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**TECHNICAL JOB
SPECIFICATION**

700/1

REVISION 0

DATE 29/06/2011

LNG PLANT

GENERAL NOTES FOR ELECTRICAL EQUIPMENT AND MATERIALS

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QUALITY ASSURANCE PAGE

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REVISIONS LOG

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REFERENCE DOCUMENTS

- Job Spec. No. 700/3
[Electrical Material Supplied with Packaged Units]
- Job Spec. No. 900/2
[Invoicing, Shipping, Consigning Packing and Marking Instructions]
- 94/9/EC ATEX
[Equipment Explosive Atmospheres Directive]
- 2006/95/EEC LVD
[Low Voltage Directive]
- 2006/42/EEC
[Machinery]
- 2004/108/EEC EMC
[Electromagnetic Compatibility Directive]
- ELOT EN 60079-10
[Electrical apparatus for explosive gas atmospheres - Part 10: Classification of hazardous areas]
- ELOT EN 60276
[Definitions and nomenclature for carbon brushes, brush-holders, commutators and slip-rings]
- ELOT EN 60445
[Basic and safety principles for man-machine interface, marking and identification - Identification of equipment terminals and conductor terminations]
- ELOT EN 60617
[Graphical symbols for diagrams]
- ELOT HD 384-2 S2
[International Electrotechnical Vocabulary]
- ELOT HD 384-3 S2
[Electrical Installation of Buildings Part 3: Assessment of General Characteristics]
- ELOT HD 60364-4-41
[Electrical Installation of Buildings Part 4: Protection of safety
Chapter 41: Protection against Electric Shock]
- ELOT HD 60364-5-54
[Low-voltage electrical installations - Part 5-54: Selection and erection of electrical equipment - Earthing arrangements, protective conductors and protective bonding conductors]
- IEC 60152
[Identification by Hour numbers of the Phase Conductors of 3-Phase Electric Systems]
EAK-2003 - ΦΕΚ 781B/18.06.2003
«Τροποποίηση και συμπλήρωση Ελληνικού Αντισεισμικού Κανονισμού ΕΑΚ 2000»
[Hellenic Seismic Code]
- DIN 824
[Technical drawings; Foldings to Filling Size]

1.0 **SCOPE**

These General Notes are to be complied with Manufacturer/Vendor, when submitting quotation for, and when supplying electrical equipment and materials.

These General Notes are integral part of the inquiry and of the purchase order.

In these General Notes organization will be designated as follows:

OWNER
Supplier and/or Manufacturer VENDOR

2.0 **CORRESPONDENCE FROM VENDOR**

2.1 **GENERAL PROCEDURE**

Vendor shall submit the required number of copies of documents called for in the following paragraphs of these General Notes at the dates and with the procedure specified herein. (See **TABLE "D"**).

Requirements included in commercial documents shall be considered to.

2.2 **OFFICIAL LANGUAGE**

The official language for the correspondence between Vendor and Consultant/Owner shall be English.

2.3 **CORRESPONDENCE FROM VENDOR**

The heading of letters from Vendor and the address shall be as shown on **TABLE "E"**.

Each letter shall be limited to one subject (technical matter, commercial matter, drawings transmittal, inspection etc.).

3.0 **QUOTATION AND PRELIMINARY INFORMATION**

Vendor's quotation shall be in accordance with terms and conditions specified in these General Notes and in the inquiry documents and shall include prices of equipment and materials, as specified in commercial documents issued by Owner.

Owner's General Purchasing Conditions, if any, shall be considered as forming part of commercial documents.

Quotation shall consist of:

- Material Requisition (MR) sheets compiled in all blank spaces reserved to Vendors information dated and stamped by Vendor.
- Technical information, including description of construction details, bulletins material specification etc.
- Outline dimensional drawings and electrical diagrams, as per **TABLE "D"**.
- Spare part list and quotation as indicated on para 10.
- List and description of special tools and devices needed for installation and/or maintenance.
- Commercial information.

