Electrical Passive Fire Protection for Public Buildings

Substations · Records & Archives · Server & UPS Rooms · Public Assembly Areas · Safety-Critical Circuits

Section A | Electrical Zone-Wise Fire Risk Map

A1. Substations, MCC Rooms & Cable Galleries

Government offices, courthouses, libraries, museums and civic complexes. Coverage spans the substation, DG and UPS rooms, server / IT room, records and archive storage, HVAC plant, public assembly areas and the fire pump house.

Area	Fire Scenario	Stanvac PFP Product Application	Rating / Priority
Main substation	Transformer + cable fire	Cable coatings, firestops, panel FP	Critical
DG room	Diesel pool fire	Cable coatings, firestops, panel FP	Critical
UPS room	Battery thermal event	Cable coatings, firestops, panel FP, FR doors	Critical
Server / IT room	Cable + PDU fire	Cable coatings, firestops, panel FP	Critical
Records / archive storage MCC	Class A paper fire load	Cable coatings, firestops, panel FP	Critical
Auditorium / hall electrical	Stage lighting + PA fire	Cable coatings, panel FP	High
Lobby / atrium electrical	Decorative lighting + signage	Cable coatings, panel FP	High
HVAC plant room	Motor + lubricant fire	Cable coatings, panel FP	High
Lift machine rooms	Drive + cable fire	Cable coatings, firestops, panel FP	High
Cable risers and shafts	Vertical fire propagation	Cable coatings + firestops at every floor	Critical
Pantry / cafeteria MCC	Cooking fire exposure	Panel FP, cable coatings	High
Fire water pump house electrical	Must survive the fire	Structural intumescent, fire-survival cable	Non-negotiable

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
Stairwell pressurization fan power	NBC-mandated egress safety	Fire-survival cable	Non-negotiable
Lift homing circuit	Fire-floor recall	Fire-survival cable	Non-negotiable
PA / Voice evacuation system	NBC-mandated for assembly occupancy	Fire-survival cable, panel FP	Non-negotiable
Smoke extract fan power	Atrium / corridor smoke clearance	Fire-survival cable	Non-negotiable

Area	Fire Scenario	Stanvac PFP Product Application	Rating / Priority
Emergency lighting	Egress route illumination	Fire-survival cable	Critical
Fire alarm panel feeders	Detection panel to repeaters	Fire-survival cable	Critical
Emergency DG start & transfer	Battery to engine panel	Fire-survival cable	Critical

Section B | Product-to-Application Matrix

This section maps each of the four priority Stanvac product lines to the specific public buildings locations and circuits where they must be specified. Use these tables to build the bill of quantities (BOQ) for any public buildings 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
Substation and DG cable galleries	All HT/LT trays + transverse firestops every 30 m	Critical
Vertical cable risers (every floor)	All floor-to-floor power and data	Critical
Records / archive storage cable routes	Lighting + sprinkler	Critical
Server / IT room overhead and under-floor trays	Power and data	Critical
UPS to PDU cable runs	Battery feeders	Critical
Auditorium and hall cable routes	Stage lighting and PA	High
HVAC plant room cable routes	Drive and control	High
Lift machine room cable routes	Drive, brake, signalling	High
DG room cable entries	Start, alternator, control	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
Fire water pump power (electric + diesel)	Switchgear to motor	Non-negotiable
Stairwell pressurization fan power	Switchgear to fan motor	Non-negotiable
Smoke extract fan power	Switchgear to fan motor	Non-negotiable
Lift homing circuit	Lift control to landing call	Non-negotiable

Circuit Type	Where Applied	Priority
PA / Voice evacuation system	Amplifier to speaker circuits	Non-negotiable
Fire alarm panel feeders	Panel to repeaters and field devices	Critical
Emergency lighting	Egress route illumination	Critical
Emergency DG start & transfer	Battery to engine panel	Critical
UPS feeders to fire and security panels	UPS to marshalling	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
Substation room boundary	Cable, pipe, duct penetrations	Critical
DG room boundary	Fuel and cable penetrations	Critical
UPS room boundary	Cable and HVAC penetrations	Critical
Server / IT room boundary	Cable and pipe penetrations	Critical
Records / archive boundary walls	Every wall, floor, duct penetration	Critical
Vertical cable riser shafts (every floor)	Floor-to-floor seal	Critical
Lift machine room boundary	Cable and shaft penetrations	High
Auditorium / hall boundary	Cable and HVAC penetrations	High
Fire water pump house entries	Power and control cable penetrations	Non-negotiable
HVAC duct penetrations through fire walls	Fire dampers + collar seals	Critical

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

For more information, please connect with us.