

How to use Safe Innovation Products to Assist Work Personnel to Maintain Professionalism

Hong Kong Housing Authority
Safety forum 2021 for works and property Management Services
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Mike Chan, Senior Construction Manager



瑞安建業
SOCAM DEVELOPMENT

瑞安承建有限公司
Shui On Building Contractors Limited

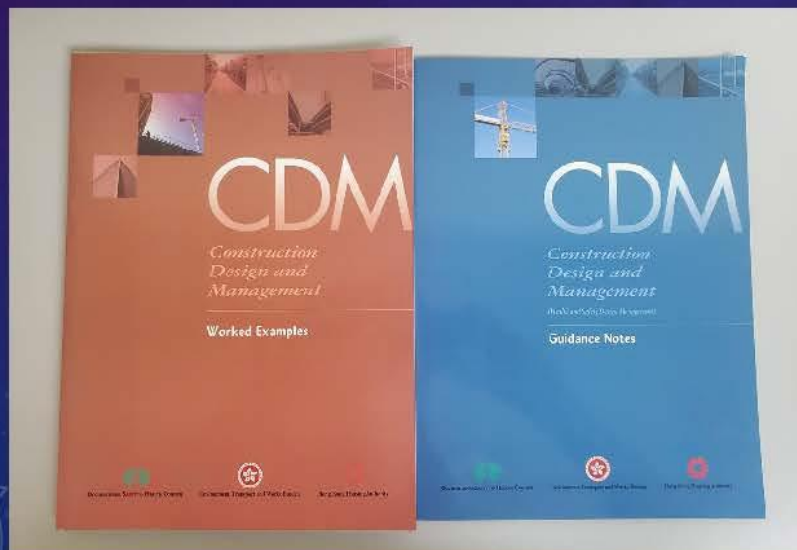
瑞安建業有限公司成員 A member of SOCAM Development Limited

Construction Project Stakeholders (Professionals)

1. Clients – Hong Kong Housing Authority
2. Designers - Architects / Engineers (Structural, Building Services, GE, CE etc.)
3. Contractors – Management / Supervisor
4. Subcontractor / Suppliers
5. Frontline Workers

Construction Design Management (CDM)

- Construction Design and Management –Guidance Notes and Worked Examples are published by OSHC, ETWB and HKHA (2003)
- Hong Kong Housing Authority published Pictorial Guide to Planning and Design for Safety (1st Edition - 2010 and 2nd Edition - 2017)



Identified High Risk Activities

- Working at Height
- Falling Objects
- Housekeeping
- Lifting Operation
- Working in Liftshaft
- Electrical Supply system
- Personnel Protective Equipment

Such high risk activities have been identified and close monitored by **Periodical safety PASS** conducted by project team and PASS team, **HASAS Audit and SSIP** conducted by Accredited Safety Auditors and OSHC assessors.

INNOVATION: A SOLUTION MAY BE.....

- HKHA always act as a pioneer in promoting safety innovation method and products;
- Pay for safety funded to encourage use of innovation products in all projects;
- A batch of innovation products are adopted in the New Contract in year 2019;
- Robotic construction proposed in tender stage:
 - In external wall painting works
 - In internal wall painting works
 - In floor finishing at typical floor common area
 - In other on site works

INNOVATION PRODUCT: SCAFFOLDLESS LIFT INSTALLATION

- Working in Liftshaft

INNOVATION PRODUCT: SCAFFOLDLESS LIFT INSTALLATION

- Suspended working platform (SWP) operated with motors and examined by RPE similar with SWP outside building.
- Guide rails at both sides to assist stabilizing the SWP.
- Top cover is provided to protect workers against falling objects.
- Safe access board for workers to enter the SWP.
- Adequate illumination is provided in SWP aided with headlamp.
- More stable working platform is provided compared with removable working platform on scaffold.
- All builders' work and lift installation works can be operated by SWP.
- Totally eliminated the hazards of working at height (erection and dismantle of scaffold in liftshaft) and enhanced protection against falling objects and working environment.

INNOVATION PRODUCT: ARTIFICIAL INTELLIGENCE CAMERA

- Lifting Operation (Tower Crane)
 - Alert given out to control room automatically once any unauthorized workers entering in the danger zone, i.e. wearing a specified helmet color can work inside the danger zone.
 - Audio alert pop up to raise controller's attention.
 - Visual alert on monitor to provide double protections.



INNOVATION PRODUCT: ARTIFICIAL INTELLIGENCE CAMERA

- Lifting Operation (Mobile Crane)
 - Danger Zone Alert
 - Outrigger Extension Alert
 - Use of Shackle Alert