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ANY EXCEPTION TO TECHNICAL OF COMMERCIAL REQUIREMENTS OF THE MATERIAL REQUISITION AND/OR SPECIFICATION MUST BE CLEARLY SPECIFIED IN VENDOR'S QUOTATION UNDER, THE HEADING: EXCEPTIONS

When Vendor's standard construction differs from the Owner's requirements, Vendor shall submit one quotation strictly in accordance with the requirements of the MR and/or Specification and one alternative quotation, related to his own standard Construction. Alternative proposals may be provided by Vendor, when the proposed solutions are technically superior or more economic than the basic offer.

In case of conflict between requirements set forth herein and those in Specifications and/or MR, the latest shall govern; in case of doubt Vendor shall apply to Owner for approval.

Vendor's bid shall comply with the standards, codes, and recommendations listed in the MR and/or in the Specifications.

Codes, standards, and recommendations, which in general apply to the present contract, are listed in **TABLE "B"**.

3.1 **TESTING CERTIFICATES**

If applied standards, recommendations or specifications require type tests, short circuit tests, load heating tests, impulse tests etc., Vendor shall indicate in the bid official test certificates are available for prototypes and specify the extent of performed tests, in order to examine the possible reduction of extent of acceptance tests.

Tests shall be made by Notified Body or accredited Institutes or accredited Laboratories as required by the applicable EU Directives; tests performed in the testing shop of Vendor may be accepted, after Owner's agreement.

For equipment and materials to be used in hazardous locations (see **para 5.4**), Vendor shall indicate in the bid the name of accredited testing Institute and the prototype testing certificates issued by it; if certificates are not available, Vendor shall indicate the accredited testing Institute which will perform the prototype tests and unless otherwise agreed with Owner, shall bound himself to obtain certificates within three months after order placement.

Quotations relevant to assembled equipment (such as switchboards, switchgears etc.) shall indicate also unit prices for the components (like starters, circuit breakers, relays, auxiliary devices etc.), in order to permit adjustment of the quotation in case of changes and/or additions to the initial requirements.

Quotations relevant to non-standard equipment shall be supported by a list of references, indicating the Owner plant, rating of equipment and commissioning date.

The quotation shall list material not fabricated by Vendor and indicate type and Manufacturer or Sub-Vendor of the same (refer also to **para 5.4**).

4.0 **PURCHASE ORDER AND REVISIONS**

The Material Requisition (MR), Specifications and documents attached to it are the reference technical documents of the purchase order.

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Any modification to the original MR shall be done by revision (change) of the purchase order.

Modifications requested by letters shall be confirmed by revision of MR. No modification will be recognized or considered by Owner until it is covered by revision of MR.

In case of assembled equipment (such as switch-board, switchgears etc.), no partial revisions of purchase order will be made in case of modifications or additions of limited amount, but a final revision will cover all changes.

On the occasion of every revision of MR, Vendor shall communicate the relevant change of price and submit his claims for extra of advice credit allowance.

Vendor shall submit to Owner copies of sub-orders and relevant correspondence.

If MR specified that Vendor must contact other Vendors, because of assembling problems, common responsibility etc., copy of correspondence shall be sent to Owner.

5.0 ENGINEERING AND CONSTRUCTION

5.1 STANDARDS AND REGULATION

Unless otherwise indicated either in the MR or in particular specifications, drawings etc., electric and electronic material, apparatus, machinery, equipment and installations shall comply with the latest edition of the codes, standards and recommendations listed in **TABLE "B"** for general-reference.

5.2 EQUIPMENT, MATERIAL & INSTALLATIONS IN HAZARDOUS LOCATIONS

Unless otherwise indicated either in the MR or in particular specifications, drawings etc., the type of protection of material and the type of installation suitable for hazardous locations shall be as required by the applicable Standards and EU Directives.

5.3 ELECTRICAL SYSTEM CHARACTERISTICS AND LOCAL AMBIENT CONDITIONS

Electrical characteristics of the electrical systems and specific ambient conditions shall be specified in the MR, particular specifications, drawings etc.

In case of lack of information, data shown on **TABLE "A"** and on **TABLE "C"** shall serve as general reference.

5.4 STANDARDIZATION OF EQUIPMENT AND MATERIALS

In general it is recommended that equipment and materials not manufactured by Vendor, for uniformity reasons and for spare parts matters, shall be of types compliant to the ones provided by Vendor.

Vendor when adopting different equipment and materials shall inform Owner and obtain approval.

