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The establishment of baseline artisan productivities as a means to monitoring employment-intensive construction: comparison to a South African case study

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Table 5.2: Field results for stock-bricks															
Observation date	**Task group**	**Artisans**	**Helpers**	**Start work**	**End Work**	**Productive time (mins)**	**Unproductive time(mins)**	**Idle time(mins)**	**Total time (mins)**	**Productive time (%)**	**Unproductive time(%)**	**Idle time(%)**	**Actual Output (# of bricks)**	**Possible output (8hrs/day work)**	**Optimum Output (8hrs/day)**
2006/10/07	D	4	3	09:19	16:55	286	0	111	397	72	-	28	1514	1,831	2,541
2006/11/07	D	4	4	07:31	16:46	324	131	55	510	64	26	11	1746	1,643	2,587
2006/12/07	D	4	4	07:37	16:37	490	0	0	490	100	-	-	1211	1,186	1,186
13-07-2006	D	4	10	07:36	16:20	401	0	75	476	84	-	16	3184	3,211	3,811
AVERAGE		**4**	**5**	**07:35**	**16:40**	**375**	**33**	**60**	**468**	**80**	**6**	**14**	**1,914**	**1,968**	**2,531**
Artisan: Helper ratio		1	1.3										478	492	633
2006/11/07	E	2	3	07:23	16:39	466	22	38	526	89	4	7	1088	993	1,121
2006/12/07	E	2	4	07:28	16:11	450	52	0	502	90	10	-	990	947	1,056
13-07-2006	E	7	9	07:17	16:39	510	0	29	539	95	-	5	5843	5,203	5,499
14/-7/2006	E	9	9	08:26	16:48	453	0	31	484	94	-	6	7476	7,414	7,922
AVERAGE		**5**	**6**	**07:39**	**16:34**	**470**	**19**	**25**	**513**	**92**	**4**	**5**	**3,849**	**3,639**	**3,899**
Artisan: Helper ratio		1	1.3										770	728	780
2006/11/07	F	7	14	07:11	16:41	545	0	0	545	100	-	-	6694	5,896	5,896
2006/12/07	F	7	14	07:13	16:47	556	0	0	556	100	-	-	6862	5,924	5,924
13-07-06	F	6	7	07:42	16:44	482	0	35	517	93	-	7	3528	3,276	3,513
14-07-06	F	6	5	08:09	16:49	499	0	0	499	100	-	-	4446	4,277	4,277
AVERAGE		**7**	**10**	**07:34**	**16:45**	**521**	**-**	**9**	**529**	**98**	**-**	**2**	**5,383**	**4,843**	**4,902**
Artisan: Helper ratio		1	1.5										769	692	700
Av: Artisan:Helper	**D, E, F**	**1**	**1.4**	**07:36**	**16:40**	**455**	**17**	**31**	**503**	**90**	**3**	**7**	**672**	**637**	**704**

Table 5.3: Field results for painting (1ST COAT)															
Observation date	Task group	# of Artisans	# of Helpers	Start work	End Work	Productive time (mins)	Unproductive time(mins)	Idle time(mins)	Total time (mins)	Productive time (%)	Unproductive time(%)	Idle time(%)	Actual Output (square metres)	Possible output (8hrs/day)	Optimum Output (8hrs/day)
2006/10/07	C	2	0	09:23	14:45	226	0	0	226	100	-	-	210	446	446
2006/12/07	C	2	0	09:17	13:15	128	0	67	195	66	-	34	73	180	274
13-07-06	C	2	0	09:39	15:28	258	0	51	309	83	-	17	94	146	175
14-07-06	C	2	0	13:20	15:45	118	0	27	145	81	-	19	45	149	183
AVERAGE		**2**	**-**	**10:15**	**15:13**	**183**	**-**	**36**	**219**	**83**	**-**	**17**	**105.5**	**230.2**	**269.4**
Artisan: Helper ratio		**1**	**-**										**53**	**115**	**135**
19-07-06	L	2	0	08:13	16:30	416		34	450	92	-	8	91	97	105
20-07-06	L	1		08:12	15:38	309	0	0	309	100	-	-	53	82	82
21-07-06	L	2	0	07:54	11:17	41	0	66	107	38	-	62	12.7	57	149
24-07-06	L	1		07:31	15:09	267	0	0	267	100	-	-	19.3	35	35
AVERAGE		**2**	**-**	**07:58**	**14:39**	**258**	**-**	**25**	**283**	**83**	**-**	**17**	**44.0**	**67.8**	**92.7**
Artisan: Helper ratio		**1**	**-**										**22**	**34**	**46**
Av: Artisan:Helper	**C,L**	**1**	**0**			**220**	**-**	**31**	**251**	**83**	**-**	**17**	**37.4**	**74.5**	**90.5**

