

**MAKING EXPERIENCE
VISIBLE**



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SECTION C

ELECTRICAL WORKS & KNX CABLES SUPPLIES.

When it comes to wiring a house; Quality in house wiring cables determines the safety, efficiency and life span of your home electrical system.



High quality cables rely on premium copper conductors, durable insulation (like PVC or XLPE) and FIRE-RETARDANT properties, ensuring they handle electricity without dangerous overheating or degrading over decades.

At KNX we use Electrolytic copper (Gold Standard) in our buildings and we also supply them to our electrician clients.



This pure copper often 99.97% pure, provides the best conductivity. It offers minimal resistance, preventing the wire from heating up under continuous electrical loads. High-quality copper resists snapping and is highly flexible.



The outer coat of our cables is virgin-grade Polyvinyl chloride (PVC), this resists cracking, moisture, and chemical degradation.

We do not like or used recycled PVC because lower-quality recycled PVC can become brittle over time.

When it comes to Fire-Retardant (FR) our quality cables feature special insulation that stops flames from spreading during an electrical fault.

When it also come to Flame Retardant Low smoke (FRLS) our quality cables are top-tier because they emit minimal toxic black smoke and prevent suffocation that may lead to cause of fire-related deaths.

KNX our cables are measured using the American Wire Gauge (AWG); This is done to ensure that the wire is correctly sized for the specific appliance.

For Lighting Circuits; 1.5mm² (14 AWG) is used.

For Standard Wall Outlets: 2.5mm² (12 AWG) is used.

For Heavy Appliances like A/C, stoves etc. 4.0mm² to 6.0mm². (10 AWG or higher) is used.

The lower the AWG, the higher the load capacity the cable can carry or hold.

Because of how the quality of cables are very importance in building construction, the quality of Certifications are very much necessary because it verify that the cables are certified by national and international safety standards to guarantee that they were tested for safe current-carrying capacity and insulation integrity.

The size of the wire depends on the current it must handle. The thicker the wire the lower the resistance, hence can carry more current.

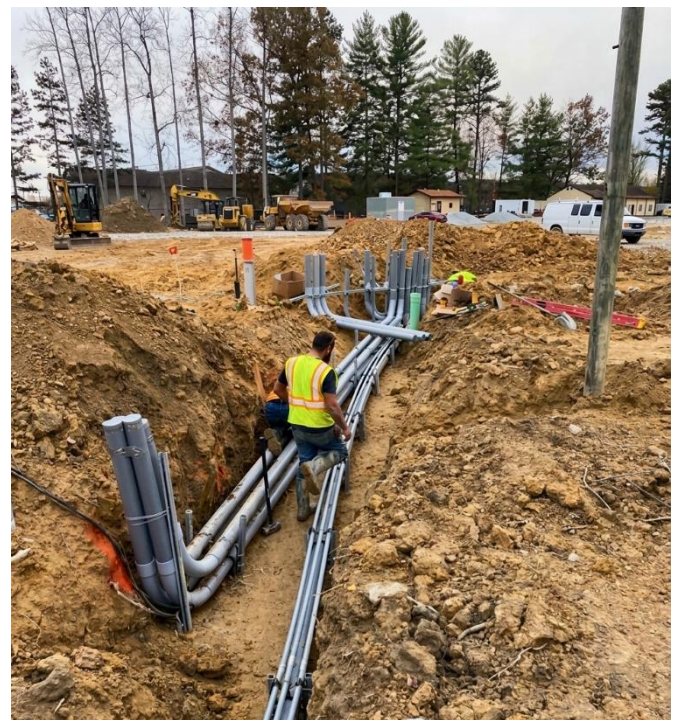
Wire sizing is crucial for both safety and performance.

Guide for Installation.

APPLICATION	RECOMMENDED SIZE (sqmm)
Power Point	1.5 sq.mm & 2.5sq.mm
Sub Main	2.5 sq.mm & 4sq.mm
Main	6 sq.mm

CAUTION. The above chart is just our recommendation. Because of the many installation our company have completed but size of wires and cables should be according to the recommendation of an electrical expert depending upon usage.