5.5 ENGINEERING DOCUMENTS

5.5.1 ENGINEERING DOCUMENTS BY VENDOR

The documentation listed on **TABLE "D"** or on particular Tables forming part of equipment specifications shall be included in the supply by Vendor.

Vendor shall submit to Owner the list of drawings and documents with indication of title, number and change.

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5.5.2 GENERAL REQUIREMENTS FOR ENGINEERING DOCUMENTS

Unless otherwise specified, the following requirements shall be applied: (See **TABLE "B"**).

- Electrical graphical symbols shown on drawings shall be in accordance with **ELOT EN 60617**.
- Metrical system and letter symbols in accordance with **ELOT EN 60276** shall be used.
- Drawings and forms shall be metrical size (210 x 297 mm) or sizes as per **DIN 824**, certified drawings shall be forwarded folded to a size of 210 x 297 mm suitable for insertion in job record book binders.
- Where necessary, the phase relation of conductors and the phase shiftment through transformers shall be indicated with hour numbers in accordance with **IEC Recommendation, Publication 60152**.
- Generally Conductors and terminals on multiwire diagrams schematic shall be identified with alphanumeric rotation as per **ELOT EN 60445**.

Drawings and technical documents shall be written in English.

Documents requested to comply with national law regulations and documents to be submitted to local official authorities must be in the Greek.

Vendor shall be fully responsible for drawing prepared by him.

If Owner supplies drawings or sketches, constructive details by Vendor shall be in accordance with them; any change originated by Vendor shall be pointed out to attention of Owner.

Vendor shall be responsible of requesting and obtaining from Owner information and data he needs.

No justification for delays can be referred to the lack of information by Owner.

5.6 IDENTIFICATION OF VENDOR'S TECHNICAL DOCUMENTS

Vendor must identify drawings and any document issued for the contract by printing in the title box or adjacent thereto the information listed in **TABLE "D"**.

In addition Vendor's documents must be suitable identified with Vendor's name, commitment No etc.

Drawings will not be accepted, unless the above information is included therein.

6.0 COMMENTS AND RELEASE OF VENDOR'S DOCUMENTS

Drawings and documents issued by Vendor shall have two different type of issue: preliminary and final issue.

Vendor after Contract placement shall send to Owner apart from the electronic files (i.e. autocad, excel, or word documents), preliminary copies of documents for comment and/or release, in the quantity and within the terms indicated in **TABLE "D"**.

Any issue of Vendor's documents shall be considered as preliminary until they are released by Owner as final.

Number of copies and terms of issue shall be as per **TABLE "D"**.

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The terms shall be referred to the date of the relevant Vendor's transmittal. Unless expressly required by Owner, fabrication shall not be withheld, pending Owner release of Vendor drawings.

The release of Vendor's drawings will not relieve Vendor from any technical or other responsibility that rises in design and construction from mistakes, omissions or other causes.

Final Vendor's drawings shall be marked "CERTIFIED DRAWINGS" or equivalent, according to Vendor's practice.

The non-sending of the above mentioned documents, or the sending of the same without the required information or after the required terms, shall represent reason for considering unfilled the supply.

7.0 IDENTIFICATION OF EQUIPMENT AND MATERIAL

All items shall be properly tagged with item or piece number as shown in MR and attached documents.

Tags shall be made of metal or an equally substantial and shall be securely fastened.

Equipment to be installed in locations with hazard of explosion or fire shall have and additional tag, in accordance with the requirements of applied standards.

Components of complex equipment shipped, or to be installed, separately shall have individual tags.

All tags and nameplates shall be written in English.

Translation in the local official language shall be provided only when required in contract documents.

8.0 PRODUCTION PROGRAM

After receipt of Contract, Vendor shall send to Owner a production program as indicated in **TABLE "D"**.

Following details shall be given.

- Final date for issue of all engineering information to Owner.
- Schedule dates for ordering and promised date of delivery for sub-ordered materials;
- Total shop fabrication time;
- Testing time;
- Final delivery date
- Shipping time (if by Vendor);
- Erection time at site (if by Vendor);

9.0 SUB-SUPPLIES

For equipment including sub-supplied components and material, Vendor shall forward to Owner a schedule listing such material and relevant sub-Vendor(s), together with material characteristics for comment and release by Owner. Refer also to para 5.4.

