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TECHNICAL JOB SPECIFICATION
470/2
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HIGH PRESSURE (HP) TRANSMISSION SYSTEMS

R. C. C. BUILDING

QUALITY ASSURANCE PAGE

CHANGES LOG

REVISIONS LOG

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REFERENCE DOCUMENTS

- EU DIRECTIVE 89/106/EEC, CPD
[Construction Products Directive]

- EU DIRECTIVE 2005/32/EC,
[Eco-design Directive]

- EU DIRECTIVE 92/42/EC Boiler Efficiency
[Efficiency Requirements for New Hot-Water Boilers Fired with Liquid or Gaseous Fuels Directive]

- EU DIRECTIVE 2002/91/EC, EPBD
[Energy Performance of Buildings Directive]

Job Spec. No. 400/1
[Civil Design Loads]

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Job Spec. No. 499/17
[Structural Steel Fabrication]

Job Spec. No. 830/1
[External Painting]

Job Spec. No. 840/1
[Fireproofing]

Dwg No. STD-1-47-01

Dwg No. STD-1-47-02

ELOT EN 1993
[Eurocode 3: Design of steel structures]

EN 15004-1
[Fixed firefighting systems - Gas extinguishing systems - Part 1: Design, installation and maintenance]

EN 15004-10
[Fixed firefighting systems - Gas extinguishing systems - Part 10: Physical properties and system design of gas extinguishing systems for IG-541 extinguishant]

<u>ELOT EN Standards for Test Methods for Security Doors</u>

- ELOT EN 950
[Door leaves - Determination of the resistance to hard body impact]

- ELOT EN 1627
[Burglar resistant construction products (not for precast concrete parts) - Requirements and classification]

- ELOT EN 1634-1
[Fire resistance tests for door and shutter assemblies - Part 1: Fire doors and shutters]

- ELOT EN 1634-3
[Fire resistance tests for door and shutter assemblies - Part 3: Smoke control doors and shutters]

- ELOT EN 1192
[Doors - Classification of strength requirements]

- ELOT EN 12424
[Industrial, commercial and garage doors and gates - Resistance to wind load – Classification]

- ELOT EN 12444
[Industrial, commercial and garage doors and gates - Resistance to wind load - Testing and calculation]

ΕΑΚ-2003 - ΦΕΚ 781Β/18.06.2003
«Τροποποίηση και συμπλήρωση Ελληνικού Αντισεισμικού Κανονισμού ΕΑΚ 2000»
[Hellenic Seismic Code]

ΕΚΤΣ - ΦΕΚ 315Β 1997
«Ελληνικός Κανονισμός Τεχνολογίας Σκυροδέματος»
[Hellenic Concrete Technology Regulation]

ΕΚΤΧ - ΦΕΚ 381Β 2000
«Ελληνικός Κανονισμός Τεχνολογίας Χαλύβων Οπλισμού Σκυροδέματος»
[Hellenic Reinforcement Technology Regulation]

ΕΚΩΣ – 2000 ΦΕΚ 1329Β
«Ελληνικός Κανονισμός Οπλισμένου Σκυροδέματος»
[Hellenic Reinforced Concrete Code]

ΕΑΚ-2003 ΦΕΚ 781Β/18.06.2003
«Τροποποίηση και συμπλήρωση Ελληνικού Αντισεισμικού Κανονισμού ΕΑΚ 2000» [Hellenic Seismic Code]

«Κανονισμός Πυροπροστασίας κτιρίων», Π.Δ. 71/88 (ΦΕΚ 32 Α') και
[Fire Protection Greek Regulation]

1.0 SCOPE

This specification covers the requirements to be considered for the design and the construction of the R.C.C. building.

2.0 APPLICABLE EU AND NATIONAL LEGISLATION, AND EUROPEAN STANDARDS

The following standard and codes shall apply to the design, the materials and the construction of the R.C.C. building:

- EU DIRECTIVE 89/106/EEC, CPD
  [Construction Products Directive]
- EU DIRECTIVE 2005/32/EC,
  [Eco-design Directive]
- EU DIRECTIVE 2002/91/EC, EPBD
  [Energy Performance of Buildings Directive]
- EU DIRECTIVE 92/42/EC Boiler Efficiency
  [Efficiency Requirements for New Hot-Water Boilers Fired with Liquid or Gaseous Fuels Directive]
- **ELOT EN 1991**
  [Eurocode 1: Actions on structures]
- ΕΑΚ-2003 ΦΕΚ 781Β/18.06.2003
  «Τροποποίηση και συμπλήρωση Ελληνικού Αντισεισμικού Κανονισμού ΕΑΚ 2000» [Hellenic Seismic Code]
- Greek Concrete Technology Regulation **(ΕΚΤΣ 1997).**
- Greek Reinforced Concrete Regulation **(ΕΚΩΣ 2000).**
- **ELOT EN 1993 (Eurocode 3).**
- General Building Code (ΦΕΚ 210 Α' 18/12/1985 and latest modifications).
- Building Code (ΦΕΚ 59 Δ' 3/2/1989).
- Out of Urban Areas Building Code (ΦΕΚ 270 Δ' 31/5/1985).
- Building Fire Protection Regulation (Π.Δ. 71/88, ΦΕΚ 32 Α').
- **EN 15004-1** and **EN 15004-10**
- **ELOT EN** Standards for Test Methods for Security Doors.

