



Circular Memo on "Improvement of passive firestopping"

Closing Remarks for federal Industry workshop on Improvement of Firestopping

Held at Dubai on 17th November 2022

Gen Command of Civil Defence would like to thank all the industry experts for participating and for bringing their expertise and experience around and engaging in such fruitful, constructive, and open exchanges throughout the workshop.

Special thanks to Abu Dhabi Civil Defence Authority and Dubai Civil Defence for their valuable contribution.

This circular is in reference to the "Federal Industry Workshop on Improvement of Firestopping" organized by IFC in association with Gen. Command of Civil Defence, held at Dubai on 17th November 2022.

The goal of the workshop was to discuss on possible ways to improve and raise the bar of the current firestopping cycle when it comes to design, approvals, Engineering Judgments, installation, and inspection cycle.

The following are the Key Points raised/discussed during the workshop with all stakeholders' representatives:

- Challenges on adherence to UAE Fire and life safety code of practice.
- The firestopping supplier/installer is appointed by contractors which becomes late for knowledge sharing between firestopping suppliers and the developer that results in unnecessary non-compliance reports delaying project completion.
- Firestopping should be part of early design and shop drawing stage to avoid several issues specially many services passing through the same opening that lacks system testing.
- Installation quality is affected due to lack of enforcement on installer qualification as per code and also the capacity of installer to handle multiple projects.
- Inspection remains a key problem solver for an effective firestopping. Enforcement on Inspector qualification as per UAE fire and life safety code will improve the quality of installed firestopping.
- BOQ is the missing link, there is no real site BOQ due to lack of coordination and missing details of penetrations at early stages of project and many other reasons. Solving BOQ topic can solve many firestopping issues.
- Delinking commercially of main consultant and house of expertise from contractors.
- Engineering Judgments (EJs) are misunderstood and misused, focus should be on reduction of EJs and defining the responsibility of approval of EJs in case they are required. Report on tested systems Vs EJs should be part of final submission.
- There is a need of robust program to control quality of EJs.

In response to the discussion held during the workshop, General Command of Civil Defense would like to state that the following points



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and processes from **UAE Fire & Life Safety Code** shall be fully adhered at all times

COMPLIANCE TO UAE FIRE AND LIFE SAFETY CODE OF PRACTICE

Table 18.3: Consultant's Responsibility Page 1175 of 1348

10. CODE COMPLIANCE	<ul style="list-style-type: none">i. The overall code compliance of a project is complete responsibility of the consultant, in coordination with owner and contractors.ii. Approval from Civil Defence for any project drawings is based on minimum requirements and it does not relieve consultant from his responsibility to verify and explore additional code compliance requirements from latest edition of UAE Fire and Life Safety Code of Practice and The International Codes and Standards referred within.iii. It is consultant's responsibility not to "Over Design" Fire and Life Safety aspects in a project, which unnecessarily increases project costs to the owner. Similarly it is consultant's responsibility to be cautious when adopting "Value Engineering/Cost Effective" approaches which could be non-complaint to code requirements. A careful in-depth analysis of Code requirements in the initial planning stage will save consultant valuable time and money.
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Table 18.4: Contractor's Responsibility Page 1180 of 1348

8. CODE COMPLIANCE	<ul style="list-style-type: none">i. Civil Defence approved drawings from consultants do not relieve contractors from adhering to detailed installation requirements in accordance with latest edition of UAE Fire and Life Safety Code of practice and the International Codes and Standards referred within.ii. It is contractors responsibility to comply with complete installation guidelines from manufacturers along with full compliance of installation guidelines from UAE Fire and Life Safety Code of Practice.iii. During maintenance, it is contractor's responsibility to highlight to the owner, any non compliances existing in the systems for owner's action and decisions to rectify.
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DESIGN AND APPROVALS

3.4. Design, Installation, Inspection and Maintenance Page 131 of 1348



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3.4.1. Design, planning and preparation

- a. Design, material selection, scheduling, approved contractor selection etc. shall be Consultant's responsibility. **It is consultant's responsibility to recruit Firestopping specialists qualified as per Section 3.6.8., either in-house or hire Civil Defence approved House of expertise having Firestopping Specialists to design, supervise contractors and perform progressive inspections.**

3.4.2. Product systems and Submittal

- a. All the products, as part of the system, shall bear design listing and approval label to conform to the construction type, penetrant type, annular space, joint gap and fire rating requirements of each separate assembly.
- b. Product manufacturer/supplier shall provide a formal submittal consisting of system design listing or test certifications, including illustrations, from an accredited testing laboratory as per referenced standards that is applicable to each system configuration.
- c. **Engineering Judgment (EJ) – Where there is no specific tested and listed firestop system available for a particular configuration, the manufacturer shall provide a site-specific EJ, along with Consultant and Firestop system contractor's stamp and acceptance.**
- d. Method Statement shall clearly define the manufacturer's installation instructions.
- e. Statement of manufacturers or installer's standard warranty for minimum of 10 years.
- f. Manufacturers shall submit an undertaking letter in understanding with Civil Defence that supplying any material that is non compliant to this code is illegal and punishable.
- g. **It is main consultant's responsibility to verify all the above.**

1.2.16. Engineering Judgments (EJ's)

An evaluation of the field conditions which do not conform to or deviate from an existing tested and listed assemblies. Engineering Judgment (EJ) shall be issued essentially by the original testing laboratory/Certification body that listed the system or registered Fire Consultant, Fire Protection Engineer, or an independent certification agency that provides certification services for such systems.

