

Accident Rates for Public Works Contracts and the Construction Industry from 2009 to 2018

Year ¹	Public Works Contracts			Accident Rates					
				Fatal Accidents			Reportable Accidents		
	No. of Fatalities	No. of Non-fatal Reportable Accidents ²	No. of Man-hours Worked for ³	Public Works Contracts		Construction Industry	Public Works Contracts		Construction Industry
				a ⁴	b ⁵	c ⁶	a ⁴	b ⁵	c ⁶
2009	4	275	85,391,537	0.004	0.13	0.38	0.32	11.6	54.6
2010	0	278	100,391,978	0.000	0.00	0.16	0.28	9.8	52.1
2011	7	340	111,847,295	0.006	0.22	0.37	0.30	10.9	49.7
2012	6	289	109,106,626	0.005	0.20	0.34	0.27	9.7	44.3
2013	5	206	103,838,302	0.005	0.17	0.28	0.20	7.3	40.8
2014	5	218	105,614,895	0.005	0.17	0.27	0.21	7.6	41.9
2015	4	241	106,992,896	0.004	0.13	0.20	0.23	8.2	39.1
2016	4	232	108,768,078	0.004	0.13	0.11	0.22	7.8	34.5
2017	6	272	124,058,977	0.005	0.17	0.19	0.22	8.1	32.9
2018	1	290	117,958,151	0.001	0.03	0.13	0.25	8.9	31.7

¹ The figures for 2018 are captured as at 30 June 2019 and figures for previous years are based on the annual report for 2017.

² A “non-fatal reportable accident” means industrial accident, which results in any injury that incapacity the worker for more than 3 days.

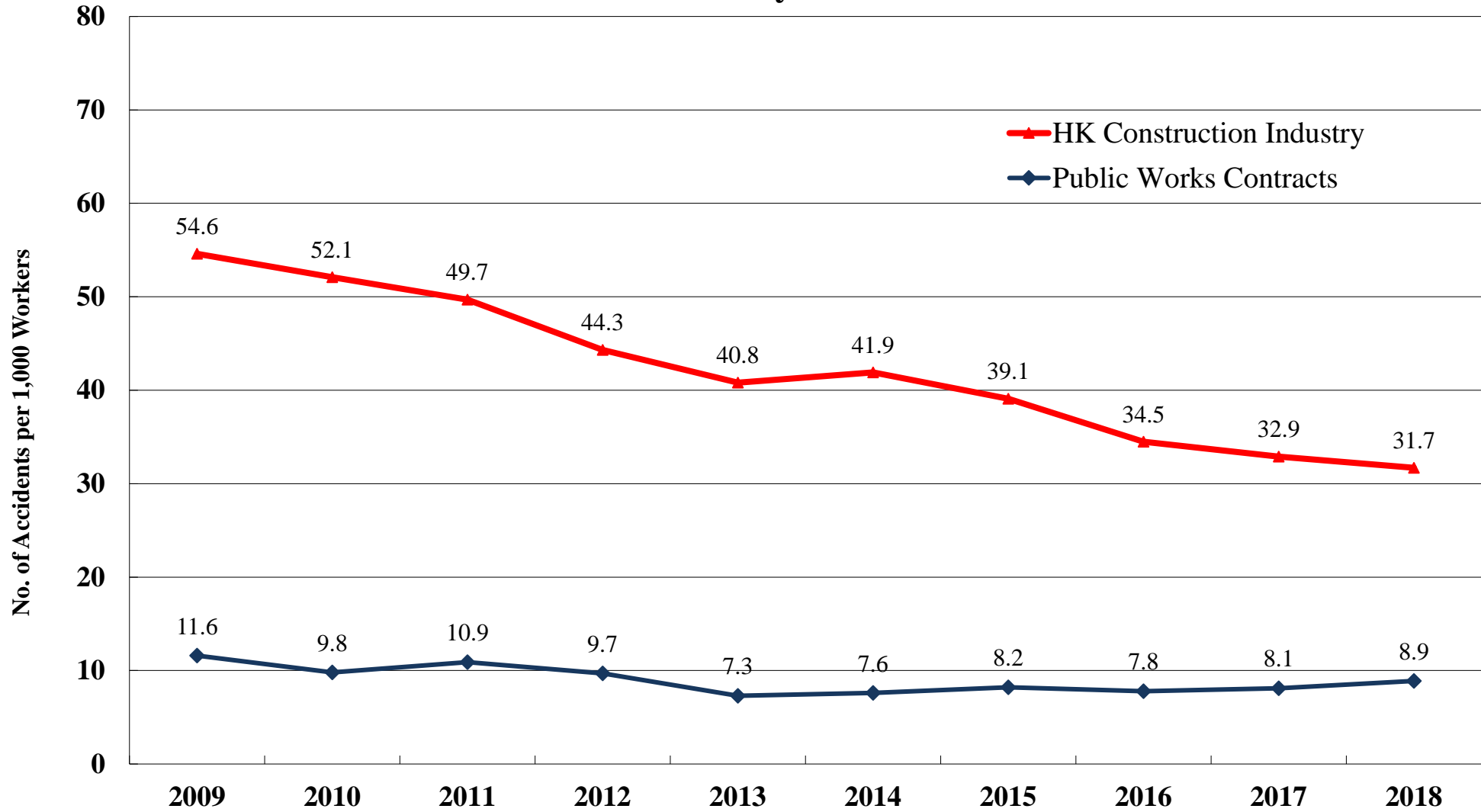
³ The "man-hours worked" means the man-hours worked by all persons employed on the works whether in the employ of main contractor and his sub-contractors who are exposed to the risks on the sites, including supervisory staff, site agent and engineer(s), workers, watchman etc.

⁴ The accident rates for columns marked with (a) are given in term of no. of accidents per 100,000 man-hours worked.

