

# SPECS

## CURRENTS

The official publication of  
The Society of Philippine Electrotechnical Constructors & Suppliers, Inc.

# 42<sup>nd</sup> Anniversary

Issue No. 2

SPECS Theme 2010 - 2011

# Green Engineering in Electrotechnical Construction

Featuring

## FAFEEC – FAPECA Conferences 2010

Hosted by:

The Society of Philippine Electrotechnical  
Constructors and Suppliers, Inc.

In conjunction with the

### 35th IIEE Annual National Convention

November 24 & 25, 2010

SMX Convention Center, SM Central Business Park, Pasay City, Philippines





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# S P E C S

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## *CURRENTS*

Issue #2 2010

The official publication of  
*The Society of Philippine Electrotechnical Constructors & Suppliers, Inc.*

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2010 - 2011

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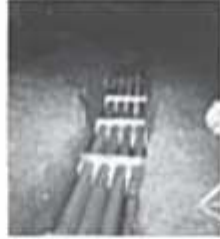
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# EDITOR'S PAGE



## *Gathering Momentum for the Tasks of 2010 - 2011*

The remainder of 2010 will be filled with at least three significant activities affecting the future of SPECS.

Firstly, our preparation for an upsurge in new investments by both public and private sectors, specially in the electrical power industry, due to the generally encouraging governance policies of President Benigno Simeon C. Aquino, III;

Secondly, the 2010 AFEEC-FAPECA Conferences 2010 hosted by SPECS, under the direction of the Officers and event's Chairman VP Bernard H. Morillo, in conjunction with the 35th IIEE Annual National Convention and to be held on November 24 & 25, 2010 at SMX Convention Center, SM Central Business Park, Pasay City; and

Thirdly, the forth-coming establishment of a Training Center by SPECS members and other professional colleagues to provide the electrical power industry with an adequate number of well-trained electrotechnical specialists for long term industrial development.

It is worth while mentioning that a Memorandum of Agreement was signed recently between IIEE and SPECS, formally recognizing SPECS as the construction industry organization representing the electrical engineering profession in the construction industry.

All these activities will require a tremendous amount of hard work and resources extending through 2011. SPECS will accomplish our objectives under the unfailing leadership of President Arthur N. Escalante with the invaluable support of FP Gregorio Y. Guevarra, FP Hipolito A. Leoncio and Gov. Gamaliel F. Itao, Chairman of Technical Seminar and Manpower Development Committee. As always, we seek the blessings of our Almighty Father in all our endeavours.

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SPECS Currents is published four times a year by the Society of Philippine Electrical Contractors & Suppliers, Inc. for its members and other professionals in the electric power industry. Contributions of relevant articles and comments from readers are welcome.





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# PRESIDENT'S REPORT



## *2nd Quarter Report 2010 - 2011 Theme: "Green Engineering in Electrotechnical Construction"*

SPECS has been laying the groundwork to rejuvenate the electrical construction industry and it is appropriate to present the programs to our members and to our partners in the industry. Your comments and your wisdom are welcome.

*Technical Seminars* – SPECS is one of the lucky organizations that was granted by the Professional Regulation Commission (PRC) – CPE Council a certification as CPE Provider during the awarding ceremonies held on May 8, 2010 at the IIEE Office in Cubao, Quezon City. This serves as a confirmation that SPECS conducts high quality technical seminars and training to upgrade technical skills with the latest trends in technology and products as well as to improve productivity and proficiency of the participants.

Notable during the second quarter is the successful conduct of the "Substation, (HV Cable, Transformer, HV & LV Switchgear) Testing and Commissioning" on July 2 & 3, 2010. We are fortunate to have FP Engr. Jesus C. Santos who spearheaded the management of this technical seminar. It is one of a kind seminar because it is both theoretical and hands-on. The participants from the various companies were able to experience demonstration of the proper use of various testing kits, testing equipment, wires, cables and materials provided by Asiaphil Group of Companies, Columbia Wire and Cable Corporation, Delta Star Mfg. Corporation and Schneider Electric (Phils.), our partners in the industry. Engr. Santos, the Author and Resource Speaker of the training course assured that he will regularly conduct this seminar under SPECS as this is one of his advocacies.

SPECS also conducts regular training on Basic/Construction Occupational Safety & Health Course (BOSH/COSH) designed for Safety Officers, Supervisors, Engineers of manufacturers, constructors, schools, hotels, hospitals, among others. The courses aim to increase awareness of occupational safety and health in workplaces, and it is a requirement for the appointment of a Safety Officer and for BWC-DOLE accreditation as OSH Practitioner, pursuant to Department Order No. 16, series of 2001 that amended Rule 1030 of the Occupational Safety and Health Standards as promulgated by the Department of Labor and

Employment (DOLE). Our Resource Speakers are the most experienced safety and health consultants and practitioners, one of which is Engr. Frumencio T. Tan, Board Director of the Association of Safety Practitioners of the Philippines.

