HOUSING AUTHORITY SAFETY AUDITING SYSTEM (HASAS) VERSION 1.5

2011



Speaker : Yu Pak Kuen Senior Consultant OSHC

Summary of Score Mapping Enhancement of HASAS 1.4

Score Mapping for Audit Results starting from 1 Jan 2009 to 30 Sept 2011 where HASAS version 1.4 adopted.

Total audits done for the said period : 285 building projects : 198

piling & foundation projects : 49

demolition projects : 13

others projects : 21

Selected Items for Analysis

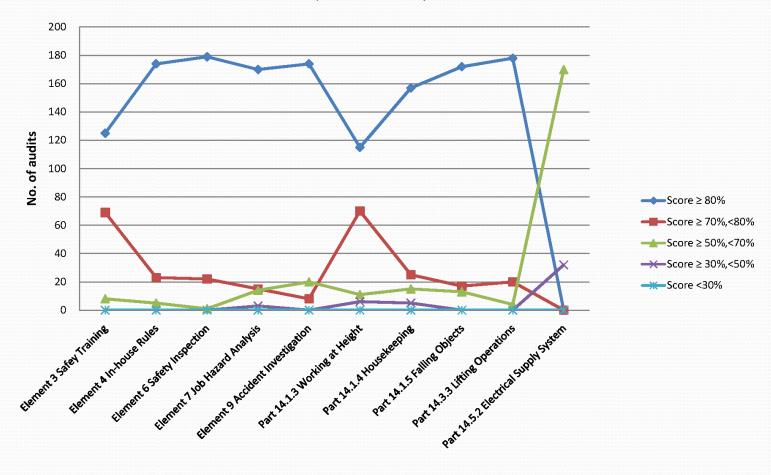
- Part A: Key Elements
 - Element 3 Safety Training
 - Element 4 In-house Safety Rules
 - Element 6 Safety Inspection
 - Element 7 Job Hazard Analysis
 - Element 9 Accident Investigation
- Part B: High Risk Subsections
 - 14.1.3 Working at Height
 - 14.1.4 Housekeeping
 - 14.1.5 Falling Objects
 - 14.3.3 Lifting Operations
 - 14.5.2 Electrical Supply System

Building Projects (202 audits)

	Score ≥ 80%	Score ≥ 70%,<80%	Score ≥ 50%,<70%	Score ≥ 30%,<50%	Score <30%
Element 3 Safety Training	125	69	8	0	0
Element 4 In- house Rules	174	23	5	0	0
Element 6 Safety Inspection	179	22	1	0	0
Element 7 Job Hazard Analysis	170	15	14	3	0
Element 9 Accident Investigation	174	8	20	0	0
Part 14.1.3 Working at Height	115	70	11	6	0
Part 14.1.4 Housekeeping	157	25	15	5	0
Part 14.1.5 Falling Objects	172	17	13	0	0
Part 14.3.3 Lifting Operations	178	20	4	0	0
Part 14.5.2 Electrical Supply System	0	0	170	32	0

Jason, 29/8/2008

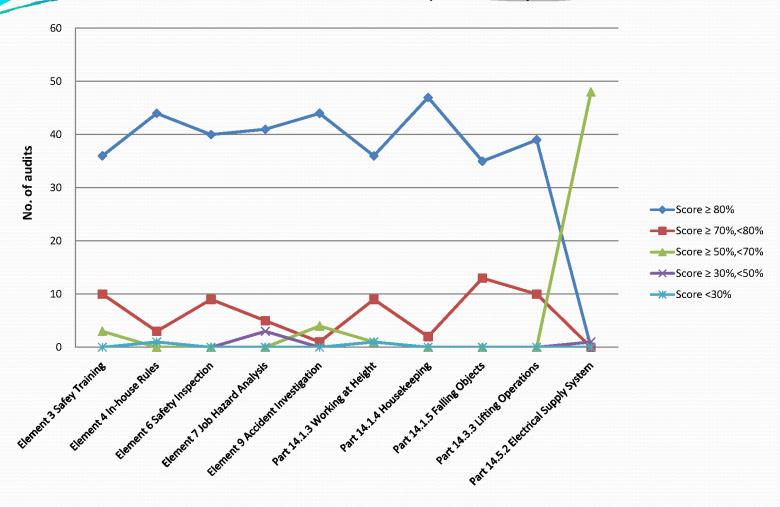
BUILDING PROJECTS (202 AUDITS)