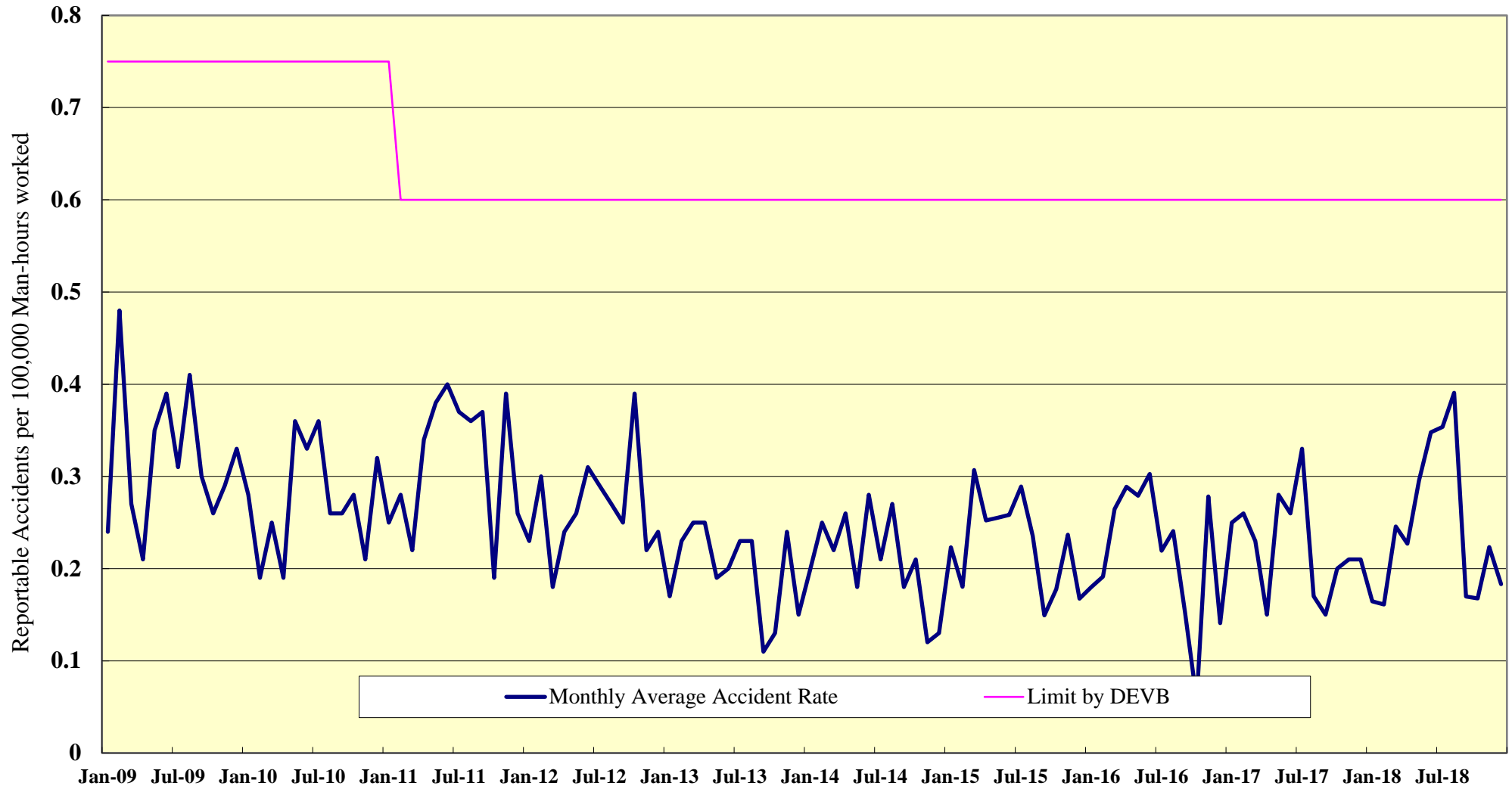
⁵ The accident rates for columns marked with (b) are given in term of no. of accidents per 1,000 workers per year based on a conversion of 1.67 accidents per 100,000 man-hours worked equivalent to 60 accidents per 1,000 workers per year.

⁶ The accident rates for columns marked with (c) are given in term of no. of accidents per 1,000 workers per year based on the statistics of the Labour Department.

Chart of Yearly Accident Rates for Public Works Contracts and the Construction Industry from 2009 to 2018



**Chart of Monthly Average Accident Rates
for Public Works Contracts from January 2009 to December 2018**



Period	1/02 - 12/02	1/03 - 3/04	4/04 - 3/05	4/05 - 1/11	since 2/11
Limit by DEVB	1.4	1.25	1.0	0.75	0.6

Number of Accidents for Public Works Contracts with Breakdown by Works Departments from 2009 to 2018

(A) No. of Fatalities

Department	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
ArchSD	2	0	2	4	0	1	0	2	1	0
CEDD	1	0	2	1	0	0	0	0	0	1
DSD	0	0	1	0	2	0	1	0	1	0
EMSD	0	0	0	0	0	0	0	0	0	0
HyD	0	0	1	1	1	4	3	2	2	0
WSD	1	0	1	0	2	0	0	0	2	0
Total	4	0	7	6	5	5	4	4	6	1

(B) No. of Non-fatal accidents

Department	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
ArchSD	100	117	177	110	66	75	93	68	93	137
CEDD	33	32	25	25	22	29	29	27	31	54
DSD	45	49	60	46	28	20	19	9	12	8
EMSD	17	13	12	20	14	4	8	9	10	3
HyD	40	30	31	52	45	66	69	100	110	73
WSD	40	37	35	36	31	24	23	19	16	15
Total	275	278	340	289	206	218	241	232	272	290

Accident Rates for Public Works Contracts
with Breakdown by Works Departments from 2009 to 2018

