



香港電器工程商會  
Hong Kong Electrical  
Contractors' Association

會員通訊  
Newsletter

May - Aug 2016

二零一六年五月至八月

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## 頭條報道 Headline

### 傳統並聯系統 和 不帶電並聯系統 的分別 伍國財先生

#### 簡介

因應市場發展後備電力需求及柴油發動機製造商的機組輸出限制，發電機行業已經從傳統的獨立操作發展至多台並聯操作。尤其是對於高轉速柴油發動機製造商（1500-1800轉），突破2400千瓦，3000千伏安的輸出功率的柴油發電機組幾乎是不可能的，所以當需求大於3000千伏安的時候，通常會選擇並聯系統操作的發電機組系統。

在過去的40年裡，大多數工程學會只介紹“傳統並聯系統”，“傳統並聯系統”會控制發動機組依照參考的電源(電壓，相位，頻率)運作至同步才關閉電制運作。在歐洲國家，從英國，法國，等等，還有另一種技術(不帶電並聯系統)使用在超過40年。這種類型的並聯系統往往被誤解為不正常的並聯運作。這篇文章將具體說明其操作。

#### 傳統並聯系統

從理論上，傳統並聯系統要求的電壓，頻率，相角互相匹配，才可以並聯在一起。舉例，當市電故障時，兩台發電機組會同一時間起動，在第一台機組電壓及頻率運作至90%時，並聯系統會將相關電制關閉至共用電巴，而第二台機組會依照共用電巴的電源(電壓，相位，頻率)運作至同步才關閉其電制至共用電巴，歷時約5-10秒。如需發動機組於並聯系統上，每台機組並聯時間需加3-5秒。舉例發電機組起動時間起動約為10秒，第二台機組並聯至第一台機組時間約為15-20秒，第三台機組將為18-23秒，第四台機組將為23-28秒。

為了減少並聯時間，一些控制器設置將需要調整例如相位角度。通常是不同的相位角度為 $\pm 3\%$ ，為具有防止電弧及逆功率穩定。系統設計者有時增加的相位角到15%，甚至20%。這將減少並行操作的時間，但它可能會導致系統不穩定，逆功率跳制或斷路器式產生電弧都會時有發生。電弧通常是不知道或不會見到，因為斷路器通常位於遙控地區。

HKECA Newsletter May - Aug 2016

二零一六年五月至八月會員通訊

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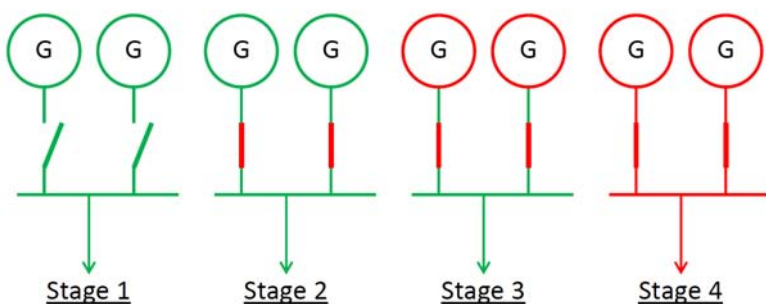
### 不帶電並聯系統

不同的傳統並聯理論，當市電故障時，不帶電並聯系統不會即時啟動發電機組，直至所有相關的並聯電制關閉時，發電機組才會起動。此系統可應用於十五台發電機組並聯系統上。相信大家都會產生疑問，為何這系統不會短路或逆功率跳制？事實上，由於此發電機組啟動時，同步控制器禁止的電壓調節器發電。電壓為0或低電壓，短路或逆功率遠低於所有發電機組供應商的跳制限制。當發電機頻率/轉速達到95%或額定頻率以上，同步控制器才啟動電壓調節器發電。並聯及負載時間將取決於發電機組達到其額定轉速的速度時間。

