Site Safety Seminar For Capital Works New Works Contracts

## XXI World Congress on Safety and Health at Work 2017 in Singapore from 3 to 6 Sep 2017

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12 - 4 - 2018





#### XXI World Congress on Safety and Health at Work 2017 in Singapore

3 - 6 September 2017









5 Sep	<ul> <li>a) Keynote : People-oriented prevention by WSH Council of</li></ul>
2017	Singapore <li>b) Technical sessions</li> <li>c) Safe Youth @ Work Dialogue</li> <li>d) Symposium : innovative approaches to OSH</li>
6 Sep	<ul> <li>a) Symposium : Vision Zero in the construction sector by ISSA</li></ul>
2017	Construction Section <li>b) Closing address by Minister of Manpower, Singapore</li> <li>c) Technical Tour to 3M</li>







Culture of Prevention for Safety, Health & Wellbeing

- According to ILO, an estimate of 2.3M workers die, 160M people suffer from nonfatal occupational diseases, and 303M people suffer from occupational accidents with non-fatal consequence every year
- A world-wide prevention campaign launched by International Social Security Association (ISSA) at the World Congress in Singapore in 2017
- Raises awareness for risks at work
- Motif "Vision Zero a world without fatal and severe occupational accidents, occupational diseases and road accidents is possible"
- 4 important principles
  - a) human life is not negotiable
  - b) every occupational accident and occupational disease is avoidable
  - c) prevention is the instrument for entrepreneurial success
  - d) vision zero is the key to development of global culture of prevention at workplace



## WSH 2018 in Singapore



Engendering a Progressive and Pervasive WSH Culture

- Introduced in 2008 to encourage stakeholders to view WSH as a personal responsibility and proactively reduce risks
- Extension of WSH Act to all workplaces in 2011
- Established the WSH Institute in 2011 to provide research to address WSH industry challenges
- Bringing a culture change to sustain improvement in workplace safety and health where management and workers embrace the belief that all injuries are preventable. Launched the CultureSAFE programme in 2012 with a WSH Culture Fund to help companies implement the CultureSAFE programme at workplace
- Launched Vision Zero movement at the National WSH Campaign 2015 to drive the mindset that all workplace injuries and ill-health are preventable. Introduced 6step approach to help companies to achieve Vision Zero
  - a) Make a *commitment*
  - b) Set a *goal*
  - c) Communicate the goal
  - d) Identify WSH challenges
  - e) Find *solutions*
  - f) *Review and monitor* progress

## Analysis of Current Situation of Singapore

**Deteriorating Situation in Construction Sector** 

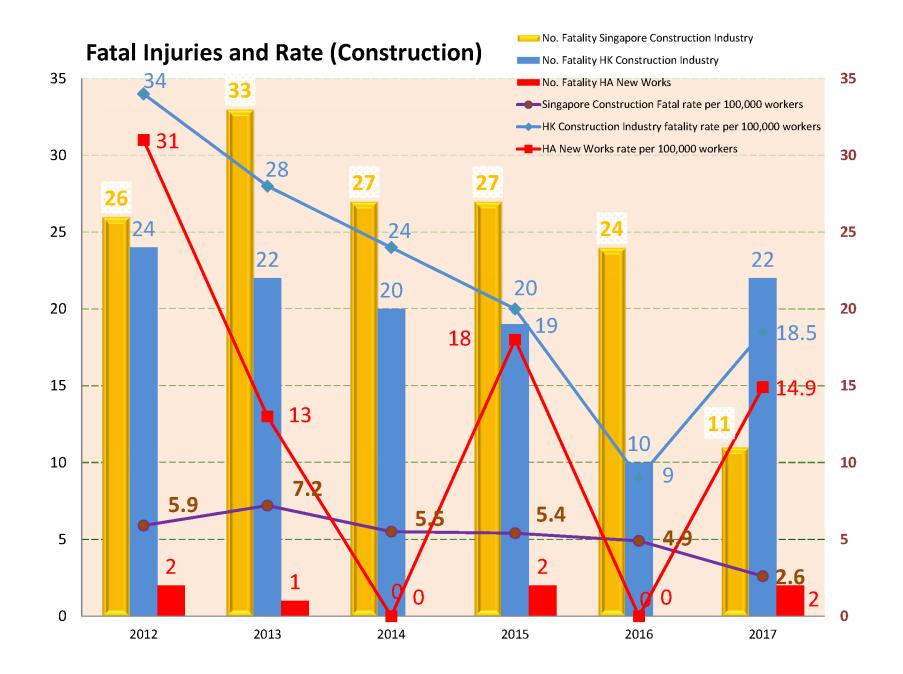
- Systemic Lapses for fatalities:
  - a) 93% for unsafe behaviour, lack of competency and safety awareness of workers,
  - b) 87% for inadequate risk management, insufficient risk control measures
  - c) 73% for lapses in planning and execution of work activities, e.g. poor supervision, communication and coordination of work
- Experience and Competency :
  - a) Workers with < 1 year experience and unskillful workers are more prone to fatalities
- Need for Greater Industry Ownership
  - a) Some contractors took WSH contraventions as a normal course and set aside "safety budgets" to cover fines
  - b) Some contractors exert pressure on doctors to reduce duration of medical leave
  - c) Some accredited training providers are fraudulent in conducting WSH training,
    - eg. Trainees were guaranteed a pass through provision of answers

