



DEVELOPMENT THROUGH PARTNERSHIP

RESULTS OF THE 2014 SURVEY OF THE

cidb

CONSTRUCTION INDUSTRY INDICATORS

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1. INTRODUCTION

The Construction Industry Development Board (cidb) Act (Republic of South Africa, 2000) was passed in 2000 to establish a statutory body aimed at driving an integrated construction industry development strategy. This body was necessary as the construction industry plays an indispensable role in the South African economy by providing the physical infrastructure which is fundamental to the country's development. The construction industry operates in a uniquely project-specific and complex environment, combining different investors, clients, contractual arrangements and consulting professions. It impacts directly on communities and the South African public at large, and its improved efficiency and effectiveness will enhance quality, productivity, health, safety, environmental outcomes and value for money. In terms of this act, the cidb 'may develop target and performance indicators related to best practice standards and guidelines and establish mechanisms to monitor their implementation and evaluate their impact'.

Construction Industry Indicators (CIIs) have been developed by the Department of Public Works and the cidb with the assistance of the CSIR (van Huyssteen, van Heerden, Perkins and Gyimah, n.d.: Online) to play a useful role in developing a sustainable industry and to be adopted as a tool for improving performance in the South African construction industry. The CIIs of the cidb rely heavily on international experience and particularly those indicators adopted in the United Kingdom. In the United Kingdom the first Key Performance Indicators (KPIs) were published in 1999 in response to the Rethinking Construction report by Egan (1998). These KPIs had three objectives, namely:

- To provide companies and projects with a simple method of establishing a performance measurement system;
- To provide organisations with a straightforward method of benchmarking their performance against others in the construction industry; and
- To track long term trends in performance, and specifically, to demonstrate whether the construction industry was achieving the targets set out in Rethinking Construction.

(Rethinking Standards in Construction, 2006: 3)

Cost, time and quality are the three basic and most important performance indicators in construction projects followed by others such as safety, functionality and satisfaction (Chan and Ada, 2004: 203-221). Based on the Egan report the Movement for Innovation and Construction Best Practice Programme (CBPP) was formed and is now recognised as a leading organisation involved in the production of KPIs within the industry (Beatham, Anumba and Thorpe, 2004: 93-117). The KPIs launched by the CBPP are: client satisfaction, product and service, profitability, productivity, defects, safety, construction time and construction cost. These KPIs were benchmarked within the

construction industry and have been very successful in introducing many companies to the subject of performance measurement (Beatham et al., 2004: 93-117). The UK KPIs are updated annually each June and published by Construction Excellence ([n.d.]: online).

The Australian construction industry is also busy establishing a KPI measurement process. Furneaux, Hampson, Scuderi & Kajewski, (2010) reviewed the current international approaches, evaluated the weaknesses and suggested a format for reporting KPIs at a national level.

The cidb CIIs are project specific indicators which are different from general economic indicators. The cidb CIIs measure the performance of the South African construction industry at individual project level. For completed projects employer satisfaction is measured for project milestone dates achieved, contractors' performance, agents' (consultants') performance, and the quality of materials used. Contractors' satisfaction is measured by their profitability, the performance of the employers and their agents, the quality of the contract documentation, the management of variation orders and claims, payment delays and the performance of their materials suppliers. The procurement indicators measured are obtained from the agents involved and include contractor performance issues evaluated in the adjudication of tenders, the type of procurement procedure used, and the contracting strategy adopted. The agents' satisfaction with the time allowed by employers for planning, delays in the payment of professional fees and deviations by employers from their own approved procurement procedures are also measured.

The literature survey shows that it is mainly in the United Kingdom and South Africa where key performance indicators, at project level, are used to monitor the condition of their construction industries. These indicators are used as a tool to improve industry performance. The quality and professionalism of the different role players involved are tested by several of these indicators.

Annual monitoring of the condition of the South African construction industry by using construction indicators is vital to enable government and other role players to evaluate the impact of current interventions for timely and pro-active implementation of revised legislation, strategies and development programs to act as an updated roadmap for the future wellbeing and growth of the industry. This is the purpose of this research. The cidb CIIs described above have been captured since 2003 and results in a series of annual papers (Marx 2012a, b) presenting the outcomes of this continuous survey project. This is a report on the results of the survey undertaken in 2014 for projects completed in 2013.

2. METHODOLOGY

The performance indicators used are project related. Therefore, contractors registered with the cidb were contacted to obtain information about their projects completed. A database, with contact particulars of contractors, employers and agents involved in 3475 projects completed in 2013, was compiled. Three separate survey forms were faxed or e-mailed to the contractors, employers and agents of these projects. Their responses were captured in a Microsoft Access database. Although the contact particulars of those directly involved in the projects were requested, there was no control over the respondents' actual involvement or in-depth knowledge of the projects. The content of the questionnaires related to the specific key performance indicators monitored. The perspectives of the respondents were determined for different project types, employer categories and provinces. All questionnaires made use of the scale shown in Table 1 to measure satisfaction levels.

Table 1 Definition of the % satisfaction levels

Dissatisfied			Neither satisfied nor dissatisfied				Satisfied		
10	20	30	40	50	60	70	80	90	100

3. SCOPE

The CIIs of the cidb need to evolve from the lessons learned from previous surveys, and are therefore subject to change and refinement. Furthermore, the CIIs used were only mainline indicators. Questions were not asked to pin-point the exact reasons for all problems experienced. The CIIs considered were only the project related indicators. The cidb also measures health and safety and empowerment progress which are not discussed in this report. Other economic indicators such as production prices, and building plans passed are published elsewhere.

From the 3475 completed projects in the database, the contact particulars of 3475 contractors, 3432 employers and 1586 agents were available. Survey forms were received back from 1519 contractors, 535 employers and 376 agents reflecting response rates of 44% (44%), 16% (20%) and 24% (35%) respectively. The percentages in brackets are the response rates for the previous survey. The response rates for the employers and agents were actually better than indicated as the contractors did not always provide their correct particulars and all could not be contacted.

4. DISCUSSION OF THE CONTRACTORS' SURVEY RESULTS

4.1 Contractor survey response distribution per project type and employer category

Table 2 gives the distribution of the 1519 survey forms received from contractors for projects completed in 2013. The number and percentage of survey forms completed are indicated for different employer categories and project types.

