Annual Report on Accident Statistics and Analyses for Public Works Contracts 2022

This report summarizes the accident statistics and analysis of the accidents occurred in public works contracts in 2022.

Accident Statistics (Appendices A to F)

2.

Some key accident statistics and their trends are summarized below –

	Key Statistical Data	Remarks
(a)	Accident rate (fatal + non-fatal)	The accident rates for 2021 and 2022 were 0.19 and 0.14 accidents per 100,000 man-hours worked (or equivalent to 6.9 and 5.2 accidents per 1,000 workers per year respectively). A decrease of about 25% was observed.
(b)	No. of reportable accidents (fatal + non-fatal)	The total numbers of reportable accidents for 2021 and 2022 were 209 and 181 respectively. A decrease of about 13% was observed. The numbers of man-hours worked for 2021 and 2022 were 108,458,875.1 and 125,092,200.4 respectively. An increase of about 15% was observed.
(c)	Fatal accidents	One fatal reportable accident occurred in public works contracts in 2022. A total of 17 fatalities in various industrial accidents were recorded in the whole construction industry in 2022.

3. The brief account of a fatal accident happened under a public works contract is given below –

Date of Accident	Accident Nature	Brief Description of Accident
26/5/2022	Trapped by collapsing or overturning object	While a worker was using a flame cutting tool to dismantle a steel lift shaft working platform, part of the working platform being dismantled suddenly toppled onto him. As a result, the worker was pressed to death.
		The incident happened under ArchSD Contract No. SS G501 – Design and Construction of Immigration Headquarters in Area 67, Tseung Kwan O.

Works	No. of Fatal Accident	Accident Rates (Fatal + Non-fatal)			
Departments		No. of accidents per 100,000 man-hours worked	No. of accidents per 1,000 workers per year		
ArchSD	1	0.22	8.1		
CEDD	0	0.11	3.9		
DSD	0	0.12	4.3		
EMSD	0	0.11	4.0		
HyD	0	0.10	3.5		
WSD	0	0.11	3.9		
Overall	1	0.14	5.2		

Note: The limit set by DEVB with effect from 1 February 2011 is 0.60 accidents per 100,000 man-hours worked (or equivalent to 22 accidents per 1,000 workers per year).

5. The severity rates (in terms of number of man-days lost per 100,000 man-hours worked) for 2021 and 2022 were 44.2 and 40.7 respectively. A decrease of 8% was observed.

Accident Analyses

6. The accident analyses for the following aspects are given in **Appendices G** to **O** of this Report respectively. Key findings are summarized below.

(a) <u>Types of Contracts</u> (Appendix G)

Types of	Accident rate (No. of accident per 1,000 workers per year)					
Contracts	2020	2021	2022	Changes between 2021 & 2022		
Building	7.9	10.7	7.4	-3.3 (-30.8%)		
Landscape	4.1	5.2	7.2	2.0 (38.5%)		
Slope Works	3.6	5.1	6.8	1.7 (33.3%)		
Other Specialist Works	6.6	2.1	6.8	4.7 (223.8%)		
Geotechnical Works	8.4	2.9	5.6	2.7 (93.1%)		

The five types of contracts having the highest accident rates are listed below -

The accident rates under Landscape, Slope Works, Other Specialist Works and Geotechnical Works contracts in 2022 are increased, as compared with 2021. The corresponding project teams, contract administrators and site supervisory staff are reminded to pay special attention to the safety performance on these sites.

