

Electrical Passive Fire Protection for Commercial Complexes (Malls, Office Towers, Mixed-Use)

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

Section A | Electrical Zone-Wise Fire Risk Map

A1. Substations, MCC Rooms & Cable Galleries

Main HT / LT substation, floor-wise distribution panels, tenant electrical rooms, cable risers, UPS / battery rooms, DG sets, and the BMS / fire alarm central panel.

Area	Fire Scenario	Stanvac PFP Product Application	Rating / Priority
Main HT / LT substation	Transformer + cable fire	Cable coatings, firestops, panel FP	Critical
Floor-wise distribution panels (every floor)	Cable + compartment breach	Panel FP, firestops	Critical
Tenant electrical distribution	Cable + Class A load adjacent	Panel FP, firestops	Critical
Server / MDF / IDF rooms	Cable + UPS fire	Firestops, cable coatings, FR doors	Critical
UPS & battery rooms	Thermal runaway, H ₂	Firestops, FR doors, panel FP	Critical
DG set rooms (multiple)	Fuel + lube oil fire	Panel FP, firestops, cable coatings	Critical
HVAC plant (chillers, pumps, AHU)	Cable + duct fire	Firestops, panel FP	Critical
BMS / fire alarm central panel	External fire protection	Panel FP, firestops, FR doors	Critical
Electrical riser shafts	Cable propagation between floors	Cable coatings + slab firestops at each floor	Critical

Area	Fire Scenario	Stanvac PFP Product Application	Rating / Priority
Basement car park electrical	Vehicle Class B fuel fire	Panel FP, firestops	Critical

A2. Safety-Critical Electrical Systems

Area	Fire Scenario	Stanvac PFP Product Application	Rating / Priority
Fire water pump house	Must survive the fire it fights	Fireproofed structure, FR cables	Non-negotiable
Firemen's lift power	Must operate during fire (2 hr minimum)	Fire-survival cable	Non-negotiable
Emergency lighting + PA (building-wide)	Egress + refuge areas	Fire-survival cable	Non-negotiable
Smoke extraction / stairwell pressurization fan	HVAC fans during fire	Fire-survival cable	Non-negotiable
Fire alarm & detection circuits	Detector + AV alarm	Fire-survival cable	Non-negotiable

Section B | Product-to-Application Matrix

This section maps each of the four priority Stanvac product lines to the specific commercial complexes (malls, office towers, mixed-use) locations and circuits where they must be specified. Use these tables to build the bill of quantities (BOQ) for any commercial complexes (malls, office towers, mixed-use) 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
Cable risers through all floors	All cable trays + slab firestops at each floor	Critical
Main LT / HT substation cable gallery	Incoming and outgoing	Critical

Zone	Specific Application	Priority
Floor-wise distribution board cable routes	All DB feeders	Critical
HVAC cable routes	AHU, chiller, fan cables	Critical
Tenant server / MDF room cable routes	All IT cabling	Critical
Basement car park cable routes	Parking lighting + ventilation	High
Retail / office floor perimeter cable	Lighting + sprinkler	High
Atrium-adjacent cable routes	Smoke-exposure zones	Critical
DG room cable entries	Start, alternator, control	Critical
Fire water pump house cables	Incomer + motor	Critical

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
Lift power cables (firemen's lift)	Must operate during fire (2 hr minimum)	Non-negotiable
Emergency lighting throughout	Egress + refuge areas	Non-negotiable
PA / evacuation voice communication	Building-wide	Non-negotiable
Fire water pump power (electric + diesel)	Switchgear to motor	Non-negotiable
Smoke extraction / stairwell pressurization fan	HVAC fans during fire	Non-negotiable
Emergency DG start & transfer	Battery to engine panel	Non-negotiable
Fire alarm & detection circuits	Detector + AV alarm	Non-negotiable
Sprinkler system supervisory	Flow switch, tamper switch	Critical

Circuit Type	Where Applied	Priority
Refuge area ventilation	Continuous operation during fire	Critical
Tenant UPS feeders to critical loads	Data room, server	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
Every floor slab in all service risers	Slab firestops at each floor	Critical
Tenant-to-tenant compartment walls	Cable, duct, pipe penetrations	Critical
Atrium edge slab penetrations	Cable and duct penetrations	Critical
Retail / mall compartment walls	NBC 2016 Part 4 compartmentation	Critical

Location	Specific Application	Priority
HVAC duct penetrations across fire zones	Fire dampers + collar seals	Critical
Lift shaft boundary	Cable and duct penetrations, 2-hr	Critical
Evacuation staircase pressurization	Duct and cable penetrations	Critical
Refuge area boundary	Cable and HVAC penetrations	Critical
Basement car park slab penetrations	Every cable, pipe, duct	Critical
UPS / battery room boundary	Cable and ventilation duct penetrations	Critical
DG room boundary	Fuel line and cable 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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