"Building wires are the foundation of every residential or commercial electrical circuit. Wires are meant to carry current safely in mains, submains, power points circuits"



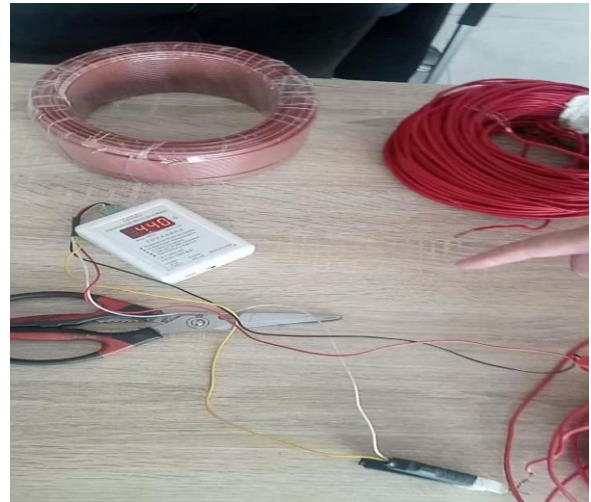
"Choosing the right wire or cable ensures safety, efficiency, and longevity for your electrical system."

The higher the resistance of the cable the lower the current flow.

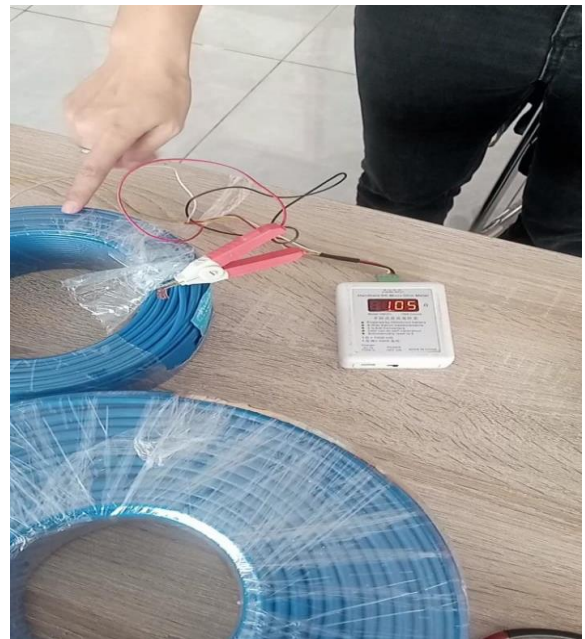
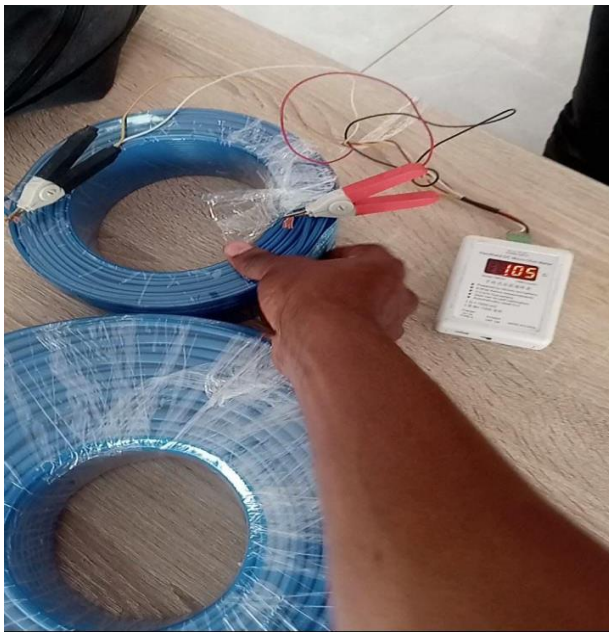
$$\text{i.e } R = P \times L \div A$$

Also the higher the resistance, the higher the temperature and hence the higher the power loss.

i.e $P = I^2R$



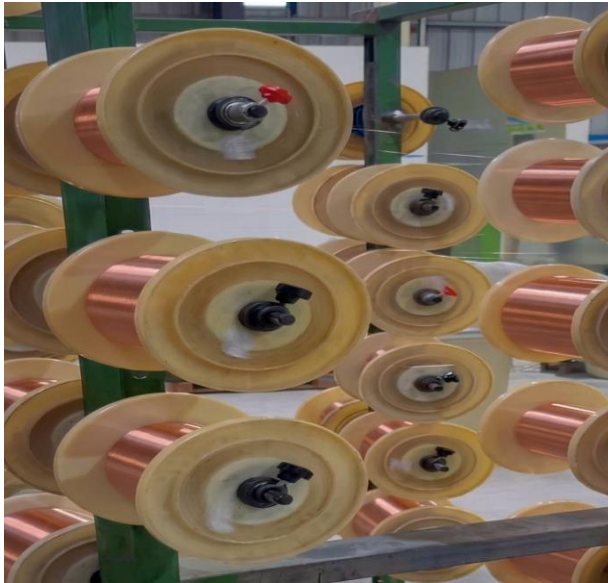
As current passes through a high-resistance cable, some voltage is lost. This can cause connected appliances or devices to receive less voltage needed to operate safely and efficiently. This causes overheating. Excess heat can melt cable insulation, potentially causing electrical fires.



