

**Creative Electronics & Automation** 

### OVERVIEW

#### **COMPANY INTRODUCTION**

Creative Electronics and Automation was established in 1993. Creative Electronics & Automation (Crest) is ISO9001-2008 accredited Engineering Company, having head office in Islamabad, Pakistan. We have a network encompassing all of Pakistan with offices in Karachi, Lahore & Islamabad.











### CREATIVE ELECTRONICS & AUTOMATION CONSULTANTS, DESIGNERS, MANUFACTURERS

#### &

#### **CIVIL CONTRACTORS**

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# ELECTRICAL BUILDING DESIGN

#### **Building Design Includes**

- Electrical Wiring Design
- UPS Wiring Design
- Television Wiring Design
- Telephone Wiring Design
- Internet Wiring Design
- CCTV Wiring Design
- Distribution Boxes Design
- Earthing Design
- Home Automation / Building Management System (BMS) Design (Optional)

#### Electrical Design Deliverables

- Routing of electrical wires in 2D on Architecture drawing to ensure time saving during future troubleshooting
- Electrical Cable Sizing
- 3D visualization of wires routing
- Design of Electrical Distribution Boards
- Sizing of Breakers
- Selection of Electrical equipment
- Single-line and multiple line distribution schemes

#### Electrical Design Deliverables

- Load Estimation
- Individual Load Estimation
- Material lists (BOM)
- Provide correctly priced quotation, to order material from the supplier
- Provide Grounding Design

### Electrical Design Deliverable Drawings

#### 1. 2D Complete Drawing

- Color Coding of each type of wires including Power, Light, Ground, UPS, Switches, Sockets etc.
- Parts legend
- Parts tag description
- Routing & Numbering of Wires for traceability

#### 2. Lighting Wiring Drawing

- Parts tag description of switches, sockets, UPS etc. for installation
- Lighting Wiring Routing & Numbering for Traceability

### Electrical Design Deliverable Drawings

#### 3. Power Wiring Drawing

- Parts tag description of power sockets & AC for Installation
- Power Wiring Routing & Numbering for Traceability

#### 4. Electrical Conduits Drawing

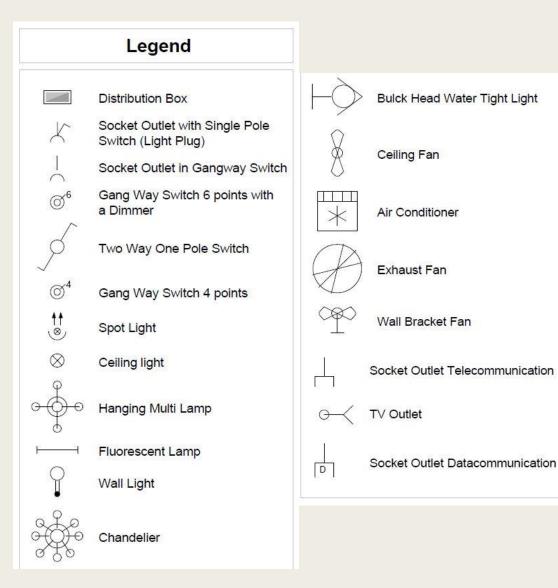
Routing of Electrical Conduits for Installation & Traceability

