

Electrical Passive Fire Protection for Textile Spinning and Weaving Mills

Substations · Cable Galleries · Control Rooms · Safety-Critical Circuits

Section A | Electrical Zone-Wise Fire Risk Map

A1. Substations, MCC Rooms & Cable Galleries

Main substation, mill and weaving-shed MCC rooms, humidification plant electrical panels, and the central plant control room. Humidity and lint accumulation complicate both cable and panel protection.

Area	Fire Scenario	Stanvac PFP Product Application	Rating / Priority
Main 33/11 kV substation	Transformer + cable fire	Cable coatings, firestops, panel FP, fire-rated doors	Critical
Spinning mill MCC (blowroom, carding, ring frames)	Arc flash, lint-adjacent cable fire	Panel FP, cable coatings, firestops	Critical
Weaving shed MCC	Arc flash, humid environment cable fire	Panel FP (humidity-resistant), cable coatings	Critical
Sizing machine MCC	Size-box heat + cable fire	Panel FP, cable coatings (heat-resistant)	Critical
Cable trenches (below mill floor)	Cable fire + lint accumulation	Cable coatings + transverse firestops	Critical
Humidification plant electrical panels	Cable fire in high-humidity	Panel FP (marine grade), cable coatings	High
Compressor house MCC	Lube oil + cable fire	Panel FP, cable coatings	High
DG / thermic fluid heater electrical	Fuel + lube oil fire	Panel FP, firestops	High
Central control room / DCS	Panel + cable fire	Panel FP, firestops, FR doors	Critical

Area	Fire Scenario	Stanvac PFP Product Application	Rating / Priority
Battery / UPS room	H ₂ accumulation	Firestops, FR doors, panel FP	High

A2. Safety-Critical Electrical Systems

Area	Fire Scenario	Stanvac PFP Product Application	Rating / Priority
Fire water pump house (electric + diesel)	Must survive the fire it fights	Fireproofed structure, FR cables	Non-negotiable
Godown / warehouse alarm + evacuation lighting	Life-safety continuity	Fire-survival cable, panel FP	Critical
Boiler / thermic fluid heater trip	Fuel trip valve actuation	Fire-survival cable	Critical

Section B | Product-to-Application Matrix

This section maps each of the four priority Stanvac product lines to the specific textile spinning and weaving mills locations and circuits where they must be specified. Use these tables to build the bill of quantities (BOQ) for any textile spinning and weaving mills opportunity.

B1. Cable Coatings — Fire Propagation Prevention

Minimum 240 minutes protection, thickness ≤ 1.6 mm DFT.

Purpose: prevent the spread of fire along cable trays, risers and bunches. The "Browns Ferry" scenario — one cable igniting an entire cable gallery — is the design basis.

Applicable standards: IEC 60332-3 (FM 3971 has limited use — it provides only short-duration protection against arcs and sparks)

Zone	Specific Application	Priority
Main substation cable gallery	All HT and LT trays	Critical
Spinning mill floor cable trenches	Below-floor cable bunches	Critical
Weaving hall overhead cable trays	All trays above looms	Critical
Sizing section cable routes	Size box + drying cylinder	Critical

Zone	Specific Application	Priority
MCC cable trenches (all units)	Bottom-entry cable bunches	Critical
Blowroom / carding cable routes	Motor and control cables	High
Ring frame / autoconer cable routing	Motor cables	High
Humidification plant cable routes	Marine-grade coatings	High
Compressor house cable trays	Motor and instrumentation	High
Godown perimeter cable routes	Lighting, sprinkler system	High

B2. Cable Coatings — Fire Survivability

240-minute circuit integrity, thickness ≤ 1.6 mm DFT.

Purpose: keep the cable electrically functional while burning, so the safety circuit continues to operate through the fire event. Fire-survival coatings are specified where loss of the circuit would defeat the fire-fighting or shutdown system itself.

Applicable standards: IEC 60331-21 and IS 17505-1

Circuit Type	Where Applied	Priority
Fire water pump power (electric + diesel)	Switchgear to motor	Non-negotiable
Emergency DG start & transfer	Battery to engine panel	Critical
Emergency lighting + PA / GA	Mill floor, looms, godowns, offices	Critical
Sprinkler system supervisory circuits	Flow switch, tamper switch	Critical
Heat / smoke detection to F&G panel	Detector circuits	Critical
UPS feeders to DCS / central monitoring	UPS to marshalling	High
Dust / lint collection emergency trip	ID / ED fan trip	High
Mill floor e-stop loops	Emergency stop to each machine	High
Sizing machine size-box trip	Size temperature, drier over-temp	Critical
Boiler trip circuits	Thermic fluid boiler safety trip	Critical

B3. Electrical Panel Fireproofing

Purpose: protect field control panels, junction boxes, MCC panels and logic cabinets from external fire and internal electrical fire. Stanvac offers three complementary solutions under this product line.

Option	Stanvac Solution	Description & Typical Use
A	Two-hour rated firestop sealant	For sealing cable gland openings, panel cut-outs, conduit entries and small penetrations at the panel boundary. Silicone / acrylic intumescent sealant certified to UL 1479 / IS 12458 at 2-hour rating.
B	Non-combustible intumescent paint	For external coating of panel enclosures, cable glands and junction boxes exposed to radiant heat or hydrocarbon fire. Non-combustible base with intumescent top-coat.
C	Two-hour rated intumescent translucent coating for small-dia. cables (aerosol spray)	Aerosol-delivered translucent intumescent coating for small-diameter instrumentation, control and signal cables entering panels. Clean application in congested panel interiors; 2-hour rated.

B4. Two-Hour Rated Firestop Barriers

Hybrid combination of mineral wool and firestop mortar.

Purpose: seal every penetration through a fire-rated wall, floor or cable tunnel so compartmentation is maintained. Stanvac's hybrid system combines high-density mineral wool (for bulk void filling and thermal insulation) with firestop mortar (for load-bearing, smoke-tight surface seal). This dual-material approach delivers superior 2-hour rating performance across a wider range of penetration sizes than single-material systems.

Applicable standards: UL 1479 · ASTM E814 · IS 12458

Location	Specific Application	Priority
Raw cotton bale godown perimeter	Every wall, floor, duct penetration	Critical
Finished yarn / fabric godown perimeter	Every wall, floor, duct penetration	Critical
Spinning floor to weaving shed boundary	Cable and conveyor penetrations	Critical
Sizing section to weaving shed	Cable, steam pipe, size-pipe penetrations	Critical
Mill floor compartment walls (between units)	Cable + tray penetrations	Critical
Main substation cable trench to building	Sand-seal + firestop pillows + mortar	Critical
MCC room cable entries	Trench and wall penetrations	Critical

Location	Specific Application	Priority
Humidification plant boundary	Cable and duct penetrations	High
DG room boundary	Fuel and cable penetrations	High
Fire water pump house entries	Power and control cable penetrations	Non-negotiable
Size kitchen boundary	Cable and pipe penetrations	Critical

Detailed product data sheets, certifications, specimen specifications and project BOQ support are available on request.

For more information, please connect with us.

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