Electrical Passive Fire Protection for Super Speciality Hospitals

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

Section A | Electrical Zone-Wise Fire Risk Map

A1. Substations, MCC Rooms & Cable Galleries

Main LT / HT substation, floor-wise distribution panels (every floor), UPS / battery rooms, DG set rooms, medical gas panels, and the central BMS / fire alarm panel.

Area	Fire Scenario	Stanvac PFP Product Application	Rating / Priority
Main LT / HT substation	Transformer + cable fire	Cable coatings, firestops, panel FP	**Critical**
Floor-wise electrical distribution panels	Cable + compartment breach	Panel FP, firestops	**Critical**
OT / ICU dedicated panels	Must not lose power during fire	Panel FP, cable coatings, firestops	**Critical**
UPS & battery rooms	Thermal runaway, H_2	Firestops, FR doors, panel FP	**Critical**
DG set rooms	Fuel + lube oil fire	Panel FP, firestops, cable coatings	**Critical**
Medical gas control / alarm panels	O_2 enrichment fire	Panel FP, firestops	**Critical**
HVAC AHU / chiller control panels	Cable + duct fire	Panel FP, firestops	**Critical**
BMS / fire alarm central panel	External fire protection	Panel FP, firestops, FR doors	**Critical**
Server / DC distribution panels	Cable + UPS fire	Panel FP, firestops, FR doors	**Critical**
Cable risers / electrical shafts	Propagating cable fire between floors	Cable coatings + slab firestops at each floor	**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 + OT/ICU continuity	Must operate during fire (2 hr minimum)	Fire-survival cable	**Non-negotiable**
Smoke extraction / stairwell pressurization fan	Fans must run during fire	Fire-survival cable	**Non-negotiable**
PA / evacuation voice communication	Hospital-wide	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 super speciality hospitals locations and circuits where they must be specified. Use these tables to build the bill of quantities (BOQ) for any super speciality hospitals 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**
Floor-wise DB cable routes	All DB feeders	**Critical**
Medical gas manifold cable routes	O_2 supply monitoring cables	**Critical**
ICU / OT critical circuit cable routes	Uninterrupted supply	**Critical**
HVAC cable routes	AHU, chiller, fan cables	**Critical**

Zone	Specific Application	Priority
Server / IT room cable routes	All IT cabling	**Critical**
Basement car park cable routes	Parking lighting + ventilation	**High**
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 + OT/ICU	**Non-negotiable**
PA / GA / emergency voice communication	Hospital-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**
OT / ICU essential supply continuity	UPS to critical load	**Non-negotiable**
Medical gas alarm circuits	Low-pressure + leak alarm	**Critical**
Sprinkler system supervisory	Flow switch, tamper switch	**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 — cable + pipe + duct penetrations	Slab firestops at each floor in every shaft	**Critical**
OT complex boundary	Cable and duct penetrations, 2-hr	**Critical**
ICU / NICU boundary	Cable and duct penetrations, 2-hr	**Critical**
Ward corridor compartment walls	NBC 2016 Part 4 compartmentation	**Critical**
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**
Basement car park slab penetrations	Every cable, pipe, duct	**Critical**

Location	Specific Application	Priority
UPS / battery room boundary	Cable and ventilation duct penetrations	**Critical**
DG room boundary	Fuel line and cable penetrations	**Critical**
Medical gas manifold room boundary	Cable and pipe penetrations	**Critical**
Server / IT room boundary	Cable and HVAC penetrations	**Critical**
Fire water pump house entries	Power and control cable penetrations	**Non-negotiable**

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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