(b) <u>Types of Accidents</u> (Appendix H)

Types of	No. of Accidents (% of total no. of accidents)					
Accidents	2020	2021	2022	Changes between 2021 & 2022		
Slip, Trip or Fall	39	37	49	12		
On Same Level	(23.1%)	(17.7%)	(27.1%)	(32.4%)		
Struck By Moving or	26	22	28	6		
Falling Object	(15.4%)	(10.5%)	(15.5%)	(27.3%)		
Injured Whilst Lifting or Carrying/ Manual Lifting/ Manual Handling/ Handling Without Machinery	23 (13.6%)	36 (17.2%)	23 (12.7%)	-13 (-36.1%)		
Fall of Person	13	27	19	-8		
From Height	(7.7%)	(12.9%)	(10.5%)	(-29.6%)		
Trapped In or	10	13	12	-1		
Between Objects	(5.9%)	(6.2%)	(6.6%)	(-7.7%)		

The five most common types of accidents are listed below -

The above five types of accidents account for more than 70% of the total number of accidents in 2022. In addition, it is observed that accidents related to "Slip, Trip or Fall On Same Level" and "Struck By Moving or Falling Object" had been increased by around 30%. Works Departments are requested to devise effective and targeted measures to further reduce the number of accidents, in particular for the above five types of accidents.

(c) <u>Trades of Workers</u> (Appendix I)

Tradag of Workorg	No. of Accidents (% of total no. of accidents)				
Trades of workers	2020	2021	2022	Changes between 2021 & 2022	
Labourer	81	98	78	-20	
	(47.9%)	(46.9%)	(43.1%)	(-20.4%)	
Building Services/	3	10	12	2	
E&M Worker	(1.8%)	(4.8%)	(6.6%)	(20.0%)	
Bar Bender and	6	12	10	-2	
Fixer	(3.6%)	(5.7%)	(5.5%)	(-16.7%)	

The three most common trades involved in the accidents are listed below -

As revealed in Appendix I, "Labourer" remained the top-ranked trade commonly involved in the accidents since 2018. More safety briefings or toolbox talks should be provided to workers, in particular the aforementioned trade, for enhancing their safety awareness. As noted in Appendix I, some of the accidents involved management or supervisory staff. Management staff and supervisory staff should be arranged to timely attend the prescribed safety training and the respective refresher courses to enhance their safety knowledge and awareness.

(d) <u>Natures of Injury</u> (Appendix J)

Natures of	No. of Accidents (% of total no. of accidents)				
Injury	2020	2021	2022	Changes between 2021 & 2022	
Fracture	44	71	67	-4	
	(21.6%)	(28.4%)	(32.4%)	(-5.6%)	
Contusion & Bruise	60	58	62	4	
	(29.4%)	(23.2%)	(30.0%)	(6.9%)	
Laceration and Cut	23	30	23	-7	
	(11.3%)	(12.0%)	(11.1%)	(-23.3%)	
Sprain/ Strain/ Twist	27	34	21	-13	
	(13.2%)	(13.6%)	(10.1%)	(-38.2%)	

The four most common natures of injury are listed below -

"Fracture", "Contusion & Bruise", "Laceration and Cut" and "Sprain/ Strain/ Twist" were the most four common natures of injury in the past five years, which were observed in more than 83% of the total number of accidents. Work procedures and system of work should be formulated and safe working environment, suitable tools and machinery should be provided for carrying out the works, taking cognizance of the above findings.

(e) <u>Parts of Body Injured</u> (Appendix K)

The three most common body parts injured in the accidents are listed below -

Parts of Body	No. of Accidents (% of total no. of accidents)					
Injured	2020	2021	2022	Changes between 2021 & 2022		
Finger	34	51	36	-15		
	(16.7%)	(20.4%)	(17.4%)	(-29.4%)		
Back	26	30	26	-4		
	(12.7%)	(12.0%)	(12.6%)	(-13.3%)		
Leg	12	14	20	6		
	(5.9%)	(5.6%)	(9.7%)	(42.9%)		

"Finger" and "Back" remained the most two common part of body injured for the accidents in the past five years. Proper personal protective equipment and sufficient training and instruction should be provided to workers to ensure their safety at work.

