VIJAY

Systems Engineers

TECHNICAL SUBMITTAL FOR FIRE STOP MATERIALS

OWNER: SAUDI ELECTRICITY COMPANY

MANUFACTURER: VIJAY SYSTEMS ENGINEERS (VSE)

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CATALOG

WHEN FIRE STRIKES, GET TIME ON YOUR SIDE

WITH VSE PASSIVE FIRE PROTECTION SYSTEMS

VSE
VIJAY SYSTEMS ENGINEERS PVT LTD.



Who we are :

Vijay Systems Engineers (VSE) Pvt. Ltd. is a leading manufacturer, supplier, installer and exporter of a wide range of Passive Fire Protection Products & Systems. We, at VSE, are endowed with a wealth of experience in the Fire Industry and have established ourselves as an organization to trust and reckon with in the field of Passive Fire Protection. Our products are manufactured to global standards and approved by International & National certifying bodies, such as:

- Factory Mutual (FM) USA
- CBRI (Central Building Research Institute)
- Government Quality Marking Center

Our Vision :

Our vision is to be a global, innovative solution provider in the passive fire industry and offer new, sustainable products that will last a lifetime and beyond .

Our Mission:

We strive to be a global leader that provides innovative solutions with the aim of saving lives and minimise property damage.

Our Legacy :

VSE is backed by more than 57 years of experience from the Vijay Group of Companies that is a leading conglomerate of business ventures - a powerhouse of reliable and globally accepted products and systems in the Fire Industry. Vijay Group has executed over 3500 turnkey projects in Fire, Safety and Security throughout India, Asia & the Middle East in a span of 57 years. The range of products and services offered by the group companies include but are not limited to:

- Fire Engine Vehicles & Speciality Vehicles
- Safety Equipment
- Security Systems
- Turnkey Industrial & Commercial Fire Protection Projects
- Building Management Systems
- Waste Collection & Sweeper Vehicles
- Medical Equipment and Latex Gloves

Our Range of Products:

The aim of passive fire products is to compartmentalize a fire within a structure and stop the spread of fire across compartments in order to save lives and mitigate damage to property .

We offer a wide range of Passive Fire Protection Systems which include:

Fire Penetration Sealing Systems

- Ace Mortar Seal
- Ace Panel Seal
- VS Plastic Pipe Collars
- VS Plastic Pipe Wraps
- VS Panel Seal for Glass Facade

Fire Sealants

- Ace Mastik Sealant - A
- VS Mastik Sealant - I
- VS Expansion Joint Sealant

Fire Retardant Coating Compounds

- Ace Mastik Coating
- VS Steel Coating VM
- VS FR Fabric Coating
- VS FR Wood Coating (White)

Fire Rated Doors & Partitions

- Steel Fire Doors
- Fire Rated Glazed Partitions
- VS Fire Rated Partitions / Walls

Satisfied Clients-Our Real Reward:

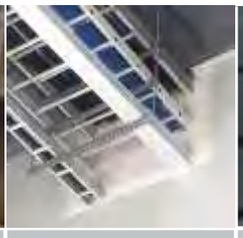
Our true reward comes from knowing that our clients are extremely satisfied. We pride ourselves in providing passive fire solutions to a host of clients in various industries. Our clients are leaders in their respective industries and endorse their trust through repeat orders.

Our Clients :

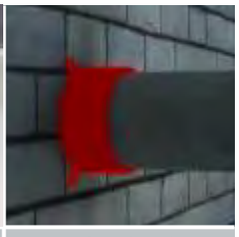
- Asia Brown Boveri Ltd.
- Honeywell Automation
- Reckitt Benckiser
- GE Capital
- Siemens Ltd
- Tyco Fire Security
- Toyo Engineering
- Minimax Germany
- Larsen & Toubro
- ThyssenKrupps
- Metro Railways
- Novotel Hotels
- Thermal Power Plant
- Nuclear Power Plants
- Steel Plants
- Airports
- Atomic Power Station
- Oil & Gas
- Host of Clients in diverse sector

FIRE PENETRATION SEALING SYSTEMS

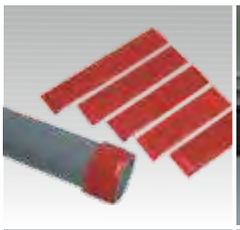
Ace Mortar Seal



Ace Panel Seal



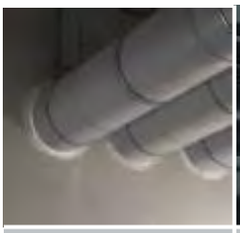
VS Plastic Pipe Collars



VS Plastic Pipe Wraps

VS Panel Seal for Glass Facade

FIRE SEALANTS



Ace Mastik Sealant - A

VS Mastik Sealant - I

VS Expansion Joint Sealant

FIRE RETARDANT COATING COMPOUNDS

Ace Mastik Coating

VS Steel Coating VM

VS FR Wood Coating (White)

FR COATING COMPOUNDS

VS FR Fabric Coating

FIRE RATED PARTIONS

VS Fire Rated Partitions / Walls

Ace Mortar Seal

(VSPS240MS)

Fire Barrier

Product Description

Ace Mortar Seal is a mixture of cement and other fire-retardant chemicals capable of controlled swelling. Ace Mortar Seal is a light-weight, low-density product which expands, ensuring a tight seal against the passage of fire, toxic gases and smoke. This type of fire stop can be adopted for openings in walls as well as cut-outs in floors, providing a fire rating of up to 4 hours.

Special Features:

- It has a Fire Rating of up to 4 Hours
- Expands while it sets, ensuring a tight crack-free seal
- Can easily retrofit cables through the penetration
- Is easy to mix and apply
- Is splash and ageing resistant
- Sticks well on steel and concrete
- Is easy to mix and apply

Specifications

PROPERTY	PRESENT VALUE
Bulk Density	Approx 700 gm/Litre (+/- 50)
Storage Temperature	5°C to 50°C in dry condition
Ph Value	Approx. 9 to 12.5
Packaging	20Kg & 30 Kg
Toxicity	Non-toxic
Mix Ratio	1 : 0.64 (Mortar : Water)
Application Temperature	Room Temperature
Color	Grey
Shelf Life	18 months, in original packed condition

TESTED IN ACCORDANCE WITH ASTM-E-814, UL-1479 UP TO 4 HOURS RATING

FM APPROVED

"Subject to the conditions of Approval as a Wall Penetration Fire Stop when installed as described in the Approvals Guide, an online resource of FM Approvals"

Ace Panel Seal

(VSPS120PS / VSPS240PS)

Fire Barrier

Product Description

Ace Panel Seal is a fire sealing system which consists of Mineral wool boards, with the exposed surface of boards are coated with fire-retardant coating which provided a fire rating of 2 to 4 hours. It provides a tight seal against the spread of fire, toxic gases and smoke. The complete system is Factory Mutual, USA approved and tested as per ASTME-814 Standards.

Special Features:

- It has a Fire Rating of up to 4 hours
- Is non hygroscopic, does not retain moisture and is not effected by humidity
- Does not disintegrate or deteriorate in salt water
- Has no ageing effect
- Is anti - rodent
- Is resistant to Mineral Oil
- Not affected by radiation. Suitable in radiation areas, ideal for nuclear power plants and atomic energy establishments

Specifications

PROPERTY	PRESENT VALUE
Density of Ace Mastik Coating	1.25 to 1.40 gms/cm^3
Storage Temperature	5°C to 50°C in dry condition
Thickness of Coating	1.6 mm Minimum
Curing Rate	4 hours
Shelf Life	18 Months, In Original Packed Condition
Application Temperature	Room Temp.

TESTED IN ACCORDANCE WITH ASTM-E-814, UL-1479 UP TO 4 HOURS RATING

FM APPROVED

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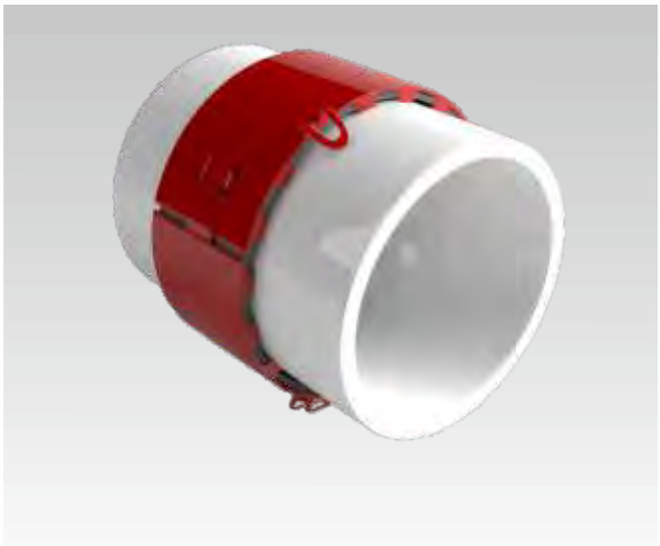
VS Plastic Pipe Collars

(VSPS120PC)

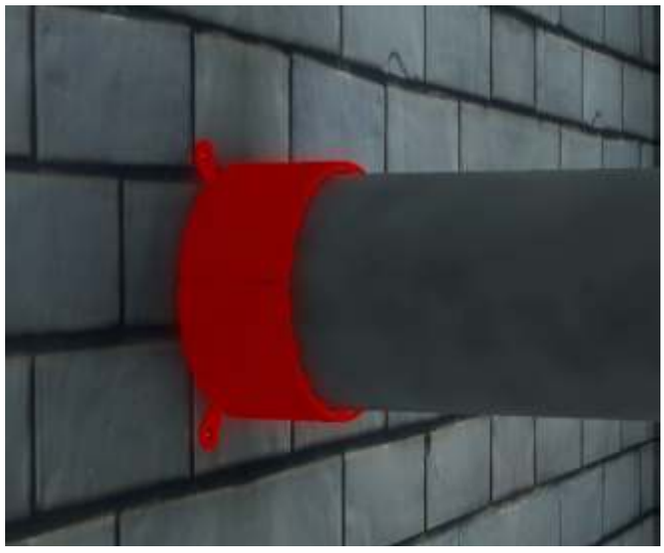
Fire Barrier



Product Description

VS Pipe Collars are made of non-corrosive powder coated steel and lined with VS Plastic Pipe Wraps that are used to cover plastic pipes where they penetrate through a wall or floor. In the event of a fire or exposure to high heat, plastic pipes can melt quickly and permit fire, smoke and fumes to pass through the pipes and travel beyond the barrier.

VS Pipe Collars provide a fire penetration seal in plastic pipes penetrating through walls (including gypsum stud walls) and floors. In a fire, the intumescent wraps expand multiple times and cause the plastic pipes to collapse internally (inside the collar) and close the through passage in order to create a tight seal and prevent fire, smoke and fumes from travelling further. In addition, the collars restrict temperature rise on the non-fire side of the wall or floor. VS Pipe Collars come in 5 standard sizes, ranging from 55mm – 160mm but are tested 'oversize' on smaller diameter plastic pipes thereby reducing the need to use more costly non-standard sizes. The collars are UL tested as per ETA 14/0298 & CE 0843.



Special Features:

- Retrofits possible
- No spares except Anchor Fasteners required for any alterations during retrofitting
- Can seal almost all plastic pipe materials like HDPE, PVC, UPVC, CPVC, PVDF, ABS etc.
- Works on proven technology of intumescent seals
- Has a Fire Rating of 1 - 4 hours (Refer to Technical Data Sheet for details)
- It does not get affected by long exposure to various ambient conditions in commercial and industrial applications like weathering effects, aging, vibrations, ambient temperature variations, exposure to light acids & alkalis and high humidity
- Long shelf life when stored in proper original pack in dry controlled storage

DIMENSIONAL DATA:

SIZE	TO SUIT PIPE OD	HEIGHT	SHELL O/D*
55 mm	32-55 mm	50 mm	72 mm
82 mm	56-82 mm	50 mm	103 mm
110 mm	83-110 mm	50 mm	135 mm
125 mm	111-125 mm	60 mm	160 mm
160 mm	126-160 mm	60 mm	203 mm

*Approx. dimension

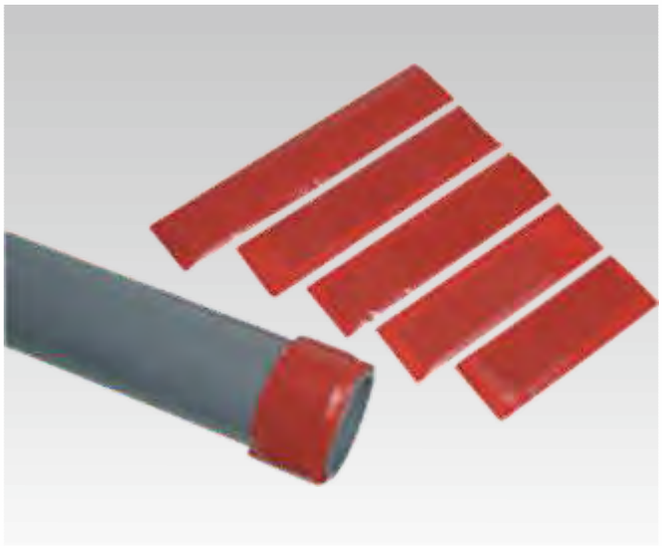
Specifications

PROPERTY	PRESENT VALUE
Intumescent Activation Temperature	Approx. 180°C
Recommended for Penetration Pipe Materials	uPVC, uPVC Composite, PE, PP
Intumescent Expansion Pressure	193.5 kPa mean peak pressure for 1.82 mm thick material in 8.27mm gap
Intumescent Expansion Volume Ratio	11.45 mean ratio at 2.84 kPa
Service Temperature	- 15°C to +75°C

VS Plastic Pipe Wraps

(VSPS120PW)

Fire Barrier



Product Description

VS Plastic Pipe Wrap is a dry, flexible intumescent film wrap used around plastic service pipes penetrating through openings in a wall and/or floor in a building structure. In the event of a fire, the wrap expands multiple times to seal the plastic pipe opening as well as the opening between the pipe and the wall/floor structure. VS Wraps prevent the passage of flames & hot gases and restricts the temperature rise on the non-fire side of a wall or floor. The wraps are 1.8mm thick, water-resistant and made of intumescent material that is wrapped in a ploythene sleeve with an adhesive tab. VS Wraps are available in 15 standard sizes ranging from 43mm – 160 mm plastic pipes (outer diameter). VS Wraps are UL tested as per ETA 14/0298 & CE 0843 and have a fire rating of 1 hour – 4 hours. Refer to the Technical Data Sheet for details.

Special Features:

VS Plastic Pipe Wrap is a system that combines intumescent wraps with Ace Mortar Seal to provide a tight seal in through plastic pipe openings and openings between the pipes and the wall/floor structure to prevent the passage of flames & smoke to the non-fire side. Other features include:

- Fire rating of 1hour to 4 hours
- Retrofits possible
- Applicable for almost all plastic pipe materials like HDPE, PVC, UPVC, CPVC, PVDF, ABS etc.
- Works on proven technology of intumescent seals
- It is not affected by long exposure to various ambient conditions in commercial and industrial applications such as: weathering effects, aging, vibrations, ambient temperature variations, exposure to light acids and alkalis, high humidity
- Does not contain any hazardous materials
- Is free of asbestos

Specifications

Intumescent Activation Temperature	Approx. 160°C
Pipe Opening Sizes	From 43mm – 160mm (outer pipe diameter)
Recommended for Penetration Pipe Materials	uPVC, PE, ABS, SAN+PVC, PE, Insulated Mild Steel, Stainless Steel & Insulated Copper
Intumescent Expansion Pressure	146.8 kPa mean peak pressure for 1.85mm thick material in 8.27mm gap
Intumescent Expansion Volume Ratio	10.75 mean ratio at 2.84 kPa
Service Temperature	- 15°C to +75°C

VS Panel Seal for Glass Facade (VSPS120GF)

Prevents the Spread of Fire

Product Description

In recent times glass facades have become most preferred architectural and aesthetically appealing building facelifts. A typical through gap is left between the glass facade and the floor ceilings. Ace Panel Seals can effectively seal theses gaps and prevent passage of smoke and fire through these gaps in case of fire. The system consists of mineral wool boards stuffed in the gaps between the façade and the ceiling with the exposed surfaces of the mineral wool boards being coated with Ace Mastik Coating. Any annular gaps between the Panel Seal system & the structure is sealed with Ace Mastik Sealant. Ace Panel Seal is tested as per ASTM E 814 & UL 1479 for up to 4 hours fire rating.

Special Features:

- It is Halogen Free
- Easy to use and apply
- Retrofitting is easy
- Non toxic
- Light weight
- Added advantage of good acoustic insulation
- Is not affected by conditions such as: weathering, aging, vibrations, ambient temperature variation
- Is resistant to rodents, vermin & termite

Specifications

PROPERTY ACE MASTIK COATING	PRESENT VALUE
Application Temperature	5 °C to 50 °C
Density	1.25 to 1.40 gms/cm^3
pH	6 to 8
Appearance	Off White, Thick Liquid
Odor	Odorless
Flash Point	None
Resistance to Moisture &Humidity	Good
Toxicity	Non Toxic

TESTED IN ACCORDANCE WITH ASTM-E-814, UL-1479 UP TO 4 HOURS RATING

Ace Mastik Sealant - A

(VSPS240AS)

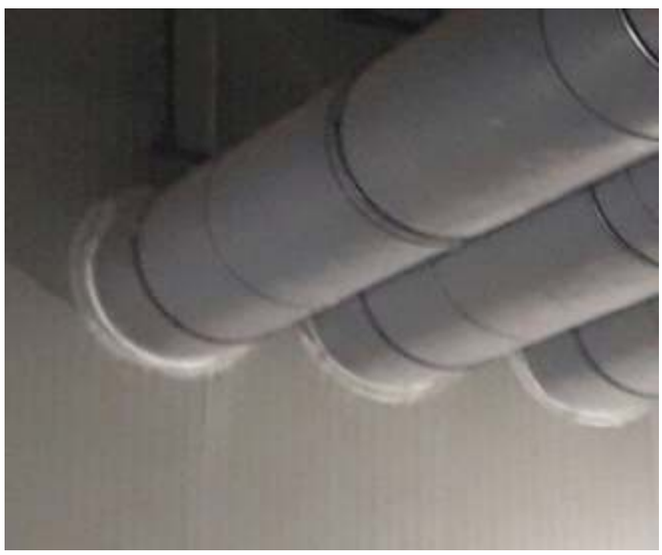
Prevents the Spread of Fire

Product Description

Ace Mastik Sealant is a joint filler and sealant for penetration seals and fire separating walls such as curtain wall, top of wall joints, high movement expansion joint and joints in either walls or floors, sealing up to 50 mm around pipes, etc.

Special Features:

- It has a fire rating of up to 4 hours
- It is water - based, halogen and solvent free
- Easy to apply



Consumption Guide

Consumption guide values are given as joint length in metres per 420 gm Cartridge.

Joint Depth (mm)	Joint Width (mm)			
	6	12	20	30
6	9	4.50		
10			1.60	
15				0.70

Specifications

PROPERTY	PRESENT VALUE
Density	1.31 to 1.41 gms/cc
Cartridge Content	310 ml/420 gms
Storage Temperature	5°C to 50°C
Application Temperature	5°C to 50°C
Curing Time	4 to 6 hours
Ph Value	6 to 8
Color	Off-White
Odor	Odorless
Shelf Life	12 Months, In Original Packed Condition

FM APPROVED

"Subject to the conditions of Approval as a Wall Penetration Fire Stop when installed as described in the Approvals Guide, an online resource of FM Approvals"

VS Mastik Sealant - I

(VSPS240IS)

Prevents the Spread of Fire

Product Description

VS Mastik Intumescent Sealant is a fire-rated sealant used to seal joints and through-penetrations. It cures to an elastomeric seal to enable dynamic movement (where required). This sealant expands multiple times and chars without letting the fire penetrate through the joints.

Special Features:

- Water-based
- Water-resistant
- Low shrinkage
- No solvents & non-halogenated
- Color - Grey

Specifications

PROPERTY	PRESENT VALUE
Density	1.31 to 1.41 g/cm^3
Fire Rating	2 Hours
Curing Time	3-4 Hours (Touch Dry)
Shelf Life	12 months
pH	6.0 to 8.0
Application Temperature	5°C to 50°C
Humidity & Moisture Resistance	Good
Toxicity	Non Toxic
Odor	Odorless
Flash Point	None

VS Expansion Joint Sealant

(VSPS120PC)

Prevents the Spread of Fire

Product Description

VS Fire Rated Expansion Joint Seal is a system that uses Ace Panel Seals to seal various joint openings in a building structure as a firestop measure. There are various types of joints in a building structure, namely 'Wall to Wall', 'Floor to Floor' or 'Wall to Floor'. Ace Panel Seal is a firestop system consisting of mineral wool as backfill material with Ace Mastik Coating which is fixed at site in the joint gaps of a building structure. Mineral wool boards are cut to size and fixed in gaps to required minimum thickness. Ace Mastik Coating is applied at the exposed surface of the mineral wool board, in the gaps between the Ace Panel edges, and the edges of the walls / floors. VS Expansion Joint Seal System prevents the spread of fire, smoke and toxic gasses through gaps of building joints during a fire when installed in accordance with the installation procedure.

Special Features:

- Is not effected by exposure to various conditions like weathering effects, aging, vibrations &ambient temperature variations
- Easy to apply
- Non-toxic
- Light weight
- Halogen free

Specifications

PROPERTY	PRESENT VALUE
Application Temperature	5 °C to 50 °C
Density of Ace Mastik	1.25 to 1.40 gms/cm^3
pH of Ace Mastik	6.0 to 8.0
Appearance	Grey /off White Thick Liquid
Odor	Odorless
Flash Point	None
Resistance to Moisture &Humidity	Good
Toxicity	Non Toxic

Ace Mastik Coating

(VSCC000AB)

Prevents the Spread of Fire

Product Description

Ace Mastik is a water-based and solvent-free coating comprising of thermoplastic resins, flame-retardant chemicals, inorganic incombustible fibres, fillers and pigments.

Ace Mastik is an ablative product which, in case of fire, undergoes an endothermic reaction which reduces the burning rate and spread of fire. In addition to its other properties, Ace Mastik is also free of asbestos and halogen.

Special Features:

- FM approved, tested as per FM 3971 Standards
- Non hygroscopic, it does not retain moisture and is not effected by humidity. It remains effective even after prolonged outdoor use
- No disintegration or deterioration of coating when subjected to 1% salt water test for a 30 day period with water temp. at 66°
- No ageing effect. Coating lasts for the lifetime of cables
- Provides anti-rodent protection
- Resistant to mineral oil. It can retain its physical & chemical composition if exposed to or immersed in mineral oil for up to 48 hours
- Highly flexibile. It can bend 6 times the diameter of cable and not crack or peel
- No top coat required for outdoor application
- Ampacity - no de-rating of cable due to coating
- Not effected by radiation. Suitable in radiation areas, ideal for nuclear power plants and atomic energy plants

Specifications

PROPERTY	PRESENT VALUE
Density	1.25 to 1.40 gms./cm^3
Application Temperature	5°C to 50°C
Packaging	In Plastic Drums/Buckets of 20, 30 & 60 Kgs
Storage Temperature	Max 50°C, must be protected from freezing
Ph Value	6 to 8
Recommended Thickness	1.6mm Minimum
Thinning	By water
L.O.I.	>80%
Toxicity	Non-Toxic
Touch Dry	4-6 hours

TESTED AS PER
FM CLASS 3971

FM APPROVED

VS Steel Coating VM

(VSSC120VM)

PROTECTS STEEL STRUCTURE

Product Description

VS Steel Master VM provides fire protection to structural steel. It imparts fire resistance and heat insulation to prevent collapse of the steel structure due to fire.

The phenomenon of possible collapse of steel structures in fire conditions is based on the fact that steel loses nearly 50% of its mechanical strength at a temperature of 550 °C. When all the exposed surface of structural steel is coated using VS Steel Master VM, a fire rating of up to two hours is possible.

Special Features:

- It has excellent adhesion to most structural steel surfaces and the conventional primer and paint systems in commercial and industrial units
- Is paintable with primer
- Is easy to apply either during prefabrication or after completion of structure
- Modifications to the structure are feasible with little maintenance efforts
- It can withstand conditions like: weathering effects, aging, vibrations, temperature variations & water logging
- Is non toxic
- Does not evolve halogen when exposed to fire
- Ecologically harmless
- The system is not prone to attacks by vermin, termite or rodents

Specifications

PROPERTY	PRESENT VALUE
Colour & Appearance	Grey, Granular Powder Mix Plaster Compound
Dry Bulk Density	550 +/ - 50 kg/m^3
Flammability / Combustibility	Non Flammable / Non Combustible
pH	9 to 12.5
System Reinforcement	Corrosion Resistant Coated Weld Mesh 16 G X ¾" Pitch
Surface Preparation	Sa 2 ½ (bright, White/grey Base Metal)
Adhesion Base	Two Component Zinc Rich Epoxy Primer 50 Microns DFT Minimum

TESTED IN ACCORDANCE WITH
ASTM-E-119, for
2 HOURS FIRE RATING

VS FR Fabric Coating

(VSFC00000)

Prevents the Spread of Fire

Product Description

VS FR Fabric Coating is a water based clear solution to dip and dry the fabric to make it fire retardant. The necessary original properties of the fabric like its 'looks', 'colours' and 'touch_feel' are not sacrificed at the cost of fire retardancy. The product can be used for other cellulosic absorbent fibres like jute fabric, coir fabric or other similar woven cellulosic water absorbent textile materials. It suits all types of cotton fibre textiles and weaving patterns.

The coating converts the fabric into black char, but does not allow it to catch flames. The coating is washable to assist cleaning of the fabric whenever required and can be recoated to make the fabric fire retardant again by dipping in solution and drying.

Special Features:

- Is halogen free
- Easy to use and apply
- Light weight
- Flexible to moderate shocks, temperature variations and weather conditions

VS FR Wood Coating (White)

(VSWC000WT)

Prevents the Spread of Fire

Product Description

VS FR Wood Coating is a water based, single component surface coating for wood and Commercial Plywood. The coating cures at general ambient conditions to form a thin coating film on the wood surface which protects the surface against fire. The product is available for brush as well as spray application on exposed wooden surface.

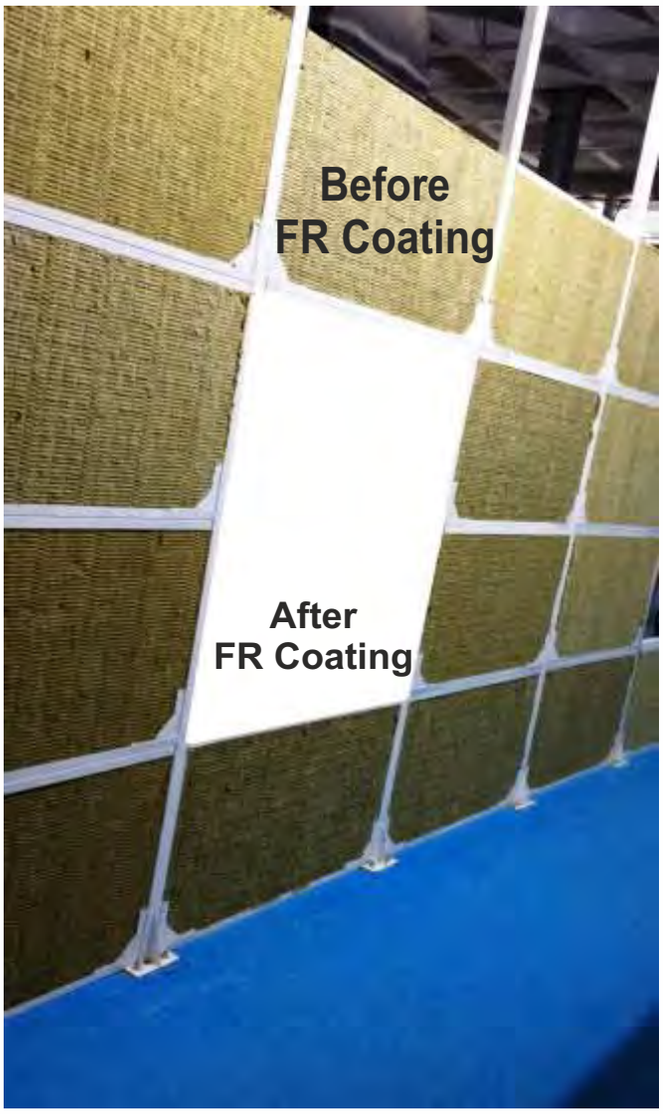
Special Features:

- The product can be applied in finished stage of the product as well as after installation and commissioning at site. The material is compatible with wood and plywood surfaces having less than 20% moisture contents and no leach outs. Approximately, 1-2 coats of 100 to 150 microns of FR Wood Coating can provide fire resistance of upto 30 minutes to the Plywood or wooden surface.
- It is meant for internal use and should be protected with top coat if expected to be exposed to harsh external conditions like water logging, direct sunlight, etc .
- The coating performs to protect the Wood/ Plywood surface against fire as per IS 5509 and Flame penetration (12 mm thick ply) and for 20 minutes for Rate of Burning (30% to 70%).

VS Fire Rated Partition/Wall

(VSFP120PW)

Prevents the Spread of Fire



Product Description

VS Fire Rated Partition Wall is a system using Panel Seals with pressed steel channel encasing, reinforced by suitable structural steel support sections. The support sections can be standard steel angles, channels or beams depending upon the span of unsupported width and height of the fire rated partition wall required to be installed at a project site. Ace Panel Seals are Mineral Wool Boards coated on both the faces with Ace Mastik Coating to a nominal thickness of 1.60 mm. The support sections and steel encasing channels are also coated with Ace Mastik Coating. VS Fire Rated Partitions prevent the spread of fire, smoke and toxic gases across the partition in the event of fire, when installed in accordance with the installation guidelines. The panel seal is tested as per ASTM E 814.

Special Features:

- Halogen Free
- Standard fire rating of the system in up to 2 hours. Special arrangement and system designs can be offered for systems upto 4 hours fire rating
- Added advantage of good acoustic insulation/ sound attenuation
- Flexible to moderate shocks, temperature variations and weather conditions
- Not affected by aging
- Resistant to rodents, vermin & termite

Specifications

PROPERTY OF ACE MASTIK COATING	PRESENT VALUE
Application Temperature	5 °C to 50 °C
Density	1.25 to 1.40 gms/cm^3
pH	6.0 to 8.0
Appearance	Off White, Thick Liquid
Odor	Odorless
Resistance to Moisture &Humidity	Good
Toxicity	Non Toxic

TESTED IN ACCORDANCE WITH ASTM-E-814, UL-1479 UP TO 2 HOURS RATING

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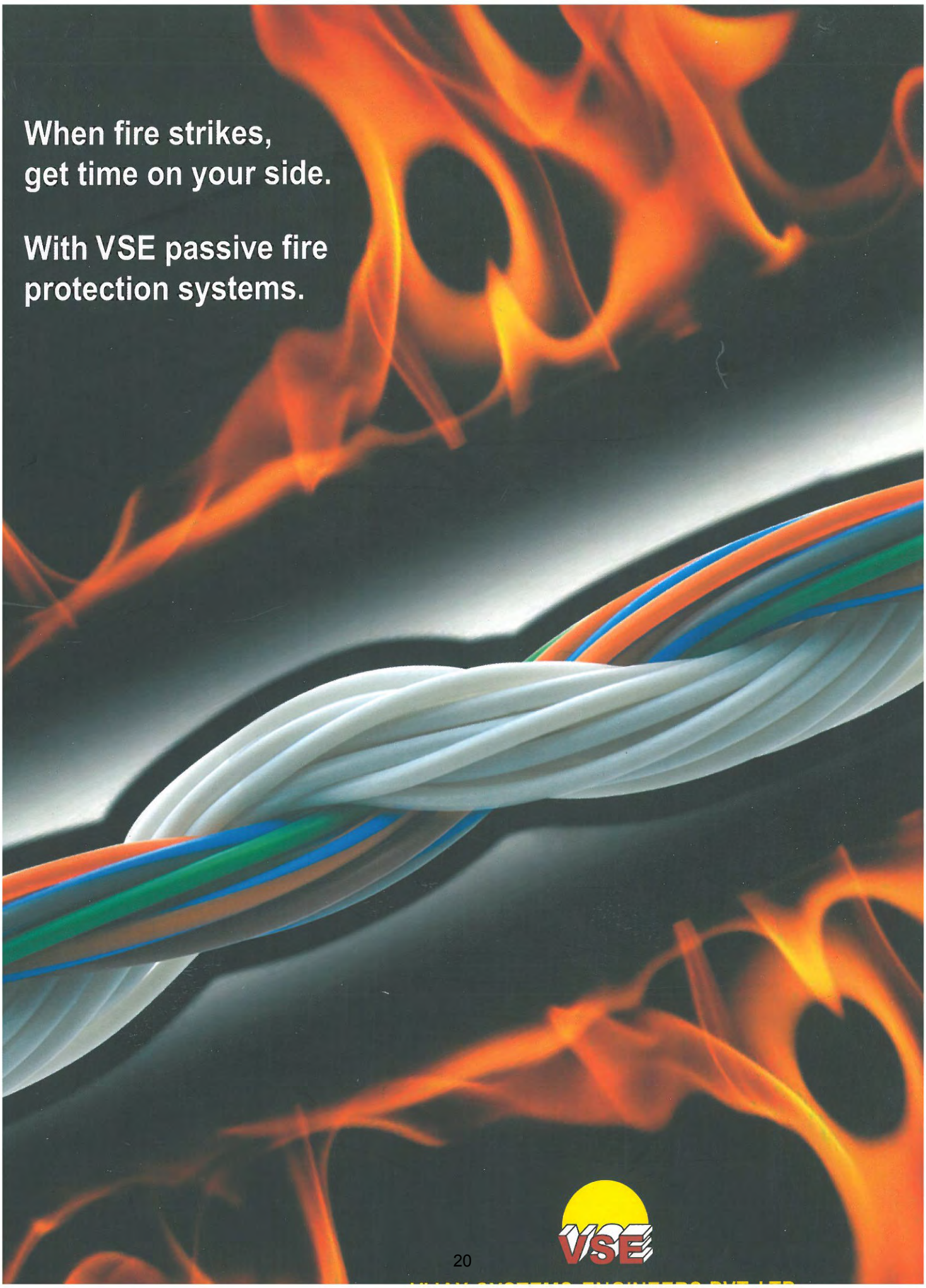
BROCHURE


When fire strikes,
get time on your side.
With VSE passive fire
protection systems.
VSE

VIJAY SYSTEMS ENGINEERS PVT. LTD.

Vijay Systems Engineers Pvt. Ltd. (VSE) is an acknowledged industry leader in passive fire protection that helps to stop the spread of fire, smoke and toxic fumes. At VSE, we manufacture, supply and install fire retardant coating compounds, fire stop sealing systems, fire sealants, steel and wooden fire doors and fire-retardant glazing.

Our concern for achieving and maintaining the highest levels of quality is evident in the fact that all our manufacturing processes and quality control procedures are certified to meet the full requirements of ISO 9001:2008.

Our products are tested and approved by Nuclear Power Corporation of India, Bhabha Atomic Research Centre, Engineers India, Reliance Group, National Thermal Power Corporation (NTPC), Tata Consulting Engrs., L&T, Steel Plants, Cement Plants and Commercial Establishments.

We are very happy to inform you that we got Factory Mutual, USA approval for our products.

Our Products are as follows:-

Products & Use/Application

Fire Stop Mortar

- Cable runs/trays in large openings
- Closing of large openings with fire rating upto 4 hrs.

Fire Stop Mineral Wool

- Cable runs/trays in large openings
- Closing of large openings with fire rating upto 4 hrs.

Fire Retardant Coating Compound

- Cable runs/trays in large openings
- Cable coating to delay the spread of fire
- Reduction of Fire risk of the fire occurring on electric cables
- Prevention of spreading of flames along the cable
- Fire Resistant duct work

Fire Stop Sealants

- Plastic Pipe Penetrations
- Metal Pipe Penetrations
- Expansion joints and connection joints subjected to expansion in fire rated walls and floors.

Fire Doors (a) Steel Door

(b) Wooden Door

- 1 hr. rating • 2 hrs. rating • 3 hrs. rating

Backed by 50 years of expertise

VSE has inherited a vast fund of expertise from its parent company, the Vijay Group which was established in 1959.

The Vijay Group is one of the oldest and most reputed business groups in India and has been a market leader in Safety Systems, Passive Fire Protection, Security Systems, Building Management Systems, Medical Equipment, Fire Engines and Stationery products.

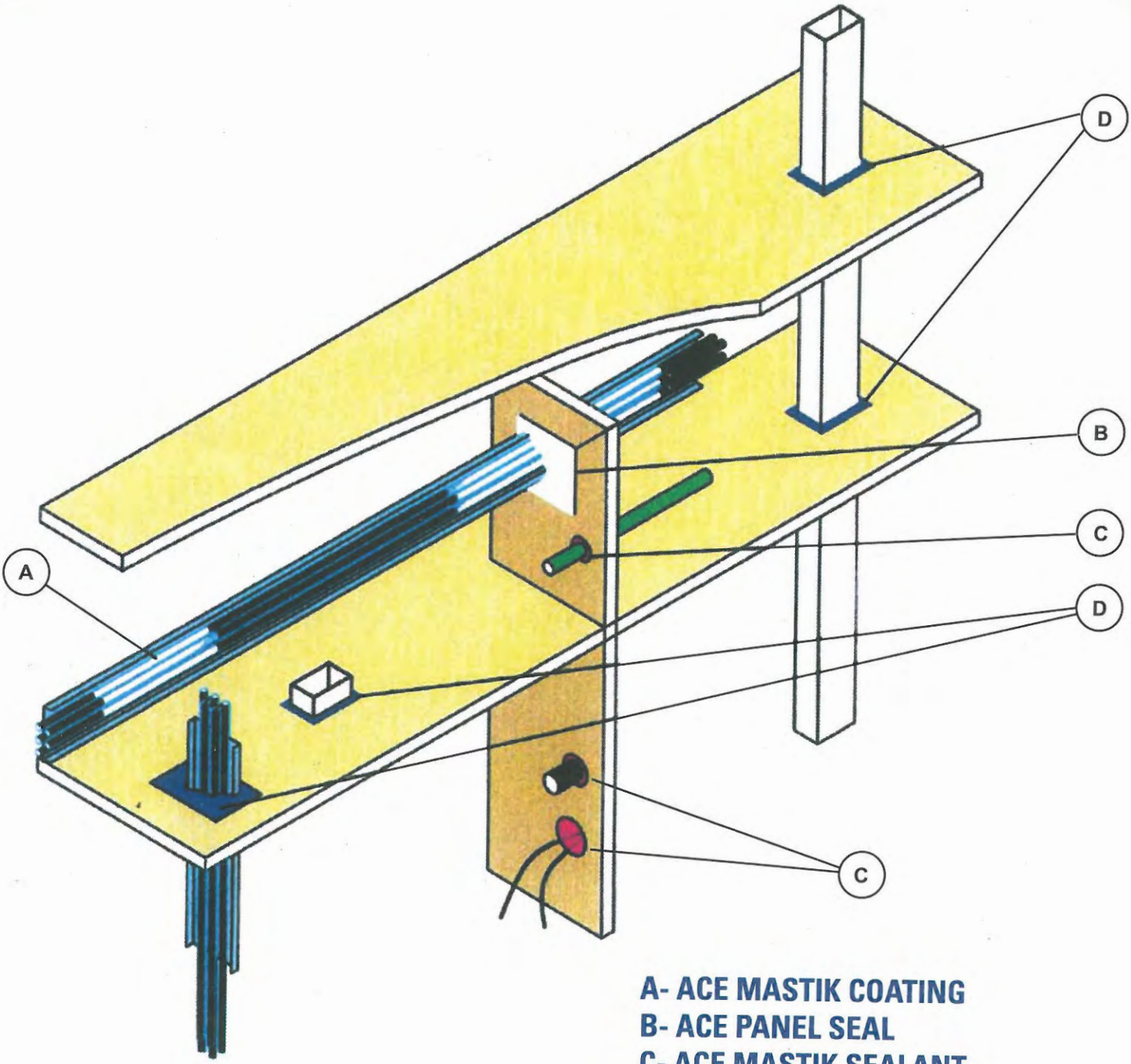
With its world-class products and systems, the Vijay Group has successfully commissioned more than 3,500 projects including over 40 projects in the Middle East region.

FM APPROVED

Member of CISQ Federation RINA ISO 9001:2000 Certified Quality System

The designer's solution:

ideal for various application.



A- ACE MASTIK COATING
B- ACE PANEL SEAL
C- ACE MASTIK SEALANT
D- ACE MORTAR SEAL

ACE Mortar Seal

Fire Stop with expanding qualities

FM APPROVED

"Subject to the conditions of Approval as a Wall Penetration Fire Stop when installed as described in the Approvals Guide, an online resource of FM Approvals"

Ace Mortar Seal is a mixture of cement and other Fire-retardant chemicals capable of controlled swelling. ACE Mortar Seal is a light-weight, low-density product which expands, ensuring a tight seal against the passage of fire, toxic gases and smoke. This type of fire stop can be adopted for openings in walls as well as cut-outs in floors, providing a fire rating of up to 4 hours.

Installation procedure

Mix ratio: 1: 0.64 (mortar to water)
25 kg mortar to16 litres water will yield 36 kg of ready-to-apply mortar.

No special surface preparation is necessary. However, dusting/removal of any oily substance is recommended.

The mixed mortar is applied like normal cement concrete.

In case of wall openings, one side of the opening or both sides are to be shuttered using plywood or any suitable material. Apply mixed mortar in the opening, using a trowel and a leveler.

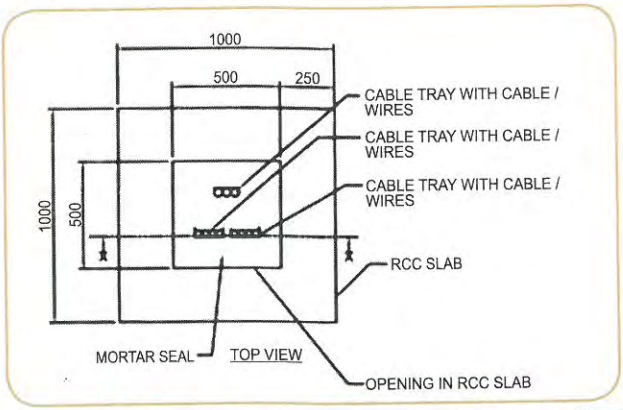
The mortar is cured for 5 to 6 days with water to attain its strength.

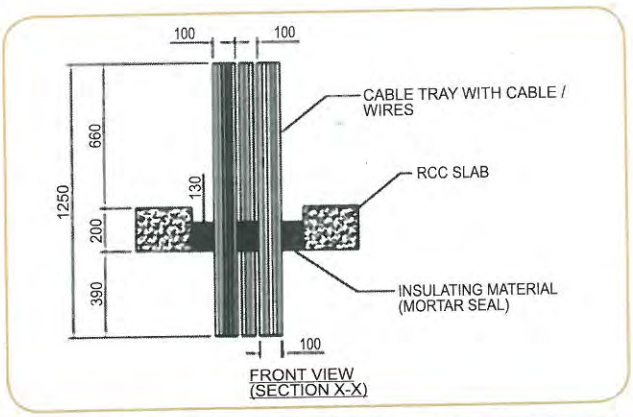
For installation of cables through cured mortar seal, a hole of corresponding size is drilled through the seal with a hand driller. Any gap in the opening after the installation of cables can be closed with mortar seal.

Retrofitting is very easy.

Technical data

Mix ratio	: 1: 0.64 (mortar to water)
Application temp.	: Room temp.
Colour	: Grey
Bulk Density	: Apprx. 700 gm/litre ±50
Ph value	: Apprx. 9 to 12.5
Compressive strength	: Apprx. 1.2 – 1.9 N/mm²
Shelf life	: 18 months, in original unopened condition
Packaging	: 30 kg in gunny bags
Storage temperature	: 5° C to 50° C in dry conditions
Toxicity	: Non-toxic





Mix mortar seal with mortar and water

Fill mortar

Start installation

After installation

Tested in accordance with ASTM-E-814, UL-1479 up to 4 hours rating.

ACE Panel Seal

Prevents the spread of fire

FM APPROVED

"Subject to the conditions of Approval as a Wall Penetration Fire Stop when installed as described in the Approvals Guide, an online resource of FM Approvals"

ACE Panel Seal consists of two special types of panel boards, placed parallel to each other, with an air gap maintained and the expose surface of boards are coated with fire-retardant paint providing a rating of 2 to 4 hours.

Technical data

Density of Ace Mastik	:	1.25 to 1.40 gms/cc
Bulk Density	:	550 gms/ltr.
Application temperature	:	Room temperature
Curing rate	:	4 hours
Shelf life	:	18 months in packed condition
Thickness of the coating	:	1.5 to 2.00 mm

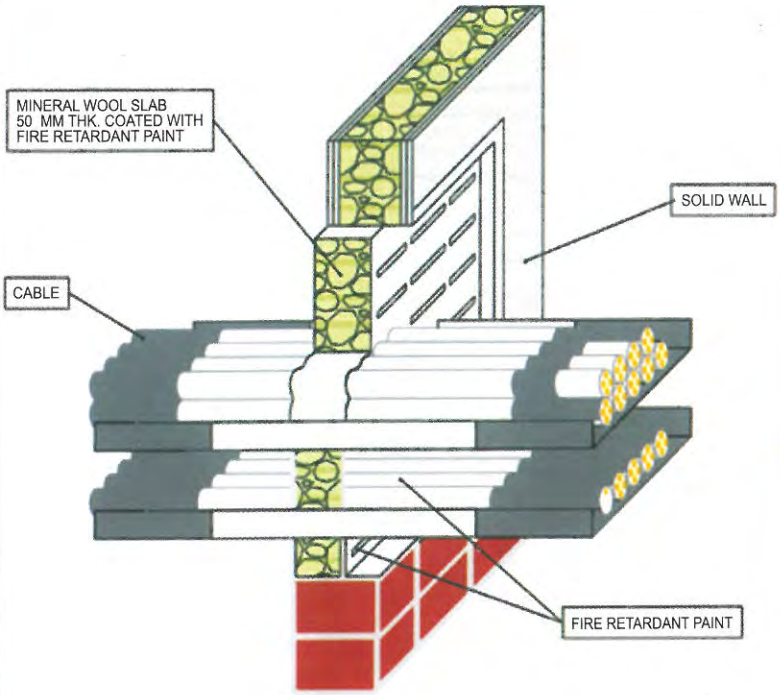
Installation procedure

Measure exactly the location to be sealed and cut the panel board into necessary pieces by keeping 5 mm to 8 mm higher size than that of opening size for tight fitting. Joint sides must be dry and free from dust, oil and grease.

Apply Fire-retardant Coating at the edges of the panels and on the exposed side of the panels. Push the panel 5 mm deep into the opening so that the hollow place can be filled with Fire-retardant Coating using brush and then to cables and trays for a distance of 300 mm from the opening, on both sides.

First coating should be thin and later build up the thickness as specified.

Tested in accordance with ASTM-E-814, UL-1479 up to 4 hours rating.



FIRE PENETRATION SEALING SYSTEM (WALL)

Clean the opening

Fit mineral wool panel

Fill gaps with sealant

After installation

ACE Mastik

Fire-retardant Coating Compound

FM APPROVED

Ace Mastik is a water-based and solvent-free coating comprising thermoplastic resins, flame-retardant chemicals, inorganic incombustible fibres, fillers and pigments.

Ace Mastik is an ablative product which, in case of a fire, undergoes an endothermic reaction which reduces the burning rate and spread of fire providing a fire rating up to two hours (120 minutes). In addition to its other properties, Ace Mastik is also free of asbestos and halogen.

Applications

Telecommunication companies, Petro-Chemical Industries, Factories & Production Facility, Industrial Plants, Chemical Plants & Commercial Complex, Power Plants (cable, ducts, trays, columns, beams).

Installation procedure

Ace Mastik is a ready-to-mix, off-white coating compound which can be easily applied by brush. Since it is a single-operation material, no primary or separate weather coating is required. Just apply this fire-retardant coating on all areas of the surface to the recommended thickness of 1.5 mm to 2 mm depending on the fire rating required.

Properties and special features

Since Ace Mastik contains a fire retardant component, it is non-hygroscopic and therefore does not lose its effectiveness even after prolonged outdoor use.

Cables coated with Ace Mastik shows no Disintegration OR Deterioration of the coating when subjected to 1% Salt Water test for 30 days period with a water temp. at 66 deg. C.

Cables coated with Ace Mastik show no adverse effects even after passing through the accelerated ageing test for an alternating temperature of 71 deg.C. & -40 deg.C. for 24 hrs. over a two week duration.

The Dry film of Ace Mastik acts as an anti –rodent protection. Ace Mastik is resistant to immersion in mineral oil for 48 hrs. at room temperature without any physical and chemical changes.

Ace Mastik is very flexible when dry and can be bend with a bending diameter equal to 10 times Diameter of the cable.

Top coat is not required for outdoor application.

Ampacity: No de-rating of the cable due to coating.

Technical data

Density	:	1.25 to 1.40 gms/cc
Colour	:	Off-white
ph value	:	6 to 8
Application temp.	:	10° C to 50° C
Touch dry	:	4-6 hours
Recommended thickness	:	1.5 to 2.0 mm
Solid contents	:	70% to 75% by weight
Storage temperature	:	Max. 50° C, must be protected from freezing
Thinning	:	By water
Specific gravity	:	1.26 to 1.4
Packaging	:	In plastic drums of 25/60 kg
L.O.I.	:	>80%
Life Expectancy Toxicity	:	30 years
Toxicity	:	Non-toxic

Clean cables

Mix coating

Apply coating

After Installation

ACE Mastik Sealant

All-time, all-round protection

FM APPROVED

"Subject to the conditions of Approval as a Wall Penetration Fire Stop when installed as described in the Approvals Guide, an online resource of FM Approvals"

Application areas

Use as a joint filler and sealer for penetration seals and fire separating walls. Such as curtain wall/edge, top of wall joints, high movement expansion joint and joints in either walls or floor, sealing up to 50 mm around pipes etc.

Application procedure

1) Joint sides must be sound, dry and free from dust, oil and grease.
2) Apply Ace Mastik Sealant to the joint.
3) Apply the required back filling of non-flammable material like mineral wool.
4) Smooth back filling material with water before the skin forms.
5) Allow it to cure for 2 to 4 hours depending on the area (indoor or outdoor)
6) Before curing, if the sealant has to be removed, use water. Cured sealant can be removed mechanically.

Consumption guide

Consumption guide values are given as joint length in metres per 420 gm Cartridge.

Joint depth	Joint width (mm)			
	6	12	20	30
6	8.97	4.49		
10			1.61	
15				0.71

For Example: Size Gap is 6mm x 6mm x 1000mm which is 0.6 cm x 0.6 cm x 100 cm = 36 cu.cm.

Density is 1.36 gms/cc therefore to fill gap size of 36 cu.cm $\frac{36 \times 1.36}{1} = 48.96$ grams

Therefore one cartridge of 420 gm can fill 8.97 gaps of the above size.

Technical data

Density	:	1.31 to 1.41 gms/cc
Cartridge content	:	310 ml
Application Temperature	:	5° C to 50° C
Curing time	:	Indoor application: 3 to 4 hours
(At 28 deg.Centigrade)		Outdoor application: 2 to 3 hours
Shelf life	:	12 months in dry place
Storage temperature	:	5° C to 30° C
Colour	:	Off-white
ph value	:	6.5 to 8.5
Odour	:	Odourless

Tested in accordance with ASTM-E-814, UL-1479 up to 4 hours rating.

VIJAY SYSTEMS ENGINEERS PVT. LTD.

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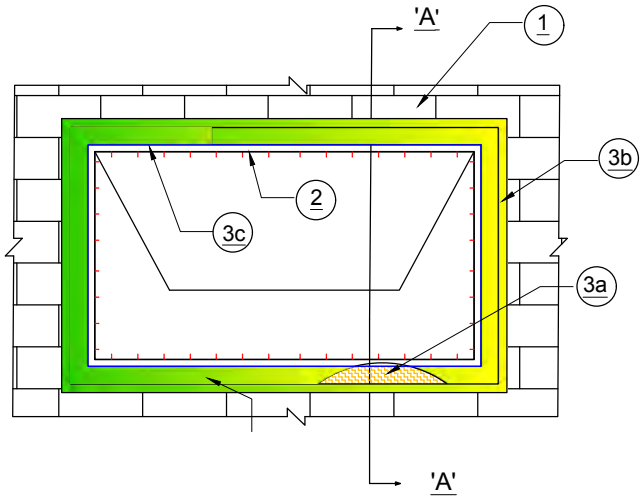
METHOD OF STATEMENT (APPLICATION SYSTEMS)

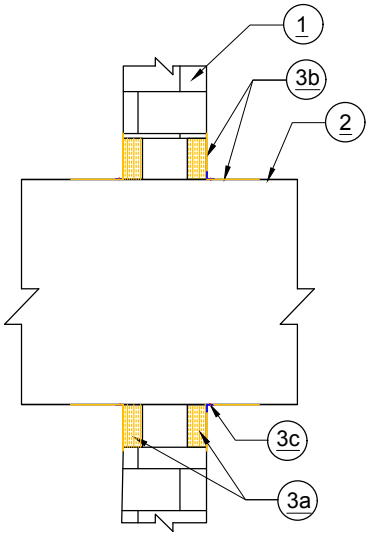
ENGINEERING JUDGEMENT-FIRE STOP

HVAC DUCT PASSING THROUGH WALL OPENING USING PANEL SEAL

FIRE RATING: UP TO 4 HRS



WALL OPENING ELEVATION



SECTION AT "A-A"

DETAILS:

1: CONCRETE / BLOCK WALL OPENING MINIMUM 125 MM THICK, 3 HRS FIRE RATED.

2: RECTANGULAR STEEL DUCT.

3a: 50 MM THICK ACE PANEL SEAL.MINIMUM 2 LAYERS (MINERAL WOOL BOARD 150 D, 50 MM THICK,COATED WITH ACE MASTIK COATING MINIMUM 1.5 MM THK). EACH FIXED IN LEVEL WITH ONE OF THE FACES OF CONCRETE / BLOCK WALL.PREFERRED GAP BETWEEN THE BOARDS UP TO 100 MM.

3b: DUCT OUTER SHEET COATED 300 MM BEYOND SEAL SURFACE ON BOTH SIDES OF WALL PENETRATION. COATING APPLIED ON BOTH EXPOSED FACES 50 MM BEYOND THE OPENING BOUNDARY.

3c: PRESSED STEEL ANGLE 40X40 MM,2.0 MM THICK FIXED ON DUCT ON BOTH THE FACES OF WALL CONCRETE OPENING.

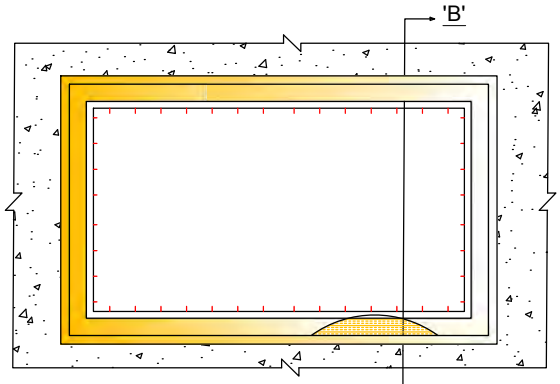
ENGINEERING JUDGEMENT:

MAXIMUM OPENING NOT TO EXCEED SIZE WITH PENETRANTS AT A DISTANCE OF NOT MORE THAN 150 MM FROM THE OPENING BOUNDARY UNLESS PROVIDED WITH SUPPORT ENCASING PRESSED STEEL CHANNELS NOMINAL 53 MM WIDE X 50 HEIGHT MIN 0.8 MM THICK PROGRESSIVELY AT EACH HORIZONTAL ACE PANEL SEAL JOINT WITH ENDS OF CHANNELS SUPPORTED ON CIVIL OPENING BOUNDARIES.
MINIMUM ANNULAR SPACE BETWEEN BOUNDARY OF OPENING AND PENETRANT 70 MM &
MINIMUM ANNULAR SPACING BETWEEN PENETRANTS 90 MM.

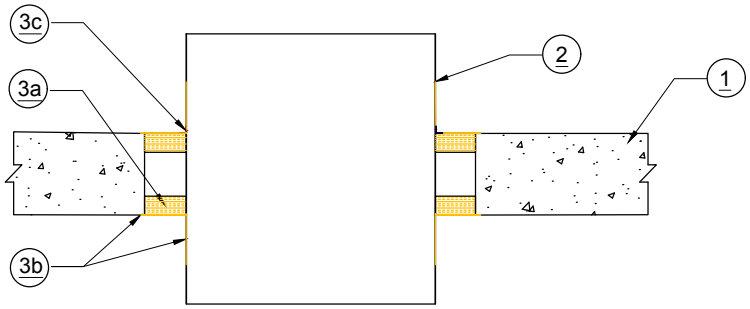
REFERENCE: FM APPROVAL NO.606 PANEL SEAL.		SYSTEM:	FIRE PENETRATION SEALING UPTO 4 HRS FIRE RATED AS PER ASTM E 814 / FM 4990	
VIJAY Systems Engineers	PROJECT CODE: ----	LOCATION:	CONCRETE/ BLOCK WALL OPENING.	
	SCALE : NTS	DRAWN	APPROVED	DATE
	ITEM : ACE PANEL SEAL	PMT	---	03.01.2020
	VIJAY SYSTEMS ENGINEERS PVT. LTD.		DRG. NO.-	REV.
	PLOT NO. 35, CHANDIVALI MUMBAI-400 072 (INDIA)		VSE-2020-PMT-002.1	00

ENGINEERING JUDGEMENT-FIRE STOP

HVAC DUCT PASSING THROUGH FLOOR OPENING USING PANEL SEAL FIRE RATING: UP TO 4 HRS



PLAN



SECTION AT "B-B"

DETAILS:

1: CONCRETE FLOOR OPENING MINIMUM 125 MM THICK, 3 HRS FIRE RATED.

2: RECTANGULAR STEEL DUCT.

3a: 50 MM THICK ACE PANEL SEAL.MINIMUM 2 LAYERS (MINERAL WOOL BOARD 150 D, 50 MM THICK,COATED WITH ACE MASTIK COATING MINIMUM 1.5 MM THK). EACH FIXED IN LEVEL WITH ONE OF THE FACES OF CONCRETE FLOOR OPENING. PREFERRED GAP BETWEEN THE BOARDS UP TO 100 MM.

3b: DUCT OUTER SHEET COATED 300 MM BEYOND SEAL SURFACE ON BOTH SIDES OF FLOOR PENETRATION. COATING APPLIED ON BOTH EXPOSED FACES 50 MM BEYOND THE OPENING BOUNDARY.

3c: PRESSED STEEL ANGLE OF SIZE 40X40 MM,2.0 MM THICK FIXED ON DUCT ON TOP FACE OF FLOOR OPENING.

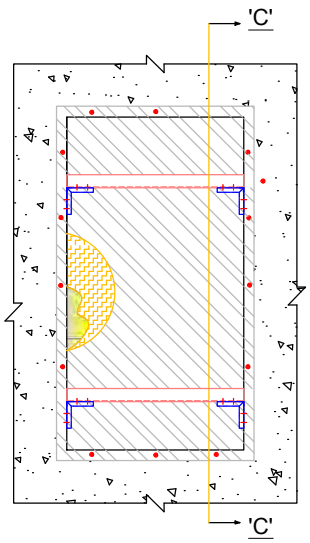
ENGINEERING JUDGEMENT:

MAXIMUM OPENING NOT TO EXCEED SIZE WITH PENETRANTS AT A DISTANCE OF NOT MORE THAN 150 MM FROM THE OPENING BOUNDARY UNLESS PROVIDED WITH STEEL SUPPORT CHANNELS 50X25X3 MM THICK ACROSS THE SMALLER SIZE OF THE OPENING TO FORM A SUPPORT GRID AT PANEL SEAL JOINTS.
MINIMUM ANNULAR SPACE BETWEEN BOUNDARY OF OPENING AND PENETRANT 70 MM &
MINIMUM ANNULAR SPACING BETWEEN PENETRANTS 90 MM.

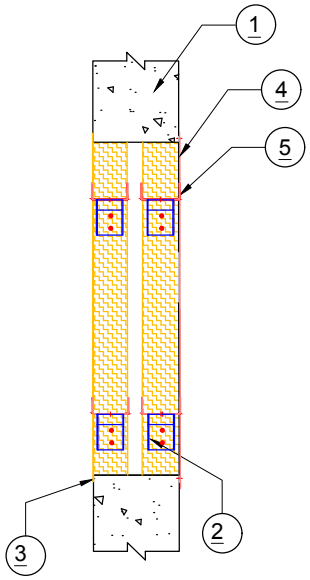
REFERENCE: FM APPROVAL NO.606 PANEL SEAL.		SYSTEM:	FIRE PENETRATION SEALING UPTO 4 HRS FIRE RATED AS PER ASTM E 814 / FM 4990	
VIJAY Systems Engineers	PROJECT CODE: ----	LOCATION:	CONCRETE FLOOR OPENING.	
	SCALE : NTS	DRAWN	APPROVED	DATE
	ITEM : ACE PANEL SEAL	PMT	---	03.01.2020
	VIJAY SYSTEMS ENGINEERS PVT. LTD.		DRG. NO.-	REV.
	PLOT NO. 35, CHANDIVALI MUMBAI-400 072 (INDIA)		VSE-2020-PMT-002.2	00

ENGINEERING JUDGEMENT-FIRE STOP

RECTANGULAR / CIRCULAR WALL OPENING WITHOUT PENETRANTS USING PANEL SEAL FIRE RATING: UP TO 4 HRS



WALL OPENING ELEVATION



SECTION AT "C-C"

DETAILS:

1: CONCRETE WALL OPENING MINIMUM 125 MM THICK , 3 HRS FIRE RATED.

2: MIN 50 MM THICK ACE PANEL SEAL. 2 LAYERS (MINERAL WOOL BOARD 150 KG/M3 DENSITY, COATED WITH ACE MASTIK COATING MINIMUM THICKNESS 1.5 MM). EACH LAYER FIXED IN LEVEL WITH ONE OF THE FACES OF THE OPENING. PREFERRED GAP BETWEEN BOARDS 100 MM NOMINAL.

3: ACE MASTIK COATING ON SEAL SURFACE OF FIRE SEAL UP TO 50 MM BEYOND THE OPENING BOUNDARY.

4: FOR OPENING HAVING BOTH THE DIMENSIONS (LENGTH & WIDTH) BIGGER THAN 400 MM, STEEL SHEET MINIMUM 1.2 MM THICK TO BE PROVIDED ON ONE OF THE FACES OF THE WALL OPENING USING M8 SIZE ANCHOR FASTENERS SPACED MAX 100 MM FROM CORNERS AND 300 MM CENTER TO CENTER DISTANCE. (TO MAINTAIN INTEGRITY DURING HOSE STREAM TEST)

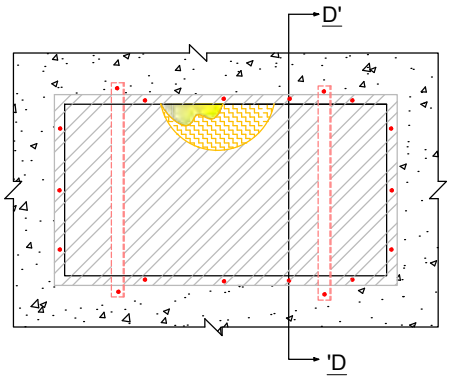
5: FOR EXTRA LARGE OPENINGS WITH HEIGHT EXCEEDING 1000 MM, ENCASING STEEL PRESSED CHANNELS (53MM X 50 MM) MINIMUM 0.8 MM THICKNESS WILL HAVE TO BE PROVIDED HORIZONTALLY TO SUPPORT THE PANEL SEALS TO STAY VERTICALLY IN POSITION. SUPPORTS TO THESE CHANNELS CAN BE EXTENDED FROM NEARBY OTHER STABLE STRUCTURE AS SUITABLE TO INDIVIDUAL SITE LOCATION.

ENGINEERING JUDGEMENT:

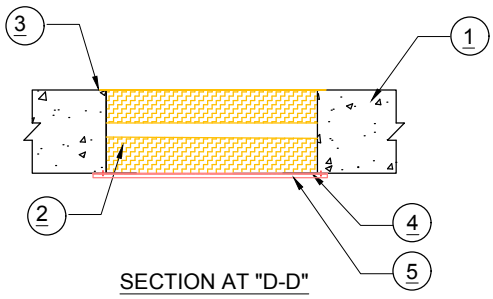
MAXIMUM RECTANGULAR WALL OPENING SIZE EXCEEDING SIZE OF 600 MM X 1000 MM WILL REQUIRE ENCASING BY PRESSED STEEL CHANNELS FOR PANEL SEALS TO VERTICALLY STAY IN POSITION AS PER DETAILS 5 ABOVE . MAXIMUM CIRCULAR OPENING EXCEEDING 600 MM DIAMETER WILL REQUIRE ENCASING OF PRESSED STEEL CHANNELS AS PER DETAILS 5 ABOVE.
WHEN PANEL SEAL PIECES OF SIZE SMALLER THAN STANDARD FULL SIZE OF 1000 MM X 600 MM ARE INTENDED TO BE USED, ALL PANEL SEAL JOINTS SHALL HAVE TO BE ENCASED USING PRESSED STEEL CHANNELS AS PER DETAILS 5.ABOVE.

REFERENCE: FM APPROVAL NO 606 PANEL SEAL		SYSTEM: FIRE PENETRATION SEALING UPTO 4 HRS FIRE RATED AS PER ASTM E 814 / FM 4990		
VIJAY Systems Engineers	PROJECT CODE: ---	LOCATION: CONCRETE WALL OPENING.		
	SCALE : NTS	DRAWN	APPROVED	DATE
	ITEM : ACE PANEL SEAL	PMT	---	03.01.2020
	VIJAY SYSTEMS ENGINEERS PVT. LTD.		DRG. NO.-	REV.
	PLOT NO. 35, CHANDIVALI MUMBAI-400 072 (INDIA)		VSE-2020-PMT-002.3	00

ENGINEERING JUDGEMENT-FIRE STOP
RECTANGULAR / CIRCULAR FLOOR OPENING WITHOUT PENETRANTS USING PANEL SEAL
FIRE RATING: UP TO 4 HRS



FLOOR OPENING PLAN



SECTION AT "D-D"

DETAILS:

1: CONCRETE FLOOR OPENING MINIMUM 125 MM THICK , 3 HRS FIRE RATED.

2: MIN 50 MM THICK ACE PANEL SEAL. 2 LAYERS (MINERAL WOOL BOARD 150 KG/M3 DENSITY, COATED WITH ACE MASTIK COATING MINIMUM THICKNESS 1.5 MM). EACH LAYER FIXED IN LEVEL WITH BOTTOM & TOP FACES OF THE OPENING. PREFERRED GAP BETWEEN BOARDS 100 MM NOMINAL.

3: ACE MASTIK COATING ON SEAL SURFACE OF FIRE SEAL UP TO 50 MM BEYOND THE OPENING BOUNDARY.

4: FOR OPENING HAVING BOTH THE DIMENSIONS (LENGTH & WIDTH) BIGGER THAN 400 MM, STEEL SHEET MINIMUM 1.2 MM THICK TO BE PROVIDED ON THE LOWER SIDE OF THE FLOOR OPENING USING M8 SIZE ANCHOR FASTENERS SPACED MAX 100 MM FROM CORNERS AND 300 MM CENTER TO CENTER DISTANCE. (TO MAINTAIN INTEGRITY DURING HOSE STREAM TEST)

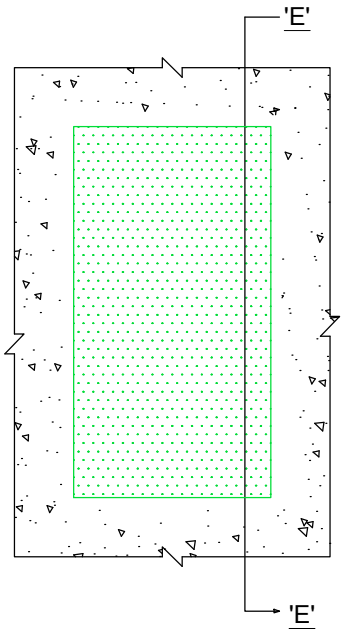
5: FOR EXTRA LARGE OPENINGS WITH BOTH DIMENSIONS EXCEEDING 600 MM, STEEL ANGLES OF SIZE 50X50X2 MM UP TO A SPAN OF 1200 MM AND OF SIZE 50X50X 5 MM FOR SPANS EXCEEDING 1200 MM SHALL BE PROVIDED AT THE BOTTOM FACE OF THE OPENING FORMING A GRID TO SUPPORT PANEL SEAL JOINTS. STRUCTURAL SUPPORT ANGLES CAN BE FASTENED TO THE CONCRETE FLOOR USING M10 SIZE FASTENERS ON BOTH ENDS OF ANGLE. ALTERNATIVELY ANGLES CAN BE EXTENDED TO GET SUPPORT FROM NEARBY OTHER STABLE STRUCTURE AS SUITABLE TO INDIVIDUAL SITE LOCATION.

ENGINEERING JUDGEMENT:

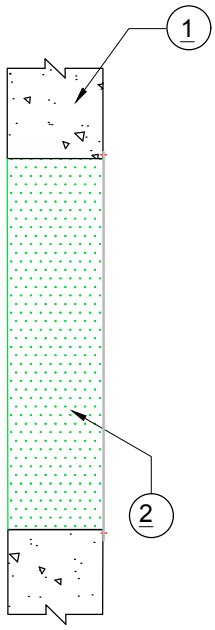
MAXIMUM RECTANGULAR WALL OPENING SIZE EXCEEDING SIZE OF 600 MM X 1000 MM WILL REQUIRE SUPPORTS AS PER DETAILS 5 ABOVE.
MAXIMUM CIRCULAR OPENING EXCEEDING 600 MM DIAMETER WILL REQUIRE SUPPORTS AS PER DETAILS 5 ABOVE.
WHEN PANEL SEAL PIECES OF SIZE SMALLER THAN STANDARD FULL SIZE OF 1000 MM X 600 MM ARE INTENDED TO BE USED, ALL PANEL SEAL JOINTS SHALL REQUIRE SUPPORTS AS PER DETAILS 5 ABOVE.

REFERENCE: FM APPROVAL NO 606 PANEL SEAL		SYSTEM: FIRE PENETRATION SEALING UPTO 4 HRS FIRE RATED AS PER ASTM E 814 / FM 4990		
VIJAY Systems Engineers	PROJECT CODE: ---	LOCATION: CONCRETE FLOOR OPENING.		
	SCALE : NTS	DRAWN	APPROVED	DATE
	ITEM : ACE PANEL SEAL	PMT	---	03.01.2020
	VIJAY SYSTEMS ENGINEERS PVT. LTD.		DRG. NO.-	REV.
	PLOT NO. 35, CHANDIVALI MUMBAI-400 072 (INDIA)		VSE-2020-PMT-002.4	00

ENGINEERING JUDGEMENT-FIRE STOP RECTANGULAR / CIRCULAR WALL OPENING WITHOUT PENETRANTS USING MORTAR SEAL FIRE RATING: UP TO 4 HRS



WALL OPENING ELEVATION



SECTION AT "E-E"

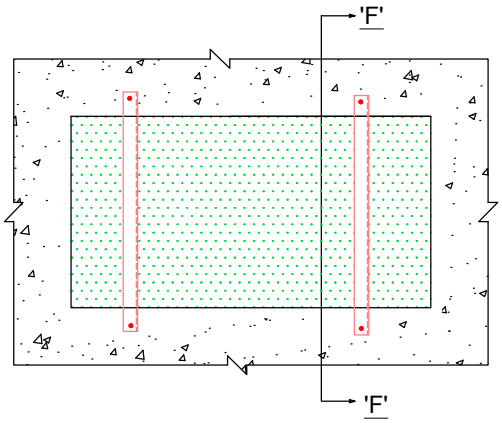
DETAILS:

1: CONCRETE WALL OPENING MINIMUM 125 MM THICK , 3 HRS FIRE RATED.

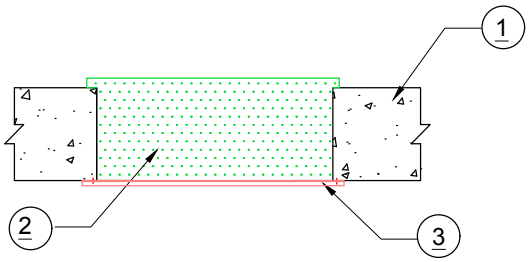
2. MINIMUM 170 MM THICK ACE MORTAR SEAL APPLIED PREFERABLY IN LEVEL WITH BOTH FACES OF WALL ON EITHER SIDE OF THE OPENING.

REFERENCE: FM APPROVAL NO 608 MORTAR SEAL		SYSTEM:	FIRE PENETRATION SEALING UPTO 4 HRS FIRE RATED AS PER ASTM E 814 / FM 4990	
VIJAY Systems Engineers	PROJECT CODE: ---	LOCATION:	CONCRETE WALL OPENING.	
	SCALE : NTS	DRAWN	APPROVED	DATE
	ITEM : ACE MORTAR SEAL	PMT	---	03.01.2020
	VIJAY SYSTEMS ENGINEERS PVT. LTD.		DRG. NO.-	REV.
	PLOT NO. 35, CHANDIVALI MUMBAI-400 072 (INDIA)		VSE-2020-PMT-002.5	00

ENGINEERING JUDGEMENT-FIRE STOP
RECTANGULAR / CIRCULAR FLOOR OPENING WITHOUT PENETRANTS USING MORTAR SEAL
FIRE RATING: UP TO 4 HRS



FLOOR OPENING PLAN



SECTION AT "F-F"

DETAILS:

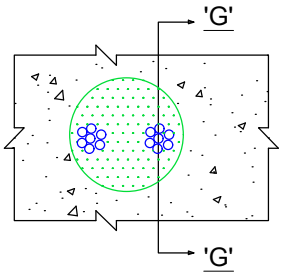
1: CONCRETE FLOOR OPENING MINIMUM 125 MM THICK , 3 HRS FIRE RATED.

