APPENDICES

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1. Questionnaire and Allocation Sheets for General Data Collection

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RESEARCH ON TIMBER FRAMED HOUSING

THIS QUESTIONNAIRE IS THE PROPERTY OF THE UNIVERSITY OF ASTON IN BIRMINGHAM AND IS STRICTLY CONFIDENTIAL

ALL INFORMATION WILL BE ACKNOWLEDGED ON RETURN BY THE DEPARTMENT AND WILL BE USED IN CONFIDENCE FOR PART OF A THESIS FOR A RESEARCH DEGREE.

FACTS SUBMITTED WILL NOT BE DISCLOSED OR PUBLISHED

STRICTLY CONFIDENTIAL

Name and Address of Company

_____

Name of Director responsible for Housing _____

PART 1 GENERAL INFORMATION

1.1 Name given to housing system/s

Please indicate whether system is completely timber framed (T.F.) or Rational Traditional (R.T.)

Please tick ✓

NAME OF SYSTEM	T.F.	R.T.
a)		
b)		
c)		

1.2 Is the system: a) Single storey or Two storey
b) Platform or Balloon frame (P) or (B)

Please indicate percentage (%)of two storey houses produced.

SYSTEM	SINGLE	TWO	P	B	%
a)					
b)					
c)					

1.3 How many houses have been produced for the/each system over the period indicated.

Length of time each system has been in production

(Years Prod.)

SYSTEM	1964	1965	1966	1967	1968	Years prod.
a)						
b)						
c)						

1.4 What origin is the timber used.

Please tick ✓

	C.L.S.
	Scandinavian
	Russian
	Home Grown

1.5 Is the system classified as an Open system or Closed system.

Please tick ✓

	Open
	Closed

1.6 What percentage of houses in your company are built for: Local Authority (L.A.)

Private Sale (P.S.)

Please indicate percentage of exports if applicable.

	1964	1965	1966	1967	1968
L.A.	%	%	%	%	%
P.S.	%	%	%	%	%
Export	%	%	%	%	%

1.7 Please indicate the size of contract which the company would consider undertaking.

	Number of Houses
Minimum	
Economic minimum	
Maximum	

1.8 Does the system include brickwork or blockwork to the following areas.

	Yes/No
Party walls	
Gable walls	
Other areas(facing panels)etc.	

1.9 Does the company operate as:

OPERATIONS		Yes/No
a) General Contractor		
b) Sub-Contractor		
	i. Supply and Erect	
	ii. Supply only	
c) Contractor for Roads and Sewers		

1.10 Could the company increase production without increasing existing facilities _____ Yes/No

1.11 If the answer is Yes please give an estimate of the percentage increase possible.

_____ % Increase

1.12 What governs the production capacity within your company.

Please number the items in order of importance 1, 2, 3, 4,

☐	Factory facilities
☐	Storage of finished componant
☐	Site Erection
☐	Orders (Market Demand)
_____	Other factors -please state

1.13 Please indicate the geographical areas in which the company normally operate.

PART 2 PRODUCTION AND ERECTION INFORMATION

2.1 Total number men employed on the following operations.

OPERATION	NUMBER OF MEN
Factory Assembly	
Production Control or Supervision	
Erection	

2.2 Total number of manhours spent in factory prodution.(per House)

SYSTEM	MANHOURS
a)	
b)	
c)	

2.3 If the above total varies with quantity of units produced please indicate the variation.

	NUMBER OF HOUSES (QUANTITY)				
MANHOURS PER HOUSE	0-9	10-49	50-99	100-199	200+

2.4 How much space (approx.) is allocated to the following.

ITEM	AREA SQ.FT.
Storage of cut materials (prior to assembly)	
Sub-Assemble work	
Main Assemble work	
Storage of finished Componants	

2.5 Indicate the various types of plant being used in factory production (i.e. panel saw) together with the approx. time used per house.

Please include Handling plant.

PLANT OR MACHINE	HOURS PER HOUSE

2.6 Does the company utilise the plant and machines for other products.
i.e. making Windows, Boxes, Pallets. etc. _____ Yes/No

If the answer is Yes please indicate the percentage of time employed solely on housing.

PLANT OR MACHINE	% TIME ON HOUSING

2.7 Please indicate the amount of assembly undertaken in factory.

Tick appropriate box

AMOUNT OF ASSEMBLY	✓
a) Stud and Panels only	
b) Ditto including Thermal Insulation	
c) Ditto " Sound "	
d) " " Moisture membrane	
e) " " Tiling battens	
f) " " Electrical wiring	
g) " " Internal wall panels	
h) " " Door hanging	
i) Complete Box Units	

2.8 Please indicate if some of the stages of assembly have been carried out in the past together with the reasons for withdrawing the item of work.

2.9 Please give the size and weight of the largest panel produced for the/each system

SYSTEM	SIZE	WEIGHT
a)		
b)		
c)		

2.10 Over what distance would the company normally deliver units.

MILES RADIUS	

2.11 Please indicate the cost for transportation of houses over the distances given.

	MILES RADIUS			
TRANSPORT COSTS PER HOUSE	0-49	50-99	100-199	200+

2.12 Please indicate the type of plant used on site together with the average time used per house. (include off loading)

PLANT	HOURS PER HOUSE

2.13 ERECTION TIME ON SITE IN MANHOURS

Please give a breakdown of time (if known) for the various elements of work indicated. Quantity may affect the answer, if so please show in the appropriate column.

ELEMENT OF WORK	QUANTITY (number of houses in contract)			
	0-49	50-99	100-199	200-999
Sub - Structure				
Superstructure including partitions, floors, staircase.				
Roof Structure				
Roof Finishes				
Internal Finishes				
External Finishes				
Services				
Site Works				

Other comments.

Signed _____

Position in Company _____

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TIMBER FRAMED HOUSING - ALLOCATION SHEET

CONTRACT .....

WEEK ENDING .....

Block No.	House Type	Gang size	Trade	Operation	Quants	Total man hours

Please give details of delays and problems

2. Housing Statistics

PERMANENT DWELLINGS COMPLETED (Source: Min. Housing Statistics)

Year	England		Wales		Scotland		Great Britain		United Kingdom	
	Public Sector	Private Sector	Public Sector	Private Sector	Public Sector	Private Sector	Public Sector	Private Sector	Public Sector	Private Sector
1945-50	542778	147782	35086	4975	85478	5419	663342	158176	676868	166260
1951	142120	20166	8377	1240	21783	1143	172280	22551	176371	25485
1952	166422	30504	10475	1574	28705	2242	205602	34320	211649	36670
1953	205411	58270	13292	2285	37155	2393	255858	62921	261937	64867
1954	207727	85384	13197	2644	36245	2608	257169	90636	216706	92423
1955	163208	106798	10184	3134	30546	3523	203938	113547	208330	116093
1956	150156	115940	8983	3645	27325	4576	176464	124161	181243	126431
1957	137543	118817	8168	4125	28924	3513	174635	126455	178806	128784
1958	111232	119913	6206	4174	28109	4061	145547	128148	148413	130220
1959	97087	141508	5818	4968	23061	4232	125966	150708	128402	153166
1960	101600	156022	5526	6078	22063	6529	129189	168629	132850	171405
1961	92816	163347	5650	7019	20083	7147	118549	117513	122434	180727
1962	104042	159515	7609	7501	18977	7784	130628	174800	135432	178211
1963	95942	160633	6471	7609	21595	6622	124008	174864	129927	177787
1964	116866	200670	9207	9762	29509	7662	155582	218094	161928	221264
1965	130912	196745	10023	9501	27563	7553	168489	213799	174072	217162
1966	142235	187885	9743	9617	28159	7870	180137	205372	187362	20864
1967	159022	183718	10936	9222	33960	7498	203918	200438	211247	204208
1968	149220	203324	9233	9949	33269	8720	191722	221993	199767	226068
1969	142790	164071	7998	9306	34302	8326	185090	181703	192408	185916

3. Data for Panel Production

Prime cost of producing external panels by hand, using stapling guns

House Type	No. of Panels	Total Length (ft)	Total Allowed Time (mins)	Total Actual Time (mins)	Panel lngth per man hr. (ft)	Prime cost per man hr.	Cost per foot (£)	Cost per (m) (£)	Cost per (175 ft) (£)
3/5 NE	20	174	2185	1640	6.35	0.47	0.074	0.24	12.8
3/5 W1	25	168	2289	1733	5.82	0.47	0.081	0.26	14.1
3/4	21	162	2204	1656	5.87	0.47	0.080	0.25	14.0
Average	22	168	2226	1679	6.01	0.47	0.077	0.25	13.5

Prime cost when considering 50% saving on allowed time (40 hr. week - 8 man team)

House Type	No. of Panels	Total Length	Allowed Time	Actual Time	Panel Length per hour	Prime cost per man hour	Cost per foot (£)	Cost per (m) (£)	Cost per (175 ft)
Average	22	168	2226	1113	9.0	0.47	0.052	0.17	9.1

Prime cost of producing external panels using automatic nailing machine (8 man gang)

W/E	House Type	Number of Panels	Total panel lgth produced	Total Standard Minutes	Total man hours (Actual)	Panel lgth per man hr.(ft)	Pnl lngth per M/C o hour	M/C hour cost * £	Cost per foot £	Cost per (m) £	Cost per (175 ft) / £
7.9.69	3/5 4/7	117	1991	6304	285	7.0	56	7.23	0.129	0.425	22.6
14.9.69	"	233	3065	8842	333	9.2	74	7.23	0.098	0.320	17.2
21.9.69	"	200	2141	8873	334	6.5	52	7.23	0.139	0.455	24.3
28.9.69	"	74	1020	3650	94	10.8	86	7.23	0.084	0.276	30.0 *
5.10.69	"	287	5462	13923	333	16.4	131	7.23	0.055	0.180	9.6
12.10.69	"	220	4921	13872	330	14.9	119	7.23	0.061	0.200	10.7
19.10.69	"	272	4422	13812	319	13.9	111	7.23	0.065	0.210	11.3
26.10.69	"	249	4331	14191	309	14.0	112	7.23	0.064	0.213	11.2
Average			27,353		2337	11.7	94	7.23	0.077		13.5

* Excluding overhead recovery. ° Adjusted for M/C hours / Average House

Comparison of Panel Production
Machine and Hand Nailed (*8 man gang)

W/E	Total Man Hours	Panel Length by M/C	7 Panel Length by Hand	Hand Nailing (2)	Hand Nailing (3)	Cost M/C hour £	Cost Manual hr £	Cost per 175 ft. M/C £	Cost per 175 ft. (1) £	Cost per 175 ft. (2) £	Cost per 175 ft. (3) £
7.9.69	285	1991	1286	1720	1930	7.23	0.464	22.6	18.0	13.5	12.0
14.9.69	333	3065	1500	2010	2250	7.33	0.464	17.2	18.0	13.5	12.0
21.9.69	334	2141	1510	2020	2260	7.23	0.464	24.3	18.0	13.5	12.0
28.9.69	94	1020	425	568	635	7.23	0.464	14.7	18.0	13.5	12.0
5.10.69	334	5462	1510	2020	2260	7.23	0.464	9.6	18.0	13.5	12.0
12.10.69	330	4921	1490	1970	2240	7.23	0.464	10.7	18.0	13.5	12.0
19.10.69	319	4422	1440	1930	2160	7.23	0.464	11.3	18.0	13.5	12.0
26.10.69	309	4331	1395	1870	2100	7.23	0.464	11.2	18.0	13.5	12.0

7 Average time for 168 ft. into available total hours. * Labour cost = 8/- hr + 15% (9/2)

(1) Basic allowed time
(2) 25% saving
(3) 33% saving

Hand Production of Panels (Firm 'A')

(Sheathed)

House Type	No. of Units	Sheathed Panels (ft run)	Studded Panels (ft run)	Equiv. Sheathed (ft run)	Total Sheathed	No. of Units (175ft)	Prime Labour £	Air Guns £	Total Prime Cost £	Cost per unit (175ft m) £	
3/5 W1G	7.5	1350	740	593	1943	11.1	111.6	2.6	114.2	10.3	
3/4 EE	5.0	810	240	271	1261	7.2	93.75	2.6	96.35	13.4	
3/5 W1G	1.0	180	99	-	-	-	-	-	-	-	
3/4 EE	6.0	972	288	230	1202	6.9	96.4	2.6	99.0	14.3	
3/4 EE	4.0	648	192	154	802	4.6	68.75	2.6	71.35	15.5	
3/4 EE	3.5	566	168	134	1606	9.2	92.25	2.6	94.85	10.3	
3/5 W1G	3.5	630	346	276	-	-	-	-	-	-	
3/4 EE	6.5	1053	312	250	1303	7.5	97.75	2.6	100.35	13.8	
3/4 EE	3.0	486	144	115	1687	9.6	129.9	2.6	132.5	13.8	
3/5 NE	5.0	870	270	216	-	-	-	-	-	-	
3/5 NE	3.0	522	162	130	2055	11.7	146.0	2.6	148.6	12.7	
3/4 EE	7.0	1134	336	269	-	-	-	-	-	-	
3/4 NE	10.5	1830	565	453	2283	13.0	160.0	2.6	162.6	12.5	

Hand Production of Panels (Firm 'A')

(Sheathed)

House Type	No. of Units	Sheathed Panels (ft run)	Studded Panels (ft run)	Equiv. Sheathed (ft run)	Total Sheathed	No. of Units (175ft m)	Prime Labour £	Air Guns £	Total Prime Cost £	Cost per Unit (175ft m) £	
3/4 EE	11.0	1782	528	422	2204	12.6	181.0	2.6	183.6	14.5	
3/5 NE	9.0	1566	486	390	2407	13.8	156.75	2.6	159.35	11.6	
3/5 W1	2.0	336	144	115	-	-	-	-	-	-	
3/4 EE	5.0	810	240	192	2088	11.9	175.3	2.6	177.9	15.1	
3/5 NE	5.0	870	270	216	-	-	-	-	-	-	
3/5 NE	3.0	522	162	130	1103	6.3	105.0	2.6	107.6	17.1	
3/5 W1	2.0	336	144	115	-	-	-	-	-	-	
D 3 A	12.5	2178	761	610	3166	18.1	213.9	2.6	216.5	12.0	
D 4 C	1.5	294	105	84	-	-	-	-	-	-	
D 3 A	15.0	2612	915	730	3846	22.0	256.8	2.6	259.4	11.8	
D 4 C	2.0	392	140	112	-	-	-	-	-	-	

Hand Production of Panels (Firm 'A')
(Sheathed)

House Type	No. of Units	Sheathed Panels (ft.run)	Studded Panels (ft.run)	* Equiv. Sheathed (ft.run)	Total Sheathed	No. of Units 175 ft.rn	Prime Labour £	/ Air Guns £	Total Prime Cst. £		Cost per Unit 175 ft.rn £
3/5 W1G	7.5	1350	740	370	1720	9.8	111.6	2.0	113.60		11.6
3/4 EE	5.0	810	240	170	1160	6.65	93.75	1.7	95.35		14.3
3/5 W1G	1.0	180	99	-	-	-	-	-	-		-
3/4 EE	6.0	972	288	144	1116	6.4	96.4	1.95	98.35		15.3
3/4 EE	4.0	648	192	77	725	4.15	68.75	1.25	70.0		16.9
3/4 EE	3.5	566	168	84	1403	8.2	92.25	1.65	93.95		11.4
3/5 W1G	3.5	630	346	123	-	-	-	-	-		-
3/4 EE	6.5	1053	312	125	1178	6.7	97.75	1.8	99.85		14.8
3/4 EE	3.0	486	144	72	1536	8.8	129.9	2.3	132.20		15.0
3/5 NE	5.0	870	270	108	-	-	-	-	-		-
3/5 NE	3.0	522	162	81	1905	10.9	146.0	2.6	148.60		13.6
3/4 EE	7.0	1134	336	168	-	-	-	-	-		-
3/4 NE	10.5	1830	565	283	2113	12.0	160.0	2.9	162.90		13.5

* Detached End Center / Costed at 2d per man hour

Ratio of studded panels to sheathed 1:2 (5 mins - 10 mins ft. run)

Hand Production of Panels (Firm 'A')
(Sheathed)

House Type	No. of Units	Sheathed Panels (Ft.run)	Studded Panels (ft.run)	* Equiv. Sheathed (ft. run)	Total Sheathed	No. of Units 175ft.rn	Prime Labour £	/ Air Guns £	Total Prime Cst £	Equiv. NE Units	Cost per unit 175ft.rn £
5P3B *	3.0 D. C. E.	458	168	84	532	3.0	88.0	1.6	89.60	4.45	20.2
"	3.0 C	399	204	102	501	2.86	63.3	1.11	63.41	4.15	15.3
"	3.0 E	483	168	84	567	3.24	68.6	1.25	69.85	4.40	15.8
"	2E 3.0 1C	455	180	90	545	3.12	64.7	1.2	65.90	4.35	15.1
"	2E 3.0 1C	455	180	90	545	3.12	45.0	0.82	45.82	4.35	10.5
"	2E 3.0 1C	455	180	90	545	3.12	62.2	1.1	63.30	4.35	14.5
"	3E 6.0 3C	882	372	186	1068	6.1	145.1	2.6	147.60	8.6	17.2
5P3B	2E 6.0 4C	854	384	192	1046	6.0	110.6	2.0	112.60	8.50	13.3
"	1E 3.0 2C	427	192	96	523	3.28	55.8	1.0	56.80	4.25	13.4
"	3E 9.0 6C	1281	576	288	1569	9.0	211.1	3.8	214.90	9.2	23.4
"	4E 9.0 5C	1309	564	282	1591	9.1	245.0	4.45	249.45	12.8	19.3
"	5E 12.0 7C	1736	756	378	2114	12.0	291.6	5.3	296.90	17.0	17.4
						237.80			3599.08		15.1

*Detached End Center / Costed at 2d per man hour

Ratio of Studded panels to sheathed 1:2 (5 mins-10 mins ft. run)

Hand Production of Panels (Firm 'A')

(Sheathed)

House Type	No. of Units	Sheathed Panels (ft. run)	Studded Panels (ft.run)	* Equiv. Sheathed (ft.run)	Total Sheathed	No. of Units 175ft.rn	Prime Labour £	/ Air Guns £	Total Prime Cst £		Cost per unit 175ft.rn £
3/4 EE	11.0	1782	528	264	2046	11.7	181.0	3.3	184.30		15.7
3/5 NE	9.0	1566	486	243	22.7	12.6	156.75	2.85	159.60		12.6
3/5 W1	2.0	336	144	72	-	-	-	-	-		-
3/4 EE	5.0	810	240	120	1935	11.0	175.3	3.2	178.50		16.2
3/5 NE	5.0	870	270	135	-	-	-	-	-		-
3/5 NE	3.0	522	162	81	1011	5.8	105.0	1.9	106.90		18.5
3/5 W1	2.0	336	144	72	-	-	-	-	-		-
D 3 A	12.5	2178	761	380	2905	16.6	213.9	3.9	217.80		13.1
D 4 C	1.5	294	105	53	-	-	-	-	-		-
D 3 A	15.0	26.2	915	458	3532	20.2	256.8	4.6	261.40		12.9
D 4 C	2.0	392	140	70	-	-	-	-	-		-

*Detached End Center / Costed at 2d per man hour

Ratio of Studded panels to sheathed 1:2 (5 mins - 10 mins ft. run)

Hand Production of Panels (Firm 'C') Site Factory

Week Ending	House Type	No. of Units	Sheathed Panels (ft.run)	Studded Panels (ft. run)	*Equiv. Sheathed (ft. run)	Total Sheathed (ft.run)	No. of Units 175 ft.rn	/Total Prime Lab. £	Total Man Hours	Cost per Unit 175 ft.m	
5.10.69	2P 5P W	7 4	1492	784	392	1884	10.8	211	449	19.5	
12.10.69	2P 7P 5P	1 4 2	1461	678	339	1800	10.3	247	527	24.0	
19.10.69	7P 5P W	2 5	1517	650	325	1842	10.5	230	489	21.8	
26.10.69	4P 6P	8 1	1749	869	435	2184	12.5	216	461	17.3	
2.11.69	6P 5P W	5 4	1919	927	464	2383	13.6	232	494	17.0	
9.11.69	5P W 5P N	2 6	1701	747	374	2075	11.8	221	470	18.8	
16.11.69	5P N 5P N	2 6	1701	747	374	2075	11.8	206	439	17.5	
23.11.69	5P W 4P	6 2	1634	701	351	1985	11.3	256	544	22.6	
30.11.69	4P 6P 5PW	2 2 6	2068	934	467	2535	14.5	254	540	17.5	
7.12.69	5 PW 5 PN	2 9	2343	1035	518	2861	16.3	270	573	16.5	
14.12.69	5 PW 2 P	9 3	2159	959	479	2638	15.1	280	597	18.5	
21.12.69	5 PW	11	2294	941	471	2765	15.8	250	532	15.8	
28.12.69	5 PW	3	625	256	128	753	4.3	27	44	6.3	

* Ratio of Studded panels to Sheathed 1:2
/ Based on £0.47 per hour

Hand Production of Panels (Firm 'C') Site Factory

Week Ending	House Type	No. of Units	Sheathed Panels (ft.run)	Studded Panels (ft.run)	* Equiv. Sheathed (ft.run)	Total Sheathed 175 ft.rn	No. of Units 175 ft.rn	/ Total Prime Lab £	Total Man Hours	Cost per Unit 175ft.rn	
4.1.70	5 PN 5 PW	7 3	2123	928	464	2587	14.8	210	447	14.2	
11.1.70	5 PN 4P 6P	2 4 2	1628	792	396	2024	11.6	208	442	17.9	
18.1.70	6 P 5 PW	4 4	1702	790	395	2097	12.0	200	425	16.7	
*25.1.70	5 PN 5 PW	8 4	2546	1110	550	3096	17.9	224	477	12.5	
1.2.70	5 PN 2 P	10 6	2704	1340	670	3374	19.3	263	560	13.6	
8.2.70	5 PN 7 P	12 2	3043	1374	687	3730	21.4	272	558	12.7	
15.2.70	2 P 7 P 5 PW	2 5 7	2836	1281	641	3477	19.9	269	571	13.5	
22.2.70	5 PN7	14	2996	1354	677	3673	21.0	240	510	11.4	
1.3.70	6 P 4 P 5PN	6 6 1	2292	1362	681	2973	17.0	221	470	13.0	
8.3.70	4 P 2 P	6 5	1246	879	439	1685	9.6	206	439	21.4	
15.3.70	5 PN	12	2568	1152	576	3144	18.0	222	471	12.3	
22.3.70	5 PN	14	2996	1354	677	3673	21.0	208	444	9.9	
29.3.70	5 PN 6 P	12 2	3002	1376	688	3690	21.1	226	482	10.7	
						Total	383.2	5867		15.3	