Table 2 Contractor survey response distribution per project type and employer category 2013

Project Type	Total No. of Projects	37	22	5	18	12	4	2	0	% of Total Survey Results
Residential Building	120	59	9	7	33	8	1	3	-	8
Non-residential Building	347	132	68	25	91	17	8	6	-	23
Civil Works	405	132	34	20	83	86	46	3	1	27
Mechanical Works	125	48	31	3	26	7	5	5	-	8
Electrical Works	408	129	184	9	23	54	2	7	-	27
Special Works	114	69	9	12	13	4	2	4	1	7
Not specified	-	-	-	-	-	-	-	-	-	0
Total No. of Projects	1519	569	335	76	269	176	64	28	2	
Employer Category		Private Sector	Public Corporation e.g. ESKOM, ACSA	National Department	Provincial Department	Metropolitan Council	Regional / District Council	Public Private Partnership	Not specified	

The majority of responses received came from civil works projects (27%), electrical works projects (27%) and non-residential building projects (23%). The results in this report are presented per project type and per client category to ensure that the results for some types of projects do not disappear in the average of all projects.

Projects of the private sector (37%), public corporations (22%), provincial departments (18%) and metropolitan councils (12%) were best represented in the survey. The responses received were well distributed between the different project types as well as between the employer categories. This distribution remains fairly the same when compared to previous surveys. The number of responses received in each category should always be considered when evaluating the results.

4.2 Contractor survey response distribution per contractor financial grade

The contractors are registered with the cidb in different financial grades, indicating their financial capability to complete projects of certain maximum values. The grading is as follows: Grades 1 to 9 correspond with project values of R0,2 million; R0,65 million; R2 million; R4 million; R6,5 million; R13 million; R40 million; R130 million and no limit respectively. Of all the respondents 9 % did not

indicate their financial grade. Figure 1 shows a comparison between the distribution of the survey forms received from different financially graded contractors and the distribution of the financial grades of contractors registered with the cidb.

Grade 1 (small) contractors were not targeted in this survey due to the fact that most of them do not possess a facsimile machine or have an e-mail address. The response received was well distributed as it follows the distribution of the contractors registered in each financial grade. Figure 1 shows that for the higher financially graded contractors (Grades 4 to 9) the percentage responses received were higher than the percentage of contractors registered in each financial grade. For the lower financially graded contractors (Grades 2 to 3) the opposite was true. It is only the Grade 2 contractors from whom much better participation is required for future similar annual surveys and this also shows why Grade 1 contractors were not targeted.

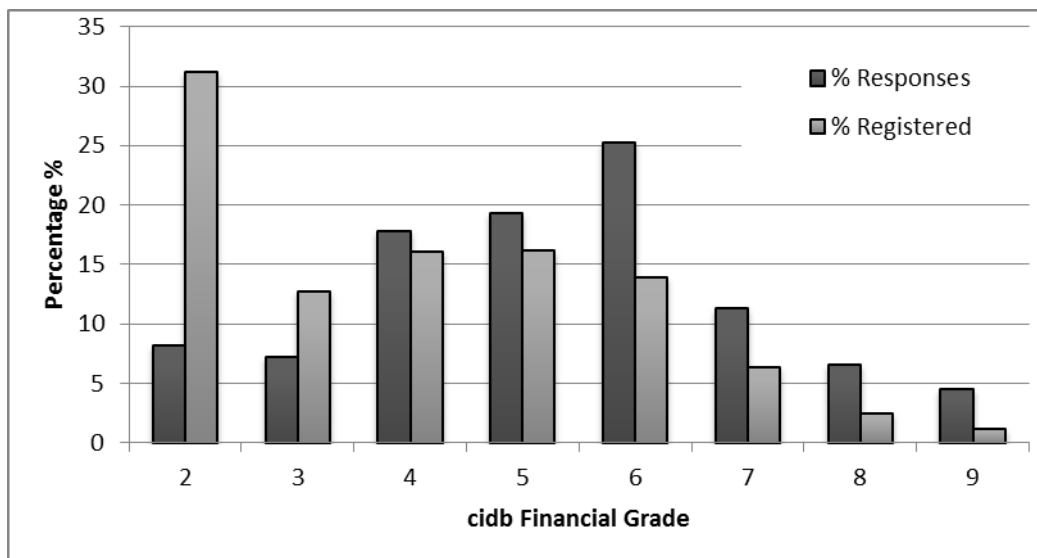


Figure 1 Contractor survey response distribution per contractor financial grade 2013

4.3 Contractor profitability per project type

Table 3 indicates the distribution of contractor profitability for different project types and shows that for only 3% of all the projects completed the contractors made a loss.

The project types, with the highest percentage of projects with profitability of more than 15%, were special works projects (42%), non-residential building projects (22%), and mechanical works projects (22%).

The results show that residential building projects were less profitable than all other project types.

Table 3 Contractor profitability per project type 2013

Profitability	% of Projects per Project Type						% of all Projects
	Residential Building	Non-residential Building	Civil Works	Mechanical Works	Electrical Works	Special Works	
Loss	5	3	5	2	1	6	3
0 – 5%	20	25	23	15	14	15	20
6 – 10%	44	28	35	30	39	18	33
11 – 15%	19	22	22	31	29	19	24
>15%	12	22	15	22	17	42	20
Project Type	Residential Building	Non-residential Building	Civil Works	Mechanical Works	Electrical Works	Special Works	

Table 4 shows the profitability of contractors per financial grade. It is interesting to note that Grade 8 & 9 contractors made a loss on most namely 16% and 15% of their projects respectively. Furthermore, if the projects on which a good profit of more than 10% was made are combined the Grade 2 contractors made more than 10% profit on 62% of all their projects which is better than the performance of any of the other higher financially graded groups of contractors.

Table 4 Profitability of contractors per financial grade 2013

Profitability	% of Projects in each Financial Grade								
	2	3	4	5	6	7	8	9	
Loss	2	5	2	2	1	0	16	15	
0 - 5%	14	16	13	16	18	43	20	23	
6 - 10%	22	42	25	35	37	36	37	28	
11 - 15%	23	23	28	33	22	15	17	33	
>15%	39	14	32	14	22	6	10	1	
Contractor Financial Grade	2	3	4	5	6	7	8	9	

There is thus no relationship between profit and the financial grade of a contractor. There should be more emphasis on developing good small contractors, and not only to achieve a higher financial grade, as small contractors can make just as good a profit as their larger and higher graded counterparts.

4.4 Performance of the employer and the employer's agents

The contractors' satisfaction with the employer and agents (consultants) was tested with regard to their overall performance, the quality of the tender documents and specifications, and the management of variation orders and claims. Table 5 shows the results obtained with the satisfaction levels as defined in Table 1. The contractors' highest dissatisfaction with the overall performance of employers was expressed for regional / district councils (8%) projects. Public corporations had the lowest percentage of projects (75%) for which the contractors expressed their satisfaction with the overall performance

of the employers. This is followed with 76% for regional / district council projects and with 77% for metropolitan council projects.