Department		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
ArchSD	a ¹	0.36	0.33	0.46	0.36	0.26	0.30	0.32	0.26	0.28	0.38
	b ²	13.00	11.99	16.58	13.04	9.4	10.70	11.58	9.32	10.09	13.49
CEDD	a ¹	0.23	0.20	0.16	0.17	0.16	0.19	0.17	0.13	0.13	0.22
	b ²	8.30	7.11	5.72	6.21	5.9	6.71	5.99	4.60	4.54	8.05
DSD	a ¹	0.37	0.33	0.33	0.24	0.17	0.14	0.19	0.11	0.18	0.12
	b ²	13.10	11.75	11.93	8.64	6.3	5.02	6.96	3.93	6.40	4.27
EMSD	a ¹	0.40	0.31	0.21	0.32	0.22	0.06	0.10	0.13	0.16	0.04
	b ²	14.50	11.12	7.54	11.56	7.8	2.07	3.69	4.62	5.70	1.56
HyD	a ¹	0.27	0.19	0.16	0.23	0.17	0.24	0.23	0.30	0.26	0.21
	b ²	9.70	6.86	5.69	8.23	6.1	8.55	8.38	10.60	9.44	7.58
WSD	a ¹	0.33	0.26	0.24	0.25	0.23	0.17	0.20	0.17	0.18	0.17
	b ²	12.00	9.33	8.70	9.11	8.2	6.22	7.03	6.26	6.58	6.23
All Dept.	a ¹	0.32	0.28	0.30	0.27	0.20	0.21	0.23	0.22	0.22	0.25
	b ²	11.6	9.8	10.9	9.7	7.3	7.6	8.2	7.80	8.05	8.86
HA ^{3,4}	b ^{3,4}	9.4/12.3	9.9/7.4	9.0/7.3	7.4/4.8	7.3/4.1	6.4/2.2	9.2/1.5	6.8/1.5	6.9/4.2	7.4/5.7
Construction Industry ³	b ³	54.6	52.1	49.7	44.3	40.8	41.9	39.1	34.5	32.9	31.7

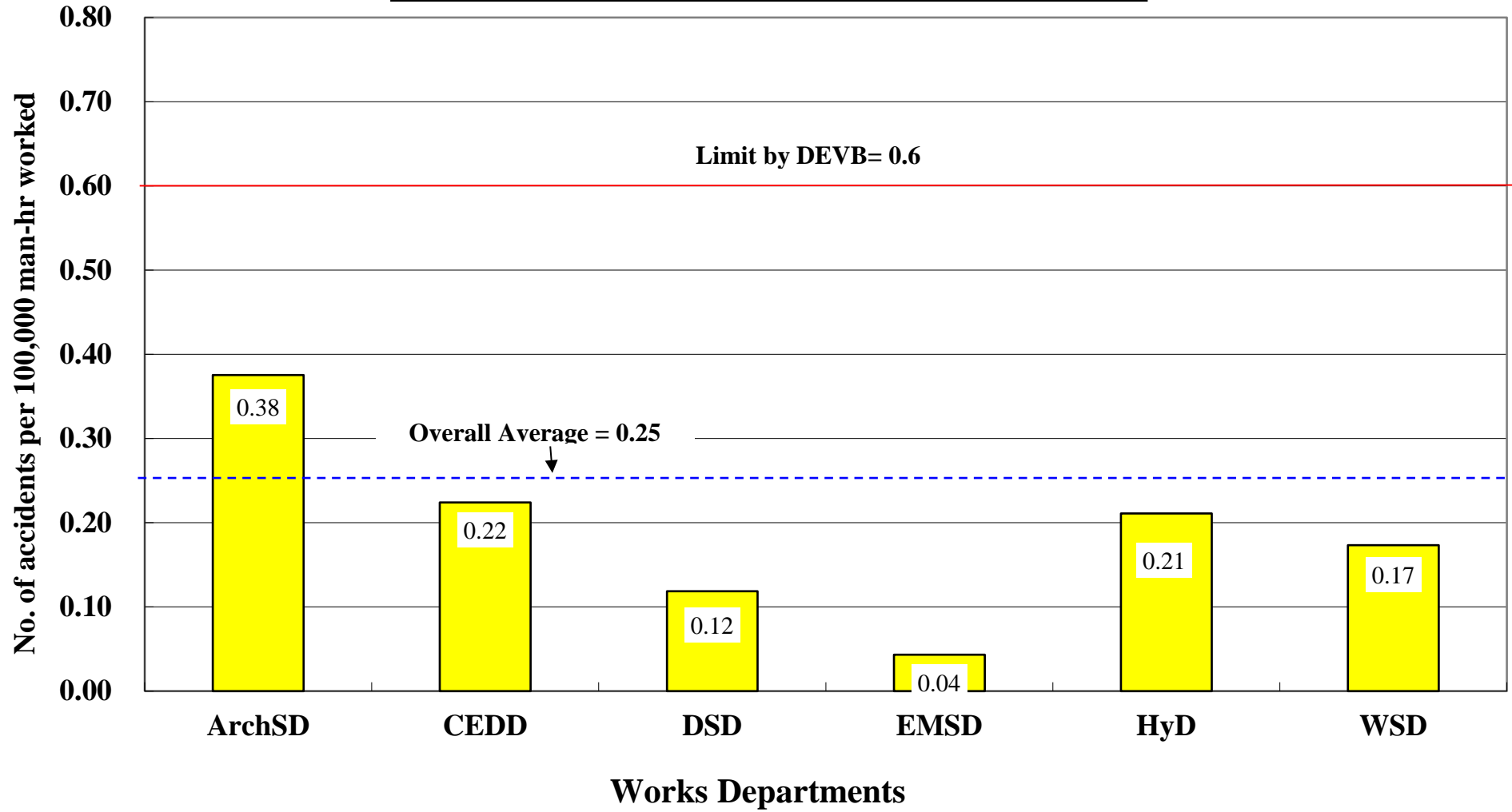
¹ The accident rates for columns marked with (a) are given in term of no. of accidents per 100,000 man-hours worked.

² The accident rates for columns marked with (b) are given in term of no. of accidents per 1,000 workers per year based on a conversion of 1.67 accidents per 100,000 man-hours worked equivalent to 60 accidents per 1,000 workers per year.

³ The accident rates for Housing Authority (HA) and the construction industry are given in terms of no. of accidents per 1,000 workers per year.

⁴ Housing Authority has two accident rates figures (New Works / Maintenance Works).