We encourage our members, non-members as well, to send-in their representatives to take full advantage of these CPE accredited programs. PEE / REE and Master Electricians are now required to earn units for the purpose of renewing their respective professional licenses. More technical seminars are still in the planning stages. You may call the Secretariat for updates.

*Information and Dissemination Programs* - Re-designing of the SPECS' website is underway to integrate some features to allow trouble-free access.

*SPECS Currents* is our official Chronicle, source of the organization's news on current events and technical information. It is also a safe place where we can find quality suppliers and service providers. We take our hats off to Board Chairman Nick Balderrama, EVP Ernie Cabral and FP Roddy Peñalosa for generating a high value magazine, our contributors of articles and specially to our generous advertisers. We encourage our members and colleagues to utilize our focused advertising field of power industry products and services buyers.

*AFEEC-FAPECA Conferences 2010* (Asean Federation of Electrical Engineering Contractors - Federation of Asia and Pacific Electrical Contractor Associations) The Officers, Board of Governors and Committees in-charge now busy preparing for the culminating activities in-store for this forthcoming conferences at the Microtel Inns & Suites on November 24 and 25, 2010. This is a three-in-one event as it coincides with the 35<sup>th</sup> IIEE Annual National Convention and the 3E XPO 2010 to be held at the SMX Convention Center, MOA Complex, Pasay City.

*continued on page 9*



**ERICO**

# Grounding Products

## GROUND ENHANCEMENT MATERIAL (GEM)

Ground enhancing materials can be applied around the conductors in a grounding system to reduce the local soil resistivity and lower ground impedance. They are particularly useful in areas of moisture variation, sandy soils and rocky ground.

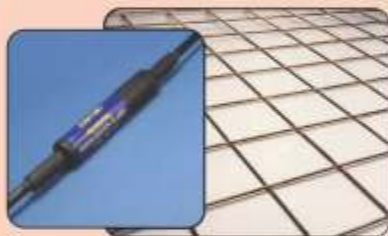


## GROUND RODS AND CLAMPS

ERITECH copperbonded, galvanized and stainless steel earth rods facilitate the transfer of surges and fault currents into the earth, and provide a long service life due to the superior construction and quality.

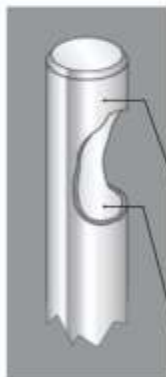
## GROUND POTENTIAL EQUALISATION

ERICO's range of equipotential ground bars, plates, pre-engineered grids, and Potential Equalization Clamps combine to create a safe equipotential ground plane for optimum protection of personnel and equipment.



## COPPERBONDED GROUND ROD

## GALVANIZED GROUND ROD



Copperbonded ground rod versus Galvanized ground rod.

Cost effective long service life

Copperbonded coating:

- Permanent molecular bond
- Low resistance performance
- High fault current capacity (IEEE® Std 80)
- Will not slip or tear when driven
- Will not crack if rod is bent

Carbon Steel core and tip:

- Greater tensile strength
- Deep driving capability

Lower purchase price - not as cost effective as Copperbonded

Galvanized coating:

- Relatively short service life
- May crack if rod is bent

Steel core and tip:

- High tensile strength
- Deep driving capability

**ERICO**

# Lightning Protection Products

## Air Terminals



### Conventional Air Terminal / ISODC\*

\* ISODC is an isolated lightning protection cable system based around IEC62305. It is designed to isolate the lightning current from sensitive equipment, eliminating the need for separation distances required with conventional cable.

### ERITECH INTERCEPTOR SI ESE

Early Streamer Emission Lightning Terminal According to the NFC 17-102 and UNE-21186 Standard



### DYNASPHERE MK IV Enhanced Air Terminal

Capture point of the ERITECH System 3000 initiates an upward leader during thunderstorm conditions to capture lightning discharges over a greater radius than conventional protection. It's world renowned predecessor DYNASPHERE MK III has over 10,000 installations globally.

## Ground Conductors



Cutaway diagram showing the composite layers of ERITECH ERICORE downconductor and upper termination (inset).

## Comparative Performance of a conventional downconductor and ERITECH ERICORE screened, insulated downconductor

Lightning parameters			Cable voltage developed at injection point (kV)	
Peak current (kA)	% of larger currents	Max. dI/dt (GA/s)	Conventional downconductor	ERITECH ERICORE downconductor
10	92	12	580	13
30	55	40	1900	44
50	25	77	3700	85
90	5	160	7700	180

## Lightning Event Counter - LEC IV



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## *Understanding EIM Competencies*

*By: Gamaliel F. Ito, P. E. E., M. Ent  
Chairman, SPECS Technical Seminars & Manpower Development Committee*

To cope with skills deficiency and knowledge update of our Technical and Engineering Graduates, The Professional Regulation Commission reintroduced the CONTINUING PROFESSIONAL EDUCATION (CPE). The Institute of Integrated Electrical Engineers of the Philippines (IIEE), released the requirements for the CPE. For vocational skills competency, the Technical Education Skills Development Authority (TESDA) has promulgated the training regulations and assessment methods for Electrical Installation and Maintenance (EIM), NC II to NC IV with the technical assistance of Society of Philippine Electrotechnical Constructors and Suppliers Inc. (SPECS). The competency assessments for EIM NC II, NC III and NC IV are based on actual industry standards and practices. TESDA competency is now regarded as the practical board exam for Registered master Electricians. TESDA assessment is a good indication of Competency in certain skills.