Agents, working for the private sector received a satisfactory performance on only 75% of their projects. This was the lowest score for all employer categories followed by agents working in the public private partnership sector (76%).

Table 5 Contractors' level of satisfaction with the employers' and agents' performance 2013

Satisfaction Level: % Distribution																
Employer Category	D = Dissatisfied			N = Neither satisfied nor dissatisfied						S = Satisfied						
	D	N	S	D	N	S	D	N	S	D	N	S	D	N	S	
Private Sector	4	13	83	4	21	75	2	19	79	4	20	76	4	19	77	
Public Corporation	4	21	75	4	19	77	4	20	76	6	21	73	6	21	73	
National Department	6	16	78	6	13	81	4	18	78	9	21	70	12	18	70	
Provincial Department	4	13	83	3	10	87	3	15	82	7	20	73	6	25	69	
Metropolitan Council	3	20	77	2	21	77	2	24	74	2	20	78	4	24	72	
Regional / District Council	8	16	76	3	15	82	6	16	78	13	17	70	13	17	70	
Public Private Partnership	0	7	93	5	19	76	4	7	89	4	7	89	4	3	93	
Satisfied with	Employer Overall			Agent Overall			Documentation / Specifications			Management of VO's			Management of Claims			

Table 5 shows that for only 2 to 6% of projects were the contractors dissatisfied with the quality of the contract documentation and specifications. The lowest percentage of projects where contractors expressed their satisfaction with the quality of documentation and specifications was for metropolitan council projects (74%).

The management of variation orders (VO's) seem to be problematic for regional / district council and national and provincial department projects as the contractors expressed their dissatisfaction with respectively 13%, 9% and 7% of their projects. The contractors were satisfied with the management of VO's on only 70% of national department and regional / district council projects. For management of claims, contractors were dissatisfied with 13% of regional district council and 12% of national department projects. Their satisfaction was only expressed for 69% of provincial and for 70% of national department and regional / district council projects.

To determine whether the contractors' financial grade played any role in the evaluation of the overall performance of the employer bodies and agents, Table 6 was compiled. The highest percentage of projects where dissatisfaction was expressed with the overall performance of the employer (11%) and agent (14%) was encountered for projects of Grade 9 contractors. For Grade 8 and 9 contractors there

was a noticeable reduction in the percentage of projects where the contractors were satisfied with their employers and agents. The reason may be that these higher grade contractors are more sophisticated and expect more from their employers and agents.

Table 6 Contractors' level of satisfaction with the employer's and agent's overall performance per contractor financial grade 2013

Satisfaction Level: % Distribution						
	D = Dissatisfied			N = Neither satisfied nor dissatisfied		S = Satisfied
Contractor Financial Grade	D	N	S	D	N	S
2	2	11	87	0	18	82
3	3	10	87	6	11	83
4	3	11	86	1	18	81
5	4	14	82	3	14	83
6	4	18	78	6	17	77
7	1	16	83	0	14	86
8	3	27	70	7	31	62
9	11	38	51	14	30	56
Satisfied with	Employer Overall			Agent Overall		

Table 7 shows the contractors' levels of satisfaction with the overall performance of the employer bodies in different provinces. The values in brackets indicate the number of projects on which the distribution of satisfaction levels was based. The reliability of the conclusions reached from the data is lower for those employer bodies in provinces where only a few responses were received and this should always be kept in mind.

Various employer bodies performed well in many provinces. If a weighted average satisfaction level is used it is clear that the satisfaction levels for the performance of employers in the Free State, North West and Northern Cape provinces are significantly lower than in the other provinces.

4.1 Delays in the start of construction

The contractors were asked whether the employer caused any delays preventing them from starting on site after they provided their guarantees. Table 8 shows that public corporations, regional / district council and national department employers caused delays at 14%, 13% and 12% of all their projects respectively. These delays are normally related to planning issues such as budget restraints, final approvals, registration of property in the employers' name etc.

Table 7 Contractors' level of satisfaction with the employers' overall performance per province 2013

Satisfaction Level: % Distribution (The number in brackets is the number of projects involved)																		
Employer Category	D = Dissatisfied			N = Neither satisfied nor dissatisfied			S = Satisfied			D = Dissatisfied			N = Neither satisfied nor dissatisfied			S = Satisfied		
	D	N	S	D	N	S	D	N	S	D	N	S	D	N	S			
Private Sector	0	7 (54)	93	7	29 (28)	64	4	19 (113)	77	4	9 (139)	87	6	10 (32)	84			
Public Corporation	15	37 (27)	48	6	33 (18)	61	3	15 (60)	82	6	26 (63)	68	3	21 (80)	76			
National Department	7	13 (15)	80	0	0 (1)	100	18	9 (11)	73	9	8 (12)	83	0	13 (8)	87			
Provincial Department	4	11 (27)	85	11	11 (18)	78	2	11 (45)	87	5	15 (59)	80	3	9 (32)	88			
Metropolitan Council	9	14 (22)	77	10	40 (10)	50	0	7 (41)	93	3	33 (33)	64	5	9 (21)	86			
Regional / District Council	11	22 (9)	67	0	50 (2)	50	-	- (-)	-	11	15 (27)	74	0	17 (6)	83			
Public Private Partnership	0	0 (2)	100	0	0 (8)	100	0	0 (4)	100	0	0 (6)	100	0	0 (1)	100			
Province	Eastern Cape			Free State			Gauteng			KwaZulu-Natal			Limpopo					

Table 7 (Continued) Contractors' level of satisfaction with the employers' overall performance per province 2013

Satisfaction Level: % Distribution (The number in brackets is the number of projects involved)																		
Employer Category	D = Dissatisfied			N = Neither satisfied nor dissatisfied			S = Satisfied			D = Dissatisfied			N = Neither satisfied nor dissatisfied			S = Satisfied		
	D	N	S	D	N	S	D	N	S	D	N	S	D	N	S			
Private Sector	4	5 (76)	91	0	26 (27)	74	7	17 (29)	76	3	16 (70)	81						
Public Corporation	0	15 (40)	85	0	33 (12)	67	0	9 (22)	91	0	0 (13)	100						
National Department	0	50 (4)	50	0	25 (8)	75	10	10 (10)	80	0	29 (7)	71						
Provincial Department	0	10 (31)	90	11	21 (19)	68	20	10 (10)	70	0	14 (28)	86						
Metropolitan Council	0	13 (8)	87	0	50 (4)	50	0	80 (5)	20	0	19 (32)	81						
Regional / District Council	0	50 (4)	50	17	0 (6)	83	0	0 (6)	100	0	0 (4)	100						
Public Private Partnership	0	0 (3)	100	0	100 (1)	0	-	- (-)	-	0	33 (3)	67						
Province	Mpumalanga			North West			Northern Cape			Western Cape								

Table 8 Employer responsible for delays preventing contractor access to site 2013

Employer Category	% of Projects	
	Yes	No
Private Sector	8	92
Public Corporation	14	86
National Department	12	88
Provincial Department	8	92
Metropolitan Council	5	95
Regional/District Council	13	87
Public Private Partnership	7	93

4.6 Payment delays

The average number of days delay between certification and receipt of contractor payment of interim and final certificates is shown in Table 9.