At KNX Our skilled personnel's verifies the cables by using multi-meter to measure the resistance of the cables before it is used or made available to our clients because if a cable measured resistance is much higher than expected, it may indicate internal oxidation, connections or micro-fractures in the wire.

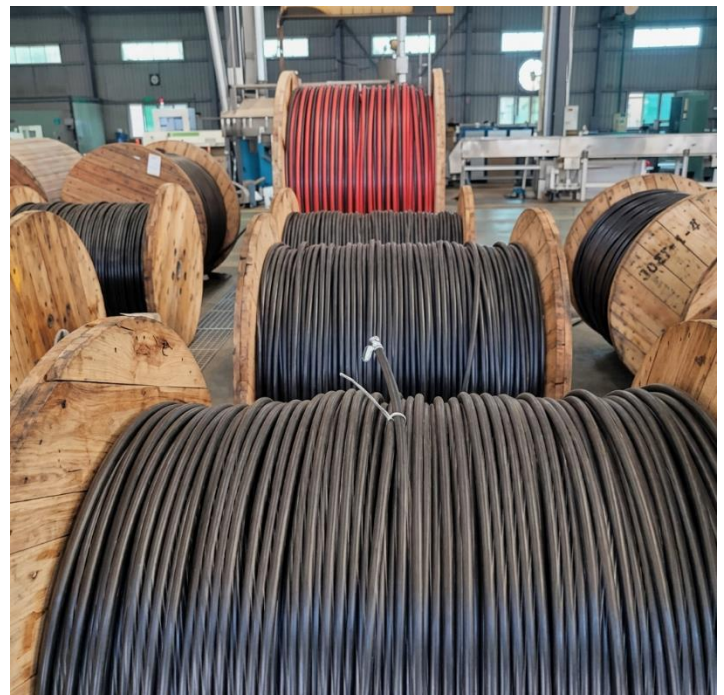
Pure copper is the gold standard for residential wiring because it offers minimal resistance, superior safety and unmatched durability.

Apart from standard dry rooms like living rooms and bedrooms where pure copper are exclusively used; Alloyed copper cables are specifically use in harsh, high-temperature or high-moisture zones of a building.



At KNX in our buildings and for clients we recommend alloyed copper cables at areas or zones like;

- Kitchens, bathrooms, basements, and laundry rooms.
 - This is because, high humidity, water vapour, and cleaning chemicals quickly tarnish bare copper, so the alloy layer blocks moisture, preventing the wire from corroding or failing prematurely.
- Commercial kitchens, furnace rooms,
 - This is because extreme heat causes standard copper to break down and oxidize rapidly; so these alloy layers allow the cable to operate continuously safely without degrading or causing a fire hazard.
- Garden lighting, underground entry conduits and outdoor HVAC (Heating, Ventilation, and Air Conditioning)
 - This is because, these areas face direct contact with rain, soil chemicals, and physical stress during installation. The alloy coating, protect the core metal from corrosive ground moisture.



- Central networking hub, Data lines inside walls.
- This is because, data closets require hundreds of ultra-thin wires to be pulled through tight spaces. But since pure copper cable is sometimes too soft at micro-gauges and can snap, Alloy copper cable is suitable because of its tensile strength making it to handle being tightly pulled without losing signal conductivity.



At KNX when a client orders our cables, we deliver the product promptly and the client get to pay on delivery.



We deal on quality products and we have many completed projects where our products are used. This shows the confident we have on our products and how durable we have proved them to be.

Cost breakdown on our whole-sell prices

	SIZE	GH¢ (100 Yards) (Alloy Copper)	GH¢ (100 Yards) (Pure Copper)
01	1.5mm ²	220	260
02	2.5mm ²	370	460
03	4mm ²	520	685
04	6mm ²	720	1,250
05	10mm ²	1,250	1,800
06	16mm ²	2,370	2,800

When you purchase in bulk, we offer to deliver it to your destination without delivery fee. We are fast and reliable.