Accident Rates for Public Works Contracts for 2018



Severity for Public Works Contracts with Breakdown by Works Department from 2014 to 2018

No. of Man-Day Lost per 100,000 Man-Hours Worked

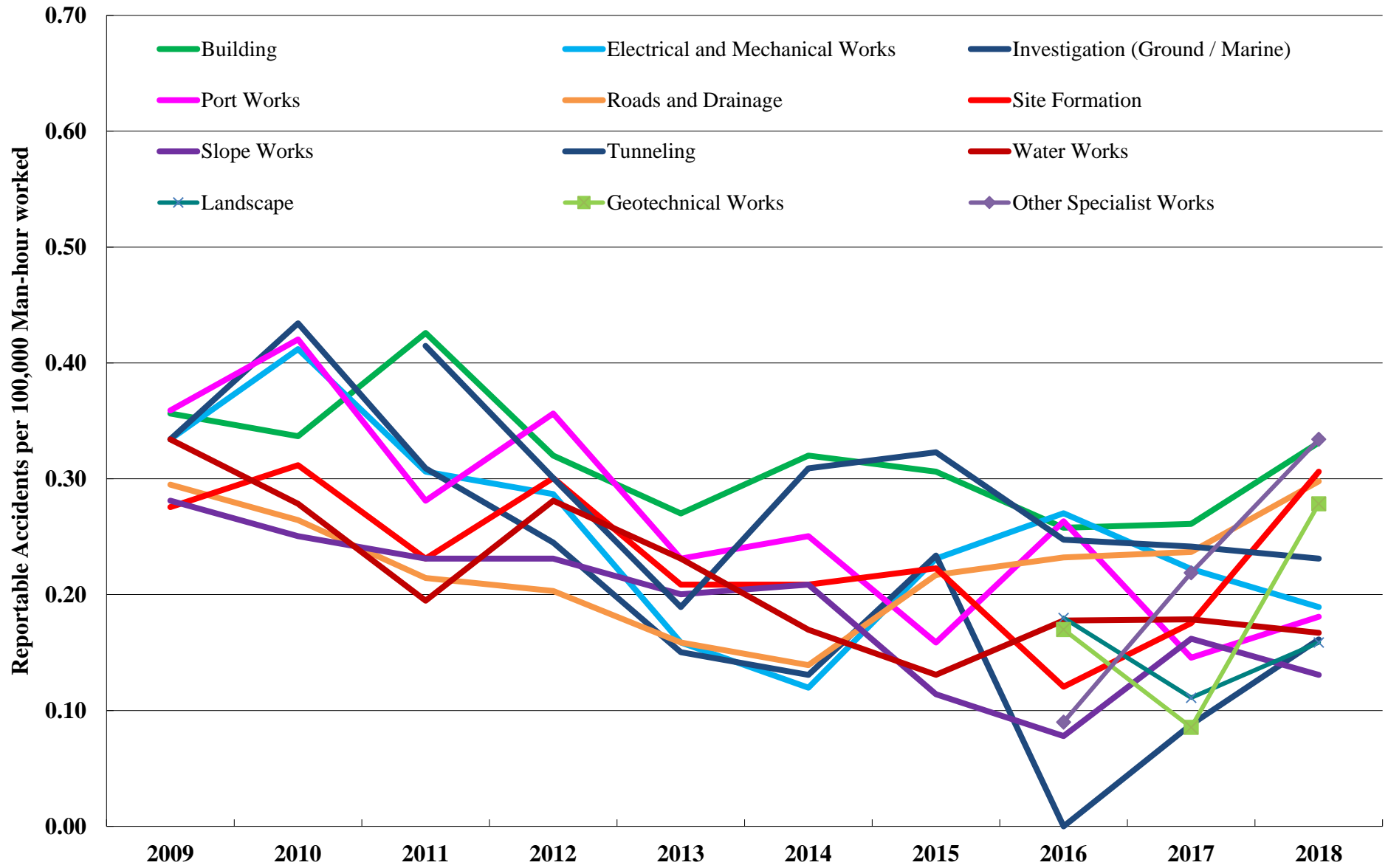
Department	2014	2015	2016	2017	2018
ArchSD	37.9	65.3	74.0	59.0	78.5
CEDD	41.0	52.4	45.2	35.8	84.8
DSD	40.6	46.7	33.2	33.6	46.9
EMSD	22.4	11.8	11.7	7.4	11.6
HyD	47.4	52.4	49.9	52.4	73.4
WSD	45.0	14.7	8.4	32.1	59.1
All Departments	41.3	48.2	47.1	45.9	71.1

Accident Rates for Public Works Contracts from 2009 to 2018
Analyzed by Types of Contracts

Types of Contracts	Accident Rates (in no. of accidents per 1,000 workers per year)										
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Change ¹
Other Specialist Works	-	-	-	-	-	-	3.2	4.3	7.9	12.0	51%
Building	12.8	12.1	15.3	11.5	9.7	11.5	11.0	9.3	9.4	11.9	27%
Site Formation	9.9	11.2	8.3	10.8	7.5	7.5	8.0	4.3	6.3	11.0	75%
Roads and Drainage	10.6	9.5	7.7	7.3	5.7	5.0	7.8	8.3	8.5	10.7	26%
Geotechnical Works	-	-	-	-	-	-	5.9	4.8	3.1	10.0	222%
Tunneling	-	17.3	14.9	10.8	6.8	11.1	11.6	8.9	8.7	8.3	-5%
Electrical and Mechanical Works	12	14.8	11	10.3	5.7	4.3	8.3	9.7	8.0	6.8	-15%
Port Works	12.9	15.1	10.1	12.8	8.3	9.0	5.7	9.5	5.2	6.5	24%
Water Works	12	10	7	10.1	8.3	6.1	4.7	6.4	6.4	6.0	-6%
Investigation (Ground / Marine)	12	15.6	11.1	8.8	5.4	4.7	8.4	0.0	3.2	5.8	80%
Landscape	-	-	-	-	-	-	6.1	2.0	4.0	5.7	43%
Slope Works	10.1	9.0	8.3	8.3	7.2	7.5	4.1	2.8	5.8	4.7	-18%
All Contracts	11.6	9.8	10.9	9.7	7.3	7.6	8.2	7.9	7.8	8.9	14%

1 The “Change” is the percentage difference in accident rates between 2017 and 2018.

**Accident Rates for Public Works Contracts
 Analyzed by Types of Contracts from 2009 to 2018**



No. of Accidents for Public Works Contracts from 2014 to 2018
Analyzed by Types of Accidents