(f) <u>Agents Involved</u> (Appendix L)

Agents Involved	No. of Accidents (% of total no. of accidents)					
	2020	2021	2022	Changes between 2021 & 2022		
Floor, Ground, Stairs or Any Working Surface	34 (18.6%)	33 (15.0%)	40 (22.1%)	7 (21.2%)		
Material / Product Being Handled or Stored	28 (15.3%)	49 (22.3%)	27 (14.9%)	-22 (-44.9%)		
Portable Power or Hand Tools	19 (10.4%)	16 (7.3%)	14 (7.7%)	-2 (-12.5%)		
Other Machinery (specify)	6 (3.3%)	9 (4.1%)	12 (6.6%)	3 (33.3%)		

The three most common agents involved in the accidents are listed below -

"Floor, Ground, Stairs or Any Working Surface", "Material / Product Being Handled or Stored", and "Portable Power or Hand Tools" were the three most common types of agents involved in the accidents in the past five years. Extra efforts should be spent on improving these areas.

(g) <u>Unsafe Actions</u> (Appendix M)

	No. of Accidents (% of total no. of accidents)					
Unsafe Actions	2020	2021	2022	Changes between 2021 & 2022		
Lapse of Attention	50	60	61	1		
	(25.8%)	(25.3%)	(31.4%)	(1.7%)		
Adopting Unsafe	32	35	29	-6		
Position or Posture	(16.5%)	(14.8%)	(14.9%)	(-17.1%)		
Failure To Secure	15	10	12	2		
Objects	(7.7%)	(4.2%)	(6.2%)	(20.0%)		

The three most common unsafe actions leading to accidents are listed below -

"Lapse of Attention" and "Adopting Unsafe Position or Posture" were the two most common type of unsafe actions in the past five years. Contractors are requested to provide sufficient information and instructions to workers so that they would stay vigilant in the work place.

(h) <u>Unsafe Conditions</u> (Appendix N)

The three most common unsafe conditions involved in the accidents are listed below –

Unsafe	No. of Accidents (% of total no. of accidents)					
Conditions	2020	2021	2022	Changes between 2021 & 2022		
Improper	18	27	25	-2		
Procedure	(9.4%)	(12.0%)	(12.6%)	(-7.4%)		
Unsafe Process	16	29	21	-8		
or Job Methods	(8.4%)	(12.9%)	(10.6%)	(-27.6%)		
Poor	11	8	14	6		
Housekeeping	(5.8%)	(3.6%)	(7.0%)	(75.0%)		

The above three types of unsafe conditions accounted for about 30% of the total number of accidents, which showed that the unsafe conditions involved in accidents varied substantially. Works Departments should closely monitor contractors' performance and take prompt actions to rectify any unsafe actions or conditions observed on site. Routine safety inspections by

the project teams or site supervisory staff and surprise audits by the Departmental Safety and Environmental Advisory Units or independent teams would be the possible actions to identify the malpractice and deficiencies in the working environment and safety management system.

(i) <u>Personal Factors</u> (Appendix O)

Personal	No. of Accidents (% of total no. of accidents)					
Factors	2020	2021	2022	Changes between 2021 & 2022		
Carelessness /	96	119	119	0		
Not Concentrate	(50.3%)	(50.2%)	(61.0%)	(0.0%)		
Incorrect Attitude /	23	24	21	-3		
Motive	(12.0%)	(10.1%)	(10.8%)	(-12.5%)		
Lack Of	16	23	18	-5		
Knowledge or Skill	(8.4%)	(9.7%)	(9.2%)	(-21.7%)		

The distributions of accidents arising from personal factors are given below -

The number of accidents associated with "Carelessness / Not Concentrate" was the highest in the past five years. More than half of the total number of accidents were arising from this personal factor. Contractors should strengthen the workers' safety awareness and attitude through training including briefings and toolbox talks.