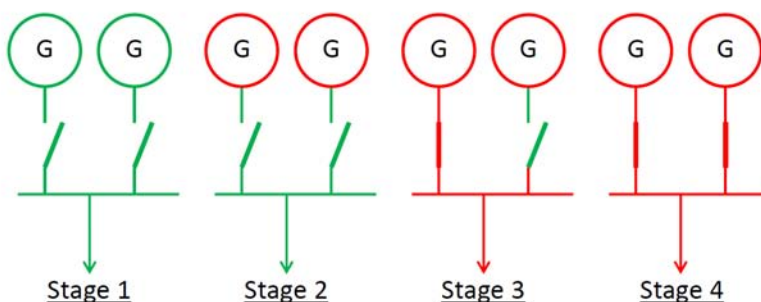
由於發電機組啟動時沒有發電，發電機組可以達到額定轉速的時間會更短，因為沒有負載（發電是發動機和發動機起動器的另一種形式的負載）。這縮短了整體起動及並聯的時間並少於10秒內完成。

### 不帶電並聯系統的優點

除並聯的速度外，另一個優點是，無電壓關閉電制，因此電壓不會產生電弧。這有助於延長電制的壽命，從而減少電制的維修時間和維修成本。由於並聯操作時間是小於10秒，此並聯系統可應用於單一大型負載（如大型空調系統3000千伏安）。3台1000千伏安發電機組連並聯系統的價錢遠低於一台3000千伏安發電機組的價錢。此外如果1台機組因維修故障，系統仍然可提供的三分之二電力。



Dead Bus Synchronization Operation



Live Bus Synchronization Operation

### Different between Live Bus Synchronizing Dead Bus Synchronizing for Generator

Andy Ng

#### Introduction

The generator industry has evolved from traditional standalone operation to multiple units in parallel (synchronized) operation due to the ever hungry for power and the limitation for engine manufacturer. Especially for the high speed engine manufacturer (1500-1800rpm), breaking the limit above 3000kVA is almost impossible which is why when the requirement is higher than 3000kVA, multiple generator are required to operate in parallel operation.

For the past 40 years, most engineering institutions are only introduced to "live bus" synchronizing which to some are recognized as "race to the bus" or "synchronize on/onto a livebus". However in the European country from British, France, etc. there is another technology (Dead Bus Synchronizing) being used for the past 40 years which is not common to the others. This type of synchronizing system is often misunderstood to be abnormal synchronizing. Detail operation will be mentioned in this article.

#### Live Bus Synchronizing

In theory, Live Bus synchronizing requires the Voltage, Frequency and also phase angle to match before they can be paralleled together. A scenario of 2 units operation for a case study is that when the utility is down or when a start command is given, both generators will be started at the same time and the first unit that reaches 90% of its voltage and frequency will close its breaker to the common bus bar. The second unit will then try to match its voltage and frequency first, and then finally the phase sequence before it can close its breaker to have both unit in parallel operation. Depending on the speed of the start up, the whole process usually take additional 5-10 seconds to complete the operation. Any increase of unit will take additional 3-5 second to parallel up to the operation. For example if the unit took 10 second to start up, the second unit will only be able to parallel to the first unit at 15-20 seconds. The third unit will be 18-23 seconds while the 4 units will be 23-28 second and so on.

To reduce the time of synchronizing, some controller setting would need to be adjusted for example the phase angle. By default, usually the phase angle different is  $\pm 3\%$  to have a stable system which prevent arcing and reverse power during the next unit cutting into the main busbar. System designer sometime increase the phase angle to 15% or even 20%. This will reduce the parallel operation time but it may cause system instability and you will see the symptom like reverse power tripping or arcing at the breakers. Arcing is usually not known or seen because the breakers are usually located at remote area.

#### Dead Bus Synchronizing

Unlike the common understanding of Live Bus synchronizing, Dead Bus Synchronizing does not start the generator when the utility is down or the start command is given. Instead, all parallel breaker will be closed regardless the number of units (limited to 15 units) needed to be in parallel operation. Upon confirmation of all breakers are closed, then the generators will be started at the same time. Question will be raised will there be short circuit and reverse power in the system. The answer is no and reason being that when the generators started, the synchronizing controller actually disable the voltage regulator excitation system. Since there is no excitation, the Voltage is 0 or low voltage, the short circuit or reverse power is well below the limit of all alternator supply or tripping circuit. Excitation will only take place when the frequency/rpm reaches above 95% or the rated frequency. As for parallel time and ready to take load, it all depends on the time the generators reach the rated speed.