3.0 GENERAL

The R.C.C. building shall be designed and constructed according to the good practice, the above mentioned European legislation, National Legislation and DESFA Job Specifications No:

Job Spec. 400/1	Civil Design Loads
Job Spec. 470/1	Building
Job Spec. 499/7	Concrete Works
Job Spec. 499/16	Structural Steel Works

Job Spec. 499/17	Structural Steel Fabrication
Job Spec. 840/1	Fire Proofing
Job Spec. 830/1	External Painting

4.0 TECHNICAL DESCRIPTION

The R.C.C. buildings shall be completed and shall have all the accessories according to the attached DESFA drawings, Typical R.C.C, Building, Type I, Plan, **Elevations & Section Std Dwg. No. STD-1-47-01** and Typical R.C.C. Building, Type II, Plan, Elevations & Section **Std Dwg. No. STD-1-47-02.**

The Type I R.C.C. building shall be constructed for RCC System with full requirements for equipment and housing and shall have two rooms, one for the SCADA RTU and the LMR cabinets and the other one for the telecommunication system cabinets as shown on the relevant drawing. Each room shall have a separate entrance door and a wire mesh partition between the two rooms allowing visual inspection.

The type II R.C.C. building shall be constructed for the LMR cabinets only, and shall have one room as shown on the relevant drawing.

The rooms' dimensions clearance shall be as shown on the Owner drawings for each building type. The outside building dimensions shall be based on Contractor's detailed engineering and shall be determined by Contractor. The rooms' height clearance shall be 3,20m. The R.C.C. building shall be of reinforced concrete foundation, columns and beams, bearing steel roofing trusses of Fe 360 structural steel covered with corrugated galvanized steel panels. The corrugated roofing shall be panel systems with foamed-in- place insulation.

The exterior walls shall be cavity masonry walls with insulation and external decorative bricks. The roofing and the walls thermal insulation materials thickness shall be determined by Contractor according to the thermal insulation study that he shall perform, so that the R.C.C. building operating temperature limits shall be as shown on the attached **Figure 4.1** (T/CD 01-14) which shall be performed at least for one day duration without the use of the air-conditioning system for all seasons in case of air-conditioning system, failure.

Both type buildings shall have no windows. All the building materials shall be non-flammable. The doors shall be hollow metal steel doors without any vision panels, fire rated doors - class A with fire protection rating of 3 hours.

Fire rating certificates shall be provided by the door's Supplier and delivered to the Owner.

The doors shall be also high security level doors with security locks. Security resistance shall comply with **ELOT EN** Standards for Test Methods for Security Doors (Reference Documents).

All steel items shall be prefabricated and painted according to the Owner specifications for structural steel. The floor shall be antistatic resilient floor and the false ceiling materials shall be non flammable materials such as gypsum board ceiling. The building shall have sufficient heating and cooling air-conditioning units.

5.0 ELECTRICAL POWER SYSTEM

The Power Supply Voltage Level shall be 230 / 400V, 3 phase, 50 Hz from Public

Power Corporation (P.P.C).

The power system shall consist of:

- A Main Distribution Switchboard, installed inside R.C.C. Building, designed to supply all electrical users and being fed by two (2) sources of power (one from PPC and one from mobile emergency power supply system).

- Uninterruptable Power Supply System (UPS) with Battery Back-up.

- Lighting System including indoor / outdoor lighting fixtures, fittings, supports, cables etc.

- Socket Outlets installation (220V, I phase, 16A and 380V, 3 phase, 32A).

- Grounding installation for all non current - carrying metal parts of equipment, metal work, cable sheaths, lighting fittings, switches, socket outlets etc).

- Lightning Protection System.

- Fire Alarm System consisting of: Manual Fire Alarm Station, Smoke Detectors, Fire Alarm Control Panel and Alarm Devices.

- Security Alarm System consisting of: Door Violation Sensors, Infrared Intrusion Detector, Security System Control Panel, Alarm Devices.

- Electrical Power System shall be designed and constructed according to AF relevant Specifications.

6.0 FIRE FIGHTING

6.1 GENERAL

Total flooding, clean agent fire extinguishing systems shall be installed in R.C.C. buildings.

6.2 FIRE EXTINGUISHING SYSTEM

The extinguishing agent shall be INERGEN (IG-541).

The fire extinguishing system shall be designed and installed according to **EN 15004-1** and **EN 15004-10**.

It shall be approved by a recognized organization (i.e. UL listed, FM or VdS approved).

