Keynote Speech by Ms FUNG Yin Suen, Ada, BBS, JP
Deputy Director of Housing (Development & Construction)
Chairperson of Housing Department Site Safety Sub-committee
"Promotion of Innovative Safety Design"

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Good afternoon, we have been co-organising the Site Safety Forum for 11 years. Here, I would like to express my gratitude to all of you for the tremendous support over the years. The annual Site Safety Forum provides an opportunity for members of the industry to exchange experiences in enhancing safety at workplace. The theme of the forum this year is "Prevention through Design". With innovative thinking, we have been promoting safety design, refining management process, upgrading safety devices and fostering a proper mentality towards safety in a bid to reduce accidents and ensure smooth and safe execution of works through careful design.

The Housing Department Site Safety Sub-committee (HDSSSC) is accountable to the Environment, Health and Safety Committee of the Housing Department. Its members comprise the representatives from all the supporting organisations present today and the staff of our Department. HDSSSC provides a platform to disseminate information as well as to collect opinions and exchange views with the industry for the enhancement of site safety management measures in the construction and property services contracts of the Housing Authority (HA).

I would like to share with you HA's performance on construction safety and the three-pronged approach on safety management, namely, the performance monitoring mechanism, strengthening of contract administration and research, training and promotion. I will also talk about the construction safety of temporary works and end my speech with a conclusion. First of all, I will review the performance of HA on construction safety.

After years of efforts, the accident rate of HA's new works and maintenance works per thousand workers dropped to single digit in 2009 and 2010 respectively. In 2016, the accident rates of HA's new works and maintenance works were 6.8 and 1.5 accidents per thousand workers respectively, which were below the target accident rate of 9 accidents as set by HA and also lower than the accident rate of 34.5 accidents per thousand workers in the local construction industry in the same year. HA has maintained a record of zero or low fatal accident in recent years, but seven fatal accidents occurred in Hong Kong in the first quarter of 2017. This change has sounded the alarm bells.

The number of skilled workers at HA's new work sites has doubled from 6 400 in 2011 to 12 000 in 2016. The new comers are more accident-prone as they are not familiar with the dangers in construction works or construction sites. On top of this, the construction workforce of Hong Kong is ageing while the volume of construction works remains at a high level. It results that the supply of site supervisory staff is unable to meet the demand. All these are challenges to construction safety and we need to handle the situation carefully.

HA has adopted a three-pronged safety management strategy since 1990 to raise site safety standards by enhancing the performance monitoring mechanism, strengthening contract requirements on the design of hardware and software, and making practical efforts on research, training and promotion of site safety awareness. Through unremitting efforts, the accident rates of HA's new works and maintenance works dropped to 6.8 and 1.5 accidents per thousand workers respectively in 2016, as compared to 206 accidents per thousand workers in 1990. These achievements do not come easily. They are the results of effective implementation of performance monitoring mechanism and the concerted efforts of every sector involved. Apart from the PASS for building works that has been running since 1990s, HA introduced

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the Housing Authority Safety Auditing System in 1996 and then the Surprise Safety Inspection Programme in 2013.

In 2017, we strengthened the existing performance monitoring mechanism by enhancing the Safety Auditing System and the Lift and Escalator Nominated Sub-contracts Safety Auditing System, incorporating the safety audit score of building services contractors into the scoring system, and banning contractors who have failed the safety audit twice in a row from tender for three months.

We continue to enhance our contractual requirements and six enhancements were implemented in 2017. Under the enhanced measures, workers are required to carry handheld tools with hand straps and waist belts, those engaged in lifting operation, road works and vehicle traffic control have to wear reflective vests, Y-Type chin straps are to be supplied by the same manufacturer of the safety helmet used, anti-heat stress uniforms are to be provided to site workers, suspension ropes of gondolas are to be kept in vertical condition, the requirements on the design of temporary stairs have been issued, and warning signs have to be posted in dangerous zones.

Contractors who have received merit in the Safety Auditing System for 15 safety innovations have already been paid under the Pay for Safety Scheme. We are studying the feasibility of their implementation in new works contracts. These measures include: an alarm system for the detection of height of trucks, a mobile alarm device for lifting operations, the use of nylon mesh to cover bar bending sites, aluminium working platforms for bamboo scaffolds, the use of RFID- Radio Frequency Identification in machine permits, the installation of a self-stopper sensor to the engines of forklift trucks, the use of smartcards in forklift truck operation, the installation of a foot pedal and an interlocking guard to bar bending machines, the use of a mechanical speed monitoring system, the installation of an interlock device to tower crane hooks, the use of VR technology and BIM in safety training, the use of RFID technology in fatal zone warning system, the installation of noise barrier and dust guard to grinding machines, a tower crane lift warning system, and the installation of an angle indicator to bar bending machines.

We are looking into enhancing the Pay for Safety Scheme by adding the following five items: subsidised lunchtime safety talks; timely reporting of accidents and incidents involving deaths, serious accidents and accidents with serious potential consequences on the day of occurrence, and reporting of other accidents and incidents within seven days; adjustment of the threshold for critical pass in the Housing Authority Safety Audit System; adjustment of the target accident rate to no more than nine accidents per thousand workers; and submission of specifications of safety innovative measures by contractors.