As the generators start up without excitation, it can actually reach the rated speed at shorter time as there is no load (excitation is another form of load for the engine and engine starter). This helps in overall shortening the time and the parallel operation is complete within less than 10 seconds.

#### Advantage of Dead Bus Synchronizing

Other than the time of synchronizing, other advantage is that as the breakers closed without voltage, there is no arcing on the breakers. This will help to prolong the lifespan of the breakers and also maintenance time for replacing the Arc chute of the breakers thus reducing time and cost for maintenance.

As the time for parallel operation is less than 10 seconds, multiple units in parallel start up speed and ready to take load is identical to single unit operation. Instead of having a single operation unit, user can have 3 units of 1000 kVA units instead of single costly 3000 kVA generator. This will reduce the downtime and also prevent total power shut down when utility failure. If 1 unit is down due to maintenance of failure, user would still have 2/3 of the power requirement.

## 搵食資料 *Notes To Trade*

### 香港房屋委員會 招標公告

香港房屋委員會招標公告可在以下網頁查看:[http://www.housingauthority.gov.hk/en/common/pdf/business-partnerships/tenders/BP\\_Tender\\_Notice\\_8\\_Apr\\_2016.pdf](http://www.housingauthority.gov.hk/en/common/pdf/business-partnerships/tenders/BP_Tender_Notice_8_Apr_2016.pdf)

## 恭賀金碧電器

### Congratulations to Grandeur Electrical Company Limited

本會恭賀**金碧電器**中標於橋昌路及銀鑛灣路東和銀鑛灣路西居屋發展計劃建築工程的電力裝置工程，並祝順利如期完成。

On Behalf of Hong Kong Electrical Contractors' Association, we would like to convey our congratulations to **Grandeur Electrical Company Limited** for the Electrical Installation for Construction of Home Ownership Scheme at Kiu Cheong Road and Ngan Kwong Wan Road East and West (Sub-contract to Contract No. 20150042).

## 恭賀盈電工程有限公司

### Congratulations to REC Engineering Company Limited

本會恭賀**盈電工程有限公司**中標於長沙灣副食品批發市場3號及5號地盤第一期和第二期公共房屋建築工程的電力裝置工程，並祝順利如期完成。

On Behalf of Hong Kong Electrical Contractors' Association, we would like to convey our congratulations to **REC Engineering Company Limited** for the Electrical Installation for Construction of Public Housing at Cheung Sha Wan Wholesale Food Market Site 3 and Site 5 Phases 1 & 2 (Sub-contract to Contract No. 20150055).



## 商會活動 Organised Activities

### 機電業「過往資歷認可」講座

#### Recognition of Prior Learning Mechanism Seminar

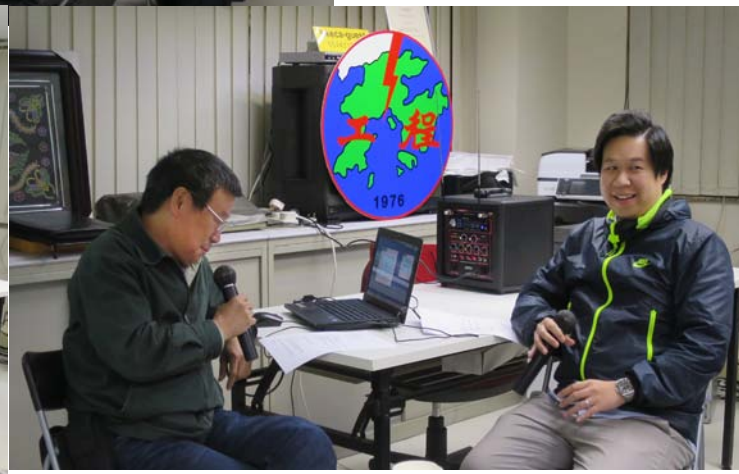
機電業「過往資歷認可」講座已於2016年1月5日(星期二)在本會舉行。當日會員非常之踴躍參與及發問有關問題。Recognition of Prior Learning Mechanism was held on 5 January 2016 (Tue). All members are welcome to join. Our members actively participated and asked some related questions.