# Wiring Design Color Code & Parts Tag (Example)

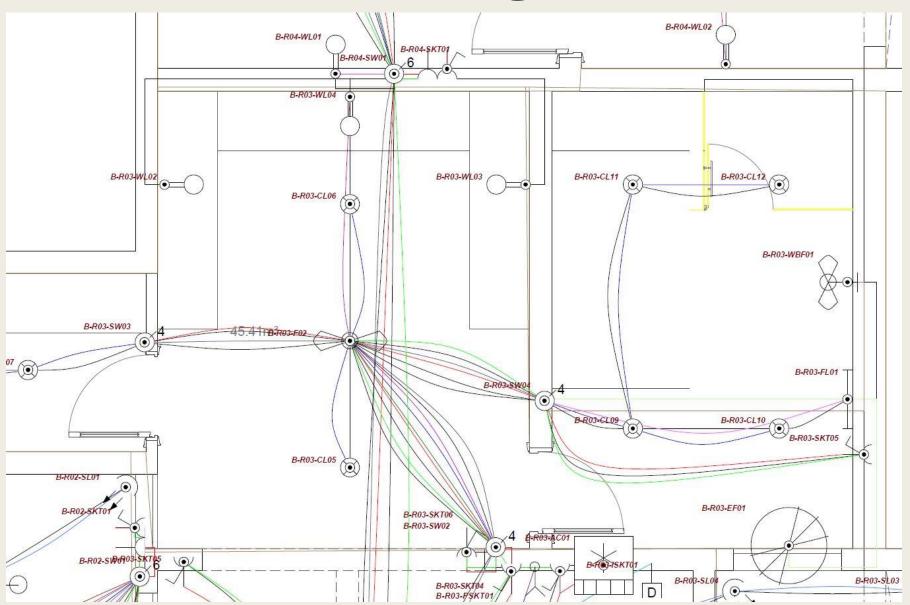
Wires Description	Colour Code
Main Live wire from BDB To Rooms and Power	
Neutral wire	2 <del>5</del>
Ceiling light live wire from switch	
Fan live wire from switch	
Chandelier light live wire from switch	-
Wall light live wire from switch	-
Spot Light live wire from switch	

#### Parts Tag Description B = Basement R = Room X = Number Description Term B-Rxx-Fxx Ceiling Fan Wall Bracket Fan B-Rxx-WBFxx B-Rxx-EFxx Exhaust Fan B-Rxx-Chandelierxx Chandelier B-Rxx-CLxx Ceiling Light Wall Light B-Rxx-WLxx

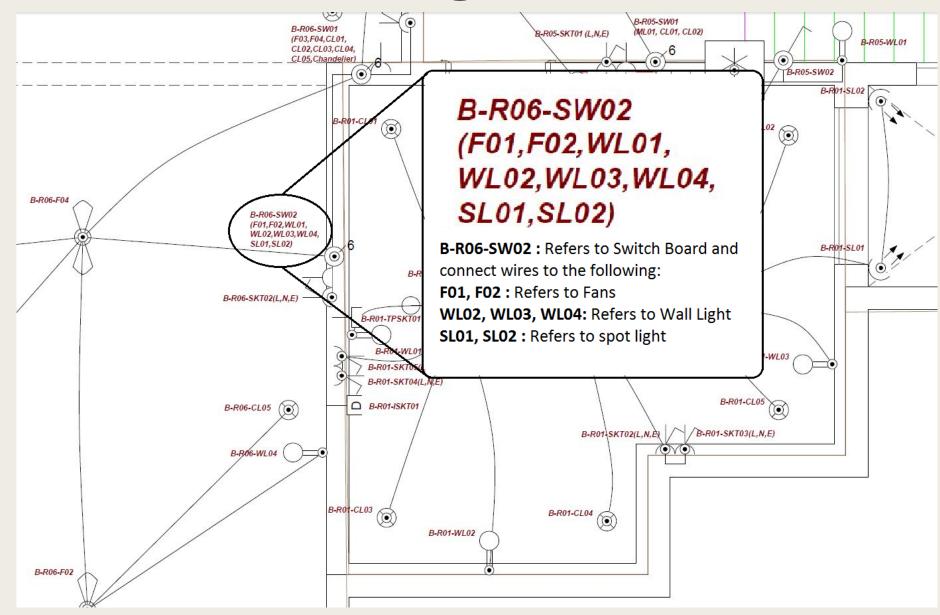
#### Wiring Design Parts Legend (Example)