Below are the EIM Core Competencies and Its Job Qualification/ Hands- On Experience.

Electrical Installation & Maintenance (EIM) Core Competencies	Job Qualifications/Hands-on Experience
<u>NC II</u> <ul style="list-style-type: none"> <li>- Perform Roughing ends and wiring for bus &amp; under floor ducts</li> <li>- Perform Installation of Standard electrical protection and grounding system</li> <li>- Perform installation of Electrical lighting system, fixtures and auxiliary outlets</li> </ul>	<ul style="list-style-type: none"> <li>- Building Wiring Electrician</li> <li>- Electrical Device Installer</li> <li>- Roughing Ends Installer</li> </ul>
<u>NC III</u> <ul style="list-style-type: none"> <li>- Perform Installation of metering and control system on Electrical equipment</li> <li>- Assemble Installation of metering and control system</li> <li>- Perform maintenance &amp; troubleshooting works</li> </ul>	<ul style="list-style-type: none"> <li>- Industrial Electrician</li> <li>- Motor control technician</li> <li>- Motor control system installer</li> <li>- Maintenance &amp; Troubleshooting</li> </ul>
<u>NC IV</u> <ul style="list-style-type: none"> <li>- Supervise/M otor Installation and Maintenance on electrical systems, auxiliary including control, power protection equipment</li> <li>- Perform commissioning of electrical equipment &amp; system</li> <li>- Perform programming &amp; Installation of basic PLC Systems</li> </ul>	<ul style="list-style-type: none"> <li>- PLC Installer</li> <li>- Basic PLC programmer</li> <li>- Test/Commissioning Electrical Technician/Supervisor</li> <li>- Senior Electrical Technician/Foreman</li> </ul>

SPECS is set to conduct a 40-hour competency-based trainings on Industrial Motor Controls (Leading to EIM NC III) and Programable Logic Controller (Leading to EIM NC IV). We enjoin our members and other interested parties to take full advantage of these TESDA certified and CPE accredited seminars. For schedules and further details, you may contact the SPECS Secretariat at Telephone Nos. 722-4725; 413-0994 and 386-8782.\*\*\*



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# PRESIDENT'S REPORT

*continued from page 5*

To our Members and industry partners, let us join hands in making this event significant and memorable, get involve, let us offer a warm welcome to our guests from various parts of the Asea and Asia Pacific Region.

*General Membership Meeting* – At the Meralco Lighthouse on April 22, 2010 was a great evening when we had our 1<sup>st</sup> General Membership Meeting. Our Guest Speaker, President of the National Grid Corporation of the Philippines Engr. Roque F. Corpuz with his topic “NDCP Programs and Rationals” captured the attention of our members and guests when he conveyed an optimistic perception in the construction industry. Likewise, our regular Speaker on health related subject matters Dr. Lulu Marquez, MD, St. Lukes Medical Center talked about “Better Nutrition for a Better You ... at Work or at Play”. Her specialty, an area of interest among our audience.

*Sports & Fellowship on Bowling & Golf* - SPECS takes time for Sports. The highly regarded bowling tournaments chaired by our Treasurer, Engr. Art Cenal bind members together as this sport became the most anticipated team activities of SPECS members and friends. The fun-filled 14<sup>th</sup> Fun Game Bowling Tournament was held on June 26 and the 15<sup>th</sup> will be held on September 25, 2010, still at the Superbowl, Makati City. I congratulate the winners of the 14<sup>th</sup> Fun Game Bowling Tournament who are listed in the Retrospecs. On the other hand, a mini fellowship golf tourney is being organized by our committee on Golf Tournament headed by Secretary Lito Freo and Vice President Bernard Morillo. It is always an extraordinary event when we see our golf aficionados within our industry group together for a round of SPECS golf.

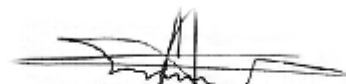
*Linkages* - SPECS values linkages with related agencies and organizations, as part of its networking program. Underway is the forging of a Memorandum of Agreement (MOA) with Mechatronics Technologies Corporation (MTC) and Mechatronics and Robotics Society of the Philippines (MRSP) in preparation with the regular conduct of the Electrical Installation and Maintenance (EIM) National Certification (NC) III and IV. The development of the Training Regulation (TR), Competency Assessment

Certification (NC) III and IV. The development of the Training Regulation (TR), Competency Assessment Tools (CATs) for Electrical Installation and Maintenance NC III & IV was done owing to the expertise of our Former Presidents Pol Leoncio, Nick Balderrama, Gregg Guevarra and Governor Jimmy Itao.