Piling and Foundation Projects (49 audits)

	Score ≥ 80%	Score ≥ 7 0%,<80%	Score ≥ 50%,<70%	Score ≥ 30%,<50%	Score <30%
Element 3 Safey Training	36	10	3	0	0
Element 4 In-house Rules	44	3	0	1	1
Element 6 Safety Inspection	40	9	0	0	0
Element 7 Job Hazard Analysis	41	5	0	3	0
Element 9 Accident Investigation	44	1	4	0	0
Part 14.1.3 Working at Height	36	9	1	1	1
Part 14.1.4 Housekeeping	47	2	0	0	0
Part 14.1.5 Falling Objects	35	13	0	0	0
Part 14.3.3 Lifting Operations	39	10	0	0	0
Part 14.5.2 Electrical Supply System	0	0	48	1	0

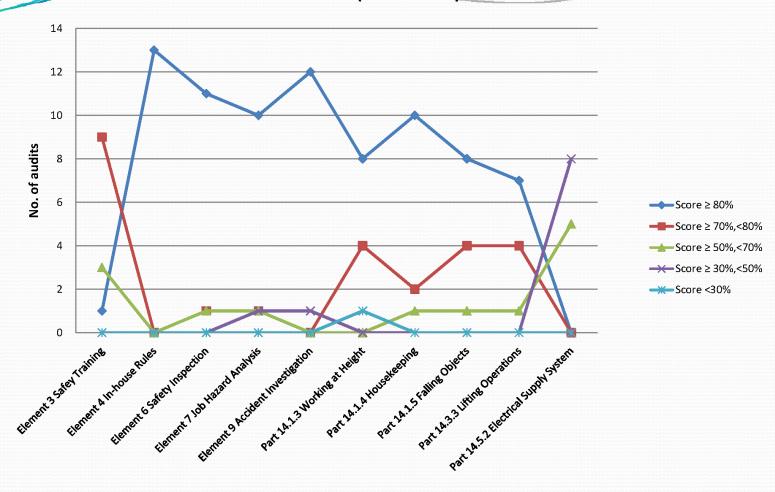
PILING AND FOUNDATION PROJECTS (49 AUDITS)



Demolition Projects (13 audits)

	Score≥80%	Score ≥ 70%,<80%	Score ≥ 50%,<70%	Score ≥ 30%,<50%	Score <30%
Element 3 Safety Training	1	9	3	0	0
Element 4 In-house Rules	13	0	0	0	0
Element 6 Safety Inspection	11	1	1	0	0
Element 7 Job Hazard Analysis	10	1	1	1	0
Element 9 Accident Investigation	12	0	0	1	0
Part 14.1.3 Working at Height	8	4	0	0	1
Part 14.1.4 Housekeeping	10	2	1	0	0
Part 14.1.5 Falling Objects	8	4	1	0	0
Part 14.3.3 Lifting Operations	7	4	1	0	0
Part 14.5.2 Electrical Supply System	0	0	5	8	0

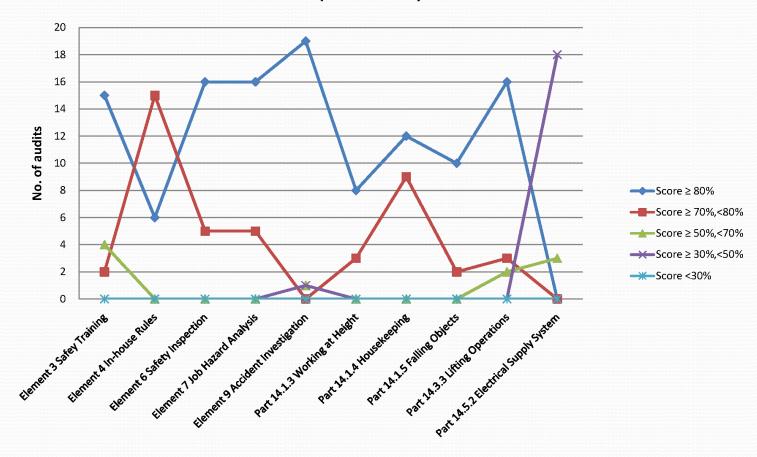
DEMOLITION PROJECTS (13 AUDITS)