We support the Construction Industry Council (CIC) in reviewing and updating the Guidelines on Planking Arrangement for Providing Working Platforms on Bamboo Scaffolds. We hope that the updated Guidelines can encourage the industry to adopt closely boarded bamboo scaffolding to eliminate at the source the risk of falling from height when laying and removing the planks. CIC also published the Guidelines on Work-Above-Ground Safety in November 2016. These new Guidelines have already been incorporated in the tender requirements of HA's works contracts and contractors are required to comply with them. CIC's Task Force on Site Safety of Working in Lift Shaft is responsible for studying matters relating to the safety of lift

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shaft works. I am the Chairperson of this Task Force. With the help of the industry, we completed the Guidelines on Safety of Lift Shaft Works: Volume 4 - Builders' Lift within Lift Shaft in 2016. Contractors of HA's works are required to comply with the Guidelines on Safety of Lift Shaft Works published by CIC.

On the third prong - research, training and promotion, HA published the 2017 edition of the Pictorial Guide to Planning and Design for Safety, which is an updated version to the last edition in 2010, to include more safe and best practices for the design of temporary and permanent works. We also updated the 2008 edition of the Site Safety Handbook to cover good and safe practices for construction works. We have bought 600 sets of the Pictorial Guide and the Site Safety Handbook with us today. The online version is available for download at the Hong Kong Housing Authority Site Safety Website.

HA has published three posters on safety in lifting operation, electrical work and working at height. We will continue to work with the Occupational Safety and Health Council (OSHC) to standardise the oral commands of the Pointing-and-Calling practice for use in high risk activities. Please visit our Site Safety Website for safety alerts, accident rates or information on various safety schemes. The Website is now compatible with mobile phones and you can use it anytime and anywhere to search for information on site safety. Moreover, the Housing Authority Occupational Injury and Disease Surveillance System has been applied to all HA new works contracts since May 2016 and information on accidents or incidents can be instantly reported to the management and project managers. CIC has also launched apps on mobile devices with loads of information on site safety for download.

HA has put in place a Safety Auditing System to assess the work systems of contractors and work environment of new projects, and with the adoption of the Safety Climate Index (SCI), gauges the safety perception and awareness from the perspectives of frontline personnel (including management staff, supervisors and workers). Furthermore, the Work Safe Behaviour Programme is implemented to assess workers' safe operations and behaviours by observation. SCI is an important indicator reflecting the level of safety culture in an organisation, and its sampling size should not be less than 30% of all its employees. There are seven factors contributing to an organisation's SCI. HA has compared its SCIs in 2008 and 2016 and obtained the following observations. The overall SCI was on the rise from 2008 to 2016. However, SCI for factor four "perception of safety rules and procedures" was at the lowest both in 2008 and 2016. In 2016, the SCI of contractors was lower than that of the sub-contractors, with the latter showing a remarkable improvement of 10% from 59.6 in 2008 to 65.5 in 2016. SCI for managers and supervisory staff was generally higher than that of the workers with differences ranging from 2 to 9. Also, staff members with higher awareness of safety culture, usually those with longer length of service or with more family members to support, are less likely to get injured and breach safety rules.

Because of these, we launched the Caring Programme for New Workers to raise new comers' awareness on safety culture. As SCI survey can indicate the current SCI level and the areas needed to be improved, we can find out whether the indicators have been improved through regular SCI surveys. In view of the results of SCI survey, we will consider implementing enhancement measures in relation to the contributing factors. For Factor Four "perception of safety rules and procedures", we will strengthen our communication with contractors, subcontractors and workers

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to enable better exchange of views, simplify the safety rules and use graphics to illustrate rules and procedures. As for Factor Six "safe working attitude and peer influence", we will encourage more active employees' participation to foster a learning culture. We will explore incorporating SCI survey and Work Safe Behaviour Programme into contractual requirements and standardise the checklist for observing safety behaviour of various trades.

We also emphasise construction safety of temporary works. At the design stage, our construction team will work out feasible options to address the potential risks associated with temporary works, having considered the construction methods, procedures and materials involved in different kinds of temporary works. When constructing the footbridge in Shui Chuen O Estate, Shatin, we had to conduct numerous force analysis carefully for carrying out a large number of temporary works. Since large panel metal formwork, precast components and mechanised construction methods were used in building residential blocks, we used BIM to help project teams rationalise the operation modes and work processes of demolition and construction and identify the areas and procedures of temporary works so as to ensure smooth and safe execution of work. The industry already has some guidelines on temporary works like the Code of Practice for Precast Concrete Construction for use, and international standards such as the BS 5975 are also useful reference. We are actively considering the installation of sunshade device onto gondolas.

We have five premises. The first one is "Safety comes first". The second one is to stick to our two mottos, namely "Do it right the first time" and "What gets measured gets done". I always encourage the working habit and culture of Early Planning, Early Design and Early Management. Also we have four core values, that is, Caring, Customer-focused, Creative and Committed. We hope that our contractors can aspire to the "5-zero" target, namely "Zero incident", "Zero accident", "Zero conviction", "Zero complaint" and "Zero dispute". One more point to note, we can enhance site safety with the help of technology.

I call upon design teams, contractors, subcontractors and workers to pay attention to safe work design and work processes. Preventive actions are important. It is always easier to nip the problem at its bud than looking for remedy after the problem materialised. Therefore, I would like to reiterate the idea of prevention through design: careful design can reduce accidents and ensure smooth and safe execution of works. Project teams should take a few more steps to foster a safety culture. Ensuring site safety is everyone's responsibility. Last but not least, I hope that all the workers on HA sites, irrespective of their trades, can go to work with a happy frame of mind and return home safe and sound to their families. Thank you!