FISUEL extended an invitation to its annual general membership meeting held last May 20–21, 2010 at the Royal Park Hotel, Tokyo, Japan thru SPECS. This is an international federation for the safety of electricity users which favors the creation of standards, regulations and installation inspection systems in order to increase the level of safety in electrical installation. Being one of the most active Member and whose service is closely related, Meralco accepted to represent our Society in the person of our 2008 Governor, Engr. Ray Anthony R. Rodriguez, Meralco's Senior Superintendent and Senior Standards Engineer. His report on page 23.

*Membership and Chapter Development* – One of this year's leadership programs is to carry out its goal to bring back the inactive members to its fold, re-activate the Cebu, Cagayan de Oro and Davao Regional Chapters, create more Chapters as well. As part of the scheme for inactive members, back dues will no longer be collected, instead, pay an entrance and current annual fee and submit membership form to update records. We enjoin you to avail of this offer and be part of the roster of the prominent contractors and suppliers of the electrotechnical construction industry.

*President's Appeal* - In view of the fact that we need funds to sustain our mission and vision and to continue serving our members, allow me to appeal to all our members to update their dues and other accounts with our organization. We all know that we need funds to keep going and continue serving our members. Long live SPECS!



Arthur N. Escalante  
President



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Makati City 1233 Philippines**

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# RETROSPECS

## 14th SPECS Fun Game Bowling Tournament June 26, 2010 3rd Floor Superbowl, Makati Cinema Square, Makati City



**PARTICIPANTS:** Aga Systems, Inc. \* American Wire \* AMWIRE \* Centra Electrosystems, Inc.\* Crown Asia Compounders Corporation \* Duraflex \* PEMCOR \* Semitronics \* Sumisetsu PhisI, Inc. \* Robros, Inc. \* Versatrunk Wireways & Cabletrays Systems \* Wyeth Forever \* Wyeth Tsunami 69

**SPONSORS:** American Wire & Cable Co., Inc. \* Crown Asia Compounders Corporation \* PEMCOR \* Phasor Construction Corporation \* Robros, Inc. \* Semitronics \* Sumisetsu Philippines, Inc. \* Versatrunk Wireways & Cabletrays Systems

### THE WINNERS



Mr. Michael Santos  
Perfect No Tap Game Winner  
(L-R) Mr. Art Cenal, Mr. Boy Sanchez  
& Mr. Michael Santos



Mr. Michael Santos  
High Series - Male (Score - 389)  
(L-R) Mr. Boy Sanchez, Mr. Michael  
Santos & Mr. Art Cenal



Ms. Butch Rigodon  
High Series - Female (Score - 375)  
(L-R) Ms. Butch Rigodon, Mr. Boy  
Sanchez & Mr. Art Cenal



Mr. Noel Palmes  
High Game (Score - 251)  
(L-R) Mr. Boy Sanchez, Mr. Noel  
Palmes & Mr. Art Cenal



**Champion:** Versatrunk Wireways & Cabletrays  
Systems, Phils.  
(L-R) Mr. Boy Sanchez, Mr. Andy Pineda, Ms. Dol  
Tapisipan, Mr. Raymund Uy & Mr. Art Cenal



**1st Runner-up:** Wyeth Forever  
(L-R) Mr. Boy Sanchez, Mr. Art Cenal, Mr. Noel  
Palmes, Mr. Serge Abcede & Mr. Michael Santos



**2nd Runner-Up:** Aga Systems, Inc.  
(L-R) Mr. Boy Sanchez, Ms. Jingle Dela Rosa,  
Mr. Art Cenal, Ms. Butch Rigodon  
& Mr. Joseph Javellana

# RETROSPECTS

## TECHNICAL SEMINAR on Substation (HV Cable, Transformer, HV & LV Switchgear) Testing and Commissioning July 2 and 3, 2010 at 3rd Floor, IIEE Bldg., Cubao, Quezon City



Participants during the Seminar on Substation (HV Cable, Transformer, HV & LV Switchgear) Testing and Commissioning last July 2 and 3, 2010 at 3rd Floor, IIEE Bldg., Cubao, Quezon City with Engr. Jesus C. Santos, PEE as Technical Speaker. The seminar's testing facilities were sponsored by Delta Star Mfg. Corporation, Asiaphil Group of Companies, Columbia Wire & Cable Corporation and Schneider Electric (Phils.), Inc.



Participants at the parking area of IIEE discussing the step-by-step procedure in performing actual testing of power transformer such as excitation current, TTR, winding resistance, insulation resistance/polarization index, oil dielectric breakdown voltage (for oil-filled transformer) and cooling fans automatic switching with Delta Star technicians.



The seminar on Substation (HV Cable, Transformer, HV & LV Switchgears) Testing and Commissioning was a very successful event considering the active participation of fifty four (54) participants in performing actual procedures using latest model of testers and sample equipment and cables. All the participants expressed their delight on the results of the illustrations of this first ever subject in seminar courses.