* Ratio of Studded panels to sheathed 1:2

/ Based on £0.47 per hour

Panel Production - External Panels - Hand Nailed

House Type	Panel Type	Length Feet	No. of Panels	Allowed Time (mins)	*Actual Time (mins)	Total Time(mins)
3/5 NE	PW 121 S	12.1	2	120	90	180
	PW 121	12.1	2	86	65	130
	PW 119 S	11.75	2	120	90	180
	PW 119	11.75	2	86	65	130
	8W 4/4 16R	8.0	3	146	110	330
	8W 4/4 16L	8.0	1	146	110	110
	8W 4/2 16R	8.0	1	152	114	114
	8W 6 4R	8.0	1	157	118	118
	8DW 6L	8.0	1	111	83	83
	6DS/4/9R	6.0	1	131	98	98
	56W2/2L	5.5	1	116	87	87
	36 5	3.5	3	40	30	90
	TOTAL	174	20	2185		1650
3/5 W1	PW 1035	10.25	2	106	80	160
	PW 103	10.25	2	75	56	112
	PW 9115	9.9	2	106	80	160
	PW 911	9.9	2	78	59	118
	89 S 3D	8.9	1	225	169	169
	8W6/4L	8.0	1	157	118	118
	8W6/4R	8.0	1	157	118	118
	8W4/4R	8.0	1	147	110	110
	8DW6/R	8.0	1	111	83	83
	8 S	8.0	1	67	50	50
	6W4 4L	6.0	2	151	113	226
	53 S	5.35	2	58	44	88
	4 S	4.0	1	34	26	26
	33 W2/2R	3.25	1	108	81	81
	33 S	3.25	1	47	36	36
	13 S	1.25	4	22	17	68
	TOTAL	168	25	2289		1733
3/4 EE	PW 105 S	10.4	2	106	80	160
	PW 105	10.4	2	80	60	120
	PW 101 S	10.1	2	110	82	164
	PW 101	10.1	2	80	60	120
	8W4/4 16L	8.0	2	146	110	220
	8W4/4 44R	8.0	1	147	110	110
	8W6 4R	8.0	1	157	118	118

Panel Production - External Panels - Hand Nailed

House Type	Panel Type	Length Feet	No. of Panels	Allowed Time (mins)	*Actual Time(mins)	Total Time(mins)
3/4 EE	8DW 6R	8.0	1	111	83	83
	8DS4 20R	8.0	1	113	85	85
	6W4 4R	6.0	1	151	113	113
	65W 4R	6.0	1	150	112	112
	4W4/2	4.0	1	105	80	80
	4W2/2 9R	4.0	1	124	93	93
	4 S	4.0	3	34	26	78
	TOTAL	162	21	2204		1656
	* Average 25% saving on Allowed Time					

Panel Production - Automatic Nailing Machine

W/E	Panel Type	Length Feet	No. of Panels	Total Lnth. Feet	Time per panel std. mins.	Total time std. mins.
7.9.69	HCW/44F	24.0	10	240	88	880
	HCW/49F	4.0	10	40	13	130
	HCW/42G	24.0	10	240	78	780
	HCW/45G	4.0	5	20	14	70
3/5	HCW/43G	24.0	2	48	67	134
4/7	HCW/45F	24.0	10	240	71	710
House	HCW/52F	24.0	10	240	74	740
Type	HE/22G	6.3	25	158	20	500
	HE/70F	25.0	25	625	76	1900
	HE/16G	14.0	10	140	46	460
		TOTAL	117	1991		6304
14.9.69	HE/16G	14.0	12	168	46	552
	HE/65G	25.0	25	625	61	1525
	HE/70F	25.0	4	100	76	304
	HE/71F	25.0	27	675	74	2000
	HE/19G	11.6	10	116	26	260
	HE/21G	16.0	10	160	49	490
	HE/14G	16.0	12	192	50	600
	HCW/46F	4.0	10	40	13	130
	HE/28G	12.2	10	122	41	410
	HE/27G	5.3	10	53	19	190
	HE/18G	9.8	12	118	25	300
	HE/20G	11.6	10	116	28	280
	HE/17G	9.8	12	118	27	324
	HE/26G	1.5	12	18	7	84
	HE/25G	3.4	12	40	13	156
	HE/24G	1.5	12	18	9	108
	HE/19G	11.6	6	70	26	156
	HE/21G	16.0	6	96	49	294
	HE/28G	12.2	6	73	41	241
	HE/27G	5.3	6	32	19	114
	HE/73F	15.0	3	45	52	156
	HE/20G	11.6	6	70	28	168
		TOTAL	233	3065		8842
21.9.69	HE/94F	16.0	24	384	71	1704
	HE/31G	1.0	24	24	6.5	156
	HE/77F	15.0	4	60	70	280

Panel Production - Automatic Nailing Machine

W/E	Panel Type	Length Feet	No. of Panels	Total lnth Feet	Time per panel std. mins	Total time std. mins
29.9.69	HE/30G	2.5	24	60	13	312
(Cont.)	HE/32G	2.3	12	28	9	108
	HE/93F	16.0	10	160	73	730
	HE/76F	13.3	10	133	48	480
		TOTAL	200	2141		8373
28.9.69	HE/96F	16.0	24	384	46	1104
	HE/93F	16.0	14	224	73	1022
	HE/32G	2.3	12	28	9	108
	HE/95F	16.0	24	384	59	1416
		TOTAL	74	1020		3650
5.10.69	HCW/28G	20.1	80	1607	47	3760
	HCW/31G	20.1	69	1387	45	3105
	HE/47F	24.1	6	144	73	438
	HE/51G	24.1	55	1325	63	3465
	HE/55G	18.7	18	334	47	846
	HE/46F	24.1	5	120	70	350
	HE/80F	13.6	1	14	44	44
	HE/29G	16.0	24	384	56	1344
X	HE/59F	3.6	5	84+63	47	235
		TOTAL	287			13,923
12.10.69	HE/47F	24.1	70	1686	73	5110
	HE/55G	18.7	21	383	47	987
	HE/51G	24.1	21	506	63	1323
	HE/46F	24.1	63	1517	70	4410
	HCW/30F	20.1	12	241	49	588
	HCW/31F	10.0	1	10	26	26
	HE/49F	8.10	1	9	31	31
	HE/48F	8.10	1	9	28	28
	HCW/32G	9.1	1	9	28	28
	HCW/29G	20.1	9	181	49	441
	HE/52G	18.7	20	370	45	900
	TOTAL		220	4921		13,872
19.10.69	HE/84F	20.0	10	200	74	740
	HE/66G	20.0	10	200	60	600
	HE/81F	20.0	10	200	74	740
	HCW/25G	18.1	86	1555	58	4988
	HCW/23F	18.1	54	976	58	3132

Panel Production - Automatic Nailing Machine

W/E	Panel Type	Length Feet	No. of Panels	Total Lgth Feet	Time per panel std. mins	Total time std. mins
19.10.69	HCW/22F	18.1.0	24	434	58	1392
(Cont)	HE/52G	18.7	16	296	45	720
	HE/48F	8.10	11	97	28	308
	HE/54G	8.10	9	79	25	225
	HE/53G	8.10	9	79	28	252
	HCW/30G	9.1	9	82	26	234
	HCW/32G	9.1	2	18	28	54
	HE/49F	8.9	11	96	31	341
	HCW/31F	10.0	11		26	286
	TOTAL		272	4422		13,812
26.10.69	HCW/28F	20.1	92	1847	55	5060
	HCW/22F	18.1	8	144	58	464
	HE/50G	0.6	20	10	8	160
	HCW/27G	20.1	74	1486	63	4672
	HE/90F	20	10	200	86	860
	HE/87F	20	10	200	86	860
	HE/70G	4.9	5	24	19	95
	HE/68G	20	10	200	80	800
	HE/85F	12	10	120	61	610
	HE/82F	12	10	120	61	610
	TOTAL		249	4331		14,191

TYPE OF HOUSE: 3 bedroom 5 person 3/5 NE
FLOOR AREA: 900 sq. ft.

PANEL TYPE	SIZE LENGTH	OPERATION TIMES / mins						TOTAL PANEL TIME	NO. PANELS	TOTAL TIME IN MINUTES
		AUTO. C.C.		PANEL SAW		ASS.	C/OUT			
		CUT	LAB	CUT	LAB					
PW121 S 35 NE	12-1	10	15	6	7	110	10	158	2	316
PW 121 35 NE	12-1	10	15	2	3	76	10	116	2	232
PW 119 S 35 NE	11-9	10	15	6	7	110	10	158	2	316
PW 119 35 NE	11-9	10	15	2	3	76	10	116	2	232
8W 4/4 16R	8-6	10	15	15	15	146	10	211	3	633
8W 4/4 16L	8-0	10	15	15	15	146	10	211	1	211
8W 4/2 16R	8-0	10	15	15	15	152	10	217	1	217
8W6 4R	8-0	10	18	10	10	157	10	215	1	215
8DW 6L	8-0	7	12	6	6	111	10	155	1	155
6DS/4/ 9R	6-0	7	10	6	6	131	10	171	1	171
56W2/ 2L	5-6	10	10	10	10	116	8	164	1	164
36 S	3-6	5	5	5	5	35	5	60	3	180
35 NE A	10-4⅝	10	17	-	-	65	10	102	1	102
35 NE B	7-2¼	5	10	-	-	34	5	54	1	54
35 NE C	9-3⅛	10	18	-	-	67	10	105	1	105
35 NE D	4-6¼	5	7	-	-	29	5	46	1	46
35 NE E	10-10⅛	8	13	-	-	47	10	78	1	78
35 NE F	7-4¾	6	10	-	-	40	5	61	1	61
35 NE G	3-10⅜	3	6	-	-	23	5	37	1	37
Roof Trusses		32	32	25	25	176	10	300	2	
Sundry Studs		5	5				2	12	1	12
Elec. Noggins		5	5				2	12	1	12
					TOTAL TIME				27	3149

TYPE OF HOUSE: 3 Bedroom 4 person 3/4 EE
FLOOR AREA: 800 Ft. super

PANEL TYPE	SIZE LENGTH	OPERATION TIMES						TOTAL PANEL TIME	NO. PANELS	TOTAL TIME IN MINUTES
		AUTO. C.C.		PANEL SAW		ASS.	C/OUT			
		CUT	LAB	CUT	LAB					
PW 105 S	10-5	8	15	6	7	96	10	140	2	280
PW 105	10-5	8	15	2	3	70	10	108	2	216
PW 101 S	10-1	8	15	6	7	100	10	144	2	288
PW 101	10-1	8	15	2	3	70	10	108	2	216
8W4/4 16L	8-0	10	15	15	15	146	10	211	2	422
8W4/4 44R	8-0	10	15	15	15	147	10	212	1	212
8W6 4R	8-0	10	18	10	10	157	10	215	1	215
8DW 6R	8-0	7	12	6	6	111	10	155	1	155
8DS4 20R	8-0	8	14	8	8	113	10	165	1	165
6W4 4R	6-0	10	15	8	8	151	10	202	1	202
65W 4R	6-0	9	15	8	8	150	10	202	1	202
4W4/2	4-0	6	10	5	5	105	5	136	1	136
4W2/2 9R	4-0	7	12	6	6	124	5	160	1	160
4 S	4-0	4	8	6	6	29	5	58	3	174
34EE A	20-0¾	20	36	2	2	176	20	256	1	256
34EE B	2-0	5	5	-	-	15	5	30	1	30
34EE C	4-6⅛	5	8	-	-	27	5	45	1	45
34EE D	10-8	8	8	-	-	50	10	76	1	76
34EE E	4-7¼	7	8	-	-	25	5	45	1	45
34EE F	5-8⅞	7	8	-	-	28	10	53	1	53
Roof Trusses		30	30	22	22	182	10	296	2	
Sundry Studs		5	5				2	12	1	12
Electric. Noggins		5	5				2	12	1	12
					TOTAL				29	3372

TYPE OF HOUSE: 3 Bedroom 5 person 3/5 W1
FLOOR AREA: 1060 Ft. super

PANEL TYPE	SIZE LENGTH	OPERATION TIMES						TOTAL PANEL TIME	NO. PANELS	TOTAL TIME IN MINUTES
		AUTO. C.C.		PANEL SAW		ASS.	C/OUT			
		CUT	LAB	CUT	LAB					
PW 103 S	10-3	8	15	6	7	96	10	140	2	280
PW 103	10-3	8	15	2	3	65	10	103	2	206
PW 911 S	9-11	8	15	6	7	96	10	140	2	280
PW 911	9-11	8	15	2	3	68	10	106	2	212
89 S 3D	8-10	7	12	2	2	225	10	258	1	258
8W6/ 4L	8-0	10	18	10	10	157	10	215	1	215
8W6/ 4R	8-0	10	18	10	10	157	10	215	1	215
8W4/ 4R	8-0	10	15	15	15	147	10	212	1	212
8DW6/ R	8-0	7	12	6	6	111	10	155	1	155
8S	8-0	5	10	5	5	67	10	102	1	102
6W4 4L	6-0	10	15	8	8	151	10	202	2	404
53 S	5-3	4	7	2	2	48	10	73	2	146
4 S	4-0	4	8	6	6	29	5	58	1	58
33W2/ 2R	3-3	5	10	6	6	108	5	*140	1	140
33 S	3-2½	3	6	2	2	42	5	60	1	60
13 S	1-3	2	4	2	2	17	5	32	4	128
35W1 A	7-0¾	6	12	-	-	39	10	67	1	67
35W1 B	21-6¾	18	32	2	2	162	20	236	1	236
35W1 C	4-0	3	6	-	-	23	5	37	1	37
35W1 D	2-3⅜	3	5	-	-	15	5	28	1	28
35W1 E	11-5⅛	10	15	-	-	63	10	98	1	98
35W1 F	5-7¼	5	8	-	-	27	5	45	1	45
35W1 G	10-2	8	12	-	-	52	10	82	1	82
Roof Truss		30	30	22	22	182	10	296	2	
Sundry Studs		5	5				2	12	1	12
Elect. Noggins		5	5				2	12	1	12
				Total					32	3683
	* Extra 10 mins. for this panel on Tenoning M/c									

TYPE OF HOUSE 3 bedroom 5 person 3/5 NE
FLOOR AREA 900Ft. super

PANEL TYPE	SIZE LENGTH	MATERIALS		STORES *POLYTHENE NAILS STAPLES	COSTS		
		C.L.S.	PLY.		C.L.S.	PLY.	LAB.
PW121 35NE	12-1	116	96	8/3	73/6	62/4	21/-
PW121 35NE	12-1	116	32	4/-	73/6	20/10	15/5
PW119 35NE	11-9	112	96	8/3	70/11	62/4	21/-
PW119 35NE	11-9	112	32	4/-	70/11	20/10	15/5
8W4/4 16R	8-0	cls 92 8x2 10	53	* 5/10	cls 58/3 8x2 12/6	34/5	28/2
8W4/4 16L	8-0	92 10	53	* 5/10	58/3 12/8	34/5	28/2
8W4/2 16R	8-0	100 10	59	* 5/2	63/4 12/8	38/4	29/-
8W6 4R	8-0	94 16	45	* 5/8	59/6 20/3	29/3	28/10
8DW 6L	8-0	64 16	24	* 5/5	40/6 20/3	15/7	20/7
6DS/4/ 9R	6-0	64 10	25	* 5/1	40/6 12/8	16/3	23/1
56W2/ 2L	5-6	70 6	41	* 4/11	44/4 7/7	26/8	21/9
365	3-6	40	30	1/11	25/4	19/6	8/-
35NE A	10-4⅝	106	2	2/11	67/1	1/4	13/9
35NE B	7-2¼	64	-	1/3	40/6	-	7/3
35NE C	9-3⅛	110	1	2/11	69/8	8	14/2
35NE D	4-6¼	50	-	11	31/8	-	6/2
35NE E	10-10⅛	96	-	1/8	60/9	-	10/6
35NE F	7-4¾	72	-	1/3	45/7	-	8/3
35NE G	3-10⅜	40	-	9	25/4	-	5/-
Roof Truss 2 No	Gables Only	110	65	7/4	69/8	42/3	40/-
Sundry Studs		30					
Elect. Noggins		48					

TYPE OF HOUSE 3 bedroom 4 person 3/4 EE
FLOOR AREA 800 Ft. super

PANEL TYPE	SIZE LENGTH	MATERIALS		STORES *POLYTHENE NAILS STAPLES	COSTS		
		C.L.S.	PLY.		C.L.S.	PLY.	LAB.
PW 105	10-5	104	85	4/-	65/10	55/3	19/-
PW 105	10-5	104	32	2/9	65/10	20/10	14/8
PW 101	10-1	104	82	4/6	65/10	53/4	19/6
PW 101	10-1	104	32	3/-	65/10	20/10	14/8
8W4/4 16L	8-0	cls 92 8x2 10	53	* 5/10	58/3 8x2 12/8	34/5	28/2
8W4/4 4R	8-0	92 10	52	* 5/6	58/3 12/8	33/10	28/4
8W6 4R	8-0	94 16	45	* 5/8	59/6 20/3	29/3	28/10
8DW 6R	8-0	64 16	24	* 5/5	40/3 20/3	15/7	20/7
8DS 4 20R	8-0	72 10	40	* 6/8	45/7 12/8	26/-	22/-
6W 4 4R	6-0	84 10	37	* 5/6	53/2 12/6	24/-	26/3
6SW' 4R	6-0	80 10	40	* 5/7	50/8 12/8	26/-	26/3
4W4/2	4-0	52 8	26	* 4/8	33/- 10/2	16/11	18/2
4W2/2 9R	4-0	66 6	30	* 4/11	41/9 7/7	19/6	21/3
40	4-0	40	32	1/11	25/4	20/10	7/8
34 EE A	30-0¾	220	2	6/5 N.O.	139/4	1/4	34/3
34 EE B	2-0	28	-	7d	17/6	-	3/11
34 EE C	4-6⅛	50	-	10d	31/8	-	6/2
34 EE D	10-8	96	-	1/8	60/9	-	10/6
34 EE E	4-7¼	50	-	10d	31/8	-	6/2
34 EE F	5-8⅞	60	-	½	38/-	-	7/3
Roof Truss Type Z	Two per block	92	55	5/-	58/3	35/9	39/2
	gable ends						
Roof Truss A & B							
Sundry Studs		24					
Elec. Noggins		48					

TYPE OF HOUSE 3 bedroom 5 person 3/5 W.1.
FLOOR AREA 1060 Ft. super

PANEL TYPE	SIZE LENGTH	MATERIALS		STORES *POLYTHENE NAILS STAPLES	COSTS		
		C.L.S.	PLY.		C.L.S.	PLY.	LAB.
PW 103	10-3	104	82	6/1	65/10	53/4	19/-
PW 103	10-3	104	32	3/8	65/10	20/10	14/-
PW 911	9-11	100	80	6/1	63/4	52/-	19/-
PW 911	9-11	100	32	3/8	63/4	20/10	14/6
89 S 3D	8-10	c1s 74 8x2 20	18	*12/2	46/10 25/4	11/9	34/6
8W6/4 L	8-0	94 16	45	* 5/8	59/6 20/3	29/3	28/10
8W6/ 4R	8-0	94 16	45	* 5/8	59/6 20/3	29/3	28/10
8W4/ 4R	8-0	92 10	53	* 5/6	58/3 12/8	33/10	28/4
8DW6/ R	8-0	64 16	24	* 5/5	40/6 20/3	15/7	20/7
85	8-0	72	64	2/11	45/7	41/8	13/9
6W4 4L	6-0	84 10	37	5/6	53/2 12/8	24/-	26/3
53 S	5-3	56	50	2/3	35/6	32/6	10/1
4 S	4-0	40	32	1/11	25/4	20/10	7/8
33W2/ 2R	3-3	58 8	23	* 4/11	36/9 10/2	15/-	19/-
33S	3-2⅞	40	30	1/11	25/4	19/6	8/-
13S	1-3	2-	11	1/1	12/8	7/2	4/3
35 W1 A	7-0¾	72	-	7d	45/7		9/-
35 W1 B	21-6¾	228 16	3	5/5	144/4 25/4	1/11	31/5
35 W1 C	4-0	40 -	-	8d	25/4		5/-
35 W1 D	2-3⅜	32	-	6d	20/3		3/10
35 W1 E	11-5⅛	104	-	1/8	65/10		13/11
35 W1 F	5-7¼	56	-	10d	35/6		6/1
35 W1 G	10-2	96	-	1/6	60/10		11/3
Roof Truss	Gable Only	92	55	5/-	58/3	35/9	39/2
Sundry Studs		36					
Elec. Noggins		48					

4. Data for Factory Production

Factory Production of House Units - Prime Cost per Unit of Production
(Balloon Frame)

House Type	No. of Units		Prime Labour Cost £	On-Cost 15% P/L	Total Prime Cost £	Equivalent Units 3/5 SA	Prime Cost per Unit £	Average hrs. per unit	Remarks
3/5 SA	8.0)	12.0	98.0	15.0	113.0	12.5	9.0	22.6	½= 16 hrs
3/7	4.0)								3/5 SA = 24 hours
3/5 SA	7.0)	10.0	69.0	10.0	79.0	10.6	7.5	18.8	3/5 PAT = 30 hrs.
4/7	3.0)								4/7 = 29hrs
3/5 SA	4.0)	6.0	52.0	8.0	60.0	6.5	9.2	23.0	
4/7	2.0)								
3/5 SA		5.0	32.0	5.0	37.0	6.2	6.0	15.0	
3/5 PAT	6.0)								
3/5 SA	5.0)	12.0	91.0	14.0	105.0	13.8	7.6	19.0	
4/7	1.0)								
4/7	5.0)	13.0	104.0	16.0	120.0	13.8	8.7	21.8	
3/5	8.0)								
1/2	4.0)								
3/5 PAT	6.0)	14.0	111.0	17.0	128.0	14.4	8.9	22.3	
3/5 SA	2.0)								
4/7	2.0)								

