

# **Fire Stop Work Installation & Application** **Method Statement**

## **Scope**

This method statement covers the installation of Hilti Fire Stop Work which is also applicable for any other brand of fire stop system by integrating their specific requirements for effective fire stop application.

## **References**

- Approved Project Quality Plan
- Approved Project HSE Plan
- Approved Material Management Plan
- Material approval for Fire stop work
- Technical Literature and Method from Material Supplier

## **Responsibilities**

The project / construction manager shall be responsible for the overall implementation of this method statement, and to ensure that section engineer and general foremen are well informed of its requirements. He is responsible for:

- Providing all required resources in terms of Manpower, Equipment and Material
- Controlling the coordination between all involved parties to ensure Safety, Quality and schedule requirements are met.

**The Section Engineer and General Foreman in-charge shall be responsible for:**

- To control and ensure the construction work is carried out to the required contract specification and approved shop drawings
- To implement the permit to work PTW system as required by HSE Procedure.
- Notifying QC engineer and issuing the WIR (request for inspection) in sufficient timely manner (normally 24 hours in

advance) when work is ready for inspection as detailed in the relevant ITP.

- Accompanying the Quality Engineer and CONSULTANT Engineer for ongoing inspection and obtain his approval to proceed.

**The quality control manager shall be responsible for:**

- Reviewing all relevant documentation and test reports and prepare all handing over dossiers.
- Clearing all non-conformances relevant to that activity.
- Ensuring that all activities subject to inspection are recorded and cleared.
- Controlling and organizing the inspection works.
- Ensuring that inspections are carried out in a timely manner.

**The Quality control engineer (QCE) shall be responsible for:**

- To inspect and ensure the construction work is carried out to the required contract specification and approved drawings
- Informing the CONSULTANT / CLIENT via (WIR) Work Inspection Request when his presence is required to carry out the inspection as per the approved ITP.
- Accompanying the client/consultant for inspection to release the hold points

**Safety Requirements to be implemented by HSE Officer & Project Team**

- Prior to commencement of fire stop work, all activities shall be coordinated with the MEP Project Safety Officer and PTW holder, who will assess the associated risks if any, and monitor the implementation of the work as per the Project Safety Plan and liaise with the construction team to ensure a safe working environment.
- The concerned Supervisor/Foreman or Gang Leader to ensure that all workers are equipped with their P.P.E throughout the construction work.

- MEP Safety Officer in charge in coordination with the construction manager is to study, organize and control the traffic flow during the operation of this working procedure for fire stop work.
- The Construction Manager in coordination with the MEP Safety Officer, Store/Time keeper and Labour Camp Boss is to conduct an induction session for all staff and workers involved with this particular operation to ensure every person is well aware of his obligation, work distribution and role.
- The MEP Safety Officer in charge to organize and conduct necessary periodic toolbox meetings for supervisory staff and manpower, to ensure the construction team are well aware of safety requirements during the fire stop work.
- Ensure adequate lightings are provided as required and manpower schedule shifting in case the works went beyond the normal working hours.
- Ensure individual water bottles are provided to all the work force and appropriate capacity of Water Thermos available in the work area during summer.

### **Necessary Tools and Equipment**

Following tools shall be arranged before starting the job of fire stop work.

- General Electrical Toolbox
- Hacksaw blade – To cut the rock wool (back filling material)
- Knife – After the installation to cut the cured fire sealant when the time of inspection
- Measuring Tape – To measure the sealant thickness when the time of inspection
- Torch light – To check the penetration when the time of inspection
- A Shaped Ladder – To access the penetrations at height and areas with multiple penetration.
- Scaffolding – To access the penetrations at height of above 3 meters.
- Fire Foam Gun – To dispense the fire rated foam to the required locations.

- Cleaning Brush – To remove and clean the dirt in the application areas.
- Scrapper – To Scrap and clean the dirt in the application area.
- Mason Spoon – To level the sealant and make the smooth finish.
- Level tools – To make the surface finish smooth and level.
- Mixing Bucket – To mix the fire rated compound materials for application.
- Wet Cloths – To wipe off the dirt and stains on the application areas.
- Safety requirement tools such as safety shoes, safety helmet, safety glasses, fluorescent vest, and safety gloves to ensure maximum ability of Safe
- Dust mask when required.

### **Prior to Start Fire Stop Work**

- PTW must be secured before starting the work.
- Install the Necessary barricades and signage.
- Ensure work place is available and clear of all other trade activities.
- Ensure that the work area is ready and safe to start the installation of Fire Stop Work.
- Ensure adequate lightings are provided as required and in case the works went beyond the normal working hours (Night).