### 認識個人權益講座 Individual Rights Seminar

認識個人權益(被受調查前)，講者：林灼欽律師 (馮黃伍林律師行合夥人) 已於2016年1月20日(星期三)在本會舉行。內容包括：簡述刑事訴訟、何謂類刑事及角色扮演，會員非常之踴躍參與及發問有關問題。

Individual Rights Seminar was held on 20 January 2016 (Wed). Contents included: Criminal Offences and Quasi-criminal Offences. Our members actively participated and asked some related questions.





### 教育及職業博覽2016 Electrical and Mechanical Trades Expo 2016 - Manpower Recruitment

為期四天的「教育及職業博覽2016」已於2016年1月28日至31日（星期四至星期日）在香港會議展覽中心舉行。活動提供機電業入職及進修的最新資訊，從而做好升學及就業準備，成就機電技術專才。

The four-day 'Electrical and Mechanical (E&M) Trades Expo 2016 - Manpower Recruitment' was held on 28 to 31 January 2016 (Thu to Sun) at Hong Kong Convention & Exhibition Centre. Activities included E&M industry recruits, training, further studies and employment for the information and preparation, be an E&M Talent.





## 商會活動 *Organised Activities*

### 猴年春節團拜

### 2016 Year of Monkey Chinese New Year Gathering

2016猴年會員新春聯歡團拜已於2016年3月1日(星期二)(農曆正月廿三日)在本會舉行。會員在會址互相恭賀生意興隆後便前往灣仔東園酒家宴會廳舉行猴年春茗晚宴。

Celebrating the year of Monkey was held on 1 March 2016 (Tue). Our members first met at Association venue to greet each other for a prosperous year, then moved to Tung Yuen Banquet at Wan Chai for Spring dinner.







香港專業教育學院（青衣）獎助學金萃匯2016已於2016年3月12日（星期六）在香港高等科技教育學院舉行，以工商機構及熱心人士慷慨贊助總值超過 800 萬元之獎助學金，惠及670名傑出同學作為支持。

For Student Award Reception 2016 (IVE-Tsing Yi), Hong Kong Institute of Vocational Education (Tsing Yi) was held on 12 March 2016 (Sat) at Technological and Higher Education Institute of Hong Kong. There were a number of corporations/individuals who generously contributed scholarships/awards worth over HK\$8,000,000 to 670 students.



## 即將舉辦之活動 Upcoming Activities

### 沙頭角之旅

#### HKECA Tour 2016 - Sha Tau Kok

沙頭角之旅一天遊定於2016年5月29日(星期日) 舉行。 旅遊沙頭角禁區情緣：沙頭角之旅、沙頭角有機農莊、長山古寺、雲泉仙館齋宴一天遊 歡迎各會員參加。

HKECA Tour 2016 - Sha Tau Kok will be held on 29 May 2016 (Sunday). All members are welcome to join.

### 廣州國際照明展覽會

#### Guangzhou Electrical Building Technology

廣州國際照明展覽會將於2016年6月9日至12日（星期四至星期日）在廣州中國進出口商品交易會展館舉行。展商及觀眾透過一連串同期舉行的高端論壇會議及同業交流活動，探討最新照明技術及設計新思維，拓展合作機會。

Guangzhou Electrical Building Technology will be held on 9 to 12 June 2016 (Thur to Sun) at China Import and Export Fair Complex, Guangzhou, China. Through a series of concurrent seminar & networking function presenting cutting-edge lighting technology, the event inspired lighting design ideas and market intelligence.

### 2016年永遠會長方宏浩盃羽毛球賽

#### 2016 Badminton Competition - The Life President Martin Fong Cup

2016年永遠會長方宏浩盃羽毛球賽將於2016年7月份舉行，歡迎各會員參加。詳情將容後公佈。

The 2016 Life President Martin Fong Cup Badminton Competition will be held on July 2016. All members are welcome to join. The details will be announced.