2. MINIMUM 170 MM THICK ACE MORTAR SEAL APPLIED PREFERABLY IN LEVEL WITH BOTH FACES OF FLOOR OPENING.

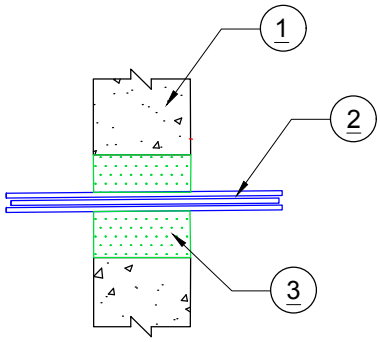
3. FOR EXTRA LARGE OPENINGS WITH BOTH DIMENSIONS EXCEEDING 600 MM, STEEL STRUCTURAL ANGLES OF SIZE 50X50X5 MM SHALL BE PROVIDED AT C/C DISTANCE OF 600 MM ACROSS THE SMALLER DIMENSION TO OVERLAP BEYOND THE OPENING UP TO 75 MM . STRUCTURAL ANGLES CAN BE FASTENED TO THE CONCRETE FLOOR / WALL USING M10 SIZE FASTENERS ON BOTH ENDS OF ANGLE. ALTERNATIVELY ANGLES CAN BE EXTENDED TO GET SUPPORT FROM NEARBY OTHER STABLE STRUCTURE AS SUITABLE TO INDIVIDUAL SITE LOCATION.

REFERENCE: FM APPROVAL NO 608 MORTAR SEAL		SYSTEM:	FIRE PENETRATION SEALING UPTO 4 HRS FIRE RATED AS PER ASTM E 814 / FM 4990	
VIJAY Systems Engineers	PROJECT CODE: --- LOCATION: CONCRETE FLOOR OPENING.			
	SCALE : NTS	DRAWN	APPROVED	DATE
	ITEM : ACE MORTAR SEAL	PMT	---	03.01.2020
	VIJAY SYSTEMS ENGINEERS PVT. LTD. PLOT NO. 35, CHANDIVALI MUMBAI-400 072 (INDIA)		DRG. NO.- VSE-2020-PMT-002.6	REV. 00

ENGINEERING JUDGEMENT-FIRE STOP
LOOSE CABLES THROUGH A RECTANGULAR / CIRCULAR WALL OPENING SEALED USING MORTAR SEAL
FIRE RATING: UP TO 4 HRS



ELEVATION FOR A WALL OPENING



SECTION AT "G-G"

DETAILS:

1: CONCRETE / BLOCK WALL OPENING MINIMUM 125 MM THICK, 3 HRS FIRE RATED.

2: CONTROL & POWER CABLES ALL TYPES & SIZES COMBINATION.

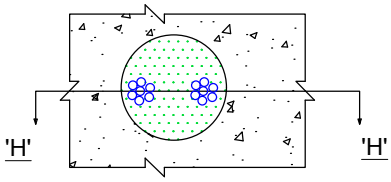
3. MINIMUM 170 MM THICK ACE MORTAR SEAL APPLIED PREFERABLY IN LEVEL WITH BOTH FACES OF WALL OPENING.

ENGINEERING JUDGEMENT:

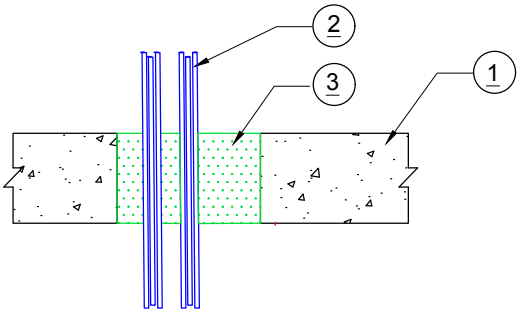
MAXIMUM RECTANGULAR OPENING SIZE NOT TO EXCEED 600 MM X 600 MM OR A CIRCULAR OPENING NOT TO EXCEED DIAMETER OF 600 MM .
MINIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 70 MM.
MAXIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 150 MM.
MINIMUM ANNULAR SPACE BETWEEN THE PENETRANTS 90 MM

REFERENCE: FM APPROVAL NO 608 MORTAR SEAL		SYSTEM:	FIRE PENETRATION SEALING UPTO 4 HRS FIRE RATED AS PER ASTM E 814 / FM 4990	
VIJAY Systems Engineers	PROJECT CODE: --- SCALE : NTS ITEM : ACE MORTAR SEAL	LOCATION: CONCRETE WALL OPENING. DRAWN PMT	APPROVED ---	DATE 03.01.2020
	VIJAY SYSTEMS ENGINEERS PVT. LTD. PLOT NO. 35, CHANDIVALI MUMBAI-400 072 (INDIA)		DRG. NO.- VSE-2020-PMT-002.7	REV. 00

ENGINEERING JUDGEMENT-FIRE STOP
LOOSE CABLES THROUGH RECTANGULAR / CIRCULAR FLOOR OPENING SEALED USING MORTAR SEAL
FIRE RATING: UP TO 4 HRS



PLAN FOR A FLOOR OPENING



SECTION AT "H-H"

DETAILS:

1: CONCRETE FLOOR OPENING MINIMUM 125 MM THICK, 3 HRS FIRE RATED.

2: CONTROL & POWER CABLES ALL TYPES & SIZES COMBINATION.

3. MINIMUM 170 MM THICK ACE MORTAR SEAL APPLIED PREFERABLY IN LEVEL WITH TOP & BOTTOM FACES OF FLOOR OPENING.

ENGINEERING JUDGEMENT:

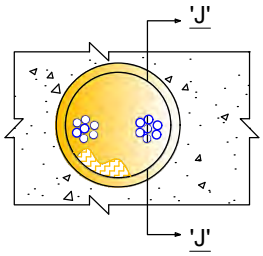
MAXIMUM RECTANGULAR OPENING SIZE NOT TO EXCEED 600 MM X 600 MM OR A CIRCULAR OPENING NOT TO EXCEED DIAMETER OF 600 MM .
MINIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 70 MM.
MAXIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 150 MM.
MINIMUM ANNULAR SPACE BETWEEN THE PENETRANTS 90 MM

REFERENCE: FM APPROVAL NO 608 MORTAR SEAL		SYSTEM:	FIRE PENETRATION SEALING UPTO 4 HRS FIRE RATED AS PER ASTM E 814 / FM 4990	
VIJAY Systems Engineers	PROJECT CODE: ---	LOCATION:	CONCRETE FLOOR OPENING.	
	SCALE : NTS	DRAWN	APPROVED	DATE
	ITEM : ACE MORTAR SEAL	PMT	---	03.01.2020
	VIJAY SYSTEMS ENGINEERS PVT. LTD.		DRG. NO.-	REV.
	PLOT NO. 35, CHANDIVALI MUMBAI-400 072 (INDIA)		VSE-2020-PMT-002.8	00

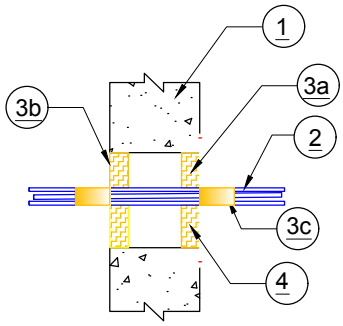
ENGINEERING JUDGEMENT-FIRE STOP

LOOSE CABLES PASSING THROUGH RECTANGULAR / CIRCULAR WALL OPENING SEALED USING PANEL SEAL

FIRE RATING: UP TO 4 HRS



ELEVATION FOR A WALL OPENING



SECTION AT "J-J"

DETAILS:

1: CONCRETE WALL OPENING MINIMUM 125 MM THICK, 3 HRS FIRE RATED.

2: CONTROL & POWER CABLES ALL TYPES AND SIZES COMBINATIONS.

3a: MIN 50 MM THICK ACE PANEL SEAL 2 LAYERS (MINERAL WOOL BOARD 150 D, COATED WITH ACE MASTIK COATING MINIMUM THICKNESS 1.5 MM). ONE LAYER EACH IN LEVEL WITH EACH FACE OF THE WALL OPENING. PREFERRED GAP BETWEEN THE BOARDS UP TO 100 MM.

3b. ACE MASTIK COATING ON SURFACE OF FIRE SEAL UP TO 50 MM BEYOND THE OPENING BOUNDARY.

3c: ACE MASTIK COATING ON ALL PENETRANTS MINIMUM 300 MM LENGTH AWAY FROM THE SEAL FACES ON BOTH THE SIDES OF THE SEAL.

4: FOR OPENING HAVING BOTH THE DIMENSIONS (LENGTH & WIDTH) BIGGER THAN 400 MM, STEEL SHEET MINIMUM 1.2 MM THICK TO BE PROVIDED ON ONE SIDE OF THE WALL OPENING USING M8 SIZE ANCHOR FASTENERS SPACED MAX 100 MM FROM CORNERS AND 300 MM CENTER TO CENTER DISTANCE. (TO MAINTAIN INTEGRITY DURING HOSE STREAM TEST)

ENGINEERING JUDGEMENT:

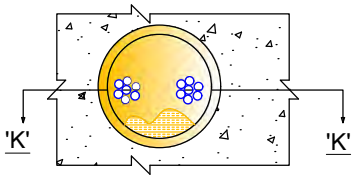
MAXIMUM RECTANGULAR OPENING SIZE NOT TO EXCEED 600 MM X 1000 MM OR A CIRCULAR OPENING NOT TO EXCEED DIAMETER OF 600 MM WITH MAXIMUM ONE PANEL SEAL JOINT. MINIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 70 MM.

MAXIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 150 MM.

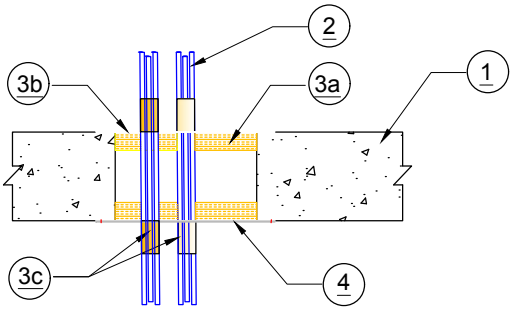
MINIMUM ANNULAR SPACE BETWEEN THE PENETRANTS 90 MM

REFERENCE: FM APPROVAL NO 606 PANEL SEAL. SEAL		SYSTEM: FIRE PENETRATION SEALING UPTO 4 HRS FIRE RATED AS PER ASTM E 814 / FM 4990		
VIJAY Systems Engineers	PROJECT CODE: --- LOCATION: CONCRETE WALL OPENING.			
	SCALE : NTS	DRAWN	APPROVED	DATE
	ITEM : ACE PANEL SEAL	PMT	---	03.01.2020
	VIJAY SYSTEMS ENGINEERS PVT. LTD. PLOT NO. 35, CHANDIVALI MUMBAI-400 072 (INDIA)		DRG. NO.- VSE-2020-PMT-002.9	REV. 00

ENGINEERING JUDGEMENT-FIRE STOP
LOOSE CABLES PASSING THROUGH RECTANGULAR / CIRCULAR FLOOR OPENING SEALED USING PANEL SEAL.
FIRE RATING: UP TO 4 HRS



PLAN FOR A FLOOR OPENING



SECTION AT "K-K"

DETAILS:

1: CONCRETE FLOOR OPENING MINIMUM 125 MM THICK, 3 HRS FIRE RATED.

2: CONTROL & POWER CABLES ALL TYPES AND SIZES COMBINATIONS.

3a: MIN 50 MM THICK ACE PANEL SEAL 2 LAYERS (MINERAL WOOL BOARD 150 D, COATED WITH ACE MASTIK COATING MINIMUM THICKNESS 1.5 MM). ONE LAYER EACH IN LEVEL WITH BOTTOM AND TOP FACE OF THE FLOOR OPENING. PREFERRED GAP BETWEEN THE BOARDS UP TO 100 MM.

3b. ACE MASTIK COATING ON SURFACE OF FIRE SEAL UP TO 50 MM BEYOND THE OPENING BOUNDARY.

3c: ACE MASTIK COATING ON ALL PENETRANTS MINIMUM 300 MM LENGTH AWAY FROM THE SEAL FACES ON BOTH THE SIDES OF THE SEAL.

4: FOR OPENING HAVING BOTH THE DIMENSIONS (LENGTH & WIDTH) BIGGER THAN 400 MM, STEEL SHEET MINIMUM 1.2 MM THICK TO BE PROVIDED ON THE LOWER SIDE OF THE FLOOR OPENING USING M8 SIZE ANCHOR FASTENERS SPACED MAX 100 MM FROM CORNERS AND 300 MM CENTER TO CENTER DISTANCE. (TO MAINTAIN INTEGRITY DURING HOSE STREAM TEST)

ENGINEERING JUDGEMENT:

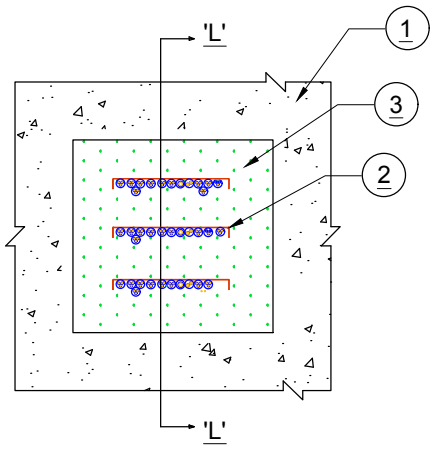
MAXIMUM RECTANGULAR OPENING SIZE NOT TO EXCEED 600 MM X 1000 MM OR NOT TO EXCEED DIAMETER OF 600 MM FOR A CIRCULAR OPENING WITH MAXIMUM ONE PANEL SEAL JOINT.
MINIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 70 MM.

MAXIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 150 MM.

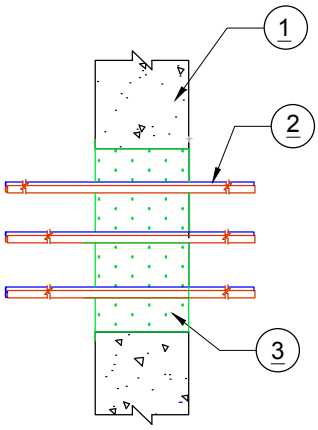
MINIMUM ANNULAR SPACE BETWEEN THE PENETRANTS 90 MM

REFERENCE: FM APPROVAL NO 606 PANEL SEAL		SYSTEM: FIRE PENETRATION SEALING UPTO 4 HRS FIRE RATED AS PER ASTM E 814 / FM 4990		
VIJAY Systems Engineers	PROJECT CODE: --- SCALE : NTS ITEM : ACE PANEL SEAL	LOCATION: CONCRETE FLOOR OPENING. DRAWN PMT	APPROVED ---	DATE 03.01.2020
	VIJAY SYSTEMS ENGINEERS PVT. LTD. PLOT NO. 35, CHANDIVALI MUMBAI-400 072 (INDIA)		DRG. NO.- VSE-2020-PMT-002.10	REV. 00

ENGINEERING JUDGEMENT-FIRE STOP
CABLE TRAYS PASSING THROUGH WALL OPENING USING MORTAR SEAL FIRE RATING: UP TO 4 HRS



WALL OPENING ELEVATION



SECTION AT "L-L"

DETAILS:

1: CONCRETE / BLOCK WALL OPENING MINIMUM 125 MM THICK, 3 HRS FIRE RATED.

2: CABLE TRAYS WITH CONTROL & POWER CABLES ALL TYPES & SIZES COMBINATION.

3. MINIMUM 170 MM THICK ACE MORTAR SEAL APPLIED PREFERABLY IN LEVEL WITH BOTH FACES OF WALL OPENING.

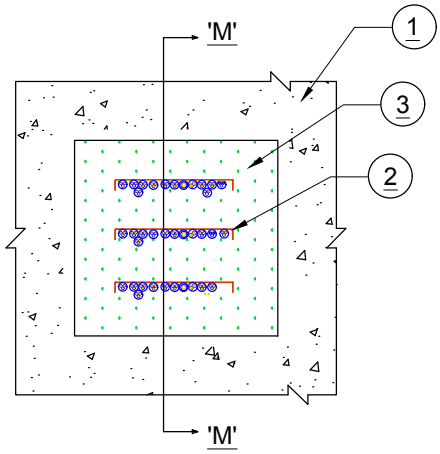
ENGINEERING JUDGEMENT:

MAXIMUM RECTANGULAR OPENING SIZE NOT TO EXCEED 600 MM X 600 MM OR A CIRCULAR OPENING NOT TO EXCEED DIAMETER OF 600 MM .
MINIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 70 MM.
MAXIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 150 MM.
MINIMUM ANNULAR SPACE BETWEEN THE PENETRANTS 90 MM

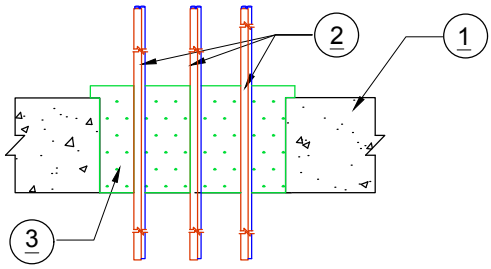
REFERENCE: FM APPROVAL NO 608 MORTAR SEAL		SYSTEM: FIRE PENETRATION SEALING UPTO 4 HRS FIRE RATED AS PER ASTM E 814 / FM 4990		
VIJAY Systems Engineers	PROJECT CODE: ---	LOCATION: CONCRETE WALL OPENING.		
	SCALE : NTS	DRAWN	APPROVED	DATE
	ITEM : ACE MORTAR SEAL	PMT	---	03.01.2020
	VIJAY SYSTEMS ENGINEERS PVT. LTD.		DRG. NO.-	REV.
	PLOT NO. 35, CHANDIVALI MUMBAI-400 072 (INDIA)		VSE-2020-PMT-002.11	00

ENGINEERING JUDGEMENT-FIRE STOP

CABLE TRAYS PASSING THROUGH FLOOR OPENING USING MORTAR SEAL FIRE RATING: UP TO 4 HRS



FLOOR OPENING PLAN



SECTION AT "M-M"

DETAILS:

1: CONCRETE FLOOR OPENING MINIMUM 125 MM THICK, 3 HRS FIRE RATED.

2: CABLE TRAYS WITH CONTROL & POWER CABLES ALL TYPES & SIZES COMBINATION.

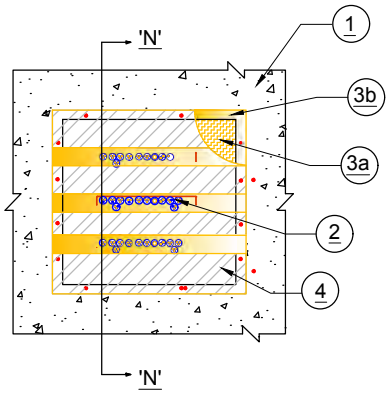
3. MINIMUM 170 MM THICK ACE MORTAR SEAL APPLIED PREFERABLY IN LEVEL WITH BOTTOM AND TOP FACES OF FLOOR OPENING.

ENGINEERING JUDGEMENT:

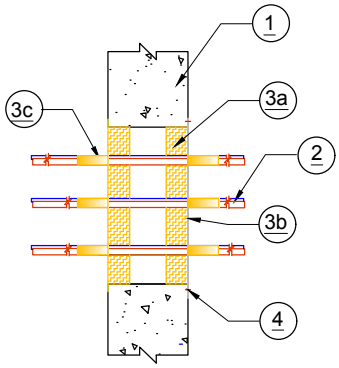
MAXIMUM RECTANGULAR OPENING SIZE NOT TO EXCEED 600 MM X 600 MM OR A CIRCULAR OPENING NOT TO EXCEED DIAMETER OF 600 MM .
MINIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 70 MM.
MAXIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 150 MM.
MINIMUM ANNULAR SPACE BETWEEN THE PENETRANTS 90 MM

REFERENCE: FM APPROVAL NO 608 MORTAR SEAL		SYSTEM: FIRE PENETRATION SEALING UPTO 4 HRS FIRE RATED AS PER ASTM E 814 / FM 4990		
VIJAY Systems Engineers	PROJECT CODE: ---	LOCATION: CONCRETE FLOOR OPENING.		
	SCALE : NTS	DRAWN	APPROVED	DATE
	ITEM : ACE MORTAR SEAL	PMT	---	03.01.2020
	VIJAY SYSTEMS ENGINEERS PVT. LTD.		DRG. NO.-	REV.
	PLOT NO. 35, CHANDIVALI MUMBAI-400 072 (INDIA)		VSE-2020-PMT-002.12	00

ENGINEERING JUDGEMENT-FIRE STOP
CABLE TRAYS PASSING THROUGH WALL OPENING USING PANEL SEAL
FIRE RATING: UP TO 4 HRS



WALL OPENING ELEVATION



SECTION AT "N-N"

DETAILS:

1: CONCRETE WALL OPENING MINIMUM 125 MM THICK, 3 HRS FIRE RATED.

2: CABLES IN CABLE TRAYS (MULTIPLE) ALL CABLE SIZES AND TYPES COMBINATION.

3a: MIN 50 MM THICK ACE PANEL SEAL 2 LAYERS (MINERAL WOOL BOARD 150 D, COATED WITH ACE MASTIK COATING MINIMUM THICKNESS 1.5 MM). ONE LAYER EACH IN LEVEL WITH FACE OF THE CONCRETE WALL OPENING. PREFERRED GAP BETWEEN BOARDS UP TO 100 MM.

3b. ACE MASTIK COATING ON SURFACE OF FIRE SEAL UP TO 50 MM BEYOND THE OPENING BOUNDARY.

3c: ACE MASTIK COATING ON ALL PENETRANTS MINIMUM 300 MM LENGTH AWAY FROM THE SEAL FACES ON BOTH THE SIDES OF THE SEAL.

4: FOR OPENING HAVING BOTH THE DIMENSIONS (LENGTH & WIDTH) BIGGER THAN 400 MM, STEEL SHEET MINIMUM 1.2 MM THICK TO BE PROVIDED ON THE LOWER SIDE OF THE FLOOR OPENING USING M8 SIZE ANCHOR FASTENERS SPACED MAX 100 MM FROM CORNERS AND 300 MM CENTER TO CENTER DISTANCE. (TO MAINTAIN INTEGRITY DURING HOSE STREAM TEST)

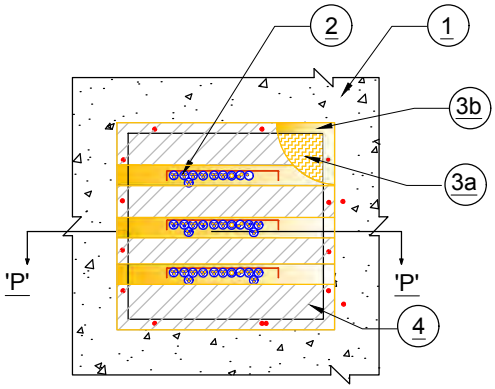
ENGINEERING JUDGEMENT:

MAXIMUM RECTANGULAR OPENING SIZE NOT TO EXCEED 600 MM X 1000 MM OR A CIRCULAR OPENING NOT TO EXCEED DIAMETER OF 600 MM WITH MAXIMUM ONE PANEL SEAL JOINT.
MINIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 70 MM.
MAXIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 150 MM.
MINIMUM ANNULAR SPACE BETWEEN THE PENETRANTS 90 MM

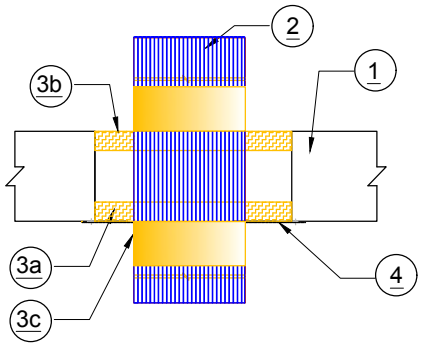
REFERENCE: FM APPROVAL NO 606 PANEL SEAL		SYSTEM: FIRE PENETRATION SEALING UPTO 4 HRS FIRE RATED AS PER ASTM E 814 / FM 4990		
VIJAY Systems Engineers	PROJECT CODE: ---	LOCATION: CONCRETE WALL OPENING.		
	SCALE : NTS	DRAWN	APPROVED	DATE
	ITEM : ACE PANEL SEAL	PMT	---	03.01.2020
	VIJAY SYSTEMS ENGINEERS PVT. LTD.		DRG. NO.-	REV.
	PLOT NO. 35, CHANDIVALI MUMBAI-400 072 (INDIA)		VSE-2020-PMT-002.13	00

ENGINEERING JUDGEMENT-FIRE STOP

CABLE TRAYS PASSING THROUGH FLOOR OPENING USING PANEL SEAL FIRE RATING: UP TO 4 HRS



FLOOR OPENING PLAN



SECTION AT "P-P"

DETAILS:

1: CONCRETE FLOOR OPENING MINIMUM 125 MM THICK, 3 HRS FIRE RATED.

2: CABLES IN CABLE TRAYS (MULTIPLE) ALL CABLE SIZES AND TYPES COMBINATION.

3a: MIN 50 MM THICK ACE PANEL SEAL 2 LAYERS (MINERAL WOOL BOARD 150 D, COATED WITH ACE MASTIK COATING MINIMUM THICKNESS 1.5 MM). ONE LAYER EACH IN LEVEL WITH BOTTOM & TOP FACE OF FLOOR OPENING. PREFERRED GAP BETWEEN BOARDS UP TO 100 MM.

3b. ACE MASTIK COATING ON SURFACE OF FIRE SEAL UP TO 50 MM BEYOND THE OPENING BOUNDARY.

3c: ACE MASTIK COATING ON ALL PENETRANTS MINIMUM 300 MM LENGTH AWAY FROM THE SEAL FACES ON BOTH THE SIDES OF THE SEAL.

4: FOR OPENING HAVING BOTH THE DIMENSIONS (LENGTH & WIDTH) BIGGER THAN 400 MM, STEEL SHEET MINIMUM 1.2 MM THICK TO BE PROVIDED ON THE LOWER SIDE OF THE FLOOR OPENING USING M8 SIZE ANCHOR FASTENERS SPACED MAX 100 MM FROM CORNERS AND 300 MM CENTER TO CENTER DISTANCE. (TO MAINTAIN INTEGRITY DURING HOSE STREAM TEST)

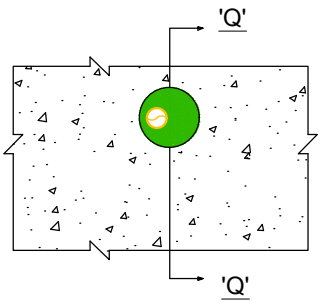
ENGINEERING JUDGEMENT:

MAXIMUM RECTANGULAR OPENING SIZE NOT TO EXCEED 600 MM X 1000 MM OR A CIRCULAR OPENING NOT TO EXCEED DIAMETER OF 600 MM WITH MAXIMUM ONE PANEL SEAL JOINT..
MINIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 70 MM.
MAXIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 150 MM.
MINIMUM ANNULAR SPACE BETWEEN THE PENETRANTS 90 MM

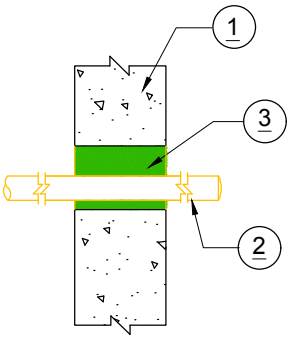
REFERENCE: FM APPROVAL NO 606 PANEL SEAL		SYSTEM: FIRE PENETRATION SEALING UPTO 4 HRS FIRE RATED AS PER ASTM E 814 / FM 4990		
VIJAY Systems Engineers	PROJECT CODE: ---	LOCATION: CONCRETE FLOOR OPENING.		
	SCALE : NTS	DRAWN	APPROVED	DATE
	ITEM : ACE PANEL SEAL	PMT	---	03.01.2020
	VIJAY SYSTEMS ENGINEERS PVT. LTD.		DRG. NO.–	REV.
	PLOT NO. 35, CHANDIVALI MUMBAI–400 072 (INDIA)		VSE–2020–PMT–002.14	00

ENGINEERING JUDGEMENT-FIRE STOP

STEEL PIPE PASSING THROUGH WALL OPENING SEALED USING MORTAR SEAL FIRE RATING: UP TO 4 HRS



WALL OPENING ELEVATION



SECTION AT "Q-Q"

DETAILS:

1: CIRCULAR OR RECTANGULAR CONCRETE WALL OPENING MINIMUM 125 THICK OR MORE. 3 HRS FIRE RATED.

2. STEEL SERVICE PIPE.

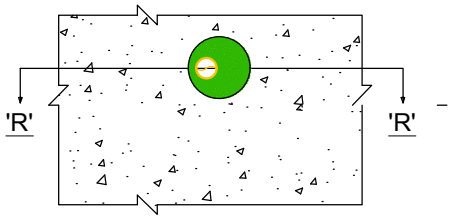
3: MIN 170 MM THICK ACE MORTAR SEAL PREFERABLY APPLIED IN LEVEL WITH BOTH THE FACES OF WALL OPENING.

ENGINEERING JUDGEMENT:

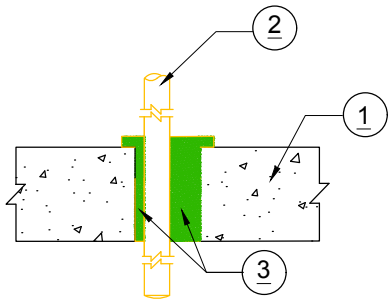
MAXIMUM RECTANGULAR OPENING SIZE NOT TO EXCEED 600 MM X 600 MM OR A CIRCULAR OPENING NOT TO EXCEED DIAMETER OF 600 MM .
MINIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 70 MM.
MAXIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 150 MM.
MINIMUM ANNULAR SPACE BETWEEN THE PENETRANTS 90 MM

REFERENCE: FM APPROVAL NO 608 MORTAR SEAL		SYSTEM: FIRE PENETRATION SEALING UPTO 4 HRS FIRE RATED AS PER ASTM E 814 / FM 4990		
VIJAY Systems Engineers	PROJECT CODE: ---	LOCATION: CONCRETE WALL OPENING.		
	SCALE : NTS	DRAWN	APPROVED	DATE
	ITEM : ACE MORTAR SEAL	PMT	---	03.01.2020
	VIJAY SYSTEMS ENGINEERS PVT. LTD.		DRG. NO.-	REV.
	PLOT NO. 35, CHANDIVALI MUMBAI-400 072 (INDIA)		VSE-2020-PMT-002.15	00

ENGINEERING JUDGEMENT-FIRE STOP
STEEL PIPE PASSING THROUGH FLOOR OPENING SEALED BY MORTAR SEAL
FIRE RATING: UP TO 4 HRS



FLOOR OPENING PLAN



SECTION AT "R-R"

DETAILS:

1: CIRCULAR OR RECTANGULAR CONCRETE FLOOR OPENING MINIMUM 125 THICK OR MORE. 3 HRS FIRE RATED.

2. STEEL SERVICE PIPE.

3: MIN 170 MM THICK ACE MORTAR SEAL APPLIED PREFERABLY IN LEVEL WITH BOTTOM AND TOP FACE OF CONCRETE FLOOR OPENNG.

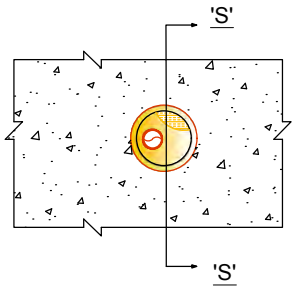
ENGINEERING JUDGEMENT:

MAXIMUM RECTANGULAR OPENING SIZE NOT TO EXCEED 600 MM X 600 MM OR A CIRCULAR OPENING NOT TO EXCEED DIAMETER OF 600 MM .
MINIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 70 MM.
MAXIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 150 MM.
MINIMUM ANNULAR SPACE BETWEEN THE PENETRANTS 90 MM

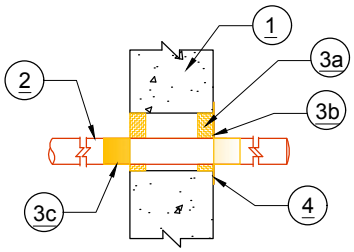
REFERENCE: FM APPROVAL NO 608 MORTAR SEAL		SYSTEM:	FIRE PENETRATION SEALING UPTO 4 HRS FIRE RATED AS PER ASTM E 814 / FM 4990	
VIJAY Systems Engineers	PROJECT CODE: ---	LOCATION:	CONCRETE FLOOR OPENING.	
	SCALE : NTS	DRAWN	APPROVED	DATE
	ITEM : ACE MORTAR SEAL	PMT	---	03.01.2020
	VIJAY SYSTEMS ENGINEERS PVT. LTD.		DRG. NO.-	REV.
	PLOT NO. 35, CHANDIVALI MUMBAI-400 072 (INDIA)		VSE-2020-PMT-002.16	00

ENGINEERING JUDGEMENT-FIRE STOP

STEEL PIPE PASSING THROUGH WALL OPENING SEALED USING PANEL SEAL FIRE RATING: UP TO 4 HRS



WALL OPENING ELEVATION



SECTION AT "S-S"

DETAILS:

1: CONCRETE WALL OPENING MINIMUM 125 THICK OR MORE. 3 HRS FIRE RATED.

2: STEEL SERVICE PIPE.

3a: MIN 50 MM THICK ACE PANEL SEAL 2 LAYERS (MINERAL WOOL BOARD 150 D, COATED WITH ACE MASTIK COATING MINIMUM THICKNESS 1.5 MM). ONE LAYER EACH IN LEVEL WITH EACH FACE OF THE CONCRETE WALL OPENING. PREFERRED GAP BETWEEN BOARDS UP TO 100 MM.

3b. ACE MASTIK COATING ON SURFACE OF FIRE SEAL UP TO 50 MM BEYOND THE OPENING BOUNDARY.

3c: ACE MASTIK COATING ON ALL PENETRANTS MINIMUM 300 MM LENGTH AWAY FROM THE SEAL FACES ON BOTH THE SIDES OF THE SEAL.

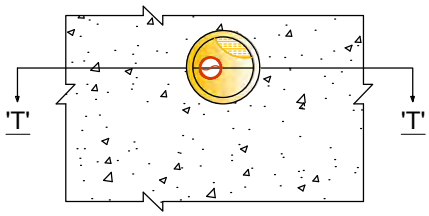
4: FOR OPENING HAVING BOTH THE DIMENSIONS (LENGTH & WIDTH) BIGGER THAN 400 MM, STEEL SHEET MINIMUM 1.2 MM THICK TO BE PROVIDED ON ONE SIDE OF THE WALL OPENING USING M8 SIZE ANCHOR FASTENERS SPACED MAX 100 MM FROM CORNERS AND 300 MM CENTER TO CENTER DISTANCE. (TO MAINTAIN INTEGRITY DURING HOSE STREAM TEST)

ENGINEERING JUDGEMENT:

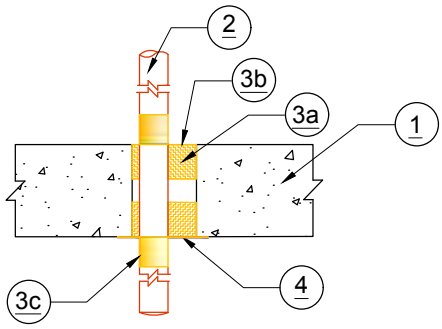
MAXIMUM RECTANGULAR OPENING SIZE NOT TO EXCEED 600 MM X 1000 MM AND MAXIMUM CIRCULAR OPENING SIZE NOT TO EXCEED DIAMETER OF 600 MM .
MINIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 70 MM.
MAXIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 150 MM.
MINIMUM ANNULAR SPACE BETWEEN THE PENETRANTS 90 MM

REFERENCE: FM APPROVAL NO 606 PANEL SEAL		SYSTEM:	FIRE PENETRATION SEALING UPTO 4 HRS FIRE RATED AS PER ASTM E 814 / FM 4990	
VIJAY Systems Engineers	PROJECT CODE: ---	LOCATION:	CONCRETE WALL OPENING.	
	SCALE : NTS	DRAWN	APPROVED	DATE
	ITEM : ACE PANEL SEAL	PMT	---	03.01.2020
	VIJAY SYSTEMS ENGINEERS PVT. LTD.		DRG. NO.-	REV.
	PLOT NO. 35, CHANDIVALI MUMBAI-400 072 (INDIA)		VSE-2020-PMT-002.17	00

ENGINEERING JUDGEMENT-FIRE STOP
STEEL PIPE PASSING THROUGH FLOOR OPENING SEALED USING PANEL SEAL
FIRE RATING: UP TO 4 HRS



FLOOR OPENING PLAN



SECTION AT "T-T"

DETAILS:

1: CONCRETE FLOOR OPENING MINIMUM 125 THICK OR MORE. 3 HRS FIRE RATED.

2: STEEL SERVICE PIPE.

3a MIN 50 MM THICK ACE PANEL SEAL. 2 LAYERS (MINERAL WOOL BOARD 150 KG/M3 DENSITY, COATED WITH ACE MASTIK COATING COATED ON BOTH SIDES MINIMUM THICKNESS 1.5 MM). ONE LAYER EACH IN LEVEL WITH BOTTOM AND TOP FACE OF THE FLOOR OPENING WITH PREFERABLE GAP OF 100 MM.

3b. ACE MASTIK COATING ON SURFACE OF FIRE SEAL & UP TO 50 MM BEYOND THE OPENING BOUNDARY.

3c: ACE MASTIK COATING ON ALL PENETRANTS MINIMUM 300 MM LENGTH AWAY FROM THE SEAL FACES ON BOTH THE SIDES OF THE SEAL.

4: FOR OPENING HAVING BOTH THE DIMENSIONS (LENGTH & WIDTH) BIGGER THAN 400 MM, STEEL SHEET MINIMUM 1.2 MM THICK TO BE PROVIDED ON THE LOWER SIDE OF THE FLOOR OPENING USING M8 SIZE ANCHOR FASTENERS SPACED MAX 100 MM FROM CORNERS AND 300 MM CENTER TO CENTER DISTANCE. (TO MAINTAIN INTEGRITY DURING HOSE STREAM TEST)

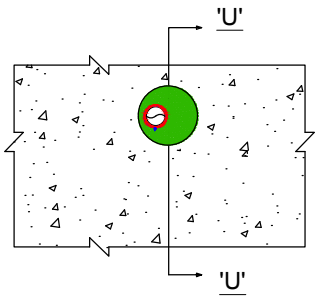
ENGINEERING JUDGEMENT:

MAXIMUM RECTANGULAR OPENING SIZE NOT TO EXCEED 600 MM X 1000 MM OR A CIRCULAR OPENING NOT TO EXCEED DIAMETER OF 600 MM .
MINIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 70 MM.
MAXIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 150 MM.
MINIMUM ANNULAR SPACE BETWEEN THE PENETRANTS 90 MM

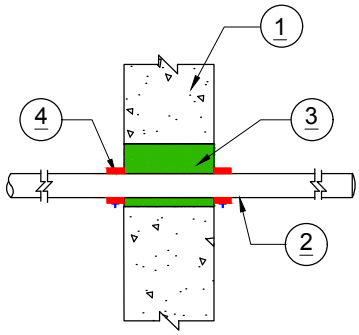
REFERENCE: FM APPROVAL NO 606 PANEL SEAL		SYSTEM:	FIRE PENETRATION SEALING UPTO 4 HRS FIRE RATED AS PER ASTM E 814 / FM 4990	
VIJAY Systems Engineers	PROJECT CODE: ---	LOCATION:	CONCRETE FLOOR OPENING.	
	SCALE : NTS	DRAWN	APPROVED	DATE
	ITEM : ACE PANEL SEAL	PMT	---	03.01.2020
	VIJAY SYSTEMS ENGINEERS PVT. LTD.		DRG. NO.-	REV.
	PLOT NO. 35, CHANDIVALI MUMBAI-400 072 (INDIA)		VSE-2020-PMT-002.18	00

ENGINEERING JUDGEMENT-FIRE STOP

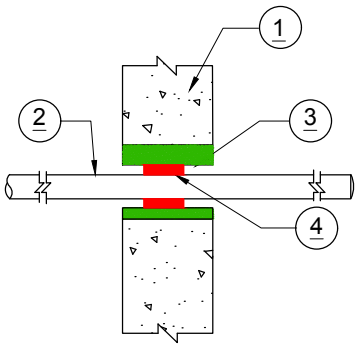
PVC / PLASTIC PIPE PASSING THROUGH WALL OPENING, SEALED USING MORTAR SEAL, TOGETHER WITH PIPE COLLAR / PIPE WRAP . FIRE RATING: UP TO 4 HRS



WALL OPENING ELEVATION



SECTION AT "U-U"
SHOWING PIPE COLLARS



SECTION AT "U-U"
SHOWING PIPE WRAPS.

DETAILS:

1: CIRCULAR OR RECTANGULAR CONCRETE WALL OPENING MINIMUM 125 THICK.3 HRS FIRE RATED.

2. PVC / PLASTIC PIPE.

3: MIN 170 MM THICK ACE MORTAR SEAL PREFERABLY APPLIED IN LEVEL WITH BOTH THE FACES OF WALL OPENING.

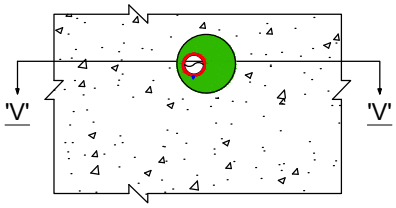
4: ACE PLASTIC PIPE WRAP IN ANNULAR SPACE BETWEEN OPENING AND MORTAR SEAL / COLLAR ON EACH FACE OF THE WALL OPENING APPLIED ON PLASTIC PIPE.

ENGINEERING JUDGEMENT:

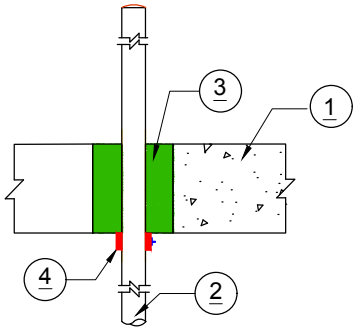
MAXIMUM RECTANGULAR OPENING SIZE NOT TO EXCEED 600 MM X 600 MM OR A CIRCULAR OPENING NOT TO EXCEED DIAMETER OF 600 MM .
MINIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 70 MM.
MAXIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 150 MM.
MINIMUM ANNULAR SPACE BETWEEN THE PENETRANTS 90 MM

REFERENCE: FM APPROVAL NO 608 MORTAR SEAL		SYSTEM: FIRE PENETRATION SEALING UPTO 4 HRS FIRE RATED AS PER ASTM E 814 / FM 4990		
VIJAY Systems Engineers	SCALE : NTS	LOCATION: CONCRETE WALL OPENING.		
	ITEM: ACE MORTAR SEAL WITH PIPE COLLAR / WRAP.	DRAWN PMT	APPROVED ---	DATE 03.01.2020
	VIJAY SYSTEMS ENGINEERS PVT. LTD. PLOT NO. 35, CHANDIVALI MUMBAI–400 072 (INDIA)		DRG. NO.– VSE–2020–PMT–002.19	REV. 00

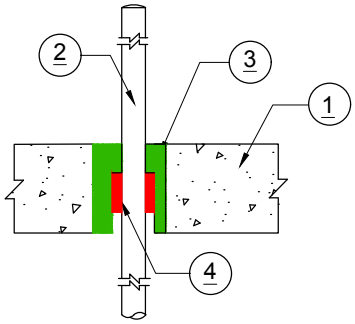
ENGINEERING JUDGEMENT-FIRE STOP
PVC / PLASTIC PIPE PASSING THROUGH FLOOR OPENING, SEALED USING MORTAR SEAL, TOGETHER WITH PIPE COLLAR / PIPE WRAP .
FIRE RATING: UP TO 4 HRS



FLOOR OPENING PLAN



SECTION AT "V-V"
SHOWING PIPE COLLARS



SECTION AT "V-V"
SHOWING PIPE WRAPS.

DETAILS:

1: CIRCULAR OR RECTANGULAR CONCRETE FLOOR OPENING MINIMUM 125 THICK 3 HRS FIRE RATED.

2. PVC / PLASTIC PIPE.

3: MIN 170 MM THICK ACE MORTAR SEAL APPLIED PREFERABLY IN LEVEL WITH BOTTOM AND TOP FACE OF CONCRETE FLOOR.

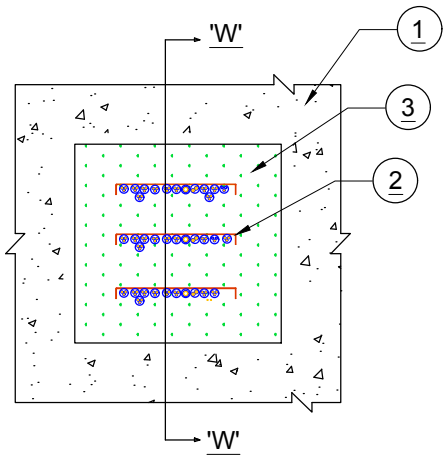
4: ACE PLASTIC PIPE WRAP IN ANNULAR SPACE BETWEEN THE MORTAR SEAL AND THE OPENING / COLLAR ON BOTTOM FACE OF THE OPENING APPLIED ON PLASTIC PIPE.

ENGINEERING JUDGEMENT:

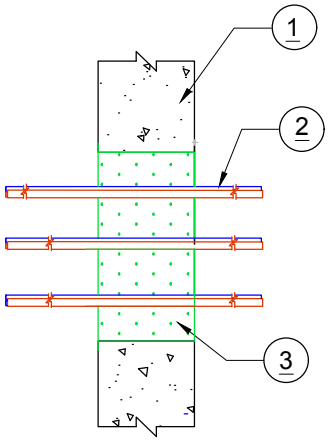
MAXIMUM RECTANGULAR OPENING SIZE NOT TO EXCEED 600 MM X 600 MM OR A CIRCULAR OPENING NOT TO EXCEED DIAMETER OF 600 MM .
MINIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 70 MM.
MAXIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 150 MM.
MINIMUM ANNULAR SPACE BETWEEN THE PENETRANTS 90 MM

REFERENCE: FM APPROVAL NO 608 MORTAR SEAL		SYSTEM: FIRE PENETRATION SEALING UPTO 4 HRS FIRE RATED AS PER ASTM E 814 / FM 4990		
VIJAY Systems Engineers	SCALE : NTS	LOCATION: CONCRETE FLOOR OPENING.		
	ITEM: ACE MORTAR SEAL WITH PIPE COLLAR / WRAP.	DRAWN PMT	APPROVED ---	DATE 03.01.2020
	VIJAY SYSTEMS ENGINEERS PVT. LTD. PLOT NO. 35, CHANDIVALI MUMBAI-400 072 (INDIA)		DRG. NO.- VSE-2020-PMT-002.20	REV. 00

ENGINEERING JUDGEMENT-FIRE STOP
CABLE TRAYS PASSING THROUGH WALL OPENING USING MORTAR SEAL
FIRE RATING: UP TO 4 HRS



WALL OPENING ELEVATION



SECTION AT "W-W"

DETAILS:

1: CONCRETE / BLOCK WALL OPENING MINIMUM 125 MM THICK, 3 HRS FIRE RATED.

2: CABLE TRAYS WITH CONTROL & POWER CABLES ALL TYPES & SIZES COMBINATION.

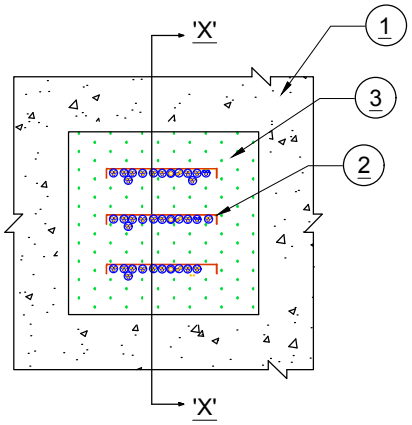
3. MINIMUM 170 MM THICK ACE MORTAR SEAL APPLIED PREFERABLY IN LEVEL WITH BOTH FACES OF WALL OPENING.

ENGINEERING JUDGEMENT:

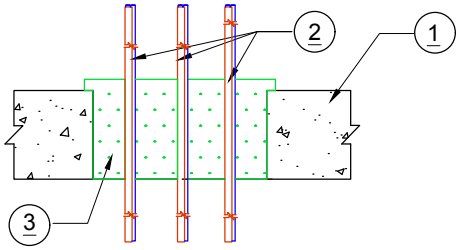
MAXIMUM RECTANGULAR OPENING SIZE NOT TO EXCEED 600 MM X 600 MM OR A CIRCULAR OPENING NOT TO EXCEED DIAMETER OF 600 MM .
MINIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 70 MM.
MAXIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 150 MM.
MINIMUM ANNULAR SPACE BETWEEN THE PENETRANTS 90 MM

REFERENCE: FM APPROVAL NO 608 MORTAR SEAL		SYSTEM: FIRE PENETRATION SEALING UPTO 4 HRS FIRE RATED AS PER ASTM E 814 / FM 4990		
VIJAY Systems Engineers	PROJECT CODE: --- LOCATION: CONCRETE WALL OPENING.			
	SCALE : NTS	DRAWN	APPROVED	DATE
	ITEM : ACE MORTAR SEAL	PMT	---	03.01.2020
	VIJAY SYSTEMS ENGINEERS PVT. LTD. PLOT NO. 35, CHANDIVALI MUMBAI-400 072 (INDIA)		DRG. NO.- VSE-2020-PMT-002.21	REV. 00

ENGINEERING JUDGEMENT-FIRE STOP
CABLE TRAYS PASSING THROUGH FLOOR OPENING USING MORTAR SEAL
FIRE RATING: UP TO 4 HRS



FLOOR OPENING PLAN



SECTION AT "X-X"

DETAILS:

1: CONCRETE FLOOR OPENING MINIMUM 125 MM THICK, 3 HRS FIRE RATED.

2: CABLE TRAYS WITH CONTROL & POWER CABLES ALL TYPES & SIZES COMBINATION.

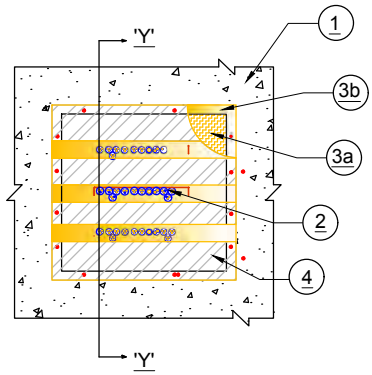
3. MINIMUM 170 MM THICK ACE MORTAR SEAL APPLIED PREFERABLY IN LEVEL WITH BOTTOM AND TOP FACES OF FLOOR OPENING.

ENGINEERING JUDGEMENT:

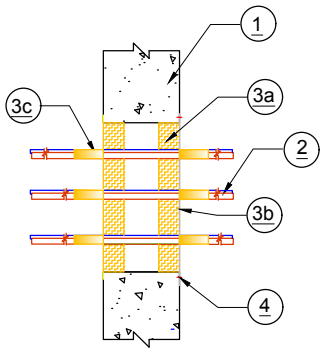
MAXIMUM RECTANGULAR OPENING SIZE NOT TO EXCEED 600 MM X 600 MM OR A CIRCULAR OPENING NOT TO EXCEED DIAMETER OF 600 MM .
MINIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 70 MM.
MAXIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 150 MM.
MINIMUM ANNULAR SPACE BETWEEN THE PENETRANTS 90 MM

REFERENCE: FM APPROVAL NO 608 MORTAR SEAL		SYSTEM:	FIRE PENETRATION SEALING UPTO 4 HRS FIRE RATED AS PER ASTM E 814 / FM 4990	
VIJAY Systems Engineers	PROJECT CODE: --- SCALE : NTS ITEM : ACE MORTAR SEAL	LOCATION: CONCRETE FLOOR OPENING. DRAWN PMT	APPROVED ---	DATE 03.01.2020
	VIJAY SYSTEMS ENGINEERS PVT. LTD. PLOT NO. 35, CHANDIVALI MUMBAI-400 072 (INDIA)		DRG. NO.- VSE-2020-PMT-002.22	REV. 00

ENGINEERING JUDGEMENT-FIRE STOP
CABLE TRAYS PASSING THROUGH WALL OPENING USING PANEL SEAL
FIRE RATING: UP TO 4 HRS



WALL OPENING ELEVATION



SECTION AT "Y-Y"

DETAILS:

1: CONCRETE WALL OPENING MINIMUM 125 MM THICK, 3 HRS FIRE RATED.

2: CABLES IN CABLE TRAYS (MULTIPLE) ALL CABLE SIZES AND TYPES COMBINATION.

3a: MIN 50 MM THICK ACE PANEL SEAL 2 LAYERS (MINERAL WOOL BOARD 150 D, COATED WITH ACE MASTIK COATING MINIMUM THICKNESS 1.5 MM). ONE LAYER EACH IN LEVEL WITH FACE OF THE CONCRETE WALL OPENING. PREFERRED GAP BETWEEN BOARDS UP TO 100 MM.

3b. ACE MASTIK COATING ON SURFACE OF FIRE SEAL UP TO 50 MM BEYOND THE OPENING BOUNDARY.

3c: ACE MASTIK COATING ON ALL PENETRANTS MINIMUM 300 MM LENGTH AWAY FROM THE SEAL FACES ON BOTH THE SIDES OF THE SEAL.

4: FOR OPENING HAVING BOTH THE DIMENSIONS (LENGTH & WIDTH) BIGGER THAN 400 MM, STEEL SHEET MINIMUM 1.2 MM THICK TO BE PROVIDED ON THE LOWER SIDE OF THE FLOOR OPENING USING M8 SIZE ANCHOR FASTENERS SPACED MAX 100 MM FROM CORNERS AND 300 MM CENTER TO CENTER DISTANCE. (TO MAINTAIN INTEGRITY DURING HOSE STREAM TEST)

ENGINEERING JUDGEMENT:

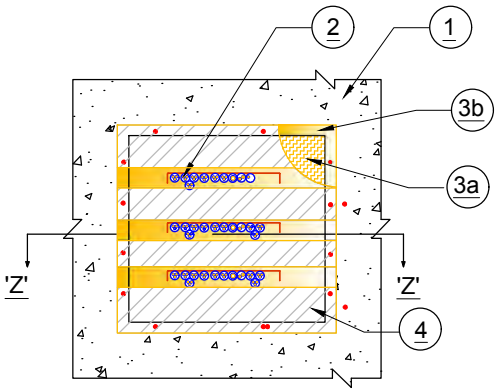
MAXIMUM RECTANGULAR OPENING SIZE NOT TO EXCEED 600 MM X 1000 MM OR A CIRCULAR OPENING NOT TO EXCEED DIAMETER OF 600 MM WITH MAXIMUM ONE PANEL SEAL JOINT.
MINIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 70 MM.
MAXIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 150 MM.
MINIMUM ANNULAR SPACE BETWEEN THE PENETRANTS 90 MM

REFERENCE: FM APPROVAL NO 606 PANEL SEAL		SYSTEM: FIRE PENETRATION SEALING UPTO 4 HRS FIRE RATED AS PER ASTM E 814 / FM 4990		
VIJAY Systems Engineers	PROJECT CODE: ---	LOCATION: CONCRETE WALL OPENING.		
	SCALE : NTS	DRAWN	APPROVED	DATE
	ITEM : ACE PANEL SEAL	PMT	---	03.01.2020
	VIJAY SYSTEMS ENGINEERS PVT. LTD.		DRG. NO.-	REV.
	PLOT NO. 35, CHANDIVALI MUMBAI-400 072 (INDIA)		VSE-2020-PMT-002.23	00

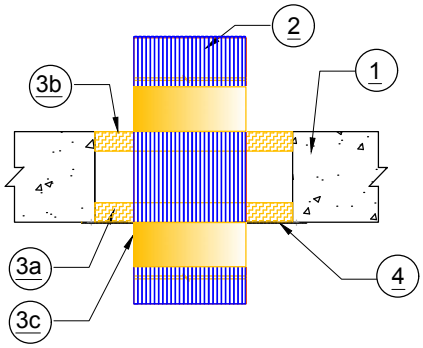
ENGINEERING JUDGEMENT-FIRE STOP

CABLE TRAYS PASSING THROUGH FLOOR OPENING USING PANEL SEAL

FIRE RATING: UP TO 4 HRS



FLOOR OPENING PLAN



SECTION AT "Z-Z"

DETAILS:

1: CONCRETE FLOOR OPENING MINIMUM 125 MM THICK, 3 HRS FIRE RATED.

2: CABLES IN CABLE TRAYS (MULTIPLE) ALL CABLE SIZES AND TYPES COMBINATION.

3a: MIN 50 MM THICK ACE PANEL SEAL 2 LAYERS (MINERAL WOOL BOARD 150 D, COATED WITH ACE MASTIK COATING MINIMUM THICKNESS 1.5 MM). ONE LAYER EACH IN LEVEL WITH BOTTOM & TOP FACE OF FLOOR OPENING. PREFERRED GAP BETWEEN BOARDS UP TO 100 MM.

3b. ACE MASTIK COATING ON SURFACE OF FIRE SEAL UP TO 50 MM BEYOND THE OPENING BOUNDARY.

3c: ACE MASTIK COATING ON ALL PENETRANTS MINIMUM 300 MM LENGTH AWAY FROM THE SEAL FACES ON BOTH THE SIDES OF THE SEAL.

4: FOR OPENING HAVING BOTH THE DIMENSIONS (LENGTH & WIDTH) BIGGER THAN 400 MM, STEEL SHEET MINIMUM 1.2 MM THICK TO BE PROVIDED ON THE LOWER SIDE OF THE FLOOR OPENING USING M8 SIZE ANCHOR FASTENERS SPACED MAX 100 MM FROM CORNERS AND 300 MM CENTER TO CENTER DISTANCE. (TO MAINTAIN INTEGRITY DURING HOSE STREAM TEST)

ENGINEERING JUDGEMENT:

MAXIMUM RECTANGULAR OPENING SIZE NOT TO EXCEED 600 MM X 1000 MM OR A CIRCULAR OPENING NOT TO EXCEED DIAMETER OF 600 MM WITH MAXIMUM ONE PANEL SEAL JOINT..
MINIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 70 MM.

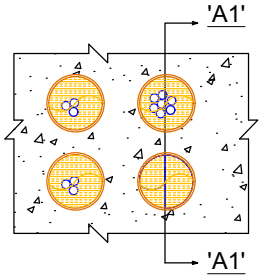
MAXIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 150 MM.

MINIMUM ANNULAR SPACE BETWEEN THE PENETRANTS 90 MM

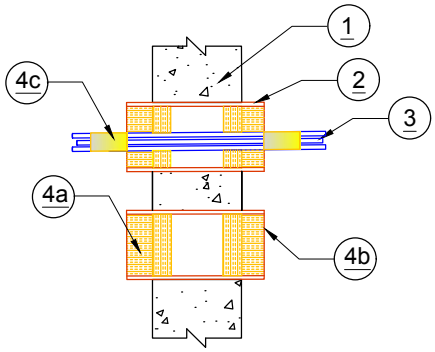
REFERENCE: FM APPROVAL NO 606 PANEL SEAL		SYSTEM:	FIRE PENETRATION SEALING UPTO 4 HRS FIRE RATED AS PER ASTM E 814 / FM 4990	
VIJAY Systems Engineers	PROJECT CODE: --- SCALE : NTS ITEM : ACE PANEL SEAL	LOCATION:	CONCRETE FLOOR OPENING. DRAWN PMT	APPROVED --- DRG. NO.-	DATE 03.01.2020 REV.
	VIJAY SYSTEMS ENGINEERS PVT. LTD. PLOT NO. 35, CHANDIVALI MUMBAI-400 072 (INDIA)			VSE-2020-PMT-002.24	00

ENGINEERING JUDGEMENT-FIRE STOP

CABLES IN STEEL PIPE SLEEVE PASSING THROUGH WALL OPENING, SEALED USING PANEL SEAL,
FIRE RATING: UP TO 4 HRS



WALL OPENING ELEVATION



SECTION AT "A1-A1"

DETAILS:

1: CONCRETE WALL OPENING MINIMUM 125 THICK . 3 HRS FIRE RATED.

2: ONE OR MORE STEEL PIPE SLEEVES WITH OR WITHOUT CABLES PASSING THROUGH CONCRETE WALL.

3: CONTROL & POWER CABLES ALL TYPES AND COMBINATIONS .

4a: MIN 50 MM THICK ACE PANEL SEAL. 2 LAYERS (MINERAL WOOL BOARD 150 KG/M3 DENSITY, COATED WITH ACE MASTIK COATING MINIMUM THICKNESS 1.5 MM). ONE LAYER EACH MINIMUM 50 MM INSIDE EACH FACE OF THE WALL. MORE LAYERS TO BE FILLED UP TO THE END OF THE SLEEVES.

4b. ACE MASTIK COATING ON SURFACE OF FIRE SEAL UP TO 50 MM BEYOND THE OPENING BOUNDARY.

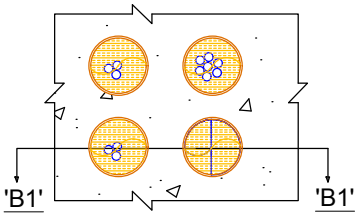
4c: ACE MASTIK COATING ON ALL PENETRANTS MINIMUM 300 MM LENGTH AWAY FROM THE SEAL FACES ON BOTH THE SIDES OF THE SEAL.

ENGINEERING JUDGEMENT:

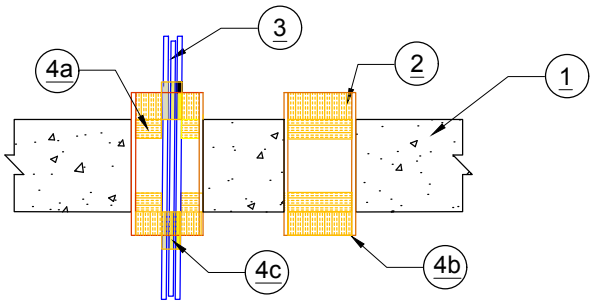
STEEL PIPE SIZE 25 MM TO 300 MM .
MAX CABLE OCCUPANCY IN SLEEVE 16%.
MINIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 70 MM.
MAXIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 150 MM.
MINIMUM ANNULAR SPACE BETWEEN THE PENETRANTS 90 MM

REFERENCE: FM APPROVAL NO 606 PANEL SEAL		SYSTEM:	FIRE PENETRATION SEALING UPTO 4 HRS FIRE RATED AS PER ASTM E 814 / FM 4990	
VIJAY Systems Engineers	SCALE : NTS	LOCATION:	CONCRETE WALL OPENING.	
	ITEM: ACE PANEL SEAL	DRAWN: PMT	APPROVED: ---	DATE: 03.01.2020
	VIJAY SYSTEMS ENGINEERS PVT. LTD.		DRG. NO.-	REV.
	PLOT NO. 35, CHANDIVALI MUMBAI-400 072 (INDIA)		VSE-2020-PMT-002.25	00

ENGINEERING JUDGEMENT-FIRE STOP
CABLES IN STEEL PIPE SLEEVE PASSING THROUGH FLOOR OPENING, SEALED USING PANEL SEAL,
FIRE RATING: UP TO 4 HRS



FLOOR OPENING PLAN



SECTION AT "B1-B1"

DETAILS:

1: CONCRETE FLOOR OPENING MINIMUM 125 THICK . 3 HRS FIRE RATED.

2: ONE OR MORE STEEL PIPE SLEEVES WITH OR WITHOUT CABLES PASSING THROUGH CONCRETE FLOOR.

3: CONTROL & POWER CABLES ALL TYPES AND COMBINATIONS.

4a: MIN 50 MM THICK ACE PANEL SEAL. 2 LAYERS (MINERAL WOOL BOARD 150 KG/M3 DENSITY, COATED WITH ACE MASTIK COATING MINIMUM THICKNESS 1.5 MM). A LAYER MINIMUM 50 MM INSIDE THE FACE OF THE FLOOR BOTTOM AND TOP. MORE LAYERS TO BE FILLED UP TO THE END OF THE SLEEVES.

4b. ACE MASTIK COATING ON SURFACE OF FIRE SEAL UP TO 50 MM BEYOND THE OPENING BOUNDARY.

4c: ACE MASTIK COATING ON ALL PENETRANTS MINIMUM 300 MM LENGTH AWAY FROM THE SEAL FACES ON BOTH THE SIDES OF THE SEAL.

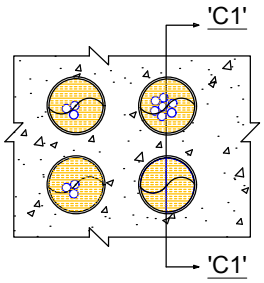
ENGINEERING JUDGEMENT:

STEEL PIPE SIZE 25 MM TO 300 MM .
MAX CABLE OCCUPANCY WITHIN SLEEVE 16%.
MINIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 70 MM.
MAXIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 150 MM.
MINIMUM ANNULAR SPACE BETWEEN THE PENETRANTS 90 MM

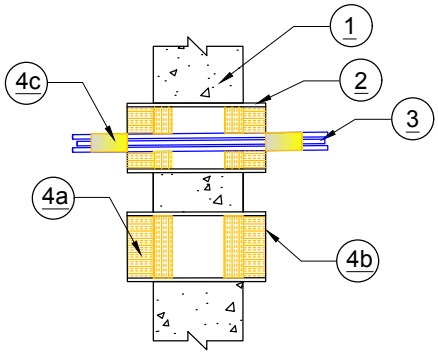
REFERENCE: FM APPROVAL NO 606 PANEL SEAL		SYSTEM: FIRE PENETRATION SEALING UPTO 4 HRS FIRE RATED AS PER ASTM E 814 / FM 4990		
VIJAY Systems Engineers	SCALE : NTS	LOCATION: CONCRETE FLOOR OPENING.		
	ITEM: ACE PANEL SEAL	DRAWN: PMT	APPROVED: ---	DATE: 03.01.2020
	VIJAY SYSTEMS ENGINEERS PVT. LTD.		DRG. NO.-	REV.
	PLOT NO. 35, CHANDIVALI MUMBAI-400 072 (INDIA)		VSE-2020-PMT-002.26	00

ENGINEERING JUDGEMENT-FIRE STOP

CABLES IN PVC / PLASTIC PIPE SLEEVE PASSING THROUGH WALL OPENING, SEALED USING PANEL SEAL, FIRE RATING: UP TO 4 HRS



WALL OPENING ELEVATION



SECTION AT "C1-C1"

DETAILS:

1: CONCRETE WALL OPENING MINIMUM 125 THICK. 3 HRS FIRE RATED.

2: ONE OR MORE PVC / PLASTIC PIPE SLEEVES WITH OR WITHOUT CABLES PASSING THROUGH CONCRETE WALL.

3: CABLE BUNCH- CONTROL & POWER CABLES ALL TYPES.

4a: MIN 50 MM THICK ACE PANEL SEAL. 2 LAYERS (MINERAL WOOL BOARD 150 KG/M3 DENSITY, COATED WITH ACE MASTIK COATING MINIMUM THICKNESS 1.5 MM). ONE LAYER EACH MINIMUM 50 MM INSIDE EACH FACE OF THE WALL. MORE LAYERS CAN BE FILLED UP TO THE END OF THE SLEEVES.

4b. ACE MASTIK COATING ON SURFACE OF FIRE SEAL UP TO 50 MM BEYOND THE OPENING BOUNDARY.

4c: ACE MASTIK COATING ON ALL PENETRANTS MINIMUM 300 MM LENGTH AWAY FROM THE SEAL FACES ON BOTH THE SIDES OF THE SEAL.

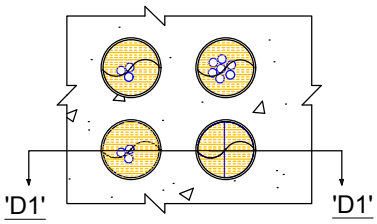
ENGINEERING JUDGEMENT:

PVC / PLASTIC PIPE SIZE 25 MM TO 300 MM NB.
MAX CABLE OCCUPANCY WITHIN SLEEVE 16%.
MINIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 70 MM.
MAXIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 150 MM.
MINIMUM ANNULAR SPACE BETWEEN THE PENETRANTS 90 MM

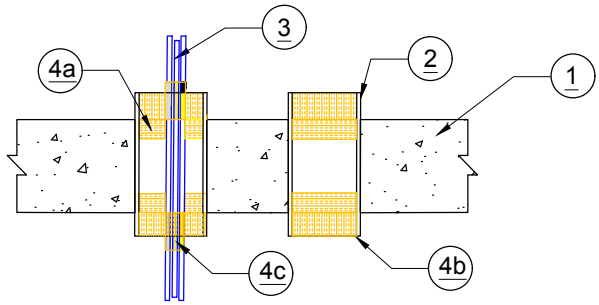
REFERENCE: FM APPROVAL NO 606 PANEL SEAL		SYSTEM:	FIRE PENETRATION SEALING UPTO 4 HRS FIRE RATED AS PER ASTM E 814 / FM 4990	
VIJAY Systems Engineers	SCALE : NTS	LOCATION:	CONCRETE WALL OPENING.	
	ITEM: ACE PANEL SEAL	DRAWN: PMT	APPROVED: ---	DATE: 03.01.2020
	VIJAY SYSTEMS ENGINEERS PVT. LTD. PLOT NO. 35, CHANDIVALI MUMBAI-400 072 (INDIA)		DRG. NO.- VSE-2020-PMT-002.27	REV. 00

ENGINEERING JUDGEMENT-FIRE STOP

CABLES IN PVC / PLASTIC PIPE SLEEVE PASSING THROUGH FLOOR OPENING, SEALED USING PANEL SEAL, FIRE RATING: UP TO 4 HRS



FLOOR OPENING PLAN



SECTION AT "D1-D1"

DETAILS:

1: CONCRETE FLOOR OPENING MINIMUM 125 THICK OR MORE. 3 HRS FIRE RATED.

2: ONE OR MORE PVC/ PLASTIC PIPE SLEEVES WITH OR WITHOUT CABLES PASSING THROUGH CONCRETE FLOOR.

3: CABLE BUNCH- CONTROL & POWER CABLES ALL TYPES.

4a: MIN 50 MM THICK ACE PANEL SEAL. 2 LAYERS (MINERAL WOOL BOARD 150 KG/M3 DENSITY, COATED WITH ACE MASTIK COATING MINIMUM THICKNESS 1.5 MM). A LAYER MINIMUM 50 MM INSIDE THE FACE OF THE FLOOR BOTTOM AND TOP. MORE LAYERS CAN BE FILLED UP TO THE END OF THE SLEEVES.

4b. ACE MASTIK COATING ON SURFACE OF FIRE SEAL UP TO 50 MM BEYOND THE OPENING BOUNDARY.

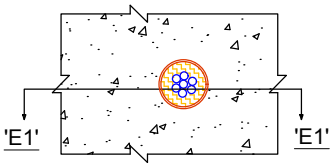
4c: ACE MASTIK COATING ON ALL PENETRANTS MINIMUM 300 MM LENGTH AWAY FROM THE SEAL FACES ON BOTH THE SIDES OF THE SEAL.

ENGINEERING JUDGEMENT:

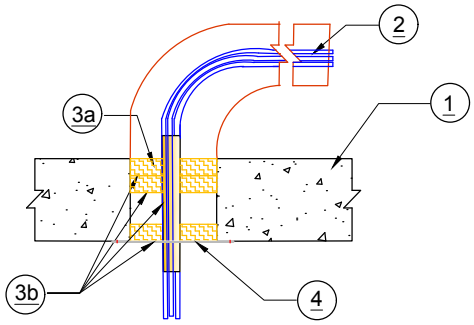
PVC / PLASTIC PIPE SIZE 25 MM TO 300 MM NB.
MAX CABLE OCCUPANCY WITHIN SLEEVE 16%.
MINIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 70 MM.
MAXIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 150 MM.
MINIMUM ANNULAR SPACE BETWEEN THE PENETRANTS 90 MM

REFERENCE: FM APPROVAL NO 606 PANEL SEAL		SYSTEM: FIRE PENETRATION SEALING UPTO 4 HRS FIRE RATED AS PER ASTM E 814 / FM 4990		
VIJAY Systems Engineers	SCALE : NTS	LOCATION: CONCRETE FLOOR OPENING.		
	ITEM: ACE PANEL SEAL	DRAWN: PMT	APPROVED: ---	DATE: 03.01.2020
	VIJAY SYSTEMS ENGINEERS PVT. LTD. PLOT NO. 35, CHANDIVALI MUMBAI–400 072 (INDIA)		DRG. NO.– VSE–2020–PMT–002.28	REV. 00

ENGINEERING JUDGEMENT-FIRE STOP
CABLES OF ALL SIZES AND TYPES THROUGH FLOOR OPENING, SEALED USING PANEL SEAL. ACCESSIBLE FROM ONE SIDE ONLY., FIRE RATING: UP TO 4 HRS



FLOOR OPENING PLAN



SECTION AT "E1-E1"

DETAILS:

1: CONCRETE FLOOR OR WALL OPENING MINIMUM 125 MM THICK, 4 HRS FIRE RATED.

2: CONTROL & POWER CABLES ALL TYPES AND COMBINATIONS IN A STEEL PIPE ACCESSIBLE FORM BOTTOM SIDE ONLY.

3a: MIN 50 MM THICK ACE PANEL SEAL 3 LAYERS , 2 AT THE TOP AND ONE AT THE BOTTOM FACE (MINERAL WOOL BOARD 150 D, COATED WITH ACE MASTIK COATING MINIMUM THICKNESS 1.5 MM). ALL PANEL SEAL BOTTOM FACES AND ABOUT 50 MM BEYOND TO BE COATED WITH ACE MASTIK COATING. PREFERRED GAP BETWEEN THE BOTTOM LAYER AND TOP 2 COMBINED LAYERS UP TO 100 MM.

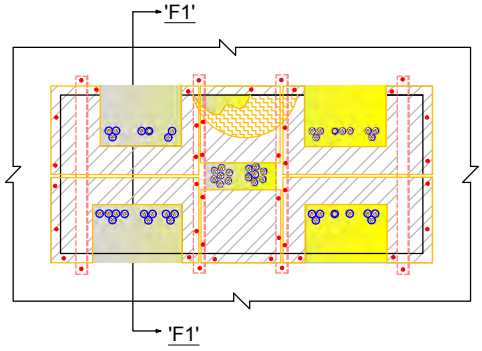
3b: ALL PENETRANTS COATED WITH ACE MASTIK COATING TO THE MAXIMUM EXTENT POSSIBLE BEYOND TOP FACE OF THE SEAL AND MINIMUM 300 MM BEYOND SEAL SURFACE ON BOTTOM ACCESSIBLE SIDE OF THE FLOOR OPENING. ACE MASTIK COATING ALSO APPLIED ON BOTH ACCESSIBLE FACE OF THE OPENING ABOUT 50 MM BEYOND THE OPENING BOUNDARY.