Types of Accidents	2014		2015		2016		2017		2018		
	No.	%	No.	%	No.	%	No.	%	No.	%	Change ¹
Slip, Trip or Fall On Same Level	42	18.8%	48	19.0%	46	19.5%	55	19.8%	72	24.7%	17
Injured Whilst Lifting or Carrying/ Manual Lifting/ Manual Handling/ Handling Without Machinery	38	17.0%	39	15.5%	33	14.0%	41	14.7%	43	14.8%	2
Struck By Moving or Falling Object	18	8.1%	30	11.9%	24	10.2%	19	6.8%	30	10.3%	11
Fall of Person From Height	26	11.7%	30	11.9%	28	11.9%	28	10.1%	23	7.9%	-5
Hand Tool Accident	12	5.4%	8	3.2%	15	6.4%	16	5.8%	23	7.9%	7
Striking Against Fixed or Stationary Object	13	5.8%	16	6.3%	14	5.9%	13	4.7%	21	7.2%	8
Trapped In or Between Objects	14	6.3%	15	6.0%	17	7.2%	27	9.7%	16	5.5%	-11
Striking Against Moving Object	9	4.0%	5	2.0%	11	4.7%	5	1.8%	6	2.1%	1
Contact With Moving Machinery or Object Being Machined	7	3.1%	5	2.0%	7	3.0%	7	2.5%	6	2.1%	-1
Trapped By Collapsing or Overturning Object	-	-	0	0.0%	2	0.8%	8	2.9%	4	1.4%	-4
Machinery Operation Accident	-	-	1	0.4%	2	0.8%	1	0.4%	4	1.4%	3
Stepping On Object/ Nail	-	-	3	1.2%	0	0.0%	2	0.7%	3	1.0%	1
Dust/ Foreign Particle In Eye	-	-	5	2.0%	3	1.3%	5	1.8%	3	1.0%	-2
Exposure To or Contact With Harmful Substance (e.g. poison gas, toxic or corrosive substance)	-	-	2	0.8%	1	0.4%	0	0.0%	2	0.7%	2
Struck By Moving Vehicle/ Traffic Accident	-	-	1	0.4%	2	0.8%	2	0.7%	1	0.3%	-1
Exposure To Fire/ Burning	-	-	2	0.8%	1	0.4%	4	1.4%	1	0.3%	-3
Crushing/ Burial	2	0.9%	2	0.8%	2	0.8%	0	0.0%	1	0.3%	1
Drowning or Asphyxiation	-	-	0	0.0%	1	0.4%	2	0.7%	0	0%	-2
Exposure To Explosion	-	-	-	-	2	0.8%	0	0.0%	0	0%	0
Contact With Electricity or Electric Discharge	0	0.0%	2	0.8%	2	0.8%	0	0.0%	0	0%	0
Sub-total	181	81.2%	214	84.9%	213	90.3%	235	84.5%	259	89.0%	24
Other Types	42	18.8%	38	15.1%	23	9.7%	43	15.5%	32	11.0%	-11
Total number of accidents	223	----	252²	-----	236	-----	278	-----	291	-----	13

1 "Change" means the difference in no. of accidents between 2017 and 2018

2 The total no. of accident in 2015 was 245. There are 7 more records because multiple selection of "Types of Accidents" was allowed in the old PCSES. After the launch of the new PCSES in Jun 2015, this selection was limited to 1 option only.

No. of Accidents for Public Works Contracts from 2014 to 2018
Analyzed by Trades of Workers

Trades of Workers	2014		2015		2016		2017		2018		Change ¹
	No.	%	No.	%	No.	%	No.	%	No.	%	
Labourer	113	50.7%	138	56.3%	119	50.4%	148	53.2%	157	54.0%	9
Carpenter (formworker)	12	5.4%	9	3.7%	14	5.9%	17	6.1%	22	7.6%	5
Rigger/ Metal Formwork Erector	8	3.6%	11	4.5%	8	3.4%	11	4.0%	10	3.4%	-1
Metal Scaffolder	-	-	1	0.4%	6	2.5%	12	4.3%	9	3.1%	-3
General Welder	-	-	4	1.6%	5	2.1%	4	1.4%	8	2.7%	4
Plumber	-	-	0	0.0%	1	0.4%	1	0.4%	8	2.7%	7
Building Services/ E&M Worker	4	1.8%	9	3.7%	14	5.9%	12	4.3%	7	2.4%	-5
Bar Bender and Fixer	10	4.5%	11	4.5%	6	2.5%	15	5.4%	6	2.1%	-9
Plasterer	1	0.4%	2	0.8%	0	0.0%	1	0.4%	4	1.4%	3
Manager/ Site Engineer/ General Foreman	-	-	6	2.4%	4	1.7%	3	1.1%	3	1.0%	0
Ganger	-	-	2	0.8%	2	0.8%	2	0.7%	3	1.0%	1
Bamboo Scaffolder	-	-	1	0.4%	0	0.0%	0	0.0%	3	1.0%	3
Construction/ Mechanical Plant Mechanic or Fitter	0	0.0%	3	1.2%	3	1.3%	4	1.4%	3	1.0%	-1
Excavator	-	-	0	0.0%	2	0.8%	4	1.4%	2	0.7%	-2
Painter and Decorator	-	-	3	1.2%	2	0.8%	2	0.7%	2	0.7%	0
Plant & equipment Operator (hoist and crane)	-	-	2	0.8%	3	1.3%	1	0.4%	2	0.7%	1
Concretor	-	-	0	0.0%	3	1.3%	4	1.4%	1	0.3%	-3
Metal Worker	0	0.0%	1	0.4%	0	0.0%	5	1.8%	1	0.3%	-4
Plant & Equipment Operator (earthmoving machinery)	-	-	1	0.4%	1	0.4%	1	0.4%	1	0.3%	0
Truck and Other Vehicle Driver	-	-	1	0.4%	4	1.7%	4	1.4%	1	0.3%	-3
Tunnel Worker	-	-	1	0.4%	0	0.0%	0	0.0%	1	0.3%	1
Drainlayer/ Mainlayer	1	0.4%	1	0.4%	2	0.8%	1	0.4%	0	0%	-1
Drilling Assistant	-	-	1	0.4%	1	0.4%	1	0.4%	0	0%	-1
Pneumatic Driller	-	-	0	0.0%	1	0.4%	1	0.4%	0	0%	-1
Concreting Labourer	-	-	2	0.8%	0	0.0%	1	0.4%	0	0%	-1

