<table>
<thead>
<tr>
<th>No</th>
<th>Description</th>
<th>Picture</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Uniforms work clothes:</strong> Colors: Navy Blue Size, Size: 40 to 54, Weight: 10 (oz) approx. 280gm, Fabric Blend: 100% Cotton, Fabric Type: Twill, Pockets: Yes, Sleeve Length: Long Sleeves, Gender: Unisex, Collar is Top Stitched, Cuffs Have Sleeve Vent and Gripper, Closure Sized to be Worn Over, Clothes Concealed Gripper Front, Gripper at Lapel, Two Set In Front Pockets, Two Patch Pockets, Two Breast Pockets, Rule Pocket, Side Vent Openings.</td>
<td><img src="image1.jpg" alt="Uniforms work clothes" /></td>
</tr>
<tr>
<td>2</td>
<td><strong>Safety rainwear ponchos:</strong> Made of .10 mm PVC film that provides light-duty protection from rain, dust and wind. Colors: Navy Blue Size, Size: 40 to 54</td>
<td><img src="image2.jpg" alt="Safety rainwear ponchos" /></td>
</tr>
<tr>
<td></td>
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</tr>
</tbody>
</table>
| 3 | **Safety Belts:**  
   Full body yellow harness (up to 190 kg load capacity) including shoulder rings, hip pad with side rings, Quick-connect buckles, shoulder pads, seat body belt lanyard parks, puddings, latch, harness, adjusters, straps and any other accessories required for full safety size universal fitting type. |   |
| 4 | **Hard Hat:**  
   Safety helmet for electrical use, especially designed to Maximize wearer’s comfort, adjustable in 3mm increments, Built-in cushion for optimum ventilation, safety chin strap, weight 0.300kg, standard Euro sizes 53 to 63 color (White : 5 pcs and yellow: 25pcs). |   |
<p>| | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td><strong>5</strong></td>
<td><img src="image" alt="Image of a disconnecting hot stick" /></td>
</tr>
<tr>
<td><strong>Disconnecting hot sticks:</strong></td>
<td>Epoxy reinforced fiberglass, lightweight and rugged, Heavy duty telescopic tube design hot stick, six section slightly in different diameter, length: 8 meters, includes standard disconnecting hooks.</td>
</tr>
<tr>
<td><strong>6</strong></td>
<td><img src="image" alt="Image of a test fiberglass hot stick" /></td>
</tr>
<tr>
<td><strong>TEST Fiberglass Hot Stick: Low Tension (0.4KV) Extended</strong></td>
<td>Segments: 3, color: yellow, Fiber Type: 100% fiberglass, Fiber Orientation: uni-directional, Matrix Type: Epoxy, Inner Diameter (ID) Tolerance: +/- 0.05mm, Outer Diameter (OD) Tolerance: +/- mm, Length Tolerance: +/- 0.10mm.</td>
</tr>
</tbody>
</table>
SAFETY MATERIALS ANNEX

7

**TEST Fiberglass Hot Stick: High Tension (11 KV)**
Segments: 3, color: yellow, Fiber Type: 100% fiberglass, Fiber Orientation: unidirectional, Matrix Type: Epoxy, Inner Diameter (ID) Tolerance: +/- 0.05mm, Outer Diameter (OD) Tolerance: +/- 0.05mm, Length Tolerance: +/- 0.10mm.