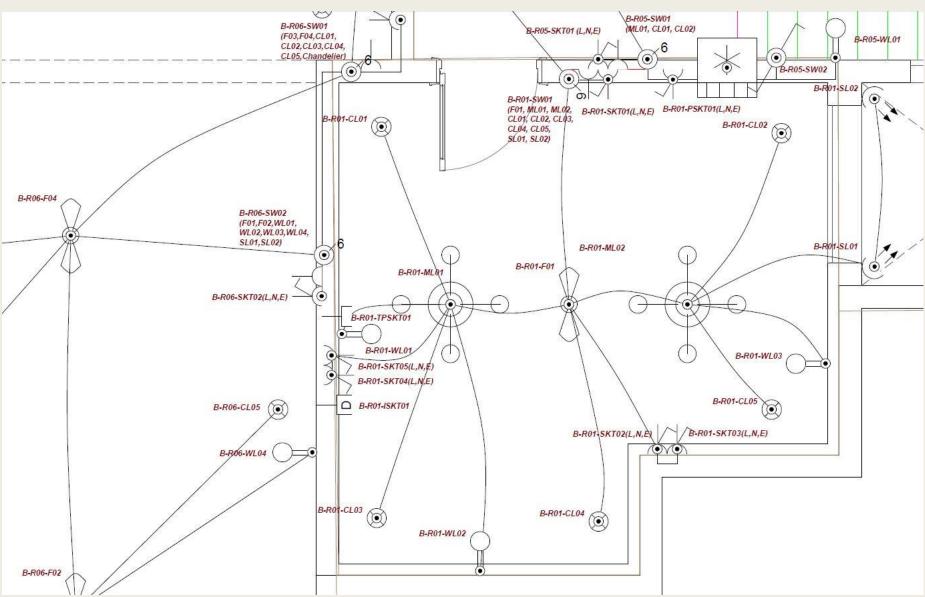
### 1. 2D Complete Drawing



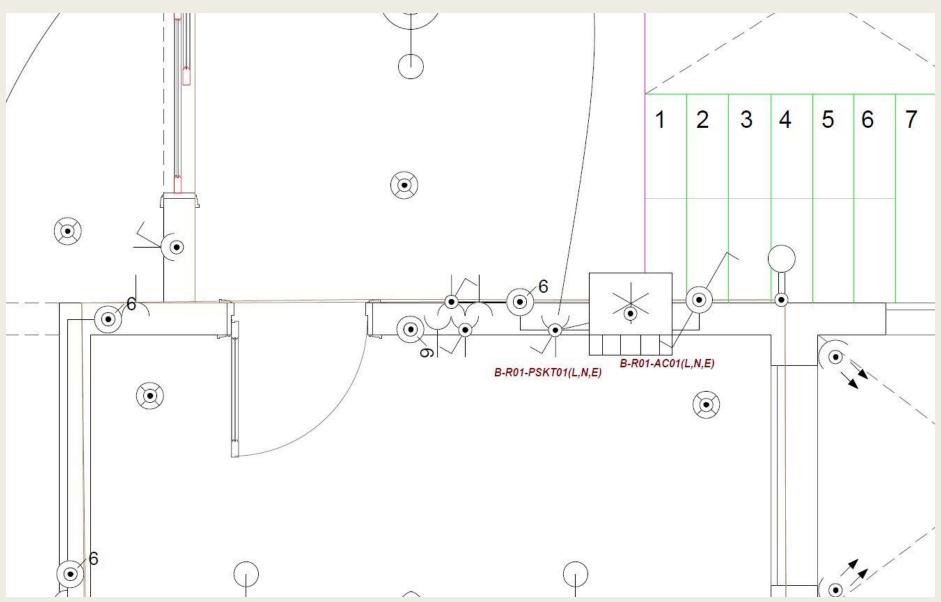
#### **Explanation of Drawings**



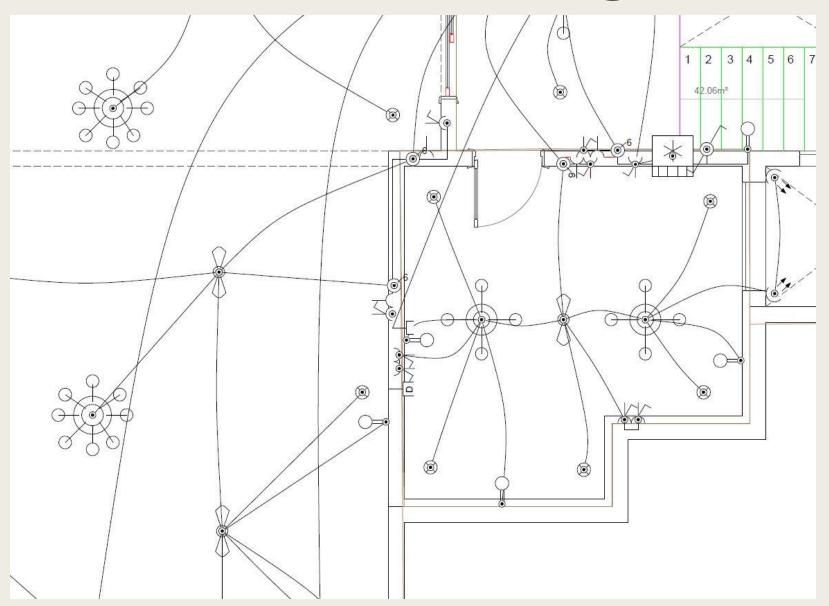
### 2. Lighting Wiring Drawing



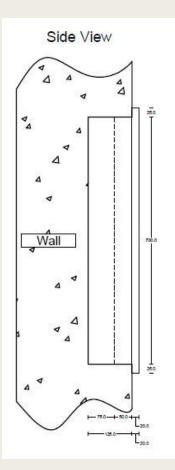
### 3. Power Wiring Drawing

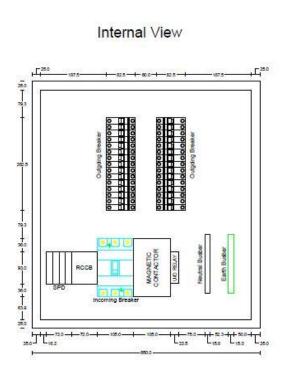


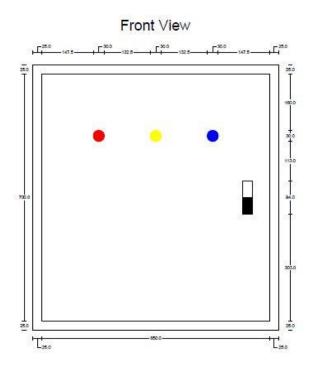
### 4. Electrical Conduits Drawing

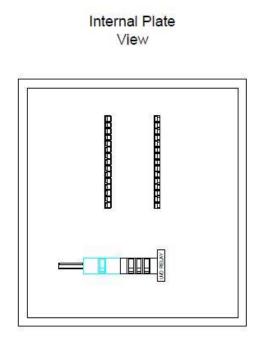


#### **Electrical Distribution Box Design**

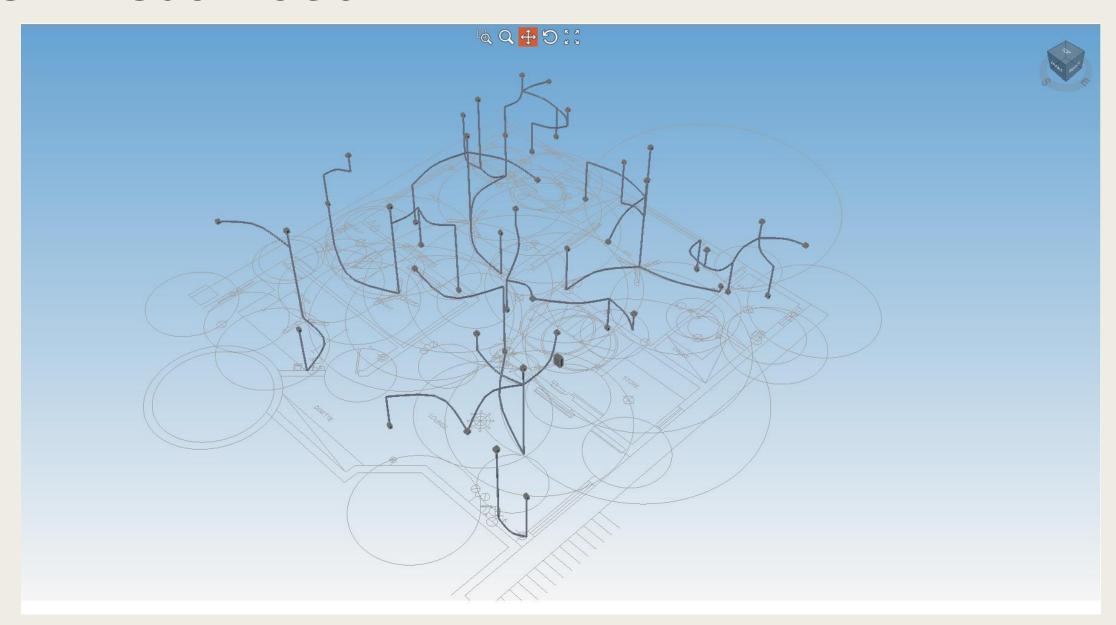