EJ's are not to be used as a substitute for a classified system if it exists. EJ's, when considered, shall be approved by Civil Defence. Consultant.

3.3.1. For all types of firestop systems, only tested and Civil Defence listed systems shall be used as per tests required by **Section 7.**

INSTALLATION

3.5. Installation, Identification & Labeling Page 132 of 1348

3.5.1. Installation



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Installer shall strictly follow certified listed system including illustrations, installation drawings therein and manufacturer's installation instructions.

3.5.2. Identification & Labeling

- a. Identify installed firestop systems with pressure-sensitive, self-adhesive, preprinted vinyl labels. Attach labels permanently to surfaces of penetrated construction on both sides of firestop system where labels will be visible to anyone seeking to remove penetrating items or firestop systems.
- b. The labels shall include the following information:
 - I. The words "**Warning – Through-Penetration Firestop System – Do Not Disturb. Notify Building Management of Any Damage**".
 - II. Firestop product name with system listing number.
 - III. Name and address of Manufacturer, Installer and Consultant/House of Expertise.
 - IV. Installation date.
- c. Labels and markings may be omitted if they would be visible in a finished area. Such labels and tags shall be available with facility management with the written authorization of the Civil Defence.

3.5.3. Installer qualification

- a. Installing contractors shall have Civil Defence listing and approval based on any of the following certifications.
 - i. FM certification on Class 4991 approval for firestop contractors.
 - ii. UL certification for qualified firestop contractor.
 - ~~iii. IFC (International Firestop Council) Firestop expert exam certificate.~~
- b. The installer shall be tested with written examination and licensed by Civil Defence. The Civil Defence license is based on qualification as per **section 3.5.3.a.** and the training and certification by the firestop manufacturer to install manufacturer's products as per specified listed system requirements.

INSPECTION

- **Inspector qualification and firestopping specialist qualification from UAE Fire & Life Safety code shall be strictly adhered**

3.6.7. Inspector Qualification Page 134 of 1348

- a. Inspections shall be consultant's responsibility and ensure that contractor work is inspected through in-house Firestopping specialists or shall hire the services of Civil Defence approved House of Expertise.
- b. It is consultant's responsibility to recruit in-house qualified Firestopping specialists for design as well as inspection or to hire services of Civil Defence approved house of expertise, having registered Firestopping specialists..



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- c. Consultant or house of expertise, who inspect the installation, shall certify and sign off the Firestopping installation inspections undertaken during progressive inspections at each successive stage of installations in report, which shall be part of the documentation required by Civil Defence during final inspection and handing over.
- d. Main Consultant or Civil Defence approved house of expertise undertaking Firestopping inspections, shall have the following qualifications.

- i. Accreditation to ISO/IEC 17020 or IAS AC 291 criteria or any other international accreditation acceptable to Civil Defence and Municipality.
- ii. 2 Engineers, qualified in accordance with **Section 3.6.8.**
- iii. Training and Certification by system manufacturers.
- iv. 3 years experience in Firestopping inspections.

3.6.8. Firestopping Specialist Qualification Page 134 of 1348

- a. Fire stopping specialists of consultant's in-house team or Civil Defence approved house of expertise undertaking Firestopping design, consultancy or inspection shall have the following qualifications.
 - i. Bachelor's degree in engineering.
 - ii. Certifications from any of the following.
 - ~~ii.1. FM Firestop exams certification.~~
 - ~~ii.2. UL/ULC Firestop exams certification.~~
 - ii.3. Intertek's IQP program certification
 - ii.4. IFC (International Firestop Council) Firestop Expert exam certificate.
 - iii. 5 years experience in Firestopping systems' design and inspection.
 - iv. Training and Certification by system manufacturers.
- b. The Firestopping specialists of consultant's in-house team or of Civil Defence approved house of expertise, undertaking Firestopping design, consultancy or inspection shall be certified and licensed by Civil Defence, based on their qualifications as required by **Section 3.6.8.a.** and written examination.