8

**TEST Fiberglass Hot Stick: High Tension (33KV)**
Segments: 3, color: yellow, Fiber Type: 100% fiberglass, Fiber Orientation: unidirectional, Matrix Type: Epoxy, Inner Diameter (ID) Tolerance: +/- 0.05mm, Outer Diameter (OD) Tolerance: +/- 0.05mm, Length Tolerance: +/- 0.10mm
<p>| | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td><strong>Portable Earthing set: Portable Earthing Set for High Voltage Over head Lines;</strong> consists of three copper cables 95mm² extra flexible silicone sheath (1.5 m length) with contact clamps suitable for 120/20mm² ACSR and one earth copper cables 35mm² extra flexible silicone sheath (15 m length) with earth clamps and earth rod, connected together by means of trifurcation connector, insulation stick, plastic case and any other necessary accessories.</td>
<td><img src="image1.png" alt="Portable Earthing set" /></td>
</tr>
<tr>
<td><strong>Safety shoes:</strong> Standards Footwear Safety shoes, safety rubber shoes with stainless steel shanks, size 40-45.</td>
<td><img src="image2.png" alt="Safety shoes" /></td>
</tr>
<tr>
<td></td>
<td>SAFETY MATERIALS ANNEX</td>
</tr>
<tr>
<td>---</td>
<td>------------------------</td>
</tr>
<tr>
<td>11</td>
<td><strong>Safety Welding Gloves</strong>: Gloves unlined welder all leather suitable for hot climate, size (9, 10, 11).</td>
</tr>
<tr>
<td>12</td>
<td><strong>Working Leather Gloves</strong>: Protection gloves soft full grain leather working gloves with out cuff.</td>
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<tr>
<td></td>
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</tr>
<tr>
<td><strong>13</strong></td>
<td><strong>Electrical Protection Gloves</strong>: rubber gloves (low voltage 220v, high voltage 11, 33 kV) used for the purpose of isolating the workers from the electrical shock</td>
</tr>
<tr>
<td><strong>14</strong></td>
<td><strong>Handling p.v.c Gloves</strong>: Multi-purpose gloves for all kinds of uses, P.v.c dipped gloves fully coated, liquid proof with full protection, material handling.</td>
</tr>
<tr>
<td>No.</td>
<td>Description</td>
</tr>
<tr>
<td>-----</td>
<td>-------------</td>
</tr>
<tr>
<td>15</td>
<td><strong>Hand Operated Ratchet Puller:</strong> Zinc plated, corrosion resistance, double ratchet 4 Ton load capacity with conductor pulling grip, suitable for ACSR and AAC conductors.</td>
</tr>
<tr>
<td>16</td>
<td><strong>Hydraulic Crimping tool:</strong> Hand operated crimping tool for crimping Cable Lugs and connectors up to 400mm², hexagon C-shape crimping, 180 degree rotate, two speed action fast and slow, safety valve for automatic release, fiberglass insulated handles, plastic case, With complete set of Hexagon Crimping Dies.</td>
</tr>
</tbody>
</table>
### SAFETY MATERIALS ANNEX

<table>
<thead>
<tr>
<th></th>
<th><strong>Cable Cutter tools 24&quot;</strong></th>
<th><strong>Cable Cutter tools 16&quot;</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>forged steel with a black-oxide finish for long lift, (steel blade) shear-type hook, 24 inch, heat treated blades up to 400mm² copper cable.</td>
<td>forged steel with a black-oxide finish for long lift, (steel blade) shear-type hook, 16 inch, heat treated blades up to 185 mm² copper cable.</td>
</tr>
</tbody>
</table>
**Fiberglass Extension ladder 9.5m:**
Working length 9.5m, working load capacity of 300Lb
fiberglass Interlocking side rails, Aluminum D rungs, Durable steel shoes with slip resistant rubber pads
According to ANSI A14.5- 2000.