### **General Sequence of Fire Stop Work**

- Check all material delivered to site is inspected properly by QA/QC Engineer and check if it is stored properly.
- MIR shall be raised for the inspection of materials, received at site to the Client.
- Work shall be carried out by the site staff under strict supervision and guidance of the concerned Supervisors / Foremen / Engineers.
- The QA/QC Engineer shall check all the installations as per the Installation Check list.
- WIR shall be prepared by MEP QA/QC Engineer and will be submitted to Client for their inspection and approval.
- QA/QC Engineer shall coordinate with other contractors and arrange inspection for installation to the Client.
- QA/QC Engineer is responsible for all installation activities for getting the work inspected and approved by Client.

- CONSULTANT QA/QC along with MEP QA/QC and MAIN CONTRACTORQA/QC shall be involved with all Inspections as determined.

### **Handling and Storage**

On receipts of the fire stop work material at site, necessary precautions shall be taken for unloading, shifting and storage, as follows:

- On the floor, the units will be stored in a clean, dry place and adequate covering by tarpaulin sheets will be done to protect the equipment from deposition of construction dust till it is finally shifted to its foundation.
- All Material received will be checked to ensure that they are complying with the approved material submittals in terms of their make, model, type, capacity, etc.,
- Any discrepancy or damages etc., it will be notified and reported immediately for further action. It should be noted on the carrier's freight bill. Damage claims should be filed with the carrier immediately.
- Material found not suitable for site use will be removed immediately from site and the same will be replaced by correct equipment.
- Site Engineers have to ensure that all material used at site are of free from any damages or deformities of any kind. Units found not suitable for site use will be removed immediately and the same will be replaced by correct item.

### **SUMMARY OF SYSTEMS AND MATERIAL APPLICATIONS**

<b>S.NO.</b>	<b>MATERIAL</b>	<b>APPLICATION</b>
1	CP606	Used as a Resistant Gap Filler
2	FS ONEMAX	Used as an Intumescent Firestop Mastic
3	CP 636	Firestop Mortar
4	CP 648 E	Endless Wrap Strip
5	CP 648ER	Retaining Collar
6	Rock Wool	Back Filling Material



**Fire Stop System Application Method Statements**

**METAL PIPE – up to 6” PASSING THROUGH GYPSUM WALL**

**Max. Size of Opening:** 32-inch dia. In gypsum wall.

**Penetration:** up to 6” Metal pipe

**Annular space:** point contact min. 0” to max. 2”.

**Fire stop material:** CP 606- Fire Stop sealant + Rock Wool min (64 kg/m3)

**Application:**

- Use the A shaped ladder to access the penetration.
- Use all safety equipment’s prior to claim on the ladder.
- Remove oil, dust & moisture in the opening. Clean the penetration with wet cloth or brush.
- 4¼ in. thickness of mineral wool min (64 kg/cu.m) tightly packed into the opening as a permanent form. Packing material to be recessed as required to accommodate the required thickness of fill material.
- Apply CP 606 fire stop sealant, for a thickness of 5/8“inch or 1-1/4” inch. Within annulus, flush with both surfaces of wall assembly for 1hr and 2 hr. fire rated wall assembly. At point

contact apply a min. for 1/2" inch dia. bead of CP 606 at pipe/ wall interface at point of contact.

- Smoothing of fire stop sealant: Excess sealant, prior to curing, can be done with water.
- Provide PVC stickers with U.L/Engineering Judgment details for future maintenance reference by mentioning installer details, system number & date of installation
- Leave completed seal undisturbed for 48 hours.
- Check the installation after completion of work and raise the WIR.

### **PVC PIPE – up to 2" PASSING THROUGH GYPSUM WALL**

**Max. Size of Opening:** 3" inch dia. In gypsum wall

**Penetration: up to 2"**

**Annular space:** point contact min. 1/2" to max. 1".

**Fire stop work material: CP 648 E 1 LAYER**

**Application:**

- Use the A shaped ladder to access the penetration.
- Use all safety equipment's prior to claim on the ladder.
- Remove oil, dust & moisture in the opening. Clean the penetration with wet cloth or brush.
- Apply CP 648 E fire stop wrap, for one layer. Within annulus, flush with both surfaces of wall assembly. .
- Provide PVC stickers with U.L/Engineering Judgment details for future maintenance reference by mentioning installer details, system number & date of installation
- Leave completed seal undisturbed for 48 hours.
- Check the installation after completion of work and raise the WIR.

### **PVC PIPE – 3" & 4" PASSING THROUGH GYPSUM WALL**

**Max. Size of Opening:** 5-1/2-inch dia. In GYPSUM wall

**Penetration: Nom. 3" & 4"**

**Annular space:** point contact min. 1/2" to max. 1".

**Fire stop material: CP 648 E 2 LAYER**

**Application:**

- Use the A shaped ladder to access the penetration.
- Use all safety equipment's prior to claim on the ladder.
- Remove oil, dust & moisture in the opening. Clean the penetration with wet cloth or brush.