Some participants posed for a souvenir photo at the Robinsons Mall, Metro East Marcos Highway, Pasig City on July 3, 2010 during the Field Trip.



Engr. Jesus Santos and Engr. Bert Lozada (Eng'g. Director, Robinsons Land Corporation) with the participants discussing substation set-up at Robinsons Mall Metro East, Marcos Highway, Pasig City (July 3, 2010 Field Trip)



Engr. Jimmy Ito, Chairman of SPECS Technical Seminars presented to Engr. Jess Santos a plaque of appreciation as Author and Resource Speaker of the two days seminar on Substation (HV Cable, Transformer, HV & LV Switchgear) Testing and Commissioning.



# RETROSPECS



FISUEL's board members with the host country's officers: (from left) David Latimer- (England-Vice-President, Chairman of Technical Committee), Philippe André, (France-Honorary President/Treasurer), Mr. Shingo Naito and Mr. Ikuo Tsukuda (Japan-FESIA-host country), Romualdo Arias, (Spain- President), Denis Hanotin (France-FISUEL's Project Manager) and José Tomaz Gomes, (Portugal- Past-President).



Our former SPECS 2009 Governor Engr Ray Anthony Rodriguez of Meralco-together with FESIA's Past President –Mr Katsumasa Ishige and FISUEL's Project Manager-Denis Hannotin.

# TECHNICAL SEMINAR



In Photo: Participants (standing at the back) and sitting in front (Left to Right) Ms. Ellen Mico; Engr. Jimmy Itao, Chairman of SPECS Technical Seminars and Manpower Development Committee; Engr. Joji C. Valeciano. Technical Speaker on Construction Project Management Seminar held last August 13 and 14, 2010 at 3rd Floor, IIEE Bldg., Cubao, Quezon City



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## AFEEC - FAPECA CONFERENCES 2010

In conjunction with the 35th IIEE Annual National convention & 3XPO 2010  
November 23 to 25, 2010



SMX Convention Center, SM Central Business Park, Pasay City, Philippines



**Theme:** "Green Engineering in Electrotechnical Construction"

SPECS is in the stage of wrapping-up the event's activities for the forthcoming AFEEC-FAPECA Conferences 2010 to be held in conjunction with 35th Annual National Convention & 3XPO 2010 of the IIEE. About 100 foreign delegates who are members of the Society's counterparts in the Asean and Asia and Pacific Region will attend this important regional event.

We request our members and partners in the industry to extend their usual warm support and committment to SPECS so that all of us in the electrotechnical industry will meet our great expetations.

- ✍ Book your exhibition booth reservations thru SPECS for the exclusive AFEEC-FAPECA Pavilion of the 3XPO 2010 Exhibition
- ✍ Place your Advertisements in the Souvenir Program for an international exposure to the participants and visitors in this electrical, electronics and enegy exposition.
- ✍ Be a delegate of the conference and be updated with the green engineering technology as applied in the construction industry to be presented by our Speakers from various AFEEC-FAPECA Members of the Asia and Asia-Pacific Region. Network and socialize with the foreign delegation during the Welcome Dinner.

For further inquiries and additional information, kindly get in touch with Pres. Arthur N. Escalante and Overall Chairman of the organizing committee Bernard H. Morillo thru the SPECS Secretariat at Tel. Nos. 722-4725, 413-0994 and 386-8782 or you may send email at [specsphi\\_68@yahoo.com](mailto:specsphi_68@yahoo.com).



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# UTILITY FEATURE

## *Requirements for outdoor installation of pad mounted transformers* *Power Services - Service Standards Team* *Manila Electric Company*

In the previous issue, we featured the "Requirements for indoor installation of pad mounted transformer." This time, our discussion will revolve around the requirements for "outdoor type" pad mounted transformers (PDT).

Outdoor installation of pad mounted transformers may be permitted depending on the location and the degree of hazard that can be expected. Meralco will determine the type of installation to be employed for every given situation.

### Open installation

A pad mounted transformer may be installed in the open, without any fence or enclosure, under the following situations:

- Where the PDT is installed within the customer's premises, isolated in an area not subject to close contact with people other than the customer's maintenance personnel;
- Where the pad mounted transformer is installed within a private residential subdivision, where the sidewalks are not considered busy;
- Where installations are not covered by the abovementioned circumstances, but where Meralco considers that the safety of the general public and properties are not being compromised, such as in the event of transformer failure resulting to tank rupture or where the possibility of the transformer being vandalized is considered remote.

Liquid spill containment may be provided in the form of a trench with crushed stones or gravel all around the PDT.

PDTs installed adjacent to a building will be required to meet the space separation requirements specified in Meralco's Technical Requirements for Pad Mounted Transformer Installation. In cases where the required separation cannot be met, the customer will be required to provide a fire-resistant barrier to be installed between the equipment and the affected part of the building, e.g. doorway, fire escape, etc.

Pad mounted transformers situated in areas where there is a possibility of damage due to contact with vehicles will be provided with strategically-located guard posts.