The system will be automatically operated by means of a two-line dependence arrangement of fire detectors. This arrangement means that response of a detector triggers an audible alarm, while the extinguishing system is only released when another detector of the second line also responds.

The two-line dependence will be by-passed only by pushing a local manual released push-button.

The system will mainly consist of the following:

- Cylinders Battery on a common base.

- Permanent pipe network.

- Manifold.

- Connection hoses.

- Quick action valves.

- Actuators.
- Pressure reducers.
- Weighing device for cylinders.
- Device for manual actuation.
- Retaining straps.

6.3 FIXED PIPE NETWORK

The fixed pipe network will be constructed from seamless galvanised steel piping according to **EN 15004-1** and **EN 15004-10.** Piping fittings will be galvanised steel.

6.4 SPRAY NOZZLES

They will make from BRASS material.

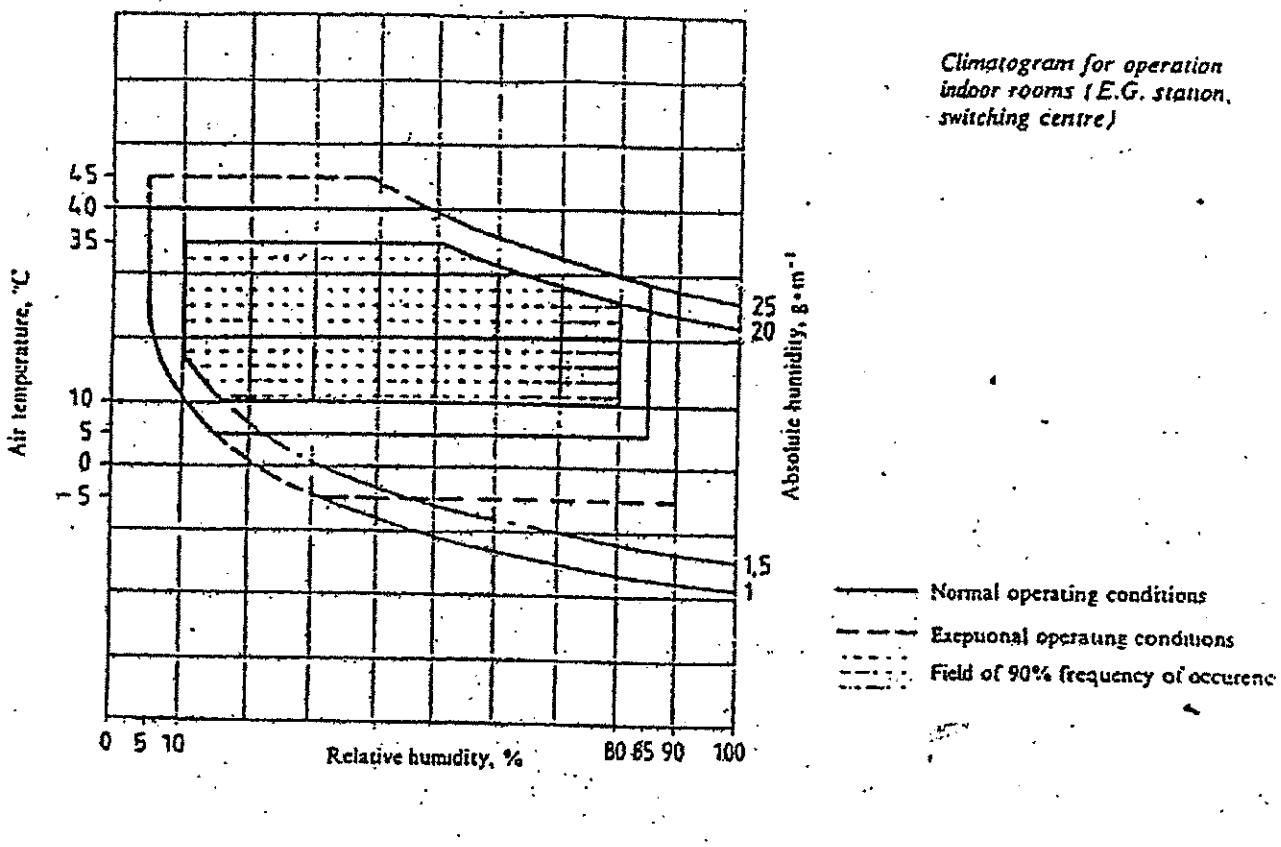
6.5 CYLINDER CABINET

The Cylinders Battery will be located outside the RCC building. The Cylinders will be installed inside a metal cabinet suitable for cylinders protection of sun and dust. The cabinet will be painted red according to **Job Specification No. 830/1.**

6.6 COMMISSIONING AND TESTS

Commissioning and tests of fire extinguishing system will be performed according to NFPA or VdS codes.

Figure 4.1



Climatogram for operation indoor rooms (E.G. station, switching centre)