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10.0 **SPARE PARTS**

Together with the quotation Vendor shall submit spare parts quotation filling the apposite spare parts forms.

Spare parts suggested by Vendor shall include:

- Materials and equipment for plant commissioning.
- Materials and equipment required for two years operation

The supply will be subject to periodic expediting by Owner, or their appointed agency. The expeditors of Owner shall have free access to Vendor's and Sub-suppliers shops at any reasonable time, and obtain all necessary assistance and information.

Vendor shall take the necessary action to obtain the same permission from Sub-suppliers.

11.0 **EXPENDING**

The supply will be subject to periodic expediting by Owner, or their appointed agency. The expeditors of Owner shall have free access to Vendor's and Sub-suppliers shops at any reasonable time, and obtain all necessary assistance and information.

Vendor shall take the necessary action to obtain the same permission from Sub-suppliers.

12.0 **INSPECTION AND TESTS**

Material covered by these General Notes are subject to shop inspection by Owner Representative.

Owner Representative shall have the right, at any time, to inspect equipment and materials are fabricated.

Before accepting delivery of equipment and materials, Owner reserves the right to carry out all, or part, of the tests described in MR and/or relevant Specifications, and/or applicable standards.

Tests shall be normally carried at Vendor's option, coincident with standard internal workshop testing.

For equipment and material to be used in hazardous locations Vendor must carry out the routing- acceptance tests specified by the applicable standard, also if Owner's Representative do not attend to them.

Vendor shall furnish the detailed program of tests (type and quantity of tests) for release of comments by Owner one month in advance the date of tests.

When the procedure of tests is not specified in the Engineering documents or in the applied standards, Vendor shall submit his proposals to Owner, for comments.

Vendor shall provide copies of tests certificates, as indicated in **TABLE "D"**.

Owner may waive the right to witness final tests and accept Vendor's standard workshop test certificates.

Acceptance of equipment and material shall be qualified by correspondence to technical documents attached to Contract.

Equipment and materials shall be covered by the Contract not comply with all documents forming part of the purchase order, Owner reserves himself the right to

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reject the supply, but to use the same for the period needed to replace it with new one, completely complying with stated requirements.

13.0 **CERTIFICATES**

It is Vendor's duty to request and obtain official testing certificates, when required by the EU Directives, the local Authority, by the applied standards, or when required in MR.

14.0 **OPERATING MANUALS AND DATA BOOK MATERIAL**

Vendor shall furnish a complete set of operating manuals, including the documentation requested for the Data Book (refer to **TABLE "D"**).

The above information material shall be gathered in sets together with an identification cover and index.

Operating manuals and data book material shall be suitable for use in metrical size binders (210 x 297 mm).

15.0 **PREPARATION FOR SHIPMENT**

15.1 **PROTECTIVE COATING**

After final test:

- Unmachined exterior parts of equipment shall be painted (at least one prime coat),
- Machine or threaded exterior surfaces, subject to atmospheric corrosion during shipment or subsequent storage, shall be protected with an easily removable rust preventive coating.

Protection must be suitable for the type of shipment as required in the Contract.

15.2 **OPENINGS**

Flanged connections shall be blanked with bolted wood no smaller than the flange outline dimension. Threaded connections shall be fitted with threaded plug. Socket weld connections shall be plugged with plastic disks, wood or other equivalent material.

15.3 **PACKING**

Packing and marking shall be performed according to **Job Spec. No. 900/2**. Spare parts shall be separately packed, suitably identified and marked with an "S" (spare).

All fragile components (such as relays, instruments, recorders, etc.), which may be shocked during shipment, shall be dismantled and separately packed and identified.

Two sets of the installation, operating and maintenance instructions and of drawings shall be packed in boxes or crates with the equipment.

16.0 **ERECTION AND START UP ASSISTANCE**

If required in the purchase order or in the attached documents, Vendor shall furnish the technical assistance for the erection and commissioning of equipment.