- Apply CP 648 E fire stop wrap, for two layer individually wrapped around the outer circumference of the pipe and slid into the annular space such that wrap strip extends ¾” beyond both the surfaces of wall. Butted ends in successive layer shall be offset.
- Provide PVC stickers with U.L/Engineering Judgment details for future maintenance reference by mentioning installer details, system number & date of installation
- Leave completed seal undisturbed for 48 hours.
- Check the installation after completion of work and raise the WIR.

### **PPR PIPE – UPTO 6” PASSING THROUGH GYPSUM WALL**

**Max. Size of Opening:** 8-inch dia. In GYPSUM wall

**Penetration: UPTO 6”**

**Annular space:** point contact min. 3/16” to max. 1- 3/16”.

**Fire stop material:** CP 648 E (1layer for up to 3”pipe, 2 layer for 4”pipe, 3 layer for 6”pipe) + FS ONE MAX

**Application:**

- Use the A shaped ladder to access the penetration.
- Use all safety equipment’s prior to claim on the ladder.
- Remove oil, dust & moisture in the opening. Clean the penetration with wet cloth or brush.
- Cylindrical steel sleeve fabricated from min 0.016in thick galvanized thick sheet and having a min of 1” lap long the longitudinal seam to be installed by MEP contractor.
- Apply CP 648 E fire stop wrap, 1 layer for up to 3” pipe, 2 layer for 4” pipe and 3 layer for 6” pipe.
- Within annulus, flush with both surfaces of wall assembly.
- Apply min ¼” inch thickness of FS ONE MAX with in the annulus flush with both the surfaces of wall
- Provide PVC stickers with U.L/Engineering Judgment details for future maintenance reference by mentioning installer details, system number & date of installation
- Leave completed seal undisturbed for 48 hours.
- Check the installation after completion of work and raise the WIR.
- Note: If the Pipe is insulated and size of pipe increases more than 4”, Insulation must be removed till wall thickness

### **FIBER GLASS INSULATED PPR PIPE – up to 4” PASSING THROUGH GYPSUM WALL**



**Max. Size of Opening:** 6-1/2" inch dia. In gypsum wall.

**Penetration:** up to 4" FIBERGLASS INSULATED PPR pipe

**Annular space:** point contact min. 3/8" to max. 1-1/8".

**Fire stop material:** FS ONE max +2 LAYER CP 648E

**Application:**

- Use the A shaped ladder to access the penetration.
- Use all safety equipment's prior to claim on the ladder.
- Remove oil, dust & moisture in the opening. Clean the penetration with wet cloth or brush.
- Cylindrical steel sleeve fabricated from min 0.016in thick galvanized thick sheet and having a min of 1" lap long the longitudinal seam to be installed by MEP contractor.
- Apply 2 LAYERS of CP 648 E fire stop wrap. Within annulus, flush with both surfaces of wall assembly. .
- Apply min 1/4" inch thickness of FS ONE MAX with in the annulus flush with both the surfaces of wall
- Provide PVC stickers with U.L/Engineering Judgment details for future maintenance reference by mentioning installer details, system number & date of installation
- Leave completed seal undisturbed for 48 hours.
- Check the installation after completion of work and raise the WIR.

## **INSULATED COPPER PIPE (RUBBER INSULATION) – UPTO 5" PASSING THROUGH GYPSUM WALL**

**Max. Size of Opening:** Nom .8 inch dia. In gypsum wall.

**Penetration:** up to 4" STEEL / Up to 2" Copper pipe + 3/4" rubber insulation

**Annular space:** point contact min. 1/2" to max. 5/8".

**Fire stop material:** FS ONE MAX – Fire Stop sealant + Rock Wool min (64 kg/m<sup>3</sup>)

**Application:**

- Use the A shaped ladder to access the penetration.
- Use all safety equipment's prior to claim on the ladder.
- Remove oil, dust & moisture in the opening. Clean the penetration with wet cloth or brush.
- Nom 8 in. (203 mm) dia. (or smaller) Schedule 40 (or thinner) steel sleeve cast into wall assembly with joint compound and installed flush with wall surfaces.
- 3/4 in. thickness of mineral wool min (64 kg/cu.m) tightly packed into the opening as a permanent form. Packing material to be

recessed as required to accommodate the required thickness of fill material.

- Apply FS ONE MAX fire stop sealant, for a thickness of 3/4 "inch. Within annulus, flush with both surfaces of wall assembly. .
- Smoothing of fire stop sealant: Excess sealant, prior to curing, can be done with water.
- Provide PVC stickers with U.L/Engineering Judgment details for future maintenance reference by mentioning installer details, system number & date
- of installation
- Leave completed seal undisturbed for 48 hours.
- Check the installation after completion of work and raise the WIR.