ENGINEERING JUDGEMENT:

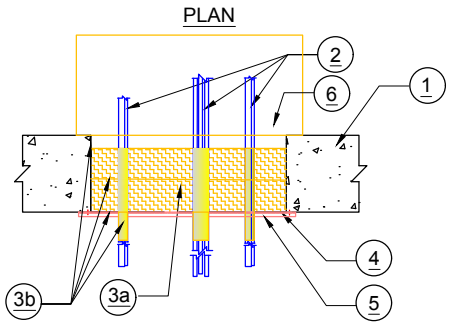
STEEL PIPE SIZE 25 MM TO 300 MM NB.
MAX CABLE OCCUPANCY IN SLEEVE 16%.
MINIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 70 MM.
MAXIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 150 MM.
MINIMUM ANNULAR SPACE BETWEEN THE PENETRANTS 90 MM

REFERENCE: FM APPROVAL NO 606 PANEL SEAL		SYSTEM: FIRE PENETRATION SEALING UPTO 4 HRS FIRE RATED AS PER ASTM E 814 / FM 4990		
VIJAY Systems Engineers	SCALE : NTS	LOCATION: FLOOR OPENING BOTTOM SIDE ACCESS.		
	ITEM: ACE PANEL SEAL	DRAWN PMT	APPROVED ---	DATE 03.01.2020
	VIJAY SYSTEMS ENGINEERS PVT. LTD. PLOT NO. 35, CHANDIVALI MUMBAI-400 072 (INDIA)		DRG. NO.- VSE-2020-PMT-002.29	REV. 00

ENGINEERING JUDGEMENT-FIRE STOP
CABLES ENTERING UNDER MV SWITCH GEAR THROUGH FLOOR OPENING, SEALED USING PANEL SEAL,
FIRE RATING: UP TO 4 HRS



FLOOR OPENING PLAN



SECTION AT "F1-F1"

DETAILS:

1: CONCRETE FLOOR OPENING BELOW SWITCHGEAR 125 MM THICK & ABOVE, 3 HRS FIRE RATED.

2: CABLES (MULTIPLE) ALL CABLE SIZES AND TYPES COMBINATION.

3a: MIN 50 MM THICK ACE PANEL SEAL. 2 LAYERS IN TOUCHING FORMATION (MINERAL WOOL BOARD 150 KG/M3 DENSITY, COATED WITH ACE MASTIK COATING MINIMUM THICKNESS 1.5 MM). LOWER MOST LAYER IN LEVEL WITH BOTTOM SIDE OF CONCRETE FLOOR.

3b: ALL PENETRANTS COATED WITH ACE MASTIK COATING UP TO THE SEAL TOP FACE AND MINIMUM 300 MM BEYOND SEAL SURFACE ON BOTTOM SIDE OF FLOOR OPENING. ACE MASTIK COATING APPLIED ON BOTTOM FACE OF BOTH PANEL SEAL LAYERS & UP TO 50 MM BEYOND.

4: FOR OPENING HAVING BOTH THE DIMENSIONS (LENGTH & WIDTH) BIGGER THAN 400 MM, STEEL SHEET MINIMUM 1.2 MM THICK TO BE PROVIDED ON THE LOWER SIDE OF THE FLOOR OPENING USING M8 SIZE ANCHOR FASTENERS SPACED MAX 100 MM FROM CORNERS AND 300 MM CENTER TO CENTER DISTANCE. (TO MAINTAIN INTEGRITY DURING HOSE STREAM TEST)

5: FOR EXTRA LARGE OPENINGS EXCEEDING 600X1000 MM, PRESSED STEEL CHANNELS 50X25X3 MM THICK SHALL BE FIXED BELOW THE BOTTOM LAYER FORMING A GRID OF SUPPORTS AT PANEL SEAL JOINTS USING M8 ANCHOR FASTENERS. ALTERNATIVELY SUPPORTS FROM SURROUNDING SOUND STRUCTURES CAN BE EXTENDED FOR THE PURPOSE AS SUITABLE TO SITE CONDITIONS.

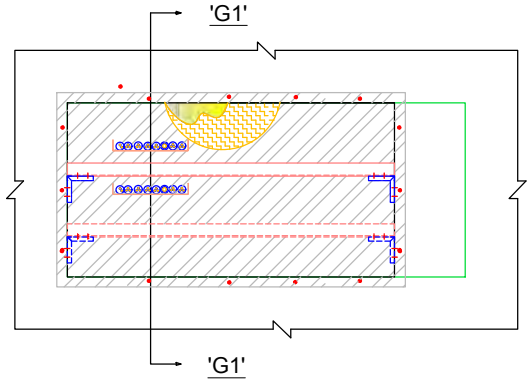
6: MW SWITCH GEAR PANEL.

ENGINEERING JUDGEMENT:

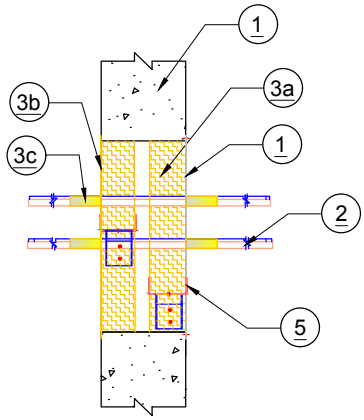
MAXIMUM OPENING NOT TO EXCEED SIZE WITH PENETRANTS AT A DISTANCE OF NOT MORE THAN 150 MM FROM THE OPENING BOUNDARY UNLESS PROVIDED WITH SUPPORT CHANNELS PER NOTE 5.ABOVE.
MINIMUM ANNULAR SPACE BETWEEN BOUNDARY OF OPENING AND PENETRANT 70 MM &
MINIMUM ANNULAR SPACING BETWEEN PENETRANTS 90 MM.

REFERENCE: FM APPROVAL NO 606 PANEL SEAL		SYSTEM: FIRE PENETRATION SEALING UPTO 4 HRS FIRE RATED AS PER ASTM E 814 / FM 4990	
VIJAY Systems Engineers	SCALE : NTS	LOCATION: FLOOR OPENING BELOW MV SWITCH GEAR PANEL.	
	ITEM: ACE PANEL SEAL	DRAWN: PMT	APPROVED: --- / DATE: 03.01.2020
	VIJAY SYSTEMS ENGINEERS PVT. LTD. PLOT NO. 35, CHANDIVALI MUMBAI-400 072 (INDIA)	DRG. NO.- VSE-2020-PMT-002.30	REV. 00

ENGINEERING JUDGEMENT-FIRE STOP
CABLE TRAYS PASSING THROUGH BIG WALL OPENING SEALED USING PANEL SEAL.
RATING: UP TO 4 HRS



WALL OPENING ELEVATION



SECTION AT "G1-G1"

DETAILS:

1: CONCRETE WALL OPENING MINIMUM 125 MM THICK , 3 HRS FIRE RATED.

2. CABLES IN CABLE TRAYS (MULTIPLE) IN VARIOUS SIZES AND ALL TYPES OF COMBINATIONS.

3a. MIN 50 MM THICK ACE PANEL SEAL. 2 LAYERS (MINERAL WOOL BOARD 150 KG/M3 DENSITY, COATED WITH ACE MASTIK COATING MINIMUM THICKNESS 1.5 MM). EACH LAYER FIXED IN LEVEL WITH ONE OF THE FACES OF WALL OPENING. PREFERRED GAP BETWEEN BOARDS 100 MM NOMINAL.

3b: ACE MASTIK COATING ON SEAL SURFACE OF FIRE SEAL UP TO 50 MM BEYOND THE OPENING BOUNDARY.

3c: ACE MASTIK COATING ON ALL PENETRANTS MINIMUM 300 MM LENGTH AWAY FROM THE SEAL FACES ON BOTH THE SIDES OF THE SEAL.

4: FOR OPENING HAVING BOTH THE DIMENSIONS (LENGTH & WIDTH) BIGGER THAN 400 MM, STEEL SHEET MINIMUM 1.2 MM THICK TO BE PROVIDED ON ONE SIDE OF THE WALL OPENING USING M8 SIZE ANCHOR FASTENERS SPACED MAX 100 MM FROM CORNERS AND 300 MM CENTER TO CENTER DISTANCE. (TO MAINTAIN INTEGRITY DURING HOSE STREAM TEST)

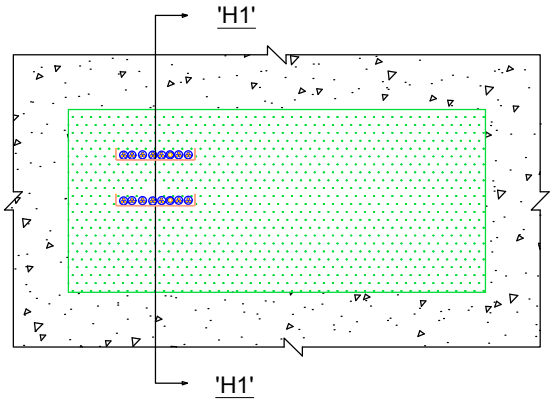
5: FOR EXTRA LARGE OPENINGS WITH HEIGHT EXCEEDING 1000 MM, ENCASING STEEL PRESSED CHANNELS (53MM X 50 MM) MINIMUM 20 G THICKNESS WILL HAVE TO BE PROVIDED HORIZONTALLY TO SUPPORT THE PANEL SEALS TO STAY VERTICALLY IN POSITION. SUPPORTS TO THESE CHANNELS CAN BE EXTENDED FROM NEARBY OTHER STABLE STRUCTURE AS SUITABLE TO INDIVIDUAL SITE LOCATION.

ENGINEERING JUDGEMENT:

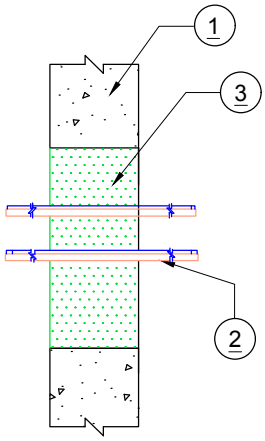
MAXIMUM OPENING NOT TO EXCEED SIZE WITH PENETRANTS AT A DISTANCE OF NOT MORE THAN 150 MM FROM THE OPENING BOUNDARY UNLESS PROVIDED WITH SUPPORTS AS PER NOTE 5.ABOVE.
MINIMUM ANNULAR SPACE BETWEEN BOUNDARY OF OPENING AND PENETRANT 70 MM &
MINIMUM ANNULAR SPACING BETWEEN PENETRANTS 90 MM.
WHEN PANEL SEAL PIECES OF SIZE SMALLER THAN STANDARD FULL SIZE OF 1000 MM X 600 MM ARE INTENDED TO BE USED, ALL PANEL SEAL JOINTS SHALL HAVE SUPPORTS.

REFERENCE: FM APPROVAL NO 606 PANEL SEAL		SYSTEM: FIRE PENETRATION SEALING UPTO 4 HRS FIRE RATED AS PER ASTM E 814 / FM 4990		
VIJAY Systems Engineers	PROJECT CODE: ---	LOCATION: CONCRETE WALL OPENING.		
	SCALE : NTS	DRAWN	APPROVED	DATE
	ITEM : ACE PANEL SEAL	PMT	---	03.01.2020
	VIJAY SYSTEMS ENGINEERS PVT. LTD. PLOT NO. 35, CHANDIVALI MUMBAI-400 072 (INDIA)		DRG. NO.- VSE-2020-PMT-002.31	REV. 00

ENGINEERING JUDGEMENT-FIRE STOP
CABLE TRAYS PASSING THROUGH BIG WALL OPENING USING MORTAR SEAL
FIRE RATING: UP TO 4 HRS



WALL OPENING ELEVATION



SECTION AT "H1-H1"

DETAILS:

1: CONCRETE WALL OPENING MINIMUM 125 MM THICK. 3 HRS FIRE RATED.

2: CABLES IN CABLE TRAYS (MULTIPLE) WITH ALL CABLE SIZES AND TYPES COMBINATION.

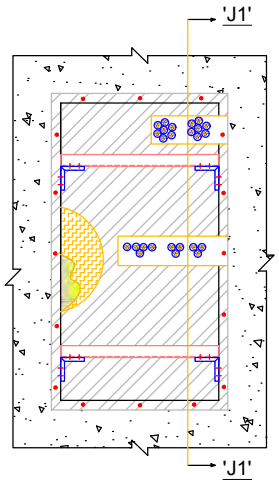
3. MINIMUM 170 MM THICK ACE MORTAR SEAL APPLIED PREFERABLY TO LEVEL WITH EACH FACE OF THE WALL OPENING.

ENGINEERING JUDGEMENT:

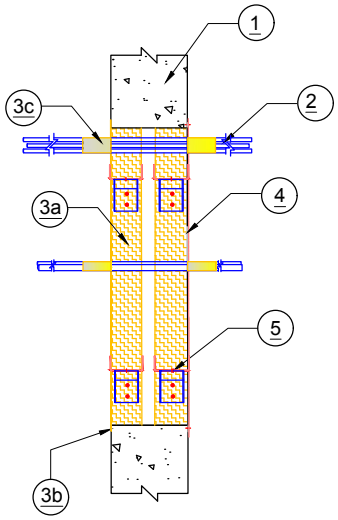
MINIMUM ANNULAR SPACE BETWEEN BOUNDARY OF OPENING AND PENETRANT 70 MM & MINIMUM ANNULAR SPACING BETWEEN PENETRANTS 90 MM.

REFERENCE: FM APPROVAL NO 608 MORTAR SEAL		SYSTEM: FIRE PENETRATION SEALING UPTO 4 HRS FIRE RATED AS PER ASTM E 814 / FM 4990		
VIJAY Systems Engineers	PROJECT CODE: ---	LOCATION: CONCRETE WALL OPENING.		
	SCALE : NTS	DRAWN	APPROVED	DATE
	ITEM : ACE MORTAR SEAL	PMT	---	03.01.2020
	VIJAY SYSTEMS ENGINEERS PVT. LTD. PLOT NO. 35, CHANDIVALI MUMBAI-400 072 (INDIA)		DRG. NO.- VSE-2020-PMT-002.32	REV. 00

ENGINEERING JUDGEMENT-FIRE STOP
LOOSE CABLES PASSING THROOUGH BIG WALL PENING SEALED USING PANEL SEAL .
FIRE RATING: UP TO 4 HRS



WALL OPENING ELEVATION



SECTION AT "J1-J1"

DETAILS:

1: CONCRETE WALL OPENING MINIMUM 125 MM THICK , 3 HRS FIRE RATED.

2. LOOSE CABLES PASSING THROUGH WALL OPENING.

3a. MIN 50 MM THICK ACE PANEL SEAL. 2 LAYERS (MINERAL WOOL BOARD 150 KG/M3 DENSITY, COATED WITH ACE MASTIK COATING MINIMUM THICKNESS 1.5 MM). EACH LAYER FIXED IN LEVEL WITH ONE OF THE FACES OF WALL OPENING. PREFERRED GAP BETWEEN BOARDS 100 MM NOMINAL.

3b: ACE MASTIK COATING ON SURFACE OF FIRE SEAL UP TO 50 MM BEYOND THE OPENING BOUNDARY.

3c: ACE MASTIK COATING ON ALL PENETRANTS MINIMUM 300 MM LENGTH AWAY FROM THE SEAL FACES ON BOTH THE SIDES OF THE SEAL.

4: FOR OPENING HAVING BOTH THE DIMENSIONS (LENGTH & WIDTH) BIGGER THAN 400 MM, STEEL SHEET MINIMUM 1.2 MM THICK TO BE PROVIDED ON THE LOWER SIDE OF THE FLOOR OPENING USING M8 SIZE ANCHOR FASTENERS SPACED MAX 100 MM FROM CORNERS AND 300 MM CENTER TO CENTER DISTANCE. (TO MAINTAIN INTEGRITY DURING HOSE STREAM TEST)

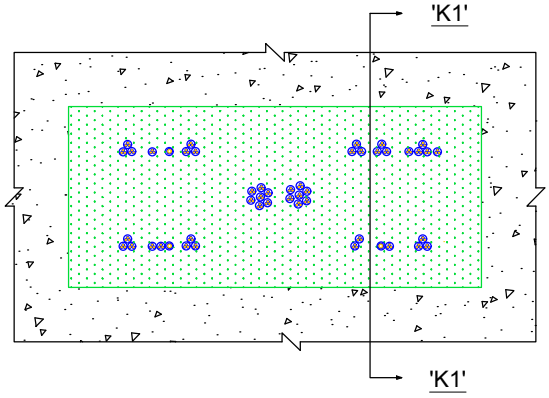
5: FOR EXTRA LARGE OPENINGS WITH HEIGHT EXCEEDING 1000 MM, ENCASING STEEL PRESSED CHANNELS (53MM X 50 MM) MINIMUM 20 G THICKNESS WILL HAVE TO BE PROVIDED HORIZONTALLY TO SUPPORT THE PANEL SEALS TO STAY VERTICALLY IN POSITION. SUPPORTS TO THESE CHANNELS CAN BE EXTENDED FROM NEARBY OTHER STABLE STRUCTURE AS SUITABLE TO INDIVIDUAL SITE LOCATION.

ENGINEERING JUDGEMENT:

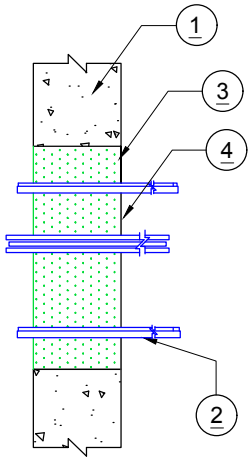
MAXIMUM OPENING NOT TO EXCEED SIZE WITH PENETRANTS AT A DISTANCE OF NOT MORE THAN 150 MM FROM THE OPENING BOUNDARY UNLESS PROVIDED WITH SUPPORTS AS PER NOTE 5.ABOVE.
MINIMUM ANNULAR SPACE BETWEEN BOUNDARY OF OPENING AND PENETRANT 70 MM &
MINIMUM ANNULAR SPACING BETWEEN PENETRANTS 90 MM.
WHEN PANEL SEAL PIECES OF SIZE SMALLER THAN STANDARD FULL SIZE OF 1000 MM X 600 MM ARE INTENDED TO BE USED, ALL PANEL SEAL JOINTS SHALL HAVE SUPPORTS.

REFERENCE: FM APPROVAL NO 606 PANEL SEAL		SYSTEM: FIRE PENETRATION SEALING UPTO 4 HRS FIRE RATED AS PER ASTM E 814 / FM 4990		
VIJAY Systems Engineers	PROJECT CODE: ---	LOCATION: CONCRETE FLOOR WALL OPENING.		
	SCALE : NTS	DRAWN	APPROVED	DATE
	ITEM : ACE PANEL SEAL	PMT	---	03.01.2020
	VIJAY SYSTEMS ENGINEERS PVT. LTD. PLOT NO. 35, CHANDIVALI MUMBAI-400 072 (INDIA)		DRG. NO.- VSE-2020-PMT-002.33	REV. 00

ENGINEERING JUDGEMENT-FIRE STOP
LOOSE CABLES PASSING THROUGH BIG WALL OPENING SEALED USING MORTAR SEAL
FIRE RATING: UP TO 4 HRS



WALL OPENING ELEVATION



SECTION AT "K1-K1"

DETAILS:

1: CONCRETE WALL OPENING MINIMUM 125 MM THICK. 3 HRS FIRE RATED.

2: CONTROL & POWER CABLE ANY SIZE AND TYPES COMBINATION.

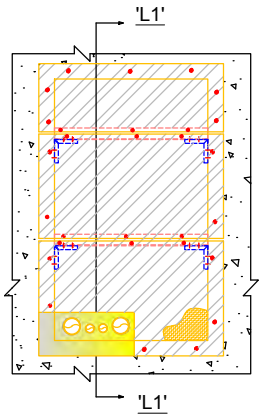
3. MINIMUM 170 MM THICK ACE MORTAR SEAL APPLIED AT OPENING PREFERABLY TO LEVEL WITH EACH FACE OF THE WALL OPENING.

ENGINEERING JUDGEMENT:

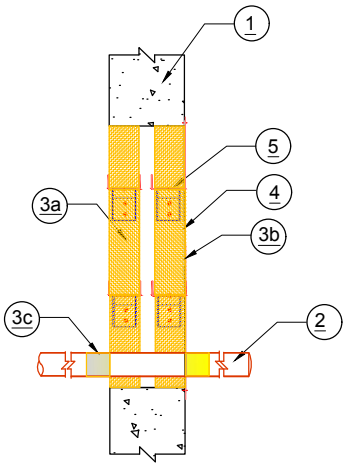
MINIMUM ANNULAR SPACE BETWEEN BOUNDARY OF OPENING AND PENETRANT 70 MM & MINIMUM ANNULAR SPACING BETWEEN PENETRANTS 90 MM.

REFERENCE: FM APPROVAL NO 608 MORTAR SEAL		SYSTEM: FIRE PENETRATION SEALING UPTO 4 HRS FIRE RATED AS PER ASTM E 814 / FM 4990		
VIJAY Systems Engineers	PROJECT CODE: ---	LOCATION: CONCRETE WALL OPENING.		
	SCALE : NTS	DRAWN	APPROVED	DATE
	ITEM : ACE MORTAR SEAL	PMT	---	03.01.2020
	VIJAY SYSTEMS ENGINEERS PVT. LTD. PLOT NO. 35, CHANDIVALI MUMBAI-400 072 (INDIA)		DRG. NO.- VSE-2020-PMT-002.34	REV. 00

ENGINEERING JUDGEMENT-FIRE STOP
STEEL PIPES PASSING THROUGH BIG WALL OPENING SEALED USING PANEL SEAL
FIRE RATING: UP TO 4 HRS



WALL OPENING ELEVATION



SECTION AT "L1-L1"

DETAILS:

1: CONCRETE WALL OPENING MINIMUM 125 THICK. 3 HRS FIRE RATED.

2: STEEL SERVICE PIPES.

3a: MIN 50 MM THICK ACE PANEL SEAL 2 LAYERS (MINERAL WOOL BOARD 150 D, COATED WITH ACE MASTIK COATING MINIMUM THICKNESS 1.5 MM). ONE LAYER EACH IN LEVEL WITH EACH FACE OF THE CONCRETE WALL OPENING. PREFERRED GAP BETWEEN BOARDS UP TO 100 MM.

3b. ACE MASTIK COATING ON SURFACE OF FIRE SEAL UP TO 50 MM BEYOND THE OPENING BOUNDARY.

3c: ACE MASTIK COATING ON ALL PENETRANTS MINIMUM 300 MM LENGTH AWAY FROM THE SEAL FACES ON BOTH THE SIDES OF THE SEAL.

4: FOR OPENING HAVING BOTH THE DIMENSIONS (LENGTH & WIDTH) BIGGER THAN 400 MM, STEEL SHEET MINIMUM 1.2 MM THICK TO BE PROVIDED ON ONE SIDE OF THE WALL OPENING USING M8 SIZE ANCHOR FASTENERS SPACED MAX 100 MM FROM CORNERS AND 300 MM CENTER TO CENTER DISTANCE. (TO MAINTAIN INTEGRITY DURING HOSE STREAM TEST)

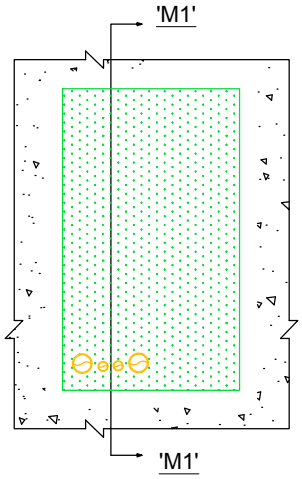
5: FOR EXTRA LARGE OPENINGS WITH HEIGHT EXCEEDING 1000 MM, ENCASING STEEL PRESSED CHANNELS (53MM X 50 MM) MINIMUM 0.8 MM THICKNESS WILL HAVE TO BE PROVIDED HORIZONTALLY TO SUPPORT THE PANEL SEALS TO STAY VERTICALLY IN POSITION. SUPPORTS TO THESE CHANNELS CAN BE EXTENDED FROM NEARBY OTHER STABLE STRUCTURE AS SUITABLE TO INDIVIDUAL SITE LOCATION.

ENGINEERING JUDGEMENT:

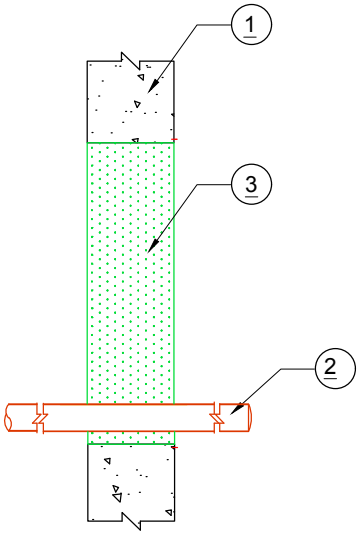
MAXIMUM OPENING NOT TO EXCEED SIZE WITH PENETRANTS AT A DISTANCE OF NOT MORE THAN 150 MM FROM THE OPENING BOUNDARY UNLESS PROVIDED WITH SUPPORTS AS PER NOTE 5.ABOVE.
MINIMUM ANNULAR SPACE BETWEEN BOUNDARY OF OPENING AND PENETRANT 70 MM &
MINIMUM ANNULAR SPACING BETWEEN PENETRANTS 90 MM.
WHEN PANEL SEAL PIECES OF SIZE SMALLER THAN STANDARD FULL SIZE OF 1000 MM X 600 MM ARE INTENDED TO BE USED, ALL PANEL SEAL JOINTS SHALL HAVE SUPPORTS.

REFERENCE: FM APPROVAL NO 606 PANEL SEAL		SYSTEM: FIRE PENETRATION SEALING UPTO 4 HRS FIRE RATED AS PER ASTM E 814 / FM 4990		
VIJAY Systems Engineers	PROJECT CODE: ---	LOCATION: CONCRETE WALL OPENING.		
	SCALE : NTS	DRAWN	APPROVED	DATE
	ITEM : ACE PANEL SEAL	PMT	---	03.01.2020
	VIJAY SYSTEMS ENGINEERS PVT. LTD. PLOT NO. 35, CHANDIVALI MUMBAI-400 072 (INDIA)		DRG. NO.- VSE-2020-PMT-002.35	REV. 00

ENGINEERING JUDGEMENT-FIRE STOP
STEEL PIPES PASSING THROUGH BIG WALL OPENING SEALED USING MORTAR SEAL
FIRE RATING: UP TO 4 HRS



WALL OPENING ELEVATION



SECTION AT "M1-M1"

DETAILS:

1: CONCRETE WALL OPENING MINIMUM 125 MM THICK. 3 HRS FIRE RATED.

2: STEEL SERVICE PIPES.

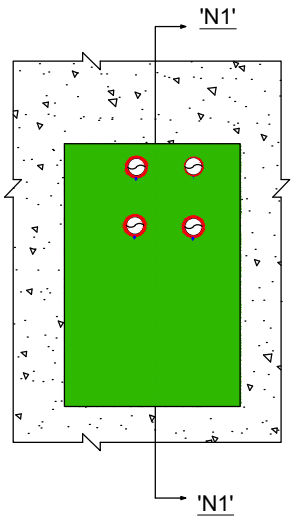
3. MINIMUM 170 MM THICK ACE MORTAR SEAL APPLIED AT OPENING PREFERABLY IN LEVEL WITH EACH FACE OF THE WALL OPENING.

ENGINEERING JUDGEMENT:

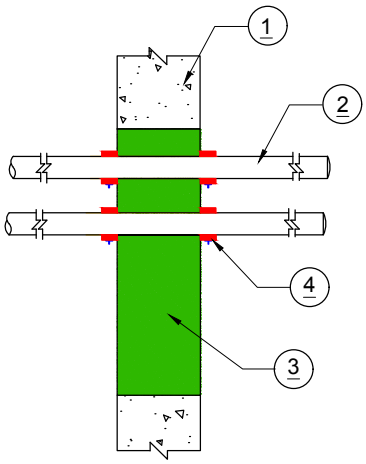
MINIMUM ANNULAR SPACE BETWEEN BOUNDARY OF OPENING AND PENETRANT 70 MM & MINIMUM ANNULAR SPACING BETWEEN PENETRANTS 90 MM.

REFERENCE: FM APPROVAL NO 608 MORTAR SEAL		SYSTEM: FIRE PENETRATION SEALING UPTO 4 HRS FIRE RATED AS PER ASTM E 814 / FM 4990		
VIJAY Systems Engineers	PROJECT CODE: ---	LOCATION: CONCRETE WALL BIG OPENING.		
	SCALE : NTS	DRAWN	APPROVED	DATE
	ITEM : ACE MORTAR SEAL	PMT	---	03.01.2020
	VIJAY SYSTEMS ENGINEERS PVT. LTD. PLOT NO. 35, CHANDIVALI MUMBAI-400 072 (INDIA)		DRG. NO.- VSE-2020-PMT-002.36	REV. 00

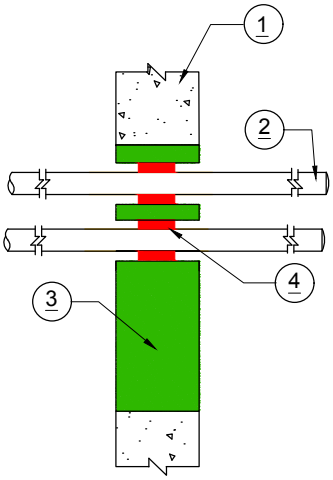
ENGINEERING JUDGEMENT-FIRE STOP
PVC / PLASTIC PIPES PASSING THROUGH BIG WALL OPENING, SEALED USING MORTAR SEAL, TOGETHER WITH PIPE COLLAR / PIPE WRAP .
FIRE RATING: UP TO 4 HRS



WALL OPENING ELEVATION



SECTION AT "N1-N1"
SHOWING PIPE COLLARS



SECTION AT "N1-N1"
SHOWING PIPE WRAPS.

DETAILS:

1: CONCRETE WALL OPENING MINIMUM 125 MM THICK. 3 HRS FIRE RATED.

2. PVC / PLASTIC PIPE.

3: MIN 170 MM THICK ACE MORTAR SEAL PREFERABLY APPLIED IN LEVEL WITH BOTH THE FACES OF WALL OPENING.

4: ACE PLASTIC PIPE WRAP IN ANNULAR SPACE BETWEEN OPENING AND MORTAR SEAL / COLLAR ON EACH FACE OF THE WALL OPENING APPLIED ON PLASTIC PIPE.

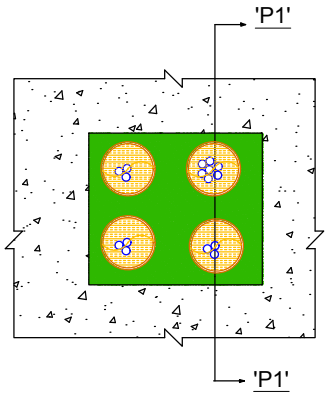
ENGINEERING JUDGEMENT:

MINIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 70 MM.

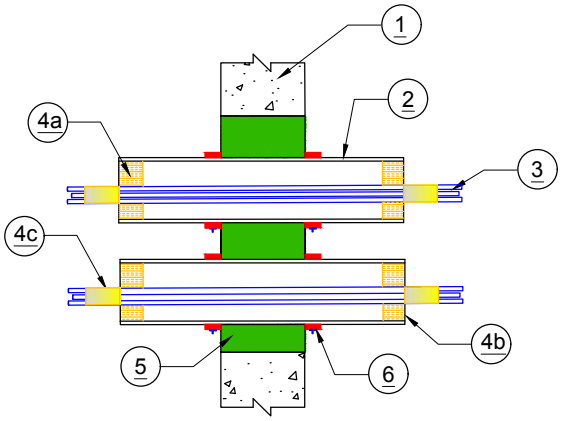
MINIMUM ANNULAR SPACE BETWEEN THE PENETRANTS 90 MM

REFERENCE: FM APPROVAL NO 608 MORTAR SEAL		SYSTEM: FIRE PENETRATION SEALING UPTO 4 HRS FIRE RATED AS PER ASTM E 814 / FM 4990		
VIJAY Systems Engineers	SCALE : NTS	LOCATION: CONCRETE WALL OPENING.		
	ITEM: ACE MORTAR SEAL WITH PIPE COLLAR / WRAP.	DRAWN PMT	APPROVED ---	DATE 03.01.2020
	VIJAY SYSTEMS ENGINEERS PVT. LTD. PLOT NO. 35, CHANDIVALI MUMBAI-400 072 (INDIA)		DRG. NO.- VSE-2020-PMT-002.37	REV. 00

ENGINEERING JUDGEMENT-FIRE STOP
CABLES PASSING THROUGH PVC PIPE SLEEVE EXTENDED BEYOND CIVIL OPENING THROUGH WALL. CABLES SEALED ON SLEEVES' FACES USING PANEL SEAL. EXTENDED PIPES SEALED USING PIPE COLLARS AND OPENING SURROUNDING PIPES SEALED USING MORTAR SEAL.
FIRE RATING: UP TO 4 HRS.



WALL OPENING ELEVATION



SECTION AT "P1-P1"

DETAILS:

1: CONCRETE WALL OPENING MINIMUM 125 THICK . 3 HRS FIRE RATED.

2: ONE OR MORE PVC / PLASTIC PIPE SLEEVES EXTENDED BEYOND THE WALL OPENING FACES WITH CABLES PASSING THROUGH PIPES.

3: CONTROL & POWER CABLES ALL TYPES AND COMBINATIONS .

4a: MIN 50 MM THICK ACE PANEL SEAL. 2 LAYERS (MINERAL WOOL BOARD 150 KG/M3 DENSITY, COATED WITH ACE MASTIK COATING MINIMUM THICKNESS 1.5 MM). ONE LAYER EACH IN LEVEL WITH FACE OF THE PIPE ON EACH SIDE OF THE OPENING.

4b. ACE MASTIK COATING ON SURFACE OF PANEL SEAL & UP TO 50 MM BEYOND

4c: ACE MASTIK COATING ON ALL PENETRANTS MINIMUM 300 MM LENGTH AWAY FROM THE PANEL SEAL FACES ON BOTH THE SIDES OF THE SEAL.

5: ACE MORTAR SEAL MINIMUM 170 MM THICK APPLIED AROUND THE PVC / PLASTIC PIPES PREFERABLY IN LEVEL WITH BOTH THE FACES OF THE OPENING.

6: ACE COLLAR ON EACH FACE OF THE WALL OPENING APPLIED ON PLASTIC PIPES.

ENGINEERING JUDGEMENT:

PLASTIC PIPE SIZE 25 MM TO 300 MM NB.
MAX CABLE OCCUPANCY IN SLEEVE 16%.
MINIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 70 MM.
MINIMUM ANNULAR SPACE BETWEEN THE PENETRANTS 90 MM

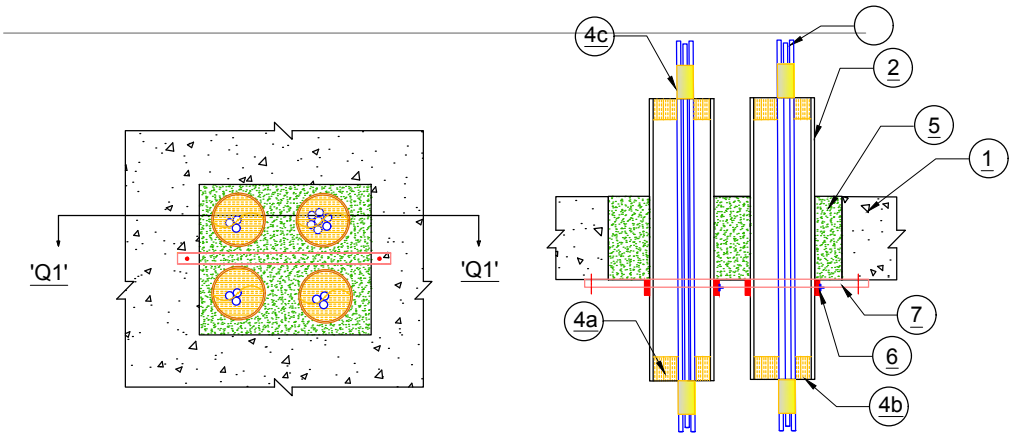
REFERENCE: FM APPROVAL NO 606 PANEL SEAL & 608 MORTAR SEAL		SYSTEM: FIRE PENETRATION SEALING UPTO 4 HRS FIRE RATED AS PER ASTM E 814 / FM 4990		
VIJAY Systems Engineers	SCALE : NTS	LOCATION: CONCRETE WALL OPENING.		
	ITEM: ACE PANEL SEAL & MORTAR SEAL	DRAWN PMT	APPROVED ---	DATE 03.01.2020
	VIJAY SYSTEMS ENGINEERS PVT. LTD. PLOT NO. 35, CHANDIVALI MUMBAI-400 072 (INDIA)		DRG. NO.- VSE-2020-PMT-002.38	REV. 00

ENGINEERING JUDGEMENT-FIRE STOP

CABLES PASSING THROUGH PVC PIPE SLEEVE EXTENDED BEYOND CIVIL OPENING THROUGH FLOOR. CABLES SEALED ON SLEEVES FACE USING PANEL SEAL, PVC EXTENDED PIPES SEALED USING PIPE COLLARS AND OPENING SURROUNDING THE PIPES SEALED USING MORTAR SEAL.

FIRE RATING: UP TO 4 HRS.

3



FLOOR OPENING PLAN

SECTION AT "Q1-Q1"

DETAILS:

1: CONCRETE FLOOR OPENING MINIMUM 125 THICK . 3 HRS FIRE RATED.

2: ONE OR MORE PVC / PLASTIC PIPE SLEEVES EXTENDED BEYOND THE FLOOR OPENING FACES WITH CABLES PASSING THROUGH PIPES.

3: CONTROL & POWER CABLES ALL TYPES AND COMBINATIONS .

4a: MIN 50 MM THICK ACE PANEL SEAL. 2 LAYERS (MINERAL WOOL BOARD 150 KG/M3 DENSITY, COATED WITH ACE MASTIK COATING MINIMUM THICKNESS 1.5 MM). ONE LAYER EACH IN LEVEL WITH FACE OF THE PIPE ON EACH SIDE OF THE OPENING.

4b. ACE MASTIK COATING ON SURFACE OF PANEL SEAL & UP TO 50 MM BEYOND

4c: ACE MASTIK COATING ON ALL PENETRANTS MINIMUM 300 MM LENGTH AWAY FROM THE PANEL SEAL FACES ON BOTH THE SIDES OF THE SEAL.

5: ACE MORTAR SEAL MINIMUM 170 MM THICK APPLIED AROUND THE PVC / PLASTIC PIPES PREFERABLY IN LEVEL WITH BOTH THE FACES OF THE OPENING.

6: ACE COLLAR ON EACH FACE OF THE WALL OPENING APPLIED ON PLASTIC PIPE.

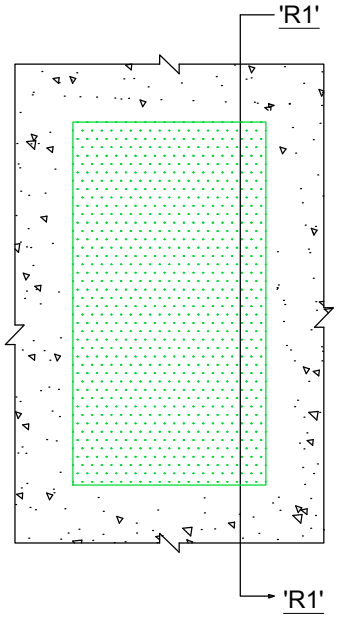
7: FOR LARGE SIZE FLOOR OPENINGS WITH BOTH THE DIMENSIONS EXCEEDING 600 MM PRESSED STEEL CHANNEL 3 MM THICK 50X25 SIZE UP TO A SPAN OF 1200 MM AND ANGLE OF SIZE 50X50X5 BEYOND 1200 MM SPAN IS RECOMMENDED TO BE FIXED ACROSS THE SMALLER DIMENSION USING M10 ANCHOR FASTENERS 75 MM AWAY FROM THE EDGE OF THE OPENING.

ENGINEERING JUDGEMENT:

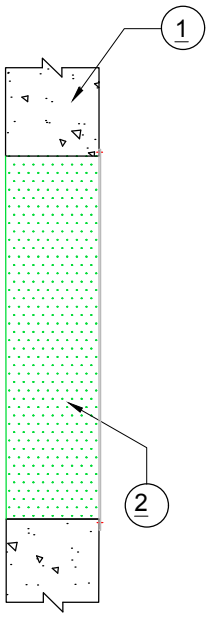
PLASTIC PIPE SIZE 25 MM TO 300 MM NB.
MAX CABLE OCCUPANCY IN SLEEVE 16%.
MINIMUM ANNULAR SPACE BETWEEN THE OPENING AND THE PENETRANT 70 MM.
MINIMUM ANNULAR SPACE BETWEEN THE PENETRANTS 90 MM

REFERENCE: FM APPROVAL NO 606 PANEL SEAL & 608 MORTAR SEAL		SYSTEM: FIRE PENETRATION SEALING UPTO 4 HRS FIRE RATED AS PER ASTM E 814 / FM 4990		
VIJAY Systems Engineers	SCALE : NTS	LOCATION: CONCRETE FLOOR OPENING.		
	ITEM: ACE PANEL SEAL & MORTAR SEAL	DRAWN PMT	APPROVED ---	DATE 03.01.2020
	VIJAY SYSTEMS ENGINEERS PVT. LTD. PLOT NO. 35, CHANDIVALI MUMBAI–400 072 (INDIA)		DRG. NO.– VSE–2020–PMT–002.39	REV. 00

ENGINEERING JUDGEMENT-FIRE STOP
RECTANGULAR / CIRCULAR BIG WALL OPENING WITHOUT PENETRANTS USING MORTAR SEAL
FIRE RATING: UP TO 4 HRS



WALL OPENING ELEVATION



SECTION AT "R1-R1"

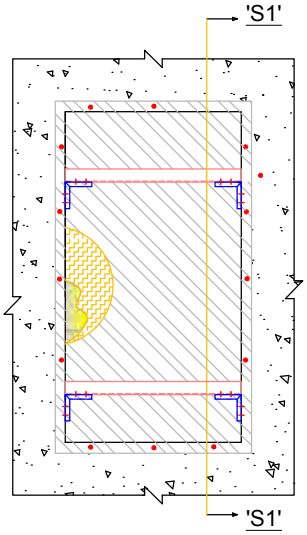
DETAILS:

1: CONCRETE WALL OPENING MINIMUM 125 MM THICK , 3 HRS FIRE RATED.

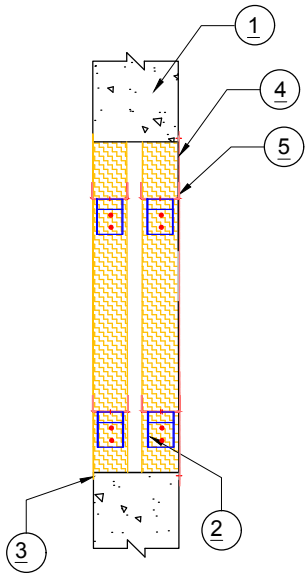
2. MINIMUM 170 MM THICK ACE MORTAR SEAL APPLIED PREFERABLY IN LEVEL WITH BOTH FACES OF WALL ON EITHER SIDE OF THE OPENING.

REFERENCE: FM APPROVAL NO 608 MORTAR SEAL		SYSTEM: FIRE PENETRATION SEALING UPTO 4 HRS FIRE RATED AS PER ASTM E 814 / FM 4990		
VIJAY Systems Engineers	PROJECT CODE: ---	LOCATION: CONCRETE WALL OPENING.		
	SCALE : NTS	DRAWN	APPROVED	DATE
	ITEM : ACE MORTAR SEAL	PMT	---	03.01.2020
	VIJAY SYSTEMS ENGINEERS PVT. LTD. PLOT NO. 35, CHANDIVALI MUMBAI-400 072 (INDIA)		DRG. NO.- VSE-2020-PMT-002.40	REV. 00

ENGINEERING JUDGEMENT-FIRE STOP
RECTANGULAR / CIRCULAR WALL OPENING WITHOUT PENETRANTS USING PANEL SEAL
FIRE RATING: UP TO 4 HRS



WALL OPENING ELEVATION



SECTION AT "S1-S1"

DETAILS:

1: CONCRETE WALL OPENING MINIMUM 125 MM THICK , 3 HRS FIRE RATED.

2: MIN 50 MM THICK ACE PANEL SEAL. 2 LAYERS (MINERAL WOOL BOARD 150 KG/M3 DENSITY, COATED WITH ACE MASTIK COATING MINIMUM THICKNESS 1.5 MM). EACH LAYER FIXED IN LEVEL WITH ONE OF THE FACES OF THE OPENING. PREFERRED GAP BETWEEN BOARDS 100 MM NOMINAL.

3: ACE MASTIK COATING ON SEAL SURFACE OF FIRE SEAL UP TO 50 MM BEYOND THE OPENING BOUNDARY.

4: FOR OPENING HAVING BOTH THE DIMENSIONS (LENGTH & WIDTH) BIGGER THAN 400 MM, STEEL SHEET MINIMUM 1.2 MM THICK TO BE PROVIDED ON ONE OF THE FACES OF THE WALL OPENING USING M8 SIZE ANCHOR FASTENERS SPACED MAX 100 MM FROM CORNERS AND 300 MM CENTER TO CENTER DISTANCE. (TO MAINTAIN INTEGRITY DURING HOSE STREAM TEST)

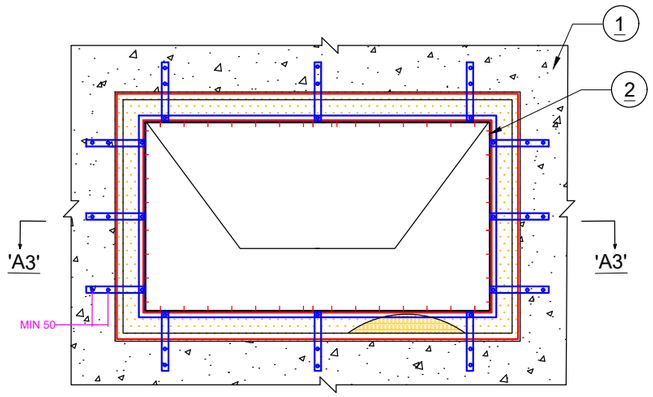
5: FOR EXTRA LARGE WALL OPENINGS WITH HEIGHT EXCEEDING 1000 MM, ENCASING STEEL PRESSED CHANNELS (53MM X 50 MM) MINIMUM 0.8 MM THICKNESS WILL HAVE TO BE PROVIDED HORIZONTALLY TO SUPPORT THE PANEL SEALS TO STAY VERTICALLY IN POSITION. SUPPORTS TO THESE CHANNELS CAN BE EXTENDED FROM NEARBY OTHER STABLE STRUCTURE AS SUITABLE TO INDIVIDUAL SITE LOCATION.

ENGINEERING JUDGEMENT:

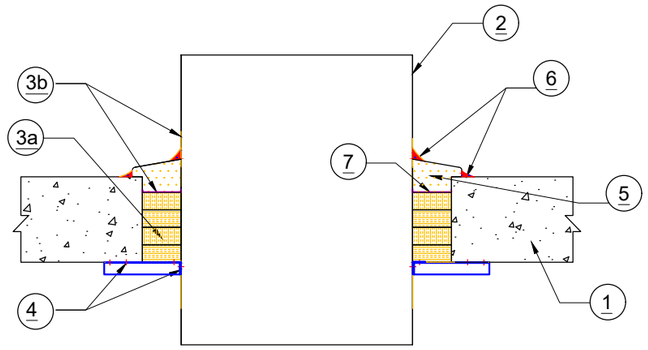
MAXIMUM RECTANGULAR WALL OPENING SIZE EXCEEDING SIZE OF 600 MM X 1000 MM WILL REQUIRE ENCASING BY PRESSED STEEL CHANNELS FOR PANEL SEALS TO VERTICALLY STAY IN POSITION AS PER DETAILS 5 ABOVE . MAXIMUM CIRCULAR OPENING EXCEEDING 600 MM DIAMETER WILL REQUIRE ENCASING OF PRESSED STEEL CHANNELS AS PER DETAILS 5 ABOVE.
WHEN PANEL SEAL PIECES OF SIZE SMALLER THAN STANDARD FULL SIZE OF 1000 MM X 600 MM ARE INTENDED TO BE USED, ALL PANEL SEAL JOINTS SHALL HAVE TO BE ENCASED USING PRESSED STEEL CHANNELS AS PER DETAILS 5.ABOVE.

REFERENCE: FM APPROVAL NO 606 PANEL SEAL		SYSTEM: FIRE PENETRATION SEALING UPTO 4 HRS FIRE RATED AS PER ASTM E 814 / FM 4990		
VIJAY Systems Engineers	PROJECT CODE: ---	LOCATION: CONCRETE WALL OPENING.		
	SCALE : NTS	DRAWN	APPROVED	DATE
	ITEM : ACE PANEL SEAL	PMT	---	03.01.2020
	VIJAY SYSTEMS ENGINEERS PVT. LTD. PLOT NO. 35, CHANDIVALI MUMBAI-400 072 (INDIA)		DRG. NO.- VSE-2020-PMT-002.41	REV. 00

HVAC DUCT PASSING THROUGH ROOF / TERRACE OPENING SEALED USING PANEL SEAL.
FIRE RATING: UP TO 4 HRS



PLAN



SECTION AT "A3-A3"

DETAILS:

1: CONCRETE FLOOR OPENING MINIMUM 200 MM THICK, 4 HRS FIRE RATED.

2: RECTANGULAR STEEL DUCT.

3a: 50 MM THICK ACE PANEL SEAL. 4 TO 6 LAYERS FIXED FACE TO FACE (MINERAL WOOL BOARD 150 D, 50 MM THICK,COATED WITH ACE MASTIK COATING MINIMUM 1.5 MM THK). IN LEVEL WITH BOTTOM FACE OF OPENING AND TO ALLOW TOP 50 MM TO 75 MM GAP FILLED BY WATER PROOFING MORTAR.

3b: DUCT OUTER SHEET COATED 300 MM BEYOND SEAL SURFACE ON BOTH SIDES OF FLOOR PENETRATION. COATING APPLIED ON EXPOSED BOTTOM FACE OF BOARD MINIMUM 50 MM BEYOND THE BOARD SURFACE EXTENDED ON THE OPENING BOUNDARY FACES.

4: PRESSED STEEL ANGLE OF SIZE 50X50X2 MM THICK FIXED ON DUCT ON BOTTOM SIDE OF FLOOR OPENING. ADDITIONAL MINIMUM 8 PIECES OF ANGLES AS EXTENDED SUPPORT TO CONNECT ACROSS BOTTOM OF THE CIVIL OPENING AND THE STEEL ANGLE FIXED ON PERFIERY OF THE DUCT. SPACING OF CONNECTING SUPPORT ANGLE PIECES CAN BE APPROX 100 MM FROM THE CORNERS OF THE DUCT AND ABOUT 400 MM C/C DISTANCE. FIXING OF CONNECTING ANGLE PIECE TO CIVIL OPENING CAN BE DONE USING M6 ANCHOR FASTENERS / POACH SCREWS AT CIVIL OPENING END. OTHER END OF THE CONNECTING ANGLE PIECE CAN BE FIXED TO DUCT PERIPHERAL ANGLES USING SELF TAPPING -DRILLING M4 / M5 SCREWS

5. WATER PROOFING MORTAR APPRX 50 TO 75 MM THICK LAYER TO BE APPLIED TO RAISE THE LAYER ABOUT 20-25 MM ABOVE THE FLOOR LEVEL AND EXTENDED BEYOND THE OPENING BY ABOUT 25 MM WITH SLIGHT SLOPE FORMED FROM DUCT TOWARDS CIVIL OPENING.

6. FLEXIBLE & COMPATIBLE HEAT AND WATER RESISTANT SILICON SEALANT APPROX 10 WIDE X 10 MM THICK AT INTERFACES BETWEEN DUCT AND MORTAR AND MORTAR & CIVIL OPENING TO BE APPLIED .

7. MINIMUM 2 TO 3 MM THICK ACE MASTIK COATING APPLIED ON TOP FACE OF THE TOP MOST PANEL SEAL BOARD AND ALLOWED TO CURE DRY. ALUMINUM FOIL ABOUT 25 MICRONS THICK SPREAD OVER THE COATED TOP PANEL SEAL BOARD AND OVERLAPPED 20-25 MM BEYOND , TO PREVENT MOISTURE PERCOLATION DURING APPLICATION OF WATER PROOFING MORTAR.

REFERENCE: FM APPROVAL NO.609 PANEL SEAL.		SYSTEM: FIRE PENETRATION SEALING UPTO 4 HRS FIRE RATED AS PER ASTM E 814 / FM 4990		
VIJAY Systems Engineers	PROJECT CODE: ----	LOCATION: CONCRETE FLOOR OPENING.		
	SCALE : NTS	DRAWN	APPROVED	DATE
	ITEM : ACE PANEL SEAL	PMT	---	06.03.2020
	VIJAY SYSTEMS ENGINEERS PVT. LTD. PLOT NO. 35, CHANDIVALI MUMBAI–400 072 (INDIA)		DRG. NO.– VSE–2020–PMT–002.42	REV. 00

FM APPROVED SYSTEMS

For Grouped Electrical Cables (Class Number 3971)

These coatings reduce the likelihood of ignition of cables when exposed to a limited duration ignition source that might occur from arcs or sparks falling or occurring in the cable tray. These coatings are usually applied by spray, brush or trowel. Approval is based on continuous coating along the entire exposed length of the cables. These coatings were not tested to maintain cable protection under severe and extended fire exposure conditions.

When applied according to the manufacturer's instructions, the protective coating does not of itself require electrical de-rating.

Observe any special instructions listed with the product.

Products identified with the GREEN symbol have attributes that are considered to be “sustainable” by certain outside organizations. FM Approvals verifies the presence of these attributes. Specific attributes for specific products are listed in the individual listings. To facilitate a search for these products in the Approval Guide, first search by the product type you desire and then refine your search to products with the GREEN symbol.

3M Co (The)
3M Cntr Bldg. 230-BE-16, 3M Industrial Adhesives & Tapes Div., St Paul, Minnesota 55144, USA

Product	Listing Country	Certification Type	Class of Work
3M FireDam™ 2000	United States of America	FM Approved	3971-Coatings, Elect Cable

AIK Flammadur Brandschutz GmbH
Otto Hahn Straße 5, Kassel D-34123, Germany

Product	Listing Country	Certification Type	Class of Work
Flammadur® A77 Cable Coating	Germany	FM Approved	3971-Coatings, Elect Cable

BASF Personal Care and Nutrition GmbH - Site Illertissen
Robert-Hansen-Str 1, Illertissen/Bayern D-89257, Germany

Product	Listing Country	Certification Type	Class of Work
KBS Coating	Germany	FM Approved	3971-Coatings, Elect Cable
MasterFlame C 3000 CA Coating	Germany	FM Approved	3971-Coatings, Elect Cable

Bristol Fire Engineering LLC
P.O. Box 74582, Dubai, United Arab Emirates

Product	Listing Country	Certification Type	Class of Work
Blaze TX3, BFB-TX3 Bristol Cable Coating	United Arab Emirates	FM Approved	3971-Coatings, Elect Cable

Carboline Company
350 Hanley Industrial Court, Saint Louis, Missouri 63144, USA

Product	Listing Country	Certification Type	Class of Work
Thermo-Lag 270	United States of America	FM Approved	3970-Materials Handling Systems

Charcoat
2512 Diamond Crescent , Coquitlam , British Columbia V3E 3K8, CAN

Product	Listing Country	Certification Type	Class of Work
CharCoat CC	Canada	FM Approved	3971-Coatings, Elect Cable

CYRANA-ESB Proteção Contra Fogo, Ltda
Rua da Alfandega, 115 Centro , Rio de Janeiro, RJ, Brazil 20070-003

Product	Listing Country	Certification Type	Class of Work
Termocyran C	Brazil	FM Approved	3971-Coatings, Elect Cable

EGS Nelson Firestop Products
Seminole Building 2 Suite 102, 9810 E. 42nd St, Tulsa, Oklahoma 74146-3636, USA

Product	Listing Country	Certification Type	Class of Work
Nelson FSC	United States of America	FM Approved	3971-Coatings, Elect Cable

Fire Security A/S
Skibasen 20b, 4636 Kristiansand, Norway

Product	Listing Country	Certification Type	Class of Work
FIRESEC FS 5	Norway	FM Approved	3971-Coatings, Elect Cable

Firefree Coatings Inc
580 Irwin Suite 1, San Rafael, California 94901, USA

Product	Listing Country	Certification Type	Class of Work
FIREFREE	United States of America	FM Approved	3971-Coatings, Elect Cable

Fire-Stop Systems
PO Box 41356, Houston, Texas 77241, USA

Product		Listing Country	Certification Type	Class of Work
Thermalastic 83C	NEW	United States of America	FM Approved	3971-Coatings, Elect Cable

fischerwerke GmbH and Co KG
Klaus-Fischer-Straße 1 , D-72178 Waldachtal, Germany

Product	Listing Country	Certification Type	Class of Work
FCC fischer Cable Coating	Germany	FM Approved	3971-Coatings, Elect Cable

Flamemaster Corp, The
13576 Desmond St, Pacoima, California 91331-2315, USA

Product	Listing Country	Certification Type	Class of Work
Flamemastic 77	United States of America	FM Approved	3971-Coatings, Elect Cable

FLAMRO Brandschutz-Systeme GmbH
Am Sportplatz, 56291 Leiningen, Germany

Product	Listing Country	Certification Type	Class of Work
FLAMRO BMA Cable Coating	Germany	FM Approved	3971-Coatings, Elect Cable

Hilti AG
Feldkircherstrasse 100, Box 333 , 9494 Schaan , Liechtenstein

Product	Listing Country	Certification Type	Class of Work
Hilti CP 678 Cable Coating	Liechtenstein	FM Approved	3971-Coatings, Elect Cable

Hilti Entwicklungsgesellschaft GmbH
FL-9494 Schaan, Fürstentum Liechtenstein

Product	Listing Country	Certification Type	Class of Work
Hilti CP679A Ablative Cable Coating	Liechtenstein	FM Approved	3971-Coatings, Elect Cable

International Carbide Technology Company Ltd
No. 1-17, Toa-Chan, 12 Ling, Kern-Ko Village, Lu-Chu Hsiang, Tao-Yuan, Taiwan (R.O.C)

Product	Listing Country	Certification Type	Class of Work
INCA DC6150	Taiwan	FM Approved	3971-Coatings, Elect Cable

International Fireproof Technology Inc
17528 Von Karman Ave , Irvine, California 92614, USA

Product	Listing Country	Certification Type	Class of Work
INCA DC6150	United States of America	FM Approved	3971-Coatings, Elect Cable

National Fire Fighting Mfg. FZCO
P. O. Box 17014, Jebel Ali Free Zone, Dubai, United Arab Emirates

Product	Listing Country	Certification Type	Class of Work
NAFFCO PSV-PC	United Arab Emirates	FM Approved	3971-Coatings, Elect Cable

Promat GmbH
Sankt-Peter Straße 25, A-4021 Linz, Austria

Product	Listing Country	Certification Type	Class of Work
PROMASTOP® - CC	Austria	FM Approved	3971-Coatings, Elect Cable

RectorSeal Corporation
2601 Spenwick Dr, Houston, Texas 77055, USA

Product	Listing Country	Certification Type	Class of Work
Metacaulk® Industrial Cable Coating	United States of America	FM Approved	3971-Coatings, Elect Cable
BioFireshield™ Industrial Cable Coating	United States of America	FM Approved	3971-Coatings, Elect Cable
FlameSafe® C700+	United States of America	FM Approved	3971-Coatings, Elect Cable

Rudolf Hensel GmbH
Lauenburger Landstr. 11, D-21039 Bornsen, Germany

Product		Listing Country	Certification Type	Class of Work
Hensomastik 5 KS	GREEN	Germany	FM Approved	3971-Coatings, Elect Cable

Specified Technologies Inc
210 Evans Way, Somerville, New Jersey 08876, USA

Product	Listing Country	Certification Type	Class of Work
SpecSeal Cable Spray CS105	United States of America	FM Approved	3971-Coatings, Elect Cable

Stanvac Chemicals (India) Ltd
15-16 Old Sewa Nagar Market, P.O. Lodhi Rd, New Delhi, 110 003 India

Product	Listing Country	Certification Type	Class of Work
Firex EC 43	India	FM Approved	3971-Coatings, Elect Cable

svt BRANDSCHUTZ Vertriebsgesellschaft GmbH International
Postfach 23 62, 21204 Seevetal Glusinger Straße 86, 21217 Seevetal, Germany

Product	Listing Country	Certification Type	Class of Work
PYRO-SAFE FLAMMOPLAST KS1	Germany	FM Approved	3971-Coatings, Elect Cable
PYRO-SAFE FLAMMOTECT-A	Germany	FM Approved	3971-Coatings, Elect Cable

United States Mineral Products Co dba Isolatek International
41 Furnace St, Stanhope, New Jersey 07874, USA

Product	Listing Country	Certification Type	Class of Work
CAFCO T.P.S., Type CT	United States of America	FM Approved	3971-Coatings, Elect Cable

Vijay Systems Engineers Pvt Ltd
35 Chandivali Village, Off Saki Vihar Road, Andheri (East), Mumbai 400 072, India

Product	Listing Country	Certification Type	Class of Work
Ace Mastik (Ablative) Coating	India	FM Approved	3971-Coatings, Elect Cable

Vimasco Corp
Box 516, Nitro, West Virginia 25143, USA

Product	Listing Country	Certification Type	Class of Work
Vimasco Cable Coating Nos. 2-B, 3i	United States of America	FM Approved	3971-Coatings, Elect Cable

Yung Chi Paint & Varnish Mfg. Co. Ltd.
No. 26 Yen Hai 3rd Road, Kaohsiung, Taiwan R.O.C.

Product	Listing Country	Certification Type	Class of Work
Firecut FW-30M Cable Coating	Taiwan	FM Approved	3971-Coatings, Elect Cable

Wall & Floor Penetration Fire Stops (FM Approval Class Number 4990)

An important technique in property loss control is the subdivision of a building into compartments and sub-compartments. This subdivision is usually accomplished by erecting physical barriers that will limit the damage caused by an event to the room of origin. The loss caused by the spread of fire damage can be minimized when effective compartmentation is incorporated into a building's desig

One method of combating the spread of fire through openings in or around barriers is to properly design and install firestopping. Firestopping is intended for use in openings in or between fire resistant walls, floor/ceiling assemblies at head of walls and at construction joints between floors and walls.

Through penetrations submitted for Approval shall be evaluated for their ability to prevent the passage of flame through or around openings in fire rated walls and floor/ ceiling assemblies and their ability to limit the transmission of heat through the assembly. In addition, no openings shall develop that permit a projection of water beyond the unexposed surface during the hose stream test.

All through penetrations shall be subjected to a fire resistance test conducted in accordance with ASTM E814 (08) "Standard Method for Fire Tests of Through-Penetrations Fire Stops" followed by a hose stream test conducted in accordance with ASTM E2226 (07), "Practice for Application of Hose Stream". An hourly rating will be assigned based on the time period for which it successfully met the performance criteria.

Through penetrations that meet the fire resistance and hose stream test criteria shall be assigned three (3) separate ratings. They are called the F rating, the T rating and the T_{FM} rating.

The F rating denotes the period of time which the firestop:
- Withstood the fire resistance test without developing any through openings through which flames can pass;
- Withstood the fire resistance test without the occurrence of flaming on the unexposed side of the assembly;
- During the hose stream test, did not develop any opening that allows the projection of water during the hose stream test from the stream to the unexposed side.

The T rating shall denote the period of time which the firestop:
- Met all the criteria of the F rating;
- Limited the transmission of heat through the assembly, as measured by thermocouples located on the unexposed side of the test assembly, as specified in ASTM E814, from exceeding a 325°F (181°C) rise above ambient temperature.

The T_{FM} rating shall denote the period of time which the firestop:
- Met all the criteria of the F rating;
- Limited the transmission of heat through the assembly as measured by an individual thermocouple placed on the unexposed side of the fire stop material positioned 1 in. (25 mm) from the penetrating item from exceeding a 325°F (181°C) rise above ambient temperature.

FM Approvals does not consider the performance of the thermocouples placed directly on the penetrating item for purposes of determining the T_{FM} rating as it is not viewed as part of the firestopping materials provided in trying to protect the opening.

All joint systems between adjacent floor, wall or top of wall sections shall be subjected to a fire resistance and hose stream test conducted in accordance with ASTM E1966, "Standard Test method for Fire Resistance Joint Systems". If successful, the assembly will be assigned an Assembly Rating based on the time period in which it has successfully met the performance criteria. Floor-to-floor and floor-to-wall joint systems shall also be subjected to the same fire test but are not required to be subjected to a hose stream test.

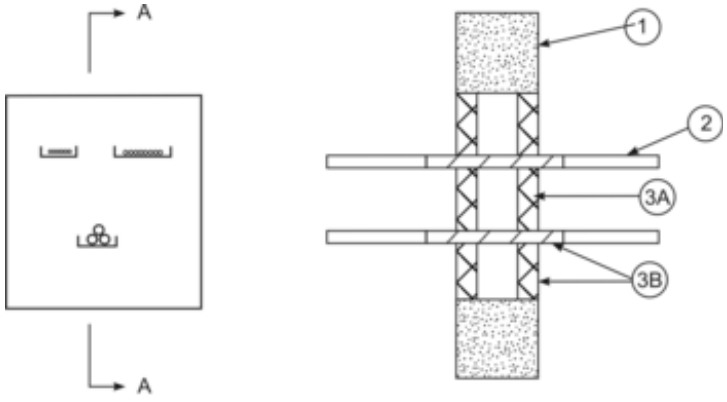
All joint systems shall be subjected to a cycling test conducted in accordance with ASTM E1966 prior to the fire resistance and hose stream test. Three (3) movement ratings are available – Type 1, Type 2 and Type 3.

Fire Stop Design 606

F-Rating = 4HR

T-Rating = 0 HR

T_{FM}-Rating = 4 HR



Section A-A

1. **WALL ASSEMBLY**. Min 200 mm (8 in.) thick normal weight concrete, min 4 hour fire rated. Max opening size of 0.16 m2 (1.7 ft2)

with largest dimension 400 mm (16 in.).

2. **CABLE TRAYS AND CABLES.** Max of one each (3 total) of the following cable trays installed within opening:

a. Max 100 x 20 mm (4 x 0.8 in.), 1.5 mm (0.06 in.) thick steel cable tray installed min 70 mm (2-3/4 in.) from the edge of the opening and 90 mm (3-1/2 in.) from the nearest penetrating item.

b. Max 75 x 20 mm (3 x 0.8 in.), 1.5 mm (0.06 in.) thick steel cable tray installed min 70 mm (2-3/4 in.) from the edge of the opening and 90 mm (3-1/2 in.) from the nearest penetrating item.

c. Max 105 x 20 mm (4.1 x 0.8 in.), 1.5 mm (0.06 in.) thick steel cable tray installed min 150 mm (6 in.) from the edge of the slab and the nearest penetrating item.

The following types, sizes and max number of copper conductor cables may be used:

a. Cable tray (Item 2a) may be provided with max 57% cable fill consisting of max ten (10) PVC sheathed and insulated copper cables with max diameter of 12 mm (0.47 in.).

b. Cable tray (Item 2b) may be provided with max 85% cable fill consisting of max five (5) PVC sheathed and insulated copper cables with max diameter of 18 mm (0.71 in.).

c. Cable tray (Item 2c) may be provided with max 250% cable fill consisting of max three (3) PVC sheathed and insulated copper cables with max diameter of 47 mm (1.85 in.).

3. **FIRE STOP COMPONENTS.**

a. Mineral wool boards, min 50 mm (2 in.) thick, min 150 kg/m3 (9.4 pcf) density cut slightly larger than the opening are installed within the opening tight around the penetrants and the perimeter of the opening, recessed 75 mm (3 in.) from the surface of the wall. Prior to installation, the perimeter of the mineral wool boards are coated with Mastik Coating (Item 3b).

b. Mastik coating applied at a thickness of min 1.5 mm (0.06 in.) thickness to the perimeter of the opening prior to installation of mineral wool boards (Item 3a). Mastic coating is then applied at min 1.5 mm (0.06 in.) thickness to both sides of the wall. The coating is applied so it overlaps onto the perimeter of the concrete wall min 25 mm (1 in.), and also onto the penetrants min 300 mm (12 in.) away from the mineral wool boards.

Vijay Systems Engineers Pvt Ltd
35 Chandivali Village, Off Saki Vihar Road, Andheri (East), Mumbai 400 072, India

Design Component	Product		Product Type	Listing Country	Certification Type	Class of Work
3b	Ace Mastik Coating		Fill Material	India	FM Approved	4990-Penetration Seal & Fire Stop

Fire Stop Design 606

Category:	Penetration Seal
Design Number:	606
Ratings:	4, 0, 4
Construction:	Wall
Penetrant:	Cable or Cable Tray
Floor/Wall Material Type:	Concrete
Joint Type:	na
Min. Wall Thickness (in.):	8
Min. Wall Thickness (mm):	200
Class of Work:	4990-Penetration Seal & Fire Stop

Wall & Floor Penetration Fire Stops (FM Approval Class Number 4990)

An important technique in property loss control is the subdivision of a building into compartments and sub-compartments. This subdivision is usually accomplished by erecting physical barriers that will limit the damage caused by an event to the room of origin. The loss caused by the spread of fire damage can be minimized when effective compartmentation is incorporated into a building's desig

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All through penetrations shall be subjected to a fire resistance test conducted in accordance with ASTM E814 (08) "Standard Method for Fire Tests of Through-Penetrations Fire Stops" followed by a hose stream test conducted in accordance with ASTM E2226 (07), "Practice for Application of Hose Stream". An hourly rating will be assigned based on the time period for which it successfully met the performance criteria.

Through penetrations that meet the fire resistance and hose stream test criteria shall be assigned three (3) separate ratings. They are called the F rating, the T rating and the T_{FM} rating.

The F rating denotes the period of time which the firestop:
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- During the hose stream test, did not develop any opening that allows the projection of water during the hose stream test from the stream to the unexposed side.

The T rating shall denote the period of time which the firestop:
- Met all the criteria of the F rating;
- Limited the transmission of heat through the assembly, as measured by thermocouples located on the unexposed side of the test assembly, as specified in ASTM E814, from exceeding a 325°F (181°C) rise above ambient temperature.

The T_{FM} rating shall denote the period of time which the firestop:
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- Limited the transmission of heat through the assembly as measured by an individual thermocouple placed on the unexposed side of the fire stop material positioned 1 in. (25 mm) from the penetrating item from exceeding a 325°F (181°C) rise above ambient temperature.

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All joint systems between adjacent floor, wall or top of wall sections shall be subjected to a fire resistance and hose stream test conducted in accordance with ASTM E1966, "Standard Test method for Fire Resistance Joint Systems". If successful, the assembly will be assigned an Assembly Rating based on the time period in which it has successfully met the performance criteria. Floor-to-floor and floor-to-wall joint systems shall also be subjected to the same fire test but are not required to be subjected to a hose stream test.

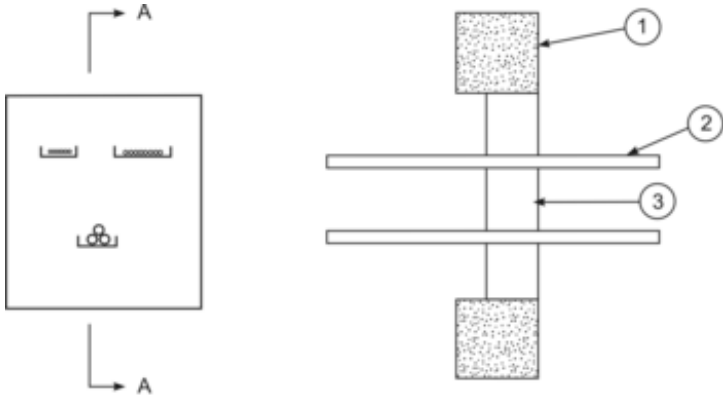
All joint systems shall be subjected to a cycling test conducted in accordance with ASTM E1966 prior to the fire resistance and hose stream test. Three (3) movement ratings are available – Type 1, Type 2 and Type 3.

Fire Stop Design 607

F-Rating = 2 HR

T-Rating = 0 HR

T_{FM}-Rating = 2 HR



Section A-A

1. **WALL ASSEMBLY**. Min 200 mm (8 in.) thick normal weight concrete, min 4 hour fire rated. Max opening size of 0.16 m2 (1.7 ft^2)

with largest dimension 400 mm (16 in.).

2. **CABLE TRAYS AND CABLES.** Max of one each (3 total) of the following cable trays installed within opening:

   a. Max 100 x 20 mm (4 x 0.8 in.), 1.5 mm (0.06 in.) thick steel cable tray installed min 70 mm (2-3/4 in.) from the edge of the opening and 90 mm (3-1/2 in.) from the nearest penetrating item.

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   c. Cable tray (Item 2c) may be provided with max 250% cable fill consisting of max three (3) PVC sheathed and insulated copper cables with max diameter of 47 mm (1.85 in.).

3. **FILL MATERIAL**. Mortar-like material supplied as dry powder, mixed with water at a rate of 1 part water to 1.5 parts powder by weight. Min thickness 130 mm (5.1 in.). Removable forms (not shown) are used on both sides of wall to prevent leakage during placement.