17.0 **COMPLIANCE WITH EU DIRECTIVES**

Any electrical equipment or parts of them complying with the "New Approach" EU Directives shall be provided with:

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- a) A physical CE marking and other information, as required by the relevant directives.
- b) A declaration of conformity, which lists all the directives with which the product complies.
- c) Any other information specified by the directive, e.g. user instructions.

| TABLE "A" TYPE OF CIRCUIT | CHARACTERISTICS OF ELECTRICAL SYSTEMS | | | | | | |
|---------------------------------------|---------------------------------------|---------------------|----|----------------------------------|-------------|-----------------------------------|-------------------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | Voltage Values (V) | | | Type of current & frequency (Hz) | No of wires | Short circuit level (I) (KA symm) | Neutral earthing method |
| Rated | Normal Operating | Maximum (reference) | | | | | |
| 1. POWER CIRCUITS | | | | | | | |
| 1.1 Utility powers supply. | 20 kV or 400/230 | ± 5% | | AC 50 | 3 PH | | |
| 1.2 Power generation. | 400/230 | ± 5% | | AC 50 | 3 PH | | |
| 1.3 Primary distribution. | 400/230 | ± 5% | | AC 50 | 3 PH | | |
| 1.4 Secondary distribution. | 400/230 | ± 5% | | AC 50 | 3 PH | | |
| 1.5 | | ± % | | | | | |
| 1.6 LV distribution | 400/230 | ± 5% | | AC 50 | 3 PH | | TNC-S SE |
| 1.7 | | ± % | | | | | |
| 1.8 Safety extra LV System (SELV) | 42 | ± % | 50 | AC 50 | 3 PH | | |
| 1.9 Functional extra LV system (FELV) | | ± % | 25 | | | | |
| 1.10 | | ± % | | | | | |
| 2. POWER USERS | | | | | | | |
| 2.1 Motors □ kW | | ± 5% | | AC 50 | 3 PH | | |
| 2.2 Motors □ 160 kW | 6000 | ± 5% | | AC 50 | 3 PH | | |
| 2.3 Motors □ 0.37 kW | 380 | ± 5% | | AC 50 | 3 PH | | |
| 2.4 Motors □ 0,37 kW | 220 | ± 5% | | AC 50 | S PH | | |
| 2.5 Motors | 110 | +10 -15% | | DC - | S PH | | |
| 2.6 Heaters | 380/220 | ± 5% | | AC 50 | 3PH/SPH | | |
| 2.7 Welding outlets (3) | 380 | ± % | | AC 50 | 3PH-PE | | |
| 2.8 Portable tools | 220 | ± 5% | | AC 50 | 3PH-PE | | |
| 2.9 Portable tools safety (4) | 42 | ± 5% | | AC 50 | SPH/PH-N | | |
| 2.10 | | | | | | | |
| 3. LIGHTING NETWORK | | | | | | | |
| 3.1 Main circuits | 380/200 | ± 5% | | AC 50 | 3 PH-N | | |
| 3.2 Branch circuits | 220 | ± % | | AC 50 | SPH | | |
| 3.3 Convenience outlets (2) (6) | 220 | ± % | | AC 50 | SPH-PE | | |
| 3.4 Safety lighting | | ± % | | | | | |
| 3.5 Emergency lighting | 380/220 | ± % | | | | | |
| 3.6 Portable lamps (4) | 24 | ± 5% | 25 | | 2W | | |
| 3.7 | | | | | | | |
| 3.8 | | | | | | | |

CONTINUED ON NEXT PAGE

TABLE "A" (Contd./...)

| TABLE "A" | CHARACTERISTICS OF ELECTRICAL SYSTEMS | | | | | | |
|---|---------------------------------------|---------------------|---|----------------------------------|-------------|-----------------------------------|-------------------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | Voltage Values (V) | | | Type of current & frequency (Hz) | No of wires | Short circuit level (1) (KA symm) | Neutral earthing method |
| Rated | Normal Operating | Maximum (reference) | | | | | |
| 4. CONTROL CIRCUITS | | | | | | | |
| 4.1 Contactors & circuit breakers 1000V | 110 | +10 -15% | | DC - | 2W | | |
| 4.2 Contactors & circuit breakers 1000V (7) | 220 | +10 -20% | | AC 50 | 2W | | |
| 4.3 General controls or power system (7) | 110 | +10 -15% | | DC - | | | |
| 4.4 | | | | | | | |
| 4.5 | | | | | | | |
| 5. INSTRUMENT | | | | | | | |
| 5.1 Alarms and interlocks | 24 | ± % | | DC - | | | |
| 5.2 Alarms and interlocks | 110 | ± % | | DC - | | | |
| 5.3 | | ± % | | | | | |
| 5.4 | | ± % | | | | | |