### 2016年度亞洲太平洋電氣工事協會聯合會會議 FAPECA 2016 Conference

亞洲太平洋電氣工事協會聯合會2016會議將於2016年9月28日至30日（星期三至星期五）在新加坡舉行，會議主題為“SMART（可持續，可維護，替代和可再生技術）”。詳情將容後公佈。

The Federation of Asian and Pacific Electrical Contractors Associations (FAPECA) Meeting and Conference for 2016 will be held from 28 to 30 September 2016 (Wed to Fri) at Singapore. The theme for this year's conference is "SMART (Sustainability, Maintainable, Alternative and Renewable Technologies)". The details will be announced.

### 2016年會員週年大會及四十週年晚宴

#### 2016 Annual General Meeting and 40th Anniversary Dinner

2016年會員週年大會及四十週年晚宴，定於2016年11月28日（星期一）在香港九龍尖沙咀彌敦道20號喜來登酒店宴會廳舉行。

2016 Annual General Meeting and 40th Anniversary Dinner will be held on 28 November 2016 (Mon) at Sheraton Hong Kong Hotel, 20 Nathan Road, Kowloon.

### 四十週年特刊

#### 40th Anniversary Special Journal

時光荏苒，不覺間本會已成立四十週年，並將在2016年11月28日舉行晚宴慶祝；並出版四十週年特刊。特刊內容隨介紹本會的成長及貢獻，並有珍貴歷史文件及照片，是業界及各友會間值得收藏的特刊。四十週年特刊將發行1,000本，希望各同業先進惠賜廣告，有助推廣產品及服務，拓展商機。

Time flies. Our HKECA will have the 40th Anniversary Dinner and publish a Special Journal on 28 Nov 2016. Our Special Journal will include articles about our growth and contributions as well as historical documents and photos. This Special Journal is a good collector booklet for our members as well as for the industry stakeholders. The 40th Anniversary Special Journal will be published with a quantity of 1000 and it is worthwhile for your company to consider putting in an advertisement to promote your products and services.



### 三會舉行中華人民共和國成立67周年聯歡晚會

#### The 67th PRC Anniversary Celebration Dinner

港九電業總會、香港電器業進出口商會及本會，將於2016年9月22日(星期四)在旺角彌敦道612號好望角大廈旺角倫敦大酒樓舉行中華人民共和國成立67周年聯歡晚會。

The 67th PRC Anniversary Celebration Dinner jointly organized by "Hong Kong & Kowloon Electric Trade Association", "Hong Kong E.P.M. Importers and Exporters Association Ltd." and HKECA will be held on 22 September 2016 (Thur) at London Restaurant, Good Hope Bldg, 612 Nathan Road, Mong Kok, Kowloon.

### 《電力(線路)規例工作守則2015年版》 Code of Practice for The Electricity (Wiring) Regulations 2015 Edition

最新出版之《電力(線路)規例工作守則2015年版》已於2015年12月31日出版，會員可於政府新聞處刊物銷售小組自行購買，地址：香港北角渣華道333號北角政府合署6樓626室，查詢電話：2537 1910。

"Code of Practice for The Electricity (Wiring) Regulations 2015 Edition" the release date was held 31 December 2015. Sales Counter at Publications Sales Unit, Room 626, 6/F North Point Government Offices, 333 Java Road, North Point, Hong Kong, Tel : 2537 1910.