Others Projects (21 audits)

	Score≥80%	Score ≥ 70%,<80%	Score ≥ 50%,<70%	Score ≥ 30%,<50%	Score <30%
Element 3 Safety Training	15	2	4	0	0
Element 4 In-house Rules	6	15	0	0	0
Element 6 Safety Inspection	16	5	0	0	0
Element 7 Job Hazard Analysis	16	5	0	0	0
Element 9 Accident Investigation	19	0	1	1	0
Part 14.1.3 Working at Height	8	3	0	0	0
Part 14.1.4 Housekeeping	12	9	0	0	0
Part 14.1.5 Falling Objects	10	2	0	0	0
Part 14.3.3 Lifting Operations	16	3	2	0	0
Part 14.5.2 Electrical Supply System	0	0	3	18	0

OTHER PROJECTS (21 AUDITS)



Enhancement Objectives

- To update the audit criteria, definitions.
- 2. To revise the critical pass elements and subsections
- 3. To establish work safe behaviour programme (WSB), safety climate index survey (SCI) and innovation programme in Part A Safety Promotion Element.
- 4. To introduce heat stress and cold weather in Part A Health Assurance Programme.
- To introduce Process Control and Safe System of Work concepts into Part B of HASA to fulfill the General Duty and the Factories and Industrial Undertaking (Safety Management) Regulation requirement.



HASAS1.5HASAS1.5HASAS1.5HASAS1.5HASAS

ASAS1.5H. 5HASAS1.

S1.5HASA

SAS1.5HA

5HASAS1

AS1.5HSA

ASAS1.5H

5HASAS1

HOUSING AUTHORITY SAFETY AUDITING SYSTEM (HASAS) VERSION 1.5

2011

SAS1.5HASA SAS1.5HA SHASAS1

AS1.5HAS ASAS1.5H

.5HASAS1

AS1.5HAS

AS1.5HASAS1.5HASAS1.5HASAS1.5 HASAS 5HASAS1.5HASAS1.5HASAS1.5HASAS1.5HAS

13

ACA ETICACA ETICACA ETIACACA ETIACACA I

Contents of HASAS Version 1.5

PART A

- 1. Safety Policy
- 2. Organization
- 3. Safety Training
- 4. In-house Safety Rules
- 5. Safety Committee
- 6. Programme for Inspection of Hazardous Conditions
- 7. **Job Hazard Analysis**
- 8. Personal Protection Programme
- 9. Accident / Incident Investigation
- 10. Emergency Preparedness
- 11. Safety Promotion
- 12. Health Assurance Programme
- 13. Evaluation, Selection and Control of Sub-contractor

PART B

14.1	Management of Place of Work
14.1.1	Fire Hazards
14.1.2	Work in Confined Spaces
14.1.3	Working at a Height
14.1.4	Housekeeping
14.1.5	Protection against Falling Objects
14.1.6	Overhead and Underground Services
14.1.7	Storage of inflammable Substances, Gases and Vehicle Fuels
14.1.8	Occupational Safety and Health in Offices

Contents of HASAS Version 1.5

PART B

Management of Tasks and Operations 14.2

- Demolition 14.2.1
- 14.2.2 Excavations
- Lifting Operations 14.2.3
- 14.2.4 Roadworks
- 14.2.5 Temporary Works 14.2.6 Structural Steel Erection
- 14.2.7 Welding / Cutting Operations and Installations
- 14.2.8 Site Traffic
- 14.2.9 Works over Water or Adjacent to Water
- 14.2.10 Piling and Foundations
- 14.2.11 Glazing
- 14.2.12 Grit Blasting
- 14.2.13 Asbestos
- 14.2.14 Machinery Guarding
- 14.2.15 Prestressing 14.2.16 Ground Investigation