Vijay Systems Engineers Pvt Ltd
35 Chandivali Village, Off Saki Vihar Road, Andheri (East), Mumbai 400 072, India

Design Component	Product		Product Type	Listing Country	Certification Type	Class of Work
3	Ace Mortar		Fill Material	India	FM Approved	4990-Penetration Seal & Fire Stop

Fire Stop Design 607

Category:	Penetration Seal
Design Number:	607
Ratings:	2, 0, 2
Construction:	Wall
Penetrant:	Cable or Cable Tray
Floor/Wall Material Type:	Concrete
Joint Type:	na
Min. Wall Thickness (in.):	8
Min. Wall Thickness (mm):	200
Class of Work:	4990-Penetration Seal & Fire Stop

Wall & Floor Penetration Fire Stops (FM Approval Class Number 4990)

An important technique in property loss control is the subdivision of a building into compartments and sub-compartments. This subdivision is usually accomplished by erecting physical barriers that will limit the damage caused by an event to the room of origin. The loss caused by the spread of fire damage can be minimized when effective compartmentation is incorporated into a building's desig

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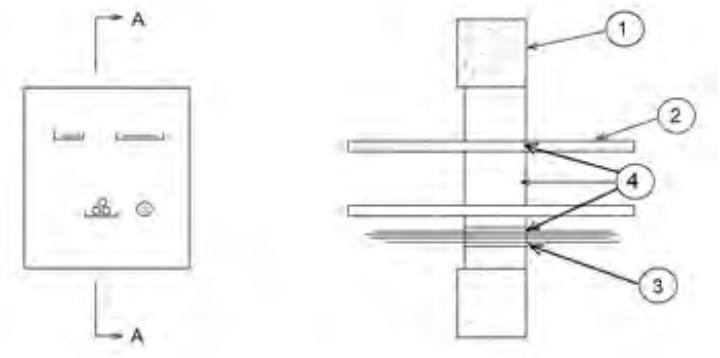
All joint systems shall be subjected to a cycling test conducted in accordance with ASTM E1966 prior to the fire resistance and hose stream test. Three (3) movement ratings are available – Type 1, Type 2 and Type 3.

Fire Stop Design 608

F-Rating = 4 HR

T-Rating = 0 HR

T_{FM}-Rating = 4 HR



SECTION A-A

1. **WALL ASSEMBLY**. Min 200 mm (8 in.) thick normal weight concrete, min 4 hour fire rated. Max opening size of 0.16 m2 (1.7 ft^2) with largest dimension 400 mm (16 in.).

2. **CABLE TRAYS AND CABLES.** Max of one each (3 total) of the following cable trays installed within opening:

   a. Max 100 x 20 mm (4 x 0.8 in.), 1.5 mm (0.06 in.) thick steel cable tray installed min 70 mm (2-3/4 in.) from the edge of the opening and 90 mm (3-1/2 in.) from the nearest penetrating item.

   b. Max 75 x 20 mm (3 x 0.8 in.), 1.5 mm (0.06 in.) thick steel cable tray installed min 70 mm (2-3/4 in.) from the edge of the opening and 90 mm (3-1/2 in.) from the nearest penetrating item.

   c. Max 105 x 20 mm (4.1 x 0.8 in.), 1.5 mm (0.06 in.) thick steel cable tray installed min 150 mm (6 in.) from the edge of the slab and the nearest penetrating item.

   The following types, sizes and max number of copper conductor cables may be used:

   a. Cable tray (Item 2a) may be provided with max 57% cable fill consisting of max ten (10) PVC sheathed and insulated copper cables with max diameter of 12 mm (0.47 in.).

   b. Cable tray (Item 2b) may be provided with max 85% cable fill consisting of max five (5) PVC sheathed and insulated copper cables with max diameter of 18 mm (0.71 in.).

   c. Cable tray (Item 2c) may be provided with max 250% cable fill consisting of max three (3) PVC sheathed and insulated copper cables with max diameter of 47 mm (1.85 in.).

3. **PIPE SLEEVE AND CABLES**. Steel pipe sleeve, 100 mm (4 in.) diameter x 5 mm (0.2 in.) wall thickness x 200 mm (8 in.) long positioned min 75 mm (3 in.) from the edge of the opening and the nearest penetrating item. The pipe sleeve may be provided with max eight (8) PVC sheathed and insulated copper cables bundled together within the sleeve with a max 16% overall cable fill:

   Max two (2) cables with max overall diameter of 10 mm (0.39 in.), max three (3) cables had an overall diameter of 12 mm (0.47 in.), and max three (3) cables had an overall diameter of 18 mm (0.71 in.).

4. **FILL MATERIAL**. Mortar-like material supplied as dry powder, mixed with water at a rate of 1 part water to 1.5 parts powder by weight. Opening filled with min thickness 170 mm (6.7 in.) of mortar. Removable forms (not shown) are used on both sides of wall to prevent leakage during placement. Pipe sleeve and cables (Item 3) filled a min of 200 mm (8 in.) thickness.

Vijay Systems Engineers Pvt Ltd
35 Chandivali Village, Off Saki Vihar Road, Andheri (East), Mumbai 400 072, India

Design Component	Product		Product Type	Listing Country	Certification Type	Class of Work
4	Ace Mastik Coating		Fill Material	India	FM Approved	4990-Penetration Seal & Fire Stop

Fire Stop Design 608

Category:	Penetration Seal
Design Number:	608
Ratings:	4, 0, 4
Construction:	Wall
Penetrant:	Cable or Cable Tray
Floor/Wall Material Type:	Concrete
Joint Type:	na
Min. Wall Thickness (in.):	8
Min. Wall Thickness (mm):	200
Class of Work:	4990-Penetration Seal & Fire Stop

Wall & Floor Penetration Fire Stops (FM Approval Class Number 4990)

An important technique in property loss control is the subdivision of a building into compartments and sub-compartments. This subdivision is usually accomplished by erecting physical barriers that will limit the damage caused by an event to the room of origin. The loss caused by the spread of fire damage can be minimized when effective compartmentation is incorporated into a building's desig

One method of combating the spread of fire through openings in or around barriers is to properly design and install firestopping. Firestopping is intended for use in openings in or between fire resistant walls, floor/ceiling assemblies at head of walls and at construction joints between floors and walls.

Through penetrations submitted for Approval shall be evaluated for their ability to prevent the passage of flame through or around openings in fire rated walls and floor/ ceiling assemblies and their ability to limit the transmission of heat through the assembly. In addition, no openings shall develop that permit a projection of water beyond the unexposed surface during the hose stream test.

All through penetrations shall be subjected to a fire resistance test conducted in accordance with ASTM E814 (08) "Standard Method for Fire Tests of Through-Penetrations Fire Stops" followed by a hose stream test conducted in accordance with ASTM E2226 (07), "Practice for Application of Hose Stream". An hourly rating will be assigned based on the time period for which it successfully met the performance criteria.

Through penetrations that meet the fire resistance and hose stream test criteria shall be assigned three (3) separate ratings. They are called the F rating, the T rating and the T_{FM} rating.

The F rating denotes the period of time which the firestop:

- Withstood the fire resistance test without developing any through openings through which flames can pass;
- Withstood the fire resistance test without the occurrence of flaming on the unexposed side of the assembly;
- During the hose stream test, did not develop any opening that allows the projection of water during the hose stream test from the stream to the unexposed side.

The T rating shall denote the period of time which the firestop:

- Met all the criteria of the F rating;
- Limited the transmission of heat through the assembly, as measured by thermocouples located on the unexposed side of the test assembly, as specified in ASTM E814, from exceeding a 325°F (181°C) rise above ambient temperature.

The T_{FM} rating shall denote the period of time which the firestop:

- Met all the criteria of the F rating;
- Limited the transmission of heat through the assembly as measured by an individual thermocouple placed on the unexposed side of the fire stop material positioned 1 in. (25 mm) from the penetrating item from exceeding a 325°F (181°C) rise above ambient temperature.

FM Approvals does not consider the performance of the thermocouples placed directly on the penetrating item for purposes of determining the T_{FM} rating as it is not viewed as part of the firestopping materials provided in trying to protect the opening.

All joint systems between adjacent floor, wall or top of wall sections shall be subjected to a fire resistance and hose stream test conducted in accordance with ASTM E1966, "Standard Test method for Fire Resistance Joint Systems". If successful, the assembly will be assigned an Assembly Rating based on the time period in which it has successfully met the performance criteria. Floor-to-floor and floor-to-wall joint systems shall also be subjected to the same fire test but are not required to be subjected to a hose stream test.

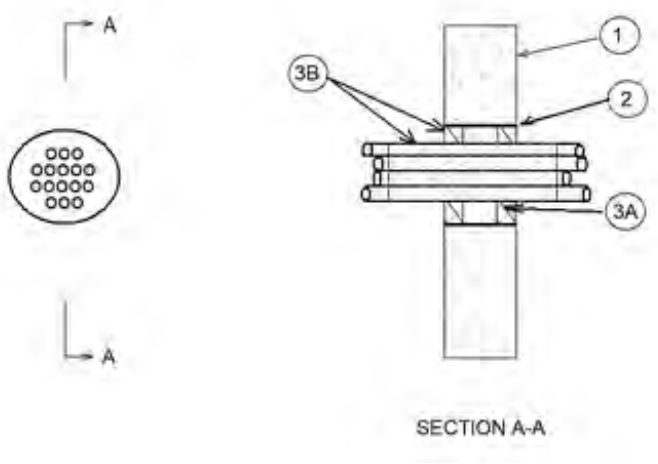
All joint systems shall be subjected to a cycling test conducted in accordance with ASTM E1966 prior to the fire resistance and hose stream test. Three (3) movement ratings are available – Type 1, Type 2 and Type 3.

Fire Stop Design 609

F-Rating = 4 HR

T-Rating = 0 HR

T_{FM}-Rating = 4 HR



SECTION A-A

1. **WALL ASSEMBLY**. Min 200 mm (8 in.) thick normal weight concrete, min 4 hour fire rated.

2. **PIPE SLEEVE AND CABLES**. Steel pipe sleeve, 100 mm (4 in.) diameter x 5 mm (0.2 in.) wall thickness x 200 mm (8 in.) long cast or grouted into wall assembly. The pipe sleeve may be provided with max eight (8) PVC sheathed and insulated copper cables bundled together within the sleeve with a max 16% overall cable fill:

   Max two (2) cables with max overall diameter of 10 mm (0.39 in.), max three (3) cables had an overall diameter of 12 mm (0.47 in.), and max three (3) cables had an overall diameter of 18 mm (0.71 in.).

3. **FIRE STOP COMPONENTS.**

   a. Mineral wool boards, min 50 mm (2 in.) thick, min 150 kg/m3 (9.4 pcf) density cut slightly larger than the opening are installed within the pipe sleeve tight around the cables and the perimeter of the pipe sleeve. One layer installed flush with each surface of the wall, providing an air gap of 100 mm (4 in.) between layers. Prior to installation, the perimeter of the mineral wool boards are coated with Mastik Coating (Item 3b).

   b. Mastik coating applied at a thickness of min 1.5 mm (0.06 in.) thickness to the perimeter of the sleeve prior to installation of mineral wool boards (Item 3a). Mastic coating is then applied at min 1.5 mm (0.06 in.) thickness to both sides of the wall. The coating is also applied onto the penetrants min 300 mm (12 in.) away from the mineral wool boards.

Vijay Systems Engineers Pvt Ltd
35 Chandivali Village, Off Saki Vihar Road, Andheri (East), Mumbai 400 072, India

Design Component	Product		Product Type	Listing Country	Certification Type	Class of Work
3b	Ace Mastik Coating		Fill Material	India	FM Approved	4990-Penetration Seal & Fire Stop

Fire Stop Design 609

Category:	Penetration Seal
Design Number:	609
Ratings:	4, 0, 4
Construction:	Wall
Penetrant:	Cable or Cable Tray
Floor/Wall Material Type:	Concrete
Joint Type:	na
Min. Wall Thickness (in.):	8
Min. Wall Thickness (mm):	200
Class of Work:	4990-Penetration Seal & Fire Stop

Wall & Floor Penetration Fire Stops (FM Approval Class Number 4990)

An important technique in property loss control is the subdivision of a building into compartments and sub-compartments. This subdivision is usually accomplished by erecting physical barriers that will limit the damage caused by an event to the room of origin. The loss caused by the spread of fire damage can be minimized when effective compartmentation is incorporated into a building's desig

One method of combating the spread of fire through openings in or around barriers is to properly design and install firestopping. Firestopping is intended for use in openings in or between fire resistant walls, floor/ceiling assemblies at head of walls and at construction joints between floors and walls.

Through penetrations submitted for Approval shall be evaluated for their ability to prevent the passage of flame through or around openings in fire rated walls and floor/ ceiling assemblies and their ability to limit the transmission of heat through the assembly. In addition, no openings shall develop that permit a projection of water beyond the unexposed surface during the hose stream test.

All through penetrations shall be subjected to a fire resistance test conducted in accordance with ASTM E814 (08) "Standard Method for Fire Tests of Through-Penetrations Fire Stops" followed by a hose stream test conducted in accordance with ASTM E2226 (07), "Practice for Application of Hose Stream". An hourly rating will be assigned based on the time period for which it successfully met the performance criteria.

Through penetrations that meet the fire resistance and hose stream test criteria shall be assigned three (3) separate ratings. They are called the F rating, the T rating and the T_{FM} rating.

The F rating denotes the period of time which the firestop:

- Withstood the fire resistance test without developing any through openings through which flames can pass;
- Withstood the fire resistance test without the occurrence of flaming on the unexposed side of the assembly;
- During the hose stream test, did not develop any opening that allows the projection of water during the hose stream test from the stream to the unexposed side.

The T rating shall denote the period of time which the firestop:

- Met all the criteria of the F rating;
- Limited the transmission of heat through the assembly, as measured by thermocouples located on the unexposed side of the test assembly, as specified in ASTM E814, from exceeding a 325°F (181°C) rise above ambient temperature.

The T_{FM} rating shall denote the period of time which the firestop:

- Met all the criteria of the F rating;
- Limited the transmission of heat through the assembly as measured by an individual thermocouple placed on the unexposed side of the fire stop material positioned 1 in. (25 mm) from the penetrating item from exceeding a 325°F (181°C) rise above ambient temperature.

FM Approvals does not consider the performance of the thermocouples placed directly on the penetrating item for purposes of determining the T_{FM} rating as it is not viewed as part of the firestopping materials provided in trying to protect the opening.

All joint systems between adjacent floor, wall or top of wall sections shall be subjected to a fire resistance and hose stream test conducted in accordance with ASTM E1966, "Standard Test method for Fire Resistance Joint Systems". If successful, the assembly will be assigned an Assembly Rating based on the time period in which it has successfully met the performance criteria. Floor-to-floor and floor-to-wall joint systems shall also be subjected to the same fire test but are not required to be subjected to a hose stream test.

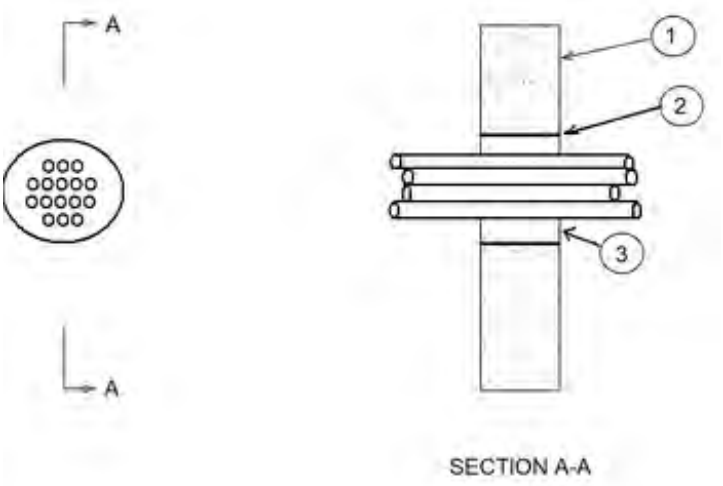
All joint systems shall be subjected to a cycling test conducted in accordance with ASTM E1966 prior to the fire resistance and hose stream test. Three (3) movement ratings are available – Type 1, Type 2 and Type 3.

Fire Stop Design 610

F-Rating = 4 HR

T-Rating = 0 HR

T_{FM}-Rating = 4 HR



SECTION A-A

1. **WALL ASSEMBLY**. Min 200 mm (8 in.) thick normal weight concrete, min 4 hour fire rated.

2. **PIPE SLEEVE AND CABLES**. Steel pipe sleeve, 100 mm (4 in.) diameter x 5 mm (0.2 in.) wall thickness x 200 mm (8 in.) long cast or grouted into wall assembly. The pipe sleeve may be provided with max eight (8) PVC sheathed and insulated copper cables bundled together within the sleeve with a max 16% overall cable fill:

   Max two (2) cables with max overall diameter of 10 mm (0.39 in.), max three (3) cables had an overall diameter of 12 mm (0.47 in.), and max three (3) cables had an overall diameter of 18 mm (0.71 in.).

3. **FILL MATERIAL**. Mortar-like material supplied as dry powder, mixed with water at a rate of 1 part water to 1.5 parts powder by weight. Opening filled with min thickness 170 mm (6.7 in.) of mortar. Removable forms (not shown) are used on both sides of wall to prevent leakage during placement. Annular space between cable within pipe sleeve (Item 2) filled a min of 200 mm (8 in.) thickness.

Vijay Systems Engineers Pvt Ltd
35 Chandivali Village, Off Saki Vihar Road, Andheri (East), Mumbai 400 072, India

Design Component	Product		Product Type	Listing Country	Certification Type	Class of Work
3	Ace Mortar		Fill Material	India	FM Approved	4990-Penetration Seal & Fire Stop

Fire Stop Design 610

Category:	Penetration Seal
Design Number:	610
Ratings:	4, 0, 4
Construction:	Wall
Penetrant:	Cable or Cable Tray
Floor/Wall Material Type:	Gypsum Drywall
Joint Type:	na
Min. Wall Thickness (in.):	8
Min. Wall Thickness (mm):	200
Class of Work:	4990-Penetration Seal & Fire Stop

Wall & Floor Penetration Fire Stops (FM Approval Class Number 4990)

An important technique in property loss control is the subdivision of a building into compartments and sub-compartments. This subdivision is usually accomplished by erecting physical barriers that will limit the damage caused by an event to the room of origin. The loss caused by the spread of fire damage can be minimized when effective compartmentation is incorporated into a building's desig

One method of combating the spread of fire through openings in or around barriers is to properly design and install firestopping. Firestopping is intended for use in openings in or between fire resistant walls, floor/ceiling assemblies at head of walls and at construction joints between floors and walls.

Through penetrations submitted for Approval shall be evaluated for their ability to prevent the passage of flame through or around openings in fire rated walls and floor/ ceiling assemblies and their ability to limit the transmission of heat through the assembly. In addition, no openings shall develop that permit a projection of water beyond the unexposed surface during the hose stream test.

All through penetrations shall be subjected to a fire resistance test conducted in accordance with ASTM E814 (08) "Standard Method for Fire Tests of Through-Penetrations Fire Stops" followed by a hose stream test conducted in accordance with ASTM E2226 (07), "Practice for Application of Hose Stream". An hourly rating will be assigned based on the time period for which it successfully met the performance criteria.

Through penetrations that meet the fire resistance and hose stream test criteria shall be assigned three (3) separate ratings. They are called the F rating, the T rating and the T_{FM} rating.

The F rating denotes the period of time which the firestop:
- Withstood the fire resistance test without developing any through openings through which flames can pass;
- Withstood the fire resistance test without the occurrence of flaming on the unexposed side of the assembly;
- During the hose stream test, did not develop any opening that allows the projection of water during the hose stream test from the stream to the unexposed side.

The T rating shall denote the period of time which the firestop:
- Met all the criteria of the F rating;
- Limited the transmission of heat through the assembly, as measured by thermocouples located on the unexposed side of the test assembly, as specified in ASTM E814, from exceeding a 325°F (181°C) rise above ambient temperature.

The T_{FM} rating shall denote the period of time which the firestop:
- Met all the criteria of the F rating;
- Limited the transmission of heat through the assembly as measured by an individual thermocouple placed on the unexposed side of the fire stop material positioned 1 in. (25 mm) from the penetrating item from exceeding a 325°F (181°C) rise above ambient temperature.

FM Approvals does not consider the performance of the thermocouples placed directly on the penetrating item for purposes of determining the T_{FM} rating as it is not viewed as part of the firestopping materials provided in trying to protect the opening.

All joint systems between adjacent floor, wall or top of wall sections shall be subjected to a fire resistance and hose stream test conducted in accordance with ASTM E1966, "Standard Test method for Fire Resistance Joint Systems". If successful, the assembly will be assigned an Assembly Rating based on the time period in which it has successfully met the performance criteria. Floor-to-floor and floor-to-wall joint systems shall also be subjected to the same fire test but are not required to be subjected to a hose stream test.

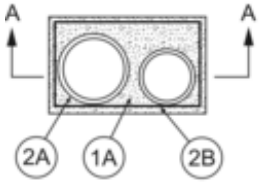
All joint systems shall be subjected to a cycling test conducted in accordance with ASTM E1966 prior to the fire resistance and hose stream test. Three (3) movement ratings are available – Type 1, Type 2 and Type 3.

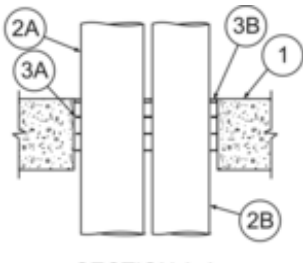
Fire Stop Design 611

F-Rating = 2 HR

T-Rating = 0 HR

T_{FM}-Rating = 1½ and 2 HR





SECTION A-A

1. FLOOR OR WALL ASSEMBLY. Minimum 4 1/2 in. (114 mm) thick reinforced lightweight or normal weight (100 - 150 lb/ft^3 or 1600 - 2400 kg/m^3) concrete. Wall may also be constructed of concrete blocks. Max area of opening is 32 in.^{2} (206 cm^2) with a max dimension of 8 in. (203mm).
   a. STEEL SLEEVE (Optional, Not Shown). Nominal 4 in. by 8 in. (102 mm by 203 mm) or smaller No. 28 ga (or heavier) steel sleeve cast or grouted into floor or wall assembly.

2. THROUGH PENETRANTS. Maximum 2 conduits or copper tubes installed concentrically or eccentrically within the firestop system. Annular space between penetrants shall be min 1/4 in. (6 mm) to max 2 in. (51 mm). Space between penetrants shall be min 1/4 in. (6 mm) to max 1 in. (25 mm). Penetrants to be rigidly supported on both sides of floor or wall assembly.

   a. Conduit. Nominal 3 in. (76 mm) diameter (or smaller) steel electrical metallic tubing (EMT).

   b. Copper Tube. Nominal 2 in. (51 mm) diameter Type M copper tube.

3. FIRESTOP COMPONENTS

   a. Packing Material – Minimum 3 in. (76 mm) thickness of 4 lb/ft^3 (64 kg/m^3) mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor of from both surfaces of wall as required to accommodate the required thickness of fill material.

   b. Sealant Material – Minimum 1/4 in. (6 mm) depth of sealant applied within the annulus, flush with top surface of floor or with both surfaces of wall. A minimum 1/16 in. (1.6 mm) thick film of sealant shall be applied to lap 1/2 in. (13 mm) onto concrete around perimeter of opening. T$_{FM}$ rating is 1-1/2 hr when SIL300 is used and 2 hr when SIL300SL is used.

Specified Technologies Inc
210 Evans Way, Somerville, New Jersey 08876, USA

Design Component	Product	Product Type	Listing Country	Certification Type	Class of Work
3b	SpecSeal® SIL300 Silicone Sealant	Fill Material	United States of America	FM Approved	4990-Penetration Seal & Fire Stop
3b	SpecSeal® SIL300SL Silicone Sealant	Fill Material	United States of America	FM Approved	4990-Penetration Seal & Fire Stop

Fire Stop Design 611

Category:	Penetration Seal
Design Number:	611
Ratings:	2, 0, 1 1/2, 2
Construction:	Floor, Wall
Penetrant:	Conduit, Copper Pipe
Floor/Wall Material Type:	Concrete
Joint Type:	Floor-to-Wall
Min. Wall Thickness (in.):	4 1/2
Min. Wall Thickness (mm):	114
Class of Work:	4990-Penetration Seal & Fire Stop

ACE MASTIK COATING

AceMastik Coating

WARNING: May cause eye, skin, nose and throat irritation.

CONTAINS: Thermoplastic Resins, Inorganic Fillers, Pigments, Fibers, Flame Retardant Additives and Water.

PRECAUTIONS: Avoid eye and skin contact. Do not ingest. Wash thoroughly after handling. For industrial use only.

KEEP OUT OF REACH OF CHILDREN.

FIRST AID INFORMATION:

- **Eye Contact:** Flush eyes with large amounts of water. Blink or lift upper and lower lids occasionally. If signs/symptoms persist, get medical attention.
- **Skin Contact:** Remove contaminated clothing and shoes. Immediately flush skin with large amounts of water. Use soap if required. Get medical attention, if symptoms/irritation persist. Wash contaminated clothing and clean shoes before reuse.
- **Inhalation:** Remove person to fresh air. If signs/symptoms develop, get medical attention.
- **If Swallowed:** Do not induce vomiting unless instructed to do so by medical personnel. Give person two glasses of water. Never give anything by mouth to an unconscious person. Get medical attention.

REFER TO MATERIAL SAFETY DATA ON OUR WEBSITE: WWW.VIJAYSYSTEMS.COM

IMPORTANT: Consult the FM Directory for specific information regarding your application.

AceMastik Coating Compound

A fire-retardantcoating for electrical cables/trays. During a fire, product undergoes an endothermic reaction which reduces burning rateand spread fire. Burns and chars to prevent smoke and flame from propagating further.

Directions: Surfaces must be dry and free of oil, frost, grease, dust and other foreign materials. It is a ready-to-mix coating compound that can be easily applied by brush or spray. No primary or separate weather coating is required. It is good for indoor and outdoor application on cables. It is very flexible when dry.

Cure: Full cure depends upon ambient conditions and volume of caulk. Cures to thick dry in 4-6 hours.

Clean-Up: Clean tools with soap and water. Remove cured sealant with a scraper or knife. Refer to Technical Data Sheet for complete product information.

Storage: Store at temperatures of 50° C/ 122° F.

KEEP FROM FREEZING DURING CUSTOMER STORAGE.

NOTICE: This product is not acceptable for use with

Important Notice to User:

- **Product use:** Many factors beyond VSE's control and uniquely within user's knowledge and control can affect the use and performance of a VSE product in a particular application. Given the variety of factors that can affect the use and performance of a VSE product, user is solely responsible for evaluating the VSE product and determining whether it is fit for a particular purpose and suitable for user's method of application.
- **Warranty and Limited Remedy:** VSE warrants that each VSE Fire Protection Product will be free from defects in material and manufacture for 90 days from the date of purchase or the shelf life, whichever is less.

VSE MAKES NO OTHER EXPRESS OR IMPLIED WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. If a VSE product does not conform to this warranty, the sole and exclusive remedy is, at VSE's option, replacement of the VSE product or refund of the purchase price.

Limitation of Liability: Except where prohibited by law, VSE will not be liable for any loss or damage arising from the VSE product, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted.

Product Information Source:
Material Safety Data Sheet or VSE Export Division
35 Chandivali Village, Off Saki Vihar Road, Andheri East, Mumbai 400072.
www.vijaysystems.com

Toll Free:

8 906031 520338

DATA SHEET
ACE MASTIK COATING

PRODUCT DESCRIPTION:

Ace Mastik coating is a water based solvent free coating extensively useful for application as fire retardant surface coating on electrical and control cables and surface coating for fire stops. The coating comprises of thermoplastic resins, Flame retardant chemicals, fillers and pigments. Ace Mastik coating is an ablative product. When exposed to fire it undergoes endothermic reaction which reduces the

burning rate and spread of fire. It is free from asbestos.
Ace Mastik Coating is a ready to use product. It is required to be stirred thoroughly before application. It can be applied by airless spray gun or by using a hand brush.

Coating is generally applied in 2 to 3 coats to required thickness.

The product is tested as per ASTM E 814 & UL 1479, IEEE 383, IEC 600331-11 , IEC 600332-3 Class A.

SPECIAL FEATURES OF THE PRODUCT:

FM approved, to approval class 4990 & 3971 for 2 & 4 hrs Fire rating.

- Can be retrofitted.
- Easy to use and apply.
- Non Toxic
- Countable to green building materials.
- Packed in eco-friendly packing.
- Ace Mastik Coating does not get affected due to various exposure conditions expected in commercial and industrial applications like , aging, moderate impact, temperature variation, weak acids and alkalis, water logging.
- Ace Mastik Coating is compatible with most of the electrical and mechanical penetrant surfaces like all cable insulation and jacketing materials, metal and plastic service pipe lines, air ducts etc.
- It is Halogen Free
- Ace Mastik Coating does not require the electrical cables to be de rated for current carrying capacity of the cables.
- It does not get deteriorated after exposure to “Gamma rays irradiation” and therefore suitable for application in Nuclear plants and equipment
- It is also resistant to attack by rodents, vermin and termite.

DATA SHEET
ACE MASTIK COATING

APPLICATIONS OF ACE MASTIK COATING:

Ace Mastik Coating finds its major application as fire retardant coating for cables and for fire stops.

It substantially reduces the rate of propagation of fire along the surface. It also prevents heat penetration to the coated surface in fire conditions. It is compatible with most cable jacketing and insulation materials like, PVC, Rubber, Paper, Silicon, HRPVC, XLPE, FRLS, etc.

SYSTEM SPECIFICATIONS:

Ace Mastik Coating is tested for various systems as per national and international testing specifications like ISO 834, ASTM E 814, IS 12458, UL 1479 for its fire rating. For fire retardant
Properties Ace Mastik is tested to IEEE 383, IEC 600331-11 , IEC 600332-3 Class A.

Ace Mastik Coating is also tested for various exposure conditions which are expected to exist in commercial and industrial applications. These include Limiting Oxygen Index as per ASTM D 2863, Accelerated aging test in hot air oven, flexibility to minimum 3 bending cycles, temperature variation, weak acids and alkalis, water logging, etc. as per various corporate specifications.

PERFORMANCE AND TYPICAL PHYSICAL PROPERTIES:

Form: Thick Viscous Liquid
Colour & Appearance: Off white
Density: 1.25 to 1.40 gm / cm3
pH: 6 to 8
Solid Contents: 70-75% by weight
Limiting Oxygen Index: > 90
Fire Rating for flame propagation: 60 minutes as per IEC 600332 & IEEE383
Flexibility: upto 10 times the diameter of cable for 3 bending cycles
Application temperature: 10 ^{0} C to 50 ^{0} C

PACKING & STORAGE:

Packaging: Ace Mastik Coating is packed in plastic containers with fully openable top lid. Available packing sizes are 20 kg pales, 60kg drums.

Storage: Ace Mastik Coating should be stored in a covered dry shed at ambient conditions.
Avoid freezing conditions and store below 50 ^{0} C in a non-fire hazard area.

Shelf Life: Ace Mastik Coating has a shelf life is 18 months in original unopened packing. Normal stock rotation is recommended to ensure first in first out policy for use of materials at site.

APPLICATION INSTRUCTIONS
ACE MASTIK COATING

1. SCOPE:

This procedure covers the methods of installation of firebreak system using fire retardant coating compound on cables.

2. PURPOSE:

The purpose of this procedure is to provide guide lines for installation of fire break system using fire retardant coating compound on cables.

The applications are as follows:

- Disable end termination at source end & load end.
- Incoming & outgoing cable termination end near to junction box.
- Crossing or tee crossings in all direction
- Entire vertical exposed length of cables coming down into the trenches or cable racks from the equipment.

3. AREA OF APPLICATION:

This procedure is applicable for all rooms at main plant.

4. RESPONSIBILITY:

Responsibility of implementation of this procedure rests with site in charge of M/s. Vijay Systems Engineers Pvt. Ltd.

5. PREREQUISITES:

- The cable surface has to be dry, free of dust and grease/oil. If there is any oil or grease, it has to be cleaned with kerosene otherwise cables have to be cleaned with dry cloth.
- Dressing and clamping of cables.

6. INSTALLATION PROCEDURE:

- Clean the surface of cables/penetrates passing through the opening to clear it off dirt, dust, oil, grease etc.
- Define application area by applying removable tape on both ends of the cable. Remove the lid of the container.
- Stir the paint drum for about 5 minute s with electrical stirrer or with wooden or steel rod to make it uniform. Ensure that no sediments are left out at the bottom of the container and material would be in proper and uniform liquid form. Add further quantity of water as required to make the coating uniform.
- Transfer the required quantity of paint int o small bucket for convenience to carry to the locations where it is to be applied. Replace the lid tightly in position on the container when the container is not in use.
- The panels/other equipment below the cables which are to be coated should be covered with plastic sheet liners / masking paper to avoid deposition of coating over spray / spillage on panels / equipment during overhead application.
- Check the cables are clamped on trays/tig htly fixed.
- Start applying the paint on the cables with paint brush. After completion of one coat it dry for ¾ hours in case of indoor application and 2/3 hrs. in case of outdoor application. After complete

drying of each coat, next coat must be applied.

- Before complete drying of each coat measure the thickness by WFT gauge.
- Repeat the step 7 till you get the DFT of 1.56 mm to 2.00 mm.
- After complete drying of 3rd coat, measure the thickness by Vernier caliper.
- If the Dry Film Thickness after coating is 1.5mm to 2.00 mm then only remove all the tapes on cable ends.
- Additional coat is advised if the required thickness is not achieved.
- Application can be done by brush / spray appliance as per availability of equipment and suitability to site conditions.
- Brushes should be cleaned thoroughly when the day's work is over for smooth and convenient start of next day's work.
- Clean the area after completion of work, remove excess materials falls on trays / panel / glands etc.

Quantities to be applied:

For a given location ,measure the perimeter of bunch of cables, diameter of individual cable and length of cables to be coated, width, height of cable tray etc. Calculate the area of cable surface to be coated.

7. ACCEPTANCE CRITERIA:

a. Cleaning of cables.

b. Dry time for 2 to 4 hours after each coat of application and finally allow the material to dry for 2 days.

c. Average DFT of coating on the cables shall be 1.56 to 2mm corresponding to WFT 2.4mm

d. Minimum length to be coated shall be 1 meter.

MATERIAL SAFETY DATA SHEET
ACE MASTIK COATING

SECTION 1 : IDENTIFICATION :

1.1 Name of the Product: " Ace Mastik Coating" – HSN Code 38249090

1.2 Recommended Use and limitation of Application : Recommended to be used as a surface coating for flame retardancy of Power and control cables . Also used for filling gaps between various components of a fire penetration seals, Used extensively as a surface coating on Mineral Wool boards of various cable fire penetration sealing systems & fire rated building joints. It can also be used as a binder between different building materials which are not compatible with each other at joints but are compatible with the coating.

1.3 Manufacturer's Supplier's Data:

Manufacturer :	**VIJAY SYSTEMS ENGINEERS PVT LTD**.
Address :	35 Chandivali Village, Off Sakivihar Road, Andheri (East) Mumbai 400072 India.
Contact Person :	Mr. K. Bhattacharjee
Works Address :	Shed No. 9,12 &112 Bajrang Krupa Industrial,Estate, Village – Athal, Silvassa – 396230.(U.T), India.
Telephone Number:	+91 22 28474146 / +91 22 28473660
E-Mail:	vijaysystems@vsnl.net

SECTION 2: HAZARD IDENTIFICATION

No GHS (Globally Harmonized System of classification and labeling of chemicals) identity.

2.1 Serious Eye Damage/Irritation: Contact with eye can cause irritation.

2.2 Skin Sensitizer : Can cause irritation at the contact .

2.3 Inhalation: Exposure to Ace Mastik coating can cause irritation to the nose, throat, and upper respiratory system due to over exposure to the vapors.

2.4 Reproductive Toxicity : None.

2.5 Specific Target Organ Toxicity (repeated exposure): Respiratory track & Lungs.

2.6 Hazardous identification: Non Hazardous Substance, Non dangerous Goods, according to the criteria of OSHA classification criteria.

2.7 Poison Schedule : None

2.8 Risk : None under normal operating conditions.

2.9 Safety: None under normal operating conditions.

2.10 Label Element : None

2.11 Symbol : None

2.12 Pictogram : None

2.13 Hazard Statement : Avoid spillage. Can be dangerously slippery.

2.14 Precautionary Statement : Store in a dry covered ventilated shed. No special protection while handling.

2.15 Responses :

- **If in eyes :** Rinse cautiously with water for several minutes. Remove contact lenses, if present. Continue rinsing. If eye irritation persists, get medical advice/ attention.
- **If on skin :** Wash with plenty of soap and water. If skin irritation or rash occurs, get medical advice/ attention. Wash contaminated clothing before reuse.
- **If exposed or concerned :** Get medical advice/ attention.
- **Storage :** Store in a covered dry shed.
- **Disposal:** Dispose of contents/container in accordance with applicable local/ regional/ national /international regulations.

2.16. Hazards not otherwise classified: None.

SECTION 3 : COMPOSITION/INFORMATION ON INGREDIENTS :

Ingredients (proprietary mixture)	CAS Number	% by wt / wt
Acrylic copolymer	67967-61-7	10 to 60
Fire retardant additives	12777-87-6	5 to 30
Plasticizers	63449-39-8	0 to 15
Fillers / calcium Carbonate	1317-65-3	5 to 30
Titanium Dioxide and plasticizers.	13463-67-7	2 to 15

*The exact chemical identity and/or exact percentage (concentration) in ingredients furnished above are not disclosed being a trade secret and proprietary nature of formulation.

SECTION 4: FIRST AID MEASURES

4.1. First aid measures

- **Inhalation:** Remove person to fresh air. If feeling unwell get medical attention
- **Skin Contact :** Wash away with water. Remove deposits if any from the clothing. If irritation persists , if signs/symptoms of un wellness develop, get medical attention.
- **Eye Contact :** Immediately flush with copious amount of water. Remove contact lenses if easy to do and discard. Continue rinsing. Get medical attention.
- **If Swallowed :** Do not induce vomiting. If conscious, have the victim drink plenty of water and call for medical assistance immediately. Rinse mouth to discard contamination.

4.2. Most important symptoms/ effects, both acute and delayed : No significant exposure effects are expected. However acute or delayed symptoms are furnished in toxicological information furnished in section 11.

4.3. Indication of any immediate medical attention and special treatment required : No Information.

SECTION 5: FIRE FIGHTING MEASURES.

5.1. Suitable extinguishing media in case of fire : Carbon Dioxide, Dry Chemical, Foam, Water Fog to extinguish fire.

5.2. Special hazards arising from the substance or mixture not inherent in this product. : No information.

5.3 Hazardous Decomposition or By-Products : None

5.4. Special protective actions for fire fighters : Cool containers with water spray. Evacuate personnel to safe areas. The product is not flammable. Use NIOSH approved respiratory protection. Use water mist / spray to cool unopened containers.

SECTION 6 : ACCIDENTAL RELEASE MEASURES.

6.1. Personal precautions, protective equipment and emergency procedures: Evacuate area. Ventilate the area with fresh air. Observe suitable respiratory protection like breathing masks, ventilation, and personal protective equipment like protective clothing, hand gloves and goggles.

6.2 Method of cleaning Spills : When product gets spilled, the spilled area becomes slippery . Cordon off the area. Excess spilled material may be scooped up in fresh containers and sent for recycling. Wipe clean and dry the area with cotton waste / rags.

6.3. Environmental precautions: Avoid release to the environment. Dispose off spilled contents / container in accordance with applicable local/regional/national/international regulations.

SECTION 7 : HANDLING & STORAGE.

7.1 Precautions for Safe handling: Wear protective clothing and hand gloves, Goggles mask etc. While handling and stacking the containers take care not to receive any damage which can result in spills. Observe good occupational work practice.

7.2 Conditions of Safe storage: Store in a dry covered shed.

SECTION 8: EXPOSURE CONTROL	PERSONAL PROTECTION :

8.1. Exposure controls: In normal course of product use, no special controls are necessary. At a time small quantity is supposed to be used. General dilution ventilation and/or local exhaust ventilation to control vapor exposure can be sufficient. If ventilation is not adequate, use respiratory protection equipment. Use NIOSH/MHSA-approved respirators or equivalent.

8.2 Personal protective equipment (PPE) :

- **Eye/face protection : U**se of indirect ventilated goggles with side shields for eye and / respiratory masks for face protection are recommended.
- **Skin/hand protection :** Use of protective gloves and /or protective clothing (Apron) to prevent skin contact is recommended.
- **Respiratory protection :** No special respiratory means required other than face mask.

SECTION 9: PHYSICAL & CHEMICAL PROPERTIES :

9.1. Information on basic physical and chemical properties.:

1.	**Physical Form**	**:**	Viscus Thick Liquid.
2.	**Colour & Appearance**	**:**	Off white to Grey
3.	**Odour**	**:**	Mild Odour
4.	**Solubility in Water**	**:**	Can be diluted using water.
5.	**PH as supplied**	**:**	6 to 8
6.	**Bulk Density**	**:**	1.30 to 1.40 gms/cc
7.	**Decomposition Temp**	**:**	>100 Deg.C
8.	**Lower Explosive Limit**	**:**	Not applicable
9.	**Upper Explosive Limit**	**:**	Not Applicable
10.	**Auto-ignition Temp**	**:**	Above 400 ^{0} C
11.	**Flammability**	**:**	Non Flammable
12.	**Flash Point**	**:**	None.
13.	**Explosion Sensitivity to impact**	**:**	Not Applicable
14.	**Explosion sensitivity to static Electricity**	**:**	Not Applicable
15.	**Hazardous Combustion Product**	**:**	NIL
16.	**Combustible Liquid**	**:**	NIL
17.	**Corrosive Materials**	**:**	NIL
18.	**Organic Peroxide**	**:**	NIL
19.	**20 VOC content**	**:**	25-35%

SECTION 10: STABILITY & REACTIVITY :

10.1	**Reactivity**	**:**	This material not considered as reactive under normal use conditions.
10.2	**Chemical stability**	**:**	Stable.
10.3	**Possibility of hazardous reactions**	**:**	Hazardous polymerization will not occur.
10.4	**Conditions to avoid**	**:**	Not determined.
10.5	**Incompatible materials**	**:**	Strong acids, Strong oxidizing agents.
10.6	**Hazardous decomposition**	**:**	No Hazardous decomposition under Normal conditions of use

SECTION 11: TOXICOLOGICAL INFORMATION :

11.1 Inhalation : Inhalation of direct vapor should be avoided. Prolonged inhalation may result in irritation to respiratory track during product use in non ventilated closed location. But as the material is used in very small quantities at a time, the situation is unlikely to occur.

11.2 Skin Contact : Contact to skin can cause local irritation. Repeated and prolonged direct skin contact can result in roughness of skin.

11.3 Eye Contact : Severe Eye Irritation. Signs/symptoms may include significant redness, pain, tearing, cloudy appearance of the cornea, and impaired vision.

11.4 Aspiration hazard : None.

11.5 Exposure Limits: No information.

SECTION 12: ECOLOGICAL INFORMATION.

12.1 Eco toxicological Information: Contains organic polymers, additives and antioxidants. Should not be disposed off to locations near plant and animal habitat. To control volume of disposals, allow to dry the waste and washings and dispose off as per local regulations of waste disposal to land fill repairs , or other non leachable solid wastes. Do not allow disposal to any sewer or drainage lines. It can result in chocking of drainage.

12.2 Aquatic Toxicity: Non-toxic in very small dry quantities. Large quantities especially in static water can be dangerous to aquatic life.

SECTION 13: DISPOSAL CONSIDERATIONS.

13.1 Left outs / semi used , wash outs & spillage disposal : Dispose off contents in accordance with the local/regional/national/international regulations.

SECTION 14: TRANSPORT INFORMATION.

14.1 Transport Regulation : Not A regulated material or constituents under any hazardous material category. Packed containers should not be stacked unsupported in multilayer stacks. Can result in wreckage of containers.

14.2 Special precautions during Transport : No Special conditions are required to be Maintained during transport of materials. Should be prevented from contact with moisture and water and sharp objects to avoid leakage and spillage due to damage to packs.

1.	**Hazard class**	**:**	Not applicable.
2.	**Identification number**	**:**	Not applicable.
3.	**Required label text**	**:**	Not applicable.
4.	**Hazardous substances/ reportable quantities (RQ)**	**:**	Not applicable.
5.	**U.N. number**	**:**	Ace Mastik coating is a mixture of various compounds and does not form hazardous cargo in terms of the International Maritime Dangerous Goods Code and as such do not have a U.N. number.

SECTION 15: REGULATORY INFORMATION.

15.1	**Hazard Categories**	**:**	Non Hazardous
15.2	**Fire Hazard**	**:**	No
15.3	**Pressure Hazard**	**:**	No
15.4	**Reactivity Hazard**	**:**	No
15.5	**Immediate Hazard**	**:**	No
15.6	**Delayed Hazard**	**:**	None

SECTION 16: OTHER INFORMATION.

Ace Mastik Coating should only be used by knowledgeable persons. To use the product safely, it is essential that, the user recognizes that the material is a fire retardant surface coating and should be handled properly to its specific use effectively without spillage.

DISCLAIMER: The information in this Material Safety Data Sheet (MSDS) is believed to be correct as of the date issued. VSE makes no warranties, expressed or implied, including, but not limited to, any implied warranty of merchantability or fitness for a particular purpose or course of performance or usage of trade.

User is responsible for determining whether the ACE product is fit for a particular purpose and suitable for user's method of use or application. Given the variety of factors that can affect the use and application of a ACE product, some of which are uniquely within the user's knowledge and control, it is essential that the user evaluate the ACE product to determine whether it is fit for a particular purpose and suitable for user's method of use or application.

VSE provides information in electronic form as a service to its customers. Due to the remote possibility that electronic transfer may have resulted in errors, omissions or alterations in this information, VSE makes no representations as to its completeness or accuracy. In addition, information obtained from a database may not be as current as the information in the MSDS available directly from VSE.

ACE MORTAR SEAL

AceMortar Seal

WARNING: May cause eye, skin, nose and throat irritation.

CONTAINS: Cements, Inorganic Fillers, Pigments, Fibers, Flame Retardant Additives & Fire Retardant Minerals.

PRECAUTIONS: Avoid eye and skin contact. Do not ingest. Wash thoroughly after handling. For industrial use only.

KEEP OUT OF REACH OF CHILDREN.

FIRST AID INFORMATION:

- **Eye Contact:** Flush eyes with large amounts of water. Blink or lift upper and lower lids occasionally. If signs/symptoms persist, get medical attention.
- **Skin Contact:** Remove contaminated clothing and shoes. Immediately flush skin with large amounts of water. Use soap if required. Get medical attention, if symptoms/irritation persist. Wash contaminated clothing and clean shoes before reuse.
- **Inhalation:** Remove person to fresh air. If signs/symptoms develop, get medical attention.
- **If Swallowed:** Do not induce vomiting unless instructed to do so by medical personnel. Give person two glasses of water. Never give anything by mouth to an unconscious person. Get medical attention.

REFER TO MATERIAL SAFETY DATA SHEET ON OUR WEBSITE: WWW.VIJAYSYSTEMS.COM

IMPORTANT: Consult the FM Directory for specific information regarding your application.

AceMortar Seal

A mixture of cement and fire-retardant chemicals that is applied to seal openings in walls and cut outs in floors to create fire barriers. It is light-weight and low-density product that expands in case of fire to prevent penetration of fire, toxic gases and smoke.

Directions: Surfaces must be dry and free of oil, frost, grease, dust and other foreign materials. It is a ready-to-apply mortar that is mixed with water in a ratio of 1:0.64 (mortar:water). It is applied like normal cement concrete with a trowel and leveler. In case of wall openings, one side of the opening or both sides are to be shuttered using plywood or any suitable material.

Cure: It is cured for 5 - 6 days with water to strengthen it. For installation of cables through cured mortar seal, use a hand drill to drill a hole corresponding to the diameter of the cable through the seal. Any gap remaining, after the installation of cables, can be sealed with Ace Mastik Sealant. Typical cure rate at 5-6 days.

Clean-Up: Refer to Technical Data Sheet for complete product information.

Storage: Store at temperatures from 40-120°F/ 5-50°C In dry conditions.

KEEP FROM FREEZING DURING CUSTOMER STORAGE.

NOTICE: This product is not acceptable for use with

Important Notice to User:

- **Product use:** Many factors beyond VSE's control and uniquely within user's knowledge and control can affect the use and performance of a VSE product in a particular application. Given the variety of factors that can affect the use and performance of a VSE product, user is solely responsible for evaluating the VSE product and determining whether it is fit for a particular purpose and suitable for user's method of application.
- **Warranty and Limited Remedy:** VSE warrants that each VSE Fire Protection Product will be free from defects in material and manufacture for 90 days from the date of purchase or the shelf life, whichever is less , as long as storage is as advised.

VSE MAKES NO OTHER EXPRESS OR IMPLIED WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. If a VSE product does not conform to this warranty, the sole and exclusive remedy is, at VSE's option, replacement of the VSE product or refund of the purchase price.

Limitation of Liability: Except where prohibited by law, VSE will not be liable for any loss or damage arising from the VSE product, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted.

Product Information Source:
Material Safety Data Sheet or VSE Export Division
35 Chandivali Village, Off Saki Vihar Road, Andheri East, Mumbai 400072.
www.vijaysystems.com

Toll Free:

8 906031 520338

VIJAY SYSTEMS ENGINEERS PVT LTD

ACE MORTAR SEAL FIRE STOP / PENETRATION SEAL

Product Data Sheet

1 PRODUCT DESCRIPTION :

Ace Mortar Seal is a ready-to-use, single component, self curing, cementatious mortar compound. It is to be mixed with water at site to a consistency suitable to applied at the location of installation of fire stop seal. Ace Mortar seal forms a Fire Barrier casted in situ conditions and becomes a part of the structure in which it is installed. It prevents spread of fire, smoke and noxious gasses before, during and after exposure to a fire when installed in accordance with the installation procedure of Ace Mortar Seal fire stop. Ace Mortar Seal is suitable for vertical surfaces like in a wall opening as well as for horizontal openings like those in a floor opening or under the control and electrical panel openings of a fire compartment.
The product is tested as per ASTM E 814 & UL 1479.

2.SPECIAL FEATURES OF THE PRODUCT :

FM approved, to approval class 4990 for 2 & 4 hrs Fire rating.

The Ace Mortar Seal fire stop system does not affect the performance of the system during fire due to various expected challenging conditions like weathering effects, aging, vibrations, moderate impact, temperature variation and water logging.

The system does not require the electrical cables to be de rated for current carrying capacity of the cables. It shows resistance to Gamma rays radiation and is also resistant to attack by rodents, vermin and termite.

- Ace mortar seal has excellent adhesion to most cable jacket and penetrating item materials.
- Halogen Free
- Paintable with primer
- Can be re-entered and repaired
- Easy to use and apply.
- Non Toxic
- Ecologically harmless

- Countable to green building materials.
- Packed in eco friendly packing

3.APPLICATIONS OF ACE MORTAR SEAL:

Ace Mortar Seal cab be suitable to almost any penetration opening in walls as well as floor cut outs. It is compatible with all types of penetration steel & plastic pipes, various power cables and control cables with variety of jacketing and insulation materials like, PVC, Silicon, HRPVC, XLPE,FRLS, FS etc.

4.SYSTEM SPECIFICATIONS:

Ace Mortar Seal fire stop system is tested as per various national and international testing specifications

ACE MORTAR SEAL FIRE STOP / PENETRATION SEAL

Product Data Sheet

for fire rating like ISO 834, ASTM E 814, IS 12458, UL 1479 .

The system is also tested for various preconditioning test to verify effect of conditions expected to be successfully withstood by the system over a long life expectancy period of the system for the intended application area in industries, commercial complexes, Nuclear Power Plants and petrochemical complexes and refineries. These conditions include accelerated aging, Impact indentation, vibrations, water absorption, Exposure to Gamma rays radiation, and Hose stream test after the fire resistance test.

5. PERFORMANCE AND TYPICAL PHYSICAL PROPERTIES:

Form : Solids
Colour & Appearance: Grey, Granular Powder Mix
Dry Bulk Density: 700 +/ - 50 Kg/m3
Flammability: Non Flammable
Combustibility: Non Combustible
Compressive Strength : 1.2 to 1.9N/mm2
pH: 9.5 to 12
Setting Time: 8 to 24 Hours
Curing Time: 6-7 Days under typical curing conditions of > 50% Rh & 25-23 Deg C ambient.

PACKING & STORAGE:

Packaging: Ace Mortar Seal is packaged in a eco friendly packing of multi paper sacks further wrapped in a stretch wrap film to prevent from moisture and skid free stacking for storage.

Storage: Ace Mortar Seal should be stored in a covered dry shed at ambient conditions. Avoid contact with water and moisture. In cross configuration during stacking, it can be stacked in multiple tiers / layers to a height of up to 2 mtrs.

Shelf Life: Ace Mortar seal has a shelf life is 18 months in original unopened packing unaffected by any moisture / water contact. Normal stock rotation is recommended to ensure first in first out policy for use of materials at site.

APPLICATION INSTRUCTIONS:

1. Clean the opening sides and the penetrants passing through the opening to clear it of dirt, dust, oil, grease etc.
2. Measure the opening size, calculate the area of the opening and estimate the quantity of Ace Mortar Seal required to seal the openings.

   Note:
   2 HR FR – use 80 kg/sqmtr (130 mm thickness)
   4 HR FR – use 120 kg/sqmtr (170 mm thickness)

3. Make shutters the size of the opening.
   A. For floor opening, fix the shuttering on the bottom side of the opening. Suitable supports should be provided depending upon the location and the opening size. In case the opening in a floor is larger than 600mm in length & 600mm in width, divide the total floor opening area into several smaller areas and ensure shutters are made accordingly. The opening can then be filled up part by part for better application control.
   B. For wall openings, fix the shuttering material on oneside to full height of the opening. On the other side of the opening, progressive shuttering can be done with a small cut out at the top of the shuttering.

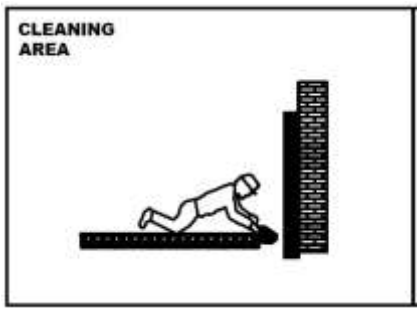
4. Mix Ace Mortar Seal with water. At the beginning of mixing process, water can be added to a nominal mixing ratio of 2 parts of Ace Mortar Seal to one part of water. Gradually add water to adjust the handling of wet material and make it suitable for application at the location. A ratio of 1.25 to 1.5 parts of Ace Mortar seal to 1 part of water is recommended for best installation working conditions. Stir well to make uniform thick mortar like consistency. Mixing can be done manually in a sheet metal tub or with a motorized mixing pump. The pump/mixer is ideal when covering large areas in a single location.
5. Fill the opening with the shuttering support with the mix of Ace Mortar Seal with Water into the opening.
   A. For floor opening with shuttering from below, fill the opening and all gaps with the slurry made from the Ace Mortar Seal Mix with water.
   B. For Wall openings, insert or pour in the Ace Mortar Seal mixture in the opening progressively or at once depending on the convenience for the site location.

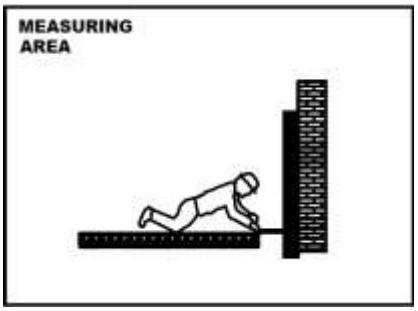
6. Level the slurry inserted in to the opening, allow it to set for 8-24 hours. Inspect the opening after 24 hours. Apply additional quantities of wet ace mortar seal if required for proper seal and thickness. Allow the applied compound in the opening to hard set for 72 hours. Remove the shuttering.

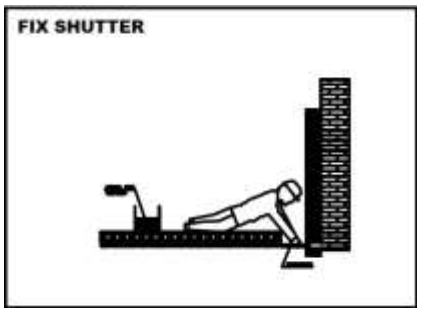
   No surface finishing is required. However excessive lumps, leak outs from the shuttering can be cut to size to make more or less leveled surface of wall/floor fire seal.

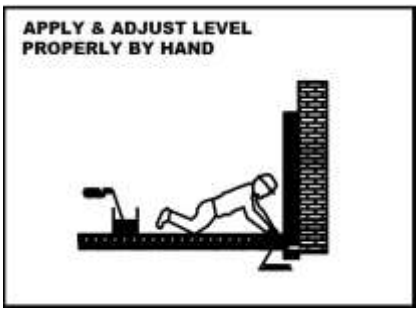
   Allow the fire penetration seal to get fully cured for 6-7 days and it is ready for take over.
   For wall openings having unsupported opening height and width both more than 600mm, vertical and horizontal supports on wall surface should be provided or appropriate reinforcing steel tor b ars grid can be provided within the opening for better stability of the barrier.

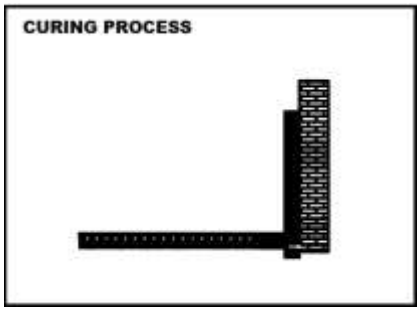
APPLICATION INSTRUCTIONS
ACE MORTAR SEAL











Limitations: Do not apply Ace Mortar Seal where the equipment is very sensitive to moisture and water. Ask for shutdown of the process and panels for installation at the live electrical panels. Apply not below a temperature of 5 ^{0} C to prevent from freezing and not above 50 ^{0} C to prevent from fast setting and subsequent dry curing.

MAINTENANCE

Once installed, the system does not require regular maintenance and attention. However due to changes in the cable and pipe line layouts, process up gradation activities and technological up gradation in control & equipment systems frequent addition and deletion of cables and pipe lines is expected. Such an addition or deletion of cables can be accomplished by making small holes of 25- 30 mm diameter using an electrically/pneumatically operated portable hand tool or multiple holes of appropriate size can be made depending upon size of the cables required to be added or removed from/to the seal.

Follow instructions from steps 1-6 to apply Ace Mortar Seal mixed with water to seal the gap(s).
For large quantities of retrofits at a single location it is recommended to remove the completd seal at the location and make a new one as per application procedure describe above from 1 to 10.

HANDLING OF ACE MORATR SEAL

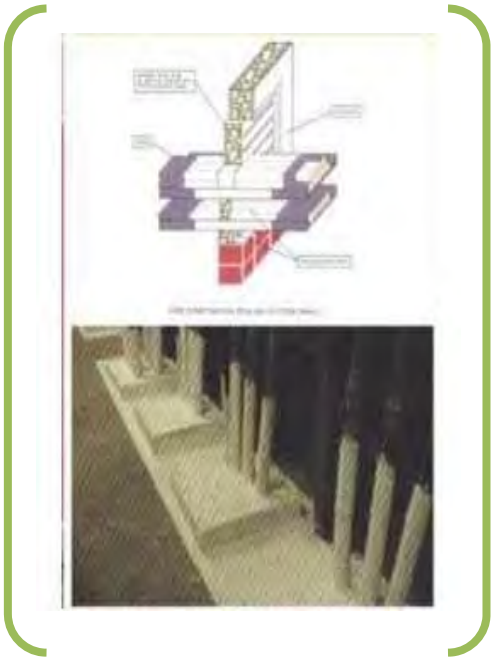
Use of indirect ventilated goggles with side shields for eye and /half face masks for face protection are recommended. Use of protective gloves impervious to moisture and water, protective clothing (Apron) to prevent skin contact is recommended. Where required, wear sturdy boots that are impervious to water to eliminate foot and ankle exposure. To reduce inhalation exposure, half face masks are recommended.
Disposal of washings and left outs and washings of the materials should be done as per the provisions of local laws and jurisdiction.

Caution for drainage systems: Wet Ace Mortar Seal material if spilled into sewer or drainage conduits can harden / accumulate and clog the system.

DATA SHEET
ACE MORTAR SEAL

PRODUCT DESCRIPTION:

Ace Mortar Seal is a ready-to-use, single component, self-curing, cementatious mortar compound. It is to be mixed with water at site to a consistency suitable to apply at the location of installation of fire stop seal. Ace Mortar seal forms a Fire stop / Fire Barrier casted in situ conditions and becomes a part of the structure in which it is installed. It prevents spread of fire, smoke and obnoxious gasses before, during and after exposure to a fire when installed in accordance with the installation procedure of Ace Mortar Seal fire stop. Ace Mortar Seal is suitable for vertical structures like in a wall opening as well as for horizontal openings like those in a floor opening or under the control and electrical panel openings of a fire compartment.
The product is tested as per BS476 Part 20, ASTM E 814 & UL 1479, and ISO 834 & IS 12458.



SPECIAL FEATURES OF THE PRODUCT:

FM approved, to approval class 4990 for 2 & 4 hrs. Fire rating.

The Ace Mortar Seal fire stop system does not affect the performance of the system during fire due to various expected challenging conditions like weathering effects, aging, vibrations, moderate impact, temperature variation and water logging.

The system does not require the electrical cables to be de- rated for current carrying capacity of the cables. It shows resistance to Gamma rays radiation and is also resistant to attack by rodents, vermin and termite.

- Ace mortar seal has excellent adhesion to most
- Halogen Free
- Paintable with primer
- Can be re-entered and repaired
- Easy to use and apply.
- Non Toxic
- Ecologically harmless
- Countable to green building materials.
- Available in eco- friendly packaging.

DATA SHEET
ACE MORTAR SEAL

APPLICATIONS OF ACE MORTAR SEAL:

Ace Mortar Seal cab be suitable to almost any penetration opening in walls as well as floor cut outs. It is compatible with all types of penetration steel &plastic pipes, various power cables and control cables with variety of jacketing and insulation materials like, PVC, Silicon, HRPVC, XLPE, FRLS, FS etc.

SYSTEM SPECIFICATIONS:

Ace Mortar Seal fire stop system is tested as per various national and international testing specifications like ISO 834, ASTM E 814, IS 12458, UL 1479, and BS 476 Part 20 for fire resistance performance.

The system is also tested for various preconditioning tests to verify effect of conditions expected to be successfully withstood by the system over a long life expectancy of the system for the intended application area in industries, commercial complexes, Nuclear Power Plants and petrochemical complexes and refineries. These conditions include accelerated aging, Impact indentation, vibrations, water absorption, exposure to Gamma rays radiation, and 'Hose stream' test after the fire resistance test.

PERFORMANCE AND TYPICAL PHYSICAL PROPERTIES:

Form: Solids
Colour &Appearance: Grey, Granular Powder Mix
Dry Bulk Density: 700 +/ - 50 Kg/m3
Flammability: Non Flammable
Combustibility: Non Combustible
Compressive Strength: 1.2 to 1.9N/mm2
PH: 9.5to 12
Setting Time: 8 to 24 Hours

Curing Time: 6-7 Days under typical curing conditions of>/= 50% RH& 5 to 40Deg C ambient.

PACKING & STORAGE:

Packaging: Ace Mortar Seal is packaged in eco-friendly packing of multi paper sacks further wrapped in a stretch wrap film to prevent from moisture and provide 'skid free' surface for proper stacking for storage.

Storage: Ace Mortar Seal should be stored in a covered dry shed at ambient conditions. Avoid contact with water and moisture. Packed in sacks and wrapped over by stretch wrap film the material can be stacked in multiple tiers / layers to a height of up to 2 metres.

Shelf Life: Ace Mortar seal has a shelf life of 18 months in original unopened packing unaffected by any moisture / water contact. Normal stock rotation is recommended to ensure first in first out policy for use of materials at site.

INSTALLATION METHODOLOGY:

- **Pre installation preparatory work:**

- The cable surface has to be dry, free of d ust and grease/oil. If there is any oil or grease, it has to be cleaned with kerosene otherwise cables have to be cleaned with dry cloth.
- Dressing and clamping of cables.
- For better adhesion and compatibility with the opening structure, the opening substrate and periphery should be moistened by applying water soaked rags / sprinkling and splashing water at the opening sides as suitable at the installation site conditions and circumstances.

DATA SHEET
ACE MORTAR SEAL

Installation procedure:

- Measure the opening size.
- Clean the openings sides and cables / penetrates passing through the opening to clear it off dirt, dust, oil grease etc. Calculate the area of the opening and estimate the quantity of Ace Mortar Seal required to seal the openings.
- For Floor openings fix the shuttering on the bottom side of the opening. Suitable supports should be provided depending upon the location and the opening size. For application of the material from to cases, all gaps left out after the shuttering of the opening for application of materials (gaps between the penetrates and shuttering as well as the gaps between the opening periphery and the shuttering material) should be filled up with Ace Mortar Seal mixed with water to form thick consistency materials and allow it to form a sealing mass for 1-2 hours to close the gaps.
- For wall openings, fix the shuttering material on one side to full height of the opening. On the other side of the opening, progressive shuttering can be done with a small cut out at the top of the shuttering for application of Ace Mortar Seal mixed with water.
- In case the opening in a floor is of a large size, application of Ace Mortar Seal can be done by dividing the total floor opening area into several small areas within the same opening. The opening can then be filled up part by part for better application control. Proper supports are required for floor openings having unsupported opening sizes larger than 600mm in length and width both. Such support should be provided before applying the Ace Mortar Seal to make fire stop seal.
- For large size wall openings, progressive shuttering and application of Ace Mortar Seal can be done. Mix Ace Mortar Seal with water. At the beginning of mixing process, water can be added to a nominal mixing ratio of 2 parts of Ace Mortar Seal to one part of water. Further addition of water to adjust the handling of wet material and make it suitable for application at the location, can be done gradually. A ration of 1.25 to 1, 5 parts of Ace Mortar Seal to 1 part of water is recommended for best installation working condition.
- Stir well to make uniform thick mortar like consistency. Add further quantity of water or Ace Mortar Seal as required to suit the location being sealed. Mixing can be done manually in a sheet metal tub. The slurry like mixed Ace Mortar Seal can be applied in the shuttered opening to be sealed.
- Special motorized mixing cum pumping appliance can be used for quicker application to cover fairly large areas in a single location.
- Apply the mixed Ace Mortar Seal in the opening progressively or at once as per the requirement and convenience for the site location. Once the opening is filled to required level and thickness of Ace Mortar Seal, allows to get set for 8 to 24 hours. Inspect the opening after 24 hours. Apply additional quantities of wet Ace Mortar Seal if required for proper seal and thickness.
- Allow the applied compound in the opening to hard set for 72 hours. Remove the shuttering. No surface finishing is required. However excessive lumps, leak outs from the shuttering can be cut to size to make more or less levelled surface of Wall / Floor fire seal.

- Allow the fire penetration seal to get fully cured for 6-7 days and it is ready for take over.
- For wall openings having unsupported opening height and width both more than 600 mm, vertical and horizontal supports on wall surface should be provided or appropriate reinforcing steel bars grid can be provided within the opening for better stability of the barrier.

Limitations: Do not apply Ace Mortar Seal where the equipment is very sensitive to moisture and water. Ask for shutdown of the process and panels for installation at the live electrical panels. Apply not below a temperature of 5 ^{0} C to prevent from freezing and not above 50 ^{0} C to prevent from fast setting and subsequent dry curing.

MAINTENANCE:

Once installed, the system does not require regular maintenance and attention. However due to changes in the cable and pipe line layouts, process up gradation activities and technological up gradation in control & equipment systems frequent addition and deletion of cables and pipe lines is expected. Such an addition or deletion of cables can be accomplished by making small holes of 25- 30 mm diameter using an electrically / pneumatically operated portable hand tool or multiple holes of appropriate size can be made depending upon size of the cables required to be added or removed from / to the seal.
Apply Ace Mortar Seal mixed with water to seal the gaps formed due to added / removed cables or penetrants from the sealed opening. Allow to get set for 8 to 24 hours.
Inspect the opening after 24 hours. Apply additional compound if required. Allow the applied compound in the opening to hard set for 72 hours. Remove the shuttering used during application of fire stop compound.
Allow to cure for 6 to 7 days.
For large quantities of retrofits at a single location it is recommended to remove the completed seal at the location and make a new one as per application procedure describe above.

HANDLING OF ACE MORATR SEAL:

Use of indirect ventilated goggles with side shields for eye and /half face masks for face protection are recommended. Use of protective gloves impervious to moisture and water, protective clothing (Apron) to prevent skin contact is recommended. Where required, wear sturdy boots that are impervious to water to eliminate foot and ankle exposure. To reduce inhalation exposure, half face piece type masks are recommended.
Disposal of washings and left outs and washings of the materials should be done as per the provisions of local laws and jurisdiction.

Caution for drainage systems: Wet Ace Mortar Seal material if spilled into sewer or drainage conduits can harden / accumulate and clog the system.

VIJAY SYSTEMS ENGINEERS PVT. LTD.
35 - Chandivalli Village, Off. Saki Vihar road, Andheri (East), Mumbai - 400072. India
Tel: 022 28474149/2996 | Fax: 022 28473660 | vijaysystems@vsnl.net | www.vijaysystems.com

MATERIAL SAFETY DATA SHEET

1.CHEMICAL IDENTITY	:	**Fire Stop Mortar Seal**
2. Product Use	:	Fire Rated Penetration Seals
3. Product Name	:	Ace Mortar Seal
4. Formula	:	Proprietary

A) HAZARDOUS IDENTIFICATION

5. Hazardous identification	:	Non Hazardous Substance, Non dangerous Goods, according to the criteria of NOHSC and the ADG Code.
6. Poisons Schedule	:	None
7. Risk	:	None under normal operating condition
8. Safety	:	None under normal operating condition
9. C.A.S No.	:	Not Applicable

B) CHEMICAL COMPOSITION

10. Ingredients.	:	Cements, Inorganic Fillers, Pigments, Fibers, Flame Retardant Additives & Fire Retardant Minerals.

C) PHYSICAL/CHEMICAL DATA

11. Physical Properties	:	Powder form.
12. Appearance	:	Grey
13. Odour	:	No Odour
14. Nature	:	May be solid in touch of water.
15. PH as supplied	:	9 to 12.5
16. Bulk Density	:	700 gms./ltr± 50
17. Viscosity	:	Not Applicable
18. Decomposition Temp	:	>100 Deg.C
19. Vapour Pressure (kpa)	:	None
20. Molecular Weight	:	Not applicable
21 Lower Explosive Limit	:	Not applicable
22 Upper Explosive Limit	:	Not Applicable
23. Auto-ignition Temp	:	Not applicable

D) FIRE/EXPLOSION HAZARD DATA

24 Flammability	: LEL	%	:	Flash Point ° C Not Applicable
25 TDG Flammability	: UEL	%	:	Flash Point ° C Not Applicable
26 Auto ignition Temperature 'C			:	Not Applicable
27 Explosion Sensivity to impact			:	Not Applicable
28 Explosion sensivity to static Electricity			:	Not Applicable
29 Hazardous Combustion Product			:	NIL
30 Hazardous Polymerization			:	NIL
31 Combustible Liquid			:	NIL
32 Explosive Material			:	NIL
33 Corrosive Materials			:	NIL
34 Flammable Materials			:	NIL
35 Oxidizer			:	NIL
36 Pyrophoric Material			:	NIL
37 Organic Peroxide			:	NIL

E) REACTIVITY DATA

38. Chemical stability	: Highly stable
39. Incompatibility	: Incompatible material
40 Reactivity	: Neutral in reactivity
41 Hazardous Reaction Product	: Non Hazardous

F) HEALTH HAZARD DATA

42. Routes of entry	: Does not enter
43. Effects of exposure symptoms	: None
44. Emergency Treatment	: Not applicable if touches with skin & eye Wash with water.

G) PREVENTIVE MEASURES

45 Personal	: Wear helmet, hand gloves and goggles
46. Protective	: No special measures required.
47 Equipment	: No special measures required.
48. Handling & Storage Precaution	: Preferably store in an area not exposed to rain water and moisture.

H). FIRST AID MEASURES

49. **If Swallowed**: will not induce vomiting. Give water to rinse the mouth. Give small quantity of water to the extent it can be drunk comfortably. Observe the patient carefully. If patient start vomitting then Consult a doctor and seek his advice.

50. **If Contacted with eyes** : If the product comes in contact with eyes, thoroughly Wash the eyes with fresh running water. Lift upper & lower lids occasionally. If irritation still persist consult a doctor.

51. **If contacted with Skin** : Flush skin and hair with running water, use soap if required and seek medical advice if necessary.

52. **If Inhaled :** The material is not thought to produce adverse health effects or irritation to the respiratory tract (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.

NOTE TO PHISYCIAN: TREAT SYMPTOMATICALLY

I) ACCIDENTAL RELEASE MEASURES

53 **SPILLS** : When product gets spilled, the spilled area becomes rough. Cordon off the area and wash the area with Brush. Excess spilled material may be scooped up in fresh Bags and sent for recycling.

J) HANDLING & STORAGE

54. **HANDLING.**
: Wear protective clothing and hand gloves, helmet etc.
: While handling the bags care shall be taken to avoid the bags slipping or rolling away from you and hurting neighboring persons.
: Use good occupational work practice.
: Follow manufacturer's handling procedures.

55. **STORAGE.**
: Inspect Bags for any damaged. Damaged bags shall be kept aside.
: Keep the bags in temperature varying between 5 to 50 Degree C and moisture free area.
: Ensure the stitching of the bag is made properly.

K) TRANSPORTATION INFORMATION

56. **HAZCHEM : None**

L) MANUFACTURERS/ SUPPLIERS DATA

NAME OF FIRM : VIJAY SYSTEMS ENGINEERS PVT LTD
Contact Person : Mr. K. Bhattacharjee
MAILING ADDRESS Shed No. 9,12 &112 Bajrang Krupa Industrial Estate, Vill – Athal, Silvassa – 396230.(U.T), Inc
TELEPHONE/TELEX NO : (M)09723818851 / 91 22 28471246/28473660
E-Mail : vijaysystems@vsnl.net

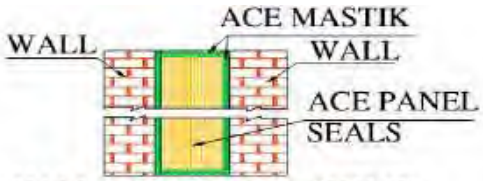
M) . DISCLAIMER

The above data is based on our experience and knowledge of the product and It's handling. Due to a variety of chemicals and conditions prevailing at different Locations; It may be necessary to conduct local checks to ensure safety measures. To the best of our knowledge and experience we have recommended the precautionary measures. Hence any liability for such recommendations are excluded unless we have acted willfully or by gross negligence.