---

**Fiberglass Extension ladder 7.5m:**
Working length 7.5m, working load capacity of 300Lb fiberglass Interlocking side rails, Aluminum D rungs, Durable steel shoes with slip resistant rubber pads
According to ANSI A14.5- 2000.
<table>
<thead>
<tr>
<th></th>
<th><strong>DIGITAL LOW RESISTANCE OHMMETERS</strong></th>
<th><strong>Insulating Test Device</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>21</td>
<td>Meeger DLRO10X or equivalent; Auto current reversal cancels standing emfs, Protected to 600 V, Automatically detects continuity in potential and current connections, Multiple operating modes including fully automatic, Alpha-numeric keypad for entering test notes, User selectable high and low limits, Printer output and memory.</td>
<td>Fluke1550c or equivalent; Large liquid crystal display (LCD), Six preset test voltages: 250 V, 500 V, 1000 V, 2500 V, 5000 V, 10,000 V (1555 only), Programmable test voltages: 250 V to 10,000 V (50/100 V steps), Resistance measurement: 200 kΩ to 2 TΩ, Polarization Index (PI), Dielectric absorption Ratio (DAR), Ramp mode that linearly increases (100 V/s) the applied test voltage, Test timer and storage for test results with user-defined ID tag, Breakdown voltage indication, Rechargeable lead-acid battery, Auto shutoff after 30 minutes of inactivity, Infrared (IR) port for downloading test data, PC software. The price should cover all necessary accessories testing cables, bags, clamps, charging cable.</td>
</tr>
</tbody>
</table>

**Note:** The above pictures only for Explanation.
Commission of Electricity
Planning & studies Division
Baghdad – IRAQ

Specification NO. D – 57

Technical Specification of protective dress 100% cotton

Revision Year 2002
Protective address (100% cotton)

Working over all 100% cotton jump suit for general purpose without steel pieces style, blue color.

**Description:**

1. over all, 65% polyester and 35% cotton fabric, blue color suit.

2. Turn-down collar, epaulettes, inset sleeves, strip for adjustable cuff closing, double-sliding nylon zipper front fly closing, straight – bottomed legs.

3. Elastic waist back, back gusset pleated at waist.

4. 2 side patch pockets, 2 breast pockets with flap, small patch pocket on left sleeve, ruler pocket on right leg.

5. size small, medium, large.

*Samples are required with offer*
Technical Specification of polyester and cotton

Revision | Year 2002 |  |  |
Protective dress ( polyester and cotton )

Working overall 65% polyester and 35%cotton drill boiler suit blue color European style.

Description:

1. over all, 65% polyester and 35%cotton fabric, blue color suit.

2. Turn-down collar, epaulettes, inset sleeves, strip for adjustable cuff closing, double-sliding nylon zipper front fly closing, straight - bottomed legs.

3. Elastic waist back, back gusset pleated at waist.

4. 2 side patch pockets, 2 breast pockets with flap, small patch pocket on left sleeve, ruler pocket on right leg.

5. size small, medium, large.

*Samples are required with offer.
Technical Specification of Safety line man belt

Revision  Year 2002
Safety belt for persons.

Description:

1. light weight, 100% polyester high tenacity webbing.
2. Zinc plated steel lateral anchoring elements.
3. Comfortable p.u/cotton padded lumbar positioning, height of dorsal band = 120mm, 100% barbour polyester high tenacity sewing.
4. Zinc plated adjustable belt fastener.
5. 3 tool hangers.
6. Three stands 100% polyamide rope 16 mm diameter, length 2m, with aluminum rope adjuster use with carabiner automatic blocking and closure.
7. Light alloy/steel carabiner for automatic closure and blocking.

Standards:

EN 358
EN 362

Samples:

*Samples are required, offers without samples shall be rejected.
Technical Specification of disconnecting hot sticks
Disconnecting hot sticks

Disconnecting hot stick up to 45KV

**Technical specifications:**

1. Heavy duty telescopic tube design hot stick, five or sex section slightly in different diameter, it’s length may be 8 meters.

2. Made of epoxy reinforced fiberglass, lightweight and rugged.

3. Top section of telescopic hot stick is insulated with polyurethane foam core.

4. The universal end fitting of the insulated to pseetion accepts a wide variety of attachments so that the lineman can disconnect switches, replace end out tubes and reeeose, remove pole covers with one tool.

5. Disconnect hook is standard equipment.

6. Telescopic hot stick may be suitable to perform many routine jobs from ground level.

**Standards:**

ASTMF 711  
IEC 855  
NBR 11854
Technical Specification of Safety shoes

Revision | Year 2002

Safety Shoes
Safety shoes, safety rubber shoes with stainless steel shanks.

