

FR, FRLS, HR-FR-LSH or HFFR: Which Wire to Choose

A decision guide to the fire-safety grades of house wire - and which suits your building.

House wires of the same size can behave very differently in a fire. The difference is the **grade** of the insulation. Here is how the common grades compare and how to choose.

Grade	Flame	Smoke	Halogen / acid gas	Best for	APAR product
FR	Flame retardant	Normal	Present	Basic / budget circuits	Shakti FR-PVC
FRLS	Flame retardant	Low smoke	Reduced	Better everyday safety	Shakti FR-LSH
HR-FR-LSH	Flame retardant + heat resistant	Low smoke	Low	Modern homes, premium	Anushakti HR-FR-LSH
HFFR / EBXL	Flame retardant, high temperature	Very low smoke	Zero halogen	Hospitals, high-rises, schools, premium homes	Anushakti Fire Protekt

How to choose

- **Crowded or hard-to-evacuate buildings** (high-rises, hospitals, schools, malls) - choose **HFFR / zero-halogen**. In a fire, low smoke and no toxic halogen gas save lives and protect electronics.
- **Modern homes** - **HR-FR-LSH** or HFFR is the safe, future-proof choice and now the norm for quality builds.
- **Budget circuits** - FR or FRLS at minimum; avoid plain non-FR wire in concealed conduits.

Smoke is what kills in most electrical fires, not flame. A low-smoke, halogen-free grade buys vital escape time - which is why it is worth the small extra cost.

Exact grade properties and temperature ratings vary by product - confirm against the APAR datasheet.