Table 5.4: Field results for face-bricks

Observation date	Task group	# of Artisans	# of Helpers	Start work	End Work	Productive time (mins)	Unproductive time(mins)	Idle time(mins)	Total time (mins)	Productive time (%)	Unproductive time(%)	Idle time(%)	Actual Output (# of bricks)	Possible output (8hrs/day work)	Optimum Output (8hrs/day)
19-07-06	M	3	1	07:32	17:08	290	0	198	488	59	-	41	65	64	108
20-07-06	M	2	1	07:31	17:05	439	0	19	458	96	-	4	350	367	383
21-07-06	M	2	2	07:41	13:00	253	0	27	280	90	-	10	280	480	531
24-07-06	M	2	2	08:31	16:36	404	0	37	441	92	-	8	630	686	749
27-07-06	M	2	2	07:35	17:23	398	0	55	453	88	-	12	464	492	560
AVERAGE		**2**	**2**	**07:46**	**17:03**	**357**	**-**	**67**	**424**	**85**	**-**	**15**	**358**	**418**	**466**
Artisan: Helper ratio		**1**	**1**	**07:46**	**17:03**	**357**	**-**	**67**	**424**	**85**	**-**	**15**	**179**	**209**	**233**

Facebricks

Observation date	Task group	# of Artisans	# of Helpers	Start work	End Work	Productive time (mins)	Unproductive time(mins)	Idle time(mins)	Total time (mins)	Productive time (%)	Unproductive time(%)	Idle time(%)	Actual Output (# of bricks)	Possible output (8hrs/day work)	Optimum Output (8hrs/day)
27-07-06	O	4	7	07:52	17:03	250	0	102	352	71	-	29	1,337	1,823	2,567
28-07-06	O	4	4	08:17	17:14	532	22		554	96	4	-	470	407	424
AVERAGE		**4**	**6**	**08:05**	**17:09**	**391**	**11**	**102**	**453**	**84**	**2**	**14**	**904**	**1,115**	**1,496**
Artisan: Helper ratio		**1**	**1.4**										**226**	**279**	**374**

STOCKBRICS

Observation date	Task group	# of Artisans	# of Helpers	Start work	End Work	Productive time (mins)	Unproductive time(mins)	Idle time(mins)	Total time (mins)	Productive time (%)	Unproductive time(%)	Idle time(%)	Actual Output (# of bricks)	Possible output (8hrs/day work)	Optimum Output (8hrs/day)
27-07-06	O	4	7	07:52	17:03	250	0	102	352	71	-	29	1,737	2,369	3,335
28-07-06	O	4	4	08:17	17:14	532	22		554	96	4	-	470	407	424
AVERAGE		**4**	**6**	**08:05**	**17:09**	**391**	**11**	**102**	**453**	**84**	**2**	**14**	**1,104**	**1,388**	**1,880**
Artisan: Helper ratio		**1**	**1.4**										**276**	**347**	**470**
Face & Stock bricks	**O**	**1**	**1.4**	**08:05**	**17:09**	**391**	**11**	**102**	**453**	**84**	**2**	**14**	**502**	**626**	**844**