Table 9 Days delay between certification and contractor payment per employer category 2013

Avg. Days Delay	% of Projects per Employer Category							% of all Projects
	Private Sector	Public Corporation	National Department	Provincial Department	Metropolitan Council	Regional / District Council	Public Private Partnership	
≤ 14	11	5	9	10	7	11	14	9
14 to 30	30	30	30	35	47	41	18	33
30+ to 60	46	42	37	27	34	33	68	40
60+ to 90	7	11	13	12	8	6	-	9
90+ to 120	1	8	-	7	2	3	-	4
120+	5	4	11	9	2	6	-	5
Employer Category	Private Sector	Public Corporation	National Department	Provincial Department	Metropolitan Council	Regional / District Council	Public Private Partnership	

The different contract documents used for projects had different requirements regarding timeous payment of certificates, but payment within a month was considered to be reasonable. It is of great concern that only 42% of all contractors were paid on time (< 30 days). This figure is slightly worse than the 44% and 48% obtained from the previous two annual surveys. Therefore, the problem is growing.

With regard to early payment public corporations and public private partnerships performed the worst, with payments made within 30 days on only 35% and 32% of their projects respectively. The best performing employer category with 52% of project payments made within a month was the regional / district council.

The worst performing employers, with really late payments, were the national and provincial departments who respectively paid 24% and 28% of their contractors only after 60 days or more. This was followed by public corporations with 23%.

Contractors refrain from standing up to their contractual right to be paid on time for fear of losing job opportunities in the future. This creates major cash flow problems for contractors and the cidb should communicate this with client bodies. This payment problem has been known for many years and it seems as if there is a lack in the will and capability of employers to do something about it.

These payment results are also shown in Table 10 as the percentage of projects with timeous payment to contractors (< 30 days) per employer category in different provinces. The results are disturbing as many employer bodies in various provinces pay only a small percentage of their contractors on time. This table can be used to pin-point those employer bodies where urgent improvement is required. However, one has to keep in mind the impact that the small number of projects in some cases has on the reliability of the conclusions reached.

4.7 Performance of materials suppliers

Contractors were requested to indicate their satisfaction level with the overall performance of the materials suppliers, the ability of the suppliers to keep to their quoted / agreed upon delivery schedules and whether the materials delivered on site complied with the specifications. The results are indicated in Table 11.

The contractors were least satisfied with the overall performance of the suppliers for civil work projects where they were only satisfied with 77% of the projects.

Table 11 shows that the problem lies with the suppliers' capability to deliver rather than with the quality of the materials. This is so as the percentage of projects where the contractors were satisfied was larger for material delivered per specification than it was for the suppliers' capability to keep to the agreed upon delivery schedule. Generally speaking, the contractors' level of dissatisfaction was very low for all project types.

Table 10 Timeous payment (≤ 30 days) of contractors per province and employer category 2013

Employer Category	% of Projects where Contractor is paid within 30 days (The value in brackets is the number of projects involved)								
	Private Sector	35 (54)	43 (28)	41 (113)	57 (139)	44 (32)	11 (76)	37 (27)	41 (29)
Public Corporation	15 (27)	22 (18)	30 (60)	29 (63)	43 (80)	53 (40)	67 (12)	23 (22)	62 (13)
National Department	33 (15)	0 (1)	27 (11)	42 (12)	75 (8)	50 (4)	25 (8)	30 (10)	57 (7)
Provincial Department	26 (27)	72 (18)	44 (45)	44 (59)	50 (32)	39 (31)	53 (19)	50 (10)	39 (28)
Metropolitan Council	59 (22)	30 (10)	61 (41)	58 (33)	57 (21)	38 (8)	0 (4)	20 (5)	63 (32)
Regional / District Council	89 (9)	50 (2)	- (-)	41 (27)	50 (6)	25 (4)	67 (6)	17 (6)	100 (4)
Public Private Partnership	0 (2)	25 (8)	75 (4)	0 (6)	100 (1)	0 (3)	100 (1)	- (-)	67 (3)
Province	Eastern Cape	Free State	Gauteng	KwaZulu-Natal	Limpopo	Mpumalanga	North West	Northern Cape	Western Cape

Table 11 Contractors' level of satisfaction with the materials suppliers' performance per project type 2013

Satisfaction Level: % Distribution									
Project Type	D = Dissatisfied N = Neither satisfied nor dissatisfied S = Satisfied								
	D	N	S	D	N	S	D	N	S
	Residential Building	0	13	87	0	15	85	0	8
Non-residential building	0	19	81	2	23	75	1	14	85
Civil Works	2	21	77	3	20	77	1	14	85
Mechanical Works	0	17	83	1	1	81	1	6	93
Electrical Works	1	10	89	2	11	87	0	7	93
Special Works	1	3	96	1	3	96	1	3	96
Satisfied with	Overall performance			Keep to agreed upon delivery schedule			Material delivered as per specification		

The materials suppliers' overall performance was also evaluated in terms of the contractors' financial grade as indicated in Table 12. Grade 8 to 9 contractors were least satisfied with the overall performance of their material suppliers with only 75% and 54% of their projects where they were satisfied. It is likely that these suppliers could not keep up with the possibly larger orders placed. Table 13 shows the materials suppliers' overall performance per province. The Northern Cape (75%)

and North West province (73%) had the lowest percentage of projects where the contractors were satisfied with the overall performance of the materials suppliers.