Factory Production of House Units - Prime Cost per Unit of Production
(Balloon Frame)

House Type	No. of Units		Prime Labour Cost £	On-Cost 15% P/L	Total Prime Cost £	Equivalent Units 3/5 SA	Prime Cost per Unit £	Average hrs. per unit	Remarks
*1/2	2.0								
3/5 SA	2.0	6.0	70.0	11.0	81.0	5.6	14.5	36.2	
4/7	2.0								
3/5 PAT		6.0	53.0	8.0	61.0	7.5	8.1	20.2	
1/2	2.0								
3/5 SA	2.0	5.0	65.0	10.0	75.0	5.6	13.4	33.6	
4/7	2.0								
Total		86.0			859	96.5	8.9	22.2	

* Adjusted

4.2

Factory Production of House Units - Prime Cost per unit of Production
(Platform Frame)

House Type	No. of Units	Prime Labour Cost £	On-cost 15% P/L	Total Prime Cost £	Prime Cost per Unit £	Inclusive Extra Work	Average hrs. per unit	Remarks
3/5 W1G	7.5	97.0	14.5	111.5	14.9		37.4	hourly rate £.4 (8/-)
3/5 EE	6.0	84.0	12.5	96.5	16.1		40.4	On-cost 15% of prime Lab
3/4 EE	4.0	60.0	9.0	69.0	17.2		43.0	For stamps Grad.Pen.
3/4 EE	3.5) 7.0	80.0	12.0	92.0	13.1		32.8	
3/5 W1G	3.5)							
3/4 EE	6.5	85.0	13.0	98.0	15.1		37.8	
3/5 EE	5.0) 6.0	81.5	12.0	93.5	15.6		39.0	
3/5 W1G	1.0)							
3/5 EE	3.0) 8.0	113.0	17.0	130.0	16.3		40.8	
3/5 NE	5.0)							
3/4 EE	7.0	118.0	18.0	136.0	* 15.4	14 trusses	* 38.5	5 hrs per truss
3/5 EE	2.5) 6.0	81.5	11.5	93.0	15.5		38.8	
3/5 W1G	3.5)							
3/5 NE	3.0) 7.5	102.0	15.5	117.5	* 13.6	16 trusses	* 34.0	2½ hrs per truss
3/5 W1G	4.5)							
3/4 E1	6.0	86.0	13.0	99.0	16.5		41.3	
3/4 E1	8.0	110.5	16.5	127.0	* 15.3	4 trusses	* 38.4	3 hours each

* Adjusted

Factory Production of House Units - Prime Cost per Unit of Production
(Platform Frame)

House Type	No. of Units	Prime Labour £ Cost	On-Cost 15% P/L	Total Prime Cost £	Prime Cost per Unit £	Inclusive Extra Work	Average hrs. per unit	Remarks
3/4 EE	8.0) 10	110.5	16.5	127.0	12.7	Studs and ply strips	31.8	
3/4 E1	2.0)							
3/4 EE	8.0	128.0	19.0	147.0	* 17.4	4 trusses studs-braces	* 43.5	5 hrs each truss
3/5 W1	2.0)							
3/4 EE	11.0) 21.5	293.6	44.1	337.7	* 15.0	2 trusses 8 panels	* 37.6	Period of two weeks
3/5 NE	8.5)							panels av. 3 hrs each
3/5 NE	3.0) 5.0	91.3	13.7	105.0	* 17.8	8 trusses	* 44.5	
3/5 W1	2.0)							
3/5 EE	3.0) 6.0	67.7	10.1	77.8	13.0		32.6	
3/5 NE	3.0)							
3/5 EE	7.0	152.9	22.9	175.8	* 22.8	6 trusses 4 panels	* 57.0	
3/5 W1G	4.0) 9.0	135.4	20.3	155.7	17.3	studs	43.2	
3/5 E1G	5.0)							
3/5 NE	10.5	139.2	20.8	160.0	15.4		38.6	
3/5 NE	3.0) 10.0	126.9	19.0	145.9	14.6		36.5	
3/5 EE	7.0)							
3/5 W1G	7.0	97.0	14.5	111.5	16.4		41.0	
3/5 EE	4.0	59.8	9.0	68.8	17.2		43.0	

Factory Production of House Units - Prime Cost per unit of Production

(Platform Frame)

House Type	No. of Units	Prime Labour Cost £	On-Cost 15% P/L	Total Prime Cost £	Prime Cost per Unit £	Inclusive Extra work	Average hrs. per unit	Remarks
3/4 EE	5.0) 10.0	152.4	22.6	175.0	17.5		43.7	
3/5 NE	5.0)							
3/5 W1	8.5) 12.5	193.8	29.0	222.8	17.8		44.5	
3/5 NE	4.0)							
Total	200.0			3273.0	16.4		41.0	
D3A	12.5) 14.0	186.0	27.9	213.9	15.2		38.0	
D4C	1.5)							
D3A	15.0) 17.0	223.3	33.5	256.8	15.1		37.8	
	2.0)							
D3A	8.5) 10.5	161.3	24.2	185.5	17.7		44.1	
D4C	2.0)							
D3A	6.0	104.6	15.7	120.3	20.0		50.0	
Total	47.5			776.5	16.4		41.0	

Optimum output for factory per 40 hour week (8 men assembling)												
House Type	Automatic Cross Cut			Panel Saw			Total Assembly time per house (min)	Gang Size	Gang time per house (min)	Optimum no. of houses per week		
	Aver. time per house (min)	Optimum no. per week		Average time (min)	Optimum no. per week							
		+ 0%	+33%		+ 0%	+ 33%				+ 0%	+ 33%	
3/4 EE	181	13	17	122	20	26	2131	8	267	9	12	
3/5 NE	194	12	16	121	20	26	2067	8	258	9	12	
3/5 W.1.	201	12	16	142	17	23	2262	8	282	8.5	12	
Utilisation of machines			75%			50%						for prod. of 12 units per wk.
Optimum output for factory per 50 hour week (10 men assembling)												
3/4 EE	181	16.5	22.0	122	24	32	2131	10	213	14	19	
3/5 NE	194	15.5	21.0	121	24	32	2067	10	206	14.5	19	
3/5 W.1.	201	15.0	20.0	142	21	28	2262	10	226	13.5	18	
Utilisation of machines	o		90%			60%						for prod. of 19 units per wk.

Factory Production of Houses

Firm 'C' (Adjusted to 3/4W 252ft of sheathed panels)

W/E	Sheathed Panel	* Part($x_{\frac{1}{2}}$)	Total	Adjusted Units	Units of 175 ft.	
5.10.69	1492	392	1884	7.5	10.8	
12.10.69	1461	339	1800	7.2	10.3	
19.10.69	1517	325	1842	7.3	10.5	
26.10.69	1749	435	2184	8.7	12.5	
2.11.69	1919	463	2382	9.5	13.6	
9.11.69	1701	373	2074	8.2	11.8	
16.11.69	1701	373	2074	8.2	11.8	
23.11.69	1634	351	1985	7.9	11.3	
30.11.69	2068	467	2535	10.0	14.5	
7.12.69	2343	518	2861	11.3	16.3	
14.12.69	2.59	479	2638	10.5	15.0	
21.12.69	2294	471	2765	11.0	15.8	
28.12.69	625	128	753	3.0	4.3	
4.1.70	2.23	464	2587	10.3	14.8	
11.1.70	1628	396	2024	8.0	11.5	
18.1.70	1702	395	2097	8.3	12.0	
25.1.70	2546	555	3101	12.3	17.7	
1.2.70	2704	670	3374	13.3	19.3	
8.2.70	3043	687	3730	14.8	21.2	
15.2.70	2836	641	3477	13.8	20.0	
22.2.70	2996	677	3673	14.5	21.0	
1.3.70	2292	681	2973	11.8	17.0	
8.3.70	1246	440	1686	6.7	9.6	
15.3.70	2568	576	3144	12.5	18.0	
22.3.70	2996	677	3673	14.5	21.0	
29.3.70	3002	688	3690	14.6	21.0	
5.4.70	1367	380	1747	6.9	10.0	
12.4.70	2140	480	2620	10.3	15.0	
19.4.70	No Production					
26.4.70	3020	736	3756	14.9	21.5	
3.5.70	1972	587	2559	10.1	14.6	

* Ratio of studded panels to sheathed 1:2

Factory Production of Houses

Firm 'C'

W/E	Adjusted to 5/3 W	Cumulative No.of units	Total Man hours	Cumulative Man hours	Av.man hrs per unit	Accumul. mean hrs.
27.7.69	3.2	3.2	231	231	72	72
3.8.69	4.2	7.4	137	368	32.5	50
10.8.69	5.0	12.4	176	544	35.0	44
17.8.69	6.1	18.5	232	776	38.0	42
24.8.69	5.3	23.8	262	1038	49.5	44
31.8.69	5.3	29.1	257	1295	48.5	43
7.9.69	5.2	34.3	302	1597	60.0	46.5
14.9.69	7.2	41.5	364	1961	52.0	47
21.9.69	7.5	49.0	345	2306	46.0	47
28.9.69	8.2	57.2	294	2600	36.0	45.5
5.10.69	7.5	64.7	449	3049	58	47
12.10.69	7.2	71.9	527	3576	73	50
19.10.69	7.3	79.2	489	4065	66	51.5
26.10.69	8.7	87.9	461	4526	52.5	51.5
2.11.69	9.5	97.4	494	5020	51.5	51.5
9.11.69	8.2	105.6	470	5490	56.5	52
16.11.69	8.2	113.8	439	5929	53	52
23.11.69	7.9	121.7	544	6473	69.5	53
30.11.69	10.0	131.7	540	7013	53	53
7.12.69	11.3	143.0	573	7586	50	53
14.12.69	10.5	153.5	597	8183	56	53.3
21.12.69	11.0	164.5	532	8715	) 41	52.5
28.12.69	3.0	167.5	44	8759	)	
4.1.70	10.3	177.8	447	9206	43.5	52
11.1.70	8.0	185.8	442	9648	54	52
18.1.70	8.3	194.1	425	10073	50.5	52
* 25.1.70	12.3	206.4	477	10550	38.4	51
1.2.70	13.3	219.7	560	11110	41	50.5
8.2.70	14.8	234.5	558	11668	37.4	49.8
15.2.70	13.8	248.3	571	12239	40.7	49.0
22.2.70	14.5	262.8	510	12749	36	48.5
1.3.70	11.8	274.6	470	13219	40	48.0
8.3.69	6.7	281.3	439	13758	65	49.0
15.3.69	12.5	293.8	471	14229	37.6	48.5
22.3.70	14.5	308.3	444	14673	30.6	47.5
29.3.70	14.6	322.9	482	15155	33	47.0
5.4.70	6.9	329.8	326	15481	47	47.0

* Bonus scheme started

Factory Production of Houses

Firm 'C'

W/E	Adjusted to 5/3 W	Cumulative No.of units	Total Man hours	Cumulative Man hours	Av.man hrs per unit	Accumul. mean hrs.
12.4.70	10.3	340.1	494	15975	48	47.0
9.4.70	No. Production					
26.4.70	14.9	3550.0	466	16441	31.4	46.0
3.5.70	10.1	365.1	496	16937	49.0	46.0
	Improvement after introducing Bonus Scheme					
25.1.70	12.3	12.3	477	477	38.4	38.4
1.2.70	13.3	25.6	560	1037	41	40.0
8.2.70	14.8	39.4	558	1595	37.4	39.0
15.2.70	13.8	53.2	571	2166	40.7	39.6
22.2.70	14.5	67.7	510	2676	36	38.8
1.3.70	11.8	79.5	470	3146	40	38.6
8.3.70	6.7	86.2	439	3585	65	41.5
15.3.70	12.7	98.9	471	4056	37.6	40.5
22.3.70	14.5	113.4	444	4500	30.6	39.7
29.3.70	14.6	128.0	482	4982	33	38.8
5.4.70	6.9	134.9	326	5308	47	39.0
12.4.70	10.3	145.2	494	5802	48	40.0
19.4.70						
26.4.70	14.9	160.1	466	6268	31.4	39.0
3.5.70	10.1	170.2	496	6764	49.0	39.8

Break-even Point for Site Work and Transportation

Cost of Units for Various Batch Sizes made on Site

Item of cost per unit	Total units in contract							
	20	50	75	100	150	200	250	300
Factory	143	57	38	29	19	14	11	9
Admin.	7	7	7	6	6	5	5	5
Lab. Cost	24	24	24	24	24	24	24	24
Transport	4	4	4	4	4	4	4	4
Total Cost	178	92	73	63	53	47	44	42
Weeks in Production	2	5	7	9	13	14	17	20

Cost of units for various batch sizes made in permanent factory
(based on 20 units per week)

	Firm 'A'	Firm 'B'	Hurn N-C
Production	32.8	33.6	25.8
Storage (based on delivery rate of 0.7)	2.0	7.0	7.0
Transportation	12.0	7.0	10.0
	46.8	47.6	42.8

Average Cost in permanent factory

$$= \frac{137.2}{3} = £45.7 \text{ per unit}$$

5. Costs for Factory Set-up

Details of Costs for Plant Machinery and Overheads (Firm A)

		Cost Per Annum		
1.	Automatic Cross Cut Saw @ £700			
	Estimated life, 20 years on 10% reducing balance, the balance of £84 will be offset by scrap value.	35.	0.	0.
	Installation costs £50	2.	10.	0.
2.	Vertical mounted panel saw @ £500			
	Estimated life 20 years.			
	Balance as before	25.	0.	0.
	Installation costs	2.	10.	0.
3.	Air Guns @ £90			
	9 No. to supply 4 benches with one spare			
	Estimated life 10 years.			
	Total cost including air lines £1077	107.	14.	0.
4.	Air compressor @ £360			
	Installation £40			
	Estimated life 20 years.	20.	0.	0.
5.	Fork lift truck (min. lift 8000 lb) @ £4000			
	Estimated life 10 years.	400.	0.	0.
6.	Driver for fork lift truck			
	@ £1100 say 50% time	550.	0.	0.
7.	Four wheeled trolleys for material movement @ £25.			
	Estimated life 20 years.	5.	0.	0.
	Plant and Machinery Costs per annum, excluding power	£1147.	14.	0.

Overheads for Housing Production

			Cost per Annum
1.	Rates		400. 0. 0.
2.	Insurance		300. 0. 0.
3.	Lighting, Heating & Power (all electric)		500. 0. 0.
4.	Loading	1000. 0. 0.	
	Set Out	200. 0. 0.	
	Saw Sharpening	50. 0. 0.	
	Cleaning workshop	100. 0. 0.	
	Canteen facilities	75. 0. 0.	
	Staff	2000. 0. 0.	
	Overtime working	600. 0. 0.	
	Holiday Pay	100. 0. 0.	
	Plant repairs	1100. 0. 0.	
	General Office overheads incl. training and levy	3000. 0. 0.	
		8225. 0. 0.	8225. 0. 0.
5.	Cost of factory 5,600 sq. ft. over 20 years		420. 0. 0.
	Overheads		9845. 0. 0.
	Plant and Machinery		1147. 14. 0.
	Total cost of facilities per annum:		10,992. 14. 0.

Estimated production per year = 500 units

Overhead cost per unit - £19. 10. 0. (Excluding floor units)

Plant and machine cost per unit - £2. 5. 0.

Total Cost of factory per unit - £21.75

INITIAL COST FOR SITE FACTORY SET UP
(One year duration)

Item	Details	Cost per Item £	Sub Totals £	Net Total £
Own Labour	Preparation of site	319		
	Re-claim site	100	419	419
Sub-contract	Erecting frame	125		
Labour	Sheeting roof & walls	90		
	Dismantle frame	83		
	Dismantle sheeting	35	333	333
Materials	Hire of frame (one year)	542		
	Sheeting	311		
	Roof lights	85	938	938
	Hardcore and ash	100		
	Formwork & concrete floor	190		
	Fencing	50		
	Timber benches	55		
	Concrete bases for M/C	10	405	405
Radial Arm Saw	Saw	211		
(Wadkins Burgh	Air operated equipment	129		
Green 14" B.R.A)	5 H.P. motor and starter	19		
	Triple pole switch	7		
	Adjustable fence	16		
	Extra stops	3		
	2-Tungsten tipped blades	29	less 414 10%	373
Roller table	2-12" wide 6'-5 long	21		
	2-12" wide 12'-0 long	25	less 46 5%	44
Router (Stanley)	Router	80		
	Blades	6	less 86 10%	76
Compressor	Compressor	299		
(Bromwade)	Starter Unit	9	less 308 12½%	280
Transformer	Hire per week £1	52	52	52
Wiring and	Connections and Comm. Plant	67	67	67
setting up M/c				
			Total	3087
Less	Recovery on Selling Machines	50% cost		380
	Initial Total Cost - 1st Year			2707

Initial Cost per Unit = £5.82

Production Costs using the Hurn Numerical Control Panel Manufacturing System

(based on installation in firm 'A')

Capital Cost of Machine	£17,000
Tape processing equipment	1,000
Staff training	120
Compressed air equipment	500
Total maintenance 10% capital	1,700
Total Cost	£20,320

Estimated Life 10 years

Nett Capital Outlay per annum	£2032
Air guns per annum	107
Panel saw per annum	25
Four wheeled trolley per annum	5
Fork lift truck per annum	950
Total plant cost	£3119

Fixed Costs

Rates	£400	
Insurances	300	
Canteen facilities	75	
Staff wages	2000	
Office overheads	3000	
Cost of factory p.a.	420	
Plant	3119	
Total fixed cost	£9314	= £186 per week ('A')

Variable Costs (based on 10,000 ft. run of panel per week)

Lighting, heating and power	£500
Saw sharpening	50
Cleaning workshop	100
Plant repairs	1100
Labour (based on 40 hour week)	
12 men 8/- hour	9600
Oncost on Labour 33⅓%	3200
Bonus 20% Labour	1920
Total Cost per annum	£16470 (£330 p.w.)

Variable Cost per unit for 10000 ft. run per week (300 ft. run studded panel per unit)

$$= \frac{16470 \times 300}{50 \times 10000} = 9.9 \text{ say } £10 \text{ per unit}$$

Production Costs (assuming deployment of labour)					
Prod. per week (B)	A	Bx	A+ Bx	Cost per unit £	'y'
4	186	40	226	56.5	119.0
6	186	60	246	41.0	79.0
8	186	80	266	33.0	59.5
10	186	100	286	28.6	47.6
12	186	120	306	25.4	39.6
14	186	140	326	23.2	34.0
16	186	160	346	21.6	29.8
18	186	180	366	20.4	26.4
20	186	200	386	19.6	24.8
25	186	250	436	17.5	20.0
30	186	300	486	16.4	17.4
35	186	350	536	15.3	14.7
40	186	400	586	14.6	12.9

y = Cost when labour cannot be deployed
(variable cost per week excl. bonus up to 20 units per week = £290)

6. Data on Erection (Preliminaries)

PRELIMINARIES - BUDGET AND COSTS

Contract: Oldham

Item	Budget	July 67	Aug. 67	Sept.67	Oct. 67	Nov. 67
Admin. Staff	19,734		177	527	666	1004
Site Staff	3,451					
Hutting - Hire	1,458	20	418	935	319	82
" - Site Cost	2,912					
Plant - Mixers	2,132					
" - Dumpers	1,872					
" - Tractors	2,236					
" - Misc.	1,832			65	158	216
Small Tools	2,239		560	202	243	85
Transport	2,000		207	78	197	214
Travel Time						
Telephone	1,230					
Electricity	2,130					37
Gas and Water	1,100		114		9	
Scaffold - Hire	25,305			67	822	1054
" Labour	9,945					
Insurances	3,459		1261			
Temp. Roads						
Clean Roads						
Clean Buildings	2,652				21	35
Clear Site	1,000				11	42
Unload Materials	16,575		37	8	80	98
Move Materials				84	93	202
Misc. Site Work						
Defects Liability	6,630					
H.W.P. N.H.I.			15	58	57	70
S.E.T.			10	37		41
Non-prod. overtime			3	8	21	41
J.C.B. level around block						
Petty cash	2,500	119	42	63	83	139
Contra charges						
Claim for lack of access to rds.						
Watchman						98
Waiting Time						3
Remedial work						
Totals	£112,392	£139	£2843	£2132	£2889	£3462

PRELIMINARIES - BUDGET AND COSTS

Contract: Oldham

Item	Dec. 67	Jan. 68	Feb. 68	Mar. 68	April 68	May 68
Admin. Staff	836	758	840	1145	912	877
Site Staff						
Hutting Hire	118	117	98	189	280	293
" Site costs						
Plant - Mixers						
" - Dumpers						
" - Tractors						
" - Misc.	192	170	179	313	254	424
Small Tools	105	35	34	48	90	44
Transport	161	25	13	72	69	88
Travel Time						
Telephone	31	144		221		
Electricity		75		6		140
Gas and Water			62	63	126	
Scaffold - Hire	1133	1818	1529	1854	1700	2483
" Labour						
Insurances			992			
Temp. Roads					7	
Clean Roads						
Clean Buildings	11	72	94	73	18	58
Clear Site	47	13	14	23	19	13
Unload Materials	50	19	36	1517	191	250
Move Materials	207	132	156	318	168	235
Misc. Site Work				32		
Defects Liability						
H.W.P. N.H.I.	77	63	69	240	73	77
S.E.T.	46	38	40	62	43	45
Non-prod.overtime	37	21	33	63	54	40
J.C.B. level around block						
Petty Cash	71	64	59	87	73	117
Contra charges						
Claim for lack of access to roads						
Watchman						
Waiting Time	7		9	51		
Remedial work						
Totals.	£3129	£3569	£4265	£6377	£3828	£5189