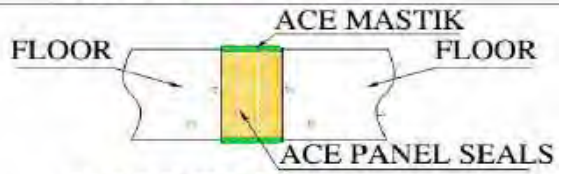
Q.C.	Name	Signature	Rev.	Date
Prepared by	K. Bhattacharje			12/02/2010
Approved by	N.H. Machhi			12/02/2010

ACE PANEL SEAL (Pre-Coated Boared)

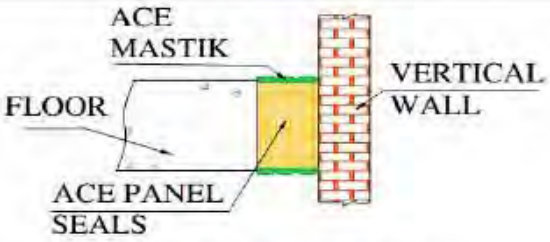
VIJAY SYSTEMS ENGINEERS PVT. LTD.



WALL TO WALL JOINT



FLOOR TO FLOOR JOINT



FLOOR TO WALL JOINT

TESTED IN ACCORDANCE WITH ASTM-E-814,
UL – 1479 UP TO4 HOURS RATING

FM
APPROVED

TECHNICAL DATA

DENSITY OF ACE MASTIK	1.25 – 1.40 gms/cc
THICKNESS OF COATING	1.50 – 2.00 mm
APPLICATION TEMP	Up to 50 C Temp.
CURING RATE	Up to 4 Hours
BOARD DIMENSION	1000 X 600 X 50 mm Thickness
BOARD DENSITY	150 kg/m3
SHELF LIFE	18 months, in original packed condition.

35 - Chandivalli Village, Off. Saki Vihar road, Andheri (East), Mumbai - 400072. India
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CIN No. U29193MH2003PLC143527

DATA SHEET
ACE PANEL SEAL

PRODUCT DESCRIPTION:

Ace Panel Seal is a fire stop system for through penetrations in walls and/or floors. The system provides compartmentation solution at wall and floor penetration passages.

It consists of Mineral Wool Boards that are coated with Ace Mastik Coating This product has a FR of up to 4 hours. A 2 hour fire rating is achieved by applying Ace Mastik Coating on both sides of a Mineral Wool Board to 1.5mm dry thickness. For a 4 hour fire rating, 2 Mineral Wool Boards are used with a minimum air gap of 50mm and Ace Mastik Coating applied on the outer surface area of Mineral Wool Board. The product is tested as per ASTM E 814 & UL 1479.

SPECIAL FEATURES OF THE PRODUCT:

Ace Panel Seals do not get affected in its performance by exposure to various conditions like weathering effects, aging, vibrations, ambient temperature variations, corrosive fumes, light acids and light alkali.

Ace Mastik Coating:

- Has a Fire Rating of up to 4 hours
- Is non-hygroscopic. It does not retain moisture and is not affected by humidity. It remains effective even after prolonged outdoor use
- The coating does not disintegrate or deteriorate in salt water
- Has no ageing effect. Coating lasts for the lifetime of the penetration seal
- Is anti – rodent
- Is resistant to Mineral Oil
- The coating does not crack or peel
- Not affected by radiation. Suitable in radiation areas, ideal for nuclear power plants and atomic energy establishments

APPLICATIONS OF ACE PANEL SEAL:

Major application areas can be Power Plants, Refineries, Nuclear establishments, Malls, Hospitals, high rise residential and office buildings, Airports, Metro railway stations, educational and research institutes.

DATA SHEET
ACE PANEL SEAL

SYSTEM SPECIFICATIONS:

Ace Panel Seals are tested as per various national and international testing specifications like ISO 834, ASTM E 814, IS 12458, and UL 1479 for fire rating of its components.

TECHNICAL DATA:

Life Expectancy	**40 Years**
Density	**1.25 to 1.40 gms/cm^3**
pH of Ace Mastik	**6.0 to 8.0**
Appearance:	**Grey /Off white, thick liquid**
Odor	**Odourless**
Flash Point	**None**
Resistance to moisture & humidity	**Good**
Toxicity	**Non Toxic**
Application Temperature	**5 ^{0}C to 50 ^{0}C**
Flexibility	**25 % flexible**
Mineral Wool Board details	**50 mm thick, 150 kg/m^3 density. Coated with Ace Mastik Coating to a dry thickness of 1.5 mm.**

PACKING & STORAGE:

Packaging:
Ace Mastik Coating is packed in 20 kg drums.
Ace Panel Seals are packed 5-12 sq., mtr. in plastic sacks. As per handling convenience depending on shipment and destination.

Storage:
Ace Mastik and Ace Panel seals should be stored in a covered dry shed between 5 ^{0} C to 50 ^{0} C ambient conditions.

Shelf Life:
Ace Panel Seals have a long shelf life when stored in original unopened condition, when stored in a dry covered shed, unaffected by any moisture / water contact. and handled properly during shifting of materials.
Ace Mastik have as help life of 18 months in original unopened packing conditions when stored in a covered dry shed at recommended storage conditions (5 ^{0} C to 50 ^{0} C)Normal stock rotation is recommended to ensure first in first out policy for use of materials at site.

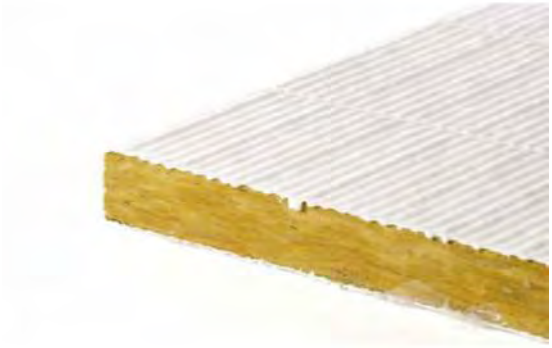
DATA SHEET

ACE PANEL SEAL (FIRE PENETRATION SEALING SYSTEM)

Ace Panel Seal is a versatile fire stop system useful in most locations for through penetration fire seals in walls and floors of industrial and commercial buildings. The system consists of two “Ace Panel Seals”, comprising of 50 mm thick, 140-150 kg/m3 density Rock wool boards coated with Ace Mastik Coating on exposed surface to 1.5 mm dry thickness. One Rock wool board is fixed on one of the faces of the opening and the other board is fixed on the other side of the opening with an air gap maintained between the two boards. The product is tested as per ASTM E 814 & UL 1479.

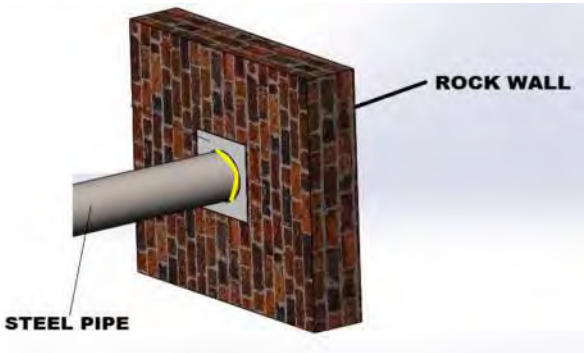
Special Features:

- It has a fire rating of up to 4 hours
- Is non-hygroscopic, it does not retain moisture and is not effected by humidity. It remains effective even after prolonged outdoor use
- The coating does not disintegrate or deteriorate in salt water
- Has no ageing effect. The coating lasts for the lifetime of the penetration seal
- Is anti-rodent
- Is resistant to mineral oil
- The coating does not crack or peel
- Not affected by radiation. Suitable in radiation areas, ideal for nuclear power plants and atomic energy establishments



TESTED IN ACCORDANCE WITH ASTM-E-814,
UL – 1479 UP TO4 HOURS RATING

FM
APPROVED



APPLICATION INSTRUCTIONS
ACE PANEL SEAL

1. SCOPE:

This procedure covers the methods of installation of fire penetration sealing system using fire stop compound on cables.

2. PURPOSE:

The purpose of this procedure is to provide guide lines for installation of fire penetration sealing system using fire stop compound on cables. The applications are as follows:

a. Cables passing from one elevation to another elevation
b. Cables passing from one room to another room.

3. AREA OF APPLICATION:

This procedure is applicable for rooms at main plant.

4. REFERENCE DOCUMENTS:

Manufacturer's application procedure

5. RESPONSIBILITY:

Responsibility of implementation of this procedure rests with construction manager of M/s. Vijay Systems Engineers Pvt. Ltd.

6. PREREQUISITES:

- Latest applicable documents like shipping release/test certificates of fire stop compound.
- The cable surface has to be dry, free of dust and grease/oil. If there is any oil or grease, it has to be cleaned with kerosene otherwise cables have to be cleaned with dry cloth.
- Dressing and clamping of cables.

7. INSTALLATION PROCEDURE:

Pre-Requisites:

a. All materials required for Fire Barrier (Ace Panel Seal) should be visually inspected, for any damage and for expiry date.
b. The cable seals shall be visually checked and inspected for any damages.
c. All coating area shall be checked for cleanliness, to remove the dirt, moisture, oils, greases, and other noxious agents.

Installation Procedure:

- Identify location where the barrier is to install.
- Clean the Opening
- Do not pre Moisten opening surfaces.

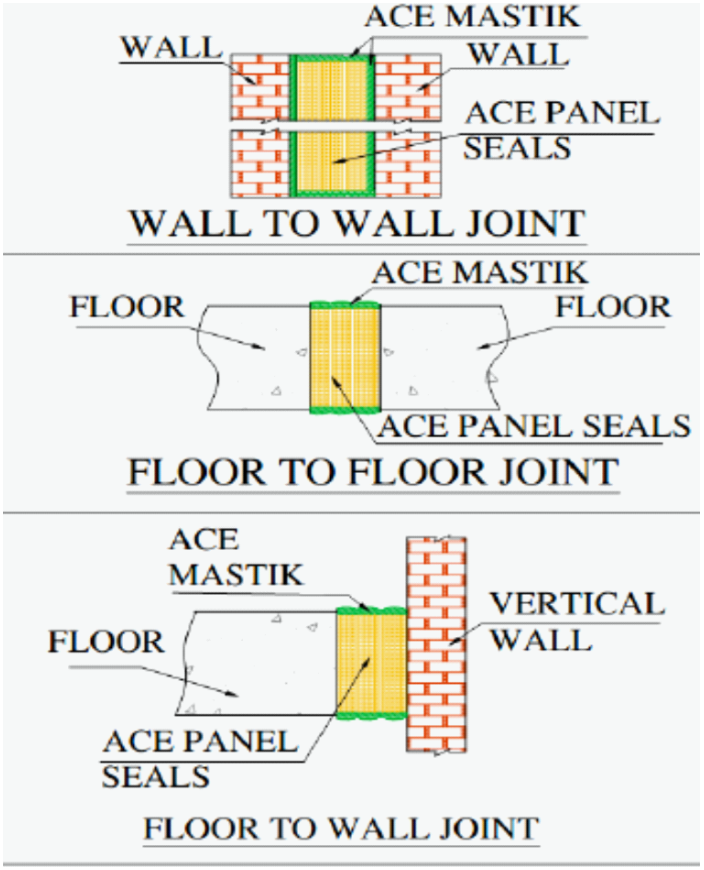
Cables and cable supporting structures must be dry and free from dust. Grease or oil, and installed in compliance with local building and electrical standards.

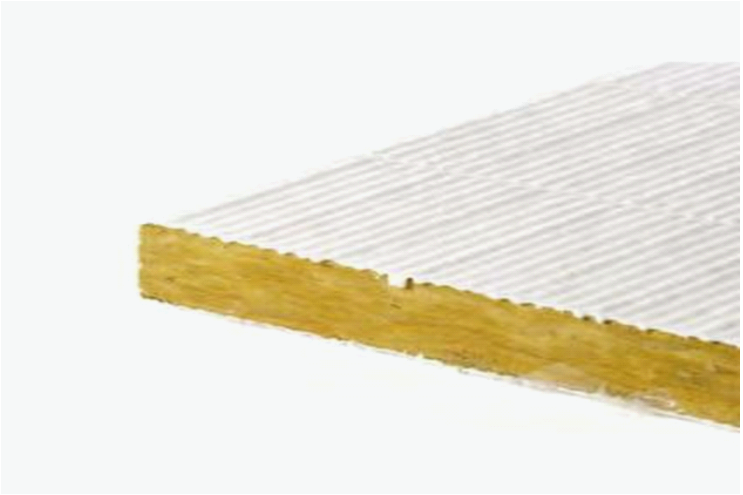
- **Application Temperature:** The temperature must be well in between 5oC to 50o C for the application of Ace Mastik. Coat Mineral Wool with Ace Mastik Coat the Rockwool Board with Ace Mastik Coating on both the side. The required dry film thickness is 1.6mm to 2.00mm.

APPLICATION INSTRUCTIONS
ACE PANEL SEAL

Installation:

- Cut the Rockwool board slightly greater than the aperture size, in order stuff tightly in to the gap.
- Coat the edges of the cut areas with Ace Mastik Coating.
- Stuff the board in to gap and flush with the opening edges by keeping the coated face visible from outside.
- Install the single Mineral Wool Board up to 2Hrs fire Rating. For Fire Rating more than 2Hrs and up to 4Hrs. use 2Nos. Mineral wool Board with a gap of 100mm.
- Seal around the Rockwool and opening edges and between the cables with Ace Mastik Fire rated Coating. Pack firmly any gaps with loose mineral wool and seal with Ace Mastik.
- Coating of Cables on either side if openings.
- Coat the cable passing through the penetration on either side up to 300mm length with Ace Mastik paint.





8. ACCEPTANCE CRITERIA:

- Appearance, wise there shall be to no cracking or peeling of gaps in the barrier.
- Proper settling time as per procedure
- Good surface finish

MATERIAL SAFETY DATA SHEET
ACE PANEL SEAL

SECTION 1: IDENTIFICATION

1.1 Name of the Product: " Ace Panel Seal".

1.2 Manufacturer's Supplier's Data:

Manufacturer : **ROCKWOOL (INDIA) LTD.**.

Address : Plot # 38, Chikoti Gardens, Begumpet,
Hyderabad – 500016

Telephone Number: +91 040-27766731 / 32/35/36

Fax Number: +91 040-27766730

E-Mail: vijaysystems@vsnl.net

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Inert vitreous silicate mineral wool bonded with a thermosetting phenolic resin which has been urea extended.

SECTION 3: HAZARD IDENTIFICATION

May cause transient skin irritation. High dust levels may irritate Throat .Classified by IARC as category 2B (possibly carcinogenic to humans)

SECTION 4: FIRST AID MEASURES

- **Eyes:** If irritation occurs wash eyes with water. If symptoms persists seek medical advice.
- **Skin:** If irritation occurs, wash off under running water prior to washing with soap and water

SECTION 5: FIRE FIGHTING MEASURES.

The products are generally non-combustible and do not pose a Fire hazard. However, some facings and packaging material may burn.

a. Suitable Extinguishing Media- water, foam, carbon dioxide or dry chemical powder.
b. Unsuitable extinguishing Media – none
c. Products of combustion-carbon dioxide, carbon monoxide and trace gases.

SECTION 6: ACCIDENTAL RELEASE MEASURES.

No special measures required.

SECTION 7 : HANDLING & STORAGE.

- Avoid unnecessary handling of unwrapped product.
- Store in original packaging in a dry place.

SECTION 8 : EXPOSURE CONTROL, PERSONAL PROTETION.

Maximum Exposure Limit (MEL) 5mg/m3 , 8 hour time weighted average. Ensure good general ventilation. Local exhaust ventilation may be required if the method of use produced dust levels in excess of MEL.

- **Respiratory Protection:** If the MEL can not be met, disposable face masks complying with B3/EN149FFP 1 or FFP2 should be used and are suitable for most application.
- **Hand Protection:** Not normally required but industrial gloves can be worn
- **Eye Protection:** When working with product above head height, eye protection is advised.
- **Skin Protection:**No special requirement other than loose clothing.

SECTION 9 : PHYSICAL & CHEMICAL PROPERTIES.

- **Appearance –** vitreous mineral wool supplied in the form of rolls, slabs , pipes , loose wool
- **Melting point** – above 1000 ^{0} C
- **Solubility** – Insoluble in water and generally chemically inert.

SECTION 10 : STABILITY & REACTIVITY.

- No special physical conditions need to be avoided.
- Above 230 ^{0} C , some binder degradation may occur for a short while ,leading to evolution of small quantities of carbon dioxide , carbon monoxide and other trace gases.

SECTION 11: TOXICOLOGICAL INFORMATION.

- IARC Classification category 2B(in 1987)
- Subsequent human epidemiological studies show no link between exposure to mineral wool fibres and lung disease.

SECTION 12: ECOLOGICAL INFORMATION.

Stable product with no known adverse environmental effects

SECTION 13: DISPOSAL CONSIDERATIONS.

No special precautions.

SECTION 14: REGULATORY INFORMATION.

No special labelling required. Mineral wool products are not classified under CHIP as hazardous, but are regulated as a manmade mineral fibre (MMMF) under the Control of Substances Hazardous to Health Regulations (COSHH) with a MEL of 5mg/m3 and /or 2 fibres/ml (reparable), whichever is achieved first. For mineral wools the appropriate limit is mg/m3 (gravimetric). This Safety data sheet does not constitute an assessment of workplace risk. This information reflects the typical values and is not a products specification. No warranty expressed or implied is hereby made.

TEST SCHEDULE 1/2
(Reference No. – FR /0306)

1. Name of the Laboratory	: Fire Research Laboratory CSIR-Central Building Research Institute, Roorkee-247 667
2. Name of the Party	: M/s Vijay Systems Engineers Pvt. Ltd., 35, Chandivali Village, Off Sakivihar Road, Andheri (E), Mumbai-400 072
3. Name of the Test	: Fire Resistance Test & Hose Stream Test after Aging and Water Absorption test
4. Date of Test	: September 29, 2016
5. Ambient Temperature	: 30 ^{o}C
6. Test Procedure	: Fire resistance and hose stream
7. Fire Exposure	: According to UL: 1479, BS:476 Part 20, IS:12458
8. Test Sequence	: 1 Aging test for 168 hrs. 2 Water absorption test for 24 hrs 3 Fire resistance test 4 Hose stream test
9. Specimen Details	: Cable Penetration Seal System Opening size: 500 mm x 500 mm x 150 mm
10. Specimen Construction	: As shown in Figure – 1 (Drg No. 1/2 – 0306 (1)
11. Specimen Installation	: Vertical
12. Intended Fire Test Duration	: 120 minutes

Test Results

The data of fire resistance evaluation followed by hose stream test reveals that the Cable Penetration Seal System has been found to withstand standard fire exposure for 120 Min. (One hundred twenty minutes only) with respect to stability, integrity and insulation after aging test followed by water absorption test.

(Sushil Kumar) (Narendra Kumar) (Dr. Suvir Singh)

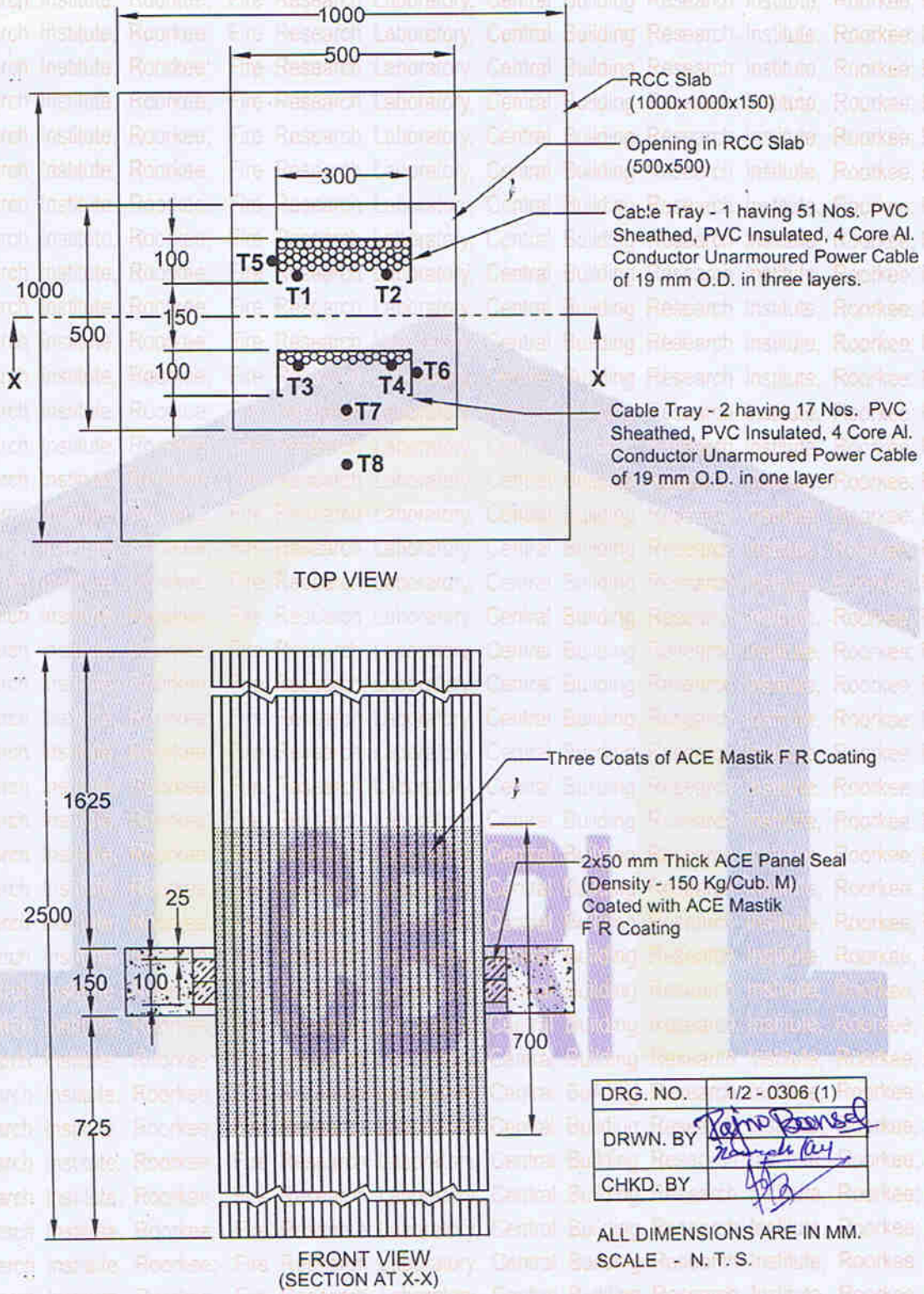


Figure 1 : Construction details & position of thermocouples on the Cable Firestop specimen evaluated for the Fire Resistance on September 29, 2016 After Aging and Water Absorption Test.

अग्नि अनुसंधान प्रयोगशाला
FIRE RESEARCH LABORATORY
सी.एस.आई.आर. - केन्द्रीय भवन अनुसंधान संस्थान
CSIR - Central Building Research Institute
रूड़की - 247 667 (उत्तराखण्ड) भारत/Roorkee - 247 667 (U.K.) INDIA

TEST SCHEDULE 1/2
(Reference No. – FR /0306)

1. Name of the Laboratory	: Fire Research Laboratory CSIR-Central Building Research Institute, Roorkee-247 667
2. Name of the Party	: M/s Vijay Systems Engineers Pvt. Ltd., 35, Chandivali Village, Off Sakivihar Road, Andheri (E), Mumbai-400 072
3. Name of the Test	: Fire Resistance Test & Hose Stream Test after Aging and Water Absorption test
4. Date of Test	: September 29, 2016
5. Ambient Temperature	: 30 ^{o}C
6. Test Procedure	: Fire resistance and hose stream
7. Fire Exposure	: According to UL: 1479, BS:476 Part 20, IS:12458
8. Test Sequence	: 1 Aging test for 168 hrs. 2 Water absorption test for 24 hrs 3 Fire resistance test 4 Hose stream test
9. Specimen Details	: Cable Penetration Seal System Opening size: 500 mm x 500 mm x 150 mm
10. Specimen Construction	: As shown in Figure – 1 (Drg No. 1/2 – 0306 (1)
11. Specimen Installation	: Vertical
12. Intended Fire Test Duration	: 120 minutes

Test Results

The data of fire resistance evaluation followed by hose stream test reveals that the Cable Penetration Seal System has been found to withstand standard fire exposure for 120 Min. (One hundred twenty minutes only) with respect to stability, integrity and insulation after aging test followed by water absorption test.

(Sushil Kumar) (Narendra Kumar) (Dr. Suvir Singh)

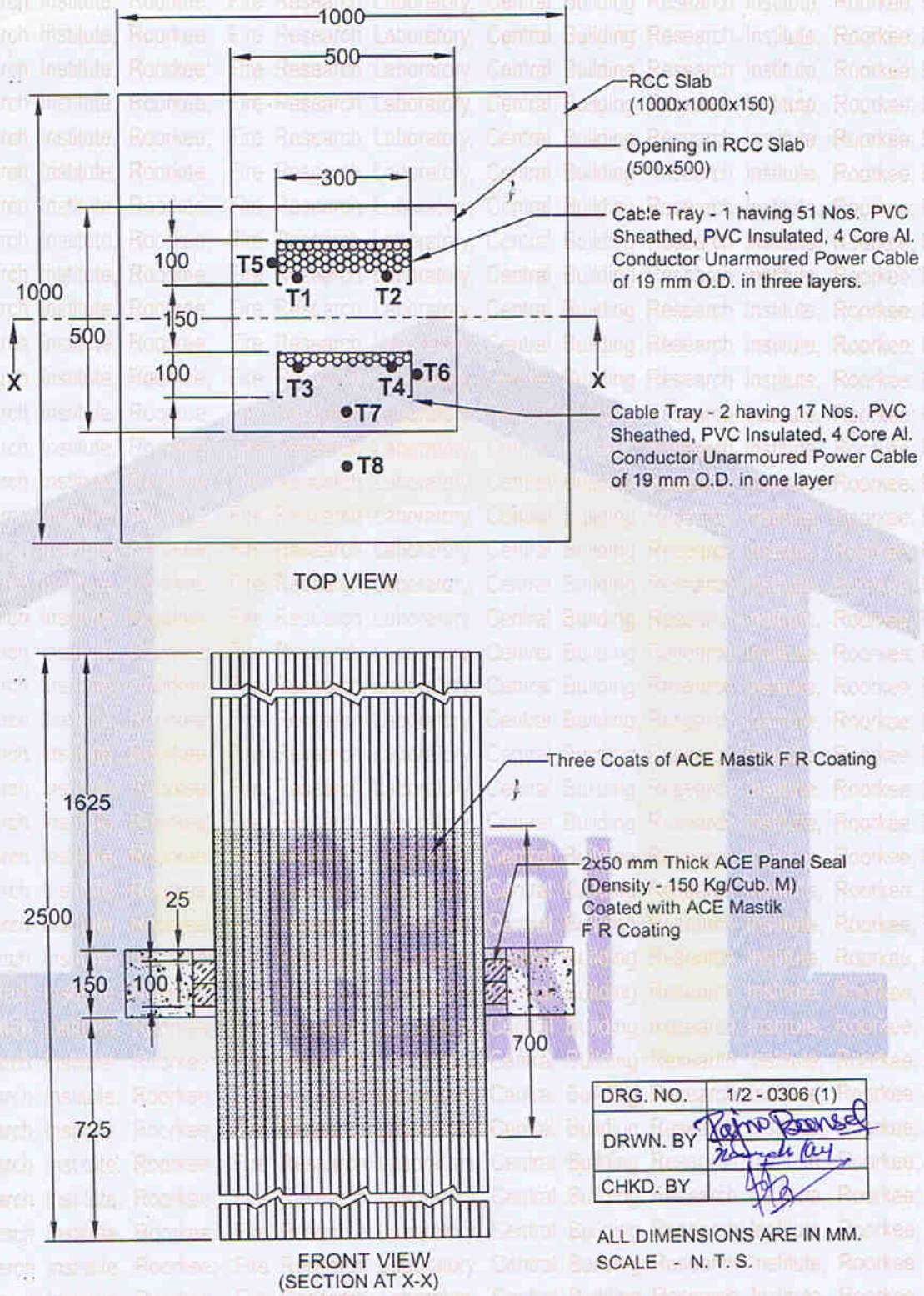


Figure 1 : Construction details & position of thermocouples on the Cable Firestop specimen evaluated for the Fire Resistance on September 29, 2016 After Aging and Water Absorption Test.

अग्नि अनुसंधान प्रयोगशाला
FIRE RESEARCH LABORATORY
सी.एस.आई.आर. - केन्द्रीय भवन अनुसंधान संस्थान
CSIR - Central Building Research Institute
रूड़की - 247 667 (उत्तराखण्ड) भारत/Roorkee - 247 667 (U.K.) INDIA

VSE

VIJAY SYSTEMS ENGINEERS PVT. LTD.

TO WHOM SO EVER IT MAY CONCERN

Our fire stop system using Rockwool is FM approved system for 2 hrs. & 4 hrs. Fire rating.

In our system, for 2 hrs. we are using single Rockwool board & for 4 hrs, we are using 2 nos. of Rock wool slab, each of 50mm thick with a density 144 Kg/m3, coated with Fire retardant coating on the exposed surface of Rockwool slab with a thickness of 1.5 mm to 2.0 mm (DFT).

For your ready reference, please find attached herewith the FM approved drawings, FM certificate & page no. 12,13,14 & 15 of the report in which it is clearly mentioned that the Fire retardant coating thickness is 1.5 mm to 2.0 mm (DFT).

Also find attached herewith the application procedure for the same.

This is for your information & necessary action.

Authorized signatory

35 - Chandivalli Village, Off. Saki Vihar road, Andheri (East), Mumbai - 400072. India
Tel : 022 2847 4149/2996 | Fax : 022 28473660 | vijaysystems@vsnl.net | www.vijaysystems.com
CIN No. U29193MH2003PTC143527

METHOD STATEMENT

FOR SEALING OF

(Insulated & Non Insulated) DUCT OPENING, METAL PIPE OPENING,BUS DUCT OPENING THROUGH WALL AND FLOOR

With

ACE MASTIK SEALANT WITH

MINERAL WOOL AS A BACK FILLING MATERIAL

Index

1. Technical Data

2. Required Material & Tools

3. Initial Arrangements

- Storage of Material
- Transportation Arrangement
- Mock Up Inspection
- Personal Protection Equipment

4. Risk Assessment

- Risk assessment for installation works.

5. Site Preparations

- Supervision & Mobilization
- Protecting of Surrounding Areas & Equipment
- Cleaning

6. Application Methodology

- Application

Technical Data

1. Product Description

The Sealing System consist of Mineral Wool Board ,LOOSE Mineral Wool with FIRE RETARDANT Ace Mastik Coating / Ace Mastik Sealant.

2. Technical Data

As per attach Catalogue.

3. Approvals Internationally Tested

Test	FOR	Result
Factory Mutual Research (FM4990)	Ace Panel Sealing System	Pass

4. Product Features

a) Odourless and Solvent Free.
b) Fast tight seal, less sealant required for gap filling.
c) Approved for a wide range of applications.

5. Main Applications

a) To seal the Gap between Duct Opening & Gap Filling between Wall by providing the Fire Rating of 2 Hrs.&4Hrs.

Required Materials & Tools

Mineral Wool Board of Thickness 50 mm
Loose Mineral wool
Vernier Callipers
Putty Blade
Masking Tapes
Polyethylene Sheets
Gun /Paint Brush
Cotton Waste
Pocket Knife
Ladder
Folding Rule
ACE MASTIK COATING
ACE MASTIK Sealant
Vernier Caliper/Elcometer
Channel
MIXING TUB

Initial Arrangements

Storage of Material

- As it is water based synthetic resin dispersion, the storage and transport temperature range for this product (4°C to 50°C) must be observed.
- Proper storage of materials without polluting the environment.
- Material shall be stored indoor which is well ventilated to avoid damage to the material at Ware House as well as at work site.

Transportation Arrangement

- As the transport temperature range of the product is (4°C to 50°C) , an covered vehicle shall be used for transport of material from warehouse to work site.
- Follow up the local rules & regulation.
- Transportation and arrangement of the mixing equipments should be done as per the approved work instruction.

Mock Up Inspection

- Initially mock up shall be arranged to demonstrate the method of application for Vijay Ace Mastik Sealant System for closing of Duct & Gap Openings in Walls . Mock up shall be arranged as per client's instruction and convenience.
- Mock-up of Ace Mastik Sealant System shall be done in the presence of Contractor/ Consultant as per the approved Method of Statement and in line with the Consultant requirements.
- Comments shall be noted down and approval shall be obtained for Closing of Duct & Gap Openings in Walls using Ace Mastik Sealant System.

Personal Protection Equipment

- PPE's (Full sleeve coveralls, rubber hand gloves, safety shoes, helmet, and goggles), Dust mask and Standard First Aid Kit shall be supplied to workers

Site Preparations

Supervision & Mobilization

- Necessary approval shall be obtained from Consultant/Main Contractor for commencement of works.
- Approved Method Statement, Product Approval and Applicator Certificates shall be made available at site on demand.
- A site Supervisor certified by VIJAY will be available for customer interface and he will Be responsible for work schedule, project completion, Quality control, equipment & personnel safety.
- Certified & skilled workers fully trained by VIJAY will be provided for the execution of work. They will be equipped Personal Protective Equipment (PPE) and safety inducted by client.
- Check List and Test Format approved by Consultant should be available at the site during the erection works.
- Access to the openings at heights will be by using ladder/scaffolding wherever necessary.

Protection of Surrounding Areas & Equipment

- Appropriate work permit to be obtained & controlled, or work can be done with customer representative's presence/instruction.
- Nearby equipment, structures and Cables shall be securely masked by the suitable Polyethylene sheets and masking tapes to avoid any kind of damage during application.
- Care should be taken to ensure that no sign boards or warning signs are covered/masked permanently.

Cleaning

- The closing areas shall be cleaned from visible moisture, dust, dirt or other materials likely to impair adhesion.
- Penetration Items if any (Duct Surface)with oily surface will be hand wiped clean to remove all the oil/grease.
- Hardened soil, stubborn dust, old paint etc at the facing areas should be removed mechanically using Scratch pads.
- Surrounding surfaces shall be vacuumed for a dust free atmosphere.

Application Methodology

ERECTION PROCEDURE FOR FIRE PENETRATION SEALING SYSTEM ON CABLES:

Scope: This procedure covers the methods of installation of fire penetration sealing system using fire stop compound for Duct Opening,Sealing of Pipe Opening & Wall/Floor Gap Filling.

1. **PURPOSE:**
The purpose of this procedure is to provide guide lines for installation of fire penetration sealing system using fire stop compound for filling the gaps between the duct & wall & Wall to Wall . The applications are as follows:

a) Duct passing from one room to another room through Wall .

2. AREA OF APPLICATION:
This procedure is applicable for Wall Openings .

3. REFERENCE DOCUMENTS
a) Manufacturer's application procedure

4. RESPONSIBILITY
Responsibility of implementation of this procedure rests with construction manager of M/s.Vijay systems.

5. PREREQUISITES
a) Latest applicable documents like shipping release/test certificates of fire stop compound.
b) The Duct outer surface & Wall Surface has to be dry, free of dust and grease/oil. If there is any oil or grease, it has to be cleaned with kerosene otherwise have to be cleaned with dry cloth.

6. Installation procedure:

1 Cut the 50mm thick rockwool board slightly greater than the aperture size, in order stuff tightly in to the gap.

2 Coat the edges of the cut ares of Mineral wool Board & outer Surface of Duct by Ace Mastik Coating with a coating thickness of approximately 0.5mm

3 Stuff the board in to the gap and flush with the opening edge.

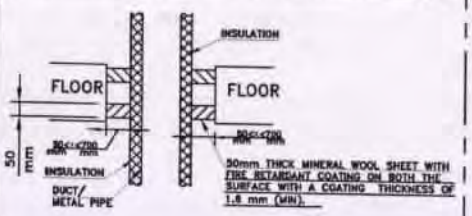
4 Seal around the rockwool and opening edges and between the duct with Ace Mastik Fire rated sealant. Pack firmly any gaps with loose mineral wool and seal with Ace Mastik sealant.

5 Coat the Expose face of Mineral Wool by Ace Mastik Coating/Sealant with a Coating/Sealeant thickeness of 1.6 mm.Min. (For 1.6 mm Thickness ,Use multiple coat with a gap of at least 2/3 Hrs. in between each coat.)

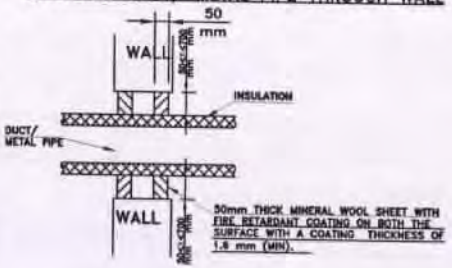
6 .Up to 2hrs. Fire Rating use single 50mm Mineral wool Board & Fire Rating Upto 4Hrs.Use 2nos of 50mm Mineral Wool Board with a air gap of 100mm Approximately. Repeat the same procedure as mention above for fixing 2nd Mineral Wool Board.

7.Coat only on exposed surface of the Mineral Wool Boards.

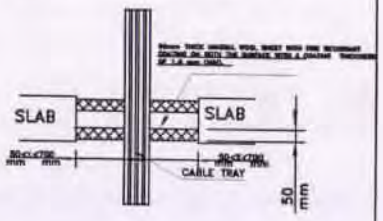
INSULATED DUCT/ METAL PIPE THROUGH FLOOR



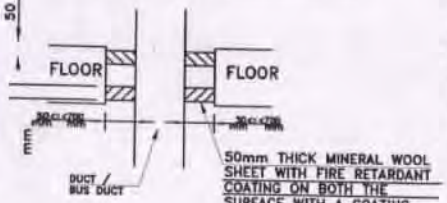
INSULATED DUCT/ METAL PIPE THROUGH WALL



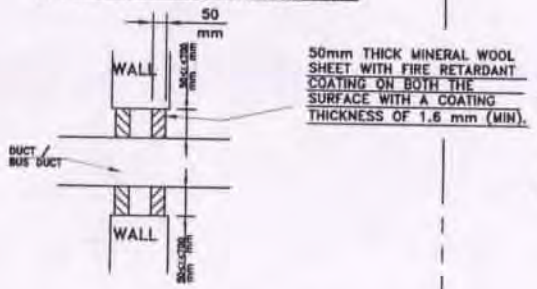
CABLE TRAY THROUGH FLOOR



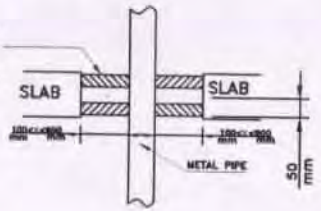
DUCT / BUS DUCT THROUGH FLOOR



DUCT / BUS DUCT THROUGH WALL



METAL PIPE THROUGH FLOOR



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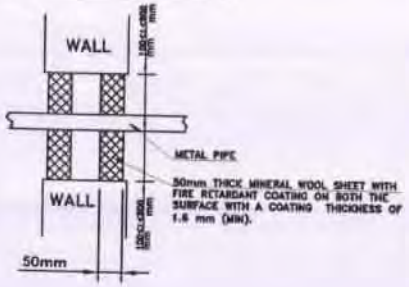
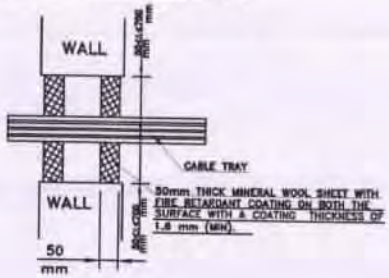


CABLE TRAY THROUGH WALL



NOTES:-

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. WRITTEN DIMENSIONS SHALL BE FOLLOWED AND DRAWING SHALL NOT BE SCALED.
3. MAKE OF FIRE SEALANT (SYSTEM - M/s. VIJAY SYSTEM ENGINEERS PVT. LTD.
4. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH FIRE SEALANT SPECIFICATIONS.
5. NUMBER OF HOURS OF FIRE RATING SHALL BE READ FROM WALL DRAWINGS.

CHECKED BY	SIGN	DATE	CHECKED BY	SIGN	DATE	CHECKED BY	SIGN	DATE
ARCHITECTURE			HVAC			GIS		
CIVIL & STRUCTURAL			FPS			GEOTECH.		
ELECTRICAL			PIPING					
ELV SYSTEM			PHE					

CLIENT:

MANUFACTURER / SUPPLIER:

VIJAY SYSTEM ENGINEERS PVT LTD.

PROJECT:

110/13.8 kVA NAGA SUBSTATION (EXTENSION)

PRODUCT:

FIRE STOP SYSTEM FOR SUBSTATION OPENING

JOB No.: O12006

	NAME	SIGN	DATE
DRWN	PSS		
CHKD	BHATE		
APPD	BHATE		

TITLE:

4 HRS FIRE RATING

SECTION ELEVATION MARKING / DRAWING NUMBER

SCALE: SCALE

DRAWING No. DRAWINGNO.

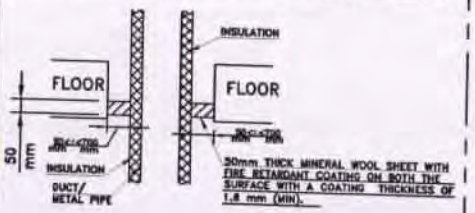
SHEET SHEET

PROJECTION

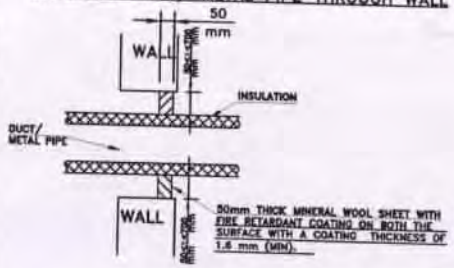
SIZE: SIZE | REV: REV

RELEASED FOR: ☐ PRELIMINARY ☐ TENDER ☐ INFORMATION ☐ APPROVAL ☑ CONSTRUCTION

INSULATED DUCT/ METAL PIPE THROUGH FLOOR



INSULATED DUCT/ METAL PIPE THROUGH WALL



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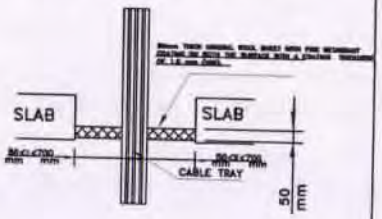
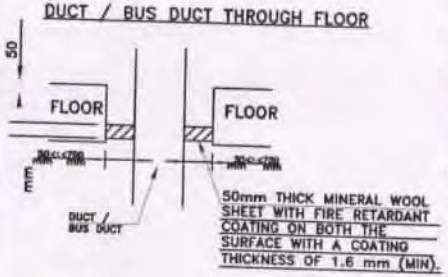
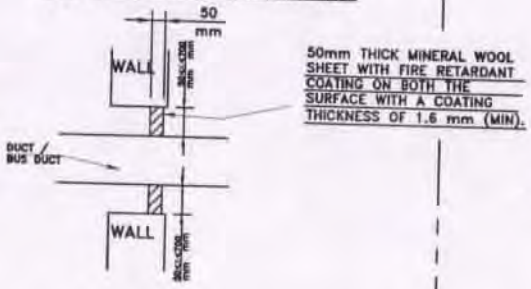


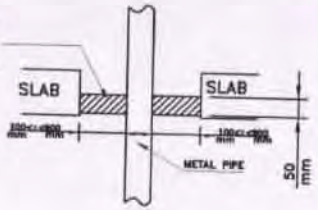
DUCT / BUS DUCT THROUGH FLOOR



DUCT / BUS DUCT THROUGH WALL



METAL PIPE THROUGH FLOOR



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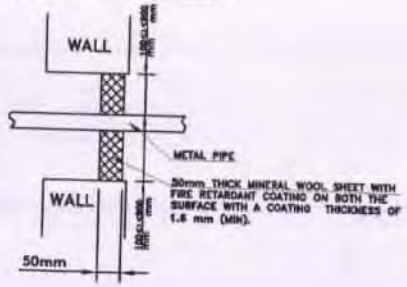

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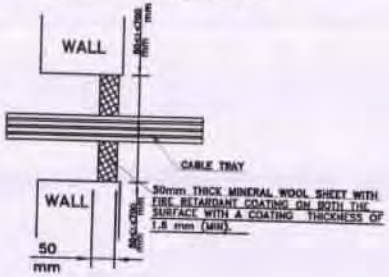


NOTES:-

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. WRITTEN DIMENSIONS SHALL BE FOLLOWED AND DRAWING SHALL NOT BE SCALED.
3. MAKE OF FIRE SEALANT SYSTEM - M/s. VIJAY SYSTEM ENGINEERS PVT. LTD.
4. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH FIRE SEALANT SPECIFICATIONS.
5. NUMBER OF HOURS OF FIRE RATING SHALL BE READ FROM WALL DRAWINGS.

CHECKED BY	SIGN	DATE	CHECKED BY	SIGN	DATE	CHECKED BY	SIGN	DATE
ARCHITECTURE			HVAC			QS		
CIVIL & STRUCTURAL			FPS			GEOTECH.		
ELECTRICAL			PIPING					
ELV SYSTEM			PHE					

CLIENT:

MANUFACTURER / SUPPLIER: VIJAY SYSTEM ENGINEERS PVT LTD.

PROJECT: 110/13.8 kVA NAGA SUBSTATION (EXTENSION)

PRODUCT: FIRE STOP SYSTEM FOR SUBSTATION OPENING

JOB No.: O12906

	NAME	SIGN	DATE
DRWN	PSS		
CHKD	VIJAYE		
APPD	VIJAYE		

TITLE: 2 HRS FIRE RATING

SECTION ELEVATION MARKING / DRAWING NUMBER

SCALE: SCALE

DRAWING No.: DRAWINGNO.

PROJECTION

SIZE: SIZE REV: REV

RELEASED FOR: ☐ PRELIMINARY ☐ TENDER ☐ INFORMATION ☐ APPROVAL ☑ CONSTRUCTION

FM APPROVALS
Project ID: 3029660

Appendix A
FIRE STOP DESIGN 605
Rating – 2 HR.

1. WALL ASSEMBLY. Min 200 mm (8 in.) thick normal weight concrete, min 4 hour fire rated. Max opening size of 0.16 m^2 (1.7 ft^2) with largest dimension 400 mm (16 in.).

2. CABLE TRAYS AND CABLES. Max of one each (3 total) of the following cable trays installed within opening:

   a. Max 100 x 20 mm (4 x 0.8 in.), 1.5 mm (0.06 in.) thick steel cable tray installed min 70 mm (2-3/4 in.) from the edge of the opening and 90 mm (3-1/2 in.) from the nearest penetrating item.

   b. Max 75 x 20 mm (3 x 0.8 in.), 1.5 mm (0.06 in.) thick steel cable tray installed min 70 mm (2-3/4 in.) from the edge of the opening and 90 mm (3-1/2 in.) from the nearest penetrating item.

   c. Max 105 x 20 mm (4.1 x 0.8 in.), 1.5 mm (0.06 in.) thick steel cable tray installed min 150 mm (6 in.) from the edge of the slab and the nearest penetrating item.

   The following types, sizes and max number of copper conductor cables may be used:

   a. Cable tray (Item 2a) may be provided with max 57% cable fill consisting of max ten (10) PVC sheathed and insulated copper cables with max diameter of 12 mm (0.47 in.).

   b. Cable tray (Item 2b) may be provided with max 85% cable fill consisting of max five (5) PVC sheathed and insulated copper cables with max diameter of 18 mm (0.71 in.).

   c. Cable tray (Item 2c) may be provided with max 250% cable fill consisting of max three (3) PVC sheathed and insulated copper cables with max diameter of 47 mm (1.85 in.).

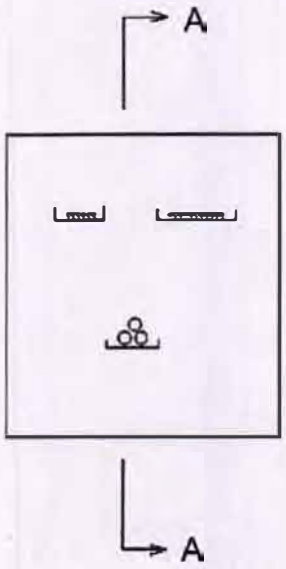
3. FIRE STOP COMPONENTS.

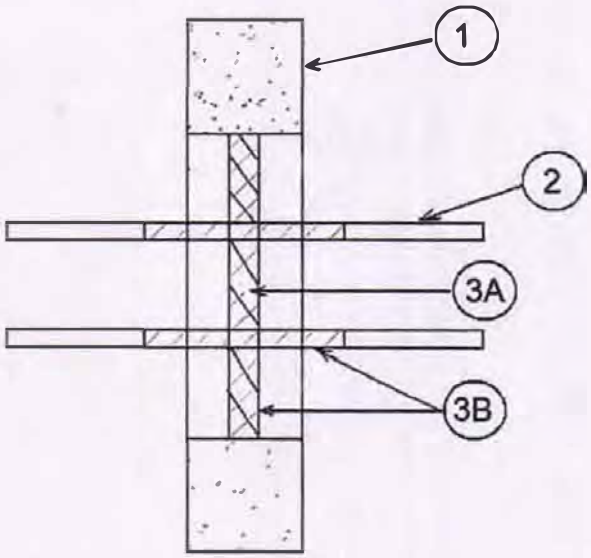
   a. Mineral wool boards, min 50 mm (2 in.) thick, min 150 kg/m^3 (9.4 pcf) density cut slightly larger than the opening are installed within the opening tight around the penetrants and the perimeter of the opening, recessed 75 mm (3 in.) from the surface of the wall. Prior to installation, the perimeter of the mineral wool boards are coated with Mastik Coating (Item 3b).

   b. Mastik coating applied at a thickness of min 1.5 mm (0.06 in.) thickness to the perimeter of the opening prior to installation of mineral wool boards (Item 3a). Mastic coating is then applied at min 1.5 mm (0.06 in.) thickness to both sides of the wall. The coating is applied so it overlaps onto the perimeter of the concrete wall min 25 mm (1 in.), and also onto the penetrants min 300 mm (12 in.) away from the mineral wool boards.

   Vijay Systems Engineers Pvt. Ltd., 35, Chandivali Village, Off Sakivihar Road Mumbai - 400 072, India
   Ace Mastik Coating

Appendix A
FIRE STOP DESIGN 605
Rating – 2 HR.





SECTION A-A

FM APPROVALS
Project ID: 3029660

Appendix B
FIRE STOP DESIGN 606
Rating – 4 HR.

1. WALL ASSEMBLY. Min 200 mm (8 in.) thick normal weight concrete, min 4 hour fire rated. Max opening size of 0.16 m^2 (1.7 ft^2) with largest dimension 400 mm (16 in.).

2. CABLE TRAYS AND CABLES. Max of one each (3 total) of the following cable trays installed within opening:

   a. Max 100 x 20 mm (4 x 0.8 in.), 1.5 mm (0.06 in.) thick steel cable tray installed min 70 mm (2-3/4 in.) from the edge of the opening and 90 mm (3-1/2 in.) from the nearest penetrating item.

   b. Max 75 x 20 mm (3 x 0.8 in.), 1.5 mm (0.06 in.) thick steel cable tray installed min 70 mm (2-3/4 in.) from the edge of the opening and 90 mm (3-1/2 in.) from the nearest penetrating item.

   c. Max 105 x 20 mm (4.1 x 0.8 in.), 1.5 mm (0.06 in.) thick steel cable tray installed min 150 mm (6 in.) from the edge of the slab and the nearest penetrating item.

   The following types, sizes and max number of copper conductor cables may be used:

   a. Cable tray (Item 2a) may be provided with max 57% cable fill consisting of max ten (10) PVC sheathed and insulated copper cables with max diameter of 12 mm (0.47 in.).

   b. Cable tray (Item 2b) may be provided with max 85% cable fill consisting of max five (5) PVC sheathed and insulated copper cables with max diameter of 18 mm (0.71 in.).

   c. Cable tray (Item 2c) may be provided with max 250% cable fill consisting of max three (3) PVC sheathed and insulated copper cables with max diameter of 47 mm (1.85 in.).

3. FIRE STOP COMPONENTS.

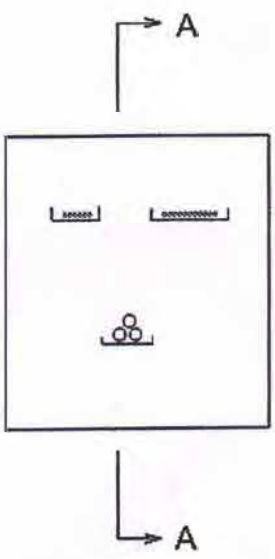
   a. Mineral wool boards, min 50 mm (2 in.) thick, min 150 kg/m^3 (9.4 pcf) density cut slightly larger than the opening are installed within the opening tight around the penetrants and the perimeter of the opening. One layer installed flush with each surface of the wall, providing an air gap of 100 mm (4 in.) between layers. Prior to installation, the perimeter of the mineral wool boards are coated with Mastik Coating (Item 3b).

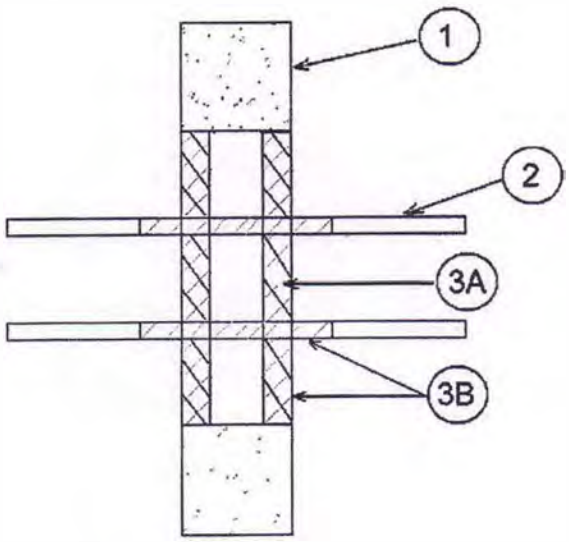
   b. Mastik coating applied at a thickness of min 1.5 mm (0.06 in.) thickness to the perimeter of the opening prior to installation of mineral wool boards (Item 3a). Mastic coating is then applied at min 1.5 mm (0.06 in.) thickness to both sides of the wall. The coating is applied so it overlaps onto the perimeter of the concrete wall min 25 mm (1 in.), and also onto the penetrants min 300 mm (12 in.) away from the mineral wool boards.

   Vijay Systems Engineers Pvt. Ltd., 35, Chandivali Village, Off Sakivihar Road, Mumbai - 400 072, India
   Ace Mastik Coating

FM APPROVALS
Project ID: 3029660

Appendix B
FIRE STOP DESIGN 606
Rating – 4 HR.

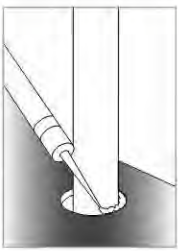




SECTION A-A

ACE MASTIK SEALANT

AceMastik Sealant



WARNING: May cause eye, skin, nose and throat irritation.

CONTAINS:

PRECAUTIONS: Avoid eye and skin contact. Do not ingest. Wash thoroughly after handling. For industrial use only.

KEEP OUT OF REACH OF CHILDREN.

FIRST AID INFORMATION:

- **Eye Contact:** Flush eyes with large amounts of water. If signs/symptoms persist, get medical attention.
- **Skin Contact:** Remove contaminated clothing and shoes. Immediately flush skin with large amounts of water. Get medical attention. Wash contaminated clothing and clean shoes before reuse.
- **Inhalation:** Remove person to fresh air. If signs / symptoms develop, get medical attention.
- **If Swallowed:** Do not induce vomiting unless instructed to do so by medical personnel. Give person two glasses of water. Never give anything by mouth to an unconscious person. Get medical attention.

REFER TO MATERIAL SAFETY DATA SHEET ON OUR WEBSITE WWW.VIJAYSYSTEMS.COM

IMPORTANT: Consult the FM Directory for specific information regarding your application.

AceMastik Sealant

A smoke and fire stopping sealant for wall and floor penetration that is easy to handle. Bonds to concrete, metal, wood and cable jacketing. Dries to a firm, rubber-like solid state. During a fire, product burns and chars to prevent smoke and flame from propagating further.

Directions: Surfaces must be sound, dry and free of oil, frost, grease, dust and other foreign materials. Fill voids with AceMastik Sealant. Sealant can be installed with a standard caulking gun, pneumatic pumping equipment, or it can be easily applied with a putty knife or trowel. Tool within 5 minutes of application.

Cure: Sealant becomes tack-free in about ten minutes. Full cure depends upon ambient conditions and volume of caulk. Curing at indoor application is 3-4 hours and for outdoor application is 2-3 hours at 28°C/83°F.

Clean-Up: Clean tools with soap and water. Remove cured sealant with a scraper or knife. Refer to Technical Data Sheet for complete product information.

Storage: Store at temperatures above 5° - 30° C/ 41° - 86° F.

KEEP FROM FREEZING DURING CUSTOMER STORAGE.

NOTICE: This product is not acceptable for use with chlorinated polyvinylchloride (CPVC) pipe.

Important Notice to User:

- **Product use:** Many factors beyond VSE's control and uniquely within user's knowledge and control can affect the use and performance of a VSE product in a particular application. Given the variety of factors that can affect the use and performance of a VSE product, user is solely responsible fro evaluating the VSE product and determining whether it is fit for a particular purpose and suitable for user's method of application.
- **Warranty and Limited Remedy:** VSE warrants that each VSE Fire Protection Product will be free from defects in material and manufacture for 90 days from the date of purchase or the shelf life, whichever is less, as long as storage conditions are as per recommendations.

VSE MAKES NO OTHER EXPRESS OR IMPLIED WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. If a VSE product does not conform to this warranty, the sole and exclusive remedy is, at VSE's option, replacement of the VSE product or refund of the purchase price.

Limitation of Liability: Except where prohibited by law, VSE will not be liable for any loss or damage arising from the VSE product, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted.

Product Information Source:
Material Safety Data Sheet or VSE Export Division
35 Chandivali Village, Off Saki Vihar Road
Andheri East, Mumbai 400072.
www.vijaysystems.com

Toll Free:

DATA SHEET
ACE MASTIK SEALANT

PRODUCT DESCRIPTION:

Ace Mastik Sealant is a flexible sealant which effectively closes the annular gaps in a fire stop system and fire rated building joints. It is a viscous caulking compound that is applied in single / multiple layers depending upon the size and geometry of the gaps to be sealed. It cures at general ambient conditions to form a flexible tight fire seal which also acts as a barrier against airborne sound transmission.
The product is available for various conventional panel type standard fire stop systems and all types of building joints. Ace Mastik Sealant is tested for fire resistance as per various national and international testing specifications like ISO 834, ASTM E 814, IS 12458, UL 1479.for fire rating up to 4 hrs.

SPECIAL FEATURES OF THE PRODUCT:

It is a single component system and can be worked on to fill a wide range of gaps by various application methods including injection through a nozzle tip of a gun. The material is compatible with most of the surfaces of construction materials and through penetration of services like concrete, steel, mineral wool fibres, PVC, XLPE, rubber, silicon and nearly all types of cable insulation, plastic pipe materials, ducting etc. Ace Mastik Sealant does not emit toxic vapour during curing or drying. It does not get affected by long exposure to various ambient conditions in commercial and industrial applications like weathering effects, aging, vibrations, ambient temperature variations, exposure to light acids and alkalis, high humidity.

APPLICATIONS OF ACE MASTIK SEALANT:

Ace Mastik Sealant finds its major application as a fire retardant sealant for through penetration gaps in fire stops, building joints, vertical shafts and risers, kitchen exhaust ducts, sealing of annular gaps around service penetrations like pipes, cables, ducts through walls and floors.
It helps reduce air conditioning losses, can prevent leakage of contaminated air from confined areas to the surroundings, also acts as good acoustic sealant with proper backing materials.

DATA SHEET
ACE MASTIK SEALANT

TECHNICAL DATA:

Life Expectancy	**40 Years**
Density	**1.30 to 1.45 gms/ cm^3**
pH:	**6.0 to 8.0**
Appearance	**Grey/ Off White caulking compound**
Odour	**Odourless**
Curing time	**2 to 3 mm in 2 days**
Flash Point	**None**
Resistance to moisture & humidity	**Good**
Toxicity	**Non Toxic**
Application Temperature	**5 °C to 50 °C**
Flexibility /Movement	**+/-25%**
Recommended minimum thickness/ depth	**12 mm to 15 mm in annular space**

PACKING & STORAGE:

Packaging:
Ace Mastik Sealant is packed in cartridges of 310 ml (0.420 kgs) and 20 kgs plastic pales.

Storage:
Ace Mastik Sealant should be stored in a covered dry shed between 5 ^{0}C to 50 ^{0}C ambient conditions.

Shelf Life:
Ace Mastik Sealant has a shelf life of 18 months in original unopened packing, when stored in a dry covered shed, within its storage temperature range. Recommend first in first out policy for rotation of material.

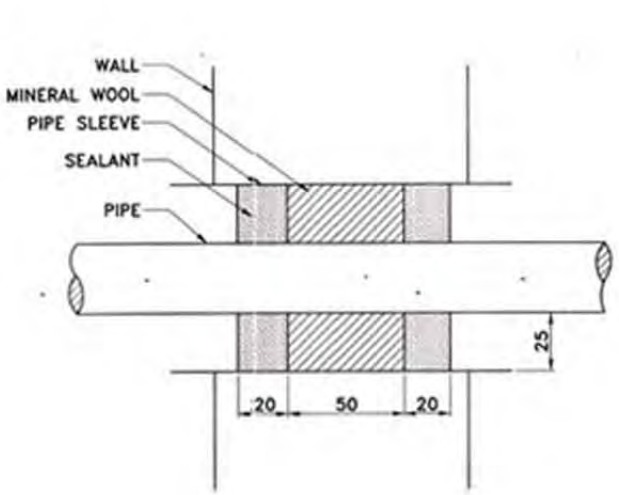
APPLICATION INSTRUCTIONS
ACE MASTIK SEALANT

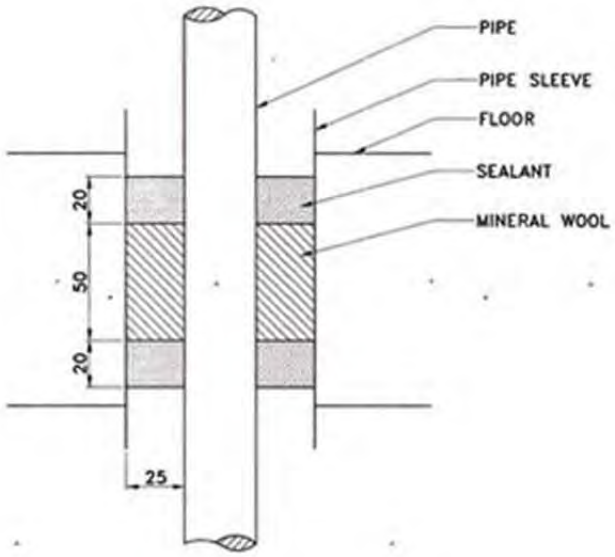
APPLICATION INSTRUCTIONS:

1. Clean inside and around the penetrant & opening (in wall or floor) and make sure the area is free of dust, oil & grease.
2. For relatively larger openings, use mineral wool board that is 50mm thick & of 150 kg/m^3 density to fill the opening.
3. Press/recess the mineral wool board 20mm (+/- 5mm) from the wall/floor.
4. Insert the Ace Mastik Sealant tube in to a caulking gun.
5. Apply the Ace Mastik Sealant in to the opening to a minimum 20mm depth (+/- 5mm) to completely fill the annular space.
6. Tool/level the sealant around the penetrant and throughout the opening to even out the surface.
7. For wall & floor application, the sealant can be applied on both sides of the wall or floor.

Note:

Follow the same instructions for sealing openings for pipe sleeves.





NOTE:- ALL DIMENSIONS ARE IN mm.

PIPE PENETRATION TO WALL & FLOOR SEALING WITH ACE SEALANT

VIJAY SYSTEMS ENGINEERS PVT. LTD.

VSE/2011/FS/02 | 0

MATERIAL SAFETY DATA SHEET
ACE MASTIK SEALANT

SECTION 1:	IDENTIFICATION

1.1 Name of the Product: "Ace Mastik Sealant".

1.2 Recommended Use and limitation of application: Recommended to be used as a sealant for filling gaps between various components of a fire penetration seals, Fire rated building joints. It can also be used as a binder between different building materials which are not compatible with each other at joints but are compatible with the sealant.

1.3 Manufacturer's Supplier's Data:

Manufacturer:	**VIJAY SYSTEMS ENGINEERS PVT LTD**.
Address :	35 Chandivali Village, Off Sakivihar Road, Andheri (East) Mumbai 400072 India.
Contact Person :	Mr. K. Bhattacharjee
Works Address :	Shed No. 9,12 &112 Bajrang Krupa Industrial,Estate, Village – Athal, Silvassa – 396230.(U.T), India.
Telephone Number:	+91 22 28474146 / +91 22 28473660
E-Mail:	vijaysystems@vsnl.net

SECTION 2:	HAZARD IDENTIFICATION

No GHS (Globally Harmonized System of classification and labeling of chemicals) identity.

2.1 Serious Eye Damage/Irritation: Contact with eye can cause irritation.

2.2 Skin Sensitizer: Can cause irritation at the contact.

2.3 Inhalation: Exposure to Ace Mastik Sealant can cause irritation to the nose, throat, and upper respiratory system due to over exposure to the vapors.

2.3 Reproductive Toxicity: None.

2.4 Specific Target Organ Toxicity (repeated exposure): Respiratory track & Lungs.

2.5 Hazardous identification: Non Hazardous Substance, Non dangerous Goods, according to the criteria of OSHA classification criteria.

2.6 Poison Schedule: None

2.7 Risk: None under normal operating conditions.

2.8 Safety: None under normal operating conditions.

2.9 Label Element: None

2.10 Symbol: None

2.11 Pictogram: None

2.12 Hazard Statement: Avoid spillage. Can be dangerously slippery.

2.12 Precautionary Statement: Store in a dry covered ventilated shed. No special protection while handling.

2.13 Responses:

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present. Continue rinsing. If eye irritation persists, get medical advice/ attention.

If on skin: Wash with plenty of soap and water. If skin irritation or rash occurs, get medical advice/ attention. Wash contaminated clothing before reuse.

If exposed or concerned: Get medical advice/ attention.

Storage: Store in a covered dry shed.

Disposal: Dispose of contents/container in accordance with applicable local/ regional/ national /international regulations.

2.14. Hazards not otherwise classified: None.

SECTION 3:	**Composition/information on ingredients**

Ingredients (proprietary mixture)	**CAS Number**	**% by wt. / wt.**
Acrylic copolymer	67967-61-7	10 to 50
Fire retardant additives AND Graphite compound	12777-87-6	5 to 30
Fillers / calcium Carbonate	1317-65-3	5 to 25
Titanium Dioxide and plasticizers.	13463-67-7	2 to 15

*The exact chemical identity and/or exact percentage (concentration) in ingredients furnished above are not disclosed being a trade secret and proprietary nature of formulation.

SECTION 4: FIRST AID MEASURES

4.1. First aid measures

Inhalation: Remove person to fresh air. If feeling unwell get medical attention

Skin Contact: Wash away with water. Remove deposits if any from the clothing. If irritation persists, if signs/symptoms of unwellness develop, get medical attention.

Eye Contact: Immediately flush with copious amount of water. Remove contact lenses if easy to do and discard. Continue rinsing. Get medical attention.

If Swallowed: Do not induce vomiting. If conscious, have the victim drink plenty of water and call for medical assistance immediately. Rinse mouth to discard contamination.

4.2. Most important symptoms/ effects, both acute and delayed: No significant exposure effects are expected. However acute or delayed symptoms are furnished in toxicological information furnished in section 11.

4.3. Indication of any immediate medical attention and special treatment required: No Information.

SECTION 5: FIRE FIGHTING MEASURES

5.1. Suitable extinguishing media in case of fire: Carbon Dioxide, Dry Chemical, Foam, Water Fog to extinguish fire.

5.2. Special hazards arising from the substance or mixture not inherent in this product. : No information.

5.3 Hazardous Decomposition or By-Products: None

5.3. Special protective actions for fire fighters: Cool containers with water spray. Evacuate personnel to safe areas. The product is not flammable. Use NIOSH
approved respiratory protection. Use water mist / spray to cool unopened containers.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures: Evacuate area. Ventilate the area with fresh air. Observe suitable respiratory protection like breathing masks, ventilation, and personal protective equipment like protective clothing, hand gloves and goggles.

Method of cleaning Spills: When product gets spilled, the spilled area becomes slippery. Cordon off the area. Excess spilled material may be scooped up in fresh containers and sent for recycling. Wipe clean and dry the area with cotton waste / rags.

6.2. Environmental precautions: Avoid release to the environment. Dispose off spilled contents / container in accordance with applicable local/regional/national/international regulations.

SECTION 7: HANDLING & STORAGE

7.1 Precautions for Safe handling: Wear protective clothing and hand gloves, Goggles mask etc. While handling and stacking the containers take care not to receive any damage which can result in spills. Use good occupational work practice.

7.2 Conditions of Safe storage: Store in a dry covered shed.

SECTION 8: EXPOSURE CONTROL, PERSONAL PROTETION

8.1. Exposure controls: In normal course of use product no special controls are necessary as at a time small quantity is supposed to be used. General dilution ventilation and/or local exhaust ventilation to control vapor exposure can be sufficient. If ventilation is not adequate, use respiratory protection equipment. Use NIOSH/MHSA-approved respirators or equivalent.

8.2 Personal protective equipment (PPE):

Eye/face protection: Use of indirect ventilated goggles with side shields for eye and / respiratory masks for face protection are recommended.

Skin/hand protection: Use of protective gloves and /or protective clothing (Apron) to prevent skin contact is recommended.

Respiratory protection: No special respiratory means required other than face mask.

SECTION 9:	PHYSICAL & CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties.

1.	**Physical Form**	:	Paste
2.	**Color & Appearance**	:	Grey
3.	**Odour**	:	Mild Odour
4.	**Solubility in Water**	:	Can be diluted using water
5.	**PH as supplied**	:	6 to 8
6.	**Bulk Density**	:	1.30 to 1.45 gms/cc.
7.	**Decomposition Temp**	:	>100 Deg.C
8.	**Lower Explosive Limit**	:	Not applicable
9.	**Upper Explosive Limit**	:	Not Applicable
10.	**Auto-ignition Temp**	:	Above 400 ^{0} C
11.	**Flammability**	:	Non Flammable
12.	**Flash Point**	:	None
13.	**Explosion Sensitivity to impact**	:	Not Applicable
14.	**Explosion sensitivity to static Electricity**	:	Not Applicable
15.	**Hazardous Combustion Product**	:	NIL
16.	**Combustible Liquid**	:	NIL
17.	**Corrosive Materials**	:	NIL
18.	**Organic Peroxide**	:	NIL
19	**VOC content**	:	20-25%

SECTION 10:	STABILITY & REACTIVITY

10.1	**Reactivity**	:	This material is considered to be non-reactive under normal use conditions.
10.2	**Chemical stability**	:	Stable
10.3	**Possibility of hazardous reactions**	:	Hazardous polymerization will not occur
10.4	**Conditions to avoid**	:	Not determined
10.5	**Incompatible materials**	:	Strong acids, Strong oxidizing agents
10.6	**Hazardous decomposition**	:	No Hazardous decomposition under normal use conditions

SECTION 11:	TOXICOLOGICAL INFORMATION

Inhalation: Inhalation of direct vapor should be avoided. Prolonged inhalation may result in irritation to respiratory track during product use in non-ventilated closed location.

Skin Contact: Contact to skin can cause local irritation. Repeated and prolonged direct skin contact can result in roughness of skin.

Eye Contact: Severe Eye Irritation. Signs/symptoms may include significant redness, pain, tearing, cloudy appearance of the cornea, and impaired vision.

Aspiration hazard: None.

Exposure Limits: No information.

SECTION 12: ECOLOGICAL INFORMATION

Eco toxicological Information: No recognized unusual toxicity to plants or animals. However, negative impact can occur due to hardening of material which can result in disruption of biological processes, if spilled in open. Negative impact can also occur if s wet Ace Mastik sealant is spilled into sewer or drainage conduits.

Aquatic Toxicity: Non-toxic in very small quantities. Large quantities especially in static water can be dangerous to aquatic life.

SECTION 13: DISPOSAL CONSIDERATIONS

Left outs / semi used, wash outs & spillage disposal: Dispose off contents in accordance with the local/regional/national/international regulations.

SECTION 14: TRANSPORT INFORMATION

14.1	**Transport Regulation**	**:**	Not A regulated material or constituents under any hazardous material category.
14.2	**Special precautions during Transport**	**:**	No Special conditions are required to be maintained during transport of materials. Should be prevented from contact with moisture and water.
14.3	**Hazard class**:	**:**	Not applicable.
14.4	**Identification number**	**:**	Not applicable.
14.5	**Required label text** :	**:**	Not applicable.
14.6	**Hazardous substances/ reportable quantities (RQ)** :	**:**	Not applicable.
14.7	**U.N. number**	**:**	Ace Mastik Sealant is a mixture of various compounds and does not form hazardous cargo in terms of the International Maritime Dangerous Goods Code and as such do not have a U.N. number.

SECTION 15:	REGULATORY INFORMATION

15.1.	**Hazard Categories**	:	Non Hazardous
15.2.	**Fire Hazard**	:	No
15.3	**Pressure Hazard**	:	No
15.4	**Reactivity Hazard**	:	No
15.5	**Immediate Hazard**	:	No
15.6	**Delayed Hazard**	:	None

SECTION 16:	OTHER INFORMATION

Ace Mastik Sealant should only be used by knowledgeable persons. To use the product safely, it is essential that, the user recognizes that the material is a sealant and should be handles properly to its specific use effectively without spillage.

DISCLAIMER: The information in this Material Safety Data Sheet (MSDS) is believed to be correct as of the date issued. VSE makes no warranties, expressed or implied, including, but not limited to, any implied warranty of merchantability or fitness for a particular purpose or course of performance or usage of trade.

User is responsible for determining whether the ACE product is fit for a particular purpose and suitable for user's method of use or application. Given the variety of factors that can affect the use and application of an ACE product, some of which are uniquely within the user's knowledge and control, it is essential that the user evaluate the ACE product to determine whether it is fit for a particular purpose and suitable for user's method of use or application.