PART B

Management of Powered 14.3 **Plant and Equipment**

- Compressed Air Tools
- 14.3.2 Electrical Supply System
- 14.3.3 Electrical Works and Portable Electric Tools
- 14.3.4 Hand Tools
- 14.3.5 Woodworking Machines
- 14.3.6 Abrasive Wheels
- 14.3.7 Hand-held Power Tools

Contents of HASAS Version 1.5

PART B

14.4 Management of Plant and Equipment for Lifting of Material and Persons

14.4.1 Tower Crane

14.4.2 Mobile Crane

14.4.3 Gondola (Suspended Working Platform)

14.4.4 Power-operated Elevating Working Platform

14.4.5 Material Hoist

14.4.6 Power-driven lifting appliance for Carrying Person and Passenger Hoist

PART B

14.5 Management of Mechanical Plant and Equipment

14.5.1 Site Transport (loadshifting machinery)

14.5.2 Excavator

Section 1

PART A Safety Policy



A high level of occupational safety and health performance.



Question 1.1.1
Weighting:

9

Does the written safety policy commit the organization to high standards of occupational safety and health for all its employees and for other who might come into contact with its activities?



PART A Safety Promotion

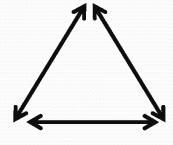
Section 11



Promotion, Development And Maintenance of OSH Awareness

Organizational

Culture



Attitude

Behaviour

- Question 11.1.6 Weighting:
- 6
- Is Work Safe Behaviour (WSB) Programme used to promote a proactive safety culture throughout the life of the project?
- Question 11.1.7 Weighting:
- 6
- Is Work Safe Behaviour (WSB) Programme used on critical high risk activities
- Question 11.1.8 Weighting
- 6
- Is Safety Climate Index Survey (SCI) used to promote a proactive safety culture of the project?
- Question 11.1.9 Weighting:

6

Is a new safety innovation programme use to promote a proactive safety culture of the project?



PART A Health Assurance

Section 12



12.4 Other Occupational Health

- 12. Health Assurance Programme
 - 12.1 Assessment and Control of Substances hazardous to Health
 - 12.2 Sprains, Strains and Pains
 - 12.3 Noise
 - 12.4 Welfare

- Question 12.4.1
 Weighting:
 3
 Is there an arrangement for a suitable assessment of the risk of heat stress to workers?
 Question 12.4.2
- Weighting: 3
 Are effective measures taken out based
- on the results of heat stress risk assessment?
- Question 12.4.3 Weighting:

3

Are there adequate measures to protect workers working in cold weather?



PART B

Section 14

Process Control Programme



Part B of HASAS version 1.5

The process items in Part B are re-grouping under new items include:

- 14.1 Management of Place of Work
- 14.2 Management of Tasks and Operations
- 14.3 Management of Power Plant and Equipment
- 14.4 Management of Plant and Equipment for lifting Materials and Persons
- 14.5 Management of Mechanical Plant and Equipment



Examine the whole safety systems of work of the control of processes listed in Part B

Accidents

- 14.1 Management of Place of Work
- 14.2 Management of Tasks and Operations
- 14.3 Management of Power Plant and Equipment
- 14.4 Management of Plant and Equipment for lifting of Materials and Persons
- 14.5 Management of Mechanical Plant and Equipment

Audit Question Format

- •process safety information,
- process hazards analysis (risk assessment),
- operating procedures,
- •training and competency of workers,
- •mechanical integrity (maintenance
- programme), and
- monitor





Audit Question Format

Process Control Programme

- process safety information,
- process hazards analysis (risk assessment),
- operating procedures,
- training and competency of workers,
- mechanical integrity (maintenance programme),

Safe Systems of work

- Assessment of the task
- Hazard identification and risk assessment
- Definition of safe methodsImplementing the system

Monitoring

Weighting of items under PART B

Items of:

- 1. Documentation such as Procedures remain 3 marks
- 2. Implementation Aspects 6 marks
- 3. Specific Critical Pass items 9 marks

```
9 marks - Falling from height (14.1.3.3 – 4, 14.1.3.6, 14.1.3.8 – 12)
```

