	385.02	372.00	359.42	1857.57	335.52	324.18	313.22	302.62	292.39	517.09	272.95	263.72	254.80	246.18	237.86	1804.08	222.04	214.54	207.28	200.27	193.50	342.20
20 Drainage	4241	90.00	86.96	84.02	81.17	78.43	132.19	73.22	70.74	68.35	66.04	63.80	296.58	59.56	57.55	55.60	53.72	51.90	87.48	48.45	46.81	45.23	43.70	42.22	196.27	39.42	38.08	36.80	35.55	34.35	57.89
21 Ext.Services	3193	69.00	66.67	64.41	62.23	60.13	281.22	56.13	54.23	52.40	50.63	48.92	657.55	45.66	44.12	42.63	41.19	39.79	186.11	37.15	35.89	34.68	33.50	32.37	435.15	30.22	29.20	28.21	27.26	26.33	123.16
<b>EXTERNAL WORKS</b>	<b>17493</b>	<b>666.00</b>	<b>643.48</b>	<b>621.72</b>	<b>600.69</b>	<b>580.38</b>	<b>1194.76</b>	<b>541.79</b>	<b>523.47</b>	<b>505.77</b>	<b>488.66</b>	<b>472.14</b>	<b>2811.70</b>	<b>440.75</b>	<b>425.84</b>	<b>411.44</b>	<b>397.53</b>	<b>384.09</b>	<b>790.67</b>	<b>358.55</b>	<b>346.42</b>	<b>334.71</b>	<b>323.39</b>	<b>312.45</b>	<b>2435.50</b>	<b>291.68</b>	<b>281.82</b>	<b>272.29</b>	<b>263.08</b>	<b>254.18</b>	<b>523.25</b>
<b>DEMOLITIONS</b>		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>GRAND TOTAL</b>	<b>64003</b>	<b>817.00</b>	<b>789.37</b>	<b>795.35</b>	<b>736.89</b>	<b>782.56</b>	<b>2510.76</b>	<b>664.63</b>	<b>642.15</b>	<b>647.02</b>	<b>658.89</b>	<b>579.19</b>	<b>5858.34</b>	<b>540.68</b>	<b>522.39</b>	<b>576.39</b>	<b>487.66</b>	<b>471.17</b>	<b>1776.37</b>	<b>439.84</b>	<b>467.10</b>	<b>428.19</b>	<b>396.71</b>	<b>383.30</b>	<b>7829.15</b>	<b>393.29</b>	<b>345.71</b>	<b>348.33</b>	<b>322.73</b>	<b>311.81</b>	<b>2333.07</b>