#### Health Risks Factors not addressed

- a) No integrated approach in managing safety, health and well-being of workers
- b) WSH professional not competent to advise management how to manage work environment and personal health factors to prevent accidents and ill-health



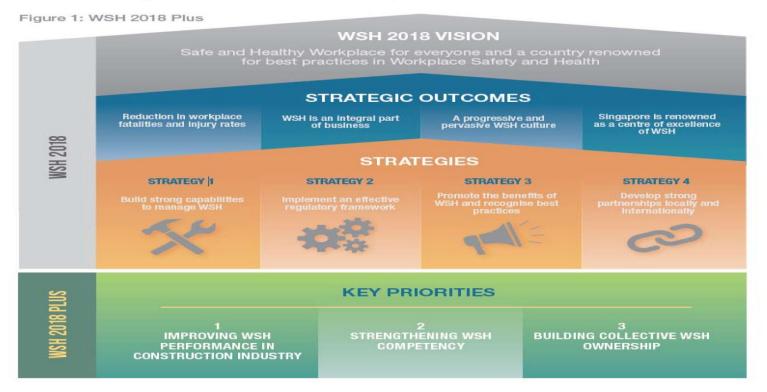
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Advancing Workplace Safety & Health for 2018 and beyond WSH 2018 Plus lays foundation to address WSH challenges and sustain continuous improvement beyond 2018 and 3 key priorities:



- Improving WSH Performance in Construction Industry Α.
- Strengthening WSH Competency Β.
- **Building Collective WSH Ownership** C.





Advancing Workplace Safety & Health for 2018 and beyond

#### A. Improving WSH Performance in Construction Industry

As companies have different capabilities and attitude towards WSH, a differentiated enforcement approach is adopted to instil greater motivation for companies to improve their performance :

1) Enact Progressive WSH Legislation :

Risk based management approach in enacting WSH legislation,

- a) Enacting WSH (Design for Safety) Regulations on 1 Aug 2016 greater responsibilities on developers and designers to address foreseeable risks at design and planning phases, driving upstream WSH prevention with benefits seen later
- b) Reviewing WSH (Construction) Regulations to improve formwork safety and on-site traffic safety for forming Safety and Health Coordination Committee to coordinate all hazardous works on site
- 2) Influence WSH Standards through Procurement Practices :
  - a) Public bodies consider safety records as pre-tender requirement
  - b) Placing greater weight on safety in tender evaluation

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#### A. Improving WSH Performance in Construction Industry

3) Adopt a Differentiated Regulatory Approach :

Differentiated approach based on level of capability and attitude of companies to allow for more effective allocation of resources of MOM-