Table 12 Contractors' level of satisfaction with the materials suppliers' overall performance per contractor financial grade 2013

Satisfaction Level: % Distribution			
Contractor Financial Grade	D = Dissatisfied	N = Neither satisfied nor dissatisfied	S = Satisfied
	D	N	S
2	0	14	86
3	1	15	84
4	1	13	86
5	0	15	85
6	1	12	87
7	0	19	81
8	4	21	75
9	3	43	54

Table 13 Contractors' level of satisfaction with overall performance of materials suppliers per province 2013

Satisfaction Level: % Distribution			
Province	D = Dissatisfied	N = Neither satisfied nor dissatisfied	S = Satisfied
	D	N	S
Eastern Cape	1	16	83
Free State	2	18	80
Gauteng	1	16	83
KwaZulu-Natal	0	15	85
Limpopo	1	10	89
Mpumalanga	1	12	87
North West	0	27	73
Northern Cape	1	24	75
Western Cape	0	13	87

5. 5. DISCUSSION OF THE AGENTS' SURVEY RESULTS

5.1 Agent survey response distribution per project type and employer category

Table 14 gives a summary of the 376 survey forms received from agents for projects completed in 2013. The number of survey forms completed is indicated for different employer categories and project types, with the purpose to evaluate whether responses were obtained for all types of construction projects and all the different employer bodies.

Table 14 shows that the largest group of responses received were from civil works (42%) and non-residential building projects (26%). Projects of the private sector (26%) and metropolitan councils (26%) were best represented in the survey.

The results are presented per project type and per client category to ensure that the results for less represented project types do not disappear in the average of all projects. The distribution remains fairly the same when compared to previous surveys.

Table 14 Agent survey response distribution per project type and employer category 2013

Project Type	Total No. of projects	26	14	4	20	26	7	3	0	% of Total Survey Results
Residential Building	25	14	2	-	9	-	-	-	-	7
Non-residential Building	97	27	16	4	34	8	4	4	-	26
Civil Works	158	26	11	11	25	60	21	4	-	42
Mechanical Works	30	12	6	-	4	6	1	1	-	8
Electrical Works	50	12	13	1	3	19	-	2	-	13
Special Works	16	5	5	1	-	5	-	-	-	4
Not Specified	-	-	-	-	-	-	-	-	-	0
Total No. of Projects	376	96	53	17	75	98	26	11	-	
Employer Category		Private Sector	Public Corporation e.g. ESKOM, ACSA	National Department	Provincial Department	Metropolitan Council	Regional / District Council	Public Private Partnership	Not Specified	

5.2 Contract documentation

The agents indicated the form of contract used for their projects and if significant amendments were necessary such as mitigation of risk and delegation of responsibility. The results are shown in Table 15.

The JBCC form of contract was most popular for residential (68%) and non-residential (83%) building projects. The GCC form of contract was most popular for civil (76%) contracts. Table 15 also shows that it was necessary to significantly amend 31 – 36% of the four contract types allowed by the government gazette to suit particular needs.

Table 15 Type of contract document used for different project types 2013

Project Type	% Contract Document Type usage for each Project Type					Total
	GCC	NEC	JBCC	FIDIC	OTHER	
Residential Building	20	-	68	8	4	100
Non-residential Building	13	1	83	-	3	100
Civil Works	76	4	6	10	4	100
Mechanical Works	27	13	10	23	27	100
Electrical Works	27	20	29	18	6	100
Special Works	31	6	44	13	6	100
Contract Document Type	GCC	NEC	JBCC	FIDIC	OTHER	
% Projects with Contract Document significantly amended	31	36	24	33	18	

5.3 Contractor performance issues utilised in the adjudication of tenders

Agents were requested to indicate whether contractor performance issues were taken into account during the tender adjudication process as quality / functionality criteria and the results are indicated in Table 16 for different employer categories.

Table 16 Percentage of projects where contractor performance issues were not taken into account as quality/functionality criteria in the adjudication of tenders 2013

Percentage of projects where the evaluation of contractor quality did not form part of the adjudication process	
Employer Category	% of Projects where quality was not considered
Private Sector	12
Public Corporation	13
National Department	0
Provincial Department	15
Metropolitan Council	13
Regional / District Council	8
Public Private Partnership	0

Table 16 shows that for 15% of provincial department projects and 13% of public corporation and metropolitan council projects contractor quality was not considered during the adjudication process. In other words, the capability, training, performance, experience and track record of the contractors were considered as being of no importance to select a contractor to do work for the employer. It is obvious that service delivery in general is hampered by poor performance of contractors and therefore, contractor quality should be taken into account.

5.4 Procurement procedures used to solicit tenders

Table 17 shows the procurement procedures used to solicit tenders per employer category. Except for the private sector open tenders were the most popular procurement procedure followed by all employer categories. In the private sector, the most popular procurement procedures were negotiated (25%), nominated / selected (24%), and quotations (24%). Public private partnerships mostly made use of open (37%) and qualified (27%) procurement procedures.

Table 17 Procurement procedures used to solicit tenders per employer category 2013

Procurement Procedure	% of Projects in each Employer Category using different Procurement Procedures						
	Private Sector	Public Corporation e.g. ESKOM, ACSA	National Department	Provincial Department	Metropolitan Council	Regional / District Council	Public Private Partnership
Negotiated	25	6	-	4	2	4	9
Nominated / Selected	24	23	-	13	3	-	9
Open	19	45	82	63	83	77	37
Qualified	6	11	6	8	-	4	27
Quotation	24	13	-	11	3	7	18
Two Envelope System	1	-	12	1	6	-	-
Two Stage System	1	2	-	-	3	8	-
Employer Category	Private Sector	Public Corporation e.g. ESKOM, ACSA	National Department	Provincial Department	Metropolitan Council	Regional / District Council	Public Private Partnership

5.5 Contracting strategies adopted

The distribution of contracting strategies adopted by different employer categories is shown in Table 18. The design by employer strategy was most popular for all employer categories.

5.6 Agents' satisfaction with the time allowed for planning

Table 19 shows the agents' satisfaction level with the time allowed by the employer for project planning with the satisfaction levels as defined in Table 1. Agents expressed their satisfaction with the time allowed for planning for only 59% of national department projects. This was followed with satisfaction expressed for only 68% of the projects from provincial departments and public corporations. The results further show that agents were dissatisfied with the time allowed for planning for 7% of all metropolitan council and 6% of all public corporation and national department projects. If insufficient time is allowed for planning it normally leads to poor contract documentation, many variation orders, additional costs, and time delays that are detrimental to the success of any project.