- Falling objects (14.1.5.3 8)
- Lifting operations (14.2.3.4, 14.2.3.6 7)
- Housekeeping (14.1.4.3 5, 14.1.4.8)
- *Electrical supply system* (14.3.2.7 12)
- Tower Crane (14.4.1.9 11)
- Mobile Crane (14.4.2.4 5)

Process Control Audit Question Pattern Example: Work in Confined Space

- Question 14.1.2.1 Weighting: 3

 Is there accurate <u>process safety information</u>
 addressing the locations and processes that need to work in confined spaces on site, and a procedure to ensure the safety of employees working there?
- Question 14.1.2.2 Weighting: 6
 Have <u>risk assessments</u> to identify any foreseeable hazards, assess their risks, and recommend action to eliminate or control risks of confined spaces on the site?
- Question 14.1.2.3 Weighting: 6
 Has a risk assessment been conducted by a <u>competent</u> <u>person</u> before the work in confined space commenced?



Example: Work in Confined Space

- Question 14.1.2.4 Weighting: 6
 Have all processes which may create dangerous atmospheres in confined spaces been <u>identified and tested</u> by atmospheric testing equipment?
- Question 14.1.2.5 Weighting: 3
 Where relevant, are personnel responsible for atmospheric testing properly <u>trained</u>?
- Question 14.1.2.6 Weighting: 3
 Where relevant, has a <u>defined procedure and arrangement</u> been established for entry to and work in confined spaces?
- Question 14.1.2.7 Weighting: 6
 Where relevant, have personnel who are needed to work in confined spaces been specially <u>supervised and trained</u>?



Example: Work in Confined Space

- Question 14.1.2.8 Weighting: 6 Where relevant, is a permit-to-enter and a permit-to-work system in operation and have all persons involved been trained and instructed in their use?
- Question 14.1.2.9 Weighting: 6
 Where relevant, has an emergency rescue <u>procedure</u>
 been developed and <u>communicated</u> to all persons
 involved, and rescue equipment available?
- Question 14.1.2.10 Weighting: 6 Where relevant, have the effectiveness of management of confined space been regularly monitored?



Scoring Table for HASAS Version 1.5

Section	Element	No. of Questions	Score	% of total score
1	Safety policy	13	45	8
2	Safety organisation	9	33	6
3	Safety training	10	54	10
4	In-house safety rules and regulations	8	36	6
5	Safety committee	8	45	8
6	Programme for inspection of hazardous conditions	7	30	5
7	Job hazard analysis	12	45	8
8	Personal Protection Programme	8	33	6
9	Accident/incident investigation	7	36	6
10	Emergency preparedness	8	36	6
11	Safety promotion	9	51	9
12	Health Assurance Programme	27	81	14
13	Evaluation, selection and control of sub-contractors	13	42	7
	PART A Total	139	567	100%

Part B

Critica! pass

Critical pass

Section	Element	No. of Questions	Score	% of total score
14	Process Control Programme			
14.1	Management of Place of Work			
14.1.1	Fire Hazards	10	48	3
14.1.2	Work in Confined Spaces	12	51	3
14.1.3	Working at a Height	12	84	6
14.1.4	Housekeeping	8	48	3
14.1.5	Protection against Falling Objects	8	60	4
14.1.6	Overhead and Underground Services	7	30	2
14.1.7	Storage of inflammable Substances, Gases and Vehicle Fuels	7	30	2
14.1.8	Occupational Safety and Health in Offices	5	21	1
14.2	Management of Tasks and Operations			
14.2.1	Demolition	10	42	3
14.2.2	Excavations	12	60	4
14.2.3	Lifting Operations	11	51	3
14.2.4	Roadworks	8	39	2
14.2.5	Temporary Works	7	27	2
14.2.6	Structural Steel Erection	7	33	2
14.2.7	Welding / Cutting Operations and Installations	11	54	4
14.2.8	Site Traffic	8	42	3
14.2.9	Works over Water or Adjacent to Water	8	30	2
14.2.10	Piling and Foundations	7	33	2
14.2.11	Glazing	5	21	2
14.2.12	Grit Blasting	6	27	2
14.2.13	Asbestos	9	39	2
14.2.14	Machinery Guarding	6	21	1
14.2.15	Ground Investigation	5	15	1
14.2.16	Prestressing	5	15	1