PRELIMINARIES - BUDGET AND COSTS

Contract: Oldham

Item	June 68	July 68	Aug. 68	Sept.68	Oct. 68	Nov. 68
Admin. Staff	1094	1088	1470	1117	1378	1393
Site Staff						
Hutting Hire	304	131	131	284	246	99
" Site costs						
Plant - Mixers						
" - Dumpers						
" - Tractors						
" - Misc.	417	326	279	495	410	540
Small Tools	76	87	29	1	12	10
Transport	45	12		59	70	46
Travel Time						
Telephone	156	10		173		
Electricity					257	
Gas & Water	473					
Scaffold - Hire	2333	1592	2235	1545	1857	1158
" - Labour		468				
Insurances						
Temp. Roads					2	25
Clean Roads						
Clean Buildings	93	94	276	56	260	116
Clear Site	61	75	74	88		68
Unload Materials	456	388	) 805	210	) 827	) 711
Move Materials	355	286	)	270	)	)
Misc. Site Work						55
Defects Liability						
H.W.P. N.H.I.	104	84	123	96	137	114
S.E.T.	65	64	83	87	116	102
Non-prod. overtime	70	51	61	30	54	50
J.C.B. level around block						
Petty Cash	70	115	102	83	150	119
Contra charges						
Claim for lack of access to roads						
Watchman		33	38	32		
Waiting Time				5	66	
Remedial work				12	8	
Totals	£6172	£4440		£4641	£5784	£4702

PRELIMINARIES - BUDGET AND COSTS

Contract: Oldham

Item	Dec. 68	Jan. 69	Feb. 69	Mar. 69	April 69	May 69
Admin. Staff	1117	1347	1358	1745	1395	1703
Site Staff	494	682	491	671	503	729
Hutting - Hire	83	115	61		131	79
" Site costs	11	50	22	1177		-
Plant - Mixers	70	122	60	85	95	274
" - Dumpers	72	135	53	108	258	335
" - Tractors	10	268	10	255	82	174
" - Misc.	20	122	85	43	200	167
Small Tools	13	319	70	44	5	75
Transport	34	119	61	10	36	63
Travel Time						
Telephone	216			272		
Electricity	31	227	109	284	40	229
Gas and Water				8	8	-
Scaffold - Hire	1253	924	1412	1354	1338	2032
" Labour	411	729	512	594	547	814
Insurances						
Temp. Roads						
Clean Roads						
Clean Buildings	147	270	95	210	153	238
Clear Site	35	159	141	82	68	81
Unload Materials	302	371	391	190	166	138
Move Materials	308	343	259	459	283	620
Misc. Site Work	56	31	48	15	161	37
Defects Liability				35		9
H.W.P. N.H.I.	114	115	62	126	132	182
S.E.T.	96	106	50	106	111	148
Non-prod. overtime	68	91	35	149	72	101
J.C.B. level around block			180	230		288
Petty Cash	115	192	172		233	166
Contra charges				40		384
Claim for lack of access to roads						
Watchman						
Waiting Time						
Remedial Work						
Totals	£5076	£6830	£5707	£5142	£5996	£9066

PRELIMINARIES - BUDGET AND COSTS

Contract: Oldham

Item	June 69	July 69		Total To Date		
Admin. Staff	1553	1703		24224		
Site Staff	586	645		7852		
Hutting - Hire	39	65		1738		
" - Site Cost				4112		
Plant - Mixers	95	50		1817		
" - Dumpers	169	198		2433		
" - Tractors	91	105		2141		
" - Misc.	359	207		2186		
Small Tools	114	12		2259		
Transport	26	42		1758		
Travel Time						
Telephone	273			1595		
Electricity	143	115		1793		
Gas and Water	16	-		146		
Scaffold - Hire	999	933		29010		
" - Labour	929	920		11397		
Insurances	-	-		2252		
Temp. Roads	-	-		154		
Clean Roads						
Clean Buildings	153	134		2675		
Clear Site	16	95		1341		
Unload Materials	339	67		8619		
Move Materials	256	366		3431		
Misc. Site Work	64	54		727		
Defects Liability	-	-		129		
H.W.P. N.H.I.	88	117		2261		
S.E.T.	72	126		1730		
Non-prod. o/time	60	91		1306		
J.C.B. level around block	120	-		599		
Petty Cash	301	144		3109		
Contra charges	-	-		424		
Claim for lack of access to rds.						
Watchman						
Waiting Time						
Remedial Work						
Totals	6843	6186		123218		

Housing Statistics

Production of Housing at Basingstoke (498 houses)

Months	Planned Production	Actual Production
March 1968		
April		
May		
June		
July		
August	58	17
September	91	28
October	114	36
November	155	56
December	190	75
January 1969	226	84
February	269	101
March	313	126
April	346	150
May	*170	174
June	213	202
July	250	225
August	288	257
September	338	279
October	392	300

* Revised Production Programme

PRELIMINARIES - BUDGET AND COSTS

Contract: Basingstoke

Item	Budget	March 68	April 68	May 68	June 68	July 68
Admin Staff	212000	99	368	561	1379	730
Site Staff	8220					
Hutting - Hire	1260	667	1023	784	477	302
" Site Costs	1300					
Plant - Mix S/up	200					
- Mixers	4020	25	492	1225	92	652
- Dumpers	2760					
- Misc	7530				10	
Small Tools	2350	166	582	30	54	300
Transport	2825	141	266	113	125	227
Travel Time		5	10	10	13	10
Telephone	1000	101		101	101	
Electricity	1750	172		172	189	
Gas & Water	1000	42	42	42	903	
Scaffold - Hire	8640		8		97	416
" Labour	8130					
Insurances	2975					
Temp. Roads	1250		30	13		38
Clean Roads						
Clean Buildings	1498					
Clear Site	500					
Unload Materials	7470		16	3	3	
Move Materials	2400		6		6	
Misc. Site Work		309	226	58	109	175
Defects Liab.	2490					
H.W.P. N.H.I.		3	9	21	38	27
S.E.T.		5	5	13	21	18
Non-prod. o/time		5	12	8	31	24
Remedial						
Contra Charges						
Petty Cash	69	115	189		197	167
Waiting Time						
TOTALS	90918	1855	3284	3154	3845	3086

PRELIMINARIES - BUDGET AND COSTS

Contract: Basingstoke

Item	Aug. 68	Sept.68	Oct. 68	Nov. 68	Dec. 68	Jan 69
Admin Staff	986	1152	1453	2720	1653	1592
Site Staff						390
Hutting - Hire	301	150	610	90	1080	32
" Site Costs					270	32
Plant - Mix S/up						
- Mixers	1908	2087	2431	577	250	420
- Dumpers					450	475
- Misc.	10				1150	375
Small Tools	23	21		147	100	244
Transport	146	76	80	859	150	102
Travel Time	25	20	26	24	20	25
Telephone		25		228		176
Electricity	47	48	68	82	90	89
Gas & Water		2				
Scaffold - Hire	350	1271	1702	2124	1194	2664
" Labour				478	1096	764
Insurances						
Temp. Roads	78	58	41	79	100	241
Clean Roads					150	164
Clean Buildings			24		250	258
Clear Site	125	1666	422	71	50	37
Unload Materials		250	290	135	300	443
Move Materials	164	775	444	618	1373	1173
Misc. Site Work	120				565	349
Defects Liab.						
H.W.P. N.H.I.	42	32	39	27	60	56
S.E.T.	29	30	32	23	70	46
Non prod. O/T	41	29	35	24	50	35
Remedial		21	173			
Contra Charges						
Petty Cash	142	175	116	130	200	161
Waiting Time		500	87			2
Watchman	75	93	31			
TOTALS	4612	8481	8104	8436	10,671	10,345

PRELIMINARIES - BUDGET AND COSTS

Contract: Basingstoke

Item	Feb. 69	Mar. 69	April 69	May 69	June 69	July 69
Admin Staff	1603	1691	1963	1990	1942	2045
Site Staff	419	491	571	531	763	652
Hutting - Hire	52	93	95	73	156	67
" Site Costs	168	18	20	95		47
Plant - Mix S/up				55		
- Mixers	270	305	451	268	232	132
- Dumpers	435	765	529	500	262	262
- Misc.	1096	1208	1315	1743	1332	1094
Small Tools	87	100	101	8	314	20
Transport	261	150	163	428	95	154
Travel Time	21	32	53	65	60	63
Telephone			192			
Electricity	98		99	192	116	198
Gas & Water		5			4	
Scaffold - Hire	1262	10	1334	2522	2287	1808
" Labour	461	635	560	1028	984	833
Insurances						
Temp. Roads	56	156	188	32		161
Clean Roads	215	170	814	156	189	202
Clean Buildings	216	250	264	306	311	340
Clear Site	49	58	78	339	343	290
Unload Materials	1383		216	10		528
Move Materials	575	568	780	1057	641	982
Misc. Site Work	599	389	209	182	65	561
Defects Liab.						
H.W.P. N.H.I.	58	87	121	143	118	147
S.E.T.	46	71	100	119	96	147
Non-prod. O/T	67	113	152	156	174	168
Remedial		24	91	155	103	169
Contra Charges		11			61	34
Petty Cash	121	227	202	294	342	222
Waiting Time	2	1	1		3	8
TOTALS	9620	7628	10,662	12,447	10,992	11,334

PRELIMINARIES - BUDGET AND COSTS

Contract: Basingstoke

Item	Aug. 69	Sept.69	Oct.69		Total to Date	
Admin. Staff	1,872	1,859	1,962		27,320	
Site Staff	433	544	643		7,721	
Hutting - Hire	53	143	198		992	
" Site Costs	100		114		2,952	
Plant - M/S.Up	96	96	155		885 5,351	
" - Dumpers	230	323	229		8,002	
" - Misc.	862	966	1,319		18,709	
Small Tools	34	7	85		2,445	
Transport	55	67			3,577	
Travel Time	39	42	62		620	
Telephone	316		285		1,323	
Electricity	59	21	738		2,260	
Gas & Water		4	19		948	
Scaffold - Hire	3,229	cr 2200	5,925		26,007	
" - Labour	550	587	708		8,684	
Insurances					1,242	
Temp. Roads	24				1,847	
Clean Roads	173		274		2,971	
Clean Buildings	525	282	486		3,385	
Clear Site	222	92	368		2,482	
Unload Materials	668	415	786		5,130	
Move Materials	1,090	318	1,612		10,956	
Misc. Site Work	350	115	76		6,741	
Defects Liability						
H.W.P. N.H.I.	127	149	181		1,457	
S.E.T.	139	157	184		1,468	
Non-prod. O/T	167	212	277		1,762	
Remedial	404	428	502		2,093	
Contra Charges	72	cr 2961	2,973		416	
Petty Cash	257	202	278		3,672	
Waiting Time					606	
Totals	12,146	2,568	19,343		164,024	

Preliminaries - Costs

Contract : Redditch

Item	Aug 68	Sept 68	Oct 68	Nov 68	Dec 68	Jan 69
Admin. Staff	228	269	334	326	400	512
Site Staff					388	582
Hutting	25	35	44	163	117	158
Plant - Crane				393	352	355
" Fork Lift				260	248	301
Generator				20	24	26
Site lorry & dump						82
Small Tools						
Transport				64	90	193
Travel Time			81	130	90	190
Subsistance				91	142	167
Telephone					50	5
Electricity & Gas		20	40	100	73	63
Scaffolding					112	112
Cleaning Buildings						
Snagging						
Dayworks				76	110	71
Spot Bonus				50	73	55

Preliminaries - Costs

Contract : Redditch

Item	Feb. 69	Mar. 69	Apr. 69	May 69	June 69	July 69
Admin. Staff	549	621	623	690	672	705
Site Staff	570	511	295	867	820	396
Hutting	158	187	138	138	140	149
Plant - Crane	230	364	292	448	432	431
" Fork Lift	300	222	274	317	379	365
Generator	21	35	25	30	21	26
Site Lorry & dump	83	83	53	84	83	83
Small Tools	-	-	-	-	40	40
Transport	190	174	129	121	208	208
Travel Time	221	297	221	232	267	204
Subsistance	184	217	162	169	158	120
Telephone	18	63	63	63	63	63
Electricity &Gas	64	80	64	64	164	164
Scaffolding	150	136	136	200	200	200
Clean Buildings						77
Snagging	-	-	34	260	224	298
Dayworks	148	99	50	100	190	167
Spot Bonus	61	93	75	141	183	199

Preliminaries - Costs

Contract : Redditch

Item	Aug. 69	Sept. 69	Oct. 69			Total to Date
Admin. Staff	656	648	689			8121
Site Staff	1126	981	910			7445
Hutting	76	113	113			1754
Plant - Crane	382	418	391			4488
" Fork Lift	366	304	301			3737
Generator	30	24	24			307
Site Lorry & dump	84	85	95			795
Small tools	40	40	40			200
Transport	202	303	194			2076
Travel Time	263	246	324			2676
Subsistance	138	168	187			1803
Telephone	63	63	-			514
Elec. & Gas	59	99	64			1117
Scaffolding	220	214	400			2080
Clean Buildings	-	17	13			107
Snagging	387	442	583			2228
Dayworks	159	132	149			1450
Spot Bonus	140	193	205			1468

Preliminary Costs - Leen Valley

Item	May 69	June 69	July 69	Aug 69	Sept 69	Oct 69
Admin. Staff	57	142	282	435	418	570
Site Staff	46	209	219	340	405	900
Hutting	45	78	79	184	123	116
Plant - Own Crane	-	322	314	331	316	16
" Hired Crane	-	-	230	573	608	458
Fork Lift	-	213	204	244	204	208
Generator	-	12	24	30	24	24
Site Lorry&Dump.	-	39	42	105	80	85
Compressor	-	24	24	30	24	24
Small Tools	-	-	-	20	25	62
Transport	-	132	142	221	178	178
Travel Time	3	118	134	148	139	196
Subsistance	-	-	-	-	-	-
Telephone	-	-	-	-	38	-
Elec.Gas.Sundries	32	51	45	93	62	62
Own Scaffolding	-	72	83	192	421	-
Hired "	-	-	-	155	502	246
Clean Building						
Snagging	-	-	-	-	240	432
Dayworks	-	103	51	225	48	119
Spot Bonus	10	30	33	55	76	106

Preliminary Costs - Leen Valley

Item	Nov. 69	Dec. 69	Jan. 70	Feb.70	Mar 70	Total
Admin Staff	800	671	858	546	455	5234
Site Staff	939	670	868	853	898	6347
Hutting	160	118	110	70	70	1153
Plant - Own Crane	-	-	-	-	-	1299
" - Hired Crane	466	306	272	-	-	2913
Fork Lift	253	235	211	204	210	2186
Generator	30	24	30	24	24	246
Site Lorry &Dump.	85	60	8	26	-	530
Compressor	30	24	30	24	24	258
Small Tools	35	26	47	35	20	270
Transport	297	246	280	173	256	2103
Travel Time	239	176	207	176	166	1702
Subsistance	-	-	-	-	-	-
Telephone	39	40	20	25	20	182
Elec.Gas.Sundries	312	99	122	52	52	982
Own Scaffolding	168	-	-	-	-	936
Hired "	240	240	240	240	120	1983
Clean Building						
Snagging	441	310	418	426	590	2857
Dayworks	102	68	43	22	32	813
Spot Bonus	100	57	107	89	112	775

Monthly Costs (per unit) for items within the General Preliminaries Budget

Month No.	Month	No. of Units	Total Prelim. Cost £	Plant and Transport £	Scaffolding £	Unloading Materials £	Moving Materials £	Site Supervision £
6	Dec. 1967	10.5	300	42	108	24		80
7	Jan. 1968	10.0	357	23	181	15		76
8	Feb. 1968	12.5	340	18	122	15.5		67
9	Mar. 1968	25.5	250	17	73	72		45
10	Apr. 1968	19.0	201	22	90	19		48
11	May. 1968	21.0	246	26.5	106	23		42
12	Jun. 1968	20.0	308	27	116	40		55
13	Jul. 1968	21.0	211	20	98	32		52
14	Aug. 1968	33.5	148	9.2	67	24		44
15	Sept.1968	19.0	244	29	81	25		59
16	Oct. 1968	19.0	304	26	97	43		73
17	Nov. 1968	19.0	248	31	61	37		73
18	Dec. 1968	17.8	285	12.3	95	34		91
19	Jan. 1969	16.8	405	45	99	44		119
20	Feb. 1969	17.5	326	19.4	110	37		105
21	Mar. 1969	18.0	285	30	108	36		133
22	Apr. 1969	24	250	28	78	19		79
23	May. 1969	30	301	36	95	25		81

Monthly Costs (per unit) for items within the General Preliminaries Budget

Month No.	Month	No. of Units	Total Prelim. Cost £	Plant and Transport £	Scaffolding £	Unloading Materials	Moving Materials	Site Supervision
24	June. 1969	28	244	30	69	21		76
25	July. 1969	26	238	27	72	17		90
Budget		668	168	18.5	53	25		35

6.17

GENERAL PRELIMINARY COSTS FOR SITES OF VARYING SIZE (Timber Framed)			
Item	Dartford	Kenilworth	Bicester
Own Lab	5681. 9. 11	664. 10. 10	6042. 14. 0
L.O.	8247. 4. 0	1717. 2. 6.	4975. 19. 0.
H.P. Ins	359. 0. 0.	68. 9. 11.	440. 11. 0.
S.E.T.	216. 0. 0.	42. 13. 0.	257. 0. 0.
Trav. & Exp.	4. 0. 0.	22. 18. 0.	174. 18. 0.
Retention	4. 0. 0.	5. 2. 0.	94. 8. 0.
Staff Wages	6224. 13. 0.	1632. 12. 0.	5432. 19. 6.
Overtime		24. 4. 8.	290. 12. 0.
SECTION TOTAL	20736. 12. 0.	4179. 7. 3.	17792. 0. 0.
Excavate Plant	35. 14. 0.		
Dumper	398. 6. 0.	144. 3. 0.	254. 7. 0.
Mixer	267. 16. 0.	144. 0. 0.	112. 0. 0.
Pumping Equipment	17. 0. 0.		
Sundry Plant	2044. 15. 10.	317. 11. 0.	2281. 12. 0.
Site Lorries	550. 16. 0.	205. 0. 0.	108. 0. 0.
Transport - Materl.	145. 0. 0.	378. 0. 0.	606. 16. 0.
Transport - Men		10. 0. 0.	
Fuel	23. 15. 0.	57. 4. 6.	51. 7. 0.
Small Tools	136. 9. 10.	248. 10. 0.	89. 13. 0.
Scaffold Hire	4174. 17. 0.	1261. 13. 0.	1580. 16. 0.
Hutting	205. 7. 0.	142. 10. 0.	247. 17. 0.
SECTION TOTAL	7999. 18. 0.	2908. 11. 6.	5332. 8. 0.
Petty Cash	1067. 19. 0.	189. 0. 0.	1188. 0. 0.
Telephone	576. 9. 0.	133. 0. 0.	198. 0. 0.
Insurance	154. 11. 10.	94. 0. 0.	164. 0. 0.
Services	546. 10. 0.	305. 0. 0.	851. 18. 0.
Excavating Plant		772. 17. 0.	194. 16. 0.
Lorries		137. 0. 0.	

