

Requirements for laying butterfly-shaped optical cables in homes



Overview

Minimum requirements for laying butterfly-shaped optical cablesIntroduction:The butterfly-shaped optical cable is a type of fiber optic cable that is widel.

Key Takeaways

Butterfly-shaped optical cables require bend-insensitive G.657 fiber, proper indoor/outdoor cable selection, careful routing, and protective measures to ensure reliable home installation.Cable Specifications

- Fiber Type: Use bend-insensitive single-mode fiber compliant with ITU-T G.657 standards. For most residential installations, G.657.A1 is sufficient, tolerating 10 mm bend radii and compatible with legacy G.652.D fiber. Upgrade to A2 if routing through tight conduits or sharp bends .
- Indoor vs Outdoor: Indoor cables (GJXH) have FRP strength members and LSZH sheaths, suitable for building entry to ONT. Outdoor self-supporting cables (GJXFH/GJYXFCH) include a steel messenger wire and UV/moisture-resistant jackets for aerial drops up to 50 meters .



- **Fiber Count:** Residential homes typically use 1–4 cores, while multi-tenant buildings may require up to 12 cores .

Installation Requirements

- **Routing and Protection:** For homes without in-wall conduits, lay cables using bellows or corrugated pipes to protect the fiber. In vertical wiring bridges, install floor transit boxes and corrugated pipes; if space is limited, wrap the cable in a winding tube .

- **Bend Radius and Handling:** Avoid sharp bends, kinks, or pulling over edges. Maintain smooth curves and use figure-8 loops (2–4 meters) when storing or pulling cable to prevent twisting .

- **Temperature and Mechanical Stress:** Respect the maximum installation and storage temperatures specified by the manufacturer. LSZH sheaths are sensitive to cracks under mechanical stress, especially at higher temperatures .

- **Splicing and Connections:** Use fusion splicing for permanent, low-loss connections or mechanical splicing for temporary setups. Ensure fiber ends are clean, aligned, and properly fused or clamped .

- **Indoor/Outdoor Transition:** If the cable transitions from outdoor to indoor, either use a dual-rated indoor/outdoor cable or terminate the outdoor section at a wall entry and splice to an indoor drop .

Pre-Installation and Supervision

- **Planning:** Evaluate each cable section, determine the laying method, and identify splice points, protection elements, and necessary accessories .

- **Material Handling:** Keep cables on reels with protective material until installation. Avoid mechanical damage and maintain cable integrity during handling .

- **Supervision:** Ensure proper supervision before, during, and after installation to verify compliance with specifications and maintain long-term performance . By following these specifications and installation practices, butterfly-shaped optical cables can be safely and efficiently deployed in residential homes, ensuring low-loss, reliable fiber connections.

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The optical cable connector should choose a straight pole position that is easy to maintain, and the reserved optical

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The optical cable crossing the river is left on the adjacent pole of the first pole on the

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