NOTES

- (1) Figures of Column 6 (SHORT CIRCUIT LEVELS) shall be considered only for **Job Spec. No. 700/3 "ELECTRICAL MATERIAL SUPPLIED WITH PACKAGED UNITS"** and when called for in the Material Requisition.
- (2) Circuit requires differential protection - 30 mA residual current.
- (3) Circuit requires differential protection -0,5 A residual current.
- (4) Circuit shall be "safety" extra low voltage type, to be supplied from safety circuits. Refer to **ELOT HD 384-3 S2** and **ELOT EN 60364-4-41**.
- (5) If required by process or by classification of the location, isolated neutral may be used, adopting an isolating transformer.
- (6) Electrical equipment having supplementary or reinforced insulation (class II equipment) may be used without PE conductor.
- (7) To be used also for equipment < 1000V, if pertaining to main power system (e.g. control of power centre circuit breakers).

CONTINUED ON NEXT PAGE

TABLE "A" (Contd./...)

| SYMBOLS | DESCRIPTION |
|--------------|---|
| LV | Low Voltage |
| S.PH | Single Phase |
| S.PH / PH-N | Single Phase / Phase Neutral |
| S.PH / PH-PH | Single Phase – Phase to Phase |
| 3 PH | Three Phase |
| 3 PH-N | Three Phase with Neutral |
| PE | Protection (earthing) Conductor |
| PEN | Combined Protection and Neutral Conductor |
| DC | Direct Current |
| AC | Alternating Current |
| SE | Solid Earthed |
| HORE | High Ohmic Resistance Earthed |
| LORE | Low Ohmic Resistance Earthed |
| ISLN | Isolated Neutral (S) |
| 2 W | Two Wire Circuit |

| PROSPECT OF LV SHORT CIRCUIT CURRENTS | | | | | | | |
|---------------------------------------|----|----|-----|-----|-----|-----|-----|
| Circuit rated current (A) | 40 | 63 | 100 | 160 | 250 | 400 | 600 |
| Symmetrical short circuit (kA) | 3 | 4 | 5 | 8 | 12 | 20 | 30 |

TABLE "B"
EU DIRECTIVES, STANDARDS AND RECOMMENDATIONS

| Subject | | Basic Standards | EU Directives |
|---------|--|---------------------------------------|--|
| | {MV(>1kV) Machinery { {LV(<1kV) HV and MV Equipment LV Equipment (1 kV) Bulk Material Installation | ELOT EN / IEC | 2006/95/EEC LVD 2006/42/EEC 2004/108/EEC EMC |
| | Classification Installation Machinery Equipment Bulk Material Marking Mode of Protection Ex Mechanical Protection IP | ELOT EN 60079-10 ELOT EN / IEC | 94/9/EC ATEX |
| | Terms and definitions Graphical Symbols | ELOT HD 384-2 S2 ELOT EN 60617 | |

NOTES

- (1) This table shall be used as general reference, when no detailed information is given in the MR and attached documents.
- (2) Codes to be adopted with Owner's agreement only.
- (3) In general codes and standards issued by an authoritative body of the country of origin of materials may be accepted, provided that said standards are equal or more restrictive than base codes and approval by Owner is obtained.
- (4) In the particular cases in which codes, or standards or recommendations are not available or applicable, it is Vendor's responsibility to submit to the Contractor the recommended engineering practice to be applied.

| ACRONYM | ORGANIZATION |
|----------------------|---|
| IEC | International Electrotechnical Commission |
| ELOT EN (CENELEC) | European Standards (European Committee for Electrotechnical Standardization) |