GENERAL PRELIMINARY COSTS
FOR SITES OF VARYING SIZE

Item	Dartford	Kenilworth	Bicester
Sundry Plant for Carpenter	130. 0. 0.	9. 5. 0.	5. 0. 0.
Sundry Plant for Ext. Work	70. 12. 0.		214. 15. 0.
Sundry Plant for Excavators		42. 0. 0.	
Sundry Plant for Mixers		6. 0. 0.	
Site Lorries	221. 17. 0.	27. 0. 0.	100. 10. 0.
Shuttering Hire	24. 13. 0.		15. 0. 0.
Scaffold		27. 9. 11.	
Concreting Plant		58. 18. 0.	
Fuel		40. 12. 0.	
SECTION TOTAL	2792. 11. 0.	1842. 1. 11.	2931. 19. 0.
TOTAL	31529	8930	26056
Less Labour	13929	2382	11019
Prelim. Total	17600	6548	15037
Units in Contract	81	24	100
Cost of Plant and Transport	8448	3028	5862
Plant cost per Unit	104	126	59
Labour cost per Unit	172	99	110
Total Prelim cost per Unit	217	273	150
Total floor areas (sq. ft.)	73101	18593	92070
Total floor areas (in^2)	6792	1782	8555
Prelim Costs per (1000 sq.ft.)	242	350	163
Prelim Costs per (100 m^2)	260	380	176
Plant Cost per (1000 sq. ft.)	115	162	64
Plant Cost per (100 m^2)	124	174	69
Labour Cost per (1000 sq.ft.)	191	128	120
Labour Cost per (100 m^2)	202	138	129

Details of Major Preliminary Items with Costs for Sites of Varying Sizes
(Timber Framed)

Item	Dartford	Kenilworth	Bicester	Oldham	Basingstoke	Redditch	Leen Valley	Jordenthorpe V
Site Staff	6625	1633	5433	32076	35041	15566	11.581	3322
Off.set-up	205	143	248	5850	3944	1754	1153	1148
* Plant	3738	1864	3172	6760	26711	9327	6902	4655
Small Tools	136	249	90	2259	2445	200	270	200
Transport	145	388	607	1758	3577	2076	2103	1722
Tvl.&Subs.	4	23	175	-	620	4479	1702	2145
Site Serv.	1023	438	1050	3534	4531	1631	982	500
Moving Mats.	-	-	-	12050	16086	1450	530	1060
Non-prodO/T	-	24	291	1306	1762	-	1588	860
Scaff.(Lab)	4175	1289	1581	11397	8684	2080	2919	2000
Sundries	49	98	66	1480	11559	4002	2857	5467
Total	16100	6249	12913	68470	114960	42565	32589	23079
Units Compl.	81	24	100	418	300	194	315/	196
Fl.area sq.ft.	73101	18593	92070	350000	276000	182856	254880	194320
Prelim cost per 1000s.f	220	336	140	195ø/	416	233ø	128ø	119ø
Ditto per 100 m^2	238	350	152	210	450	250	137	128
Plant cost per1000 sq.f.	51	100	34	19	97	51	27	24

/ incl. flats
* excluding scaffolding and mixing plant
ø allow prelim of £20 per 1000 sq.ft. for site works

6.20

Preliminaries - Cost for Private Housing

Item	Oadby	Kegworth	Cropston	Shifnal	Wyggeston	Dover	Aldershot
Site Supervision	679	20	400	565	152	157	) 20450
Site Staff	8856	1690	896	4193	4232	7915	)
Hutting Hire	410	205	158	235	352	474	1384
Plant - Mixers	1267	273	263	1075	875	394	980
- Concrete				76	1	-	48
- Dumpers	625	156	108	1251	573	726	3618
- Site Lorries	100	53	256	1469	8	22	4294
Lifting Equipment	128	-	-	35	487	-	10876
Excav. Plant	599	81	69	2364	932	45	2133
Sundry Plant	14105	33	1419	3589	1292	7709	22646
Small Tools	291	133	105	372	461	188	187
Transport - Material	1094	312	444	579	814	302	847
" - Men	963	23	20	-	555	-	-
Travel Time	2198	425	554	175	166	-	380
Telephone	125	73	66	137	137	493	762
Services	-	10	304	389	-	438	1854
Scaffolding	2956	337	349	3948	2933	1311	26635
Fuel	215	114	47	1463	294	67	847
Maintenance	521	7	33	406	44	348	4536

6.21

Preliminaries - Cost for Private Housing

Item	Oadby	Kegworth	Cropston	Shifnal	Wyggeston	Dover	Aldershot
H.W.P. N.H.I.	2683	3121	800	4259	755	668	1459
S.E.T.	1877	2424	353	2709	615	423	3116
Non-prod. overtime	-	73	7	90	-	3	1250
Petty Cash	135	400	600	1045	53	52	2333
Wet Time	375	298	27	949	157	137	27
Subsistance	214	256	2	716	200	730	912
Clean Building	814	480	92	2541	92	133	1602
Waiting Time	-	2	17	368	16	21	-
Tool Money	12	68	3	241	19	37	-
Extra HWP & Sick Pay	-	243	-	-	-	-	36
Unloading	3005	180	333	2058	559	1141	2544
Clear Site	2289	152	216	802	358	2332	2956
More Material	826	76	92	1567	572	420	4578
Remedial	2659	87	421	1328	600	1038	5573
Misc. Welfare etc.	8876	1	677	2544	15		49737
TOTAL	65,705	6,341	9434	36,731	23,625	27,421	178600

Preliminaries - Cost for Private Housing

Item	Oadby	Kegworth	Cropston	Shifnal	Wyggeston	Dover	Aldershot
Total units in cont.	27400	8300	2600	300,00	144,00	135,00	461,00
Units complete	27400	1926	2600	101,00	129,21	66,00	461,00
Cost per Unit Prelim	£240	£329	£363	£364	£183	£416	£387
* Total floor areas	279,000	15400	28000	111,300	90,000	58550	425000
Cost per 1000sq.ft.	£236	£410	£336	£330	£263	£470	£420
Cost per 100 m^2	£253	£442	£362	£355	£283	£505	£452
Plant & Transport	22306	1421	3113	18243	9225	10884	74876
Cost per Unit	£81	£74	£120	£155	£71	£165	£162

* Includes garages

6.23

Details of Major Preliminary Items with Costs for Sites of Varying Size

(Traditional)

Item	Oadby	Kegworth	Cropston	Shifnal	Wyggeston	Dover	Aldershot
Site Staff	9535	1710	1296	4758	4384	8072	20450
Office set up	410	205	158	235	352	474	1384
*Plant	15557	323	1842	8708	3292	8502	43567
Small Tools	291	133	105	372	461	188	187
Transport	2057	335	464	579	1369	302	847
Travel & Subs.	2412	681	556	891	366	730	1292
Site Services	-	10	66	389	-	438	1854
Unload materials	3831	256	425	3625	1131	1561	7122
Non-prod. overtime	-	73	7	90	-	3	1250
Scaffolding (Labour)	2956	337	349	3948	2933	1311	26635
Sundries	10426	602	849	6954	445	548	26722
Total	47,475	4665	6117	30449	14733	22,129	131,310
Units complete	274	19	26	101	129	66	461
Floor area sq. ft.	279,000	15,400	28,000	111,300	90,000	58,550	425,000
Cost per 1000 sq.ft.	170	315	218	274	164	378	310
Cost per 100 m^2	183	324	235	294	176	405	334
Plant costs per 100 sq.ft	56	17	66	78	37	129	102

* Excluding mixers and scaffolding

7. Data on Labour Flow and Work Completed

HOUSING STATISTICS

PRODUCTION OF C.M. HOUSING AT OLDHAM (667 HOUSES)

Started 11.9.67	This Week		To Date		Operations Completed							Handovers	
Week Ending	Planned	Actual	Planned	Actual	Roof Carcassed	Roof Tiled	Joiner 1st Fix	Drylining	Plumber 2nd Fix	Joiner 2nd Fix	Decorated	Planned	To Date
Sept. 1967		2.12											
Oct. 1967		7.26											
Nov. 1967		8.22											
Dec. 1967		8.52											
Jan. 1968		7.14											
Feb. 1968		12.49											
2.3.68													
9.3.68	3.64	4.17	76.01	60.12	92	85	67	33	34	48	12	26	
16.3.68	4.60	2.97	80.60	63.09	92	91	68	38	34	50	12	34	
23.3.68	4.42	3.25	85.02	66.34	92	91	77	41	36	55	14	39	
30.3.68	4.40	5.14	89.43	71.48	98	92	87	48	38	61	16	48	
6.4.68	4.88	4.26	94.31	75.74	106	92	92	54	47	62	16	58	
13.4.68	5.24	4.02	99.55	79.76	110	92	92	54	49	64	16	65	
20.4.68		2.32	99.55	82.08	115	101	92	62	50	65	16	64	
27.4.68	5.15	3.83	104.70	85.91	122	117	103	64	54	67	16	64	
4.5.68	5.41	4.78	110.11	90.69	133	123	103	70	59	71	16	64	
11.5.68	5.35	4.64	115.48	95.92	137	127	102	73	69	75	16	64	
18.5.68	4.58	4.59	120.06	100.51	144	131	113	76	75	78	16	64	

HOUSING STATISTICS

PRODUCTION OF C.M. HOUSING AT OLDHAM (667 HOUSES)

Started This Week		To Date		Operations Completed							Handovers	
Week Ending	Planned	Actual	Planned	Actual	Roof Carcassed	Roof Tiled	Joiner 1st Fix	Drylining	Plumber 2nd Fix	Joiner 2nd Fix	Decorated	Planned	To Date
25.5.68	5.87	5.03	125.94	105.54	144	140	116	79	80	82	16	64	
1.6.68	7.87	6.21	133.81	111.75	162	143	124	89	85	88	16	64	12
8.6.68	9.43	3.92	143.20	115.67	162	144	129	95	87	89	16	64	16
15.6.68	8.96	5.81	151.63	121.49	163	152	139	99	95	90	16	70	16
22.6.68	8.78	5.03	160.91	126.52	174	155	142	106	96	92	18	79	16
29.6.68		5.04	160.91	131.56	178	158	148	113	102	98	22	79	16
6.7.68	7.67	5.31	168.58	136.87	178	160	150	116	107	104	25	79	16
13.7.68	7.38	5.62	175.96	142.50	183	164	154	125	112	114	31	85	16
20.7.68	8.05	4.95	184.01	147.45	204	173	154	129	116	116	36	92	16
27.7.68	8.74	4.91	192.75	152.36	211	181	154	133	117	120	42	92	26
3.8.68	8.78	6.05	201.53	158.41	219	184	164	137	118	120	48	118	34
10.8.68	9.26	6.05	210.79	164.47	224	188	169	142	133	126	54	112	48
17.8.68	9.53	6.71	220.32	171.18	224	199	176	150	133	126	60	122	48
24.8.68	8.96	6.19	229.28	177.37	236	209	183	153	137	130	67	122	48
31.8.68	8.92	8.65	238.21	186.03	258	223	191	158	152	144	73	133	48
7.9.68		5.49	238.21	190.60	262	233	202	160	154	145	75	133	48
14.9.68													
21.9.68	9.06	7.87	254.0	198.47	271	254	214	167	161	155	82	144	48

7.2

HOUSING STATISTICS

PRODUCTION OF C.M. HOUSING AT OLDHAM (667 HOUSES)

Started					Operations Completed							Handovers	
	This Week		To Date										
Week Ending	Planned	Actual	Planned	Actual	Roof Carcassed	Roof Tiled	Joiner 1st Fix	Drylining	Plumber 2nd Fix	Joiner 2nd Fix	Decorated	Planned	To Date
28.9.68	8.14	6.71	262.0	205.20	274	258	216	177	170	160	87	156	48
5.10.68	6.04		268.18	205.18	279	265	224	184	178	170	94	168	48
12.10.68	6.04	6.77	271.9	208.7	283	270	235	198	190	170	102	175	48
19.10.68	5.44	7.06	277.3	215.7	283	274	249	206	200	174	108	179	48
26.10.68	4.90	5.36	282.2	221.0	293	276	222	204	204	176	109	190	58
2.11.68												216	58
9.11.68	3.53	2197	289.76	226.94									
16.11.68	3.30	2.97	295.9	229.9	294	280	242	230	215	199	120	216	64
23.11.68	1.19	5.38	231.31	235.50	294	282	252	240	215	210	128	* 92	70
30.11.68	5.81	4.54	237.12	240.04	294	282	257	248	215	210	137	122	70
7.12.68	6.66	7.01	243.78	247.05	299	282	259	256	227	213	139	137	76
14.12.68	7.19	5.81	250.97	252.86	305	283	266	259	231	220	143	137	76
21.12.68													
													94
4.1.69	8.00	4.01	267.18	261.84	327	289	271	265	231	227	143	168	107
11.1.69	9.08												
18.1.69	12.25	5.97	288.52	267.81								183	
25.1.69	6.95	2.63	308.71	274.63	345	315	266	246	232	242	155	200	121

* Revised figure

HOUSING STATISTICS

PRODUCTION OF C.M. HOUSING AT OLDHAM (667 HOUSES)

Started	This Week		To Date		Operations Completed							Handovers	
Week Ending	Planned	Actual	Planned	Actual	Roof Carcassed	Roof Tiled	Joiner 1st Fix	Drylining	Plumber 2nd Fix	Joiner 2nd Fix	Decorated	Planned	To Date
1.2.69	6.95	2.63	308.71	274.63	345	315	266	246	232	242	155	206	122
8.2.69	5.87	4.52	314.58	279.15	345	320	266	248	238	245	160	206	127
15.2.69													
22.2.69	11.59	3.95		286.0	349	323	270	282	244	243	172	227	144
1.3.69	12.77	6.17		292.17	349	330	275	288	245	243	177	234	148
8.3.69	7.12	5.70	374.3	297.9	363	334	282	292	245	243	187	242	154
15.3.69	9.00	1.80	383.30									249	154
22.3.69	7.02	4.98	386.14	304.69	376	341	292	294	245	243	200	256	168
29.3.69	6.37	5.48	392.51	310.17	380	345	298	298	268	247	205	269	174
5.4.69 +	5.11	3.91	335.28	314.08	380	353	299	305	268	247	207	180 +	192
12.4.69	5.60	4.58	340.88	318.43	380	364	308	308	370	253	216	192	195
19.4.69	5.70	4.62	346.58	323.05	386	370	309	315	270	253	223	200	195
26.4.69	7.10	5.43	331.45	328.49	391	375	309	320	271	271	231	206	201
3.5.69	4.46	5.67	336.10	334.16	391	377	312	326	277	272	236	213	208
10.5.69	6.11	6.75	342.21	340.92	392	384	324	334	277	276	244	220	208
17.5.69	10.13	7.40	352.34	348.32	408	386	328	336	381	278	253	227	208
24.5.69	10.32	7.48	362.66	355.80	410	392	328	345	281	281	261	234	208
31.5.69	8.50	8.22	371.17	364.03	420	399	332	346	287	286	266	245	222
7.6.69	11.16	6.04	382.33	370.07	439	409	336	348	294	289	268	261	222

+ Revised budget in operation

HOUSING STATISTICS

PRODUCTION OF C.M. HOUSING AT OLDHAM (667 HOUSES)

Started	This Week		To Date		Operations Completed							Handovers	
Week Ending	Planned	Actual	Planned	Actual	Roof Carcassed	Roof Tiled	Joiner 1st Fix	Drylining	Plumber 2nd Fix	Joiner 2nd Fix	Decorated	Planned	To Date
14.6.69	10.70	7.95	393.02	378.02	438	411	345	356	300	294	276	293	231
21.6.69	9.44	7.40	402.46	385.42	453	421	349	360	303	299	282	284	231
28.6.69	11.45	6.77	414.00	392.19	453	428	356	366	306	305	282	299	236
5.7.69	8.92	5.70	422.92	397.90	459	434	359	374	312	311	286	310	238
12.7.69	6.57	6.67	429.49	404.57	461	438	365	377	312	316	293	322	246
19.7.69	6.59	7.29	436.08	411.86	471	445	370	381	319	320	301	337	249
26.7.69	5.58	6.20	441.66	418.06	486	453	376	392	324	326	311	358	253
Two Years Completed													

LABOUR STRENGTH - OLDHAM C.M. HOUSING

Week Ending	Own Labour				Sub Contractors													Overall Total
	Bricklayer	Labourers		Total	Electric.	Plant op.	Specialist	Glaziers	Plastrs.	Plumbers	Painters	Brklyrs	Brk/Labrs.	Joiners	Labourers	Tilers	Scaffolders	
Sept. 1967																		
Oct. 1967																		
Nov. 1967																		
Dec. 1967																		
Jan. 1968																		
Feb. 1968																		
2.3.68																		
9.3.68		10		10	2	1	9	-	-	2	3	2	-	18	4	6	2	58
16.3.68		10		10	2	1	15	-	-	3	6	4	-	18	4	7	2	71
23.3.68		8		8	2	1	14	-	-	3	6	5	-	20	5	5	2	70
30.3.68		9		9	3	1	16	-	-	3	4	6	-	19	6	5	2	73
6.4.68		8		8	3	1	16	-	-	3	6	6	-	21	6	9	2	80
13.4.68		7		7	3	1	3	2	10	4	-	4	-	22	4	9	2	70
20.4.68		6		6	1	1	3	2	10	4	-	4	-	20	5	12	2	69
27.4.68		6		6	2	1	16	-	-	4	-	6	-	20	5	14	2	75
4.5.68		6		6	2	1	6	-	10	4	3	6	3	22	-	13	2	77
11.5.68		4		4	5	1	6	-	10	4	3	6	2	22	-	9	2	73
18.5.68		8		8	5	1	6	-	10	5	3	6	3	22	1	9	2	80
25.5.68		7		7	5	1	7	-	10	4	-	7	4	20	2	7	2	74

LABOUR STRENGTH - OLDHAM C.M. HOUSING

Week Ending	Own Labour				Sub Contractors													Overall Total
	Bricklayer	Labourers		Total	Elect.	Plant op.	Specialist	Glaziers	Plastrs.	Plumbers	Painters	Brklyrs	Brkl/Labrs.	Joiners	Labourers	Tilers	Scaffolder	
1.6.68		7		7	4	1	7	-	11	4	-	4	2	20	-	8	2	70
8.6.68		8		8	2	1	5	-	11	4	1	6	3	21	-	8	2	71
15.6.68		8		8	2	1	4	-	10	5	-	4	1	24	-	6	2	66
22.6.68		9		9	2	1	4	-	13	4	5	3	1	24	-	8	2	75
29.6.68		7		7	4	1	4	-	13	5	5	3	1	24	-	6	2	74
6.7.68		9		9	2	1	7	-	15	4	3	2	-	25	-	9	2	78
13.7.68		9		9	2	1	7	-	15	4	7	5	1	25	-	9	3	87
20.7.68		9		9	3	1	6	-	16	3	7	10	3	26	-	9	2	94
27.7.68		9		9	3	1	5	-	15	3	8	6	2	25	-	9	2	87
3.8.68		9		9	5	1	4	-	13	2	7	5	1	31	-	10	2	89
10.8.68		9		9	4	1	8	-	15	4	7	5	3	31	-	13	2	101
17.8.68		10		10	3	1	8	-	15	3	6	2	2	31	-	9	2	86
24.8.68		10		10	2	1	8	2	16	6	6	2	2	28	2	10	2	96
31.8.68		11		11	3	1	7	-	13	6	6	4	-	28	4	12	2	96
7.9.68		11		11	2	-	7	-	9	6	7	-	-	27	2	10	2	82
14.9.68																		
21.9.68		11		11	3	1	7	-	15	6	6	5	-	-	3	6	2	64
28.9.68	1	10		11	2	1	18	-	5	6	7	3	-	28	1	2	2	86
5.10.68		9		8	3	1	18	-	5	6	7	2	-	28	-	3	2	84

LABOUR STRENGTH - OLDHAM C.M. HOUSING

Week Ending	Own Labour				Sub Contractors													Overall Total
	Bricklayer	Labourers		Total	Electric.	Plant op.	Specialist	Glaziers	Plasterers	Plumbers	Painters	Bricklayers	Brkl/Labrs	Joiners	Labourers	Tilers	Scaffolders	
12.10.68		10		10	3	2	11	-	17	6	7	7	4	23	-	8	2	100
19.10.68		11		11	3	2	21	-	6	6	7	6	3	23	-	9	2	99
26.10.68		11		11	2	2	20	-	4	6	6	12	-	21	8	7	2	101
2.11.68																		
9.11.68																		
16.11.68		12		12	2	2	16	-	5	4	7	13	-	21	7	7	3	99
23.11.68		12		12	2	2	19	-	5	4	7	11	-	21	6	7	3	99
30.11.68	1	11		12	3	3	19	-	6	4	6	11	-	21	6	7	3	101
7.12.68	1	12		13	3	3	27	-	6	4	6	10	-	25	6	-	3	106
14.12.68		11		11	4	3	20	-	5	4	5	12	-	25	7	6	3	105
21.12.68																		
28.12.68																		
4.1.69	1	10		11	2	3	11	-	1	4	3	12	-	23	7	7	3	87
11.1.69																		
18.1.69	2	12		14	4	3	14	-	5	4	4	14	-	25	9	17	3	116
25.1.69	1	11		12	4	3	15	-	7	4	7	17	-	23	10	15	3	120
1.2.69	1	7		8	4	4	18	2	18	4	10	18	-	23	18	12	3	132
8.2.69		5		5	4	3	17	2	6	4	7	6	-	23	17	12	3	109
15.2.69																		

LABOUR STRENGTH - OLDHAM C.M. HOUSING

Week Ending	Own Labour			Sub Contractors														Overall Total
	Bricklayers	Labourers	Total	Electric.	Plant op.	Specialist	Glaziers	Plasterers	Plumbers	Painters	Bricklayers	Brkl/Labrs.	Joiners	Labourers	Tilers	Scaffolders		
22.2.69		6	6	3	3	16	2	6	4	8	12	-	23	13	13	3		112
1.3.69		5	5	4	3	14	2	5	4	8	13	-	23	15	13	3		112
8.3.69	1	12	13	4	4	18	3	3	6	7	16	-	23	10	14	3		124
15.3.69	2	13	15	4	4	13	2	4	6	9	12	-	25	12	15	3		124
22.3.69	2	11	13	4	4	11	4	2	6	9	6	-	25	6	14	3		107
29.3.69	2	12	14	4	4	18	2	5	4	9	26	-	25	16	16	3		146
5.4.69	3	12	15	4	4	2	2	4	4	9	16	-	25	13	16	4		137
12.4.69	3	11	14	4	4	18	3	5	4	10	7	-	25	11	16	4		125
19.4.69	2	13	15	4	5	19	2	7	4	10	7	-	25	9	14	4		125
26.4.69	2	13	15	4	5	18	2	10	4	10	7	-	25	9	14	4		128
3.5.69	2	14	16	4	5	17	2	13	4	10	8	-	25	9	16	4		133
10.5.69	2	10	12	5	4	20	2	11	4	10	7	-	25	9	16	4		130
17.5.69	2	11	13	5	5	19	2	11	4	10	7	-	25	7	16	4		128
24.5.69	2	14	16	5	5	14	2	14	4	8	7	-	25	10	16	4		130
31.5.69		11	11	5	5	15	2	10	4	8	7	-	25	11	16	4		123
7.6.69		9	9	5	4	14	2	12	4	8	7	-	25	10	14	4		118
14.6.69		8	8	5	4	15	2	14	4	8	7	-	25	10	16	6		124
21.6.69		8	8	5	4	14	2	7	4	8	7	-	28	9	14	7		117
28.6.69		4	4	5	4	18	2	7	3	4	5	-	28	7	11	6		104

LABOUR STRENGTH - OLDHAM C.M. HOUSING

Week Ending	Own Labour				Sub Contractors														Overall Total
	Bricklayers	Labourers		Total	Electric	Plant op.	Specialist	Glaziers	Plasterers	Plumbers	Painters	Bricklayers	Brkl/Labrs	Joiners	Labourers	Tilers	Scaffolders		
5.7.69		4		4	4	4	18	2	8	3	6	7	-	28	8	11	6		109
12.7.69		9		9	4	4	15	1	9	2	10	7	-	28	7	11	6		113
19.7.69		7		7	4	4	20	-	8	4	10	9	-	28	9	14	6		123
26.7.69		7		7	2	4	15	2	9	4	10	9	-	28	10	12	6		119
Two Years Complete																			

8. Data on Erection and Finishes

Oldham (668 Houses)

Erection of Timber Shell (incl. floor and roof trusses)