## **METAL DUCT WITH FIRE DAMPER PASSING THROUGH GYPSUM WALL**

**Max. Size of Opening:** 82" X 62" Gypsum wall

**Penetration:** Nominal 80" x 60" Metal Duct with fire damper (or smaller)

**Annular space:** min 0 (Point Contact) to max. 2".

**Fire stop material:** CP 606 Fire stop Sealant

### **Application:**

- Use the A shaped ladder to access the penetration.
- Use all safety equipment's prior to claim on the ladder.
- Remove oil, dust & moisture in the opening. Clean the penetration with wet cloth or brush.
- Steel angles as required by the damper manufacturer to completely cover annular space
- (Steel angles will be provided by MEP CONTRACTOR). And overlap onto Gypsum wall maximum at 1"inch
- Minimum 1/2" bead Hilti CP 606 flexible fire stop sealant applied at interface angle. / Perimeter of the steel angle.
- Smoothing of fire stop sealant: Excess sealant, prior to curing, can be done with water.
- Provide permanent labelling stickers with U.L/Engineering Judgment details for future maintenance reference by mentioning installer details, system number & date of installation
- Leave completed seal undisturbed for 48 hours.
- Check the installation after completion of work and raise the WIR.

**METHODS STATEMENT – CABLE TRAY UPTO 24” X 4” PASSING THROUGH GYPSUM WALL**

**Max. Size of Opening:** 40” X 8”

**Penetration:** 24” X 4” cable tray

**Annular space:** 0” TO 3”

**Fire stop material:** FS ONE MAX + Rockwool (density 64kg/m<sup>3</sup>)

**Application:**

- Use the A shaped ladder to access the penetration.
- Use all safety equipment’s prior to claim on the ladder.
- Remove oil, dust & moisture in the opening. Clean the penetration with wet cloth or brush.
- Apply Min 5inch thick Mineral wool min (64 kg/cu.m) tightly packed into the opening as a permanent form. Packing material to be recessed as required to accommodate the required thickness of fill material.
- Apply a min in 1/2 in. FS ONE MAX (13 mm) thickness of fill material applied within annulus, flush with both surfaces of wall. A min 1/2 in. (13 mm) dia. bead of fill material shall be applied at the gypsum board/through penetrant interface at point contact location on both surfaces of wall.
- Smoothing of fire stop sealant: Excess sealant, prior to curing, can be done with water.
- Provide PVC stickers with U.L/Engineering Judgment details for future maintenance reference by mentioning installer details, system number & date of installation
- Leave completed seal undisturbed for 48 hours.
- Check the installation after completion of work and raise the WIR.

**FIRE FIGHTING (METAL PIPES) up to 8” PASSING THROUGH CONCRETE WALL / BLOCK WALL / SLAB**

**Max. Size of opening:** 10-1/2” dia. in concrete wall/slab

**Penetration:** up to 8” Metal pipe

**Annular space:** point contact min. 0 to max. 1”

**Fire stop material:** 1/4” CP 606- Fire Stop Work sealant + Rock Wool min (64 kg/m<sup>3</sup>)

**Application:**

- Use mobile scaffolding to access the penetration.
- Use all safety equipment’s prior to claim on the ladder.

- Remove oil, dust & moisture in the opening. Clean the penetration with wet cloth or brush.
- 4¼ in. thickness of mineral wool min (64 kg/cu. m) tightly packed into the opening as a permanent form. Packing material to be recessed as required to accommodate the required thickness of fill material.
- Apply CP 606 fire stop sealant, for a thickness of ¼ inch. Within annulus, flush with both surfaces of wall assembly and top surface of floor assembly. At point contact apply a min. for ¼” dia. bead of CP606 to both the surface of wall and top surface of slab.
- Smoothing of fire stop sealant: Excess sealant, prior to curing, can be done with water.
- Provide PVC stickers with U.L/Engineering Judgment details for future maintenance reference by mentioning installer details, system number & date of installation
- Leave completed seal undisturbed for 48 hours.
- Check the installation after completion of work and raise the WIR.

### **PVC / UPVC PIPE – up to 3” PASSING THROUGH CONCRETE WALL/BLOCK WALL / SLAB (WITH ANNULAR SPACE)**

**Max. Size of Opening:** 5” dia. In concrete wall.

**Penetration:** Up to 3” PVC pipe

**Annular space:** point contact min. 1/4” to max. 1-1/4”.

**Fire stop material:** ½” FS ONE MAX + Rock Wool min (64 kg/m3)

**Application:**

- Use the A shaped ladder to access the penetration.
- Use all safety equipment’s prior to claim on the ladder.
- Above 3 meter height use scaffolding to access the penetration. .
- Remove oil, dust & moisture in the opening. Clean the penetration with wet cloth or brush.
- 4 inch. Thickness of mineral wool min (64 kg/cu.m) tightly packed into the opening as a permanent form. Packing material to be recessed as required to accommodate the required thickness of fill material.
- Apply FS ONE MAX fire stop sealant, for a thickness of ½ inch. Within annulus, flush with both surfaces of wall assembly. At point contact apply a min. for ½” dia. bead of FS ONE MAX
- Smoothing of fire stop sealant: Excess sealant, prior to curing, can be done with water.