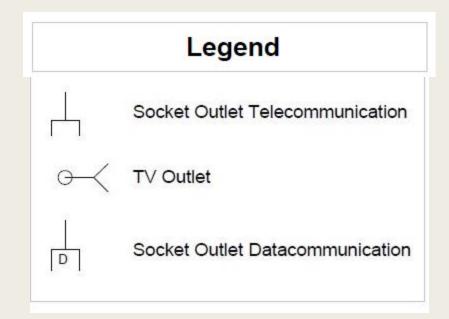
### 3D Visualization



## Telephone, TV & Internet Wiring Design Deliverables

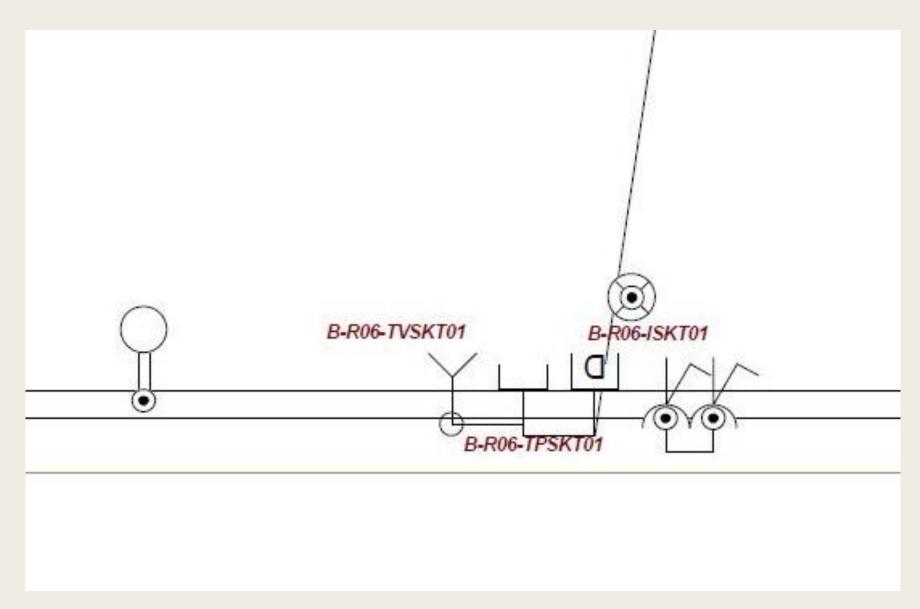
- Routing of Telephone wires in 2D
- Routing of TV wires in 2D
- Routing of Internet wires in 2D
- Design on Architecture drawing to ensure time saving during future troubleshooting
- Telephone, TV and Internet Wire Sizing
- 3D visualization of wires routing
- Design of Distribution Boards
- Selection of Telephone, TV and Internet Wiring Outlets