Plant & Equipment Operator (bulders lift & other machinery)	-	-	0	0.0%	0	0.0%	1	0.4%	0	0%	-1
Leveller	-	-	2	0.8%	2	0.8%	0	0.0%	0	0%	0
Chainman	-	-	0	0.0%	1	0.4%	0	0.0%	0	0%	0
Bricklyer	-	-	0	0.0%	1	0.4%	0	0.0%	0	0%	0
Demolition Worker	-	-	0	0.0%	1	0.4%	0	0.0%	0	0%	0
Structural Steel Erector	-	-	0	0.0%	1	0.4%	0	0.0%	0	0%	0
Joiner	-	-	0	0.0%	1	0.4%	0	0.0%	0	0%	0
Plant & equipment Operator (Piling)	-	-	0	0.0%	0	0.0%	0	0.0%	0	0%	0
Piling Operative	-	-	0	0.0%	0	0.0%	0	0.0%	0	0%	0
Plant & Equipment Operator (tunnelling)	-	-	0	0.0%	0	0.0%	0	0.0%	0	0%	0
Carpenter (fender)	-	-	0	0.0%	0	0.0%	0	0.0%	0	0%	0
Diver	-	-	0	0.0%	0	0.0%	0	0.0%	0	0%	0
Marine Construction Plant Operator	-	-	0	0.0%	0	0.0%	0	0.0%	0	0%	0
Worker/ General Worker	-	-	0	0.0%	0	0.0%	0	0.0%	0	0%	0
Tradesman	-	-	0	0.0%	0	0.0%	0	0.0%	0	0%	0
Foreman	-	-	0	0.0%	0	0.0%	0	0.0%	0	0%	0
Mason	-	-	0	0.0%	0	0.0%	0	0.0%	0	0%	0
Sub-total	159	71.3%	212	86.5%	208	88.1%	256	92.1%	254	87.3%	-2
Other Types	64	28.7%	33	13.5%	28	11.9%	22	7.9%	37	12.7%	15
Total number of accidents	223	---	245	-----	236	-----	278	-----	291	-----	13

1 "Change" means the difference in no. of accidents between 2017 and 2018.

No. of Accidents for Public Works Contracts from 2014 to 2018
Analyzed by Natures of Injury

Natures of Injury	2014		2015		2016		2017		2018		
	No.	%	No.	%	No.	%	No.	%	No.	%	Change ¹
Fracture	63	28.3%	78	27.0%	77	26.9%	94	28.4%	98	28.6%	4
Contusion & Bruise	47	21.1%	65	22.5%	63	22.0%	62	18.7%	83	24.2%	21
Sprain/ Strain/ Twist	34	15.2%	35	12.1%	39	13.6%	35	10.6%	54	15.7%	19
Laceration and Cut	26	11.7%	29	10.0%	28	9.8%	39	11.8%	49	14.3%	10
Crushing	17	7.6%	18	6.2%	6	2.1%	13	3.9%	10	2.9%	-3
Abrasion	-	-	10	3.5%	15	5.2%	16	4.8%	8	2.3%	-8
Multiple Injuries	-	-	5	1.7%	1	0.3%	10	3.0%	8	2.3%	-2
Dislocation	-	-	4	1.4%	3	1.0%	5	1.5%	5	1.5%	0
Burn/ Scald	-	-	4	1.4%	1	0.3%	1	0.3%	4	1.2%	3
Concussion & Other Internal Injury	-	-	3	1.0%	2	0.7%	0	0.0%	4	1.2%	4
Puncture	-	-	0	0.0%	3	1.0%	3	0.9%	2	0.6%	-1
Irritation	-	-	1	0.3%	3	1.0%	1	0.3%	2	0.6%	1
Amputation	-	-	3	1.0%	2	0.7%	4	1.2%	2	0.6%	-2
Burn (heat)	-	-	3	1.0%	0	0.0%	4	1.2%	1	0.3%	-3
Electric Shock/ Effects of Electric Current	-	-	3	1.0%	1	0.3%	0	0.0%	0	0.0%	0
Asphyxia	-	-	0	0.0%	1	0.3%	0	0.0%	0	0.0%	0
Poisoning and Gassing	-	-	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0
Freezing	-	-	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0
Nausea	-	-	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0
Sub-total	187	83.9%	261	90.3%	245	85.7%	287	86.7%	330	96.2%	43
Other Types	36	16.1%	28	9.7%	41	14.3%	44	13.3%	13	3.8%	-31
Total number of accidents²	223 (223)	-----	289 (245)	-----	286 (236)	-----	331 (278)	-----	343 (291)	-----	-31 (12)

1 “Change” means the difference in no. of accidents between 2017 and 2018

2 The figures were the total sum of items “Nature of Injury Incurred 1”, “Nature of Injury Incurred 2” and “Nature of Injury Incurred 3” in the Injury Report Form. “()” is the total number of accidents of that year.

No. of Accidents for Public Works Contracts from 2014 to 2018
Analyzed by Parts of Body Injured in Accidents

Parts of Body Injured	2014		2015		2016		2017		2018		
	No.	%	No.	%	No.	%	No.	%	No.	%	Change ¹
Finger	61	27.4%	54	18.8%	60	19.8%	64	19.3%	70	20.4%	6
Back	19	8.5%	27	9.4%	31	10.2%	35	10.6%	43	12.5%	8
Ankle	22	9.9%	12	4.2%	18	5.9%	11	3.3%	23	6.7%	12
Chest	9	4.0%	12	4.2%	16	5.3%	19	5.7%	19	5.5%	0
Skull/Scalp	8	3.6%	13	4.5%	9	3.0%	14	4.2%	17	5.0%	3
Leg	11	4.9%	12	4.2%	16	5.3%	20	6.0%	17	5.0%	-3
Foot/ Toe	7	3.1%	22	7.6%	12	4.0%	10	3.0%	17	5.0%	7
Hand/ Palm	20	9.0%	11	3.8%	12	4.0%	19	5.7%	16	4.7%	-3
Wrist	-	-	16	5.6%	12	4.0%	11	3.3%	14	4.1%	3
Forearm	9	4.0%	12	4.2%	9	3.0%	13	3.9%	13	3.8%	0
Shoulder	-	-	10	3.5%	10	3.3%	8	2.4%	12	3.5%	4
Knee	-	-	10	3.5%	7	2.3%	13	3.9%	12	3.5%	-1
Neck	-	-	5	1.7%	6	2.0%	7	2.1%	11	3.2%	4
Elbow	-	-	8	2.8%	7	2.3%	8	2.4%	10	2.9%	2
Eye	4	1.8%	9	3.1%	12	4.0%	5	1.5%	7	2.0%	2
Hip	-	-	1	0.3%	0	0.0%	4	1.2%	6	1.7%	2
Face/ Cheek/ Chin	9	4.0%	9	3.1%	8	2.6%	8	2.4%	5	1.5%	-3
Waist	-	-	4	1.4%	0	0.0%	2	0.6%	5	1.5%	3
Mouth/ Tooth/ Lip	-	-	3	1.0%	2	0.7%	5	1.5%	2	0.6%	-3
Trunk	-	-	3	1.0%	1	0.3%	2	0.6%	2	0.6%	0
Pelvis/ Groin	-	-	2	0.7%	3	1.0%	1	0.3%	1	0.3%	0
Thigh	-	-	1	0.3%	6	2.0%	3	0.9%	1	0.3%	-2
Upper Arm	-	-	5	1.7%	2	0.7%	3	0.9%	1	0.3%	-2
Ear	-	-	0	0.0%	1	0.3%	2	0.6%	0	0%	-2
Nose	-	-	1	0.3%	2	0.7%	1	0.3%	0	0%	-1
Abdomen	-	-	1	0.3%	0	0.0%	1	0.3%	0	0%	-1
Sub-total	179	80.3%	263	91.3%	262	86.5%	289	87.3%	324	94.5%	35
Other Types	44	19.7%	25	8.7%	41	13.5%	42	12.7%	19	5.5%	-23
Total number of accidents²	223 (223)	-----	288 (245)	-----	303 (236)	-----	331 (278)	-----	343 (291)	-----	12 (13)