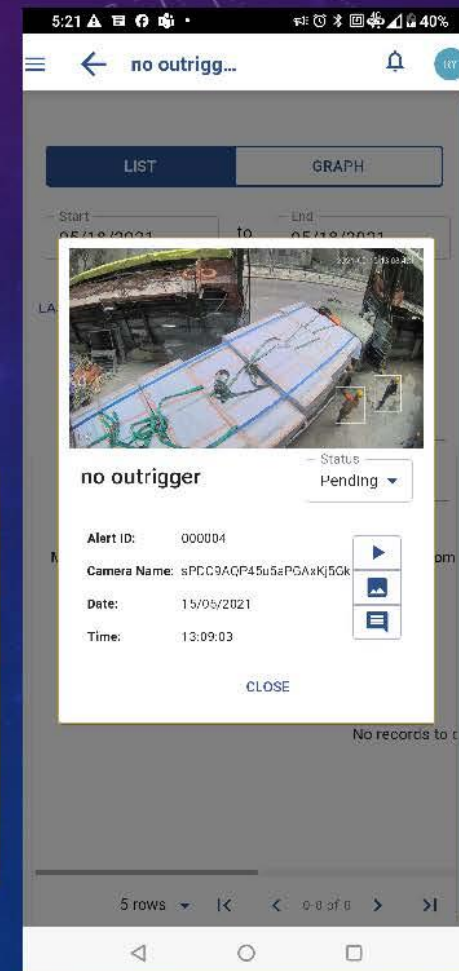
Rigging Method Alert



Outrigger Extension Alert



Danger Zone Alert



INNOVATION PRODUCT: ARTIFICIAL INTELLIGENCE CAMERA

- Personnel Protective Equipment
 - Detect workers without safety helmet before entering the site.
 - Alert light and alarm when the AI module detect workers without safety helmet.

AI Monitoring Safety Helmet Detection



INNOVATION PRODUCT: ARTIFICIAL INTELLIGENCE CAMERA

- On-Plants Danger Zone Detection (Excavator)
 - Alert given out control room automatically once anyone close with the excavator.
 - Audio alert pop out to raise controller's attention.
 - Visual alert on monitor to provide double protections.



INNOVATION PRODUCT: FACE RECOGNITION

- Use of Plants and Danger Zone Control

人像識別及體溫監控入閘機 - 讀取體溫



INNOVATION PRODUCT: HSE KIOSK (PERMIT STATION)

- High Risk Activities - permit to work system



INNOVATION PRODUCT: HSE KIOSK (PERMIT STATION)

- High Risk Activities - permit to work system

Permit included:

- Hot Work
- Working in Liftshaft
- Use of Gondola
- Use of Material Hoist
- Working in Confined Space (Developing...)

Other Function: Tool box Talk Training, Safety Promotion Display etc.



INNOVATION PRODUCT: VR TRAINING

- VR Training for High Risk Activities



INNOVATION PRODUCT: E-LEARNING PLATFORM

- Promote Safety and Care Culture
 - Shui On staff can attend safety training fit with their own schedule even in Work from Home status under COVID-19 epidemic.
 - Reliable training record and database to make sure all assigned staff attended training courses according to training need analysis.

The screenshot displays the user interface of the Shui On e-learning platform. The user is identified as MAN YIU TONY CHAN. The interface includes a navigation menu on the left with options for 'Dashboard', 'Calendar', and 'My course'. The main content area shows 'My Courses' with a progress bar and four course cards: '一般安全資料 基礎職安安全健康及環境訓練', '物業管理及保安服務物存放處理 (火警)', '香港的職業安全健康法例 物業管理', and '辦公室安全'. Below this, 'Course Stats' shows 37 ENROLLED COURSES, 42 COURSE ACTIVITIES, 5% COURSES COMPLETED, and 5% ACTIVITIES COMPLETED. A 'Tasks to complete' section shows 1 pending task. The right sidebar features 'Online users' (listing MAN YIU TONY CHAN, SUO CHU SUZUKI CHENG, LAO SOCAM, and SEYKINDSI), a 'Calendar' for May 2021, and 'Upcoming events'.

INNOVATION PRODUCT: DIGITALIZATION OF HEALTH AND TRAVEL DECLARATION

- Promote Safety and Caring Culture
 - Environmental friendly
 - Clear record
 - Can be completed during travel to work
 - Quick submission can avoid long queue at site entrance as well as minimize crowd gathering and virus infection



INNOVATION PRODUCT: PAPERLESS CAMPAIGN (SAFETY BULLETIN AND HSE FORMS)

- Promote Safety and Care Culture
 - Safety Newsletter published quarterly.
 - Digitized since 1st Quarter of 2021.
 - Site staff and workers can access and download it by QR Code posted on site.



INNOVATION PRODUCT: PAPERLESS CAMPAIGN (SAFETY BULLETIN AND HSE FORMS)

- Promote Safety and Care Culture
 - Total around 60 numbers of site HSE Forms are digitized.
 - All HSE staff are equipped with ipad kits (with Apple pens and keyboard cover) to enhance effectiveness of routine inspection.



安健環表格種類及數量繁多，從填寫、整理資料、傳閱、簽署批核到輸出報表都與人工處理，費時耗力。

而現在共有 **60** 餘張表格實行電子化，從原本一張紙本表格、人工傳遞與簽署批核的形式，轉變為電子形式，透過電子系統自動感測、線上簽署批核，方便可靠。

改善

- 01 可隨時隨地以電子方式填報及提交表格
- 02 電子簽署批核，加快批核程序
- 03 記錄儲存於系統中，更方便查閱
- 04 自動匯計資料，輸出報表，一鍵即成
- 05 減少列印單張張

已上線項目
葵涌圍填、古洞北、荃灣第9座、安達閣樓