Concrete enclosures will be constructed for installations in places where a great number of people regularly converge, e.g. commercial sidewalks, schools, playgrounds, parks, churches, etc., to ensure the safety of the general public.

Cyclone fences, on the other hand, will be used for installations in places that may not pose hazard to the public but may need protection from vandalism and unauthorized access. All applicable safeguards specified above such as liquid spill containment, installations adjacent to buildings and installations where there is possibility of contact with vehicles will also subscribe to this type of enclosure.

All outdoor installations of PDT will be required to have a clear or unobstructed permanent vehicle access road adjacent to one side of the PDT to provide a roadway for equipment maintenance. The minimum required road width must be 6.5 meters and must meet a minimum 20-ton construction.

### Other types of outdoor installations

PDTs will no longer be installed in open canopies attached to the building. The customer must provide a transformer vault as enclosure for the equipment.

Installation of PDT on the roof of a building will be limited to rooftops of two-storey buildings and subject to the following requirements:

- There is a permanent, clear or unobstructed space beside the building where the crane can position and maneuver when installing the PDT, or during retirement/replacement of the equipment in the future.
- There is direct access from the outside of the building for Meralco crew doing maintenance activities. Access must be in the form of an independent staircase from the ground leading to the rooftop.

*continued on page 20*

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# UTILITY FEATURE

continued from page 17

## Primary cables

The primary cables will be supplied, installed and terminated at the primary terminals of the pad mounted transformer by Meralco.

The primary cables will be installed inside concrete-encased cable ducts to be provided by the customer. The ducts must be 110 mm in diameter, thick-walled, red orange in color, made of unplasticized polyvinyl chloride (uPVC) in accordance with PNS 14. The thickness of the concrete envelope from the surface of the duct must be 75 mm.

## Service cables

The service cables will be supplied and installed by Meralco from the pad mounted transformer secondary terminals extending up to the customer's secondary main circuit breaker. The maximum allowable distance from the transformer to the customer's secondary main breaker will be limited to 10 meters. In practice, this means that the PDT must be located within 10 meters from the building's main electrical room where the main secondary circuit breaker is installed.

Should the customer opt for a transformer location that is more than 10 meters from the building's main electrical room, the customer will be required to provide an outdoor type secondary main circuit breaker in order to comply with the 10-meter distance requirement.

The service cables will be installed inside concrete-encased uPVC ducts provided by the customer. The ducts must be 110 mm. in diameter, thick-walled, red orange in color, made of unplasticized polyvinyl chloride (uPVC) in accordance with PNS 14. The thickness of the concrete envelope from the surface of the duct must be 75 mm.

The customer's electrical contractor will be the first to terminate the service cables from their circuit breaker using their own terminal lugs. Meralco will then terminate the service cables to the secondary terminals of the transformer.

## Metering

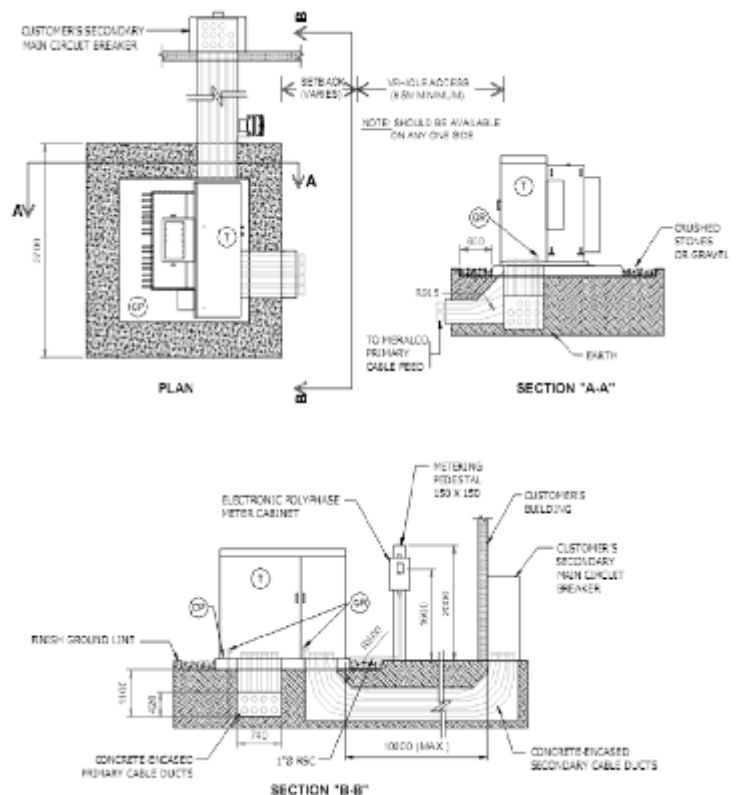
Current transformer (CT) installation inside the secondary compartment of the PDT will be employed for security and ease of CT replacement particularly for single-metered service.

The customer will be required to provide a concrete metering pedestal, size 150 mm x 150 mm x 2000 mm high, adjacent to the transformer.