- Provide permanent labelling stickers with U.L/Engineering Judgment details for future maintenance reference by mentioning installer details, system number & date of installation
- Leave completed seal undisturbed for 48 hours.
- Check the installation after completion of work and raise the WIR.

**PVC/UPVC – Up to 4” PASSING THROUGH CONCRETE WALL/BLOCK WALL / SLAB (WITH ANNULAR SPACE)**

**Max. Size of Opening:** 6 inch dia. in concrete wall

**Penetration:** 4” PVC Pipe

**Annular space:** min. ¼” to max. 1”

**Fire stop material:** 6mm FS ONE MAX fire stop work sealant + 2 layer CP 648 E

**Application:**

- Use the A shaped ladder to access the penetration.
- Use all safety equipment’s prior to claim on the ladder.
- Above 3 meter height use scaffolding to access the penetration. .
- Remove oil, dust & moisture in the opening. Clean the penetration with wet cloth or brush.
- 2 layers of CP 648-E wrap for 4”pipe individually wrap around the pipe with ends butted &held in place with tape. Butted ends in successive layer shall be recessed max 1/4”to accommodate FS-ONE Intumescent sealant. Wrap strip butted tightly against both surface of the wall.
- Apply FS ONE MAX fire stop sealant, for a thickness of 6 mm. Within the annulus, both surfaces of wall.
- Smoothing of fire stop sealant: Excess sealant, prior to curing can be done with water to curing, and can be done with water.
- Provide PVC stickers with U.L/Engineering Judgment details for future maintenance reference by mentioning installer details, system number & date of installation
- Leave completed seal undisturbed for 48 hours.
- Check the installation after completion of work and raise the WIR.

**(PVC/CPVC/UPVC/ABS) up to 6” PASSING THROUGH CONCRETE WALL / BLOCK WALL / SLAB**

**Max. Size of Opening:** 7 inch dia. in concrete Wall

**Penetration:** PVC/CPVC/UPVC/ABS pipe 6”

**Annular space:** as per attached UL approval

**Fire stop material:** CP 648-E Warp + Retaining Collar + FS-One MAX fire stop work sealant.

**Application:**

- Use the A shaped ladder to access the penetration. .
- Use all safety equipment's prior to claim on the ladder.
- Above 3 meter height use scaffolding to access the penetration. .
- Remove oil, dust & moisture in the opening. Clean the penetration with wet cloth or brush.
- If there is any minor gaps or air gaps, apply FS-ONE MAX for a thickness of ¼” within the annulus and flush with both the surfaces of wall.
- Smoothing of fire stop sealant: Excess sealant, prior to curing, can be done with water.
- 3 Layers of CP 648 E wrap for 6” pipe individually wrap around the pipe with ends butted & held in place with tape. Butted ends in successive layer shall be offset. Wrap strip butted tightly against the both the surfaces of wall
- Wrap strip is to be secured to the pipe & both the surface of wall tightly wrapped with the retaining/steel collar by at least 1” overlap, retaining collar to be fixed by Hilti concrete nails.
- Securing of the collar may be accomplished with two metal screws screwed through the overlapping portion of the collar. The length of the metal screw shall not exceed the thickness of the wrap strip.
- Minor gaps if any after installing the wrap strip shall be sealed with FS ONE in tumescent sealant.
- Provide PVC stickers with U.L/Engineering Judgment details for future maintenance reference by mentioning installer details, system number & date of installation.
- Leave completed seal undisturbed for 48 hours.
- Check the installation after completion of work and raise the WIR.

**(PVC/CPVC/UPVC/ABS) up to 6” PASSING THROUGH SLAB (WITHOUT ANNULAR SPACE)**

**Max. Size of Opening:** 7-inch dia. in concrete Floor.

**Penetration:** PVC/CPVC/UPVC/ABS pipe, 2”, 4”, 6”

**Annular space:** as per attached UL approval

**Fire stop work material:** CP 648-E Warp + Retaining Collar + FS-One MAX fire stop sealant.

**Application:**

- Use the A shaped ladder to access the penetration.