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HANDOVER

Table 18.4: Contractor's Responsibility Page 1180 of 1348

10. FINAL SIGN OFF	<ol style="list-style-type: none">Contractor shall sign off final handing over documents to the consultant, undertaking that all the Fire and Life Safety aspect of the building are as per approved drawings, approved material and product specifications and are in full compliance with UAE Fire and Life Safety Code of Practice.It is contractor's responsibility to sign off and handover "Installation Certificates" to the consultant, when installation is the contractual agreement.It is contractor's responsibility to sign off and handover "Maintenance Certificate" to the owner, when maintenance is the contractual agreement.This signed undertaking conformity from contractor shall be submitted to Civil Defence along with final inspection, testing, warranty documents and handing over documents for Civil Defence NOC to occupy the building.
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11. FINAL SIGN OFF	<ol style="list-style-type: none">Consultant shall sign off final handing over documents to the owner, undertaking that all the Fire and Life Safety aspect of the building are as per approved drawings and are in full compliance with UAE Fire and Life Safety Code of Practice.This signed undertaking conformity from consultant shall be submitted to Civil Defence along with final inspection, testing and handing over documents for Civil Defence completion certificate to occupy the building.
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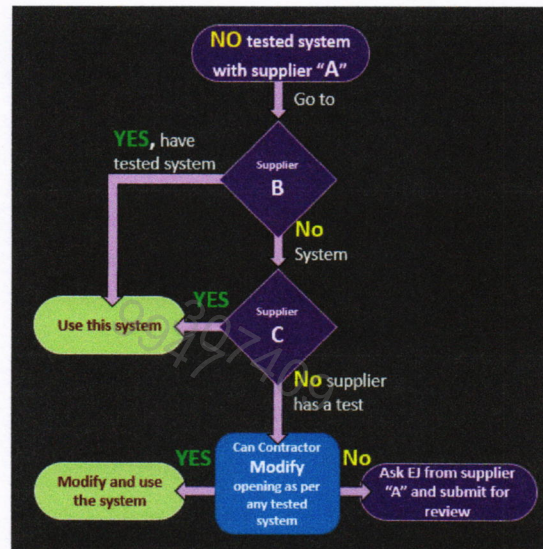
MUST FOLLOW PRACTICE

- Either in-house fire specialist consultant qualified as per the requirements of the UAE fire code (Table 18.3 – point 1 – Page 1172) or Civil Defence approved House of expertise having Firestopping Specialists qualified as per the requirements of the UAE fire code (Table 18.6 – point 1 – Page 1187) should be engaged at initial stages of the firestopping activity in the project to design, supervise contractors, and perform progressive inspections on installers.
- It is **ONLY** the Owner or Consultant's responsibility to recruit a qualified in-house firestopping specialists or to hire an approved House of expertise. *Contractors are not allowed to hire house of expertise as it will be considered as conflict of interest.* – Refer to section 1.2.8. – Page 1162 of 1348
- Prior to selection of firestopping material, it is the contractor's responsibility to prepare a real site **Bill of Quantity (BOQ)** for all project's applications (Construction joints / Through penetrations) to include all necessary information on penetrants (size, material, and service type) and openings size along with corresponding tested systems / EJs. This shall be submitted to the consultant for verification and approval.

NO LUMP SUM OFFERS TO BE ACCEPTED / APPROVED. please refer to attached sample BOQ format.

- Contractors shall provide an undertaking letter to the consultants as part of firestopping BOQ submittal, stating that the BOQ is project specific. Consultants shall approve firestopping supplier based on real site BOQ with approved listed systems.
- In absence of a tested system contractors shall ensure that multiple suppliers are checked for a tested system before asking for an EJ from a manufacturer. To prevent EJs, adhere to the process outlined below:

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- Contractor must provide an undertaking letter to consultants with every EJ stating that several manufacturers were contacted for the listed system before raising the EJ request.
- Multiple firestopping supplier can be used on a project to avoid EJs, however Materials from different manufacturers shall not be installed in the same firestop system or opening.
- The EJ provided from manufacturer shall be combined with a justification letter explaining the logic and references behind creation of proposed EJ. As per UAE Fire & Life Safety code It is the responsibility of Consultant or House of Expertise to approve/reject EJs. Consultants or House of Expertise shall reject all EJs without a justification letter.
- Upon appointment of installer, an updated qualification documents as per UAE FLS requirements shall be submitted to consultant for verification to ensure quality of installer / installation (refer to section no. 3.5.3 – UAE FLS)
- Final handover report and submission to Civil Defence shall contain the following:
 - Percentage / quantification of tested systems Vs EJs used in full project.
 - Firestopping material comparison between "Initial estimated real-site BOQ quantities" Vs "final supply certificate of procured quantities".
 - A Progress inspection shall be conducted by qualified firestop inspectors from the consultant / HOE and to be recorded, documented, and carried in accordance with firestopping installation progress percentage at 20%, 40%, 60%, 80% and 100%. All inspection reports to be included and submitted along with the final Handover submission.
- Civil Defence inspection to be carried two times within project cycle, once randomly /spot inspection at the Mid-stage of progress, and once at the final handover.

Fire and life safety is top priority for Gen. Command of Civil Defence. We Promote and support risk reduction through effective education, implementation, and enforcement of UAE Fire & Life safety code.

We urge all stakeholders to strictly adhere to the requirements above to ensure better fire and life safety for individuals and properties.