**Technical Description:**

1/ sole:

   a. Vulcanized nitrite sole.
   b. Temp. resistance -30°C to +300°C
   c. High resistance to hydrocarbons and oil and all current chemicals.
   d. Excellent non-slip properties >0.23.
   e. Insulating out sole >20 kV.

2/ anti-stroke steel toe-caps.

3/ water proof black grained upper, leather insole, leather lining.

4/ size : 40-45

5/ fasteners, eyelets or hooks / D rings.

6/ lateral ventilation.

7/ lace-up shoes.

**Standards:**

EN.345-1 for safety shoes.

* Samples are required with offer.
Technical Specification of welding Gloves
WELDING GLOVES

Gloves unlined welder all leather suitable for hot climate.

Technical specifications:

1. Gloves unlined, welder, all leather.
2. Thermal resistant 1.2/1.4mm thick.
3. 15 cm cuff, length 37cm
4. size (9-10-11)

Standards:

1. EN 420
2. EN 388
3. EN 407

* Samples are required with offer.
Technical Specification of Working Leather Gloves

Revision Year 2002
Working Leather Gloves

Protection gloves soft full grain leather working gloves with out cuff

Technical specifications:

1. Soft full grain leather working gloves without cuff.
2. Water proof cowhide.
3. Length 26cm.thickness 0.8/101mm.
4. Shock proof glove.

Standards:

EN 420
EN 388

* Samples are required with offer.
Commission of Electricity
Planning & studies Division
Baghdad – IRAQ

Technical Specification
Of Electrical Protection Gloves

Specification NO. D – 65

Revision Year 2002
Specification for rubber gloves

1/ scope of the tender:

tenders are invited to submit their offers for the supply of rubber Gloves (low voltage 220v, high voltage 11, 33 kV) used for the Purpose of isolating the workers from the electrical shocks.

2/ general information:

The gloves recommended in this tender are.

1. Low voltage (test voltage 1000v) rubber gloves.
2. High voltage (test voltage 20 kV) rubber gloves.
3. High voltage (test voltage 36 kV) rubber gloves.

3/ general requirement:

3-1 ambient temp.

highest max (in the shade) 55 deg.c for about 6 hours a day.
Lowest min ---------- -10 deg.c.
Max .yearly average ------ +30 deg.c.
Max .daily average ------- +40 deg.c.

3-2 sun temp.

Black object under direct sun
Shine may attain attempt of -------- +80 Dec.

3-3 air humidity.

Max ----------- 92% at 40 dec.
Min ----------- 12%
Yearly average ------ 44%

3-4 altitude

from sea level up to 1000m
4/ Technical regiments:

4-1-a system data

nominal voltage ---- 416/240 volts (+4%)(-10%)
short circuit level ------ at 416 volt, according to transformer
capacity ( kva)
frequency ----- 50HZ
system ------- 3-phase,4-wire with neutral solidly earthed

4-1- b medium voltage system (11kv)

nominal voltage 11kv+ 5%
highest system voltage = 12kv

4-1-c medium voltage (33kv)

nominal voltage (33kv+ 5%)
highest system voltage 30 kv

4-2 standards

all gloves shall be with the latest issue of the international electro-
Technical commission ( I.E.C) specifications,where there
specifications are incomplete or not yet published,the national
standards of tenders country shall be considered subject to our
Approval.

EN60-903, ASTM D120, CET903

4-3 Deviations

the tenderer shall particularly mention in his tender all deviations of
his offer from the specification described in these tender
Documents.

5/ general specification

1- rubber gloves made of superior quality natural latex and
especially treated to obtain very high electric strength.
2- They are to be mould-dipped to form around a natural hand position and obtain water tightness and durability.
3- The gloves must be with rolled edge.
4- All gloves shall be dusted with talcum powder as a preservative.
5- Lv gloves shall be designed for working in the live parts without need for leather overgloves, and has excellent behavior to the electric arc in case of contact with living parts.