#### Figure 2: 2x2 Regulatory Profiling Matrix



#### Good Attitude



Advancing Workplace Safety & Health for 2018 and beyond



- A. Improving WSH Performance in Construction Industry
  - 4) Leverage on Technology :
    - Driving WSH improvements and improving productivity through technology:
    - a) Adopting prefabricated prefinished volumetric construction (PPVC) reduces WSH risks on site
    - b) Installation of data loggers in all mobile cranes allows crane owners and occupiers to monitor performance of crane operations, facilitates better planning of lifting operations and shape the behaviour of crane operators
    - c) Using facial recognition and access control to ensure authorized entry into designated work areas
    - d) Organising a WSH Technology Symposium to expose the industry to technologies for improving safety and health at workplaces and support greater adoption through co-funding



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#### B. Strengthening WSH Competency

A registered workplace safety and health officer (WSHO) is required for a project with contract sum of SGD \$10M or more. Construction workers need to pass the Safety Orientation Course for Construction Industry. All WSH training providers need to be certified under the Learning Service Provider Certification administered by the Singapore Accreditation Council. There are over 4,000 WSHOs.

1) Raise Recognition of WSHO with Career Progression Pathway : Singapore Institution of Safety Officers is working with universities to

Singapore Institution of Safety Officers is working with universities to develop training courses to help WSHOs develop themselves professionally

2) Enhance Training Delivery for a Richer Learning Experience :

Include interactive and experiential training modules; uploading training material onto smart phones for ease of learning; virtual simulator for training

3) Introducing Competency-based & Outcome-oriented Training Curriculum :

Training for workers on carrying out Last Minute Risk Assessment; training of supervisors of contractors on communication & relationship management

4) Enhance Quality of Training Providers and Trainers :

Trainers for WSH courses to undergo at least 10 training hours each year under the "Train the Trainers" programme



Advancing Workplace Safety & Health for 2018 and beyond

- C. Building Collective WSH Ownership require shifts in mindset:
  - 1) From reducing workplace fatalities to preventing all injuries and ill-health : Workplace injuries and ill-health are preventable; championing the Zero movement through awards, recognition; imbuing WSH values from young by integrating WSH knowledge into students' learning and school activities
  - 2) From injury compensation to injury prevention and management :

Forming Work Group comprising insurers, employers and unions to review work injury compensation (WIC) insurance policy to provide differentiation in premium based on workplace safety performance to influence the right behaviour in companies; including Return to Work expenses in WIC insurance for compensation to help injured workers to return to work

3) From focusing only on safety to equal emphasis on safety and health :

Raise awareness on Total WSH through platforms e.g. WSH campaign, conference, talks, websites, channels through associations, unions, etc. awards; accrediting training providers for Total WSH courses; incorporating Total WSH concept into professional training

4) From government-led to industry-driven : broadening and deepening partnership with WSH Council and WSH Institute

Culture of Prevention for Safety, Health & Wellbeing

7 Golden Rules [examples of measures of HA added]

- Cover all essential aspects of a successful prevention strategy
- Require a plan for development of a sustainable occupational safety and health culture which is supported by measures and milestones, and reviewed regularly
- 1) Take leadership demonstrate commitment
  - **Corporate Level**
  - *a) Housing Department Environment, Health and Safety Committee chaired by Permanent Secretary of Housing – responsible for development and formulation of policy direction on environment, health and safety*
  - *b)* Housing Department Site Safety Sub-committee chaired by DD(DC) overseeing site safety and health management for works contracts
  - c) Housing Department Occupational Safety and Health Sub-committee chaired by DD(CS) – overseeing departmental OSH policy and implementation
     d) 4Cs core values express commitment and accountability
     Project Level
  - a) Partnering Charter
  - b) Site Safety Committee by contractor



Culture of Prevention for Safety, Health & Wellbeing

7 Golden Rules (cont'd)

- 2) Identify hazards control risk Corporate Level
  - a) List management in admitting capable contractors
  - b) tender evaluation in selecting the optimum contractor
  - *c)* requirement of safety and health management to contractor
  - *d) performance monitoring of contractors through PASS, safety audit, surprise safety inspection, routine site inspection by project staff*
  - e) design review meeting (e.g. AAP, EAP, PDRC, DDRP, BSDRP) with various stake holders to identify risks at early / design stage
  - **Project Level**
  - *a)* BIM to simulate design and construction process
  - b) Monthly safety and health site meeting
  - c) Safety Plan and Health Care Plan by contractor (Singapore considers mental health in risk assessment)