- Use all safety equipment's prior to claim on the ladder.
- Above 3-meter height use scaffolding to access the penetration.
- Remove oil, dust & moisture in the opening. Clean the penetration with wet cloth or brush.
- If the pipe is insulated with rubber insulation / fiber glass insulation, insulation must be removed where it is passing through the Concrete Slab.
- If there is any minor gaps or air gaps, apply FS-ONE MAX for a thickness of ¼" within the annulus and flush with bottom surface of floor.
- Smoothing of fire stop sealant: Excess sealant, prior to curing, can be done with water.
- 1 layer of CP 648E wrap for upto3" pipe, 2 layers for 4" pipe and 3 Layers of CP 648 E wrap for 6"pipe individually wrap around the pipe with ends butted & held in place with tape. Butted ends in successive layer shall be offset. Wrap strip butted tightly against the bottom surface of floor.
- Wrap strip is to be secured to the pipe & surface of slab tightly wrapped with the retaining/steel collar by at least 1" overlap, retaining collar to be fixed by
- Hilti concrete nails.
- Securing of the collar may be accomplished with two metal screws screwed through the overlapping portion of the collar. The length of the metal screw shall not exceed the thickness of the wrap strip.
- Minor gaps if any after installing the wrap strip shall be sealed with FS ONE MAX in tumescent sealant.
- Provide PVC stickers with U.L/Engineering Judgment details for future maintenance reference by mentioning installer details, system number & date of installation.
- Leave completed seal undisturbed for 48 hours.
- Check the installation after completion of work and raise the WIR.

### **Fire Stop Work for PPR Pipe – Up to 6" Passing Through Concrete Wall / Block Wall / Slab**

**Max. Size of Opening:** 8-inch dia. in concrete wall

**Penetration:** Up to 6"

**Annular space:** min. 3/16" to max. 1"

**Fire stop material:** FS ONE MAX fire stop sealant + CP 648 E

**Application:**

- Use the A shaped ladder to access the penetration.

- Use all safety equipment's prior to claim on the ladder.
- Above 3-meter height use scaffolding to access the penetration.
- Remove oil, dust & moisture in the opening. Clean the penetration with wet cloth or brush.
- 1 layers of CP 648-E wrap for up to 3" pipe, 2 layer
- CP 648E for 4" pipe and 3 layer CP 648E wrap for 6" individually wrap around the pipe with ends butted & held in place with tape. Wrap strip slid into annular space and recessed from the both surface of wall to accommodate the required thickness of fill material.
- Apply FS ONE MAX fire stop sealant, for a thickness of ½". Within the annulus, flush with the both surfaces of wall.
- Smoothing of fire stop sealant: Excess sealant, prior to curing, can be done with water.
- Provide PVC stickers with U.L/Engineering Judgment details for future maintenance reference by mentioning installer details, system number & date of installation
- Leave completed seal undisturbed for 48 hours.
- Check the installation after completion of work and raise the WIR.

Note: If the Pipe is insulated and size of pipe increases more than 4", Insulation must be removed till wall thickness.

### **PPR PIPES up to 5" PASSING THROUGH CONCRETE SLAB - UL APPROVAL TO FOLLOW: C-AJ-2599**

**Max. Size of Opening:** 6-inch dia. in concrete Floor.

**Penetration:** PPR PIPE UPTO 5"

**Annular space:** 0 to max 1"

**Fire stop material:** CP 648-E Warp + Retaining Collar + FS-One MAX fire stop sealant.

#### **Application of fire stop work:**

- Use the A shaped ladder to access the penetration.
- Use all safety equipment's prior to claim on the ladder.
- Above 3-meter height use scaffolding to access the penetration.
- Remove oil, dust & moisture in the opening. Clean the penetration with wet cloth or brush.
- If there is any minor gaps or air gaps, apply FS-ONE MAX for a thickness of 1" within the annulus and flush with bottom surface of floor.
- Smoothing of fire stop sealant: Excess sealant, prior to curing, can be done with water.



- 3 Layers of CP 648 E wrap for 5' pipe individually wrap around the pipe with ends butted & held in place with tape. Butted ends in successive layer shall be offset. Wrap strip butted tightly against the bottom surface of floor.
- Wrap strip is to be secured to the pipe & surface of slab tightly wrapped with the retaining/steel collar slab tightly wrapped with the retaining/steel collar by at least 1" overlap, retaining collar to be fixed by Hilti concrete nails.
- Securing of the collar may be accomplished with two metal screws screwed through the overlapping portion of the collar. The length of the metal screw shall not exceed the thickness of the wrap strip.
- Minor gaps if any after installing the wrap strip shall be sealed with FS ONE MAX intumescent sealant.
- Provide PVC stickers with U.L./Engineering Judgment details for future maintenance reference by mentioning installer details, system number & date of installation
- Leave completed seal undisturbed for 48 hours
- Check the installation after completion of work and raise the WIR.

Note: If the Pipe is insulated and size of pipe increases more than 4", Insulation must be removed till wall thickness.