Critical pass

Critica!

pass

14.3	Management of Powered Plant and Equipment			
14.3.1	Compressed Air Tools	6	24	2
14.3.2	Electrical Supply System	12	72	5
14.3.3	Electrical Works and Portable Electric Tools	9	51	3
14.3.4	Hand Tools	5	21	2
14.3.5	Woodworking Machines	10	48	3
14.3.6	Abrasive Wheels	11	54	4
14.3.7	Hand-held Power Tools	7	30	2
14.4	Management of Plant and Equipment for Lifting of Material and Persons			
14.4.1	Tower Crane	12	54	4
14.4.2	Mobile Crane	7	33	2
14.4.3	Gondola (Suspended Working Platform)	7	27	2
14.4.4	Power-operated Elevating Working Platform	6	24	2
14.4.5	Material Hoist	6	24	2
14.4.6	Power-driven lifting appliance for Carrying Person and Passenger Hoist	6	24	2
14.5	Management of Mechanical Plant and Equipment			
14.5.1	Site Transport (loadshifting machinery)	6	21	2
14.5.2	Excavator	7	27	2
	PART B Total	309	1470	100%

	HASAS Version 1.4	HASAS Version 1.5
Score of the	Part A: 570	Part A: 567
system	Part B: 1,611	Part B: 1,470
	Total: 2,181	Total: 2,037
Numbers of	Part A: 138	Part A: 139
questions	Part B: 332	Part B: 309
	Total: 470	Total: 448
Sections updated in Part A		Section 1 – Question 1.1.1, 1.1.2 and 1.1.3 combined and criteria cover work safe behavior, safety climate index, safety innovation and pointing and calling Section 11 – add work safe behavior, safety climate index and safety innovation Section 12 – add heat stress and cold weather
Sections in Part B changes to suit the project processes of HA	Sections removed: 14.2.3 Flammable Liquids and Gases 14.3.4 Mechanical Materials Handling 14.3.9 Site Transport 14.4.1 Blasting (Explosives) 14.4.2 Piling 14.4.4 Tunneling /Pressurized Atmospheres 14.4.5 Diving 14.4.6 Hand Dug Caissons 14.4.8 Sewerage or Drainage Works 14.5.5 Mechanical Plant and Equipment 14.5.8 Building Maintenance 14.5.9 Substances Hazardous to Health	New sections added: 14.1.7 Storage of inflammable Substances, Gases and Vehicle Fuels 14.2.10 Piling and Foundations 14.2.11 Glazing 14.2.14 Machinery Guarding 14.3.4 Hand Tools 14.3.7 Hand-held Power Tools 14.4.1 Tower Crane 14.4.2 Mobile Crane 14.4.3 Gondola (Suspended Working Platform) 14.4.4 Power-operated Elevating Working Platform 14.4.5 Material Hoist 14.4.6 Power-driven lifting appliance for Carrying Person and Passenger Hoist 14.5.1 Site Transport (loadshifting machinery) 14.5.2 Excavator



"Critical Pass"

HASAS 1.5

Part A

Job Hazard Analysis

Part B High risk subsections

- Working at height (14.1.3)
- Housekeeping (14.1.4)
- Falling Objects (14.1.5)
- Lifting Operations (14.2.3)
- Electrical Supply System (14.3.2)
- Tower Crane (14.4.1)
- Mobile Crane (14.4.2)

• HASAS 1.4

Part A

- Job Hazard Analysis
- Programme for Inspection of Hazardous Conditions

Part B

- Working at height (14.1.3)
- Housekeeping (14.1.4)
- Falling Objects (14.1.5)
- Lifting Operations (14.2.3

New inputs to reduce Human Errors: 1. Work Safe Behaviour Programme (WSB)

 Questions 1.1.1 – high standards

Question 11.1.6 – WSB programme

 Question 11.1.7 – critical high risk activities A steering committee or working team to coordinate the WSB programme

- Safety plan covers WSB programme
- WSB observers completed the suitable training course
- Observers shall not be the safety manager or safety officer
- Conduct together with safe working cycle
- At least cover working at height, lifting operations, confined space and traffic safety