- Conduits Drawing

#### Wiring Design Legends





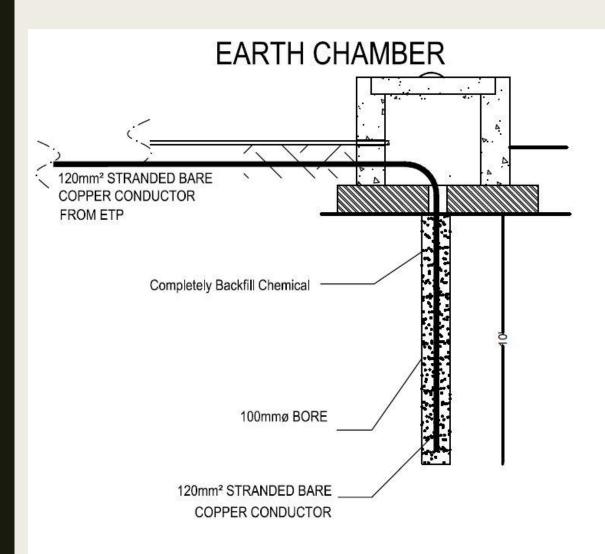
### TV, Telephone & Internet Wiring Design



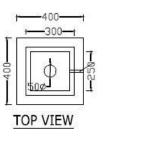
#### **Grounding Design Deliverables**

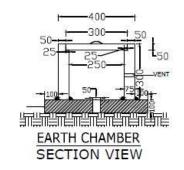
- Routing of wires in 2D
- Design on Architecture drawing to ensure time saving during future troubleshooting
- Grounding Wire Sizing
- 3D visualization of wires routing
- Design of Earth Test Point, Earth Chamber and Copper Earth bar