VSE provides information in electronic form as a service to its customers. Due to the remote possibility that electronic transfer may have resulted in errors, omissions or alterations in this information, VSE makes no representations as to its completeness or accuracy. In addition, information obtained from a database may not be as current as the information in the MSDS available directly from VSE.

CERTIFICATES

VIJAY
Systems Engineers

THIS IS TO CERTIFY THAT

M/S Construction Experience for Contracting (C.E.C)
Kingdom of Saudi Arabia
Jeddah city
Emam Abdulaziz St.
Balan Centre (Saden)
Sixth Floor - Office 152

IS VIJAY SYSTEMS ENGINEERS TRAINED APPLICATOR

Date of issue – 25.01.2022
Valid till – 25.01.2024

For Vijay Systems Engineers Pvt Ltd

(Authorised signatory)

VIJAY SYSTEMS ENGINEERS PVT. LTD
Head Office:35 Chandivali Village, Off Saki Vihar Road, Andheri East, Mumbai – 400072
Tel- 022 2847 4149/2996 | corporate@vijaysystems.com | CIN No. U29193MH2003PTC143527 | www.vijaysystems.com
Works: Shed No. 9, 12 & 112 BajrangKrupa Industrial Estate ,BiladSilvassa Road , Athal, Silvassa-396230

From: **Wesam Muhammed** wesam@masftco.com
Subject: Fwd: رفض منتج معتمد
Date: 30 April 2019 at 3:46 PM
To: op.masftco@gmail.com

Warm Regards
From Wesam's iPhone

Begin forwarded message:

From: "Ahmad A. AlMutrafi" <AAlmatrafi@se.com.sa>
To: "Wesam Muhammed" <wesam@masftco.com>
Cc: "Taher M. Anjam" <TMAnjam@se.com.sa>, "Abdullah M. AlShahry" <AMShahry@se.com.sa>, "Saber K. Khalil" <KhalilS@se.com.sa>
Subject: FW: رفض منتج معتمد

المكرم/ مدير مؤسسة خدمات الأنشطة المتعددة **المحترم**
السيد / وسام محمد
السلام عليكم ورحمة الله وبركاته،

إشارة إلى بريدكم أدناه نفيدكم بأنه تم التواصل مع رئيس مجموعة الجهد الفائق المهندس / طاهر رشيد بالغربية (TMAnjam@se.com.sa) بشأن منتجاتكم قيد الشكوى والموضحة في بريدكم وتم التوضيح له أن هذه المنتجات معتمدة ومقبولة فنياً كونها معتمد من (FM) بموجب إجتيازها اختبارات (NFPA) المطلوبة ، كما تم التأكيد على قبولها في جميع المشاريع.

نامل التواصل مع المهندس الطاهر الذي حرر خطاب رفض المنتج (مرفق) والإفادة بما يتم.

وتقبلوا فائق التحايا،

وتقبلوا فائق التحايا,,,

احمد بن عبدالمحسن المطرفي
مدير دائرة تطوير منع الحرائق
إدارة تطوير الأمن الصناعي
aalmatrafi@ se.com.sa :
+9661 1 8079389:
+966 555221440 :

نعمل بإتقان من أجلكم

From: Wesam Muhammed [mailto:wesam@masftco.com]
Sent: Monday, April 29, 2019 8:28 AM
To: Abdullah M. AlShahry <AMShahry@se.com.sa>
Cc: Ahmad A. AlMutrafi <AAlmatrafi@se.com.sa>
Subject: رفض منتج معتمد

السلام عليكم ورحمة الله وبركاته

سعادة مدير ادارة تطوير الامن الصناعي

م.عبدالله الشهراني

نفيدكم نحن مؤسسة خدمات الأنشطة المتعددة للتجارة بأننا وكلاء منتج Fire Stop Material للمصنع الهندي Vijay Systems Engineering.وهي مواد تم اختبارها واعتمادها من الجهات العالمية المختصة
UL1479) & FM as per standards ASTM E 814)
وهي الجهات المعتمدة لدى (NFPA)

ameer Awwadh Al-Zaidey
me, Adel

08:09 (2 hours ago)

الاخ العزيز / وسام.
السلام عليكم ورحمة الله وبركاته..

نود الافادة بأن مصنع VIJAY SYSTEMS ENGINEERS تم اعتماده ضمن قائمة موردين الشركة السعودية للكهرباء تحت رقم : Registration #☐

181923 / Sap Code: **2007005**

يمكنكم من استلام اوامر شراء والمشاركة في المناقصات المستقبلية.

160

Sameer Awwadh AL-zaidey
Technical Pre-Qualification Analyst b
Localization and Qualification Dep
: sazaidey@ se.com.sa
: +9661 18078213

الشركة السعودية للكهرباء
Saudi Electricity Company

Diligently Serving You

Subject: FW: [External] Fwd: Approval of Fire Stop material

From: Bandar S. AlSulaimani <BSSulaimaimani@se.com.sa>
Sent: Thursday, November 14, 2019 2:14 PM
To: Hani H. Mahdi <HHMahdi@se.com.sa>
Cc: Mohammad A. Naveed <MNaveed@se.com.sa>; Meteb Fadel. Alshehry <MFAlShehri@se.com.sa>
Subject: FW: Approval of Fire Stop material

Dear Engr. Hani,

With respect to your E – Mail Below and as per attached Documents, related with Fire Stop Material Approval from E & DD, SEC – ISD accept on whole totally based on E & DD Approval.

Regards,,

Meteb Fadel Al-Shehri

Loss Prevention Engineer A
Industrial Security Department- WOA

: mfalshehri @se.com.sa [se.com.sa]

: +9661 26537302

Diligently Serving You

: +966 555601070

From: Hani H. Mahdi <HHMahdi@se.com.sa>
Sent: Wednesday, November 13, 2019 2:29 PM
To: Bandar S. AlSulaimani <BSSulaimaimani@se.com.sa>
Cc: Meteb Fadel. Alshehry <MFAlShehri@se.com.sa>; Mohammad A. Naveed <MNaveed@se.com.sa>
Subject: Approval of Fire Stop material

Dear Eng. Bandar

As per discussion, kindly find attached approvals from SEC Engineering & Design Department for fire stop material and fire stop coating for MS VIJAY for your review and feedback.

1. Sail Road
2. Osilah
3. Wessam
4. Khandmah

Best regards,

هاني بن هاشم مهدي
مهندس نقل الطاقة أول
شاريع المدنية والكهروميكانيكية
Hani H Mahdi
Sr. Transmission Engi
Projects Department - V
hhmahdi@ se.com.sa [se.c
+966 126537326 :
+966 567785201 :

محمد نافيد الله
مهندس نقل الطاقة ا
دائرة المشاريع المدنية والكهروميكانيكية
Mohammad A Naveed
Transmission Engineer A
Projects Department - West
mnaveed@ se.com.sa [se.com.sa] :
+966 126538384 :
+966 542213797 :

contract SOW/IS Any Change in DTS/scope w.r.t previous submittal, if not clearly highlighted will not be accepted and will not be a part of approval

*AMPED: *YES/NO

To: Ibrahim S. Al-Hariti (ISN-Projects Group)
Cc: Bandar S. AlSulaiman; Bader S. AlShamali; Mohammad Y. Banbas; Meteb Fadel. Alshehry; Fahad A. Al-Ehrani; Alfarao H. Sind; Mohammad T. Hussain
Subject: DTS – 066 Rev.00 Fire Stop Material_AL-KHANDAQ SUBSTATION

Subject	DTS – 066 Rev.00 Fire Stop Material Request for Review of Contractor's Submittal
Project	AL-KHANDAQ SUBSTATION
Contract No.	

Dear Engr. Mohammad Jammah Ali,

Reference to the above subject's document (1 folder + 1 CD) (received on 09/03/16 by SSEM)

SEC-ISD team studied and reviewed the documents with current Approval Status of "A" Accepted.

Please find attached Approval Sheet.

The materials proposed are FM approved with 3 to 4 hours fire rating so therefore approved but please be reminded that the application of the said materials shall also be done professionally.

Note:

Contractor are obliged to provide an optimum design as to satisfy the end user

Approval of any documents and/or drawing do not in any way relieve or release contractor form his contractual obligation to comply with SOW & NFPA standards.

Emanuel S. Cabral اميلدو سكابرال كابرال

Loss Prevention Engineer A مهندس منع الخسائر أ

Safety and Environmental Prevention Division, ISD
Industrial Security Sector , General Services - WOA - WOA

دائرة السلامة وحماية البيئة
قطاع الأمن الصناعي ، شعبة الخدمات العامة - الشقايا الغربي ، الشقايا الغربي

[redacted] ESCabral@se.com.sa

[redacted]

Subject: FW: [External] Re: DTS-222 REV.01 - Fire Stop Material (Email 8/8) for Nakheel Project

From: Bandar S. AlSulaimani
Sent: Thursday, November 14, 2019 2:12 PM
To: Abbas A. Osailan
Cc: Nabeel G. Khushaim; Meteb Fadel. Alshehry; FAHAD A. SLAEB
Subject: FW: DTS-222 REV.01 - Fire Stop Material (Email 8/8) for Nakheel Project

Dear Engr. Abbas,

With respect to your E – Mail Below and as per attached Documents, related with Fire Stop Material Approval from E & DD, SEC – ISD accept on whole totally based on E & DD Approval.

Regards,,

Diligently Serving You

Bandar Saad Alsulaimani
Industrial Specialist Loss Prevention

Head, ISD Projects Group

Industrial Security Dept. – WOA

: BSSulaimaimani@se.com.sa

: +966 12 653 8593

: +966 503 048884

From: Abbas A. Osailan <AAOsailan@se.com.sa>
Sent: Thursday, November 14, 2019 1:29 PM
To: Bandar S. AlSulaimani <BSSulaimaimani@se.com.sa>
Cc: Nabeel G. Khushaim <NGKhushaim@se.com.sa>; Meteb Fadel. Alshehry <MFAlShehri@se.com.sa>; FAHAD A. SLAEB <FASLAEB@se.com.sa>
Subject: RE: DTS-222 REV.01 - Fire Stop Material (Email 8/8) for Nakheel Project

Good day,

Please find attached previous approval (from E&D reviewer representative) as per your request.

We need your support to close this subject either to approve the same or final rejection.

Sincerely,

Engr. Abbas A. Osailan, PMP®

Projects Manager
Projects Department - West

: AAosailan@se.com.sa

: +9661 48676845

: +966 543433220

Diligently Serving You

Materials Sector
Purchasing Department
Vendors Affairs Division

الشركة السعودية للكهرباء
Saudi Electricity Company

Date: 07/3/2019
Vendor Name: VIJAY SYSTEMS ENGINEERS
P.O. Box : 125433
C. R. NO: 29193
E-mail : vse.masftco@gmail.com

SUBJECT: VENDOR'S REGISTRATION NOTIFICATION

Dear Sir,
We are pleased to inform that your commercial documents have been evaluated and your company is now registered with Saudi Electricity Company under Vendor No (2007005)

You must fill up the prequalification form/ requirements whenever it is applicable, which available on SEC website (Click Here) in order to deliver materials based on your activity in your Commercial Registration.

To Login E-Bidding System: (Click Here)
Vendor ID: 2007005
Password: uA9Ooc

When you log on the system as a first time please change your password immediately through e-bidding link which available on SEC webpage.

Notice :
1. This approval should not be construed as commitment by SEC to purchase from you but when needed SEC will invite you to bid and will be evaluated based on the established policies & procedures.
2. If the Bid is considered as a LOW VALUE you must quote through the e-bidding system . However, if the bid is a HIGH VALUE you must submit the quotation in a closed envelope and submit to reception of purchasing sections in operating area's requested the materials.

We would suggest that you maintain a continuous contact with Purchasing Sections in SEC operating areas.
We thank you for your interest to deal with Saudi Electricity Company.

Best Regard,

Localization and Technical Qualification Department
Headquarters ◆ Gmatah Tower (A6) - 6th floor
Riyadh - Saudi Arabia
prc-vendor@se.com.sa

Materials Sector
Purchasing Department
Vendors Affairs Division

الشركة السعودية للكهرباء
Saudi Electricity Company

Date: 01/06/16
Vendor Name: Multi Activity Services
Attention: Engr Wesam Kennawi
E-mail 1: masftco@gmail.com

SUBJECT: VENDOR'S REGISTRATION NOTIFICATION

Dear Sir,
We are pleased to inform that your commercial documents have been evaluated and your company is now registered with Saudi Electricity Company under Vendor No (**2006344**),

You must fill up the prequalification form / requirements whenever it is applicable, which is available on SEC website www.se.com.sa / procurement / MFRs' prequalification to deliver materials based on your activity in your Commercial Registration:

Applicable for Distribution Materials	Applicable for Generation Materials	Applicable for Industrial Security Materials	Applicable for Transportation Materials
YES	-	-	-

To Login E-Bidding System: (Click Here)
Vendor ID: **2006344**
Password : **1414**

When you log on the system as a first time please change your password immediately through e-bidding link which available on SEC webpage.

Notice :
1. This approval should not be construed as commitment by SEC to purchase from you but when needed SEC will invite you to bid and will be evaluated based on the established policies & procedures.
2. If the Bid is considered as a LOW VALUE you must quote through the e-bidding system .However, if the bid is a HIGH VALUE you must submit the quotation in a closed envelope and submit to reception of purchasing sections in operating area's requested the materials'.

We would suggest that you maintain a continuous contact with Purchasing Sections in SEC operating areas.
We thank you for your interest to deal with Saudi Electricity Company.

Best Regard,

Ibrahim Al-Ghamdi
Vendor Affairs and Support Division Manager
Headquarters Gmatah Tower (A6) - Gth floor
Office +966 (11) 8079651
Riyadh- Saudi Arabia
pcsvsdv@se.com.sa

VIJAY SYSTEMS ENGINEERS PVT. LTD.

November 30, 17

Dear Sirs:

Please know that MASFTCO, Multi Activity Services for Trading Company, is the sole distributor and agent for Vijay Systems Engineers Pvt. Ltd. and our products in Saudi Arabia.

For Vijay Systems Engineers Pvt. Ltd.

NIKI SALOT
EXPORT MANAGER

35 - Chandivalli Village, Off. Saki Vihar road, Andheri (East), Mumbai - 400072. India
Tel : 022 2847 4149/2996 | Fax : 022 28473660 | vijaysystems@vsnl.net | www.vijaysystems.com
CIN No. U29193MH2003PTC143527

VIJAY SYSTEMS ENGINEERS PVT. LTD.

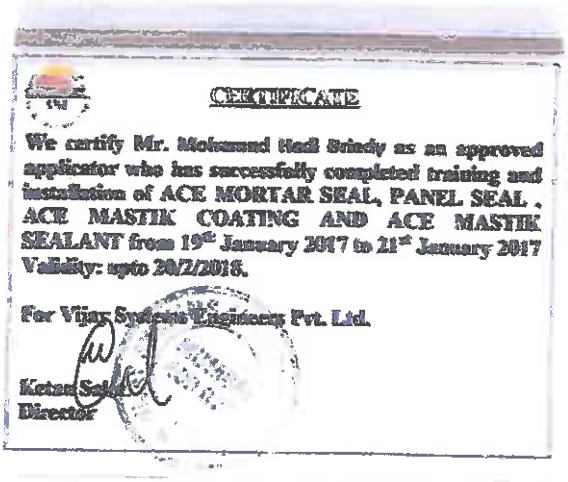
CERTIFICATE

This is to certify that Mr. Mohamad Hadi Briedy as an approved Trainer to train others to use and apply our products, namely;

1) **ACE MORTAR SEAL**
2) **ACE PANEL SEAL**
3) **ACE MASTIK COATING**
4) **ACE MASTIK SEALANT**

Validity: upto 20/2/2018.
For Vijay Systems Engineers Pvt. Ltd.

Ketan Salot
Director



CERTIFICATE

We certify Mr. Mohamad Hadi Briedy as an approved applicator who has successfully completed training and installation of ACE MORTAR SEAL, PANEL SEAL , ACE MASTIK COATING AND ACE MASTIK SEALANT from 19th January 2017 to 21st January 2017
Validity: upto 20/2/2018.

For Vijay Systems Engineers Pvt. Ltd.

Ketan Salot
Director

35 - Chandivalli Village, Off. Saki Vihar road, Andheri (East), Mumbai - 400072. India

VIJAY SYSTEMS ENGINEERS PVT. LTD.

CERTIFICATE

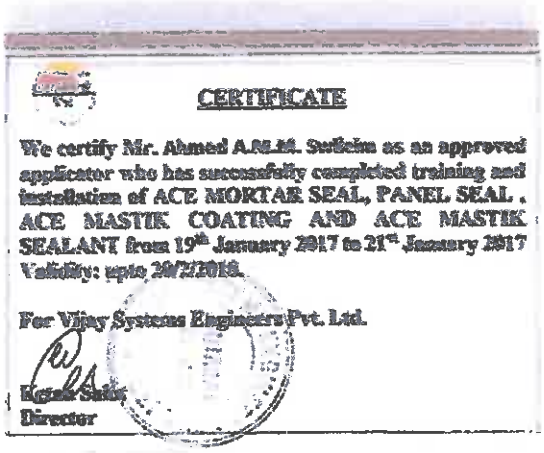
This is to certify that Mr. Ahmed Abdelgawad Mohamed Moustafa Swileim as an approved Trainer to train others to use and apply our products, namely;

1) ACE MORTAR SEAL
2) ACE PANEL SEAL
3) ACE MASTIK COATING
4) ACE MASTIK SEALANT

Validity: upto 20/2/2018.

For Vijay Systems Engineers Pvt. Ltd.

Ketan Salot
Director



CERTIFICATE

We certify Mr. Ahmed A.M.M. Swileim as an approved applicator who has successfully completed training and installation of ACE MORTAR SEAL, PANEL SEAL , ACE MASTIK COATING AND ACE MASTIK SEALANT from 19th January 2017 to 21st January 2017
Validity: upto 20/2/2018.

For Vijay Systems Engineers Pvt. Ltd.

Director

35 - Chandivalli Village, Off. Saki Vihar road, Andheri (East), Mumbai - 400072. India

FM APPROVED

Certificate of Compliance

This certificate is issued for the following:

Ace Mastik

Prepared for:

Vijay Systems Engineers Pvt Ltd
35, Chandivali Village, Off Sakivihar Rd
Mumbai 400 072, India.

FM Approvals Class: 3971

Approval Identification: PR461514 Approval Granted: 8/22/2022

To verify the availability of the Approved product, please refer to www.approvalguide.com

Said Approval is subject to satisfactory field performance, continuing Surveillance Audits, and strict conformity to the constructions as shown in the Approval Guide, an online resource of FM Approvals.

Phillip J. Smith
VP - Manager of Materials
FM Approvals
1151 Boston-Providence Turnpike
Norwood, MA 02062

SCC Accredited CB-P/S OCPS Accredite CCN

FM Approvals®

Member of the FM Global Group

FM APPROVED

Certificate of Compliance

This certificate is issued for the following:

APPROVAL EXAM OF VIJAY SYSTEMS ENGINEERS PVT. LTD
ACE MASTIK (ABLATIVE) CABLE COATING

Prepared for:

Vijay Systems Engineers Pvt. Ltd.
35, Chahdivali Village
Off Sakkivihar Road
Mumbai, India 400 072

FM Approvals Class: 3971

Approval Identification: 3040225 Approval Granted: March 16, 2011

Said Approval is subject to satisfactory field performance, continuing follow-up Facilities and Procedures Audits, and strict conformity to the constructions as shown in the Approval Guide, an online resource of FM Approvals.

For more than 160 years FM Approvals has partnered with business and industry to reduce property losses.

Richard P. Ferron, P.E.
Asst. Vice President, Group Manager
FM Approvals
1151 Boston-Providence Turnpike
Norwood, MA 02062

FM Approvals®

Member of the FM Global Group

FM APPROVED

WALL & FLOOR PENETRATION FIRE STOP

This certificate is issued for the following material

ACE MORTAR AND ACE MASTIK COATINGS
2 AND 4 HOUR FIRE RATINGS

Manufactured by:

Vijay Systems Engineers Pvt. Ltd
35, Chandivali Village, Off Sakivihar Rd
Mumbai – 400 072
INDIA

FM Approvals Class 4990

Approval Identification. 3029660 Approval Granted November 20, 2008

Said Approval is subject to satisfactory field performance, continuing follow-up Facilities and Procedures Audits, and strict conformity to the constructions as shown in the Approval Guide, an online resource of FM Approvals.

For more than 160 years FM Approvals has partnered with business and industry to reduce property losses.

FM Approvals

George A. Smith, P.E
Asst. Vice President, Director

110 KV PROJECTS APPROVALS

Internal Correspondence | المراسلات الداخلية

ENGINEERING & DESIGN DEPARTMENT
ENGINEERING & DESIGN DIVISION - WOA
Jeddah, SEC-HQ

Our Reference #: 30501201 / 11161 - J / 23

Dated : 27 / 03 / 2023 G
05 / 09 / 1444 H

To : HV Projects Department - West

Attention : ENGR. NABEEL KHUSHAIM
DIV. MANAGER

Contract # : 4400013382

Project Title : CONSTRUCTION OF 110 KV MADINA PV SWITCHING SS AT MADINA

Subject : TECHNICAL SUBMITTAL OF FIRE STOP MATERIAL

Contractor's Ref.#: DTS-0132 R01

Dated : 20 / 03 / 2023 G

Date Received @ EDD: 21 / 03 / 2023 G

STATUS OF THIS SUBMITTAL:

[X]	**A** Acceptable	[ ]	**B** Acceptable with Comments
[ ]	**C** Acceptable, Except as noted (Resubmit)	[ ]	**D** Rejected (Resubmit)
[ ]	**E** Clarification / For Information	[X]	See Attached Comments (01 Page)

Regards,

ABDULLAH SAEED AL QARNI
Substation & Transmission Line Section Head
Engineering & Design Division - WOA

MMJ/WUD
Cc: ENGR. AQIL ATTAS KADI

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

EXTRA HIGH VOLTAGE PROJECTS DEPARTMENTS - COA

الشركة السعودية للكهرباء
Saudi Electricity Company

REVIEW OF CONTRACTOR'S SUBMITTAL

Submittal No.	ALF/SEC/PE228/L/030M-R1	Date:	27/3/2023

CONTRACT No. : 4400015192/00
CONTRACTOR : Alfanar Construction Co. (Contractor)
BUDGET ITEM No :
JOB ORDER No :
PROJECT TITLE : Installation of SVC at Qassim-2 380kV BSP (9025)

To : SEC EHVPD-COA Office
New HQ Building - Tower C, 2nf Floor
Riyadh

From : Alfanar Construction Co.
P. O. Box 301, Riyadh 11411, KSA

ACCEPTANCE OF THE FOLLOWING SUBMITTAL IS HEREBY REQUESTED:
Check in the Appropriate Box: ☐ Drawings / ☐ Sketches ☐ Materials / ☐ Equipment ☐ Test Reports ☑ Others (Specify)

FILL-UP APPLICABLE INFORMATION BELOW:

Description : **Technical Submittal of Fire Stop Material**
Reference Specification : PTS # 16CM303-Rev.10
Manufacturer/Supplier :
Vendor Address : N/A
Expected Delivery Time : N/A

COMPLYING WITH SCOPE OF WORK AND TECHNICAL SPECIFICATIONS? ☑ YES ☐ NO
IF "NO" INDICATE DEVIATIONS : (Provide justification and attach supporting documents)

(Alfanar Const. Co.)
Submitted by : Project Manager
Signature :
Name : Hany Kamal Elsherbini
Date : 27/3/2023

(SEC)
Received by: Project Engineer, NEOA Projects
Signature :
Name :
Date :

FOR SEC-COA CTAPD/EXTRA HIGH VOLTAGE PROJECT DIVISION USE ONLY

SEC HAVE REVIEWED THE ABOVE SUBMITTAL AND FOUND IT:

- ☐ Acceptable
- ☒ Acceptable As Noted (No need to Resubmit)
- ☐ Acceptable, Except as noted (Resubmit)
- ☐ Rejected (Resubmit)
- ☐ Provide Additional Information
- ☒ See Attached Comments

REMARKS :

Group Leader for Civil and Mechanical
Signature : For
Name : Egr. Albaraa Y. AlSalman
Reference : 1057M
Date : 02-Apr-2023

Received by (Alfanar Co.) Signature :
Name :
Date :

NOTE : Acceptance does not release the Contractor from his responsibilities in performing the work in strict conformance with Contract, Scope of Work, Drawings and Technical Specifications.

61712
08/03/2023

SOUTHERN PROJECTS DEPARTMENT

Substation Projects Division -South

Address: H.Q, P.O.Box. 616, Abha, KSA
Tel: 017-2319158, Fax: 017-2271020

الشركة السعودية للكهرباء
Saudi Electricity Company

REVIEW OF CONTRACTOR'S SUBMITTAL

Submittal No.:	ALF/SEC/PE234/DTS-407	*Revision:* 0	*Date:* 08.03.2023

PROJECT TITLE : **CONSTRUCTION OF NAJRAN-2 BSP (NJR2)**

CONTRACT NO. : **4400015863** *BI NO.* : *PTS No.* : **PTS 21SN322**

To : Mr. Terad Honbos
Project Manager,
Projects Dep. - South
Tel: +966172319141 Email: TSAsiri@se.com.sa
CC: Hadi M. Al odah
Program Manager NAJRAN & Sharorah

From : Alfanar Construction Co.
P.O 301, Riyadh 11411- Saudi Arabia

ACCEPTANCE OF THE FOLLOWING SUBMITTAL IS HEREBY REQUESTED (Check Appropriate Box)

☐ *Civil* ☐ *Electrical* ☑ *Electro-Mechanical* ☐ *QA/QC/Safety*
☐ *Drawings/Sketches* ☐ *Materials/Equipment* ☐ *Communications* ☐ *Others (Specify)*

FILL-UP APPLICABLE INFORMATION BELOW:

Description : **TECHNICAL SUBMITTAL OF FIRE STOP MATERIAL**
Reference Specification : PTS-21SN322 - NAJRAN-2 BSP & attached Soft copy of drawing (SA-186083)
Manufacturer/Supplier :
Expected Delivery Time :

COMPLYING WITH SCOPE OF WORK AND TECHNICAL SPECIFICATIONS? ☐ *YES* ☐ *NO*
*IF"**NO**" INDICATE DEVIATIONS : (Provide justification and attach supporting documents)*

Submitted by Contractor:
Signature:
Name : *Ahmed Abdel Hady Saved*
Position : *Project Manager*
Date : *08.03.2023*
Signature:

4400015863 CONSTRUCTION OF NAJRAN -2 380KV BSP Contract No. 4400015863 Alfanar Company

Received by Project Dept:
Signature :
Name : *Mr. Terad Honbos*
Position : *Project Manager,*
Date : *08.03.2023*
(STAMP)

FOR OFFICIAL USE ONLY

SFPD-South has reviewed the above submittal & found it

☑ *ACCEPTABLE*
☐ *ACCEPTABLE EXCEPT, AS NOTED*
☐ *NOT ACCEPTABLE (RESUBMIT)*
☐ *REJECTED*
☐ *SEE ATTACHED COMMENTS*

Signature: For :
Name : ***Mr. Terad Honbos***
Position : *Project Manager, Projects Dep. -South*
Date : *08.03.2023*
Ref. #: 12034201-82213-23 Dated: 09/03/2023

REMARKS :

Received by Contractor:
Signature :
Name :
Date :

NOTE : *Acceptance does not release the Contractor from his responsibilities in performing the work in strict conformance with Contract, Scope of Work and Technical Specifications.*

CIVIL MATERIALS , SUPPLIERS & SUB- CONTRACTORS

ADDENDUM NO.01

VENDORS LIST

FOR

110/13.8kV SUBSTATION

Western Region

Year 2016 - 2017

نقل الكهرباء
National Grid SA

APPROVED BY

Engr. Tareq Shahab Mirza م / طارق شهاب مرزا

Divisional Manager - مدير دائرة

Projects Dept.-West - Civil & /Electro-Mechanical Projects

Vendor List Dated: 7th December 2016 الموافق 08 Rabi Al Awwal 1438

Addendum Updated: 1st Jan 2017 الموافق 03 Rabi Al Thani 1438

Engr. Tareq Shahab Mirza, Div. Manager (Reviewed By:)

IMPORTANT NOTE

This addendum is a part of the approved vendor list
Dated December 07, 2016.
Note that only those products or items of approved vendors shall be approved which fulfil SEC Standards & Specifications requirements.

DESCRIPTION	No.	SUPPLIER	REMARKS
	viii	SAUDI INDUSTIES FOR PIPE CO. LTD.	
	ix	*UNITECH (MAPEI)*	
	x	*FABCO Plastic Factory*	
	xi	*National Khoon Plastic Factory (NKPF)*	
	xii	*ALDHAHER Pipe Factory*	

42.0 GALVANIZED STEEL PIPES

DESCRIPTION	No.	SUPPLIER	REMARKS
GALVANIZED STEEL PIPES	i	Electrical Equipment Trading Corporation.	CAN BE USED FOR WATER DRAINAGE
	ii	ATTIEH STEEL	
	iii	*Hangzhou PROSTAR Enterprises*	

44.0 FLOOR SEALANT

DESCRIPTION	No.	SUPPLIER	REMARKS
FLOOR SEALANT	i	SIKA	For high performance for indoor and outdoor applications
	ii	BASF	
	iii	FOSROC	
	iv	DCP Saudi (Don Construction Products)	
	v	TYBER	
	vi	*Vijay Engineering Systems (VSE)*	

45.0 FLOOR FINISHING (SELF-LEVELLING COMPOUND)

DESCRIPTION	No.	SUPPLIER	REMARKS
FLOOR FINISHING (SELF-LEVELLING COMPOUND)	i	FOSAM (FOSROC)	
	ii	BASF	
	iii	SIKA	
	iv	DCP Saudi (Don Construction Products)	
	v	HEMPEL	

DESCRIPTION	No.	SUPPLIER	REMARKS
	vi	*SULTANAH ALLIED INDUSTRIES CO.*	• All doors & hardwares shall be Fire Rated & UL listed/labeled.

48.0 DOOR HARDWARE

DESCRIPTION	No.	SUPPLIER	REMARKS
DOOR HARDWARE	i	DORMA	All doors & hardware shall be Fire Rated & UL listed.
	ii	UBMU	
	iii	Raven	
	iv	Hager	
	v	IR	
	vi	GEZE	
	vii	SIMPLEX	
	viii	*SULTANAH ALLIED INDUSTRIES CO.*	

52.0 FIRE RATED MATERIALS

DESCRIPTION	No.	SUPPLIER	REMARKS
FIRE RATED MATERIALS	i	3M BLDG. & Commercial Services Division	All materials shall be UL Classified and/or FM system approved and tested to the requirements of ASTM E814 (UL1479)
	ii	CMCI	
	iii	Hilti Fire stop System	
	iv	BASF	
	v	FOSAM (FOSROC)	
	vi	DCP Saudi (Don Construction Products)	
	vii	SIKA	
	viii	UNITECH	
	ix	*Vijay Engineering Systems (VSE)*	

SAUDI TECHNOLOGISTS CONSULTING ENGINEERS
Khalid A. Mukaibel
License 486

الفنيون السعوديون للاستشارات الهندسية
المهندس / خالد ابيب مكبل
ترخيص ١٨١

SATECH

نقل الكهرباء
National Grid SA

Our Ref : SATECH/NG/11-WN-120/ BJ/D-6110
Contractor Ref : NE/NG/11-WN-120/BJ/DTS-171.R0

Dated : 05.10.2016G (04.01.1438H)
Receiving Date : 01.09.2016G (29.11.1437H)

Document Transmittal Sheet

To **National Grid SA**
Jeddah K.S.A.

Attention **Engr. Omar Fattah**
Division. Manager, West S/S Projects.

Project **Construction of New 110/13.8 kV Bab Jeddah Substation**

Contract No **11-WN-120**

Subject **Cable Coating Technical Document**

We comment here under on the following drawing / Document

Item #	Document/Drawing #	Rev.	Document Title	Status
1	WE-279662	0	Cable Coating Technical Document	A

• In case you have any query, please contact Engrs. Sheik Qaiser Abbas & William V. Najeal on Tel # 6529221 Ext # 35517 / 35507 respectively

LEGEND

A	✓	Approved
B		Approved Except As Noted
C		Approved Except As Noted- Revise & Re-Submit.
D		Rejected
E		For Information only

Engr. Asad Ur Rahman
Project Manager

SQA / WVN / KAS

Note 1: Approval does not relieve the contractor from his contractual responsibilities in performing the work in strict conformance with contract SOW/TS.Any Change in DTS/scope w.r.t previous submittal, if not clearly highlighted will not be accepted and will not be a part of approval

STAMPED: YES/NO

SAUDI TECHNOLOGISTS CONSULTING ENGINEERS
Khalid A. Mokhtar
License 486

التقنيون السعوديون للاستشارات الهندسية
المهندس / خالد اديب مكحل
ترخيص ٤٨٦

SATECH

نقل الكهرباء
National Grid SA

Our Ref : NG-SATECH /12WN185/SP-2/D-6185
Contractor Ref : NE/NG/12-WN-185/SP-2/DTS-194 REV-00

Dated: 09/10/2016G (08/01/1438H)
Receiving Date: 09.10-2016G (08-01-1438H)

Document Transmittal Sheet

To **National Grid SA**
Jeddah K.S.A.

Attention **Engr. Omer Fattah**
Divisional Manager West Substation Porjects

Project **New 110/13.8kv Sea Port -2 Substation**

Contract No **12-WN-185 (NESMA)**

Subject **Cable Coating Material.**

We comment here under on the following drawing /Document

Item #	Document/Drawing #	Rev.	Document Title	Status
1	----------	00	Cable Coating Material. M/s: VSE Pvt. Ltd.	A

In case you have any query, please contact Eng. Sheikh Qaisar Abbas on Tel # 6529221 and Section Head.
Aamir Arshed Tel # 6529221

LEGEND

A	✓	**Approved**
B		Approved Except As Noted
C		Approved Except As Noted- Revise & Re-Submit.
D		Rejected
E		For Information only

Engr. Asad Ur Rahman
Project Manager

SQA - AAJ

Note 1: Approval does not relieve the contractor from his contractual responsibilities in performing the work in strict conformance with contract SOW/TS.Any Change in DTS/scope w.r.t previous submittal, if not clearly highlighted will not be accepted and will not be a part of approval

'AMPED: YES/NO

To: Ibrahim S. Al-Harbi (ISW-Projects Group)
Cc: Bandar S. AlSulaimani; Bader S. AlGhamdi; Mohammad Y. Bantuas; Meteb Fadel. Alshehry; Fahad A. Al-Zhrani; Albaraa M. Sindi; Mohammad T. Hussain
Subject: DTS – 066 Rev.00 Fire Stop Material_AL-KHANDAQ SUBSTATION

Subject : **DTS – 066 Rev.00 Fire Stop Material**
Request for Review of Contractor's Submittal

Project : **AL-KHANDAQ SUBSTATION**

Contract No. :

Dear Engr. Mohammed Jommah Ali,

Reference to the above subject's document (1 folder + 1 CD) (received on 09/03/16 by SSEM).

SEC-ISD team studied and reviewed the documents with current Approval Status of "A" Accepted.

Please find attached Approval Sheet.

The materials proposed are FM approved with 3 to 4 hours fire rating so therefore approved but please be reminded that the application of the said materials shall also be done professionally.

Note:

Contractor are oblige to provide an optimum design as to satisfy the end user.

Approval of any documents and/or drawing do not in any way relieve or release contractor form his contractual obligation to comply with SOW & NFPA standards.

Eminard S. Cabral امينارد سانتيلانا كابر ال

Loss Prevention Engineer A مهندس منع الخسائر ا

Safety and Environmental Prevention Division, ISD
Industrial Security Sector , General Services - WOA - WOA

دائرة السلامة وحماية البيئة
قطاع الأمن الصناعي ، نشاط الخدمات العامة - القطاع الغربي - القطاع الغربي

☎: +9661 26537697 ✉: ESCabral@se.com.sa

: +966 532925684 : +9661 26537541

Industrial Security Dept. – WOA Safety & Environmental Prevention Division Projects Group	الشركة السعودية للكهرباء Saudi Electricity Company	إدارة الصناعي العام قسم السلامة والبيئة مجموعة المشاريع

Technical Submittal Status

To: SEC - Project Division-Madinah and North West
Attn: Engr. Mohammed Jomaah Ali

☑ Material/Equipment ☐ Drawing ☐ Design

Project Title:	AL-KHANDAQ (110/13.8kV) SUBSTATION, MADINAH
Description / Doc #:	Review / Approval for Contractor's Submittal Fire Stop Material
No. of Sheet	1 Folder + 1 CD
DTS NO.:	066
Revision NO.:	00
Contract No.:	

STATUS		
A	Approved	✓
B	Approved except as Noted	
C	Not Approved, Revise As per Comments & Resubmit	
D	Rejected	
AS	AS-Built	
FI	For Information	

Industrial Security Dep. Project Group	Name	Position	Date
	Eminard S. Cabral	ISD Project Engineer	

[illegible]
Rabia Road
Jeddah

الفنية السعودية للاستشارات الهندسية
جدة / طريق الربيع
ص.ب [illegible]

نقل الكهرباء
National Grid SA

Our Ref : NG/SATECH /4400006143/D-4135
Cont.Ref : MASS/NG SA/4400006143/Rawabi/DTS-061.R0

Dated: 18.07.2016G(13.10.1437H)
Receiving Date: 23.06.2016G(18.09.1437H)

Document Transmittal Sheet

To	National Grid SA Jeddah, K.S.A.
Attention	Engr. Fayez A. Al-Ansari Divisional Manager Lines & Telecom-Projects West Projects Dept.
Project	Interconnection of 110 kV/13.8 kv Rawabi With 110 kV Jeddah Network
Contract No	4400006143(MASS)
Subject	Fire Retardant Paint for Cables - (VSE PVT. LTD)

We comment here under on the following drawing / Document:

Item #	Document/Drawing #	Rev.	Document Title	Status
1	WE-409480	0	Fire Retardent Paint for Cables - (VSE PVT. LTD)	A

* In case you have any query, please contact Engr. William V. Najera/Sheik Omer Abbas on Tel # 6529221 Ext # 35507 / Extn. # 35517.

LEGEND

A	✓	Approved
B		Approved Except As Noted
C		Approved Except As Noted- Revise & Re-Submit.
D		Rejected
E		For Information only

SQA / WVN

Engr. Asad Ur Rahman
Project Manager

Note 1. Approval does not relieve the contractor from his contractual responsibilities in performing the work in strict conformance with contract SOW/TS.Any Change in DTS/scope w.r.t previous submittal, if not clearly highlighted will not be accepted and will not be a part of approval

STAMPED: YES/NO

نقل الكهرباء
National Grid SA

Our Ref : NG/SATECH /4400006143/D-4184
Cont.Ref : MASS/NG SA/4400006143/Rawabi/DTS-062.R0

Dated: 18.07.2016G(13.10.1437H)
Receiving Date: 23.06.2016G(18.09.1437H)

Document Transmittal Sheet

To	**National Grid SA** **Jeddah, K.S.A.**
Attention	**Engr. Fayez A. Al-Ansari** **Divisional Manager Lines & Telecom-Projects** **West Projects Dept.**
Project	**Interconnection of 110 kV/13.8 kv Rawabi With 110 kV Jeddah Network**
Contract No	**4400006143(MASS)**
Subject	**Fire Stop Mortar for Duct Sealing Ends -(VSE PVT. LTD)**

We comment here under on the following drawing / Document

Item #	Document/Drawing #	Rev.	Document Title	Status
1	WE-409479	0	Fire Stop Mortar for Duct Sealing Ends -(VSE PVT. LTD)	A

* In case you have any query, please contact Engrs.William V. Najeal/Sheik Qaiser Abbas on Tel # 6529221 Ext # 35507 / Extn. # 35517

LEGEND

A	✓	Approved
B		Approved Except As Noted
C		Approved Except As Noted- Revise & Re-Submit.
D		Rejected
E		For Information only

Engr. Asad Ur Rahman
Project Manager

SQA / WYN

Note 1; Approval does not relieve the contractor from his contractual responsibilities in performing the work in strict conformance with contract SOW/TS.Any Change in DTS/Scope w.r.t previous submittal, if not clearly highlighted will not be accepted and will not be a part of approval

STAMPED: YES/NO ✓

Our Ref : NG-SATECH-4400006142/HERRA-DTS-059 R00 Dated: 29/07/2016G (15/10/1437H)
Contractor Ref : MASS/NG/4400006142/HERRA-DTS-059 R00 Receiving Date: 23/06-2016G (18/09/1437H)

Document Transmittal Sheet

To: **National Grid SA**
Jeddah K.S.A.

Attention: **Engr.Fuyez A. Al-Ansari**
Divisional Manager Line & Telecom Projects

Project: **Interconnection of 110/13.8kV Herra with 110kV Jeddah Network**

Contract No: **4400006142 (MASS)**

Subject: **Fire Retardant Paint for Cables - (VSE PVT. LTD)**

We submit here under or the following drawing / Document

Item #	Document/Drawing #	Rev.	Document Title	Status
1	WE-469280	0	Fire Retardant Paint for Cables - (VSE PVT. LTD)	A

In case you have any query, please contact Eng. Sheikh Qaisar Abbas on Tel # 6529221 Ext- 35317 and Section Head.

LEGEND

A	✓	Approved
B		Approved Except As Noted
C		Approved Except As Noted- Revise & Re-Submit
D		Rejected
E		For Information only

SQA / AAD

Engr. Asad Ur Rahman
Project Manager

Note : Approval does not relieve the contractor from his contractual responsibilities in performing the work in strict conformance with Contract MASS/NG/4400006142/HERRA-DTS-059 R00 / products submitted. Non-clearly highlighted will not be accepted and will not be a part of approval.

TAMPED: YES/NO

National Grid SA

Our Ref :	NG-SATECH/4400006142/HERRA/DTS-6282
Contractor Ref :	MASS/NG/4400006142/HERRA/DTS-058 R00

Dated: 20/07/2016G (15/10/1437H)
Receiving Date: 23.06-2016G (18-09-1437H)

Document Transmittal Sheet

To	**National Grid SA** **Jeddah K.S.A.**
Attention	**Engr.Fayez A. Al-Ansari** **Divisional Manager Line & Telecom Projects**
Project	**Interconnection of 110/13.8kV Herra with 110kV Jeddah Network**
Contract No	**4400006142 (MASS)**
Subject	**Fire Stop Mortar for Duct Sealing Ends -(VSE PVT. LTD)**

We comment here under on the following drawing / Document

Item #	Document/Drawing #	Rev.	Document Title	Status
1	WE-409279	0	Fire Stop Mortar for Duct Sealing Ends -(VSE PVT. LTD)	A

In case you have any query, please contact Eng. Sheikh Qaisar Abbas on Tel # 6529221 Ext- 25517 and Section Head.
Samir Arshad Tel # 6529221

LEGEND

A	✓	Approved
B		Approved Except As Noted
C		Approved Except As Noted- Revise & Re-Submit
D		Rejected
E		For Information only

SQ

Engr. Asad Ur Rahman
Project Manager

Note 1: Approval does not relieve the contractor from his contractual responsibilities in performing the work in strict conformance with contract SOW/TS. Any Change in DT Scope w.r.t previous submittal, if not clearly highlighted will not be accepted and will not be a part of approval

STAMPED: YES/NO

WE - 4146'27

نقل الكهرباء
National Grid

Internal Correspondence | المراسلات الداخلية

ENGINEERING & DESIGN DEPARTMENT
ENGINEERING & DESIGN DIVISION WEST
Al-Andalus St., SATECH office, 6th Floor, Jeddah

Our Reference #: 30501201 / 1171 - J / 16

Dated : 29 / 12 / 2016 G
29 / 03 / 1438 H

To : Manager, HV Projects Department - WEST

Attention : Engr. Fayez A. Al-Ansari
Division Manager

Contract # : 4400006429

Project Title : Installatin of 110kv UG Cable Makkah Housing - 2

Subject : FIRE RETARDANT PAINT FOR CABLES

Contractor's Ref.#: DTS-30 R1

Dated : 27 / 12 / 2016 G

Date Received @ EDD: 27 / 12 / 2016 G

STAYUS OF THIS SUBMITTAL:

[X]	A Acceptable	[ ]	B Acceptable with Comments
[ ]	C Acceptable, Except as noted (Resubmit)	[ ]	D Rejected (Resubmit)
[ ]	E Clarification / For Information	[ ]	See Attached Comments (00 Page)

If you have any questions, please contact Engineer MOHAMMED ALI ALGHAMDI or Engineer MIAN MUHMMAD ISHAQ

Regards,

ASAD UR REHMAN
Projects Manager
Engineering & Design Division West

MMI

Cc:
OJAMI

OJAMI

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

WE - 419725

نقل الكهرباء
National Grid SA

Internal Correspondence | المراسلات الداخلية

ENGINEERING & DESIGN DEPARTMENT
ENGINEERING & DESIGN DIVISION WEST
Al-Andalus St., SATECH office, 6th Floor, Jeddah

Our Reference #: 30501201 / 0901 - J / 16

Dated : 22 / 12 / 2016 G
22 / 03 / 1438 H

To : Manager, HV Projects Department - WEST

Attention : Engr. Fayez A. Al-Ansari
Division Manager

Contract # : 4400006540

Project Title : Installation of 110KV UGC for MAKKAH HOUSING-3 SS - MAKKAH

Subject : FIRE RETARDANT PAINT FOR CBLES

Contractor's Ref.#: DTS-30 R1

Dated : 20 / 12 / 2016 G

Date Received @ EDD: 20 / 12 / 2016 G

WE - 419725

STATUS OF THIS SUBMITTAL:

[X]	A Acceptable	[ ]	B Acceptable with Comments
[ ]	C Acceptable, Except as noted (Resubmit)	[ ]	D Rejected (Resubmit)
[ ]	E Clarification / For Information	[ ]	See Attached Comments (00 Page)

If you have any questions, please contact Engineer MOHAMMED ALI ALGHAMDI or Engineer ABDUL MOEEZ KHAN

Regards,

ASAD UR REHMAN
Projects Manager
Engineering & Design Division West

AMK
Cc:
OJAMI

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

SAUDI TECHNOLOGISTS CONSULTING ENGINEERS
Khalid A. Mukahal
License 486

التقنيون السعوديون للاستشارات الهندسية
المهندس / خالد ادريس مكحل
ترخيص ٤٨٦

نقل الكهرباء
National Grid SA

Our Ref : NG-SATECH /4400006520/SARI/DTS-٠٤٢ R٠١ Dated: 22/01/2017G (24/04/1438H)
Contractor Ref : AG/NGSA/4400006520/SARI/DTS-042 R01 Receiving Date: 12.01-2017G (14-04-1438H)

Document Transmittal Sheet

To **National Grid SA**
Jeddah K.S.A.

Attention **Engr.Fayez A. Al-Ansari**
Divisional Manager Line & Telecom Projects

Project **Installation of 110 kv U/G cables for 110kV SARI S/S Jeddah**

Contract No **4400006520 (AG)**

Subject **Fire Retardant Paint For Indoor HV Cables.**

Regional Office - JEDDAH
Al Gihaz
24 JAN 2017
RECEIVED
Ref:

We comment here under on the following drawing / Document

Item #	Document/Drawing #	Rev.	Document Title	Status
1	WE-436611	01	Fire Retardant Paint For Indoor HV Cables. M/s VSE Pvt Ltd	A

In case you have any query, please contact Eng. Sheikh Qaisar Abbas on Tel # 6529221 Ext-35517 and Section Head. Aamir Arshed Tel # 6529221

Note: *Type/FAT Tests & test reports on offered material shall be approved from relevant department of NG SA, prior to shipement.

LEGEND

A	✓	Approved
B		Approved Except As Noted
C		Approved Except As Noted- Revise & Re-Submit.
D		Rejected
E		For Information only

Engr. Asad Ur Rahman
Project Manager

SQA / AAJ

Note 1: Approval does not relieve the contractor from his contractual responsibilities in performing the work in strict conformance with contract SOW/TS.Any Change in DTS/scope w.r.t previous submittal, if not clearly highlighted will not be accepted and will not be a part of approval

STAMPED: YES/NO

SAUDI TECHNOLOGISTS CONSULTING ENGINEERS
Khalid A. Mufarhal
License 486

الفنيون السعوديون للاستشارات الهندسية
المهندس / خالد اديب مفرحل
ترخيص ٤٨٦

SATECH

نقل الكهرباء
National Grid SA

Our Ref : NG-SATECH /14WC1063/Al-RAIDAH/DTS-0594 Dated: 23/01/2017G (25/04/1438H)
Contractor Ref : AG/NGSA/14WC1063/Al-RAIDAH/DTS-024 R01 Receiving Date: 12.01-2017G (14-04-1438H)

Document Transmittal Sheet

To **National Grid SA**
Jeddah K.S.A.

Attention **Engr.Fayez A. Al-Ansari**
Divisional Manager Line & Telecom Projects

Project **Installation of 110 kv U/G cables for 110kV AL-Raidah S/S Jeddah**

Contract No **14WC1063 (AG)**

Subject **Fire Retardant Paint For Indoor HV Cables.**

Regional Office - JEDDAH
Al Gihaz
24 JAN 2017
RECEIVED

We comment here under on the following drawing / Document

Item #	Document/Drawing #	Rev.	Document Title	Status
1	WE-455392	01	Fire Retardant Paint For Indoor HV Cables.(M/S: VSE)	A

In case you have any query, please contact Eng. Sheikh Qaisar Abbas on Tel # 6529221 Ext-35517 and Section Head. Aamir Arshed Tel # 6529221

** Type/FAT Tests & test reports on offered material shall be approved from relevant department of NG SA, prior to shipement.*

LEGEND

A	✓	Approved
B		Approved Except As Noted
C		Approved Except As Noted- Revise & Re-Submit.
D		Rejected
E		For Information only

Engr. Asad Ur Rahman
Project Manager

SQA / AAJ

Note 1: Approval does not relieve the contractor from his contractual responsibilities in performing the work in strict conformance with contract SOW/TS.Any Change in DTS/scope w.r.t previous submittal, if not clearly highlighted will not be accepted and will not be a part of approval

TAMPED: YES/NO

WE- 475700

نقل الكهرباء
National Grid SA

Internal Correspondence | المراسلات الداخلية

ENGINEERING & DESIGN DEPARTMENT
ENGINEERING & DESIGN DIVISION WEST
Al-Andalus St., SATICH office, 6th Floor, Jeddah

Our Reference #: 30501201 / 2083 - J / 17

Dated : 09 / 02 / 2017 G
12 / 05 / 1438 H

To : Manager, HV Projects Department - WEST

Attention : Engr. Fayez A. Al-Ansari
Division Manager

Contract # : 4400007899

Project Title : INSTALLATION OF 10KV UG CABLES FOR 110 13..8KV QUWAIZAH EAST SUBSTATION - JEDDAH

Subject : FIRE RETARDANT PAINT FOR CABLES

Contractor's Ref.#: DTS-29 R0

Dated : 15 / 01 / 2017 G

Date Received @ EDD: 15 / 01 / 2017 G

STATUS OF THIS SUBMITTAL:

[X]	A Acceptable	[ ]	B Acceptable with Comments
[ ]	C Acceptable, Except as noted (Resubmit)	[ ]	D Rejected (Resubmit)
[ ]	E Clarification / For Information	[ ]	See Attached Comments (00 Page)

If you have any questions, please contact Engineer MOHAMMED ALI ALGHAMDI or Engineer SHEIKH QAISER ABBAS

Regards,

ASAD UR REHMAN
Projects Manager
Engineering & Design Division West

SQA

Cc:
OJAMI

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

نقل الكهرباء
National Grid SA

Internal Correspondence | المراسلات الداخلية

ENGINEERING & DESIGN DEPARTMENT
ENGINEERING & DESIGN DIVISION WEST
Al-Andalus St., SATICH office, 6th Floor, Jeddah

Our Reference #: 30501201 / 3175 - J / 17

Dated : 07 / 03 / 2017 G
08 / 06 / 1438 H

To : Manager, HV Projects Department - WEST

Attention : Engr. Tareq S. Mirza
Division Manager

Contract # : 4400005369

Project Title : Construction of new 110-13.8kv Al-ADEL S-S AT MAKKAH

Subject : PRE RATED MATERIAL FOR ALADEL S/S MAKKAH

Contractor's Ref.#: DTS-188 R1

Dated : 21 / 02 / 2017 G

Date Received @ EDD: 21 / 02 / 2017 G

STATUS OF THIS SUBMITTAL:

[ ]	A Acceptable	[X]	B Acceptable with Comments
[ ]	C Acceptable, Except as noted (Resubmit)	[ ]	D Rejected (Resubmit)
[ ]	E Clarification / For Information	[X]	See Attached Comments (01 Page)

Regards,

MOHAMMED ALI ALGHAMDI
Substation & Transmission Line Section Head
Engineering & Design Division West

SJA

Cc:
Al Mashariq

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

INSPECTION REQUEST (General) RMI

PROJECT TITLE : Construction Of New 110/13.8kv Al - Adel S/S at Makkah

CONTRACT NUMBER : 4400005369 J. O. NO. 1332023.01 RMI NO :

CONTRACTOR NAME : AL MASHARIQ CO For Trading & Contracting

CIVIL SUBCONTRACTOR M/S EFCO

APPROVED LABORATOR :

TO BE FILLED-IN BY THE CONTRACTOR

Send this Inspection Request 24 hours in advance of the required Inspection Time

INSPECTION CATEGORY

☒ Civil ☐ Electrical ☐ ISD/FF&LPD ☐ Others

☒ Mechanical ☐ Communication ☐ TE&SD/TE&SAD-EOA

1. Item for Inspection : Material inspection for fire rated material(Ace Mastik sealant/Fibre board/Ace mortor Seal/Ace mastik coating.
2. Relevant Specification and Drawing : DTS-188 fire rated material technical submittal(Manufacturer:VSE)
3. Location : Al-Adel substation
4. Time, Day & Date : 10:00 am Saturday 06/05/2017

Abdulqader		5-May-2017	503901542
Contractor's QA/QC Engineer Name	Signature	Date	Telephone & Fax

Inspection will be Conducted when this Inspection Request is Signed by the Company Engineer

Mr.Taimoor		5-May-17	532324056	
Project Engineer PD/SFPD	Signature	Date	Mobile Phone	Office Fax

TO BE FILLED-IN BY THE COMPANY : PD/SFPD, ISD/FF&LPD, TE&SD/TE&SAD-EOA OR OTHERS

Inspection Date & Time - Actual : * As per approved Submittal (B Status)

Inspection Comments : & painted sample, VSE is FM approved & 4 hours fire Ratings is acceptable. However, final approval will be given on approved method Statement.

* Submit Method of Statement to Civil Consultant.

Inspection Result :

☐ ACCEPTABLE, PROCEED FOR SUBSEQUENT ACTIVITY

☑ COMPLY WITH THE ABOVE COMMENTS AND PROCEED FOR SUBSEQUENT ACTIVITY

☐ NOT ACCEPTABLE / NOT READY FOR INSPECTION - SUBMIT RE-INSPECTION REQUEST

INSPECTED BY NG-S.J. ENGINEER	RECEIVED BY CONTRACTOR ENGINEER
Signature :	Signature :
Name : Taimoor Arjab	Name : ABDUL QADER
Title : Mech. Consultant	Title : MECH. SUPP. (SITE)

INSPECTION REQUEST (General) MIR

PROJECT TITLE : Construction Of New 110/13.8kv Al - Adel S/S at Makkah

CONTRACT NUMBER : 4400005369 J. O. NO. 1332023.01 RMI NO

CONTRACTOR NAME : AL MASHARIQ CO For Trading & Contracting

CIVIL SUBCONTRACTOR M/s Energy Field For Contracting

APPROVED LABORATOR' : Soil & Foundation Co.

TO BE FILLED-IN BY THE CONTRACTOR

Send this Inspection Request 24 hours in advance of the required Inspection Time

INSPECTION CATEGORY

- [x] Civil
- [ ] Electrical
- [ ] ISD/FF&LPD
- [ ] Others
- [x] Mechanical
- [ ] Communication
- [ ] TE&SD/TE&SAD-EOA

1. Item for Inspection : Fire rated material (Ace Mastic sealant/fibre board/Ace mortar seal/Ace mastic coating
2. Relevant Specification and Drawings : DTS-188 fire rated material technical submittal (Manufacturer: VSE)
3. Location : Main Building
4. Time, Day & Date : 10:00 am Sunday 14-05-2017

Samsul Alam		14-05-2017	0500607349
Contractor's QA/QC Engineer Name	Signature	Date	Telephone & Fax

Inspection will be Conducted when this Inspection Request is Signed by the Company Engineer

Project Engineer PD/SFPD	Signature	Date	Mobile Phone	Office Fax

TO BE FILLED-IN BY THE COMPANY : PD/SFPD, ISD/FF&LPD, TE&SD/TE&SAD-EOA OR OTHERS

Inspection Date & Time - Actual : MAY 14, 2017 (10:20 AM)

Inspection Comments :

CHECKED AT SITE (ACE MASTIC SEALANT FIBER BOARD ACE MORTAR SEAL WERE DONE AND FOUND AS PER ATTACHED COMMENTS AND REPORTS.

* ACCEPTABLE AND PER CONTRACTOR ATTACHED, THE METHOD OF STATEMENTS'.

Inspection Result :

- [x] ACCEPTABLE, PROCEED FOR SUBSEQUENT ACTIVITY
- [ ] COMPLY WITH THE ABOVE COMMENTS AND PROCEED FOR SUBSEQUENT ACTIVITY
- [ ] NOT ACCEPTABLE / NOT READY FOR INSPECTION - SUBMIT RE-INSPECTION REQUEST

INSPECTED BY NG-SA ENGINEER	RECEIVED BY CONTRACTOR ENGINEER
Signature :	Signature :
Name : ABUSIDICK R. AMER	Name : Samsul Alam

نقل الكهرباء
National Grid

Internal Correspondence | المراسلات الداخلية

ENGINEERING & DESIGN DEPARTMENT

ENGINEERING & DESIGN DIVISION WEST

Al-Andalus St., SATICH office, 6th Floor, Jeddah

Regional Office - WESTERN
Al Qunfudah
29 JUN 2017
RECEIVED

Our Reference #: 30501201 / 6668 - J / 17

Dated : 15 / 06 / 2017 G
20 / 09 / 1438 H

To : Manager, HV Projects Department - WEST

Attention : Engr. Abdullah Al-Malki
Division Manager

Contract # : 4400007874

Project Title : Construction of Al-Khandama 11013.8 KV Substation

Subject : FIRE STOP MATERIAL TECHNICAL SUBMITTAL

Contractor's Ref.#: DTS-41 R0

Dated : 18 / 05 / 2017 G

Date Received @ EDD: 18 / 05 / 2017 G

STATUS OF THIS SUBMITTAL:

[X]	A Acceptable	[ ]	B Acceptable with Comments
[ ]	C Acceptable, Except as noted (Resubmit)	[ ]	D Rejected (Resubmit)
[ ]	E Clarification / For Information	[X]	See Attached Comments (01 Page)

Regards,

MOHAMMED ALI ALGHAMDI
Substation & Transmission Line Section Head
Engineering & Design Division West

MZS

Cc:
AL GIHAZ

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

Internal Correspondence | المراسلات الداخلية

ENGINEERING & DESIGN DEPARTMENT

ENGINEERING & DESIGN DIVISION WEST

Al-Andalus St., SATICH office, 6th Floor, Jeddah

Our Reference #: 30501201 / 7746 - J / 17

Dated : 30 / 07 / 2017 G
06 / 11 / 1438 H

To : Manager, HV Projects Department - WEST

Attention : Engr. Omar A Fattah
Division Manager
Tel.#: 37340

Contract # : 4400006473

Project Title : New 110/13.8KV SARI S/S

Subject : TECHNICAL SUBMITTAL FOR CABLE COATING

Contractor's Ref.#: DTS-152 R0

Dated : 10 / 07 / 2017 G

Date Received @ EDD: 10 / 07 / 2017 G

STATUS OF THIS SUBMITTAL:

[X]	A Acceptable	[ ]	B Acceptable with Comments
[ ]	C Acceptable, Except as noted (Resubmit)	[ ]	D Rejected (Resubmit)
[ ]	E Clarification / For Information	[ ]	See Attached Comments (00 Page)

Regards,

SQA

Cc: Engr. P.K. Sharma
AL-GIHAZ

MOHAMMED ALI ALGHAMDI
Subsiation & Transmission Line Section Head
Engineering & Design Division West

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of

نقل الكهرباء
National Grid SA

Internal Correspondence | المراسلات الداخلية

ENGINEERING & DESIGN DEPARTMENT

ENGINEERING & DESIGN DIVISION WEST

Al-Andalus St., SATICH office, 6th Floor, Jeddah

Our Reference #: 30501201 / 7862 - J / 17

Dated : 02 / 08 / 2017 G
09 / 11 / 1438 H

To : Manager, HV Projects Department - WEST

Attention : Engr. Abdullah Al-Malki
Division Manager

Contract # : 4400005369

Project Title : Construction of new 110-13.8kv Al-ADEL S-S AT MAKKAH

Subject : PRE RATED MATERIAL FOR ALADEL S/S MAKKAH

Contractor's Ref.#: DTS-188 R2

Dated : 30 / 07 / 2017 G

Date Received @ EDD: 30 / 07 / 2017 G

STATUS OF THIS SUBMITTAL:

- [X] A Acceptable
- [ ] B Acceptable with Comments
- [ ] C Acceptable, Except as noted (Resubmit)
- [ ] D Rejected (Resubmit)
- [ ] E Clarification / For Information
- [ ] See Attached Comments (00 Page)

Regards,

MOHAMMED ALI ALGHAMDI
Substation & Transmission Line Section Head
Engineering & Design Division West

SJA

Cc:
Al Mashariq

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

نقل الكهرباء
National Grid SA

Internal Correspondence | المراسلات الداخلية

ENGINEERING & DESIGN DEPARTMENT
ENGINEERING & DESIGN DIVISION WEST
Al-Andalus St., SATICH office, 6th Floor, Jeddah

Our Reference #: 30501201 / 12591 - J / 18

Dated : 21 / 01 / 2018 G
04 / 05 / 1439 H

To : Manager, HV Projects Department - WEST

Attention : Engr. Nabeel G Khushaim
Division Manager
Tel.#: 0148619120,121

Contract # : 4400005640

Project Title : New 110/13.8KV Airport-II S/S, Madina

Subject : FIRE RATED MATERIALS

Contractor's Ref.#: EICO/NG/4400005640/ NEWAIRPORT-IIDTS-169 R0

Dated : 27 / 12 / 2017 G

Date Received @ EDD: 27 / 12 / 2017 G

STATUS OF THIS SUBMITTAL:

[X]	A Acceptable	[ ]	B Acceptable with Comments
[ ]	C Acceptable, Except as noted (Resubmit)	[ ]	D Rejected (Resubmit)
[ ]	E Clarification / For Information	[ ]	See Attached Comments (00 Page)

Regards,

MOHAMMED ALI ALGHAMDI
Substation & Transmission Line Section Head
Engineering & Design Division West

WVN
Cc: XIIE J I NSONG
EICO

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

نقل الكهرباء

Internal Correspondence | المراسلات الداخلية

ENGINEERING & DESIGN DEPARTMENT

ENGINEERING & DESIGN DIVISION WEST

Al-Andalus St , SATICH office, 6th Floor, Jeddah

Regional Office - JEDDAH
Al Gihaz
RECEIVED
12:25

Our Reference #: 30501201 / 12896 - J / 18

Dated : 01 / 02 / 2018 G
15 / 05 / 1439 H

To : Manager, HV Projects Department - WEST

Attention : Engr. Omar A Fattah
Div Manager

Contract # : 4400003547

Project Title : 110/13.8KV AL-AZIZIA - 4 MAKKAH S/S

Subject : FIRE RETRANDANT CABLE PAINT

Contractor's Ref.#: ALGIHAZDTS-163 R1

Dated : 15 / 01 / 2018 G

Date Received @ EDD: 15 / 01 / 2018 G

STATUS OF THIS SUBMITTAL:

[X]	A Acceptable	[ ]	B Acceptable with Comments
[ ]	C Acceptable, Except as noted (Resubmit)	[ ]	D Rejected (Resubmit)
[ ]	E Clarification / For Information	[X]	See Attached Comments (01 Page)

Regards,

SJA

Cc: Engr. Muhammad Faraz Kaleem
AL-GIHAZ

MOHAMMED ALI ALGHAMDI
Substation & Transmission Line Section Head
Engineering & Design Division West

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

نقل الكهرباء
National Grid SA

Internal Correspondence | المراسلات الداخلية

ENGINEERING & DESIGN DEPARTMENT
ENGINEERING & DESIGN DIVISION WEST
Al-Andalus St., SATICH office, 6th Floor, Jeddah

Our Reference #: 30501201 / 13902 - J / 18

Dated : 15 / 03 / 2018 G
27 / 06 / 1439 H

To : Manager, HV Projects Department - WEST

Attention : Engr. Abdullah Al-Malki
Division Manager

Contract # : 4400007353

Project Title : New 110/13.8KV Al Ferdous S/S,Jeddah

Subject : TECHNICAL SUBMITTAL - FIRE RATED MATERIALS

Contractor's Ref.#: N.GRID/ALMASHARIQ / 4400007353/ AL-Ferdous DTS-205 R1

Dated : 05 / 03 / 2018 G

Date Received @ EDD: 05 / 03 / 2018 G

STATUS OF THIS SUBMITTAL:

[X]	A Acceptable	[ ]	B Acceptable with Comments
[ ]	C Acceptable, Except as noted (Resubmit)	[ ]	D Rejected (Resubmit)
[ ]	E Clarification / For Information	[X]	See Attached Comments (01 Page)

Regards,

SJA

Cc: Engr. Muhammad Shakil
Al Mashariq

MOHAMMED ALI ALGHAMDI
Substation & Transmission Line Section Head
Engineering & Design Division West

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

نقل الكهرباء
National Grid SA

Internal Correspondence | المراسلات الداخلية

ENGINEERING & DESIGN DEPARTMENT
ENGINEERING & DESIGN DIVISION WEST
Al-Andalus St., SATICH office, 6th Floor, Jeddah

Our Reference #: 30501201 / 13998 - J / 18

Dated : 19 / 03 / 2018 G
02 / 07 / 1439 H

To : Manager, HV Projects Department - WEST

Attention : ENGR. FAYEZ AL-ANSARI
DIV. MANAGER

Contract # : 4400007623

Project Title : REPLACEMENT OF 110KV LPOF CABLES CIRCUITS IN WOA

Subject : TECHNICAL DATA FOR FIRE STOP MATERIAL

Contractor's Ref.#: DTS-45 R0

Dated : 11 / 03 / 2018 G

Date Received @ EDD: 11 / 03 / 2018 G

STATUS OF THIS SUBMITTAL:

[X]	A Acceptable	[ ]	B Acceptable with Comments
[ ]	C Acceptable, Except as noted (Resubmit)	[ ]	D Rejected (Resubmit)
[ ]	E Clarification / For Information	[ ]	See Attached Comments (00 Page)

Regards,

MOHAMMED ALI ALGHAMDI
Substation & Transmission Line Section Head
Engineering & Design Division West

WVN

Cc: ENGR. ABDUL RAHMAN AWEE
HAIF COMPANY

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

نقل الكهرباء
National Grid SA

Internal Correspondence | المراسلات الداخلية

ENGINEERING & DESIGN DEPARTMENT
ENGINEERING & DESIGN DIVISION WEST
Al-Andalus St., SATICH office, 6th Floor, Jeddah

Our Reference #: 30501201 / 14208 - J / 18

Dated : 28 / 03 / 2018 G
11 / 07 / 1439 H

To : Manager, HV Projects Department - WEST

Attention : ENGR. FAYEZ AL-ANSARI
DIV. MANAGER

Contract # : 4400007623

Project Title : REPLACEMENT OF 110KV LPOF CABLES CIRCUITS IN WOA

Subject : TECHNICAL DATA FOR FIRE PROOFING PAINT FOR CABLE COATING INSIDE BASEMENT OF SUBSTATION

Contractor's Ref.#: DTS-28 R4

Dated : 27 / 03 / 2018 G

Date Received @ EDD: 27 / 03 / 2018 G

STATUS OF THIS SUBMITTAL :

[X]	A Acceptable	[ ]	B Acceptable with Comments
[ ]	C Acceptable, Except as noted (Resubmit)	[ ]	D Rejected (Resubmit)
[ ]	E Clarification / For information	[X]	See Attached Comments (04 Pages)

Regards,

MOHAMMED ALI ALGHAMDI
Substation & Transmission Line Section Head
Engineering & Design Division West

SJA

Cc: ENGR. ABDUL RAHMAN AWEE
HAIF COMPANY

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

نقل الكهرباء
National Grid SA

Internal Correspondence | المراسلات الداخلية

ENGINEERING & DESIGN DEPARTMENT
ENGINEERING & DESIGN DIVISION WEST
Al-Andalus St., SATICH office, 6th Floor, Jeddah

Our Reference #: 30501201 / 13997 - J / 18

Dated : 19 / 03 / 2018 G
02 / 07 / 1439 H

To : Manager, HV Projects Department - WEST

Attention : ENGR. FAYEZ AL-ANSARI
DIV MANAGER

Contract # : 4400007622

Project Title : REPLACEMENT OF 110KV/132KV LPOF CABLES CIRCUITS IN WOA

Subject : TECHNICAL DATA FOR FIRE PROOFING PAINT FOR CABLE COATING INSIDE BASEMENT OF SUBSTZTION

Contractor's Ref.#: DTS-24 R2

Dated : 11 / 03 / 2018 G

Date Received @ EDD: 11 / 03 / 2018 G

STATUS OF THIS SUBMITTAL:

[X]	A Acceptable	[ ]	B Acceptable with Comments
[ ]	C Acceptable, Except as noted (Resubmit)	[ ]	D Rejected (Resubmit)
[ ]	E Clarification / For Information	[ ]	See Attached Comments (00 Page)

Regards,

MOHAMMED ALI ALGHAMDI
Substation & Transmission Line Section Head
Engineering & Design Division West

WVN

Cc: ENGR. ABDUL RAHMAN AWEE
HAIF COMPANY

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

نقل الكهرباء
National Grid SA

Internal Correspondence | المراسلات الداخلية

ENGINEERING & DESIGN DEPARTMENT
ENGINEERING & DESIGN DIVISION WEST
Al-Andalus St., SATICH office, 6th Floor, Jeddah

Our Reference #: 30501201 / 15544 - J / 18

Dated : 07 / 06 / 2018 G
23 / 09 / 1439 H

To : Manager, HV Projects Department - WEST

Attention : ENGR. FAYEZ AL-ANSARI
DIV MANAGER

Contract # : 4400007622

Project Title : REPLACEMENT OF 110KV/132KV LPOF CABLES CIRCUITS IN WOA

Subject : TECHNICAL DATA FOR FIRE STOP MATERIAL

Contractor's Ref.#: DTS-48 R2

Dated : 28 / 05 / 2018 G

Date Received @ EDD: 28 / 05 / 2018 G

STATUS OF THIS SUBMITTAL:

[X]	A Acceptable	[ ]	B Acceptable with Comments
[ ]	C Acceptable, Except as noted (Resubmit)	[ ]	D Rejected (Resubmit)
[ ]	E Clarification / For Information	[X]	See Attached Comments (02 Pages)

Regards,

SJA

Cc: ENGR. ABDUL RAHMAN AWEE
HAIF COMPANY

MOHAMMED ALI ALGHAMDI
Substation & Transmission Line Section Head
Engineering & Design Division West

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

نقل الكهرباء
National Grid SA

Internal Correspondence | المراسلات الداخلية

ENGINEERING & DESIGN DEPARTMENT

ENGINEERING & DESIGN DIVISION WEST

Al-Andalus St., SATICH office, 6th Floor, Jeddah

Our Reference #: 30501201 / 15316 - J / 18

Dated : 23 / 05 / 2018 G
08 / 09 / 1439 H

To : Manager, HV Projects Department - WEST

Attention : Engr. Omar A Fattah
Division Manager
Tel.#: 37340

24 MAY 2018
2:35

Contract # : 4400007875

Project Title : CONSTRUCTION OF ALWESAM 11013.8KV SUBSTATION

Subject : FIRE RETARDANT PAINT SUBMITTAL

Contractor's Ref.#: AG/NG/4400007875/AL-WESAMDTS-133 R0

Dated : 02 / 05 / 2018 G

Date Received @ EDD: 02 / 05 / 2018 G

STATUS OF THIS SUBMITTAL:

[X]	A Acceptable	[ ]	B Acceptable with Comments
[ ]	C Acceptable, Except as noted (Resubmit)	[ ]	D Rejected (Resubmit)
[ ]	E Clarification / For Information	[ ]	See Attached Comments (00 Page)

Regards,

MOHAMMED ALI ALGHAMDI
Substation & Transmission Line Section Head
Engineering & Design Division West

WVN

Cc: Engr. Adeel Siddiqui
AL GIHAZ

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

نقل الكهرباء
National Grid SA

Internal Correspondence | المراسلات الداخلية

ENGINEERING & DESIGN DEPARTMENT

ENGINEERING & DESIGN DIVISION WEST

Al-Andalus St., SATICH office, 6th Floor, Jeddah

Our Reference #: 30501201 / 16155 - J / 18

Dated : 01 / 08 / 2018 G
19 / 11 / 1439 H

To : Manager, HV Projects Department - WEST

Attention : Engr. Omar A Fattah
Division Manager
Tel.#: 37340

Contract # : 4400007876

Project Title : CONSTRUCTION OF AL-SAIL ROAD MAKKAH

Subject : FIRE STOP MATERIAL

Contractor's Ref.#: AG/NG/4400007876/AL-SAIL ROADDTS-62 R2

Dated : 31 / 07 / 2018 G

Date Received @ EDD: 31 / 07 / 2018 G

STATUS OF THIS SUBMITTAL:

[X]	A Acceptable	[ ]	B Acceptable with Comments
[ ]	C Acceptable, Except as noted (Resubmit)	[ ]	D Rejected (Resubmit)
[ ]	E Clarification / For Information	[X]	See Attached Comments (01 Page)

Regards,

MOHAMMED ALI ALGHAMDI
Substation & Transmission Line Section Head
Engineering & Design Division West

WVN

Cc: Engr. Zaki Ahmed Shazli
AL GIHAZ

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

نقل الكهرباء National Grid SA	110/13.8 KV AL-NASEEM S/s	Al-Gihaz

REQUEST FOR MATERIAL INSPECTION/APPROVAL (RMI)

PROJECT TITLE: Construction ofAL-NASEEM S/s110/13.8 KV Substation

CONTRACT NO: 4400005588 RMI No: E-28

NAME OF CONTRACTOR : AL - GIHAZ CONTRACTING CO LTD

INSPECTION CATEGORY & APPLICATION (Check Appropriate Box)

CIVIL ☐ ELECTRICAL ☑ MECHANICAL ☐

Specifiation No. Ref [ ] DTS No. Ref DTS-

Type of material :- Fire Retardent Paint Vendor Name : VSE (Vijay System Engineers PVT LTD)

Date of inspection 16.07.2018 Time of inspection : 10.00 AM

Dlivered for : Fire Retardent Paint

S.N.	Delivery Note	DESCRIPTION	QUANTITY	REMARKS
1		Fire Retardent Paint	LOT	

INSPECTION RESULT

Inspection Location : Project WORKSITE

Match specificeation	☑ YES	☐ NO
Visible damage:	☐ YES	☑ NO
Store conditions:	☑ YES	☐ NO
Acceptable at site:	☑ YES	☐ NO

SEC-WRB COMMENTS:

AL-GIHAZ CO.