Culture of Prevention for Safety, Health & Wellbeing

7 Golden Rules (cont'd)

• 3) Define targets – goal-oriented, programme-based approach <u>Corporate & Project Level</u>

Targets of zero fatal & accident rate of not more than 9 per 1000 workers are set

• 4) Ensure a safe and healthy system – be well-organised

#### Corporate Level

*3-pronged approach to eliminate, reduce and control the risk including a) procurement strategy and performance monitoring with incentives & sanction; b) strengthening contractual requirement and management; c) research, training and promotion* **Project Level** 

a) Implement HASAS, SSIP, PASS, Safe Working Cycle

# • 5) Ensure safety and health in machines, equipment and workplace

- Corporate Level
- a) Duty of contractor to follow Factories and Industrial Undertakings Ordinance
- *b) Standard safety requirements under contract (e.g. Standard Specification Library)*



Culture of Prevention for Safety, Health & Wellbeing

- 7 Golden Rules (cont'd)
  - 5) Ensure safety and health in machines, equipment and workplace (Cont'd) <u>Project Level</u>
    - a) Use quieter machines in sites close to neighborhood
    - *b) Rest area for workers as specified under contract (Visited site in Singapore provide water dispensing machines on each floor of domestic blocks)*

#### • 6) Improve qualifications – develop competence

**Corporate & Project Level** 

a) Qualification and training requirement on contractors' personnel

b) Site Safety PASSPORT Training with Refresher Course for HA works staff

#### • 7) Invest in people – motivate by participation

**Corporate & Project Level** 

Pay for safety to contractor for organising induction training and tool box talks for workers, joining / winning site safety campaigns or organising site-based safety awards, implementing safety innovation, application of RFID or BIM for safety, P&N Caring Programme

http://visionzero.global/sites/default/files/2017-09/2-Vision\_Zero\_Guide-Web.pdf



- 4 Sep 2017 International Media Festival for Prevention
- Special Media Session
  - media can educate people how to behave in correct and safe way
  - 師傅再出馬 (OSH Master Chef II) of OSHC of Hong Kong won the grand award



4 Sep 2017 : Symposium : Innovative approaches to OSH

• Symposium : DD(DC)'s presentation on "Innovations in Safety and Health in Public Housing Developments in Hong Kong"











- 5 Sep 2017 Safe Youth @ Work Dialogue
- Young workers are future leaders of economies
- They are 40% more likely than older workers to suffer occupational injuries because of lack of skills, experience and training, inadequate supervision, limited knowledge of OSH hazards and risks, and lack of understanding of their rights
- Youth can be change agents by bringing their voice to help build a global network of young champions for safety and health in the workplace
- More than 120 youth champions, aged 18-24, from around the world join the Congress and are prepared to become agents of change for SafeYouth@Work in their home countries





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#### 3 to 6 Sep 2017 - Exhibitions

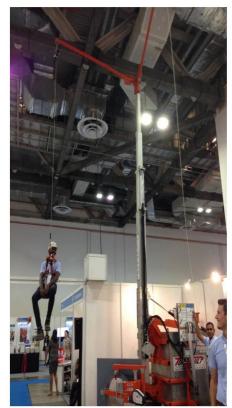
- Virtual reality technology for safety training of mobile elevated work platform
- Exoskeleton for manual handling





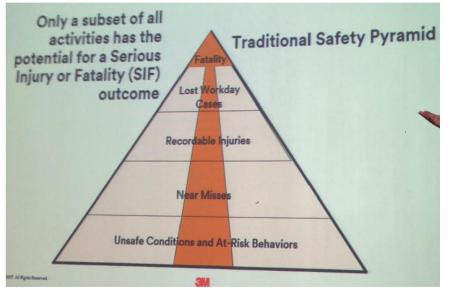






#### 6 Sep 2017 - Closing Ceremony & Technical Tour

- Closing Address by MOM, Singapore
- A sharing by a medical practitioner diagnosed with leukemia on importance of prevention
- Next World Congress in Canada
- Technical Tour to 3M Safety pyramid, safety equipment (e.g. PPE, reflective strip for roadworks)