W/E	Total Hours	Gang Size	No. of Units	Manhours per unit	Target £	Daywork Hours
23.9.67	160	4	30	53	197	123
30.9.67	240	6	48	50	316	64
7.10.67	520	10	128	41	840	33
14.10.67	384	8	98	39	640	39
21.10.67	152	4	3.9	40	253	268
28.10.67	336	8	8.0	42	539	35
4.11.67	160	4	3.5	45	232	16
11.11.67	168	4	3.7	46	239	6
18.11.67	240	6	5.3	45	344	164
25.11.67	160	4	3.5	45	226	56
2.12.67	100	2	2.3	43	154	78
9.12.67	168	4	4.1	41	267	75
16.12.67	80	2	1.8	44	118	63
23.12.67	162	4	3.6	45	237	-
	30.12.67 - 27.1.68		NO ERECTION WORK			
3.2.68	156	4	3.4	46	221	88
10.2.68	304	8	7.0	44	456	43
17.2.68	180	4	4.5	40	297	70
24.2.68	320	8	7.8	41	545	49
2.3.68	354	8	8.5	41	573	74
9.3.68	100	2	2.7	37	204	46
16.3.68	120	3	3.0	40	208	49
23.3.68	156	4	4.0	39	277	110
30.3.68	162	4	4.3	38	318	119
6.4.68	336	8	9.4	36	653	146
13.4.68	300	6	8.3	36	582	116
20.4.68	300	6	8.0	37	542	52
27.4.68	270	6	6.2	43	423	59
4.5.68	270	6	6.8	40	460	34
11.5.68	240	6	6.0	40	417	61
18.5.68	130	4	3.4	38	232	-
25.5.68	160	4	4.5	36	338	75
1.6.68	210	5	4.8	44	355	127
8.6.68	168	4	4.1	42	286	66
15.6.68	336	8	9.4	36	651	-
22.6.68	342	8	9.4	36	649	167
29.6.68	156	4	4.2	37	298	70

Oldham (668 Houses)

Erection of Timber Shell

W/E	Total Hours	Gang Size	No. of Units	Man hours per unit	Target £	Daywork Hours
6.7.68	305	7	8.5	36	579	123
13.7.68	252	6	6.8	37	466	49
20.7.68	240	6	6.3	38	432	111
27.7.68	240	6	6.4	37	473	259
3.8.68	300	8	7.4	40	503	51
10.8.68	280	6	7.3	38	499	-
17.8.68	340	8	9.4	36	637	196
24.8.68	340	8	8.9	38	605	74
31.8.68	360	8	10.0	36	676	61
7.9.68	384	8	11.3	34	766	-
14.9.68	132	3	3.8	35	262	-
21.9.68	160	4	4.1	39	292	253
28.9.68	240	6	6.4	37	436	92
5.10.68	180	4	5.1	35	347	-
12.10.68	100	2	3.1	32	209	71
19.19.68	120	4	3.2	38	216	-
26.10.68	-	-	-	-	-	-
2.11.68	120	4	3.1	38	209	-
9.11.68	-	-	-	-	-	-
16.11.68	-	-	-	-	-	-
23.11.68	80	2	2.0	40	139	106
30.11.68	200	4	5.6	36	380	-
7.12.68	400	8	12.5	32	987	243
14.12.68	360	8	10.2	35	717	-
21.12.68	340	8	10.0	34	722	-
4.1.69	250	6	7.4	34	502	212
11.1.69	240	6	6.7	36	454	-
18.1.69	160	4	4.4	36	300	63
25.1.69	- 8.2.69	NO ERECTION				
15.2.69	270	6	6.8	40	488	-
22.2.69	340	8	8.6	39	6.8	138
1.3.69	280	6	7.1	39	504	161
8.3.69	180	4	5.6	32	385	207
15.3.69	120	3	3.3	36	236	-
22.3.69	- 5.4.69	NO ERECTION				
12.4.69	130	4	3.0	43	216	194
19.4.69	260	6	6.9	37	495	178

Oldham (668 Houses)

Erection of Timber Shell

W/E	No. of Units	Cumulative Total Units	Total Man Hours	Cumulative Man Hours	Average Mn/Hrs unit	Accumul. Mean Hours
23.9.67	3.0	3.0	160	160	53	53.0
30.9.67	4.8	7.8	240	400	50	51.5
7.10.67	12.8	20.6	520	920	41	44.5
14.10.67	9.8	30.4	384	1304	39	43.0
21.10.67	3.9	34.3	152	1456	40	42.5
28.10.67	8.0	42.3	336	1792	42	42.5
4.11.67	3.5	44.8	160	1952	45	42.5
11.11.67	3.7	49.5	168	2.20	43.0	
18.11.67	5.3	54.8	240	2360	45	43.0
25.11.67	3.5	58.3	160	2520	45	43.2
2.12.67	2.3	60.6	100	2620	43	43.2
9.12.67	4.1	64.7	168	2788	41	43.0
16.12.67	1.8	66.5	80	2868	44	43.0
23.12.67	3.6	70.1	162	3030	45	43.0
30.12.67	-	-	-	-	-	-
3.2.68	3.4	73.5	156	3186	46	43.4
10.2.68	7.0	80.5	304	3490	44	43.4
17.2.68	4.5	85.0	180	3670	40	43.0
24.2.68	7.8	92.8	320	3990	41	43.0
2.3.68	8.5	101.3	354	4344	41	42.9
9.3.68	2.7	104.0	100	4444	37	42.5
16.3.68	3.0	107.0	120	4564	40	42.5
23.3.68	4.0	111.0	156	4720	39	42.5
30.3.68	4.3	115.3	162	4882	38	42.3
6.4.68	9.4	124.7	336	5218	36	42.0
13.4.68	8.3	133.0	301	5518	36	41.5
20.4.68	8.0	141.0	300	5818	37	41.2
27.4.68	6.2	147.2	270	6088	43	41.2
4.5.68	6.8	154.0	270	6358	40	41.2
11.5.68	6.0	160.0	240	6598	40	41.0
18.5.68	3.4	163.4	130	6728	38	41.0
25.5.68	4.5	167.9	160	6888	36	41.0
1.6.68	4.8	172.7	210	7098	44	41.0
8.6.68	4.1	176.8	168	7266	42	41.0
15.6.68	9.4	186.2	336	7602	35.8	40.8
22.6.68	9.4	195.6	342	7944	36.4	40.5
29.6.68	4.2	199.8	156	8100	37.2	40.5

Oldham (668 Houses)

Erection of Timber Shell

W/E	No. of Units	Cumulative Total units	Total Man Hours	Cumulative Man Hours	Average m/hrs unit	Accumul. Mean hours
6.7.68	8.5	208.3	305	8405	36.0	40.3
13.7.68	6.8	215.1	252	8657	37.0	40.3
20.7.68	6.3	221.4	240	8897	38.2	40.2
27.7.68	6.4	227.8	240	9137	38.1	40.2
3.8.68	7.4	235.2	300	9437	40.5	40.0
10.8.68	7.3	242.5	280	9717	38.4	40.0
17.8.68	9.4	251.9	340	10057	36.4	40.0
24.8.68	8.9	260.8	340	10397	38.2	39.9
31.8.68	10.0	270.8	360	10757	36.0	39.8
7.9.68	11.3	282.1	384	11141	33.6	39.6
14.9.68	3.8	285.9	132	11273	34.8	39.5
21.9.68	4.1	290.0	160	11433	39.0	39.5
28.9.68	6.4	296.4	240	11673	37.6	39.4
5.10.68	5.1	301.5	180	11853	35.4	39.4
12.10.68	3.1	304.6	100	11953	32.3	39.4
19.10.68	3.2	307.8	120	12073	37.6	39.2
2.11.68	3.1	310.9	120	12193	38.8	39.2
23.11.68	2.0	312.9	80	12273	40.0	39.2
30.11.68	5.7	318.5	200	12473	35.8	39.2
7.12.68	12.5	330.0	400	12873	32.0	39.0
14.12.68	10.2	340.2	360	13233	35.2	39.0
21.12.68	10.0	350.2	340	13573	34.0	38.8
4.1.69	7.4	357.6	250	13823	33.8	38.6
11.1.69	6.7	364.3	240	14063	36.0	38.6
18.1.69	4.4	368.7	160	14223	364	38.6
25.1.69	- 8.2.69	No Erections				
15.2.69	6.8	375.5	270	14493	39.8	38.6
22.2.69	8.6	384.1	340	14833	39.7	38.6
1.3.69	7.1	391.2	280	15113	39.5	38.8
8.3.69	5.6	396.8	180	15293	32.2	38.6
15.3.69	3.3	400.1	120	15413	36.4	38.6
22.3.69	- 5.4.69	No Erections				
12.4.69	3.0	403.1	130	15543	43.4	38.6
19.4.69	6.9	410.0	360	15803	37.8	38.6

DISTRIBUTION OF HOUSE TYPES AND BLOCK SIZES

Jordenthorpe III

House Type	No. of Houses	No. of Blocks	Block sizes with number of each block					
			3	4	5	6	7	8
A L 3/5	19	7	21	11	5	7	2	3
A R 3/5	14	5						
B L 3/5	44	16						
B R 3/5	49	17						
A L 3/4	42	15						
A R 3/4	41	15						
Total	209	49						

Jordenthorpe V

House Type	No. of Houses	No. of Blocks	Block sizes with number of each block					
			3	4	5	6	7	8
3/5 FL	82	37	11	12	13	7	1	0
3/5 FR	70	37						
4/6 FL	10	10						
4/6 FR	13	13						
3/4 RR	14	7						
3/4 RL	7	7						
Total	196	44						

Jordenthorpe Phase III — 209 houses

(Erection of Timber Shell)

W/E	Total Hours	Gang Size	No. of Units	Manhours per Unit	Target £	Day work Hours
1.4.67	109	7	3.6	* 31.2		41
8.4.67	193	6	5.6	* 35.0		32
15.4.67	192	6	6.5	* 29.6		12
22.4.67	180	7	7.5	24.0		68
29.4.67	219	7	10.6	20.8		5
6.5.67	216	6	10.0	21.6		
13.5.67	216	6	10.5	20.6		
20.5.67	186	5	6.0	31.0		
27.5.67	160	4	6.0	26.6		
2.6.67	14	1	0.5	28.0		
10.6.67						
17.6.67	126	4	6.0	21.0		34
24.6.67	160	4	8.5	18.8		
1.7.67	160	4	7.6	21.4		
8.7.67	160	4	7.6	21.4		
15.7.67	157	4	6.0	26.2		
22.7.67	163	5	5.5	29.6		
29.7.67	197	6	7.0	28.2		25
5.8.67	173	4	8.0	21.6		
12.8.67	132	3	6.0	22.0		
19.8.67	190	5	7.0	27.0		
26.8.67	166	4	7.5	22.0		30
2.9.67	109	4	7.0	15.7		
9.9.67	162	4	6.5	25.0		
16.9.67	149	5	9.0	16.5		33
23.9.67	328	3+4	15.0	21.8		24
30.9.67	348	4+4	15.0	23.2		12
7.10.67	340	4+4	13.0	26.2		16
		* Including crane driver				

Jordenthorpe Phase IV — 138 Houses

(Erection of Timber Shell)

W/E	Total Hours	Gang Size	No. of Units	Man hours per unit	Target £	Day work Hours
14.10.67	165	4	9	18.3	92	22
21.10.67	143	4	7	20.3	72	24
28.10.67	139	4	6	23.0	62	35
5.11.67	158	4	5	31.6	51	-
11.11.67	184	4	10	18.4	103	20
18.11.67	373	4+4	13	28.6	113	-
25.11.67	386	4+4	12	32.0	123	-
2.12.67	337	4+4	14	24.0	143	-
9.12.67	279	6	11	25.4	113	28
16.12.67	211	6	7	30.2	72	53
23.12.67	281	6	6	47.0	62	28
6.1.68	190	4	6	31.7	62	-
13.1.68	228	4	5	45.5	51	-
20.1.68	178	4	6	29.8	62	-
27.1.68	184	4	6	30.8	62	5
3.2.68	259	4	4.5	57.5	46	-
10.2.68	84	2	1.5	56.0	16	-
17.2.68	325	4+4	9	36.2	92	-

Jordenthorpe Phase III — 209 Houses

Erection of Timber Shell

W/E	No. of Units	Cumulative Total Units	Total Man Hours	Cumulative Man Hours	Av. m/hrs per unit	Accumulat. mean hours
1.4.67	3.6	3.6	109	109	31.2	31.2
8.4.67	5.6	9.2	193	302	35.0	32.9
15.4.67	6.5	15.7	192	494	29.6	31.4
22.4.67	7.5	23.2	180	674	24.0	29.0
29.4.67	10.6	33.8	219	893	20.8	26.4
6.5.67	10.0	43.8	216	1109	21.6	25.3
13.5.67	10.5	54.3	216	1325	20.6	24.4
20.5.67	6.0	60.3	186	1511	31.0	25.0
27.5.67	6.0	66.3	160	1671	26.6	25.2
3.6.67	0.5	66.8	14	1685	28.0	25.0
10.6.67						
17.6.67	6.0	72.8	126	1811	21.0	25.0
24.6.67	8.5	81.3	160	1971	18.8	24.2
1.7.67	7.6	88.9	160	2131	21.4	24.0
8.7.67	7.6	96.5	160	2291	21.4	23.8
15.7.67	6.0	102.5	157	2448	26.2	23.8
22.7.67	5.5	108.0	163	2611	29.6	24.2
29.7.67	7.0	115.0	197	2808	28.2	24.4
5.8.67	8.0	123.0	173	3081	21.6	24.4
12.8.67	6.0	129.0	132	3213	22.0	24.8
19.8.67	7.0	136.0	190	3403	27.0	25.0
26.8.67	7.5	143.5	166	3569	22.0	24.8
2.9.67	7.0	150.5	109	3678	15.7	24.4
9.9.67	6.5	157.0	162	3840	25.0	24.4
16.9.67	9.0	166.0	149	3989	16.5	24.0
23.9.67	15.0	181.0	328	4317	21.8	23.9
30.9.67	15.0	196.0	348	4665	23.2	23.8
7.10.67	13.0	209.6	340	5005	26.2	24.0
		Phase IV 138 Houses				
14.10.67	9	218	165	5170	18.3	23.7
21.10.67	7	225	143	5313	20.3	23.6
28.10.67	6	231	139	5452	23.0	23.6
5.11.67	5	236	158	5610	31.6	23.8
11.11.67	10	246	184	5794	18.4	23.5
18.11.67	13	259	373	6167	28.6	23.8

Jordenthorpe Phase IV 138 Houses

Erection of Timber Shell

W/E	No. of Units	Cumulative Total unit	Total Man hours	Cumulative Man hours	Av. m/hrs per unit	Accumulated mean hours
25.11.67	12	271	386	6553	32.0	24.2
2.12.67	14	285	337	6890	24.0	24.2
9.12.67	11	296	279	7169	25.4	24.2
16.12.67	7	303	211	7380	30.2	24.4
23.12.67	6	309	281	7661	47.0	24.8
6.1.68	6	315	190	7851	31.7	24.9
13.1.68	5	320	228	8079	45.5	25.3
20.1.68	6	326	178	8257	29.8	25.4
27.1.68	6	332	184	8441	30.8	25.4
3.2.68	4.5	336.5	259	8700	57.5	25.8
10.2.68	1.5	338	84	8784	56.0	25.9
17.2.68	9	347	325	9109	36.2	26.2

Jordenthorpe Phase III — 209 houses

Roof sheathing soffit, fascia and gutters

W/E	Total Hours	* Gang Size	No. of Units	Manhours per unit	Target £	Apprent. Hours
8.4.67	40	2	2.4	16.9	16	20
15.4.67	80	2	3.6	22.4	24	40
22.4.67						
29.4.67	66	2	4.2	15.9	28	8
6.5.67	64	2	4.5	14.4	30	8
13.5.67	103	3	6.7	15.4	45	12
20.5.67	60	2	2.5	23.8	17	30
27.5.67	64	2	4.0	16.0	27	34
3.6.67	55	2	4.0	13.8	27	16
10.6.67	71	2	5.5	12.9	37	22
17.6.67	107	2	8.0	13.4	54	40
24.6.67	84	2	8.2	10.3	55	28
1.7.67	82	2	6.4	12.9	43	24
8.7.67	97	2	9.5	10.2	64	38
15.7.67	120	3	8.0	15.0	54	40
22.7.67	90	2	7.3	12.4	49	32
29.7.67	90	2	5.7	16.0	38	40
5.8.67	97	2	8.8	11.1	59	
12.8.67	87	2	8.6	10.1	58	
19.8.67	107	3	9.6	11.1	65	36
26.8.67	101	2	8.6	11.8	58	
2.9.67	67	2	5.6	11.9	38	
9.9.67	88	2	7.0	12.6	47	44
16.9.67	162	2+2	13.3	12.2	90	44
23.9.67	132	3	9.8	13.5	66	44
30.9.67	132	3	7.7	17.4	52	44
7.10.67	176	2+2	13.9	12.7	94	88
14.10.67	176	2+2	13.8	12.8	93	88
21.10.67	139	3	11.1	12.5	75	50

* Gang includes apprentices (18 yrs. old)

Roof Sheathing, soffit, fascia and gutter

W/E	No. of Units	Cumulative Total units	Total man hours	Cumulative man hours	Average Man hrs un	Accumul. mean hrs.
8.4.67	2.4	2.4	40	40	16.9	16.9
15.4.67	3.6	6.0	80	120	22.4	20.0
22.4.67						
29.4.67	4.2	10.2	66	186	15.9	18.4
6.5.67	4.5	14.7	64	250	14.4	17.0
13.5.67	6.7	21.4	103	353	15.4	16.5
20.5.67	2.5	23.9	60	4.3	23.8	17.3
27.5.67	4.0	27.9	64	477	16.0	17.1
3.6.67	4.0	31.9	55	532	13.8	16.7
10.6.67	5.5	37.4	71	603	12.9	16.1
17.6.67	8.0	45.4	107	710	13.4	15.7
24.6.67	8.2	53.6	84	794	10.3	14.8
1.7.67	6.4	60.0	82	876	12.9	14.6
8.7.67	9.5	69.5	97	973	10.2	14.0
15.7.67	8.0	77.5	120	1093	15.0	14.1
22.7.67	7.3	84.8	90	1183	12.4	14.0
29.7.67	5.7	90.5	90	1273	16.0	14.2
5.8.67	8.8	99.3	97	1370	11.1	13.8
12.8.67	8.6	107.9	87	1457	10.1	13.6
19.8.67	9.6	117.5	107	1564	11.1	13.3
26.8.67	8.6	126.1	101	1665	11.8	13.2
2.9.67	5.6	131.7	67	1732	11.9	13.2
9.9.67	7.0	138.7	88	1820	12.6	13.1
16.9.67	13.3	152.0	162	1982	12.2	13.0
23.9.67	9.8	161.8	132	2114	13.5	13.0
30.9.67	7.7	169.5	132	2246	17.4	13.3
7.10.67	13.9	183.4	176	2422	12.7	13.2
14.10.67	13.8	197.2	176	2598	12.8	13.2
21.10.67	11.1	208.3	139	2737	12.5	13.1

Jordenthorpe Phase III
Tedlar Boarding (External Cladding)

W/E	Total Hours	Gang Size	No. of Units	Man hours per Unit	Target £	
20.5.67	117	3	3.6	32.6	45	
27.5.67	158	4	7.1	22.3	88	
3.6.67	133	3	6.4	20.8	79	
10.6.67	118	3	6.4	18.5	80	
17.6.67	133	3	6.8	19.6	84	
24.6.67	120	3	6.9	17.4	86	
1.7.67	90	2	5.5	16.3	68	
8.7.67	79	2	5.0	15.8	62	
15.7.67	118	3	6.9	17.2	85	
22.7 67	120	3	7.0	17.3	86	
29.7.67	112	3	7.6	14.9	93	
5.8.67	122	3	6.6	18.5	82	
12.8.67	126	3	6.3	20.0	78	
19.8.67	111	3	6.3	17.6	78	
26.8.67	132	3	7.3	18.0	90	
2.9 67	140	4	7.8	18.0	97	
9.9 67	176	4	8.4	21.0	104	
16.9.67	173	4	9.7	17.8	120	
23.9.67	173	4	8.9	19.4	110	
30.9.67	141	4	7.4	19.0	91	
7.10.67	174	4	9.2	19.0	114	
14.10.67	171	4	7.9	21.7	97	
21.10.67	85	2	2.8	31.0	34	
28.10.67	144	4	4.4	33.3	54	
4.11.67	183	4	6.2	29.8	76	
11.11.67	255	3+4	13.4	19.2	165	
18.11.67	121	4	6.7	18.0	83	
25.11.67	163	4	9.3	17.5	115	
2.12. 67	41	2	1.6	26.1	19	
9.12.67	30	2	1.6	19.1	19	

Tedlar Boarding
(External Cladding)

W/E	No. of Units	Cumulative Total Unit	Total Man hours	Cumulative Man hours	Average Man hrs/un.	Accumul. Mean - Hrs
20.5.67	3.6	3.6	117	117	32.6	32.6
27.5.67	7.1	10.7	158	275	22.3	25.6
3.6.67	6.4	17.1	133	408	20.8	23.8
10.6.67	6.4	23.5	118	526	18.5	22.4
17.6.67	6.8	30.3	133	659	19.6	21.8
24.6.67	6.9	37.2	120	779	17.4	20.9
1.7.67	5.5	42.7	90	869	16.3	20.4
8.7.67	5.0	47.7	79	948	15.8	19.9
15.7.67	6.9	54.6	118	1066	17.2	19.5
22.7.67	7.0	61.6	120	1186	17.3	19.3
29.7.67	7.6	69.2	112	1298	14.9	18.8
5.8.67	6.6	75.8	122	1420	18.5	18.8
12.8.67	6.3	82.1	126	1546	20.0	18.8
19.8.67	6.3	88.4	111	1657	17.6	18.8
26.8.67	7.3	95.7	132	1789	18.0	18.7
2.9.67	7.8	103.5	140	1929	18.0	18.6
9.9.67	8.4	111.9	176	2105	21.0	18.8
16.9.67	9.7	121.6	173	2278	17.8	18.7
23.9.67	8.9	130.5	173	2451	19.4	18.8
30.9.67	7.4	137.9	141	2592	19.0	18.8
7.10.67	9.2	147.1	174	2766	19.0	18.8
14.10.67	7.9	155.0	171	2937	21.7	18.9
21.10.67	2.8	157.8	85	3022	31.0	19.4
28.10.67	4.4	162.2	144	3166	33.3	19.5
4.11.67	6.2	168.4	183	3349	29.8	19.9
11.11.67	13.4	181.8	255	3604	19.2	19.8
18.11.67	6.7	188.5	121	3725	18.0	19.8
25.11.67	9.3	197.8	163	3888	17.5	19.7
2.12.67	1.6	199.4	41	3929	26.1	19.7
9.12.67	1.6	201.0	30	3959	191	19.6