Name Engr.Anzar Ahmed

DESIGNATION : Site Manager

signature Anzar Ahmed

Date 16/07/2018

Name Engr.SIRAJ A RASOOL

DESIGNATION : QA/QC Engineer

signature:

Date 16/07/2018

Inspected by

NG GRID SA

Name	Engr.Mustafa Haiba
DESIGNATION	NG Consultant
signature	
Date	

نقل الكهرباء
National Grid SA

Internal Correspondence | المراسلات الداخلية

ENGINEERING & DESIGN DEPARTMENT

ENGINEERING & DESIGN DIVISION WEST

Al-Andalus St., SATICH office, 6th Floor. Jeddah

Regional Office - JEDDAH
Al Gihaz
26 AUG 2018
RECEIVED
11:20

Our Reference #: 30501201 / 16414 - J / 18

Dated : 16 / 08 / 2018 G
04 / 12 / 1439 H

To : Manager, HV Projects Department - WEST

Attention : Engr. Abdullah Al-Malki
Division Manager

Contract # : 4400007877

Project Title : Construction of Al-Osailah 11-013 8KV Substation

Subject : TECHNICAL SUBMITTAL OF FIRE STOP AND SOME STOP PRODUCTS

Contractor's Ref.#: AG/NG/4400007877/AL-OSAILAH/DTS-155 R2

Dated : 13 / 08 / 2018 G

Date Received @ EDD: 13 / 08 / 2018 G

STATUS OF THIS SUBMITTAL:

[X]	A Acceptable	[ ]	B Acceptable with Comments
[ ]	C Acceptable, Except as noted (Resubmit)	[ ]	D Rejected (Resubmit)
[ ]	E Clarification / For Information	[X]	See Attached Comments (03 Pages)

Regards,

WVN

Cc: Engr. Ali H. Alaamri
AL GIHAZ

MOHAMMED ALI ALGHAMDI
Substation & Transmission Line Section Head
Engineering & Design Division West

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

نقل الكهرباء
National Grid SA

Internal Correspondence | المراسلات الداخلية

ENGINEERING & DESIGN DEPARTMENT

ENGINEERING & DESIGN DIVISION WEST

Al-Andalus St., SATICH office, 6th Floor, Jeddah

Our Reference #: 30501201 / 16576 - J / 18

Dated : 06 / 09 / 2018 G
25 / 12 / 1439 H

To : Manager, HV Projects Department - WEST

Attention : Eng. Abdullah Al-Malki
Division manager

Contract # : 440008030

Project Title : CONSTRUCTION OF QUWAIZA SUBSTATION

Subject : TECHNICAL SUBMITTAL FOR FIRE STOP MATERIALS (BRAND VSE)

Contractor's Ref.#: NE/N. GRIDI44000080301Quwaiza East/DTS-128 R1

Dated : 03 / 09 / 2018 G

Date Received @ EDD: 03 / 09 / 2018 G

STATUS OF THIS SUBMITTAL:

[X]	A Acceptable	[ ]	B Acceptable with Comments
[ ]	C Acceptable, Except as noted (Resubmit)	[ ]	D Rejected (Resubmit)
[ ]	E Clarification / For Information	[X]	See Attached Comments (03 Pages)

Regards,

MOHAMMED ALI ALGHAMDI
Substation & Transmission Line Section Head
Engineering & Design Division West

WVN

Cc: Eng. Belal Awad
NESMA

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

نقل الكهرباء
National Grid SA

Internal Correspondence | المراسلات الداخلية

ENGINEERING & DESIGN DEPARTMENT

ENGINEERING & DESIGN DIVISION WEST

Al-Andalus St., SATICH office, 6th Floor, Jeddah

Regional Office - JEDDAH
Al Gihaz
16 SEP 2018
RECEIVED
Ref
12:36

Our Reference #: 30501201 / 16638 - J / 18

Dated : 12 / 09 / 2018 G
01 / 01 / 1440 H

To : Manager, HV Projects Department - WEST

Attention : Engr. Abdullah Al-Malki
Division Manager

Contract # : 4400007874

Project Title : Construction of Al-Khandama 11013.8 KV Substation

Subject : TECHNICAL SUBMITTAL FOR FIRE STOP AND SMOKE STOP MATERIAL

Contractor's Ref.#: AG/NG/4400007874/AL-KHANDAMADTS-123 R1

Dated : 26 / 08 / 2018 G

Date Received @ EDD: 28 / 08 / 2018 G

STATUS OF THIS SUBMITTAL :

- [X] A Acceptable
- [ ] B Acceptable with Comments
- [ ] C Acceptable, Except as noted (Resubmit)
- [ ] D Rejected (Resubmit)
- [ ] E Clarification / For Information
- [ ] See Attached Comments (00 Page)

Regards,

SJA

Cc: Engr. Atef Saud Al-Harbi
AL GIHAZ

MOHAMMED ALI ALGHAMDI
Substation & Transmission Line Section Head
Engineering & Design Division West

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

نقل الكهرباء
National Grid SA

Internal Correspondence | المراسلات الداخلية

ENGINEERING & DESIGN DEPARTMENT
ENGINEERING & DESIGN DIVISION WEST
Al-Andalus St., SATICH office, 6th Floor, Jeddah

Our Reference #: 30501201 / 16869 - J / 18

Dated : 03 / 10 / 2018 G
22 / 01 / 1440 H

To : Manager, HV Projects Department - WEST

Attention : Eng. Abdullah Al-Malki
Division Manager

Contract # : 4400007988

Project Title : CONSTRUCTION OF AL-SHALAL S/S

Subject : TECHNICAL SUBMITTAL FOR FIRE STOP MATERIALS (BRAND VSE)

Contractor's Ref.#: N E/N. GRI D/4400007988/ AlshalalDTS-163 R1

Dated : 27 / 09 / 2018 G

Date Received @ EDD: 27 / 09 / 2018 G

STATUS OF THIS SUBMITTAL:

[X]	A Acceptable	[ ]	B Acceptable with Comments
[ ]	C Acceptable, Except as noted (Resubmit)	[ ]	D Rejected (Resubmit)
[ ]	E Clarification / For Information	[X]	See Attached Comments (03 Pages)

Regards,

MOHAMMED ALI ALGHAMDI
Substation & Transmission Line Section Head
Engineering & Design Division West

WVN
Cc: Eng. Abdullah Harbi
NESMA

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

نقل الكهرباء
National Grid SA

Internal Correspondence | المراسلات الداخلية

ENGINEERING & DESIGN DEPARTMENT
ENGINEERING & DESIGN DIVISION WEST
Al-Andalus St., SATICH office, 6th Floor, Jeddah

Our Reference #: 30501201 / 16861 - J / 18

Dated : 03 / 10 / 2018 G
22 / 01 / 1440 H

To : Manager, HV Projects Department - WEST

Attention : Eng. Abdullah Al-Malki
Division Manager

Contract # : 4400007989

Project Title : CONSTRUCTION OF AL-JAWAD S/S

Subject : TECHNICAL SUBMITTAL FOR FIRE STOP MATERIALS (BRAND VSE0

Contractor's Ref.#: NE/N.GRID/4400007989/AljawadDTS-191 R1

Dated : 27 / 09 / 2018 G

Date Received @ EDD: 27 / 09 / 2018 G

STATUS OF THIS SUBMITTAL :

[X]	A Acceptable	[ ]	B Acceptable with Comments
[ ]	C Acceptable, Except as noted (Resubmit)	[ ]	D Rejected (Resubmit)
[ ]	E Clarification / For Information	[X]	See Attached Comments (03 Pages)

Regards,

WVN

Cc: Eng. Emad Elkady
NESMA

MOHAMMED ALI ALGHAMDI
Substation & Transmission Line Section Head
Engineering & Design Division West

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

نقل الكهرباء
National Grid SA

Internal Correspondence | المراسلات الداخلية

ENGINEERING & DESIGN DEPARTMENT

ENGINEERING & DESIGN DIVISION WEST

Al-Andalus St., SATICH office, 6th Floor, Jeddah

Regional Office - JEDDAH
Al Gihaz
21 NOV 2018
RECEIVED
Ref

Our Reference #: 30501201 / 17522 - J / 18

Dated : 20 / 11 / 2018 G
11 / 03 / 1440 H

To : Manager, HV Projects Department - WEST

Attention : Engr. Abdullah Al-Malki
Division Manager

Contract # : 4400007875

Project Title : CONSTRUCTION OF ALWESAM 11013.8KV SUBSTATION

Subject : TECHNICAL SUBMITTAL OF FIRE STOP AND SMOKE STOP MATERIAL

Contractor's Ref.#: AG/NG/4400007875/AL-WESAMDTS-142 R3

Dated : 15 / 11 / 2018 G

Date Received @ EDD: 15 / 11 / 2018 G

STATUS OF THIS SUBMITTAL:

[X]	A Acceptable	[ ]	B Acceptable with Comments
[ ]	C Acceptable, Except as noted (Resubmit)	[ ]	D Rejected (Resubmit)
[ ]	E Clarification / For Information	[X]	See Attached Comments (02 Pages)

Regards,

WVN

Cc: Engr. Adeel Siddiqui
Al GIHAZ

MOHAMMED ALI ALGHAMDI
Substation & Transmission Line Section Head
Engineering & Design Division West

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

نقل الكهرباء
National Grid SA

Internal Correspondence | المراسلات الداخلية

ENGINEERING & DESIGN DEPARTMENT
ENGINEERING & DESIGN DIVISION WEST
Al-Andalus St., SATICH office, 6th Floor, Jeddah

Our Reference #: 30501201 / 17671 - J / 18

Dated : 03 / 12 / 2018 G
24 / 03 / 1440 H

To : Manager, HV Projects Department - WEST

Attention : Engr. Nabeel G Khushaim
Division Manager
Tel.#: 0148619120,121

Contract # : 4400007354

Project Title : New 110/13.8KV Al Nakheel S/S, Madinah

Subject : FIRE RATED MATERIAL TECHNICAL SUBMITTAL FOR AL-NAKHEEL S/S MADINAH

Contractor's Ref.#: N.GRID/ ALMASHARIQ/4400007354/ AL-NakheelDTS-222 R1

Dated : 29 / 11 / 2018 G

Date Received @ EDD: 29 / 11 / 2018 G

STATUS OF THIS SUBMITTAL:

- [X] A Acceptable
- [ ] B Acceptable with Comments
- [ ] C Acceptable, Except as noted (Resubmit)
- [ ] D Rejected (Resubmit)
- [ ] E Clarification / For information
- [X] See Attached Comments (01 Page)

Regards,

WVN

Cc: Engr. Yousri Mohammed
Al Mashariq

MOHAMMED ALI ALGHAMDI
Substation & Transmission Line Section Head
Engineering & Design Division West

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

نقل الكهرباء
National Grid SA

Internal Correspondence | المراسلات الداخلية

ENGINEERING & DESIGN DEPARTMENT

ENGINEERING & DESIGN DIVISION WEST

Al-Andalus St., SATICH office, 6th Floor, Jeddah

Our Reference #: 30501201 / 17530 - J / 18

Dated : 20 / 11 / 2018 G
11 / 03 / 1440 H

To : Manager, HV Projects Department - WEST

Attention : Engr. Abdullah Al-Malki
Division Manager

Contract # : 4400005618

Project Title : New 110/13.8KV Al-Mahjar S/S, Jeddah

Subject : FIRE RATED MATERIAL FOR SEALING

Contractor's Ref.#: EICO/NG/4400005618/ AL MAHJARDTS-177 R2

Dated : 19 / 11 / 2018 G

Date Received @ EDD: 19 / 11 / 2018 G

STATUS OF THIS SUBMITTAL:

[X]	A Acceptable	[ ]	B Acceptable with Comments
[ ]	C Acceptable, Except as noted (Resubmit)	[ ]	D Rejected (Resubmit)
[ ]	E Clarification / For Information	[X]	See Attached Comments (03 Pages)

Regards,

WVN

Cc: XUE JINSONG
EICO

MOHAMMED ALI ALGHAMDI
Substation & Transmission Line Section Head
Engineering & Design Division West

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

نقل الكهرباء
National Grid SA

Internal Correspondence | المراسلات الداخلية

ENGINEERING & DESIGN DEPARTMENT

ENGINEERING & DESIGN DIVISION WEST

Al-Andalus St., SATICH office, 6th Floor, Jeddah

Regional Office - JEDDAH
Al Gihaz
13 FEB 2019
RECEIVED
Ref.
2:02

Our Reference #: 30501201 / 18669 - J / 19

Dated : 12 / 02 / 2019 G
06 / 06 / 1440 H

To : Manager, HV Projects Department - WEST

Attention : Engr. Abdullah Al-Malki
Division Manager

Contract # : 4400003548

Project Title : 110-13.8KV S-S AL-MISFALAH-4 MAKKAH ALMOKARMAH

Subject : TECHNICAL SUBMITTAL FOR FIRE STOP MATERIALS

Contractor's Ref.#: DTS-109 R2

Dated : 07 / 02 / 2019 G

Date Received @ EDD: 07 / 02 / 2019 G

STATUS OF THIS SUBMITTAL:

[X]	A Acceptable	[ ]	B Acceptable with Comments
[ ]	C Acceptable, Except as noted (Resubmit)	[ ]	D Rejected (Resubmit)
[ ]	E Clarification / For Information	[X]	See Attached Comments (01 Page)

Regards,

WVN

Cc:
AL GIHAZ

MOHAMMED ALI ALGHAMDI
Substation & Transmission Line Section Head
Engineering & Design Division West

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

نقل الكهرباء
National Grid SA

Internal Correspondence | المراسلات الداخلية

ENGINEERING & DESIGN DEPARTMENT

ENGINEERING & DESIGN DIVISION WEST

Al-Andalus St., SATICH office, 6th Floor, Jeddah

Our Reference #: 30501201 / 18735 - J / 19

Dated : 17 / 02 / 2019 G
11 / 06 / 1440 H

To : Manager, HV Projects Department - WEST

Attention : Engr. Abdullah Al-Malki
Division Manager

Contract # : 4400005222

Project Title : New 110/13.8KV Al-Manar S/S, Jeddah

Subject : FIRE RATED MATERIAL FOR SEALING

Contractor's Ref.#: EICO/NG/4400005222/AL MANARDTS-179 R1

Dated : 12 / 02 / 2019 G

Date Received @ EDD: 12 / 02 / 2019 G

STATUS OF THIS SUBMITTAL:

[X]	A Acceptable	[ ]	B Acceptable with Comments
[ ]	C Acceptable, Except as noted (Resubmit)	[ ]	D Rejected (Resubmit)
[ ]	E Clarification / For Information	[ ]	See Attached Comments (00 Page)

Regards,

SJA

Cc: IRFAN TUFAIL
EICO

MOHAMMED ALI ALGHAMDI
Substation & Transmission Line Section Head
Engineering & Design Division West

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

نقل الكهرباء
National Grid SA

Internal Correspondence | المراسلات الداخلية

ENGINEERING & DESIGN DEPARTMENT
ENGINEERING & DESIGN DIVISION WEST
Al-Andalus St., SATICH office, 6th Floor, Jeddah

Our Reference #: 30501201 / 19872 - J / 19

Dated : 21 / 05 / 2019 G
16 / 09 / 1440 H

To : Manager, HV Projects Department - WEST

Attention : Engr. Omar A Fattah
Division Manager
Tel.#: 37340

Regional Office - JEDDAH
Al Gihaz
22 MAY 2019
RECEIVED
Ref:

Contract # : 4400007876

Project Title : CONSTRUCTION OF AL-SAIL ROAD MAKKAH

Subject : TECHNICAL SUBMITTAL FOR FIRE RETARDANT PAINT

Contractor's Ref.#: AG/NG/4400007876/AL-SAIL ROADDTS-192 R1

Dated : 02 / 05 / 2019 G

Date Received @ EDD: 02 / 05 / 2019 G

STATUS OF THIS SUBMITTAL:

[X]	A Acceptable	[ ]	B Acceptable with Comments
[ ]	C Acceptable, Except as noted (Resubmit)	[ ]	D Rejected (Resubmit)
[ ]	E Clarification / For information	[X]	See Attached Comments (01 Page)

Regards,

SJA

Cc: Engr. Zaki Ahmed Shazli
AL GIHAZ

MOHAMMED ALI ALGHAMDI
Substation & Transmission Line Section Head
Engineering & Design Division West

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

نقل الكهرباء
National Grid SA

Internal Correspondence | المراسلات الداخلية

ENGINEERING & DESIGN DEPARTMENT
ENGINEERING & DESIGN DIVISION WEST
Al-Andalus St., SATICH office, 6th Floor, Jeddah

Our Reference #: 30501201 / 20227 - J / 19

Dated : 09 / 07 / 2019 G
06 / 11 / 1440 H

To : Manager, HV Projects Department - WEST

Attention : Engr. Omar A Fattah
Division Manager
Tel.#: 37340

Contract # : 4400006560

Project Title : New 110/13.8KV Makkah Housing-3 Project S/S

Subject : TECHNICAL SUBMITTAL FOR CABLE COATING

Contractor's Ref.#: AG/NG/4400006560/ Makkah Housing- 3 DTS-166 R0

Dated : 04 / 07 / 2019 G

Date Received @ EDD: 04 / 07 / 2019 G

Regional Office - JEDDAH
Al Gihaz
15 Jul 2019
RECEIVED
Ref:

STATUS OF THIS SUBMITTAL:

[X]	A Acceptable	[ ]	B Acceptable with Comments
[ ]	C Acceptable, Except as noted (Resubmit)	[ ]	D Rejected (Resubmit)
[ ]	E Clarification / For Information	[ ]	See Attached Comments (00 Page)

Regards,

MOHAMMED ALI ALGHAMDI
Substation & Transmission Line Section Head
Engineering & Design Division West

WVN
Cc: Engr. Mohamed Abdallah Shalab
AL-GIHAZ

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications.

نقل الكهرباء
National Grid SA

Internal Correspondence | المراسلات الداخلية

ENGINEERING & DESIGN DEPARTMENT

ENGINEERING & DESIGN DIVISION - WOA

Jeddah, SEC-HQ

Our Reference #: 30501201 / 20361 - J / 19

Dated : 25 / 07 / 2019 G
22 / 11 / 1440 H

To : HV Projects Department - West

Attention : Engr. Omar A Fattah
Division Manager
Tel.#: 37340

Contract # : 4400006499

Project Title : New 110/13.8KV Makkah Housing-2 Project S/S

Subject : TECHNICAL SUBMITTAL FOR CABLE COATING

Contractor's Ref.#: 169 R0

Dated : 04 / 07 / 2019 G

Regional Office - JEDDAH
Al Gihaz
25 JUL 2019
RECEIVED
Rel

Date Received @ EDD: 04 / 07 / 2019 G

STATUS OF THIS SUBMITTAL:

[X]	A Acceptable	[ ]	B Acceptable with Comments
[ ]	C Acceptable, Except as noted (Resubmit)	[ ]	D Rejected (Resubmit)
[ ]	E Clarification / For Information	[X]	See Attached Comments (01 Page)

Regards,

SJA

Cc: Mohamed Abdullah Shalaby
AL-GIHAZ

MOHAMMED ALI ALGHAMDI
Electrical Engineer
Engineering & Design Division - WOA

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

CTAPD-023 Review of Contractors Submittal (CSPD2)

PROJECTS DEPARTMENT - CENTRAL

REVIEW OF CONTRACTOR'S SUBMITTAL

الشركة السعودية للكهرباء
Saudi Electricity Company

Use: C - for Civil, E - for Electrical, M - for Mechanical, and SF- for Safety

Submittal No. :	03/8266/M. 85 rev.00	Date :	30/07/2019G

CONTRACT No : 4400005732-5733 & 5734 CONTRACTOR : Mohd. Al-Ojaimi Cont. Est.
BUDGET ITEM No : JOB ORDER No.
PROJECT TITLE : Construction of New 132/13.8 kV S/S 8244, S/S 8095 & S/S 8226 at Al-Mahdiyah

To: Mohammed Al-Ojaimi Contracting Est.

From : Div. Manager, C&EMPD
Granada Office, 3rd Floor, Bldg. A2, Riyadh
Tel : (011) 8077860

ACCEPTANCE OF THE FOLLOWING SUBMITTAL IS HEREBY REQUESTED:

Check in the Appropriate Box: ☐ Drawings / Sketches ☐ Materials / Equipment ☐ Test Reports ☑ Others (Specify) See below

FILL-UP APPLICABLE INFORMATION BELOW:

Description : S/S 8226,8095&8224– Technical Submittal for Firestop Materials for the Closing of SWGR Panel bottom opening.

Reference Specification :

Manufacturer Supplier :

COMPLYING WITH SCOPE OF WORK AND TECHNICAL SPECIFICATIONS? ☐ YES ☐ NO

IF "NO" INDICATE DEVIATIONS. (Provide justification and attach supporting documents)

(Contractor)
Submitted by : Project Manager
Signature :
Name : Ezeldin ali
Date : 30/07/2019

(NG-SA)
Received by : Project Engineer, C&EMPD
Signature
Name : Engr.Selvamurugan
Date : 30/07/2019

FOR SEC USE ONLY

NG HAVE REVIEWED THE ABOVE SUBMITTAL AND FOUND IT:

- ☐ Acceptable
- ☑ Acceptable As Noted
- ☐ Not Acceptable (Resubmit)
- ☐ Provide Additional Information
- ☐ See Attached Comment

REMARKS :

Please refer to "Attachment - 1"

Group Leader , Civil & Electro/Mech'l Proj. Div.
Signature
Name Eng'r/ Abdulrahman Alburaidi
Our Ref. 19/10322R/12-03-13-01 Date : 04/08/2019
ncd8244,8095&8226fpojaimi01

(Contractor)
Received by
Signature
Name
Date

NOTE Acceptance does not release the Contractor from his responsibilities in performing the work in strict conformance with Contract, Scope of Work and Technical Specifications.

File index 4/2

PROJECTS DEPARTMENT-SOUTH

Civil & Electromechanical Projects Division

Address: H.Q. P.O.Box. 616. Abha. KSA

Tel: 017-2319158, Fax: 017-2271020

الشركة السعودية للكهرباء
Saudi Electricity Company

48252

REVIEW OF CONTRACTOR'S SUBMITTAL

Submittal No.: DTS-051	Revision: 1	Date: 24-Jul-19

PROJECT TITLE : **Construction of 132kV UGTL Between Jizan North S/S and Jizan City Center S/S**

CONTRACT NO. : **4400009731** BI NO. : PTS No : **PTS- 15SC1008**

To : ENGR. ALI A. ALKHAIRI
Division Manager,
Civil & Electromechanical Projects South.
Tel: 017-2319144 Email: AAKhairi@ngrid.sa
CC :

From : Siemens Ltd. SIEMENS

Engr. Waleed Mandeli
Project Manager
Tel: +966 (12) 661 9050
Mob: +966 (56) 729 7459
Email: waleed.mandeli@siemens.com

ACCEPTANCE OF THE FOLLOWING SUBMITTAL IS HEREBY REQUESTED (Check Appropriate Box)

☐ Civil ☐ LV Electrical ☐ Electro-Mechanical ☐ QA/QC/Safety
☑ Drawings/Sketches ☑ Materials/Equipment ☐ Test Reports/Calculations ☐ Others (Specify)

FILL-UP APPLICABLE INFORMATION BELOW:

Description	:	Fire Retardant Paint (VSE)
Reference Specification	:	SE-115767
Manufacturer/Supplier	:	
Expected Delivery Time	:	

COMPLYING WITH SCOPE OF WORK AND TECHNICAL SPECIFICATIONS? ☐ YES ☐ NO
IF "NO" INDICATE DEVIATIONS : (Provide justification and attach supporting documents)

Submitted by Contractor:

Signature: .....
Name : Mr. Waleed Mandeli
Position : Project Manager
Date : 24-July-2019
(STAMP) SIEMENS LIMITED Jeddah Branch C.R. 4030287587

Received by Project Dept:

Signature : .....
Name : .....
Position : .....
Date : .....
(STAMP)

FOR OFFICIAL USE ONLY

CEMPD-South has reviewed the above submittal & found it:

☒ ACCEPTABLE
☐ ACCEPTABLE EXCEPT, AS NOTED
☐ NOT ACCEPTABLE (RESUBMIT)
☐ REJECTED
☐ SEE ATTACHED COMMENTS

(MAK)

Signature: .....
Name : ENGR. ALI A. ALKHAIRI
Position : Division Manager,
Civil & Electromechanical Projects South.
Ref #. 12034301-74564-19 Dated: 7.8.2019

REMARKS :

.....
.....
.....
.....
.....

Received by Contractor:

Signature : .....
Name : .....
Date : .....

NOTE Acceptance does not release the Contractor from his responsibilities in performing the work in strict conformance with Contract, Scope of Work and Technical Specifications.

PROJECTS DEPARTMENT-SOUTH
Civil & Electromechanical Projects Division
Address: H.Q. P.O.Box. 616, Abha, KSA
Tel: 017-2319158, Fax: 017-2271020

الشركة السعودية للكهرباء
Saudi Electricity Company

45251

REVIEW OF CONTRACTOR'S SUBMITTAL

Submittal No.: DTS-054	Revision: 1	Date: 24-Jul-19

PROJECT TITLE : **Connection of Jizan City-2 132/13.8kV S/S With Network (UGTL)**

CONTRACT NO. : **4400008924** BI NO. : PTS No. : **PTS- 14SC1161**

To : **ENGR. ALI A. ALKHAIRI**
Division Manager,
Civil & Electromechanical Projects South.
Tel: 017-2319144 Email: AAKhairi@ngrid.sa
CC :

From : **Siemens Ltd.** SIEMENS

Engr. Waleed Mandeli
Project Manager
Tel: +966 (12) 661 9050
Mob: +966 (56) 729 7459
Email:waleed.mandeli@siemens.com

ACCEPTANCE OF THE FOLLOWING SUBMITTAL IS HEREBY REQUESTED (Check Appropriate Box)

☐ Civil ☐ LV Electrical ☐ Electro-Mechanical ☐ QA/QC/Safety
☐ Drawings/Sketches ☑ Materials/Equipment ☐ Test Reports/Calculations ☐ Others (Specify)

FILL-UP APPLICABLE INFORMATION BELOW:

Description : **Fire Retardant Paint (VSE)**
Reference Specification : SE-116068
Manufacturer/Supplier :
Expected Delivery Time :

COMPLYING WITH SCOPE OF WORK AND TECHNICAL SPECIFICATIONS? ☐ YES ☐ NO
IF "NO" INDICATE DEVIATIONS : (Provide justification and attach supporting documents)

Submitted by Contractor:
Signature: .....
Name : Mr. Waleed Mandeli
Position : Project Manager
Date : 24-July-2019
(STAMP)

Received by Project Dept:
Signature : .....
Name : .....
Position : .....
Date : .....
(STAMP)

FOR OFFICIAL USE ONLY

CEMPD-South has reviewed the above submittal & found it:
☒ ACCEPTABLE
☐ ACCEPTABLE EXCEPT, AS NOTED
☐ NOT ACCEPTABLE (RESUBMIT)
☐ REJECTED
☒ SEE ATTACHED COMMENTS

REMARKS :

Signature: .....
Name : ENGR. ALI A. ALKHAIRI
Position : Division Manager,
Civil & Electromechanical Projects South.
Ref. #: 12034301-74565-19 Dated: 7.8.2019

Received by Contractor:
Signature : .....
Name : .....
Date : .....

NOTE : Acceptance does not release the Contractor from his responsibilities in performing the work in strict conformance with Contract, Scope of Work and Technical Specifications.

CTAPD-023 Review of Contractors Submittal (CSPD2)

PROJECTS DEPARTMENT - CENTRAL

Civil and Electro-Mechanical Projects Division

REVIEW OF CONTRACTOR'S SUBMITTAL

الشركة السعودية للكهرباء
Saudi Electricity Company

Use: C-for Civil. E- for Electrical. M- for Mechanical, and SF- for Safety

Submittal No. :	3SS's/C&EMPD/AAM/19-457-Rev.00	Date :	06/10/2019

CONTRACT No.: 440,000,106,971,074,000,000 CONTRACTOR : Al-Babtain Cont. Co.
BUDGET ITEM No : JOB ORDER No.:
PROJECT TITLE : Construction of New 13/13.8 kV S/S 8195,8196,8197 in Riyadh Area

To: Al-Babtain Cont. Co.

From : Div. Manager, C&EMPD
SEC H.Q., Tower C, 2nd Floor, Al Arid, Riyadh
Tel : (011) 8077880

ACCEPTANCE OF THE FOLLOWING SUBMITTAL IS HEREBY REQUESTED:
Check in the Appropriate Box: ☐ Drawings / Sketches ☐ Materials / Equipment ☐ Test Reports ☑ Others (Specify) See below

FILL-UP APPLICABLE INFORMATION BELOW:
Description : S/S 8195,8196,8197 -Technical Submittal of Fire Stop Materail- REV.00
Reference Specification :
Manufacturer-Supplier :

COMPLYING WITH SCOPE OF WORK AND TECHNICAL SPECIFICATIONS? ☐ YES ☐ NO
IF "NO" INDICATE DEVIATIONS : (Provide justification and attach supporting documents)

(Contractor)
Submitted by : Project Manager
Signature :
Name : Hesham Malla
Date : 06/10/2019

(SEC-COA)
Received by : Project Engineer, C&EMPD
Signature :
Name : Engr.Selvamurugan
Date : 06/10/2019

FOR SEC USE ONLY

NG HAVE REVIEWED THE ABOVE SUBMITTAL AND FOUND IT:
☐ Acceptable
☐ Acceptable As Noted
☐ Not Acceptable (Resubmit)
☐ Provide Additional Information
☑ See Remarks

REMARKS :

Group Leader , Civil & Electro/Mech't Proj. Div.
Signature :
Name : Eng'r/Tamim A Al-Shebil
Our Ref.. 19/14653/12/03/13/01 Date : 07/10/2019
ncd8195,8197,8196pbabtain001

(Contractor)
Received by
Signature :
Name :
Date

NOTE : Acceptance does not release the Contractor from his responsibilities in performing the work in strict conformance with Contract, Scope of Work and Technical Specifications.

File index 4/2

52092

SOUTHERN PROJECTS DEPARTMENT

Civil & Electro-Mechanical Projects Division -South

Address: H.Q, P.O.Box. 616, Abha, KSA
Tel: 017-2319158, Fax: 017-2271020

الشركة السعودية للكهرباء
Saudi Electricity Company
نعمل بإتقان من أجلكم

REVIEW OF CONTRACTOR'S SUBMITTAL

Submittal No.:	CXA/NG/4400009193/Heredah/DTS-C- 291R00	Revision:	0	Date:	26-Jan-20

PROJECT TITLE : Construction of Heredah 132/33kV S/S

CONTRACT NO. : 4400009193 BI NO. : PTS No. 14SN1149

To : Engr. ALI AL-Khairi
Civil & Electro-Michanical Project Division
Tel: 017-2319144, Email: aakhairi@ngrid.sa

From : Mohamed Allam
Project Manager
Mob : 0550888734
شركة كوجيلكس
COGELEX
Tel: 014757755
Email: Mohamed-allam.Sayed@ge.com

CC :

ACCEPTANCE OF THE FOLLOWING SUBMITTAL IS HEREBY REQUESTED (Check Appropriate Box)

☑ Civil ☐ Electrical ☐ Electro-Mechanical ☐ QA/QC/Safety
☐ Drawings/Sketches ☐ Materials/Equipment ☐ Test Reports/Calculations ☐ Others (Specify)

FILL-UP APPLICABLE INFORMATION BELOW:

Description : **Fire Stop Material for Opening - Closing**
Reference Specification/DWG # :
Manufacturer/Supplier : Vijay System Engineers(VSE)
Expected Delivery Time :

COMPLYING WITH SCOPE OF WORK AND TECHNICAL SPECIFICATIONS? YES ☑ NO ☐
IF "NO" INDICATE DEVIATIONS : (Provide justification and attach supporting documents)

Submitted by Contractor:
Signature:
Name Mohamed Allam
Position Project Manager
Date 26-Jan-20
فرع شركة كوجيلكس ... COGELEX

Received by Project Dept:
Signature :
Name :
Position :
Date :

FOR OFFICIAL USE ONLY

SPD-South has reviewed the above submittal & found it

☒ ACCEPTABLE
☐ ACCEPTABLE EXCEPT, AS NOTED
☐ NOT ACCEPTABLE (RESUBMIT)
☐ REJECTED
☒ SEE ATTACHED COMMENTS

REMARKS :

Signature: 09-02-2020
Name Engr. ALI AL-Khairi
Position Civil & Electro-Michanical Project Division
Date :
Ref. #: 12034301-78192-20 Dated: 10.02.2020

Received by Contractor:
Signature :
Name :
Date :

NOTE : Acceptance does not release the Contractor from his responsibilities in performing the work in strict

الشركة السعودية للكهرباء
Saudi Electricity Company

TS: .....
Date: 3/2/2020

To: **ENG. ALI A. AL-KHAIRI**
Manager, Civil & Electromechanical Projects Division - South

From: **INDUSTRIAL SECURITY DEPARTMENT**
SEC, Southern Sector, Abha

Subject: **Construction of Heredah 132/33 KV S/S**
Fire stop material for opening - closing

Reference is made on your letter inquiry #17-52092-30304101 dated 29/01/2020 concerning with the submitted document of above subject.

The submitted document is approved ..

Best regards

ENG. HASSAN G. AL-SALEEM
Projects Group Leader for ISD

الشركة السعودية للكهرباء
الأمن الصناعي بالجنوبية (ISD)
Approved A ☑
Approved with Comments B ☐
Not Approved C ☐

3/2/2020

SOUTHERN PROJECTS DEPARTMENT

Civil & Electro-Mechanical Projects Division -South

Address: H.Q, P.O.Box. 616, Abha, KSA
Tel: 017-2319158, Fax: 017-2271020

الشركة السعودية للكهرباء
Saudi Electricity Company
نعمل بأتقان من أجلكم

52093

REVIEW OF CONTRACTOR'S SUBMITTAL

Submittal No.:	CXA/NG/4400009194/Jizan City2 /DTS-C-309 R00	Revision:	0	Date:	26-Jan-20

PROJECT TITLE : Construction of Jizan City-2 132/13.8kV S/S

CONTRACT NO. : 4400009194 BI NO. : PTS No. 14SN1160

To : Engr. ALI AL-Khairi
Civil & Electro-Michanical Project Division
Tel: 017-2319144, Email: aakhairi@ngrid.sa

From : Mohamed Allam
Project Manager
Mob : 0550888734
Email: Mohamed-allam.Sayed@ge.com

شركة كوجيلكس
COGELEX

CC :

ACCEPTANCE OF THE FOLLOWING SUBMITTAL IS HEREBY REQUESTED (Check Appropriate Box)

☑ Civil ☐ Electrical ☐ Electro-Mechanical ☐ QA/QC/Safety
☐ Drawings/Sketches ☐ Materials/Equipment ☐ Test Reports/Calculations ☐ Others (Specify)

FILL-UP APPLICABLE INFORMATION BELOW:

Description : Fire Stop Material for Opening - Closing
Reference Specification/DWG # :
Manufacturer/Supplier : Vijay System Engineers(VSE)
Expected Delivery Time :

COMPLYING WITH SCOPE OF WORK AND TECHNICAL SPECIFICATIONS? YES ☑ NO ☐
IF "NO" INDICATE DEVIATIONS : (Provide justification and attach supporting documents)

Submitted by Contractor:

Signature
Name Mohamed Allam
Position Project Manager
Date 26-Jan-20

فرع شركة كوجيلكس
COGELEX

Received by Project Dept:

26 JAN 2020

Signature :
Name :
Position :
Date :

FOR OFFICIAL USE ONLY

SPD-South has reviewed the above submittal & found it

☒ ACCEPTABLE
☐ ACCEPTABLE EXCEPT, AS NOTED
☐ NOT ACCEPTABLE (RESUBMIT)
☐ REJECTED
☒ SEE ATTACHED COMMENTS

REMARKS :

Signature: 09-02-2020
Name Engr. ALI AL-Khairi
Position Civil & Electro-Michanical Project Division
Date :
Ref. #120343-01-78193-20 Dated: 10.02.2020

Received by Contractor:

Signature :
Name :
Date :

NOTE : Acceptance does not release the Contractor from his responsibilities in performing the work in strict

الشركة السعودية للكهرباء
Saudi Electricity Company

TS: .....
Date: 3/2/2020

To: **ENG. ALI A. AL-KHAIRI**
Manager, Civil & Electromechanical Projects Division - South

From: **INDUSTRIAL SECURITY DEPARTMENT**
SEC, Southern Sector, Abha

Subject: **Construction of Jizan City-2 132/13.8 KV S/S**
Fire stop material for opening - closing

Reference is made on your letter inquiry #17-52093-30304101 dated 29/01/2020, concerning with the submitted document of above subject.

The submitted document is approved ..

Best regards

ENG. HASSAN G. AL-SALEEM
Projects Group Leader for ISD
Hassan
3/2/2020

الشركة السعودية للكهرباء
الأمن الصناعي بالجنوبية (ISD)
Approved A ☑
Approved with Comments B ☐
Not Approved C ☐
3/2/2020

SOUTHERN PROJECTS DEPARTMENT

Civil & Electromechanical Projects Division-South

Address: H.Q, P.O.Box. 616, Abha. KSA Tel: 017-2319158, Fax: 017-2271020

الشركة السعودية للكهرباء
Saudi Electricity Company

52493

REVIEW OF CONTRACTOR'S SUBMITTAL

Submittal No.:	CXA/NG/ 4400008426/Farsha /DTS-C-307-R0	Revision:	0	Date:	Feb-11-2020

PROJECT TITLE : Construction of Farsha 132/33kV S/S in Asir

CONTRACT NO. : 4400008426 BI NO. : PTS No. 14SN1168

To : Engr. Ali A. Al-Khairi
Division Manager,
Civil & Electromechanical Projects-South
Tel: 017-2319144, Email: aakhairi@ngrid.sa

CC : Engr. Mohammad Humayl Alqunayzi
Projects Engineer,
Tel: 017-2318965, Email :Mghalb@ngrid.sa

From : Wesam Kennawi
Project Manager
Tel: 0126526919 , Mob: 0553400661
Email:wesam.kennawi@alstom.com

شركة كوجيلكس
COGELEX

ACCEPTANCE OF THE FOLLOWING SUBMITTAL IS HEREBY REQUESTED (Check Appropriate Box)

☑ Civil ☐ Electrical ☐ Electro-Mechanical ☐ QA/QC/Safety

☑ Drawings/Sketches ☐ Materials/Equipment ☐ Test Reports/Calculations ☐ Others (Specify)

FILL-UP APPLICABLE INFORMATION BELOW:

Description : **Fire Stop Material for Opening & Closing**

Reference Specification :

Manufacturer/Supplier : **(Vijay System Engineers(VSE)**

Expected Delivery Time :

COMPLYING WITH SCOPE OF WORK AND TECHNICAL SPECIFICATIONS?	YES	NO
IF "**NO**" INDICATE DEVIATIONS : (Provide justification and attach supporting documents)	☑	☐

Submitted by Contractor:

شركة كوجيلكس COGELEX

Signature:
Name Wesam Kennawi
Position Project Manager
Date Feb-11-2020

Received by Project Dept:

Signature :
Name :
Position :
Date :

11 FEB 2020

FOR OFFICIAL USE ONLY

CEMPD-South has reviewed the above submittal & found it

☒ ACCEPTABLE
☐ ACCEPTABLE EXCEPT, AS NOTED
☐ NOT ACCEPTABLE (RESUBMIT)
☐ REJECTED
☐ SEE ATTACHED COMMENTS

REMARKS : Proposed Fire stop material (VSE) is acceptable for internal wall openings closing.
Provide/Use Dust sealant Mat for External wall and cable opening

Signature: 12/02/2020
Name: Engr. Ali A. Al-Khairi
Position: Division Manager,
Civil & Electromechanical Projects-South
Date:
Ref. #: 12034301-78283-20 Dated: 13.02.2020

Received by Contractor:

Signature :
Name :
Date :

NOTE : Acceptance does not release the Contractor from his responsibilities in performing the work in strict conformance with Contract, Scope of Work and Technical Specifications.

524494

SOUTHERN PROJECTS DEPARTMENT

Civil & Electromechanical Projects Division-South

Address: H.Q, P.O.Box. 616, Abha, KSA Tel: 017-2319158, Fax: 017-2271020

الشركة السعودية للكهرباء
Saudi Electricity Company

REVIEW OF CONTRACTOR'S SUBMITTAL

Submittal No.:	CXA/NG/ 4400008425/Baish West /DTS-C-307-R0	*Revision:*	0	*Date:*	Feb-13-2020

PROJECT TITLE : Construction of Baish West 132/13.8kV S/S in Jizan

CONTRACT NO. : 4400008425 *BI NO.* : *PTS No.* 14SN1146

To : Engr. Ali A.Al-Khairi
Division manager.
Civil & Electro Mechenical Project South
Tel:-017-2319144 E-mail:-aakhairi@ngrid.sa

From : Wesam Kennawi
Project Manager
Tel: 0126526919 , Mob: 0553400661
Email:wesam.kennawi@alstom.com

شركة كوجيلكس
COGELEX

CC : Eng. Ahmed M.Al-Sehari
Project Manager
Te:- 017-2319120

ACCEPTANCE OF THE FOLLOWING SUBMITTAL IS HEREBY REQUESTED (Check Appropriate Box)

☑ *Civil* ☐ *Electrical* ☑ *Electro-Mechanical* ☐ *QA/QC/Safety*

☑ *Drawings/Sketches* ☐ *Materials/Equipment* ☐ *Test Reports/Calculations* ☐ *Others (Specify)*

FILL-UP APPLICABLE INFORMATION BELOW:

Description : **Fire Stop Material for Opening & Closing**

Reference Specification :

Manufacturer/Supplier : **(Vijay System Engineers(VSE)**

Expected Delivery Time :

COMPLYING WITH SCOPE OF WORK AND TECHNICAL SPECIFICATIONS? YES ☑ NO ☐

IF "NO" INDICATE DEVIATIONS : (Provide justification and attach supporting documents)

Submitted by Contractor:

Signature:
Name Wesam Kennawi
Position Project Manager
Date Feb-13-2020

شركة كوجيلكس COGELEX س.ت ٤٠٣٠٢٧٢٩ ص.ب ٨٧٢٠٠ الرياض ١١٦٤٢

Received by Project Dept:

Signature :
Name :
Position :
Date : 13 FEB 2020

FOR OFFICIAL USE ONLY

CEMPD-South has reviewed the above submittal & found it

☒ *ACCEPTABLE*
☐ *ACCEPTABLE EXCEPT, AS NOTED*
☐ *NOT ACCEPTABLE (RESUBMIT)*
☐ *REJECTED*
☐ *SEE ATTACHED COMMENTS*

REMARKS :
1) Proposed fire stop material (USE) is acceptable for closing of internal walls openings.
2) Provide/Used duct sealant unit for external wall and future cable opening

Signature:
Name: **Engr. Ali A.Al-Khairi**
Position: **Division manager.**
Civil & Electro Mechenical Project South
Date:
Ref. #12034301-78330-20 Dated: 16.02.2020

Received by Contractor:

Signature :
Name :
Date :

NOTE : Acceptance does not release the Contractor from his responsibilities in performing the work in strict conformance with Contract, Scope of Work and Technical Specifications.

[redacted] PROJECTS DEPARTMENT

Civil & Electro-Mechanical Project Division-South

Address: H.Q, P.O.Box. 616, Abha, KSA Tel: 017-2319158, Fax: 017-2271020

الشركة السعودية للكهرباء
Saudi Electricity Company

525502

REVIEW OF CONTRACTOR'S SUBMITTAL

Submittal No.:	CXA/NG /4400008429/WADI-BIN HASBAL/DTS-C-339-R0	*Revision:*	0	*Date:*	Feb-11-2020

PROJECT TITLE : Construction of Wadi-Bin Hasbal 132/33kV Substation

CONTRACT NO. : 44000008429 *BI NO.* : *PTS No.* 14SN1162

Engr. Ali A. Al-Khairi
Division Manager,
Civil & Electromechanical Projects-South
Tel: 017-2319144 E-mail: aakhairi@ngrid@sa

From : Mohammed Hafeezuddin
Project Manager
Tel: 0126186474 Mob: 0500091226
hafeezuddin.mohammed@ge.com

شركة كوجيلكس
COGELEX

CC : Mr. Ahmed Al Saheri
Project Manager
Tel:017-2319120, Email:amshehri7s@se.com.sa

ACCEPTANCE OF THE FOLLOWING SUBMITTAL IS HEREBY REQUESTED (Check Appropriate Box)

☑ *Civil* ☐ *Electrical* ☐ *Electro-Mechanical* ☐ *QA/QC/Safety*

☐ *Drawings/Sketches* ☐ *Materials/Equipment* ☐ *Test Reports/Calculations* ☐ *Others (Specify)*

FILL-UP APPLICABLE INFORMATION BELOW:

Description : **Fire Stop Material for Opening & Closing**

Reference Specification :

Manufacturer/Supplier : **(Vijay System Engineers(VSE)**

Expected Delivery Time :

COMPLYING WITH SCOPE OF WORK AND TECHNICAL SPECIFICATIONS? YES ☑ NO ☐

IF "NO" INDICATE DEVIATIONS : (Provide justification and attach supporting documents)

Submitted by Contractor:

شركة كوجيلكس COGELEX

Signature :

Name Mohammed Hafeezuddin

Position Project Manager

Date Feb-11-2020

Received by Project Dept:

Signature :

Name :

Position :

Date :

11 FEB 2020

FOR OFFICIAL USE ONLY

CEMPED-South has reviewed the above Submittal & found it

YME

☑ *ACCEPTABLE*
☐ *ACCEPTABLE EXCEPT, AS NOTED*
☐ *NOT ACCEPTABLE (RESUBMIT)*
☐ *REJECTED*
☒ *SEE ATTACHED COMMENTS*

REMARKS : If you have any delay delivery of Fire Stop material will affect the substation energization schedule.

Signature:

26/02/2020

Name: **Engr. Ali A. Al-Khairi**

Position: **Division Manager,**
Civil & Electromechanical Projects-South

Date:

Ref. #: 12034301-78561-20 Dated: 27.02.2020

Received by Contractor:

Signature :

Name :

Date :

NOTE : Acceptance does not release the Contractor from his responsibilities in performing the work in strict conformance with Contract, Scope of Work and Technical Specifications.

الشركة السعودية للكهرباء
Saudi Electricity Company

TS: _____
Date: 17/02/2020

To: **ENGR. ALI A. ALKHAIRI**
Division Manager,
Civil & Electromechanical Projects South

From: **INDUSTRIAL SECURITY MANAGEMENT**
SEC, Southern Sector, Abha

Subject: **Construction of Wadi Bin Hashbal 132/33kV S/S**
(Fire stop material for opening & closing)

Reference is made on your letter inquiry Submittal No. # 20-52502-12034301, the datasheet is **approved**.

Best regards,

ENG'R. HASSAN G. AL-SALEEM
Projects Group Leader for ISD

نقل الكهرباء
National Grid SA

Internal Correspondence | المراسلات الداخلية

ENGINEERING & DESIGN DEPARTMENT
ENGINEERING & DESIGN DIVISION - WOA
Jeddah, SEC-HQ

Our Reference #: 30501201 / 0798 - J / 20

Dated : 12 / 03 / 2020 G
17 / 07 / 1441 H

To : HV Projects Department - West

Attention : ENGR. NABEEL G. KHUSHAIM
Div Manager

Contract # : 21201048

Project Title : NEW 110-/13.8KV NEW AL-FATH S/S MADINA

Subject : TECHNICAL SUBMITTAL OF FIRE STOP MATERIALS

Contractor's Ref.#: DTS-253 R01

Dated : 05 / 03 / 2020 G

Date Received @ EDD: 05 / 03 / 2020 G

STATUS OF THIS SUBMITTAL:

[X]	A Acceptable	[ ]	B Acceptable with Comments
[ ]	C Acceptable, Except as noted (Resubmit)	[ ]	D Rejected (Resubmit)
[ ]	E Clarification / For Information	[X]	See Attached Comments (02 Pages)

Regards,

MOHAMMED ALI ALGHAMDI
Substation & Transmission Line Section Head
Engineering & Design Division - WOA

WVN
Cc: Ahmed Farouq
AECC

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

ENGINEERING & DESIGN DEPARTMENT
ENGINEERING & DESIGN DIVISION - WOA
Jeddah, SEC-HQ

Our Reference #: 30501201 / 0829 - J / 20

Dated : 16 / 03 / 2020 G
21 / 07 / 1441 H

To : HV Projects Department - West

Attention : Engr.Abdullah Al-Malki
Division Manager

Contract # : 4400006560

Project Title : New 110/13.8KV Makkah Housing-3 Project S/S

Subject : TECHNICAL SUBMITTAL OF FIRE STOP MATERIAL

Contractor's Ref.#: DTS-175 R01

Dated : 01 / 03 / 2020 G

Date Received @ EDD: 01 / 03 / 2020 G

STATUS OF THIS SUBMITTAL:

[X]	**A** Acceptable	[ ]	**B** Acceptable with Comments
[ ]	**C** Acceptable, Except as noted (Resubmit)	[ ]	**D** Rejected (Resubmit)
[ ]	**E** Clarification / For Information	[X]	See Attached Comments (01 Page)

Regards,

MMJ

Cc: Engr. Mohamed Abdallah Shalab
AL-GIHAZ

MOHAMMED ALI ALGHAMDI
Substation & Transmission Line Section Head
Engineering & Design Division - WOA

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

ref.

SIEMENS
Ingenuity for life

Number:	Y02-03-00-06/01
Date of Issue:	01/06/1435H

RECEIVED
12 MAY 2020
ICS
Construction Dept.

P.O.Box 4621, Jeddah 21412, Kingdom of SaudiArabia, Telephone / Fax: 00966 2661 3910 / 661 9007

Contract Title : **Design and Construction of Substation 16P**

Contract No. : **PIC P-7717**

SUBMITTAL FOR

Date: **11 May 2020.**

[ ] Shop Drawings [ ] Material [x] Others

[x] Approval [ ] Verification [ ] Information
[ ] Record [ ] Deviation [ ] Others

Contractor Submittal # : **P-7717-CE-104**

Intermediate

ATTENTION: **Engr. Syed Muhammad Tanweer**
RC, Authorized Representative

EWR No. :

[x] **First Submittal** [ ] **Re-Submittal (Previous Sub. No.) :**

Prev. CSG Log #:

Subject Reference Spec. : **Section - 07910 & 07920**

Item Description / Subject: **PREQUALIFICATION DOCUMENTS OF M/S. VIJAY FOR FIRE STOP MATERIALS**

List of Attachments: **2 x sets + CD**

Contractor's Certification : "Having checked this submittal, we certify that it conforms to the requirements of the Contract Documents in all respects, except otherwise indicated herein."

شركة سيمنس المحدودة
فرع جدة
Jeddah Branch Office
C.R. 4030126557
75 V8
SIEMENS LIMITED

Checked by: Engineering Manager
Iyyasamy Raja Ayyanar
Digitally signed by Iyyasamy Raja Ayyanar
DN: cn=Iyyasamy Raja Ayyanar, o=Siemens, email=raja.ayyanar@siemens.com
Date: 2020.05.11 13:32:52 +03'00'
Raja Ayyanar
Date: 11.05.2020

Signed by: Project Manager
Ahmad Nisar
Digitally signed by Ahmad Nisar
DN: cn=Ahmad Nisar, o=Siemens, email=nisar.ahmad@siemens.com
Date: 2020.05.11 13:38:44 +03'00'
Nisar Ahmad
Date: 11.05.2020

Royal Commission Review / Construction Support Group

[ ] AR [ ] CE [ ] EE [ ] ME [ ] SE [ ] Other

Royal Commission / MSC Review and Approval Status

[ ] (A) Work May proceed
[✓] (B) Work May proceed - Minor Comment
[ ] (C) Work May proceed Except as Noted
[ ] (D) Disapproved
[ ] Acceptable with no comments
[ ] Acceptable with minor comments
[ ] Unacceptable / Rejected
[ ] Other Comments: See below

NOTE: *Shop Drawing review require "Released for Construction" sticker before proceeding .*

[✓] Re-submittal not required. Incorporate comments and proceed.
[ ] Re-submittal required. Incorporate comments. Don't proceed.
[ ] Submittal incomplete. Complete & re-submit again.
[ ] Submittal inconsistent with contract.

ATTACHMENTS:
[ ] Engineering Review Comments Sheet(s).
[✓] EWR List of Submitted Materials indicating the Review status submitted materials.
[ ] Contractor Drawing submittal sheet(s) indicating status of submitted drawing(s).
[ ] Other enclosures / attachments.

CSG Log #: 96238
Receipt Date: 12-05-20

Reviewer: R. SHAGRAD Date: 18-05-20

SR/PR Project Engineer: Date:

RC / MSC CONSTRUCTION

The review and approval is provided conditionally that the submittal is in compliance with the contract documents. This approval shall not be construed as an approval of a change in Contract scope or price. A prompt response shall be made by the Contractor in writing if any comment is cosidered not to be within the terms of the Contract.

ADDITIONAL COMMENTS: PROCEED FOR MATERIAL APPROVAL IN COMPLIANCE OR EQUIVALENT TO P.T.S. REQUIREMENTS.

Project File No.:

CSG / EWR No.:

Ref. Number: P-7717-CE-104

CC: RF/Chrono

For RC/MSC :
Engr. Syed Muhammad Tanweer
RC, Authorized Representative

Date : 18/05/20.

Number:	Y02-03-00-06/01
Date of Issue:	01/06/1435H

EWR LIST OF SUBMITTED

(Not Applicable for Drawings)

CONTRACT NO: PIC P-7717 EWR NO:

ITEM NO.	DESCRIPTION	REFERENCE TO CONTRACT DOCUMENT	REVIEW STATUS
	Civil Work Materials: **PRE-QUALIFICATION OF M/S. VIJAY FOR FIRE STOP MATERIALS:-**		4 B 4
1.0	Fire Stop Materials	SECTIONS - 07910 - 07920	
	Address: Contracting Office Co. Ltd Jeddah Al-Rehab Dist. P.O Box# 18850, Jeddah 21494		
	Tel # 012 671 11103 / 673 8045		
	Fax # 012 671 2648		
	E-mail: info@contraco.com.sa, E-mail: masood@contraco.com.sa		

REVIEW STATUS

A - WORK MAY PROCEED - NO COMMENTS

B - WORK MAY PROCEED - MINOR COMMENTS

C - WORK MAY PROCEED EXCEPT AS NOTED (Resubmittal Required)

D - DISAPPROVED - WORK MAY NOT PROCEED (Resubmittal Required)

شركة سيمنس المحدودة
فرع جدة
Jeddah Branch Office
C.R. 4030126557
SIEMENS LIMITED

Iyyasamy Raja Ayyanar

Digitally signed by Iyyasamy Raja Ayyanar
DN: cn=Iyyasamy Raja Ayyanar, o=Siemens, email=raja.ayyanar@siemens.com
Date: 2020.05.11 13:34:16 +03'00'

CHECK LIST

1. Prequalification - Material Supplier		
1.1	Contractor Submittal form (Y02-03-00-06/01)	X
1.2	EWR list of Submitted Materials & Supplier (Y02-03-00-06/03)	X
1.3	Reference to the RC Vendor List (Y02-03-01-06/04)	X
1.4	Chamber of Commerce & Industries Certificate (Correct Validity)	X
1.5	Zakat Certificate (Correct Validity)	X
1.6	Commercial Registration (Correct Validity)	X
1.7	"Letter of Authorization" from the Parent company	NA
1.8	Original Product Catalogue (Duly Highlighting the offered materials for prequalification)	X
1.9	Compliance to the relevant project specification (Duly stamped & signed by the manufacturer / supplier / Contractor)	NA
1.1	List Of Clients	X
1.11	Previous delivery orders.	NA
1.12	Previous Approval Copy from RC projects.	NA
1.13	Company Profile	X
1.14	Two sets of submittals should be provided to CSG for review.	X

Iyyasamy Raja Ayyanar

Digitally signed by Iyyasamy Raja Ayyanar
DN: cn=Iyyasamy Raja Ayyanar, o=Siemens, email=raja.ayyanar@siemens.com
Date: 2020.05.11 13:34:35 +03'00'

Checked by - QA/QC Manager

شركة سيمنس المحدودة
فرع جدة
Jeddah Branch Office
C.R. 4030125557
SIEMENS LIMITED

Ahmad Nisar

Digitally signed by Ahmad Nisar
DN: cn=Ahmad Nisar, o=Siemens, email=nisar.ahmad@siemens.com
Date: 2020.05.11 13:39:02 +03'00'

Signed by - Project manager

Internal Correspondence I

ENGINEERING & DESIGN DEPARTMENT

ENGINEERING & DESIGN DIVISION - WOA

Jeddah, SEC-HQ

Our Reference #: 30501201 / 2002 - J / 20

Dated : 03 / 09 / 2020 G
15 / 01 / 1442 H

To : HV Projects Department - West

Attention : Engr. Abdullah Al-Malki
Division Manager

Contract # : 4400005221

Project Title : New 110/13.8KV Hadda Center

Subject : FIRE RATED MATERIAL FOR SEALING

Contractor's Ref.#: DTS-179 R03

Dated : 02 / 09 / 2020 G

Date Received @ EDD: 02 / 09 / 2020 G

STATUS OF THIS SUBMITTAL:

X	**A** Acceptable		**B** Acceptable with Comments
	C Acceptable, Except as noted (Resubmit)		**D** Rejected (Resubmit)
	E Clarification / For Information	X	See Attached Comments (07 Pages)

Regards,

MOHAMMED ALI ALGHAMDI
Substation & Transmission Line Section Head
Engineering & Design Division - WOA

WVN

Cc: ZHOU XUEMIN
EICO

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

نقل الكهرباء
National Grid SA

Internal Correspondence

ENGINEERING & DESIGN DEPARTMENT
ENGINEERING & DESIGN DIVISION - WOA
Jeddah, SEC-HQ

Our Reference #: 30501201 / 1883 - J / 20

Dated : 24 / 08 / 2020 G
05 / 01 / 1442 H

To : HV Projects Department - West

Attention : ENGR. OMAR A. FATAH
PROJECT MANAGER

Contract # : SC-J-T-1630-17

Project Title : CONSTRUCTION OF NEW 110/13.8KV KING KHALID HOSPITAL -2 S/S JEDDAH

Subject : TECHNICAL SUBMITTAL FOR FIRE REDUNDANT PAINT

Contractor's Ref.#: DTS-191 R01

Dated : 23 / 08 / 2020 G

Date Received @ EDD: 23 / 08 / 2020 G

STATUS OF THIS SUBMITTAL:

[X]	**A** Acceptable	[ ]	**B** Acceptable with Comments
[ ]	**C** Acceptable, Except as noted (Resubmit)	[ ]	**D** Rejected (Resubmit)
[ ]	**E** Clarification / For Information	[X]	See Attached Comments (01 Page)

Regards,

SJA

Cc: MAJED AL MASRI
SIEMENS

MOHAMMED ALI ALGHAMDI
Substation & Transmission Line Section Head
Engineering & Design Division - WOA

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

SOUTHERN PROJECTS DEPARTMENT

Civil & Electromechanical Projects Division-South

Address: H.Q, P.O.Box. 616, Abha, KSA Tel: 017-2319158, Fax: 017-2271020

الشركة السعودية للكهرباء
Saudi Electricity Company

REVIEW OF CONTRACTOR'S SUBMITTAL

Submittal No.:	CXA/NG/ 4400008427/Al-Haqu /DTS-C-168-R0	*Revision:*	*0*	*Date:*	Oct-06-2020

PROJECT TITLE : Addition of Third Transformer To Al-Haqu 132/33kV S/S

CONTRACT NO. : 4400008427 *BI NO.* : *PTS No.* 15SR1009

To : Engr. Ali A. Al-Khairi
Division Manager,
Civil & Electromechanical Projects-South
Tel: 017-2319144, Email: aakhairi@ngrid.sa

From : Wesam Kennawi
Project Manager
Tel: 0126526919 , Mob: 0553400661
Email:wesam.kennawi@alstom.com

شركة كوجيلكس
COGELEX

CC : Mr. Ahmed M. Al-Sehri
Project Manager
Tel:017-2319120, Email:amshehri7@se.com.sa

ACCEPTANCE OF THE FOLLOWING SUBMITTAL IS HEREBY REQUESTED (Check Appropriate Box)

☑ *Civil* ☐ *Electrical* ☐ *Electro-Mechanical* ☐ *QA/QC/Safety*

☐ *Drawings/Sketches* ☐ *Materials/Equipment* ☐ *Test Reports/Calculations* ☐ *Others (Specify)*

FILL-UP APPLICABLE INFORMATION BELOW:

Description : **Fire Stop Material for Opening & Closing**

Reference Specification :

Manufacturer/Supplier : **Vijay System Engineers-(VSE)**

Expected Delivery Time :

COMPLYING WITH SCOPE OF WORK AND TECHNICAL SPECIFICATIONS? *YES* ☑ *NO* ☐

IF "NO" INDICATE DEVIATIONS : (Provide justification and attach supporting documents)

Submitted by Contractor:

شركة كوجيلكس COGELEX FOR SUBMITTAL ONLY

Signature:
Name Wesam Kennawi
Position Project Manager
Date Oct-06-2020

Received by Project Dept:

Signature : RECEIVED 07-10-2020
Name :
Position :
Date :

FOR OFFICIAL USE ONLY

CEMPD-South has reviewed the above submittal & found it

☑ *ACCEPTABLE*
☐ *ACCEPTABLE EXCEPT, AS NOTED*
☐ *NOT ACCEPTABLE (RESUBMIT)*
☐ *REJECTED*
☐ *SEE ATTACHED COMMENTS*

REMARKS : (1) Proposed fire stop closing material by Vijay system engineers is acceptable.
(2) Already comments were marked on catalogue sheets for Baish west and Farsha Substations shall be followed same at site

Signature:
Name: Engr. Ali A. Al-Khairi
Position: Division Manager,
Civil & Electromechanical Projects-South
Date:
Ref. #: Dated: 08/10/2020

Received by Contractor:

Signature :
Name :
Date :

NOTE : Acceptance does not release the Contractor from his responsibilities in performing the work in strict conformance with Contract, Scope of Work and Technical Specifications.

SOUTHERN PROJECTS DEPARTMENT

Civil & Electro-Mechanical Project Division-South

Address: H.Q. P.O.Box. 616, Abha, KSA Tel: 017-2319158, Fax: 017-2271020

الشركة السعودية للكهرباء
Saudi Electricity Company
طاقة متجددة

REVIEW OF CONTRACTOR'S SUBMITTAL

Submittal No.:	CXA/NG/ 4400008428/Khamis /DTS-C-172-R0	Revision:	0	Date:	Oct-06-2020

PROJECT TITLE : Addition of Third Transformer to Khamis North 132/33/13.8 kV S/S

CONTRACT NO. : 4400008428 BI NO. : PTS No. 15SR1043

To : Engr. Ali Al A. Al-Khairi
Devision Manager
Civil & Electromechnical Projects-South
Te: 017-2319144, Email:aakhairi@ggrid.sa

From : Wesam Kennawi شركة كوجيلكس
Project Manager COGELEX
Tel: 0126526919 , Mob: 0553400661
Email:wesam.kennawi@alstom.com

CC : Engr. Mohammad Humayl Alqunayzi
Projects Engineer,
Tel: 017-2318965, Email :Mghaib@ngrid.sa

ACCEPTANCE OF THE FOLLOWING SUBMITTAL IS HEREBY REQUESTED (Check Appropriate Box)

☑ Civil ☐ Electrical ☐ Electro-Mechanical ☐ QA/QC/Safety

☐ Drawings/Sketches ☐ Materials/Equipment ☐ Test Reports/Calculations ☐ Others (Specify)

FILL-UP APPLICABLE INFORMATION BELOW:

Description : **Fire Stop Material for Opening & Closing**

Reference Specification :

Manufacturer/Supplier : **Vijay System Engineers-(VSE)**

Expected Delivery Time :

COMPLYING WITH SCOPE OF WORK AND TECHNICAL SPECIFICATIONS? YES ☑ NO ☐

IF "NO" INDICATE DEVIATIONS : (Provide justification and attach supporting documents)

Submitted by Contractor:

Signature:

Name Wesam Kennawi

Position Project Manager

Date Oct-06-2020

شركة كوجيلكس COGELEX FOR SUBMITTAL ONLY

Received by Project Dept:

Signature : RECEIVED 07-10-2020

Name :

Position :

Date :

FOR OFFICIAL USE ONLY

SPD-South has reviewed the above submittal & found it

☑ ACCEPTABLE
☐ ACCEPTABLE EXCEPT, AS NOTED
☐ NOT ACCEPTABLE (RESUBMIT)
☐ REJECTED
☐ SEE ATTACHED COMMENTS

REMARKS : (1) Proposed fire stop closing material by Vijay system engineers is acceptable.
(2) Already comments were marked on catalogue sheets for Baish west and Farsha Substations shall be followed same at site

Signature:

Name: To : Engr. Ali Al A. Al-Khairi

Position: Devision Manager
Civil & Electromechnical Projects-South

Date:

Ref. #: Dated: 08/10/2020

Received by Contractor:

Signature :

Name :

Date :

NOTE : Acceptance does not release the Contractor from his responsibilities in performing the work in strict conformance with Contract, Scope of Work and Technical Specifications.

SOUTHERN PROJECTS DEPARTMENT

Civil & Electromechanical Projects Division South

Address: H.Q, P.O.Box. 616, Abha, KSA
Tel: 017-2319158, Fax: 017-2271020

52675

REVIEW OF CONTRACTOR'S SUBMITTAL

Submittal No.:	CXA/NG /4400006057/BISHA CENTER /DTS-C-258	*Revision:* 00	*Date:* 18-Feb-20

PROJECT TITLE : Construction of BISHA CENTER 132/13.8Kv SS

CONTRACT NO. : **4400006057** *BI NO.* : *PTS No.* : **14SN1038**

To : Engr. Ali A Al-Khairi
C & EMPD Projects Division Manager.
Tel: 017-2319165, Email : aakhairi@ngrid.sa

From : Bahaa Ramadan COGELEX
Project Manager
Tel: 012-6521348 , Mob: 0500018979
Email:bahaa.ramadan@ge.com

CC : Saifuddin Soomro
Project Engineer

ACCEPTANCE OF THE FOLLOWING SUBMITTAL IS HEREBY REQUESTED (Check Appropriate Box)

☐	*Civil*	☑	*LV Electrical*	☐	*Electro-Mechanical*	☑	*QA/QC/Safety*
☐	*Drawings/Sketches*	☑	*Materials/Equipment*	☐	*Test Reports/Calculations*	☐	*Others (Specify)*

FILL-UP APPLICABLE INFORMATION BELOW:

Description : **Fire Stop Material For Opening & Closing**

Reference Specification : **14SN1038**

Manufacturer/Supplier : **Vijay System Engineering VSE**

Expected Delivery Time :

COMPLYING WITH SCOPE OF WORK AND TECHNICAL SPECIFICATIONS? YES ☑ NO ☐

IF "NO" INDICATE DEVIATIONS : (Provide justification and attach supporting documents)

Submitted by Contractor:

Signature:
Name : Bahaa Ramadan
Position : Project Manager
Date : 18-Feb-20

COGELEX

Received by Project Dept:

Signature :
Name :
Position :
Date :

FOR OFFICIAL USE ONLY

C & EMPD -South has reviewed the above submittal & found it

- ☑ *ACCEPTABLE*
- ☐ *ACCEPTABLE EXCEPT, AS NOTED*
- ☐ *NOT ACCEPTABLE (RESUBMIT)*
- ☐ *REJECTED*
- ☐ *SEE ATTACHED COMMENTS*

REMARKS :
Fire stop material manufactured by Vijay System Engineering VSE is acceptable for internal wall and slab openings.

Signature:
Name : Engr. Ali A Al-Khairi
Position : C & EMPD Projects Division Manager.
Date :
Ref. # 2034301-78464-20 *Dated:* 23.02.2020

Received by Contractor:

Signature :
Name :
Date :

NOTE : *Acceptance does not release the Contractor from his responsibilities in performing the work in strict conformance with Contract, Scope of Work and Technical Specifications.*

SOUTHERN PROJECTS DEPARTMENT

Civil & Electromechanical Projects Division South

Address: H.Q, P.O.Box. 616, Abha, KSA
Tel: 017-2319158, Fax: 017-2271020

REVIEW OF CONTRACTOR'S SUBMITTAL 52677

Submittal No.:	CXA/NG /4400006056/Sabya West /DTS-C-299	Revision: 00	Date: 18-Feb-20

PROJECT TITLE : Construction of Sabya West 132/33/13.8Kv SS

CONTRACT NO. : 4400006056 BI NO. : PTS No. : 13SN1015

To : Engr. Ali A Al-Khairi
C & EMPD Projects Division Manager.
Tel: 017-2319165, Email : aakhairi@ngrid.sa

From : Syes Ayub
Project Manager
Tel: 011-4757755 , Mob: 0500403723
Email:syed.ayub@ge.com

CC : Saifuddin Soomro
Project Engineer

ACCEPTANCE OF THE FOLLOWING SUBMITTAL IS HEREBY REQUESTED (Check Appropriate Box)

☐	Civil	☑	LV Electrical	☐	Electro-Mechanical	☑	QA/QC/Safety
☐	Drawings/Sketches	☑	Materials/Equipment	☐	Test Reports/Calculations	☐	Others (Specify)

FILL-UP APPLICABLE INFORMATION BELOW:

Description	:	Fire Stop Material For Opening & Closing
Reference Specification	:	13SN1015
Manufacturer/Supplier	:	Vijay System Engineering VSE
Expected Delivery Time	:	

COMPLYING WITH SCOPE OF WORK AND TECHNICAL SPECIFICATIONS?	YES	NO
IF "NO" INDICATE DEVIATIONS : (Provide justification and attach supporting documents)	☑	☐

Submitted by Contractor:

Signature:
Name : Syed Ayub
Position : Project Manager
Date : 18-Feb-20

شركة كوجيلكس COGELEX

Received by Project Dept:

Signature :
Name :
Position :
Date :

20 FEB 2020

FOR OFFICIAL USE ONLY

C & EMPD -South has reviewed the above submittal & found it

- ☑ ACCEPTABLE
- ☐ ACCEPTABLE EXCEPT, AS NOTED
- ☐ NOT ACCEPTABLE (RESUBMIT)
- ☐ REJECTED
- ☐ SEE ATTACHED COMMENTS

REMARKS : Proposed Fire stop material by Vijay System Engineering VSE is acceptable for internal wall and slab openings.

Received by Contractor:

Signature :
Name :
Date :

Signature:
Name : Engr. Ali A Al-Khairi
Position : C & EMPD Projects Division Manager.
Date :
Ref. : 2034301-78465-20 Dated: 23.02.2020

NOTE : Acceptance does not release the Contractor from his responsibilities in performing the work in strict conformance with Contract, Scope of Work and Technical Specifications.

الشركة السعودية للكهرباء
Saudi Electricity Company

TS: .....
Date: 7/10/2020

To: **ENG. ALI A. AL-KHAIRI**
Manager, Civil & Electromechanical Projects Division - South

From: **INDUSTRIAL SECURITY DEPARTMENT**
SEC, Southern Sector, Abha

Subject: **Additional of third transformer at Tihama CPS 132/33 KV**
Fire Stop Material

Reference is made on your letter inquiry #20- -12034301 dated 07/10/2020, concerning with the submitted document of above subject.

The submitted document is approved ..

Best regards

ENG. ALI A. ABDULMOTAALI
Projects Group Leader for ISD

7/10/2020

الشركة السعودية للكهرباء
Approved A
Approved with Comments B
Not Approved C

الشركة السعودية للكهرباء
Saudi Electricity Company

TS: .....
Date: 7/10/2020

To: **ENG. ALI A. AL-KHAIRI**
Manager, Civil & Electromechanical Projects Division - South

From: **INDUSTRIAL SECURITY DEPARTMENT**
SEC, Southern Sector, Abha

Subject: **Additional of third transformer at Sabt Aljarah 132/33 KV**
Fire Stop Material

Reference is made on your letter inquiry #20- -12034301 dated 07/10/2020, concerning with the submitted document of above subject.

The submitted document is approved ..