**AT WORK** 2020



CANADA

Here is the footage of Site Safety Seminar for Capital Works New Works Contracts of Housing Authority which was held on 12 April 2018 The speaker is Senior Manager of Housing Department (Safety and Health) Mr. Lau Chee Tim, Timothy His presentation topic is XXI World Congress on Safety and Health at Work 2017

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#### (00:30)

From September 3rd to 6th, at that time Deputy Director Miss Fung led the team to participate in the XXI World Congress on Safety and Health at Work in Singapore Later, our two other colleagues will talk about the technical visit from September 7th to the 8th

Briefly talk about the itinerary the opening ceremony was on September 3rd Several important people were attending including the president of the Ministry of Manpower of Singapore being the Officiating Guests The Director General of the International Labour Organization from Switzerland was present In addition the president of the International Social Security Association and Singapore's Prime Minister Lee Hsien Loong also attended and delivered a speech

On September 4th, the International Labour Organization and the International Social Security Association made a report and brought the message of Vision Zero and several technical sessions There were many forums in the afternoon mentioning innovative measures

On the September 5th

Workplace Safety and Health Council of Singapore Brought out the message, "people-oriented prevention" Then there were several technical sessions There was also a youth forum held in the afternoon They placed emphasis on letting children and young people pay attention to occupational safety and health There were also seminars on innovation

In the closing ceremony on September 6th the ISSA International Social Security Association spoke out the "Vision Zero" The highlight of this forum, the vision of "Zero Accident" A closing speech was delivered by the Ministry of Manpower of Singapore

The 3M company arranged a technical tour Then I will talk about the culture of prevention for safety, health & wellbeing The International Labour Organization says that about 2.3 million people die each year because of work There are 160 million people suffering from non-fatal occupational diseases More than 300 million people were injured because of occupational accidents In 2017, a world-wide prevention campaign was launched in Singapore which aimed to promote the concept of prevention before an incident happens to raise awareness for risk at work and hope for Vision Zero

The world can achieve Vision Zero for accidents, diseases and hazards at work There are four important principles including human life is not negotiable Every occupational accident and occupational disease is avoidable Prevention is the instrument for entrepreneurial success We hope the world will aim to achieve Vision Zero In Singapore, they have promoted an occupational safety and health culture 10 years ago, introduced in 2008 stakeholders were encouraged to set a target for 2018 They regard this occupational safety and health as a personal responsibility to take initiative to eliminate and reduce the risks In 2011, they proposed this Workplace Safety and Health Act and all construction sites have been covered Workplace Safety and Health (WSH) Institute was established in 2011 to conduct research in order to promote cultural change So occupational safety and health at the workplace can be promoted All accidents can be avoided They launched the CultureSAFE programme in 2012 with a WSH Culture Fund to help companies implement the CultureSAFE programme at workplace In 2015, they launched this Vision Zero campaign and hoped to change people's attitude Accidents, hazards, diseases can be eliminated and can be avoided There are six approaches to achieve Vision Zero First, make a commitment Second, set a goal

Third, communicate the goal to others Fourth, identify work safety and health challenges Fifth, find solution Sixth, review and monitor progress

In terms of the construction sector Singapore noticed that their situation is not ideal They saw a lot of human error among workers lack of competency and safety awareness of workers In addition, inadequate risk management insufficient risk control measures and lapses in planning and execution of work activities In terms of supervision, communication management and coordination There were deficiencies that led to these serious fatal accidents In addition, in terms of the experience of workers inexperienced workers were prone to fatalities Then in the construction industry how much responsibilities of the occupational safety and health were borne by us? Are you responsible for it? I hope the whole industry will do one more step Some companies would count accident penalty as one of the costs which had already been counted in the budget Or ask the doctor to deduct the duration of sick leave and even some training service providers were fraudulent in conducting training They provided answers for trainees to pass the assessment after class These problems were known There was no integrated approach in managing safety health and well-being of workers