¹ “Change” means the difference in no. of accidents between 2017 and 2018.

² The figures were the total sum of items “Body parts injured 1”, “Body parts injured 2” and “Body parts injured 3” in the Injury Report Form. “()” is the total number of accidents of that year.

No. of Accidents for Public Works Contracts from 2014 to 2018
Analyzed by Agents Involved in Accidents

Agents Involved	2014		2015		2016		2017		2018		
	No.	%	No.	%	No.	%	No.	%	No.	%	Change ¹
Material/ Product Being Handled or Stored (e.g. Plank, timber, rope etc.)	41	18.4%	50	19.4%	42	15.5%	51	17.6%	62	20.4%	11
Floor, Ground, Stairs or Any Working Surface	42	18.8%	52	20.2%	41	15.1%	54	18.6%	62	20.4%	8
Portable Power or Hand Tools	22	9.9%	17	6.6%	33	12.2%	27	9.3%	33	10.9%	6
Equipment For Lifting/ Conveying	13	5.8%	6	2.3%	14	5.2%	7	2.4%	16	5.3%	9
Ladder or Working At Height	5	2.2%	9	3.5%	10	3.7%	15	5.2%	16	5.3%	1
Vehicle or Associated Equipment or Machinery	-	-	3	1.2%	9	3.3%	8	2.8%	7	2.3%	-1
Pipe	-	-	4	1.6%	1	0.4%	3	1.0%	7	2.3%	4
Other Machinery (specify)	18	8.1%	6	2.3%	7	2.6%	10	3.4%	6	2.0%	-4
Scaffolding/ Gondola	-	-	1	0.4%	3	1.1%	4	1.4%	4	1.3%	0
Excavation/ Underground Work	-	-	2	0.8%	3	1.1%	9	3.1%	4	1.3%	-5
Slope	-	-	4	1.6%	2	0.7%	1	0.3%	4	1.3%	3
Steel Bar/ Rod	9	4.0%	5	1.9%	1	0.4%	9	3.1%	3	1.0%	-6
Construction Formwork, Shuttering & Falsework	2	0.9%	5	1.9%	7	2.6%	9	3.1%	0	0%	-9
Gas, Vapour, Dust or Fume	-	-	2	0.8%	4	1.5%	5	1.7%	0	0%	-5
Nail, Splinter or Chipping	-	-	1	0.4%	1	0.4%	1	0.3%	0	0%	-1
Electricity Supply, Wiring Apparatus or Equipment	-	-	2	0.8%	1	0.4%	1	0.3%	0	0%	-1
Sewage, Manhole or Other Confined Space	-	-	1	0.4%	0	0.0%	0	0.0%	0	0%	0
Movable Container or Package of Any Kind	-	-	0	0.0%	0	0.0%	0	0.0%	0	0%	0
Sub-total	152	68.2%	170	65.9%	179	66.1%	214	73.8%	224	73.7%	10
Other Types	71	31.8%	88	34.1%	92	33.9%	76	26.2%	80	26.3%	4
Total number of accidents ²	223 (223)	-----	258 (245)	-----	271 (236)	-----	290 (278)	-----	304 (291)	-----	14 (13)

¹ “Change” means the difference in no. of accidents between 2017 and 2018

² There were more records because multiple selection of “Agents Involved” was allowed. “()” is the total number of accidents of that year.

No. of Accidents for Public Works Contracts from 2014 to 2018
Analyzed by Unsafe Actions Involved in Accidents