### **Grounding Design**



#### CHAMBER DIMENSIONAL DETAIL







#### Bill of Material Estimation

#### 1. DISTRIBUTION BOX

- Electrical DB
- TV, Telephone and Internet DB
- CCTV DB
- Circuit Breaker Details
- SPD Details
- Over / Under Voltage Details
- RCCB Details

#### 2. LIGHTS

Detail Specification of Lights

#### Bill of Material Estimation

#### 3. LIGHT AND POWER WIRING & MATERIAL

- Cable Lengths
- Conduit Lengths
- Gangway Details
- Sockets Details
- Fan Speed Controller
- Fans Details

#### 4. TV, TELEPHONE AND INTERNET WIRING AND MATERIAL

- Telephone Outlet Details
- TV Outlet Details
- Internet Outlet Details
- TV, Telephone and Internet Cable Details

### 1. DISTRIBUTION BOX (BILL OF MATERIALS)

Item	Description	Quantity	Unit	Rate (Rs)	Amount (Rs)
				(K3)	(K5)
	ELECTRICAL WORKS				
Α	DISTRIBUTION SYSTEM				
	Supply, installation, testing and commissioning of Wall recessed, front access with bolted rear sheet, indoor type Distribution Panel made of 16 SWG powder coated M.S sheet, free from any corrosion, having 3-phase+N+E electrolytic hard drawn imported copper bus bars must be properly covered with high quality colored heat shrink insulating sleeves. Exterior surfaces shall be painted Pebble Grey(RAL 7032) containing the following:				
1	KWH meter Cabinet	1	No		
2	Basement DB 700x650x170mm	1	No		
3	TV & Telephone DB 300x300mm	1	No		
4	Main Circuit Breaker MCCB 3P 63A	1	No		
	MCCB & MCB Shall be of Schneider, Terassaki, ABB or Equivalent of US, Japanese or European brands				
5	Circuit Breaker MCB SP 20A 6KA	16	No		
	MCCB & MCB Shall be of Schneider, Terassaki, ABB or Equivalent of US, Japanese or European brands				

### 2. LIGHTS (BILL OF MATERIALS)

F	LIGHTS			
	Supply and Install Lights and materials as specified, as shown on drawings, complete with fixing accessories, screws, etc. to Engineer's approval.			
	Technical Specification Lights Input Voltage 90~265VAC 50/60Hz LED Brand: CREE, Edison, Bridge LUX Lumens Maintenance: L80 CRI: Ra≥80 LED Driver: Isolated (THD≤20%) LED Driver: CE Approved Power Factor: ≥0.95 Life: 50,000 Hours CCt: 3000K Housing: Aluminum			
1	Ceiling Light 5W	69	No.	
2	Hanging Multi Lamp	5	No.	
3	Spot Light 5W	7	No.	
4	LED Lamp 2' long	5	No.	
5	Wall Light	14	No.	
6	Chandelier	1	No.	

#### 3. LIGHT AND POWER WIRING & MATERIAL

В	LIGHT AND POWER WIRING & MATERIAL				
	Supply, install and connect the following devices, lighting points etc. as specified and shown on the drawings including boxes, wiring, accessories, switches sockets, switch panels etc. to Engineer's approval.				
1	6 Gang 1 way switch	12	No.		
	All Switches must comply below standads BSEN60669, IEC60669-1 SS227, MS IEC 60669-1 Switches Shall be of Clipsal, ABB or Equ Brand				
2	4 Gang 1 way switch	6	No.		
	All Switches must comply below standads BSEN60669, IEC60669-1 SS227, MS IEC 60669-1 Switches Shall be of Clipsal, ABB or Equ Brand				
3	20A Double Pole Switch (for AC)	6	No.		
	All Switches must comply below standads BSEN60669, IEC60669-1 SS227, MS IEC 60669-1 Switches Shall be of Clipsal, ABB or Equ Brand		50 ON \$1000		
4	Fan Speed Controller	15	No.		
	Dimmer Shall be of Clipsal, ABB or Equ Brand				

