

By post and by fax at 2596 0361

29 April 2016

Building Services Branch Division 4
Architectural Services Department
34/F, High Block, Queensway Government Offices
66 Queensway, Hong Kong

[Attn: Mr TSE Hung Yan, Building Services Engineer]

Dear Mr TSE

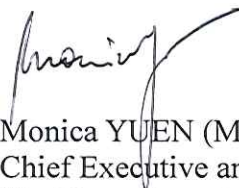
Consultation of Draft General Specifications for Various Building Services Installation (2017 Edition)

Thank you for your email on 18 March 2016 inviting the Institution to provide views on the draft General Specifications for various Building Services Installations in Government Buildings of the HKSAR (2017 Edition).

After consulting our members, the Institution has some particular views with regard to the part of Mechanical Installations as elaborated in the enclosure for your consideration.

Thank you for your attention.

Yours sincerely



Monica YUEN (Mrs)
Chief Executive and Secretary
The Hong Kong Institution of Engineers

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MY/WC

Enclosure

Views on Draft General Specifications for Mechanical Installations in Government Buildings of the HKSAR (2017 Edition)

Section C3 - CRANE AND HOIST

C3.3.1.1 General

- For better clarification, it is suggested to add in the sixth paragraph to read as “...*Access to the crane shall be by ladder to be provided by the builder with necessary safety hoop to be installed at a corner of the building.*”

C3.3.1.4 Manual Release

- It is considered that the fourth paragraph, namely “*Electromagnetic release coils shall be continuous rating and shall be suitable for a 380V 50Hz supply unless otherwise stated in the design. It shall be possible to replace a defective coil without dismantling the brake mechanism.*”, would be more suitable to be moved and placed as item (d) under *C3.3.1.3 Brakes*.
- It is also suggested to remove the second paragraph “*Facilities for converting down-shop and cross-shop travel from electrically operated to manually operated on power failure shall also be provided. Conversion to manual operation is by hand wheel or lever. Details of conversion to manual operation should be submitted with the tender.*”, as it is considered not practical.

C3.3.1.5 Hooks and Ropes

- It is suggested to amend paragraph 1 to read as “...*The hook shall be tested to ~~150%~~ 200% full load before assembly and complete with safety catch latch.*” It is because according to paragraph 3(a) of the Schedule 1 of the *Factories and Industrial Undertakings (Lifting Appliances and Lifting Gear) Regulations*, a hook (whether it is an accessory of a crane or not) shall be tested with a proof load which shall be at least twice the safe working load.¹

C3.3.1.6 Safety Facilities

- For item (d), it is suggested to add to read as “*Where specified, for double-girder, a working platform of steel chequer plate shall be provided...*”, as single-girder crane cannot be fitted with platform.

¹ Hong Kong SAR Regulations. “Schedule 1 Procedures for testing and examining lifting appliances and lifting gear”. *CAP 59J Factories and Industrial Undertakings (Lifting Appliances and Lifting Gear) Regulations*, June 1997, p.13

C3.3.1.7 Power Collector

- It is suggested that the third paragraph, namely “*The crane structures, motor frames and metal cases of all electrical equipment shall be effectively bonded to earth.*”, would be more appropriate to be moved and placed under C3.3.1.1 General.

C3.3.2.1 General

- It is suggested to amend the third paragraph to read as “...*The hook shall comply with BS EN 1677-5:2001 + A1:2008 complete with safety ~~eateh~~ latch. Top hooks if required to swivel shall be fitted with plain bearings, bottom swivel hook shall be free to rotate under load. The hook shall be tested to ~~150%~~ 200% full load before assembly.*”

C3.3.2.2 Safety Facilities

- For better clarification, we suggest to amend the first sentence of the first paragraph to read as “***For hoist fitted to crane, the automatic safe load indicator shall be as indicated in Clause 3.3.1.6(b).***”

C.3.3.2.3 Trolley

- The first sentence is suggested to be added to read as “*The travelling trolley shall be of normal headroom type **or low headroom type** unless otherwise specified in the design...*”, as low headroom type may be preferred in many instances.
- Also, for better clarification, the last sentence is suggested to be added to read as “***For monobeam hoist system, trolley shall be suitable for mounting onto the Rolled Steel Joist (RSJ) provided by others.***”

C3.4.2 Hoist

- It is suggested to remove the first sentence “*The casing shall be of high tensile aluminum alloy lightweight*”, as this seems not common.