<table>
<thead>
<tr>
<th>Class</th>
<th>Test voltage</th>
<th>Voltage of use</th>
<th>Sizes</th>
<th>Thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>2500</td>
<td>500</td>
<td>9 to 11</td>
<td>1.1mm</td>
</tr>
<tr>
<td>1</td>
<td>10000</td>
<td>7500</td>
<td>8 to 11</td>
<td>1.5mm</td>
</tr>
<tr>
<td>2</td>
<td>20000</td>
<td>17000</td>
<td>9 to 11</td>
<td>2mm</td>
</tr>
<tr>
<td>4</td>
<td>40000</td>
<td>36000</td>
<td>10-11</td>
<td>3mm</td>
</tr>
</tbody>
</table>

7- Advice is sought on whether h.v gloves can be brought into direct contact with h.v energized parts.

6/ TESTS

The tests shall be carried out on our behalf by our inspector (international inspection bureau) witnessed by our engineers according to I.E.C standards.

1. Individual electrical test for series, tests on aqueous environment for one minute at the voltage of the test corresponding to the glove, leakage current according to standards.

2. Electrical test by type of sample, conditioning by immersion for 16 hours electrical test to 3 min, leakage current according to standards, test to show how they hold under voltage.

3. Mechanical properties, rupture resistance >= 20mpa, rupture elongation 600%, perforation resistance 30n/mm.

4. Ageing test. Conditioning for 186h at 70°C required result: remanence at 400°C <= 7%.

   Mechanical properties > 80% polyamide and 20% elastance of the initial values.
5. thermal tests, test for non-spreading of flames: low temperatures test (-40°C).

7/ samples:

samples of gloves shall be submitted with this offer. the offer without samples will be rejected.

N.B

glove size 9,10,11 are required.
Technical Specification of Handling p.v.c Gloves

Revision Year 2002
Handling p.v.c Gloves

P.v.c dipped gloves fully coated, liquid proof with full protection, material handling.

Technical specifications:

1. p.v.c dipped gloves fully coated.
2. Liquid proof. Excellent protection against oils, allcali, saline solutions and acids.
3. Handling of flammable products.
4. Multi-purpose gloves for all kinds of uses.
5. Double coating with non-slip covering.

Standards:

EN 338
EN 420
EN 374

* Samples are required with offer.
Ministry of Electricity

Planning & studies Division

Baghdad – IRAQ

| Specification NO. | D – 51 |

Technical Specification of Ladders (Fiber glass)

| Revision | Year 2002 |   |   |
LADERS (FIBER GLASS)

Double section rope operated ladders (fiber glass) (2x4.5 mand 2x6m)

Technical Specifications:-

Extra heavy duty, channel extension, designed for 300Lbs work load, high factor
(not less than 4 times of the working load), light weight with-min .rods,
contamination and physical defect on the side rails.
Side rails are made from pultruded fiber glass and having approximately equal
proportion of glass roving, glass mat and polyster resin.
The ladder rail has a.c dielectric strength of min 40kv/inch suitable for electrical
maintenance of 11kv lines.
The extension ladder may slide with channel flange of sliding ladder inter locked
with channel flange of lower ladder for better safety, rung locks are gravity
type, cast aluminium hooks.
The ladders shall consist of the followings:-

a. Heavy duty steel shoes with thick rubber tread.
b. Impact resistant, polycarbonate caps on all rail ends.
c. Outside slide guides.
d. D-shaped rungs: tempered, serrated Aluminum.
e. Aluminum plate connection rungs.
f. Rung locks.
g. Rope and pulley.

N.P

The ladders to be used on 11kv network which consist of I-beam and
tubular poles, any accessories to be used with the ladder for the above
network to be mentioned.

Standards:

ANSI A14.5-2000

Tests:

Tests shall be made according to ANSI 14.5-2000 standards.
Samples:
Samples are required.