Table 5.5: Field results for plastering															
Observation date	Task group	Artisans	Helpers	Start work	End Work	Productive time (mins)	Unproductive time(mins)	Idle time(mins)	Total time (mins)	Productive time (%)	Unproductive time(%)	Idle time(%)	Actual Output (square metres)	Possible output (8hrs/day)	Optimum Output (8hrs/day)
2006/10/07	A	6	11	07:30	16:40	448	0	10	458	98	-	2	124	130	133
2006/11/07	A	1	2	07:16	11:05	0	212	0	212	-	100	-	0	-	#DIV/0!
2006/12/07	A	4	4	07:21	15:57	413	0	11	424	97	-	3	78	88	91
13-07-06	A	1	1	07:18	15:50	428	24		452	95	5	-	16.4	17	18
14-07-06	A	5	9	07:27	15:03	402	0	0	402	100	-	-	116	139	139
17-07-06	A	2	2	07:14	15:44	448	0	0	448	100	-	-	25	27	27
AVERAGE		4	5	**07:22**	**15:51**	428	5	4	437	98	1	1	72	80	81
Artisan: Helper ratio		1	1.4										18	20	20
2006/10/07	B	4	6	09:15	17:43	458	0	0	458	100	-	-	130	136	136
2006/11/07	B	5	7	08:07	17:43	360	163		523	69	31	-	104	95	139
2006/12/07	B	3	5	07:27	16:25	432	0	29	461	94	-	6	82	85	91
13-07-06	B	5	9	07:28	17:23	533	0	0	533	100	-	-	125.5	113	113
14-07-06	B	5	8	08:21	17:00	485	0	0	485	100	-	-	98	97	97
17-07-07	B	6	10	07:37	17:23	514	0	0	514	100	-	-	89	83	83
AVERAGE		5	8	**08:03**	**17:26**	464	27	6	496	94	5	1	105	102	110
Artisan: Helper ratio		1	1.5										21	20	22
Av: Artisan:Helper	**A,B**	**1**	**1.4**	**07:43**	**16:39**	**446**	**16**	**5**	**466**	**96**	**3**	**1**	**19**	**20**	**21**

Table 5.6: Field results for Tiling

Observation date	Task group	Artisans	Helpers	Start work	End Work	Productive time (mins)	Unproductive time(mins)	Idle time(mins)	Total time (mins)	Productive time (%)	Unproductive time(%)	Idle time(%)	Actual Output (Square metres)	Possible output (8hrs/day)	Optimum Output (8hrs/day)
19/07/06	I	2	0	07:39	16:43	493	0	0	493	100	-	-	20	19	19
20/07/06	I	2	0	08:48	16:35	205	79	163	447	46	18	36	8.4	9	20
21/07/06	I	1	1	08:07	13:02	295	0	0	295	100	-	-	6.6	11	11
24/07/06	I	1	1	08:43	16:34	361	0	87	448	81	-	19	10.7	11	14
AVERAGE		**2**	**1**	**08:17**	**16:37**	**339**	**20**	**63**	**421**	**82**	**4**	**14**	**11**	**13**	**16**
Artisan: Helper ratio		**1**	**0.3**										**6**	**6**	**8**
19/07/07	J	1	1	11:39	16:41	270	0	0	270	100	-	-	17.5	31	31
20/07/06	J	1	1	08:39	16:32	305	20	110	435	70	5	25	10.2	11	16
21/07/06	J	1	1	08:19	13:00	281	0	0	281	100	-	-	10.2	17	17
24/07/06	J	1	1	10:14	16:24	257	0	87	344	75	-	25	9.9	14	18
AVERAGE		**1**	**1**	**09:43**	**16:32**	**278**	**5**	**49**	**333**	**86**	**1**	**13**	**12**	**18**	**21**
Artisan: Helper ratio		**1**	**1.0**										**12**	**18**	**21**
19/07/07	K	1	1	14:16	16:36	140	0	0	140	100	-	-	5.2	18	18
20/07/06	K	1	1	08:50	16:36	216	7	213	436	50	2	49	8.6	9	19
21/07/06	K	1	1	08:46	13:00	194	0	0	194	100	-	-	1.3	3	3
24/07/06	K	1	1	10:23	16:30	250	0	87	337	74	-	26	11.9	17	23
AVERAGE		**1**	**1**		**16:34**	**200**	**2**	**75**	**277**	**81**	**0**	**19**	**7**	**12**	**16**
Artisan: Helper ratio		**1**	**1.0**										**7**	**12**	**16**
20/07/06	N	1	1	09:57	17:16	200	62	157	419	48	15	37	12	14	29
21/07/06	N	1	1	07:29	13:07	162	176	0	338	48	52	-	11.4	16	34
24/07/06	N	2	1	09:27	16:50	365	0	78	443	82	-	18	22.8	25	30
27/07/06	N	2	2	07:33	17:17	482	0	0	482	100	-	-	25.7	26	26
AVERAGE		**2**	**1**	**08:37**	**17:08**	**302**	**60**	**59**	**421**	**70**	**17**	**14**	**18**	**20**	**30**
Artisan: Helper ratio		**1**	**0.6**			**68**							**9**	**10**	**15**
Av: Artisan:Helper	**I,J,K,N**	**1**	**0.7**	**08:52**	**16:57**	**280**	**22**	**61**	**363**	**80**	**6**	**15**	**8**	**12**	**15**