Best regards

ENG. ALI A. ABDULMOTAALI
Projects Group Leader for ISD

7/10/2020

الشركة السعودية للكهرباء
Approved A
Approved with Comments B
Not Approved C

SOUTHERN PROJECTS DEPARTMENT

Civil & Electromechanical Project Division-South

Address: H.Q, P.O.Box. 616, Abha, KSA Tel: 017-2319158, Fax: 017-2271020

الشركة السعودية للكهرباء
Saudi Electricity Company

REVIEW OF CONTRACTOR'S SUBMITTAL

Submittal No.:	CXA/NG /4400008632/SABT AL-JARAH/DTS-C-199-R0	*Revision:*	*0*	*Date:*	Oct-06-2020

PROJECT TITLE : Additional of Third Transformer SABT AL-JARAH 132/33kV

CONTRACT NO. : 44000008632 *BI NO.* : *PTS No.* '15SR1011

To : Engr. Ali A, Khairi
Division Manager
Civil & Electromachenical Project South
Tel: 017-2319144 E-mail: aakhairi@ngrid@sa

CC : Mr. Muhammad Ahmer Khan
Project Manager
MAkan2@ se.com.sa

From : Mohammed Hafeezuddin شركة كوجيلكس
Project Manager COGELEX
Tel: 0126186474 Mob: 0500091226
hafeezuddin.mohammed@ge.com

ACCEPTANCE OF THE FOLLOWING SUBMITTAL IS HEREBY REQUESTED (Check Appropriate Box)

☑ *Civil* ☐ *Electrical* ☐ *Electro-Mechanical* ☐ *QA/QC/Safety*

☐ *Drawings/Sketches* ☐ *Materials/Equipment* ☐ *Test Reports/Calculations* ☐ *Others (Specify)*

FILL-UP APPLICABLE INFORMATION BELOW:

Description : **Fire Stop Material for Opening & Closing**

Reference Specification :

Manufacturer/Supplier : **Vijay System Engineers-(VSE)**

Expected Delivery Time :

COMPLYING WITH SCOPE OF WORK AND TECHNICAL SPECIFICATIONS? YES ☑ NO ☐

IF "NO" INDICATE DEVIATIONS : (Provide justification and attach supporting documents)

Submitted by Contractor:

Signature:
Name Mohammed Hafeezuddin
Position Project Manager
Date Oct-06-2020

شركة كوجيلكس COGELEX FOR SUBMITTAL ONLY

Received by Project Dept:

Signature :
Name :
Position :
Date : 07.10.2020

FOR OFFICIAL USE ONLY

CEMPD-South has reviewed the above submittal & found it.

☒ *ACCEPTABLE*
☐ *ACCEPTABLE EXCEPT, AS NOTED*
☐ *NOT ACCEPTABLE (RESUBMIT)*
☐ *REJECTED*
☒ *SEE ATTACHED COMMENTS*

REMARKS :

Signature:
Name: **Engr. Ali A, Khairi**
Position: **Division Manager**
Civil & Electromachenical Project South
Date:
Ref. #: Dated:

Received by Contractor:

Signature :
Name :
Date :

NOTE : Acceptance does not release the Contractor from his responsibilities in performing the work in strict conformance with Contract, Scope of Work and Technical Specifications.

SOUTHERN PROJECTS DEPARTMENT

Civil & Electro-Mechanical Project Division-South

Address: H.Q. P.O.Box. 616, Abha, KSA Tel: 017-2319158, Fax: 017-2271020

الشركة السعودية للكهرباء
Saudi Electricity Company

REVIEW OF CONTRACTOR'S SUBMITTAL

Submittal No.:	CXA/NG /4400008631/TIHAMA-CPS/DTS-C-201-R0	*Revision:*	*0*	*Date:*	Oct-06-2020

PROJECT TITLE : Additional of Third Transformer to TIHAMA CPS 132/33kV

CONTRACT NO. : 44000008631 *BI NO.* : *PTS No.* 14SR1169

To : Engr. Ali A.Al-Khairi
Division Manager
Civil & Electromechanical Project-South
Tel:017-2319144, Email:aakhairi@ngrid.sa

From: Mohammed Hafeezuddin شركة كوجيلكس
Project Manager COGELEX
Tel: 0126513474 Mob: 0500091226
hafeezuddin.mohammed@ge.com

CC : Mr. Ahmed Al Saheri
Project Manager
Tel:017-2319120, Email:amshehri7s@ se.com.sa

ACCEPTANCE OF THE FOLLOWING SUBMITTAL IS HEREBY REQUESTED (Check Appropriate Box)

☑ *Civil* ☐ *Electrical* ☐ *Electro-Mechanical* ☐ *QA/QC/Safety*

☐ *Drawings/Sketches* ☐ *Materials/Equipment* ☐ *Test Reports/Calculations* ☐ *Others (Specify)*

FILL-UP APPLICABLE INFORMATION BELOW:

Description : **Fire Stop Material for Opening & Closing**

Reference Specification :

Manufacturer/Supplier : **Vijay System Engineers-(VSE)**

Expected Delivery Time :

COMPLYING WITH SCOPE OF WORK AND TECHNICAL SPECIFICATIONS? YES ☑ NO ☐

IF "NO" INDICATE DEVIATIONS : (Provide justification and attach supporting documents)

Submitted by Contractor:

شركة كوجيلكس
COGELEX
FOR SUBMITTAL ONLY

Signature:
Name Mohammed Hafeezuddin
Position Project Manager
Date Oct-06-2020

Received by Project Dept:

Signature :
Name :
Position :
Date : 07.10.2020

FOR OFFICIAL USE ONLY

CMPED-South has reviewed the above submittal & found it

☒ *ACCEPTABLE*
☐ *ACCEPTABLE EXCEPT, AS NOTED*
☐ *NOT ACCEPTABLE (RESUBMIT)*
☐ *REJECTED*
☒ *SEE ATTACHED COMMENTS*

YES

REMARKS :

Signature:
Name: **Engr. Ali A.Al-Khairi**
Position: **Division Manager**
Civil & Electromechanical Project-South
Date:
Ref. #: _____ *Dated:* _____

Received by Contractor:

Signature :
Name :
Date :

NOTE : Acceptance does not release the Contractor from his responsibilities in performing the work in strict conformance with Contract, Scope of Work and Technical Specifications.

نقل الكهرباء
National Grid SA

Internal Correspondence I

ENGINEERING & DESIGN DEPARTMENT
ENGINEERING & DESIGN DIVISION - WOA
Jeddah, SEC-HQ

Our Reference #: 30501201 / 2565 - J / 20

Dated : 01 / 11 / 2020 G
15 / 03 / 1442 H

To : HV Projects Department - West

Attention : ENGR. OMAR FATTAH
DIVISION MANAGER

Contract # : 2082

Project Title : CONSTRUCTION OF MODON ASFAN SUBSTATION

Subject : TECHNICAL SUBMITTAL FOR FIRE STOP MATERIAL

Contractor's Ref.#: DTS-172 R01

Dated : 26 / 10 / 2020 G

Date Received @ EDD: 26 / 10 / 2020 G

STATUS OF THIS SUBMITTAL:

[X]	**A** Acceptable	[ ]	**B** Acceptable with Comments
[ ]	**C** Acceptable, Except as noted (Resubmit)	[ ]	**D** Rejected (Resubmit)
[ ]	**E** Clarification / For Information	[X]	See Attached Comments (01 Page)

Regards,

MMJ
Cc: ENGR. ABDULLAH ALHARBI
NESMA

MOHAMMED ALI ALGHAMDI
Substation & Transmission Line Section Head
Engineering & Design Division - WOA

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

Internal Correspondence

ENGINEERING & DESIGN DEPARTMENT
ENGINEERING & DESIGN DIVISION - WOA

Jeddah, SEC-HQ

Our Reference #: 30501201 / 2723 - J / 20

Dated : 16 / 11 / 2020 G
01 / 04 / 1442 H

To : HV Projects Department - West

Attention : ENGR. OMAR A. AL-FATAH
PROJECT MANAGER WOA

Contract # : PCR-T-0005-17

Project Title : CONSTRUCTION OF 110/13.8KV S/S FOR NATIONAL GUARD HOSPITAL-TAF

Subject : FIRE RETARDANT PAINT FOR INDOOR HV CABLES

Contractor's Ref.#: DTS-368 R01

Dated : 16 / 11 / 2020 G

Date Received @ EDD: 16 / 11 / 2020 G

STATUS OF THIS SUBMITTAL:

[X]	**A** Acceptable	[ ]	**B** Acceptable with Comments
[ ]	**C** Acceptable, Except as noted (Resubmit)	[ ]	**D** Rejected (Resubmit)
[ ]	**E** Clarification / For Information	[X]	See Attached Comments (01 Page)

Regards,

SJA

Cc: ENGR. PARVAIZ AKBAR
AL-FANAR

MOHAMMED ALI ALGHAMDI
Substation & Transmission Line Section Head
Engineering & Design Division - WOA

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

نقل الكهرباء
National Grid SA

Internal Correspondence I

ENGINEERING & DESIGN DEPARTMENT
ENGINEERING & DESIGN DIVISION - WOA
Jeddah, SEC-HQ

Our Reference #: 30501201 / 3117 - J / 21

Dated : 01 / 01 / 2021 G
17 / 05 / 1442 H

To : HV Projects Department - West

Attention : ENG. OMAR FATAH
DIV. MANAGER

Contract # : 4400008946

Project Title : CONSTRUCTION OF 110/13.8KV ARAFAT-3 S/S MAKKAH

Subject : TECHNICAL SUBMITTAL FOR FIRE STOP MATERIAL

Contractor's Ref.#: DTS-206 R01

Dated : 30 / 12 / 2020 G

Date Received @ EDD: 30 / 12 / 2020 G

STATUS OF THIS SUBMITTAL:

[X]	**A** Acceptable	[ ]	**B** Acceptable with Comments
[ ]	**C** Acceptable, Except as noted (Resubmit)	[ ]	**D** Rejected (Resubmit)
[ ]	**E** Clarification / For Information	[X]	See Attached Comments (02 Pages)

Regards,

SJA

Cc: ENG,IBRAHIM AL-ASMI
NESMA

MOHAMMED ALI ALGHAMDI
Substation & Transmission Line Section Head
Engineering & Design Division - WOA

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

Internal Correspondence I

ENGINEERING & DESIGN DEPARTMENT
ENGINEERING & DESIGN DIVISION - WOA
Jeddah, SEC-HQ

Our Reference #: 30501201 / 0501 - J / 21

Dated : 17 / 02 / 2021 G
05 / 07 / 1442 H

To : HV Projects Department - West

Attention : ENGR. OMAR A. AL-FATAH
PROJECT MANAGER WOA

Contract # : PCR-T-0005-17

Project Title : CONSTRUCTION OF 110/13.8KV S/S FOR NATIONAL GUARD HOSPITAL-TAF

Subject : FIRE STOP MATERIAL VSE

Contractor's Ref.#: DTS-383 R00

Dated : 24 / 01 / 2021 G

Date Received @ EDD: 24 / 01 / 2021 G

STATUS OF THIS SUBMITTAL:

[X]	**A** Acceptable	[ ]	**B** Acceptable with Comments
[ ]	**C** Acceptable, Except as noted (Resubmit)	[ ]	**D** Rejected (Resubmit)
[ ]	**E** Clarification / For Information	[X]	See Attached Comments (01 Page)

Regards,

MOHAMMED ALI ALGHAMDI
Substation & Transmission Line Section Head
Engineering & Design Division - WOA

MMJ
Cc: ENGR. PARVAIZ AKBAR
AL-FANAR

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

CTAPD-023 (2006/05)

SEC/E&P/EHV ENGINEERING & PROJECTS
EXTRA HIGH VOLTAGE PROJECTS DEPARTMENT - EOA

الشركة السعودية للكهرباء
Saudi Electricity Company
طاقة مثمرة

REVIEW OF CONTRACTOR'S SUBMITTAL

Submittal No.	ASG-SEC-UG-12645-022A (Rev. B)	Date:	01-12-2020
SEC Ref. No.	20-01694-3050301	Date:	25-11-20

PROJECT TITLE : CONSTRUCTION OF 115KV D/C OHTL FROM NARIYAH NORTH BSP TO MARJAN / ZULUF WATER SUPPLY SUBSTATION

CONTRACT No. : 4400012645 BI No. : JO No.: 3-1833504.02

To : Mr. Wasel A. Al-Muhammad
SA-EOA, Program Director
EHV Proects Department - EOA
Kingdom of Saudi Arabia
Fax # 038585672

From : Al Sharif Group for Cont. Trad. (Holding) Limited Co.
Building No. 99, Fatimah Al-Zahra Street
Mohammadiyah District, P.O. Box. 10049
Jeddah 21433, Kingdom of Saudi Arabia
Fax # 966 12 234 4344

ACCEPTANCE OF THE FOLLOWING SUBMITTAL IS HEREBY REQUESTED:

Check in the Appropriate Box: ☐ Drawings / Sketches ☐ Materials / Equipment ☐ Test Reports ☑ Others (Specify) **Technical Submittal**

FILL-UP APPLICABLE INFORMATION BELOW:

Description	:	**Technical Submittal of Power Cable coating material (EE 633147)** **With Compliance Statement**
Reference Specification	:	**PTS-18EO133, Rev. 00**
Manufacturer/Supplier	:	
Vendor Address	:	
LTSA Previous Reference	:	
SEC's Previous Reference	:	
Expected Delivery Time	:	N/A

COMPLYING WITH SCOPE OF WORK AND TECHNICAL SPECIFICATIONS? ☑ YES ☐ NO

IF "**NO**" INDICATE DEVIATIONS : (Provide justification and attach supporting documents)

(Contractor) AL SHARIF GROUP For Cont. Dev. Trad. Holding Co.
Submitted by : Project Manager;
Signature :
Name : **Engr. Ali Jibran**
Date : **01-12-2020**

(SEC) SEC/E&P Engineering & Projects
Received by: Project Engineering
Signature :
Name : **Hassan A. AlJubaili**
Date :

FOR Saudi Electricity Co USE ONLY

Saudi Electricity Co. HAVE REVIEWED THE ABOVE SUBMITTAL AND FOUND IT:

- ☒ ACCEPTABLE
- ☐ ACCEPTABLE, AS NOTED
- ☐ NOT ACCEPTABLE (RESUBMIT)
- ☐ PROVIDE ADDITIONAL INFORMATION
- ☐ SEE ATTACHED COMMENTS

REMARKS :
.....
.....
.....
.....
.....
Please use extra sheets if needed.

Project Manager
Saudi Aramco Projects-EOA Program

Signature :
Name : **Ali H. Al-ben Saad** AID
Date : 10-12-2020

Received by (Contractor) Signature :
Name :
Date :

NOTE : Acceptance does not release the Contractor from his responsibilities in performing the work in strict conformance with Contract, Scope of Work and Technical Specifications.

E&DD/E&DD-EOA/C&MEU Letter No. : 20 - 01786 - 30501301 dated 09-12-2020

Internal Correspondence I

ENGINEERING & DESIGN DEPARTMENT
ENGINEERING & DESIGN DIVISION - WOA
Jeddah, SEC-HQ

Our Reference #: 30501201 / 1307 - J / 21

Dated : 03 / 05 / 2021 G
21 / 09 / 1442 H

To : HV Projects Department - West

Attention : ENGR. FAYEZ AL ANSARI
DIV. MANAGER

Contract # : 2251

Project Title : INTSALLATION OF 110KV UG CABLES FOR 110 - 13.8KV MODON ASFAN SS JEDDAH

Subject : CABLE COATING MATERIAL

Contractor's Ref.#: DTS-65 R01

Dated : 21 / 04 / 2021 G

Date Received @ EDD: 21 / 04 / 2021 G

STATUS OF THIS SUBMITTAL:

[X]	**A** Acceptable	[ ]	**B** Acceptable with Comments
[ ]	**C** Acceptable, Except as noted (Resubmit)	[ ]	**D** Rejected (Resubmit)
[ ]	**E** Clarification / For Information	[X]	See Attached Comments (01 Page)

Regards,

MOHAMMED ALI ALGHAMDI
Substation & Transmission Line Section Head
Engineering & Design Division - WOA

MMJ
Cc: ENGR. MOHAMMED MEGALLY
AL-SHARIF GROUP

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

نقل الكهرباء
National Grid SA

Internal Correspondence |

ENGINEERING & DESIGN DEPARTMENT
ENGINEERING & DESIGN DIVISION - WOA
Jeddah, SEC-HQ

Our Reference #: 30501201 / 4565 - J / 22

Dated : 17 / 02 / 2022 G
16 / 07 / 1443 H

To : HV Projects Department - West

Attention : Engr. Nabeel G Khushaim
Division Manager
Tel.#: 0148619120,121

Contract # : 4400006476

Project Title : New 110/13.8KV Azizia S/S, Madina

Subject : TECHNICAL SUBMITTAL FOR FIRE STOP MATERIALS

Contractor's Ref.#: DTS-346 R01

Dated : 13 / 02 / 2022 G

Date Received @ EDD: 14 / 02 / 2022 G

STATUS OF THIS SUBMITTAL:

[X]	**A** Acceptable	[ ]	**B** Acceptable with Comments
[ ]	**C** Acceptable, Except as noted (Resubmit)	[ ]	**D** Rejected (Resubmit)
[ ]	**E** Clarification / For Information	[X]	See Attached Comments (02 Pages)

Regards,

MOHAMMED ALI ALGHAMDI
Substation & Transmission Line Section Head
Engineering & Design Division - WOA

MMJ
Cc: Agil AlAttas
KADI

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

SAUDI ELECTRICITY PROJECTS DEVELOPMENT COMPANY

HV PROJECTS DEPARTMENT-SOUTH

Civil & Electro - mechanical Projects Division

Address: H.Q, P.O.Box. 616, Abha, KSA ; Tel: 017-2319119, Fax: 017-2271020

الشركة السعودية للكهرباء
Saudi Electricity Company
نعمل بإتقان من أجلكم

REVIEW OF CONTRACTOR'S SUBMITTAL

Submittal No.:	TDP/SEC/DHP.1/SS542/DTS-EM-39	*Revision:* 0	*Date:* 27/2/2022

PROJECT TITLE : **POWER SUPPLY TO HOUSING PROJECT (STAGE-1) OF MINISTRY OF DEFENCE IN JIZAN**

CONTRACT NO. : **1/4/542C** *BI NO.* : _____ *PTS No.* : **16SN110**

To : ENGR. Ali AL. Khairi
Division Manager,
Civil & Electromechanical Projects Division.
Tel: 017-2319145 Email: AAKhairi@se.com.sa
CC : Project Engineer: Khalid Dahman Alshehri

From: TDP Company
P.O.Box 1327-Riyadh 11431
Tel:(011) 2812222;Fax (011)4889035

الشركة التضامنية للأعمار والتجارة
Trading & Development Partnership

ACCEPTANCE OF THE FOLLOWING SUBMITTAL IS HEREBY REQUESTED (Check Appropriate Box)

☐ *Drawing* ☐ PROJECT SCHEDULE ☐ *QA/QC/Safety* ☐ *CV APPROVAL*
☐ *TRAINING* ☑ *Materials/Equipment* ☐ *Reports/Calculations* ☐ *Others (Specify)*

FILL-UP APPLICABLE INFORMATION BELOW:

Description : **Fire stop materials technical submittal rev.00**
Reference Specification : **PTS : 16SN110**
Manufacturer/Supplier : _____
Expected Delivery Time : _____

COMPLYING WITH SCOPE OF WORK AND TECHNICAL SPECIFICATIONS? ☐ *YES* ☐ *NO*
*IF" **NO** " INDICATE DEVIATIONS : (Provide justification and attach supporting documents)*

_____

Submitted by Contractor:

Signature: .....
Name : ***Walid Ismail***
Position : ***Projects Manager***
Date : *27/2/2022*
(STAMP)

C.R. 1010009590 — Projects Division — TRADING & DEVELOPMENT PARTNERSHIP

Received by Project Dept:

Signature : Received on 26.02.2022
Name :
Position :
Date :
(STAMP)

FOR OFFICIAL USE ONLY

P&RD -South has reviewed the above submittal & found it

☑ *ACCEPTABLE*
☐ *ACCEPTABLE EXCEPT, AS NOTED*
☐ *NOT ACCEPTABLE (RESUBMIT)*
☐ *REJECTED*
☐ *SEE ATTACHED COMMENTS*

REMARKS :

Signature: For .....
Name : **ENGR. Ali Al. Khairi**
Position : **Division Manager,**
Civil & Electromechanical Projects Division.
Ref. #:_____ Dated: 28/02/2022

Received by Contractor:

Signature : .....
Name : .....
Date : .....

NOTE : Acceptance does not release the Contractor from his responsibilities in performing the work in strict conformance with Contract, Scope of Work and Technical Specifications.

Internal Correspondence |

ENGINEERING & DESIGN DEPARTMENT
ENGINEERING & DESIGN DIVISION - WOA
Jeddah, SEC-HQ

Our Reference #: 30501201 / 4927 - J / 22

Dated : 17 / 03 / 2022 G
14 / 08 / 1443 H

To : HV Projects Department - West

Attention : ENGR. MAZEN M. MEHDI
PROJECT MANAGER

Contract # : 4400013334

Project Title : REHABILITATION & RESTORATION OF EXISTING 110/13.8KV NAF SS JEDDAH

Subject : FIRE STOP MATERIAL VSF

Contractor's Ref.#: DTS-120 R02

Dated : 10 / 03 / 2022 G

Date Received @ EDD: 13 / 03 / 2022 G

STATUS OF THIS SUBMITTAL:

[X]	**A** Acceptable	[ ]	**B** Acceptable with Comments
[ ]	**C** Acceptable, Except as noted (Resubmit)	[ ]	**D** Rejected (Resubmit)
[ ]	**E** Clarification / For Information	[X]	See Attached Comments (02 Pages)

Regards,

MOHAMMED ALI ALGHAMDI
Substation & Transmission Line Section Head
Engineering & Design Division - WOA

MMJ
Cc: ENGR. MUSTAFA M. EL-KAYY
NESMA

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

Internal Correspondence | المراسلات الداخلية

ENGINEERING & DESIGN DEPARTMENT
ENGINEERING & DESIGN DIVISION - WOA
Jeddah, SEC-HQ

Our Reference #: 30501201 / 8659 - J / 22

Dated : 15 / 12 / 2022 G
21 / 05 / 1444 H

To : HV Projects Department - West

Attention : ENGR. OMAR A. FATTAH
PROJECT MANAGER

Contract # : 4400014490

Project Title : CONSTRUCTION OF 110/13.8KV FRUSYAH SUBSTATION AT JEDDAH

Subject : TECHNICAL SUBMITTAL OF FIRE STOP MATERIALS

Contractor's Ref.#: DTS-1508 R02

Dated : 13 / 12 / 2022 G

Date Received @ EDD: 13 / 12 / 2022 G

STATUS OF THIS SUBMITTAL:

[X]	**A** Acceptable	[ ]	**B** Acceptable with Comments
[ ]	**C** Acceptable, Except as noted (Resubmit)	[ ]	**D** Rejected (Resubmit)
[ ]	**E** Clarification / For Information	[X]	See Attached Comments (01 Page)

Regards,

MOHAMMED ALI ALGHAMDI
Substation & Transmission Line Section Head
Engineering & Design Division - WOA

MMJ
Cc: ENGR, ABDUL WAHAB SAIT KADI

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

نقل الكهرباء
National Grid SA

Internal Correspondence |

ENGINEERING & DESIGN DEPARTMENT
ENGINEERING & DESIGN DIVISION - WOA
Jeddah, SEC-HQ

Our Reference #: 30501201 / 4237 - J / 22

Dated : 18 / 01 / 2022 G
15 / 06 / 1443 H

To : HV Projects Department - West

Attention : ENGR. OMER FATTAH
DIV. MANAGER

Contract # : 11022020

Project Title : CONSTRUCTION OF JEDDAH ECONOMIC CITY 110-13.8KV SS

Subject : TECHNICAL SUBMITTAL FOR FIRE STOP MATERIAL (VSE)

Contractor's Ref.#: DTS-4408 R01

Dated : 16 / 01 / 2022 G

Date Received @ EDD: 16 / 01 / 2022 G

STATUS OF THIS SUBMITTAL:

[X]	**A** Acceptable	[ ]	**B** Acceptable with Comments
[ ]	**C** Acceptable, Except as noted (Resubmit)	[ ]	**D** Rejected (Resubmit)
[ ]	**E** Clarification / For Information	[X]	See Attached Comments (02 Pages)

Regards,

MOHAMMED ALI ALGHAMDI
Substation & Transmission Line Section Head
Engineering & Design Division - WOA

MMJ
Cc: ENGR. BILAL AWAD
NESMA

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

SAUDI ELECTRICITY PROJECTS DEVELOPMENT COMPANY

Civil & Electromechanical Project Division

Address: H.Q, P.O.Box. 616, Abha, KSA
Tel: 017-2319158, Fax: 017-2271020

الشركة السعودية للكهرباء
Saudi Electricity Company
Diligently Serving You

REVIEW OF CONTRACTOR'S SUBMITTAL

Submittal No.:	Haif/SEC/15SN1187	DTS-AAR/309/Rev.01	*Date:*	12/2/2023

PROJECT TITLE : **Construction of Abu Arish-2 132/13.8kv Substation**

CONTRACT NO. : **4400013046** *BI NO.* : *PTS No.* : **15SN1187**

To : Engr. Ali A.Alkhairi
Program Manager,Jazan Projects
Projects Portfolio-SOA

CC: Abdul Latif Mohammed Asiri
Mechanical Engineer

From: Haif Bin Mohammed Bin Abboud Al Qahtani & Associates forTrading & contracting Co.
Reginal office-P.O Box-21,khamis Mushayt - KSA
Name: Engr. Hossam Hossney
Project Manager
Telephone: +966 540534259
E-mail: hossam.hosni@haifcompany.com

شركة هيف
Haif Company

FILL-UP APPLICABLE INFORMATION BELOW:

Description : **Request For Approval Of Fire Stop Material-Rev.01**
Reference Specification :
Manufacturer/Supplier : **VIJAY SYSTEMS ENGINEERS (VSE)**
Expected Delivery Time :

COMPLYING WITH SCOPE OF WORK AND TECHNICAL SPECIFICATIONS? ☑ *YES* ☐ *NO*
*IF "**NO**" INDICATE DEVIATIONS : (Provide justification and attach supporting documents)*

Submitted by Contractor:

Signature:
Name : **Engr.Hossam Hossney**
Position : **Project Manager**
Date : **12/2/2023**
(STAMP)

Received by Project Dept:

Signature : Received on 13.02.2023
Name :
Position :
Date :
(STAMP)

FOR OFFICIAL USE ONLY

CEMPD-South has reviewed the above submittal & found it

- ☑ *ACCEPTABLE*
- ☐ *ACCEPTABLE EXCEPT, AS NOTED*
- ☐ *NOT ACCEPTABLE (RESUBMIT)*
- ☐ *REJECTED*
- ☐ *SEE ATTACHED COMMENTS*

REMARKS :
- Please deliver materials without further delay

Signature: For
Name : **Engr. Ali A Al Khairi**
Position : **Program Manager,Jazan Projects**
Projects Portfolio-SOA
Ref. #: Dated: 14.02.2023

Received by Contractor:

Signature :
Name :
Date :

NOTE : *Acceptance does not release the Contractor from his responsibilities in performing the work in strict conformance with Contract, Scope of Work and Technical Specifications.*

نقل الكهرباء
National Grid SA

Internal Correspondence | المراسلات الداخلية

ENGINEERING & DESIGN DEPARTMENT
ENGINEERING & DESIGN DIVISION - WOA
Jeddah, SEC-HQ

Our Reference #: 30501201 / 10186 - J / 23

Dated : 16 / 02 / 2023 G
25 / 07 / 1444 H

To : HV Projects Department - West

Attention : ENGR. ABDULLAH H. ALMALKI
PROGRAM MANAGER

Contract # : 4400015562

Project Title : INSTALLING NEW 110/13.8 KV GAS INSULATED TRANSFORMERS - MAKKAH

Subject : TECHNICAL SUBMITTAL OF FIRE STOP COATING MATERIAL FOR CABLES

Contractor's Ref.#: DTS-66 R02

Dated : 16 / 02 / 2023 G

Date Received @ EDD: 16 / 02 / 2023 G

STATUS OF THIS SUBMITTAL:

[X]	**A** Acceptable	[ ]	**B** Acceptable with Comments
[ ]	**C** Acceptable, Except as noted (Resubmit)	[ ]	**D** Rejected (Resubmit)
[ ]	**E** Clarification / For Information	[X]	See Attached Comments (01 Page)

Regards,

MMJ/WUD
Cc: ENGR
ALFANAR

ABDULLAH SAEED AL QARNI
Substation & Transmission Line Section Head
Engineering & Design Division - WOA

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

380 KV PROJECTS APPROVALS

Industrial Security Dept. – WOA Safety & Environmental Prevention Division Projects Group	الشركة السعودية للكهرباء Saudi Electricity Company	إدارة الأمن الصناعي للمشروعات إدارة السلامة والصحة المهنية مجموعة المشاريع

Technical Submittal Status

To: Project Manager, EHV Project Department, West & South
Attn: Engr. Tahir Naeem Alyana, PMP & PMI-RMP

☑ Material/Equipment ☐ Drawing ☐ Design

Project Title:	Construction of Duba Green 380/132 KV Substation
Description / Doc #:	Technical submittal of Fire Stop Material
No. of Sheet	1 Folder + 1 CD
DTS NO.:	0178
Revision NO.:	00
Contract No.:	4400006645/00

STATUS		
A	Approved	✓
B	Approved except as Noted	
C	Not Approved, Revise As per Comments & Resubmit	
D	Rejected	
AS	AS-Built	
FI	For Information	

Industrial Security Dep. Project Group	Name	Position	Date
	Mohammad Y. Bantuas	ISD Project Engineer	4 August 2016

Internal Correspondence المراسلات الداخلية

EHV ENGINEERING & DESIGN DEPARTMENT

SUBSTATIONS ENGINEERING & DESIGN DIVISION

4th Floor, Platinum Plaza, Al-Andalus St Jeddah

Our Reference #: 12024101 / 4876 / MAS / 15

Dated : 27 / 08 / 2015 G
12 / 11 / 1436 H

To : Manager EHV Projects Department - WOA/SOA

Attention : Engr Tahir Naeem
Project Manager
Fax #: 012-6500179

Contract # : 4400004132/00

Project Title : MADINAH CENTER 380 kV BSP

Subject : Technical Submittal for Fire Stop and Cable Coating Material

Contractor's Ref. #: SSEM/SEC/MDC/DTS-DTS-362 R0

Dated : 12 / 08 / 2015 G

EHV PD Ref. # : 12024101/MDC/DTS -

Dated : 12 / 08 / 2015 G

Date Received @ EHV-EDD/SED: 12 / 08 / 2015 G

STATUS OF THIS SUBMITTAL

[X] A Acceptable

[ ] B Acceptable with Comments

[ ] C Acceptable, Except as noted (Resubmit)

[ ] D Rejected (Resubmit)

[ ] E Clarification / For Information

[ ] See Attached Comments (00 Page)

If you have any questions, please contact Engineer Fahad S. Aljaghthami on Tel. # 012-263-7063 ext. 111 or Engineer Monammed AbdulWahab AlSomal on ext. 102

Regards,

30/8/2015

YOUSEF AHMED ALHOMRANI
Division Manager
Substations Engineering & Design Division

MAS

Cc: *KHALED AL NAJJAR*
SSEM

The signatory hereof does not relieve the Contractor from his contractual responsibility & obligation to carry out the requirements of the project contract scope of work and technical specifications (SOW/TS).

ARCHIVED

E&P / EHV ENGINEERING & PROJECTS
EXTRA HIGH VOLTAGE PROJECTS DEPARTMENT

الشركة السعودية للكهرباء
Saudi Electricity Company

REVIEW OF CONTRACTOR'S SUBMITTAL

Use: C-for Civil, M-for Mechanical, E-for Electrical, S-for SCADA, CM-for Communication, SF-for Safety

Submittal No.	ABB192-SEC-C-0076.R0	Date	11.04.2017
Ref. Spec. No.		Date	

PROJECT TITLE : **Constructions of Al-Fadhili Gas Plant 380/115kVS/S**

CONTRACT No. : **0000000/00** BI No. : _____ JO No.: **0-0000000.00**

To :	From : (Contractor)
EHV PROJECTS DEPARTMENT-EOA *Room 2-200E, SEC-EOA HQS* *Dammam, Saudi Arabia*	**ABB CONTRACTING CO. LTD.**

ACCEPTANCE OF THE FOLLOWING SUBMITTAL IS HEREBY REQUESTED:

Check in the Appropriate Box: ☐ Drawings / Sketches ☑ Materials / Equipment ☐ Test Reports ☐ Others **CD - Soft Copy**

FILL-UP APPLICABLE INFORMATION BELOW:

Description	:	**Submission of Civil Construction Materials**
Reference	:	*1. Hollow Meta Doors_Saudi Prefab 2. Raised Floor_Rhino 3. Fire stop & Smoke stop_VSE 4. PVC Pipes_National Khem 5. Plastic Pipes_Al Watania 6. Roof Water Proofing System Materials_ Henkel Polybit*
Attachments	:	**Enclosed CD for soft copies of Technical Documents, Previous Approval and Company Profile**
	:	**For review and approval.**

COMPLYING WITH SCOPE OF WORK AND TECHNICAL SPECIFICATIONS? ☐ YES ☐ NO

IF "NO" INDICATE DEVIATIONS : *(Provide justification and attach supporting documents)*

(Contractor) **Submitted by** *Project Manager*	*(SEC)* Received by: *Project Engineer, EHVPD*
Signature :	Signature :
Name : HASSAN MERHI	Name : Amer Al Saleh
Date : 11 Apr 17	Date :

FOR SEC-EOA / E&P / EHV ENGINEERING & PROJECTS DEPARTMENT USE ONLY

SEC HAVE REVIEWED THE ABOVE SUBMITTAL AND FOUND IT:

- ☐ ACCEPTABLE
- ☒ ACCEPTABLE, AS NOTED
- ☐ NOT ACCEPTABLE (RESUBMIT)
- ☐ PROVIDE ADDITIONAL INFORMATION
- ☒ SEE ATTACHED COMMENTS

REMARKS :

- 05 Pages

Please use extra sheets if needed.

15.04.2017

TES / Projects Manager (A), EHVPD

Signature :
Name : Wasel A. Al-Muhammad
Date : 24.05.2017

Received by (Contractor) Signature : _____
Name : _____
Date : _____

SEC-EOA INTERNAL REFERENCES (for EHVPD USE ONLY)

NOTE : Acceptance does not release the Contractor from his responsibilities in performing the work in strict conformance with Contract, Scope of Work and Technical Specifications.

To be received by Jose Abraham at Site

PROJECT TITLE :- CONSTRUCTION OF AL FADHILI GAS PLANT 380/115 kV S/S

Ref:-Submittal No:-PTS –14 EN 326 -ABB 192 –SEC–C- 0076 -3 .RO Dt 11.04.2017

Submission of FIRE STOP and SMOKE STOP– (M/s VSE)

COMMENTS :- ACCEPTABLE

Submitted By:-

Jose Abraham

Project Engineer
SEC PMD CONSULTANT
Cell No : 05344 20153
Dt : 15.04.2017

Partheeswaran Kesavan

From:	adil bahar <a.bahareldein@gmail.com>
Sent:	Thursday, May 25, 2017 5:03 PM
To:	F1700198@hdec.co.kr
Cc:	Thipperrudra Swammy; ENG.MOAHMED MANSOUR; Prakash; Ahmed F. Abdelmageed; Khaled M. Abdulraouf; Sunil_Electrical; H.M.Yoon; adil bahar
Subject:	Re: Approval for Fire rated paint for cable coating
Attachments:	image007.jpg; image008.jpg; image005.png; image006.png; image003.png; image004.png

Dear Mr. Parthi ,

Your proposal for Fire rated paint (Vijay Systems Engineers PVT. LTD) is approved for cables coating.

You can proceed.

FYI & A

Regards,

Engr. Adel M.Bahareldin
Mobile: 0595443606
SEC–Consultant Mechanical Engr.
SEC-WOA YBC Yanbu

On Thu, May 25, 2017 at 4:27 PM, Khaled M. Abdulraouf <KMAbdulraouf@se.com.sa> wrote:

Dear Mr. Adel ,

Fire rated paint vendor (Vijay Systems Engineers PVT. LTD) is approved for cables coating.

Thanks & Best regards ;

Khaled M. Abdulraouf

Project Engineer
EHV Projects Department - WOA & SOA
: 801261 @se.com.sa
: +96612 650 0574 / 650 0176 Ext. 113
: +966 506296533

Diligently Serving You

From: adil bahar [mailto:a.bahareldein@gmail.com]
Sent: Monday, May 22, 2017 02:41 PM
To: Swamy SEC; Thipperrudra Swammy
Cc: Khaled M. Abdulraouf; ENG.MOAHMED MANSOUR; Prakash; adil bahar
Subject: Fwd: Approval for Fire rated paint for cable coating

Dear Mr. Swammy,
With reference to the subject please find MEEDCO proposed Fire rated paint vendor (Vijay Systems Engineers PVT. LTD) for cable coating as per attached document.
For approval.

Regards,

Engr. Adel M.Bahareldin

Mobile: 0595443606

SEC–Consultant Mechanical Engr.

SEC-WOA YBC Yanbu

---------- Forwarded message ----------
From: **Sunil Asokan** <F1500716@hdec.co.kr>
Date: Sun, May 21, 2017 at 9:25 PM
Subject: Approval for Fire rated paint for cable coating
To: adil bahar <a.bahareldein@gmail.com>
Cc: "ENG.MOAHMED MANSOUR" <eng_elmansour@yahoo.com>, "Khaled M. Abdulraouf" <KMAbdulraouf@se.com.sa>, Partheeswaran Kesavan <partheeswarannd@gmail.com>, wisdom07@hdec.co.kr, Prakash <eeeprakash84@gmail.com>, Chiwon Lee <chiwon.lee@hdec.co.kr>, "오명권(OH MYOUNG KWON)" <myoungkwon@hdec.co.kr>, "최홍석(CHOI HONG SEOK)" <jiscwezo@hdec.co.kr>, rajasekaran@hdec.co.kr

Dear Sir,

Regarding the subject matter during Site progress meeting on 10.05.2017 SEC management instructed to MEEDCO to submit the new vendor proposal for fire rated paint materials for cable coating.

So please kindly review and approve the attached documets for the new vendor.

Thanks and regards

Sunil Asokan

Site Manager

Yanbu City 380/110/13.8kV BSP Project / MEEDCO

Mobile : +966 (0)53 253 6287

E-mail : F1500716@hdec.co.kr

HYUNDAI MEEDCO

الشركة السعودية للكهرباء
Saudi Electricity Company

Internal Correspondence | المراسلات الداخلية

EHV ENGINEERING & DESIGN DEPARTMENT

SUBSTATIONS ENGINEERING & DESIGN DIVISION

4th Floor, Platinum Plaza, Al-Andalus St., Jeddah

Our Reference #: 12024101 / 1321 - J / 17

Dated : 31 / 07 / 2017 G
07 / 11 / 1438 H

To : Manager, EHV Projects Department - WOA/SOA

Attention : Engr. Faisal A. Banakhar
Project Manager
Tel.#: 02-663-7315
Fax #: 02-650-0179

Contract # : 4400002660/00

Project Title : AL-KHALDIYA 380/110/13.8kV BSP

Subject : Technical Submittal for Fire Stop Material

Contractor's Ref.#: Al-Toukhi/SEC/Al-Khaldiya/DTS-424 R3

Dated : 30 / 07 / 2017 G

EHV PD Ref.# : 12023001/KHALDIYA/DTS-424 R3

Dated : 27 / 07 / 2017 G

Date Received @ EHV-EDD/SED: 30 / 07 / 2017 G

STATUS OF THIS SUBMITTAL:

[X]	A Acceptable	[ ]	B Acceptable with Comments
[ ]	C Acceptable, Except as noted (Resubmit)	[ ]	D Rejected (Resubmit)
[ ]	E Clarification / For Information	[ ]	See Attached Comments (00 Page)

If you have any questions, please contact Engineer Fahad S. Aljaghthami on Tel. # 012-263-7063 ext. 111 or Engineer MOHD. IQBAL UR RAHMAN on ext. 103

Regards,

MOHAMMED SALEH BAAZZIM
Division Manager (A)
Substations Engineering & Design Division

MIR/GK

Cc: Fahad Saleh Al-Aslani
ALTOUKHI

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

EHV ENGINEERING & DESIGN DEPARTMENT

SUBSTATIONS ENGINEERING & DESIGN DIVISION

4th Floor, Platinum Plaza, Al-Andalus St., Jeddah

Our Reference #: 12024101 / 0126 - J / 19

Dated : 28 / 02 / 2019 G
22 / 06 / 1440 H

To : Manager, EHV Projects Department - WOA/SOA

Attention : FAISAL A BANAKHAR
Project Manager
Tel.#: 012-6537315
Fax #: 012-6500179

Contract # : 4400006620/00

Project Title : Jeddah Prince Fawaz Housing (JFH) 380/110/13.8 kV BSP

Subject : Fire Stop Material Submittal by M/s VSE

Contractor's Ref.#: HDEC/JFH/DTS-432 R0

Dated : 14 / 02 / 2019 G

EHV PD Ref.# : 12023001/JFH/DTS-432 R0

Dated : 14 / 02 / 2019 G

Date Received @ EHV-EDD/SED: 14 / 02 / 2019 G

STATUS OF THIS SUBMITTAL:

[X]	**A** Acceptable	[ ]	**B** Acceptable with Comments
[ ]	**C** Acceptable, Except as noted (Resubmit)	[ ]	**D** Rejected (Resubmit)
[ ]	**E** Clarification / For Information	[ ]	See Attached Comments (00 Page)

If you have any questions, please contact Engineer Abdullah A. Alghamdi on Tel. # 012-263-7063 ext. 101 or Engineer OSAIS L. CORPORAL Jr. on ext. 151

Regards,

Abdullah A. Alghamdi
Group Leader - WOA & SOA
Substations Engineering & Design Division

ALC/MAS

Cc: J.H.JANG
HUNDAI ENGINEERING & CON

الشركة السعودية للكهرباء
دائرة هندسة وتصاميم
SENT
Substations Engineering & Design Division

BRANCH OF PEC
RECEIPT
19 MAR 2019
NO:
SS - 389

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

SAUDI ELECTRICITY PROJECTS DEVELOPMENT CO.
Projects Business Unit, Projects Department-COA
REVIEW OF CONTRACTOR'S SUBMITTAL

الشركة السعودية للكهرباء
Saudi Electricity Company

Submittal No. :	AL-JANDAL/PD/HSM/19-378-Rev.00	Date :	30-Jun-19

CONTRACT No.: 4400011600
BUDGET ITEM No
CONTRACTOR : AL-BABTAIN CONTRACTING CO
JOB ORDER No.:
PROJECT TITLE : Construction of New 380/132KV Dawmat Al-Jandal BSP

To : Dept. Manager, SEPDCO
Granada Office, 1sf Floor, A6 Tower, Riyadh
Tel : (011) 807-8130/ Fax :(011) 807-8026

From : (Contractor)
AL-BABTAIN CONTRACTING COMPANY, Riyadh

ACCEPTANCE OF THE FOLLOWING SUBMITTAL IS HEREBY REQUESTED:
Check in the Appropriate Box: ☑ Drawings / Sketches ☐ Materials / Equipment ☐ Test Reports ☑ Others (Specify)

FILL-UP APPLICABLE INFORMATION BELOW:
Description : S/S DAWMAT AL-JANDAL – FIRE STOP MATERIALS – TECHNICAL SUBMITTAL – REQUEST FOR APPROVAL

Reference Specification :
Manufacturer/Supplier : Multi Activity Services for Trading (MASFTCO)
Drawing Number :
Expected Delivery Time :

COMPLYING WITH SCOPE OF WORK AND TECHNICAL SPECIFICATIONS? ☑ YES ☐ NO
IF "NO" INDICATE DEVIATIONS : (Provide justification and attac

(AL - BABTAIN CONTRACTING CO)
Submitted by : Project Manager
Signature :
Name : HAITHAM S. MAHMOUD
Date : 30-Jun-19

(SEC)
Received by : EHV Project Manager, Qassim & North Projects
Signature : Ajaz ul Kabir Babar Sheikh
Name
Date : / /2018

FOR SEC USE ONLY

SEC HAVE REVIEWED THE ABOVE SUBMITTAL AND FOUND IT:
☒ Acceptable
☐ Acceptable As Noted
☐ Not Acceptable (Resubmit)
☐ Provide Additional Information
☐ See Attached Comments

REMARKS :
Please use extra sheets if needed.

EHV Group Leader, Qassim & North Projects Division
Signature :
Name : Eng'r Jehad Abdullah Al-Suwayiel
Ref. 19/ 797E / 12021001
Date : 10 / 07 /2019

(Contractor)
Received by
Signature :
Name :
Date :

NOTE : Acceptance does not release the Contractor from his responsibilities in performing the work in strict conformance with Contract, Scope of Work and Technical Specifications.

نقل الكهرباء
National Grid SA

Internal Correspondence | المراسلات الداخلية

ENGINEERING & DESIGN DEPARTMENT

ENGINEERING & DESIGN DIVISION - WOA

Jeddah, SEC-HQ

Our Reference #: 30501201 / 0114 - J / 20

Dated : 12 / 01 / 2020 G
17 / 05 / 1441 H

To : HV Projects Department - West

Attention : Engr.Nabeel Kushim
DIVISION MANAGER

Contract # : 4400008122

Project Title : Addition of new 3-80/100 MVA power transformer madinah East (MEDA) 380/110-33 KV BSP SubStation

Subject : TECHNICAL SUBMITTAL FOR FIRE STOP MATERIAL (ACE BRAND)

Contractor's Ref.#: DTS-165 R02

Dated : 09 / 01 / 2020 G

Date Received @ EDD: 09 / 01 / 2020 G

STATUS OF THIS SUBMITTAL:

[X]	A Acceptable	[ ]	B Acceptable with Comments
[ ]	C Acceptable, Except as noted (Resubmit)	[ ]	D Rejected (Resubmit)
[ ]	E Clarification / For Information	[X]	See Attached Comments (02 Pages)

Regards,

MOHAMMED ALI ALGHAMDI
Substation & Transmission Line Section Head
Engineering & Design Division - WOA

WVN

Cc:
AL MASHARIQ

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

CONTRACTOR'S COPY

SUBMITTAL NO.: M-291; Rev.01

SAUDI ELECTRICITY COMPANY (SEC-SA)

PROJECTS DEPARTMENT - EAST

الشركة السعودية للكهرباء Saudi Electricity Company

CIVIL & ELECTRO MECHANICAL PROJECTS DIVISION - EAST

REVIEW OF CONTRACTOR'S SUBMITTAL

Use Prefix : C - Civil, M - Mechanical, E - Electrical, S - SCADA, CM - Commuincation, SF - Safety, G - General

CONTRACT TITLE : **Construction of New Abqaiq Central 230/115/69KV BSP & Diversion of 23/115KV OHTL**

CONTRACT NO. : **4400010521 / 00** J. O. NO.: 1-1513013.05

TO : **PD-E/C&EMPD**	FROM : CONTRACTOR
Room 2-200E, SEC-EOA Headquarters	**AL-BABTAIN CONTRACTING COMPANY**
Dammam, Saudi Arabia	**P. O. Box 42651, Riyadh 11551**

ACCEPTANCE OF THE FOLLOWING SUBMITTAL IS HEREBY REQUESTE :

☐ Drawings/Sketch ☒ Materials/Equipment ☐ Others (Specify) : _____

FILL ALL THE REQUIRED INFORMATION BELOW :

SUBMITTAL TITLE : FIRE STOP MATERIALS (MASFTCO) - REPLY TO SEC COMMENTS

Reference Specification/Drawing : PTS-16EN202

Manufacturer / Supplier Name : M/S MASFTCO

Manufacturer / Supplier Address : KSA

Contact Person Name & Tel No. :

Submitted By (Contractor)	**Received By (PD/C&EMPD)**
Signature :	Signature :
Name : Maged Abdel Aziz	Name : Muhammad Seraj Jahan
Title : Project Manager	Title : Transmission Engineer
Date : 17-Dec-2019	Date : 23-Dec-19

FOR NATIONAL GRID - SA, PD/C&EMPD USE ONLY

PD/C&EMPD HAS REVIEWED THIS SUBMITTAL AND FOUND IT :

☑ ACCEPTABLE COPY OF APPROVAL IS ATTACHED.

☐ ACCEPTABLE, AS NOTED

☐ NOT ACCEPTABLE (RESUBMIT)

☐ CORRECT AND RESUBMIT

☐ PROVIDE ADDITIONAL INFORMATION

☐ COMPLY WITH COMMENTS

REMARKS : 7

Signature :

Name : Muhammad Seraj Jahan

Title : Transmission Engineer

Date : 16-01-2020

Received By Signature :

(Contractor) Name :

Date :

NOTE : Acceptance does not release the Contractor from performing the Work in strict conformance with Contract Drawings and Specifications

Carlos V. Lajom

Subject: FW: CONSTRUCTION OF NEW ABQAIQ CENTRAL 230/115/69KV BSP - Fire Stop/Sealant Material

TS-003-20
16 January 2020
(21 Jumada'l 1441)

TRANSMISSION ENGINEER
TPD-EOA/C&EMPP

CONSTRUCTION OF NEW ABQAIQ CENTRAL 230/115/69KV BSP & DIVERSION OF 230KV & 115KV OHTL
CN – 4400010521/00

Ref.: **Contractor's Submittal #19-18262-12033301 dated 24 December 2019**

We reviewed the Contractor's (Al-Babtain Co.) submittal of **Fire Stop/Sealant Material** for the above subject project and hereunder, please find our comments and recommendations;

S/N	Description	Manufacturer	Use	Evaluation	Remarks
1	Ace Mortar Seal, FM approved for 2 & 4 hrs fire rating	Vijay System Engineering (VSE)	for cable opening and cable tray opening	Acceptable	
2.	Ace Panel Seal Pre-coated board with fire rating up to 4 hrs with mineral wool boards	Vijay System Engineering (VSE)	For floor and wall openings, Duct Opening, Opening	Acceptable	
3.	Ace Mastik Coating, FM approved with fire rating for 2 & 4 hrs	Vijay System Engineering (VSE)	For coating of electrical and control cables Cable, tray opening and cable opening	Acceptable	
4	Ace Mastik Sealant with Mineral Wool as a backfilling material with fire rating from 2 to 4 hrs	Vijay System Engineering (VSE)	For Duct opening, cable tray opening, cable opening, opening under switchgear, rectangular opening	Acceptable	

Review of Contractors Submittal - (CN: 4400011133 - 380kV U/G Cables between BSP # 9047-9054 and BSP # 9047-9017)

EXTRA HIGH VOLTAGE PROJECTS DEPARTMENT-SEC-COA

REVIEW OF CONTRACTOR'S SUBMITTAL

الشركة السعودية للكهرباء
Saudi Electricity Company

Submittal No.	SSEM/SEC/4400011133/CABLE/205	Date:	08-Sep-2020

Project Title: **380kV U/G Cables between Al-Rawabi BSP # 9047 & BSP # 9054 (Ckt-1) - BSP # 9047 & BSP # 9017 (Ckt-1**

SEC Contract No. **4400011133** Plant No.: RD3031 Job Order No.

To: **EHV Engineering and Projects Sector**
EHV Projects Department-SEC-COA
SEC Ghurnatta Towers, Riyadh, KSA
Tel No.: 011-8078136 / Ext: 78136 - Fax: 8078026

From: (Contractor) **SSEM Company**
P.O: Box-6341 Riyadh -11442
KSA, Tel. 011-4625511
Fax No. 011-4627804
Email: ssemug@ssem.com.sa

ACCEPTANCE OF THE FOLLOWING SUBMITTAL IS HEREBY REQUESTED:

Check in the Appropriate Box: ☐ Drawings/ Sketches ☐ Materials/ Equipment ☐ Test Reports ☒ Other (Specify)

FILL-UP APPLICABLE INFORMATION BELOW:

Description : **Technical Specification for Fire Stop Material.**

Reference Specification : **PTS-14CC363**
Manufacturer/Supplier : **M/s. Vijay System Engineers**
Vendor Address :
Drawing Number :
Expected Delivery Time :

COMPLYING WITH SCOPE OF WORK AND TECHNICAL SPECIFICATION? ☒ YES ☐ NO
IF "NO" INDICATE DEVIATIONS : (Provide Justification and Attach Supporting Documents)

S.S.E.M Co. (Contractor)
Submitted By:
Signature :
Name : **Engr. Amman Tellawi**
Date : **08-Sep-2020**

SEC-COA
Reviewed by: Project Engineer, EVHPD
Signature :
Name :
Date :

FOR SEC-COA USE ONLY

SEC-COA HAS REVIEWED THE ABOVE SUBMITTAL AND FOUND IT.

☑ Acceptable
☐ Acceptable As noted
☐ ~~Not Acceptable~~ (Re-submit)
☐ Provide Additional Information
☑ See ~~Attached Comments~~ Remarks

REMARKS :

Ensure application shall be as per PTS & SEC standard.

Please use Extra sheets if needed.

Senior Project Engineer, Extra High Voltage Projects Department-COA (Group Leader)
Signature :
Name : **Engr. Hathal Al-Naif**
Reference : 2011-2-47-010/1202/001
Date : 10 / Sep /2019G

S.S.E.M Co. (Contractor)
Received By:
Signature :
Name :
Date :

NOTE: Acceptance does not release the Contractor from his responsibilities in performing the Work in strict conformance with Contract Scope of works Drawings and Technical Specifications

الشركة السعودية للكهرباء
Saudi Electricity Company
نعمل بإتقان من أجلكم

EHV ENGINEERING & DESIGN DEPARTMENT

SUBSTATIONS ENGINEERING & DESIGN DIVISION

Jeddah, SEC-HQ

Our Reference #: 12024101 / 2418 - J / 20

Dated : 28 / 10 / 2020 G
11 / 03 / 1442 H

To : EHV Projects Department - WOA

Attention : AHMED M. AL-GARNI
Projects Manager
Tel.#: 012-6537341
Fax #: 012-6500179

Contract # : 4400010402

Project Title : Jeddah University 380/110/13.8 kV BSP

Subject : Technical Submittal of Flame Retardant Paint for Cables

Contractor's Ref.#: AG/SEC/4400010402/JUAS/DTS-122 Rev-02

Dated : 12 / 10 / 2020 G

EHVPD-WOA Ref.# 12023001/JUAS/AL-GIHAZ/DTS-122/02

Dated : 12 / 10 / 2020 G

Date Received @ SED: 13 / 10 / 2020 G

STATUS OF THIS SUBMITTAL:

[X]	**A** Acceptable	[ ]	**B** Acceptable with Comments
[ ]	**C** Acceptable, Except as noted (Resubmit)	[ ]	**D** Rejected (Resubmit)
[ ]	**E** Clarification / For Information	[ ]	See Attached Comments (00 Page)

If you have any questions, please contact Engineer Muhammad Arslan Maan on Tel. # 02-6537107

Regards,

FAHAD S. AL JAGHTHAMI
Group Leader - WOA & SOA
Substations Engineering & Design Division

MAM/BG

Cc: ASHRAF ABDUL JAWAD
ALGIHAZ

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

الشركة السعودية للكهرباء
Saudi Electricity Company
نعمل بإتقان من أجلكم

EHV ENGINEERING & DESIGN DEPARTMENT

SUBSTATIONS ENGINEERING & DESIGN DIVISION

Jeddah, SEC-HQ

Our Reference #: 12024101 / 2815 - J / 20

Dated : 20 / 12 / 2020 G
05 / 05 / 1442 H

To : EHV Projects Department - WOA

Attention : AHMED M. AL-GARNI
Project Manager
Tel.#: 012-6537341
Fax #: 012-6500179

Contract # : 4400006551

Project Title : MAHD AL-DHAHAB

Subject : Fire Retardant Paint for Indoor HV Cable (M/s. VSE: Ace Mastik Coating)

Contractor's Ref.#: DTS-492 R02

Dated : 17 / 12 / 2020 G

EHVPD-WOA Ref.# DTS-492 R02

Dated : 17 / 12 / 2020 G

Date Received @ SED: 17 / 12 / 2020 G

STATUS OF THIS SUBMITTAL:

[X]	**A** Acceptable	[ ]	**B** Acceptable with Comments
[ ]	**C** Acceptable, Except as noted (Resubmit)	[ ]	**D** Rejected (Resubmit)
[ ]	**E** Clarification / For Information	[ ]	See Attached Comments (00 Page)

If you have any questions, please contact Engineer BENJAMIN GUILLERMO on Tel. # 02-2637063

Regards,

FAHAD S. AL JAGHTHAMI
Group Leader - WOA & SOA
Substations Engineering & Design Division

BG

Cc: PERVAIZ AKBAR
ALFANAR

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

الشركة السعودية للكهرباء
Saudi Electricity Company
نعمل بإتقان من أجلكم

EHV ENGINEERING & DESIGN DEPARTMENT

SUBSTATIONS ENGINEERING & DESIGN DIVISION

Jeddah, SEC-HQ

Our Reference #: 12024101 / 2895 - J / 20

Dated : 28 / 12 / 2020 G
13 / 05 / 1442 H

To : EHV Projects Department - WOA

Attention : AHMED M. AL-GARNI
Projects Manager
Tel.#: 012-6537341
Fax #: 012-6500179

Contract # : 4400010402

Project Title : Jeddah University 380/110/13.8 kV BSP

Subject : Technical Submittal for Fire Stop Material

Contractor's Ref.#: AG/SEC/4400010402/JUAS/DTS-266 Rev-01

Dated : 16 / 12 / 2020 G

EHVPD-WOA Ref.# 12023001/JUAS/AL-GIHAZ/DTS-266/01

Dated : 16 / 12 / 2020 G

Date Received @ SED: 16 / 12 / 2020 G

STATUS OF THIS SUBMITTAL:

[X]	**A** Acceptable	[ ]	**B** Acceptable with Comments
[ ]	**C** Acceptable, Except as noted (Resubmit)	[ ]	**D** Rejected (Resubmit)
[ ]	**E** Clarification / For Information	[ ]	See Attached Comments (00 Page)

If you have any questions, please contact Engineer BENJAMIN GUILLERMO on Tel. # 02-2637063

Regards,

FAHAD S. AL JAGHTHAMI
Group Leader - WOA & SOA
Substations Engineering & Design Division

BG

Cc: ASHRAF ABDUL JAWAD
ALGIHAZ

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

الشركة السعودية للكهرباء
Saudi Electricity Company

TS: .....
Date: 14/2/2021

To: **ENG. ALI A. AL-KHAIRI**
Manager, Civil & Electromechanical Projects Division - South

From: **INDUSTRIAL SECURITY DEPARTMENT**
SEC, Southern Sector, Abha

Subject: **CONSTRUCTION OF NEW AL-FARA (FRA) 380/132/13.8 KV BSP**
Technical Submittal of Fire-Stop Materials

Reference is made on your letter inquiry #DTS-269-REV01 dated 14/02/2021, concerning with the submitted document of above subject.

The submitted document is approved ..

Best regards

ENG. ALI A. ABDULMOTAALI
Projects Group Leader for ISD
14/2/2021

الشركة السعودية للكهرباء
الأمن الصناعي بالجنوبية (ISD)
Approved A ☑
Approved with Comments B ☐
Not Approved C ☐

SAUDI ELECTRICITY PROJECTS DEVELOPMENT COMPANY

HV PROJECTS DEPARTMENT-SOUTH

Civil & Electromechanical Projects Division

Address: H.Q. P.O.Box. 616, Abha, KSA ; Tel: 017-2319158, Fax: 017-2271020

الشركة السعودية للكهرباء
Saudi Electricity Company
نعمل بإتقان من أجلكم

REVIEW OF CONTRACTOR'S SUBMITTAL

Submittal No.:	AGH/SEC/13SN377/FRA/ DTS 269 R.01	*Revision:* 1	*Date:* 16-12-20

PROJECT TITLE : **CONSTRUCTION OF NEW AL-FARA (FRA) 380/132/13.8 KV BSP**

CONTRACT NO. : **13SN377/ KKU(15)** *BI NO.* : _____ *PTS No.* : **13SN377**

To : ENGR. ALI A. ALKHAIRI
Division Manager,
Civil & Electromechanical Projects South.
Tel: 017-2319144 Email: AAKhairi@ngrid.sa
CC : Engr. Saad H. Al Umar
EHV-Group Leader, SOA

From : AL-GIHAZ CONTRACTING CO. LTD.
Jeddah King Fahad Road PO BOX 7451
Name: **Zeeshan Ahmed Khan**
Division: EBU
Department: Energy Sector
Telephoene: +966 554733757
E-mail: zeeshan.khan@algihaz.con

AL GIHAZ CONTRACTING الجهاز للمقاولات

ACCEPTANCE OF THE FOLLOWING SUBMITTAL IS HEREBY REQUESTED (Check Appropriate Box)

☐ *Civil* ☐ *LV Electrical* ☐ *Electro-Mechanical* ☐ *QA/QC/Safety*
☐ *Drawings/Sketches* ☑ *Materials/Equipment* ☐ *Test Reports/Calculations* ☐ *Others (Specify)*

FILL-UP APPLICABLE INFORMATION BELOW:

Description : **Technical Submittal of Fire-Stop Materials (M/s Vijay Systems Engineers)_Alternate Supplier**
Reference Specification :
Manufacturer/Supplier :
Expected Delivery Time :

COMPLYING WITH SCOPE OF WORK AND TECHNICAL SPECIFICATIONS? ☑ *YES* ☐ *NO*
*IF "**NO**" INDICATE DEVIATIONS : (Provide justification and attach supporting documents)*

Submitted by Contractor:

Signature:
Name : *Engr. Zeeshan Ahmed Khan*
Position : *Project Manager*
Date : *16-12-20*
(STAMP)

ALGIHAZ COMPANY FOR CONTRACTING

Received by Project Dept:

Signature :
Name :
Position :
Date : 16-12-2020
(STAMP)

FOR OFFICIAL USE ONLY

CEMPD-South has reviewed the above submittal & found it

☒ *ACCEPTABLE*
☐ *ACCEPTABLE EXCEPT, AS NOTED*
☐ *NOT ACCEPTABLE (RESUBMIT)*
☐ *REJECTED*
☒ *SEE ATTACHED COMMENTS*

REMARKS :

Signature:
Name : **ENGR. ALI A. ALKHAIRI**
Position : **Division Manager,**
Civil & Electromechanical Projects South.
Ref. #: _____ Dated: 15/02/2021

Received by Contractor:

Signature :
Name :
Date :

NOTE : *Acceptance does not release the Contractor from his responsibilities in performing the work in strict conformance with Contract, Scope of Work and Technical Specifications.*

PDC

PROJECTS DEPARTMENT - CENTRAL
Central Operating area
REVIEW OF CONTRACTOR'S SUBMITTAL

الشركة السعودية للكهرباء
Saudi Electricity Company

Submittal No. :	**9083/ABC/SEC/EHVPD/AS/22-0210-Rev.00**	***Date :***	**07-Feb-22**

CONTRACT No.: **4400015009** CONTRACTOR : **AL-BABTAIN CONTRACTING CO**
BUDGET ITEM No JOB ORDER No.:
PROJECT TITLE : Construction of King Salman Park, 380/132/13.8kV, BSP # 9083 & Expansion of BSP 9047

To : **Div. Manager -C&EMPD-COA**
SEC HQ.Tower C, 2F, Al-Arid, Riyadh
Tel : (011) 4648077870 Fax : (011) 293-2536

From : (Contractor)
AL-BABTAIN CONTRACTING COMPANY
Jarir St.,Al-ihsa St. Malaz Area,Riyadh

ACCEPTANCE OF THE FOLLOWING SUBMITTAL IS HEREBY REQUESTED:

Check in the Appropriate Box: ☐ *Drawings / Sketches* ☐ *Materials / Equipment* ☐ *Test Reports* ☑ *Others (Specify)*

FILL-UP APPLICABLE INFORMATION BELOW:

Description : **KSP 9083 - FIRE STOP MATERIALS – TECHNICAL SUBMITTAL (REV.00) - REQUEST FOR APPROVAL**

Reference Specification :
Manufacturer/Supplier : **VIJAY SYSTEM ENGINEERING (VSE)**
Drawing Number :
Expected Delivery Time :

COMPLYING WITH SCOPE OF WORK AND TECHNICAL SPECIFICATIONS? ☑ *YES* ☐ *NO*
*IF "**NO**" INDICATE DEVIATIONS : (Provide justification and attach supporting documents)*

(AL - BABTAIN CONTRACTING CO)
Submitted by : Project Manager
Signature :
Name : **Engr. ALI SIDDIG**
Date : **7-Feb-22**

C.R: 63866 ٦٣٨٦٦ س.ت
Babtain Contracting Company
KSP - 9083

(SEC-COA)
Received by : Mechanical Engineer,
Signature
Name **Mohamed Bilal**
Date 07/ 02 / **2022**

FOR SEC USE ONLY

SEC HAVE REVIEWED THE ABOVE SUBMITTAL AND FOUND IT:

☐ Acceptable
☑ Acceptable with Comments
☐ Acceptable, Except as Noted (Resubmit)
☐ Not Acceptable (Resubmit)
☐ See Attached Comments
☐ Provide Additional Information
☐ Enclosed Stamp drawings

REMARKS : The proposed supplier M/s vijay system approved for fire reated materials for this project .

Please use extra sheets if needed.

Group Leader,Riyadh Area S/S Projects
Civil & Electro Mechanical Projects Division
Signature :
Name **Eng'r AbdulAziz M. Jarbua**
Ref **22 / SEC - 2 -** 83 **-** 31 **/ 12031301**
Date : 21/02/2022 **/2022**

(Contractor)
Received by
Signature :
Name :
Date :

NOTE : Acceptance does not release the Contractor from his responsibilities in performing the work in strict conformance with Contract, Scope of Work and Technical Specifications.

الشركة السعودية للكهرباء
Saudi Electricity Company
نعمل بإتقان من أجلكم

Internal Correspondence | المراسلات الداخلية

EHV ENGINEERING & DESIGN DEPARTMENT

SUBSTATIONS ENGINEERING & DESIGN DIVISION

Jeddah, SEC-HQ

Our Reference #: 12024101 / 4368 - J / 22

Dated : 04 / 12 / 2022 G
10 / 05 / 1444 H

To : EHV Projects Department - WOA

Attention : Eng.ADEL S. ALSHAIKH

Contract # : 4400015765

Project Title : Construction of NIC Circle 380/132kV BSP & Expansion of Dhuba Green

Subject : 'Technical Submittal for Fire Stop Material

Contractor's Ref.#: DTS-369 R01

Dated : 01 / 12 / 2022 G

EHVPD-WOA Ref.# DTS-369 R01

Dated : 01 / 12 / 2022 G

Date Received @ SED: 01 / 12 / 2022 G

STATUS OF THIS SUBMITTAL:

[X]	**A** Acceptable	[ ]	**B** Acceptable with Comments
[ ]	**C** Acceptable, Except as noted (Resubmit)	[ ]	**D** Rejected (Resubmit)
[ ]	**E** Clarification / For Information	[ ]	See Attached Comments (00 Page)

If you have any questions, please contact Engineer Mohammed AbdulWahab AlSomali on Tel. # 02-2637063

Regards,

FAHAD S. AL JAGHTHAMI
Group Leader - WOA & SOA
Substations Engineering & Design Division

MAS

Cc: PD
ALGIHAZ

The given approval does not relieve the Contractor from his contractual responsibility & obligation to meet the requirements of the project contract scope of work and technical specifications (SOW/PTS).

GENERAL APPROVALS & RECOMMENDATIONS

FLSmidth Private Limited
Flsmidth House, 34, Egatoor,
(Rajiv Gandhi Salai-Chennai)
Tamil Nadu – 603 103
Tel: +91 44 4748 1000 / 2741 1000 Fax +91 44 2747 0301/ 302
Email: [redacted] Website: [redacted]

Ref: VPR- 2011/547
Date: 08/03/2012

To
VIJAY SYSTEMS ENGINEERS PRIVATE LIMITED
35, CHANDIVALI VILLAGE, OFF SAKIVIHAR ROAD, SAKINAKA
MUMBAI -400072

Kind Attn.: **MR. Salot Ketan**

Sir,

Sub: **Vendor Performance Rating**
Please find enclosed our Evaluation Report on your performance for the period January 2011 to December 2011.

Performance Rating

Performance Index	Weightage factor	Percentage achieved
Quality	50 %	48.00 %
Delivery	40 %	38.00 %
Documentation	10 %	7.00 %
Total	**100%**	**93.00 %**
Grade:		EXCELLENT

Remarks:

[ ] We compliment your achievement & we wish that you will continue with the performance. We are proud to have you as one of our best performing vendor.
[ ] We are very much happy with your performance; still little efforts of yours shall definitely leads to the best compliments of handling FLS products and services.
[ ] We are happy to note your performance, but extra effort shall elevate as an ideal source for FLS.
[ ] While we appreciate your problem since you have done well in some areas where our evaluation is not very favorable, we request you to show improvement on those areas and moving forward as a proficient vendor.
[ ] We regret that we are unable to comprehend the reasons why the result of performance rating is not to the expectation. We request you to analyze and submit the action plan for our proposed improvement areas considering the least time period and to demonstrate as a potential vendor to FLS.

Improvement areas identified: Please refer the annexure-I attached.

Thanking you.
For FLSmidth Private limited [Supplier Development Group]

NAVEEN GUPTA
HEAD Procurement

K.V. SHANKAR
HEAD Supplier Development

Date: 08/03/2012

Annexure – 1

Vendor Name: VIJAY SYSTEMS ENGINEERS PRIVATE LIMITED

Improvement areas identified	Recommended Actions
No specific comments	-

Corrective Action Plan submission date requested : 23/03/2012

For FLSmidth Private limited [Supplier Development Group]

NAVEEN GUPTA
HEAD Procurement

K. V. SHANKAR
HEAD Supplier Development

MAHATRANSCO

Maharastra State Electricity Transmission Co. Ltd.

Telephone Nos.
2463570 (O)
2416601 (R)

Executive Engineer,
Trans. (O&M) Divn;
Vidyut Bhavan,
Nashik Road 422 101

NO.EE/TRANS/O&M/DN./NSK/TECH/ 2014 DATE: 25 JUL 2007

CERTIFICATE

To whom so ever it may concern

Sub:- Fire Retardant cable coating compound .

Ref:- PP/EHV/Fire fitting / 867 /10525 dt. 20. 10. 2006 .

This is to certify and confirm that fire occourance took place on 2/7/07 at 220KV GCR Bhusawal in main cable trench . The A. C. supply cable caught fire & was contained due to fire retarding cable coating done on the cabling with ACHMASTIK cable coating material of M/s. Vijay System Engineers Pvt. Ltd. & executed by M/s. EQUIP. RESORURCE .

On account of fire retardant coating compound on cables , the fire was restricted from spreading to adjacent control cables & averted unprecedental damage to the adjoing cables & huge loss to MSETCL.

Executive Engineer
Trans. O&M Dn. Nashik.

252

MAHAGENCO
Maharashtra State Power Generation Co. Ltd

Maharashtra State Power Generation Company Limited
(Formerly: Maharashtra State Electricity Board)
OFFICE OF THE FIRE ADVISER & CHIEF FIRE OFFICER
CHANDRAPUR SUPER THERMAL POWER STATION
Urjanagar : CHANDRAPUR – 442 404
Tel: 07172 – 221039 (P), 220155 to 220159 Ext. 3918
Fax: 07172 – 221039 / 220186, Email: haridaschaudhari@gmail.com

No. Agnishaman / 46

Date: 25.02.2010

TO WHOMSOEVER CONCERNED

This is to record that the Castable Fire Stop Mortar Seal barrier supplied and installed by M/s. Equip Resource (Material sourced from M/s. Vijay Systems Engineers Pvt. Ltd.) at Transfer House 2 has prevented the spread of the cable (short-circuit) fire on a bunch of 100 cables along side of the Conveyor Belt No. 6 ABC on 11.01.2010 at 22.40 Hrs. and saved the CHP from severe damages including generation stoppage. The plant could continue working.

Thus, it is proved that installing the Passive Fire Protection System by using the proven quality fire spread prevention materials is a very effective Damage Prevention Measure where electrical installations are involved.

This certificate is issued to M/s. Equip Resource on their request vide Letter No. ER / MSPGCL / 02 / 10 / 112 dated 24.02.2010.

25/2/10

FIRE ADVISER & CHIEF FIRE OFFICER

न्यूक्लियर पॉवर कॉरपोरेशन ऑफ इंडिया लिमिटेड Nuclear Power Corporation of India Ltd.
(भारत सरकार का उद्यम A Govt. of India Enterprise)
नरौरा परमाणु विद्युत केंद्र Narora Atomic Power Station

NO.: NAPS/53100/EM/O&M/08/S/234 Dt.22.08.08

TO WHOM SOVER IT MAY CONCERN

Sub:- Certificate regarding performance of fire retardant cable coating compound (ACEMASTIK) supplied and applied by M/s Vijay system Engineers PVT. Ltd. Mumbai on exposed cable at NAPS.

This is to certify and confirm that on dated 2.07.08, a 400 Amp switch fuse unit installed in 220KV switch yard on cable Trench, for providing power supply to Transformer oil filtration machine and test facility for 415 V motors got flash over. During investigation it was observed that 400 Amp switch fuse unit got badly damaged due to flash over and all the exposed cables (which were uncoated) connected to each phase of switch caught fire and damaged badly, but because of fire retardant cable coating (from cable gland of SFU to one meter exposed cable portion) fire could not propagate to adjacent cables in Trench which consists lot of HT/ LT cables.

Due to fire retardant coating compound on cables, the fire was restricted from spreading to cable trench and averted huge damage to the 31.5 MVA start up transformer and 220 KV switchyard equipment, cables and in turn huge loss to NPCIL.

22/8/08

N.S.Rana
Egr. SO/F, (EMU)

MAIHAR CEMENT

(PROP. CENTURY TEXTILES & INDUSTRIES LTD.)
P.O. SARLA NAGAR – 485772, MAIHAR, DISTT. SATNA (M.P.)
Phone: 07674 – 277067, Fax: 07674 – 277836
E-mail: instrument@maiharcement.co.in

Ref: MC/LET/609/2008 **Date: 6.09.2008**

To Whom It May Concern:

This is to certify that M/s. TIRUPATI TECHNOCHEM, INDORE has done the job of panel sealing in several places in our plant with the passive fire protection product i.e. ACE MORTAR SEAL OF VIJAY SYSTEM ENGG. PVT. LTD., MUMBAI Make.

A fire hazard occurred in one panel of SPR system on date 31.07.2008 due to short circuit but wherever the panels were sealed by the VIJAY SYSTEM ENGG. PVT. LTD. Make ACE MORTAR SEAL, the cables below the panels were totally safe.

I really appreciate the quality of the above-mentioned useful product.

Thanks.

For Maihar Cement

O.P. Moondra.
Vice President (Instrumentation)