### **CHILLED WATER PIPE (INSULATED PPR PIPE) Up to 2" PPR Pipe + 1-1/2" FIBER GLASS INSULATION PASSING THROUGH CONCRETE WALL / BLOCK WALL / SLAB (WITH ANNULAR SPACE)**

**Max. Size of Opening:** 7" dia. in concrete wall/slab

**Penetration:** up to 2" PPR pipe + 1-1/2" Fiber Glass insulation

**Annular space:** min. 3/8" to max 1-1/8"

**Fire stop work material:** CP 648E wrap + FS one max

**Application:**

- Use the A shaped ladder to access the penetration.
- Use all safety equipment's prior to claim on the ladder.
- Above 3-meter height use scaffolding to access the penetration.
- Remove oil, dust & moisture in the opening. Clean the penetration with wet cloth or brush.
- Apply 2 layers of CP 648E wrap individually wrap around the pipe with ends butted & held in place with tape. Wrap strip slid into annular space and recessed from both surfaces of wall and bottom surface of the floor to accommodate the required thickness of fill material.

- Apply FS ONE MAX fire stop sealant, for a thickness of ½” Within the annulus, flush with the both surfaces of wall and top surface of floor.
- Smoothing of fire stop sealant: Excess sealant, prior to curing, can be done with water.
- Provide PVC stickers with U.L/Engineering Judgment details for future maintenance reference by mentioning installer details, system number & date of installation
- Leave completed seal undisturbed for 48 hours.
- Check the installation after completion of work and raise the WIR.

### **INSULATED COPPER / STEEL PIPE (RUBBER INSULATION) – UPTO 5” PASSING THROUGH CONCRETE WALL / BLOCK WALL / SLAB (WITH ANNULAR SPACE)**

**Max. Size of Opening:** 7” dia. In concrete wall/slab.

**Penetration:** Up to 4” Steel/Copper pipe + ¾” Insulation

**Annular space:** point contact min. 1/4” to max. 1-1/4”.

**Fire stop material:** FS ONE MAX + Rock Wool min (64 kg/m<sup>3</sup>)

**Application:**

- Use the A shaped ladder to access the penetration.
- Use all safety equipment’s prior to claim on the ladder.
- Above 3-meter height use scaffolding to access the penetration.
- Remove oil, dust & moisture in the opening. Clean the penetration with wet cloth or brush.
- 4 inch. Thickness of mineral wool min (64 kg/cu.m) tightly packed into the opening as a permanent form. Packing material to be recessed as required to accommodate the required thickness of fill material from both the surface of wall and top surface of slab.
- Apply FS ONE MAX fire stop sealant, for a thickness of ¼ inch. Within annulus, flush with both surfaces of wall assembly or top surface of floor assembly. When annular space max exceeds 1-1/2 in. (38 mm) the min thickness of fill material FS ONE Max is ½ in. (13 mm).
- Smoothing of fire stop sealant: Excess sealant, prior to curing, can be done with water.
- Provide permanent labelling stickers with
- U.L/Engineering Judgment details for future maintenance reference by mentioning installer details, system number & date of installation
- Leave completed seal undisturbed for 48 hours.

- Check the installation after completion of work and raise the WIR.

## **CABLE TRAY PASSING THROUGH CONCRETE WALL / BLOCK WALL**

**Max. Size of Opening:** 1024 sq. inch in Concrete wall

**Penetration:** Width of 24” by height of 4” steel cable tray (Electrical Service)

**Annular space:** min.1”

**Fire stop work material:** CP 636 Fire stop Mortar

**Application:**

- Use the A shaped ladder to access the penetration.
- Use all safety equipment’s prior to claim on the ladder.
- Above 3-meter height use scaffolding to access the penetration.
- Remove oil, dust & moisture in the opening. Clean the penetration with wet cloth or brush.
- Mix the fire stop mortar: Add mortar to water in a ratio 2.5:1 (2.5 parts of mortar to1 part of water).
- Install a rigid board material to support Hilti CP 636 Fire stop mortar.
- Apply the CP636 Fire stop mortar with minimum 2.5” depth from only one side. Make sure all gaps and spaces are completely filled and closed.
- Smoothing of fire stop sealant: Excess sealant, prior to curing, can be done with Trowel.
- Provide permanent labelling stickers with U.L/Engineering Judgment details for future maintenance reference by mentioning installer details, system number & date of installation
- Leave completed seal undisturbed for 48 hours.
- Check the installation after completion of work and raise the WIR.

## **CABLE TRAY PASSING THROUGH CONCRETE SLAB**

**Max. Size of Opening:** 1024 sq. inch in Concrete wall

**Penetration:** Width of 24” by height of 2” steel cable tray (Electrical Service)

**Annular space:** min.1”

**Fire stop material:** CP 636 Fire stop Mortar + FS one max

**Application:** Use the A shaped ladder to access the penetration.

- Use all safety equipment’s prior to claim on the ladder.
- Above 3-meter height use scaffolding to access the penetration.