A one-inch diameter RSC will be provided for the potential and CT secondary leads. This conduit will be provided and installed by Meralco from the transformer secondary cabinet up to the location of the electronic polyphase meter cabinet (EPC).

For the complete guidelines and procedures, interested parties may contact the nearest Meralco Sales Office. You can also write Power Services Office at email address Service Standards Group @ meralco.com.ph.

"Sa Meralco, may liwanag ang buhay."



continued on page 21

# UTILITY FEATURE

continued from page 20

## TYPICAL PADMOUNTED TRANSFORMER INSTALLATION WITH OUT CONCRETE FENCE OR ENCLOSE

LEGEND:

**(T)** TRANSFORMER PADMOUNTED, COMPARTMENT TYPE, DEAD FRONTAL 3-PH, 80HZ. LESS FAMMABLE LIQUID-FILLED EQUIPPED WITH PRESSURE-RELIEF DEVICE EXPULSON FUSES AND CURRENT LIMITING FUSES, BUILT IN ACCORDANCE WITH ANSI C 37.12.25. LATEST REVISION.

**(GR)** GROUND ROD: GALVANIZED STEEL ROD. SIZE 25 MM X 3 M LONG, OR EQUIVALENT

**(CP)** CONCRETE PAD: 200MMØ HIGH; SEE NOTE 3

NOTES:

1. THE TYPE OF OUTDOOR INSTALLATION FOR PADMOUNTED TRANSFORMERS SHALL DEPEND ON THE DEGREE OF HAZARD EXPECTED. REFER TO ENGINEERING GUIDELINE TG-DCC-300.13 FOR SPECIFIC APPLICATION GUIDELINES OF THE DIFFERENT SCHEMES.
2. MERALCO SHALL PROVIDE INSTALL THE TRANSFORMER PRIMARY CABLES, SECONDARY CABLES FROM THE TRANSFORMER TO THE CUSTOMERS MAIN CIRCUIT BREAKER AND METERING EQUIPMENT. THE CUSTOMER SHALL PROVIDE ALL CIVIL WORKS SUCH AS EQUIPMENT PAD, ENCLOSURE (WHEN REQUIRED),

METERING PEDESTAL AND CONCRETE-ENCASED PVC DUCTS.

3. THE PADMOUNTED TRANSFORMER SHALL BE PROVIDED WITH A CONCRETE PAD 200MM HIGH. FOR CABLE DUCT LAYOUT ON THE CONCRETE PAD AND NUMBER OF REQUIRED CABLE DUCTS, REFER TO UNDERGROUND CONSTRUCTIVE UNIT DWG. CODES F-FP02, P-FP03, P-FP04, P-FP05, P-FP06 AND P-FP04. SPECIFY CONSTRUCTIVE UNIT ITH MORE THAN THE REQUIRED DUCTS TO CONSIDER FUTURE LOAD UPGRADE.
4. PRIMARY AND SECONDARY DUCTS SHALL BE 110MM?, THICK-WALLED (SCHEDULE 40). RED ORANGE COLOR, MADE OF UNPLATICIZED PVC PER PNS 14 AND SHALL BE ENCASED IN CONCRETE. THE DIMENSION OF THE CONCRETE ENVELOPE FOR THE SECONDARY DUCTS SHALL DEPEND ON THE NUMBER OF DUCTS INSTALLED. AS A RULE, SEPARATION BETWEEN DUCTS (SURFACE TO SURFACE) SHALL BE 50MM. THE THICKNESS OF CONCRETE ENVELOPE FROM THE SURFACE OF THE DUCTS SHALL BE 75MM.
5. TOTAL GROUND RESISTANCE SHALL BE 5
6. DIMENSIONS ARE IN MILLIMETES UNLESS OTHERWISE SPECIFIED.

END OF DOCUMENT



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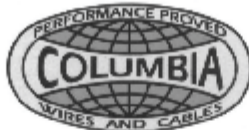
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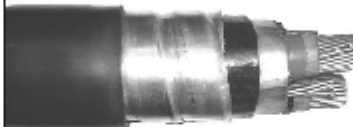
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# TECHNICAL FEATURE

## FISUEL

*Society of Philippine Electrical Contractors (SPECS) joined delegates from other countries in the Annual General Meeting of the International Federation for the Safety of Electricity Users, known as FISUEL (for Fédération Internationale pour la sécurité des usagers de l'électricité), held on May 20 and 21 at the Royal Park Hotel in Tokyo, Japan.*

Fisuel is an international association that creates standards, regulations and installation inspection systems following standards set by the International Electrotechnical Commission or IEC.

SPECS was invited to the annual gathering by FISUEL President Romualdo Arias. Our group was represented by Engr. Ray Anthony Rodriguez of MERALCO.

This year's two-day edition of the annual meeting included various technical presentations on different topics that included:

### From the technical committees:

1. "Technical Reference for EV Charging Systems" presented by Mr Tan Hak Khoon, Electricity Inspectorate of Energy Market Authority, Singapore.
2. "Connecting a microgeneration system to a domestic or similar electrical installation" (in parallel with the main supplies) by Mike Clark from ESC England.