Unsafe Actions	2014		2015		2016		2017		2018		
	No.	%	No.	%	No.	%	No.	%	No.	%	Change ¹
Lapse Of Attention	81	36.3%	100	36.4%	105	36.2%	105	33.8%	103	32.7%	-2
Adopting Unsafe Position or Posture	39	17.5%	43	15.6%	39	13.4%	63	20.3%	45	14.3%	-18
Failure To Secure Objects	14	6.3%	17	6.2%	10	3.4%	15	4.8%	26	8.3%	11
Use Unsafe Equipment/ Use Equipment Unsafely	11	4.9%	8	2.9%	10	3.4%	13	4.2%	26	8.3%	13
Use Unsuitable Access/ Failure To Use Access	10	4.5%	18	6.5%	11	3.8%	16	5.1%	14	4.4%	-2
Unsafe Loading, Placing, Mixing etc.	7	3.1%	5	1.8%	7	2.4%	10	3.2%	8	2.5%	-2
Failure To Use Safety Belt/ Harness	-	-	3	1.1%	5	1.7%	3	1.0%	4	1.3%	1
Failure To Use Gloves	-	-	7	2.5%	5	1.7%	3	1.0%	4	1.3%	1
Operating Without Authority	-	-	3	1.1%	1	0.3%	6	1.9%	3	1.0%	-3
Failure To Use Eye Protector	-	-	4	1.5%	3	1.0%	2	0.6%	3	1.0%	1
Making Safety Devices Inoperative	-	-	0	0.0%	3	1.0%	2	0.6%	2	0.6%	0
Operating or Working At Unsafe Speed	-	-	2	0.7%	1	0.3%	2	0.6%	2	0.6%	0
Failure To use Proper Clothing	-	-	1	0.4%	0	0.0%	0	0.0%	1	0.3%	1
Failure To Warn Others or Give Proper Signals	-	-	2	0.7%	5	1.7%	1	0.3%	1	0.3%	0
Failure To Use Helmet	-	-	0	0.0%	0	0.0%	2	0.6%	0	0%	-2
Working On Moving or Dangerous Equipment	-	-	2	0.7%	2	0.7%	1	0.3%	0	0%	-1
Failure To Use Proper Footwear	4	1.8%	5	1.8%	0	0.0%	1	0.3%	0	0%	-1
Horseplay	-	-	0	0.0%	0	0.0%	0	0.0%	0	0%	0
Smoking/ Burning	-	-	0	0.0%	0	0.0%	0	0.0%	0	0%	0
Failure To Use Respirator	-	-	0	0.0%	0	0.0%	0	0.0%	0	0%	0
Sub-total	166	74.4%	220	80.0%	207	71.4%	245	78.8%	242	76.8%	-3
Other Types	57	25.6%	55	20.0%	83	28.6%	66	21.2%	73	23.2%	7
Total sum of “Unsafe Actions”²	223 (223)	-----	275 (245)	-----	290 (236)	-----	311 (278)	-----	315 (291)	-----	4 (13)

¹ “Change” means the difference in no. of accidents between 2016 and 2017

² There were more records because multiple selection of “Unsafe Actions” was allowed. “()” is the total number of accidents of that year.

Appendix N

No. of Accidents for Public Works Contracts from 2014 to 2018
Analyzed by Unsafe Conditions Involved in Accidents

Unsafe Conditions	2014		2015		2016		2017		2018		Change ¹
	No.	%	No.	%	No.	%	No.	%	No.	%	
Unsafe Process or Job Methods	30	13.5%	24	9.2%	29	10.4%	41	14.0%	45	14.2%	4
Improper Procedure	30	13.5%	33	12.6%	29	10.4%	32	10.9%	25	7.9%	-7
Slippery Area	13	5.8%	15	5.7%	18	6.5%	19	6.5%	24	7.6%	5
Inadequate Working Space/ Platform	11	4.9%	12	4.6%	10	3.6%	11	3.8%	22	7.0%	11
Improper Stacking/ Storage	7	3.1%	5	1.9%	14	5.0%	17	5.8%	19	6.0%	2
Poor Housekeeping	9	4.0%	6	2.3%	11	3.9%	18	6.1%	17	5.4%	-1
Inadequate Tools and Protective Equipment	6	2.7%	9	3.4%	6	2.2%	11	3.8%	11	3.5%	0
Defective Tool, Machinery or Material	1	0.4%	6	2.3%	4	1.4%	8	2.7%	8	2.5%	0
No Protective Gear	-	-	1	0.4%	3	1.1%	3	1.0%	6	1.9%	3
Improper Dress/ Footwear	2	0.9%	5	1.9%	0	0.0%	2	0.7%	4	1.3%	2
Lack Of Warning System	11	4.9%	9	3.4%	8	2.9%	6	2.0%	4	1.3%	-2
Adverse Weather	-	-	2	0.8%	3	1.1%	1	0.3%	3	0.9%	2
Improper Guarding/ No Guarding	-	-	2	0.8%	2	0.7%	5	1.7%	2	0.6%	-3
Unsafe Layout Of Job, Traffic etc.	-	-	2	0.8%	0	0.0%	0	0.0%	2	0.6%	2
Improper Illumination	-	-	1	0.4%	0	0.0%	0	0.0%	1	0.3%	1
Defective Protective Gear	-	-	2	0.8%	0	0.0%	0	0.0%	0	0%	0
Improper Ventilation	-	-	1	0.4%	0	0.0%	0	0.0%	0	0%	0
Sub-total	120	53.8%	135	51.5%	137	49.1%	174	59.4%	193	61.1%	19
Other Types	103	46.2%	127	48.5%	142	50.9%	119	40.6%	123	38.9%	4
Total number of accidents ²	223 (223)	-----	262 (245)	-----	279 (236)	-----	293 (278)	-----	316 (291)	-----	23 (13)

1 “Change” means the difference in no. of accidents between 2017 and 2018.

2 There were more records because multiple selection of “Unsafe Conditions Involved” was allowed. “()” is the total number of accidents of that year.

No. of Accidents for Public Works Contracts from 2014 to 2018
Analyzed by Personal Factors Involved in Accidents

Personal Factors Involved	2014		2015		2016		2017		2018		
	No.	%	No.	%	No.	%	No.	%	No.	%	Change ¹
Carelessness/ Not Concentrate	124	55.6%	158	57.9%	178	59.9%	169	55.6%	192	61.0%	23
Incorrect Attitude/ Motive	37	16.6%	40	14.7%	28	9.4%	28	9.2%	33	10.5%	5
Lack Of Knowledge or Skill	26	11.7%	29	10.6%	19	6.4%	33	10.9%	32	10.2%	-1
Unsafe Act By Another Person	-	-	6	2.2%	11	3.7%	9	3.0%	11	3.5%	2
Physical Defects	-	-	2	0.7%	2	0.7%	4	1.3%	5	1.6%	1
Fatigue/ Exhaustion	-	-	2	0.7%	2	0.7%	1	0.3%	1	0.3%	0
Sub-total	187	83.9%	237	86.8%	240	80.8%	244	80.3%	274	87.0%	30
Other Types	36	16.1%	36	13.2%	57	19.2%	60	19.7%	41	13.0%	-19
Total number of accidents ²	223 (223)	-----	273 (245)	-----	297 (269)	-----	304 (278)	-----	315 (291)	-----	11 (13)

1 “Change” means the difference in no. of accidents between 2017 and 2018.

2 There are more records than the number of accidents because multiple selection of “Person Factors Involved” was allowed. “()” is the total number of accidents of that year.