Jordenthorpe Phase III 209 Houses

Plasterboarding and insulation to walls and ceilings

W/E	Total Hours	Gang Size	No. of Units	Man hours per Unit	Target £	
27.5.67	160	4	1.8	91.5	35	
3.6.67	157	6	2.6	60.5	52	
10.6.67	227	6	3.1	73.0	62	
17.6.67	256	6	3.5	73.0	70	
24.6.67	232	6	5.4	43.0	108	
1.7.67	374	8	7.9	47.5	157	
8.7.67	200	5	5.5	36.4	110	
15.7.67	224	6	5.7	39.6	113	
22.7.67	366	7	8.3	40.5	165	
29.7.67	590	5+6	13.8	43.0	275	
5.8.67	428	5+5	9.4	45.5	187	
12.8.67	372	8	11.8	31.5	237	
19.8.67	264	6	8.1	32.6	162	
26.8.67	262	6	8.4	31.2	168	
2.9.67	193	5	4.9	39.8	97	
9.9.67	264	6	8.5	31.4	169	
16.9.67	310	7	9.5	32.6	191	
23.9.67	209	5	7.0	29.8	140	
30.9.67	216	5	6.8	31.8	136	
7.10.67	160	4	5.7	28.4	113	
14.10.67	139	4	3.8	37.4	75	
21.10.67	176	4	5.9	30.0	117	
28.10.67	176	4	5.0	35.2	100	
4.11.67	161	4	6.0	26.8	120	
11.11.67	88	2	4.2	21.2	83	
18.11.67	48	2	1.9	25.2	38	
25.11.67	99	2	3.3	30.0	66	
2.12.67	185	4	6.4	29.2	127	
9.12.67	166	4	7.3	22.8	146	
16.12.67	165	4	5.5	30.0	111	
29.12.67	207	5	8.9	23.2	178	
6.1.68	125	3	4.8	26.4	95	
13.1.68	72	2	2.6	27.4	53	

Plasterboarding and insulation to walls and ceilings

W/E	No. of Units	Cumulative Tot. Units	Total Man hours	Cumulative Man hours	Average Man hrs un.	Accumulated mean hours
27.5.67	1.8	1.8	160	160	91.5	91.5
3.6.67	2.6	4.4	157	317	60.5	72.0
10.6.67	3.1	7.5	227	544	73.0	72.5
17.6.67	3.5	11.0	256	800	73.0	72.5
24.6.67	5.4	16.4	232	1032	43.0	63.0
1.7.67	7.9	24.3	374	1406	47.5	58.0
8.7.67	5.5	29.8	200	1606	36.4	54.0
15.7.67	5.7	35.5	224	1830	39.6	51.5
22.7.67	8.3	43.8	366	2196	40.5	50.0
29.7.67	13.8	57.6	590	2786	43.0	48.5
5.8.67	9.4	67.0	428	3214	45.5	48.0
12.8.67	11.8	78.8	372	3586	31.5	45.5
19.8.67	8.1	86.9	264	3850	32.6	44.3
26.8.67	8.4	95.3	262	4112	31.2	43.0
2.9.67	4.9	100.2	193	4305	39.8	42.8
9.9.67	8.5	108.7	264	4569	31.4	42.0
16.9.67	9.5	118.2	310	4879	32.6	41.2
23.9.67	7.0	125.2	209	5088	29.8	40.5
30.9.67	6.8	132.0	216	5304	31.8	40.2
7.10.67	5.7	137.7	160	5464	28.4	39.8
14.10.67	3.8	141.5	139	5603	37.4	39.6
21.10.67	5.9	147.4	176	5779	30.0	39.2
28.10.67	5.0	152.4	176	5955	35.2	39.0
4.11.67	6.0	158.4	161	6116	26.8	38.6
11.11.67	4.2	162.6	88	6204	21.2	38.2
18.11.67	1.9	164.5	48	6252	25.2	38.0
25.11.67	3.3	167.8	99	6351	30.0	38.0
2.12.67	6.4	174.2	185	6536	29.2	37.5
9.12.67	7.3	181.5	166	6702	22.8	37.0
16.12.67	5.5	187.0	165	6867	30.0	36.8
29.12.67	8.9	196.9	207	7074	23.2	35.8
6.1.68	4.8	201.7	125	7199	264	35.8
13.1.68	2.6	203.3	72	7271	27.4	35.2

Jordenthorpe Phase V 196 houses

Erection of Timber Shell (incl. roof trusses & floors)

W/E	Total Hours	Gang Size	No. of Units	Man hours per unit	Target £	Daywork Hrs
24.2.68	199	5	4.5	44.4		
2.3.68	240	5	9.5	25.3		5
9.3.68	196	6	7.5	25.4		
16.3.68	207	5	7.5	27.6		
23.3.68	/ 158	5	4.0	39.6	gale force winds	41
30.3.68	231	6	9.0	25.6		
6.4.68	* 445	4+5	12.5	32.8	holding down bolts	
13.4.68	197	5	8.0	24.6		12
20.4.68	169	5	6.5	26.0		
27.4.68	200	5	9.0	22.2		15
4.5.68	183	5	5.0	36.2	) Held up	60
11.5.68	249	6	8.0	31.2	) by s/c slab	10
18.5.68	179	5	6.0	29.8	Shortages & errors	30
25.5.68	341	4+5	12.5	27.3	wrong handed panels	32
1.6.68	333	5+5	16.0	20.8		81
8.6.68	**220	6+6	6.5	34.8		65
15.6.68	329	4+5	11.5	28.6		30
22.6.68	398	5+5	15.0	26.6		
29.6.68	377	5+5	12.5	30.0		32
6.7.68	356	5+5	13.5	26.4		33
13.7.68	90	5	2.5	36.0	Change in	110
20.7.68	95	4	4.0	23.7	Gang size	61
27.7.68	93	4	3.0	31.0		94

/ Hold up due to moving brick panel

* Extra gang brought in to learn procedure

** 3 men part time - both gangs learning

Jordenthorpe Phase V 196 Houses

Erection of Timber Shell (including roof trusses & floors)

W/E	No. of Units	Cumulative Tot. Units	Total Man Hours	Cumulative Man Hours	Aver. Man hours/unit	Accumul. Mean hrs.
24.2.68	4.5	4.5	199	199	44.4	44.4
2.3.68	9.5	14.0	240	439	25.3	31.4
9.3.68	7.5	21.5	196	635	25.4	29.5
16.3.68	7.5	29.0	207	842	27.6	29.0
23.3.68	4.0	33.0	158	1000	39.6	30.4
30.3.68	9.0	42.0	231	1231	25.6	29.4
6.4.68	12.5	54.5	445	1676	32.8	30.8
13.4.68	8.0	62.5	197	1873	24.6	30.0
20.4.68	6.5	69.0	169	2042	26.0	29.6
27.4.68	9.0	78.0	200	2242	22.2	28.8
4.5.68	5.0	83.0	183	2425	36.2	29.2
11.5.68	8.0	91.0	249	2674	31.2	29.4
18.5.68	6.0	97.0	179	2853	29.8	29.4
25.5.68	12.5	109.5	341	3194	27.3	29.3
1.6.68	16.0	125.5	333	3527	20.8	28.2
8.6.68	6.5	132.0	220	2747	34.8	28.4
15.6.68	11.5	143.5	329	4076	28.6	28.4
22.6.68	15.0	158.5	398	4474	26.6	28.3
29.6.68	12.5	171.0	377	4851	30.0	28.4
6.7.68	13.5	184.5	356	5207	26.4	28.2
13.7.68	2.5	187.0	90	5297	36.0	28.3
20.7.68	4.0	191.0	95	5392	23.7	28.2
27.7.68	3.0	194.0	93	5485	31.0	28.2

Jordenthorpe Phase V 196 houses

Tedlar Boarding (External Cladding)

W/E	Total Hours	Gang Size	No. of units	Man hours per unit	Target £	
16.3.68	71	2	4.7	15.1	53	
23.3.68	83	2	5.1	16.2	58	
30.3.68	83	2	5.75	14.4	65	
6.4.68	75	2	5.2	14.4	59	
13.4.68	74	2	5.75	12.9	65	
20.4.68	66	2	4.7	14.0	53	
27.4.68	133	4	8.75	15.2	99	
4.5.68	163	4	7.8	21.0	88	
11.5.68	166	4	9.1	18.3	103	
18.5.68	164	4	12.4	13.2	140	
25.5.68	166	4	12.0	13.8	136	
1.6.68	166	4	12.4	13.4	140	
8.6.68	125	4	7.8	16.1	88	
15.6.68	166	4	11.5	14.4	130	
22.6.68	85	2	6.1	13.9	69	
29.6.68	166	4	11.3	14.7	128	
6.7.68	166	4	9.1	18.2	103	
13.7.68	70	2	2.9	24.0	33	
20.7.68	50	2	3.6	13.9	41	
27.7.68	68	2	5.1	13.3	57	
4.8.68	83	2	5.5	15.1	63	
11.8.68	80	2	6.7	12.0	77	
18.8.68	80	2	5.1	15.7	56	
25.8.68	83	2	5.5	15.1	63	
8.9.68	67	2	3.6	18.6	40	
15.9.68	83	2	4.8	17.3	54	

Jordenthorpe Phase V 196 Houses

Tedlar Boarding (Ext. Cladding)

W/E	No. of Units	Cumulative Total Unit	Total Man hours	Cumulative Man hours	Aver. Man hrs/units	Accum. Mean hrs.
16.3.68	4.7	4.70	71	71	15.1	15.1
23.3.68	5.1	9.80	83	154	16.2	15.7
30.3.68	5.75	15.55	83	237	14.4	15.2
6.4.68	5.2	20.75	75	312	14.4	15.0
13.4.68	5.75	26.50	74	386	12.9	14.5
20.4.68	4.7	31.20	66	452	14.0	14.5
27.4.68	8.75	39.95	133	585	15.2	14.7
4.5.68	7.8	47.75	163	748	21.0	15.7
11.5.68	9.1	56.85	166	914	18.3	16.1
18.5.68	12.4	69.25	164	1078	13.2	15.6
25.5.68	12.0	81.25	166	1244	13.8	15.3
1.6.68	12.4	93.65	166	1410	13.4	15.0
8.6.68	7.8	101.45	125	1535	16.1	15.1
15.6.68	11.5	112.95	166	1701	14.4	15.1
22.6.68	6.1	119.05	85	1786	13.9	15.0
29.6.68	11.3	130.35	166	1952	14.7	15.0
6.7.68	9.1	139.45	166	2118	18.2	15.1
13.7.68	2.9	142.35	70	2188	24.0	14.8
20.7.68	3.6	145.95	50	2238	13.9	15.3
27.7.68	5.1	151.05	68	2306	13.3	15.2
4.8.68	5.5	156.5	83	2389	15.1	15.3
11.8.68	6.7	163.2	80	2469	12.0	15.1
18.8.68	5.1	168.3	80	2549	15.7	15.2
25.8.68	5.5	173.8	83	2632	15.1	15.2
8.9.68	3.6	177.4	67	2699	18.6	15.2
15.9.68	4.8	182.2	83	2782	17.3	15.3

Jordenthorpe Phase V 196 Houses

Roof sheathing, soffit and fascia board (incl. gutter)

W/E	Total Hours	Gang Size	No. of Units	Man hours per unit	Target	
2.3.68	33	*2	3.2	10.3	21	
9.3.68	83	2	7.6	10.9	49	
16.3.68						
23.3.68	82	2	6.1	13.4	39	
30.3.68	94	2	9.3	10.1	60	
6.4.68	83	2	9.3	8.9	61	
13.4.68	83	2	8.1	10.2	52	
20.4.68	57	2	5.8	10.1	37	
27.4.68	83	2	9.1	9.1	58	
4.5.68	83	2	7.8	10.6	50	
11.5.68	83	2	7.0	11.8	45	
18.5.68	80	2	9.0	8.9	57	
25.5.68	122	2	14.0	8.7	90	
1.6.68	66	2	8.0	8.3	51	
8.6.68	83	2	10.3	8.0	66	
15.6.68	83	2	9.8	8.5	63	
22.6.68	83	2	10.0	8.3	64	
29.6.68	75	2	9.7	7.8	62	
6.7.68	58	2	5.8	10.0	37	
13.7.68	83	2	7.1	11.7	46	
20.7.68	83	2	8.6	9.7	55	
	* 1 man and 1 apprentice (18 years of age)					

Jordenthorpe Phase V 196 Houses

Roof Sheathing, Soffit & Fascia Board (Incl. gutter)

W/E	No. of Units	Cumulative Tot. Units	Total Man hours	Cumulative Man hours	Aver. Man Hours/unit	Accumul. Mean hours
2.3.68	3.2	3.2	33	33	10.3	10.3
9.3.68	7.6	10.8	83	116	10.9	10.7
16.3.68						
23.3.68	6.1	16.9	82	198	13.4	11.7
30.3.68	9.3	26.2	94	292	10.1	11.2
6.4.68	9.3	35.5	83	375	8.9	10.5
13.4.68	8.1	43.6	83	458	10.2	10.5
20.4.68	5.8	49.4	57	515	10.1	10.4
27.4.68	9.1	58.5	83	598	9.1	10.2
4.5.68	7.8	66.3	83	681	10.6	10.3
11.5.68	7.0	73.3	83	764	11.8	10.4
18.5.68	9.0	82.3	80	844	8.9	10.2
25.5.68	14.0	96.3	122	966	8.7	10.0
1.6.68	8.0	104.3	66	1032	8.3	9.9
8.6.68	10.3	114.6	83	1115	8.0	9.7
15.6.68	9.8	124.4	83	1198	8.5	9.6
22.6.68	10.0	134.4	83	1281	8.3	9.5
29.6.68	9.7	144.1	75	1356	7.8	9.4
6.7.68	5.8	149.9	58	1414	10.0	9.4
13.7.68	7.1	157.0	83	1497	11.7	9.5
20.7.68	8.6	165.6	83	1580	9.7	9.5

Jordenthorpe Phase V 196 Houses

Plasterboard and Insulation to walls and ceilings

W/E	Total Hours	Gang Size	No. of Units	Man hours per unit	Target £	
23.3.68	157	4	4.4	35.6	85	
30.3.68	186	4	5.4	34.4	105	
6.4.68	218	4	7.0	31.2	131	
13.4.68	210	4	6.0	35.0	112	
20.4.68	149	4	5.0	29.9	95	
27.4.68	240	6	8.0	30.0	149	
4.5.68	293	6	9.6	30.6	180	
11.5.68	245	6	8.8	27.8	166	
18.5.68	309	6	10.6	29.0	199	
25.5.68	311	6	10.6	29.0	201	
1.6.68	297	6	11.2	26.5	210	
9.6.68	183	4	6.2	29.6	116	
16.6.68	249	6	8.2	30.0.	156	
23.6.68	332	6	12.3	27.0	227	
30.6.68	224	6	8.3	27.0	157	
6.7.68	265	6	9.0	29.4	167	
13.7.68	325	6	10.5	31.0	197	
20.7.68	282	6	9.2	30.6	173	
27.7.68	96	2	2.6	37.0	50	
3.8.68	96	2	3.0	32.0	57	
10.8.68	246	4	8.0	30.8	148	
17.8.68	169	4	7.3	23.2	137	
24.8.68	144	4	6.7	21.6	126	
31.5.68	265	6	10.6	25.0	199	
7.9.68	67	2	1.4	48.0	27	
14.9.68	57	2	1.2	47.5	25	
21.9.68	124	4	3.5	35.4	68	
28.9.68	66	2	1.4	47.0	27	

Jordenthorpe Phase V 196 Houses

Plasterboarding and insulation to walls and ceilings

W/E	No. of Units	Cumulative Units	Total Man hours	Cumulative Man hours	Aver. Man Hrs/units	Accumul. Mean hrs.
23.3.68	4.4	4.4	157	157	35.6	35.6
30.3.68	5.5	9.9	186	343	34.4	34.8
6.4.68	7.0	16.9	218	561	31.2	33.2
13.4.68	6.0	22.9	210	771	35.0	33.6
20.4.68	5.0	27.9	149	920	29.9	33.0
27.4.68	8.0	35.9	240	1160	30.0	32.4
4.5.68	9.6	45.5	293	1453	30.6	32.0
11.5.68	8.8	54.3	245	1698	27.8	31.4
18.5.68	10.6	64.9	309	2007	29.0	31.0
25.5.68	10.6	75.5	311	23.8	29.0	30.6
1.6.68	11.2	86.7	297	2615	26.5	30.2
9.6.68	6.2	92.9	183	2798	29.6	30.2
16.6.68	8.2	101.1	249	3047	30.0	29.7
23.6.68	12.3	113.4	332	3379	27.0	29.7
30.6.68	8.3	121.7	224	3603	27.0	29.6
6.7.68	9.0	130.7	265	3868	29.0	29.6
13.7.68	10.5.	141.2	325	4193	31.0	29.6.
20.7.68	9.2	150.4	282	4475	30.6	29.8
27.7.68	2.6	153.0	96	4571	37.0	29.9
3.8.68	3.0	156.0	96	4667	32.0	29.9
10.8.68	8.0	164.0	246	4913	30.8	29.9
17.8.68	7.3	171.3	169	5082	23.2	29.6
24.8.68	6.7	178.0	144	5226	21.6	29.4
31.8.68	10.6	188.6	265	5491	25.0	29.0
7.9.68	1.4	190.0	67	5558	48.0	29.3
14.9.68	1.2	191.2	57	5616	47.5	29.4
21.9.68	3.5	194.7	124	5739	35.4	29.5
28.9.68	1.3	196.0	66	5805	47.0	29.6

Jordenthorpe Phase V — 196 Houses

Plasterboard jointing and nail spotting

W/E	Total Hours	Gang Size	No. of Units	Man hours per unit	Target £	
6.4.68	114	2	1.9	60.0	27	
13.4.68	165	4	5.5	30.0	79	
20.4.68	88	4	3.0	29.3	43	
27.4.68	194	4	2.8	69.0	40	
4.5.68	209	4	5.7	36.6	82	
11.5.68	127	4	4.8	26.4	69	
18.5.68	208	4	8.8	23.6	125	
25.5.68	233	6	10.3	22.6	148	
1.6.68	233	6	8.8	26.6	125	
8.6.68	175	4	6.0	29.0	87	
15.6.68	195	4	8.8	22.2	125	
22.6.68	166	4	7.2	23.0	103	
29.6.68	207	4	8.8	26.0	124	
6.7.68	208	4	10.5	19.8	150	
13.7.68	206	4	8.0	25.8	114	
20.7.68	166	4	8.5	19.5	121	
27.7.68	162	4	8.8	18.4	125	
3.8.68	158	4	8.5	18.6	121	
10.8.68	147	4	7.7	19.2	110	
17.8.68	104	2	5.2	20.0	75	
24.8.68	94	2	4.9	19.2	70	
31.8.68	142	4	6.9	20.6	99	
7.9.68	169	4	7.9	21.4.	113	
14.9.68	106	4	7.4	14.4	106	
21.9.68	125	4	7.5	16.7	108	
28.9.68	198	4	5.5	36.0	79	
5.10.68	158	4	6.0	26.4	85	
12.10.68	183	4	4.9	37.4	70	
19.10.68	134	4	3.5	38.4	51	

Jordenthorpe Phase V 196 Houses

Plasterboard jointing and nail spotting

W/E	No. of Units	Cumulative Units	Total Man hours	Cumulative Man hours	Aver. Man hrs/unit	Accumul. Mean hrs.
6.4.68	1.9	1.9	114.	114	60.0	60.0
13.4.68	5.5	7.4	165	279	30.0	37.8
20.4.68	3.0	10.4	88	367	29.3	35.2
27.4.68	2.8	13.2	194	561	69.0	42.5
4.5.68	5.7	18.9	209	770	36.6	40.6
11.5.68	4.8	23.7	127	897	26.4	37.8
18.5.68	8.8	32.5	208	1105	23.6	34.0
25.5.68	10.3	42.8	233	1338	22.6	30.8
1.6.68	8.8	51.6	233	1571	26.2	30.4
8.6.68	6.0	57.6	175	1746	29.0	30.2
15.6.68	8.8	66.4	195	1941	22.0	29.2
22.6.68	7.2	73.6	166	2107	23.0	28.6
29.6.68	8.8	82.4	207	2314	26.0	28.1
6.7.68	10.5	92.9	208	2522	19.8	27.2
13.7.68	8.0	100.9	206	2728	2518	27.0
20.7.68	8.5	109.4	166	2894	19.5	26.4
27.7.68	8.8	118.2	162	3056	18.4	25.8
3.8.68	8.5.	126.7	158	3214	18.6	25.4
10.8.68	7.7	134.4	147	3361	19.2	25.0
17.8.68	5.2	139.6	104	3465	20.0	24,8
24.8.68	4.9	144.5	94	3559	19.2	24.6
31.8.68	6.9	151.4	142	3701	20.6	24.4
7.9.68	7.9	159.3	169	3870	21.4	24.2
14.9.68	7.4	166.7	106	3976	14.4	23.8
21.9.68	7.5	174.2	125	4101	16.7	23.6
28.9.68	5.5	179.7	198	4299	36.0	23.9
5.10.68	6.0	185.7	158	4457	26.4	24.0
12.10.68	4.9	190.6	183	4640	37.4	24.4
19.10.68	3.5	194.1	134	4774	38.4	24.5

Felt Roof Tiling (stapled to sheathing)