3 bed 5 person semi-detached

67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	MAINT COSTS	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	63
0.00	0.00	3.28	0.00	0.00	65.82	0.00	0.00	2.67	0.00	0.00	2.40	0.00	0.00	2.17	0.00	0.00	1.96	0.00	0.00	1.76	0.00	0.00	1.59	0.00	0.00	1.44	0.00	0.00	28.82	0.00	0.00	1.17	0.00	2374	
0.00	0.00	0.00	0.00	0.00	4.87	0.00	0.00	0.00	0.00	0.00	3.96	0.00	0.00	0.00	0.00	0.00	3.22	0.00	0.00	0.00	0.00	0.00	2.62	0.00	0.00	0.00	0.00	0.00	2.13	0.00	0.00	0.00	0.00	364	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
2.27	2.19	2.12	2.05	1.98	171.80	1.85	1.79	1.73	1.67	1.61	2.97	1.50	1.45	1.40	1.36	1.31	11.28	1.22	1.18	1.14	1.10	1.07	1.97	0.99	0.96	0.93	0.90	0.87	7.46	0.81	0.78	0.76	0.73	1712	
0.00	0.00	0.10	0.00	0.00	148.06	0.00	0.00	0.08	0.00	0.00	7.07	0.00	0.00	0.06	0.00	0.00	7.88	0.00	0.00	0.05	0.00	0.00	14.32	0.00	0.00	0.04	0.00	0.00	5.22	0.00	0.00	0.03	0.00	1275	
0.00	0.00	0.00	0.00	0.00	14.87	0.00	0.00	0.00	0.00	0.00	12.09	0.00	0.00	0.00	0.00	0.00	9.84	0.00	0.00	0.00	0.00	0.00	8.00	0.00	0.00	0.00	0.00	0.00	6.51	0.00	0.00	0.00	0.00	764	
0.00	0.00	0.00	0.00	0.00	293.00	0.00	0.00	0.00	0.00	0.00	15.21	0.00	0.00	0.00	0.00	0.00	14.33	0.00	0.00	0.00	0.00	0.00	10.06	0.00	0.00	0.00	0.00	0.00	9.48	0.00	0.00	0.00	0.00	2209	
0.00	0.00	0.00	0.00	0.00	53.47	0.00	0.00	0.00	0.00	0.00	33.88	0.00	0.00	0.00	0.00	0.00	27.56	0.00	0.00	0.00	0.00	0.00	22.42	0.00	0.00	0.00	0.00	0.00	18.24	0.00	0.00	0.00	0.00	2231	
0.00	0.00	0.00	0.00	0.00	24.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.85	0.00	0.00	0.00	0.00	556		
0.00	0.00	0.00	0.00	0.00	11.65	0.00	0.00	0.00	0.00	0.00	9.48	0.00	0.00	0.00	0.00	0.00	7.71	0.00	0.00	0.00	0.00	0.00	6.27	0.00	0.00	0.00	0.00	0.00	5.10	0.00	0.00	0.00	0.00	583	
2.27	2.19	5.49	2.05	1.98	788.31	1.85	1.79	4.47	1.67	1.61	87.07	1.50	1.45	3.64	1.36	1.31	100.17	1.22	1.18	2.96	1.10	1.07	67.26	0.99	0.96	2.41	0.90	0.87	93.82	0.81	0.78	1.96	0.73	12132	
0.00	0.00	0.00	0.00	0.00	122.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	81.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	53.80	0.00	0.00	0.00	0.00	2756		
0.00	0.00	0.00	0.00	0.00	97.29	0.00	0.00	0.00	0.00	0.00	4.60	0.00	0.00	0.00	0.00	0.00	48.45	0.00	0.00	0.00	0.00	0.00	3.04	0.00	0.00	0.00	0.00	0.00	42.61	0.00	0.00	0.00	0.00	2013	
0.00	0.00	0.00	0.00	0.00	220.14	0.00	0.00	0.00	0.00	0.00	4.60	0.00	0.00	0.00	0.00	0.00	129.75	0.00	0.00	0.00	0.00	0.00	3.04	0.00	0.00	0.00	0.00	0.00	96.41	0.00	0.00	0.00	0.00	4770	
0.00	0.00	0.00	0.00	0.00	186.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.92	0.00	0.00	0.00	0.00	1194	
0.00	0.00	0.00	0.00	0.00	147.37	0.00	0.00	0.00	0.00	0.00	9.76	0.00	0.00	0.00	0.00	0.00	12.66	0.00	0.00	0.00	0.00	0.00	6.46	0.00	0.00	0.00	0.00	0.00	8.38	0.00	0.00	0.00	0.00	1904	
8.16	7.88	7.62	7.36	7.11	399.94	6.64	6.41	6.19	5.99	5.78	5.59	5.40	5.22	5.04	4.87	4.70	4.55	4.39	4.24	4.10	3.96	3.83	3.70	3.57	3.45	3.34	3.22	3.11	33.66	2.91	2.81	2.71	2.62	5632	
5.16	4.99	4.82	4.65	4.50	4.35	4.20	4.06	3.92	3.79	3.66	3.54	3.42	3.30	3.19	3.08	2.98	2.88	2.78	2.69	2.59	2.51	2.42	158.91	2.26	2.18	2.11	2.04	5.16	1.90	1.84	1.78	1.72	4.35	3649	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	
13.32	12.87	12.44	19.56	11.61	737.89	10.84	10.47	16.47	9.77	9.44	18.88	8.82	13.87	8.23	7.95	7.68	26.01	11.67	6.93	6.69	6.47	6.25	169.07	5.83	5.64	5.45	5.26	8.28	47.86	4.75	4.59	4.43	6.97	12379	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
52.35	50.58	48.87	47.22	45.62	355.86	42.59	41.15	39.76	38.41	37.11	65.64	34.65	33.47	32.34	31.25	30.19	156.04	28.19	27.23	26.31	25.42	24.56	43.44	22.93	22.15	21.40	20.68	19.98	128.85	18.65	18.02	17.41	16.82	16344	
9.29	8.98	8.68	8.38	8.10	37.65	7.56	7.30	7.06	6.82	6.59	11.10	6.15	5.94	5.74	5.55	5.36	24.91	5.00	4.83	4.67	4.51	4.36	7.35	4.07	3.93	3.80	3.67	3.55	16.49	3.31	3.20	3.09	2.99	3406	
7.13	6.88	6.65	6.43	6.21	83.47	5.80	5.60	5.41	5.23	5.05	23.62	4.72	4.56	4.40	4.25	4.11	55.24	3.84	3.71	3.58	3.46	3.34	15.63	3.12	3.01	2.91	2.81	2.72	36.55	2.54	2.45	2.37	2.29	4348	
68.77	66.45	64.20	62.03	59.93	476.97	55.95	54.05	52.23	50.46	48.75	100.36	45.51	43.97	42.49	41.05	39.66	236.19	37.02	35.77	34.56	33.39	32.26	66.42	30.12	29.10	28.12	27.17	26.25	181.90	24.50	23.67	22.87	22.10	24099	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	112.55	113
84.36	81.51	82.13	83.64	73.52	2223.31	68.63	66.31	73.16	61.90	59.81	210.91	55.83	59.29	54.35	50.36	48.65	492.12	49.92	43.88	44.21	40.96	39.58	305.79	36.95	35.70	35.97	33.32	35.39	419.99	30.06	29.04	29.26	142.35	53492	

APPENDIX D 100 Year Summary