Table 18 Contracting strategies adopted per employer category 2013

Contracting Strategy	% Projects with Contracting Strategy per Employer Category					
	Private Sector	Public Corporation	National Department	Provincial Department	Metropolitan Council	Regional/ District Council
Design & Build	14	15	-	10	14	11
Develop & Construct	4	-	12	1	7	-
Design by Employer	68	79	63	66	76	77
Management Contract	4	2	12	12	-	4
Construction Management	10	4	13	11	3	8
Employer Category	Private Sector	Public Corporation	National Department	Provincial Department	Metropolitan Council	Regional/ District Council

Table 19 Agents' satisfaction level with time allowed for planning 2013

Satisfaction Level: % Distribution			
Employer Category	D = Dissatisfied	N = Neither satisfied nor dissatisfied	S = Satisfied
	D	N	S
Private Sector	1	19	80
Public Corporation	6	26	68
National Department	6	35	59
Provincial Department	5	27	68
Metropolitan Council	7	13	80
Regional / District Council	4	15	81
Public Private Partnership	0	27	73

5.7 Deviation from the tender adjudication procedures

Agents were posed the question whether the employer awarded the tender to the responsive tenderer who achieved the best tender score during the tender evaluation process. The tenders were evaluated by the agents according to the employer's own approved tender evaluation procedures. Non-responsive tenders received were ignored. Table 20 shows the percentage of contracts that were not awarded to the responsive tenderer with the best tender evaluation score per employer category and province. It is important to keep in mind the impact of the number of projects involved on the reliability of the conclusions reached.

Table 20 Contracts not awarded to the tenderer with best tender score per employer category and province 2013

Employer Category	% Contracts not awarded to the responsive tenderer with best tender score (The value in brackets is the number of projects involved)								
	Eastern Cape	Free State	Gauteng	KwaZulu-Natal	Limpopo	Mpumalanga	North West	Northern Cape	Western Cape
Private Sector	0 (1)	0 (2)	11 (18)	22 (18)	20 (5)	0 (3)	33 (9)	0 (8)	13 (30)
Public Corporation	0 (8)	0 (5)	0 (2)	7 (15)	57 (7)	0 (6)	33 (3)	0 (2)	60 (5)
National Department	0 (1)	0 (1)	0 (1)	20 (5)	100 (1)	0 (1)	- (-)	0 (1)	0 (5)
Provincial Department	14 (14)	0 (2)	50 (2)	6 (17)	27 (11)	100 (1)	0 (9)	0 (7)	9 (11)
Metropolitan Council	40 (5)	17 (6)	9 (11)	0 (16)	17 (6)	0 (6)	0 (7)	0 (7)	0 (34)
Regional / District Council	0 (5)	0 (1)	- (-)	14 (7)	75 (4)	0 (2)	0 (3)	0 (3)	0 (1)
Public Private Partnership	50 (2)	- (-)	0 (1)	0 (3)	- (-)	0 (1)	0 (4)	- (-)	- (-)
Province	Eastern Cape	Free State	Gauteng	KwaZulu-Natal	Limpopo	Mpumalanga	North West	Northern Cape	Western Cape

Bear in mind that the results are not based on the perceptions of aggrieved tenderers, but on the knowledge of the independent agents of the employers. This suggests that there may be some form of political intervention, manipulation of results or corrupt / fraudulent practices. However, if the tenderer with the best tender score was tied up with too many current commitments that was not considered during the calculation of the tender points, the tender might have been fairly awarded to someone else. Table 20 can be used to determine in which provinces and for which employer categories tender adjudication practices should be investigated.

5.8 Professional fee payment delays

The average number of days delay between submission of professional fee accounts and receipt of payment is shown in Table 21. The agents' fees were paid within 30 days for only 50% of all projects completed. The worst early paying employer was the regional district council who only paid 27% of their agents within 30 days. On the other hand the private sector and national departments were the best early payers who paid 59% of their agents within 30 days. The employer who paid the largest percentage (35%) of their agents only after 60 days was the national department.

Table 21 Payment delay of agents' fees per employer category 2013

Avg. Days Delay	% of Projects with Payment Delay per Employer Category							% of all Projects
≤ 14	18	8	12	4	13	4	27	11
14 to 30	41	38	47	40	41	23	18	39
30+ to 60	35	41	6	39	31	54	46	36
60+ to 90	1	11	23	7	7	11	9	7
90+ to 120	2	-	12	5	4	-	-	3
120+	3	2	-	5	4	8	-	4
Employer Category	Private Sector	Public Corporation	National Department	Provincial Department	Metropolitan Council	Regional / District Council	Public Private Partnership	

Table 22 shows timeous (< 30 days) payment of agent's fees per province and employer category that can be used to more specifically evaluate the performance of employers. The results are quite disturbing, bearing in mind that the employers were in breach of the contracts with their agents. Agents refrain from standing up to their contractual right to be paid on time for fear of losing new project appointments in the future.

Table 22 Timeous payment (< 30 days) of agents per employer category and province 2013

Employer Category	% of Projects where the agent is paid within 30 days (The value in brackets is the number of projects involved)								
	Private Sector	100 (1)	0 (2)	67 (18)	61 (18)	0 (5)	67 (3)	89 (9)	25 (8)
Public Corporation	75 (8)	80 (5)	0 (2)	27 (15)	57 (7)	33 (6)	33 (3)	50 (2)	40 (5)
National Department	0 (2)	100 (1)	0 (1)	60 (5)	0 (1)	0 (1)	- (-)	100 (1)	100 (5)
Provincial Department	29 (14)	50 (2)	100 (2)	12 (17)	36 (11)	0 (2)	67 (9)	71 (7)	82 (11)
Metropolitan Council	40 (5)	50 (6)	64 (11)	44 (16)	67 (6)	83 (6)	43 (7)	43 (7)	56 (34)
Regional / District Council	20 (5)	100 (1)	- (-)	0 (7)	25 (4)	100 (2)	33 (3)	0 (3)	100 (1)
Public Private Partnership	50 (2)	- (-)	0 (1)	0 (3)	- (-)	100 (1)	75 (4)	- (-)	- (-)
Province	Eastern Cape	Free State	Gauteng	KwaZulu-Natal	Limpopo	Mpumalanga	North West	Northern Cape	Western Cape

5.9 Agents who tendered for projects

Table 23 shows the percentage of projects per employer category where agents became involved by tendering for work. Agents working for metropolitan and regional / district councils tendered for 74% and 81% of all their projects respectively. The low tender percentages for provincial departments (38%) indicate that they still procure professional services by means of a roster system.