Section C6 – GONDOLA

General

- It is noted that telescopic jib arm gondolas are more commonly used than luffing arm gondolas nowadays. Hence, please consider to include “telescopic jib arm” in the parts where jib arms are mentioned in various subsections (i.e. C.6.3.2 Hoisting Operation for Gondola Cradle; C6.3.5 Luffing Operation of Jib Arm; C6.3.6 Operating Speeds; C6.3.12.2 Control Function in Cradle; C6.3.12.4

Pendent Controller; C6.3.13.13.1 Safety Devices). It is suggested to remove the wordings/ sentence in some relevant parts:

Subsections	Suggested for Removal	Reason
C6.3.7.1 Wire Rope Restraint System first paragraph	<i>“The dimension restriction of the connection socket including baseplate of 100mm (length) x 50mm (wide) x 8mm (thickness) and M12 bolts shall be met.”</i>	In all cases, the restraint sockets are specifically designed to match the façade design, so it is not practical to specify fixed dimensions of socket in the Specification.
C6.3.14.4 Lightning Protection first paragraph	<i>“All parts of the gondola system shall be designed to have good electrical conductivity and shall comply with BS EN/IEC 62305-1:2011 or other relevant international standards.”</i>	Concern on the practicality.

C6.3.4 Slewing Operation of Roof Carriage

- It is suggested to amend the first sentence to read as *“The roof carriage shall be able to rotate by $\pm 180^\circ$ approx. ...”*, as practically the rotating angle is slightly less than 180 degrees.

C6.3.5 Luffing Operation of Jib Arm

- The third paragraph is suggested to be amended to read as *“**The operation of the jib arms shall allow** ~~It shall be possible for the jib arms to luff to the back of the roof carriage for the safe boarding of personnel from the roof.~~”*, as jib arm luffing back design is not commonly used, and there are other designs to allow safe boarding of personnel from the roof.

C6.3.7.1 Wire Rope Restraint System

- It is suggested to add in the fourth paragraph to read as *“...The restraint sockets shall be installed at external RC structure or curtain wall with a horizontal distance ranging from 2.3 m to 3.0 m and a maximum vertical distance of 15 m between restraint levels. **The lowest restraint level shall not be more than 40m above natural ground level.**”*, in order to match the requirement specified in BS EN 1808 for the lowest restraint level requirement.

C6.3.8 Cradle

- It is suggested to add in item (a) to read as “*All side boards of the cradle shall be fully clad or of open mesh of aperture of max. 25 mm x 25 mm covering the full height of the cradle.*”, in view of that BS EN 1808 allows fully clad cradle.

C6.3.11.3 Winch Drum

- For better clarification, it is suggested to add in the first paragraph to read as “*The winch drum shall be grooved and designed for single layer spooling except allowed in C6.3.1 (c).*”

C6.3.14.1 Power Supply

- It is suggested to amend the second paragraph to read as “*The power supply cable connecting the roof carriage and the roof socket outlet and the cable suspended from the roof carriage to the cradle shall be PVC insulated and steel wire armoured to BS 6346:1997 or BS 5467:1997 + A3:2008 or BS 6724:1997 + A3:2008 and suitably sheathed and protected wherever possible from damage of breaking, and should have sufficient cable strength to avoid the cables from being damaged by its own weight...*”, with reference to the *Code of Practice for Safe Use and Operation of Suspended Working Platforms* published by the Labour Department.²

C6.5.3 Installation of Restraint Socket System

- The second paragraph is suggested to be amended to read as “*Prior to installation of the restraint system, sufficient ~~at least 5 complete~~ sets of restraint system (together with the curtain wall portion) shall be tested by Curtain Wall Contractor and ~~or~~ 10% of the total complete sets of restraint system, ~~whichever is greater~~, shall be tested in an approved and recognised laboratory in Hong Kong by MI Contractor*”, in order to clarify the restraint socket testing responsibility between Curtain Wall contractor and MI contractor.

C6.7.2 Weekly Check

- It is suggested that “*(vii) electrical wiring and earthing component*” be removed from functional test and be added in inspection, as there is no functional test for electrical wiring and earthing component.

C6.7.8 Staff Requirements

- The first paragraph is suggested to be amended to read as “*...The response time*

² Occupational Safety and Health Branch, Labour Department. *Code of Practice for Safe Use and Operation of Suspended Working Platforms*, March 1999, p.36

*shall in no case be longer than **two hours** ~~one hour~~...*”, as it is considered that two hours of response time is a more practical requirement due to widespread locations of gondolas in Hong Kong.

Section C11 – VEHICLE TURNTABLE

C11.3.6 Control Panels

- We would suggest that the rationale for the choice of color as specified (i.e. opaline green for exterior of control cubicles, light grey of external paint finish of the panel) be provided.

C11.4 Equipment and Materials

- As hot dip galvanization is more commonly used than shot-blasting, it is suggested that the second paragraph can be added to read as “*All steelwork shall be shot blasted to ISO 8501-1:2007 2nd quality (SA2.5) **or be hot-dip galvanized to BS EN ISO 1461:2009 and painted in accordance with B3.4 of this Specification***”.

C11.5.2 Supporting Castors

- It is suggested that “*Grease point shall also be provided for each castor.*” in the first paragraph can be removed. It is because self-lubricating bearing has been specified, so no grease point is required.

Others

- With an increasing popularity in rainwater harvesting system, it is suggested to add a new section on RAINWATER HARVESTING SYSTEM to this General Specification.