TABLE "C"
SITE CONDITIONS

| | |
|------------------------------|---|
| Location | (Various locations) |
| Elevation above sea level | (Various locations) |
| Atmosphere | Outdoor Indoor |
| Temperatures : | °C °C |
| maximum dry bulb | °C °C |
| daily average | °C °C |
| yearly average | °C °C |
| minimum | °C °C |
| design | °C °C |
| Humidity | % |
| Relative humidity | 70% at 40°C |
| Duration of solar radiation | h/day h/day |
| Wind velocity | km/h (maximum sustained) |
| Wind pressure | kg/cm ² |
| Maximum rain fall - duration | cm/hour - cm/12 hours |
| Maximum inundation level | mm (above conventional grade level) |
| Soil bearing pressure | kg/cm ² |
| Earthquake | EAK-2003 - ΦEK 781B/18.06.2003 [Hellenic Seismic Code] |
| Cooling water : temperature | 35°C |
| chemical analysis | Refer to |

TABLE "D"

LIST OF DOCUMENTS BY VENDOR, QUANTITY AND DATES REQUIRED

Apart from the copies mentioned here below Vendor shall provide to Owner electronic files (i.e. autocad, excel, or word documents) for equipment.

This list applies, unless a particular list is included in the Specification or Material Requisition of particular equipment (e.g. switchboards, motors, generators, etc.).

Column A : Quantity of documents to be supplied attached to the bid.

Column B : Preliminary documents to be supplied within the indicated number of days after receipt of order and 15 days after receipt of Owner's comments to preliminary luminary documents.

Column C : Final certified documents to be supplied within the indicated number of days after receipt of Owner's release (RELEASE FOR CONSTRUCTION).

Column D : Documents for DATA BOOK to be supplied three weeks after final test.

Preliminary or final documents shall be identified by the Vendor as shown here below:

1. CLIENT
2. PLANT
3. LOCATION
4. Owner CONTRACT No
5. ITEM No
6. Owner M.R. No
7. PURCHASE ORDER No
8. VENDOR's REFERENCE No

NOTES

- (R)=Reproducible copy
(1)= As soon as placed by Vendor
(2)= After Owner release
(3) = Before shipping
(4) = After test

| COLUMN DESCRIPTION | A | B | C | D |
|---|-----------|------|--------|---|
| | NUMBER OF | | | |
| | COPIES | DAYS | COPIES | |
| 1. Outline dimension drawings and weights. | | | | |
| 2. Foundation drawings with fastening bolts. | | | | |
| 3. Sectional drawings with list of components. | | | | |
| 4. Terminal strips & boxes detailed drawings. | | | | |
| 5. Vendor's drawing list. | | | | |
| 6. Schedule for design, procurement, construction & shipment. | | | | |
| 7. List of sub-supplied material and sub-orders. | | | | |
| 8. Spare part list and unit prices. | | | | |

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TABLE "E" (Contd./...)

| COLUMN DESCRIPTION | A | B | C | D |
|---|-----------|------|--------|---|
| | NUMBER OF | | | |
| | COPIES | DAYS | COPIES | |
| 9. Mounting and dismounting instructions operating manual | | | | |
| 10. One line, schematic and connection diagrams. | | | | |
| 11. Selectivity diagrams and/or operating manual. | | | | |
| 12. Functional and performance characteristics of equipment. | | | | |
| 13. Outline dimensions and weights for shipping. | | | | |
| 14. Witnessed test certificates and curves. | | | | |
| 15. Vendor's work-shop test certificates. | | | | |
| 16. Prototype test certificates by testing institute (if required). | | | | |
| 17. List of Electrical Loads. | | | | |
| 18. Technical Bulletins and Catalogue information. | | | | |

TABLE "E"
CORRESPONDENCE
(EXAMPLE)

| "E1" CORRESPONDENCE ADDRESSES | |
|---|--|
| <p>1. Correspondence from Vendor to OWNER:</p> | <p>DESFA S.A. 357-359, MESSOGION AVE., 15231 ATHENS, GREECE Tel.: 210 6501258 Fax : 210 6501551</p> |
| <p>2. Correspondence from OWNER to Vendor:</p> | |
| "E2" HEADING OF LETTERS | |
| <p>The heading of letters from Vendor to Contractor shall be as follows :</p> <ul style="list-style-type: none"> a) Customer's name and locations. b) Plant or unit identification. c) DESFA contract number. d) Identification item of the equipment (if any) e) Number of the Material Requisition and change. f) Reference to correspondence issued by Owner after order placement (No of inquiry or of Contract). g) Internal references of Vendor (if any). <p style="text-align: center;">Vendor shall indicate the person to be contacted.</p> | |