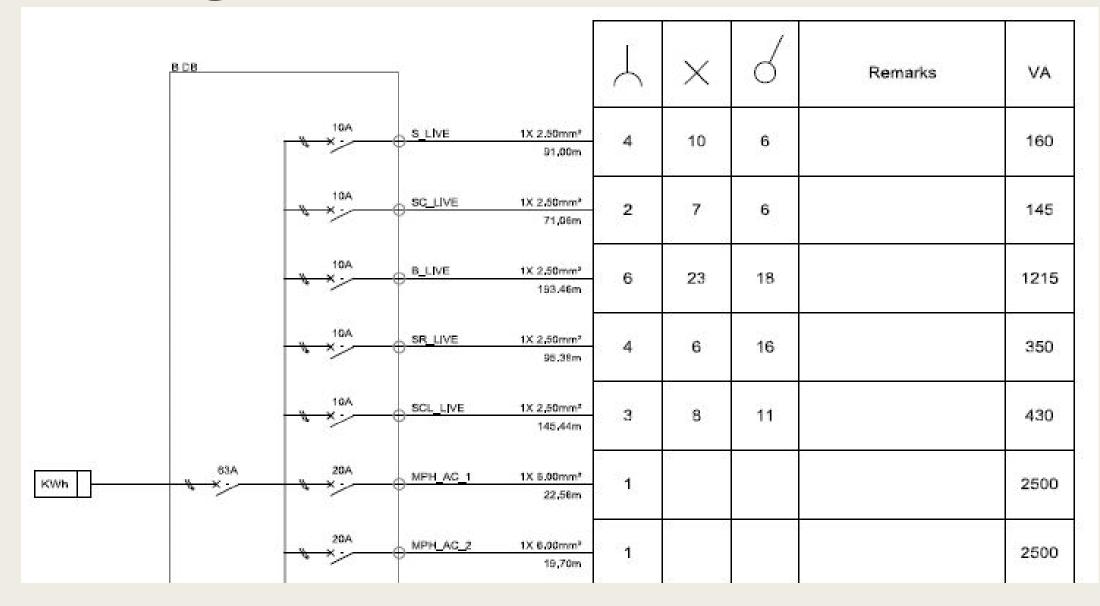
# 4. TV, TELEPHONE AND INTERNET WIRING AND MATERIAL

D	TV & TELEPHONE SYSTEM			
	Supply and Install the following telephone & TV system as specified and shown on the drawings, complete with cable, junction boxes.			
1	RJ11 Single Telephone Outlet	6	No.	
	Sockets Shall be of Clipsal, ABB or Equ Brand			
2	RJ45 CAT5 Computer Outlet	6	No.	
	Sockets Shall be of Clipsal, ABB or Equ Brand			
3	75 Ohm Co-Axial TV Outlet	4	No.	
	Sockets Shall be of Clipsal, ABB or Equ Brand			
E	Supply, Install and connect the following cables & ducts complete with supports, clamps, cable glands, earth continuity conductor etc. as specified and shown on the drawings.			
1	Coaxial A/V cable		m	
	RG6 coaxial A/V cable. 2-layer shielding. Cables must comply IEC 61196-9			
2	CAT5E Internet Cable	95	m	
	Internet Cable must comply following standard ANSI/TIA/EIA-568-A			

4. CABLES (BILL OF MATERIALS)

С	Supply, Install and connect the following cables & ducts complete with supports, clamps, cable glands, earth continuity conductor etc. as specified and shown on the drawings.			
1	From KWH meter to Basement distribution box		m	
2	Cable Light Wiring Imperial Sizes BSS-2004 Size: 3/.029 IN Shall be of Pakistan Cables, Newage & Fast Cables	2035	m	
3	Cable Main Wiring Imperial Sizes BSS-2004 Size: 7/.029 IN Shall be of Pakistan Cables, Newage & Fast Cables	2596	m	
4	Cable Power Wiring Imperial Sizes BSS-2004 Size: 7/.044 IN Shall be of Pakistan Cables, Newage & Fast Cables	604	m	
5	Conduits for Electrical Wiring  Electrical Conduits shall be of Popular, Pak Arab or Equivalent brand  Size 1"  Material: Un-Plasticized Polyvinyl Chloride (U-PVC)	2116	m	

### Circuit Diagram



### Circuit Diagram



Total load: 13060 VA

Expected simultaneous load : 60% of 13060 VA is 7836 VA