Table 23 Agents who tendered for projects per employer category 2013

% of Projects where Agents tendered for work						
27	57	71	38	74	81	55
Private Sector	Public Corporation e.g. ESKOM, ACSA	National Department	Provincial Department	Metropolitan Council	Regional / District Council	Public Private Partnership
Employer Category						

6. 6. DISCUSSION OF THE EMPLOYERS' SURVEY RESULTS

6.1 Employer survey response distribution per project type and employer category

Table 24 provides a summary of the 535 survey forms received from employers for projects completed in 2013. The number of survey forms completed is indicated for different employer categories and project types.

Table 24 Employer survey response distribution per project type and employer category 2013

Project Type	Total No. of projects	26	28	6	14	20	3	3	0	% of Total Survey Results
Residential Building	46	16	12	2	10	4	1	1	-	8
Non-residential Building	122	44	14	16	27	11	1	9	-	23
Civil Works	171	31	33	7	25	62	11	2	-	32
Mechanical Works	38	16	14	1	4	3	-	-	-	7
Electrical Works	100	18	54	4	3	18	1	2	-	19
Special Works	58	16	22	2	6	11	-	1	-	11
Not Specified	-	-	-	-	-	-	-	-	-	0
Total No. of Projects	535	141	149	32	75	109	14	15	-	
Employer Category		Private Sector	Public Corporation e.g. ESKOM, ACSA	National Department	Provincial Department	Metropolitan Council	Regional / District Council	Public Private Partnership	Not Specified	

The table shows that the majority of responses were for civil works (32%), non-residential building projects (23%), and electrical works projects (19%). Projects of the private sector (26%), public corporations (28%) and metropolitan councils (20%) were best represented in the survey. The results are presented per project type and per employer category to ensure that the results for less represented project types do not disappear in the average of all projects. The distribution remains fairly the same when compared to previous surveys.

6.2 Construction commencement and finish on time

Table 25 shows the percentage of projects with the project commencement and completion dates achieved for different project types and employer categories. It is not known whether the reason for a late start was contractors who could not produce their guarantees on time, or employers who did not have the sites ready to hand over to the contractors. Table 25 shows that 96% of all projects started on time and 84% of all projects finished on time. The finish on time date included any normal extension

of time allowed for by the contract. The project type with the lowest percentage completion on time (77%) was non-residential building projects. The public private partnership category was the employer category with the lowest rate for timeous completion (53%). It is not known if the reason for late completion is lack of contractor capacity, managerial skills, finances, know-how or perhaps unrealistic construction periods specified by agents or employers.

Table 25 Project start and completion on time 2013

Project Type	Start on Time %	Finish on Time %
Residential Building	98	80
Non-residential Building	97	77
Civil Works	95	85
Mechanical Works	100	87
Electrical Works	96	93
Special Works	97	83
Overall	96	84

Employer Category	Start on Time %	Finish on Time %
Private Sector	95	81
Public Corporation	97	88
National Department	97	84
Provincial Department	97	84
Metropolitan Council	96	86
Regional / District Council	93	93
Public Private Partnership	100	53
Overall	96	84

6.3 Employer satisfaction

Table 26 shows the level of employer satisfaction for different project types with the satisfaction levels as defined in Table 1. These are their satisfaction with the performance levels of the agents and contractors and the quality of materials used. The employers were satisfied with their agents' overall performance on 77% to 92% of all projects. Their highest dissatisfaction with their agents was expressed for residential building projects where they were dissatisfied with 5% of the projects.

The employers were satisfied with their contractors' overall performance with the highest satisfaction levels expressed for electrical works projects (91%) and civil works projects (86%). For residential building projects the highest dissatisfaction level of 11% was expressed.

For the ability of the main contractor to finish on time the employers expressed their highest satisfaction level for electrical work projects (86%) and the highest dissatisfaction level for residential building projects (11%).

Table 26 Employers' level of satisfaction per project type 2013

Satisfaction Level: % Distribution																		
Satisfied with	D = Dissatisfied			N = Neither satisfied nor dissatisfied						S = Satisfied								
	D	N	S	D	N	S	D	N	S	D	N	S	D	N	S	D	N	S
Overall performance of Agents	5	18	77	3	19	78	1	13	86	3	14	83	1	7	92	2	13	85
Overall performance of Contractors	11	13	76	6	18	76	3	11	86	0	16	84	1	8	91	2	14	84
Ability of Main Contractor to finish on time	11	13	76	7	18	75	5	16	79	0	16	84	2	12	86	9	7	84
Quality of Completed Work	13	11	76	5	18	77	1	14	85	0	18	82	0	8	92	0	9	91
Main Contractor's Resolution of Defect Work	13	13	74	2	18	80	4	14	82	0	13	87	0	15	85	5	12	83
Work Defect Free at Practical Completion	13	24	63	6	29	65	0	23	77	0	21	79	1	14	85	2	27	71
Overall Quality of Material used	0	9	91	2	11	87	0	11	89	0	13	87	0	6	94	0	10	90
Project Type	Residential building			Non-residential building			Civil Works			Mechanical Works			Electrical Works			Special Works		

For the quality of completed work the employers expressed their satisfaction with 91 to 92% of the electrical and special works projects and their dissatisfaction with 13% of the residential building projects.

Most mechanical works projects (87%) received the employer's satisfaction for the main contractors' resolution of defective work. For work defect free at practical completion the lowest satisfaction level was expressed for residential building projects (63%) and non-residential building project (65%).

Employers were in general very satisfied with the quality of materials used.

It is clear that in general the largest dissatisfaction for all measured CII's was expressed for residential building projects.

Table 27 shows the employers' satisfaction level with the overall performance of the contractors per province. There is an indication of low performance for certain project types in various provinces.

The reliability of conclusions reached that are based on a small number of projects should always be kept in mind.

Table 27 Employers' level of satisfaction with the overall performance of contractors per province 2013

Satisfaction Level: % Distribution															
Project Type	D = Dissatisfied N = Neither satisfied nor dissatisfied S = Satisfied (The value in brackets is the number of projects involved)														
	D	N	S	D	N	S	D	N	S	D	N	S	D	N	S
Residential Building	50	0 (8)	50	-	- (-)	-	8	8 (12)	84	0	20 (5)	80	0	33 (3)	67
Non-residential Building	6	25 (16)	69	0	0 (5)	100	0	21 (29)	79	4	16 (25)	80	33	11 (9)	56
Civil Works	0	5 (19)	95	0	0 (6)	100	5	16 (19)	79	6	3 (33)	91	0	50 (10)	50
Mechanical Works	-	- (-)	-	0	50 (2)	50	0	0 (10)	100	0	22 (9)	78	0	0 (1)	100
Electrical Works	25	0 (4)	75	0	0 (6)	100	0	7 (14)	93	0	13 (16)	87	0	7 (28)	93
Special Works	0	50 (4)	50	0	0 (1)	100	0	8 (12)	92	8	0 (13)	92	0	0 (7)	100
Province	Eastern Cape			Free State			Gauteng			KwaZulu-Natal			Limpopo		