### Other technical presentations:

1. FEEDS 2.0 – technologies by Mr. Benoit Dome of the European Copper Institute, geared towards safer installations in dwellings in Europe that includes smart metering, heat pumps, embedded generators, home automation systems, building energy management and home ready for the electric vehicle charging
2. Online and virtual reality training (blended learning scenario) of operators by Mr Jim Speirs of NICEIC, England that showed electrical installations available in their country and which are also be available, for a fee, to other countries subscribing to the British Standard 7671. They provide certification for a range of courses –which can verified at their website at <http://niceic.com>.
3. Malaysian Energy Commission Roles and Functions by Mr Ibrahim of the Malaysian Energy Commission.
4. "Electrical safety for household in Japan" by Mr. Morita of the Kansai Electrical Safety Inspection Association and FESIA. Most inspections of dwellings, prior to energization, are being done by a third party group

(instead of our local practice wherein the local government and the utility make their own inspections). This also covers periodic inspections of the residential dwellings later.

5. The Australian experience and the unintended consequence of enforcing insulation program without the guidance of the local National Electrical Contractors Association or NECA by Mr. Jim Tinsley
6. Video presentation on the haphazard electrification of residential houses in the suburbs of Senegal, by Mr. Adiouma Dione.

All proceedings were simultaneously translated in three languages – English, French and Niponggo – through a hand-held communication device.

### ABOUT FISUEL

FISUEL was founded on February 1, 2002. It has 17 active members and 13 associate members representing 22 countries<sup>1</sup>. It helps countries set up electrical installation standardization, harmonize inspection procedures as well as the application of these standards. It therefore helps develop an organization and its affiliate's image beyond international borders. The member countries together promote electrical safety at an international level by encouraging contacts and sharing of experiences between countries.

Countries and other entities represented in FISUEL are Belgium, Cameroon, France, Portugal, United Kingdom, Ireland, Indonesia, Japan, Morocco, Senegal, Benin, Gabon, Lebanon, Ivory Coast, Spain, Korea, Poland, Switzerland, Singapore, Malaysia, Argentina; an international organization - Union Internationale pour les Applications de l'Electricite and a European body - European Copper Institute.

There were also other guest observers at the meeting, from Cote D'Ivoire, Taiwan, Hong Kong and the Philippines.



# AFEEC - FAPECA CONFERENCES 2010

## TENTATIVE PROGRAM OF ACTIVITIES

**(TUESDAY) 23<sup>RD</sup> NOVEMBER** - Arrival of Delegates  
Golf Tournament - Joint IIEE-AFEEC-FAPECA-SPECS  
Venue : Ayala Alabang Country Club  
Tee-Off Time : 7:00 – 9:00 AM

### Day 1 (WEDNESDAY) 24<sup>TH</sup> NOVEMBER

9:00 AM	Opening of IIEE 3E XPO (SMX Convention Center) Joint IIEE-AFEEC-FAPECA-SPECS
10:00 – 12:00 am	Tour of Exhibit
8:00 – 10: am	Registration - AFEEC-FAPECA Conferences 2010 Microtel Inns & Suites, MOA
10:00 – 10:25 am	Opening of AFEEC-FAPECA Conference
10:25 am - 12:00 nn	Technical Presentation - Microtel Inns & Suites, MOA

Topics on green engineering as applied to electrical construction will be presented by various Speakers from the Asea and Asia Pacific Region who are members of the AFEEC (Asean Federation of Electrical Engineering Contractors) and FAPECA (Federation of Asia Pacific Engineering Contractors Associations) including the Philippines.

- |                       |                       |
|-----------------------|-----------------------|
| ➤ INDONESIA (AKLI)    | ➤ KOREA (KECA)        |
| ➤ MALAYSIA (TEEAM)    | ➤ TAIWAN (TECA)       |
| ➤ PHILIPPINES (SPECS) | ➤ AUSTRALIA (NECA)    |
| ➤ SINGAPORE (SECA)    | ➤ JAPAN (KOKKO)       |
| ➤ THAILAND (TEMCA)    | ➤ NEW ZEALAND (ECANZ) |
| ➤ HONG KONG (HKECA)   |                       |

12:00 nn	L u n c h
1:00 – 5:00 pm	Continuation of Technical Presentation
6:00 pm onwards	Welcome Dinner & Fellowship Night Microtel Inns & Suites, MOA

### Day 2 (THURSDAY ) 25<sup>TH</sup> NOVEMBER

8:00 – 12:00 Noon	Opening of Convention Joint IIEE- AFEEC-FAPECA -SPECS
12:00N – 1:00 pm	Lunch Break
1:00 – 4:00 pm	AFEEC Working Group & Council Meetings
4:00 - 5:00 PM	FAPECA Executive Board Meeting
6:00 onwards	Farewell Dinner

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