## 會員動態 **Members' News**

#### 香港電器工程商會 01/2016 - 04/2016年度新會員名單

入會日期	申請會員名稱	會籍	代表人
Joining Date	Applicant Name	Membership Types	Representative
03/2016	聯合冷氣工程有限公司 Union (Luen Hop) Refrigeration Co., Ltd.	永遠會員 Life Member	梁文浩先生 Mr. LEUNG Man Ho Andy
03/2016	盛龍照明(香港)有限公司 Chinolite (HK) Limited	普通會員 Ordinary Member	李世豪先生 Mr. Tony LEE
03/2016	駿馬工程有限公司 Win Horse Engineering Co., Ltd.	贊助會員 Associate Member	鍾定海先生 Mr. CHUNG Ting Hoi
04/2016	周立文先生 Mr. CHOW Lap Man	普通會員 Ordinary Member	
04/2016	傑儀工程有限公司 Kit Yee Engineering Co., Ltd.	永遠會員 Life Member	陳秀蘭小姐 Ms. CHAN Sau Lan Sandy

## 高球專線 **Golfers Link**

### 堅輝盃高爾夫球賽

#### Kingsfield Cup Golf Competition

堅輝盃高爾夫球賽，已於2016年1月22日(星期五)在鳳凰山高爾夫球會球場舉行，在此多謝堅輝工程有限公司的慷慨贊助，隊員的支持和參與，令比賽能順利完成。

Kingsfield Cup Golf Competition was held on 22nd January 2016 (Fri) at Phoenix Hill Golf Club. We would like to express our appreciation to Kingsfield Engineering Limited for the kind sponsorship and the keen participation of team members and guests, all of you have made the tournament successfully be held.



#### 堅輝盃高爾夫球賽 Kingsfield Cup Golf

22 Jan 2016 2016年1月22日

Phoenix Hill Golf Club 鳳凰山高爾夫球會

Champion	Mr. Yip Wing Ho	冠軍	葉穎豪先生
1st Runner Up	Mr. Chan Keung	亞軍	陳強先生
2nd Runner Up	Mr Gary Cheung	季軍	張潤洪先生
Best Gross	Mr. Chan Keung	最低杆	陳強先生
Best Front Nine	Mr. Cheung Chong Lap	最佳前九	張壯立先生
Best Back Nine	Mr. Ho Cheuk Kin	最佳後九	何焯堅先生
Longest Drive Hole No A7	Mr. Yip Wing Ho	最遠發球獎:第A7洞	葉穎豪先生
Longest Drive Hole No C9	Mr. Denny Mak	最遠發球獎:第C9洞	麥國樑先生
Close to Pin Hole No A2	Mr. Law Chu Heung	最近洞獎:第A2洞	羅柱香先生
Close to Pin Hole No A4	Mr. Lee Kwok Tai	最近洞獎:第A4洞	李國泰先生
Close to Pin Hole No C5	Mr. Vincent Ko	最近洞獎:第C5洞	高偉成先生
Close to Pin Hole No C8	Mr. Ko Ka Chung	最近洞獎:第C8洞	高家頌先生
Close to Pin Hole No 16	Mr. Ma Chun Pong	最近洞獎:第16洞	馬振邦先生
Guest Winner	Mr. Louis Man	嘉賓組冠軍	Mr. Louis Man





ABB賀歲盃高爾夫球賽，已於2016年2月26日(星期五)在觀瀾高爾夫球會 - 尼克費度球場舉行，在此多謝ABB (Hong Kong) Limited的慷慨贊助，隊員的支持和參與，令比賽能順利完成。  
ABB CNY Cup Golf Competition was held on 26th February 2016 (Fri) at Mission Hills Club, China - Faldo Course. We would like to express our appreciation to ABB (Hong Kong) Limited for the kind sponsorship and the keen participation of team members and guests, all of you have made the tournament successfully be held.