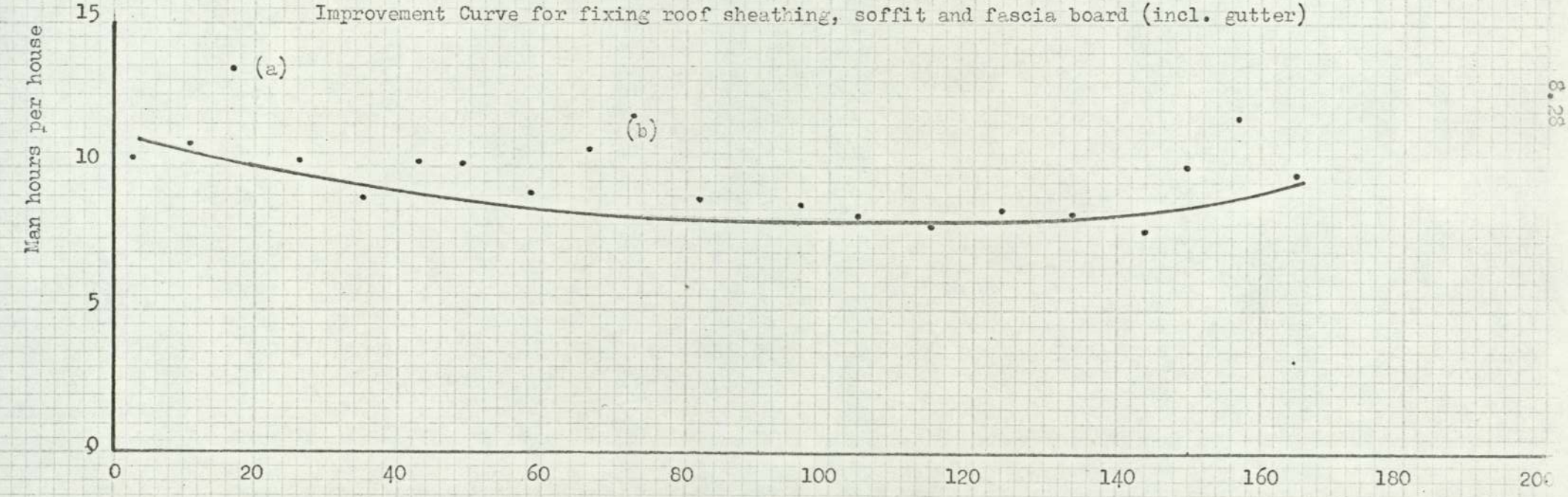
L1 - 2

W/E	No. of Units	Cumulative No.of unts	Total Man Hours	Cumulative Man Hours	Average Man Hours	Accumul. Mean Hours
29.6.69	6.5	6.5	74	74	11.4	11.4
6.7.69	8.5	15	62	136	7.3	9.0
13.7.69	12.5	27.5	83	219	6.6	8.0
20.7.69	4.0	31.5	33	252	8.2	8.0
27.7.69	15.0	46.5	83	335	5.5	7.2
2.8.69	0.5	47	8	343	16.0	7.3
9.8.69	10.0	57	62	405	6.2	7.1
16.8.69	8.0	65	50	455	6.2	7.0
23.8.69	6.0	71	42	497	7.0	7.0
30.8.69	3.0	74	41	538	13.7	7.3
6.9.69	9.0	83	65	603	7.2	7.3
20.9.69	9.5	92.5	50	653	5.2	7.0
27.9.69	6.0	98.5	38	691	6.3	7.0
4.10.69	10.0	108.5	60	751	6.0	6.9
18.10.69	11	119.5	77	828	7.0	6.9
		Joinery - 1st Fix				
22.6.69	2.5	2.5	36	36	14.3	14.3
29.6.69	9.0	11.5	65	101	5.6	8.8
13.7.69	6.5	18.0	57	158	8.7	8.8
20.7.69	6.5	24.5	54	212	8.4	8.8
27.7.69	4.0	28.5	36	248	9.0	8.7
2.8.69	3.0	31.5	35	283	11.7	9.0
16.8.69	4.5	36.0	54	337	12.0	9.4
23.8.69	8.5	44.5	90	427	10.6	9.6
30.8.69	6.0	50.5	51	478	8.5	9.5
12.9.69	4.0	54.5	36	514	9.0	9.4
20.9.69	5.0	59.5	26	540	5.2	9.1
27.9.69	7.5	67.0	52	592	7.0	8.8
4.10.69	5.0	72.0	30	622	6.0	8.6
11.10.69	8.0	80.0	45	667	5.6	8.3
18.10.69	15.0	95.0	111	778	7.3	8.2
25.10.69	2.0	97.0	21	799	11.5	8.2
1.11.69	4.5	111.5	34	833	7.6	7.5
8.11.69	3.0	114.5	26	859	8.7	7.5

Leen Valley 1 & 2 - Erection of Shell (Houses)

W/E	No. of Units	Cumulative No.of Unit	Total man hours	Cumulative Man hours	Average Man hours	Accumul. Mean hrs.
8.6.69	6.0	6	218	218	36.3	36.3
14.6.69	6.5	12.5	197	4.5	30.2	33.2
21.6.69	8.0	20.5	208	623	26.0	30.4
29.6.69	8.5	29.0	200	823	23.6	28.4
6.7.69	9.0	38.0	166	989	18.4	26.0
13.7.69	7.0	45.0	166	1155	23.4	25.8
20.7.69	7.0	52.0	143	1298	20.4	25.0
27.7.69	7.0	59.0	167	1465	23.8	24.8
2.8.69	4.5	63.5	85	1550	18.9	24.4
9.8.69	5.5	69.0	183	1733	33.2	25.2
16.8.69	7.0	76.0	198	1931	26.9	25.5
23.8.69	7.0	83.0	180	2111	25.9	25.4
30.8.69	4.5	87.5	140	2251	31.2	25.8
6.9.69	4.5	92.0	140	2391	31.2	26.0
13.9.69	7.0	99.0	172	2563	24.6	26.0
20.9.69	6.0	105.0	172	2735	25.3	26.0
27.9.69	6.0	111.0	159	2894	26.5	26.0
4.10.69	1.5	112.5	33	2927	22.0	26.0
11.10.69	4.5	117.0	113	3040	26.0	26.0
		Houses complete				
	Flat units	235 No	total hours 2108			
	Total Erection hours on site = 5148					

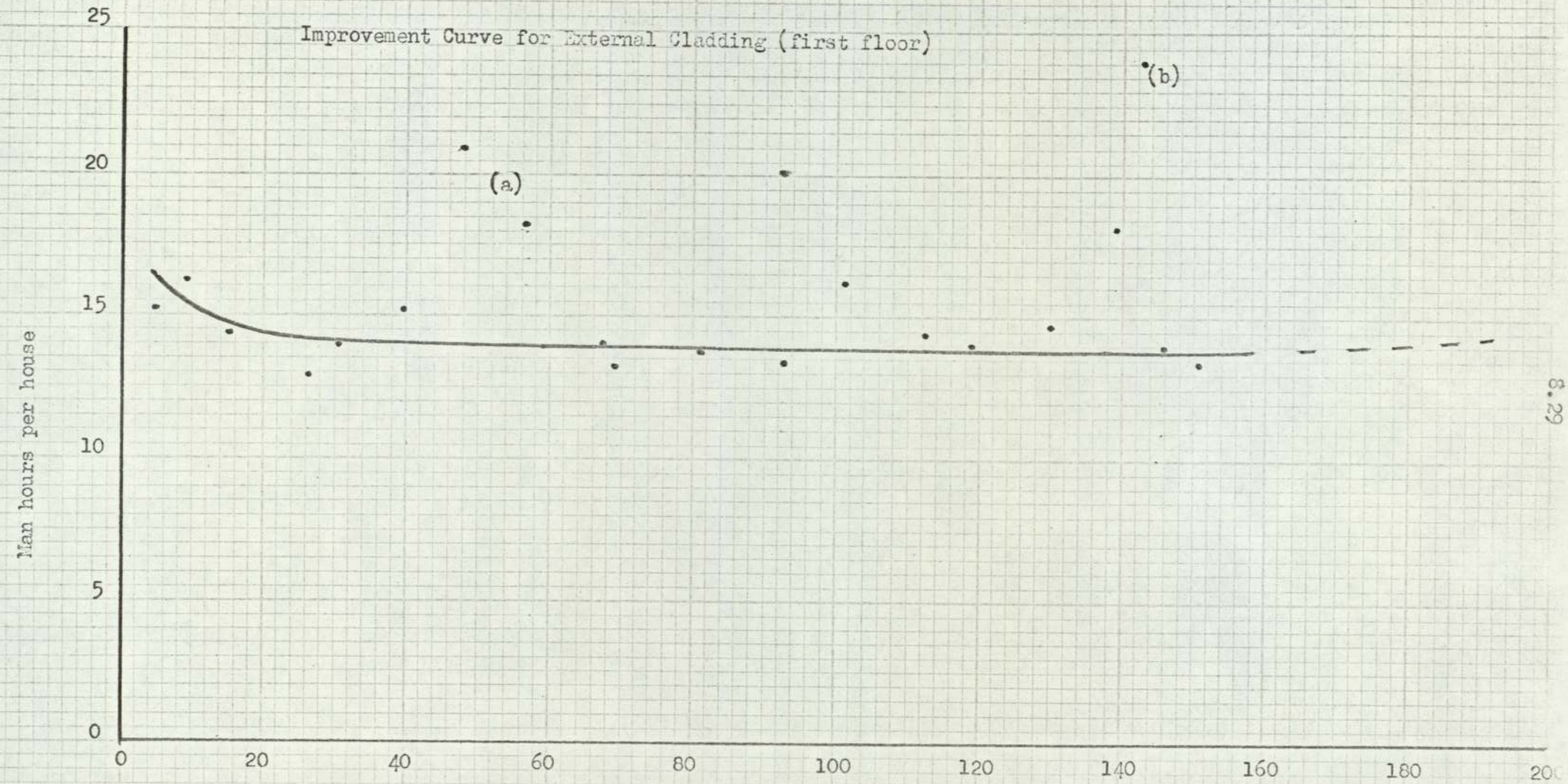
Improvement Curve for fixing roof sheathing, soffit and fascia board (incl. gutter)

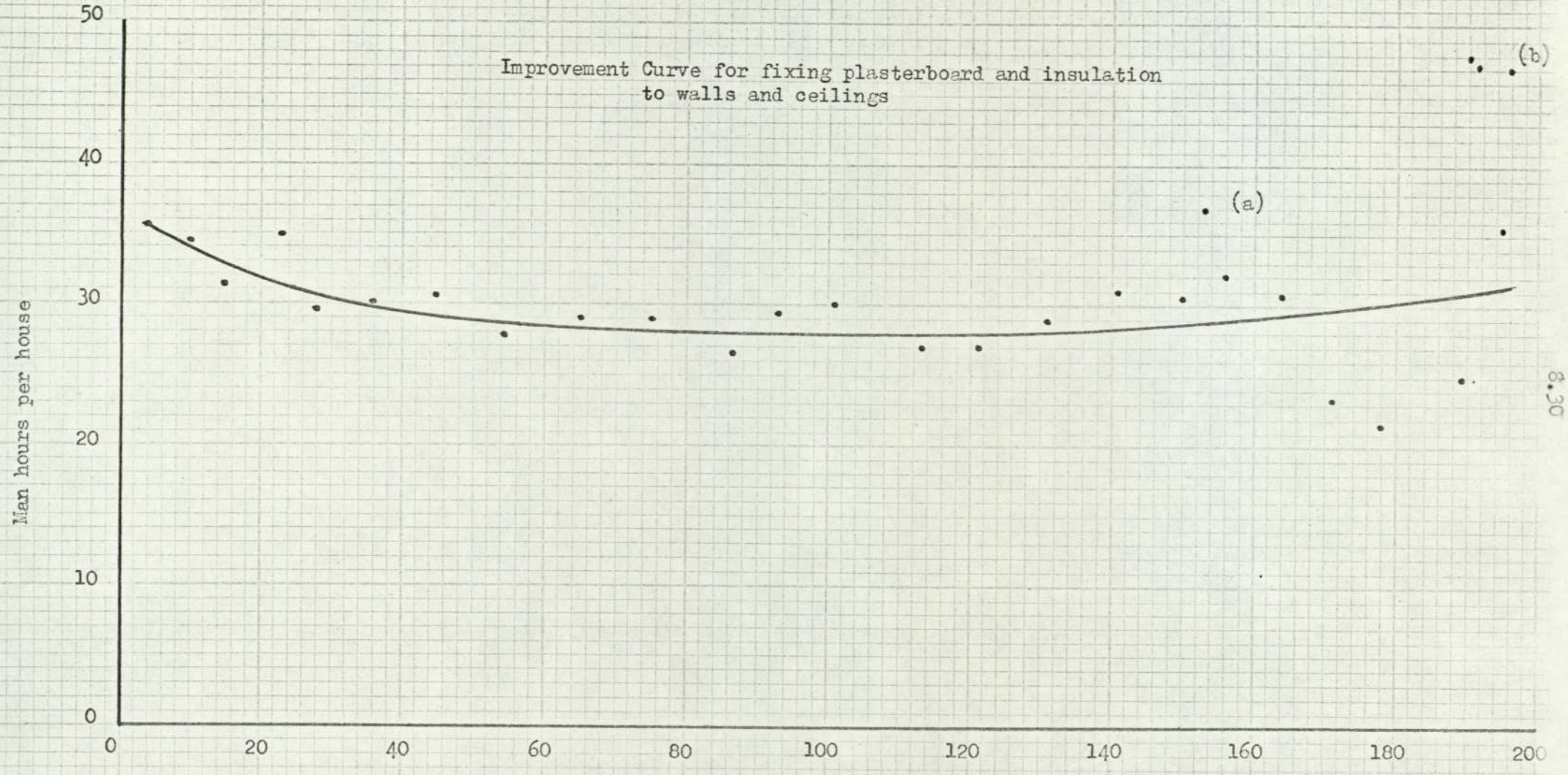


(a) Strong winds
(b) Delay on erection

J5

8.28


Improvement Curve for External Cladding (first floor)
(a)
(b)
25
20
15
10
5
0
Man hours per house
0
20
40
60
80
100
120
140
160
180
200
(a) Delay on erection
(b) Reduction in gang size
Number of Houses in Order of Erection
J5


Improvement Curve for fixing plasterboard and insulation to walls and ceilings
Man hours per house
50
40
30
20
10
0
0
20
40
60
80
100
120
140
160
180
200
(a)
(b)
(a) Reduction of gang size
(b) Reduction of gang size.
Number of Houses in Order of Erection

J5

8.30

SUMMARY OF MAN HOUR CONTENT PER HOUSE (FIRM 'E')

	% of total man hour content	M/C	T/M	Lab.
SUBSTRUCTURE	8.0	22.60		66.75
SUPERSTRUCTURE				
Timber superstructure	4.4	*5.15	38.70	6.65
Carpenter 1st fix	12.0		128.00	4.95
Roof tiling	1.7		19.00	
Carpenters work - external	3.9		40.50	3.40
Attendance on sub-contractors			32.15	
Plasterboard	2.9			
Plumbers and Electrician	1.9		21.55	
External wall				
Blockwork	5.4		40.00	20.00
Render and Spar Dash	10.0		74.00	37.00
Erect Porch and Stores	3.8		42.75	
FINISHINGS				
2nd fix joiner	9.6		106.00	
Plumbing and installation	6.1		68.00	
Electrical installation	6.3		69.75	
Plasterboard	8.4		92.00	
Decoration	10.8		120.00	
Nutex ceiling	0.7		8.00	
Ground floor tiles	0.9		10.00	
		26.75	910.40	138.75
Prelim items	3.2		22.20	13.60
	100.0	26.75	932.60	152.35

Total man hour content per house = 1,111.70

M/C = Machine, T/M = Tradesmen * Crane £63.10.9d = £32 per unit

SUBSTRUCTURE

	M/C	T/M	Lab
Strip O/S and excavate foundations	8.00		
Formwork to ground beams including striking.	2.50		33.25
Concrete ground beams and oversite slab.	7.50		19.00
Level oversite hardcore	4.60		7.50
Lay polythene membrane and stop ends to slab.			7.00
	22.60		66.75

TIMBER SUPERSTRUCTURE

	Hours		
	M/C	T/H	Lab
Erect wall units, ground floor (8 No.)	2.10	9.30	
Transport, position and fix floor joists.		9.40	1.25
Erect wall units - 1st floor	1.05	6.15	1.55
Hoise and stack internal partitions, 1st floor	0.70	2.90	0.85
Hoist and position roof trusses - inverted	0.30	1.15	0.30
Fix gable end roof trusses		0.70	0.10
Fix roof trusses		3.80	1.20
Fix diagonal bracing		2.10	0.65
Fix fascia		1.15	0.40
Fix 1½" batten on fascia		1.20	0.35
Fix return ends to fascia		0.85	
	4.15	38.70	6.65

CARPENTER 1st Fix

	Hours	
	T/M	Lab
Fix ground floor partitions	1.45	0.40
Transport window frames to location	1.85	1.15
Drill holes through window frames	2.55	
Fix window frames	7.90	0.85
Fix door frames	2.15	
Load out flooring	1.05	1.20
Fix flooring	23.50	1.35
Fix door linings - ground floor	1.35	
Construct half landings to staircase and erect staircase	19.80	
Fix fibreglass to party wall	2.80	
Fix flashband around windows	2.60	
Position rocksil in roofspace	2.50	
Erect 1st floor partitions	10.65	
Fix 1st floor door linings	4.60	
Make and fix sleeves for larder vents	1.30	
Remedial work to staircase	12.50	
Internal window linings	10.45	
Make and fix head of doors - 1st floor	2.50	
Cut holes through plasterboard - return air	2.50	
Construct cupboard under staircase	4.50	
Fix heater and storage cupboard door frames	9.50	
	128.00	4.95

CARPENTERS WORK - EXTERNAL

	Hours T/M	Lab
Staple building paper to walls		3.40
Fix ply facing over 1st floor joists	1.05	
Fix stops	12.70	
Re-staple external building paper	4.55	
Fix D.P.C. over external firestops	4.20	
Fix shiplap boarding panels	17.00	
	40.50	3.40

ATTENDANCE ON SUBCONTRACTORS

	Hours T/M	Lab
1. Plasterboard		
Noggings in roofspace	4.60	
Noggings for plasterboard	27.55	
	32.15	
2. Plumber and Electrician		
Fix noggings and drill holes as required	21.55	

EXTERNAL WALL

Erect external blockwork skin	40.00	20.00
	40.00	20.00
Rendering and spar dash		
Render externally	32.00	16.00
Tile cills	6.00	3.00
Spar dash	36.00	18.00
	74.00	37.00

ERECT PORCH AND STORES

	Hours T/M	Lab
Erect porch and store units	42.75	

2nd FIX JOINER

Skirting - 1st floor	6.00	
Hang doors Architrave Water tank base	14.50	
Construct duct around heating duct	6.50	
Skirting	24.50	
Kitchen fittings	21.00	
Hanging doors	14.00	
Airing cupboard	7.50	
Door furniture	12.00	
	106.00	

SUB-CONTRACTORS

Decoration

Paint fascia and soffit, external	3.50	
Paint internally	72.00	
Paperhanging	44.50	
	120.00	

Ground Floor

Lay self levelling screed	1.00	
Lay P.V.C. floor tiles	9.00	
	10.00	

Sub-Contractors continued....

	Hours T/M
Nutex Ceiling	
Apply 'Nutex' to ceilings	8.00
Plumbing	
Erect soil stack and sort out fittings	3.00
Mark out pipe rungs, noggings etc.	12.50
Carry out plumbing installation	34.25
External guttering and downpipe	3.75
Flashing around stores	11.50
Rain water main	3.00
	68.00
Electrical	
Mark out position of holes	1.50
Carcass House 1	10.50
Carcass House 2	9.75
Install electricaire heater - House 1 and trunking	12.00
Install electricaire heater - House 2 and trunking	10.50
2nd fix including consumer units and air grilles	21.25
Carcassing 1st floor after partitions erected	4.25
	69.75
Plasterboard	
Fix ¾" plasterboard to party wall	6.50
fix ceiling plasterboard	18.50
Fix ½" wall plasterboard	51.00
Tape in and run down wall joints	16.00
	92.00

Sub-Contractors Continued

	Hours T/M	Lab
Roof Tiling		
Tile roof	19.00	
Prelim. Items		
Erect site hut	4.00	
Unload miscellaneous items from timber suppliers lorry		5.05
Unload 1 ton cement	0.30	0.10
Unload window and door frames (snows)	0.65	0.45
Unload roof tiles	2.05	0.55
Unload thermalite blocks	3.00	0.75
Unload staircase	0.85	0.20
Unload plasterboard	5.10	
Unload for services sub-contractor	0.70	
Erect display sign	2.80	
Clean up site		6.50
Unload paving slabs	2.75	
	22.20	13.60

9. Data on Housing Costs

Costing for Timber Framed Housing

(Based on tender prices - excluding land, siteworks and garages)

Date of Tender	No. of units in Contract	Total Cost £	Average Cost per dwelling £	Total floor area (sq.ft)	Cost per ft^2 (Shillings)	Cost per m^2 (Shillings)	Geographical Location
Nov. 66	209	465672	2228	194000	ϕ 51.5	550	North
Nov. 66	81	200000	2470	73101	ϕ 54.5	585	South
Oct. 66	24	51,600	2150	18593	ϕ 55.5	595	Midlands
Jan. 67	665	1,540,000	2320	555,500	ϕ 55.5	595	North
Sept. 67	196	442372	2257	194 320	ϕ 49.0	525	North
July. 68	444	1,083,804	2441	420,340	ϕ 54.5	585	Midlands
Oct. 68	† 352	837.056	2378	254,880	ϕ 65.5	700	Midlands
Oct. 69	250	754,000	2950	237,000	ϕ 63.5	680	Midlands
April. 70	195	536,940	2752	187,000	ϕ 61.0	655	Midlands
June. 70	124	325,748	2627	118,000	ϕ 58.5	627	South

† including flats

ϕ including 3/6 per ft^2 for standard sub-structure

1964 = 41/6
1965 = 45/-