Table 27 (Continued) Employers' level of satisfaction with the overall performance of contractors per province 2013

Satisfaction Level: % Distribution (The value in brackets is the number of projects involved)												
Employer Category	D = Dissatisfied N = Neither satisfied nor dissatisfied S = Satisfied											
	D	N	S	D	N	S	D	N	S	D	N	S
Residential Building	0	4 (5)	60	0	0 (4)	100	0	0 (2)	100	0	14 (7)	86
Non-residential Building	0	0 (7)	100	0	0 (3)	100	0	40 (5)	60	9	22 (23)	69
Civil Works	0	6 (18)	94	0	0 (8)	100	0	17 (18)	83	8	10 (40)	82
Mechanical Works	0	40 (5)	60	0	0 (1)	100	-	- (-)	-	0	10 (10)	90
Electrical Works	0	12 (8)	88	0	0 (3)	100	0	0 (6)	100	0	14 (14)	86
Special Works	0	25 (4)	75	0	0 (3)	100	0	50 (4)	50	0	20 (10)	80
Province	Mpumalanga			North West			Northern Cape			Western Cape		

6.4 Employers' own capacity

Table 28 shows the percentage of contracts per employer category where agents were not appointed. All client bodies rely heavily on the support of agents. This indicates that there is nearly no in-house capacity in among others the engineering, architectural and quantity surveyor fields of work. Furthermore, it is quite likely that the small percentage of projects employers handled themselves were projects such as refurbishment contracts where technical and professional expertise was not required. It is of great concern that role players in the construction industry have to communicate with officials in government departments who have no or very little understanding of the contractual procedures and technical complexities inherent to construction projects.

Table 28 Employer's own capacity per employer category 2013

% of Projects where Agents were not appointed						
6	11	6	15	7	0	0
Private Sector	Public Corporation e.g. ESKOM, ACSA	National Department	Provincial Department	Metropolitan Council	Regional / District Council	Public Private Partnership
Employer Category						

7. CONCLUSIONS AND RECOMMENDATIONS

7.1 Conclusions

The main findings of the 2014 survey for projects completed in 2013 were as follows:

- 1) Contractors made a loss on 3% of all projects completed.
- 2) Special works (42%), mechanical works (22%) and non-residential building projects (22%) showed the highest percentage of projects with contractor profit larger than 15%.
- 3) Residential building projects were least profitable for contractors.
- 4) There was no relationship between profit and the financial grade of contractors.
- 5) The contractors were dissatisfied with the overall performance of their employers for 8% of regional / district council projects. Public corporations had the lowest percentage (75%) of projects completed where the contractors expressed their satisfaction with the overall performance of the employer.
- 6) The contractors were satisfied with the overall performance of the agents for only 75% of private sector projects and 76% of public private partnership projects.

- 7) Contractors expressed their dissatisfaction with the quality of the documentation and specifications for only 2 to 6% of projects completed. Contractors were satisfied with the documentation for only 74% of the metropolitan council projects.
- 8) The dissatisfaction with the management of variation orders (VO's) seemed to be problematic for regional / district council (13%) and for national (9%) and provincial (7%) department projects. Projects where the contractors expressed their lowest satisfaction with the management of VO's were for national department (70%) and regional / district council (70%) projects.
- 9) For management of claims, contractors were satisfied with only 69% of provincial department projects. They were dissatisfied with 13% of regional / district council and with 12% of national department projects.
- 10) Grade 9 contractors expressed their dissatisfaction with the overall performance of their employers (11%) and agents (14%) for the largest percentage of projects.
- 11) Only 42% of all contractors were paid on time (within 30 days). This performance was worse than the 44% and 48% results of the previous two surveys. Therefore, the problem is growing.
- 12) With regard to early payment the regional / district councils performed the best, with payments made within 30 days on 52% of their projects. The public corporations and public private partnerships performed worst with early payment as only 35 and 32% of their contractors were paid within 30 days respectively.
- 13) The worst very late payers were the national and provincial departments who respectively paid 24 and 28% of their contractors only after 60 days or more.
- 14) The contractors level of dissatisfaction with the overall performance of the materials suppliers were very low for all project types.
- 15) It is of concern that contractor quality was discarded as being of any importance for 15% of tenders allocated to contractors by provincial departments and 13% of public corporation and metropolitan council tenders.
- 16) Agents were satisfied with the amount of time allowed for planning for only 59% of national department projects. The largest percentage of projects for which they expressed their dissatisfaction was 7% for metropolitan council and 6% for national department and public corporation projects.
- 17) There was an indication of some form of political intervention, manipulation of results or corrupt / fraudulent practices in the tender adjudication procedures of some employer bodies.

- 18) Only 50% of agents were paid on time within 30 days. The regional / district councils were the worst on time payers (27%). The national department paid 35% of their agents only after more than two months.
- 19) Agents working for regional / district councils tendered for 81% of all their projects. Provincial departments made more use of a roster system to procurement professional services.
- 20) Employers indicated that 96% of their projects started on time and 84% finished on time.
- 21) Employers were satisfied with the overall performances of their agents for 77% to 92% of the projects completed. Dissatisfaction was expressed for 5% of residential building projects.
- 22) Employers were satisfied with the overall performance of the contractors for 76% to 91% of the projects completed. Dissatisfaction was expressed for 11% of residential building projects.
- 23) The employers were dissatisfied with the ability of residential building and special works contractors to finish on time for 11 % and 9% of their projects respectively and with the quality of the completed work for 13% of residential building projects.
- 24) Employers were generally satisfied with the quality of materials used for all project types.
- 25) Employer bodies have very little in-house capacity.

7.2 Recommendations

The following recommendations stem from this research:

- 1) Government should address the problems leading to late payment of contractors and agents.
- 2) The results suggest that corrupt / fraudulent tender allocations occur in some departments in various provinces that need investigation.
- 3) The own capacity of government departments should be grown by appointing skilled and professionally qualified engineers, architects and quantity surveyors in key positions.
- 4) There should be more emphasis on developing good small contractors, and not only to achieve a higher financial grade, as small contractors can make just as good a profit as their larger and higher graded counterparts.
- 5) This research should be continued annually to be able to track trends over time.
- 6) While focussing on the implications of these findings for the South African context, other countries can also derive information from this report which can assist them in implementing a similar construction industry performance measuring system.

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