New inputs to reduce Human Errors: 2. Pointing and Calling

- Questions 1.1.1 high standards
- Question 11.1.9 safety innovation programe
- A steering committee or working team to coordinate the safe working cycle with pointing and calling programme
- Integrate Pointing and Calling programme into safe working cycle
- Recommended by ASA
- Accepted by OSHC

New inputs to strengthen Accident Prevention 3. Enhancement of Risk Assessment

Section 7 Job Hazard Analysis
 Sub-section 7.1
 8% of part A
 Sub-section 7.2

• Section 14 – all parts 3% of part B

- This section covers the design, method and procedures, control measures implementing arrangement, and review of risk assessment programme.
- This section relates to the using risk assessment to make procedures, method statement and specialised permit
- The risk assessment is in the form of process hazard analysis (PHA) to each process in PART B of HASAS
 1.5
- PHA of each process must appropriate to the audit conditions

New inputs to enhance lifting operation: 4. Classify lifting operations

- Part 14.2.3 lifting operations
 - Part B

12%

Part B

3%

- Part 14.4 specific lifting plants
 - -Tower crane Elevated working platform
 - Mobile crane Material hoist
 - Gondola Passenger hoist

- This part is focused on generic lifting operations, lifting appliances and gear, measures and arrangements to ensure competence and procedures for reporting on faults and maintenance etc.
- These parts pinpoint the safe system of work on specific lifting plants

New inputs in using safety checklists to monitor the specific processes

- The requirement for production of general checklists in HASAS 1.4 for the processes which is considered to be not effective no mark deduction.
- HASAS 1.5 is now covered the checklists in most of the last audit question of each high risk process.

Contractors using the checklists to monitor the following specific processes

- Fire checking Q14.1.1.10
- Confine Space Q 14.1.2.12
- Working at Height Q 14.1.3.7
- Housekeeping Q14.1.4.6
- Falling Objects Q14.1.5.4
- Storage of Inflammable Substances Q14.1.7.7
- OSH in Office Q14.1.8.5
- Excavation Q14.2.2.12
- Lifting Operations Q14.2.3.11
- Temporary Works Q14.2.5.7
- Woodworking Q14.3.4.10
- Abrasive Wheels Q14.3.6.10
- Tower Crane Q14.4.1.12
- Mobile Crane Q14.4.2.7

- Gondola Q14.4.3.7
- Elevating Working Platform Q14.4.4.6
- Material Hoist Q14.4.5.6
- Passenger Hoist Q14.4.6.6
- Site Transport Q14.5.1.6
- Excavator Q14.5.2.7

By no means exhaustive

To assist contractors to acquaint with HASAS version 1.5

- 1. On site visits
- Copies of HASAS version 1.5 to contractors
- 3. Provide briefings

- Visit sites to cover all the 4 groups – building contracts, piling and foundation, demolition and other contracts
- Meet the staff of site contractors to understand the adaptation of HASAS 1.5 in the future audits and exchange views

Important Findings

Desktop analysis on Part A Worst cases will be deduction of 36 marks (6.3% of Part A)

On site

- No severe impact
 - ➤ Just change of method of verification to checking safe system of work and
 - > Legal requirements

Contractor's concerns

Concerns

- Not knowing where to start for preparation
- 2. Not sufficient time

3. Not familiar with ASAs' new audit standards

Advices

- Study the HASAS version 1.5
- Revise the safety plan
- HA will consider to provide sufficient time
- ASAs will attend the briefing
- OSHC will closely monitor at the early stage of new audit programme implementation

Conclusions

HASAS Version 1.5 Part A

- Increase score weighting on the implementation of work safe behaviour, safety climate index and safe working cycle
- Introduce heat stress and cold weather programmes
- 3. Element Job Safety Analysis (Generic Risk Assessment) remains as Critical Pass

HASAS Version 1.5 Part B

- Introduce Process Control and Safe System of Work concepts
- Require update risk assessments (Specific)in each process
- Require monitoring of each process by specific safety inspections
- 4. Add in new Critical Pass items
- 5. Add in new lifting plant and equipment

Dispute Management Mechanism (DMM)

Development & Construction Management board

Instruction No. P 13/11

- DMM Workflow
- Dispute Management **Committee (DMCom)**