Table 5.7:	Breakdown for tea and lunch breaks					
Stockbricks						
Observation date	**Task Group**	**Tea break (mins)**	**Lunch break (mins)**	**Total (mins)**	**Official duration (mins)**	**Excess time(mins)**
2006/10/07	D		50	50	60	-10
2006/11/07	D	15	30	45	60	-15
2006/12/07	D	18	32	50	60	-10
13-07-2006	D	16	32	48	60	-12
Average		**16**	**31**	**48**	**60**	**(12)**
2006/11/07	E	30	40	70	60	**10**
2006/12/07	E	21	36	57	60	**(3)**
13-07-2006	E	23	37	60	60	**-**
14/-7/2006	E	17	31	48	60	**(12)**
Average		**23**	**36**	**59**	**60**	**(1)**
						-
2006/11/07	F	25	37	62	60	**2**
2006/12/07	F	18	38	56	60	**(4)**
13-07-06	F	25	38	63	60	**3**
14-07-06	F	21	38	59	60	**(1)**
Average		**22**	**38**	**60**	**60**	**-**
Painting						
2006/10/07	C		36	36		
2006/12/07	C		41	41		
13-07-06	C		50	50		
14-07-06	C		0	0		
19-07-06	L	17	30	47	60	**(13)**
20-07-06	L	36	96	132	60	**72**
21-07-06	L	36		36	60	**(24)**
24-07-06	L	28	43	71	60	**11**
Average		**27**	**56**	**83**	**60**	**23**
Facebricks						
19-07-06	M	28	60	88	60	28
20-07-06	M	22	34	56	60	-4
21-07-06	M	39		39	60	-21
24-07-06	M	23	49	72	60	12
27-07-06	M	27	48	75	60	15
Average		**25**	**48**	**73**	**60**	**13**
27-07-06	O	28	55	83	60	23
28-07-06	O	26	50	76	60	16
Average		**27**	**53**	**80**	**60**	**20**
PLASTERING						
Observation date	**Tak Group**	**Tea break (mins)**	**Lunch break (mins)**	**Total (mins)**	**Official duration (mins)**	**Excess time(mins)**
2006/10/07	A	18	34	52	60	-8
2006/11/07	A	17		17	60	-43
2006/12/07	A	23	51	74	60	14
13-07-06	A	36	34	70	60	10
14-07-06	A	19	35	54	60	-6
17-07-06	A	26	36	62	60	2
Average		**24**	**38**	**62**	**60**	**2**
2006/10/07	B	0	50	50	60	-10
2006/11/07	B	0	53	53	60	-7
2006/12/07	B	0	57	57	60	-3
13-07-06	B	0	62	62	60	2
14-07-06	B	0	34	34	60	-26
17-07-07	B	0	72	72	60	12
Average			**55**	**55**	**60**	**(5)**
TILING						
19/07/06	I		51	51	60	-9
20/07/06	I		30	30	60	-30
21/07/06	I			0	60	-60
24/07/06	I		23	23	60	-37
Average			**35**	**35**	**60**	**(25)**
19/07/07	J		32	32	60	-28
20/07/06	J		30	30	60	-30
21/07/06	J			0	60	-60
24/07/06	J		27	27	60	-33
Average			**30**	**30**	**60**	**(30)**
19/07/07	K	-	-			
20/07/06	K		30	30	60	-30
21/07/06	K			0	60	-60
24/07/06	K		30	30	60	-30
Average			30	30	60	-30
20/07/06	N		30	30	60	-30
21/07/06	N		32	32	60	-28
24/07/06	N		0	0	60	-60
27/07/06	N		42	42	60	-18
Average			**35**	**35**	**60**	**(25)**