As an example, in recent years, people questioned about whether high-rise building construction need to provide builder's lifts Some will not provide the workers need to walk 30 to 40 floors Being already exhausted, are they able to continue working? Are they already exhausted? Will they get injured more easily? These can be considered together with safety There are also workplace safety and health personnel Do they have enough ability to manage environmental and personal health risks? After noticing so many questions look at the comparison between Singapore and Hong Kong in the past few years The yellow bars are the fatal accidents in Singapore The blue bars are the fatal accidents in Hong Kong It seems that Hong Kong is better There were 10 fatal cases in Hong Kong in 2016 However, there were 22 fatal cases in Hong Kong in 2017 Singapore had only 11 fatal cases in 2017 There may be some missing cases for the accident rate For the fatality rate we follow their calculation method using 100,000 workers The red slash is the Housing Department The line went up and down as the number of workers for Housing Department New Works is small The blue slash represent the Hong Kong Construction Industry The Singapore line is at the bottom which is comparatively low This is their official report The fatality rate for Singapore is 2.6 per hundred thousand workers in 2017 While that for Hong Kong construction industry is 18.5 and the Housing Department New Works is 14.9

Because the workers number of Housing Department New Works is small, one more case can jet the line up Two fatal accidents occurred Everyone can see that Hong Kong has a lot of room for improvement

Singapore has already been catching up They proposed a workplace safety and health legislation in 2018 There are three key points in the WSH 2018 Plus program First, improving the performance of the construction industry Second, strengthening the competency in the construction industry Third, building collective WSH ownership Let's read the details in the construction industry they know that the legislation is important and they introduced a WSH(Design for Safety) Regulation in 2016 Risk can be eliminated or reduced at sources i.e. implementation at the design and planning stage Later, our colleagues will explain this issue Reviewing the construction legislation we also take look at the formwork safety On-site traffic safety also needs to be reviewed Second, they promote WSH through procurement practices Public bodies need to consider the safety records as tender requirement Placing greater weight on safety in tender evaluation Third, different companies have different approaches The companies at the top right corner can do it and are willing to do it they will become the role model to share their best practices Companies at the bottom left corner are those don't know how to do it and don't want to do it Those were subject to the law enforcement and

strengthened prosecution In addition, for those who know how to do it but do not do it Or those want to do it but don't know how to do it try to conduct random inspection It is hoped that they can improve They make use of technology For example, they have proposed the practice of prefabricated prefinished volumetric construction (PPVC) components It has been going on for several years in fact, Hong Kong has to start to catch up PPVC reduce the number of workers on the construction site With fewer workers the chance of an accident is reduced In addition, they stored all the data in data loggers for all mobile cranes We can check what had happened at certain time Or what had gone wrong? Third, for some special designated areas

there is a facial recognition system

To ensure authorized entry into designated high-risk areas

on the construction site

the audit report presented just now

had similar control measure

Fourth, increase publicity activities, symposium, etc.

to promote technical awareness

enhance the competency of occupational safety and health they are not counting the worker number

but calculating on the budget

A registered workplace safety and health officer (WSHO)

is required for contract sum of SGD\$10 million in Singapore

They now have more than 4,000 WSHO

They know that the WSHO need to raise their professionalism

So they have a joint course

with the university for continuous study In addition, some training modules are put into the smart phone for easy learning It is also important to teach workers to do the final 1-minute risk assessment Workers can be aware of the dangers themselves and can deal with it themselves There is also training for trainer and the trainer is going to train others The trainers themselves are also trained and there is also 10 hours of continuous training per year Everyone has more recognition, a sense of belonging and a sense of responsibility to occupational safety and health by changing their attitude They used to discuss about death Now more discussion on how to reduce accidents injuries and health problems Organise more award functions bear in mind that all these diseases, injuries are preventable Instill these ideas to the children at school let the students learn occupational safety and health In the past, they said compensation and they would compensate if you were injured It should be avoided now, there should not be any injury If safety performance is good the insurance premium will be reduced This is a motivation