### ABB賀歲盃 ABB CNY Cup Golf 26 Feb 2016 2016年2月26日 Mission Hills Club 觀瀾高爾夫球會

Champion	Mr. lu Chu Leung	冠軍	姚柱良先生
1st Runner Up	Mr. Denny Mak	亞軍	麥國樑先生
2nd Runner Up	Mr Gary Cheung	季軍	張潤洪先生
Best Gross	Mr. lu Chu Leung	最低杆	姚柱良先生
Best Front Nine	Mr. Fung Chun Pong Wilson	最佳前九	馮鎮邦先生
Best Back Nine	Mr. Tung Kwok Kuen	最佳後九	董國權先生
Longest Drive Hole No 7	Mr. Francis Law	最遠發球獎:第7洞	羅友根先生
Longest Drive Hole No 10	Mr. Cheung Chong Lap	最遠發球獎:第10洞	張壯立先生
Close to Pin Hole No 6	Mr. Jason Mak	最近洞獎:第6洞	麥家傑先生
Close to Pin Hole No 8	Mr. Jason Mak	最近洞獎:第8洞	麥家傑先生
Close to Pin Hole No 13	Mr. Li Tai Kwong	最近洞獎:第13洞	李大光先生
Close to Pin Hole No 16	Mr. Tung Kwok Kuen	最近洞獎:第16洞	董國權先生
Guest Winner	Mr. Au Chi Wai	嘉賓組冠軍	Mr. Au Chi Wai



### NEXANS CUP高爾夫球賽 NEXANS Cup Golf Competition

NEXANS CUP高爾夫球賽，已於2016年4月8日(星期五)在觀瀾高爾夫球會 - 尾崎司馬場舉行，在此多謝協通電線有限公司的慷慨贊助，隊員的支持和參與，令比賽能順利完成。當天比賽氣氛熱烈，大家都樂而忘返。

NEXANS Cup Golf Competition was held on 8th April 2016 (Fri) at Mission Hill Golf Club, Ozaki Course. We would like to express our appreciation to Hip Tung Cables Company Limited for the kind sponsorship and the keen participation of team members and guests, all of you have made the tournament successfully be held.

### NEXANS CUP高爾夫球賽 NEXANS Cup Golf 8 Apr 2016 2016年4月8日 Mission Hills Club 觀瀾高爾夫球會

Champion	Mr. Ho Chi Hung, Keith	冠軍	何志雄先生
1st Runner Up	Mr. Ho Chi Kee	亞軍	何德基先生
2nd Runner Up	Mr. Chow Kay Yui	季軍	周祈銳先生
Best Gross	Mr. Ho Chi Kee	最低杆	何德基先生
Best Front Nine	Mr. Jason Mak	最佳前九	麥家傑先生
Best Back Nine	Mr. Cheng Hoi Man	最佳後九	鄭海文先生
Longest Drive Hole No 3	Mr. Ho Chi Hung, Keith	最遠發球獎:第3洞	何志雄先生
Longest Drive Hole No 14	Mr. Jason Mak	最遠發球獎:第14洞	麥家傑先生
Close to Pin Hole No 6	Mr. Chow Kay Yui	最近洞獎:第6洞	周祈銳先生
Close to Pin Hole No 8	Mr. Ho Chi Hung, Keith	最近洞獎:第8洞	何志雄先生
Close to Pin Hole No 12	Mr. Lai Wing Ki	最近洞獎:第12洞	黎永基先生
Close to Pin Hole No 17	Mr. Francis Law	最近洞獎:第17洞	羅友根先生
Guest Winner	Mr. Ho Wai Hung	嘉賓組冠軍	何偉雄先生





# Prysmian Group



 普司曼電纜有限公司  
PEACEMAN CABLE ENGINEERING LIMITED  
 中低壓電纜香港總代理  
CABLES HONG KONG SOLE AGENT

