

Structured cabling is the design and installation of a cabling system that will support multiple hardware uses and be suitable for today's needs and those of the future. With a correctly installed system, current and future requirements can be met, and hardware that is added in the future will be supported.

Structured cabling design and installation is governed by a set of standards that specify wiring data centers, offices, and apartment buildings for data or voice communications using various kinds of cable, most commonly category 5e (Cat 5e), category 6 (Cat 6), and fiber optic cabling and modular connectors. These standards define how to lay the cabling in various topologies in order to meet the needs of the customer, typically using a central patch panel (which is normally 19-inch rack-mounted), from where each modular connection can be used as needed. Each outlet is then patched into a network switch (normally also rack-mounted) for network use or into an IP or PBX (private branch exchange) telephone system patch panel.

Lines patched as data ports into a network switch require simple straight-through patch cables at each end to connect a computer. Voice patches to PBXs in most countries require an adapter at the remote end to translate the configuration on 8P8C modular connectors into the local standard telephone wall socket. No adapter is needed in North America as the 6P2C and 6P4C plugs most commonly used with RJ11 and RJ14 telephone connections are physically and electrically compatible with the larger 8P8C socket. RJ25 and RJ61 connections are physically but not electrically compatible, and cannot be used. In the United Kingdom, an adapter must be present at the remote end as the 6-pin BT socket is physically incompatible with 8P8C.

It is common to color-code patch panel cables to identify the type of connection, though structured cabling standards do not require it except in the demarcation wall field.

Cabling standards require that all eight conductors in Cat 5e/6/6A cable be connected.

IP phone systems can run the telephone and the computer on the same wires, eliminating the need for separate phone wiring.

Regardless of copper cable type (Cat 5e/6/6A), the maximum distance is 90 m for the permanent link installation, plus an allowance for a combined 10 m of patch cords at the ends.

Cat 5e and Cat 6 can both effectively run power over Ethernet (PoE) applications up to 90 m. However, due to greater power dissipation in Cat 5e cable, performance and power efficiency are higher when Cat 6A cabling is used to power and connect to PoE devices.