7. To maintain the continuous improvement in site safety, Works Departments are recommended to pay particular attention to the following aspects –

- (i) promoting workers' safety awareness in lifting or carrying, against fall from height, to prevent struck by falling or moving objects, and to prevent slip, trip and fall on same level;
- (ii) improving site cleanliness and tidiness;
- (iii) providing sufficient instruction, training and supervision to workers to ensure their safety at work in particular for working at height, lifting and confined space work;
- (iv) providing suitable fall arresting equipment e.g. safety harness, fall arrester and independent lifeline connected to a secured anchorage to workers who are at risk of falling from height;
- (v) maintaining an effective monitoring system to ensure workers and supervisory staff (both RSS and in-house staff) make full and proper use of personal protective equipment and safety equipment;

- (vi) enforcing the requirement to conduct risk assessment, and/or permitto-work system, for all high-risk activities before commencement of the work;
- (vii) maintaining a safe system of work including proper site layout and work plan to segregate workers from construction plant and vehicles;
- (viii) tightening up the control on the use of ladders for work purpose (including straight ladders, step ladders, A-ladders, folding ladders or other ladders alike) on public works construction sites. Ladders should normally be restricted for ascending and descending purposes only;
- (ix) providing adequate safety training, briefings or toolbox talks to workers, especially sharing the lessons learnt in the serious incidents, for preventing recurrence and raising their safety awareness and working attitude;
- (x) arranging management staff and site supervisory staff of the project teams, resident site staff and contractors to timely attend the prescribed safety training and the respective refresher courses as appropriate to enhance their safety knowledge and awareness;
- (xi) providing adequate supervision, surprise check and daily review to the construction activities, especially the high-risk construction activities, to ensure the works are carried out in accordance with the approved method statement and statutory requirements;
- (xii) providing sufficient information and instruction to workers and paying particular attention to the workers' misbehaviours during safety inspection and supervision on site. Any unsafe actions or posture observed on site should be stopped immediately; and
- (xiii) checking of completeness of Independent Checking Engineer's design certificates and as-built certificates for the detailed design and method statements of temporary works before loading, and statutory form(s) for temporary works/scaffolding/working platform.

8. Apart from the analyses given in this report, Works Departments are recommended to carry out further detailed analyses of the accidents under their purview with a view to developing targeted safety measures and programme for further improvement.

Works Branch Development Bureau May 2023

Attachments:

<u>Appendix</u>	Title
А	Accident Rates for Public Works Contracts and the Construction Industry from 2013 to 2022
В	Chart of Yearly Accident Rates for Public Works Contracts and the Construction Industry from 2013 to 2022
С	Chart of Monthly Average Accident Rates for Public Works Contracts from January 2013 to December 2022
D	Number of Accidents for Public Works Contracts with Breakdown by Works Departments from 2013 to 2022
Е	Accident Rates for Public Works Contracts with Breakdown by Works Departments from 2013 to 2022
F	Severity for Public Works Contracts with Breakdown by Works Departments from 2018 to 2022
G	Accident Rates for Public Works Contracts from 2013 to 2022 Analyzed by Types of Contracts
Н	No. of Accidents for Public Works Contracts from 2018 to 2022 Analyzed by Types of Accident
Ι	No. of Accidents for Public Works Contracts from 2018 to 2022 Analyzed by Trades of Workers
J	No. of Accidents for Public Works Contracts from 2018 to 2022 Analyzed by Natures of Injury
K	No. of Accidents for Public Works Contracts from 2018 to 2022 Analyzed by Parts of Body Injured in Accidents
L	No. of Accidents for Public Works Contracts from 2018 to 2022 Analyzed by Agents Involved in Accidents
М	No. of Accidents for Public Works Contracts from 2017 to 2022 Analyzed by Unsafe Actions Involved in Accidents
N	No. of Accidents for Public Works Contracts from 2018 to 2022 Analyzed by Unsafe Conditions Involved in Accidents
0	No. of Accidents for Public Works Contracts from 2018 to 2022 Analyzed by Personal Factors Involved in Accidents