

First Order	Second Order	Third Order	Fourth Order
Human Element (immediate causes)	Human physical	Unsuitable size and body shape	Height
		Lack of strength Lack of stamina Fatigue Poor health condition Physical disability Intoxication and drug effects Stress and tension	Size
	Experience	Knowledge and information	Lack of knowledge and information Excess of knowledge and information (confusing) Skills inappropriate to the tasks Lack of experiences and trainings Incompetent Near misses
		Lack of skill	Directly or indirectly involved
		Occupational accidents and illnesses records	
		Extensive experiences leading to lack of safety awareness Language and communication problems Illiterate	
	Attitude	Towards organisation	Neglecting the reputation and performances of an organisation Neglecting organisation's safety and health policy Neglecting organisation's safety procedures
		Personal attitude	Satisfy with level of safety performance Excessive confidence Underestimate risks of accidents and illnesses Negative attitudes (stubborn, arrogant, selfishness or showing off) Defeatist/lack of confidence Doubtful and bad decision making
		Motivation/needs	Prioritizing basic needs Prioritizing psychological needs (rapport in an organisation, rapport among colleagues, performance and achievement) Prioritizing self-actualization (achieving personal full potential)
Behaviour	Error	Lack of focus Complicated procedures Lengthy tasks Wrong reasoning behind actions Following the wrong procedures	

First Order	Second Order	Third Order	Fourth Order
		Violation	Standard practice in a group or entire organisation to break the rule or procedure Due to insufficient time Due to pressure of work In order to solve problems/emergency situations
Worksite Element (immediate causes)	Worksite condition	Noise	Noise induced hearing illnesses Interrupting communication processes (giving and receiving instructions)
		Insufficient lighting Insufficient ventilation	In open areas In closed areas
		Weather	Excessive heat Rain
		Poor facilities (electrical, hydraulic, supervising, maintenance)	
		Poor site management	
	Equipment and material	Poor level of cleanliness and tidiness Poor waste management	No designated space No proper disposing schedule
		Working path and surface	Working path blocked Watery surface and working path Slippery surface and working path
		Poor equipment, material and waste arrangements	
		Construction materials	Unsuitable Poor condition Adverse health effect
		Equipment and tools	Unsuitable Poor condition Lack of safety features
	Demanding tasks	Various tasks in progress simultaneously Need to work at various locations Need to work with various people simultaneously Working at height	
Management Element (underlying causes)	Resource management	Capital resources	Prioritizing profitability over safety Prioritizing prices over safety level in buying equipment Insufficient budget for occupational safety and health management
		Human resources	Insufficient time provided Neglecting safety and health elements during recruitment and selection

First Order	Second Order	Third Order	Fourth Order
			Lack/no training provided to personnel Ineffective training
	Policy	Not in written form Difficult to obtained and not being communicated to personnel Not being reviewed Complicated format/length/language	
	Safety management	Safety procedure	Not in written form Difficult to obtained and not being communicated to personnel Complicated format/length/language
		Planning	Demanding working schedules Working overtime Need to work at night Insufficient time to complete tasks No/insufficient safety meetings No/insufficient job analysis No periodic health inspection for personnel
		Record and information management	Occupational accidents and illnesses are not recorded Occupational accidents and illnesses are not reported to governing bodies Near misses are not recorded and reported
		Safety supervision	No/insufficient safety supervision by main contractor No/insufficient safety supervision by sub-contractors Poor supervision by safety personnel No/insufficient inspection by governing bodies
	Management culture	Prioritizing quality over safety Occupational safety and health is not included as successful project criteria Poor affiliation between management and employees Poor communication between management and employees Management is not sensitive with the religious and culture needs Employees are not well represented Insufficient commitment from management in terms of safety and health	

First Order	Second Order	Third Order	Fourth Order
External Element (underlying causes)	Politics and legislation	Insufficient legislation Ineffective governing bodies	Mandatory training and skills established are inadequate Insufficient legislation regarding licensing and competency Legislation are imprecise Disputed legislation Ineffective implementation of legislation by governing bodies in terms of time, human resources and monetary
	Economy	Difficulty in supply in services, materials and personnel in terms of time Difficulty in supply in services, materials and personnel in terms of quality Bad economy situation	
	Social	Clients neglected occupational safety and health issues Society neglected occupational safety and health issues Lack of exposure and information provided to society	