In addition, the third point is

to hold occupational safety and health campaigns

Safety and health are equally important

hosting more web pages, meetings, conferences

In addition, the government should lead the industry

to broaden and deepen the WSH campaigns

I hope that all citizens will do it together

To promote this culture we need to work on these seven things Seven golden rules Housing Department has similar measures on the italic items First, leadership commitment driven by the above must be the most effective Second, our director of the Housing Department regularly hosts a meeting In addition our Deputy Director (Development and Construction) is responsible for chairing the site safety and health meeting Our Deputy Director (Corporate Services) will also take care of occupational safety and health aspects There is a dedicated committee responsible for it The 4C we proposed if you have joined our lecture before you will know what is 4C The Housing Authority project team has a site safety charter and site safety committee The second thing, we have to identify the hazard We have a list management system The company which has ability could enter our list to bid We also need to look at safety records and ask them to have a certification in management Later, our guest speakers will also share the certification requirements with us After being awarded the tender we will have different monitoring systems such as the contractor performance scoring system Housing Authority Safety Auditing System and Surprise Safety Inspection Programme Then, we have to go through many design review meetings before the project is launched such as AAP, EAP, PDRC, etc.

A contractor may not know much We have a lot of rounds of review and the Housing Estate Management Office's colleagues look at the hazards of housing development after the completion of the project It is very critical to eliminate and reduce risk at source as much as possible Building Information Module could be adopted by contractor Monthly safety and health meetings, safety plan, health plan lots of things and tools here

The third factor is to define targets What is the target of the Housing Department? Targets of zero fatal & accident rate of not more than 9 per 1000 workers are set Fourth, there is a system an occupational safety, and health system We always say three-pronged approach First, procurement strategy and performance monitoring Second, strengthening contractual requirement and management Third, training and promotion The other is to implement Safe Working Cycle on site Fifth, the environment of the construction site We have to follow the contract and follow the law In addition, some machinery on the construction site must meet the environmental protection requirements and provide rest area for workers The sixth is the qualification For contractor's personnel we have training and qualification requirements In addition, we have Site Safety PASSPORT Training for HA works staff We must enrich ourselves to understand the safety situation on site

Seventh is about the people To promote whole industry participation we can give some rewards and hold some activities to let them participate If you have participated you might get the monetary reward in the Pay for Safety as an incentive We also have P and N caring programme hoping to motivate more participation for training and caring

There was a Media Festival for Prevention on September 4th Video media is very influential A video of half a minute or 2 minutes has brought out a lot of safety messages The OSHC also received an award which was the grand prize It mainly talks about some of the safety measures inside the kitchen It has gained international recognition Miss Fung shared the innovative measures of the Housing Department on September 4th Among them, you may find your work in the video If you do a little more innovation we will have more material to share

On September 5th, we mentioned that they valued the participation of young people The one at the end of the table on the left-hand side is their second minister of the Ministry of Manpower of Singapore They can find a group of young people to join the work of occupational safety and health They invited more than a hundred people over the world On the right-hand side, they went to the stage to share what they have gained and contributed in their homeland After finishing this meeting, they can exchange their ideas when they return to their homeland Becoming a network of the whole world they raise the level of occupational safety and health in their own places

There was also an exhibition from September 3 to 6 there were robots Some contractors in Hong Kong have also begun to participate Some contractors use virtual reality as one of the training tools Time flies, in the closing ceremony the minister of the Ministry of Manpower made a closing Also, one doctor was invited He has suffered from polio since his childhood Why was he sick? Because his parents did not vaccinate him He missed one injection and he's lame. So he needs a wheelchair But he didn't give up and finally became a doctor He came up to the stage to talk about the importance of prevention He has to be in a wheelchair for a lifetime because he missed one injection He wouldn't have been like this if he had got vaccinated

We visited the 3M company the picture in the lower left corner Everyone knows what is at-risk behaviours and unsafe conditions Then it becomes a near-miss When you drop an object, you pick it up if not it may trigger further injuries If the incident is serious it is necessary to report it to the Labour Department Worse, it may become a fatal accident Progressive layer by layer We stress that contractor need to timely report near-miss incidents We place importance on it. Today is a near-miss accident I don't know if it will become a fatal accident tomorrow This is the end of my sharing Thank you

Thank you for watching

(20:10)