- Remove oil, dust & moisture in the opening. Clean the penetration with wet cloth or brush.
- Mix the fire stop mortar: Add mortar to water in a ratio 2.5:1 (2.5 parts of mortar to 1 part of water).
- Install sheet metal cover plate min (18GA) attached with appropriate Hilti anchors with 1" overlapping concrete floor assembly
- Apply the CP636 Fire stop mortar with minimum 5" depth from only top surface of floor poured into the opening with 4" inch thick mineral wool around the electrical services to accommodate the thickness of fill material.
- Apply a minimum depth of 1" FS one max around the electrical services.
- Smoothing of fire stop sealant: Excess sealant, prior to curing, can be done with Trowel.
- Provide permanent labelling stickers with U L/Engineering Judgment details for future maintenance reference by mentioning installer details, system number & date of installation
- Leave completed seal undisturbed for 48 hours.
- Check the installation after completion of work and raise the WIR.

## **METAL DUCT WITH FIRE DAMPER PASSING THROUGH CONCRETE WALL / BLOCK WALL**

**Max. Size of Opening:** 67" x 52" in Concrete wall

**Penetration:** Nominal 65" x 50" Metal Duct with UL classified fire damper (or smaller)

**Annular space:** min 1/8" (Point Contact) to max. 3-7/8".

**Fire stop material:** CP 606 Fire stop Sealant

### **Application:**

- Use the A shaped ladder to access the penetration.
- Use all safety equipment's prior to claim on the ladder.
- Remove oil, dust & moisture in the opening. Clean the penetration with wet cloth or brush.
- Steel angles as required by the damper manufacturer to completely cover annular space (steel angles will be provided by MEP CONTRACTOR).
- Minimum 1/2" bead Hilti CP 606 flexible fire stop sealant applied at interface angle.
- Smoothing of fire stop sealant: Excess sealant, prior to curing, can be done with water.

- Provide permanent labelling stickers with U.L/Engineering Judgment details for future maintenance reference by mentioning installer details, system number & date of installation
- Leave completed seal undisturbed for 48 hours.
- Check the installation after completion of work and raise the WIR.

## **METAL DUCT WITHOUT FIRE DAMPER PASSING THROUGH CONCRETE WALL / BLOCK WALL**

**Max. Size of Opening:** 102" X 102" in Concrete wall

**Penetration:** Nominal 100" X 100" Metal Duct without Damper

**Annular space:** min 0 (Point Contact) to max. 2".

**Fire stop material:** CP 606 / FS ONE MAX + Rockwool (64kg/m<sup>3</sup>)

### **Application:**

- Use the A shaped ladder to access the penetration.
- Use all safety equipment's prior to claim on the ladder.
- Remove oil, dust & moisture in the opening. Clean the penetration with wet cloth or brush.
- 3-3/4" in. thickness of mineral wool min (64 kg/cu.m) tightly packed into the opening as a permanent form. Packing material to be recessed as required to accommodate the required thickness of fill material.
- Apply FSONE MAX fire stop sealant, for a thickness of 5/8 "inch. Within annulus, flush with both surfaces of wall assembly. At point contact apply a min. for 1/4 "inch dia. bead of FS ONE MAX.at pipe/ wall interface at point of contact.
- Smoothing of fire stop sealant: Excess sealant, prior to curing, can be done with water.
- Provide PVC stickers with U.L/Engineering Judgment details for future maintenance reference by mentioning installer details, system number & date of installation
- Leave completed seal undisturbed for 48 hours.
- Check the installation after completion of work and raise the WIR.

Note: If the dimension of duct increases by 24" X 24", steel angles around the duct needs to be installed by the MEP contractor

## **FIBER GLASS INSULATED METAL DUCT WITHOUT FIRE DAMPER PASSING THROUGH CONCRETE WALL / BLOCK WALL**

**Max. Size of Opening:** 26" X 13" in Concrete wall

**Penetration:** Nominal 24" X 12" Insulated Metal Duct without Damper

**Annular space:** min 1” to max. 1-3/4””.

**Fire stop material:** FS ONE MAX + Rockwool (64kg/m<sup>3</sup>)

**Application:**

- Use the A shaped ladder to access the penetration.
- Use all safety equipment’s prior to claim on the ladder.
- Remove oil, dust & moisture in the opening. Clean the penetration with wet cloth or brush.
- 3-3/4” in. thickness of mineral wool min (64 kg/cu. m) tightly packed into the opening as a permanent form. Packing material to be recessed as required to accommodate the required thickness of fill material.
- Apply FSONE MAX fire stop sealant, for a thickness of 5/8 “inch or 1-1/4” for 1 hr. and 2 hr. fire rated wall respectively. Within annulus, flush with both surfaces of wall assembly. If void develops after the fill material cures, the void shall be filled with additional FS one max sealant.
- Smoothing of fire stop sealant: Excess sealant, prior to curing, can be done with water.
- Provide PVC stickers with U.L/Engineering Judgment details for future maintenance reference by mentioning installer details, system number & date of installation
- Leave completed seal undisturbed for 48 hours.
- Check the installation after completion of work and raise the WIR.