**DCE** DCE DELTA CABLE ENGINEERING  
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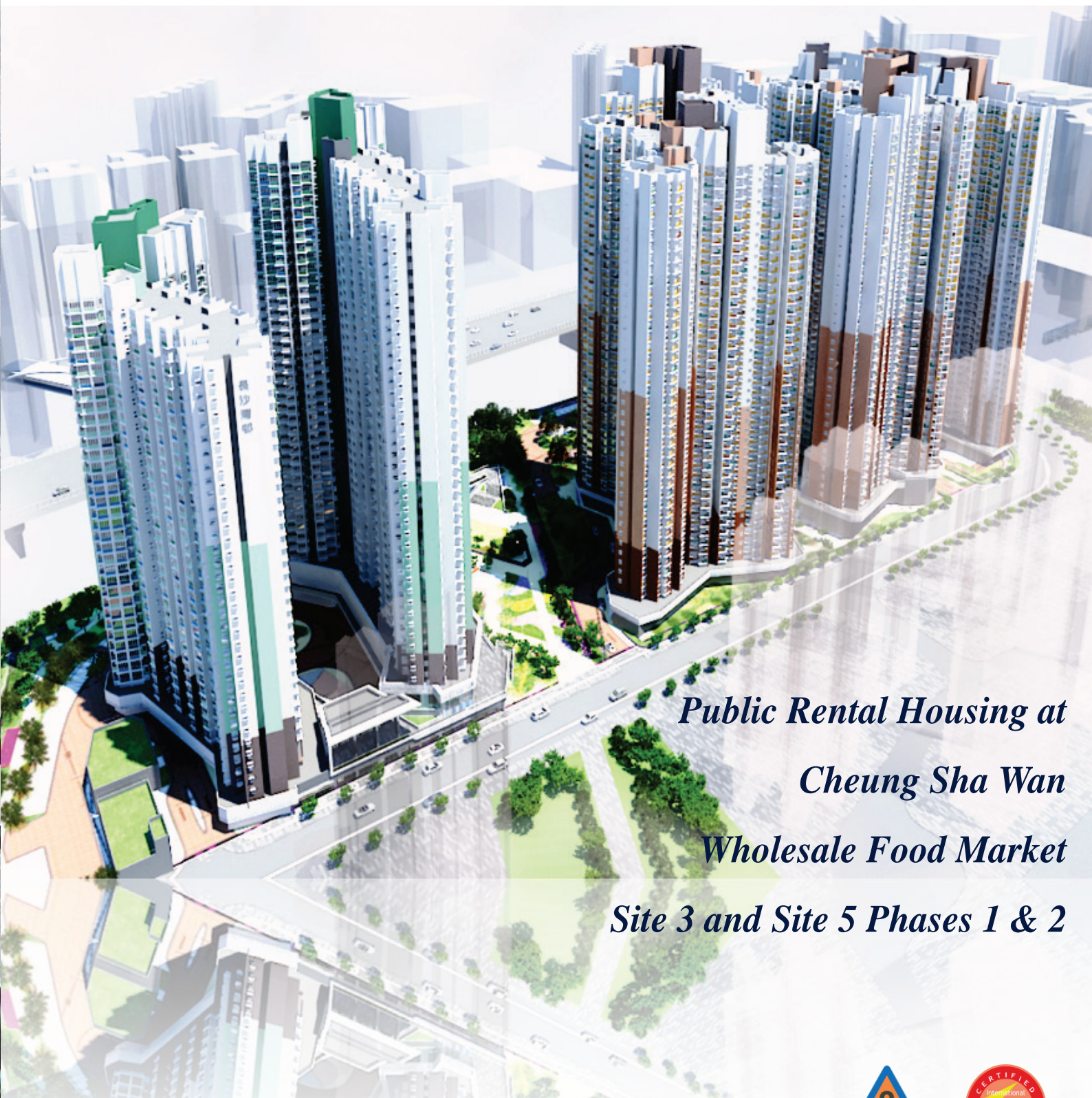




盈電工程有限公司

REC Engineering Company Limited

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*Public Rental Housing at*

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*Site 3 and Site 5 Phases 1 & 2*

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Grandeur Electrical Co. Limited

# CELEBRATE THE POWER OF AWARDS

Grandeur Electrical Co. Limited (金碧電器) has been awarded for the Electrical Installation for Construction of Home Ownership Scheme at Kiu Cheong Road and Ngan Kwong Wan Road East and West by the Hong Kong Housing Authority. (Sub-contract to Contract No. 20150042)

Over the years, Grandeur Electrical Co. Limited has honored the top performer in the industry. We master the art of engineering with an engineering philosophy that lies in our core values.

**RESPECT**  
the Community and the Environment

**COMMITMENT**  
to Innovation and Quality

**ACT**  
with Honesty and Integrity

**WORKPLACE**  
Safe and Healthy Workplace

**PEOPLE**  
Our people - Our Valuable Asset